Draft

ENVIRONMENTAL IMPACT REPORT

For The

Stringtown Mountain Specific Plan

Butte County, California

SCH# 93013067

August, 1993

QUAD

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Preface

PREFACE

This Environmental Impact Report (EIR) has been prepared under the auspices of the County of Butte to analyze the potential effects of adopting and implementing a Specific Plan, referred to throughout this report as the *Stringtown Mountain Specific Plan*, for an area located southeast of Lake Oroville, approximately six (6) miles east of the City of Oroville. The EIR conforms to the requirements of the California Environmental Quality Act of 1970 (CEQA), as amended, and the State CEQA *Guidelines*, as well as to the administrative procedures established by the County of Butte for the preparation and processing of EIRs. In accordance with Sections 15050 and 15367 of the *Guidelines*, the County of Butte is designated as the lead agency for this EIR.

An EIR is an informational document to provide the general public and appropriate governmental decision-makers with a full understanding of the potential environmental effects of a proposed project. The EIR process is intended to enable public agencies to evaluate a project for determination of the significance of its effect(s) on the environment, to examine and institute methods of reducing and/or eliminating the severity of adverse impacts, and to consider alternatives to the project as proposed. CEQA requires that major consideration be given to preventing environmental damage. At the same time, it is recognized in CEQA that public agencies have obligations to balance other public objectives, including economic and social factors, in determining whether and how a project should be approved.

QUAD Consultants, a professional planning firm with offices in Sacramento, Visalia, Bakersfield and Fresno, California, prepared this EIR.

Summary of EIR/ Mitigation Monitoring and Reporting Program

SUMMARY OF DRAFT EIR

PROJECT DESCRIPTION

The proposed project includes the amendment of the *Oroville Area Land Use Plan of the Butte County General Plan*, subsequent rezoning and adoption of a Specific Plan to allow the residential, recreational and commercial development of a 171.4 acre site located on the northeast side of the intersection of State Highway 162 (Oroville-Quincy Highway) and Forbestown Road, approximately six miles east of the City of Oroville.

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 the table that follows, *Summary of Potential Impacts and Proposed Mitigation Measures.*

POTENTIAL AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

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

- Growth inducing impacts
- Extension of public services
- Loss of deer habitat

ALTERNATIVES TO THE PROJECT

Section 15126(d) of the *CEQA Guidelines* requires the EIR to describe a reasonable range of alternatives to the project or to the location of the project which could feasibly accomplish the basic objectives of the project, and to evaluate the comparative merits of the alternatives. The impacts of the proposed project which have been identified as significant, after mitigation, include growth-inducing impacts and cumulative air quality impacts. Accordingly, alternatives which would reduce or avoid these impacts represent an environmentally superior alternative to the proposed project. However, if the environmentally superior alternative is the "no project" alternative, the EIR must also identify an environmentally superior alternative among the other alternatives.

The EIR evaluates the following alternatives:

- No project/no development of the site
- Full buildout of the site in accordance with the existing General Plan designation and zoning
- Clustered development of the site
- Residential use of the site at a lower density than proposed
- Development of the proposed project at an alternate location within the Oroville Planning Area

A detailed evaluation of these alternatives is included in Chapter Four. These alternatives and associated impacts are summarized as follows:

No Project Alternative consists of maintaining the existing land use designation, zoning and land use on the site. Under this alternative the land would remain in open space, offering greater protection for the site's vegetation and habitat, no increases in traffic from the project would result, and the extension of public services (sewer and water) would not be required. Other impacts related to geology/seismicity, soils, hydrology, light and glare/aesthetics, or natural resources/energy would not occur, except as may result from use of the land as open space.

Full Buildout Alternative would provide for full buildout of the existing 12 parcels comprising the site, plus an additional 7 parcels that could be created under the present zoning and General Plan designation. This alternative would have reduced impacts related to earthquakes and soil hazards, air quality, hydrology, noise, traffic, public services and utilities, and would not have a growth-inducing impact. However, development of individual residences without an overall development plan and policies, a community sewer and water system, and lacking common open space areas, would represent greater potential impacts on groundwater use, biological resources, aesthetics, and cultural resources.

Clustered Development Alternative provides the greatest opportunity to reduce or avoid identified significant impacts. Clustered single family residential development in the southwesterly portion of the site will achieve the greatest protection of open space and wildlife habitat, especially deer winter range. Impacts related to hydrology, soils, cultural resources and aesthetics will be avoided, and impacts related to air quality, noise, onsite traffic and onsite sewer and water service will be reduced to a limited extent. Impacts associated with police and fire protection, offsite traffic and circulation, schools and growth-inducing impacts would not represent an improvement over the proposed project.

Lower Density Residential Use Alternative assumes a conventional subdivision with a maximum of 30 residential units in five acre parcels; the proposed resort complex, wellness center and park would remain, but common open space areas would be eliminated. Traffic, noise, earthquake hazards, cumulative air quality and public services impacts would be proportionately reduced, and growth-inducing impacts would be reduced due to use of individual wells and septic systems, rather than extension of sewer and water systems. However, impacts associated with the loss of common open space and preservation of biological resources, aesthetics, cultural resources and increased groundwater withdrawals, if adequate groundwater is available, would remain.

Alternative Site would assume development of the same project on an alternative site east of Oroville, between Oroville and the proposed project site, in an area already designated for Low Density Residential. This alternative would avoid some impacts of the proposed project, but has the potential to increase other impacts, depending upon the specific location selected. Impacts related to earthquake hazards and cultural resources would remain essentially the same, while impacts related to air quality, noise, and public services may be reduced. Impacts related to soils, hydrology, noise, traffic and aesthetics may be reduced or increased, depending on the location and characteristics of the site selected. Impacts on biological resources may be similar, except that impacts on deer herds would be avoided. Although the onsite population would be the same, growth-inducing impacts would be reduced because sewer and water lines would not need to be extended the same distance as for the proposed project.

A detailed evaluation of these alternatives is included in Chapter Four. These alternatives and associated impacts are summarized on the Summary Table which follows this page:

TABLE
SUMMARY OF POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES
MITIGATION MONITORING PROGRAM

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.1-1	Exposure of people and property to earthquakes	3.1-1	Construction of structures to UBC standards for Zone 4; performance of geological/geotechnical analysis for all sites prior to construction.	Less than significant.	Required as condition of approval for use permit/subdivision by Department of Development Services. Review and inspection and monitoring by the Building Division.
3.1-2	Exposure of people and property to seismic, geologic or volcanic hazards; loss of mineral resources.		None required.	Less than significant.	None required.
3.1-3	Exposure of people and property to soil hazards.	3.1-2	Conformance with Chapter 70 and other UBC provisions; detailed site-specific geotechnical investigations; protection of soils from runoff; correct design of slopes; lining of drainage facilities; shoring/sloping of trench walls; conformance with NPDES, Storm Drain Standards & Butte County Standards; channeling of rainfall into collection system; collection systems for parking lots, roads & buildings.	Less than significant.	Adoption of Specific Plan; enforcement of UBC standards by Building Division; conditions of approval for subdivision maps enforced by Public Works Department; review of maps and building permits for compliance by Department of Development Services.
3.1-4	Interception of Miners Ranch Tunnel.	3.1-3	Posting of permanent metal warning signs along tunnel easement.	Less than significant.	Condition of subdivision map approval for sign installation and coordination with District; monitoring by Oroville Wyandotte Irrigation District.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.2-1	Increase in stormwater runoff and alteration of drainage patterns.	3.2-1	Installation of onsite drainage facilities.	Less than significant.	Condition of subdivision map approval; approval of drainage plans by Public Works Department prior to final map approval.
3.2-2	Potential for erosion due to increased runoff.	3.2-1	Same as above.	Less than significant.	Same as above.
3.2-3	Degradation of surface water quality.	3.2-1	Same as above.	Less than significant.	Same as above.
3.2-4	Degradation of groundwater quality.	3.2-2	Proper capping and sealing of onsite wells per County standards.	Less than significant.	Condition of subdivision map approval; monitoring by Environmental Health Department.
3.3-1	Increased emission of pollutants that contribute to exceedance of State standards in the Air Basin.	3.3-1	Provision of shuttle service for resort guests.	Cumulatively significant.	Required as condition of approval; service to be commenced upon occupancy of resort complex; monitoring by BCAPCD.
		3.3-2	Preparation of feasibility report/consider funding day care facility for residents.		Preparation of report by applicant; submittal to Department of Development Services and BCAPCD; followup by BCAPCD.
		3.3-3	Reservation of adequate area for and subsequent construction of, a bus turnout and shelter.		Reservation of area at time of tentative map(s)/use permit approval; construction at the time bus service is available; compliance monitored by Transit system.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.3-1 (cont)		3.3-4	Installation of dedicated pedestrian/bicycle pathways in internal street design linking residential, commercial and recreational areas. Require Class II bikepaths in streets. Preferential location of bicycle parking. Provision of bicycles for guests.		Modification of Specific Plan to include provisions for Class II bikepaths, installation of bikepaths and bicycle parking areas, and provision of bicycles required as conditions of subdivision map approval, monitored by Public Works Department; provision of bicycles monitored by BCAPCD.
3.3-2	Increased ozone levels during construction due to emissions from heavy equipment operation; increased particulate emissions from grading and construction activities.	3.3-5	Maintenance of diesel equipment in good operating condition, properly tuned and fitted with appropriate equipment.	Cumulatively significant (equipment emissions).	Submittal of vehicle inspection documentation to BCAPCD; compliance monitored by BCAPCD.
		3.3-6	Preparation and submittal of dust suppression plan to BCAPCD, including increase in watering frequency.	Less than significant (dust emissions).	Review and approval by BCAPCD prior to issuance of grading/ construction permits. Inspection and monitoring by BCAPCD.
3.3-3	Emissions from wood-burning appliances.	3.3-7	Provision of information to residents on proper use of appliances.	Cumulatively significant.	Building inspections by Building Division, inclusion in CC&Rs monitored by Department of Development Services; ongoing monitoring by BCAPCD.
3.4-1	Loss of deer winter range habitat due to development.	3.4-1	Redesign of project to eliminate easterly 60 acres of winter deer range; clustering of residences; or payment of habitat enhancement/replacement fee.	Less than significant.	Redesign of Specific Plan prior to final approval; monitoring by Department of Development Services; or payment of fees to County or CDFG at map approval and building permit issuance; study funded by applicant, coordinated with CDFG and Department of Development Services.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.4-1 (cont.)		3.4-2	Payment of fees in #3.4-1 for 46 acres redesignated DDZ.		See #3.4-1.
3.4-2	Restriction on wildlife movement due to development.	3.4-3	Maintenance of 50' buffer from waterways in natural condition; extension of 100' southerly open space corridor (unless easterly 60 acres left in open space).	Less than significant	Modification of Specific Plan prior to adoption; corridors required as condition of subdivision map(s)/use permit approval; monitoring by Department of Development services and CDFG.
		3.4-4	Compliance of fencing with CDFG and Butte County standards; inclusion of standards in CC&Rs.		Fencing standards included in conditions of approval for subdivision map(s)/use permit; monitoring by Department of Development Services, CDFG and homeowners association.
3.4-3	Increased sediment loads to onsite drainage, impacting water quality and wildlife habitat.	3.1-2	Same as above.	Less than significant.	Same as above.
		3.2-1	Same as above.		Same as above.
		3.4-5	Retention of runoff in onsite containment ponds and landscape areas; compliance with NPDES requirements; removal of soluble suspended and surface pollutants as well as sediments.		Design submitted to, and compliance monitored by Public Works Department; inspections by Public Works Department; implementation of NPDES standards by RWQCB/Public Works Department; discharge standards monitored by RWQCB/County Environmental Health Department.
3.4-4	Potential threat to wildlife by domestic dogs.	3.4-6	Control of domestic dogs through enclosures or leashing; inclusion in CC&Rs.	Less than significant.	Condition of approval of subdivision map(s)/use permit; monitoring by CDFG and homeowners association.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.4-5	Conflicts/harm to deer and wildlife due to increased traffic, noise, light, hunting and toxic materials.	3.4-7	Clearance of low, woody vegetation along roadways near wildlife movement corridors.	Less than significant.	Implementation by property owners or homeowners association; monitoring by CDFG.
		3.4-8	Prohibition of hunting; posting of no hunting sings.		Prohibition on hunting included in CC&Rs; posting by homeowners and homeowners association; monitoring by homeowners association and CDFG.
		3.4-9	Use and storage of toxic materials in accordance with laws and regulations; monitoring and reporting by homeowners association.		Inclusion of provisions in homeowners association bylaws; compliance reviewed by Department of Development Services.
3.4-6	Impact of trails and paths on bunchgrass areas.	3.4-10	Rerouting of N/S footpath and 8" sewer line to avoid bunchgrass area; establishment of 50' minimum setback; installation of barriers; prohibition of livestock, artificial drainage and non-native materials.	Less than significant.	Modification of Specific Plan to include changes; compliance during construction monitored by Public Works Department; ongoing monitoring by homeowners association and CDFG.
3.4-7	Construction impacts on natural onsite and offsite drainage areas and watercourses.	3.4-11	Establishment of 50' buffer from intermittent waterways; consultation with CDFG and compliance with Streambed Alteration Agreement requirements if crossings necessary; or submittal of Creek Enhancement and Revegetation Plan (CERP) to CDFG; protection of modified creek by 50' buffer.	Less than significant.	Modification of Specific plan to include changes; construction compliance monitored by Public Works Department and CERP; consultation with CDFG regarding SAA and CERP; if required, monitoring by CDFG and Public Works Department; if CERP required, annual reports and corrective recommendations prepared by biologist and submitted by applicant to CDFG for 5 years.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.4-8	Impacts on plant and animal species due to offsite utility pipeline construction.	3.11.1-3 3.11.2-3	Same as below. Same as below.	Less than significant.	Same as below. Same as below.
3.4-9	Loss of oak trees.	3.4-12	Application of CDFG Interim Wildlife/Hardwood Retention Guidelines; preparation of Oak Replacement/Revegetation Plan; use of temporary fencing during construction as protective buffer; retention/replacement of trees not within development envelope; compensation for unavoidable tree loss through Oak Replacement/Revegetation Plan; preparation and distribution of oak tree care fact sheet.	Less than significant.	Condition of tentative map(s)/use permit approval; monitoring by Public Works Department during inspections; ongoing monitoring by CDFG and homeowners association; distribution of fact sheet by homeowners association; preparation of 5-year oak mitigation monitoring plan by applicant and submittal to CDFG.
3.4-10	Impacts on animals of invasive or toxic exotic plants.	3.4-13	Restriction of landscaping to noninvasive nontoxic native North American plant species.	Less than significant.	Condition of tentative map(s)/use permit approval; certification of initial plantings by landscape architect; approval by Department of Development Services; individual plantings monitored by homeowners association.
3.4-11	Disturbance or displacement of special status raptors.	3.4-14	Cessation of construction if raptor nest(s) encountered; proposal of appropriate mitigation measures by biologist; notification/consultation with CDFG.	Less than significant.	Condition of tentative map/use permit approval; written notification of construction personnel; monitoring by CDFG.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.4-12	Increased risk of disease due to vectors and other pests native to the area.	3.4-15	Distribution of information to residents concerning mosquitos and Lyme Disease.	Less than significant.	Provision in CC&Rs for distribution by homeowners association; review of CC&Rs by Department of Development Services prior to final map approval; ongoing monitoring by Mosquito Abatement District.
3.5-1	Exposure of residents to traffic noise.	3.5-1	None required.	Less than significant.	None required.
3.5-2	Noise generated by onsite construction activities.		None required.	Less than significant.	None required.
3.5-3	Noise generated by traffic from onsite development.		None required.	Less than significant.	None required.
3.6-1	New sources of light and glare on previously undeveloped site.		None required.	Less than significant.	None required.
3.6-2	Exposure of residents to offsite sources of light and glare.		None required.	Less than significant.	None required.
3.6-3	Interruption of scenic vistas; creation of aesthetically offensive views; impacts on unique natural features.		None required.	Less than significant.	None required.
3.7-1	Substantial changes in present and planned land use.		None required.	Less than significant.	None required.
3.7-2	Growth-inducing impact: increased population growth and housing construction due to extension of sewer and water lines; precedent-setting nature of approval.		None available	Significant, unavoidable.	None available.
3.8-1	Consumption of energy resources and increase in onsite energy consumption.		None required; see #3.3-1, #3.3-2, #3.3-3, #3.3-4, #3.3-5.	Less than significant.	None required.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.9-1	Increase in population due to Specific Plan development.		None required.	Less than significant.	None required.
3.9-2	Increased demand for, and impacts upon, public services and facilities. See Section 3.11.		See Section 3.11.	See Section 3.11.	See Section 3.11.
3.10-1	Generation of new trips and increased traffic volumes due to project.		None required.	Less than significant.	None required.
3.10-2	Increased delays at intersections on SR 162 due to project.		None required.	Less than significant.	None required.
3.10-3	Safety impacts due to lack of adequate sight distances.		None required.	Less than significant.	None required.
3.10-4	Creation of traffic volumes warranting left turn lane at main access.	3.10-1	Installation of southbound left turn lane on Forbestown Road at main project access.	Less than significant.	Construction of improvements or deposit of funds; compliance monitored by Public Works Department and Department of Development Services.
3.10-5	Incremental impact on need for facilities to serve alternative transportation modes.		None required.	Less than significant.	None required.
3.10-6	Incremental contribution to cumulative traffic volumes on SR 162 west of Plan area and Forbestown Road.	3.10-2	Contribution toward a traffic signal at SR 162/Kelly Ridge Road.	Less than significant.	Execution of agreement with County for mitigation of cumulative traffic impacts prior to tentative map/use permit; monitored by Public Works Department.
		3.10-3	Creation and implementation of Transportation Management Plan with measures to reduce peak hour trip generation.		Review and approval by Public Works Department and Department of Development Services prior to tentative map/use permit approval.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.10-6 (cont.)		3.10-4	Widening of Forbestown Road to 3-lane section between SR 162 and main project access; contribution toward work on approach of State Highway 162.		Execution of agreement with County for mitigation of cumulative traffic impacts prior to tentative map/use permit approval; compliance monitored by Public Works Department.
3.10-7	Cumulative traffic volumes that warrant signalization of State Highway 162/Forbestown Road at intersection and create need for westbound left turn lane.	3.10-1	Same as above.	Less than significant.	Same as above.
		3.10-5	In lieu of traffic signal, require alternative: installation of eastbound right turn lane or installation of median area acceleration lane for westbound traffic; contribution toward alternative selected by Butte County/Caltrans.		Execution of agreement with County for mitigation of cumulative traffic impacts prior to tentative map/use permit approval; compliance monitored by Public Works Department.
3.10-8	Cumulative safety impacts due to lack of adequate sight distances.	3.10-6	Installation of westbound left turn pocket at SR 162/Forbestown Road.	Less than significant.	Execution of agreement with County for mitigation of cumulative traffic impacts prior to tentative map/use permit approval; compliance monitored by Public Works Department.
3.11.1-1	Need to extend water lines to serve site.	3.11.1-1	Inclusion of terms for funding necessary extensions and connection fees to mitigate long term cumulative impacts in "will serve" letter from OWID.	Less than significant.	Submittal of "will serve" letter with LAFCO application for annexation to OWID; monitoring by Department of Development Services.
3.11.1-2	Increased domestic water consumption; contribution to cumulative impact on water supply.	3.11.1-1	Same as above.	Less than significant.	Same as above.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.11.1-3	Construction-related impacts of installation of water mains and facilities.	3.11.1-2 3.11-1-3	Compliance with Caltrans and County encroachment permit conditions. Conduct surveys to evaluate impacts on biological and cultural resources when connection route finalized; implementation of measures identified in Sections 3.4 and 3.12 if necessary.	Less than significant.	Issuance of permits by Caltrans and Public Works Department. Surveys to be conducted prior to issuance of water line construction permit; submittal of findings and mitigation measures prior to issuance of construction permits (if required); compliance monitored by Department of Development Services.
3.11.2-1	Need to extend sewer lines to serve site.	3.11.2-1	Inclusion of terms for funding extensions in "will serve" letter from LOAPUD.	Less than significant.	Submittal of "will serve" letter with LAFCO application for annexation to LOAPUD; monitoring by Department of Development Services.
3.11.2-2	Decrease in sewage treatment plant capacity.		None required.	Less than significant.	None required.
3.11.2-3	Construction-related impacts of installation of sewer lines and facilities.	3.11.2-3	Conduct surveys to evaluate impacts on biological and cultural resources when connection route finalized; implementation of measures identified in Sections 3.4 and 3.12 if necessary.	Less than significant.	Surveys to be conducted prior to issuance of sewer line construction permit; submittal of findings and mitigation measures prior to issuance of construction permits (if required); compliance monitored by Department of Development Services.
3.11.3-1	Reduction of available landfill capacity; contribution to cumulative regional impacts on landfill capacity.	3.11.3-1	Compliance with waste disposal standards in County Integrated Waste Management Plan and Source Reduction and Recycling Elements.	Less than significant.	Incorporation of policies in Specific Plan; compliance monitored by Department of Development Services and Public Works Department.
3.11.4-1	Increased demand on police services; contribution to cumulative impacts on law enforcement services.	3.11.4-1	Payment of County law enforcement impact fees.	Less than significant.	Payment of fees at building permit issuance; tracking and expending of fees by the Sheriff's Department.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.11.5-1	Increased direct and incremental fire protection demand; contribution to cumulative impact on fire protection services.	3.11.5-1	Dedication and improvement of fire station or payment of in-lieu fees.	Less than significant.	Dedication through tentative map/use permit process; installation of improvements or collection of in-lieu fees by BCFD (fee may be determined at later point by Board of Supervisors).
		3.11.5-2	Formation of Mello-Roos CFD or CSA to provide ongoing funding for fire services.		Formation by Board of Supervisors at development stage; collection of fees by County.
3.11.5-2	Increased structural and wildland fire hazard.	3.11.5-3	Installation of Class A roofs and automatic fire sprinkler systems.	Less than significant.	Implementation upon issuance of building permits. Review and approval of plans and permits by BDFD; inspection by Building Division.
		3.11.5-4	Compliance of building setbacks with Fire Safe Regulations of PRC 4290.		Incorporation in development site plans; setbacks required upon building permit issuance; inspection by Building Division; ongoing maintenance by property owners; monitoring by BCFD.
3.11.6-1	Increased school enrollment (133 students).	3.11-6-1	Payment of developer fees.	Less than significant.	Payment upon building permit issuance; tracking and expending of fees by school districts.
3.11.7-1	Increased demand on public parks and recreational facilities; contribution to cumulative impact on level of service.	3.11.7-1	Adoption of Quimby Act Ordinance by County requiring land dedication or payment of in-lieu fees.	Less than significant.	Adoption of ordinance by Board of Supervisors; collection of fees by County upon issuance of building permits; parkland dedication upon final map recordation; monitoring by Public Works Department.
3.11.8-1	Extension of electrical and telephone service to Plan area.		None required.	Less than significant.	None required.

Impact Number	Impact	Mitigation Number	Mitigation Measures	Level of Significance After Mitigation	Monitoring Program
3.11.9-1	Increased demand on general governmental services.		None required.	Less than significant.	None required.
3.12-1	Impacts on identified historic cultural resource (mining adit portal).		None required.	Less than significant.	None required.
3.12-2	Impacts on undiscovered cultural resources.	3.12.1	Cessation of work within 50' of uncovered artifacts, structural remains or human skeletal remains; evaluation of find by qualified archaeologist and implementation of appropriate mitigation measures. Notification of Coroner in case of human remains; notification of NAHC if required; negotiation of agreement.	Less than significant.	Provision of evidence of written notification to construction personnel regarding compliance to Department of Development Services staff; notification of staff if resources encountered during construction.
3.12-3	Impacts on cultural resources due to offsite utility pipeline construction.	3.11.1-3 3.11.2-3	Same as above. Same as above.	Less than significant.	Same as above. Same as above.

Chapter One
Introduction

CHAPTER ONE

INTRODUCTION

1.1 PROPOSED ACTION

The proposed actions for which this environmental impact report (EIR) has been prepared include the following:

- Amendment to the *Oroville Area Land Use Plan of the Butte County General Plan* to change the land use designation of the site from Agricultural Residential to Commercial, Foothill Area Residential, Medium Density Residential and Low Density Residential.

- Rezoning from FR-10 (Foothill Recreational - 10 acre minimum) to C-2 (General Commercial), R-C (Resource Conservation), R-1 (Single Family Residential), R-3 (Multiple Family Residential), and P-Q (Public, Quasi-Public).

- Adoption and subsequent implementation of a Specific Plan for a 171.4 acre area known as the *Stringtown Mountain Specific Plan.*

The project site is located southeast of Lake Oroville, approximately six (6) miles east of the City of Oroville, in Butte County, California. The *Stringtown Mountain Specific Plan* area is located on the northeast side of the intersection of Highway 162 (Oroville-Quincy Highway) and Forbestown Road.

1.2 PROCEDURES

This EIR has been prepared for the Lead Agency, the County of Butte, by QUAD Consultants in accordance with the California Environmental Quality Act (CEQA), the *State Guidelines for the Implementation of the California Environmental Quality Act* (California Administrative Code, Title 14, Chapter 3), and the *County of Butte Procedures for Implementation of the California Environmental Quality Act (CEQA) of 1970.* As provided in Section 15121(a) of the *Guidelines*, this EIR is intended to serve as an informational document that will:

> ...inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project...

This EIR is a program EIR, as defined in Section 15168 of the CEQA *Guidelines,* although, as described below, this EIR may function as a project specific EIR for the residential component of the *Specific Plan*. The use of a program EIR allows the lead agency to consider broad policy alternatives and mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts.

Subsequent activities in Plan implementation and actual site development will need to be examined in light of the program EIR to determine whether an additional environmental document must be prepared. If the County finds that no new effects could occur, or no new mitigation measures would be required, the County can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental documentation will be required.

The proposed project is a specific plan, as defined in Planning and Zoning Law (California Government Code, Title 7, Division I, Chapter 3, Article 8). Specific plans, as provided in Section 65450 through 65457 of the California Government Code, and as described in the State General Plan Guidelines, are a tool for the "systematic implementation" of the County's General Plan. A specific plan is comprised of text and diagrams which:

- depict the distribution, location and extent of land uses within the plan area;
- describe the proposed distribution, location, extent and intensity of major components of public and private infrastructure;
- establish standards and criteria for the progress of development of the plan area and for the conservation, development and utilization of natural resources; and
- spell out an implementation program to carry out the goals and policies of the plan, including regulations, programs, public works projects, and potential financing strategies and measures.

Specific plans are a comparatively common tool among California communities and counties for implementing general plan policies and programs, particularly in instances where the planning environment is unusually sensitive or where planning issues are more complex.

Section 15182(a) of the CEQA *Guidelines* provides that:

> ...Where a public agency has prepared an EIR on a specific plan ... no EIR or negative declaration need be prepared for a residential project undertaken pursuant to and in conformity to that specific plan if the project meets the requirements of this section.

This exemption from the potential requirements to prepare EIRs on future residential developments in the Plan area is applicable, provided that there are no significant changes in the circumstances under which the future projects are undertaken, or that other changes do not occur which would require revisions as described in CEQA *Guidelines* Section 15162. Accordingly, for future residential developments contemplated by the *Stringtown Mountain Specific Plan*, provided that those developments conform substantially to the Plan and the environmental conditions under which the Plan was adopted do not change significantly, no further environmental documentation or clearance under CEQA would be required. However, for non-residential uses provided for by the Plan, the County may elect, depending upon the findings of specific initial studies of the potential environmental effects of such projects, to either reference the Specific Plan EIR or, alternatively, prepare supplemental or subsequent environmental documents. The County must also incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions.

Government Code Section 65358(a) states that the legislative body may amend an adopted general plan if it deems it to be in the public interest to do so. Amendment to the General Plan is a legislative action which requires public hearings before the planning commission and legislative body (Government Code Section 65353 et seq.). After notice and holding its public hearing, the Butte County Planning Commission will make a written recommendation on the amendment and forward that recommendation to the Butte County Board of Supervisors. The Board may then take an action to approve, modify or disapprove the recommendation of the Planning Commission. If the Board chooses to substantially modify the proposed amendment and such modification was not previously considered by the Commission, the amendment must be referred back to the Commission for review and recommendation prior to final action.

Government Code Section 65450 *et seq.* stipulates that after a general plan has been adopted, specific plans may be prepared for the systematic implementation of the general plan. A specific plan shall be prepared, adopted, and amended in the same manner as a general plan, except that it may be adopted by either resolution or ordinance, and may be amended as often as deemed necessary by the legislative body (Section 65453(a)). No specific plan shall be adopted or amended, however,

unless the plan or amendment is consistent with the adopted general plan (Section 65454).

Rezoning of property is also considered a legislative action; however, State law mandates public hearings before both the Planning Commission and the Board of Supervisors (Government Code Section 65854 *et seq.*). These hearings may be held concurrently with those for the General Plan Amendment/Specific Plan. After noticing and holding a public hearing, the Planning Commission forwards its recommendation, in written form, for consideration by the Board of Supervisors. A public hearing is then held before the Board of Supervisors, unless the recommendation of the Commission is for denial of the rezoning request. In such instances, no further action is required unless an appeal is filed. The rezoning must be consistent with the land use designations of the Specific Plan.

Although legislative in nature, the actions are considered to be discretionary for purposes of CEQA because prior to acting, the decision-making body must exercise its judgement in determining the appropriateness of the classification changes. Because approval of the actions are subject to the requirements of CEQA, findings must be made pursuant to Section 15091 of the *Guidelines* prior to approving the project. This section mandates that one or more of the following findings must be made for each significant environmental effect identified through the EIR process:

- Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

- Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

- Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

In addition, Section 15093 of the *Guidelines* requires that the decision-makers balance the benefits of a proposed project against any unavoidable environmental effects which would result from the implementation of the project. If the benefits of the project outweigh the unavoidable adverse effects, then the environmental effects may be considered acceptable and a statement of overriding considerations adopted.

The *Guidelines* stipulate that EIRs should be prepared as early as feasible in the planning process to enable environmental considerations to influence project design (Section 15004) and that to the extent possible, the EIR process should be

combined with the existing planning, review and project approval process used by each public agency (Section 15080). Consequently, this EIR is to be completed prior to formal consideration by the County of the general plan amendment, zone change application and Specific Plan to ensure an opportunity to develop project design alternatives and other measures which would minimize the potential adverse environmental effects, if any, associated with the project.

In accordance with State law, the draft EIR will be subject to a 45-day review and comment period, beginning with the circulation of the document to all responsible, trustee, or other interested state, federal and local agencies. The availability of the EIR and specified review period will also be noticed in the manner prescribed by law to afford the general public knowledge of the review process. During this 45-day period, written comments regarding the environmental aspects of the project may be submitted to the lead agency. This review and comment period thereby allows the public and interested agencies the opportunity to participate in the environmental review process.

Following the review period, comments received, whether written or oral, will be evaluated and a written response prepared. These comments and responses will then be incorporated into the final EIR along with a list of all persons, organizations, and agencies commenting on the draft EIR. The County must then certify that the final EIR has been completed in compliance with CEQA, and that the information contained in the final EIR was reviewed and considered prior to making a decision on the project. Along with the necessary findings, and possibly a statement of overriding considerations as described above, the County will adopt a mitigation monitoring and reporting program. This program is required by law to ensure that mitigation measures determined to be feasible by the lead agency are implemented. Adoption of a mitigation monitoring and reporting program is independent of the EIR certification process, however.

This General Plan Amendment, rezoning and Specific Plan request is the first step in the process of developing the project site. Subsequent discretionary and ministerial permits will be required by the County, State and federal agencies, including approvals of subdivision maps, building permits, and other potentially necessary subsequent permits and/or approvals as described in Chapter Two. Although it is the intent of CEQA to consider the whole of an action when disclosing potential environmental effects, Section 15146 of the CEQA *Guidelines* recognizes the varying degree of specificity with which resulting impacts can be evaluated. A construction project for which specific development plans have been submitted can obviously be evaluated with greater detail than a project which is conceptual only.

As indicated earlier, this EIR will serve as a program EIR for subsequent non-residential development. Where it is not possible to formulate specific mitigation measures at this time, an impact will be considered potentially significant and will only be considered mitigable if measures are known to be feasible which would reduce or avoid the impact identified. In some instances, the formulation of precise mitigation measures may be necessary at subsequent stages of development and will be so noted. This approach has been documented in several court decisions (e.g., *Sundstrom v. County of Mendocino* ((1st Dist. 1988) 202 Cal.App.3d 296 [248 Cal.Rptr.352]), *Laurel Heights Improvement Association v. Regents of the University of California* ((1988) 47 Cal.3d 376 [253 Cal.Rptr.426] and *Schaeffer Land Trust v. San Jose City Council* ((6th Dist. 1989) 215 Cal.App.3d 612 [263 Cal.Rptr.813]), and is often necessary in the early stages of the planning process, such as the general plan or rezoning stage. It is necessary, however, for the lead agency to commit to devising mitigation measures which will satisfy specific performance criteria set forth at the time of project approval.

1.3 METHODOLOGY/SCOPE OF EIR

This EIR analyzes and evaluates the potential effects of amending the land use and zoning designations, and the subsequent implementation of a specific plan for the development of an 168.4-acre area of Butte County. Included in this environmental analysis are the direct effects of building out the portions of the Plan area designated for urban land uses, as well as the cumulative and growth-inducing effects upon the community and regional environment associated with adding this prospective development to the existing and anticipated urbanization of the County and region.

In November 1992, the Butte County Department of Development Services, Planning Division, prepared an Initial Study for the project. In January 1993, a Notice of Preparation (NOP) was distributed by the County, inviting responsible and trustee agencies and other interested parties to comment upon the appropriate scope of the environmental analysis. A copy of the Initial Study/NOP and the responses received by the County are included as Appendices A and B, respectively, of this Draft EIR. Also included in Appendix B is other correspondence received prior to the NOP process in conjunction with review of the specific plan proposal.

Based upon the Initial Study of the project's environmental effects and upon the comments received in response to the NOP, it has been determined that this EIR should focus upon the following aspects of the environment:

- **EARTH**, addressing geotechnical impacts associated with site development such as changes in topography, disruption/

compaction/overcovering of the soil, and soil erosion; potential loss of mineral resources; and geologic and seismic hazards.

- **HYDROLOGY**, addressing changes in drainage patterns resulting from disruption of the site; changes in absorption rates and the amount of runoff; the need for off-site drainage improvements; quality of surface water; quantity of groundwater; and quality of groundwater.

- **AIR QUALITY**, addressing the incremental effect the project will have on the air quality of the area and the northern Sacramento Valley air basin in general.

- **BIOLOGICAL RESOURCES**, addressing the impacts on the diversity and number of plant and animal species, threatened and endangered plants and wildlife, new species introduction, habitat deterioration, and other human encroachments.

- **NOISE**, addressing the level of noise generated by the proposed development as well as the effect of the existing noise environment on the proposed development.

- **LIGHT AND GLARE/AESTHETICS**, addressing potential sources of light and glare emanating from the site as well as impacts from surrounding sources on the Plan area; and changes in the aesthetic landscape resulting from development of the site.

- **LAND USE**, addressing the compatibility of the proposed uses with surrounding land uses, including nearby recreational facilities; consistency with adopted plans and policies; and both growth-inducing and growth-accommodating impacts of the project.

- **NATURAL RESOURCES**, addressing the potential increase in consumption of resources, and energy conservation measures.

- **POPULATION/HOUSING**, addressing the alteration to the planned density, location and distribution of population growth in the Oroville area; secondary impacts associated with population growth such as impacts to infrastructure; and the impact on the existing housing stock.

- **TRAFFIC/CIRCULATION**, addressing direct and cumulative effects of the project on the roadway system, traffic circulation, and traffic hazards.

- **PUBLIC SERVICES/UTILITIES**, addressing potential project-related and cumulative effects related to the availability and capacity of public services to support the project including: fire and police protection, schools, parks and other recreational facilities, maintenance of public facilities, other government services, availability of power or natural gas, availability and/or extension of community water and sewer lines, storm drainage improvements, and solid waste disposal.

- **CULTURAL RESOURCES**, addressing any potential impacts the project may have on archaeological and historical resources.

Aspects of the environment other than those listed above have been determined by the County as unlikely to incur significant project-related impacts. This EIR, therefore, discusses only those issues referenced above and other subjects mandated by CEQA, including project alternatives, the growth-inducing impact of the proposed action, unavoidable significant environmental effects, irreversible impacts, and lists those impacts which have been determined by the County as unlikely to incur significant project-related impacts.

In discussing the impacts relating to the topical areas above, the evaluation will be organized in the following manner:

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

Impacts: **Impact Evaluation Criteria.** The standard by which impacts are measured or threshold, with the goal of determining if an impact will be significant.

Impact #: Each impact associated with a subject area will be listed by number for future reference.

Conclusion: Statement on whether or not the impact is significant; if found to be significant, a determination of whether or not the impact can be avoided or reduced to an acceptable level through the implementation of mitigation measures, or if the impact is unmitigable, unavoidable, and/or irreversible.

Mitigation Measures: **Mitigation Measure #:** Each mitigation measure will be listed by number for future reference and will state to which impact (by number) or impacts the recommendation would apply.

Effectiveness of Measure: Statement on whether or not the recommended measure will reduce the impact below the level of significance based on the Impact Evaluation Criteria.

Implementation/Monitoring: Statement of how the measure will be implemented and monitored.

The above-described strategy conforms to the standards for adequacy of an EIR set forth in Section 15151 of the State Guidelines which states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and good faith effort at full disclosure.

The environmental effects of adoption of a specific plan and the range of discussion of potential impacts for issues such as police and fire protection and schools are guided in this EIR by the definition of "environment" in Section 15360 of the CEQA *Guidelines* which reads:

> 'Environment' means the physical conditions which exist within the area which will be affected by the proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significant...

Accordingly, the impacts of the proposed *Stringtown Mountain Specific Plan* and related actions are not evaluated in terms of change just in allowable land uses from the current County General Plan and zoning, but rather in terms of the actual effects on the physical environment, as it exists now, attributed to Plan implementation. It should be noted that possible social and/or economic effects of a project are not considered environmental impacts under CEQA, unless they, in turn, result in adverse, identifiable effects on the physical environment.

The consideration of alternatives to the proposed project in this EIR has been conducted in conformance with Section 15126(d) of the CEQA *Guidelines*, which prescribes:

(3) The discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance ...

(5) The range of alternatives required in an EIR is governed by "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decisionmaking and informed public participation...

The next chapter of this EIR describes the project in greater detail, discusses the project objectives, lists permits and approvals required, summarizes the general characteristics of the Plan area and vicinity, and gives the reader an overview of the environmental setting. Chapter Two also includes a summary and discussion of General Plan policies and other plans and policies as they relate to the project.

Chapter Three describes specific characteristics of the project's environmental setting, organized within the framework of the topical areas of focus prescribed in response to the County's Initial Study and responses to the Notice of Preparation. Chapter Three also identifies and discusses potentially significant project-related impacts on those selected aspects of the environment and sets forth mitigation measures for these impacts, as appropriate.

Chapter Four evaluates five (5) alternatives to the proposed Plan, including: no project, buildout under existing general plan and zoning, lower intensity land uses and densities, project redesign, and an alternative site. The proposed Plan is compared to each of these five alternatives, and the environmental ramifications of each are analyzed.

The fifth and final chapter of this EIR summarizes significant environmental effects of the proposed Plan which cannot be avoided, evaluates the cumulative impacts and growth-inducement potential of the project, and lists those effects found not to be significant. Following the text of this report, several appendices and references have been included to facilitate full environmental review of the project.

Chapter Two
Project Description

CHAPTER TWO

PROJECT DESCRIPTION

2.1 LOCATION

The Plan area for the proposed *Stringtown Mountain Specific Plan* is situated approximately six miles east of the City of Oroville in southeastern Butte County, California (see Figures 2-1, 2-2 and 2-3 located at the end of this chapter). The site is located southeast of Lake Oroville, on the northeast side of the intersection of Highway 162 (Oroville-Quincy Highway) and Forbestown Road.

The Plan area encompasses approximately 171.4 acres and includes portions of the south half of Section 8 and the north half of Section 17, Township 19 North, Range 5 East, Mount Diablo Base and Meridian, and can be identified as Assessor's Parcels Numbers 072-180-016, 017, 026, 027, 028, 029, 030, and 072-190-005, 007, 013, 014, 025.

2.2 SITE CHARACTERISTICS

The Plan area is undeveloped and contains a mixture of blue oak woodland, montane hardwood forest and chaparral, grassland and riparian vegetation (see the Photoplate located at the end of this chapter). There are three intermittent drainage courses which traverse the site. Elevations range from a high point of approximately 1,700 feet above sea level at the eastern boundary to a low point of approximately 1,200 feet above sea level at the western boundary. Dominant features include a large rock outcropping in the western portion of the site and smaller outcroppings in the higher elevations.

Highway 162 (Oroville-Quincy Highway) borders the northwestern boundary of the site; Forbestown Road forms the western boundary of the Plan area (see Photoplate). Dirt roads and graded fire breaks currently provide limited access to the site from Forbestown Road. There are also several recorded easements existing across the site including a 20' easement in favor of PG&E aligned adjacent to Highway 162 on the western boundary of the site; a 60' access and public utilities easement for ingress-egress from Forbestown Road to several parcels north of the site; and a 100' easement over Miner's Ranch Tunnel, a subterranean tunnel used to transport water, which traverses the site diagonally from Forbestown Road in a northeasterly direction.

The *Oroville Area Land Use Plan of the Butte County General Plan* designates the site as Agricultural-Residential (see Figure 2-4 located at the end of this chapter). The purpose of the Agricultural-Residential designation is to provide areas for agricultural uses and single-family dwellings at rural densities. Secondary uses considered consistent with this designation include animal husbandry, forestry, intense animal uses, home occupations, mining, outdoor recreation facilities, environmental preservation activities, airports, utilities, public and quasi-public uses, group quarters, care homes and transient lodging.

The existing zoning on the site is FR-10 (Foothill Recreational) (see Figure 2-5 located at the end of this chapter). The FR-10 Zone allows single-family dwellings, including mobilehomes, at a density of one unit per ten (10) acres. Other permitted uses include, but are not limited to, agricultural uses (e.g., keeping and raising of small animals, raising and harvesting of crops, display and sale of agricultural goods produced on the site); mining and excavating; pedestrian, equestrian and bicycle trails; agricultural and forestry experimental areas; and home occupations. Other uses are permitted upon the issuance of a use permit such as commercial kennels and animal hospitals; private or commercial outdoor recreational facilities (e.g., golf courses, recreational clubs, riding academies and stables, hunting lodges and campgrounds); public and quasi-public uses (e.g., schools, parks, museums, meeting halls, libraries and government offices); public tasting rooms in conjunction with onsite wineries; and wood lots.

2.3 AREA CHARACTERISTICS

The site is located in an area predominantly characterized by either rural homesites or vacant land. The Loafer Creek recreation area is located to the northwest (see Figure 2-3). Surrounding properties are designated Agricultural Residential and Public on the *Land Use Diagram* (see Figure 2-4) and are zoned PQ (Public, Quasi-Public), FR-10 and FR-40 (see Figure 2-5). Parcel sizes in the area range from 1 to 600 acres.

2.4 PROJECT OBJECTIVES AND CHARACTERISTICS

The applicant/property owner has filed with the County the following applications:

- General Plan Amendment to amend the *Oroville Area Land Use Plan of the Butte County General Plan* to change the land use designation of the site from AR (Agricultural Residential) to C (Commercial), FR (Foothill Area Residential), MDR (Medium Density Residential) and LDR (Low Density Residential).

- Rezoning to change the existing FR-10 (Foothill Recreational - 10 acre minimum) zoning to C-2 (General Commercial), R-C (Resource Conservation), R-1 (Residential), R-3 (Multiple Family Residential), and P-Q (Public, Quasi-Public).

- Adoption and subsequent implementation of a Specific Plan known as the *Stringtown Mountain Specific Plan.*

The proposed land use designations and zoning classifications described are depicted on Figures 2-6 and 2-7 respectively which are located at the end of this chapter.

As set forth in the proposed *Stringtown Mountain Specific Plan*, the Plan seeks to utilize the scenic beauty and recreational opportunities of the Lake Oroville area to create a high quality living environment. The project will offer new housing and recreational facilities to local residents, a new vacation destination for visitors to the area, and convenience commercial services to meet the needs of both populations.

Planning objectives for the *Stringtown Mountain Specific Plan* include the following:

- Creation of a community setting for a lifestyle that integrates nature and leisure with everyday living.

- Development which enhances and complements the functional and aesthetic character of the natural setting and minimizes disturbance to the natural terrain, vegetation and other natural habitats.

- Provision of a safe, unified community, serving the needs of permanent residents while providing a quality vacation destination.

- Design of public facilities and services necessary to provide for the residents in the community.

- Utilization of flexibility and innovation in building and site design such that new development is aesthetically compatible with the natural setting.

- Availability of special opportunities for cultural and leisure events.

- Maximum potential for energy conservation through building and landscape designs and solar orientation which recognizes the climatic conditions in the area.

The *Stringtown Mountain Specific Plan* is intended to provide for the orderly and systematic development of the Plan area in a manner consistent with the policies of Butte County and the characteristics and limitations of the land. The Plan implements the content of the *Butte County General Plan* by setting forth regulations, conditions and programs which will further carry out the objectives of the General Plan. Goals, policies and objectives contained in the Plan address the following issues:

- Land Use
- Community Development Standards
- Circulation
- Resources Management
- Public Facilities and Services
- Implementation

These categories relate to the land use, housing, circulation and recreation elements of the *Butte County General Plan* which are discussed in Section 2.5 of this chapter.

As described in the Plan, Stringtown Mountain is planned to provide a broad mix of uses including a resort complex, a wellness center and residential areas. The development will integrate natural landscape and topography to take advantage of and enhance the natural setting. The proposed land uses are illustrated in Figures 2-8 and 2-9 located at the end of this chapter. The acreage breakdown and number of units devoted to each type of land use are shown on Table 2-1 below.

TABLE 2-1
STRINGTOWN MOUNTAIN SPECIFIC PLAN
LAND USES

Land Use	Acres	Units
Detached single family	112.0	116
Attached single family	9.4	44
Multi-family	4.4	32
Resort Complex	13.2	
Commercial Center	3.1	
Overlook Park	2.4	
Fire Station	0.6	
Open Space	26.5	
Total	**171.4**	**192**

The acreage figures shown on Table 2-1 are based on amendments to the *Specific Plan* text included in correspondence from Michael Evans dated November 18, 1992, which differ from the acreage figures shown on Figure 2-8.

The resort complex is planned to feature restaurant and banquet facilities, meeting rooms, and recreational facilities. The wellness center is proposed for residents and visitors with health rehabilitation needs and will include a therapeutic spa and fitness center. Supporting business-professional/commercial uses may include a convenience market, a real estate office and other neighborhood-scale commercial enterprises to serve the plan area population. A 0.6 acre portion of the Plan area will be set aside for the development of a fire station.

Residential units will include single family detached lots, duplex units and multi-family units. The average residential density is 1.85 dwelling units per acre with the density for the entire Plan area at 1.14 dwelling units per acre. Based on the current average persons per dwelling unit of 2.39 (1990 Census), approximately 459 permanent residents are expected to reside in the Stringtown Mountain Community. The resort complex and wellness center will generate a temporary population of approximately 75 people when the facilities are fully occupied.

It is proposed that water will be supplied to the plan area by the Oroville-Wyandotte Irrigation District (OWID). Existing OWID facilities extend to the intersection of Highway 162 and Olive Highway, approximately one mile southwest of the project site. Sewer service is proposed to be provided by the Lake Oroville Area Public Utilities District (LOAPUD). The nearest sewer lines in proximity to the site are located approximately 1,800' west of the site at the Loafer Creek recreation area and at Mt. Ida Road, west of Miners Ranch Road, approximately 2 miles southwest of the site. Both districts have indicated their willingness to serve the plan area; however, the site is located outside the boundaries of both districts. Before the site can be served, annexation to OWID and LOAPUD district boundaries and amendment to their respective spheres of influence will be necessary.

The contents of a specific plan, as mandated by State law, must be consistent with the adopted General Plan and all subsequent land subdivision and development, public works projects, and zoning regulations must be consistent with the *Specific Plan*. To implement the *Specific Plan*, it is the applicant's intention to apply for a subsequent rezoning to the PUD (Planned Unit Development) zone for the residential portions of the site (see Figure 2-10 located at the end of this chapter). Application of PUD zoning would allow flexible lot design and diversification of uses. Other discretionary approvals necessary to implement the specific plan include use permits for the commercial and resort facilities and a subdivision map for the residential development.

Maintenance of common areas including open space areas, the overlook park, roads, pathways, and entryway landscaping will be the responsibility of a plan area homeowners association. Private uses including the multi-family and single family residential uses, the wellness center, resort complex and business-professional/commercial center will be maintained by independent homeowner associations. Public facility financing will be provided through a variety of mechanisms including land dedications, reimbursement agreements and assessment districts (e.g., Mello-Roos Community Facilities District, county service areas).

2.5 OTHER PERMITS AND APPROVALS

Once the general plan amendment, rezoning and specific plan are approved, subsequent actions, permits and approvals, are necessary prior to development. These subsequent steps are shown on Table 2-2 located at the end of this chapter.

2.6 RELATIONSHIP TO PLANS, POLICIES AND ORDINANCES

GENERAL PLAN

In 1981, the Butte County Board of Supervisors divided the County into sixteen Planning Areas. These Planning Areas are reflected on Figure 2-11 located at the end of this chapter. Primary objectives of designating these areas were to adopt specific development and growth guidelines and policies for each area, and to bring land use and zoning designations into conformance with one another. Although each of the Area Plans provides a separate set of guidelines, the goals and policies are consistent with and dependent upon the elements of the countywide *General Plan*.

The project site is located within the Oroville Planning Area. Although policies which supplement the general countywide policies of the *Butte County General Plan* were adopted for the *Oroville Area Land Use Plan*, these policies do not apply to the project site. General countywide goals and policies which are relevant to the *Stringtown Mountain Specific Plan* include the following:

Land Use Element

- Plan for the future development of all incorporated and unincorporated areas within county boundaries.

- Based upon continuous analysis of population trends, provide plans which allow reasonable "freedom of choice" of sites and facilities for the population growth of the county, both in the county as a whole, and in its various sections.

- Designate adequate land for free-market competition among land suppliers to avoid artificially constricting land availability.
- Encourage annexation to existing cities and existing districts.
- Promote the full utilization of sites served by existing public facilities.
- Encourage development in and around existing communities with public facilities.
- Encourage urban expansion toward the least productive agricultural soils.
- Promote conservation of energy resources in reviewing proposed developments.
- Correlate residential densities to soil, slope and other natural site characteristics.
- Correlate residential densities to availability of water and sewage disposal and proximity to other public facilities.
- Relate residential densities to intensity and compatibility of adjacent uses.
- Balance residential densities with traffic-carrying capacities of existing and proposed circulation plans.
- Provide sites and facilities to accommodate a variety of economic activities.
- Maintain economic use and value of private property.
- Encourage a full range of commercial services at the regional, community and neighborhood levels.
- Encourage expansion of public water and sewer systems where development to be served conforms to adopted land use plans.
- Require adequate drainage improvements for new development.
- Support development of commercial recreation facilities on suitable sites.

- Locate new fire stations with consideration to accessibility, future development and natural fire hazards.

- Consider recommended noise levels in review of proposed development.

- Provide open space areas near and between designated urban areas on the Land Use Map.

- Protect valuable scenic areas and parks for enjoyment by residents and visitors.

- Regulate development in identified winter deer ranges to facilitate the survival of deer herds.

- Consider fire hazards in all land use and zoning decisions, environmental review, subdivision review and the provision of public services.

- Guide development to areas with adequate fire protection services.

- Consider the most recent information on seismic hazards in all zoning and subdivision decisions.

- Correlate allowable density of development to potential for landslides, erosion and other types of land instability.

Housing Element

- All persons have the opportunity to live in a safe and healthful home, and in an environment free from blighting influences; that all persons have a choice of housing opportunities -- with regard to location, type, price and proximity to employment, community facilities, recreation and commercial services; and that access to housing not be restricted because of race, age, sex, marital status, ancestry, source of income, national origin, color, or religion.

- Butte County should establish appropriate zoning to provide sites (including various choices) to meet housing needs for the ensuing 20 years.

Circulation Element

- Develop a transportation system in a manner that encourages efficient land use utilization.

- Provide for adequately designed road and street pattern to service present and future traffic volume.

- Urban street and highway traffic capacity levels should be planned to provide a level of service "C", and be considered to be providing acceptable service at level of service "D" when fiscal, environmental or site constraints are prohibitive.

Recreation Element

- The County [should] encourage the development of private and commercial recreation facilities -- such as golf courses, swimming pools, tennis clubs, camping and boating facilities, etc. -- in order that they may help meet existing and future leisure time needs.

The above-described policies are contained in the existing *General Plan*. In January 1991, the County initiated a comprehensive update of its general plan. Prepared to date are the *Draft General Plan Background Report*, whose purpose is to provide background information on all issues to be addressed in the new general plan, and the *Issues and Options Report*, which is intended to elicit public discussion and an overall policy direction for developing the *Draft General Plan Policy Document*.

When evaluating an amendment to the *Land Use Diagram* of the *General Plan*, review of relevant goals and policies should be undertaken to determine if the change in land use designation would further the stated goals and policies. Total consistency with each individual policy may not be achieved, however, if it can be determined that the proposed amendment does not change the spirit and intent of the adopted goals and policies, a finding of general plan consistency can be made. In comparing the proposed project with the relevant general plan policies, it would appear that the project is consistent with the applicable goals and policies. It should be noted that the final determination of general plan consistency lies with the Butte County Board of Supervisors and is not the responsibility of the EIR.

ZONING ORDINANCE

State law requires that local zoning be consistent with adopted general plans. The zoning categories proposed under the rezoning application would be consistent with the general plan designations requested under the general plan amendment application. If the general plan amendment is approved by the Butte County Board of Supervisors, a finding of general plan consistency could then be made for the requested change of zoning.

The characteristics of the proposed zoning classifications, as set forth in the *Butte County Zoning Ordinance*, are summarized below:

C-2 (General Commercial) Zone

In addition to dwellings and dwelling groups, this zoning classification allows all uses permitted in the C-1 (Light Commercial) Zone which are generally described as retail and service commercial establishments conducted within a building, professional offices, public utility offices, and restaurants, as well as general commercial uses such as art shops, bars and cocktail lounges, cleaners, hotels and motels, auto repair, used car lots, and drive-in restaurants. This list is not exhaustive, but rather provides a sampling of the type of uses permitted. A sample listing of other uses permitted upon the issuance of a use permit include public or quasi-public uses, service stations and light manufacturing uses.

R-C (Resource Conservation) Zone

This zoning classification has a minimum lot area requirement of ten (10) acres and is intended to provide for natural, wilderness and study areas and preserves for native fish, birds and wildlife and other natural resources. Other uses permitted in this zone include agricultural uses, raising and pasturing of livestock, establishment of archaeological and historical sites, and recreational uses not requiring permanent improvements such as hunting, fishing, camping, hiking, riding uses. Permanent dwellings are not permitted. Other uses permitted upon the issuance of a use permit include such uses as preserves for nonnative wildlife species, establishment of rest stops, vista points and bicycle, pedestrian and equestrian trails which do not include commercial sales and services.

R-1 (Single Family Residential) and R-3 (Multiple Family Residential)

The purpose and intent of the residential classifications is to provide a mixture of housing types including detached single-family, duplex, triplex, townhouses, condominiums, apartments and mobilehome parks which are suitable for both individual owners and renters. Application of the "R" zone is intended for areas where urban services are available. The R-1 zone allows one single family dwelling unit per parcel and requires a minimum building site of 6,500 square feet. In addition to single family units, the R-3 zone allows duplexes, apartments, condominiums, townhouses and other dwelling groups at a minimum building site per unit of 3,250 square feet.

P-Q (Public, Quasi-Public) Zone

This classification allows all types of public uses including, schools, parks, playgrounds, recreational areas, hospitals, and other publicly owned buildings and land.

PUD (Planned Unit Development) Zone

The purpose of the PUD zone is to allow diversification in the relationship of various uses, buildings, structures, lot sizes and open spaces; to encourage and take advantage of opportunities for more integrated, flexible and superior design than is available through the application of conventional regulation which anticipates individual lot development; to provide a flexible means of implementing the goals, policies and programs; and to encourage innovative, high-quality design, efficient use of land and modern site planning. Once established, the land use density of any PUD zoned land relates back to the underlying land use designation.

OTHER PLANS AND POLICIES

Northern Sacramento Valley Air Basin 1991 Air Quality Attainment Plan

Refer to Section 3.3 Air Quality.

Butte County Air Quality General Plan Element

Refer to Section 3.3 Air Quality.

Draft Energy, Natural Resources, and Recreation Element of the Butte County General Plan

Refer to Section 3.8 Natural Resources and Section 3.11 Public Services and Utilities.

Integrated Waste Management Plan

Refer to Section 3.11 Public Services and Utilities.

Regional Transportation Plan

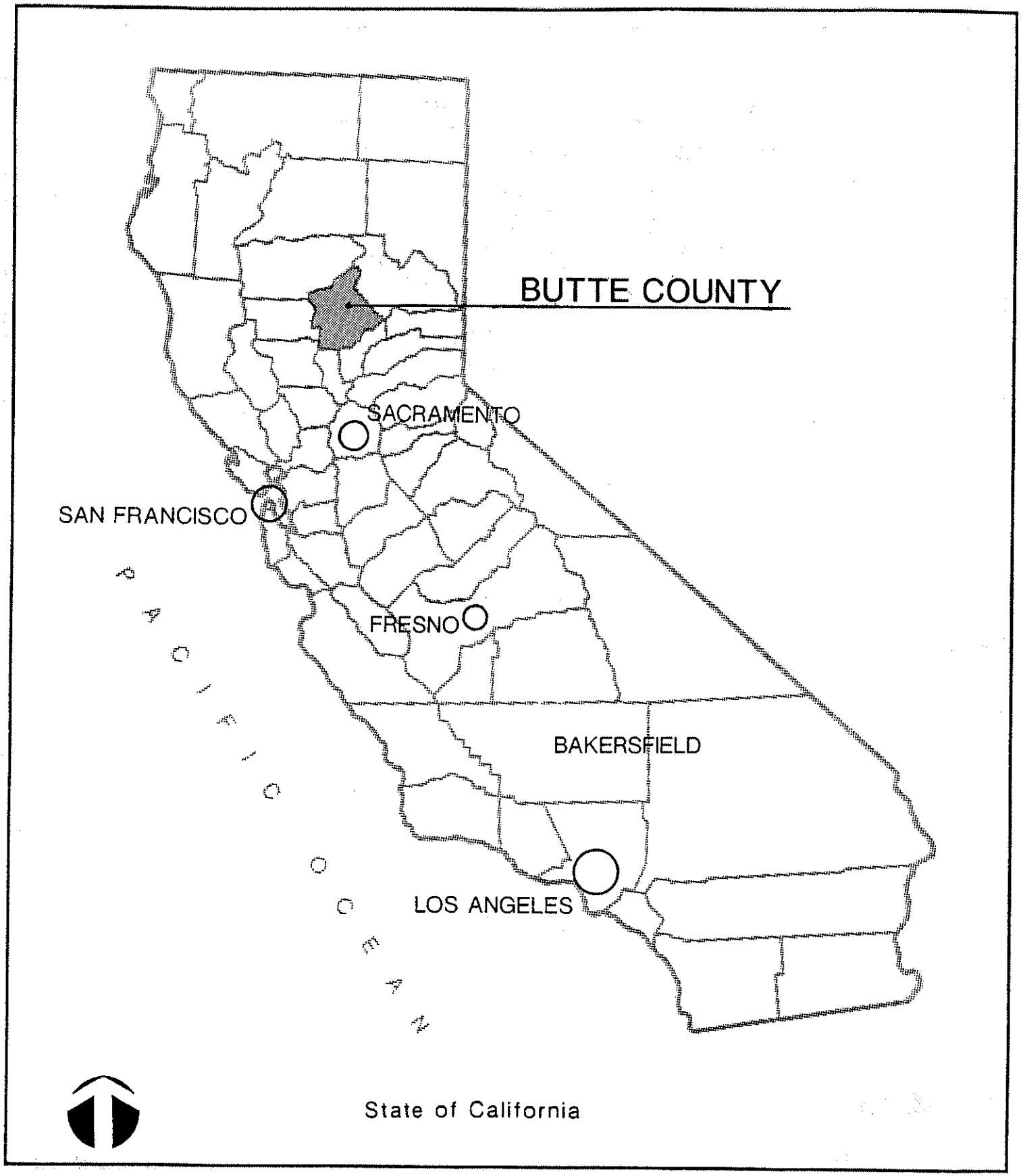
Refer to Section 3.10 Traffic/Circulation.

TABLE 2-2
SUBSEQUENT PERMITS AND APPROVALS

Agency	Approval
Butte County Board of Supervisors	PUD Zoning Final Subdivision Map
Butte County Planning Commission	PUD Zoning/Use Permit Subdivision Map
Butte County Advisory Agency	Subdivision Map
Butte County Health Department	Construction/Operation of Food Establishments Public Swimming Pool
Butte County Public Works Department	Building Permits Encroachment Permits
Butte County Local Agency Formation Commission, applicable special districts	Annexations Sphere of Influence Amendments
Caltrans	Encroachment/Access Permits affecting State highways
Water Quality Control Board	National Pollutant Discharge Elimination System (NPDES) Permit[1]

1 Potential requirement which may or may not be necessary, depending on final development design.

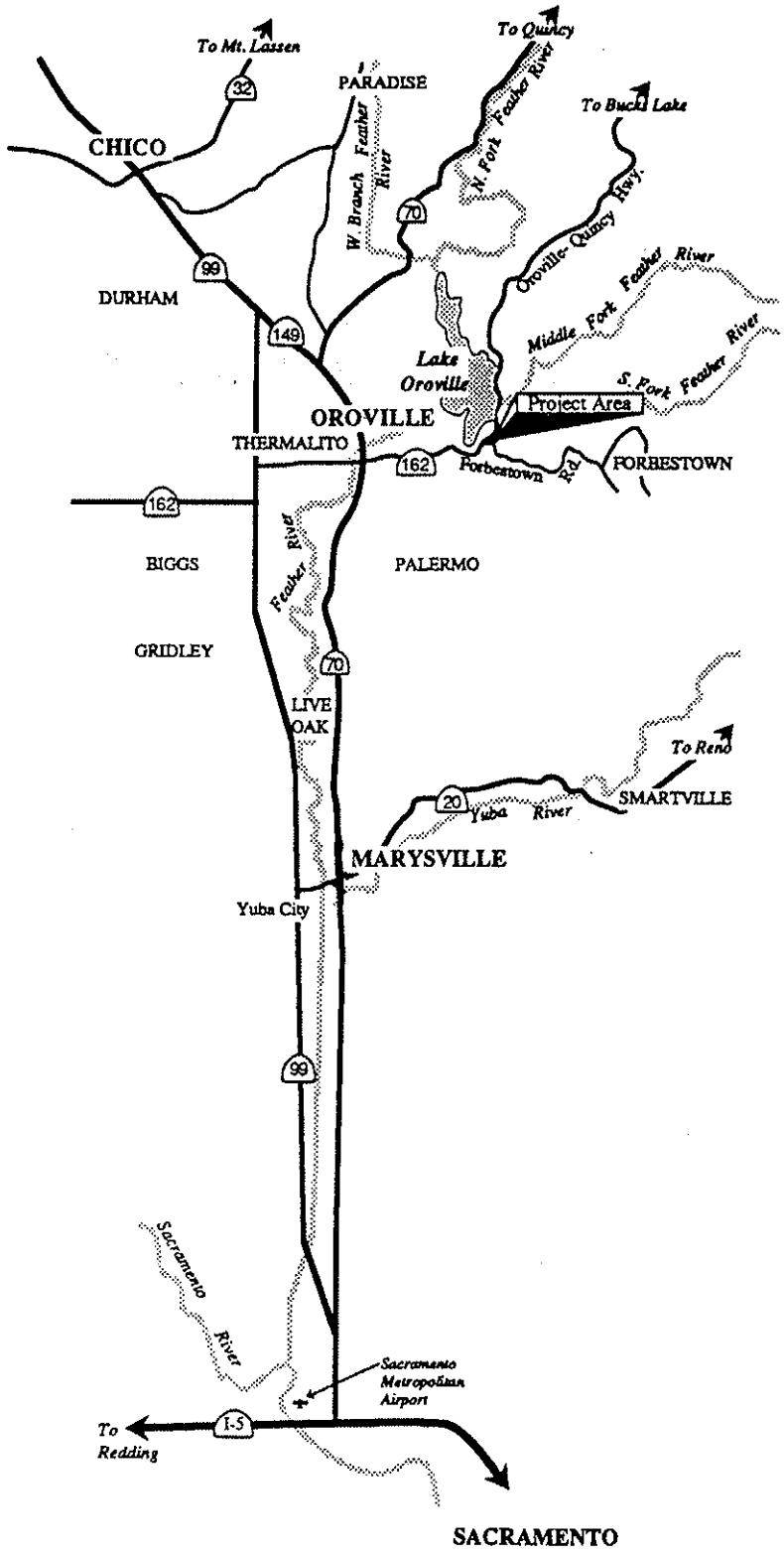
Source: QUAD Consultants, 1993



QUAD

COUNTY REGIONAL MAP

Figure 2-1



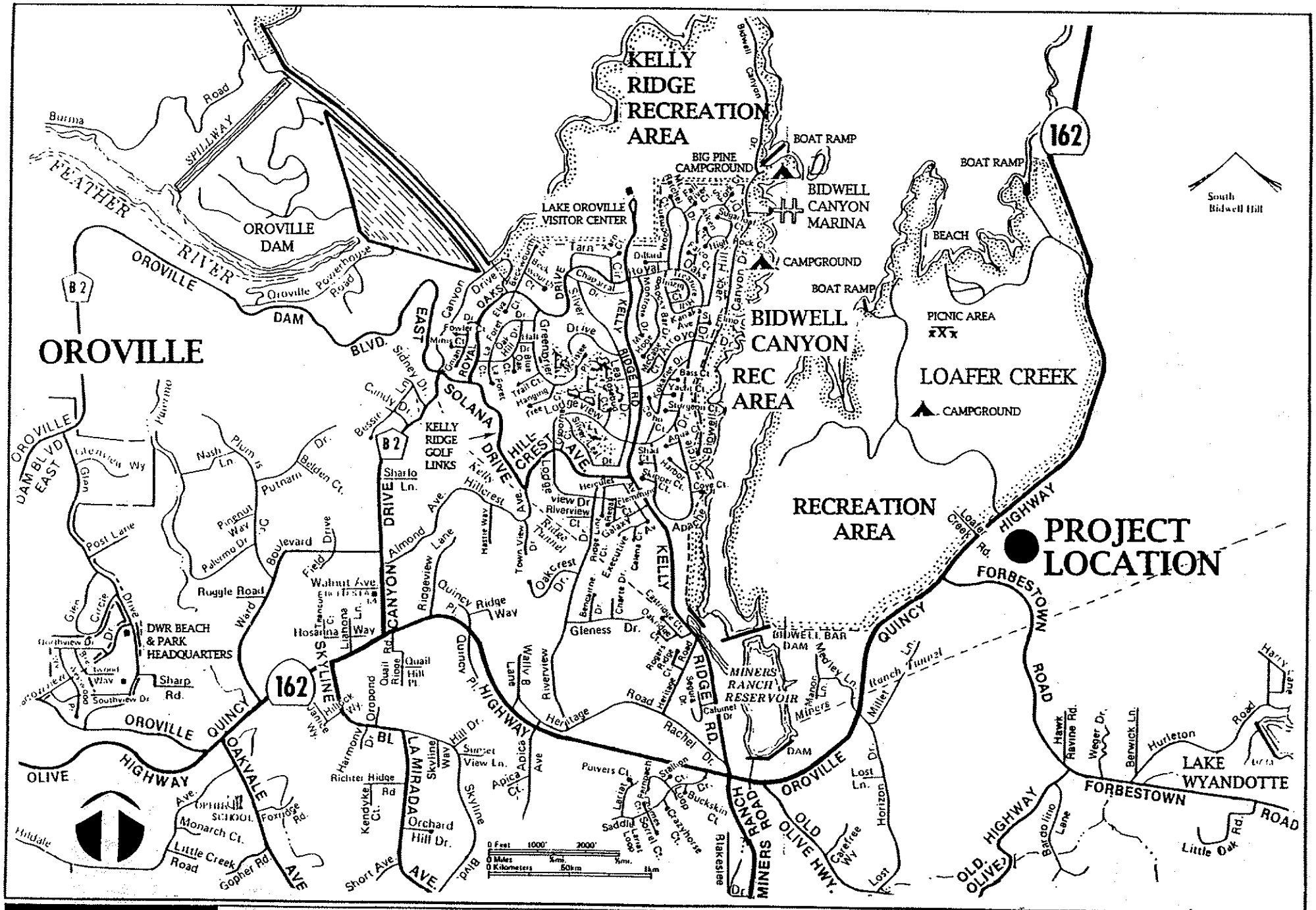
NOT TO SCALE

SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

REGIONAL LOCATION

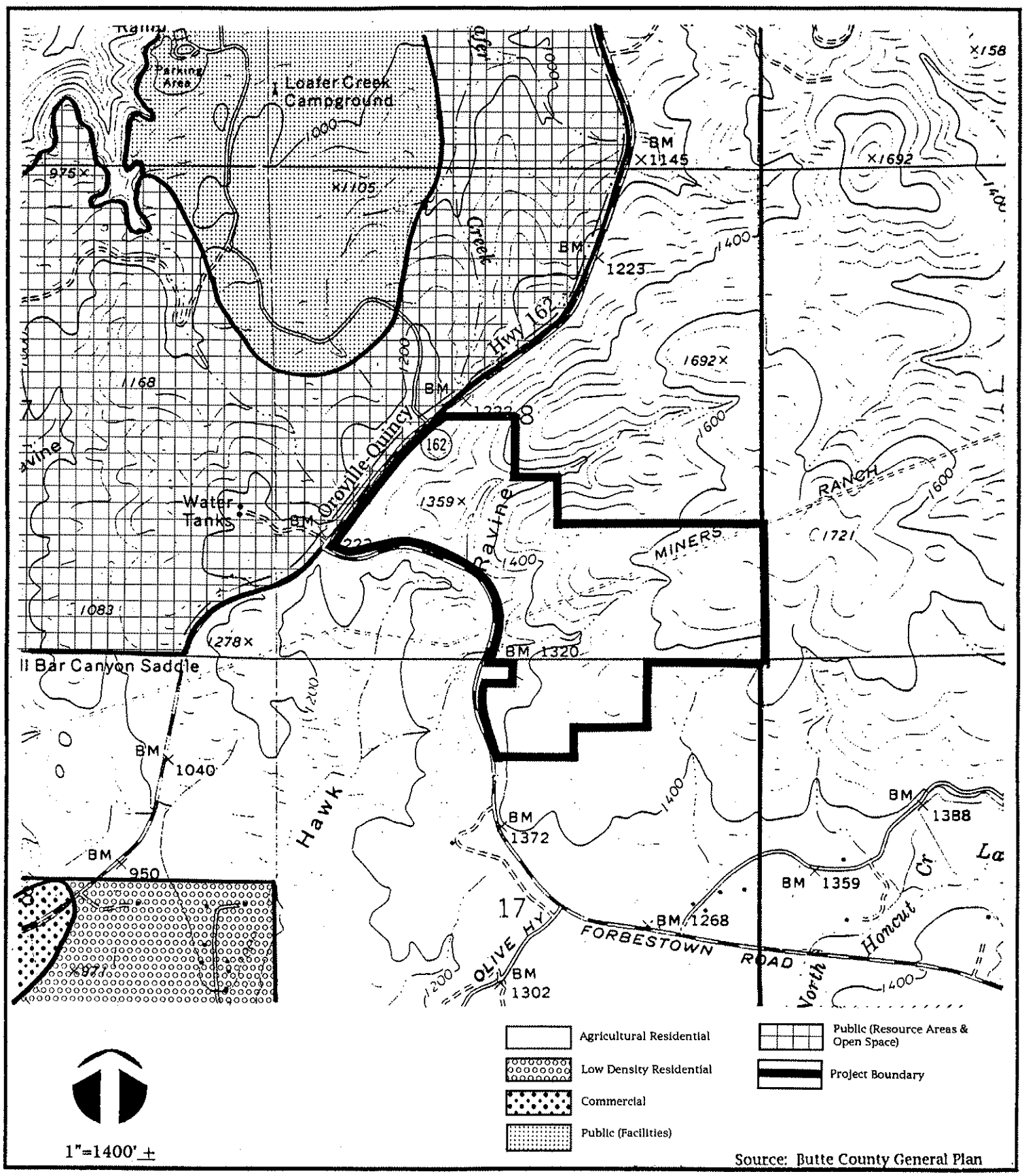
Figure 2-2



QUAD

PROJECT LOCATION

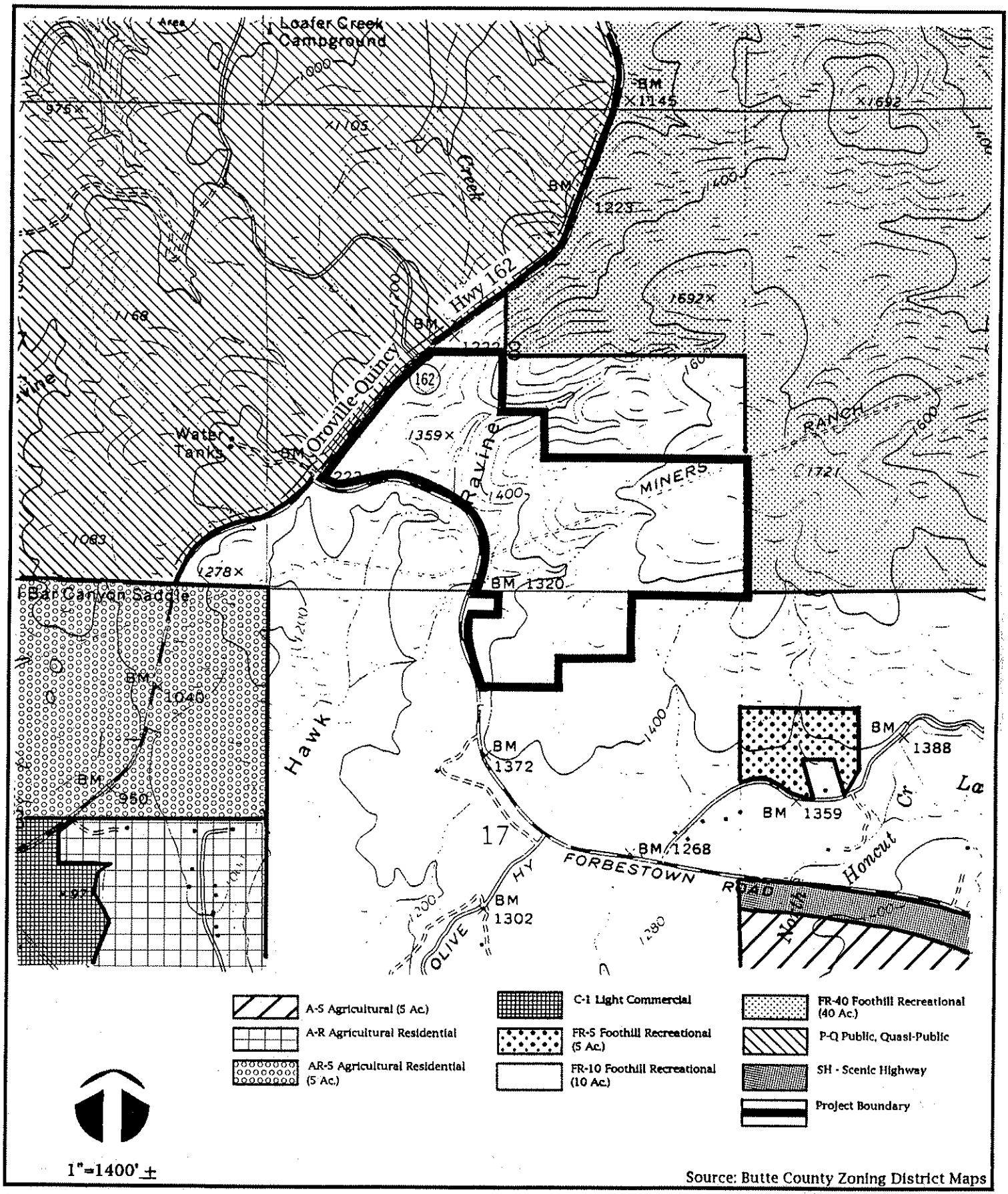
Figure 2-3



QUAD

EXISTING GENERAL PLAN

Figure 2-4

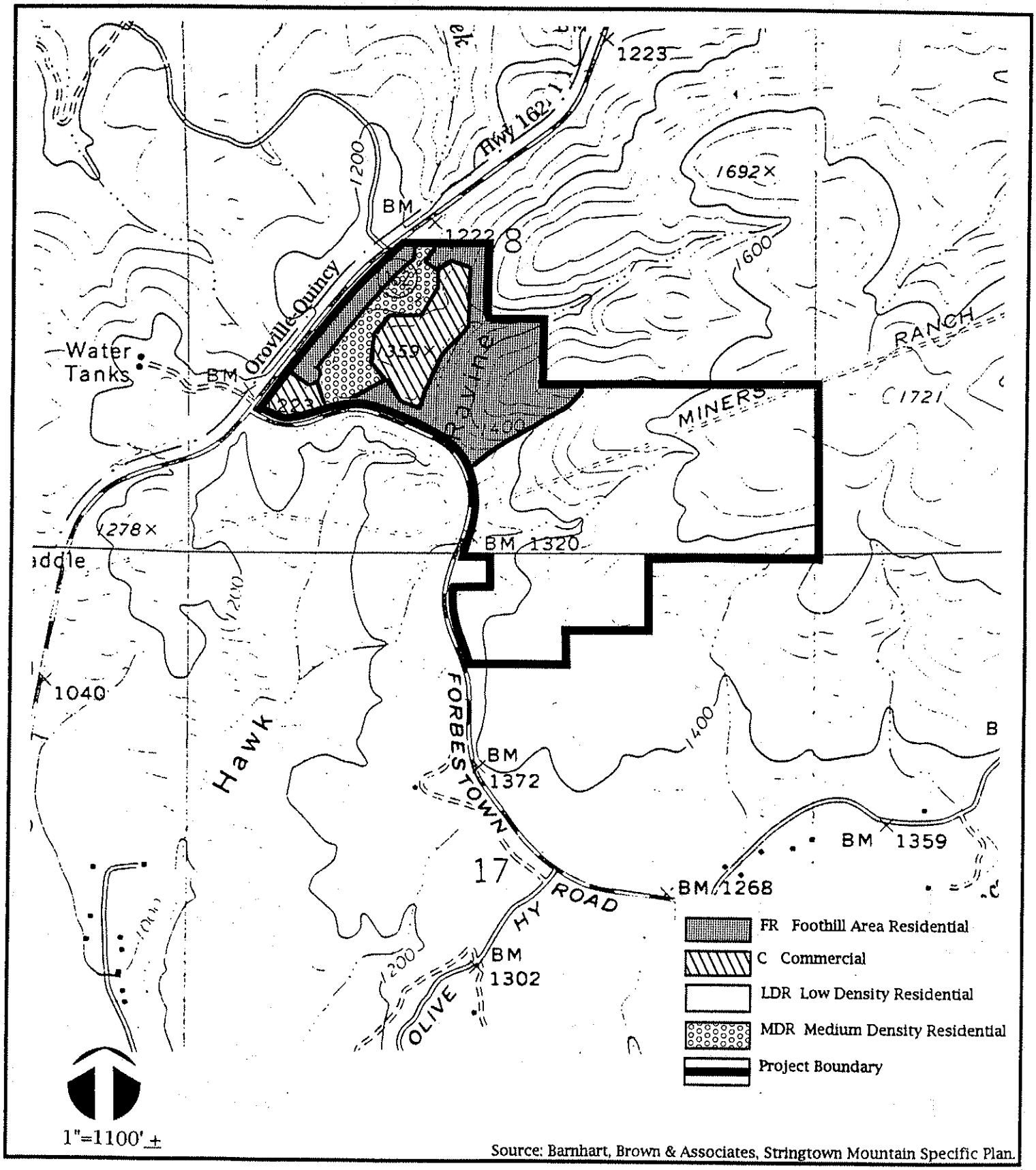


Source: Butte County Zoning District Maps

QUAD

EXISTING ZONING MAP

Figure 2-5

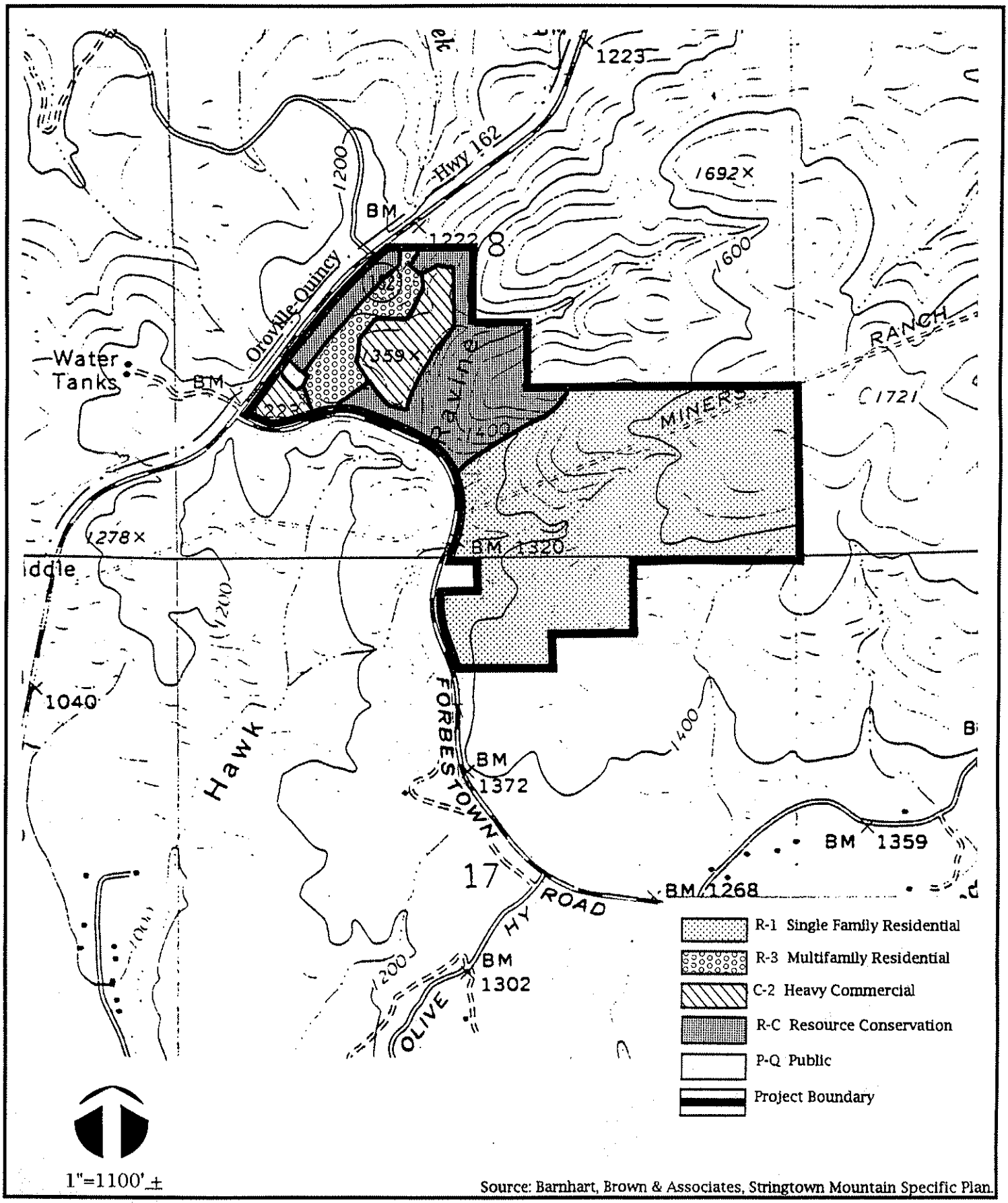


Source: Barnhart, Brown & Associates, Stringtown Mountain Specific Plan.

QUAD

PROPOSED GENERAL PLAN DESIGNATIONS

Figure 2-6

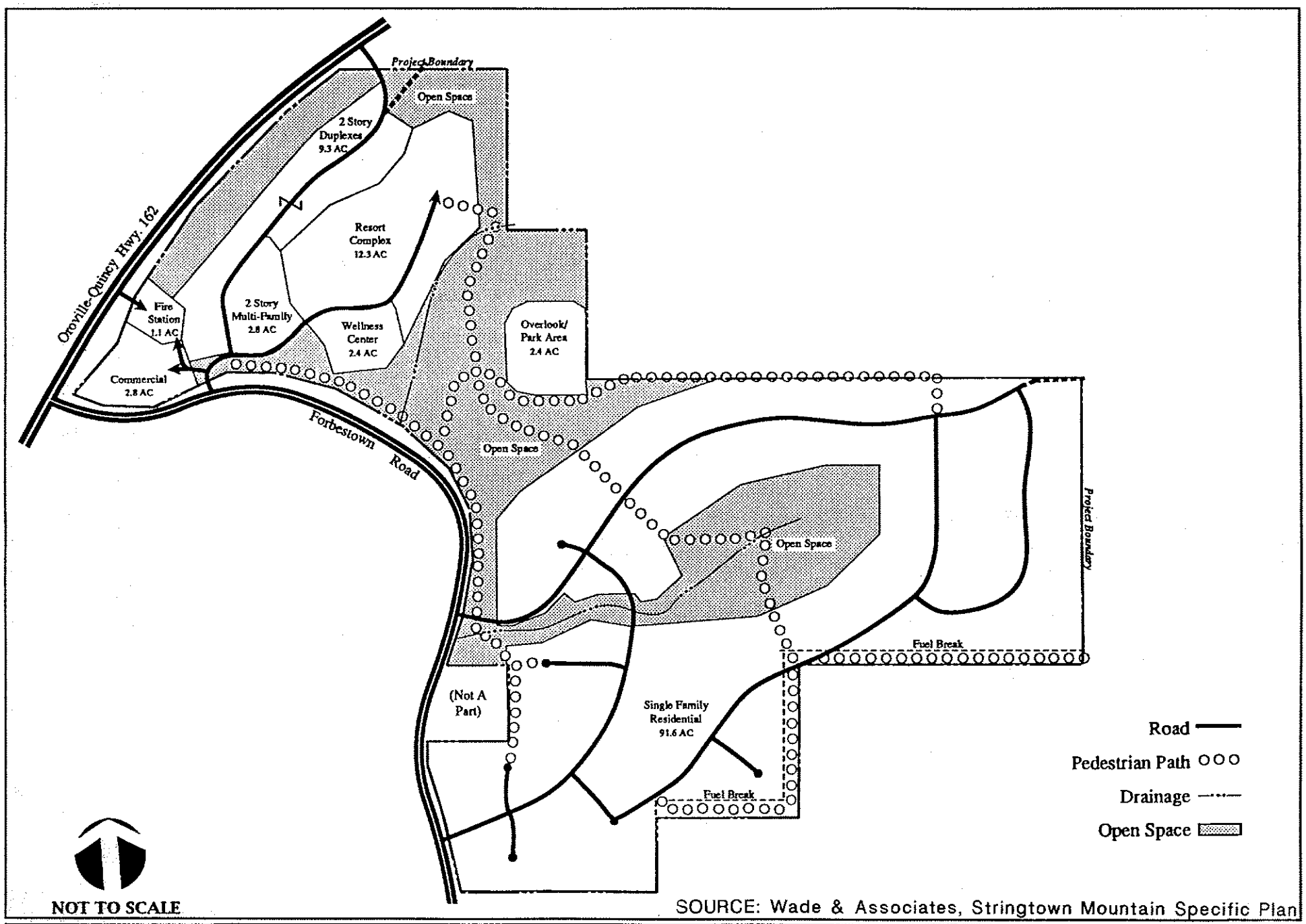


Source: Barnhart, Brown & Associates, Stringtown Mountain Specific Plan.

QUAD

PROPOSED ZONING

Figure 2-7



SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

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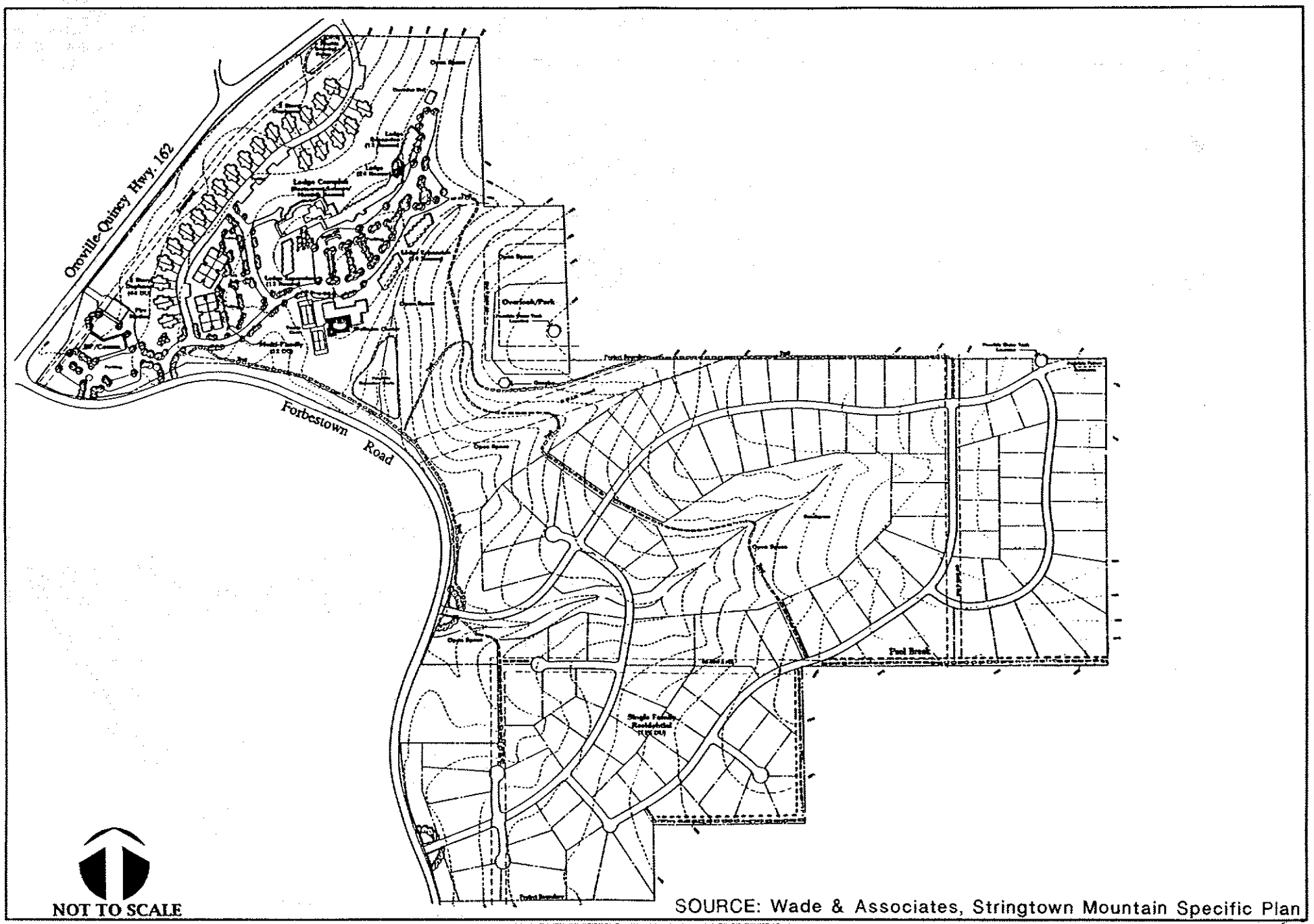
PROPOSED LAND USE

Figure 2-8

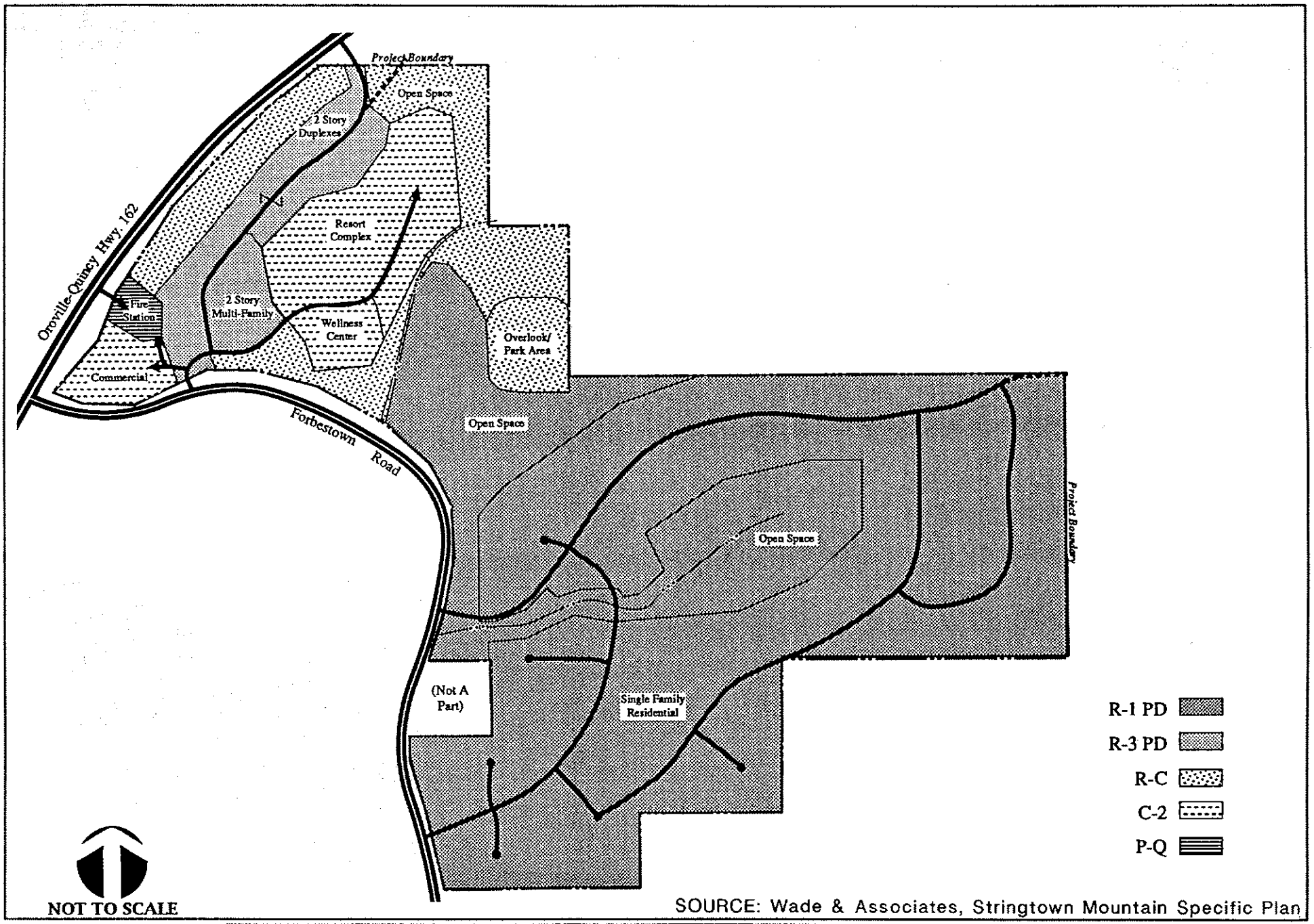


SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

ILLUSTRATIVE LAND USE

Figure 2-9

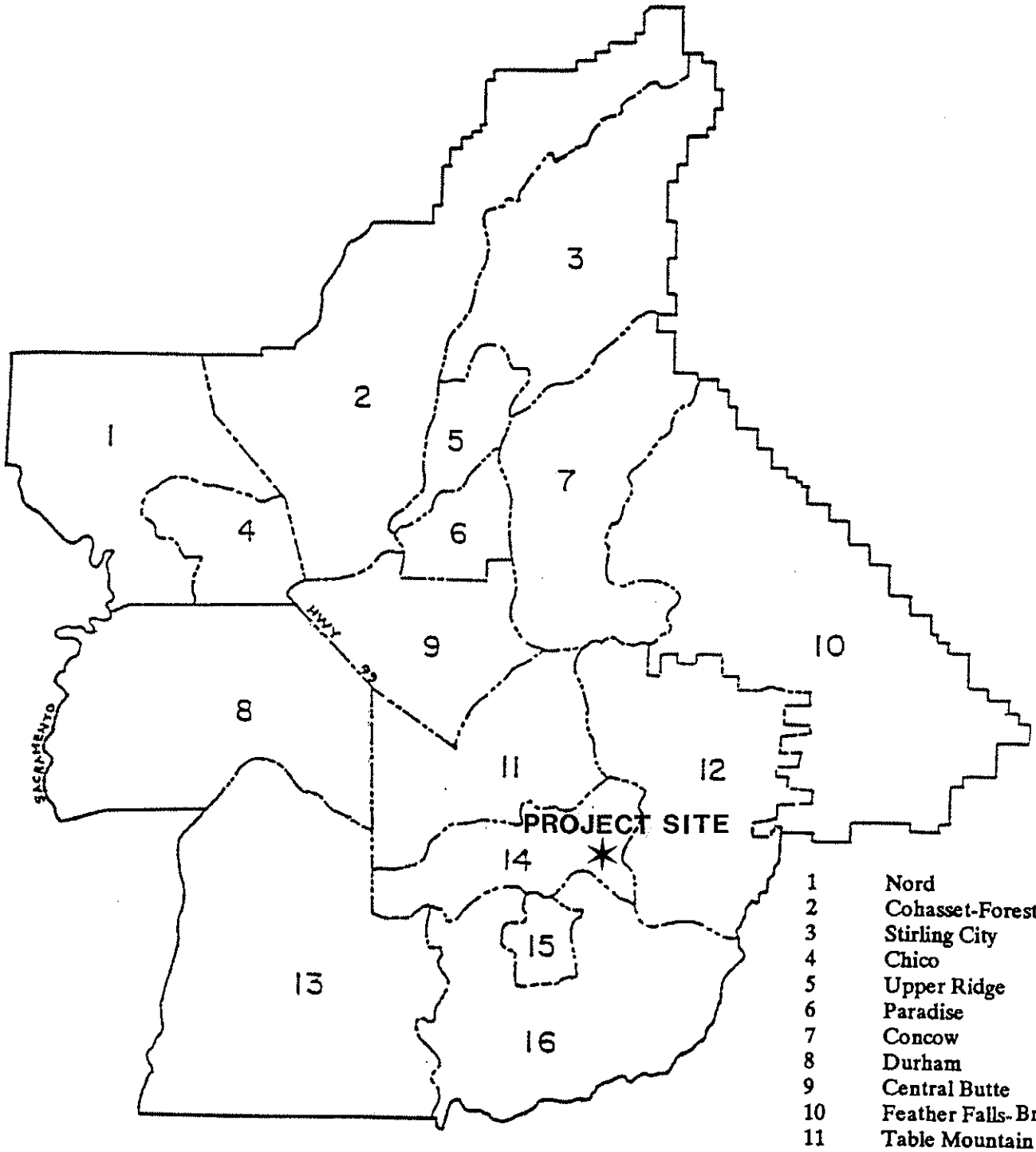


SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

IMPLEMENTING ZONING

Figure 2-10



1 Nord
2 Cohasset-Forest Ranch
3 Stirling City
4 Chico
5 Upper Ridge
6 Paradise
7 Concow
8 Durham
9 Central Butte
10 Feather Falls-Brush Creek
11 Table Mountain
12 Berry Creek-Hureton
13 Gridley-Biggs
14 Oroville
15 Palermo
16 Honcut-Bangor

NOT TO SCALE

SOURCE: Butte County Planning Department

QUAD

BUTTE COUNTY PLANNING AREAS

Figure 2-11

PLATE 2
Intersection of Highway 162 & Forbestown Road

PLATE 3
Project Site

QUAD

PHOTOPLATE

Chapter Three
Setting, Impacts and Mitigation Monitoring

CHAPTER THREE

3.1 EARTH

This section evaluates geologic/geotechnical issues that may affect the project. Youngdahl and Associates, Inc. conducted the study to meet CEQA requirements following the California Division of Mines and Geology (CDMG) Note 46: *Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports*. Published and unpublished geological and geotechnical literature relevant to the project site and vicinity was reviewed along with geological maps and reports by the CDMG and U.S. Geological Survey (USGS) to produce a geological description of the site.

The technical report of the geologic/geotechnical study by Youngdahl and Associates, Inc. is summarized below. The entire technical report appears as Appendix C to this EIR.

Setting:

Topography. Elevations within the site range from about 1,680 feet mean sea level (MSL) near the eastern property boundary to about 1,220 feet MSL at the intersection of State Highway 162 and Forbestown Road forming the western property boundary. The site occupies the southwestern flank of a hill which is incised by two major and one minor southwesterly draining intermittent streams (See Figure 3.1-1 at the end of this Chapter).

Geology and Seismicity. The northern approximate one half of the site is underlain by middle Mesozoic age rocks of the Smartville Complex (see Figure 2 of Appendix C to this EIR). These rocks have been intruded by the mid to upper Mesozoic age quartz dioritic Swedes Flat Pluton which forms the approximate southern half of the site (Saucedo and Wagner, 1992). The extreme north end of the Cleveland Hill fault which is associated with the Foothills Fault System and was historically active during the 1975, 5.7 Richter Magnitude Oroville earthquake is mapped about 6,000 feet to the southwest of the site.

Soils. Soils across the site tend to vary in accordance with differences in parent material, drainage, and age or degree of development since their deposition. The U.S. Department of Agriculture has mapped only the approximate southern third of the site (See Figure 3.1-2 at the end of this Chapter), which is shown as Rough Broken and Stony Land. A preliminary analysis of four soil samples has revealed that the site is underlain by sandy silts and silty sands. (Refer to Figure 3.1-2 for the location of soil samplings).

Potential Seismic-Related Hazards

Earthquake Potential. A review of the *Seismicity of California Map* (Goter, 1988 and Real, Toppozada and Parke, 1978) within 100 Kilometers (about 60 miles) of site boundaries reveals numerous earthquake epicenters (see Figure 1 of Appendix C to this EIR). These epicenters are generally located to the southwest of the site within the vicinity of the Cleveland Hill fault and in the central and eastern portions of the Sierra Nevada Mountains.

The project area lies in northeastern California, an area that with the exception of the Oroville earthquakes has historically experienced relatively low seismic activity. The Foothills Fault system has been studied extensively following the 1975 Oroville Earthquake of 5.7 Richter Magnitude and is believed to be capable of generating a 6.5 Richter Magnitude earthquake with a recurrence interval of approximately 65,000 years. According to the CDMG, faults which have produced earthquakes within Quaternary time (the last two to three million years) are classified as potentially active. Faults which have displaced soils younger than 11,000 years, Holocene age, are classified as active.

Seismic Considerations. According to the CDMG's publication *Fault Rupture Hazard Zones in California* (Hart, 1990) the only Alquist-Priolo Special Studies Zone[1] located within Butte County is for the Cleveland Hill fault. According to the California Department of Transportation (Mualchin and Jones, 1992) the nearest known active fault to the site is the Cleveland Hill fault, approximately two miles southwest of the Plan area. There are several active and other potentially active faults within a 100 Kilometer (60 mile) radius of the site. The major faults mapped in the region (Mualchin and Jones, 1992) are listed in Table 1 of Appendix C, along with their reported Maximum Credible Earthquake in Moment Magnitude and peak bedrock ground acceleration.

Fault Movement (Foothills Fault System). The 5.7 Richter Magnitude Oroville earthquake of 1975 was considered unusual by scientists because previous studies of the Foothill fault system had not detected seismic activity within the Holocene Epoch. Following the Oroville earthquake, several state and federal agencies studied the Foothills fault system to determine the

[1] The Alquist-Priolo Special Studies Zone Act regulates development near active faults to mitigate hazards of surface faulting and ground rupture. Under the Act, the CDMG has delineated "Special Studies Zones" along active faults in California that meet Act criteria. Cities and counties are required to regulate development in these zones by withholding development permits until geologic investigations demonstrate that surface displacement will not occur from seismic activity.

nature and extent of faulting. The Foothills fault system is associated with the Cleveland Hill fault. The Foothills fault system is considered capable of seismic activity, but the activity is estimated to have a very long recurrence interval and a very low slip rate. Excepting the Cleveland Hill fault, the Foothills fault system has not yet been classified as active and special seismic zoning was determined not to be necessary by the CDMG (Hart, 1990).

Damaging earthquakes, ranging from 5 to 6 Richter Magnitude have occurred within the northern Foothills fault system in 1975, 10 km (about 6 miles) south of Oroville, and in 1909 and 1888 about 15 km (about 9 miles) northeast of Nevada City. From 1864 to 1869, four earthquakes, in the range from 4 to 5 Richter Magnitude have occurred in Nevada and Sierra Counties along segments of the Foothills fault system. A Richter Magnitude 4 earthquake occurred on the Bear Mountains fault within what is now Folsom Lake in 1908. Two Richter Magnitude 3 events occurred along the Melones Fault Zone: in 1950, about 20 km (12 miles) northeast of Auburn and in 1960, about 15 km (nine miles) southwest of Nevada City. These data suggest that portions of the Foothills Fault system are seismically active (Clark, 1977). The Foothills fault system is well-defined, but is not considered to be appropriate by the CDMG for Special Study Zoning due to the lack of Holocene surface displacement, a very low slip rate (<0.005 mm/year) and long recurrence interval.

Liquefaction. Liquefaction is the transformation of saturated granular material from a solid to a liquid caused by a rapid increase in liquid pore pressure brought about by ground shaking. Both laboratory investigations and observations of field performance have shown that the liquefaction potential of a soil deposit to earthquake motions depends on the characteristics of the soil, the initial stresses acting on the soil and the characteristics of the earthquake involved. The significant factors include:

- Soil Type - Uniformly graded soils, fine sands, tend to liquefy more easily than coarser materials.

- Relative Density or Void Ratio - In any given earthquake, loose soils (relative density <70%) may liquefy but the same materials in a denser condition may not.

- Initial Confining Pressure - The liquefaction potential of a soil is reduced by an increase in confining pressure.

- Intensity of Ground Shaking - Studies of the soil behavior at Niigata in Japan indicate that extensive liquefaction occurred with ground accelerations exceeding 0.12 g.

- Duration of Ground Shaking - Liquefaction and sliding did not occur until about 90 seconds after the ground shaking began with the Alaska earthquake of 1964. The liquefaction potential decreases with a shorter duration of ground shaking (Seed and Idriss, 1982).

Liquefaction is not likely to occur within the project area due to the presence of a thin soil mantle of sandy silt developed upon firm bedrock. Field reconnaissance confirms this conclusion.

Landslides. Mass movement or landsliding refers to the downward movement of rock and soil due to gravity once they have been displaced from their normal positions. No evidence of landsliding on the site was observed other than occasional rockfalls on steeper slopes. Minor soil creep is occurring on the steeper portions of the property. Landslides are not likely to occur within the project area due to the presence of gentle to moderate slopes, a thin soil mantle of sandy silt and silty sand, underlain by bedrock of relatively strong slightly weathered material. Field reconnaissance reveals a low potential impact from rotational or transnational landslides. However rockfalls may occur on oversteepened slopes along road cuts or stream channels.

Differential Compaction/Seismic Settlement. Fine-grained soil and clay are subject to seismic settlement and differential compaction. Areas underlain by low-density silts and clays associated with fluvial depositional environments are suspect to seismically-induced settlement. These environments include old lakes, sloughs, swamps and stream beds. The amount of compaction may range from a few inches to several feet. The potential for differential compaction is highest and occurs over the largest areas during "great" earthquakes.

The four soil samples collected at the site were all sandy silts (ML) and silty sands (SM). Deep, loose deposits of these soils would be prone to differential compaction or seismic settlement, however, seismic settlement is not likely to occur within the project area due to the presence of the thin soil mantle developed on bedrock of relatively strong slightly weathered material. Field reconnaissance reveals a low potential impact from seismic settlement on slopes and ridges where the soil mantle is thin. A moderate potential impact exists in drainage areas (See Figure 3.1-3 at the end of this Chapter) where the soil horizon is thicker.

Ground Rupture. Given the available geologic and seismologic data, ground rupture is anticipated to be possible but unlikely within the site. This rupture will likely be associated with damaging earthquakes in the Richter Magnitude range of 5 or greater. Although the project area is not located within an Alquist-Priolo Special Studies Zone, the findings of the California Department of Water Resources indicate that there is a risk of ground rupture along traces of the Foothill Fault System (DWR, 1979). A low potential exists for impacts resulting from ground rupture at this site.

Ground Shaking. Strong earthquakes generated along any of the faults within the region may affect the site depending on the characteristics of the earthquake and the location of the epicenter. In general, the effects will be confined to those phenomena associated with shaking and/or ground acceleration. These effects can be minimized by appropriate design and construction procedures. The *Uniform Building Code* (UBC) classifies the site as being within the seismic region Zone 3. The minimum ground accelerations used for structure design within seismic region Zone 3 is 0.3 g. Structures located close to the Foothills fault zone may require more restrictive designs in accordance with higher anticipated ground accelerations.

Increased UBC Chapter 23 Z-Factors (Z>3) may be appropriate for some designs because of the proximity of the Cleveland Hill fault. The site is generally underlain by thin soil developed upon competent bedrock. A low to moderate potential for severe ground shaking exist at the site.

Seiches. A seiche is a periodic oscillation of a body of water whose period is determined by the resonant characteristics of the containing basin. In inland lakes, these periods usually are a few minutes long. Losses due to flooding or dam failure are possible with extended duration of ground shaking at a frequency conducive with the period of the particular lake.

Lakes Oroville and Wyandotte are the nearest seiche producing bodies of water to the site. The site is approximately 4,000 feet east of the nearest arm of Lake Oroville and about 200 feet higher in elevation, and is about 3,000 feet west of Lake Wyandotte, because of the distances and elevation differences separating the site from potential sources, the likelihood of seiches impacting the site is low. Any planned lakes, ponds or pools within the proposed development would also be subject to seiche development.

Potential Non-Seismic Hazards.

Flooding Due to Failure of Dams and Levees. Dams with artificial barriers 25 feet or more in height or which have an impounding capacity of 50 acre-

feet or more are under jurisdiction of the State Department of Water Resources, Division of Dam Safety. Failure of Oroville or Bidwell Bar (Miners Ranch Reservoir) Dams would not impact the site because they are lower in elevation. Failure of Lake Wyandotte Dam would also be unlikely to impact the property because topography would direct the water away from the site. This is confirmed by a review of the D.W.R. *Dam Inundation Maps* which do not include the site in any area subject to inundation.

The Miners Ranch Tunnel crosses the site medially in a southwesterly direction (see Figure 3.1-1 at the end of this Chapter). This 11 foot diameter unlined tunnel was completed in December of 1962 by the drill, blast and excavate method. The tunnel carries water from the south fork of the Feather River (Lake Oroville) at a maximum velocity of 320 cubic feet per second to the Miners Ranch Reservoir. The tunnel is thought to be approximately 400 feet below ground surface in the vicinity of the Stringtown Mountain project. The tunnel has a 50 foot easement on each side. Prior to development of any wells, other forms of drilling activity, or deep surface cuts in the vicinity of this easement, the Oroville Wyandotte Irrigation District should be consulted.

Topographic Alteration. Soil samples collected and tested for Atterberg Limits all plotted below the "A" line within the classification of silty sand. (Refer to Figure 3.1-2 for the location of soil samplings). Because of the low potential for low density material to occur within sands, severe topographic alteration resulting from increased sedimentation and erosion would be unlikely.

Slope Stability. The steeper slopes are undergoing minor soil creep but no landsliding was observed. Direct shear tests performed on site soil samples indicate moderate shear strength. Limited exposure of bedrock outcrops demonstrated a northwesterly to northeasterly strike and vertical to steep westerly dip of foliation. Construction activities resulting in ground disturbance could result in a moderate potential for accelerated soil creep at the project site.

Erosion Potential. Two intermittent streams flow southwesterly through the central portion of the site, a smaller gully exists between these two streams. These streams have removed the soil mantle, but do not appear to have significantly eroded into the underlying competent bedrock. Construction activities resulting in ground disturbance could result in a moderate potential for accelerated soil erosion at the project site.

Unstable Cut and Fill Slopes. Gentle to moderate slopes are present on much of the site and the anticipated construction activities will include cut

and fill slopes. As mentioned under "Landslides," no mass movements were observed and the native slopes appear relatively stable. However, a preferred orientation for cut slopes exists due to the joints and foliation of the native bedrock. Cut slopes roughly parallel with the dip of the foliation of the bedrock have a lower potential impact for failure than slopes cut roughly normal, or at right-angles to the bedrock foliation. Construction activities resulting in ground disturbance could result in a moderate to high potential for unstable cut and fill slopes at the project site.

Collapsible and Expansive Soil. Soils such as collapsible silts and expansive clays can be found within areas with a fluvial depositional history. The four soil samples which were collected were classified as sandy silts (ML) and silty sands (SM). These soil types typically do not demonstrate expansive characteristics. To confirm this, three samples with the highest likelihood for expansiveness, based on their plasticity index, were consolidated and tested to determine their expansion index. Both of these samples proved to be non-expansive. Because of the typical low density of silts these soils may have collapsible characteristics; however, in this instance the silts occur as silty sands or sandy silts which reduces their collapsible characteristics. The thin mantle of sandy silts observed on the site are not anticipated to have potential impact to expand and have low potential to collapse.

Trench Wall Stability. Subsurface conditions may be somewhat variable ranging from competent to weak. The weaker soils can be expected nearer the creek channels, swale areas, and within the few feet of the ground surface. A low to moderate potential impact from trench wall stability exists at the project site.

Land Subsidence. No gas, oil or geothermal wells are known to exist within the site, and there are no known deposits of peat. Extraction of ground water has been known to cause land subsidence within alluvial environments. Conditions at the site consist of shallow bedrock. Land subsidence is, therefore, not expected to occur.

Volcanic Hazards. Under present conditions, damage due to volcanic hazards is most likely to occur in the vicinity of Mt. Shasta, Lassen Peak, Medicine Lake Highland, Long Valley Caldera at Mono Lake (active volcanic zones) and less likely at other Quaternary volcanic hazard zones in California. Volcanic hazards include: (1) flowage phenomena such as lava flows, pyroclastic flows, mudflows, and floods; (2) surge, including base surge and eruptions; and (3) falling ash (tephra) (Miller, 1981).

Floods resulting from lava flow from an active California volcano are not anticipated to have an impact on the site. Tephra from the Long Valley Caldera eruption about 700,000 years ago was thickly accumulated at least 40 miles from the source area of the eruption. However, down-wind air-fall ejecta was deposited over most of the southwestern United States. The Long Valley Caldera is located about 168 miles to the southeast of the site, the Lousetown and Clear Lake volcanic areas are located approximately 78 miles to the southeast and 72 miles to the southwest, respectively. The Lassen and Eagle Lake volcanic areas are located about 60 miles to the northeast and the Mount Shasta, Medicine Lake Highlands and Modoc Plateau volcanic areas are located approximately 100 miles to the north. It is not possible to predict when or if these volcanic centers will reactivate, but based on their past quiescence, the probability is low for tephra impacts on the site.

Loss of Mineral Resources. A mineral resource is a concentration of elements in a particular location in such a form that a usable mineral commodity can be extracted from the deposit. The site is located within a gold producing region of the Sierra Nevada Mountains. There is one abandoned gold mine located on the site. Production records from this mine are not available, but it appears to have been unused for many years and does not appear within *Bulletin 193, Gold Districts of California*, published by the State of California. Several locations along Hawk Ravine appear to have been dammed and may have been used for sluicing operations, again these have been abandoned for many years. Because of the antiquity of the on site mining operations and little evidence of economic production, the loss of mineral resources is low.

Specific Plan Policies. The *Stringtown Mountain Specific Plan* incorporates policies and design standards intended to reduce or avoid impacts associated with geologic and geotechnical issues as follows:

- Buildings shall be sited with regard to the physical features of each project parcel and adjacent parcel. Such features shall be considered as primary determinants.

- Buildings, roadways, and other improvements shall conform with the natural topography and minimize grading where feasible.

- Grading Standards.

A site specific grading plan will be submitted to Butte County for review with each tentative subdivision map or use permit application. The following requirements will apply to all grading activities:

- All drainage shall conform to the natural character of the landscape and changes to existing creek channels shall be minimized.

- Profile grades should not exceed sixteen percent (16%). Cuts should be limited to 2:1 slopes and fills to 3:1 slopes. In special circumstances, exceptions may be allowed by the Butte County Department of Public Works.

- When necessary, retaining walls will be used to ensure stability of cuts and fills. The walls will be subject to approval by the Butte County Department of Public Works, and where possible, will be designed to be aesthetically compatible with the adjacent development.

- Bench or terrace any cut or fill slope that exceeds thirty feet (30') in height. The bench or terrace will carry surface water off the slope to a stable, nonerodible area.

- Runoff from upslope areas should not be allowed to flow down the face of the cut or fill bank. Surface flows should be diverted with a top-of-cut ditch and dike.

- Areas should only be graded if they can be developed in a reasonable period of time (project phasing). When the topsoil has been disturbed by scraping, digging, cut and fill, or other earth moving activities, provisions should be made to control erosion until the area is fully developed, paved, landscaped or revegetated.

- Engineering and construction techniques, including soil stabilization fabrics, rip-rap, diversion dams, gravel subdrains, and cut and fill design shall be utilized to stabilize soil on slopes as determined by the Butte County Public Works department.

- If possible, major earth work should be completed before October 15. The construction schedule should be set such that earth moving operations are completed with enough time to install erosion control practices prior to winter.

- Minimal disturbance to drainage courses and associated vegetation will occur during construction of the Stringtown Mountain project.

Grading will be prohibited in setbacks of fifty (50') from the center line of the two major drainage courses, except as reburied for trail crossings, road crossing and other public improvements.

- All grading, site preparation and construction work in or near drainage courses shall be generally limited to the period of April 1 through October 15 in order to minimize erosion. Exceptions may be allowed by the Butte County Public Works Director.

- During grading prior to road construction, topsoil should be set aside for later use in revegetation and recontouring efforts.

- If construction is scheduled to require longer than one season (October 15 - March 15) erosion control measures approved by Butte county, and operative through the winter period, will be implemented to minimize areas that may be disturbed through the winter season.

- Construction roads should have water bars and culverts if they are required to remain through the winter season.

- All disturbed areas that are not actively being developed should be planted, mulched or otherwise protected by an acceptable means for the duration of the winter season. In no case should disturbed areas be exposed after October 15.

- Rock energy dissipators or other methods will be used at the outflow points of any culverts.

- The Butte County Public Works Department will approve all drainage facility designs prior to project approval.

- Parking areas will be designed to provide the minimum amount of paving area necessary to meet parking standards. Permeable paving materials should be considered where feasible.

- Best Management Practices (BMP) such as sediment traps, evaporation basins, flow reduction devices, and other methods to reduce the volume of pollutants in parking area and street surface run-off will be installed in the storm drain system where feasible in accordance with county standards.

Impacts: **Impact Evaluation Criteria:** The Alquist-Priolo Act set up special seismic study districts and restricts construction within those zones. Any construction within an Alquist-Priolo Special Studies Area is considered a potentially significant impact. All of Butte County is situated in a UBC Risk Zone 3. A determination that localized conditions exist which may place the site at greater seismic risk than would be adequately mitigated by UBC Risk Zone 3 would constitute a potentially significant impact. The *California Health and Safety Code*, and California Earthquake Protection Law provide criteria for judging the significance of geologic hazards. These and other documents, including the UBC, specify engineering standards in the face of quantified hazard levels. An inability to comply with these standards would constitute a potentially significant impact.

The *Butte County Seismic Safety Element* contains the following relevant policies concerning seismic safety against which the project should be judged:

- Take into account all known seismic information in making land use decisions. Avoid location of schools, hospitals, public buildings, and similar uses in known active fault areas.

- Consider liquefaction potential in making land use decisions.

Impact #3.1-1: Potential to expose people and property to fault displacement, ground rupture, and/or seismic shaking during an earthquake along the Foothills Fault System or another location.

Conclusion: The *California Health and Safety Code* requires that buildings be designed to resist stresses developed by earthquakes. Accepted seismic design criteria are presented in the UBC, Chapter 23. However, wood-frame buildings of not more than two-stories in height in unincorporated areas are exempt under the California Earthquake Protection Law. Due to the increased potential for impact from the Foothills Fault System and the above described exemption for wood frame buildings, this impact is potentially significant. It can, however, be mitigated to a level which is less than significant through application of identified mitigation measures.

Impact #3.1-2: Potential to expose people and property to seismically induced liquefaction, landslides, seiches, dam failure, topographic alteration, expansive or collapsible soils, land subsidence, and volcanic hazards, or to cause mineral resource loss.

Conclusion: Research, laboratory analysis, and field work by qualified geologists and geotechnical engineers has shown that the potential for any of

the above impacts to occur is low, and that compliance with applicable codes and standards will achieve an appropriate level of protection. These potential impacts are, therefore, determined to be less than significant.

Impact #3.1-3: Potential to expose people and property to differential compaction, slope instability, erosion, unstable cut and fill slopes, and trench wall instability.

Conclusion: Qualified geologists and geotechnical engineers have found the potential for the above described impacts to occur to be moderate to high. Although potentially significant, these impacts can be mitigated to a level that is less than significant through application of *Specific Plan* policies and identified mitigation measures.

Impact #3.1-4: Potential to accidentally intercept the Miners Ranch Tunnel.

Conclusion: The Miners Ranch Tunnel is protected by a 100' wide easement; however, the potential exists for accidental encroachments and unauthorized activity to occur within the easement. This impact is potentially significant but can be mitigated to a level which is less than significant through application of identified mitigation measures.

Mitigation Measures:

Mitigation Measure #3.1-1: Construction of all structures to the design factors presented for UBC Zone 4, as a minimum. In addition, a detailed geological and geotechnical analysis shall be performed for all building sites prior to construction, and any appropriate additional mitigations established prior to issuance of building permits. This measure shall also apply to the proposed fire station. Applies to Impact # 3.1-1.

Effectiveness of Measure: UBC Zone 4 will generally mitigate against any increased risk associated with the local Foothills Fault System. A detailed geologic and geotechnical analysis of proposed building sites will assure that any unique risks associated with sites are assessed and mitigated. As an essential public services provider, it will be particularly critical that the proposed fire station site be thoroughly studied prior to construction.

Implementation/Monitoring: The above requirements will become conditions of tentative map(s)/use permit approval. The future lot owner will retain a geotechnical consultant prior to construction. The County Department of Development Services will assure that the tentative map and use permit contain appropriate conditions. The Building Division of the Department of Development Services will review the results of the geotechnical analysis and

establish appropriate standards. Monitoring will be done by the Building Division during plan checking and as a part of routine inspections.

Mitigation Measure #3.1-2: Conformance with Chapter 70 and other provisions of the of the UBC and compliance with the following additional specific measures:

- A detailed geotechnical investigation shall be conducted for building sites (see Mitigation Measure #3.1-1) and other improvements to be located on the site prior to development.

- Uncemented silty soils are prone to erosion, cut slopes and drainage ways within native material shall be protected from direct exposure to water run off. Any cut or fill slopes and their appurtenant drainage facilities should be designed in accordance with Uniform Building Code guidelines unless approved by a Geotechnical Engineer and authorized by the County Public Works Department. Slope angles should be designed to conform to the competence of the material into which they are excavated.

- Drainage facilities shall be lined as necessary to prevent erosion of the site soils. Erosion may increase because of site construction activities particularly in view of the silty soil conditions. However, a detailed geotechnical investigation should be performed to confirm site characteristics.

- Trenches greater than 5 feet in depth shall be shored or sloped back at a 1:1 (horizontal to vertical) slope angle in accordance with the Occupational Safety and Health Administration regulations if personnel are to enter the excavations.

- Surface soils may be subject to erosion when excavated and exposed to weathering. Erosion control measures shall be implemented during and after construction to conform with National Pollutant Discharge Elimination System, Storm Drain Standards and Butte County Standards.

- Rainfall shall be collected and channeled into an appropriate collection system designed to receive the runoff, minimize erosion and convey the runoff offsite. Conduits intended to convey drainage water off site should be protected with energy dissipating devices as

appropriate, and in some areas lined with an impermeable, impact proof material.

- Parking facilities, roadway surfaces, and buildings all have impervious surfaces which concentrate runoff and artificially change existing drainage conditions. Collection systems shall be designed where possible to divert natural drainage away from these structures, to collect water concentrated by these surfaces and to convey water away from the site in accordance with the National Pollutant Discharge Elimination System, Storm Drain Standards and Butte County Standards. Applies to Impact #3.1-3.

Effectiveness of Measure: Compliance with established codes, the policies of the *Specific Plan* and other measures described above will not totally avoid all identified impacts, but will reduce them to an acceptable level, consistent with established standards and practices.

Implementation/Monitoring: Adoption of the *Stringtown Mountain Specific Plan* by the Butte County Board of Supervisors will be the first step to be taken. UBC standards will be enforced by the County Building Division of the Department of Development Services during plan checking and routine field inspection as structures are built. Requirements related to subdivision construction and improvement which are drawn from the *Specific Plan* and mitigation measures will become conditions of future tentative map(s)/use permit approvals, and be enforced by the County Public Works Department during subdivision improvement plans review and subsequent field inspections. Tentative map submittals and subsequent building permits will also be reviewed by the County Department of Development Services for compliance with *Specific Plan* policies.

Mitigation Measure #3.1-3: Posting of permanent metal (or similar material) signs along the tunnel easement advising of the necessity to contact the Oroville Wyandotte Irrigation District prior to doing any work within or in the vicinity of the easement. The size and spacing of the signs shall be as negotiated with the Irrigation District. Applies to Impact #3.1-4.

Effectiveness of Measure: Notice to the property owners and Irrigation District should avoid the potential for future conflicts.

Implementation/Monitoring: Installation of the signs and coordination with the District will be made a condition of tentative map approval. Assurance that the signs have been installed will be provided by the Oroville Wyandotte Irrigation District.

3.2 HYDROLOGY, DRAINAGE AND WATER QUALITY

Setting: Butte County is situated within the Sacramento River Basin watershed which encompasses a myriad of streams that drain from the eastern slopes of the Coast Range and the western slopes of the Cascade and Sierra Nevada Mountains. The area is highly dependent on winter-time rainfall and snowfall to replenish surface and groundwater.

Surface Water. The project site has a 500 foot elevation difference from its eastern to western boundaries. Vegetation consists of steep to rolling blue oak woodland and montane hardwood forest, montane hardwood chaparral, blue oak woodland with bunchgrass, annual grassland, and montane hardwood riparian. The site varies from densely covered steep slopes to mildly sloped grasslands and chaparrals. Three drainage courses cross the site, two of which are shown as "blue-line streams" on the USGS Lake Oroville quadrangle map. There are no wetland habitats or freshwater marshes within the project boundaries.

The site is located within the Lake Oroville/Upper Feather River drainage shed. The majority of the site drains southerly into Hawk Ravine and to North Honcut Creek; a small portion drains northwesterly into Loafer Creek (see Figure 3.2-1 located at the end of this Chapter). Approximately 25 percent of the site has a slope greater than 30 percent (see Figure 3.2-2 located at the end of this Chapter). Annual precipitation averages 35" to 40" per year.

Geologists (see Appendix C) have estimated that the nature of the project soils, sandy silts and silty sands, provides moderate potential for erosion due to construction activities.

NPDES Section 402(p) Storm Drainage Requirements. Relatively new regulations under Section 402(p) of the federal Clean Water Act are presently taking effect. They involve control of pollution in storm water discharges. In California, the Section 402(p) National Pollutant Discharge Elimination System (NPDES) storm water permitting program is administered by the Regional Water Quality Control Boards on behalf of the U.S. Environmental Protection Agency (EPA). These permits are required for most new developments that exceed five acres. The entire Section 402(p) was published in the November 16, 1990, Federal Register.

On August 20, 1992, the State Water Resources Control Board adopted NPDES General Permit No. CAS000002: Waste Discharge Requirements for

Discharges of Storm Water Runoff Associated with Construction Activity. Compliance with these permitting requirements may involve preparation of a plan for controlling pollutants in storm runoff. Most developers subject to these requirements can be covered under the General Permit by submitting a Notice of Intent to the State Water Resources Control Board prior to construction. The General Construction Activity Storm Water Permit, a Fact Sheet explaining the permitting program, a Notice of Intent form, and Instructions for filing the Notice of Intent form are included in this EIR as Appendix D.

According to the *Specific Plan*, storm drainage onsite will be collected using a combination of underground piping and open natural channels. The design will utilize natural corridors onsite where possible to preserve and enhance natural features. Open channels used in the system will be designed to appear as natural drainage features. Storm drain detention facilities will be designed with the storm drain network to reduce the peak flow effects of storm drain runoff. To control urban pollutants generated onsite, roadside ditches may include mounds of cobble stones placed periodically along the drainage route and also at the entrances and exits of the ditches to the cross-culverts, as well as at locations where run-off will enter natural drainage courses. The stones will act as diffusers, filtering pollutants out of storm runoff.

Groundwater. Groundwater on the site is controlled by locally occurring fractures within the bedrock. There is one producing and three dry wells on the site but well depth or water quality information for these wells is not available. According to the *Butte County Draft General Plan Background Report* groundwater in the mountain areas of the county exists only in soil mantle, weathered rock, or openings formed by fractures, joints and faults. Weathered and fractured rock can extend to several hundred feet deep. Shallow wells in perched zones typically yield only a few gallons per minute (gmp), and can go dry during drought years. Water supply for the Plan Area is to be provided by a community system (OWID, reference Section 3.11.1) which relies on surface water, not groundwater as its source. Because the proposed development will not rely on groundwater supply, the quantity of groundwater will not be affected, nor will its limited availability impact the project. The potential for surface drainage to infiltrate groundwater is limited due to the lack of permeability of the bedrock.

Specific Plan Policies. The following policies have been incorporated in the *Stringtown Mountain Specific Plan* to reduce potential impacts associated with surface water and drainage:

- The storm drain system will be maintained by the formation of a County Service Area, administered by the Butte County Department of Public Works.

- Urban runoff should be directed to the pre-existing watershed(s).

- Minimal disturbance to drainage courses and associated vegetation will occur during construction of the Stringtown Mountain project. Grading will be prohibited in setbacks of fifty feet (50') from the center line of the two major drainage courses, except as required for trail crossings, road crossing and other public improvements.

- Drainage course crossings will be limited to provide reasonable access to developed areas or to accommodate construction activity.

- Department of Fish and Game Streambed Alteration Agreements will be obtained prior to commencement of any construction of proposed drainage course crossings in the *Stringtown Mountain Specific Plan*. All conditions of compliance set forth in the agreements will be enforced as part of the mitigation monitoring program.

- All grading, site preparation, and construction work in or near drainage courses shall be generally limited to the period of April 1 through October 15 in order to minimize erosion. Exceptions may be allowed by the Butte County Public Works Director.

- During grading prior to road construction, topsoil should be set aside for later use in revegetation and recontouring efforts.

- If construction is scheduled to require longer than one building season (October 15-March 15) erosion control measures approved by Butte County, and operative through the winter period, will be implemented to minimize areas that may be disturbed through the winter season.

- Construction roads should have water bars and culverts if they are required to remain through the winter season.

- All disturbed areas that are not actively being developed should be planted, mulched or otherwise protected by an acceptable means for the duration of the winter season. In no case should disturbed areas be exposed after October 15.

- All drainage course crossings shall allow movement of small wildlife.

- All drainage course crossings shall be designed to accommodate the 100-year storm event with approaches as close to a right angle as possible.

- Rock energy dissipaters or other methods will be used at the outflow points of any culverts.

- The Butte County Public Works Department will approve all drainage facility designs prior to project approval.

- Parking areas will be designed to provide the minimum amount of paving area necessary to meet parking standards. Permeable paving materials should be considered where feasible.

- Best Management Practices (BMP) such as sediment traps, evaporation basins, flow reduction devices, and other methods to reduce the volume of pollutants in parking area and street surface run-off will be installed in the storm drain system where feasible in accordance with county standards.

- Drainage easements will preclude erection of structures, vegetation removal and other site development not consistent with the purpose of these areas, except for drainage improvements.

- Planting of trees and shrubs within the riparian zone of drainage courses should reflect the flood and soil moisture tolerances of individual species.

In addition to the above policies, standards for grading activities and landscape guidelines have been incorporated into the *Specific Plan*. These standards and guidelines are included in the Community Development Standards, incorporated in this EIR as Appendix F.

Impacts: **Impact Evaluation Criteria:** 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. Groundwater impacts can be measured by the potential to encounter unsafe domestic water supplies 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.

The federal Clean Water Act, in conjunction with the National Pollutant Discharge Elimination System (NPDES) govern water quality in surface waters with respect to industrial and municipal discharges into those waters. In California, the State Water Resources Control Board and its subsidiary Regional Water Quality Control Boards administer the Clean Water Act and NPDES programs on behalf of the U.S. Environmental Protection Agency. Statewide, the California Inland Surface Waters Plan provides standards for California waterways and discharges into them. Title 22 of the California Code of Regulations provides treatment standards for wastewater that must be met for reclamation or discharge.

Impact #3.2-1: Increase in stormwater runoff and alteration of drainage patterns.

Conclusion: Development of the site will result in the introduction of impervious surfaces which will increase the amount of runoff generated and alter drainage patterns. Resort commercial and commercial areas may generate almost 100% runoff. The residential areas of the proposed development may have as much as 15% impervious surfaces including buildings, roads, parking areas and driveways, increasing the area's probable runoff coefficient from 0.2 to 0.35 to 0.25 to 0.4, dependent upon slope. This potentially significant impact can, however, be mitigated to a level that is less than significant.

Impact #3.2-2: Potential for erosion due to increased runoff.

Conclusion: Runoff may be concentrated as a result of site grading and landscaping and existing vegetation cover may be destroyed or reduced, increasing erosion. Unprotected cut slopes resulting from road, driveway and site grading increase erosion potential, particularly if they are created during rainy weather before protective facilities can be installed. The *Specific Plan*, however, generally places slopes greater than 30% in open space, thus mitigating erosion impacts on slopes most vulnerable to rapid runoff and the effects of erosion. This potentially significant impact can be mitigated to a level that is less than significant through *Specific Plan* policies and design, and the proposed mitigation measure.

Impact #3.2-3: Degradation of surface water quality.

Conclusion: Pollutants which can affect surface waters are washed by runoff from roadways, paved areas, and landscaping. If such pollutants were to enter surface waters in an uncontrolled manner, a potentially significant impact may result. This impact can, however, be mitigated to a level that is less than significant.

Impact #3.2-4: Degradation of groundwater quality.

Conclusion: The proposed development will be served by both community sewer and water facilities. Degradation of groundwater from the use of leachfields is not a potential impact. As indicated above, there is limited potential for surface drainage to infiltrate groundwater due to the lack of permeability of the bedrock, however, three onsite wells exist which could potentially carry pollutants to groundwater, if not properly sealed. This impact is, therefore, potentially significant but can be mitigated to a level that is less than significant.

Mitigation Measures:

Mitigation Measure #3.2-1: Install onsite drainage facilities per County standards and NPDES regulation, and in accordance with *Specific Plan* policies. The drainage facilities shall be designed so that runoff from parking areas is filtered through landscaped areas and other pollutant trapping devices prior to entering drainage courses. Applies to Impacts #3.2-1, #3.2-2 and #3.2-3.

Effectiveness of Measure: This measure, in conjunction with *Specific Plan* policies, will assure compliance with the Storm Drain Standards of the National Pollutant Discharge Elimination System.

Implementation/Monitoring: Construction of onsite drainage facilities will be required as a condition of tentative map(s)/use permit approval. Drainage plans detailing all drainage infrastructure shall be approved by the Butte County Public Works Department prior to approval of final subdivision maps.

Mitigation Measure #3.2-2: Properly cap and seal all onsite wells in accordance with County standards. Applies to Impact #3.2-4.

Effectiveness of Measure: Properly capping and sealing existing wells will limit the potential for pollutants to enter groundwater bearing fractures.

Implementation/Monitoring: Capping and sealing wells will be a condition of tentative map(s)/use permit approval. Monitoring will be performed by the County Department of Environmental Health.

3.3 AIR QUALITY

Setting: The project site lies within the Sacramento Valley Air Basin, which extends from Sacramento and Solano counties on the south to Shasta County on the north (see Figure 3.3-1). The air basin is generally situated in the northern portion of the Central Valley and is bounded on the west by the Coast Range, on the north and east by the Sierra Nevada/Cascade ranges, and on the south by the San Joaquin Valley Air Basin.

The Northern Sacramento Valley Air Basin (NSVAB) is a natural closed basin, often with poor circulation and high atmospheric stability. The area is subject to frequent temperature inversions (i.e., a layer of cold air capped with a warm air mass), preventing dispersion of pollutants.

Tables 3.3-1, 3.3-2 and 3.3-3 summarize air quality monitoring data for Butte County for carbon monoxide, ozone, and particulate matter less than 10 microns in diameter (PM_{10}). Violations of the State standards for ozone, carbon monoxide and PM_{10} are shown. Nitrogen dioxide and sulfur dioxide are also measured, but no violations of the State standards were recorded.

Table 3.3-4 presents average daily emissions figures for several criteria pollutants for the entire County of Butte. The county emissions inventory is segregated into emissions attributable to stationary and mobile sources. Stationary sources are further divided into emissions from various processes (e.g., waste burning, solvent use, petroleum processes) and mobile sources are categorized as on-road vehicles and other mobile sources (e.g., off-road vehicles, trains, aircraft.)

The data provided in Table 3.3-4 give an indication of the existing countywide emissions burden and the distribution of this burden across numerous types of sources. The table shows that over half (approximately 55 percent) of total emissions in Butte County are created by mobile sources. Over 70 percent of carbon monoxide (CO) emissions are from mobile sources and mobile sources also account for nearly 90 percent of the nitrogen oxides (NO_x) emitted and for nearly 95 percent of the sulfur oxides (SO_x) emitted. Light duty passenger vehicles and light-medium duty trucks contributed approximately 70 percent of mobile source CO emissions, 38 percent of NO_x and 17 percent of SO_x in Butte County. Heavy duty diesel trucks are the greatest contributor to SO_x emissions.

Stationary sources, however, account for the bulk of total organic gases (TOG) and particulate matter with a diameter of less than ten microns (PM_{10}). Major stationary sources of TOG include fuel combustion at

stationary sources and solvent use. The major mobile sources of TOG were light duty passenger vehicle and light/medium duty trucks. Entrained road dust, listed as a stationary source in the countywide inventory, was the major source of PM_{10} in the county.

The proposed project is considered an "indirect source". Indirect sources are stationary land uses that attract vehicles and their associated mobile emissions. Indirect sources include residential and commercial developments, industrial parks, and educational, health care, and government institutions/services. These sources may or may not be major stationary sources themselves, but they attract vehicles which emit significant amounts of air pollutants.

Legislative Background. At the federal level, the Clean Air Act established a framework for programs to achieve and maintain compliance with the National Ambient Air Quality Standards (NAAQS). Two types of limits are set by the NAAQS: primary standards to protect the public health, and secondary standards to protect the public welfare. "Criteria pollutants" are those for which primary standards have been set. To date, the Environmental Protection Agency has set standards for the following criteria pollutants: ozone (O_3), CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter under 10 microns (PM_{10}) and lead.

Areas of the U.S. not meeting the NAAQS must implement programs known as State Implementation Plans, which generally include enforceable emission limits and control strategies designed to achieve the NAAQS by specified deadlines. The 1990 Clean Air Act Amendments introduced new programs for controlling criteria pollutants and their precursors, hazardous air pollutants, gases causing acid rain and ozone-depleting substances. Both stationary sources and mobile sources are affected.

State legislation with regard to ambient air quality is similar to the federal law, except more stringent with regard to numerical limits. The California Clean Air Act (CCAA), passed in 1988 as AB 2595, requires the local air pollution control districts to achieve and maintain both the federal and State ambient standards at the earliest practicable date. Under the CCAA, local districts are required to submit air quality plans to the California Air Resources Board (CARB). The plans must either demonstrate attainment of the State ambient standards or provide a strategy for a five percent annual reduction in emissions of non-attainment pollutants in a given district.

Ambient Air Monitoring Stations. There are no air monitoring stations in the Oroville area, however the CARB has recently maintained two air quality

monitoring stations in Chico approximately 25 miles northwest of the site. The Manzanita Street station is located directly north of State Highway 99. In 1990 and 1991, this station was used to monitor ambient concentrations of CO, NO_2 and ozone. The former Salem Street station, now closed was located at the corner of Salem and West First Streets, and was equipped to monitor ambient levels of PM_{10} and CO. A former California State University, Chico PM_{10} monitoring station, located at the corner of Sowilleno and Arcadian avenues in Chico, was closed approximately three years ago. The locations of these stations are shown in Figure 3.3-2. CARB does not currently monitor for TOG.

Ambient Standards and Attainment Status. General standards applicable to any project which may affect air quality have been developed for the Sacramento Valley Air Basin. The Butte County Air Pollution Control District (BCAPCD) is responsible for local enforcement of these standards as well as the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS), which have been developed from numerous health risk and environmental impact studies. The CAAQS are generally more stringent than the federal standards and take precedence over the standards where this is the case.

Butte County is currently classified as "Non-attainment" by the U.S. Environmental Protection Agency with respect to the NAAQS for PM10 and ozone, and is classified as a "moderate" air pollution area. Under AB 2595, areas classified as "Non-attainment" must demonstrate a reduction in emissions to attainment levels at the earliest possible date. Accordingly, the *Air Quality Attainment Plan* (AQAP) for Butte County for ozone and PM_{10}, as well as carbon monoxide (for the Greater Chico Urban Area only), was submitted to the CARB on July 1, 1991 and adopted by the BCAPCD Governing Board on November 19, 1991. The AQAP requires the implementation of numerous air pollution control measures, including Transportation Control Measures (TCM), to reduce the impact and increase of vehicle trips, and miles travelled per trip. The TCM plan includes programs for parking management, car pooling, road and traffic flow improvements, increased use of transit, bicycle and pedestrian accessibility and park and ride facilities.

Another important component of the TCM is the indirect source review program, which addresses control measures for "indirect sources" intended to reduce and mitigate emissions of non-attainment pollutants or their precursors from sources that generate or attract motor vehicle activity. Its objective is to reduce indirect sources of emissions from new or modified development

projects by reducing the pollution volume, or altering the time when emissions are released and have the greatest adverse impact on air quality.

The County's *Congestion Management Plan* (CMP) is closely related to the TCM program, and is intended to promote planning coordination and find ways to reduce traffic congestion consistent with the AQAP. CMPs are mandated by the State, and require local jurisdictions to address transportation and air quality impacts resulting from local land use decisions.

Comments were received from the Butte County Air Pollution Control District (APCD) in correspondence dated June 11, 1992 (see Appendix B of this EIR). In that correspondence it was suggested that mitigation of air quality related traffic impacts be accomplished through air quality analysis on planned intersection improvements, implementation of alternative transportation measures, and payment of a fee to the Butte County Transit System to assist in offsetting the cost of establishing a new bus route. An evaluation of key intersections was conducted as part of the traffic study. Mitigation measures recommended as part of that study are incorporated into this EIR (reference Section 3.10). Implementation of these mitigation measures would reduce the impacts to key intersections by maintaining the level of service (LOS) to no less than a level "C" through the installation of improvements. Localized carbon monoxide impacts are not anticipated until the LOS reaches a level of "D" or "F". Additional intersection modeling would not therefore, be warranted.

It was also commented by BCAPCD that the Butte County Department of Development Services should consider requiring the payment of a developer fee to the Butte County Transit System (BDTS) to assist in offsetting the cost of establishing a new bus route, however, there currently is no mechanism for collecting and disbursing such funds. BCTS currently provides bus service between Chico and Oroville along highways 99, 149 and 70 on a daily basis with limited service on Saturdays. Service is not currently available along Highway 162.

Other Local Programs. The BCAPCD prepared an *Air Quality General Plan Element* in 1993. While not adopted, this Element contains the following relevant policy statements:

- Promote the use of trees and plants in landscaping to reduce air pollutant levels. Increase the minimum amount of trees/green space required for new developments to 50% more than is required by the city/county planning department policy or ordinance.

- Develop a transportation system that provides opportunities to lower Vehicle Miles Traveled (VMT), increase Average Vehicle Ridership (AVR), and reduces/prevents traffic congestion through the promotion of ridesharing, pedestrian, bicycle, and public/private transit modes of travel.

- Reduce the air quality impacts associated with future residential and commercial development.

- Include air quality as a factor in environmental review procedures.

- Mitigation measures for air quality impacts shall be identified and implemented by Planning Agencies through the City/County's environmental review and permitting procedures.

General Plan Policies. The *Land Use Element* of the *Butte County General Plan* includes the following policy regarding air quality:

- Evaluate carefully the air pollution potential of all development plans and proposals.

Specific Plan Policies. The following air quality policies are incorporated in the proposed *Stringtown Mountain Specific Plan*:

- Spray water on exposed earth surfaces during clearing, grading, earth moving, and other site preparation activities to adequately deter dust from escaping property boundaries and becoming a nuisance to area residents.

- Require construction contracts to include watering at a minimum in the late morning and at the end of the day.

- Use tarpaulins or other effective covers for haul trucks which travel on public streets to minimize release of particulate matter.

- Institute measures to reduce wind erosion when site preparation is completed.

- Stringtown Mountain guests and residents will be encouraged to utilize the onsite commercial uses, alternative modes of transportation and onsite trail systems, to decrease automobile trips generated from within the plan area.

- All wood burning devices installed in residential uses shall be EPA Phase II certified.

Impacts: **Impact Evaluation Criteria:** The federal and State ambient air quality standards provide the basis for evaluating air quality related impacts. Non-attainment of a federal or State emission standard for any pollutant is a significant impact. These standards are shown in Table 3.3-5. Because the State standards set forth under the Clean Air Act of 1988 are more restrictive than federal standards, State standards are used for comparison of impacts. Non-attainment of a State emission standard for any pollutant is considered a significant impact. It is unlikely that an individual development project would, by itself, exceed a standard. However, if a project results in an incremental contribution to a condition in which standards are exceeded, a significant cumulative impact would result.

Impact #3.3-1: Increased emission of hydrocarbons, PM_{10}, ozone, and ozone precursors from vehicular traffic. Implementation of the proposed *Stringtown Mountain Specific Plan* will result in increased population within the Air Basin. The estimated population of the Plan area at buildout is 489, plus 75 temporary residents using the resort complex and wellness center. Table 4, Appendix G shows traffic generation figures for the Plan area at buildout, considering residential, commercial, recreational and other traffic-generating uses. Based on these population and traffic generation figures, mobile source emissions that will result from implementation of the Plan and buildout of the Plan area were estimated utilizing the URBEMIS #3 computer model developed by the California Air Resources Board, as suggested by the BCAPCD. The results of this modeling are presented in Tables 3.3-6 and 3.3-7.

Conclusion: The BCAPCD has indicated that the size of this development at buildout will have significant impacts on the ambient air quality of the Oroville area. The mobile source emissions reported in Tables 3.3-6 and 3.3-7 will contribute slightly to local exceedances of State ozone standards, for which Butte County is a non-attainment area. Development in accordance with the proposed *Specific Plan* will also contribute to regional emissions of ozone and PM_{10}, which are currently not in compliance with State standards. Because Butte County is a non-attainment area for these pollutants, any increase in emissions will result in a significant cumulative impact. Air quality policies incorporated in the *Specific Plan* and additional recommended mitigation measures will reduce this impact; not, however, to a level that is less than significant.

Impact #3.3-2: Increased ozone levels due to emissions from construction equipment operation, and PM_{10} from grading activities and newly disturbed ground surfaces.

Conclusion: Even though temporary or short-term in nature, an increase in pollutant emissions is a significant impact in an area that exceeds State standards for ozone and particulate matter. In the absence of proper mitigation, these emissions can contribute incrementally to existing significant cumulative air quality effects that have resulted in non-attainment within this air basin for PM_{10} and ozone. Implementation of air quality policies incorporated in the *Specific Plan* will reduce dust-related impacts, and recommended mitigation measures will further reduce impacts to a level that is less than significant. Regulation of emissions from construction equipment can be mitigated, but not to a level that is less than significant.

Impact #3.3-3: Emission of PM_{10} and ozone precursor gases from wood-burning appliances associated with residential and resort uses.

Conclusion: Without effective emissions controls on wood-burning appliances, significant cumulative air quality effects can occur. The EPA has established particulate emissions limits for new wood stoves to reduce them to a maximum of 4.1 grams per hour for stoves with catalytic converters, and 7.5 grams per hour for stoves without catalytic devices. The *Stringtown Mountain Specific Plan* includes a policy requiring that all wood burning devices installed in residential uses shall be EPA Phase II certified. Even with the new EPA-recommended technology, however, improper use of wood-burning appliances can result in increased emissions which contribute to significant cumulative impacts. This impact can be reduced through application of the recommended mitigation measure; not, however, to a level that is less than significant.

Mitigation Measures:

Mitigation Measure #3.3-1: Provide twice daily shuttle service to Oroville for resort guests. Applies to Impact #3.3-1.

Effectiveness of Measure: Provision of this service would decrease the need for single occupant vehicle trips; not, however, to a level that is less than significant.

Implementation/Monitoring: Service will be required as a condition of tentative map(s)/use permit approval, to be commenced upon occupancy of the resort complex. Compliance will be monitored by the BCAPCD.

Mitigation Measure #3.3-2: Prepare a written report concerning the feasibility of establishing a day care facility as part of the project. If found feasible, encourage and consider partially funding establishment of a day care facility for residents of the development. Applies to Impact #3.3-1.

Effectiveness of Measure: Day care is one of the largest contributors to vehicle traffic. A day care facility in the Plan area will discourage additional vehicle trips.

Implementation/Monitoring: The *Specific Plan* provides that day care centers will be allowed in the commercial area. Report to be prepared by the applicant and submitted to the Department of Development Services and BCAPCD. Followup will be the responsibility of the BCAPCD.

Mitigation Measure #3.3-3: The developer shall reserve an area to allow for the construction of a bus turnout and shelter. Such improvements shall be installed by the developer at the time bus service becomes available along Highway 162 to the site and shall be built to the specifications of BCTS, Butte County Public Works Department and Caltrans. Applies to Impact #3.3-1.

Effectiveness of Measure: Provision of alternative transportation modes decreases the need for single occupant vehicle trips.

Implementation/Monitoring: Reservation of adequate area for improvements will be required as a condition of tentative map(s) approval. Construction/installation will be required at the time service to the site is available and will be secured by a bond of adequate amount if not installed prior to recordation of the last final map on the site. Compliance will be monitored by the Transit System.

Mitigation Measure #3.3-4: Include installation of dedicated pedestrian/bicycle pathways in the internal street design from each phase of the development to commercial and recreational areas. Provide for easy access to the commercial development for pedestrians and bicyclists. Modify the *Specific Plan* to require Class II bikepaths as part of street improvements. Locate bicycle parking in preferential areas closest to the destination point. Provide bicycles for the use of resort guests. Applies to Impact #3.3-1.

Effectiveness of Measure: The bicycle/pedestrian pathway system will assist in alleviating traffic impacts by encouraging people to walk or bicycle, and eliminating the need for more automobile trips.

Implementation/Monitoring: Modification of the *Specific Plan* prior to approval to include adequate street width and other provisions for Class II bike paths. Dedication of the pathway system, installation of Class II bikepaths, bicycle parking and provision of bicycles will be required as conditions of tentative map approval. Compliance will be monitored by the Butte County Public Works Department. Provision of bicycles will be monitored by the BCAPCD.

Mitigation Measure #3.3-5: Maintain all construction equipment used at the site in good mechanical condition, properly tuned and fitted with appropriate mufflers and emissions control equipment. Applies to Impact #3.3-2.

Effectiveness of Measure: Maintenance of equipment in good operating condition assures that it complies with State vehicular emissions standards.

Implementation/Monitoring: Submit vehicle inspection documentation to the BCAPCD showing compliance with muffler and emissions control requirements. Compliance will be monitored by the BCAPCD.

Mitigation Measure #3.3-6: Prepare and submit a dust suppression plan to the BCAPCD for approval that includes best management practices and provides a sufficient level of control to minimize fugitive emissions. Include in the dust suppression plan an increase in the frequency of watering proposed in the *Specific Plan*, especially in spring, summer and fall. Applies to Impact #3.3-2.

Effectiveness of Measure: Use of best management practices for dust suppression represents the most effective measure available to address fugitive dust.

Implementation/Monitoring: Review and approval of dust suppression plan by BCAPCD required prior to issuance of any grading/construction permits. The BCAPCD shall conduct inspections and monitoring as required by the permit process.

Mitigation Measure #3.3-7: Require the homeowners' association to provide residents with information on proper use of wood-burning appliances such as the EPA published information sheet entitled: *Wood Stove Features and Operation Guideline for Cleaner Air* (EPA-600/D-83-112). Applies to Impact #3.3-3.

Effectiveness of Measure: Implementation of this measure, in conjunction with the policy regarding EPA certification, would achieve significant

reductions in wood-burning appliance emissions. Nevertheless, any emissions of particulates or ozone and ozone precursors above existing levels will contribute to a significant cumulative effect.

Implementation/Monitoring: Building inspections by the Building Division of the Butte County Department of Development Services; inclusion in project CC&Rs. Monitoring is to be done by the Butte County Department of Development Services at the time of tentative map approval. Ongoing monitoring will be done by BCAPCD.

3.4 BIOLOGICAL RESOURCES

In 1990, Jones and Stokes Associates, Inc. identified various biological site development constraints for the South Bidwell Participation Group which was considering a residential and recreational development for an 820-acre area east of Oroville. The work performed encompassed the proposed *Stringtown Mountain Specific Plan* project site. QUAD Consultants has reviewed the previous work, and considers the issues to have been thoroughly addressed, including the information concerning migratory winter deer range, habitat, and identified plant communities. It also adequately addressed other relevant biological issues and provided mitigation strategies, many of which remain appropriate for the smaller *Stringtown Mountain Specific Plan* project. The study by Jones and Stokes is reprinted in its entirety in Appendix E and the reader is referred to it for more detailed site description and other background information.

Setting: **Deer**

Designated Development Zone (DDZ) lands have been identified in Butte County as a result of studies performed by CDFG during 1986-87 which were intended to identify lands which should be preserved as winter deer range and which could be allowed to develop. The California Department of Fish and Game identified DDZ lands on the basis of five criteria:

The parcel was less than 20 acres.

- Deer movement was blocked for at least 0.25 mile by parcels less than or equal to 20 acres.
- Habitat was unsuitable for migratory deer.
- The parcel bordered a transportation corridor and was not within a migration window.

- The land was bordered on three or more sides by parcels of less than 20 acres, and development of these parcels would not block deer movement or affect the surrounding area.

The 1990 Jones and Stokes report suggested that a reconsideration of the DDZ and deer winter range designations appeared to be justified for certain portions of the South Bidwell Project Area. Utilizing the above criteria, approximately 46 acres in the northwesterly corner of the *Stringtown Mountain Specific Plan* property was found by Jones and Stokes to be suitable for designation as a DDZ, although it had previously been designated as winter range. It was noted that it is located between an Identified Transportation Corridor (ITC), Highway 162, and an existing DDZ; furthermore, pellet group surveys indicated low deer use in the area even though the habitat quality was rated as moderate to high. A letter dated September 18, 1990 from CDFG Regional Manager James D. Messersmith stated that the CDFG does not object to including the 46 acre parcel into the adjacent DDZ, provided the Board of Supervisors adopts and implements mitigation measures for residential encroachment impacts on winter deer range and imposes appropriate measures on the parcel. A recent conversation with Mr. Jim Snowden, Unit Biologist, CDFG, (June, 1993) confirms that the Department's position remains the same.

The remainder of the 171 acre site is within a DDZ, with the exception of the easterly 60 acres, which remains designated as critical winter deer range (See Figure 3,4-1 at the end of this Chapter). According to the County Development Services Department, since identification of DDZs, there is no precedent for development similar in scope to the *Stringtown Mountain Specific Plan* in areas outside DDZs (Thomas Last, Butte County Planning Department, pers. comm., June 1993).

In association with the above described CDFG studies, recommendations were made to the Butte County Board of Supervisors that lands identified as critical winter deer range be zoned to a 40 acre minimum parcel size, and that certain regulations be adopted concerning fencing and the control of dogs in areas outside DDZs. The Board was also asked to adopt deer mitigation fees to be applied to new development within migratory deer ranges. Although not within the present *General Plan*, the County has as a matter of policy implemented the minimum acreage requirement for areas outside DDZs, and has also enforced the fencing and dog control requirements in conjunction with development projects (Last, June 1993). Although the CDFG continues to recommend deer mitigation fees, the County has not yet adopted a procedure for their collection (Ron Bertram, CDFG., pers. comm., June 1993). The fee has, however, been a made a condition of approval on certain

discretionary projects, to be collected if the Board of Supervisors formally establishes procedures for its collection (Last, June 1993).

Although not adopted by the Butte County Board of Supervisors, the proposed *General Plan Energy, Natural Resources and Recreation Element* contains a number of proposed policies concerning migratory deer areas. Included are policies requiring measures in conjunction with individual development projects which reduce impacts to migratory deer. Within areas shown on the *General Plan* as A-R, such as the *Stringtown Mountain Specific Plan* property, a requirement for 20 and 40 acre parcels or clustered development with specified open space areas is suggested.

Plants

In May 1989, Jones and Stokes conducted field surveys to determine the presence of five special status plants. These were the Red Bluff rush (*Juncus leiospermus*), Butte County checkerbloom (*Sidalcea robusta*), Mosquin's clarkia (*Clarkia mosquinii* ssp. *mosquinii*), Enterprise clarkia (*Clarkia mosquinii* ssp. *xerophila*), and the Veiny monardella (*Monardella douglasii* ssp. *venosa*). None of these species was located during these surveys (Jones and Stokes 1990). A recent review of the Natural Diversity Data Base (NDDB) for the area revealed that only one species of concern, the California hibiscus (*Hibiscus lasiocarpus,* previously named *H. californicus*) has been added to the list since the 1990 Jones and Stokes report. A brief description of this plant is provided below:

> **California Hibiscus**
>
> California hibiscus is a stout, freely branching shrub of the Mallow Family (*Malvaceae*). California hibiscus are 1-2 m high; flowers are white or roseate with deep crimson at the base, petals are 6-10 cm long; leaves are 6-10 cm long, and almost as wide. California hibiscus can be found in freshwater marsh and swamp habitats found on small islands and moist banks of the lower Sacramento and San Joaquin rivers from San Joaquin and Contra Costa counties to Butte County. California hibiscus are seriously threatened by channelization of the Sacramento River and its tributaries (CNPS 1988).

The nearest occurrence of California hibiscus is reported from about 20 miles west near Highway 149. The species was reported last seen in 1976. Surveys in 1977 and 1978 failed to find this species at the previous location. The

species was not observed within the project area and it is unlikely that suitable habitat exists on the *Stringtown Mountain Specific Plan* project site.

Raptors

Although Jones and Stokes reported a nesting pair of bald eagles approximately 3 miles north of the site, little evidence of raptors was noted in the Plan area. Table 3.11-2 identifies additional wildlife observed in April 1993 by QUAD biologists. No raptors were observed. The reader is referred to Appendix E for additional background on raptors.

Vectors

The Butte County Mosquito Abatement District has responded to the NOP reporting that the area has historically produced *Aedes sierrensis*, commonly called the Treehole mosquito. The mosquito breeds in waterholding cavities within Oak and other trees. The District suggests that cavities that hold water in trees should be drained by drilling or notching. The District also reports that the site is typical habitat for ticks, including the vector of Lyme Disease, and that there is a risk of disease transmission. The District has recommended that this information be passed on to future residents of the site.

Biological Survey Results

On April 27, 1993 a QUAD biologist conducted a reconnaissance level field survey to determine the presence of threatened and endangered species and to confirm site information on vegetation communities presented in the 1990 report by Jones and Stokes. The Jones and Stokes 1990 report did not include all species observed on site. Floristic surveys were conducted whereby all plant species encountered were identified to the extent necessary to determine if the species was legally protected. Additional plant species identified are listed in Table 3.11-1. None of these species is considered rare, threatened or endangered. Table 3.11-2 is a list of wildlife species observed while on the *Stringtown Mountain Specific Plan* project site. None of the species listed are candidate species, threatened or endangered.

Specific Plan Policies

The *Stringtown Mountain Specific Plan* incorporates goals, policies and standards intended to reduce or avoid impacts associated with biological issues as follows:

- *Stringtown Mountain Specific Plan* will conserve natural resources and mitigate, to the maximum extent possible, the impacts associated with development in the plan area.

- Individual buildings will be sited and designed to minimize impacts on the land, and be integrated with the natural environment.

- The project will be designed to maintain a maximum number of existing native plant species.

- Compatible native vegetation types will be utilized for all infill landscaping improvements.

- The cutting or removal of oak trees prior to planning department approval is prohibited. The sole exceptions shall be for county-approved roadways, sewer and utility extensions, detention facilities, removal suggested by an arborist, forester or landscape architect, for public health and safety, or for other reasons as shall be determined by the county. Oak trees proposed to be removed shall be identified and their removal shall be approved.

- Oak trees greater than six inches (6") in diameter at breast height (dbh) are to be protected to the maximum extent feasible. The term circumference at breast height (cbh) refers to the trunk measurement of either one trunk or the addition of all trunks in a multi-trunked tree at forty-eight inches (48") above the ground.

- Trees that, in the judgement of a licensed arborist, forester or landscape architect are unhealthy and which constitute a hazard to the public should be removed.

- Construction equipment operation and storage of material shall be restricted to designated construction areas in order to limit unnecessary habitat and wildlife disturbances in the woodland areas. No vehicles, construction equipment, mobile offices, supplies, materials or facilities should be parked, stockpiled, or located within the driplines of trees designated for preservation.

- To avoid damage to root systems of retained trees, construction should not encroach an area greater than twenty percent (20%) of the canopy area of oak trees over six inches (6") dbh.

- Paving within the driplines of trees identified to be protected should be avoided. Where paving will occur under the drip line, porous materials requiring no, or minimal, compaction should be used along with aeration systems.

- Vegetation within driplines of indigenous oak trees must consist of species that require no artificial irrigation after they are established and are tolerant of the natural semi-arid environs of the trees. Landscaping beneath indigenous oak trees may include non-plant materials such as boulders, cobbles, bark, and similar materials.

- Soil disruption within the dripline of indigenous trees shall be avoided where feasible. In those cases where it is absolutely unavoidable, the following guidelines will apply:

  - Surface soil removal shall be minimized within driplines of trees

  - Earth fill shall be minimized within the driplines.

  - Adequate drainage, supplemental irrigation, and/or aeration may be required to mitigate the adverse effects caused by elevation changes where cuts or fills are made near trees identified to be preserved.

  - Generally, no trenching is allowed within the driplines of indigenous oak trees. Where necessary to install underground utilities within the dripline of trees, light construction equipment will be used. After trenching within the dripline, the tree may need to be pruned to remove canopy material proportional to the roots damaged or lost, as recommended by a certified arborist, forester or landscape architect.

  - Where soil compaction is approved within the dripline of a tree, measures as recommended by a certified arborist, forester or landscape architect will be taken to restore soil condition and integrity.

- In cases where a retaining wall has been approved for construction within the dripline of a preserved tree, the developer will be required to provide for immediate protection of exposed roots from moisture loss during the time prior to completion of the wall. The retaining wall shall be constructed within seventy-two (72) hours after completion of grading.

- Signs, ropes, cables, and other items shall not be attached to trees identified to be preserved.

- Tree conservation and site development policies set forth herein shall be incorporated into Covenants, Conditions and Restrictions (CC&Rs) for all projects with native oaks within the Plan Area to insure that subsequent property owners are aware of their obligation to preserve natural site features.

- All cleared areas shall be promptly revegetated with native or compatible species.

- If special status raptors are established onsite at the time of construction they shall be relocated by a trained biologist.

- Department of Fish and Game recommended mitigation measures with regard to deer winter range impacts will be implemented.

- Measures to control domestic dogs will be applied to the project area as prescribed in the Butte County Dog Ordinance, and the Perimeter Fencing Ordinance.

- Prior to any fill within jurisdictional wetland areas, appropriate permits will be obtained from the U.S. Army Corps of Engineers as may be required pursuant to Section 404 of the Clean Water Act.

- Any permit requirements imposed by the Corps of Engineers will be fully implemented.

- Enhancement/compensation and/or monitoring programs required pursuant to any fill permit process will be the responsibility of the plan area landowners.

- Minimal disturbance to drainage courses and associated vegetation will occur during construction of the Stringtown Mountain Project. Grading will be prohibited in set backs of fifty feet (50') from the center line of the two major drainage courses, except as required for trail crossings, road crossing and other public improvements.

- Drainage course crossings will be limited to provide reasonable access to developed areas or to accommodate construction activity.

- Department of Fish and Game Streambed Alteration agreements will be obtained prior to commencement of any construction of proposed drainage course crossings in the *Stringtown Mountain Specific Plan*. All

conditions of compliance set forth in the agreements will be enforced as part of the mitigation monitoring program.

- All drainage courses shall allow movement of small wildlife.

- Drainage easements will preclude erection of structures, vegetation removal and other site development not consistent with the purpose of these areas, except for drainage improvements.

- Planting of trees and shrubs within the riparian zone of drainage courses should reflect the flood and soil moisture tolerances of individual species.

Impacts: **Impact Evaluation Criteria:** 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 15382 of CEQA defines a significant effect as:

> "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any physical condition within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Section 15065 of CEQA provides for mandatory findings of significance:

> The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal, community,

reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

According to Appendix G of CEQA a project will normally have a significant effect on the environment if it will:

- Substantially affect a rare or endangered species of animal or plant or habitat of the species.
- Interfere substantially with the movement of any resident or migratory fish or wildlife species.
- Substantially diminish habitat for fish, wildlife, or plants.

A "rare or endangered species", as defined in Section 15380 of the *CEQA Guidelines*, is "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, over-exploitation, predation, competition, disease, or other factors; or "rare" when the species is likely to become endangered within the foreseeable future throughout all or a portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.

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.

Federal candidate species are assigned to one of two categories depending on current knowledge about the species and its biological importance for listing. Federal Category 1 (FC1) include candidate species for which the USFWS has sufficient biological information to support a proposal to list a species as endangered or threatened; and Federal Category 2 (FC2) where taxa for which existing information may warrant listing, but substantial biological information to support proposed listing is lacking.

The CDFG in conjunction with the California Native Plant Society (CNPS) have compiled a data base, called the California Natural Diversity Data Base (NDDB), which references California's rare and endangered plants and animals. Some plants listed by the CNPS may not 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.

Section 9 of the Endangered Species Act prohibits the "taking" of listed species. If it is believed that a project will inadvertently harm, harass, or collect, or the species would suffer due to habitat modification, the USFWS must be consulted, and subsequent agency recommendations and permits must be obtained and adhered to.

A "Streambed Alteration Agreement", pursuant to CDFG Code Section 1600 et seq., must be made with the CDFG when a project will influence or divert the natural flow of a stream, substantially change its bed or bank, cross a stream bed, or utilize existing streambed materials. During the Section 1600 process, it may be decided that a Section 401 permit for water quality is also required.

The Butte County General Plan contains a policy requiring the County to "Regulate development in identified winter deer range to facilitate the survival of deer herds." Although this policy does not establish a threshold, it clearly expresses the County's interest in regulating development in order to protect wintering deer.

Impact #3.4-1: Loss of deer winter range habitat due to construction and occupancy of the proposed development.

Conclusion: The project area lies within the critical winter range of the Mooretown deer herd. CDFG has determined that the "project intensity

allows no real mitigation because all habitat will be adversely impacted directly and indirectly, including the small "open space" areas" (See NOP responses, Appendix B). However, as noted earlier, in September 1990, the CDFG wrote a letter advising that it would not object to inclusion of the 46 acre parcel identified by Jones and Stokes as suitable for DDZ designation if the County adopted appropriate mitigations. The appropriate mitigations were not identified. In addition, approximately 62 acres of the site is already within a DDZ. The remaining 60 acres located on the eastern side of the property remains designated for winter range. Impacts related to portions of the property designated DDZ or which have been found suitable for DDZ designation are potentially significant, but can be mitigated to a level that is less than significant. Based upon impact evaluation criteria, impacts related to the remaining 60 acres designated for winter range are directly and cumulatively significant and cannot be mitigated with present project design. Redesign would, however, mitigate this impact to a level which is less than significant. Alternatively, enhancement/replacement mitigation fees may reduce the impact to less than significant levels.

Impact #3.4-2: Restriction on the movement of wildlife due to construction and occupancy of the proposed development.

Conclusion: Wildlife corridors are needed through the project, allowing animals escape and migratory options. This is a potentially significant direct and cumulative impact, but can be mitigated to a level that is less than significant.

Impact #3.4-3: Water runoff and erosion of sediment originating from the project site construction and future development will potentially increase sediment loads to onsite drainage, thus jeopardizing water quality and potentially, wildlife habitat.

Conclusion: Although potentially significant to water quality and wildlife, this impact can be mitigated to a level that is less than significant by implementation of mitigation measures.

Impact #3.4-4: Many households within the development will undoubtedly own dogs and domestic dogs represent a potential threat to wildlife.

Conclusion: Domestic dogs are known to be significant predators of wildlife if uncontrolled. Predation could result in cumulative impacts to some species, including deer. This impact can, however, be mitigated to a level that is less than significant.

Impact #3.4-5: Increased traffic, noise, light, hunting and use of materials toxic to plant and animal life will occur as a result of this project thus increasing the likelihood of conflicts with and harm to deer and other wildlife.

Conclusion: Incidental take and harassment of deer and other species may occur as a result of changes in land use. Noise and light impacts are mitigated to less than significant levels through Plan design and policies which encourage and promote a low light and noise environment. In addition, adequate open space areas are provided through Plan design and other mitigation measures to buffer wildlife that may be sensitive to noise and light from noise and light effects. Although traffic, hunting and toxic materials use is potentially significant, these impacts can be mitigated to a less than significant level.

Impact #3.4-6: Trails and footpaths may impact bunchgrass areas present on the site.

Conclusion: The natural bunchgrass community occurring on the site could be compromised, if not properly protected from human encroachment. This potentially significant impact can, however, be mitigated to a level that is less than significant.

Impact #3.4-7: Project construction will impact natural drainage areas and several watercourses that exist on the property as well as offsite.

Conclusion: Any work that will occur within a streambed will involve the CDFG permitting program for a Streambed Alteration Agreement. This impact is potentially significant; however, it can be mitigated to level that is less than significant through the required permitting process and through recommended mitigation measures.

Impact #3.4-8: Offsite utility pipeline construction may impact plant and animal species in areas not yet determined.

Conclusion: Areas not surveyed for species of concern will require surveys at the point precise alignments are known. Although potentially significant, associated impacts can be mitigated to a level that is less than significant by Mitigation Measures #3.11.1-3 and #3.11.2-3 appearing in Section 3.11 of this Chapter.

Impacts 3.4-9: Loss of oak trees that provide habitat and forage for many wildlife species.

Conclusion: The project site is within the Blue Oak Woodland community, and construction may remove many oak trees. Oaks trees provide food, shelter, roosting and nesting sites for many wildlife species. These impacts are regarded as potentially significant, but can be mitigated to a level that is less than significant through *Specific Plan* policies and recommended mitigation measures.

Impact #3.4-10: Exotic plants used as landscaping may be invasive or toxic to animals.

Conclusion: Although potentially significant, if mitigation is followed this impact can be reduced to a level that is less than significant.

Impact #3.4-11: Disturbance or displacement of special status raptors, including bald eagle, golden eagle, Cooper's hawk, black shouldered kite, osprey, prairie falcon, and burrowing owl.

Conclusion: Jones and Stokes found little evidence that special status raptors frequented the area. More recent field investigations confirmed earlier findings. Based upon this work, any direct impacts are unlikely; however, there is the potential to encounter the nest of a special status raptor during construction. The location of potential habitat is addressed in Chapter 4 of Appendix E and depicted on Figure 2-1 of that Appendix. This impact is, therefore, potentially significant, but can be mitigated to a level that is less than significant. Cumulative impacts, however, may result from a general loss of suitable habitat, but are mitigated to a less than significant level by measures designed to retain or enhance winter deer range. See Mitigation Measures # 3.4-1 and #3.4-2 in this Section.

Impact #3.4-12: Native oaks and the foothill environment are, in general, home to a variety of vectors and other pests which can increase risk of disease.

Conclusion: The Butte County Mosquito Abatement District has recommended that future occupants of the site be advised of potential nuisances and risks. Although the risks are potentially significant, this impact can be mitigated to level that is less than significant.

Mitigation Measures:

Mitigation Measure #3.4-1: Redesign of the project to eliminate the easterly 60 acres now designated critical winter deer range from the area where development will occur and relocate and cluster the approximately 50 dwelling units that would otherwise be eliminated to the southwesterly portion of the

property. Alternatively, a habitat enhancement/replacement mitigation fee to pay for enhancement/replacement at another site(s) shall be established and paid by the applicant and subsequent lot owners within the 60 acre area of concern upon subdivision approval and building permit issuance. Said fee shall be determined in accordance with the procedures set forth in Appendix J of the document titled *Measures for Protection of Migrating Deer Habitation in Butte County* dated April 15, 1987 (reference Appendix F). Applies to Impact #3.4-1.

Effectiveness of Measure: By redesigning the project to eliminate the easterly 60 acres from direct development, the direct and cumulative impacts will be substantially avoided, which is the most effective form of mitigation. Although no specific studies have been performed, clustering at higher density in the southwesterly area appears to be feasible. This would increase single family residential densities from approximately 1.26 units per acre to approximately 3 units per acre. With careful land planning, project objectives should still be achievable. Although deer range mitigation fees would not avoid the impact, the use of the fee would reduce the impact by providing a source of funds for equivalent habitat improvement on other sites. Redesign or enhancement/replacement of habitat elsewhere will also reduce cumulative impacts on special status raptors to less than significant levels.

Implementation/Monitoring: The applicant will redesign the *Specific Plan* prior to final approval, incorporating the open space area and higher densities into the Plan. The Department of Development Services will assure that the appropriate changes to the Plan and zoning are accomplished. Alternatively, an appropriate mitigation fee will be established to be paid at the time of tentative map(s)/use permit approval and upon building permit issuance. The study will be paid for by the applicant and closely coordinated with CDFG and the Department of Development Services. Fees will be paid to the County or CDFG, as negotiated by the County and CDFG.

Mitigation Measure #3.4-2: Payment of fees described under Mitigation Measure #3.4-1 for the 46 acres suitable for redesignation to DDZ. Applies to Impact #3.4-1.

Effectiveness of Measure: The CDFG has acknowledged the 46 acres located in the northwesterly corner of the property is suitable for designation as DDZ, provided mitigation measures are incorporated into project approval. The above described mitigation fee, along with other mitigation measures in this Section, will constitute the mitigation measures requested by CDFG.

Implementation/Monitoring: See Implementation/Monitoring for Mitigation Measure #3.4-1.

Mitigation Measure #3.4-3: A 50 foot buffer from the high water mark on both sides of all intermittent waterways shall be maintained in a natural condition. In addition, the most southerly open space corridor shall be extended to the eastern property line of the proposed development. The extended corridor shall be a minimum of 100 feet in width and maintained in a natural condition (reference Figure 3.4-2 for buffer areas and suggested corridor). No fences or other barriers shall be maintained within corridor areas. The additional corridor shall not be necessary, if the entire easterly 60 acres is left in open space, as proposed by Mitigation Measure #3.4-1. Applies to Impact #3.4-2.

Effectiveness of Measure: The buffers and additional corridor in conjunction with *Specific Plan* policies will allow for the movement of wildlife across the site. Most of the buffer areas will be in areas already designated as open space by the *Specific Plan* and will enhance its open space component. Four to five lots may be lost as a result of the added corridor, which will reduce overall Plan density.

Implementation/Monitoring: Modification of the *Specific Plan* will be required prior to its adoption in order to incorporate the added corridor. Corridors will be made conditions of tentative map(s)/use permit approval. Monitoring will be carried out by the Department of Development Services and CDFG.

Mitigation Measure #3.4-4: All fencing within the Plan area shall meet CDFG and Butte County approved standards. Perimeter fencing shall be limited to smooth or barbed wire (unless a County special use permit is acquired). To allow passage of deer, the fence shall be constructed of five or fewer strands of wire. The bottom and top wire shall be a minimum of 16 inches and a maximum of 48 inches above ground respectively. Fencing standards shall be placed in project CC&Rs. Applies to Impact #3.4-2.

Effectiveness of Measure: The proposed development encompasses both DDZ lands and known critical wintering deer habitat; therefore, it is suggested that all fencing meet the above standard in order to assure that wildlife movement is not unnecessarily impeded.

Implementation/Monitoring: The fencing standard shall be a condition of tentative map(s)/use permit approval. Monitoring shall be performed by the

County Department of Development Services, CDFG and the homeowners association.

Mitigation Measure #3.4-5: Project design shall provide for the retention of direct runoff from residential and commercial areas in onsite containment ponds and landscape areas to the extent feasible. In the event that stormwater is discharged to watercourses, the owner/developer shall comply with National Pollutant Discharge Elimination System (NPDES) requirements for discharge to waterways, including best management practices and basins and devices to prevent pollutants from entering streamcourses. Any facility that may discharge stormwater shall have the ability to remove soluble, suspended and surface floating pollutants, in addition to sediments. Also see Mitigation Measures #3.1-2 and #3.2-1 in other Sections. Applies to Impact #3.4-3.

Effectiveness of Measure: Containment of runoff from development in onsite facilities will avoid the impact. Compliance with NPDES standards has been determined by the Regional Water Quality Control Board (RWQCB) to assure water quality is not degraded, and will mitigate the impact to a level that is less than significant.

Implementation/Monitoring: Stormwater disposal system design will be submitted and checked by the County Public Works Department for compliance with this measure. Inspections during construction by Public Works personnel will assure compliance. NPDES standards will be implemented by the RWQCB in cooperation with the County Public Works Department. Monitoring of water quality discharge standards will be carried out by the RWQCB and the Butte County Environmental Health Department.

Mitigation Measure #3.4-6: Dogs shall be under owner's control at all times. This shall be accomplished through means of enclosures or leash control. Dog control restrictions shall be made a part of property CC&Rs. Applies to Impact #3.4-4.

Effectiveness of Measure: If dogs and similar pets are controlled and not allowed to roam freely, pet associated impacts to wildlife can be reduced to a level that is less than significant.

Implementation/Monitoring: Include this requirement as a condition of approval of tentative map(s), including the requirement to place restrictions in CC&Rs. Monitoring is to be performed by CDFG and the proposed homeowners association.

Mitigation Measure #3.4-7: Keep areas alongside roadways clear of low woody vegetation in proximity to wildlife movement corridors identified by Mitigation Measure #3.4-3. Applies to Impact #3.4-5.

Effectiveness of Measure: By increasing visibility, potential collisions with wildlife may be averted.

Implementation/Monitoring: Implementation will be an ongoing obligation of individual lot owners and/or the proposed homeowners association. Monitoring will be carried out by CDFG.

Mitigation Measure #3.4-8: Prohibition of hunting and posting of no hunting signs within the Plan area. Applies to Impact #3.4-5.

Effectiveness of Measure: Prohibition of hunting and posting of signs will mitigate hunting impacts associated with the proposed development to a level which is less than significant.

Implementation/Monitoring: Include a prohibition on hunting in CC&Rs. Individual homeowners and the homeowners association will be responsible for sign posting. Monitoring will be performed by the homeowners association and CDFG.

Mitigation Measure #3.4-9: All petroleum based products, fertilizers, pesticides and other outdoor use chemicals shall be used and stored in strict accordance with applicable laws and regulations. The homeowners association shall monitor the use of such products within the Plan area and shall report misuse to the appropriate authorities. Applies to Impact #3.4-5.

Effectiveness of Measure: Control of products that may harm wildlife is extremely difficult when dealing with a multitude of individual owners. The homeowners association will, however, provide an opportunity for oversight and reporting.

Implementation/Monitoring: Homeowners association bylaws shall include appropriate language to provide for the oversight. The bylaws shall be reviewed by the Department of Development Services for compliance prior to final map approval.

Mitigation Measure #3.4-10: The proposed north-south footpath and 8" sewer line shall be routed around the native bunchgrass community. A 50-foot minimum "no disturbance setback", commencing from the outer edge around the bunchgrass area shall be established. Barriers may be required to

prevent damage caused by foot, bicycle and vehicular traffic. No livestock shall be allowed to enter this area, nor shall artificial drainage into or placement of non-native materials be allowed inside the non-disturbance area. Applies to Impact #3.4-6.

Effectiveness of Measure: The proposed *Specific Plan* shows both a footpath and sewer line traversing the bunchgrass area. By rerouting the proposed footpath and sewer line, and constructing appropriate protective fencing or railing around the bunchgrass community, potential disturbances may be reduced if not avoided. If implemented, this potentially significant impact can be reduced to a level that is less than significant.

Implementation/Monitoring: The *Specific Plan* shall be modified prior to final approval to incorporate the proposed changes. Compliance shall be monitored during construction by the Public Works Department. Ongoing monitoring shall be carried out by the homeowners association and CDFG.

Mitigation Measure #3.4-11: Project design shall include a 50 foot buffer from the high water mark of any intermittent waterway in which no construction related disturbance is to occur, with the exception of necessary utility and road crossings. Where crossings the applicant shall consult with CDFG and comply with applicable Streambed Alteration Agreement requirements. As an alternative, in the event the pipeline will be closer than 50 feet to the high water mark, the applicant shall prepare a formal Creek Enhancement and Revegetation Plan (CERP), and shall submit the CERP to the CDFG for review and approval. The CERP shall include existing and planned dimensions of the enhanced water course; documentation of uses of specific native trees, shrubs and herbs as riparian vegetation; methods for bank stabilization and erosion control during both construction and operational phases; methods for maintaining plantings in a healthy state; appropriate contingency plans; and maintenance requirements. The modified creek and associated vegetation shall be protected through establishment of a minimum 50 foot nondevelopment setback buffer from the edge of planted riparian vegetation to either side of the enhanced waterway. Applies to Impact #3.4-7.

Effectiveness of Measure: The *Specific Plan* proposes a sewer pipeline within the most southerly intermittent drainage course, as well as other utility and road crossings. Avoidance will assure that impacts do not occur. Where avoidance is not possible, a Streambed Alteration Agreement and CERP will reduce remaining impacts to a less than significant level. Also, see Mitigation Measures #3.1-2, #3.2-1 and #3.4-5.

Implementation/Monitoring: The *Specific Plan* shall be modified prior to final approval to incorporate proposed changes. Compliance shall be monitored during construction by the County Public Works Department and CDFG. Prior to construction, the applicant shall consult with CDFG to determine if a Streambed Alteration Agreement and CERP will be required. If necessary, clearance shall be received from CDFG prior to commencement of construction. Monitoring shall be performed by the County Public Works Department during subdivision construction and by CDFG. If a CERP is required, annual monitoring reports, prepared by a qualified biologist, which include corrective recommendations, will be submitted by the applicant to the CDFG for a minimum of five years.

Mitigation Measure #3.4-12: The CDFG's Interim Wildlife/Hardwood Retention Guidelines shall be applied to the site. These include a blue oak retention standard of 40 percent of the canopy per 40 acres and retention of at least one snag per five acres. An Oak Replacement/Revegetation Plan shall be prepared. It should provide for seedling production, watering, and protection stipulating reasonable survival percentages and time frame, or until acceptable percentages are reached. Trees which are not in the development envelope shall remain unharmed. During the construction of the project, a temporary fence shall be established a minimum of 1.5 times the canopy drip line of the retained oaks, e.g., the distance from the trunk of the tree, measured at 3 feet above natural grade, to the visually determined average outer edge of leafy canopy times 1.5. Within this "protective buffer", no grading, trenching, fill, or vegetation alteration will be allowed. Unavoidable tree loss will be compensated for through the Oak Replacement/Revegetation Plan that will be designed in conjunction with CDFG in an attempt to retain a maximum number of oak trees. Oak seedlings will be obtained from local genetic stock, at a replacement rate of 5:1 for trees that are two inches or greater in diameter measured at breast height (dbh). A replacement rate of 1:1 will exist for all trees less than two inches dbh. Every effort should be made to retain "Heritage Oaks" that exceed 24 inches dbh. After project construction, a qualified biologist shall prepare a fact sheet describing the value and care of native oaks. This fact sheet should encourage homeowners to avoid unnecessary pruning and watering, and encourage, except where a safety hazard occurs, the retention of snags. The fact sheet shall be distributed to all residents of this project. Applies to Impact #3.4-9.

Effectiveness of Measure: The Oak Replacement/Revegetation Plan and compliance with the Retention Guidelines will assure that oak woodlands on the site are preserved or replaced during and following construction. This will also have a positive effect on air quality and will comply with the recommendations of BCAPCD.

Implementation/Monitoring: Compliance with the Retention Guidelines and preparation of Oak Replacement and Revegetation Plans will be conditions of tentative map(s)/use permit approval. Evidence of compliance will be required prior to commencement of construction. Monitoring will be carried out by the County Public Works Department during subdivision and building permit inspections. Ongoing monitoring will be carried out by CDFG and the homeowners association. The fact sheet shall be distributed by the homeowners association to all purchasers of property and occupants of homes. A five-year monitoring plan will be completed by the applicant for all oak mitigation plantings and submitted to CDFG.

Mitigation Measure #3.4-13: Exotic plant species used as landscaping shall be limited to native North American species that are noninvasive and nontoxic to wildlife. Applies to Impact #3.4-10.

Effectiveness of Measure: Compliance with this measure will reduce the likelihood of native species being displaced by invasive or toxic exotics.

Implementation/Monitoring: The requirement will be made a condition of tentative map(s)/use permit approvals. Initial plantings made by the developer shall be certified by a landscape architect as complying the above requirement and shall be approved by the Department of Development Services. Individual homeowner plantings shall be monitored by the homeowners association.

Mitigation Measure #3.4-14: If a raptor nest(s) are encountered on the site during construction, all activity shall immediately cease in proximity to the nest(s) until a qualified biologist can propose appropriate mitigation measures. CDFG shall be immediately notified of any nests and consulted on appropriate steps to be taken. Applies to Impact #3.4-11.

Effectiveness of Measure: Formulation of specific measures at the time nests are encountered will assure that appropriate actions are taken to protect special status raptors.

Implementation/Monitoring: The requirement will be made a condition of tentative map(s)/use permit approvals. All construction personnel will be notified in writing by the applicant of the requirement. Monitoring will be performed by CDFG.

Mitigation Measure #3.4-15: Information shall be distributed to homeowners and other residents of the site concerning the potential mosquito nuisance and ways to reduce it. Information shall also be provided concerning other

vectors, including the potential for ticks to carry Lyme Disease. Applies to Impact # 3.4-12.

Effectiveness of Measure: Notice will allow occupants to take appropriate precautions to protect themselves from mosquitos and other vectors.

Implementation/Monitoring: The CC&Rs shall include distribution of the described information as a responsibility of the homeowners association. The County Department of Development Services shall review the CC&Rs prior to final approval of final maps for the site. The Mosquito Abatement District shall perform ongoing monitoring.

3.5 NOISE

Setting: Ambient noise level is defined as the composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise in a given location. Based upon the adopted *Noise Element* of the *Butte County General Plan*, the project site is not considered to be in a "noise-sensitive area." Land uses in Butte County that are identified as noise-sensitive include residences of all types, motels and hotels, schools, libraries, churches, hospitals and nursing homes. The site is not near any airports, railroad lines, or stationary noise sources such as mines, landfills, industrial plants, logging or agricultural operations.

Ambient noise level measurements were not conducted near the project site for the currently adopted *Noise Element*. However, noise levels for "high-speed" roadways (40-55 mph) with 5,000 to 20,000 average daily trips (ADTs) were estimated to be 70 dB within 100 feet of the roadway, 65 dB between 100 and 200 feet of the roadway, and 60 dB or less beyond 200 feet of the roadway. "Low-Speed" roadways (typically 35 mph maximum) have estimated levels of 65 dB within 100 feet of the roadway and 60 dB or less beyond 100 feet of the roadway.

The County is in the process of updating the *General Plan*, including the *Noise Element*, for which a *Draft Background Report* has been prepared. Chapter 13 of this document reports that noise levels were measured at various locations within the county during the months of November and December, 1991. The mobile source noise monitoring location closest to the project site was taken on the north side of Highway 162 at Apica Road, approximately 1 3/4 miles west of the site. According to the *Background Report*, the measurement at this location reflects the effects of substantial commute traffic on Highway 162 east of Oroville. The noise level measurement reported for the noise monitoring location is 67 dBA L_{eq}, with L_{min} of approximately 52 dBA and

L_{max} of approximately 78 dBA (refer to Table 3.5-1 for a glossary of acoustical terminology) at 50 feet from the edge of the nearest travel lane.

The *Background Report* indicates that motor vehicles traveling on the paved road system account for most of the mobile source noise in Butte County. In general, the roadways in unincorporated areas do not carry as much traffic as roadways in urban areas, but the average travel speed and the truck percentage in unincorporated areas tend to be higher in rural areas. Because increased speed and truck percentage increase noise levels, it is possible that noise may be problematic even along less traveled rural roadways. According to this document, Highway 162 in the vicinity of Oroville carries significant traffic volumes. It is also noted that logging traffic on Highway 162 can have particularly noticeable local noise impacts. Highway 162 is below the grade of the site for most of its distance along the project boundary, with the exception of the area at the intersection of Highway 162 and Forbestown Road, which is planned for commercial use and a fire station.

Specific Plan Policies. The *Stringtown Mountain Specific Plan* incorporates landscaped buffers, open space areas and setbacks that serve to mitigate noise impacts. Commercial uses and a fire station located at the intersection of Highway 162 and Forbestown Road will buffer residential areas, and two-story multiple-family residential structures parallel to Highway 162 will function as noise barriers for uses to the east. The *Stringtown Mountain Specific Plan* also incorporates policies designed to reduce or avoid noise impacts. Those policy statements are as follows:

- All noise generating mechanical devices shall be of low emission design, and/or located and screened with noise reduction barriers so that their potential as a nuisance to abutting properties is minimized.

- Non-residential land use projects adjacent to residential land use shall minimize noise impacts and light glare on neighboring residential land uses.

Noise Control Techniques. In implementing the policies listed above, 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 (L_{dn}, L_{eq}, or L_{max}), 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 techniques which could be applied to this project 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 4 to 6 dBA per doubling of distance from the source. The use of setbacks has been considered by the developer, and setbacks have been incorporated into the project design.

- **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.

  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 improvement in insertion loss for a given change in barrier height than does a location closer to either source or receiver.

  The use of barriers along the major roadways could provide substantial traffic noise reduction for ground floor receivers. A detailed noise barrier analysis cannot be performed until more specific site and grading plans are available, but in general a 5 dB traffic noise level reduction can be obtained by intercepting line of sight from noise source to receiver, and each additional foot of barrier height yields an additional noise level reduction of approximately 1 dB.

- **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 unit

nearest 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 may 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.

Another option in site design is the placement of relatively insensitive land uses between the noise source and a more sensitive portion of the project; for example, development of commercial uses which would shield adjacent residential areas.

- **Unit 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 noise-sensitive areas by the use of partitions or doors.

- **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 12-15 dBA noise reduction for building facades with open windows, and 20-25 dBA noise reduction when windows are closed. Thus a 20 dBA 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. Where window exposures are critical, 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 can be 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.

Note that standard energy-conservation double-pane glazing with an 1/8" or 1/4" air space is not considered acoustical glazing, as its sound reduction for some noise sources is actually less than that of single-pane glazing.

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 subfloor ventilation may also require acoustical treatment.

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. Requirements for transmission loss analyses are outlined by the *California Code of Regulations, Title 24.*

Impacts: **Impact Evaluation Criteria:** Noise impacts may be judged by comparison of existing or projected future noise levels to accepted criteria such as those contained in the *Noise Element* of the *Butte County General Plan.* The adopted *Noise Element* establishes a land use compatibility criterion of 60 dB L_{dn} for exterior noise levels in the outdoor activity areas of low density residential development, and 65 dB for multi-family residential, which is intended to provide an acceptable noise environment for outdoor activities. An interior noise level criterion of 45 dB L_{dn} is applied to residential land uses. The intent of this standard is to provide a suitable environment for indoor communication and sleep. The *Noise Element* also states that a noise level up to 70 dB L_{dn} is conditionally acceptable only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.

Another means of assessing noise impacts is to estimate public reaction to the change in noise level which results from the project. The criteria contained

in Table 3.5-2 is commonly used to show expected public reaction to changes in environmental noise levels. This table was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50 to 70 dB, which is the usual range of voice and interior noise levels.

The *Noise Element* of the *General Plan* includes the following relevant policy that will be considered in evaluation of noise impacts:

- Special consideration should be given to residential development and other noise-sensitive activities near railroads and highways.

Impact #3.5-1: Exposure of future residents of the project site adjacent to Highway 162 to traffic noise from high-speed and high-volume roadways.

Conclusion: Multiple family units are proposed along the Highway 162 frontage with the nearest unit located approximately 150 feet from the property line, which sets back an additional 20 feet or more from the edge of the travel lane. Additionally, Highway 162 is below the grade of the site along the frontage proposed for multiple family development. The topography of the site provides a natural barrier which further reduces the noise level by 5 or more dB, depending on the final grade of the development. The exterior noise environment for the multiple family units proposed along Highway 162 is projected to be below the accepted standard of 65 dB contained in the *Noise Element*. Based upon the Impact Evaluation Criteria, this impact is considered to be less than significant and not mitigation measures are required.

Impact #3.5-2: Noise generated by onsite construction activities. Table 3.5-3 reflects noise levels associated with construction equipment.

Conclusion: Noise generated by construction activities, including an increase in truck traffic, would be sporadic and temporary in nature, and is anticipated to occur during normal daytime working hours. The nature of the proposed development is such that construction of individual structures would probably take place over a period of several years, rather than simultaneously. Impacts associated with noise generated during construction activities are considered less than significant. No mitigation measures are required.

Impact #3.5-3: Noise generated by traffic from onsite development.

Conclusion: The project site is located adjacent to a State highway that carries substantial traffic volumes. Commercial uses and the fire station are located adjacent to the highway, and away from residential and recreational uses. Additional noise generated by new vehicle trips will be less than significant by comparison. No mitigation measures are required.

Mitigation Measures: Because no significant impacts have been identified, no mitigation measures are required.

3.6 LIGHT AND GLARE/AESTHETICS

Setting: The project site is situated between a State highway that carries a substantial amount of traffic and a County road. Headlights from vehicles passing on the two roadways, particularly Highway 162, may be visible from portions of the property; however, topography will shield portions of the site from view of the road, and shield portions of the roadway from viewsheds on the site.

At the present time, the project site is devoid of onsite artificial light. With the exception of vehicle lights on the two roadways, the project site is in an area low in the occurrence of artificial light. Only scattered rural residences are located in the vicinity of the project site. The most significant general light intrusion is the distant glow emanating from Oroville.

Chapter 1 of the *Draft Background Report* for the *Butte County General Plan* describes the structure and appearance of Butte County's physical environment. According to this report, the concept of "physical form" encompasses the physical qualities of a place at different scales: regional, sub-regional, and local. In addition, individual perception of the county's form and character is influenced by context and intent. For example, individual sense of physical form can be influenced by the way a region appears on a map, by sub-regional geographic features observed during automobile travel, or by architectural qualities observed when walking a local neighborhood street. The report continues as follows:

> In the rural setting of Butte County, prominent geographic features, such as mountains, hills, and rivers, give shape and profile to the natural environment. Climate, vegetation and geography interact to differentiate sub-regional landscape units within the larger environmental context. Overall, the county can be divided into three major geographic units: valley, foothills, and mountains. The following discussion identifies five major categories of natural features which contribute to the

> overall visual and scenic quality of Butte County: 1) mountains/timberlands; 2) foothills; 3) waterbodies; 4) wildlife habitats; and 5) unique land forms...In visual terms, the foothills form a distinct and highly attractive landscape unit which is more varied in topography and vegetation than the valley. The visual character of the foothills is also less open than the valley, although viewpoints within the foothill area provide sweeping panoramas of the valley area and beyond. The rolling topography creates identifiable subunits within the area, which are frequently punctuated by distinctive clusters of oaks or land forms such as Table Mountain and Sausage Mountain.

The visual qualities of the site include relatively flat, rolling to steep terrain, with vegetation including a mixture of blue oak woodland, montane hardwood forest and chaparral, grassland and riparian vegetation (see Section 3.4, Biological Resources and Photoplate). Three intermittent drainage courses cross the property, and dominant features include a large rock outcropping in the western portion of the site and smaller outcroppings in the higher elevations. A 2.4 acre scenic outlook is included in the proposed *Specific Plan* near the highest elevation point on the site.

Specific Plan Policies. The *Stringtown Mountain Specific Plan* incorporates policies and design standards intended to reduce or avoid impacts associated with aesthetics, light and glare, which include the following:

- The plan area will provide residential neighborhoods that are responsive to significant natural features.

- The plan area will provide visual landmarks, entryway features, distinctive neighborhoods, and permanent views through open space corridors. These landmarks are intended to provide visual orientation within the community, and to provide an identity of the *Stringtown Mountain Specific Plan*.

- Hours of operation and delivery [of business-professional/commercial centers] may be limited pursuant to a use permit to avoid disturbance of adjacent residential areas.

- Building styles [of business-professional/commercial centers] will be compatible in scale and architecture with the neighboring resort complex and duplex neighborhood. Such building standards will be specified in project covenants, codes and restrictions.

- Commercial structures will be limited to a maximum of two stories in height to lessen visual impacts to surrounding uses.

- Formal landscaping for land uses adjacent to natural open space areas should provide for a transition to the natural habitat, utilizing native landscaping. Projects adjacent to open space will be designed to protect the integrity and natural function of the open space area.

- A built environment that minimizes disruption of existing natural features, and to the extent practicable, blends with and takes advantage of the natural topography.

- High quality and aesthetically superior development that relates architectural style, landscaping, lighting, and circulation to produce environments that are pleasing in form, scale, texture, color and variety.

- Each component of the plan shall be designed to be complete in its function, circulation, drainage, infrastructure, landscaping, and visual aspects.

- Non-residential land use projects adjacent to residential land use shall minimize noise impacts and light glare on neighboring residential land uses.

- Buildings shall be sited with regard to the physical features of each project parcel and adjacent parcels. Such features shall be considered as primary design determinants.

- Buildings, roadways, and other improvements shall conform with the natural topography and minimize grading where feasible.

- Site design and architecture shall consider solar access, wind protection, shade, and seasonal considerations to enhance the quality of outdoor space.

- When necessary, retaining walls will be used to ensure stability of cuts and fills. The walls will be subject to approval by the Butte County Department of Public Works, and where possible, will be designed to be aesthetically compatible with the adjacent development.

- Building height shall relate to the building location within the plan area. Commercial, professional, and other non-residential buildings adjacent to single family neighborhoods shall not exceed more than two stories in height or thirty-five feet (35').

- All exterior architectural materials shall be selected in accordance with the seasonal variation in temperatures and precipitation that occur in the area.

- Architectural treatment, detail, and materials shall be consistent among the buildings in multi-family and duplex neighborhoods and non-residential projects, but should create visual interest through orientation, form, and alignment of individual buildings.

- Where the rear or side of a non-residential building is visible from a public thoroughfare or public space, such elevations shall be treated with the same materials, colors, and details as the primary frontage.

- All primary building and project entries shall be well-defined by varied textures, forms, materials, colors, and landscaping, to afford a sense of entry.

- All accessory structures shall be compatible in material, color, and texture with the main buildings.

- Non native species may comprise a maximum of fifty percent (50%) of the replanted areas. These plantings shall be used mainly in areas of high use or in areas where visual accents are desired. Areas such as entries, patios and parking lots are examples of areas where non native landscaping may be applied.

- Large canopy deciduous trees should be planted along the west and south sides of buildings to provide relief from the summer sun where feasible.

- No outside, unscreened storage is permitted, except in residential areas. Loading, service, equipment, and trash enclosure areas shall be fully screened by a combination of fencing, masonry walls, grade separation, and/or dense landscaping.

- Mechanical equipment, satellite dishes, antennas, and other similar structures shall be ground-mounted when feasible. If not ground-

mounted, such equipment shall be screened from the view of streets, adjacent properties, and areas open to the general public through the use of parapet walls, roof wells, or other means incorporated as an integral part of building design. All screens, fencing, and retaining walls shall be compatible in material, color and texture with related buildings.

- Project lighting shall not create glare for project occupants or neighboring properties.

- The style and design of lighting fixtures shall be compatible with building design and consistent with individual projects.

- All street furniture including trash receptacles, benches, signage and lighting shall utilize a standard or complementary design theme.

- Furnish an aesthetic environment for public circulation.

- Individual buildings will be sited and designed to minimize impacts on the land, and be integrated with the natural environment.

- Tree conservation and site development policies set forth herein shall be incorporated into Covenants, Conditions and Restrictions (CC&Rs) for all projects with native oaks within the Plan Area to insure that subsequent property owners are aware of their obligation to preserve natural site features.

- All cleared areas shall be promptly revegetated with native or compatible species.

- Public utilities, such as transformers, terminal boxes, meters, fire risers, backflow preventers and other similar facilities, shall be screened and oriented away from public view to the extent feasible.

In addition, the *Specific Plan* contains a number of policies for preservation of onsite oak woodlands, and incorporates landscaped buffers, open space areas, pedestrian pathways, and a 2.4-acre overlook/park area.

Impacts: **Impact Evaluation Criteria, Light and Glare:** The currently adopted *Butte County General Plan* does not contain any standards for evaluating light and glare impacts. Impacts of light and glare are therefore determined to be potentially significant if the following criteria are met:

- The light and/or glare is continuous, rather than temporary in nature (example: a continuous stream of cars or regular pattern of lighting vs. occasional passing headlights)

- The level of light and/or glare is noticeably higher than the surrounding ambient level of light

- The light and/or glare has the potential to shine directly into the interior and/or outdoor activity areas of existing or future residences

- The size of the affected parcel (larger parcels offer greater flexibility for siting of residences)

Impact Evaluation Criteria, Aesthetic Effects: The currently adopted *Butte County General Plan* addresses aesthetic issues but does not establish aesthetic standards. Relevant policies include the following:

- Protect valuable scenic areas and parks for enjoyment by residents and visitors.

- Encourage compatible land use patterns in scenic corridors and adjacent to scenic waterways, rivers, and creeks.

The Environmental Checklist Form in Appendix I of the *State CEQA Guidelines* provides two criteria for evaluating visual impacts:

- obstruction of any scenic vista or view open to the public

- creation of an aesthetically offensive site open to public view

Another important criterion for visual impacts is visual consistency. Design of developments should be consistent both with natural surroundings and adjacent land uses. For example, a residential development might contrast visually with an industrial facility. Such incompatibilities, where they exist, can be partially mitigated through such measures as fences or landscaping to soften the harshness of the contrasts. However, in a largely undeveloped area, such as the project site vicinity, it is more practical and effective to prevent incompatible land uses from occurring, and thereby prevent offensive visual contrasts.

Impact #3.6-1: New sources of light and glare on a previously undeveloped site. This impact consists of interior and exterior residential lighting, parking

lot lighting, and lighting for the fire station, commercial development, wellness center and resort complex, headlights from automobiles using interior roadways, and glare from additional paved surfaces, windows, painted surfaces, and roofs. Light from traffic and street lights on interior roadways will be largely invisible from offsite, with the exception of road entries.

Conclusion: New development in accordance with the proposed *Specific Plan* will create new sources of light and glare, including lighting of commercial areas and new residences. These impacts are potentially significant, but will be reduced to a level that is less than significant by implementation of policies and design standards incorporated in the proposed *Stringtown Mountain Specific Plan*, including proposed separation of incompatible land uses as depicted on the Plan map. Individual non-residential projects proposed consistent with the *Specific Plan* are subject to additional environmental review when impacts are known, and any identified impacts of light and glare which are potentially significant can be mitigated through project design and use permit conditions of approval.

Impact #3.6-2: Exposure of increased population to offsite sources of light and glare which may impact the Plan area.

Conclusion: The primary sources of offsite lighting are headlights on Highway 162 and Forbestown Road. The extent of this impact is limited due to the size and topography of the site and the design of the proposed *Specific Plan.* The fire station and commercial development adjacent to the intersection of the two roadways will partially buffer the residential uses from the passing vehicles, but may create impacts of their own. However, the *Specific Plan* incorporates a policy which provides that non-residential projects adjacent to residential uses shall minimize light on glare on adjacent residential uses. Implementation of policies and design standards incorporated in the proposed *Stringtown Mountain Specific Plan* will reduce impacts to a level that is less than significant.

Impact #3.6-3: Development of the site as proposed could result in interrupted scenic vistas (e.g. Valley panoramas), create aesthetically offensive views from within the site and/or adjacent roads and Highway 162, or impact unique natural features.

Conclusion: Proposed development is surrounded by open space and landscaped buffers, and much of the developed portions of the site will be shielded from offsite views, with the exception of the commercial development and fire station. The *Specific Plan* incorporates policies and guidelines that control the design of commercial development to assure that it is aesthetically

pleasing. The *Specific Plan* also incorporates policies designed to retain permanent views through open space corridors, retain significant natural features, to site buildings with regard to physical features, and to minimize grading for buildings and roads. In addition, a 2.4 acre scenic overlook is preserved with views of the valley near the high point on the property. This impact is therefore determined to be less than significant.

Mitigation Measures: Because no significant impacts have been identified, no mitigation measures are required.

3.7 LAND USE

Setting: The Plan area is presently unused and undeveloped and contains a mixture of blue oak woodland, montane hardwood forest and chaparral, grassland and riparian vegetation. There are three intermittent drainage courses which traverse the site. Miners Ranch Tunnel, a subterranean tunnel used to transport water, traverses the site diagonally from Forbestown Road in a northeasterly direction. The 171 acre site consists of twelve assessor's parcels ranging in size from approximately 2 to 46 acres. No structures exist on the site.

The site is located in an area characterized by recreational activities, rural homesites and vacant land. As shown on Figure 3.7-1 at the end of this chapter, the limits of the more "urbanized" development extend to the west side of Lake Oroville, west of the site (Kelly Ridge Area). Parcels to the southwest of the site, located south of Highway 162, are rural in nature with scattered residences on larger lots (2-1/2 acres and greater). This rural area is not presently served with sewer or water facilities so that even though subdivision activity has taken place in the past, the area is not fully developed. The area immediately west of the site between Highway 162 and the Kelly Ridge development consists of the Loafer Creek recreation area. The area south of the site, south of Forbestown Road, and east of the site along Forbestown, contains very sparse residential and commercial (bar located on Hurleton Road) development.

Parcel sizes in the surrounding area range from 1 to 600 acres. The Loafer Creek recreation area, one of twelve areas within the 47,000 acre Lake Oroville State Recreation Area, is located northwest of the site across State Highway 162. Land use designations and existing zoning for the surrounding area are reflected on Figures 2-4 and 2-5 located at the end of Chapter 2 of this EIR.

The land uses proposed for the *Stringtown Mountain Specific Plan* are shown on Figures 2-8 and 2-9 with an acreage breakdown shown on Table 2-1 located in Chapter 2 of this EIR. Descriptions of the proposed land uses are summarized from the *Specific Plan* as follows:

- **Detached Single Family Units.** Single family detached lots ranging from approximately 17,000 to 65,000 square feet will be located in the eastern portion of the project site, accessible from Forbestown Road. This neighborhood includes 116 units on 112 acres.

- **Attached Single Family Units.** Attached single family units in the form of duplex units are proposed as the predominant housing type in the southwestern portion of the community. This neighborhood, consisting of 22 duplexes (44 units) is proposed on a 9.4 acre site oriented adjacent to Highway 162 and generally west of the resort complex. The lots are proposed at a minimum of 4,000 square feet.

- **Multi-Family Units.** Multi-family units are proposed adjacent to the resort complex and in close proximity to the proposed commercial center. Thirty-two (32) units are planned for a 4.4 acre portion of the site located near the entrance road proposed from Forbestown Road.

- **Resort Complex.** A 13.2 acre resort complex will incorporate natural features such as rock outcroppings, swales, and oak woodland into its design to be compatible with the area's natural setting. The complex will include a restaurant, meeting and banquet facilities, and pool facilities to serve both guest and community needs.

- **Wellness Center.** The wellness center is intended for use in conjunction with the resort complex and may include tennis courts, a fitness center, salon, tourist information center and a chapel. Both the resort complex and the wellness center are intended to complement the other in regard to services and amenities offered to guests and residents.

- **Business-Professional/Commercial Center.** A 3.1 acre business-professional/commercial center is intended to serve the plan area population as well as the needs of local area residents and is designed to encourage residents to walk rather than drive for short convenience trips. Allowed uses will be small and scaled to attract a majority of customers from within the immediate neighborhood. Typical uses permitted may include:

- delicatessen
- convenience market
- real estate office
- small restaurant
- travel agency
- gas service
- flower shop
- video rental
- ice cream shop
- day care center

- **Recreation Facilities.** Recreation facilities are intended to provide plan area residents and visitors with convenient recreation and will supplement abundant recreational activities offered at the Lake Oroville State Recreation Area. A 2.4 acre overlook park area is proposed on a plateau in the open space between the resort complex and single family detached neighborhood in the northeastern corner of the plan area which will be accessible by pedestrian trails from all areas of the community.

- **Open Space.** Open space areas are proposed in three primary linked areas which will be left in their natural state and will be enhanced with a pedestrian/bicycle trail linked to the overlook park. The open space areas are intended to preserve and enhance habitats for plants and animals which are native to the area as well as enhancing the natural beauty of the community.

Specific Plan Policies. The following policies have been incorporated into the *Stringtown Mountain Specific Plan* which apply to the residential development, resort complex, wellness center, and business-professional/commercial center. Policies relating to the recreational and open space areas can be found in Section 3.11.7, Parks and Recreation.

- Duplex and multi-family units will be limited to a maximum of two stories in height in order to preserve views of residents and visitors in the upper portions of the plan area, and maximize views from each unit.

- Residential units shall be oriented to optimize energy conservation through building and landscape designs.

- Duplexes and multi-family units will be designed to make maximum use of the slope of the site to provide a stepped and creative site design which assimilates the slope rather than contesting it.

- Resort complex facilities will be maintained regularly by resort management. The resort facilities will be open to the public. Responsibility for establishing fees and maintenance of shared facilities will be that of the resort management.

- Parking facilities consistent with the Butte County Zoning Ordinance will be provided as a part of the resort complex to avoid congestion of nearby residential streets with resort traffic and parking.

- Wellness center facilities will be maintained regularly by staff. The facilities will be open to the public. Responsibility for establishing fees and maintenance of shared facilities will be that of the wellness center management.

- Parking facilities, consistent with standards established in the Community Development Standards will be provided as a part of the wellness center to avoid the congestion of nearby residential streets with traffic and parking.

In addition to the above policies, community development standards and design policies have been incorporated in the *Specific Plan*. Most of these standards and policies have been discussed in other sections of this EIR. A complete listing is included in Appendix F to this EIR. The design objectives of the *Stringtown Mountain Specific Plan* are intended to achieve the following:

- A community plan that ties the separate uses together and encourages people to walk rather than use their automobiles within the plan area.

- A built environment that minimizes disruption of existing natural features, and to the extent practicable, blends with and takes advantage of the natural topography.

- Maximum potential for energy conservation through building and landscape designs and orientations which recognize the climatic conditions in the area.

- High quality and aesthetically superior development that relates architectural style, landscaping, lighting, and circulation to produce

environments that are pleasing in form, scale, texture, color and variety.

- Safety and convenience for all residents, employees, and visitors to the community.

- The provision of a variety of compatible uses within walking distance of one another lending to a more self-sustaining lifestyle within the community.

Impacts: **Impact Evaluation Criteria:** Appendix G of the CEQA *Guidelines* states that a project will normally have a significant effect on the environment if it will conflict with adopted environmental plans and goals of the community where it is located; disrupt or divide the physical arrangement of an established community; convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land; and/or induce substantial growth or concentration of population. Growth and development that are inconsistent with established policy statements of the *Butte County General Plan* and other applicable plans are therefore considered potentially significant.

The *General Plan* identifies desired land use patterns and areas for growth and development. One reason for establishing these patterns is to minimize potential land use conflicts. The most appropriate measure for evaluating land use impacts would, therefore, be comparison with the relevant policy statements of the *Butte County General Plan*. Policy statements that are relevant to the *Stringtown Mountain Specific Plan* are listed in Section 2.6, Relationship to Plans, Policies and Ordinances.

Growth Inducement Evaluation Criteria: Growth inducing impacts are also discussed in this section as a land use related impact. Section 15126(g) of the *State CEQA Guidelines* states that growth induced by a project can be direct or indirect. A project can be growth inducing if it:

- fosters economic or population growth or construction of additional housing;

- removes obstacles for population growth, such as extending public facilities into areas where they do not currently exist;

- sets a precedent for similar development; or

- encourages and facilitates other activities that could significantly affect the environment, either individually or cumulatively.

Impact #3.7-1: Substantial changes in present and planned land use of the area.

Conclusion: Approval of the project may increase the development potential in the area, as discussed under Impact #3.7-2, which in turn will alter the character of the area from a rural setting to one that is more urbanized. Potential physical changes to the environment that could result from changes in present and planned land uses include loss of wildlife habitat; alteration of drainage patterns; increased noise, light and glare; and increased demands on the transportation system and public services. All of these impacts and potential impacts, and mitigation measures to reduce or avoid them, are addressed in this chapter under other subject headings. No significant unmitigated effects will occur, except as addressed under other headings.

Although the proposed *General Plan* Amendment would result in a change from the existing land use designation, the proposed designations do appear to be consistent with relevant policies of the *General Plan* (reference Section 2.6 for a discussion of general plan consistency). Based on the impact evaluation criteria for general plan consistency, the change in present and planned use of the area is, therefore, less than significant.

Impact #3.7-2: Growth inducement.

Conclusion: Approval of the project would set a precedent for similar development. Once sewer and water main lines are extended to the Plan area, a major obstacle will be removed that currently restricts new development in the area. It is likely that once services are extended, additional requests for general plan amendments and rezonings will result, paving the way for future subdivision and development activity.

Once the spheres of influence for the special districts are amended to include the site and surrounding area, the demand for additional service is likely to increase. This is particularly true in the area southwest of the site where existing dwellings do not currently have access to an adequate and reliable water supply. With access to a suitable water supply, vacant parcels in the area could then be developed also. Because parcels in this area are generally larger rural parcels (2-1/2 acres and greater), the need for sewer service is not as pressing. The potential increase in the demand for water service is limited to some extent, however, by other factors. Inclusion of the area within the spheres does not automatically mandate annexation to the districts and receipt

of service, but rather is a precursor to obtaining service. The cost of actually annexing to and receiving service from a district is the responsibility of the individual property owner/developer. The cost of extension may be prohibitive for both existing residents in need of service and potential new development. (Reference Sections 3.11.1 and 3.11.2 for a discussion of district annexation and connection fees).

Based on the impact evaluation criteria, the growth inducing impact of implementing the project would be a significant impact. Although it is possible to reduce this impact to some extent, e.g., connecting to the existing sewer system at the Loafer Creek extension across the State owned land and thereby limiting additional development, this impact is unavoidable if the project is implemented.

Mitigation Measures: Because land use impacts are considered either less than significant or unmitigable and unavoidable, no mitigation measures are proposed.

3.8 NATURAL RESOURCES/ENERGY

Setting: The *Draft General Plan Background Report* and the draft *Energy, Natural Resources and Recreation Element* (November 1989) address agriculture, timber, mining, water, biological, air quality and cultural resources in the county. The resources that are associated with the *Stringtown Mountain Specific Plan* area are discussed in other sections of this EIR and include water resources (Section 3.2), biological resources (Section 3.4), air quality (Section 3.3), and cultural resources (Section 3.12).

The draft *Energy, Natural Resources and Recreation Element* identifies energy use patterns and energy efficiency and conservation programs that may reduce energy use. Several factors are identified which affect the use of energy in Butte County. For residential use, those factors are listed as type and size of structures, number of occupants and their habits, weather conditions, thermal integrity of the building, and the number and type of appliances. The effects of weather conditions are rather obvious, with greater energy being consumed during periods of hot and cold weather. The efficiency of household appliances also affects energy use, with older appliances operating less efficiently than newer models. For residential structures, space heating is listed as the top energy consuming activity, accounting for more than one-third of residential energy consumption, with hot water heating listed as second. Generally speaking, residential space and water heating consumes more natural gas than electricity.

For commercial and industrial uses, heating, ventilation, air conditioning, lighting and refrigeration are the largest factors in energy consumption, with manufacturing itself being a significant user. In contrast to residential uses, commercial and industrial uses use a higher percentage of electricity than natural gas. Agricultural energy consumption represents a very small portion of the total energy consumption within the county, with electricity providing the main source of energy associated with irrigation of crops.

Transportation energy use is primarily related to the individual automobile. Automobile energy consumption is affected by the number of vehicles, how many miles are driven, and the efficiency of those vehicles. Land use planning can have a significant effect on energy use patterns through the way in which development occurs. Conventional land use development patterns tend to not be energy efficient; e.g., suburban residential development located far from employment, commercial, and transit routes requires greater dependence on the automobile; leap-frog development to outlying areas makes the provision of transit and other public services more costly and less efficient; and low density, detached development requires more energy for use in space heating and cooling compared to higher density units with common walls.

Specific Plan Policies. The *Stringtown Mountain Specific Plan* incorporates the following resource management goals and policies and energy conservation policies:

- *Stringtown Mountain Specific Plan* will conserve natural resources and mitigate, to the maximum extent possible, the impacts associated with development in the plan area.

- Individual buildings will be sited and designed to minimize impacts on the land, and be integrated with the natural environment.

- As a method of reducing solar gain which may increase interior air conditioning requirements, trees should be planted and maintained in all parking areas to ensure that, within fifteen (15) years of planting, at least fifty percent (50%) of the parking area is shaded at mid-day during the summer season.

- Deciduous trees, which aid summer cooling and allow solar gain for winter heating will be used around buildings and parking areas.

- All cost-effective energy conservation and peak usage reduction measures required by Title 24 of the California Administrative code will be incorporated in building design.

- Where feasible, and given physical constraints of the plan area, subdivisions and other new development will be designed to facilitate solar use as a means of reducing total energy consumption. The design elements which should be considered include, solar orientation, shade control, wind management, and solar access.

Other *Specific Plan* policies addressing resource management can be found in Section 3.2 Hydrology/Drainage/Water Quality, Section 3.3 Air Quality, Section 3.4 Biological Resources, and Section 3.12 Cultural Resources.

Impacts: **Impact Evaluation Criteria:** The significance of impacts on natural resources can be determined based upon the potential for the proposed project to encourage additional consumption of finite natural resources (such as fossil fuels).

Impact #3.8-1: The proposed development will consume energy resources and increase onsite energy consumption.

Conclusion: The proposed development does not include any uses that would consume unusual amounts of energy or natural resources. The draft *Butte County Energy Element* does not identify any local shortages or forecast any difficulties in supplying anticipated development within the county. Development of the site must be in accordance with the policies of the *General Plan* which will include the *Energy Element* once adopted. Goals, policies and design standards have been incorporated into the *Specific Plan* which address both energy conservation and resource management. In addition, impacts associated with transportation energy use are mitigated to less than significant levels by mitigation measures #3.3-1, #3.3-2, #3.3-3, #3.3-4, and #3.3-5 under Air Quality, Section 3.3. All other energy related impacts are determined to be less than significant.

Mitigation Measures: Because no significant impacts have been identified, which are not already mitigated in other Sections of this EIR, no additional mitigation measures are required.

3.9 POPULATION/HOUSING

Setting: According to 1990 U.S. Census data, the total population of Butte County in 1990 was 182,120 persons. The population living in unincorporated territory within the county was 98,461 (54 percent of the total). The estimated total county population for 1992 was 191,207, and the estimated unincorporated area population was 102,807. Total county population projections are 226,700 in 2000 and 249,000 in 2005 (Department of Finance, Demographic Research Unit, Report 91 P-1, Interim Population Projections, April 1991).

According to the *Draft Background Report* for the *Butte County General Plan*, it is important to note that a large percentage of population lives in the unincorporated urban areas surrounding Chico, Oroville and Paradise. In Oroville, the sphere of influence includes an estimated population of 33,461, of which almost two-thirds (21,501 residents) reside in the unincorporated area. The Report states that the fastest rate of growth during the 1980s occurred in the unincorporated area beyond any of the five city spheres of influence.

The total number of households in the unincorporated area in 1990 was 37,419 (*General Plan Housing Element*, 1992). The average number of persons per household was 2.55 in 1990 (1990 U.S. Census), and is projected to be 2.38 persons per household in 1995 and 2.36 persons per household in 2000 (*General Plan Housing Element*, 1992).

The Butte County Association of Governments (BCAG) has calculated that the unincorporated area of Butte County should accommodate 5,131 new housing units between January 1991 and July 1997, including 1,702 for very low income households, 970 for other low income households, 970 for moderate income households and 1,489 for above moderate income households. Between 1987 and 1991, the County approved 3,915 dwelling units, or 783 units per year on the average. The range of dwelling units approved per year was 612 in 1991 to 863 in 1988. Approximately 500 mobilehomes were located in the unincorporated area in 1990 and 1991. According to the *Housing Element* of the *General Plan*:

> An objective of 790 dwelling units per year is not unrealistic in light of the unincorporated area building and mobilehome location history over the past five years...the overall production objective called for in the BCAG plan suggests that the County needs to examine policies and programs that can increase the amount of land capable of accommodating housing in excess of

six dwelling units per acre, and in particular in excess of 12 dwelling units per acre...

Based on the proposed number of lots and dwelling units for the *Stringtown Mountain Specific Plan*, and the 1990 average household size for Butte County (2.55 persons per household), it is estimated that the total population of the Plan area at buildout will be 489 permanent residents. The *Specific Plan* estimates that an additional 75 temporary residents will utilize the resort and wellness center. Although a formal phasing plan is not part of the proposed *Specific Plan*, it is anticipated that the Plan area would be developed over a 10 year period.

According to the *Housing Element*, there are 27,722 acres of vacant land available in the unincorporated area zoned for residential use. Approximately 67 percent of this land is zoned for large lot (2.5 acre minimum) residential use, while another 27 percent is zoned for single family residences or mobilehomes at six or fewer dwelling units per acre. The *Housing Element* estimates that this land would accommodate 39,546 new dwelling units if developed at the mid-range of the allowed densities on the average. However, it is noted that there is a lack of infrastructure to serve development at a density of more than six dwelling units per acre. It is anticipated that the *General Plan* update currently in process will result in changes in the acreage planned and zoned for residential use, and new estimates of holding capacity. The *Specific Plan* proposes to develop 116 single family detached units at a density of 1.26 dwelling units per acre; 44 single family attached (duplex) units at a density of 4.7 dwelling units per acre; and 32 multiple family units at a density of 11.4 dwelling units per acre. It can be concluded that construction of the multiple family units would assist the County in meeting its *Housing Element* objectives for construction of higher density housing units.

Impacts: **Impact Evaluation Criteria:** The currently adopted *Butte County General Plan* includes the following policies related to population and growth:

- Based upon continuous analysis of population trends, provide plans which allow reasonable "freedom of choice" of sites and facilities for the population growth of the County, both in the County as a whole, and in its various sections.

- Designate adequate land for free-market competition among land suppliers to avoid artificially constricting land availability.

- Establish appropriate zoning to provide sites (including various choices) to meet housing needs for the ensuing 20 years.

The 1992 *General Plan Housing Element* includes the following relevant policy statements:

- The County will continue to annually monitor zoning to ensure that sufficient land is zoned at various densities to meet the County's regional share of housing.

- Zoning for higher density residential development will emphasize development within or adjacent to existing urban areas in which public facilities and services can be extended, or within large, master planned developments which have the financial capability of providing needed public facilities and services for higher density development.

- Establish affordable housing goals, to be negotiated, for large-scale developments which contain a mixture of residential densities.

- Develop site design guidelines for energy conserving development patterns.

Growth-inducing impacts are addressed in Section 3.7, Land Use.

Impact #3.9-1: Addition of an estimated 192 residential units as proposed under the project could add 489 people to the population of the Butte County unincorporated area at buildout. Although no formal phasing plan is proposed, it is assumed for purposes of this EIR that the buildout will occur over a period of 10 years. If a buildout of 10 years is assumed, additions to the unincorporated area population would occur at an average rate of 19 dwelling units and 49 persons per year (the actual rate would, of course, vary from year to year).

Conclusion: The site is currently planned for residential development in the *General Plan*, but proposed densities will exceed densities currently planned for the site. The site can be characterized, however, as a large, master planned development with the capability of providing public facilities and services for higher density development. The number of proposed units is well within the expressed need for 5,131 additional units by 1997, and the multiple family units will assist the County in meeting its *Housing Element* goals for multiple family development in the unincorporated area. The impacts of the proposed project on population and housing are therefore determined to be less than significant.

Impact #3.9-2: Increased population due to development of the proposed project will result in increased demand for, and impacts upon, public services and facilities.

Conclusion: These potentially significant impacts are identified and addressed in Section 3.11, Public Services.

Mitigation Measures: Because identified population, housing and growth-inducing impacts are either not significant or are addressed elsewhere in this EIR, no mitigation measures are required.

3.10 TRAFFIC/CIRCULATION

Setting: From the standpoint of regional circulation, the *Stringtown Mountain Specific Plan* will be served primarily by State Highway 162, which connects the Lake Oroville area with Oroville and points west. As discussed in the text which follows, the Butte County road system is made up primarily of rural two lane roads, the capacity of which is governed by such varying factors as alignment, shoulder and travel way width, passing sight distance and the percentage of trucks and/or recreational vehicles. Because area roads carry a significant amount of recreational traffic during summer months, traffic volumes, as well as actual capacity and operating Levels of Service, vary throughout the year.

The text which follows documents the physical condition of study area roadways, both in terms of those factors affecting capacity and in terms of safety and general pavement condition. Programmed or planned improvements to each road have been noted. Finally, the practical capacity and Level of Service "C" threshold of study area roads have been calculated. The complete text of the *Traffic Impact Analysis* prepared by kdAnderson Transportation Engineers is included as Appendix G of this EIR.

Study Area Roads. The *Stringtown Mountain Specific Plan* is generally located adjacent to State Highway 162 south of Lake Oroville in Butte County. The project lies east of the Oroville city limits at the intersection of State Highway 162 and Forbestown Road (see Figure 1, Appendix G). The *Stringtown Mountain Specific Plan* is proposed with one point of access to State Highway 162, as well as three points of access to Forbestown Road.

A general description of each of the major roads in the study area follows. This information is based on a field survey conducted for this EIR, as well as review of published sources.

State Route 162 is a two lane conventional highway, which is classified as a minor collector in the area of the *Stringtown Mountain Specific Plan*. The highway extends about 78 miles across Glenn and Butte Counties in Caltrans District 3 and connects the Oroville area with State Highway 99 and Interstate 5.

In the immediate vicinity of the *Stringtown Mountain Specific Plan*, State Highway 162 is typically 32 feet wide with two twelve foot wide travel lanes and paved shoulders. Left turn channelization exists at most major intersections, but not at the Forbestown Road intersection. From a capacity standpoint, the alignment of the road typically adheres to the "rolling" and "mountainous" terrain of the foothills.

On many roads in the Sierra Nevada foothills, the amount of traffic varies significantly throughout the year. This does not appear to be the case on State Highway 162. The most recent published traffic counts for State Highway 162 adjacent to the project indicate a 1991 Annual Average Daily Traffic volume (AADT) of 4,350 west of Forbestown Road and 1,750 east of Forbestown Road. These volumes rise slightly to 4,450 and 1,800 vehicles per day (VPD) during peak summer months.

With moderate development anticipated in the rural counties which are tributary to the highway, State Route 162 is expected to carry increasing traffic volumes in the future. The Route Concept Report for State Highway 162 suggests that an annual growth rate of 2.7 percent may be achieved, which in turn would suggest year 2010 volumes of 7,200 AADT and 2,900 AADT west and east of Forbestown Road, respectively.

During peak periods, the effects of trucks and recreational vehicles on State Highway 162 traffic operations can be significant, especially in the vicinity of the Loafer Creek Campground and Day Use area. Caltrans reports that on this segment of the highway, an average of approximately 10 percent of the total daily traffic volume is trucks, although this percentage drops during peak weekday traffic hours. In addition, significant numbers of recreational vehicles use the road during summer months, as boat launching, day use and camping facilities are available.

The long range concept for the portion of State Highway 162 in the vicinity of the *Stringtown Mountain Specific Plan* includes no planned improvements. The road is expected to remain at its current design standard. Caltrans reports that the highway east of Hillcrest Avenue currently operates at LOS "E" during peak hours, and no improvement to that Level of Service is anticipated.

Forbestown Road. Forbestown Road connects State Highway 162 with the rural area of eastern Butte County below the south fork of the Feather River. Forbestown Road also extends into the rural area of eastern Yuba County as well.

Forbestown Road is a rural two lane road which varies in width. Just south of State Highway 162, the road generally has a pavement width of 32 feet, with paved shoulders which vary from about 3 to 4 feet on each side. In this area, the alignment of the road is flat to rolling and is generally conducive to a travel speed of 45 to 50 mph. Further east outside the limits of this study, the road narrows and follows a more winding "mountainous" alignment.

The most recent Butte County traffic counts on Forbestown Road indicate that the road carried approximately 1,290 vehicles per day near the intersection with State Highway 162 in 1991. Based on observed peak hour traffic and its percentage of AADT (9.5 percent), it is estimated that Forbestown Road currently carries 2,000 vehicles per day south of State Highway 162.

Old Olive Highway. Old Olive Highway is a minor Butte County road which currently connects State Highway 162 and Forbestown Road. Old Olive Highway is typically 20 feet wide and follows the generally rolling terrain of the area. The road appears to carry approximately 820 vehicles per day south of State Highway 162.

Capacity/Level of Service Analysis. A Level of Service analysis has been conducted for existing roadways, under existing conditions, for this EIR. The methodology used for this analysis is described in Appendix G. Level of Service (LOS) is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening operating conditions, is assigned to an intersection or roadway segment. Table 1, Appendix G, presents the characteristics associated with each LOS grade. As shown in Table 1, LOS "A", "B" and "C" are considered satisfactory to most motorists, while LOS "D" is marginally acceptable. LOS "E" and "F" are associated with severe congestion and delay and are unacceptable to most motorists.

The current *Butte County General Plan Circulation Element* indicates that in rural areas LOS "B" is the formal minimum Level of Service Standard, although LOS "C" is acceptable "when fiscal, environmental, or site constraints are prohibitive". A similar strategy exists for urban areas, except that LOS "D" is the allowed exception to LOS "C". Alternatively, Caltrans has adopted LOS "E" as their "Concept" LOS for State Route 162.

Typical Existing Roadway Segment Levels of Service (LOS). The roadway characteristics assumed in Level of Service and capacity calculations, along with the calculation work sheets are included in the Appendix G to this report. Current weekday PM peak hour traffic volumes on local roads and highways were developed from recent traffic counts completed for this EIR, data from other recent studies or from information provided by Caltrans District 3. Current traffic volumes, Levels of Service and practical capacity are presented in Table 2 and illustrated in Figure 2, Appendix G.

As indicated above, the portion of State Highway 162 in the immediate vicinity of the *Stringtown Mountain Specific Plan* operates with a good Level of Service during the observed peak hours. This conclusion differs from the Level of Service suggested in the State Highway 162 Route Concept Report, which suggests that the segment of State Highway 162 from Hillcrest Avenue to Lake Oroville (P.M. 21.3 to 31.1) operates at LOS "E". The apparent difference results from the terrain assumed for the immediate area of the project, which is "Rolling", versus the terrain further east, which is "Mountainous".

This Level of Service is also different from that described in the *Butte County Congestion Management Plan* (CMP). That document suggests peak hour Level of Service on the Principal Arterial System, which includes State Highway 162. The CMP indicates that State Highway 162 operates at LOS "A" from Kelly Ridge Drive to the end of the route.

Levels of Service on Forbestown Road are currently very good, and LOS "B" is achieved during both periods, based on the *Highway Capacity Manual* methodology for rural roads.

Intersection Levels of Service. Level of Service has also been calculated for intersections. The methodology used for these calculations is described in Appendix G.

Levels of Service at the unsignalized intersections which are controlled by side street stop signs are indicative of the magnitude of the delay incurred by motorists turning at the intersection. As the length of delay increases, motorists often become impatient and may react by choosing to make unsafe use of shorter gaps in traffic.

Currently the study area intersections operate satisfactorily. During the typical Weekday PM peak hour, the Level of Service drops to "C" for motorists waiting to turn left onto the State highway at the Kelly Ridge Road

intersection. At the other study area intersections, this left turn movement operates at LOS "A" or "B".

Safety/Sight Distance. Because the *Stringtown Mountain Specific Plan* proposes multiple points of access to Forbestown Road and new access to State Highway 162, issues associated with the safety of potential project traffic as well as through traffic have been investigated. These issues include the availability of adequate sight distance at the points of project access and the need for left turn lane channelization.

Available sight distance was investigated along Forbestown Road at various points of proposed project access. The standards employed are described in Appendix G.

Roadway Improvements. The Traffic Impact Analysis has identified roadway improvements that are currently needed, even without development of the *Stringtown Mountain Specific Plan*, as follows:

- **Currently Needed Roadway Improvements.** At this time, the study area roadway system operates satisfactorily for the most part. The overall Level of Service on State Highway 162 in the area just west of Forbestown Road is acceptable, and while peak weekend traffic conditions may occasionally be poor, it would be difficult to justify immediate improvements in response to peak conditions.

- **Cumulative Roadway Improvements Needed Without *Stringtown Mountain Specific Plan*.** The volume of background traffic forecast for the year 2010 will require extensive roadway improvements, whether or not the *Stringtown Mountain Specific Plan* is developed. Some of the improvements described below are already included in the Regional Transportation Plan or County Capital Improvement Plan, while others have not yet been considered.

  Improvements to State Highway 162 West of Kelly Ridge Road. Improvements to State Highway 162 west of Kelly Ridge Road are included in the *Regional Transportation Plan* (RTP) and the Butte County *Capital Improvements Program* (CIP) at a total cost of $10.31 million. These improvements include intersection signalization, passing lanes, and ultimately, widening State Highway 162 to a four/five lane section. With planned improvements, the State Highway 162/Kelly Ridge Road intersection will operate at LOS "A", and the overall Level of Service on this segment of State Highway 162 will also be "A".

Alternative Transportation Modes. As with most rural areas, the area east of Oroville is served by limited alternative transportation modes. Opportunities for bicycles and pedestrians, especially as an alternative to the private automobile, are often limited by lack of developed shoulders, sidewalks or pavement width accommodating either mode. In the area of the *Stringtown Mountain Specific Plan*, however, State Highway 162 and Forbestown Road have sufficient paved shoulders to accommodate bicyclists and pedestrians.

The CMP also summarizes current public transit services in Butte County. While service is provided by various carriers in Chico, Oroville and Paradise, no service is provided in the vicinity of the *Stringtown Mountain Specific Plan*.

Specific Plan Policies. The following circulation policies are incorporated in the *Stringtown Mountain Specific Plan*:

- Construct a safe and efficient circulation system.
- Provide convenient and safe pedestrian routes to all land uses.
- Furnish an aesthetic environment for public circulation.
- Maintain Level of Service (LOS) "C" for roadway linkages and intersections at arterial and collector streets.
- Minimize impact on regional air quality.
- Facilitate alternatives to vehicle transportation.
- Provide access to all onsite uses and access to the regional circulation system beyond the plan area.
- Access as provided by existing easements will be maintained.
- Construction of the internal road system and any upgrading of offsite corridors will be accomplished in phases pursuant to recording of final maps for specific portions of the project.
- Interior streets will be signed to accommodate automobiles as well as pedestrians, cyclists and equestrians. The thirty-two foot (32') right-of-way will include four feet (4') on each side of each travel lane for pedestrians, cyclists and equestrians.

- Gutters will control storm runoff as well as define the edge of the roadway.

- Local streets, residential streets, cul-de-sacs, and collector streets will be designed with adequate road widths and shall not exceed fifteen percent (15%) grade to conform with all Butte County standards.

- On-street, Class III bikeways of four foot (4') width shall be provided on both sides of streets.

Roadway Standards. The *Stringtown Mountain Specific Plan* is to be served by a combination of public streets and pedestrian pathways. Internal streets will be two lanes wide with 32 feet of pavement. This roadway section will provide two twelve foot travel lanes, in addition to room for bicyclists, although formal bicycle paths will not be striped. The Plan also includes an extensive system of pedestrian pathways which will link the resort, commercial and pedestrian uses. The pathways will be five and eight feet wide, with the wider section paralleling Forbestown Road to link the residential and commercial areas.

Impacts: **Impact Evaluation Criteria:**

Roadway Segment Levels of Service. As shown in Table 1, Appendix G, Level of Service (LOS) "A", "B" and "C" are considered satisfactory to most motorists, while LOS "D" is marginally acceptable. LOS "E" and "F" are associated with severe congestion and delay, and are unacceptable to most motorists.

The current *Butte County General Plan Circulation Element* indicates that in rural areas, LOS "B" is the formal minimum Level of Service Standard, although LOS "C" is acceptable "when fiscal, environmental, or site constraints are prohibitive". A similar strategy exists for urban areas, except that LOS "D" is the allowed exception to LOS "C". Alternatively, Caltrans has adopted LOS "E" as their "Concept" LOS for State Route 162. The County's adopted Congestion Management Plan (CMP) establishes LOS "C" as the minimum standard, with LOS "D", "E" and "F" considered "unacceptable."

Intersection Levels of Service. LOS at unsignalized intersections that are controlled by side street stop signs are indicative of the magnitude of the delay incurred by motorists turning at the intersection. Because these calculations ignore the condition of through traffic flow (which is assumed to flow freely), they are not indicative of the overall operation of an intersection. A supplemental traffic signal warrant analysis is used to determine level of

significance. A poor unsignalized Level of Service is deemed to be significant if traffic volumes meet signal warrants.

Meeting signal warrants signifies that an intersection has unacceptable operating conditions, but it does not mean that installation of a signal is the only way to mitigate those conditions. It is often possible to improve an intersection with additional lanes or improved geometrics so that a signal is not necessary. The signal warrant criteria employed for this EIR are those presented in the Caltrans *Traffic Manual.*

Safety/Sight Distance. The most important evaluation parameter is the availability of "Minimum Safety Stopping Distance." This criteria is documented in Table 201.1 of the Caltrans *Highway Design Manual* and suggests the minimum sight distance that must be available for a motorist to perceive a hazard in the road and come to a stop. The range of minimum stopping sight distance requirements is from 200 feet for 30 mph traffic to 430 feet for traffic traveling at 50 mph to 580 feet for traffic traveling at 60 mph.

The second sight distance requirement accounts for the gap in traffic required for motorists to join the traffic stream without influencing approaching traffic. This requirement, termed "Corner Sight Distance," is documented in Table 405.1A of the *Highway Design Manual.* Corner Sight Distance requirements range from 330 feet at 30 mph to 550 feet at 50 mph to 660 feet at 60 mph.

Sight distances that do not meet these requirements are determined to constitute a potentially significant impact.

Left Turn Lane Channelization. The need for left turn lanes from the standpoint of safety was evaluated using the procedures presented in Table IX-15 in the American Association of State Highway and Transportation Officials (AASHTO) *Guidelines for the Design of Streets and Highways.* The AASHTO Table presents design hour levels of following and opposing traffic, as well as percentage of vehicles turning, which is used as a guide for confirming the need for left turn lanes. Left turn movements that exceed these Guidelines constitute a potentially significant impact.

Impact #3.10-1: Trip Generation. The number of automobile trips which will be generated by the project have been estimated through application of known trip generation rates. The rates used for this study are described in Appendix G of this EIR.

As indicated by Table 4, Appendix G, full development of the *Stringtown Mountain Specific Plan* may add 4,069 new daily trips to the area street

system. Of that total, approximately 10 percent can be expected during weekday and weekend peak hours.

Trip Distribution and Assignment. The distribution of trips to and from the project site was determined by reviewing current traffic patterns and by considering three factors: 1) typical trip purposes for each use, 2) potential destinations, and 3) distribution assumptions from other recent traffic studies.

The project trip assignment was superimposed onto current weekday PM and weekend PM peak hour intersection and segment volumes, and the resulting "Existing plus Stringtown Specific Plan Traffic" is indicated in Figure 3, Appendix G.

Existing Plus Stringtown Specific Plan Conditions. To determine project-specific impacts, the evaluation parameters described under the Existing Conditions were again considered.

Road Segment Levels of Service. Levels of Service were calculated assuming the addition of *Stringtown Mountain Specific Plan* traffic to current traffic levels. Table 6, Appendix G presents the calculated Levels of Service under "Existing plus Project" conditions, assuming the background weekday PM peak hour and weekend peak hour traffic volumes previously discussed.

The addition of project trips would increase current weekday peak hour traffic levels by 30 to 45 percent west of Forbestown Road, although that percentage increase drops on segments further west towards Oroville. West of Foothill Boulevard, for example, traffic generated by the *Specific Plan* would represent approximately 8 percent of current daily traffic.

When built out, the *Stringtown Mountain Specific Plan* will also increase the volume of traffic on Forbestown Road, especially in the immediate vicinity of the *Specific Plan* area. Along the site's frontage, daily traffic volumes will range from 3,670 to 4,450 ADT.

Conclusion: As indicated, the addition of project trips does not result in any significant change in current operational Levels of Service on State Highway 162. While peak hour Levels of Service may deteriorate from LOS "C" to LOS "D", forecast conditions will remain within Caltrans' adopted Route Concept LOS of "E". The resulting daily traffic volume (i.e., 6,420 west of Forbestown Road and 6,810 west of Kelly Ridge Road) will remain within the LOS "C" threshold suggested in the *General Plan Circulation Element*.

While the resulting traffic volume on Forbestown Road will technically exceed Butte County standards (LOS "B" or better), the flow of traffic will be significantly below the practical capacity of the road. In addition, the forecast volume would not exceed the general LOS "C" threshold (7,500 ADT). Therefore, this traffic increase is determined to be less than significant on the short segment of road involved.

Should the forecast conditions be interpreted as exceeding County standards, appropriate mitigation measures can reduce impacts to a level that is less than significant.

Impact #3.10-2: Intersection Levels of Service. Unsignalized Level of Service was calculated assuming full buildout of the project. As indicated in Table 7, Appendix G, the addition of project trips would incrementally add to the short delays already occurring at intersections on State Highway 162.

Conclusion: By itself, the project wold not create major delays nor would project traffic create the need for signalization. Impacts are therefore determined to be less than significant.

Impact #3.10-3: Potential safety impacts due to lack of adequate sight distances.

Conclusion: Overall, it appears that sight distance will be adequate at most of the new street intersections which are proposed. However, sight distance is somewhat restricted at the main access to Forbestown Road, due to existing topography and to the curvilinear alignment of the road itself. Review of the proposed site plan indicates, however, that the area of the sight distance restriction is adjacent to the commercial parcel, and it is expected that the sight distance restriction can be eliminated when final site grading occurs. Impacts are therefore determined to be less than significant.

Impact #3.10-4: Left Turn Lane Channelization. Development of the *Specific Plan* will create traffic volumes warranting a left turn lane at the main access. As indicated earlier, turn lanes can incrementally increase the capacity and Level of Service on rural roads. Left turn lanes can also be necessary to improve safety. Forecasts for project traffic suggest that a significant number of left turns can be expected at the main access to Forbestown Road, but that relatively few left turns would be expected at any of the other new intersections.

Conclusion: Left turn movements at the main access road intersection are determined to be significant, but can be mitigated to a level that is less than significant; others are less than significant.

Impact #3.10-5: Development of the *Stringtown Mountain Specific Plan* will have an incremental impact on the need for facilities to serve alternative transportation modes.

Conclusion: While it is not likely that project residents or visitors would be "transit-dependent", the development of alternatives to the private automobile would have a beneficial impact on overall traffic flow and on air quality. The *Specific Plan* document suggests that a shuttle system may be developed linking the project with Oroville. Because the shuttle is not specifically incorporated in the project description, its effects have not been included in the estimate of project trip generation. Assuming typical ridership characteristics, a shuttle might be expected to attract 2 to 4 percent of those Plan area residents who commute into Oroville for work. This could equate to 6 to 12 riders per day. Also, see Mitigation Measures #3.3-1 and #3.3-3 in Section 3.3, Air Quality.

As indicated in the Project Description, the site includes extensive pedestrian paths and bicycle routes which will promote local circulation. Because State Highway 162 and Forbestown Road are relatively wide, regional bicycle travel is also possible. Impacts are therefore determined to be less than significant.

Cumulative Impacts: The impacts of the *Stringtown Mountain Specific Plan* have also been considered within the context of cumulative traffic conditions resulting from other anticipated development in Butte County. The basis for this evaluation is described in Appendix G of this EIR. Figures 4 and 5, Appendix G, illustrate future cumulative traffic volumes with and without the *Stringtown Mountain Specific Plan.*

Cumulative Traffic Impacts Without Stringtown Mountain Specific Plan. The text which follows describes the impacts of future cumulative traffic within the context of the impact evaluation criteria described previously.

Roadway Segments. Cumulative peak hour Levels of Service are presented in Table 8, Appendix G. As indicated, the addition of trips from other anticipated Butte County development, as well as through traffic growth, will increase traffic volumes on State Highway 162 to approximately 13,000 ADT west of Kelly Ridge Road, with anticipated volumes dropping to about 9,000 ADT just west of Forbestown Road. The resulting weekday PM peak hour

traffic volume will operate at LOS "D" to "E". However, while the overall Level of Service on the highway may appear to be poor, it is important to note that as long as major intersections operate satisfactorily, mainline traffic will continue to flow, albeit at progressively slower speeds.

The *Butte County Congestion Management Plan* (CMP) indicates that several roadway improvements will become necessary in the area west of Kelly Ridge Road within seven years. Signalization of major intersections and passing lanes are included at a cost of $1.6 million and are noted as RTP Reference #2 and in Butte County CIP Table 4 #16. Widening of State Highway 162 to four or five lanes west of Kelly Ridge Road is also noted in Butte County CIP Table 4 #19, at an estimated cost of $8.71 million.

Forecast traffic volume in the area west of Forbestown Road is 9,175 ADT. This exceeds the CMP Seven Year forecast of 5,900 ADT and the Caltrans Year 2010 estimate of 7,200 ADT. However, as the resulting Level of Service will continue to mirror Caltrans Concept LOS for the highway (i.e., LOS "E"), the forecast increase in background traffic on State Highway 162, while significant, would not theoretically require mitigation to maintain Caltrans standard. This volume does not exceed the Butte County standard for LOS "B" (i.e., 12,250 on rural expressway).

To some extent, the level of development in the area resulting in these traffic volumes may be indicative of general urbanization of the area. Under more urban conditions, the overall travel speed of traffic on the highway ceases to be the primary consideration, with delay at major intersections being the primary consideration.

The Level of Service on Forbestown Road would be better than on State Highway 162, although the peak hour level of service would technically fall to LOS "C" south of State Highway 162, based on the procedures contained in the *Highway Capacity Manual*. The forecast conditions, however, represent utilization of only about 30 percent of the theoretical capacity of the road, and the overall flow of traffic would be unimpeded, although perhaps 5 mph slower than current free flow conditions. The forecast volume, 4,210 ADT, would remain well within the general LOS "C" threshold of 7,500 ADT suggested in the CMP.

Intersections. As indicated in Table 9, Appendix G, the addition of cumulative traffic through study intersections on State Highway 162 would result in major delays to motorists attempting to turn onto the State highway, even though through traffic on the highway will not typically be delayed at the intersection. At the Kelly Ridge Road intersection, a traffic signal will be

warranted with development of the adjacent shopping center, and that signal will operate at LOS "A". However, at the other study locations on State Highway 162 which do not warrant signalization, motorists attempting to cross the highway may not be able to find sufficient gaps in traffic (i.e., unsignalized LOS "E-F"). As a result, the frequency of accidents at this location could increase substantially.

Safety Issues. As background traffic volumes increase, the need for left turn channelization also increases. However, without the development of the *Stringtown Mountain Specific Plan*, left turn channelization will not become necessary at the State Highway 162/Forbestown Road intersection.

Cumulative Traffic Impacts With Stringtown Mountain Specific Plan. The text which follows describes the incremental impact of developing the *Stringtown Mountain Specific Plan* within the context of future cumulative traffic.

Impact #3.10-6: *Stringtown Mountain Specific Plan* traffic will incrementally add to cumulative traffic volumes on State Highway 162 west of the Plan area. The addition of project trips will result in traffic volumes that approach Butte County standards on Forbestown Road adjacent to the Plan area. As indicated in Table 8, Appendix G, the addition of *Stringtown Mountain Specific Plan* traffic would increase background traffic volumes on State Highway 162 by approximately 2,000 ADT west of Forbestown Road. Development of the *Stringtown Mountain Specific Plan* would further increase cumulative traffic volumes on Forbestown Road.

Conclusion: The total volume of traffic on State Highway 162 west of Forbestown Road would reach 11,145. This increase would exacerbate the relative delays to through traffic described earlier and is considered to be significant.

As noted previously, State Highway 162 widening west of Kelly Ridge Road is already planned. The *Specific Plan* would contribute to the need for this widening. To meet Butte County standards, the portion of State Highway 162 west of Forbestown Road would also need to be widened. Using the procedures contained in the 1985 *Highway Capacity Manual*, the resulting traffic volumes would theoretically reach LOS "D" in the immediate vicinity of the project's main access.

Cumulative impacts can, however, be reduced to a level that is less than significant through adoption of recommended mitigation measures.

Impact #3.10-7: Intersections. Development of the *Specific Plan* will result in cumulative traffic volumes that warrant signalization of the State Highway 162/Forbestown Road intersection, and which create the need for a westbound left turn lane. The addition of *Stringtown Mountain Specific Plan* traffic would incrementally add to the volume of traffic through intersections on State Highway 162. As a result, the overall level of delay at unsignalized intersections would theoretically be longer. At the signalized Kelly Ridge Road intersection, LOS "C" would occur.

Conclusion: While this exceeds the Butte County *Circulation Element* standard for rural areas, it can be argued that this would in fact be an urban area under cumulative conditions. In addition it is consistent with the LOS standard in the CMP. At the Forbestown Road/State Highway 162 intersection, the volume of peak hour traffic would theoretically warrant a traffic signal, although alternative mitigation measures are possible to avoid signalization and reduce impacts to a level that is less than significant.

The adequacy of project access under cumulative conditions has also been confirmed. Even with the background traffic anticipated, the Level of Service for motorists waiting to turn left out of the project site will not exceed LOS "D". In view of the relatively low volume of left turning traffic, no improvements beyond the inbound left turn lane at the main driveway described previously will be needed. It will be appropriate, however, to widen the main driveway to permit two exiting lanes.

Impact #3.10-8: Cumulative safety impacts due to lack of adequate sight distances.

Conclusion: As background traffic volumes increase, the need for left turn channelization also increases. With the development of the *Stringtown Mountain Specific Plan,* mitigation measures will be required to reduce impacts to a level that is less than significant.

Mitigation Measures:

Mitigation Measure #3.10-1: Install a southbound left turn lane on Forbestown Road at the main project access. Because current background traffic volumes are low, this improvement will not be required until the commercial site is developed. When installed, the left turn lane shall be long enough to accommodate buildout traffic demands and provide proper storage. The left turn lane should be 300 feet long plus a transition taper of 200 feet. This cost should be borne exclusively by the developer. Applies to Impacts #3.10-4, #3.10-7.

Effectiveness of Measure: Compliance with LOS standards will determine the effectiveness of this measure.

Implementation/Monitoring: Requirement will become a condition of approval for use permit for commercial area. The applicant will construct the necessary improvements or execute of an agreement with the County to deposit funds for their construction. Compliance will be monitored by the Butte County Public Works Department and Department of Development Services.

Mitigation Measure #3.10-2: Contribute toward a fair share of the cost of the traffic signal at State Highway 162/Kelly Ridge Road, as well as any other corridor improvements for which regional cost sharing programs have been developed. Applies to Impact #3.10-6.

Effectiveness of Measure: This measure will reduce the impact of this project on State Highway 162 by contributing a proportionate share of funding toward improvements needed to maintain an acceptable Level of Service.

Implementation/Monitoring: The property owner/developer will be responsible for execution of an agreement with the County for the mitigation of traffic impacts in the Oroville area prior to tentative map(s)/use permit approval. Compliance will be monitored by the Butte County Public Works Department.

Mitigation Measure #3.10-3: Create and implement a Transportation Management Plan (TMP) which incorporates various feasible measures for reducing peak hour trip generation. The TMP should include such measures as employee flex-time schedules, car-pool incentives, and the guest shuttle bus service. Also see Mitigation Measure #3.3-1 in Section 3.3, Air Quality. Applies to Impact #3.10-6.

Effectiveness of Measure: Such measures are effective in further reducing impacts related to vehicular traffic in conjunction with required roadway improvements.

Implementation/Monitoring: The TMP will be submitted to, and reviewed and approved by the Butte County Public Works Department, Department of Development Services and Butte County Association of Governments (BCAG) prior to approval of tentative map(s)/use permit.

Mitigation Measure #3.10-4: Widen Forbestown Road to a three lane section in the area from State Highway 162 south through the main project access.

Contribute a fair share toward the cost of work on the approach of State Highway 162. Applies to Impact #3.10-6.

Effectiveness of Measure: This improvement will incrementally increase the capacity of the road and will result in exclusive left turn and right turn lanes on the Forbestown Road approach to State Highway 162, as well as the previously described left turn lane at the project access.

Implementation/Monitoring: The property owner/developer will be responsible for execution of an agreement with the County for the mitigation of traffic impacts in the Oroville area prior to tentative map(s)/use permit approval. Compliance will be monitored by the Butte County Public Works Department.

Mitigation Measure #3.10-5: In lieu of installation of a traffic signal at the State Highway 162/Forbestown Road intersection, require an eastbound right turn lane. Alternatively, a median area acceleration lane for westbound traffic could be installed. Contribute a fair share toward the cost of whichever of these two improvements is selected by Butte County and Caltrans. Applies to Impact #3.10-7.

Effectiveness of Measure: By installing an eastbound right turn lane, the volume of State Highway 162 traffic included in the signal warrant calculation would be reduced to the point that signalization would only be marginally warranted. Because of the area terrain, implementing any of these improvements may prove difficult. If a traffic signal is installed, it will be necessary to widen State Highway 162 to develop a westbound left turn lane. This widening will increase the cost of this work significantly, as west of the intersection the existing roadway lies within a major cut section. While the area immediately adjacent to the intersection is already flat and paved and the turn lane itself may be installed fairly easily, earthwork will be needed to widen the roadway further west in order to accommodate the transition area in advance of the turn lane.

Similarly, the westbound acceleration area would require significant earthwork in the area west of the intersection as well. Because the length of improvement would be longer that required for the left turn lane transition, the extent of excavation would be substantially greater.

The development of an eastbound right turn lane would appear to be accomplished without major excavation, although embankment will be required to bring the existing terrain up to the grade of the highway.

Implementation/Monitoring: The property owner/developer will be responsible for execution of an agreement with the County for the mitigation of traffic impacts in the Oroville area prior to tentative map(s)/use permit approval. Compliance will be monitored by the Butte County Public Works Department.

Mitigation Measure #3.10-6: Installation of a westbound left turn pocket at the intersection of State Highway 162/Forbestown Road. Applies to Impact #3.10-8.

Effectiveness of Measure: This measure will reduce the impact of this project on the safety of the intersection by contributing a proportionate share of funding toward improvements needed to maintain an acceptable level of public safety.

Implementation/Monitoring: The property owner/developer will be responsible for execution of an Agreement with the County for the mitigation of traffic impacts in the Oroville area prior to project approval. Compliance will be monitored by the Butte County Department of Development Services and Public Works Department.

3.11 PUBLIC SERVICES AND UTILITIES

Existing public services and utilities, as well as those necessary to accommodate the proposed project, are described below. The general impact evaluation criteria used in this EIR are also identified. Additional criteria are listed in each subsection as necessary for evaluation of the particular service or facility.

Impact Evaluation Criteria: Impacts to public facilities and services become significantly adverse from a single project when one or more of the following situations occurs which would not be mitigated or offset by the existing standard tax or fee system:

- A need for new systems or services results;
- Substantial alterations to the existing systems or services are necessary; or
- The providing agency is currently operating at or above capacity and the additional service need would create an additional burden.

An overall cumulative impact results when the project, combined with expected growth and other proposed projects, will seriously affect the providing agency's ability to provide services. Increased tax revenues and development fees generally mitigate

cumulative impacts. However, when these funding sources are not expected to provide for the increased needs, or when the providing agency is already operating at or above capacity, cumulative impacts can be considered significant.

3.11.1 WATER SERVICE

Setting: There is currently no domestic water service to the plan area. Water is proposed to be supplied to the plan area by the Oroville-Wyandotte Irrigation District (OWID). According to the *Specific Plan*, the District can adequately serve the site and is willing to provide service; however, the site is outside the district boundary and the District's Sphere of Influence (see Figure 3.11-1 located at the end of this Chapter). Prior to receiving service, the property would have to be annexed to the district boundary and the sphere of influence amended to include the site. As shown on Figure 3.11-1, OWID's Sphere of Influence follows Highway 162 along the western boundary of the plan area. The district boundary does not follow the same alignment but does include the Loafer Creek campground area west of the site.

The District currently has approximately 6,600 domestic connections within its boundaries, with approximately 5,800 of those service connections in the Miners Ranch area. An estimate of the number of residences within the boundaries which do not receive service is not available. The cost of annexing to the District is $25 per acre, exclusive of additional processing fees required by LAFCo, the State Board of Equalization, etc. A connection fee of $1,525 for each domestic connection is also required which compensates for the incremental expansion to the treatment facilities necessary as service demand increases. The cost of actually extending the lines is also the responsibility of the property owner/developer (Mike Messina, Operations Manger, OWID, pers. comm, August 1993).

OWID treats surface water to domestic use standards at the Miners Ranch Treatment Plant. The Plant has a reported capacity of 12 million gallons per day, a maximum capacity of 15 million gallons per day, and a reported current maximum demand of 10 million gallons per day (Messina, pers. comm., June 1993). An existing district 12" water line extends to the intersection of Highway 162 and Old Olive Highway (see Figure 3.11-2 located at the end of this Chapter). As shown on Figure 3.11-2, a 12" line is proposed to connect to the existing line at Old Olive Highway and extend along Highway 162 to Forbestown Road then east along Forbestown to distribution points along the site. Figure 3.11-3, also located at the end of this Chapter, shows the onsite distribution system proposed as part of the *Specific Plan*. The onsite distribution system consists of six, eight and twelve inch water lines

supplemented by a 375,000 gallon storage reservoir and two 3,000 gallon flow equalization storage tanks with pumping stations.

For residential units, water consumption is estimated at 1,200 gallons per unit per day. Typically, hotel/motel/resort facilities consume anywhere from 50 to 150 gallons per day per unit; restaurants may average 35 gallons per day per seat (*Wastewater Engineering*, Metcalfe & Eddy, Inc., 1972). In estimating the impact of the proposed resort facility on the design of water utilities required to serve the project, it is worth noting that such a facility, other than its irrigated landscaping, will not be a major factor in estimating water demand. Maximum water demand, two to three times average daily demand, is a function of landscaping irrigation demand in hot weather.

As indicated earlier, OWID provides water to the State Recreation Area west of the site; however, the facilities used to purvey water are owned by the State. Facilities include a pumping station at the Miners Ranch pumping facility, transmission lines from the treatment plant to Loafer Creek, and two 100,000 gallon storage tanks at Loafer Creek. There is sufficient line capacity to allow for connection to the plan area. (Ken Walters, Department of Parks and Recreation, Northern Buttes District, pers. comm., June 1993)

Correspondence dated February 11, 1993, from the State Department of Parks and Recreation, Northern Buttes District, indicates that the District does not oppose consolidation of existing water mains and storage facilities with those proposed for the subdivision. However, the operation and maintenance of the facilities would have to be assumed by OWID.

Specific Plan Policies. The following policies relating to water supply have been incorporated in the *Stringtown Mountain Specific Plan*:

- The project developer and the OWID will negotiate the terms of a will serve letter, fees required for annexation to the district and hook-up fees per unit.

- Efficient plumbing fixtures, irrigation systems, drought tolerant plantings, and other methods should be utilized within the plan area to reduce water consumption.

- On- and offsite water facilities will be designed with input from the OWID to ensure proper sizing and siting of facilities.

Impacts: **Impact #3.11.1-1:** Need to extend water lines to serve the site.

Conclusion: Based on the impact evaluation criteria, the need for extension of water services would be considered potentially significant if not adequately funded. Once installed, user fees will be assessed to pay for maintenance of facilities and water service. Policies incorporated in the *Specific Plan* address negotiation with OWID for service, annexation and hook-up fees and well as system design. Implementation of these policies and measures described below will mitigate this impact to a less than significant level.

Impact #3.11.1-2: Increased domestic water consumption. The project may, when fully developed and occupied, generate an average day demand of 0.1 to 0.2 million gallons per day, and a maximum day demand two to three times that amount.

Conclusion: Connection to OWID is proposed as part of the project. The demand for water consumption anticipated for the plan area is within the reported excess capacity of the Miners Ranch Treatment Plan. However, as development occurs within OWID's service boundary, the project will add to the incremental consumption. Although direct impacts are less than significant incremental increases in consumption will cause a cumulative impact but can be mitigated to a level that is less than significant.

Impact #3.11.1-3: Impacts associated with the installation of water mains and facilities. Construction-related impacts may include noise, dust, erosion, and impacts on traffic flow, biological and cultural resources.

Conclusion: Such impacts are all potentially significant. Most impacts have been addressed in other sections of this EIR and most can typically be reduced to a level that is less than significant through the implementation of *Specific Plan* policies. Those not already addressed can be mitigated to a level which is less than significant.

Mitigation Measures: **Mitigation Measure #3.11.1-1:** As part of the negotiations with OWID for the "will serve" letter, the terms for funding the necessary extensions shall be defined and included within the letter. In addition connection fees necessary to mitigate long term cumulative impacts to water supply shall be negotiated and included in the letter. Applies to Impact #3.11.1-1.

Effectiveness of Measure: This measure will assure that adequate funding is available for service extension and that funds are accumulated to assure adequate resources for long term water development.

Implementation/Monitoring: The "will serve" letter will be required to be submitted with the application to LAFCO for annexation to OWID. Monitoring of this requirement is the responsibility of the Department of Development Services.

Mitigation Measure #3.11.1-2: Compliance with Caltrans and County encroachment permit conditions. Applies to Impact #3.11.1-3.

Effectiveness of Measure: This measure will ensure that traffic flow impacts during construction are mitigated.

Implementation/Monitoring: Encroachment permits are required prior to initiating work within rights-of-way. Permits are issued by Caltrans and the Butte County Public Works Department.

Mitigation Measure #3.11.1-3: Once the connection route is finalized, conduct surveys to evaluate potential impacts on biological and cultural resources. If potential impacts are identified, measures will be taken to mitigate those impacts to the standards referenced in Sections 3.4 and 3.12 of this EIR. Applies to Impact #3.11.1-3.

Effectiveness of Measure: Compliance with this measure will ensure that secondary impacts associated with water line extension will not occur.

Implementation/Monitoring: Surveys shall be required as a condition of approval with findings and mitigation measures, if necessary, submitted prior to issuance of construction permits for the water lines. Compliance will be monitored by the Department of Development Services.

3.11.2 SEWAGE DISPOSAL

Setting: The project area is not currently within the boundaries of a district or other public entity providing wastewater collection, treatment and disposal services. The project applicants have, however, proposed that sewer service be provided by the Lake Oroville Area Public Utilities District (LOAPUD). The plan area is outside the district boundary and the District's Sphere of Influence (see Figure 3.11-4 located at the end of this Chapter). Prior to receiving service, the property would have to be annexed to the district boundary and the sphere of influence amended to include the site.

LOAPUD charges a processing fee for annexation to the District of $985 (first ten acres) and annexation fee of $325 per acre. Once annexed, a connection fee of $400 for each dwelling unit is assessed along with a fee of $900 for

each dwelling unit for a regional facility charge. The actual line extension costs are also the responsibility of the property owner/developer (Cindy Quigley, LOAPUD, pers. comm, August 1993).

For residential units, wastewater discharge is estimated at 255 gallons per unit per day. For the hotel/motel/resort facilities, wastewater generation is typically estimated at 50 to 150 gallons per unit per day with restaurants typically generating an average of 35 gallons per seat per day (*Wastewater Engineering*, Metcalfe & Eddy, Inc., 1972).

Correspondence from LOAPUD dated January 27, 1993, indicates that the project area was included in the District's early planning and construction in the 1960's when the sewerage facilities were extended from the Las Plumas High School to the Loafer Creek area. Service to the plan area was envisioned when the trunk sewer was installed in the downstream shoulder of the Bidwell Canyon Saddle Dam (Miners Ranch Reservoir).

The LOAPUD's collection system discharges into the Sewage Commission Oroville Region (SCOR) Regional Treatment Plant. The plant reportedly has a capacity of 6.5 million gallons per day (mgd) and currently operates at 3.2 mgd (Dan Cook, District Engineer, LOAPUD, pers. comm., May 1993).

The *Specific Plan* has provided the following summary of possible alternative connections to LOAPUD's system:

> Two alternatives are feasible for connection of the project to the district's main trunk line. Alternative "A" consists of an eight inch (8") gravity line from the site to the Loafer Creek Area where it will connect to an existing ten inch (10") line. From this area the flow would be transported through a series of existing pump stations and a ten to fifteen inch (10"-15") force main across Miners Ranch Reservoir to the district's existing gravity system. Alternative "B" consists of a twelve inch (12") gravity flow line from the project, along Hawk Ravine to a pump station on Mt. Ida Road. A force main would connect the system to an existing gravity line. Either alternative will discharge into LOAPUD's existing gravity trunk line. The District is in the process of upgrading this trunk line to 2.0 mgd.

These two regional sewer connection alternatives are shown in Figure 3.11-5 located at the end of this Chapter. The District's engineer has indicated that other alternatives may also be feasible or desirable.

The conceptual onsite sewer system, based on connection to the regional system proposed under Alternative "A" is shown on Figure 3.11-6 located at the end of this Chapter. The system consists of a network of six inch (6") and eight inch (8") lines, gravity flowing toward existing lines in the Loafer Creek area.

Although outside LOAPUD's boundary and Sphere of Influence, sewer service is provided to the State Recreation Area west of the site; however, these lines and facilities (lift stations) are the property of the State. There is sufficient line capacity to allow for connection to the plan area (Ken Walters, Department of Parks and Recreation, Northern Buttes District, pers. comm., June 1993).

Correspondence dated February 11, 1993, from the State Department of Parks and Recreation, Northern Buttes District, indicates that the District does not oppose consolidation of existing sewer mains with those proposed for the subdivision. However, the operation and maintenance of the facilities would have to be assumed by LOAPUD.

Specific Plan Policies. The following policies relating to sewer service have been incorporated in the *Stringtown Mountain Specific Plan*:

- The project developer will coordinate efforts with appropriate LOAPUD representatives to connect the project to the LOAPUD's existing truck line and to receive a "will serve" letter for the project.
- The onsite sewage collection system will be designed with input from the LOAPUD to ensure proper sizing and siting of facilities.
- Strict implementation of all conditions and requirements of the Section 1601-03 Streambed Alteration Agreement and the plan EIR shall be followed for the sewer line extension across drainageways.

Impacts: **Impact #3.11.2-1:** Need to extend sewer lines to serve the site.

Conclusion: Based on the impact evaluation criteria, the need for extension of sewer services would be considered potentially significant if not adequately funded. Once installed, user fees will be assessed to pay for maintenance of facilities and sewer service. Policies incorporated in the *Specific Plan* address coordination with LOAPUD for connection and service, as well as system design. Implementation of these policies and measures described below will mitigate this impact to less than significant.

Impact #3.11.2-2: Decrease in sewage treatment plant capacity. At buildout, the Stringtown Mountain project will generate an average daily wastewater flow of .06 mgd.

Conclusion: Connection to LOAPUD is proposed as part of the project. The demand created by the project is well within the reported capacity of the treatment plant. Decrease in sewage treatment capacity is, therefore, considered less than significant.

Impact #3.11.2-3: Impacts associated with the installation of sewer lines and facilities. Construction-related impacts may include noise, dust, erosion, and impacts on traffic flow, biological and cultural resources.

Conclusion: Such impacts are all potentially significant. Most impacts have been addressed in other sections of this EIR and most can typically be reduced to a level that is less than significant through the implementation of *Specific Plan* policies. Those not already addressed can be mitigated to a level which is less than significant.

Mitigation Measures:

Mitigation Measure #3.11.2-1: As part of the negotiations with LOAPUD for the "will serve" letter, the terms for funding the necessary extensions shall be defined and included within the letter. Applies to Impact #3.11.2-1.

Effectiveness of Measure: This measure will assure that adequate funding is available for service extension.

Implementation/Monitoring: The "will serve" letter will be required to be submitted with the application to LAFCO for annexation to LOAPUD. Monitoring of this requirement is the responsibility of the Department of Development Services.

Mitigation Measure #3.11.2-2: Compliance with Caltrans and County encroachment permit conditions. Applies to Impact #3.11.2-3.

Effectiveness of Measure: This measure will ensure that traffic flow impacts during construction are mitigated.

Implementation/Monitoring: Encroachment permits are required prior to initiating work within rights-of-way. Permits are issued by Caltrans and the Butte County Public Works Department.

Mitigation Measure #3.11.2-3: Once the connection route is finalized, surveys will be conducted to evaluate potential impacts on biological and cultural resources. If potential impacts are identified, measures will be taken to mitigate those impacts to the standards referenced in Sections 3.4 and 3.12 of this EIR. Applies to Impact #3.11.2-3.

Effectiveness of Measure: Compliance with this measure will ensure that secondary impacts associated with water line extension will not occur.

Implementation/Monitoring: Surveys shall be required as a condition of approval with findings and mitigation measures, if necessary, submitted prior to issuance of construction permits for the sewer lines. Compliance will be monitored by the Department of Development Services.

3.11.3 SOLID WASTE DISPOSAL

Setting: Solid waste disposal will be provided by Oroville Solid Waste Disposal (OSWD) and the project site is located along an existing OSWD pick-up route. This private hauling company which also owns and operates the Oroville Transfer Station. Solid waste generated in the Oroville area, as well as the Richvale area and eastern portion of the county is routed through this transfer station which is an indoor facility equipped with a stationary compactor. The Oroville Transfer Station currently diverts 17 percent of the solid waste stream through recycling efforts. Future upgrades planned include construction of a Materials Recovery Facility (MRF) and introduction of a permitted Household Hazardous Waste (HHW) collection program. (*Draft General Plan Background Report*, March 1993) Waste is then transported to the County-owned Neal Road Landfill. According to the *Draft Background Report*, it is anticipated that the Neal Road Landfill will continue to receive solid waste until at least the year 2000.

Assembly Bill (AB) 939 mandated that all counties and cities in the State adopt an "Integrated Waste Management Plan" (IWMP) by July 1, 1991, that addressed four issues: source reduction, composting, recycling and reuse. AB 939 also called for a 25% reduction in solid waste by 1995 and 50% reduction by the year 2000. Butte County has adopted Source Reduction and Recycling Elements which will be incorporated into the IWMP when it is adopted in 1994.

Impacts: **Impact #3.11.3-1:** Reduction of available landfill capacity. Based on the 192 residential units proposed, an average household size of 2.55 persons per household (1990 Census), plus a potential temporary population of 75, and an estimated solid waste generation of 1.6 tons per capita per year (*Draft General*

Plan Background Report), it is estimated that approximately 900 tons of solid waste would be generated annually, in addition to waste generated by the proposed commercial uses. This waste will contribute to the cumulative regional impacts on landfill capacity.

Conclusion: State mandates require reduction in solid waste placed in landfills by 1995 and 2000. New development will create an additional burden on the County and make these mandates more difficult to achieve. This impact is, therefore, potentially significant but can be mitigated to a level which is less than significant.

Mitigation Measures:

Mitigation Measure #3.11.3-1: Any development on the site shall comply with waste disposal standards to be identified within the County's Integrated Waste Management Plan and Source Reduction and Recycling Elements. Applies to Impact #3.11.3-1.

Effectiveness of Measure: Compliance with adopted waste reduction standards will assure that this project contributes its fair share to the State-mandated solid waste reduction requirements.

Implementing/Monitoring: Require compliance with the County IWMP and SRRE through incorporation of policies in the *Specific Plan*. Compliance will be monitored by the Department of Development Services and the Public Works Department.

3.11.4 LAW ENFORCEMENT

Setting:

Police protection to the unincorporated areas of Butte County is provided by the Butte County Sheriff's Department (BCSD). The Department is headquartered in Oroville with substations in Chico and Paradise Pines. BCSD is the countywide coordinator for mutual aid situations and has mutual aid agreements with the California Highway Patrol and the municipal police departments of Oroville, Chico, Gridley and Biggs. (*Draft General Plan Background Report*, March 1993)

The nationally accepted standard for officers to population is 1:1000 and this is the baseline that has been established by the Butte County Sheriff has a reasonable level of service. (QUAD Consultants, *Project Associates EIR*, October 1991) BCSD currently has 75 sworn and 95 non-sworn personnel. Based on the current population, the Department is operating with 0.6 sworn personnel per 1,000 residents. (*Draft General Plan Background Report*, March 1993)

The County has adopted impact fees for law enforcement. These fees are applicable to the entire unincorporated area and are assessed for new development; collected at the building permit stage. This one time fee is $360.00 per unit for single-family units; $252.00 per unit for multiple family units; and $0.03 per square foot for commercial buildings.

Specific Plan Policies. The *Stringtown Mountain Specific Plan* incorporates the following policies intended to reduce or avoid impacts associated with police protection services:

- Police Department review of all development proposals will be required in the project review process. Contact with the Police Department early in the project design stage is encouraged.

- Commercial uses, the wellness center and resort complex area will be well lit and signed to allow adequate patrol conditions.

Impacts:

Impact #3.11.4-1: Increased demand on police services. Based on a potential of 192 units and using an average household size of 2.55 persons (1990 Census), the project has the potential to add 489 permanent residents to the service population. This would require an additional .5 officer to meet the desired baseline; assuming all residents of the proposed development currently reside outside the Butte County unincorporated area. Overall the proposed development itself will not substantially alter the current level of service; however, the project will contribute to the cumulative impact of growth and development upon the desired level of law enforcement services.

Conclusion: Although the proposed project alone will not change the current level of service, it will contribute to the cumulative impact of growth in the county. As growth occurs, a greater demand will be placed on law enforcement services which are already operating at a service level lower than the desired standard. Based on the general impact evaluation criteria, increased demand on police services will be a significant impact; however, it can be mitigated to a level that is less than significant through the payment of the County-imposed impact fees.

Mitigation Measures:

Mitigation Measure #3.11.4-1: Payment of law enforcement impact fees as adopted by the County. Applies to Impact #3.11.4-1.

Effectiveness of Measure: Payment of the adopted fees provides an additional source of revenue to fund police protection services.

Implementation/Monitoring: Impact fees are paid at building permit issuance. BCSD is responsible for tracking and expending the fees.

3.11.5 FIRE PROTECTION

Setting: Fire protection for the unincorporated area of the county is provided by the Butte County Fire Department (BCFD), operated through a cooperative fire protection agreement between the County and the California Division of Forestry (CDF). (*Butte County Safety Element*) Additionally, in order to provide optimal fire protection service to the entire county, BCFD has established mutual aid or automatic aid agreements with every fire-fighting agency in the county, with the exception of the City of Chico where such an agreement has not been finalized; with the U.S. Forest Service fire stations in the Lassen and Plumas National Forests; and with several fire districts in Yuba County. (*Draft General Plan Background Report*, March 1993)

According to information contained in the *Stringtown Mountain Specific Plan*, four local stations currently serve the plan area:

- BCFD Kelly Ridge Station (Station 64); located four (4) miles from the plan area; utilizes one (1) engine, one (1) water tender and one (1) rescue squad. Response time to the plan area is estimated at seven (7) minutes.

- CDF Robinson Mill Station (Station 54); located nine (9) miles from the plan area; operates one (1) fire engine. Response time to the plan area is twelve (12) minutes.

- BCFD Bangor Station (Station 55); located twelve (12) miles from the plan area; operates one (1) engine, one (1) water tender, and one (1) rescue squad. Response time to the plan area is approximately sixteen (16) minutes.

- CDF Harts Mill Station (Station 62); located twelve (12) miles from the plan area; operates with one (1) engine. Response time to the plan area is sixteen (16) minutes.

As stated in the *Specific Plan*, the project will be required to have a pressurized community water system with the specific fire flows, hydrant/main size and hydrant spacing determined after consultation between the fire department and the developer.

According to the *Butte County General Plan Safety Element* (1974), the plan area is within the State Responsibility Area (SRA) within Butte County. Within the SRA, fire hazard severity zones have been mapped based on such factors as vegetation, weather and ground slope. According to the 1974 *Safety Element*, the plan area is within a "high hazard" area. The State Board of Forestry has adopted *Fire Safety Regulations* pursuant to the Public Resources Code Section 4290 which apply to SRAs and which require certain minimum fire safety measures covering the general areas of emergency access standards, signing and addressing standards, emergency water supply standards, and fuel modification and defensible space standards. These *Fire Safety Regulations* are applicable to any development occurring on the site.

As indicated in Section 2.4, Project Objectives and Characteristics, an 0.6 acre fire station site is proposed within the plan area. Although the *Specific Plan* indicates that the site is to be dedicated to BCFD with improvements the responsibility of BCFD, correspondence from the County Fire Warden dated May 4, 1992, indicates the developer's responsibility for improvement of facilities. Recently, the U.S. Forest Service (USFS) has asked BCFD to participate in a cooperative effort to develop a fire station at Loafer Creek, just west of the plan area, in order to consolidate the USFS Challenge and Oroville operations. If this effort materializes, the proposed station within the plan area would be moved offsite and the developer would be required to pay fees in-lieu of and equal to development of the station onsite.

The Insurance Service Organization (ISO) has devised a Fire Suppression Rating Schedule under which areas are rated from Class 1 to Class 10 based on ISO's determination of the fire hazard and fire protection capabilities. Areas rated Class 1 are judged to have the highest fire protection capabilities, and areas rated Class 10 are judged to have the lowest capabilities and/or highest fire potential. Areas rated in the lowest ISO classes enjoy the lowest fire insurance rates. These ratings are based on factors such as response time, access, and water availability. The plan area presently has an ISO rating of Class 9. However, the ISO rating for structures within 1,000 feet of a fire hydrant is a Class 5. Because a pressurized community water system with fire flows, hydrant/main size and hydrant spacing to the specifications of BCFD is proposed as part of the *Specific Plan*, the ISO rating will drop after development occurs.

Specific Plan Policies. The *Stringtown Mountain Specific Plan* incorporates the following policies and fire control guidelines intended to reduce or avoid impacts associated with the provision of fire protection services:

- After dedication of the fire facility parcel to the BCFD, financial and administrative efforts toward establishing the station will be the responsibility of the BCFD. This pertains to all issues, such as access to Highway 162, water supply and proper signage.

- All development projects in the *Stringtown Mountain Specific Plan* Area shall be reviewed by the BCFD for the inclusion of fire prevention measures. Contact with the fire department early in the project design stage is encouraged.

- If it is determined to be necessary by the BCFD, dirt roads for fire equipment access will be created in accordance with specifications of the department. Fire access roads will serve as firebreaks onsite and shall incorporate existing unimproved roads.

- Fire Control Guidelines: The following guidelines are intended to minimize a potentially hazardous fire condition during the summer months:

  - All parcels larger than one acre shall provide a minimum 30 foot setback for buildings and accessory buildings from all property lines and/or the center of the road.

  - All parcels less than one acre shall be subject to the setbacks defined in Section 3.2, Project Site Design Standards, of the *Stringtown Mountain Specific Plan*.

  - Dispose of flammable vegetation and fuels by chipping, burying, burning or removal to a landfill site approved by the local jurisdiction. Disposal of flammable vegetation and fuels caused by site development and construction, road and driveway construction, and fuel modification shall be completed prior to completion of road construction or final inspection of a building permit.

  - Irrigated landscapes and hardscapes such as patios and parking lots should be located strategically as a separation between wildland fuels and structures.

  - Butte County Fire Department (BCFD) review of the project development proposal will be required during project review process to insure the inclusion of fire prevention measures.

- Fire preventative measures shall be taken during the construction phases of the development. Firebreaks will be installed on ridge lines and in construction and grading areas prior to start of work. Firebreak installation will minimize the removal of native oaks and other native trees as feasible.

- Fire breaks exist along the periphery and strategically located within the interior of the plan area. These fire breaks will continue to be maintained through build out.

- Fire retardant plantings will be used strategically to minimize chance of fire.

- Fuel modification standards will be met in cooperation with the BCFD. Stability of plant communities in grasslands near residential areas will be monitored regularly by the BCFD to determine if brush and other heavy fuel-load plants are encroaching.

- Open fires and barbecues will be prohibited year-round in natural open space areas.

- Public access on designated fire access roads by unauthorized motor vehicles will be prohibited by use of barriers and signs.

- The BCFD shall have the right to declare natural open space areas closed to the residents and public during periods of high fire hazard and will have authority to post appropriate warning devices and signage.

Impacts: **Impact #3.11.5-1:** Increased fire protection demand. The addition of 192 residential units plus the commercial and resort facilities will add a direct and incremental demand for fire protection services.

Conclusion: Fire service in Butte County currently operates at or above capacity. As development occurs in rural areas, an incremental increase in the demand for fire protection services will result leading to a cumulative impact. Based on the general impact evaluation criteria, increased demand on fire protection services will be a significant impact; however, it can be mitigated to a level that is less than significant.

Impact #3.11.5-2: Increased structural and wildland fire hazard. The site is located within an area which currently has an ISO rating of 9.

Conclusion: Because the installation of a pressurized community water system with fire flow, hydrant/main size and hydrant spacing to County standards is proposed as part of the *Specific Plan*, the potential for structural and wildland fire hazard will decrease. Application of additional mitigation measures as required by BCFD, including the State Board of Forestry's *Fire Safety Regulations*, and compliance with the policies of the *Specific Plan*, will also reduce this impact to a level that is less than significant.

Mitigation Measures:

Mitigation Measure #3.11.5-1: Dedication and improvement of a fire station onsite or payment of fees in-lieu of dedication and improvement should the USFS and BCFD effort to establish facilities at Loafer Creek occur. Applies to Impact #3.11.5-1.

Effectiveness of Measure: This measure will ensure that adequate fire protection facilities are provided in the area.

Implementation/Monitoring: The fire station site would be dedicated through the tentative map(s)/use permit process. BCFD would be responsible for coordination and installation of improvements and/or collection of payment in-lieu of improvement. If applicable, the fee to be paid will be determined by the Board of Supervisors at subsequent permit approval points, e.g, tentative map, use permit.

Mitigation Measure #3.11.5-2: Formation of a Mello-Roos Community Facilities District (CFD) or county service area (CSA) to provide ongoing funding for fire protection services. Applies to Impact #3.11.5-1.

Effectiveness of Measure: This measure will provide an additional source of revenue to cover the costs associated with improvement of the fire station and of providing additional services.

Implementation/Monitoring: The Butte County Board of Supervisors is responsible for the formation of both Mello-Roos CFDs and CSAs. Implementation of one of these measures will be required at the development stage, e.g., tentative map, conditional use permit. Fees will be collected by Butte County through an annual assessment collected with property taxes or by other methods as may be established by the County.

Mitigation Measure #3.11.5-3: Installation of Class A roofs and automatic fire sprinkler systems for all new structures (residential and commercial). Applies to Impact #3.11.5-2.

Effectiveness of Measure: These measures, together with compliance with policies contained in the *Specific Plan*, will reduce the hazards related to structural fires on the site.

Implementation/Monitoring: Class A roofs and sprinkler systems will be required at building permit issuance. Development plans and building permits shall be reviewed by and final approval given by BCFD prior to issuance of occupancy permits. Structures will be inspected by the Building Division of the Public Works Department for compliance with this measure.

Mitigation Measure #3.11.5-4: All building setbacks from property line shall be a minimum of 30 feet in accordance with the *Fire Safe Regulations* of Public Resources Code 4290. Applies to Impact #3.11.5-2.

Effectiveness of Measure: This measure will reduce the potential for the spread of wildland and structural fires.

Implementation/Monitoring: Building line setbacks and other measures will be required at building permit issuance and incorporated into development site plans. Structures will be inspected by the Building Division of the Public Works Department for compliance with this measure. Ongoing maintenance will be the responsibility of property owners with monitoring to be conducted by BCFD.

3.11.6 SCHOOLS

Setting: The plan area is located within the boundaries of Oroville Elementary School District and Oroville Union High School District, both of which are currently at or over capacity and using portable classrooms throughout the districts. The plan area is located within the attendance areas of Ophir Elementary School, Central Middle School and Las Plumas High School. Ophir Elementary is currently a year round facility. State funding was recently received for expansion at Ophir and modernization at Central. Oroville Union High School presently provides bus service in the area to the high school and by cooperative agreement to the other two campuses (Greg Kempf, Oroville Elementary School District, pers. comm., June 1993).

The Districts currently collect developer fees as provided in State law for residential ($1.65 per square foot), commercial and industrial ($0.27 per square foot) uses which are shared between the two districts. As of July 1, 1993, these fees will increase to $2.65 per square foot for residential uses, the maximum allowed under Senate Bill 1287 (Kempf, June 1993). Section 65996 of the Government Code states that payment of impact fees on new

development shall be deemed adequate mitigation and that no public agency shall deny approval of a development project based on the adequacy of school facilities.

There have been four court decisions that have bearing on the issue of school impact fees. The first three include a 1988 decision, *Mira Development Corp. v. City of San Diego* ((4th Dist. 1988, 205 Cal.App.3d 1201 [252 Cal.Rptr. 825]), which ruled that the issue of school overcrowding could be used as a basis for denying a rezoning application. It was reasoned that Section 65996 applied only to "development project" and not rezoning actions, which are legislative acts. In 1991 the *William S. Hart Union High School District v. Regional Planning Commission of the County of Los Angeles* ((2d Dist. 1991) 226 Cal.App.3d 1612) reaffirmed the *Mira* decision and ruled that Section 65995(e) of the Government Code, like Section 65996, applied only to requirements for school facilities financing imposed by a local agency on a development project. In the 1991 *Murrieta Valley Unified School District v. County of Riverside* ((4th Dist. 1991) 228 Cal.Ap.3d 1212) decision, it was ruled that, because a general plan amendment is also a legislative act, such an amendment is not a "development project" and is not subject to the exclusive mitigation measures stated in Section 65996.

Senate Bill 1287 went into effect on January 1, 1993, which nullifies the above-described court decision. Under SB 1287, Government Code Section 65995 was repealed and a new Section 65995 was added that prohibits a legislative body from levying development fees for school construction inconsistent with State law, whether by administrative or legislative action. Government Code Section 65996 also was repealed and a new Section 65996 was added that prohibits a public agency, in the exercise of its legislative authority, from either denying approval of a project, administrative or legislative in nature, on the basis of the adequacy of school facilities or imposing conditions other than the requirement to pay the limited school facilities fees allowed by statute. However, these provisions will be repealed and the pre-January-1993 provision is reenacted if Assembly Constitutional Amendment (ACA) 6 fails voter approval in June 1994 (or in a November 1993 special election, if one is held).

In February 1993, the California Supreme Court struck down a school district's attempt to impose a special tax on development, finding it exceeded the cap on school impact fees contained in Government Code Section 65995 (*Grupe Development Co. v. Superior Court*, 4th Dist.4th 911). The Court noted that the Legislature limited school impact fees for two reasons. First, the Legislature intended to gather all financing methods under one umbrella. The second purpose was to make the process of school financing more

responsive to needs by authorizing school districts, rather than cities and counties, to impose the fees. In so doing, the Legislature balanced each district's need for school funding against the community's need for affordable housing by limiting the amount school districts could charge. In light of these purposes, the Court concluded that Section 65995 must be read to exclude special taxes levied against development to fund school construction. (McCutchen Doyle Brown & Enersen, *McCutchen Update*, April 5, 1993)

Specific Plan Policies. The *Stringtown Mountain Specific Plan* includes the following policy relative to school facilities:

- School districts will review the project development proposal in the project review process.

Impacts: **Impact #3.11.6-1:** Increased school enrollment. Using the State average yield factors of .4 elementary, .1 intermediate and .2 high school students per household, the project has the potential of increasing school enrollment by 133 students (76 elementary, 19 middle and 38 high school).

Conclusion: The developer or property owner will be required to pay impact fees in effect at the time that building permits are issued. There is a presumption in State law, recently affirmed by the State Supreme Court, that such fees are adequate to address new facility needs resulting from growth. Because these fees will be collected, the additional service need resulting from the project will be mitigated to a level that is less than significant.

Mitigation Measures: **Mitigation Measure #3.11.6-1:** Payment of developer fees as provided by law. Applies to Impact #3.11.6-1.

Effectiveness of Measure: The developer fees collected by the school districts are intended to offset the costs of new facilities.

Implementation/Monitoring: Developer fees are paid upon building permit issuance. The school districts are responsible for tracking and expending the fees.

3.11.7 PARKS AND RECREATION

Setting: Five recreation and park districts act as special districts within the county and complement the city, state and federal recreational facilities and opportunities. The plan area is located within the Feather River Recreation and Park District (FRRPD) which primarily serves the Oroville area and surrounding

population. The City of Oroville's tax base is not adequate to meet the community's needs and FRRPD operates more facilities than it can adequately maintain (*Draft General Plan Background Report*, March 1993).

The District has no formal written guidelines or planning standards; however, it refers to the National Park and Recreation Association's (NRPA) "Recreation, Park, and Open Space Standards and Guidelines", recognizing that the national standards are based on "urban" parks and may not always apply to rural facilities (*Draft General Plan Background Report*). The NRPA standards for local parks range from an acre-to-population ratio of 0.25 to 0.5 acres per 1,000 population for mini-parks with a service area of less than 1/4 mile radius; 1.0 to 2.0 acres per 1.000 population for neighborhood parks or playgrounds with a service area of 1/4 to 1/2 mile radius serving a population up to 5,000; and 5.0 to 8.0 acres per 1,000 population for community parks which serve several neighborhoods within a one to two mile radius.

Correspondence received from the Feather River Recreation and Park District during the NOP process indicates that any residential development within the District's jurisdiction will generate a demand for services and facilities; however, because some recreational functions and facilities are incorporated into the *Specific Plan*, including establishment of a lighting and landscape assessment district to maintain facilities at the development, the impact to the District may be lessened.

The County does not provide, operate, or maintain recreational facilities in order to generate user fees. At this time, the County does not have a Quimby Act Ordinance in place which would allow for the dedication of land or payment of an in-lieu fee for parks through the subdivision process (*Butte County General Plan Issues and Options Report*).

Recreational facilities incorporated into the *Specific Plan* include a 2.4 acre overlook park accessible by pedestrian trails from all areas of the community, 26.5 acres of open space, and Class III bike lanes throughout the development. The resort complex will include a tennis complex, swimming pool and patio area.

Specific Plan Policies. The *Stringtown Mountain Specific Plan* incorporates the following policies relating to recreation facilities and open space:

- Individual project proponents shall coordinate with the Feather River Recreation and Park District regarding the potential for establishing a lighting and landscaping district to maintain common recreational facilities, including trails and overlook park.

- Formal landscaping for land uses adjacent to natural open space areas should provide for a transition to the natural habitat, utilizing native landscaping. Projects adjacent to open space will be designed to protect the integrity and natural function of the open space area.

- Berms and swales will be utilized where required to control surface drainage and avoid impacts on environments adjacent to developed areas.

- Maintenance of the open space area will be the joint responsibility of the resort management and community homeowner's association. This cooperation is essential to protect the development from fire hazards and to avoid refuse collection problems.

- Passive recreation activities such as bird and animal watching, and walking and hiking will be allowed within the common open space areas. Active recreation such as the use of motorized vehicles will be prohibited in open space areas.

- Access points to the open space areas for the purposes of maintenance or fire protection will be closed to the public when not in use by authorized parties.

Impacts: **Impact #3.11.7-1:** Increased demand on public parks and recreational facilities. The plan area will add an additional 489 persons into the District's population, assuming the residents do not already reside within the District's jurisdiction.

Conclusion: The project incorporates recreational amenities onsite which offset impacts on recreational facilities. Onsite facilities may more effectively meet the needs of future plan area residents than distant facilities, and relieve the District of a potential burden. Maintenance of onsite facilities will be maintained by a plan area homeowners association. The project itself will not generate a demand which would lower the existing level of service; however, it will contribute to the cumulative impact of growth throughout the District. Additional property tax revenues will be generated by the project which will partially offset the increased cost of providing services and facilities. Based on the general impact evaluation criteria, increased demand on public parks and recreational facilities will be potentially significant; however, it can be mitigated to a level which is less than significant.

Mitigation Measures: **Mitigation Measure #3.11.7-1:** The County shall assist FRRPD through the adoption of a Quimby Act Ordinance. Land dedication and/or payment of in-lieu fees shall be required of any development activity on the site and throughout the District. Applies to Impact #3.11.7-1.

Effectiveness of Measure: Adoption and implementation of a Quimby Ordinance will assure dedication of land or payment in-lieu which provides the District with a source of land and/or funding necessary for facility acquisition and development.

Implementation/Monitoring: Adoption of a Quimby Ordinance is the responsibility of the Butte County Board of Supervisors. Fees are set by the County and collected upon issuance of building permits. Fees are then remitted to the District by the County. Parkland is dedicated upon recordation of the final subdivision map. Monitoring of the fee and dedication process will be carried out by the Butte County Public Works Department.

3.11.8 PUBLIC UTILITIES AND SERVICES

Setting: Pacific Gas and Electric Company (PG&E) provides both electricity and natural gas to Butte County, however, natural gas is only available to the urbanized area of Chico, Paradise, Oroville and Durham. Telephone service throughout the county is provided by Pacific Bell. Cable television service is provided to the Oroville area by Viacom Cable, however, there is not cable service available to the plan area. Viacom does provide a Direct Broadcast System (DBS) which is a scaled-down version of a large home satellite dish, to county residents who live outside of cable service areas. (*Draft General Plan Background Report*, March 1993).

Correspondence from PG&E dated April 27, 1992, indicates that no adverse effects to existing facilities are anticipated as a result of implementing the Plan. Electric distribution facilities may be extended to serve the site in accordance with the rules, rates, and tariffs presently on file with the California Public Utilities Commission. No gas distribution facilities or service is available for this area.

Impacts: **Impact #3.11.8-1:** The project will require extension of electrical and telephone service to service the plan area, including any construction of new facilities or reconstruction of existing facilities necessary to serve the site.

Conclusion: The cost of all electric and telephone line extensions are paid for as development occurs, in accordance with utility company rates and regulations. Long term maintenance costs are covered through monthly user fees. This impact is therefore determined to be less than significant.

Mitigation Measures: Because no significant impacts are identified, no mitigation measures are required.

3.11.9 OTHER PUBLIC SERVICES

Setting: Butte County, like most counties throughout the State, has experienced difficulty in funding day to day government operations. Two main causes for financial shortfall statewide include the loss of property tax revenue after the passage of Proposition 13 in the late 1970s, and the increase in the caseload and costs of state mandated programs administered by the counties. Also, in the case of Butte County, the County has experienced slow growth of general property tax revenues, and County sales tax revenues failed to grow significantly. These factors have made it increasingly difficult to fund the ongoing provision and maintenance of public facilities and services, particularly those needed to serve new growth (*Draft General Plan Issues and Options Report*, March 1993).

Correspondence received from the Butte County Administrative Office dated April 24, 1992, indicates concern over the County's continuing shortfall in funding for day-to-day operations. The letter further states that there is strong pressure for growth in the county and for many positive reasons; however, the Administrative Office must hesitate to be supportive of growth that could increase, rather than mitigate, the County's budget problems.

Growth inducing impacts have already been discussed in Section 3.7 of this EIR and it is noted that growth inducing impacts cannot be avoided, if the project is approved. These impacts are identified as significant and unmitigable. The various incremental impacts identified throughout this EIR and by the County Administrative Office are the result of growth generally in the County and inadequate funding sources for those services. There are a variety of potential funding mechanisms available to the County to help pay for many of the enumerated services on a project or countywide basis, among them are Mello-Roos Community Facilities Districts (CFD) and county service areas (CSA).

The *Stringtown Mountain Specific Plan* incorporates public facility financing including land dedications, reimbursement agreements and assessment

districts. It is proposed that land will be conveyed to Butte County for street rights-of-way and the fire station. Primary infrastructure will be funded under a Mello-Roos Community Facilities District or similar funding. Construction of secondary infrastructure facilities including street, streetlight, water or sanitary sewer trunklines, will be financed by the developer subject to, if appropriate, reimbursement agreements administered by the County. These agreements allow subsequent developers within and outside the plan area to reimburse the developer for a portion of the initial installation cost based on a "fair share" formula. The specific provisions of these methods will be adopted in the plan area development agreements associated with subsequent application of PUD zoning.

Impacts: **Impact #3.11.9-1:** Increased demand on general governmental services.

Conclusion: Although the project itself may not create a demand on other governmental services that results in a significant decrease in the level of service, it will add to the incremental demand on county services. The funding of both infrastructure and certain services to accommodate growth can be achieved through the formation of a CFD which is proposed as part of the *Specific Plan*. This impact is, therefore, considered to be less than significant.

Mitigation Measures: Because no significant impacts are identified, no mitigation measures are required.

3.12 CULTURAL RESOURCES

Cultural resources include prehistoric and historic period archaeological sites; historical features, such as rock walls, water ditches and flumes, and cemeteries; and architectural features. Cultural resources consist of any human-made site, object (i.e., artifact), or feature that defines and illuminates our past. Virtually any physical evidence of past human activity can be considered a cultural resource, although not all such resources are considered to be significant. Cultural resources are the visible symbols of our recent and ancient cultural past. They often provide the only means of reconstructing the human history of a given site or region, particularly where there is no written history of that area or that period.

The archaeological investigation of the *Stringtown Mountain Specific Plan* area was undertaken by John Furry of Butte College. The scope of the investigation included a records search; a literature review; a complete, systematic archaeological field survey; and preparation of a technical report of the findings of the investigation. Purposes of the investigation included locating, identifying, recording, and evaluating the significance of all

cultural resources within the project boundaries; determining whether significant cultural resources will be affected by the proposed project; and providing appropriate mitigation measures for all significant impacts. The archaeological technical report is included verbatim as Appendix H to this EIR. Findings of the archaeological investigation report are summarized in this section.

Setting: **Ethnography:** The first white explorers in the project vicinity encountered Indians now called the Konkow or Northwestern Maidu. They were one of three groups of people who spoke related Maiduan languages. The Konkow inhabited parts of the Central Valley and foothills throughout much of modern Butte County. The Northeastern or Mountain Maidu occupied the higher Sierran slopes in much of what is now Plumas County. To the south of these people were various bands of Southern Maidu or Nisenan Indians, who occupied portions of the Central Valley and Sierra Nevada Mountains in the Bear, Yuba, and American River basins.

Konkow were hunters and gatherers, whose primary staple was acorns, supplemented by a vast variety of game, fish, roots, berries, seeds, nuts, greens, and fungi. They occupied small permanent villages on ridges above steep-sided river canyons or on elevated terraces adjacent to the streams. Along with these village sites, traces of Konkow presence are found in rockshelters (i.e., overhanging ledges of basalt that formed "roofs," resulting in small, habitable spaces), food processing sites composed of bedrock mortars, and seasonally occupied camps that were occupied during annual food gathering forays into areas outlying permanent villages, generally in higher elevations.

Archaeology/Prehistory: The prehistory of the Oroville Locality is known primarily as a result of archaeological excavations in Messilla Valley, a few miles northwest of the project site. These excavations occurred between 1963 and 1975. A five-phase cultural sequence was indicated, spanning the last three thousand years or more. The most recent phase is represented by the Historic Complex, which clearly represents the material culture of the Konkow branch of the Maidu. The Oroville Complex occupied the photohistoric period from about A.D. 1500 to 1830. The Sweetwater Complex predates the Oroville Complex from about A.D. 800 to 1500. The Bidwell Complex dates from about A.D. 1 to 800. Preceding the Bidwell Complex is the somewhat enigmatic Messilla Complex.

During Bidwell Complex times, there may have been a shift in subsistence focus from the gathering of hard seeds, which were ground into flour with the mano and metate, to greater reliance on acorns and buckeye seeds, which were processed with mortars and pestles. These resources required

considerable processing before use. During the Sweetwater Complex period, there appeared to be a dramatic population increase. Smaller projectile points indicate introduction of the bow and arrow. The Oroville Complex almost certainly represents Konkow people. The Messilla Complex exhibits similarities to the contemporaneous Martis Complex of the northern Sierra Nevada, particularly the area surrounding the Tahoe Basin, and to coeval cultures of the Central Valley.

Archaeologists have debated for three decades about the identities and origins of the peoples represented by these archaeological remains. In the 1970s, most archaeologists became convinced that the Messilla Complex represented the remains of people who spoke languages related to the Hokan linguistic stock. They hypothesized that waves of immigrants who spoke languages of the Penutian stock, including the Maidu, entered the Central Valley and displaced Hokan groups to areas marginal to the valley and foothills. Either the Bidwell or Sweetwater complex was thought to represent the initial Penutian intrusion. Since the 1980s, however, many archaeologists have come to believe, based on more recent excavations in the northern and central Sierra Nevada, that the Messilla Complex actually represents Maiduan presence in the region during ancient times. At the other end of the spectrum of opinion is at least one prominent archaeologist who feels that Maiduan people entered the region only after A.D. 1400.

While the debate ensues and research continues to reconstruct the culture history and identify a cultural sequence of events in the region, archaeologists in the Sierra Nevada also are focusing on issues of cultural ecology. For example, they are attempting to reconstruct the sequence of environmental changes in the region and relating cultural events, such as rapid rises in population or shifts in subsistence patterns, to these environmental events.

History: Possibly the first non-Indian explorer of the area was Captain Luis Arguello, who entered what is now Butte County in 1820. His party named the Feather River (Rios de las Plumas) for the great quantity of waterfowl feathers they saw floating on its waters, and Plumas County thus derived its name. During the 1830s and 1840s, Hudson's Bay Company and American Fur Company trappers and traders were active in the region, probably bearing diseases that devastated Indian populations of the Central Valley and Sierran foothills during the early 1830s.

During the 1840s, when Mexico claimed California as a province, huge land grants were given to Mexicans, Europeans, and Americans by the Mexican governors of California. Among the prominent grantees in Konkow territory were Edward Farwell, whose lands were acquired by John Bidwell, founder

of Chico, and Samuel Neal, who acquired the Esquon grant near Durham (south of Chico — his lands extended toward modern Paradise). These people raised livestock and crops. The discovery of gold in 1848 marked the sudden end of native culture in the area.

Existing Cultural Resources Conditions:

Records Search: A records search was conducted by the California Archaeological Inventory, Northeast Information Center, California State University, Chico. The purposes of the records search were to:

- determine whether the property, any portion of the property, or adjacent lands have been subjected to previous archaeological surveys
- ascertain whether significant cultural resources have been previously recorded within or adjacent to the project site
- determine whether there are any California Historical Landmarks or sites listed on the National Register of Historic Places within the project area
- evaluate the archaeological sensitivity of the project site
- seek a determination from Information Center staff regarding the need for an archaeological field survey

The records search revealed that none of the subject property had previously been surveyed for cultural resources. However, ten prehistoric cultural resources had been recorded within a one-mile radius of the project site, and the area is considered to be of extremely high sensitivity for both historic and prehistoric cultural resources. Accordingly, the Information Center recommended a complete archaeological survey and inventory of the property to locate and record significant cultural resources and mitigate impacts to them represented by the proposed project.

Archaeological Survey Findings: The intensive field survey was conducted between December 2-6, 1992. Ground visibility was considered very good for locating and identifying cultural resources. No prehistoric cultural resources were encountered. One historic period archaeological site was recorded. This site, given the temporary field number SMP-1H, consists of an adit portal (i.e., mine tunnel entrance). No visible traces of tailings (i.e., waste rock and soil from excavating the tunnel and washing the sand and gravel to separate gold).

For safety reasons, the adit was not entered. Its depth is unknown. No associated remains were found in the vicinity of the tunnel.

Impacts: **Impact Evaluation Criteria.** Appendix K to the *CEQA Guidelines* offers explicit guidance for determining the "archaeological importance" (i.e., significance) of cultural resources and suggestions for mitigating effects to them. Archaeological importance is generally a measure of the archaeological research value of a site. Archaeological sites, particularly those of the Historic period, are considered to be archaeologically important only if the archaeological or historical information they represent can be obtained solely through archaeological methods (i.e., systematic excavation). If the historically consequential information can be gathered by means of historical research rather than through archaeological excavation, the site is not archaeologically important under CEQA. Thus, if such a site were to be destroyed by a project, its historical values could still be realized through historical research. Information gathered during the recording of the site is permanently housed by the Information Centers, and therefore, a record of their existence, location, and characteristics are preserved for historians who may be conducting research about the region, the activities (i.e., mining, ranching, early settlement), or the period that the site represents.

Under Appendix K, an "important archaeological resource" is one that:

A. Is associated with an event or person of recognized significance in California or American History or recognized scientific importance in prehistory

B. Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions

C. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind

D. Is at least 100 years old and possesses substantial stratigraphic integrity (i.e., it is essentially undisturbed and intact)

E. Involves important research questions that historical research has shown can be answered only with archaeological methods

The *Butte County General Plan*, Energy, Natural Resources, and Recreation Element, includes similar criteria for evaluating the significance of cultural resources and defining significant impacts to them. Also included are policies

and implementation measures that require records searches for all proposed development projects, archaeological surveys where such projects will involve ground disturbing activities, and long-term monitoring measures to ensure that cultural resources are not disturbed by development projects or that such disturbances are mitigated prior to development.

Impact #3.12-1: An historic cultural resource, SMP-1H, consisting of a mining adit portal, occupies the property and may be affected by the project.

Conclusion: Additional evaluation procedures would be required, including archival research and possibly limited archaeological testing, to determine whether this site meets Appendix K or *General Plan* criteria for significance. However, it is deemed unlikely that the site would meet these criteria. Significance is based primarily on historical research value. Sites of this type rarely yield important information about local, regional, or national history through archaeological methods, although they sometimes reveal important details of history through historical research methods. The option to pursue historical research on the site will remain regardless of the effects that the project may have on the site per se. Furthermore, the apparent absence of associated remains, such as tailings, artifact deposits, or structures, renders it all the more unlikely that the site possesses important archaeological data. Finally, the site is adjacent to a ravine located in a designated open space area. It is, therefore, unlikely to be directly affected by the project. For all of these reasons, potential impacts to the site are determined to be less than significant.

Impact #3.12-2: Despite the fact that an archaeological survey of the project was conducted, there remains a possibility that cultural resources occupy the property that were not identified during the survey, for example, resources buried under alluvial sediments. Although the likelihood of this is somewhat low, the project nonetheless could affect potentially significant, undiscovered cultural resources.

Conclusion: Any impact to a significant cultural resource is a direct significant impact. Destruction of multiple significant cultural resources can constitute a significant cumulative impact, because it would severely limit the ability of archaeologists to fully reconstruct local or regional prehistory or history. However, this impact can be mitigated to a level that is less than significant.

Impact #3.12-3: Offsite utility pipeline construction may impact cultural resources in areas not yet determined.

Conclusion: Areas not surveyed for cultural resources will require surveys at the point precise alignments are known. Although potentially significant associated impacts can be mitigated to a level that is less than significant by Mitigation Measures 33.11.1-3 and #3.11.2-3 appearing in section 3.11 of this Chapter.

Mitigation Measures:

Mitigation Measure #3.12-1: Should any previously undiscovered cultural resources be uncovered during project construction, including artifacts (e.g., chipped stone implements such as arrowheads, stone tools, chipping waste; bone implements; beads; mortars and pestles; cans; glass; ceramics), structural remnants, or human skeletal remains, work within 50 feet of that location shall cease immediately. A qualified professional archaeologist (defined in the *General Plan* as one who is certified by the Society of Professional Archaeologists) shall immediately be retained to evaluate the significance of the find and implement appropriate mitigation measures. Should human remains be encountered, State law requires immediate notification of the County Coroner. If the remains are judged by the Coroner to be archaeological in nature, the California Native American Heritage Commission must be notified immediately to identify the most likely living descendants of the deceased. State law provides that the Native American representative(s), landowner, and lead agency will negotiate an agreement regarding treatment of the remains.

Effectiveness of Measure: If properly implemented, this measure will ensure that impacts on significant cultural resources will be identified and mitigated.

Implementation/Monitoring: Department of Development Services staff will require the developer to provide evidence that construction supervisors and all other construction personnel have been informed in writing of and have acknowledged the need to comply with this measure. if a suspected cultural resource is encountered by construction personnel, staff shall be notified immediately so that implementation of appropriate mitigation can be monitored.

TABLE 3.3-1
AIR QUALITY MONITORING DATA FOR BUTTE COUNTY
CARBON MONOXIDE

Station	Year	Peak 1-hour value (ppm)[1]	Peak 8-hour value (ppm)	Days above State standard
Manzanita Avenue, Chico				
	1980	8.0	5.3	0
	1981	6.0	3.1	0
	1982	8.0	4.9	0
	1983	7.0	4.1	0
	1984	8.0	4.6	0
	1985	9.0	4.5	0
	1986	9.0	4.3	0
	1987	7.0	3.7	0
	1988	8.0	4.0	0
	1989	10.0	4.8	0
	1990	7.0	4.1	0
	1991	10.0	5.6	0
	1992[2]	7.0	N/A[4]	N/A

Station	Year	Peak 1-hour value (ppm)[1]	Peak 8-hour value (ppm)	Days above State standard
Salem Street, Chico[3]				
	1980	16.0	10.9	0
	1981	15.0	8.4	0
	1982	17.0	12.4	3
	1983	12.0	6.5	0
	1984	14.0	10.9	1
	1985	15.0	9.8	2
	1986	20.0	10.4	3
	1987	12.0	8.6	0
	1988	17.0	12.3	2
	1989	15.0	10.0	1
	1990	17.0	10.8	1
	1991	15.0	9.2	2
	1992[2]	14.0	N/A	N/A

1 ppm = parts per million.
The State 1-hour Standard is 20 ppm averaged over a 1-hour period in any one day, effective July, 1983, or an exceedance of 40 ppm prior to July 1983.

2 Data available for January through June 1992 only.

3 The Salem Street monitor was removed from service June, 1992.

4 N/A = Monitoring information not available.

Source: California Air Quality Data, CARB, 1980-1992, reprinted from the Butte County Air Pollution Control District Air Quality General Plan Element.

TABLE 3.3-2
AIR QUALITY MONITORING DATA FOR BUTTE COUNTY
OZONE

Station	Year	Peak 1-hour value (ppm)[1]	Days above State Standard
Manzanita Avenue, Chico			
	1980	0.11	N/A[2]
	1981	0.10	N/A
	1982	0.09	0
	1983	0.08	0
	1984	0.08	0
	1985	0.10	4
	1986	0.11	2
	1987	0.11	5
	1988	0.10	8
	1989	0.10	4
	1990	0.13	2
	1991	0.10	1
	1992[3]	0.09	N/A

1 ppm = parts per million
The State 1-hour Standard is 0.09 ppm averaged over a 1-hour period in any one day.
2 N/A = Monitoring information not available.
3 Data available for January through June 1992 only.

Source: California Air Quality Data, CARB, 1980-1992, reprinted from the Butte County Air Pollution Control District Air Quality General Plan Element.

Station	Year	Peak 1-hour value (ppm)[1]	Peak 8-hour value (ppm)	Days above State standard
Salem Street, Chico[3]				
	1980	16.0	10.9	0
	1981	15.0	8.4	0
	1982	17.0	12.4	3
	1983	12.0	6.5	0
	1984	14.0	10.9	1
	1985	15.0	9.8	2
	1986	20.0	10.4	3
	1987	12.0	8.6	0
	1988	17.0	12.3	2
	1989	15.0	10.0	1
	1990	17.0	10.8	1
	1991	15.0	9.2	2
	1992[2]	14.0	N/A	N/A

1 ppm = parts per million.
The State 1-hour Standard is 20 ppm averaged over a 1-hour period in any one day, effective July, 1983, or an exceedance of 40 ppm prior to July 1983.

2 Data available for January through June 1992 only.

3 The Salem Street monitor was removed from service June, 1992.

4 N/A = Monitoring information not available.

Source: California Air Quality Data, CARB, 1980-1992, reprinted from the Butte County Air Pollution Control District Air Quality General Plan Element.

TABLE 3.3-3
AIR QUALITY MONITORING DATA FOR BUTTE COUNTY
PM_{10}

Station	Year	Maximum 24-hour average ($\mu g/m^3$)[1]	Days above State standard
CSU Chico	1985[2]	77	N/A[6]
	1986	80	9
	1987	88	14
9th Street, Biggs	1987[3]	95	15
	1988	115	15
CSU Chico	1988	100	5
	1989	82	6
9th Street, Biggs	1989	91	8
Salem Street, Chico	1989[4]	90	8
	1990	97	13
9th Street, Biggs	1990	67	1
Salem Street, Chico	1991	123	24
	1992	78	3
Manzanita Avenue, Chico	1992[5]	61	2

1 $\mu g/m^3$ = micrograms per cubic meter
The State standard is 50 $\mu g/m^3$ calculated over a 24-hour period.
2 Data available for October through December of 1985 and January 1985 through September 1989 only.
3 Data available for June 1987 through March 1990 only.
4 Data available for October 1989 through June 1992 only.
5 Data available for July through September of 1992 only.
6 N/A = Monitoring information not available.

Source: California Air Quality Data, CARB, 1980-1992, reprinted from the Butte County Air Pollution Control District Air Quality General Plan Element.

TABLE 3.3-4
BUTTE COUNTY AVERAGE DAILY EMISSIONS INVENTORY

Major Source Category	Emissions (tons/day)				
	TOG	CO	NO_X	SO_X	PM_{10}
Total Stationary Sources	17.0	42.0	2.4	0.1	51.0
Total Mobile Sources	16.0	100.0	20.0	1.8	1.6
TOTAL BUTTE COUNTY (all sources)	32.0	150.0	22.0	1.9	53.0

Note: Data derived from 1989 base year.

Source: CARB, 1991

TABLE 3.3-5
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS[1]		NATIONAL STANDARDS[2]		
		CONCEN-TRATION[3]	METHOD[4]	PRIMARY 3,5	SECONDARY 3,6	METHOD 4,7
Ozone	1 Hour	0.09 ppm (180 ug/m3)	Ultraviolet Photometry	0.12 ppm (235 ug/m3)	Same as Primary Std.	Ethylene Chemilumi-nescence
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m3)	Non-dispersive Infrared Spectros-copy (NDIR)	9 ppm (10 mg/m3)	-	Non-dispersive Infrared Spectros-copy (NDIR)
	1 Hour	20 ppm (23 mg/m3)		35 ppm (40 ug/m3)		
Nitrogen Dioxide	Annual Average	-	Gas Phase Chemilumi-nescence	0.053 ppm (100 ug/m3)	Same as Primary Std.	Gas Phase Chemilumi-nescence
	1 Hour	0.25 ppm (470 ug/m3)		-		
Sulfur Dioxide	Annual Average	-	Ultraviolet Fluro-rescence	80 ug/m3 (0.03 ppm)	-	Parar-osoaniline
	24 Hour	0.05 ppm (131 ug/m3)[8]		365 ug/m3 (0.14 ppm)	-	
	3 Hour	-		-	1300 ug/m3 (0.5 ppm)	
	1 Hour	0.25 ppm (655 ug/m3)		-	-	
Suspended Particulate Matter (PM_{10})	Annual Geometric Mean	30 ug/m3	Size Selective Inlet High Volume Sampler and Gravimetric Analysis	-	-	-
	24 Hour	50 ug/m3		150 ug/m3	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	-	-	50 ug/m3		
Sulfates	24 Hour	25 ug/m3	Turbi-dimetric Barium Sulfate	-	-	-

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS[1]		NATIONAL STANDARDS[2]		
		CONCEN-TRATION[3]	METHOD[4]	PRIMARY 3,5	SECONDARY 3,6	METHOD 4,7
Lead	30 Day Average	1.5 ug/m3	Atomic Absorption	-	-	Atomic Absorption
	Calendar Quarter	-		1.5 ug/m3	Same as Primary Std.	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 ug/m3)	Cadmium Hydroxide STRactan	-	-	-
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 ug/m3)	Tedlar Bag Collection, Gas Chroma-tography	-	-	-
Visibility Reducing Particles	1 Observation	In sufficient amount to reduce the prevailing visibility[9] to less than 10 miles when the relative humidity is less than 70%		-	-	-

1. California standards for ozone, carbon monoxide, sulfur dioxide (1 hour), nitrogen dioxide and particulate matter - PM_{10}, are values that are not to be exceeded. The sulfates, lead, hydrogen sulfide, vinyl chloride, and visibility reducing particles standards are not to be equaled or exceeded.

2. National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based upon a reference temperature of 25° C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent procedure which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the Environmental Protection Agency.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

8. At locations where the state standards for ozone and/or suspended particulate matter are violated. National standards apply elsewhere.

9. Prevailing visibility is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

Source: State of California, Air Resources Board, November, 1989.

TABLE 3.3-6
ESTIMATED INCREMENTAL MOBILE SOURCE EMISSIONS ATTRIBUTABLE TO SPECIFIC PLAN BUILDOUT, 2000 (LBS/DAY)

Project Emissions Report in Lb/Day			
Use	**Total Organic Gases (TOG)**	**Carbon Monoxide (CO)**	**Nitrogen Oxides (NO_x)**
Single Family Housing	17.9	177.4	31.3
Multiple Family Residential	2.6	25.5	4.5
Wellness Center	2.6	24.7	4.7
Resort Complex	7.0	69.5	12.3
Fire Station	0.9	8.2	1.6
Commercial/Office	34.1	323.6	63.8
TOTAL	**65.1**	**628.9**	**118.2**
Use		**Particulate Matter (PM_{10})**	**Sulfur Oxides (SO_x)**
Single Family Housing		3.1	3.7
Multiple Family Residential		0.4	0.5
Wellness Center		11.9	0.5
Resort Complex		1.2	1.4
Fire Station		4.0	0.2
Commercial/Office		149.8	7.6
TOTAL		**170.04**	**13.9**

Unit Type	Trip Rate	Size	Total Trips	Days Op.
Single Family Housing	10.0/Unit	160	1600	
Multiple Family residential	7.2/Unit	32	230	
Wellness Center	100.0/Acre	2	240	1
Resort Complex	8.7/Unit	72	626	
Fire Station	80.0/Acre	1	80	1
Commercial/Office	0.1/1000 sq.ft.	30000	3300	1

ASSUMPTIONS

	Residential			Commercial	
	Home-Work	Home-Shop	Home-Other	Work	Non-Work
Trip Length	6.0	6.0	6.0	6.0	6.0
% Started Cold	88.3	40.2	58.3	77.4	27.2
Trip Speed	35	35	35	35	35
Percent Trip	27.3	21.2	51.5		

Vehicle Fleetmix

Vehicle Type	Percent Type	Leaded	Unleaded	Diesel
Light Duty Autos	72.8	0.0	97.5	2.5
Light Duty Trucks	14.3	0.0	97.4	2.6
Medium Duty Trucks	4.3	0.0	100.0	0.0
Heavy Duty Trucks	3.9	0.0	100.0	N/A
Heavy Duty Trucks	3.9	N/A	N/A	100.0
Motorcycles	0.9	100.0	N/A	N/A

Source: QUAD Consultants, 1993, using California Air Resources Board, URBEMIS #3 Model, EMFAC7, 1988, Rural Communities Variable.

TABLE 3.3-7
ESTIMATED INCREMENTAL MOBILE SOURCE EMISSIONS ATTRIBUTABLE TO SPECIFIC PLAN BUILDOUT, 2005 (LBS/DAY)

Project Emissions Report in Lb/Day			
Use	**Total Organic Gases (TOG)**	**Carbon Monoxide (CO)**	**Nitrogen Oxides (NO_x)**
Single Family Housing	12.9	107.0	29.4
Multiple Family Residential	1.9	15.4	4.2
Wellness Center	1.9	16.0	4.4
Resort Complex	5.0	41.9	11.5
Fire Station	0.6	5.3	1.5
Commercial/Office	26.6	220.7	60.7
TOTAL	**48.9**	**406.3**	**111.7**
Use		**Particulate Matter (PM_{10})**	**Sulfur Oxides (SO_x)**
Single Family Housing		3.0	3.5
Multiple Family Residential		0.4	0.5
Wellness Center		11.6	0.5
Resort Complex		1.2	1.4
Fire Station		3.9	0.2
Commercial/Office		146.6	7.3
TOTAL		**166.7**	**13.4**

Unit Type	Trip Rate	Size	Total Trips	Days Op.
Single Family Housing	10.0/Unit	160	1600	
Multiple Family residential	7.2/Unit	32	230	
Wellness Center	100.0/Acre	2	240	1
Resort Complex	8.7/Unit	72	626	
Fire Station	80.0/Acre	1	80	1
Commercial/Office	0.1/1000 sq.ft.	30000	3300	1

ASSUMPTIONS

	Residential			Commercial	
	Home-Work	**Home-Shop**	**Home-Other**	**Work**	**Non-Work**
Trip Length	6.0	6.0	6.0	6.0	6.0
% Started Cold	0.0	0.0	0.0	0.0	0.0
Trip Speed	35	35	35	35	35
Percent Trip	27.3	21.2	51.5		

Vehicle Fleetmix

Vehicle Type	Percent Type	Leaded	Unleaded	Diesel
Light Duty Autos	72.8	0.0	97.5	2.5
Light Duty Trucks	14.3	0.0	97.4	2.6
Medium Duty Trucks	4.3	0.0	100.0	0.0
Heavy Duty Trucks	3.9	13.6	86.4	N/A
Heavy Duty Trucks	3.9	N/A	N/A	100.0
Motorcycles	0.9	100.0	N/A	N/A

Source: QUAD Consultants, 1993, using California Air Resources Board, URBEMIS #3 Model, EMFAC7, 1988, Rural Communities Variable.

TABLE 3.5-1

ACOUSTICAL TERMINOLOGY

A-Weighted Sound Level	The sound pressure level in decibels as measured on a sound level meter using the A-Weighted filter network. The A-Weighing filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgement of loudness.
Ambient Noise Level	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
Community Noise Equivalent Level (CNEL)	The average equivalent A-Weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7 p.m. to 10 p.m. and after addition of ten (10) decibels to sound levels in the night before 7 a.m. and after 10 p.m.
Day-Night Average Level (L_{dn})	The average equivalent A-Weighted sound level during a 24-hour day, obtained after addition of ten (10) decibels to sound levels in the night before 7 a.m. and after 10:00 p.m.
Decibel (dB)	A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.
dBA	A-weighted sound level (see definition above).
Equivalent Sound Level (L_{eq})	The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.
Frequency	The number of times per second that a sound pressure signal oscillates about the prevailing atmosphere pressure. The unit of frequency is the hertz. The abbreviation is Hz.
Intrusive Noise	That noise which intrudes over and above the ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence, and tonal or informational content as well as the prevailing ambient noise level.
L10	The A-Weighted sound level exceeded 10 percent of the sample time. Similarly L50, L90, L99, etc.
Noise	Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Noise Attenuation	The ability of a material, substance, or medium to reduce the dB level from one place to another or between one room and another. Noise attenuation is specified in decibels.
Noise Exposure Contours	Lines drawn around a noise source indicating constant or equal level of noise exposure. CNEL and L_{dn} are typical metrics used.
Noise Referral Zones	Such zones are defined as the area within the contour defining a CNEL level of 60 decibels. It is the level at which either State or Federal laws and standards related to land use become important and, in some cases, preempt local laws and regulations. Any proposed noise sensitive development which may be impacted by a total noise environment of 60 dB CNEL or more should be evaluated on a project specific basis.
Noise Sensitive Land Use	Those specific land uses which have associated indoor and/or outdoor human activities that may be subject to stress and/or outdoor human activities that may be subject to stress and/or significant interference from noise produced by community sound sources. Such human activity typically occurs daily for continuous period of 24 hours or is of such a nature that noise is significantly disruptive to activities that occur for short periods. Specifically, noise sensitive land uses include: residences of all types, hospitals, rest homes, convalescent hospitals, places of worship and schools.
Sound Level (Noise Level)	The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.
Sound Level Meter	An instrument, including a microphone, an amplifier, an output meter, and frequency weighing networks for the measurement and determination of noise and sound levels.

Source: Butte County Draft General Plan Background Report, 1993.

TABLE 3.5-2

SUBJECTIVE REACTION TO CHANGES IN NOISE LEVELS OF SIMILAR SOURCES

Change in Level, dB	Subjective Reaction	Factor Change in Acoustical Energy
1	Imperceptible (Except for Tones)	1.3
3	Just Barely Perceptible	2.0
6	Clearly Noticeable	4.0
10	About Twice (or Half) as Loud	10.0

Source: Architectural Acoustics, M. David Egan, 1988.

TABLE 3.5-3

CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Sound Level at 50 Feet
Scrapers	88 dB
Bulldozers	87 dB
Heavy Trucks	88 dB
Backhoe	85 dB
Pneumatic Tools	85 dB

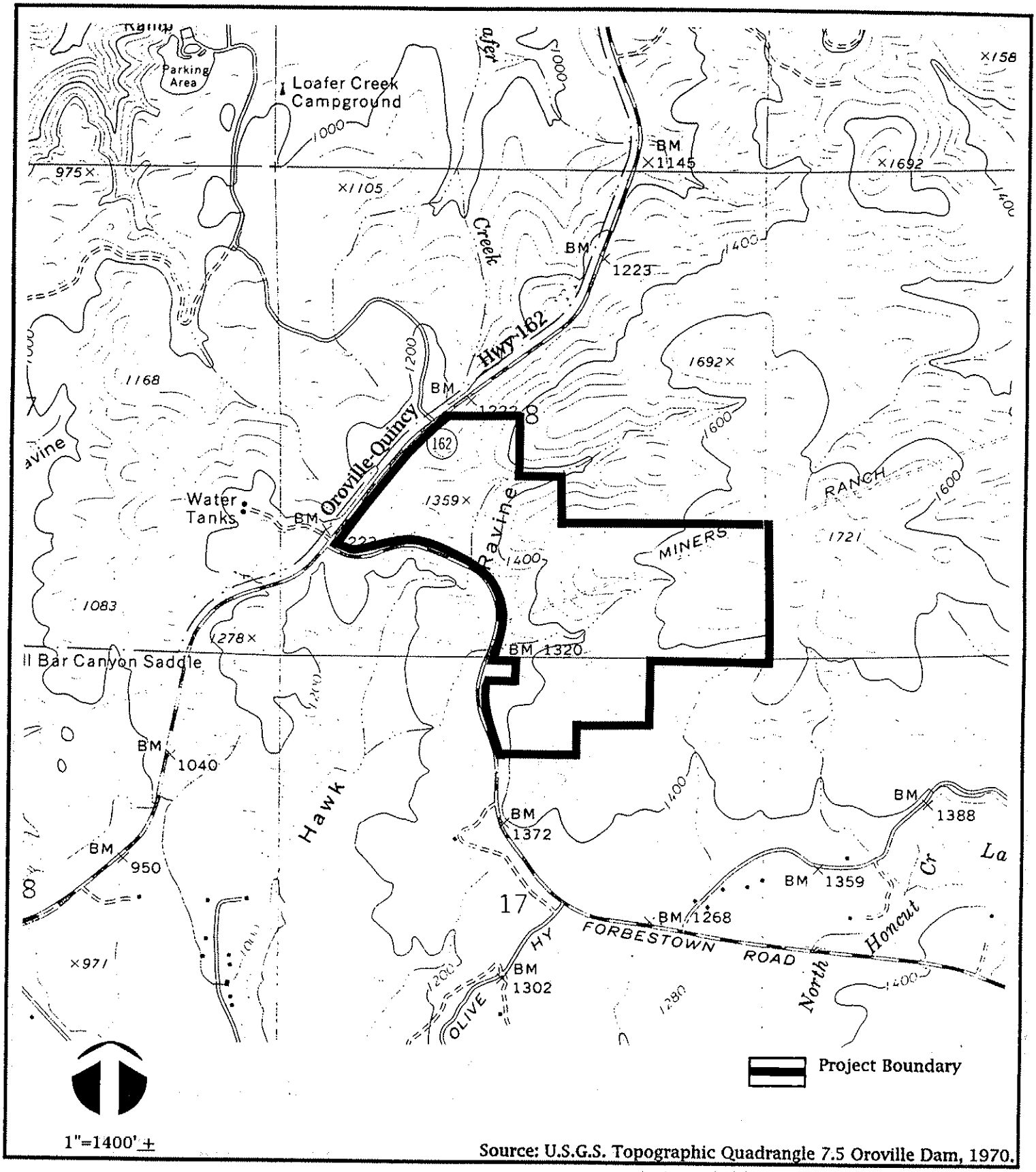
Source: Environmental Noise Pollution, Patrick R. Cunniff, 1977.

TABLE 3.11-1
VASCULAR PLANT SPECIES NOT PREVIOUSLY REPORTED IN THE 1990 JONES AND STOKES REPORT

COMMON NAME	SCIENTIFIC NAME
Chilean chess	*Bromus trinii*
Common vetch	*Vicia sativa* ssp. *sativa*
Foxtail chess	*Bromus madritensis* ssp. *rubens*
Goldback fern	*Pentogramma triangularis* ssp. *triangularis*
Hedgehog dogtail	*Cynosurus echinatus*
Ithuriel's spear	*Triteleia laxa*
Lomatium	*Lomatium utriculatum*
Plectritis	*Plectritis macrocera*
Purple milkweed	*Asclepias cordifolia*
Woolly sunflower	*Eriophyllum lanatum* var. *achillaeoides*

TABLE 3.11-2.
WILDLIFE OBSERVED WITHIN THE STRINGTOWN MOUNTAIN AREA

COMMON NAME	SCIENTIFIC NAME
Turkey vulture	*Cathartes aura*
Wild turkey	*Meleagris gallopavo*
California quail	*Callipepla californica*
Western wood pee-wee	*Contopus sordidulus*
Western flycatcher	*Empidonax difficilis*
Tree swallow	*Tachycineta bicolor*
Black chinned hummingbird	*Archilochus alexandri*
Scrub jay	*Aphelocoma coerulescens*
American kestrel	*Falco sparverius*
Acorn woodpecker	*Melanerpes formicivorus*
Black-tailed jackrabbit	*Lepus californicus*
California ground squirrel	*Spermophilus beecheyi*
Grey squirrel	*Sciurus griseus*
Pocket gopher	*Thomomys bottae*
Deer	*Odocoileus hemionus*
Coyote	*Canis latrans*
Western fence lizard	*Sceloporus occidentalis*

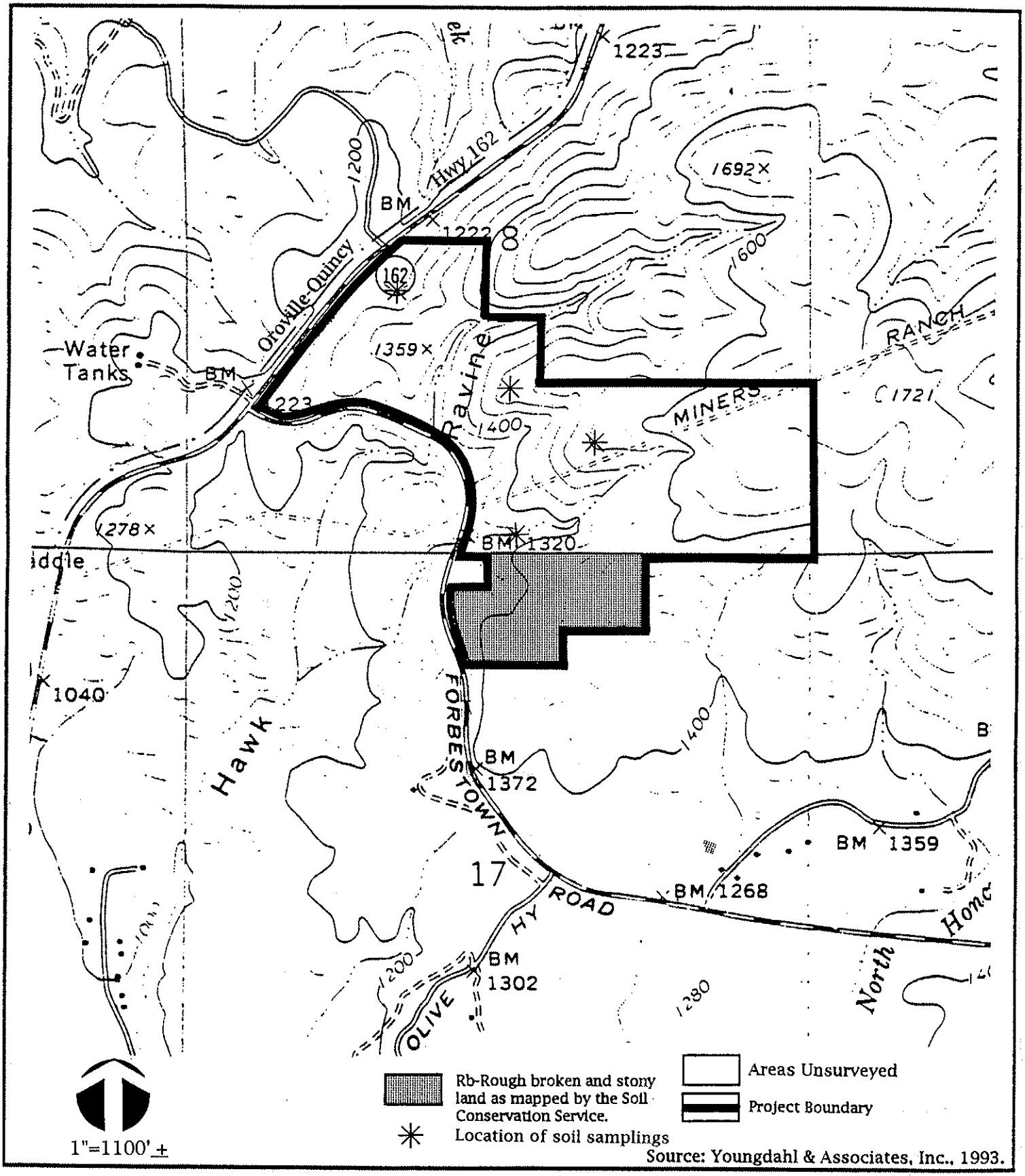


Source: U.S.G.S. Topographic Quadrangle 7.5 Oroville Dam, 1970.

QUAD

SITE TOPOGRAPHY

Figure 3.1-1

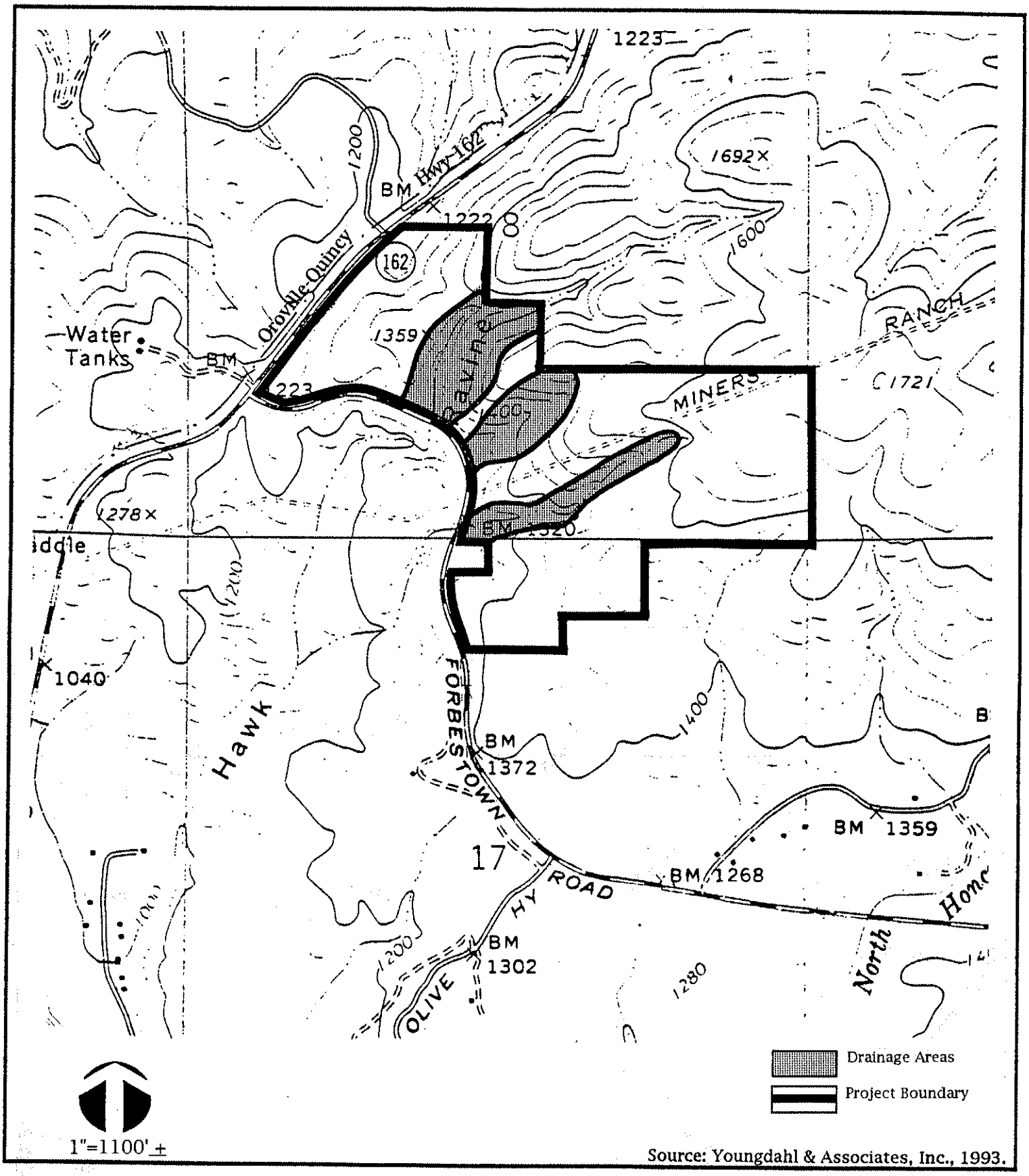


Source: Youngdahl & Associates, Inc., 1993.

QUAD

SOILS MAP

Figure 3.1-2

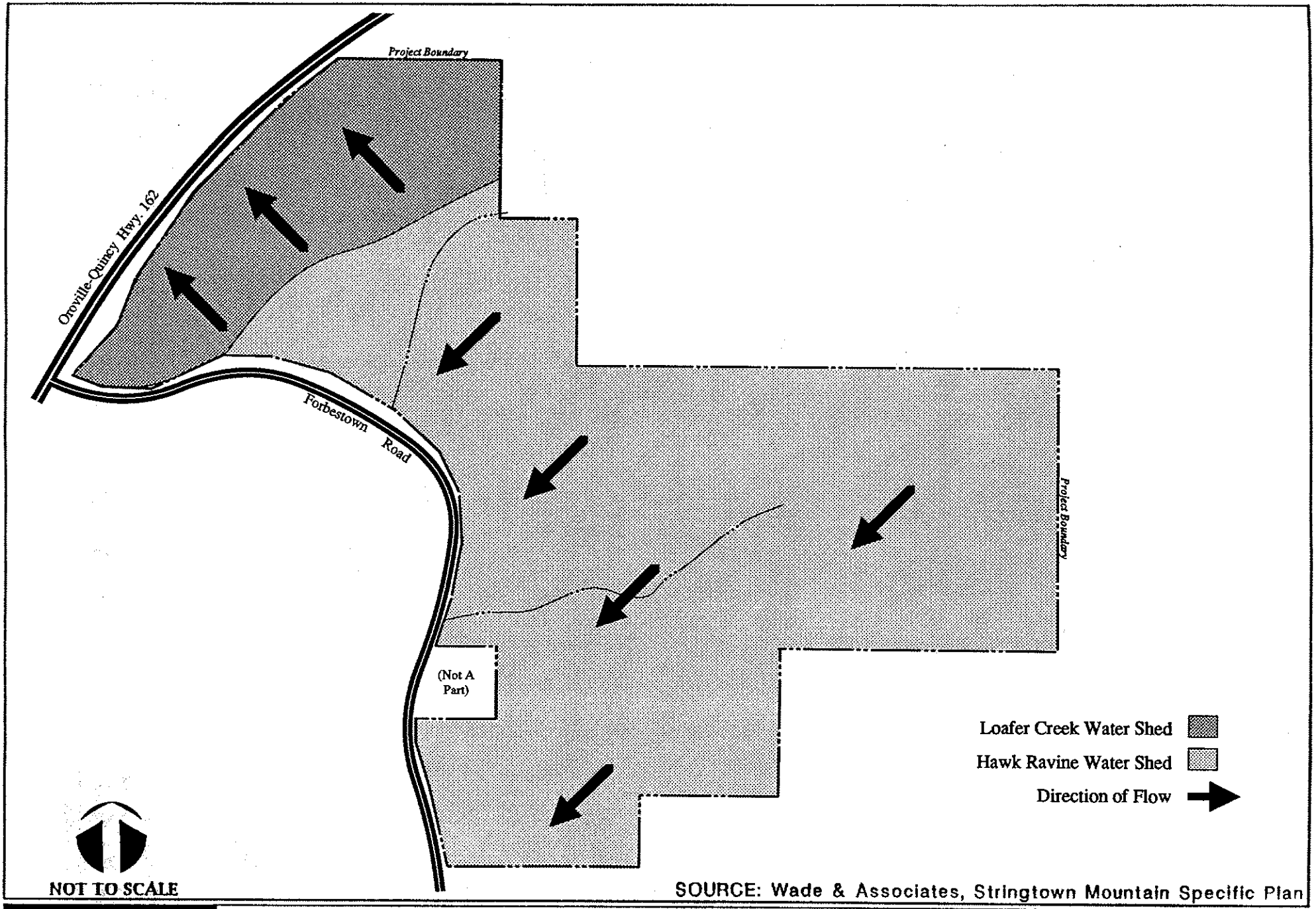


Source: Youngdahl & Associates, Inc., 1993.

QUAD

DRAINAGE MAP

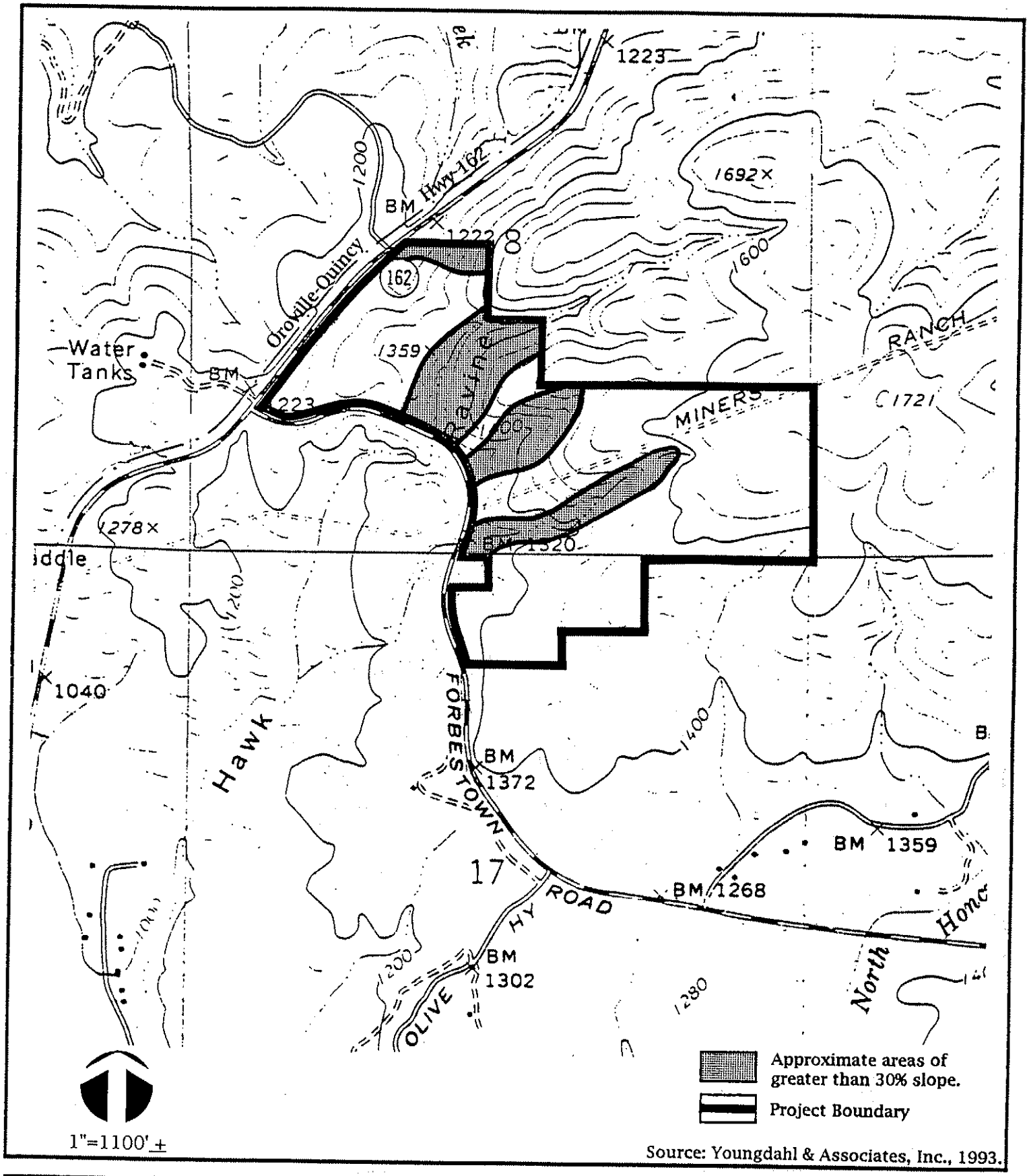
Figure 3.1-3



QUAD

DRAINAGE BASINS

Figure 3.2-1

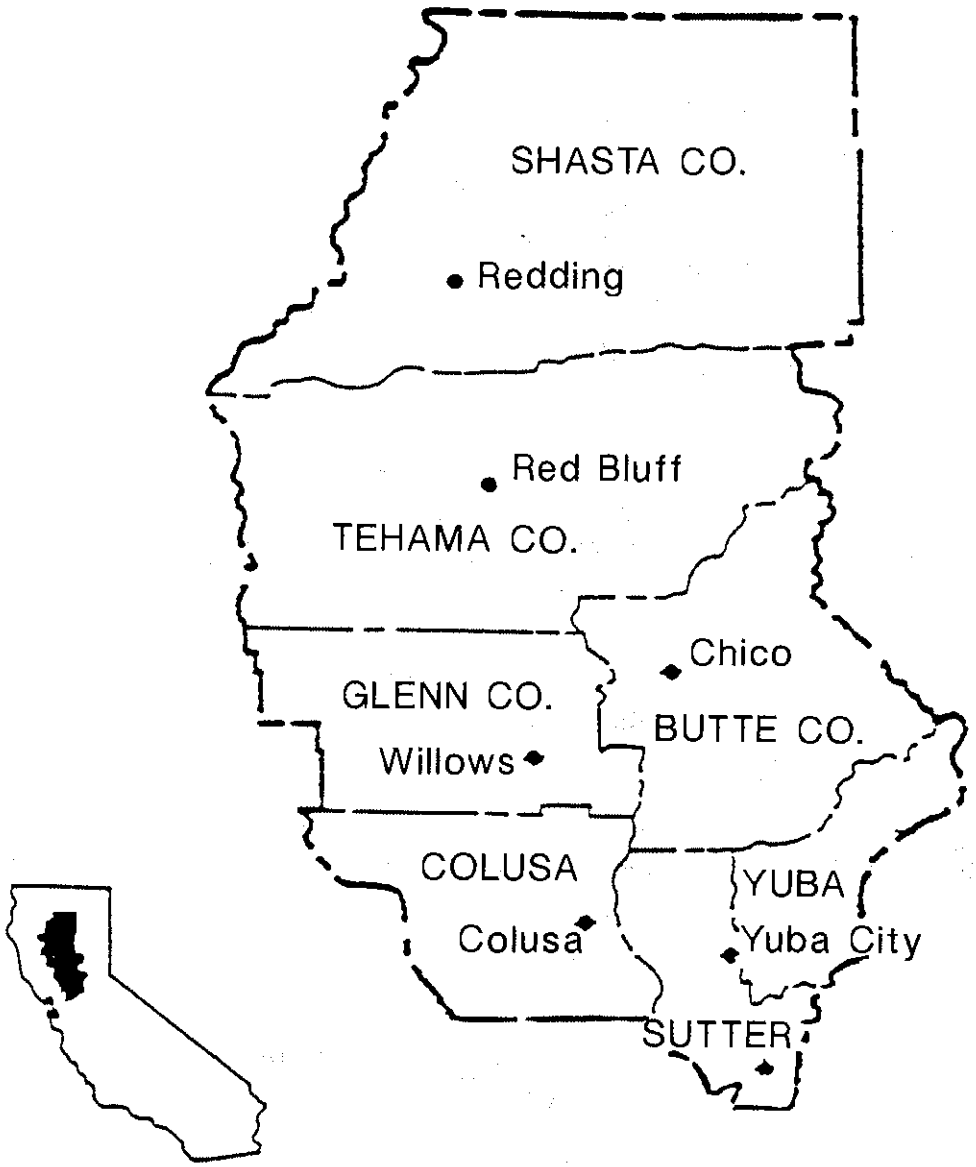


Source: Youngdahl & Associates, Inc., 1993.

QUAD

SLOPE MAP

Figure 3.2-2

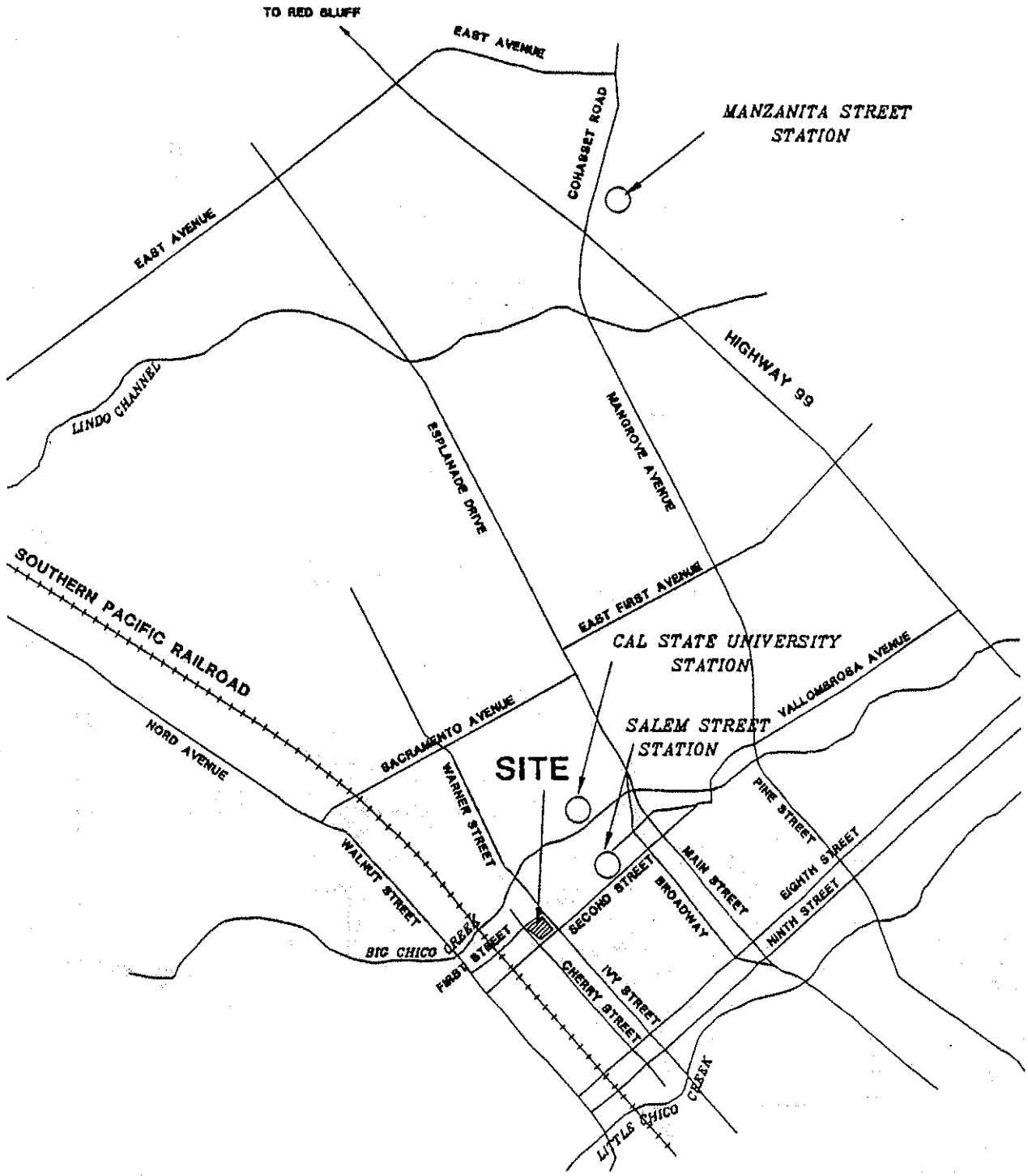


NOT TO SCALE

QUAD

NORTHERN SACRAMENTO VALLEY AIR BASIN

Figure 3.3-1



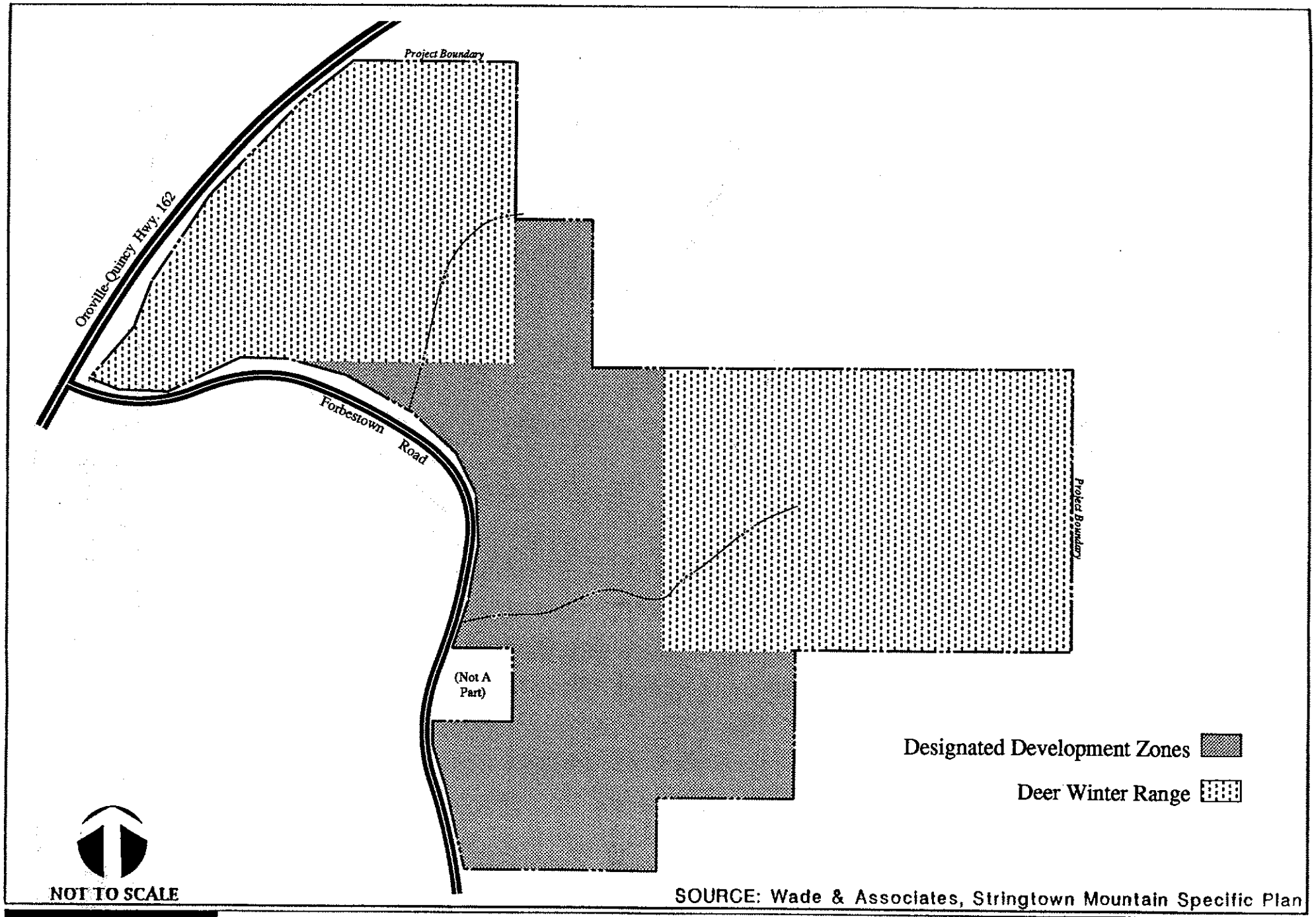
1 inch = 28,000 feet

Source: CARB, 1992.

QUAD

CHICO
AIR MONITORING STATIONS

Figure 3.3-2

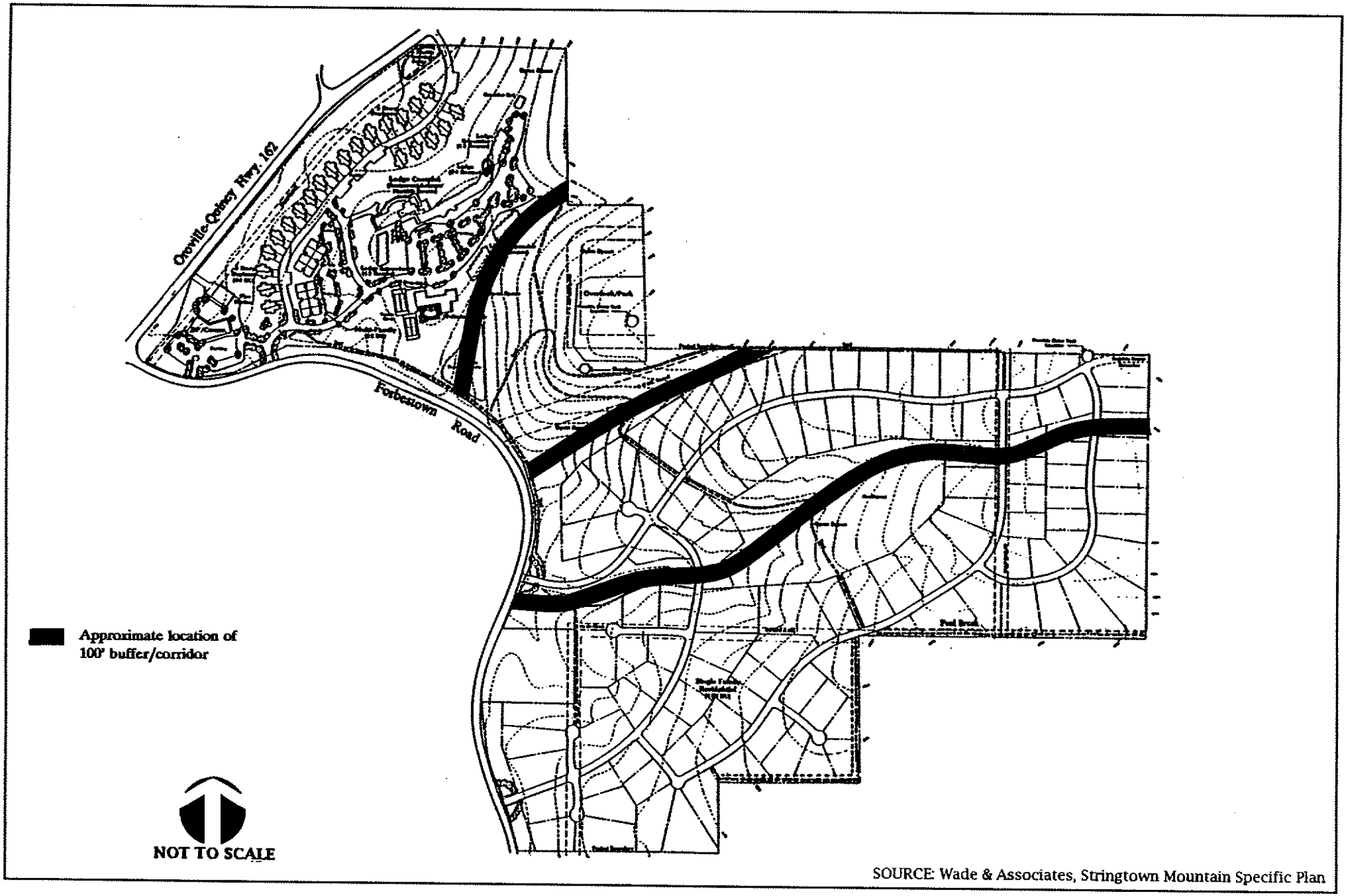


SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

DESIGNATED DEVELOPMENT ZONES

Figure 3.4-1



SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

Location of Buffer Areas and Suggested Corridor

Figure 3.4-2

N

Project Boundary

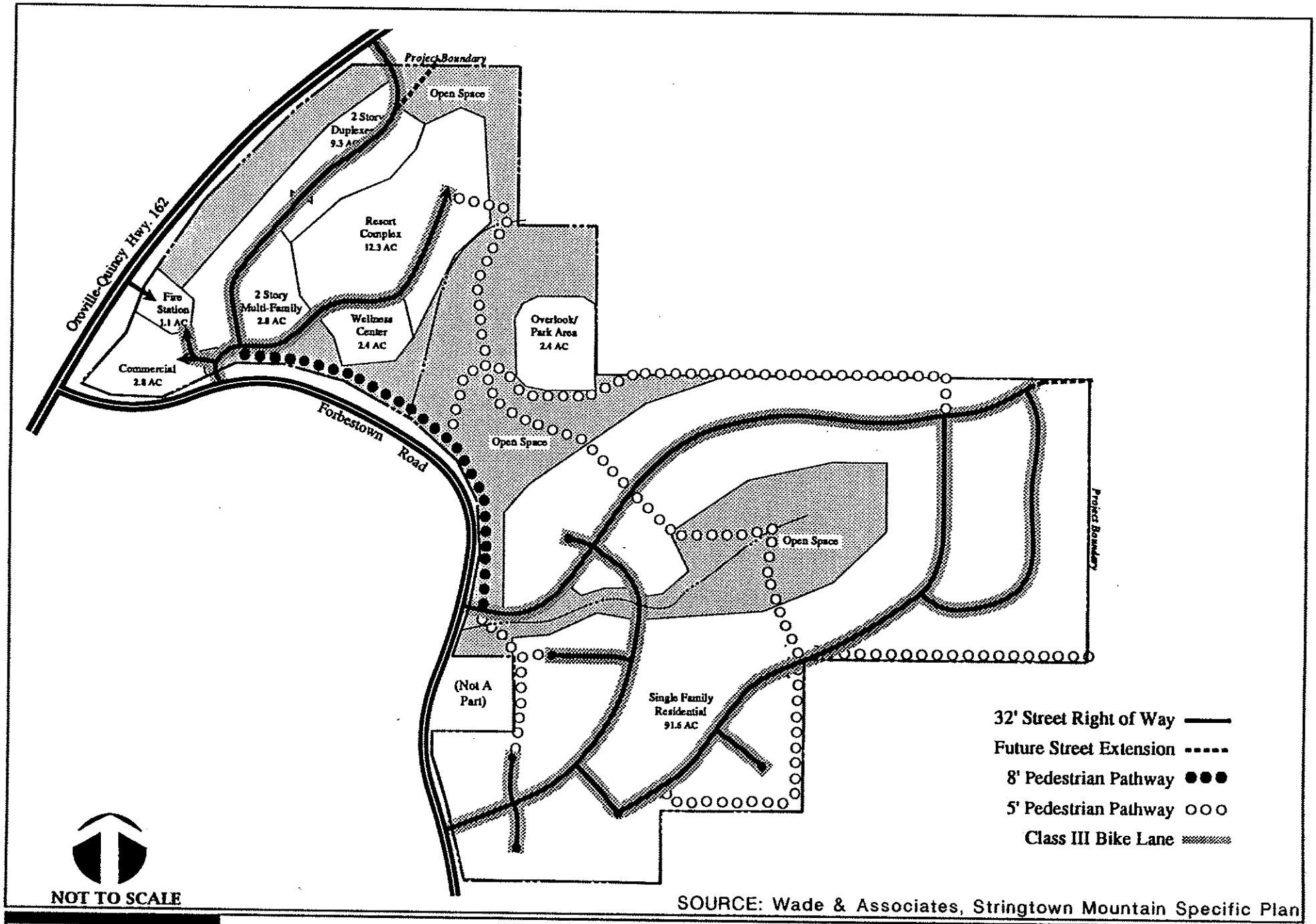
Scale 1" = 2640'

SOURCE: WAC Corporation, Flight 88CA 11 #41, 39, 5-18-88

QUAD

Area Land Use

Figure 3.7-1

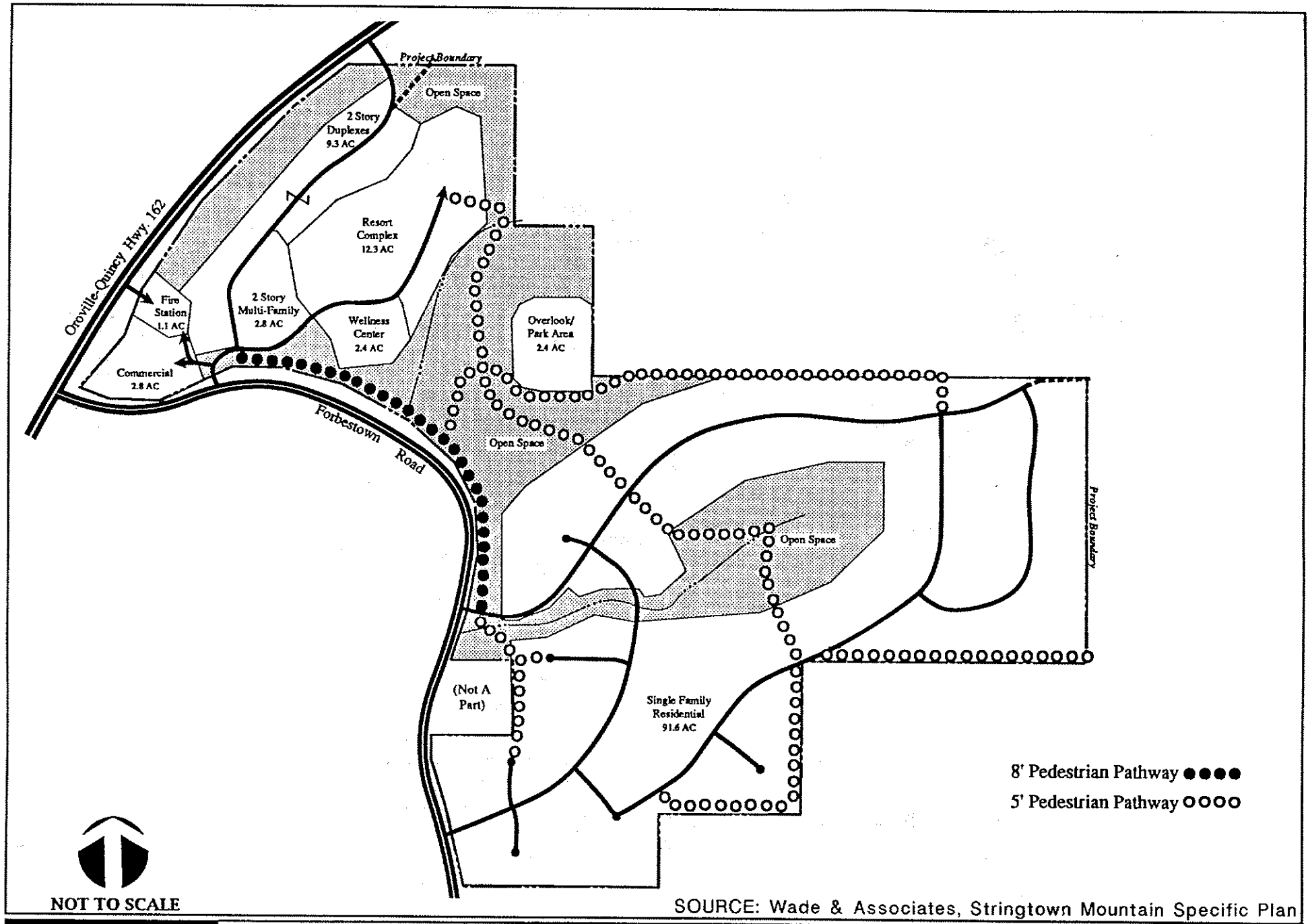


SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

CIRCULATION MASTER PLAN

Figure 3.10-1

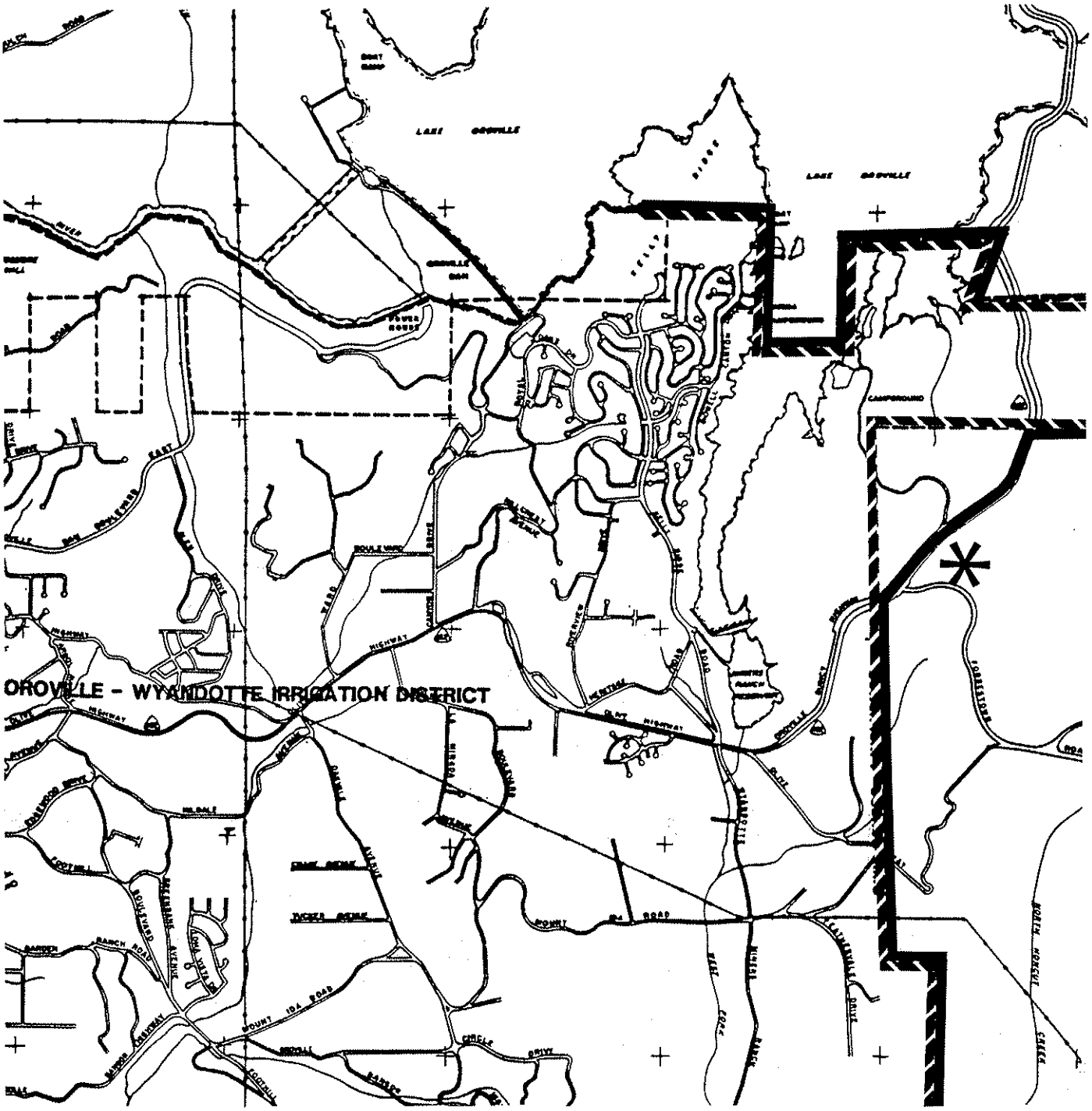


SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

PATHWAY LOCATIONS

Figure 3.10-2



Existing Boundary

Sphere of Influence

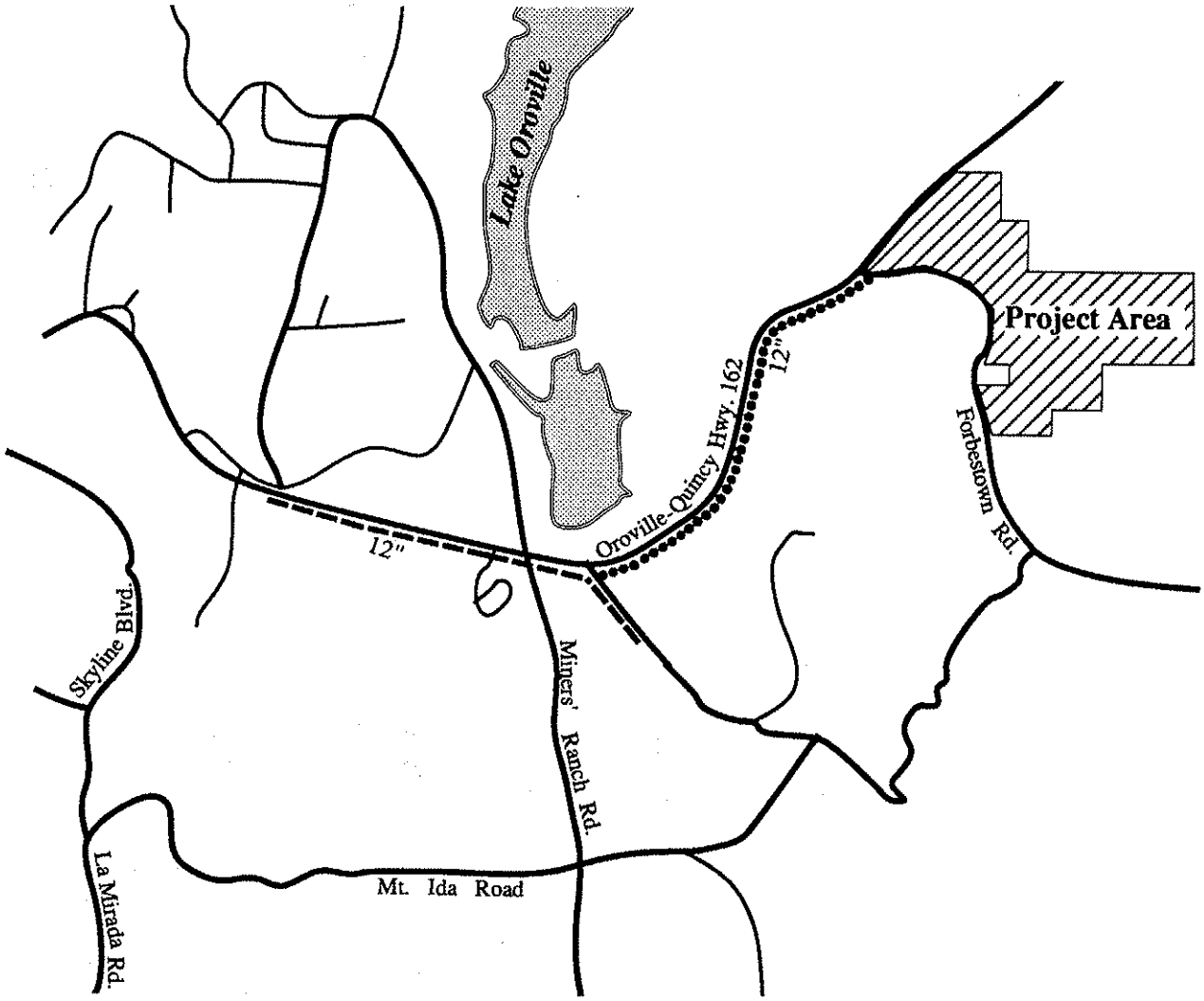
Project Site

Source: Butte County LAFCO

QUAD

OROVILLE-WYANDOTTE IRRIGATION DISTRICT BOUNDARIES

Figure 3.11-1



Existing Water Pipe
Proposed Water Pipe

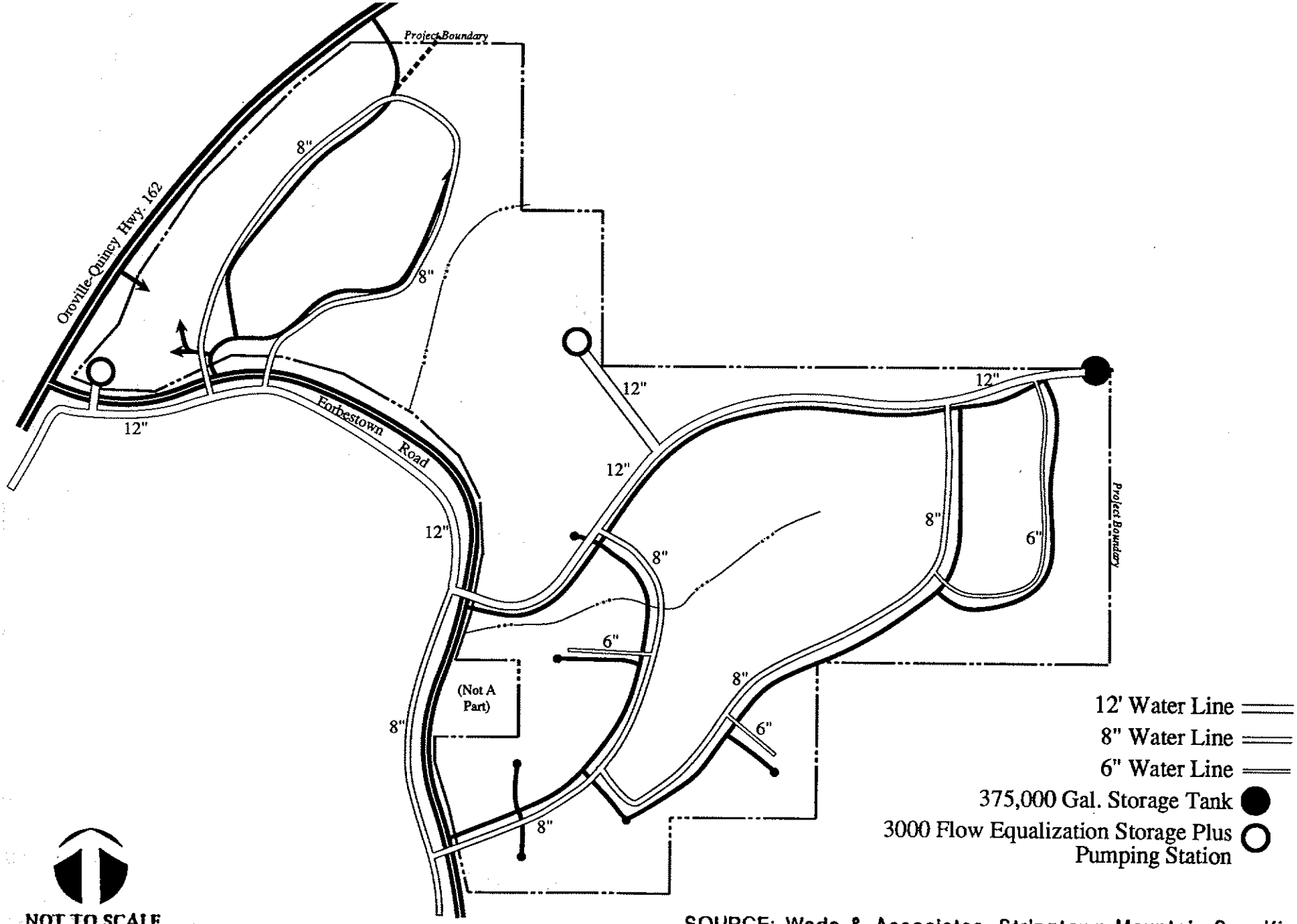
NOT TO SCALE

SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

REGIONAL WATER CONNECTION

Figure 3.11-2

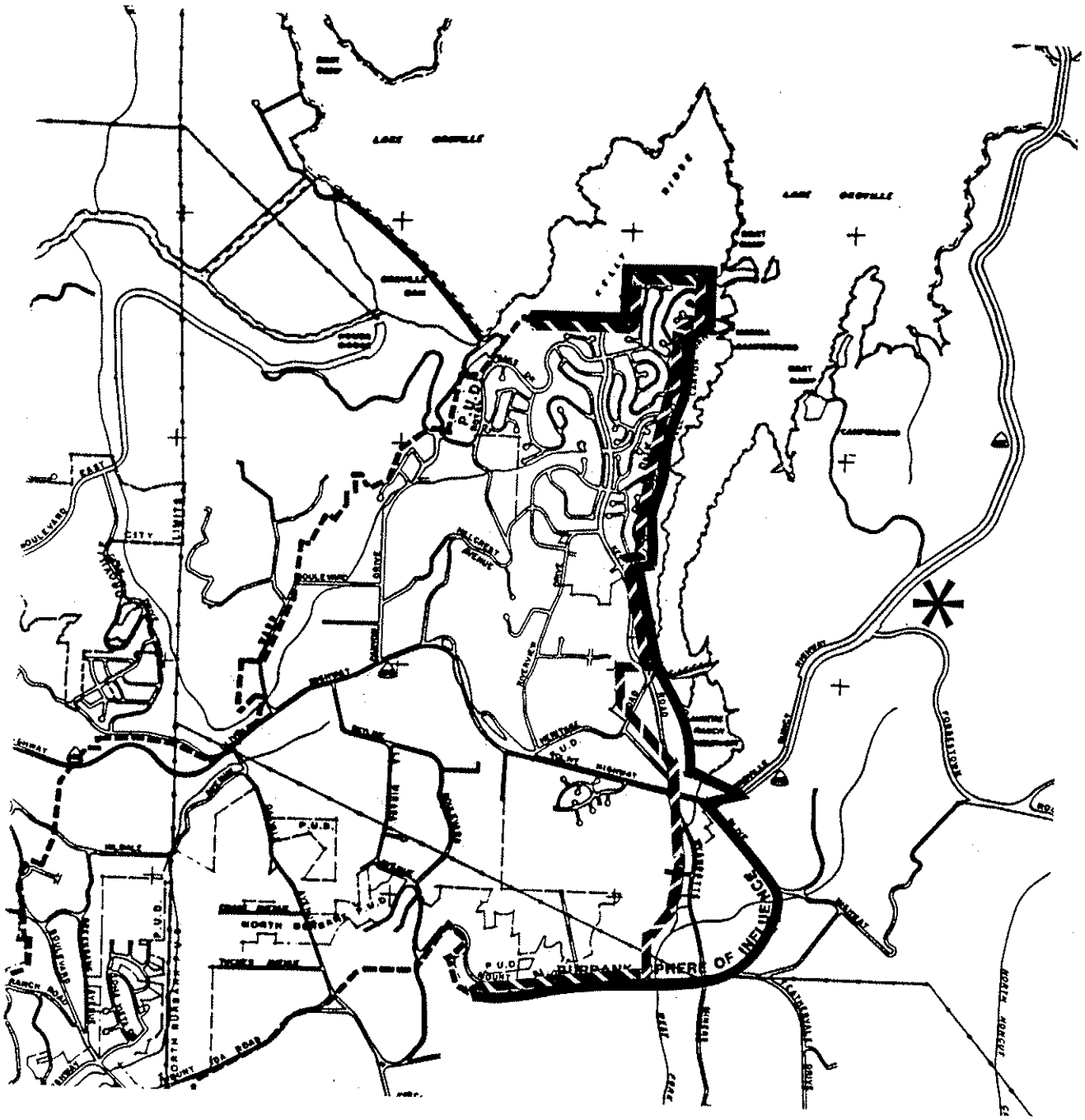


SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

ON-SITE WATER DISTRIBUTION

Figure 3.11-3



Existing Boundary

Sphere of Influence

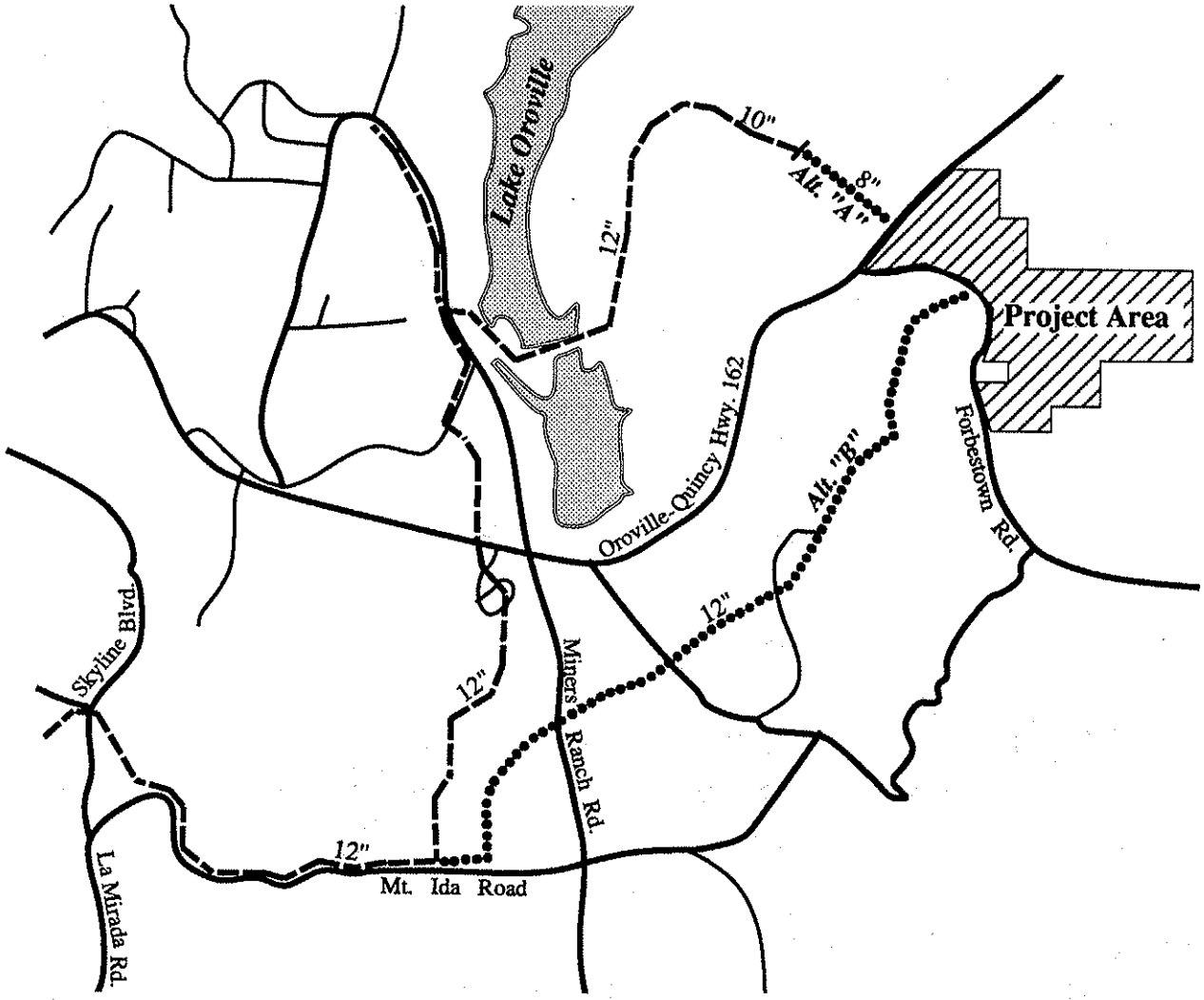
Project Site

Source: Butte County LAFCO

QUAD

LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT BOUNDARIES

Figure 3.11-4



Existing Sanitary Sewer ------

Proposed Alternative Connections ••••••••

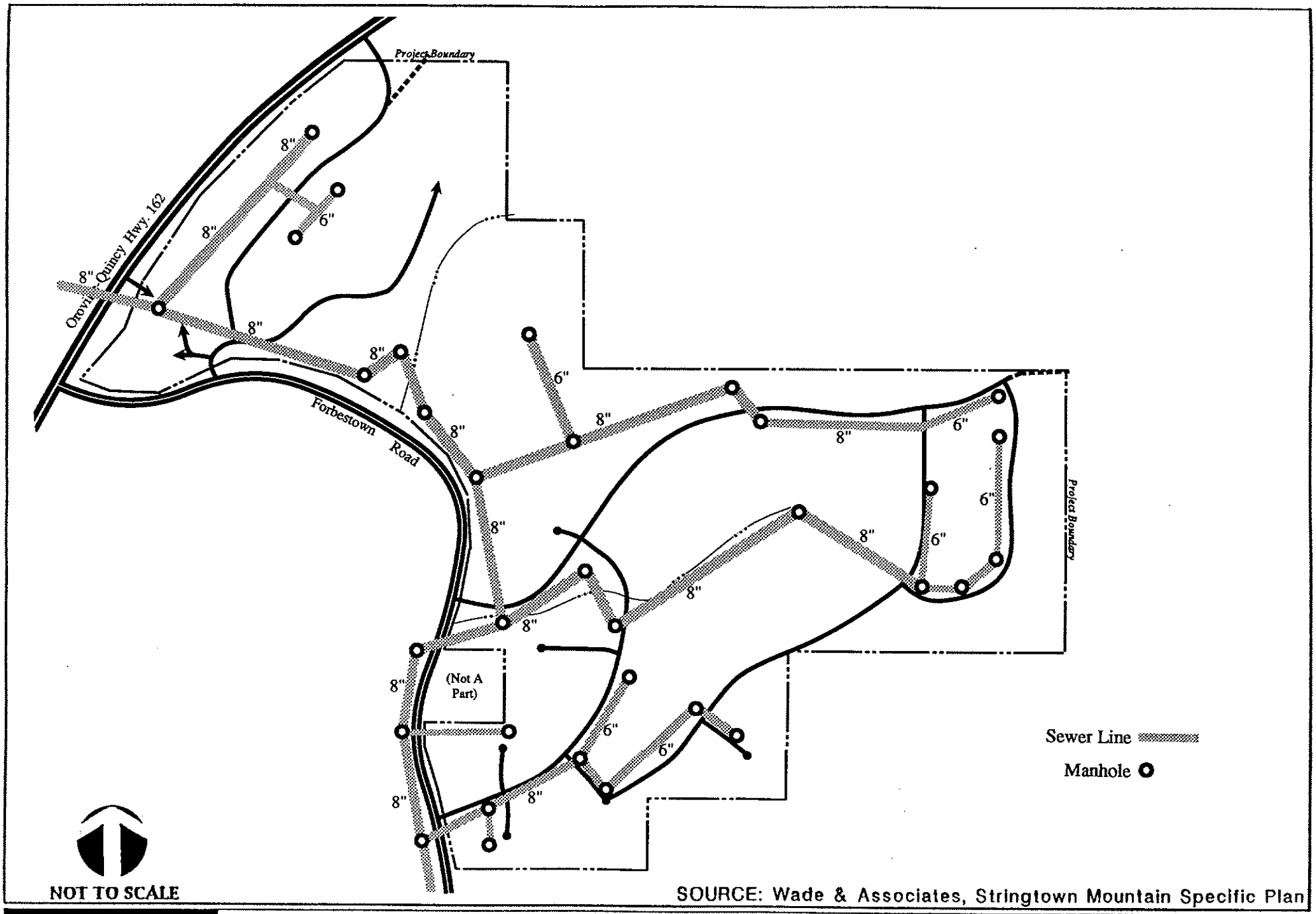
NOT TO SCALE

SOURCE: Wade & Associates, Stringtown Mountain Specific Plan

QUAD

REGIONAL SEWER CONNECTION

Figure 3.11-5



QUAD

ON-SITE SEWER SYSTEM

Figure 3.11-6

Chapter Four
Project Alternatives

CHAPTER FOUR

PROJECT ALTERNATIVES

4.1 ALTERNATIVE PROJECT CONCEPTS

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 judgement to be made as to which alternative to the proposed project may be environmentally superior. The Section 15126(d) of the *CEQA Guidelines* provides the following description of what should be included in the *Alternatives* section of an EIR:

> Alternatives to the Proposed Action. Describe a range of reasonable alternatives to the project, or to the location of the project, which could feasibly attain the basic objectives of the project and evaluate the comparative merits of the alternatives.
>
> (1) If there is a specific proposed project or a preferred alternative, explain why the other alternatives were rejected in favor of the proposal if they were considered in developing the proposal.
>
> (2) The specific alternative of "no project" shall also be evaluated along with the impact. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.
>
> (3) The discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.
>
> (4) 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. (County of Inyo v. City of Los Angeles, 124 Cal.App.3d 1).

(5) The range of alternatives required in an EIR is governed by "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decisionmaking and informed public participation. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (Residents Ad Hoc Stadium Committee v. Board of Trustees (1979) 89 Cal.App. ed 274).

The sections which follow address the types of alternatives that should be evaluated in an EIR. The range of alternatives discussed includes an evaluation of the "no project" alternative, buildout under existing general plan and zoning, a lower density or less intense development alternative, clustered development, as well as an offsite alternative. Finally, this chapter presents an analysis of the comparative environmental superiority of the various alternatives, as required by CEQA.

The alternatives that are evaluated in this EIR include:

1. No project/no development of the site

2. Full buildout of the site in accordance with the existing General Plan designation and zoning

3. Clustered development of the site

4. Residential use of the site at a lower density than proposed

5. Development of the proposed project at an alternate location within the Oroville Planning Area

4.1.1 NO PROJECT ALTERNATIVE

The No Project Alternative consists of maintaining the existing land use designation, zoning and land use on the site. The zoning would remain FR-10 (Foothill Recreational, 10-acre minimum parcel size), the land use designation would remain Agricultural-Residential, the twelve existing parcels would remain, and the land would remain in open space.

Impacts

Land Use

The No Project Alternative would result in none of the land use impacts discussed in the analysis of the proposed project in Chapter Three, which primarily consist of substantial changes in present and planned land uses. The site would continue to provide a source of open space in the area, and no changes in existing or planned land use would result. No growth-inducing impacts would occur because no sewer or water lines would be extended into the area.

Geology/Soils

Under this alternative, no additional people or property would be exposed to earthquakes, geologic, seismic or volcanic hazards. No artificial disturbance of soils would occur; only natural erosion, which is minimal. There would be no risk of disturbing the Miners Ranch Tunnel.

Hydrology

Maintaining existing site hydrology would result in no alteration of existing drainage courses, no alteration in runoff patterns, and no pollutants resulting from human occupation of the site.

Air Quality

The No Project Alternative would not contribute to cumulative regional air quality impacts, new emissions from wood stoves, or cause construction-related impacts to occur.

Biological Resources

The No Project Alternative would offer greater protection for the site's vegetation and habitat (including oak woodlands), riparian community, and wildlife, and would afford greater protection to critical deer winter range.

Noise

No sensitive uses would be exposed to noise impacts from the adjacent State highway or Forbestown Road. No new noise impacts due to construction or residential, commercial and recreational uses would be created on the site.

Light and Glare/Aesthetics

No new sources of light and glare would be created under the No Project Alternative, and existing sources (roadways) would not impact new sensitive uses. The site in its undeveloped state would remain a pleasing visual amenity for the surrounding area.

Population/Housing

The No Project Alternative will not result in increased population or development of housing units on the site; on the other hand, it will not assist the County in meeting its Housing Element goals, particularly with regard to multiple family development.

Natural Resources/Energy

The No Project Alternative will not result in increased consumption of energy resources.

Traffic/Circulation

No increases in traffic from the project would result; consequently, no incremental addition to traffic levels on SR 162 and surrounding roadways would take place. Several area roadway improvements which have been identified in Chapter Three as already being necessary would still be required due to other existing and approved projects in the area.

Public Services/Utilities

The No Project Alternative would not require extension of sewer or water lines or provision of sewer or water service; increased law enforcement and fire protection services, solid waste disposal, electric and telephone service, or impacts on school facilities, parks and recreation services would not occur.

Cultural Resources

Historic cultural resources identified on the site, as well as any undiscovered cultural resources, would remain undisturbed under the No Project Alternative. However, the potential for vandalism remains; the No Project Alternative offers no protection to onsite cultural resources.

4.1.2 FULL BUILDOUT ALTERNATIVE

The Full Buildout Alternative presumes full buildout of the site under present conditions. The Agricultural-Residential designation is intended for agricultural uses and single-family dwellings at rural densities (one to forty acres; one single family dwelling per parcel).

The FR-10 Zone allows single family dwellings (including mobilehomes); agricultural uses; mining and excavating (with a use permit required under some circumstances); pedestrian, equestrian and bicycle trails; protection of land and forests from natural hazards; agricultural and forestry experimental areas; home occupations; and accessory uses. Uses allowed with a use permit include home occupations, mining and excavating, kennels and animal hospitals, public and quasi-public uses, wineries and tasting rooms, wood lots, and outdoor recreational facilities, including golf courses, stables, lodges, clubs and campgrounds.

As noted in the Project Description and above, there are twelve assessors parcels which comprise the site, ranging in size from approximately 2.5 acres to 46 acres. If it is assumed that these are all legal parcels (their legal status has not been researched for this EIR), up to 19 dwelling units could be constructed on the site as permitted uses, if the 20-acre parcels and the 46-acre parcel are divided into 10-acre parcels (assuming all other County requirements could be met). It is likely that some homeowners on lots of this size will choose to keep large animals, but commercial agricultural operations are not determined to be likely. The evaluation of impacts associated with this alternative will focus on residential development and outdoor recreational facilities (the analysis will focus on a campground, since there are other campgrounds located in the area; none of the parcels is large enough to allow development of a golf course). Existing zoning does not permit commercial uses, except for commercial recreational uses.

Impacts

Land Use

Under the land use scenario described above, land use conflicts would occur between proposed onsite uses (residences) and other onsite uses (campground), and between a new campground and offsite uses (rural residences), including noise, traffic, and light and glare. However, it is anticipated that conditions for approval of a campground would address and mitigate these concerns.

Full buildout of the site under present conditions would result in a greater amount of land left in open space than is the case with the proposed project;

however, it would be dispersed on individual parcels, rather than assembled in larger, more comprehensive units.

This alternative would not have a growth-inducing impact, since it merely allows uses already permitted to develop and would not require extension of sewer or water lines.

Geology/Soils

Under this alternative, potential seismic activity would affect fewer residents and structures than would be the case under the proposed project. If a campground is developed, campers and employees could be exposed to seismic impacts, but structures would generally be temporary in nature. Construction of new residences would result in grading and modification of natural landforms, but to a considerably lesser extent than would occur under the proposed project. However, development would lack the protections afforded by Specific Plan policies; only a building permit will be required in most cases. Development of a campground could result in extensive grading and modification of natural landforms. The potential to impact the Miners Ranch Tunnel would still exist.

Air Quality

Contribution to impacts on regional air quality would increase, but at a considerably reduced level compared to the proposed project because of the reduced level of development. Because the residential development is permitted by existing zoning, fewer opportunities for mitigation would be available.

Hydrology

Compared to the proposed project, residential and/or recreational development under this alternative would have fewer impacts on site hydrology, reduced potential for alteration of surface drainage courses, runoff patterns, and pollutants. A reduced amount of impermeable surfaces would be created, thus reducing stormwater runoff. At the lower density, greater opportunity would exist to avoid impacts on hydrologic features. However, impacts on groundwater would increase, since it would be anticipated that domestic water would be provided by individual wells, rather than through connection to a community water system.

Biological Resources

This alternative would, in theory, reduce impacts on vegetation and wildlife by allowing for a significantly greater amount of open space to remain. However, open space would be more fragmented with varied levels of maintenance, rather than in continuous and connected, maintained open space areas proposed in the Specific Plan.

Noise

Fewer sensitive uses would be exposed to noise impacts from the adjacent State highway and Forbestown Road. Impacts due to construction would be reduced, as would impacts caused by residential and commercial uses. Noise impacts generated by a recreational facility such as a campground (e.g., traffic, voices, stereos) have the potential, however, to be significant.

Light and Glare/Aesthetics

Compared to the proposed project, fewer structures would be constructed on the site to either generate or receive light and glare impacts. While it can be argued that fewer structures would result in reduced aesthetic impacts on the site, development of individual residences would not be subject to aesthetic policies and guidelines as proposed in the Specific Plan. A recreational use would require a use permit, which could regulate such impacts through conditions of approval.

Population/Housing

This alternative would result in an estimated population onsite of 48 persons, plus temporary guests of a commercial recreational facility. As described above, an estimated 19 housing units could be built on the site; however, multiple family units are not allowed under current zoning.

Natural Resources/Energy

The Full Buildout Alternative will result in decreased consumption of energy resources, as compared to the proposed project.

Traffic/Circulation

While traffic volumes would increase in the Full Buildout Alternative, the number of trips generated would be significantly smaller than for the proposed project, since there would be 19 residences rather than 192 housing

units. Traffic from a commercial recreational use may be comparable to that of the proposed resort complex. The contribution of site development to regional traffic impacts will be reduced. Area roadway improvements which have been identified as already being necessary would still be required due to other existing and approved projects in the area.

Public Services/Utilities

It is assumed that, under this alternative, water and sewage disposal would be provided by individual wells and septic systems, respectively. With 19 residential units, water use is estimated at 22,800 gallons per day (19 units x 1200 gallons per unit per day). Onsite residential wastewater discharge is estimated at 4,845 gallons per day (19 units x 255 gallons per unit per day). Water use and sewage discharge for a recreational facility such as a campground would be in addition to these estimates. The lots that have not yet been created would have to meet Butte County standards for individual septic systems in order to achieve the maximum densities allowed in the Zoning Ordinance.

Increased law enforcement and fire protection services would be required compared to the No Project Alternative, although not to the extent required by the proposed project. Building permits issued for the site would be subject to impact fees adopted by the County. Achieving adequate fire flow to protect structures could be problematic. Solid waste generated onsite would be reduced, but proper disposal and recycling potential may be lower due to the more rural nature of the development under this alternative.

Demand for electricity and telephone service would be reduced, although the distance for service lines would not be reduced. Impacts on school facilities and parks and recreation facilities would be reduced. Based on generation factors used by the school districts, it is estimated that the 19 residential units would result in an additional enrollment of 8 grade K-5 students, 2 grade 6-8 students, and 4 grade 9-12 students, if it is assumed that these households do not already reside in the districts. School impact fees would be paid to the districts at the time that building permits are issued for new residences.

Using the average household size for the Butte County unincorporated area, it is estimated that a total of 48 persons would occupy the residential units and would potentially utilize parks and recreational services operated by the Feather River Recreation and Park District. The County and the District do not presently have an adopted standard ratio of population to park acreage. No new park or in-lieu park fees would be generated under this alternative, although the potential exists for creation of a commercial recreational facility.

Although the proposed project would generate more persons to use parks and recreational facilities, it also proposes to provide a park and recreational facilities onsite.

Cultural Resources

The Full Buildout Alternative offers greater opportunities to disturb cultural resources than the proposed project or the No Project Alternative. Because most uses require only building and/or other ministerial permits, and there would be no common open space area or park, fewer protections are available should cultural resources be encountered during the construction process.

4.1.3 CLUSTERED DEVELOPMENT ALTERNATIVE

A third alternative to the proposed project involves clustering the proposed development (192 housing units, resort complex, wellness center, commercial development and fire station) on a smaller portion of the site, with a larger portion of the site left in open space. More specifically, the easterly 60 acres now designated critical winter deer range would be eliminated from the area where development would occur. The 50 single family dwelling units now proposed in that area would be relocated to the southwesterly portion of the property. All development would take place in the area identified as the Designated Development Zone (DDZ) on Figure 3.4-1, plus the northwesterly 46 acres now shown as Deer Winter Range, but which the Department of Fish and Game has indicated may be redesignated DDZ. Under this alternative, gross density would remain the same, but single family residential densities in the area where development would occur would increase from approximately 1.26 units per acre to approximately 3 units per acre. This alternative is consistent with Mitigation Measure #3.4-1 in Chapter Three.

Impacts

Land Use

The planned land uses would remain the same as for the proposed project, the location of some uses on the site would simply be changed, and the amount of open space would be increased. The growth-inducing impacts would be the same as for the proposed project.

Geology/Soils

Under this alternative, the people and property exposed to earthquakes, geologic, seismic and volcanic hazards would be the same as for the proposed project. Because more of the site would remain in open space, less

disturbance of soils would occur. Insufficient information is available regarding onsite soils to determine whether clustering development will assist in avoiding soil types poorly suited for development. Clustering may result in development on land with greater slopes, thus increasing soil hazards such as erosion. The risk of disturbing the Miners Ranch Tunnel would remain.

Hydrology

Because more of the site will remain in open space, greater opportunity would exist to avoid alteration of existing drainage courses and runoff patterns; however, more intensive development in areas where development would occur could increase localized impacts on hydrology and pollutants from stormwater discharge.

Air Quality

While cumulative regional air quality impacts, emissions from wood stoves, and construction-related impacts would remain, emissions due to traffic may be reduced because of reduced travel distances within the site. Reduced travel distances may also encourage more pedestrian and bicycle activity. This alternative is consistent with recommendations of the Butte County Air Pollution Control District.

Biological Resources

Clustering, and the retention of additional open space, will reduce or avoid some impacts on biological resources, especially deer winter range. Impacts on oak woodlands, other habitat and wildlife will also be reduced to the extent that open space is increased.

Noise

Because development would be clustered on the portions of the site closest to the State highway and County roadways, noise impacts may increase, and it may be more difficult to maintain buffer areas while increasing densities. Similarly, clustering residential units at higher densities may result in an increased ambient noise level and make noise impacts from construction more noticeable.

Light and Glare/Aesthetics

Similar to noise impacts, impacts from light and glare may increase due to higher densities and proximity to roadways. The retention of additional open

space would increase the aesthetic characteristics of the site; however, the additional open space area would be away from public views of the site and the developed portion would have a more urban appearance due to the higher density.

Population/Housing

Under this alternative, the population and housing unit figures would remain the same as for the proposed project.

Natural Resources/Energy

This alternative would have impacts on natural resources and energy similar to the proposed project, although reduced onsite travel distances may reduce the consumption of resources.

Traffic/Circulation

Offsite impacts on traffic and circulation would remain the same as for the proposed project, except that if access point(s) are changed, modifications to specific mitigation measures may be required. Onsite circulation would have to be modified to accommodate clustered development, and reduced travel distances may encourage more bicycle and pedestrian activity on the site.

Public Services/Utilities

The same level of public services and utilities would be required under this alternative as for the proposed project. The cost of sewer, water and utility extensions may be reduced because of shorter distances. The provision of greater open space could result in beneficial impacts on parks and recreational services.

Cultural Resources

The retention of greater open space under this alternative would potentially reduce impacts on cultural resources; however, because the location of potential resources is unknown, it is not possible to determine, without further study, if potential cultural resources are located in the additional undeveloped area or the area proposed for more intensive development.

4.1.4 REDUCED DENSITY ALTERNATIVE

This alternative is based on a scenario involving a conventional subdivision with 5-acre lots for single family residential development. The alternative would include the commercial development, resort complex, wellness center and park as proposed in the proposed project, but the common open space areas and multiple family development would be eliminated. The proposed single family density is similar to that of the rural residential development in the vicinity, and would allow 30 lots to be developed on the site. The density would be approximately .19 dwelling units per acre, as compared to approximately 1.26 units per acre for the proposed project. It is possible that, with the reduced residential development, it may not be feasible to develop the remaining features of the project.

Impacts

Land Use

As described above, some of the proposed land uses will remain the same as for the proposed project, while the characteristics of the residential development would change. Multiple family housing and higher-density single family detached housing would be replaced with large-lot, rural residential development. Common open space would be replaced with larger (5 acre) individual lots, however, the County could restrict development on portions of these larger parcels which would preserve open space and provide some protection to on-site biological and cultural resources. Growth-inducing impacts would be reduced, since fewer housing units would be developed, and it is anticipated that the development would be served by individual wells and septic systems, rather than extension of community sewer and water systems.

Geology/Soils

Fewer people and properties would be exposed to earthquakes, geologic, seismic or volcanic hazards. Construction of new residences would result in grading and modification of natural landforms, but to a lesser extent than would occur under the proposed project. However, development would lack the protections afforded by Specific Plan policies; only a building permit will be required for most residential development. There would, however, be less opportunity to avoid soils less suitable for development or excessive slopes. Potential disturbance of the Miners Ranch Tunnel could still occur and may potentially increase due to the need for a producing well on each 5 acre parcel.

Hydrology

Because of reduced open space, more potential to alter existing drainage courses and runoff patterns would result under this alternative. Pollutants from stormwater discharge would be reduced due to smaller onsite population. A reduced amount of impermeable surfaces would be created, thus reducing stormwater runoff. Impacts on groundwater would increase due to use of individual domestic wells, and the ability to find sufficient groundwater on each 5 acre parcel would be problematic.

Air Quality

Cumulative impacts on regional air quality due to traffic would be reduced due to the reduced number of dwelling units, but would remain significant. Onsite travel distances would increase. Fewer emissions would result from wood stoves and construction, but impacts would still contribute to cumulative pollution levels.

Biological Resources

This alternative would offer the least opportunity to reduce or avoid impacts on biological resources, since open space areas would be reduced, and critical deer winter range would be developed. Wildlife movement would be restricted through fencing of individual lots, level of property maintenance would vary, and it is less likely that natural habitat areas would be retained.

Noise

Noise impacts generated onsite would be reduced as compared to the proposed project, due to fewer housing units and greater distances between residences. Lots located along roadways would experience the greatest noise impacts from offsite traffic. Noise impacts due to construction would be reduced because of the reduced number of housing units to be constructed.

Light and Glare/Aesthetics

Similar to noise impacts, light and glare generated onsite would be reduced due to fewer housing units and greater distances between residences. Fewer residences would be impacted by offsite sources of light and glare. Aesthetic impacts will be increased due to the lack of open space areas on the site. Development of individual residences would also not be subject to design policies and guidelines as proposed in the Specific Plan.

Population/Housing

The population of the site will be reduced under this alternative. The estimated permanent onsite population would be 77, plus temporary guests of the resort complex and wellness center. As described above, an estimated 30 housing units could be built on the site; however, the omission of multiple family units would not assist the County in meeting its Housing Element goals.

Natural Resources/Energy

This alternative will result in decreased consumption of energy resources, as compared to the proposed project.

Traffic/Circulation

While traffic volumes would increase over existing conditions in this alternative, the number of trips generated would be considerably smaller than for the proposed project, since there would be 30 residences rather than 192 housing units. Traffic from the resort complex, wellness center and commercial development would remain unchanged. The contribution of site development to regional traffic impacts will be reduced. Area roadway improvements which have been identified as already being necessary would still be required due to other existing and approved projects in the area.

Public Services/Utilities

It is assumed that, under this alternative, water and sewage disposal would be provided by individual wells and septic systems, respectively. With 30 residential units, water use is estimated at 36,000 gallons per day for the residential development only (30 units x 1200 gallons per unit per day). Onsite residential wastewater discharge is estimated at 7,650 gallons per day (30 units x 255 gallons per unit per day). Water use and sewage discharge for the resort complex, wellness center and commercial development would remain the same as for the proposed project, but would be served by wells and septic systems rather than by community systems. The typical water consumption ratio for hotel/motel/resort facilities is 50 to 150 gallons per day per unit; restaurants typically average 35 gallons per day per seat. On average, the amount of wastewater generated by these types of uses is equivalent to the consumption estimates: 50 to 150 gallons per day per unit for hotel/motel/resort facilities and 35 gallons per day per seat for restaurants (Wastewater Engineering, Metcalfe & Eddy, Inc., 1972). All lots newly created would have to meet Butte County standards for individual septic systems in order to achieve the densities assumed for this alternative.

Law enforcement and fire protection services impacts would be reduced compared to the proposed project. Building permits issued for the development would be subject to impact fees adopted by the County. Achieving adequate fire flow to protect commercial, resort and wellness center structures could be problematic. Solid waste generated onsite would be reduced, but proper disposal and recycling potential may be lower due to the more rural nature of the residential development under this alternative.

Demand for electricity and telephone service would be reduced, although the distance for service lines would not be reduced. Impacts on school facilities and parks and recreation facilities would be reduced. Based on generation factors used by the school districts, it is estimated that the 30 residential units would result in an additional enrollment of 12 elementary students, 3 middle school students and 6 high school students, if it is assumed that these households do not already reside in the districts. School impact fees would be paid to the districts at the time that building permits are issued for new residences.

Using the average household size for the Butte County unincorporated area, it is estimated that a total of 77 persons would occupy the residential units and would potentially utilize parks and recreational services operated by the Feather River Recreation and Park District. This alternative retains the proposed overlook park, but does not provide the 26.5 acres of open space proposed in the Specific Plan. It can be argued that the large individual lots will provide private recreation for residents of the site.

Cultural Resources

Similar to the Full Buildout Alternative, this alternative offers increased opportunities to disturb cultural resources. Because most open space areas are eliminated, and residential uses require only building and/or other ministerial permits, fewer protections are available should cultural resources be encountered during the construction process.

4.1.5 OFFSITE ALTERNATIVE

One CEQA reference (Guide to the California Environmental Quality Act (CEQA), Remy, et. al., 1993, Solano Press) identifies several circumstances which might trigger the requirement to analyze alternative sites, based on CEQA case law. These include instances where a legislative action is being sought to change the allowed use for the proposed project, such as a zone change, rather than the project being a matter of right on the site; also, in cases where development at an alternative site would substantially diminish or avoid significant impacts of the proposed project.

The proposed project clearly requires a change in use. It is also possible that development at an alternative site could substantially diminish or avoid significant impacts of the proposed project, as described below, while still meeting project objectives.

The residential portion of the proposed project is a relatively low density development, and the proposed resort complex requires that the site have aesthetic, somewhat rural features, so an alternative site within an incorporated city or an area developed to urban density is not suggested. However, a site closer to existing development of a similar nature, or in an area planned for such development, could reduce impacts on public services, transportation and circulation through reduced distances. Selection of an alternative site entirely outside deer winter range would reduce or avoid some impacts on wildlife.

For the purposes of this alternatives analysis, an alternative site within the same planning area (Oroville Planning Area) will be evaluated. An Area Plan has been developed for the Oroville Planning Area which designates areas for Low Density Residential Development (1 to 6 dwelling units per acre). While a specific site has not been identified, it is assumed that development would occur on a site of similar size, east of the City of Oroville and designated for Low Density Residential development, and within the existing boundaries of the Oroville-Wyandotte Irrigation District and the Lake Oroville Area Public Utility District. A Specific Plan, a General Plan Amendment and change of zoning would still be required to accommodate the proposed non-residential uses. Because the applicant controls the proposed site, and not an alternative site, selection of an alternative site may not be realistic or possible for the applicant.

Impacts

Land Use

Under this alternative, development of the proposed project would occur on property already planned for residential development at the proposed densities, although not planned for the non-residential uses. If an alternate site is currently used for agricultural purposes, loss of agricultural land could occur. Growth-inducing impacts would be reduced, although the population of the site would remain the same, extension of sewer and water service outside existing service boundaries would not occur. Numerous high voltage transmission lines cross the area east of Oroville, and proximity to a transmission line could restrict the types of development permitted.

Geology/Soils

Soils on the proposed project site are essentially unsurveyed; therefore, comparison of soils impacts with an alternative site is problematic. Without a specific site, it is also difficult to compare impacts associated with development on slopes and erosion. Exposure of persons and property to earthquakes, seismic, geologic and volcanic hazards would be similar to the proposed project. If the alternative site supports an agricultural use, loss of agricultural soils could result.

Hydrology

Compared to the proposed project, impacts on site hydrology would differ based on differences in runoff patterns and surface drainage courses. Impacts related to impermeable surfaces and discharge pollutants would be similar. It is anticipated that domestic water would be supplied by the Oroville-Wyandotte Irrigation District, but the site would already be within district boundaries.

Air Quality

Cumulative regional impacts on air quality would be similar, since traffic generated, new wood stove use, and construction impacts would be the same as for the proposed project. However, the proximity to Oroville would reduce trip lengths, and possibly increase the use of public transportation, thus reducing emissions; impacts would, however, remain cumulatively significant.

Biological Resources

Impacts on site-specific biological resources would vary, based upon species actually found to be using the alternative site. However, the areas east of Oroville designated for Low Density Residential use are outside identified winter deer range and critical winter deer range areas, and impacts on the Mooretown deer herd would be avoided.

Noise

Depending upon the exact location, the alternative site could have increased noise impacts from offsite sources if it is closer to a roadway or roadways with higher traffic volumes or a stationary noise source such as an industry. Noise generated onsite, including construction noise, would remain the same as for the proposed project, but could have a greater impact in a more developed area if located closer to noise-sensitive uses.

Light and Glare/Aesthetics

New sources of light and glare would be created in a different location, and could have a greater impact in a more developed area if located closer to existing sensitive uses. Light and glare from existing uses could also have a greater impact on the site. Aesthetic standards for the project would remain the same, but it is not likely that the alternative site would be as visually appealing as the proposed site.

Population/Housing

The estimated population and number of housing units to be developed would be the same as for the proposed project. No difference in impacts is anticipated.

Natural Resources/Energy

This alternative would result in similar impacts on natural resources and energy, except to the extent that trip lengths are reduced based on proximity to Oroville.

Traffic/Circulation

While traffic volumes generated would be the same as for the proposed project, impacts on individual roadways would vary, depending upon the characteristics and volumes of specific roadways, and trip lengths would be reduced. Generally speaking, traffic volumes on roadways closer to Oroville are greater, and a lower threshold may apply before Level of Service standards are exceeded. Different, but comparable, roadway improvements would probably be required.

Public Services/Utilities

It is assumed that, under this alternative, sewer and water service would be provided by the respective special districts. Because the site would already be within district boundaries, no additional approval process would be required to secure such service, and any required line extensions would be much shorter. Increased law enforcement and fire protection services would be required, although the risk of wildland fire may be reduced, and response time shorter. Solid waste generated onsite would be the same, but hauling distance to the landfill reduced.

Demand for electricity and telephone service would be unchanged, although the distance for service lines would be reduced. Impacts on school facilities and parks and recreation facilities would be unchanged.

Cultural Resources

A similar potential exists to disturb cultural resources on an alternative site; similar mitigation measures would be required to avoid such impacts.

4.2 COMPARATIVE ENVIRONMENTAL SUPERIORITY OF ALTERNATIVES

In accordance with the State CEQA Guidelines, all reasonable project alternatives have been evaluated to determine their comparative environmental superiority. The impacts of the proposed project which have been identified as significant, if not mitigated, include earthquakes and soil hazards, surface and groundwater contamination, air quality impacts, impacts on biological resources, exposure to traffic noise, growth-inducing impact, cumulative traffic impacts, impacts on public services, and impacts on cultural resources. 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 other alternatives.

Based upon the analysis contained and documented in this EIR, the No Project Alternative has been determined to be the environmentally superior alternative. Under the No Project Alternative, significant impacts related to growth-inducement, earthquakes and soil hazards, groundwater contamination, air quality, biological resources, noise, traffic, public services and cultural resources would all be avoided. However, the project objectives would not be achieved.

The remaining alternatives are ranked in descending order of environmental superiority, based upon the analysis documented in this EIR, as follows:

1. CLUSTERED DEVELOPMENT ALTERNATIVE

The clustered development alternative affords the greatest opportunity to reduce or avoid identified significant impacts. Clustering single family residential development in the southwesterly portion of the site will achieve the greatest protection of open space and wildlife habitat, especially deer winter range. It will, to the greatest extent, avoid impacts related to hydrology, soils, cultural resources, and aesthetics. It will also provide the opportunity to reduce impacts related to air quality, noise, onsite traffic and onsite sewer and water service to a limited extent. However, impacts associated with police and fire protection, offsite traffic and circulation, schools and

growth-inducing impacts would not represent an improvement in comparison to the proposed project.

2. ALTERNATIVE SITE

Development of the same project on an alternative site east of Oroville, between Oroville and the proposed project site, in an area already designated for Low Density Residential use would avoid some impacts of the proposed project, but has the potential to increase other impacts, depending upon the specific location selected. Impacts related to earthquake hazards and cultural resources would remain essentially the same. Impacts related to air quality, noise, and public services may be reduced due to reduced distances. Impacts related to soils, hydrology, noise, traffic and aesthetics may be reduced or increased, depending upon the exact location and characteristics of the site selected. Impacts on biological resources may be similar, except that impacts on deer herds would be avoided. Although the onsite population would be the same, growth-inducing impacts would be reduced because sewer and water lines would not need to be extended the same distance as for the proposed project.

3. FULL BUILDOUT ALTERNATIVE

This alternative would provide for full buildout of the existing 12 parcels on the site, plus an additional 7 parcels that could be created in accordance with the current zoning and General Plan designation. This alternative will reduce impacts related to earthquakes and soil hazards, air quality, hydrology, noise, traffic, public services and utilities, and would not have a growth-inducing impact. However, development of individual residences without an overall development plan and policies, a community sewer and water system, and lacking common open space areas, would represent greater potential impacts on groundwater use, biological resources, aesthetics, and cultural resources. Groundwater availability is also problematic.

4. LOWER DENSITY RESIDENTIAL USE ALTERNATIVE

The lower density residential use alternative assumes a conventional subdivision with a maximum of 30 residential units in five-acre parcels, rather than the 192 units in the proposed project. The proposed resort complex, wellness center and overlook park would remain, but common open space areas would be eliminated. Traffic, noise, earthquake hazards, cumulative air quality and public services impacts would be proportionately reduced (but greater than for the Full Buildout Alternative), and growth-inducing impacts would be reduced due to use of individual wells and septic

systems, rather than extension of sewer and water systems. However, loss of common open space areas would increase groundwater withdrawals and impacts on biological resources (including deer herds), aesthetics, and cultural resources. As in the Full Buildout Alternative, availability of sufficient groundwater is problematic.

Chapter Five
Consequences of Project Implementation

CHAPTER FIVE

CONSEQUENCES OF PROJECT IMPLEMENTATION

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Since the phrase "significant effect on the environment" occupies such a critical place in the preparation and review of an EIR, the following definition, as contained in 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, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significant. 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 15382)

The environmental effects of adopting and carrying out the proposed *Stringtown Mountain Specific Plan* on selected aspects of the environment are discussed in detail in Chapter Three of this EIR. Most of the impacts identified in that chapter as potentially significant can be mitigated to a level that is less than significant through the application of various mitigation measures also described in the Chapter Three text. Some of these measures are incorporated or proposed to be incorporated into the *Specific Plan*, as indicated in Chapter Three and the Mitigation Monitoring and Reporting Plan. Some significant impacts, however, cannot be fully mitigated or reduced to a level that is less than significant by any reasonably practical measure(s). A list of these significant environmental effects which cannot be avoided if the proposed project is approved, and development of the Plan area in future years is carried out as proposed, is presented below:

- Growth-inducing impacts
- Air Quality impacts

Other unavoidable impacts attributable to implementation of the proposed *Specific Plan* have been determined to either be less than significant or capable of being mitigated by measures recommended in this EIR.

5.2 SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY

The *State CEQA Guidelines* describes the scope of this analysis as follows:

> Describe the cumulative and long-term effects of the proposed project which adversely affect the state of the environment. Special attention should be given to impacts which narrow the range of beneficial uses of the environment or pose long-term risks to health or safety. In addition, the reasons why the proposed project is believed by the sponsor to be justified now, rather than reserving an option for further alternatives, should be explained. (Section 15126(e))

The proposed *Specific Plan* has the inherent purpose of emphasizing the long-term productivity of the plan area, as opposed to an emphasis on short-term uses. The long-term values of wildlife habitat in portions of the plan area will be displaced by the equally long-term productivity of urban, commercial and recreational uses. The reasons why the applicant believes that the proposed *Specific Plan*, general plan amendment and rezoning are justified now can be found in Chapter Two, Section 2.4, which describes the project objectives.

5.3 CUMULATIVE IMPACTS

Section 15130 of the *State CEQA Guidelines* requires analysis of significant cumulative impacts that a project may contribute to. Cumulative impacts occur when the incremental effects of a project, which may or may not be individually significant, are combined with the effects of later phases or other elements of that project or the effects of other projects to produce a significant impact. As stated in Section 15130(c) of the CEQA *Guidelines*, 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.

In conjunction with the traffic analysis for the *Stringtown Mountain Specific Plan*, kdAnderson Transportation Engineers considered cumulative traffic conditions resulting from other anticipated development in Butte County. The basis for this evaluation is the estimate of future background traffic growth contained in the *Traffic Study for Encroachment Permit Application prepared for Golden Hills Development*, Barnhart-Brown Associates, January 1993. That document utilized traffic volume forecasts from the 1991 Oroville Area Transportation Model as the basis for year 2010 projections. Figures 4 and 5 and Table 8 of Appendix G reflect those cumulative traffic volumes.

Butte County is in the process of comprehensively updating its *General Plan*. When completed, the Land Use Element will include fairly precise buildout estimates

(total dwelling units and population for a 20-year period). The *General Plan Issues and Options Report* estimates the holding capacity for the incorporated cities based on each city's current general plan. These estimates are shown on Table 5-1 below. No precise estimates of the development capacity of Butte County's unincorporated areas outside spheres of influence have been developed.

TABLE 5-1

INCORPORATED COMMUNITY DEVELOPMENT CAPACITY

City	1992 Dwelling Units	1992 Population	Remaining Unit Capacity	Remaining Population Capacity	Total Unit Capacity	Total Population Capacity
Chico	17,961	43,701	34,350	85,640	52,311	129,341
Paradise	11,843	26,008	5,074	11,328	16,917	37,336
Oroville	4,924	12,291	10,000	23,713	14,924	36,004
Gridley	1,833	4,741	430	1,057	2,263	5,798
Biggs	566	1,659	175	487	741	2,146
Total Cities	**37,127**	**88,400**	**50,029**	**122,225**	**87,156**	**210,625**

Source: Butte County General Plan Issues and Options Paper.

The City of Oroville is also in the process of updating its *General Plan*. The *Oroville General Plan, Draft for Public Review*, October 1992, projects a increment population growth of 40,650 (16,590 housing units) that can be accommodated within its Sphere of Influence for a projected buildout population of 73,760. Of these estimates, an increase in population for the Kelly Ridge area is projected at 3,626 (1,480 housing units) which is located west of the site, and 11,123 persons (4,540 housing units) are projected in the Foothills planning sector which is located southwest of the plan area.

Population projections and allowable land uses and densities presented in the *Oroville Area Land Use Plan of the Butte County General Plan* provided additional basis for the cumulative impact analyses.

Under each topical heading of Chapter 3 of this EIR, all potential impacts are identified, including cumulative impacts. These impacts and their associated mitigation measures are summarized in the Summary Table included in the Executive Summary of this EIR. The following potentially significant cumulative impacts were identified:

- **Impacts #3.3-1, #3.3-2 and #3.3-3:** The project will contribute to a cumulative impact on local air quality.

- **Impacts #3.10-6, #3.10-7 and #3.10-8:** The project will incrementally contribute to traffic impacts.

- **Impact #3.11.1-2:** The project will contribute to the incremental consumption of OWID's water supply.

- **Impact #3.11.3-1:** The project will contribute to a cumulative impact on landfill capacity.

- **Impact #3.11.4-1:** The project will contribute to the cumulative impact upon the desired level of law enforcement services associated with growth and development.

- **Impact #3.11.5-1:** The project will contribute to an incremental increase in the demand for fire protection services.

- **Impact #3.11.7-1:** The project will contribute to the cumulative impact on park and recreational facilities within FRRPD.

5.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The following excerpt from 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 non-use 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. (Section 15126(f))

Development of the Plan area will commit non-renewable resources during construction, and ongoing utility services provided to proposed residential, commercial and public uses. During construction, the use of energy resources and building materials will essentially be irreversible and irretrievable. Substantial

amounts of water, energy and other natural resources will be consumed during the life of the *Specific Plan.*

The proposed *Specific Plan* will commit future generations to continued urban use of the Plan area. Part of the site's value as pleasing open space and wildlife habitat will be lost. Future generations will experience the benefits of increased housing availability and recreational opportunities, as well as the adverse impacts of the proposed project as reported in this EIR.

5.5 EFFECTS FOUND NOT TO BE SIGNIFICANT

Section 15128 of the *CEQA Guidelines* requires that an EIR contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Those effects were determined to not be significant are discussed in the Initial Study included as Appendix A. These impacts include the following:

- Destruction, covering or modification of any unique geologic or physical features.
- Loss of prime agriculturally productive soils outside designated urban areas.
- Alteration of air movement, moisture or temperature, or any change in climate, locally or regionally.
- Alterations to the course or flow of flood waters.
- Change in the amount of surface water in any water body.
- Alteration of the direction or rate of flow of ground waters.
- Reduction in the amount of water otherwise available for public water supplies.
- Exposure of people or property to water-related hazards such as flooding.
- Reduction in acreage of any agricultural crop.
- Possihle interference with an emergency response plan or emergency evacuation plan.
- Effects on existing parking facilities, or demand for new parking.
- Alterations to waterborne, rail or air traffic.
- Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy.
- Creation of any health hazard or potential hazard (excluding mental health.
- Exposure of people to potential health hazards.

- Potential to cause a physical change which would affect unique ethnic cultural values.
- Restriction of existing religious or sacred uses within the potential impact area.

Appendices

Appendix A

Butte County
LAND OF NATURAL WEALTH AND BEAUTY
Department of Development Services
PLANNING DEPARTMENT
7 COUNTY CENTER DRIVE - OROVILLE, CALIFORNIA 95965-3397
TELEPHONE: (916) 538-7601

January 14, 1993

CERTIFIED MAIL

State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

RE: Notice of Preparation of an environmental Impact Report for a Rezone, General Plan Amendment and Specific Plan for Robert Taylor (Stringtown Mountain Specific Plan, File #92-44).

To whom it may concern:

The Butte County Planning Department will be the Lead Agency responsible for the preparation of an Environmental Impact Report (EIR) for the project identified within the attached sheets. 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 attached Initial Study provides a detailed project description and location.

Due to time limits mandated by State Law, your response must be sent at the earliest possible date, but no later than 30 days after receipt of this notice.

Please send your response to Thomas Last, Senior Planner, at the address shown above. We will need the name of a contact person in your agency.

Sincerely,

B.A. Kircher
Director of Planning

Thomas Last

Thomas Last
Senior Planner

BAK:TAL:jlo
enclosure

Copies to:

Butte County Public Works, 7 County Center, Oroville 95965
Butte County Environmental Health, 7 County Center, Oroville 95965
City of Oroville, 1635 Montgomery St, Oroville 95965
State Transportation Dept., PO Box 911, Marysville 95901
OWID, PO Box 581, Oroville, 95965
PG&E South, 530 E St., Marysville 95901
Pacific Bell, Eng Section/Comments, 518 W. 4th St, 3rd Floor, Chico 95928
Viacom TV Cable, 2128 Myers St., Oroville 95965
Butte County Fire Dept/CDF - Courier Mail
Butte County Mosquito Abatement Dist., 5117 Larkin Rd., Oroville 95965
State Highway Patrol, PO Box 1471, Oroville 95965
Butte County Sheriff's Dept., Courier Mail
Oroville Union High School, 2211 Washington Ave., Oroville 95965
Oroville Elementary School District, 2795 Yard St., Oroville 95965
Feather River Rec. & Park Dist., 1200 Myers St., Oroville 95965
State Parks & Rec. Dept., 1416 Ninth St., 14th Floor, Sacramento 95814
State Dept. of Fish and Game, Jim Snowden, 721 Cessna, Chico 95928
California Native Plant Society, Pat Kelly, 900 E 19th St., Chico 95928
Regional Water Quality Control Bd., Ron Dykstra, 415 Knoll Crest, Redding 96002
LOAPUD, 1960 Elgin St., Oroville 95965
Butte Environmental Council, 708 Cherry St., Chico 95928
Sierra Club, Tanya Henrich, 12 Phlox Way, Chico 95926
Butte County Air Pollution Control District, Courier Mail

COUNTY OF BUTTE
ENVIRONMENTAL CHECKLIST FORM
EVALUATION OF ENVIRONMENTAL IMPACT

File 92-44 AP 072-180-016, 017, 026, 027, 028, 029, 030 and 072-190-005, 017, 013, 014, 025

I. BACKGROUND

1. Name of Proponent: Robert Taylor

2. Address of proponent and representative (if applicable): 901 W. Civic Center Dr., Suite 340, Santa Ana, Ca. 92703.

3. Project description: Stringtown Mountain Specific Plan. This proposal consists of a General Plan Amendment, Rezone and Specific Plan. The General Plan Amendment is to change the land use designation from Agricultural Residential to 16.29 acres of Commercial, 29.52 acres of Foothill Area Residential, 13.80 acres of Medium Density Residential and 112.00 acres of Low Density Residential. The Rezone request is to change the designation from FR-10 (Foothill Recreational - 10 acre minimum) to C-2 (General Commercial), R-C (Resource Conservation), R-1 (Residential), R-2 (Residential) and P-Q (Public, Quasi-Public). A Specific Plan has also been submitted for the property. The main components of the project include a 12.3 acre Resort Complex, Wellness Center, Commercial Center, 44 duplexes, 32 multi-family units, 116 single-family homes, a potential fire station, recreational facilities and open space. Subsequent actions require the annexation into the Oroville-Wyandotte Irrigation District (OWID) and Lake Oroville Area Public Utility District (LOAPUD) for water and sewer facilities. The project requires the substantial extension of these services. The project is located at the southeastern corner of State Route 162 (Oroville Quincy Highway) and Forbestown Road. The Specific Plan includes many policies the address some of the issues identified within this initial study. See data sheet for additional description of the property.

II. MANDATORY FINDINGS OF SIGNIFICANCE

	YES	MAYBE	NO	DISCUSSION OF ENVIRONMENTAL EVALUATION
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of major periods of California history or prehistory?		X		This proposal may degrade the winter range and habitat for the Mooretown deer herd. This proposal may also impact riparian and oak woodland plant communities.
2. Does the project have the potential to achieve short-term benefits to the detriment of long-term environment goals? (A short-term impact on the environment is one which occurs in a relatively brief period of time while long-term impacts will endure into the future.)			X	This proposal will not impede long-term environmental goals at the expense of achieving short-term environmental goals.
3. Does the project have impacts which are individually limited but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource i s relatively small, but where the effect of the total of those impacts on the environment is significant.)		X		This proposal may lead to secondary impacts on the environment by encouraging development in a relatively rural and undeveloped area. Should this occur, it could result in substantial adverse impacts on the local environment.
4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		Approval of this project may create adverse impacts on human beings due to potential traffic, fire, air pollution and public service concerns in the area.

III. DETERMINATION

On the basis of this initial evaluation:

____ I/WE find the proposed project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

____ I/WE 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 the attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.

__X__ I/WE find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

DATE: November 19, 1992

COUNTY OF BUTTE, PLANNING DEPARTMENT

By: Thomas Last

Thomas Last, Senior Planner

Reviewed by: Paula Leasure

IV. ENVIRONMENTAL IMPACTS	YES	MAYBE	NO	DISCUSSION OF ENVIRONMENTAL EVALUATION
1. EARTH. Will the proposal result in significant:				
a. Unstable earth conditions, or changes in geologic substructures?	X			According to County maps and documents, the soils in this area have a high to very high potential for erosion. Combined with the steep topography on portions of the site, these factors may create unstable earth conditions.
b. Disruption, displacement, compaction or overcovering of the soil?		X		This proposal will ultimately result in the disruption, displacement, compaction and overcovering of portions of the site to accommodate development of structures, driveways, parking areas, streets, etc. Because of the steep grades and high erosion potential on site, a detailed analysis of soil conditions, suitability of the soil for supporting these improvements and the erosion potential is required.
c. Change in topography or ground surface relief features?		X		The proposal will affect the existing topography because of the variety in ground relief features. An analysis of the visual impacts is required.
d. Destruction, covering or modification of any unique geologic or physical features?			X	The site is within the foothill region and does not contain any unique physical features that are common in the area.
e. Increase in wind or water erosion of soils, either on or off site?	X			The proposal will result in some erosion due to disruption, displacement, compaction and overcovering of the site. (See 1.a & 1.b above).
f. Changes in deposition of erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?		X		The proposal may result in some siltation, deposition or erosion of area drainage ways.
g. Loss of prime agriculturally productive soils outside designated urban areas?			X	The project site does not contain any prime agricultural soils.
h. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure or similar hazards?		X		All of Butte County is in a Moderate Earthquake Intensity Zone VIII. The subject property is located approximately 1 mile northeast of several faults. The secondary impacts of seismic activity in the region may expose people of this area to geologic hazards.
2. AIR. Will the proposal result in substantial:				
a. Air emissions or deterioration of ambient air quality?		X		Urban development of this scale contributes to a minor, but cumulative, impact on the ambient and regional air quality. The Environmental Protection Agency has designated Butte County as a "moderate" air pollution area. The air quality impacts are primarily created during the construction phases and vehicular emissions after buildout. Wood burning has also become an issue that adds to the degradation of air quality. Since no thresholds have been developed to date, a "URBEMIS 3" modeling program or related program is required to quantify air quality impacts. An analysis of key intersections is also necessary.
b. The creation of objectionable odors, smoke or fumes?		X		The proposal may create objectionable odors, smoke or fumes during the construction phases of this project.
c. Alteration of air movement, moisture or temperature, or any change in climate, locally or regionally?			X	The proposal will not affect the local or regional climate or atmosphere.
3. WATER. Will the proposal result in substantial:				

Environmental Checklist * Evaluation of Environmental Impact

a.	Changes in currents, or the course or direction of water movements in either marine or fresh waters?		X		There are two intermittent drainage courses that traverse the site. Drainage patterns may change as a result of disruption of the site.
b.	Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	X			The proposal will result in an increase in surface water runoff due to reduced absorption rates created from the addition of impervious surfaces.
c.	Need for off-site surface drainage improvements, including vegetation removal, channelization or culvert installation?		X		Off-site drainage improvements may be required to accommodate the expected increase in surface runoff.
d.	Alterations to the course or flow of flood waters?			X	The property does not contain flood waters, therefore no alterations are necessary.
e.	Change in the amount of surface water in any water body?			X	The proposal will not significantly affect any water body.
f.	Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?		X		The proposal may significantly affect surface water quality due to siltation resulting from erosion caused by grading operations for road and driveway construction and creation of building sites. Urban pollutants produced once the site is fully developed and occupied will also impact water quality.
g.	Alteration of the direction or rate of flow of ground waters?			X	The proposal will not affect the direction or flow of ground waters.
h.	Change in the quantity or quality of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?		X		The proposal will not directly affect any aquifer. The quality and quantity of ground water is unknown in this area. Information on groundwater is limited for this parcel.
i.	Reduction in the amount of water otherwise available for public water supplies?			X	Approval of this project will not significantly impact available public water supplies.
j.	Exposure of people or property to water-related hazards such as flooding?			X	The proposal will not expose people or property to flooding.
4.	PLANT LIFE. Will the proposal result in substantial:				
a.	Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?		X		The site contains several plant communities, with the Blue oak woodlands being the predominant habitat. In addition, the site contains Montane hardwood riparian, annual grasslands, Montane hardwood/chaparral and Montane forest. The plant species of most concern in the foothill regions of the County is the cumulative loss of oak trees. The Specific Plan includes policies that will preserve and protect most oaks.
b.	Reduction of the numbers of any unique, rare or endangered species of plants?			X	Field studies were conducted by Jones and Stokes in May, 1989. Several special status plants are known or suspected in or near the study area. However, the said study failed to identify any species listed as endangered, rare or threatened. This study may have to be updated since new species may have been added since the surveys were completed. The Department of Fish and Game has recommended a that botanical study be conducted.
c.	Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?			X	Development of the site will introduce new plant species into the area. It is not expected that they would create a barrier to the normal replenishment of native plants.
d.	Reduction in acreage of any agricultural crop?			X	The site does not contain any agricultural crops.

5.	ANIMAL LIFE. Will the proposal result in substantial:				
	a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?	___	X	___	Development of the site will lead to the disruption of habitat which may lead to removal or migration of animal species that presently inhabit the area. The property does contain lands designated as critical winter range of the Mooretown deer herd. Development of the site may lead to a reduction of migrational deer to the area. Approximately 1/3 of the property is not located within an approved development zone. The Jones and Stokes report recommended that modifications be made to the non-development zone so that it corresponds to the quality of habitat. As of May 7, 1992, the Department of Fish and Game still recommends modifications to the plan.
	b. Reduction in the numbers of any unique, rare or endangered species of animals?	___	X	___	Several special-status raptor species could occur at or near the project area. Jones and Stokes conducted field surveys for these raptors in conjunction with the deer surveys. No observations were noted and habitat was considered marginal for most species. The Department of Fish and Game did not recommend additional wildlife surveys.
	c. Introduction of new species of animals into an area, or in a barrier to the migration or movement of animals?	___	X	___	This proposal will introduce domestic animals into the area as the site develops. Domestic animals can disturb the migration routes of the wintering deer herds.
	d. Deterioration of existing fish or wildlife habitat?	___	X	___	Portions of the site are designated as a non-development area on the maps provided to Butte County by the California Department of Fish and Game. (see 5.a. for additional comments).
6.	NOISE. Will the proposal result in substantial:				
	a. Increases in existing noise levels?	___	X	___	Vehicular traffic represents the only noise source presently on-site. Construction activities will cause temporary, localized increases in existing noise levels. Long-term noise impacts may result by the exposure of residents to noise particularly from truck traffic. Noise attenuation techniques or sensitive site planning may be required to mitigate long-tern noise impacts.
	b. Exposure of people to severe noise levels?	___	X	___	The proposal may expose people to severe noise levels.
7.	LIGHT AND GLARE. Will the proposal produce significant light and glare?	___	X	___	The project site does not contain any light sources at the present time. Future development will produce new light and glare to the area. Site planning and lighting designs may be necessary to reduce potential impacts.
8.	LAND USE. Will the proposal result in a substantial alteration of the present or planned land use of an area?	X	___	___	This proposal does represent a substantial alteration to the planned land use for the area. Approval of this project will result in an increase in residential densities and a change in uses. This proposal could also be considered a "leapfrog" development since few services are presently available in the vicinity of the site. The proposal could also lead to secondary impacts such as growth inducement into an area that is primarily rural in character.
9.	NATURAL RESOURCES. Will the proposal result in substantial:				
	a. Increase in the rate of use of any natural resources?	___	X	___	New development in the area will require an increase in consumption of resources used for lighting, heating/cooling, vehicular fuel, etc. Energy conservation measures may be required to reduce this concern. Some policies are included in the Specific Plan.
	b. Depletion of any non-renewable natural resources?	___	___	X	The proposal is not expected to result in the substantial depletion of any natural resources.

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10.	RISK OF UPSET. Will the proposal involve:				
	a. A risk of explosion or release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?			X	The proposal will not involve the use of hazardous materials, nor is it located close to any facilities which store or utilize such materials.
	b. Possible interference with an emergency response plan or emergency evacuation plan?			X	The proposal will not interfere with any emergency response or evacuation plan .
11.	POPULATION. Will the proposal alter location, distribution, density or growth rate of the human population?	X			This proposal represents an alteration to the planned density, location and distribution of population growth in the Oroville area.
12.	HOUSING. Will the proposal affect existing housing, or create a demand for additional housing?		X		The proposal should not significantly affect existing housing conditions but may result in a demand for additional housing in the area because of the availability of services.
13.	TRANSPORTATION/CIRCULATION. Will the proposal result in:				
	a. Generation of substantial additional vehicle movement?		X		The proposal will represent an incremental increase in traffic in the Oroville area. This proposal may lead to impacts on the regional transportation system, specifically additional traffic on Oroville-Quincy Highway (St. Rt. 162) into Oroville. The following intersections with St. Rt. 162 are also of concern to the regional system: Kelly Ridge Rd., Old Olive Highway, Forbestown Road and Loafer Creek Road.
	b. Effects on existing parking facilities, or demand for new parking?			X	The proposal should not affect parking because the proposal will have to comply with the parking requirements contained within Butte County Code section 24-35.
	c. Substantial impact on existing transportation systems?		X		See 13.a.
	d. Significant alterations to present patterns of circulation or movement of people and/or goods?			X	The proposal is not expected to alter the present pattern of circulation in the area.
	e. Alterations to waterborne, rail or air traffic?			X	The proposal will not affect rail or air traffic.
	f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?		X		The proposal will result in an incremental increase in traffic and related traffic hazards in the area. There is some concern with access to the site due to the topography and curving roads.
14.	PUBLIC SERVICES. Will the proposal have an effect upon, or result in a need for new or altered government services:				
	a. Fire protection?		X		The proposal will result in a incremental increase in demand for fire protection in the area. The Butte County Fire Department/California Division of Forestry has indicated that cumulative development in rural areas will impact their ability to provide fire protection services. Due to the vegetation and topography of the area, this site is considered to be a high fire hazard area. The applicant has provided potential mitigation measures within the Specific Plan. However, the County is also concerned with the ability to provide adequate day to day services.
	b. Police protection?		X		A development impact fee for Sheriff's Facilities has been developed.

					However, the day to day costs of services are an issue that needs to be resolved.
	c.	Schools?		X	The proposal will result in a incremental increase in demand for school services in the area.
	d.	Parks or other recreational facilities?		X	The proposal will result in a incremental increase in demand for park and recreation facilities in the area. The Specific Plan does provide for recreational facilities on the project site.
	e.	Maintenance of public facilities, including roads?		X	The proposal will result in a incremental increase in the need for maintenance of roads and other public facilities in the area.
	f.	Other governmental services?		X	The proposal will result in a incremental increase in demand for all other governmental services in the area.
15.	ENERGY. Will the proposal result in:				
	a.	Use of substantial amounts of fuel or energy?		X	Energy consumption for construction and subsequent occupancy of new buildings will result in the incremental increase in demand on energy resources.
	b.	Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?		X	The proposal will not substantially increase the demand for energy.
16.	UTILITIES. Will the proposal result in a need for new systems, or substantial alterations to the following:				
	a.	Power or natural gas?		X	Electrical power is available to the site. However, natural gas is not available. Propane is the only source of gas that could be utilized for the project.
	b.	Communications systems?		X	Telephone service facilities are available no substantial alterations are needed in order to service this site.
	c.	Water availability?	X		This proposal will result in a substantial extension of OWID water lines.
	d.	Sewer or septic systems?	X		This proposal will result in the need to extend sewer facilities to service the property.
	e.	Storm water drainage?		X	See 3.a-j.
	f.	Solid waste and disposal?		X	This proposal will result in the need for solid waste collection. In addition, the project will result in an incremental impact on the County landfill.
17.	HUMAN HEALTH. Will the proposal result in:				
	a.	Creation of any health hazard or potential hazard (excluding mental health)?		X	The proposal will not create any health hazard.
	b.	Exposure of people to potential health hazards?		X	The proposal will not expose people to any health hazard.
18.	AESTHETICS. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to the public view?			X	This project could result in an aesthetically offensive development because of disruption of topography and native vegetation.

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19.	RECREATION. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	____	X	____	The proposal may result in an incremental impact on the rural recreational opportunities in the area. The Loafer Creek camping facility is located north of the property.
20.	CULTURAL RESOURCES.				
a.	Will the proposal result in the alteration or destruction of a prehistoric or historic archaeological site?	____	X	____	The property is located in an area designated as moderate to low archaeological sensitivity. A Northeast Information Records check was conducted and it recommended that any archaeological report be conducted.
b.	Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure or object?	____	____	X	The proposal will not affect historic sites.
c.	Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?	____	____	X	The proposal will not affect cultural resources.
d.	Will the proposal restrict existing religious or sacred uses within the potential impact area?	____	____	X	The proposal will not affect religious resources.

V. SUGGESTED MITIGATION MEASURES

No mitigation measures are recommended at this time.

TAL:jlo
a:Taylor\is

Environmental Checklist * Evaluation of Environmental Impact

DATA SHEET

A. Project Description

1. Type of Project: General Plan Amendment, Specific Plan and Rezone

2. Brief Description: A rezone from FR-10 to C-2, R-C, R-1, R-2, and PQ. A General Plan Amendment from Agricultural-Residential to Commercial, Foothill Area Residential, Low and Medium Density Residential.

3. Location: At the southeast corner of Oroville-Quincy Highway and Forbestown Road.

4. Proposed Density of Development: 1.14 dwelling units per acre.

5. Amount of Impervious Surfacing: Unknown

6. Access and Nearest Public Road(s): Oroville-Quincy Highway or Forbestown Road.

7. Method of Sewage Disposal: Lake Oroville Area Public Utility District

8. Source of Water Supply: Oroville Wyandotte Irrigation District

9. Proximity of Power Lines: To property.

10. Potential for further land divisions and development: Approval would allow further land division and development.

B. Environmental Setting

Physical Environment:

1. Terrain
   a. General Topographic Character: Gently rolling hills to steep canyons.
   b. Slopes: 50% in the canyons and 10% in other areas.
   c. Elevation: 1,240 to 1,700 feet above sea level.
   d. Limiting Factors: Steep terrain for roads and development.

2. Soils
   a. Types and Characteristics: Auburn sobrante a silt to clay loam with slightly acid soil. It has moderate permeability and contains good drainage characteristics.
   b. Limiting Factors: High erosion potential

3. Natural Hazards of the Land
   a. Earthquake Zone: Moderate Earthquake intensity zone VIII. Approximately 1 mile northeast of several faults.
   b. Erosion Potential: High to very high
   c. Landslide Potential: Low
   d. Fire Hazard: High
   e. Expansive Soil Potential: Low

4. Hydrology
   a. Surface Water: Two intermittent drainage courses traverse the site.
   b. Ground Water: Unknown, potentially limited. Abundant valley aquifers.
   c. Drainage Characteristics: Primarily in a southern direction, with a portion draining northward.
   d. Annual Rainfall (normal): 35-40 inches per year.
   e. Limiting Factors: None

5. Visual/Scenic Quality: Good, portions of the site have views of Lake Oroville and the Central Valley.

6. Acoustic Quality: Good.

7. Air Quality: Good, except during periods of stagnant valley air.

Biological Environment:

8. Vegetation: Several plant communities exist on-site, but the site is predominantly Blue oak woodland, with Montane hardwood riparian, annual grasslands, Montane hardwood forest with mixed chaparral. No evidence of endangered, rare or threatened plant species are expected.

9. Wildlife Habitat: Small birds and animals common to foothills. The site is within a winter habitat for the Mooretown deer herd.

Cultural Environment:

10. Archaeological and Historical Resources in the area: Moderate to Low sensitivity area.

11. Butte County General Plan designation: Agricultural Residential

12. Existing Zoning: FR-10

13. Existing Land Use on-site: Vacant

14. Surrounding Area:
   a. Land Uses: Vacant or rural homesites with Loafer Creek recreation area to the north.
   b. Zoning: PQ, FR-10, FR-40
   c. Gen. Plan Designation: Agricultural Residential, Public
   d. Parcel Sizes: 2 to 600+ acres
   e. Population: Rural

15. Character of Site and Area: Rural foothills

16. Nearest Urban Area: Oroville

17. Relevant Spheres of Influence: Adjacent to OWID. The City of Oroville and LOAPUD are approximately 1 mile to the west.

18. Improvements Standards Urban Area: They would be required at the proposed density.

19. Fire Protection Service:
    a. Nearest County (State) Fire Station: Station # 64 approximately 4 miles to the west.
    b. Water Availability: Hydrants would be required.

20. Schools in Area: Oroville Union High and Oroville Elementary School Districts.

ENVIRONMENTAL REFERENCE MATERIAL

1. Butte County Planning Department. Earthquake and Fault Activity Map 11-1, Seismic Safety Element. Oroville, CA: CH2M Hill, 1977.

2. Butte County Planning Department. Liquefaction Potential Map 11-2, Seismic Safety element. oroville, CA: CH2M Hill, 1977.

3. Butte County Planning department. Subsidence and Landslide Potential Map 111-1, Safety Element. oroville, CA: CH2M Hill, 1977.

4. Butte County Planning Department. Erosion Potential Map 111-2, Safety Element. Oroville, CA: CH2M Hill, 1977.

5. Butte County Planning Department. Expansive Soils Map 111-3, Safety element. oroville, CA: CH2M Hill, 1977.

6. Butte County Planning Department. Noise element Map IV-1, Scenic Highway element. Oroville, CA: CH2M Hill, 1977.

7. Butte County Planning Department. Scenic Highways Map V-1, Scenic Highway Element. Oroville, CA: CH2M Hill, 1977.

8. Butte County Planning Department. Natural Fire Hazard classes Map 111-4, Safety Element. Oroville, CA: CH2M Hill, 1977.

9. Butte County Planning Department. Archaeological Sensitivity Map. Oroville, CA: James P. Manning, 1983.

10. Butte County Planning Department. School District Map. Oroville, CA

11. Northwestern District Department of Water Resources. Chico Nitrate Study Map, Nitrate Concentration in Shallow Wells. The Resources Agency, State of California, 1983.

12. Butte County Board of Supervisors. Agricultural Preserves Map, established by Resolution No. 67-178. Oroville, CA: Butte County Planning Department, 1987.

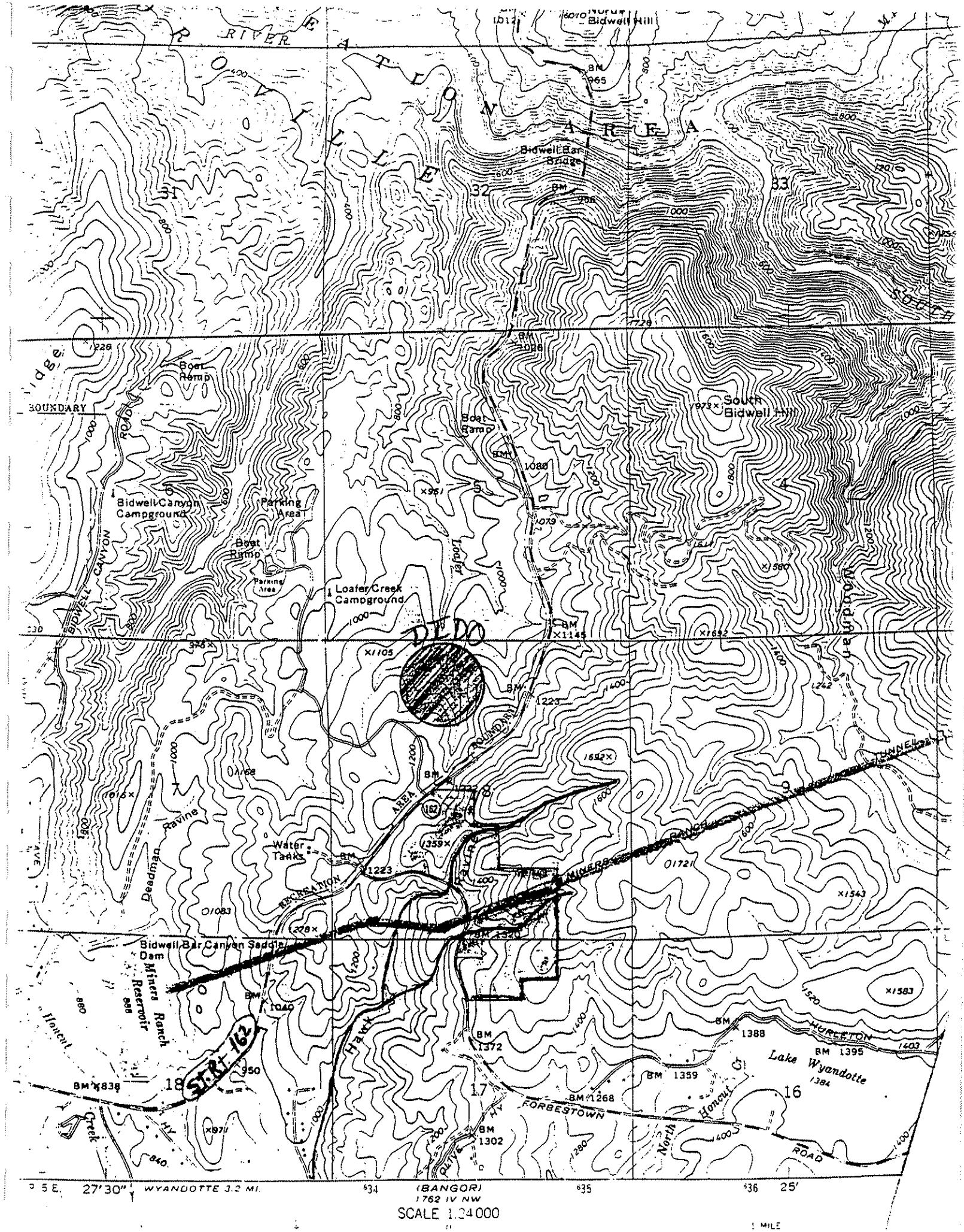
13. National Flood Insurance Program. Flood Insurance Rate maps. Federal Emergency Management Agency, 1989.

14. USGS Quad Maps, Oroville Dam

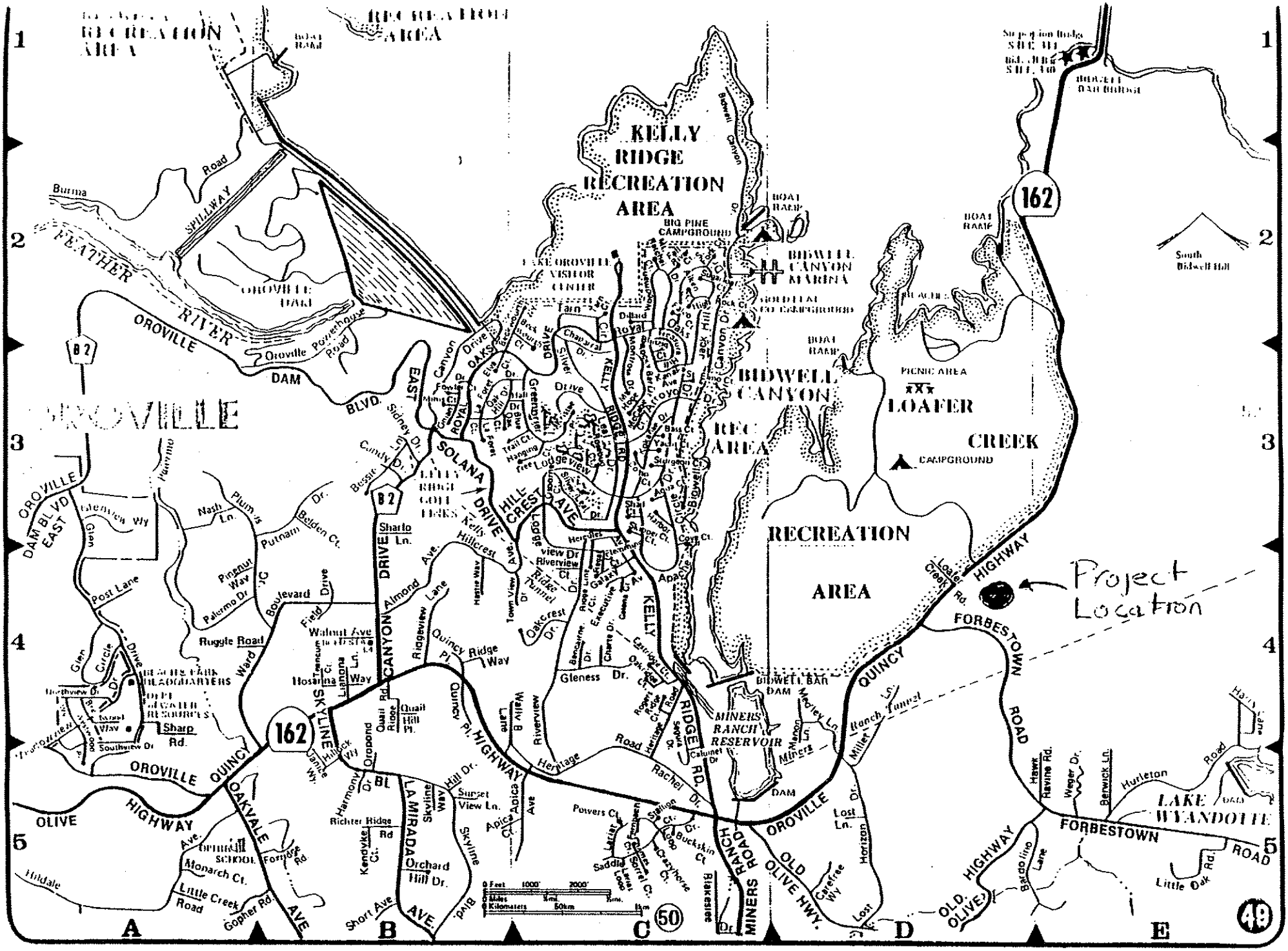
15. Soil Map, chico (1925)/Oroville (1926) Area. United States Department of Agriculture.

16. Soil Survey of Chico (1925)/Oroville (1926) Area. United States Department of Agriculture.

17. Butte County Planning Department. Butte County Fire Protection Jurisdictions and Facilities Map. Butte county fire Department and California Department of Forestry, 1989.



RIVER
Bidwell Hill
Bidwell Bar Bridge
South Bidwell Hill
Boat Ramp
BOUNDARY
Bidwell Canyon Campground
Parking Area
Loafer Creek Campground
Loafer
BIDWELL CANYON ROAD
DLDO
Deadman Ravine
Water Tanks
RECREATION AREA BOUNDARY
MINERS RANCH TUNNEL
Bidwell Bar Canyon Saddle Dam
Miners Ranch Reservoir
Honcut Creek
ST. Rt. 162
Hawk
HURLETON
Lake Wyandotte
FORBESTOWN ROAD
North Honcut Cr.
Woodman
27'30"
WYANDOTTE 3.2 MI.
(BANGOR)
1762 IV NW
25'
SCALE 1:24 000
1 MILE


KELLY RIDGE RECREATION AREA
BIDWELL CANYON RECREATION AREA
LOAFER CREEK RECREATION AREA
OROVILLE
OROVILLE DAM
FEATHER RIVER
SPILLWAY
Burma Road
Oroville Pomeroy Road
OROVILLE DAM BLVD.
OROVILLE EAST DAM BLVD
BIDWELL CANYON MARINA
BIG PINE CAMPGROUND
LAKE OROVILLE VISITOR CENTER
BOAT RAMP
PICNIC AREA
CAMPGROUND
BIDWELL BAR DAM
MINERS RANCH RESERVOIR
DAM
LAKE WYANDOTTE
Project Location
162
B2
QUINCY HIGHWAY
FORBESTOWN ROAD
OLIVE HIGHWAY
OLD OLIVE HWY.
OLD OLIVE HIGHWAY
SOLANA DRIVE
HILLCREST AVE
KELLY RIDGE RD.
MINERS RANCH ROAD
SKYLINE DRIVE
LA MIRADA BLVD.
OAKVALE AVE
Sharp Rd.
Ruggle Road
Palermo Dr.
Post Lane
Glen Circle Drive
Nash Ln.
Putnam Dr.
Belden Ct.
Plumas
Pinenut Way
Boulevard Drive
Field Drive
Walnut Ave
Almond Ave.
Ridgeview Lane
Quincy Ridge Way
Quail Ridge Rd.
Quail Hill Pl.
Oroponda
Harmony Dr.
Richter Ridge Rd
Kendyke Ct.
Orchard Hill Dr.
Sunset View Ln.
Skyline Way
Heritage Road
Rachel Dr.
Gleness Dr.
Oakcrest Dr.
Riverview
Hillcrest Ave.
Kelly Ridge
Sidney Dr.
Candy Dr.
Bessie
Monarch Ct.
Little Creek Road
Gopher Rd
Hildale
Short Ave
Miners Ranch Rd.
Lost Ln.
Horizon Dr.
Carefree Way
Medley Ln.
Manor Ln.
Miller Ln.
Ranch Tunnel
Hawk Ravine Rd.
Weger Dr.
Berwick Ln.
Hurleton Road
Bardolino Lane
Little Oak Rd.
South Bidwell Hill
Suspension Bridge
BIDWELL BAR BRIDGE
Loafer Creek Rd.
Harry Lane
0 Feet 1000' 2000'
0 Miles 1 mi. 2 mi.
0 Kilometers 50km 1km
50
49
A
B
C
D
E

Appendix B

FEATHER RIVER RECREATION & PARK DISTRICT

OROVILLE, CALIFORNIA 95965

MUNICIPAL AUDITORIUM, 1200 MYERS STREET
PHONE: (916) 533-2011

February 12th, 1993

Planning Department

FEB 16 1993

Oroville, California

Thomas Last, Senior Planner
Department of Development Services
7 County Center Drive
Oroville, California 95965-3397

Subject: Robert Taylor (Stringtown Mountain Specific Plan, File #92-44)

Dear Tom:

As previously indicated, any residential development within the Feather River Recreation and Park District jurisdiction will have an impact on the District generated by the demand of the occupants of the houses for services and facilities (parks). As the plan calls for some Recreational Functions and Facilities being provided by the developer the impact to Feather River Recreation and Park District may be lessened. The specific plan indicates a willingness to coordinate with the Feather River Recreation and Park District regarding the potential for establishing a lighting and landscape assessment District to maintain facilities at the development. We agree to work on this with the developer, however, the total impact to our district by the development still needs to be addressed.

Sincerely,

Rod Weyand
District Manager

2/12/93
RW:kd

Inter-Departmental Memorandum

TO: Tom Last, Senior Planner

FROM: Steve Brown, County Fire Warden

SUBJECT: Stringtown Mountain EIR, File #92-44

DATE: February 8, 1993

Planning Department
FEB 10 1993
Oroville, California

The Butte County Fire Department response to your letter dated January 14, 1993, regarding the Stringtown Mountain proposed development is the same as spelled out in the Specific Plan draft dated April 1, 1992 and Inter-departmental memorandum to Larry Painter from Steve Brown dated May 4, 1992.

If there are any questions regarding this matter please contact Ted Crawford at 538-7994.

STEVE BROWN
County Fire Warden

cc: B. Sager
M. Shorrock
T. Crawford

Inter-Departmental Memorandum

TO: Larry Painter, Planning Department

FROM: Steve Brown, County Fire Warden

SUBJECT: Project Review & Environmental Evaluation
Stringtown Mountain Specific Plan, AP#072-180-016 and others

DATE: May 4, 1992

The draft specific plan for the subject development has been reviewed with the following additions and corrections:

1. All new structures must meet the following requirements:

   A. Class A roofs.

   B. Automatic fire sprinkler systems.

   C. PRC 4290 (Fire Safe Regulations).

2. The developer must provide not only the site, but a new fire station. Details to be worked out with the Butte County Fire Department. (Ref. Page 2-9).

3. In paragraph 5.3 fire protection, the ISO rating for structures within 1,000 feet of a fire hydrant would be 5, not 9.

4. In paragraph 5.3 1 and 3, a rescue squad is not a "car" but a vehicle which carries specialized fire equipment and is called a "rescue squad".

5. All building setbacks must meet the Fire Safe Regulations of PRC 4290 which calls for a minimum of 30 feet setback for all parcels of one acre and larger in size. On parcels less than an acre in size, some means of fire protection must be addressed.

If there are any questions regarding the above, please contact Ted Crawford at 538-7994.

STEVE BROWN
County Fire Warden

cc: Bill Sager
Mike Shorrock
Ted Crawford

STATE OF CALIFORNIA — RESOURCES AGENCY PETE WILSON, *Governor*

DEPARTMENT OF PARKS AND RECREATION

Northern Buttes District
400 Glen Drive
Oroville, California 95966

(916) 538-2200

Planning Department

FEB 24 1993

Oroville, California

February 11, 1993

Butte County
Planning Department
7 County Center Drive
Oroville, California 95965-3397

RE: Stringtown Mountain Specific Plan, File #92-44

Thank you for the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for a Rezone, General Plan Amendment and Specific Plan for Robert Taylor (Stringtown Mountain Specific Plan, File #92-44.

Due to the time limitations placed upon this office, we are unable to coordinate our comments and concerns with Departmental clearinghouse staff. Therefore, our comments are limited only to the concerns of the local district office and may not reflect the concerns or policy of the Department of Parks and Recreation.

In response to the Environmental Checklist Form and Evaluation of Environmental Impact, we have no comment.

In response to the Stringtown Mountain Specific Plan, our concerns and comments are:

1. The proposed Butte County Fire Department station at the "old scaling station" would have a minimum, if any, impact upon State Parks operations. Any adverse impact should be offset with shorter response time to emergencies or fires that may occur within the Loafer Creek area of the Lake Oroville SRA.

2. The Northern Buttes District does not oppose consolidation of existing water mains and storage facilities with those proposed for the subdivision. However, operation and maintenance of such consolidated facilities would have to be assumed by the local water district.

STATE PARK RANGER 125 YEARS 1933-1990 ANNIVERSARY

3. The Northern Buttes District does not oppose consolidation of the existing sewer mains with those proposed for the subdivision. Again, however, the operation and maintenance of such consolidated facilities would have to be assumed by the local public sewer district.

If you have any questions on these issues or would like to discuss them further, please contact either myself or Mr. Ken Walters, Maintenance Chief, at the above location.

Sincerely,

Carl R. Maier

Carl R. Maier
District Superintendent

cc: R. Ueltzen, RM & P Division

STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, *Governor*

DEPARTMENT OF FISH AND GAME
REGION 2
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CALIFORNIA 95670
(916) 355-7020

February 3, 1993

Planning Department
FEB 0 5 1993
Oroville, California

Mr. Thomas Last
Department of Development Services
7 County Center Drive
Oroville, California 95965

Dear Mr. Last:

The Department of Fish and Game (DFG) has reviewed the Notice of Preparation of an Environmental Impact Report (EIR) for a Rezone, General Plan Amendment (GPA), and Specific Plan for Robert Taylor's Stringtown Mountain Specific Plan, a proposal to rezone 12 parcels (171.6 ac.) to permit placement of 192 residential units, a resort, commercial units, and a fire station. A GPA would result in land use redesignation from Agricultural-Residential to Commercial, Foothill Area Residential, Medium and Low Density Residential.

Located near Stringtown Mountain east of Oroville, the project site lies in critical winter range of the Mooretown deer herd. Oak-digger pine woodlands and chaparral are the dominant habitats. Riparian wetlands are present, and various sensitive species occur onsite.

In a May 7, 1992, letter to Larry Painter (in your office), the DFG made a number of recommendations concerning this project, which remain valid. The EIR should specifically address those recommendations and these concerns:

1. The project would be a significant encroachment into critical deer winter range which lies outside of a Designated Development Zone (DDZ). County approval of the project as proposed, or with minor revisions, would establish a precedent for disregarding its commitment to protecting deer winter range. This could set a trend which would adversely impact the Mooretown deer herd, which already has had 38 percent of its winter range directly lost to residential encroachment, the remainder of the range would suffer indirect impacts.

2. Project intensity allows no real mitigation because all habitat will be adversely impacted directly and indirectly, including the small "open space" areas.

3. Indirect impacts should be given equal treatment with direct impacts. Free roaming pets (may roam 6+ miles

from home), depredation and road kill, visual and noise disturbance, pollutants, illegal hunting, etc., are indirect impacts to be discussed.

4. A superior environmental project alternative should be included. A superior alternative which would provide adequate mitigation should include:

   a. Designating non-DDZ lands as open space, foot access only.

   b. No net loss of hardwoods and a maximum feasible retention of native vegetation.

   c. No unleashed pets outdoors.

   d. Riparian wetland and sensitive plant protection per the May 7, 1992, recommendations, including no artificial drainage into them.

   e. Landscaping to use native species only. Any exotic species use should be to limited native North American species which are noninvasive and nontoxic.

   f. For DDZ land, deer habitat improvement fees should be assessed and collected, and all fencing should meet approved standards.

   g. Down scaling the project to reduce indirect and direct impacts.

5. Specific mitigation measure details. On site avoidance provides the most efficient mitigation.

6. Cumulative impacts on all affected habitats and species, including off-site impacts.

7. Earlier studies appear to have given sensitive animal species inadequate consideration.

This project will have an impact to fish and/or wildlife habitat. Assessment of fees under Public Resources Code Section 21089 and as defined by Fish and Game Code Section 711.4 is necessary. Fees are payable by the project applicant upon filing of the Notice of Determination by the lead agency.

Oil/grit separators, water quality ponds, and other Best Management Practices (BMP's) for removing pollutants and sediments from water originating from surfaced areas should be

installed. Water quality and means of protecting it from urban pollutants should be discussed. The DFG does not recommend the combined use of wetlands for mitigation of lost wetlands and urban runoff.

If the DFG can be of further assistance, please contact Mr. Ron Bertram, Senior Biologist or Mr. Jerry Mensch, Environmental Services Supervisor, telephone (916) 355-7030.

Sincerely,

James D. Messersmith
Regional Manager

cc: Mr. Ron Bertram
Department of Fish and Game
Rancho Cordova, California

Mr. Jerry Mensch
Department of Fish and Game
Rancho Cordova, California

STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, *Governor*

DEPARTMENT OF FISH AND GAME
REGION 2
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CALIFORNIA 95670

(916) 355-7020

May 7, 1992

Mr. Larry Painter
Butte County Planning Department
7 County Center
Oroville, California 95965

Dear Mr. Painter:

The Department of Fish and Game (DFG) has reviewed the Stringtown Mountain Specific Plan (Plan), a proposal to amend the General Plan to allow a rezone of numerous parcels to permit a Planned Unit Development (PUD). Located east of Oroville, the Plan area lies in critical winter range of the Mooretown deer herd which is covered by a mixed chaparral-oak woodland habitat.

As proposed, the Plan does not conform to the effort to reduce residential-commercial encroachments on deer winter range. The north part (Section 8, T19N, R5E) of the intended PUD lies outside of a Designated Development Zone (DDZ) except for approximately 40 acres. No portion of the non-DDZ area should be divided except for parcels having a common boundary with Highway 162 or Forbestown Road, and provided all constructed Plan features are located within 500 feet of Identified Transportation Corridors (ITC).

The Plan should be redesigned to mitigate project impacts on winter range. Appropriate actions include:

1. All features in AP 72-18-16 should be located within 500 feet of the ITC with the remaining area designated open space.

2. Other non-DDZ parcels in Sec. 8, 719N, R5E should be designated open space.

3. Deer habitat improvement assessment fees should be assessed

4. Fencing to meet approved standards.

Oak woodlands are a particularly important habitat because they provide most of the essential life sustaining requirements (e.g., food, shelter, nesting and roosting sites) needed by numerous animal species. There has been significant cumulative losses of oak woodlands in California due to residential, commercial, and other development projects. To mitigate the project impacts on oak woodlands,

a plan should be developed which incorporates appropriate provisions from the attached Draft Oak Protection Guidelines.

This project site contains the habitat types known to harbor sensitive plant species which have been found in that general area. A botanical survey should be made to determine if such species do occur onsite. If present, sensitive plant populations should be protected by:

1. Establishing a 50-foot minimum no disturbance setback, commencing from the outer edge, around each plant population.

2. Constructing barriers to prevent damage by foot and vehicle traffic.

3. Excluding livestock.

4. No artificial drainage into or the placement of materials and substances inside of the nondisturbance area.

Streams and their associated wetland habitats comprise one of the most valuable ecosystems. In addition to obvious watershed importance, streams support the greatest diversity of plant and animal species (aquatic and terrestrial) of all inland ecosystems. Protection of streamside corridors protects water quality, reduces sedimentation, and provides a continuous habitat for numerous species. To mitigate project impacts on the stream system, the following measures are needed:

1. Establish a 50-foot no disturbance setback along both sides of the stream channel. The setback should commence from the outside edge of wetland/riparian vegetation or bank-top, whichever is greater.

2. The applicant should be advised that any work within the 100-year floodplain, consisting of but not limited to diversion or obstruction of the natural flow or changes in the channel, bed or bank of any stream channel will require prior notification to DFG pursuant to Fish and Game Code Section 1600 et seq. The agreement process is an action separate from the specific mitigation measures to be included as conditions of project approval by the lead agency.

In order to comply with Public Resources Code Section 21081.6, a detailed monitoring program must be developed for all required mitigation conditions. The monitoring program should include the following:

1. Specific criteria to measure effectiveness of mitigation.

2. Annual monitoring for a minimum of five years. Annual written reports submitted to the lead agency and the DFG.

3. Annual monitoring reports, each of which include corrective recommendations that shall be implemented in order to ensure that mitigation efforts are successful.

Pursuant to Public Resources Code Sections 21092 and 21092.2, the DFG requests written notification of proposed actions and pending decisions regarding this project. Written notifications should be directed to this office.

If we can be of further assistance, please contact Mr. Ron Bertram, Associate Wildlife Biologist or Mr. Jerry Mensch, Environmental Services Supervisor, telephone (916) 355-7030.

Sincerely,

James D. Messersmith
Regional Manager

cc: Mr. Ron Bertram
Department of Fish and Game
Rancho Cordova, California

Mr. Jerry Mensch
Department of Fish and Game
Rancho Cordova, California

DRAFT
K PROTECTION GUIDELINES

The proposed project will significantly impact oak trees on the project site. We recommend that the project be designed so that any loss of oak trees which results in a loss of wildlife habitat value be avoided. If the loss of oaks is unavoidable then a mitigation plan should be developed which results in the retention of a maximum number of oak trees and the the replacement of oaks which are lost. The mitigation plan should contain the following:

1. Individual trees or groups of trees that are retained as a function of project design should be fully protected both during and after construction. In order to protect the root zone during construction a root protection zone (RPZ) should be establised using protective fencing. The RPZ should be an area that is 1.5 times the distance from the trunk to the dripline. Within this protective buffer, no grading, trenching, fill, or vegetation alteration of any kind should be allowed.

2. Following project construction, a fact sheet describing the value and care of native oaks should distributed to all residents. At a minimum, this fact sheet should encourage homeowners to avoid unnecessary pruning and encourage, except where a safety hazard, the retention of snags. This fact sheet should be prepared by a qualified arborist.

3. Individual trees that are unavoidably lost due to project implementation should be replaced by planting oak seeds (acorns) or seedlings that are obtained from the local genetic stock of the same species. We recommend a replacement rate of 5:1 for trees that are two inches or greater in diameter measured at breast height (dbh). We recommend a replacement rate of 1:1 for all trees less than two inches dbh. We recommend that every effort be made to retain "Heritage Oaks", that is, oaks in excessof 24 inches dbh. Oak plantings should be maintained for a period of five years.

4. A five-year Maintenance and Monitoring Plan should be completed for all oak mitigation plantings. The monitoring plan should include appropriate irrigation schedules, as well as criteria for success and reestablishment during the five-year period. Any trees planted as remedial action for failure of initial planting shall be monitored for five years in an similar fashion to the initial planting. We recommend a minimum 80 percent success rate at the end of the five-year monitoring period.

Planning Department

FEB 0 5 1993

Oroville, California

Inter-Departmental Memorandum

TO: Bettye Kircher, Planning Director

FROM: Stuart Edell, Manager, Development Services, Land Development Division

SUBJECT: Stringtown Mountain Specific Plan

DATE: February 3, 1993

Thank you for providing a copy of the specific plan for review. Based on our review we would like to add the following comments to our January 20, 1993 comments:

1. Minimum front yard setback should be 20 feet from the edge of right-of-way.

2. The environmental document should address the impact of development on the existing roads.

3. Why was grading and site preparation limited to the period of April 1 through October 15?

4. The formation of a County Service Area for maintenance of public road drainage facilities is required, however, the County Service Area cannot maintain private facilities within the proposed subdivisions.

We would still recommend that you send complete packets to Caltrans and Dept. of Water Resources for comments.

SE/BC/kp

Inter-Departmental Memorandum

TO: Bettye Kircher, Planning Director

FROM: Stuart Edell, Manager, Development Services, Land Development Division

SUBJECT: Stringtown Mountain Specific Plan EIR

DATE: January 20, 1993

Planning Department
JAN 25 1993
Oroville, California

We cannot find any record of receiving a request for comments on a application for a specific plan and are therefor uncertain of the location of proposed zonnings and specific uses.

If the proposed is similar to the PUD proposal, we would recommend that the EIR address the following impacts:

1. Increased Traffic

   A. Requirements for signalization both at the site and at major intersections on the main roads serving the site.

   B. Need for left turn channelization and public road connections for access to the site.

   C. Circulation including alternate routes to the site and circulation within the project.

   D. Pedestrian and bicycle routes.

2. Increased Drainage

   A. Downstream impacts (capacity of facilities, flooding, siltation).

   B. Use of Retention/Detention facilities.

   C. Compliance with NPDES.

3. Grading Activities

   A. Compliance with NPDES.

   B. Siltation especially to Lake Oroville.

   C. Revegetation to prevent erosion.

We would also recommend that you send complete packets and requests to Caltrans and DWR for comments.

SE/kp

Provided stu w/ new application, maps and specific plan on 1/21/93

OROVILLE ELEMENTARY SCHOOL DISTRICT

2795 YARD STREET, OROVILLE, CA 95966-6096

DONALD L. REMLEY, Ed. D.
Superintendent
(916) 533-0495
Fax: (916) 533-4041

NOEL J. BUEHLER
Director of Instruction
(916) 533-4759

SUSAN JEFFERS
Business Manager
(916) 533-4753

GREGORY C. KAMPF
Director of Personnel
(916) 533-0510

BOARD OF TRUSTEES:

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Clerk

ANN C. SHANNON
Member

PAT STEVENS
Member

January 28, 1993

Planning Department
JAN 29 1993
Oroville, California

Butte County Department of Development Services
Planning Department
c/o Thomas Last
7 County Center Drive
Oroville, CA 95965-3397

Dear Mr. Last:

We are in receipt of the Notice of Preparation of an E.I.R. regarding the Stringtown Mountain Specific Plan (file #92-44). The number of housing units created by this project (192) will create a severe demand for student space at both Ophir Elementary and Central Middle School. We currently do not have adequate classrooms at either site, or at any other district schools, to reasonably accommodate the influx of students which will be generated by the project.

The district is currently awaiting approval from the state to expand Ophir and other elementary schools within the district. We have also begun to search for property to build a new elementary school and a new middle school.

Please keep our agency current with the status of this project so we can cooperate fully with the proponents while maintaining the interest of the school district to adequately house our students.

Respectfully,

Gregory Kampf

Gregory Kampf,
Director of Personnel/Administrative Services

GK:ct/gk3-012.ltr

LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT

Planning Department
JAN 28 1993
Oroville, California

January 27, 1993

Thomas Last, Senior Planner
County of Butte
Department of Development Services
Planning Department
7 County Center Drive
Oroville, CA 95965

re: Notice of Preparation; EIR
Stringtown Mountain Specific Plan
Your file No. 92-44 APN 072-180-019 et al

Dear Mr. Last:

The District received your January 14, 1993 letter to the State Clearing House on January 20, 1993. Thank you for the opportunity to suggest some additional items that we would like included in the subject EIR that represent the special needs of the LOAPUD and the final needs of the project as well.

The Proposed project area was included in the District's early 1960's planning and construction when the sewerage facilities were extended from the Las Plumas High School to the Loafer Creek entrance buildings a few hundred feed west of Project area. The review and approval conditions are more all encompassing today than they were some 30 years ago and the District would like to see a single EIR cover all of the now known project approval requirements.

The Project area must be annexed to the LOAPUD and the EIR should include all of the special requirements for the annexation. All of the lessons that have been learned by the WEB ANNEXATION in the north Chico area must be included in this proposed EIR. The contiguous boundary requirement for annexations will encompass the State Lands of Loafer Creek Recreation Area to some degree, as one of the options. Annexation of the State lands to the District may have some other special structural needs in the proposed EIR.

Sewerage service to the Project area was envisioned when the trunk sewer was installed in the downstream shoulder of the Bidwell Canyon Saddle Dam. The trunk sewer line is a double encased gravity line, however, capable of withstanding great pressures and large flows. All of these design and construction safe guard

LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT
1960 ELGIN STREET ■ OROVILLE, CA 95966 ■ 916 533-2000 ■ FAX 916 533-1750

features not withstanding; the proposed EIR should address this special feature that is critical to the gravity service for the Project Area. I noticed that the Department of Water Resources and Dam Safety were not on the distribution listing. You may wish to add them to the mailing. Both agencies will become involved in the review and approval process now being started.

The EIR should address the likely activities resulting from the new trunk sewer construction across the State Park lands. The identifying of special mitigating measures for constructing public works improvements in an operation recreational area will be a necessary ..

The EIR should also address, in the alternative service section, the possible gravity flow to a regional sewage lift station that may be located some where in the vicinity of the Oaks commercial complex. This service alternative would not involve the Department of Parks and Recreations or DWR however this alternative would involve a longitudinal encroachment within State Highway 162. The relationship of this alternative "pump" alternative and the environmental consequences associated therewith shall be addressed in the pending EIR.

The project area has great physical appeal and would appear to address a community need. We look forward to working with the consultants, the applicant and to receiving the EIR.

Thank you for this opportunity and please keep the District informed as the project moves forward.

Very truly yours
Lake Oroville Area Public Utility District

Dan J. Cook, PE
District Engineer

92-40
72-18-
72-19

INTERDEPARTMENTAL MEMORANDUM

Planning Department
JAN 27 1993
Oroville, California

TO: Tom Last, Senior Planner

FROM: Gina Tacca, Air Pollution Control Officer

SUBJECT: Stringtown Mountain

DATE: January 21, 1993

The Butte County Air Pollution Control District (APCD) submitted comments on the Stringtown Mountain Specific Plan on June 11, 1992. The APCD will withhold further comments on the proposed rezone and general plan amendment as outlined in the Notice of Preparation which was received by the APCD on January 15, 1993. The comments will be made when the environmental impact report is submitted for comment.

(GINA\EIR\STRNG3.MEM)

Planning Department
JUN 11 1992
Oroville, California

INTERDEPARTMENTAL MEMORANDUM

TO: Tom Last, Associate Planner

FROM: Gina Tacca, Air Pollution Control Officer

SUBJECT: Stringtown Mountain

DATE: June 11, 1992

The following are the comments which the Butte County APCD has concerning the Stringtown Mountain Specific Plan, which was received on April 20, 1992. Hopefully, they will assist you with this project.

1) Page 3-17. 3.6. Air Quality. There will be long term impacts of this project in addition to the problem of dust created during the construction phase. This development should have a model run to quantify emissions. The size of this development at build out will have significant impacts on the ambient air quality of the Oroville area. We suggest that the URBEMIS 3 modeling program, or a program of that type, be run to quantify the emissions.

2) Mitigations: Dust Control. Construction would have to take place after the area has dried out from spring rains. This would put large quantities of dust into the air, increasing the particulate load. Dust control measures which are consistent with climatological requirements shall be used. The dust suppression plan should be submitted to the BCAPCD for review and approval prior to issuance of a grading permit. If there is a problem with dust escaping the site and impacting the surrounding area, the BCAPCD is to be contacted in addition to the Development Services Department. The developer should be aware that as spring, summer and fall progress it becomes imperative to apply water more than twice a day.

3) Page 3-18: Long Term Impacts. The resort should do more than post transit service information. Providing a twice a day shuttle service to Oroville for shopping for those people who choose to stay would be an amenity which would decrease the need for single occupant vehicle trips and could be used in advertising. Again, the BCAPCD urges that a model for emission quantification be run for this development.

   The use of the existing tree canopy to offset the impact of ambient temperature and sun is commendable. The BCAPCD requests that in addition to utilizing the existing trees, that the developer plant 50% more trees than is currently required by Butte County Development Department policy.

4) Page 7-4: Pedestrian Circulation. The map which came with the specific plan shows a trail which follows the perimeter of the proposed project. There should be a dedicated bicycle\pedestrian pathway established in a manner which will encourage people to use a bicycle or walk. A perimeter path is great for recreational walking and bicycling, but it will not encourage the use of bicycles over cars for visits to the resort areas. The bicycle\pedestrian pathway should be designed into the open space so that it is as fast or faster to bicycle from residential areas to the resort area as it is to go by car. Because this development has a proposed business\commercial center, there should be easy access to that center for those people who choose not to drive.

   The bicycle parking needs to be not only in highly visible areas, but it should also be placed in the most desirable areas to park, ie. closest to the shopping and\or businesses. In addition to desireable parking, the developer should consider a program which provides bicycles to guests of the resort or to visitors to residents of the development.

In addition the BCAPCD has the following comments:

1) Wood burning devices. The use of wood stoves is a significant contributor to the increased emissions of particulate matter and Carbon Monoxide (CO) in Butte County. The APCD requests that if the use permit is granted a condition be included requiring all wood burning devices installed in any residence built in the project be EPA Phase II certified.

2) Trees. Increase by 50% the number of trees required to be planted by Butte County Development Department policy. These trees are to established and maintained. Trees and plants are natural traps of carbon monoxide (CO), and particulate matter (PM). The established native species should be encouraged from the water conservation, as well as the air pollution point of view.

3) Particulate matter. The large off-road diesel equipment used for grading at the site is to be maintained in good operating condition. Diesel emissions are known carcinogens and also increase the particulate load in the air.

Dust suppression. The use of water is acceptable, however the frequency of watering should not be limited to late morning and end of the day time periods or when wind speeds exceed 15 miles per hour. The dust suppression plan should provide a sufficient level of control necessary to minimize any fugitive emissions. Because the construction would have to take place after the area has dried out from seasonal rains, the dust control measures must be consistent with climatological requirements. This construction could put large quantities of dust into the air, increasing the ambient air particulate loads if there is insufficient dust suppression.

Dust suppression plans should also be submitted to the BCAPCD for review and approval prior to issuance of a grading permit. Finally, if there is a problem with the dust escaping the site and impacting the surrounding area, the BCAPCD must be involved, not just the Development Services Department.

4) Pathways. Internal street design should include the installation of dedicated pedestrian\bicycle pathways from each phase of development to the commercial areas as well as the recreational areas, thereby encouraging people to walk or bicycle to the locations and eliminating the need for more automobile trips. The bicycle\pedestrian pathway system will assist in alleviating the traffic problem which this development will create. The BCAPCD requests that the City require, in addition to the dedicated bicycle pathway, Class II bike paths as part of the street improvements.

5) Mitigation of traffic impacts. If the developer is interested in alleviating the adverse impact on the air quality that this development will have, there has to be further investigation, planning and implementation of measures in those areas which contribute to air pollution. In Butte County, 70-75 % of the air pollution problems are directly related to the automobile. As such, there will have to be air quality analysis run on the planned intersection improvements, as well as implementing some alternative transportation measures.

Alternate Transportation. In addition, the Development Services Department should consider requiring that the developer pay a fee to the Butte County Transit System to assist in offsetting the cost of establishing a new bus route.

6) Day Care. That developer be required to encourage and perhaps partially fund as part of the development a day care facility for the home owners in the development. Day care is one of the largest contributors to vehicle traffic. As the two income family continues to be necessary, a day care facility close to the neighborhood will discourage additional vehicle trips.

5) Level of Service. Will there be an impact to the Level of Service (LOS) because of this development? Any degradation of the LOS at any interchange below level C is unacceptable by the APCD. This is outlined as the adopted LOS stated in the Regional Congestion Management Plan (CMP). Further, there is nothing in this plan explaining how the developer will help Butte County offset the cost of the deficiency planning and implementation which will be required at the affected intersections.

6) Zoning. Potential incompatibility with adjacent commercial zoning. By allowing the proposed intermix of zoning, residential with commercial, there is an increase in the potential for a conflict between the desired land users. Even if the developer requires that the purchasers of the proposed homes sign a waiver, there will be problems which will have an unforseen impact on County departments, including the APCD. The APCD does not have the staff or resources to respond to increased complaints from residential neighborhoods about commercial concerns as a result of poor planning and zoning incompatibility.

7) The California Clean Air Act Attainment Plan Requirements. The California Clean Air Act Air Quality Attainment Plan for Butte County was submitted to the CARB on July 1, 1991 and subsequently adopted by the Butte County Air Pollution Control District Governing Board on November 19, 1991. The EPA has classified Butte County as a "moderate" air pollution area. If there is not significant progress made toward attainment, the area may be reclassified as a "serious" area.

(GINA\EIR\STRNG2.MEM)

Butte County

Department of Development Services

LOCAL AGENCY FORMATION COMMISSION
7 COUNTY CENTER DRIVE
OROVILLE, CALIFORNIA 95965-3397
(916) 538-7601

June 4, 1992

Tom Last, Senior Planner
Butte County Planning Department
7 County Center Drive
Oroville, CA 95965

Re: Stringtown Mountain Specific Plan
Initial Review

Dear Tom:

I have reviewed the Stringtown Mountain Specific Plan proposal and associated maps. There are many issues that are of importance to LAFCo as the Agency designated to determine service boundaries.

The proposed project is an intense use outside of a designated Urban Area and could be considered "leap frog" development. The issue as to why this project should occur now instead of in the future must be addressed.

The proposed project is relying heavily on the availability of public water and sewer as well as other urban services. The project in NOT within the Sphere of Influence for Lake Oroville Public Utility District or the Oroville Wyandotte Irrigation District. Even though both Districts state that they can serve the project the issue must be addressed per the Cortese Knox Local Government Reorganization Act. There are existing residential uses much closer to the urbanized area that need water and sewer service.

Public service impacts must be addressed per Cortese Knox. For the proposed reorganization LAFCo will require a detailed fiscal impact analysis.

If you have any questions, please do not hesitate to call.

Sincerely,

Paula Leasure

Paula Leasure
Deputy Executive Officer

STATE OF CALIFORNIA--BUSINESS, TRANSPORTA' I AND HOUSING AGENCY PETE WILSON, Governor
DEPARTMENT OF TRANSPORTA ION
DISTRICT 3
P.O. BOX 942874-MS41
Sacramento, CA 94274-0001
TDD 916-741-4509
FAX 916-323-7669
916-327-3859

May 11, 1992

DBUT031
03-BUT-162 PM 24.2
Robert Taylor
Stringtown Mountain Specific Plan
GPA and Rezone

Mr. Larry Painter
Butte County Planning Commission
7 County Center Drive
Oroville, CA 95965

Dear Mr. Painter:

Thank you for the opportunity to review and comment on the above referenced document.

COMMENTS:

Attached is a copy of the letter forwarded to Mr. Thomas Last on January 8, 1992 concerning this proposal. Comments noted in that letter are still valid. In addition to the traffic study, assessment of the project impacts on Kelly Ridge Road and the Old Olive Highway intersections with State Route 162 should be addressed. The proposed access for the fire station onto the State Route should be discussed.

If you have any questions concerning these comments, please contact Randy N. Evans at (916) 741-5331.

Sincerely,

Randy N. Evans (for)

JODY E. LONERGAN
Chief, Planning Branch C

Attachment

STATE OF CALIFORNIA--BUSINESS, TRANSPORTA I AND HOUSING AGENCY PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 3
P.O. BOX 942874-MS41
Sacramento, CA 94274-0001
TDD 916-741-4509
FAX 916-323-7669
916-327-3859

January 8, 1992

CBUT104
03-BUT-162 PM 24.0
Stringtown Mountain
Specific Plan
PDM

Mr. Thomas Last
Butte County Planning Department
7 County Center Drive
Oroville, CA 95965-3397

Dear Mr Last:

Thank you for the opportunity to review and comment on the above referenced document.

COMMENTS:

A traffic study that addresses the impacts of this development on State Route (SR) 162, particularly the intersections at Forbestown Road/SR 162 and Loafer Creek Road/SR 162, should be prepared. This study should include existing, approved, and proposed traffic conditions with and without this project. An encroachment permit will be required for the new access to SR 162 at Loafer Creek Road.

This development will be required to construct left-turn lanes on SR 162 at both the Forbestown Road/SR 162 and Loafer Creek/SR 162 intersections. Right of way dedication should be required along the entire SR frontage. Please contact Lib Haraughty (916) 741-4539 regarding dedication needs. Other improvements may be required based on the results of the traffic study.

If you have any questions regarding these comments, please contact Lib Haraughty at (916) 741-4539.

Sincerely,

L Haraughty
for ROBERT M. O'LOUGHLIN
Chief, Planning Branch C

BUTTE COUNTY MOSQUITO ABATEMENT DISTRICT

DISTRICT OFFICE AT
N.E. CORNER OF OROVILLE AIRPORT
ON LARKIN ROAD
PHONE (916) 533-6038
342-7350
FAX (916) 534-9916

5117 LARKIN ROAD
OROVILLE, CALIFORNIA 95965

JAMES A. CAMY
MANAGER

Butte County Planning Commission
7 County Center Drive, Oroville, CA 95965

From: Butte County Mosquito Abatement District Date: 5/6/92

To: Larry Painter, Planning Technician

AP No.: AO 072-180-016,017, 026, 027, 028, 029, 030 and
AP 072-190-005, 007, 013, 014, 025

Project Description: GPA to low and medium residential and commerical rezone to PUD

Applicant: Robert Taylor

Conditions and / or comments:

The following comments regarding disease vectors and pests are offered as information to property owners and future residents of the area.

This area has historically produced Aedes sierrensis, commonly called the Treehole mosquito. This mosquito breeds in water holding cavities within Oak and other trees and is the primary vector of the parasite which causes dog heartworm. Land which is subdivided and thereby encourages urbanization in this area will result in an increased risk of this disease.

Tree cavities that hold water especially Oak trees, need to be drained by drilling or notching the cavity or filled with sand, dirt or other water displacing material.

This land includes areas that are typical habitat for ticks including the vector of Lyme Disease. Any increased residential use could increase the risk of disease transmission to those residents. During the tick season (the cooler part of the year, usually October thru June), it is advisable for residents to practice tick avoidance procedures and to periodically check pets and children for attached ticks.

These comments are consistent with the District's adopted policy called "Guidelines, Checklist and Standards for Vector Prevention in Proposed Developments".

If you have any questions regarding our suggestions or recommendations, please feel free to contact our office.

Sincerely,

Daniel C. Moench

Daniel C. Moench, Regional Supervisor

DCM:dm

April 29, 1992

THE CALIFORNIA NATIVE PLANT SOCIETY
Mount Lassen Chapter

Patrick E Kelly
900 East 19th St
Chico Ca 95928

Planning Department
MAY - 4 1992
Oroville, California

Dear Mr Painter

1. Does the Stringtown Mountain project area contain any rare or endangered plants?

2. Will oak woodland be destroyed or impacted by the construction of the project?

3. Is this project leap frog developme which will encourage further development in the vicinity

Respectfully you
Patrick E Kelly

Pacific Gas and Electric Company

2226 Veatch Street
Oroville, CA 95965
916/532-4135

Phillip J. Earlewine
Service Planning Supervisor

April 27, 1992

County Of Butte
Planning Department
7 County Center Drive
Oroville, CA 95965-3397

Attention: Mr. Larry Painter

RE: General Plan Amendment and Rezone
Stringtown Mountain Resort Community

Dear Larry:

PG&E anticipates no adverse effects to its existing facilities as a result of this proposed development.

Electric distribution facilities may be extended to and within this project in accordance with the rules, rates, and tariffs presently on file with the California Public Utilities Commission.

Any alteration or relocation of PG&E's existing electric facilities shall be at the owners expense which shall include all applicable taxes.

No gas distribution facilities are located within this area and no natural gas service by PG&E is available.

A 10 foot public utility easement shall be required along all frontage and directly adjacent to the interior roads. If the roads are not to be accepted for dedication by the County Of Butte, all interior roads shall also be designated as public utility easements. All Public Utility Easements shall be recorded on the final map when submitted for approval to the County Of Butte.

Should you require any additional information please contact me at our Oroville office, 532-4142.

Sincerely,

Philip J. Earlewine
Service Planning Supervisor

PJE:rem

CHIEF ADMINISTRATIVE OFFICE
COUNTY OF BUTTE

25 COUNTY CENTER DRIVE
OROVILLE, CALIFORNIA 95965-3380
Telephone: (916) 538-7631
Fax: (916) 538-7120

STARLYN BROWN
ACTING CHIEF ADMINISTRATIVE OFFICER

MEMBERS OF THE BOARD:

HASKEL A. McINTURF
JANE DOLAN
MARY ANNE HOUX
ED McLAUGHLIN
LEN FULTON

April 24, 1992

Mr. Larry Painter
Butte County Planning Department
7 County Center Drive
Oroville, CA 95965

Subj: Draft Stringtown Mountain Specific Plan

Dear Larry:

The county is in the process of establishing development impact fees to mitigate the impact of development on facilities requirements. However, the need for new facilities is not the only impact of new development. Development also increases demands for services which may not be fully funded by the resultant revenues that are actually distributed to the county. It has been our experience that, in terms of county revenue, population growth only exacerbates the problem of maintaining service levels.

The draft specific plan for the Stringtown Mountain development does not acknowledge the development's impact on police services and fire protection, and mitigation measures are not provided to fully redress the potential shortfall in funding for day-to-day operations. The development also can be expected to add increments of financial stress to a much broader array of county services, such as, the courts and other elements of the criminal, juvenile, and civil justice systems, civil disaster, veterans services and halls, public guardian, libraries, public health, mental health, road maintenance, transportation, traffic control, elections, clerk-recorder, social services, assessor, treasurer-tax collector, farm and home advisor, and all of the administrative, personnel, legal, and financial activities necessary to support these services and functions.

The Administrative Office considers these potential impacts significant to the county's continuing financial struggle and, therefore, we ask that the environmental document prepared for this project address these concerns. There is strong pressure for growth in the county--and for many positive reasons; however, this office must hesitate to be supportive of growth that could increase, rather than mitigate, the county's budget problems.

The environmental document prepared for this project should identify various alternatives for mitigating significant impacts on county services. This office would be happy to discuss the nature of these impacts in greater detail and to respond to the applicant's proposals for mitigation.

Sincerely,

Starlyn Brown
Acting Chief Administrative Officer

SSB/tsa/nd

cc: Supervisor Hack McInturf, District 4

xc: 3 USD
4/23

BUTTE COUNTY PLANNING COMMISSION
7 County Center Drive
Oroville, CA 95965-3397

(916) 538-7601

LT ___ D1 ___ AT ___
S1 ___ D2 ___ JTR ___
S2 ___ MRE ___ BRF ___
___ OSS ___ CLK ___ BB ___

TO: State Highway Patrol
P. O. Box 1471
Oroville, CA 95965

DATE: April 17, 1992

RE: PROJECT REVIEW & ENVIRONMENTAL EVALUATION for: Robert Taylor GENDERAL PLAN AMEND. & REZONE

STRINGTOWN MOUNTAIN SPECIFIC PLAN

Enclosed is preliminary data our office has received or generated concerning the following project: GPA to low and medium residential and commerc REZONE to PUD. AO 072-180-016, 017, 026, 027, 028, 029, 030 and AP 072-190-005, 007, 013, 014, 025. Located on the north side of Forbestown Rd. east of Olive Hwy., Oroville. STRINGTOWN MOUNTAIN SPECIFIC PLAN

We are making an assessment of possible environmental impacts and will be preparing an environmental document, either a Negative Declaration, Negative Declaration with Mitigation Measures or an Environmental Impact Report (EIR).

Please provide any factual statements, ideas for investigation, or opinions you can offer in your area of concern or expertise that relat to either physical, social, or economic impacts that this project may generate.

Please respond within 14 days of the above-noted date. If no response is generated by this inquiry, then it shall be assumed that there are no significant environmental impacts which are potential from the project.

We appreciate any assistance you can provide.

Sincerely,

Larry Painter

Larry Painter
Planning Technician

Comments: SEE ATTACHED

Does your agency wish to receive a copy of the environmental document (initial study for Negative Declaration (with or without Mitigation Measures) or EIR for this project).

XX
YES ___ NO ___

COMMENTS:

Numerous traffic concerns:

- Large increase in demand for services, i.e., accident investigation, disabled motorists, traffic enforcement.
- Traffic lane and shoulder widths of Oro-Quincy Highway (S.R. 162) and Forbestown Road.
- Need for traffic signals on Oro-Quincy at Forbestown Road and Kelly Ridge Road.

Environmental concerns:

- Pollution potential to surrounding open space.
- Over development of area could cause many vacancies, leading to lowered property values and depressed market for surrounding areas.
- Demand for water.

BUTTE COUNTY PLANNING DEPARTMENT
PRE-APPLICATION REVIEW FORM

To: Butte Co. Environmental Health Dept.

Date: April 17, 1992

RE: Pre-Application Review Information for:
Robert Taylor GENERAL PLAN AMEND.& REZONE
STRINGTOWN MOUNTAIN SPECIFIC PLAN

Enclosed is preliminary data our office has received or generated concerning the following project: GPA to low and medium residential and commercial REZONE to PUD. AP 072-180-016, 017, 026, 027, 028, 029, 030 and AP 072-190-005, 007, 013, 014, 025. Located on the north side of Forbestown Rd. east of Olive Hwy., Oroville.

Please indicate your response by checking the appropriate box.

☐ No requirements for this project.

☒ The project as proposed can meet this Departments requirements. Sufficient proof has been given that the applicant can meet the following conditions approved:

1) Must have OWID water to each lot
2) Must have LOAPUD service to each lot

☐ The project as proposed can/does not meet the requirements of this department. A revision of the project will be necessary. The applicant has been contacted with this information.

Signature: [illegible] 4-21-92

Environmental Health
APR 17 1992
Oroville, California

Appendix C

YOUNGDAHL
& ASSOCIATES, INC.
GEOTECHNICAL, ENVIRONMENTAL & CONSTRUCTION LAB

GEOLOGIC/GEOTECHNICAL CONSIDERATIONS for the STRINGTOWN MOUNTAIN TENTATIVE SUBDIVISION PROJECT ENVIRONMENTAL IMPACT REPORT

Prepared For:
QUAD Consultants
2530 J Street
Sacramento, California 95816

Prepared By:

Youngdahl and Associates, Inc.
1234 Glenhaven Court
El Dorado Hills, California 95762
TEL (916) 933-0633 FAX (916) 933-6482

Project No. 93048.A

REGISTERED GEOLOGIST
JOHN D. MATTEY
No. 1226
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

John D. Mattey, R.G., C.E.G.
Senior Engineering Geologist

Reviewed by:

REGISTERED PROFESSIONAL ENGINEER
DENNIS E. YOUNGDAHL
No. GE000928
EXP. 9-30-93
GEOTECHNICAL
STATE OF CALIFORNIA

Dennis E. Youngdahl, P.E., G.E.
Principal Engineer

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GEOLOGIC/GEOTECHNICAL CONSIDERATIONS
for the
STRINGTOWN MOUNTAIN TENTATIVE SUBDIVISION PROJECT

ENVIRONMENTAL IMPACT REPORT

INTRODUCTION

Purpose and Scope of Services

This report presents the results of our Geologic/Geotechnical Study performed for the Stringtown Mountain Tentative Subdivision Project. The approximate 172 acre project is located southeast of the intersection of Highway 162 and Forbestown Road in Butte County, California (Figure No. 2). The purpose of the Geologic/Geotechnical Study is to evaluate the existing geologic reports pertaining to the site, and to provide a Environmental Impact Report level evaluation of geologic and geotechnical problems which may be encountered by the project.

To achieve the objective of addressing the geologic and geotechnical issues for the project, *Youngdahl and Associates, Inc.* has adhered to the California Environmental Quality Act (CEQA) and the California Division of Mines and Geology (CDMG) Note 46 regarding the Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports.

Our Scope of Work consisted of the following tasks:

Task 1 - *Geologic Setting*

Topography, soil development, alluvial deposits, and bedrock characteristics were developed from research of available topographic maps, geologic and geotechnical literature, and stereoscopic aerial photographs. The potential for impact to mineral resources, land subsidence, and volcanic hazards were also addressed.

Task 2 - *Geologic Mapping and Seismicity*

We performed reconnaissance level geologic mapping of the site to delineate surface indications of potential geologic hazards. A search for available geologic maps was performed to provide information to delineate potential geologic hazards. The distance to known active and potentially active faults within 100 kilometers of the project was determined and the Maximum Credible Earthquakes (MCE) generated by these faults are presented along with peak bedrock ground accelerations. The potential impacts evaluated include fault movement, liquefaction potential, landslides, differential compaction, ground rupture, ground shaking, tsunami, seiches, and flooding.

Task 3 - *Geotechnical Impacts of Site Development*

Topographic alteration, slope stability, erosion potential and seismic hazards were generally evaluated including landslide and mudflow potential, unstable cut and fill slopes, collapsible and expansive soils, trench wall stability, erosion of graded areas, alteration of runoff and unprotected drainage ways.

Task 4 - *Geotechnical Laboratory Analysis*

Four representative soil samples were collected and analyzed for information regarding their general slope stability and erodibility characteristics. Selected samples were tested for Atterburg Limits (ASTM D4318-84); Dry Unit Weight and Moisture Content (ASTM D2216-90); Expansion Index (ASTM D 4829-8) and Direct Shear (ASTM D3080-90).

Task 5 - *Report of Findings*

Preparation of this report summarizing the general setting and geologic elements, potential impacts, mitigation measures, and alternatives of implementation.

1.0 INTRODUCTION

1.1 Project Location and Description

The site occupies approximately 172 acres and is located within the western foothills of the northern Sierra Nevada Mountains about one mile south of Lake Oroville and approximately four miles east of the City of Oroville in Butte County, California (Figure 1). Highway 162 forms the northwestern site boundary, Forbestown Road forms the southwestern boundary and the remainder of the site is bounded by undeveloped land. The Miners Ranch Tunnel trends northeasterly through the southern third of the site. The southern most inlet to Lake Oroville is located about 2,000 feet to the northwest of the site. The site is unused at this time. The location of the site is within the south half of Section 8 and the north central portion of Section 17 of Township 19 North and Range 5 East of the Mount Diablo Base and Meridian.

1.2 Services Performed

Research of published and unpublished geological and geotechnical literature pertaining to the site and immediate vicinity was performed. Geological maps and reports by the California Division of Mines and Geology and U.S. Geological Survey were reviewed. Data compiled from this literature was used to generate a geological description of the site. The data and information from the above activities were reviewed, analyzed, and summarized to prepare this report.

2.0 EARTH

2.1 Topography

Elevations within the site range from about 1680 feet Mean Sea Level (MSL) near the eastern property boundary to about 1220 feet MSL at the intersection of Highway 162 and Forbestown Road forming the western property boundary. The site occupies the southwestern flank of a hill which is incised by two major and one minor southwesterly draining intermittent streams.

2.2 Geology

2.2.1 Geologic Setting

The northern approximate one half of the site is underlain by middle Mesozoic age rocks of the Smartville Complex. These rocks have been intruded by the mid to upper Mesozoic age quartz dioritic Swedes Flat Pluton which forms the approximate southern half of the site (Saucedo and Wagner, 1992).

The extreme north end of the Cleveland Hill fault which is associated with the Foothills Fault System and was historically active during the 1975, 5.7 Richter Magnitude Oroville earthquake is mapped about 6,000 feet to the southwest of the site.

2.2.2 Soils & Climate

Soils across the site tend to vary in accordance with differences in parent material, drainage, and age or degree of development since their deposition. The Soil Conservation Service has mapped only the approximate southern third of the site (figure 3), this soil is shown as Rough Broken and Stony Land. Our preliminary analysis of four soil samples has revealed that the site is underlain by sandy SILTS and silty SANDS.

The climate of the Oroville area is characterized by warm dry summers and wet winters with mild temperatures although freezing temperatures are not uncommon during the late fall and winter. The rainy season begins in late September and continues until late March (Carpenter, Strathorn and Glassey, 1926).

Percolation of rainfall, snow melt, stream flow and drainage from adjacent hills are the most important sources of groundwater recharge.

2.3 Potential Earthquake Hazards & Impacts

A review of the Seismicity of California Map (Goter, 1988 and Real, Toppozada and Parke, 1978) within 100 Kilometers of the boundaries of the site reveals numerous earthquake epicenters. These epicenters are generally located to the

southwest of the site within the vicinity of the Cleveland Hill fault and on the central and eastern portions of the Sierra Nevada Mountains.

The project area lies in northeastern California, an area that, with the exception of the Oroville earthquakes, has historically experienced relatively low seismic activity. The Foothills Fault system has been studied extensively following the 1975 Oroville Earthquake of 5.7 Richter Magnitude and is believed to be capable of generating a 6.5 Richter Magnitude earthquake with a recurrence interval of approximately 65,000 years. According to the California Division of Mines and Geology, faults which have produced earthquakes within Quaternary time (the last two to three million years) are classified as potentially active. Faults which have displaced soils younger than 11,000 years, Holocene age, are classified as active.

2.3.1 Seismic Considerations

According to the Division of Mines and Geology's publication Fault Rupture Hazard Zones in California (Hart, 1990) the only Alquist-Priolo Special Studies Zone located within Butte County is for the Cleveland Hill fault. According to the California Department of Transportation (Mualchin and Jones, 1992) the nearest known active fault to the site is the Cleveland Hill fault. There are several active and other potentially active faults within a 60 mile (100 Kilometer) radius of the site. The major faults mapped in the region (Mualchin and Jones, 1992) are listed in Table 1 along with their reported Maximum Credible Earthquake in Moment Magnitude and peak bedrock ground acceleration.

TABLE 1

Active and Potentially Active Faults Within a 60-Mile (100-kilometer) Radius of the Site (Mualchin and Jones, 1992)

FAULT	FAULT CLASSIFICATION	MAXIMUM CREDIBLE EARTHQUAKE (MOMENT MAG.)	DISTANCE AND DIRECTION FROM SITE BOUNDARY (MILES)	PEAK BEDROCK GROUND ACCELERATION (G)	
				Seed & Idriss (1984)	Mualchi (1990)
Cleveland Hill (Foothills Fault Zone)	Active	6 1/2	1, SW	0.70	0.56
Melones	Potentially Active	6 1/2	32, E	0.16	0.11
Sulphur Creek	Potentially Active	6 1/2	48, E	0.10	0.07
Dunnigan Hills	Potentially Active	6 1/2	50, SW	0.08	0.07
Coast Range Boundary	Potentially Active	7	50, W	0.13	0.10
Warner Creek	Potentially Active	6	64, N	0.04	0.03
Stampede Valley	Potentially Active	6 1/2	59, SE	0.07	0.04
Lassen Peak	Active	6 1/4	59, N	0.06	0.04

2.3.2 Fault Movement (Foothills Fault System)

The 5.7 Richter Magnitude Oroville earthquake of 1975 was considered unusual by scientists because previous studies of the Foothill fault system had not detected seismic activity within the Holocene Epoch. Following the Oroville earthquake, several state and federal agencies studied the Foothills fault system to determine the nature and extent of faulting. The Foothills fault system is considered to be associated with the Cleveland Hill fault which was responsible for the Oroville earthquakes. The Foothills fault system is considered capable of seismic activity, but the activity is estimated to have a very long recurrence

interval and a very low slip rate. Excepting the Cleveland Hill fault, located in Butte County, the Foothills fault system has not yet been classified as active and special seismic zoning was determined not to be necessary by the California Division of Mines and Geology (Hart, 1990).

Damaging earthquakes, ranging 5.7 Richter Magnitude have occurred within the northern Foothills fault system in 1975, 10 km south of Oroville, and in 1909 and 1888 about 15 km northeast of Nevada City. From 1864 to 1869, four earthquakes, in the range from 4 to 5 Richter Magnitude have occurred in Nevada and Sierra Counties along segments of the Foothills fault system. A Richter Magnitude 4 earthquake occurred on the Bear Mountains fault within what is now Folsom Lake in 1908. Two Richter Magnitude 3 events occurred along the Melones Fault Zone: in 1950, about 20 km northeast of Auburn and in 1960, about 15 km southwest of Nevada City. These data suggest that portions of the Foothills Fault system are seismically active (Clark, 1977).

The Foothills fault system is well-defined, but is not appropriate for Special Study Zoning due to the lack of Holocene surface displacement, a very low slip rate (<0.005 mm/year) and long recurrence interval (Woodward Clyde, 1978).

2.3.3 Liquefaction

Liquefaction is the transformation of saturated granular material from a solid to a liquid caused by a rapid increase in liquid pore pressure brought about by ground shaking. Both laboratory investigations and observations of field performance have shown that the liquefaction potential of a soil deposit to earthquake motions depends on the characteristics of the soil, the initial stresses acting on the soil and the characteristics of the earthquake involved. The significant factors include (1) Soil Type - Uniformly graded soils, fine sands, tend to liquefy more easily than coarser materials; (2) Relative Density or Void Ratio - In any given earthquake, loose soils (relative density <70%) may liquefy but the same materials in a denser condition may not; (3) Initial Confining Pressure - The liquefaction potential of a

soil is reduced by an increase in confining pressure; (4) Intensity of Ground Shaking - Studies of the soil behavior at Niigata in Japan indicate that extensive liquefaction occurred with ground accelerations exceeding 0.12 g; and (5) Duration of Ground Shaking - Liquefaction and sliding did not occur until about 90 seconds after the ground shaking began with the Alaska earthquake of 1964. The liquefaction potential decreases with a shorter duration of ground shaking (Seed and Idriss, 1982).

Liquefaction is not likely to occur within the project area due to the presence of a thin soil mantle of sandy SILT developed upon firm bedrock. Our field reconnaissance reveals a very low potential impact from liquefaction.

2.3.4 Landslides

Mass movement refers to the downward movement of rock and soil due to gravity once they have been displaced from their normal positions. We did not observe any evidence of landsliding on the site other than occasional rockfalls on steeper slopes. Minor soil creep is occurring on the steeper portions of the property. Landslides are not likely to occur within the project area due to the presence of gentle to moderate slopes, a thin soil mantle of sandy SILT and silty SAND, underlain by bedrock of relatively strong slightly weathered material. Our field reconnaissance reveals a low potential impact from rotational or translational landslides. However rockfalls may occur on oversteepened slopes along road cuts or stream channels.

2.3.5 Differential Compaction/Seismic Settlement

Fine-grained soil and clay are subject to seismic settlement and differential compaction. Areas underlain by low-density silts and clays associated with fluvial depositional environments are suspect to seismically-induced settlement. These environments include old lakes, sloughs, swamps and stream beds. The amount of compaction may range from a few inches to several feet. The potential for

differential compaction is highest and occurs over the largest areas during "great" earthquakes.

The four soil samples collected at the site were all sandy SILTS (ML) and silty SANDS (SM). Deep, loose deposits of these soils would be prone to differential compaction or seismic settlement, however, seismic settlement is not likely to occur within the project area due to the presence of the thin soil mantle developed on bedrock of relatively strong slightly weathered material. Our field reconnaissance reveals a very low potential impact from seismic settlement on slopes and ridges where the soil mantle is thin. A moderately low potential impact exists in drainage areas where the soil horizon is thicker (See Recommended Mitigation No. 2).

2.3.6 Ground Rupture

Given the available geologic and seismologic data, ground rupture is anticipated to be possible but unlikely within the site. This rupture will likely be associated with damaging earthquakes in the Richter Magnitude range of 5 or greater. Although the project area is not located within a California Division of Mines & Geology Special Studies Zone, the findings of the California Department of Water Resources indicate that there is a risk of ground rupture along traces of the Foothill Fault System (DWR, 1979). A very low potential exists for impacts resulting from ground rupture at this site (see Recommended Mitigation No. 1).

2.3.7 Ground Shaking

Strong earthquakes generated along any of the faults within the region may affect the site depending on the characteristics of the earthquake and the location of the epicenter. In general, the effects will be confined to those phenomena associated with shaking and/or ground acceleration. These effects can be minimized by appropriate design and construction procedures. The Uniform Building Code classifies the site as being within the seismic region Zone 3. The minimum ground accelerations used for structure design within seismic region Zone 3 is 0.3 g.

Structures located close to the Foothills fault zone may require more restrictive designs in accordance with higher anticipated ground accelerations.

Increased Uniform Building Code Chapter 23 Z-Factors (Z > 3) may be appropriate for some designs because of the proximity of the Cleveland Hill fault. The site is generally underlain by thin soil developed upon competent bedrock. A low to moderate potential for severe ground shaking exist at the site (see Recommended Mitigation No. 1).

2.3.8 Tsunami

A sea wave produced by earthquake or volcanic activity is described as a tsunami. The project is located approximately 125 miles (201 kilometers) from the California coast and no losses due to tsunamis are anticipated.

2.3.9 Seiches

A seiche is a periodic oscillation of a body of water whose period is determined by the resonant characteristics of the containing basin. In inland lakes, these periods usually are a few minutes long. Losses due to flooding or dam failure are possible with extended duration of ground shaking at a frequency constructive with the period of the lake.

Lakes Oroville and Wyandotte are the nearest seiche producing bodies of water to the site. The site is approximately 4,000 feet east of the nearest arm of Lake Oroville and about 200 feet higher in elevation and is about 3,000 feet west of Lake Wyandotte, because of the distances separating the site from potential sources we consider the likely hood of seiches impacting the site to be very low. Any Planned lakes, ponds or pools within the proposed development would be subject to seiche development.

2.4 Potential Geotechnical Hazards & Impacts

2.4.1 Flooding Due to Failure of Dams and Levees

Dams with artificial barriers 25 feet or more in height or which have an impounding capacity of 50 acre-feet or more are under jurisdiction of Dam Safety. Failure of Oroville or Bidwell Bar Canyon Saddle Dams would not impact the site because they are lower in elevation. Failure of Lake Wyandotte Dam would also be unlikely to impact the site because topography would direct the water away from the site.

The Miners Ranch Tunnel crosses the site medially in a southwesterly direction (Figure 2). This 11 foot diameter unlined tunnel was completed in December of 1962 by the drill, blast and excavate method. The tunnel carries water from the south fork of the Feather River (Lake Oroville) at a maximum velocity of 320 cubic feet per second to the Miners Ranch Reservoir. The tunnel is thought to be approximately 400 feet below ground surface in the vicinity of the Stringtown Mountain project. The tunnel has a 50 foot easement on each side. Prior to drilling any wells, or performing other forms of drilling activity or deep surface cuts in the vicinity of this easement should consult the Oroville Wyandotte Irrigation District should be consulted.

2.4.2 Topographic Alteration

Two of the four soil samples collected and tested for Atterberg Limits all plotted below the "A" line within the classification of silty SAND. Because of the low potential for low density to occur within sands severe topographic alteration result from increased sedimentation and erosion would be unlikely.

2.4.1.1 Slope Stability

The steeper slopes are undergoing minor soil creep but no landsliding was observed. Direct Shear Tests performed on site soil samples indicate moderate shear strength. Limited exposure of bedrock outcrops demonstrated a northwesterly to northeasterly strike and vertical to steep westerly dip of foliation.

Construction activities resulting in ground disturbance could result in a moderate potential for accelerated soil creep at the project site (see Recommended Mitigation Measure No. 2)

2.4.1.2 Erosion Potential

Two intermittent streams flow southwesterly through the central portion of the site, a smaller gully exists between these two streams. These streams have removed the soil mantle, but do not appear to have significantly eroded into the underlying competent bedrock. Construction activities resulting in ground disturbance could result in a moderate potential for accelerated soil erosion at the project site (see Recommended Mitigation Measure No. 3).

2.4.1.3 Unstable Cut and Fill Slopes

Gentle to moderate slopes are present on the site and the anticipated construction activities will include cut and fill slopes. As mentioned in Section 2.3.4 - Landslides, no mass movements were observed and the native slopes appear relatively stable. However, a preferred orientation for cut slopes exists due to the joints and foliation of the native bedrock. Cut slopes roughly parallel with the foliation of the bedrock have a higher potential impact for failure than slopes cut roughly normal, or at right-angles to the bedrock foliation. Construction activities resulting in ground disturbance could result in a moderate to high potential for unstable cut and fill slopes at the project site (see Recommended Mitigation Measure No. 2)

2.4.3 Collapsible and Expansive Soil

Soils such as collapsible silts and expansive clays can be found within areas with a fluvial depositional history. The 4 soil samples which were collected were classified as sandy SILTS (ML) and silty SANDS (SM). These soil types typically do not demonstrate expansive characteristics. To confirm this, three samples with the highest likelihood for expansiveness, based on their plasticity index, were consolidated and tested to determine their expansion index. Both of these

samples proved to be non-expansive. Because of the typical low density of SILTS these soils may have collapsible characteristics. The thin mantle of sandy SILTS observed on the site are not anticipated to have potential impact to expand but to have low potential to collapse.

2.4.4 Trench Wall Stability

Subsurface conditions may be somewhat variable ranging from competent to weak. The weaker soils can be expected nearer the creek channels, swale areas, and within the few feet of the ground surface. A low to moderate potential impact from trench wall stability exists at the project site (see Recommended Mitigation Measure No. 2).

2.5 Land Subsidence

2.5.1 Extraction of Groundwater, Gas, Oil, or Steam for Geothermal Use

No gas, oil or geothermal wells are known to exist within the site. No deposits of peat are known to exist within the site. Extraction of ground water has been known to cause land subsidence within alluvial environments, conditions at the site consist of shallow bedrock. Land subsidence on the property is not expected to be an impact.

2.6 Volcanic Hazards

Under present conditions, damage due to volcanic hazards is most likely to occur in the vicinity of Mt. Shasta, Lassen Peak, Medicine Lake Highland, Long Valley Caldera at Mono Lake (active volcanic zones) and less likely at other Quaternary volcanic hazard zones in California. Volcanic hazards zones portray potential hazards from: (1) flowage phenomena that include lava flows, pyroclastic flows, mudflows, and floods; (2) from surge, including base surge, eruptions; and (3) from falling ash (tephra) (Miller, 1981).

2.6.1 Lava Flow

Floods resulting from lava flow from an active California volcano are not anticipated to have an impact to the site. Due to the low probability for flow-impact upon the site, mitigation measures are limited to contacting the California Office of Emergency Services, Butte County Region for instruction in the event of this hazard.

2.6.2 Ash Fall

Tephra from the Long Valley Caldera eruption about 700,000 years ago was thickly accumulated at least 40 miles from the source area of the eruption. However, down-wind air-fall ejecta was deposited over most of the southwestern United States. The Long Valley Caldera is located about 168 miles to the southeast of the site, the Lousetown and Clear Lake volcanic areas are located approximately 78 miles to the southeast and 72 miles to the southwest, respectively. The Lassen and Eagle Lake volcanic areas are located about 60 miles to the northeast and the Mount Shasta, Medicine Lake Highlands and Modoc Plateau volcanic areas are located approximately 100 miles to the north. It is not possible to predict when or if these volcanic centers will reactivate and based on their past quiescence the probability is low for tephra impacts on the site.

Due to the low probability for tephra-impact upon the site, mitigation measures are limited to contacting the California Office of Emergency Services, Butte County Region for instruction in the event of this hazard.

2.7 Loss of Mineral Resources

A mineral resource is a concentration of elements in a particular location in such a form that a usable mineral commodity can be extracted from the deposit. The site is located within a gold producing region of the Sierra Nevada Mountains. There is one abandoned gold mine located on the site, production records from this mine is unknown but it appears to have been unused for many years and does not appear within Bulletin 193, Gold Districts of California published by the State

of California. Several locations along Hawk Creek appear to have been dammed and may have been used for sluicing operations, again these have been abandoned for many years. Because of the antiquity of the on site mining operations and little evidence of economic production we consider the loss to mineral resources to be low.

3.0 HAZARDS MITIGATION

3.1 Recommended Mitigation No. 1
(Fault Displacement/Ground Rupture/Seismic Shaking).

The California Health and Safety Code requires that buildings be designed to resist stresses developed by earthquakes. Accepted seismic design criteria are presented in the Uniform Building Code, Chapter 23. Although wood-frame buildings of not more than two-stories in height in unincorporated areas are exempt under the California Earthquake Protection Law, we recommend that structures adhere to the design factors presented for UBC Zone 4, as a minimum. The recommendation for UBC Zone 4 is presented to indicate an increased potential for impact from the local Foothills Fault System. This recommendation should be considered preliminary, pending a detailed geologic and geotechnical analysis of proposed building sites. All potential home buyers should be informed of the potential seismic risk associated with the Foothills Fault System. Historically, the Fault Displacement/Ground Rupture risk has been considered as acceptable on the Foothills Fault System as relates to residential structures; however, the risk may not be considered as acceptable for placement of schools, hospitals and other essential service buildings over the fault fractures.

3.2 Recommended Mitigation No. 2
(Soil Erosion).

Erosion and sediment control mitigation measures should include conformance to Chapter 70 of the Uniform Building Code, as well as any Butte County grading ordinances. General erosion and sediment control techniques are also available

at the U.S. Department of Agriculture, Soil Conservation District. Possible mitigation measures to control soil erosion include, but are not limited to the following:

1. A detailed geotechnical Investigation should be conducted for buildings sites and other improvements to be located on the site prior to development.

2. Uncemented silty soils are prone to erosion, cut slopes and drainage ways within native material should be protected from direct exposure to water run off. Any cut or fill slopes and their appurtenant drainage facilities should be designed in accordance with Uniform Building Code guidelines and in general should be no steeper than 2:1 (horizontal to vertical) unless authorized by the Geotechnical Engineer. Slope angles should be designed to conform to the competence of the material into which they are excavated.

3. Drainage facilities should be lined as necessary to prevent erosion of the site soils. Erosion may increase because of site construction activities particularly in view of the silty soil conditions. However, a detailed geotechnical investigation should be performed to confirm site characteristics.

4. Trenches greater than 5 feet in depth should be shored, sloped back at a 1:1 (horizontal to vertical) slope angle or reviewed for stability by the Geotechnical Engineer in accordance with the Occupational Safety and Health Administration regulations if personnel are to enter the excavations.

5. Surface soils may be subject to erosion when excavated and exposed to weathering. Erosion control measures should be implemented during and

after construction to conform with National Pollution Discharge Elimination System, Storm Drain Standards and Butte County Standards.

6. Rainfall should be collected and channelled into an appropriate collection system designed to receive the runoff, minimize erosion and convey the runoff off-site. Conduits intended to convey drainage water off site should be protected with energy dissipating devices as appropriate, and in some areas potentially lined with an impermeable, impact proof material.

7. Parking facilities, roadway surfaces, and buildings all have impervious surfaces which concentrate runoff and artificially change existing drainage conditions. Collection systems should be designed where possible to divert natural drainage away from these structures, to collect water concentrated by these surfaces and to convey water away from the site in accordance with the National Pollution Discharge Elimination System, Storm Drain Standards and Butte County Standards.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report are based upon the assumption that the soil and bedrock conditions do not deviate from those disclosed during our study. Should any variations or undesirable conditions be encountered during the development of the site, *Youngdahl & Associates, Inc.* will provide supplemental recommendations as dictated by the field conditions.

2. This report is issued with the understanding that it is the responsibility of the owner or his/her representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project, and incorporated into the project plans and specifications. The owner or his/her representative is responsible to see that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they be due to natural processes or to the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may find this report to be invalid, wholly or partially. Therefore, this report should not be relied upon after a period of three years without our review nor should it be used or is it applicable for any properties other than those studied.

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AERIAL PHOTOGRAPHS					
DATE	BY	TYPE	SCALE	ROLL	FRAME
5-15-88	WAC-88CA	B.& W.	1":2640	11	39, 40

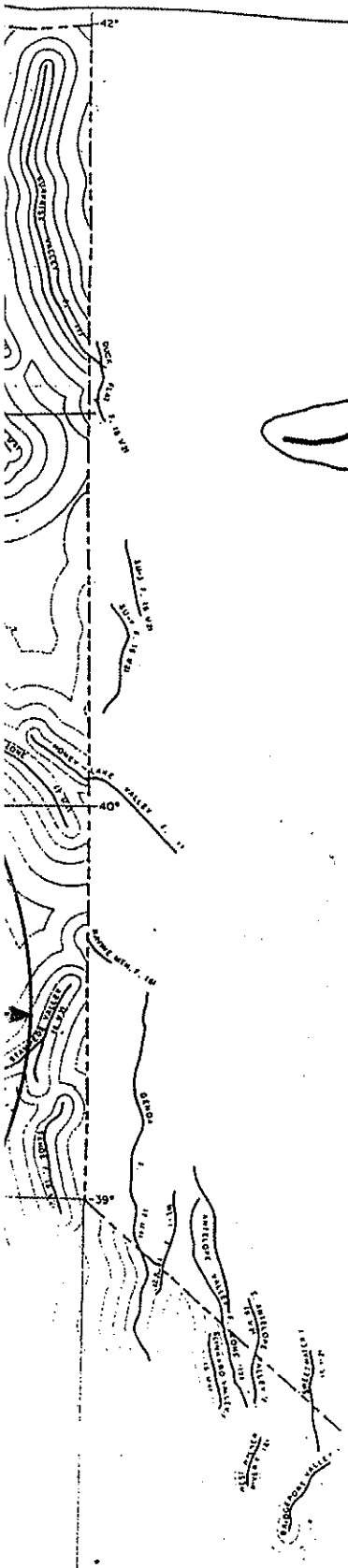
APPENDIX A

Location and Regional Map for Northern California

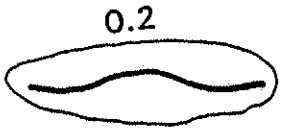
Generalized Geologic Map

Slope, Major Drainage and Soil Map

FIGURE 1



EXPLANATION:



Fault/Seismic Source with contour of peak acceleration in fraction of g (g = 980.665 cm/sec squared).

LOCATION AND REGIONAL FAULT MAP FOR NORTHERN CALIFORNIA

STRINGTOWN MOUNTAIN SUBDIVISION

BUTTE COUNTY, CALIFORNIA

SCALE: 1" = Approx. 30 miles.

NOTE: Base Map Ref. C.D.M.G., 1992, Peak Acceleraton From Maximum Credible Earthquakes in California, O.F.R. 92-1.

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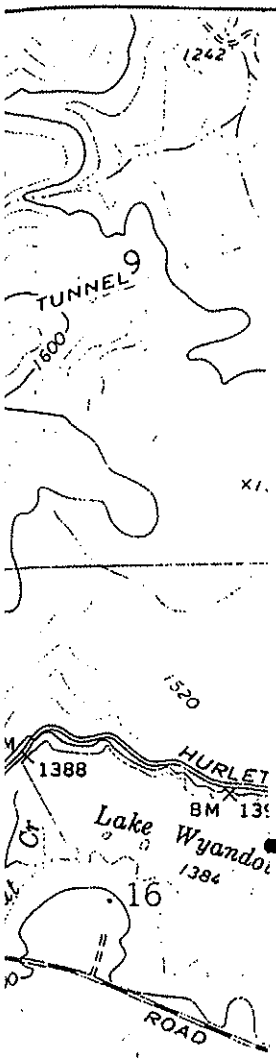
FIGURE 2



EXPLANATION

Js Smartville Ophiolite of Jurassic age dark gray to gray green, strongly foliated, meta-volcaniclastic sediments, pillow lava, dikes and sills.

Mi Diorite, granodiorite and tronjemite of Mesozoic age.

Stratigraphic Contact

Fault Contact

GENERALIZED GEOLOGIC MAP

STRINGTOWN MOUNTAIN SUBDIVISION

BUTTE COUNTY, CALIFORNIA

Scale: 1" = approx. 2000 feet

ase Map Ref. U.S.G.S., 7 1/2 min. Bangor Quad., photorevised in 1969 and Oroville uad., 1970. Geology ref. California Department of Water Resources, Geology of the ake Oroville Area, Butte County, California, 1978.

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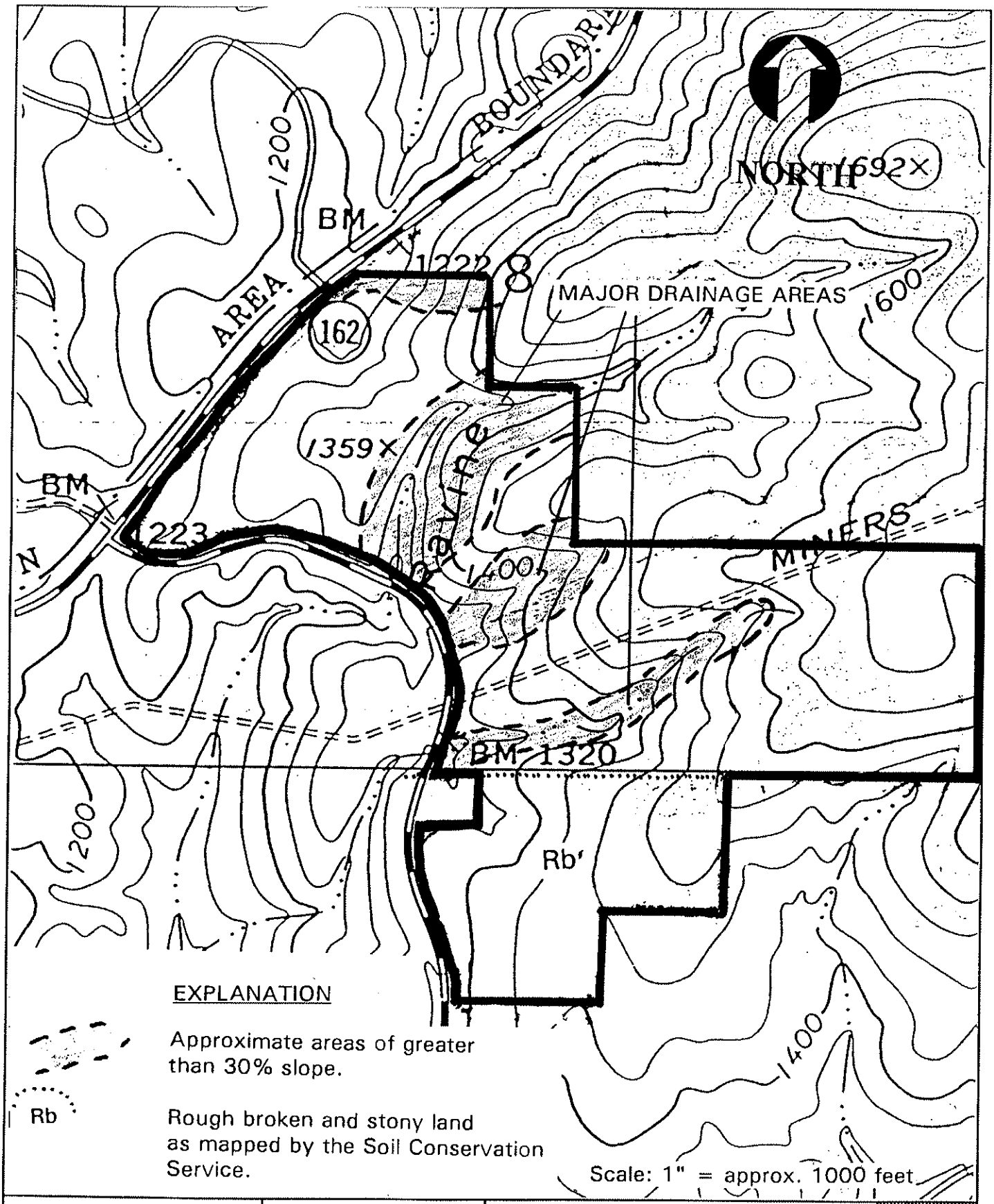

PROJECT NO. 93048.A	MAY 1993	SLOPE, MAJOR DRAINAGE AND SOIL MAP STRINGTOWN MOUNTAIN SUBDIVISION BUTTE COUNTY, CALIFORNIA	FIGURE 3
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Appendix D

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, Governor

STATE WATER RESOURCES CONTROL BOARD
PAUL R. BONDERSON BUILDING
901 P STREET
P. O. BOX 100
SACRAMENTO, CALIFORNIA 95812-0100
916/657-0941

FAX: 916/657-0932

SEP 8 1992

RECEIVED
SEP 9 1992

TO: Interested Parties

GENERAL CONSTRUCTION ACTIVITY STORM WATER PERMIT

Enclosed is a copy of the General Construction Activity Storm Water Permit (Permit), including the Fact Sheet, Notice of Intent (NOI) form, and NOI instructions, which was adopted by the State Water Resources Control Board (State Water Board) on August 20, 1992.

To be covered by this Permit, the owners of land where a construction activity occurs must submit the completed NOI form, with the appropriate fee, to the State Water Board. Permits are required for all storm water discharges associated with a construction activity where clearing, grading, and excavation results in a land disturbance of five or more acres. Storm water discharges from a construction activity that results in a land disturbance of less than five acres, but which is part of a larger common plan of development or sale, also require a permit. Permits are required until the construction is complete.

A permit must be obtained by October 1, 1992 for an ongoing construction activity that satisfies these criteria. For a new construction activity that begins after October 1, 1992, a permit must be obtained before construction starts.

The NOI must be sent to the following address:

State Water Resources Control Board
Division of Water Quality
Attention: Storm Water Permit Unit
P. O. Box 1977
Sacramento, CA 95812-1977

The NOI must be accompanied by the appropriate annual fee. The fee will either be $250.00 or $500.00 depending on the area of the construction activity. The NOI will not be processed if not accompanied by the fee. Enclosure 1 describes those areas in which the $250.00 annual fee applies. Dischargers in all other areas of the State must pay the $500.00 fee.

SEP 8 1992

Attachment No. 1 to the Permit lists the nine California Regional Water Quality Control Boards' (Regional Water Boards) addresses and telephone numbers. If you have any questions or concerns related to the Permit, you should discuss them with Regional Water Board staff.

We would appreciate it if you would inform other members of the construction industry of the need to obtain a storm water permit. If you know of others that need to obtain a permit but may be unaware of the State's program, please have them call the State Water Board's Construction Activity Storm Water Hotline at 916/657-1146.

Sincerely,

Walt Pettit

Walt Pettit
Executive Director

Enclosures (2)

September 3, 1992

Enclosure 1

AREAS OF THE STATE IN WHICH THE $250.00 ANNUAL FEE APPLIES

Municipality	Permitted Area
1. Alameda County	The permitted area of the county is the westerly side of the county which drains to San Francisco Bay.
2. Los Angeles County	The permitted area consists of the five hydrologic subbasins which drain into the Pacific Ocean as follows: Santa Monica Bay, Upper Los Angeles River, including Sycamore Channel, Upper San Gabriel River, Lower Los Angeles River, and Lower San Gabriel River, including Santa Clarita Valley. The permit does not cover the cities of Avalon, Lancaster, and Palmdale.
3. Orange County	The permitted area is delineated by the Los Angeles County line on the northwest, the San Bernardino County line on the north and northeast, the Riverside County line on the east, the San Diego County line on the south, and the Pacific Ocean on the southwest.
4. Riverside County	The permitted area is delineated by the San Bernardino County line on the north and northwest, the Orange County line on the west, the San Diego County line on the south, and the Santa Ana/Colorado River Basin Regional Boards' boundary line on the east (mountain crest).
5. Sacramento County	The entire county except for the incorporated City of Isleton.
6. San Bernardino County	The permitted area is delineated by the Santa Ana-Lahontan Regional Board boundary line on the north and northeast, the Santa Ana-Colorado River Basin Regional Board boundary line on the east, the San Bernardino-Riverside

Municipality	Permitted Area
	County boundary line on the south and southeast, the San-Bernardino-Orange County boundary line on the southwest, and the San Bernardino-Los Angeles County boundary line on the west.
7. San Diego County	The permitted area is delineated by the San Diego County lines on the north and south, the Pacific Ocean on the west, and the San Diego/Colorado River Basin Regional Board boundary on the east (mountain crest).
8. Santa Clara County	The Santa Clara Valley Basin portion of the county containing eleven hydrologic subbasins which discharge into watercourses which in turn flow into South San Francisco Bay.

STATE WATER RESOURCES CONTROL BOARD

901 P STREET, SACRAMENTO, CA 95814

FACT SHEET

FOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL PERMIT FOR

STORM WATER DISCHARGES ASSOCIATED WITH

CONSTRUCTION ACTIVITY

BACKGROUND

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a NPDES permit. The 1987 amendments to the CWA added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations require that discharges of storm water associated with construction activity (storm water discharges) from soil disturbances of five (5) acres or more must be regulated as an industrial activity and covered by a NPDES permit.

In a recent ruling, the Ninth Circuit Court of Appeals invalidated the exemption granted by USEPA for storm water discharges from soil disturbances of less than five acres but remanded the regulation to USEPA for further action. The State Water Board, at this time, is not requiring storm water discharges from soil disturbances of less than five acres to be covered by this general permit. Instead, the State Water Board will await future USEPA or court action clarifying the types of storm water discharges that must be permitted. If necessary, the State Water Board will reopen the general permit to accommodate such a clarification.

While Federal regulations allow two permitting options for storm water discharges (individual permits and general permits), the State Water Board has elected to adopt only one statewide general permit at this time that will apply to all storm water discharges, except from those on Indian Lands and the Lake Tahoe Hydrologic Unit. The State Water Board has previously adopted a separate statewide general permit for all other industrial storm water discharge categories, except for those discharges in Santa Clara County that drain to San Francisco Bay and on Indian Lands.

This general permit requires all owners of land where construction activity occurs (dischargers) to:

1. Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation,
2. Develop and implement a storm water pollution prevention plan, and
3. Perform inspections of storm water pollution prevention measures (control practices).

This general permit will be implemented and enforced by the nine California Regional Water Quality Control Boards (Regional Water Boards).

The general permit accompanying this fact sheet is intended to initiate regulation of storm water discharges. Regulating many storm water discharges under one permit will greatly reduce the otherwise overwhelming administrative burden associated with permitting individual storm water discharges. Dischargers must submit a notice of intent (NOI) to obtain coverage under this general permit. It is expected that as the storm water program develops, the Regional Water Boards may issue general permits containing more specific permit provisions. When this occurs, those dischargers will no longer be regulated by this general permit.

TYPES OF CONSTRUCTION ACTIVITY COVERED BY THIS GENERAL PERMIT

Construction activity includes clearing, grading, or excavation that results in soil disturbance of at least five acres of total land area. Construction activity that results in soil disturbances of less than five acres requires a permit if the construction activity is part of a larger common plan of development or sale. Construction activity does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility, nor does it include emergency construction activities required to protect public health and safety. Dischargers may confirm with the local Regional Water Board that a particular routine maintenance is not subject to this general permit.

Storm water discharges from those portions of a construction project which include dredging and/or filling which are subject to regulation by the U.S. Army Corps of Engineers (Corps), pursuant to Section 10 of the Rivers and Harbors Act and/or Section 404 of the CWA, are excluded from regulation under this general permit. Said portions of the project are, however, subject to the certification requirements of Section 401 of the CWA and must be addressed via the certification process. Storm water discharges from dredge spoil placement which occurs outside of Corps jurisdiction (upland sites) and is part of a construction activity which disturbs five or more acres of land are covered by this general permit.

NOTIFICATION REQUIREMENTS

The owner of the land where the construction activity is occurring is responsible for obtaining coverage under this general permit by filing a NOI and appropriate fee in accordance with the NOI instructions. For construction activity conducted on easements, or on nearby property by agreement or permission, the entity responsible for the construction activity must file a NOI.

A separate NOI must be submitted to the State Water Board for each covered construction activity. Owners of land with ongoing construction activity will be required to submit a NOI by September 30, 1992. Owners of land with construction activity commencing after September 30, 1992 must submit a NOI prior to commencement of construction activity. The NOI requirements of the general permit are intended to establish a mechanism which can be used to clearly identify the responsible parties, locations, and scope of operations of dischargers covered by the general permit.

The NOI must be sent to the following address:

California State Water Resources Control Board
Division of Water Quality
Storm Water Permit Unit
P.O. Box 1977
Sacramento, CA 95812-1977

The current annual fee for this general permit is either $500 or $250 depending on location. Dischargers who fail to obtain coverage under this general permit and are not otherwise covered by a NPDES permit for storm water discharges will be in violation of the CWA and the California Water Code. When construction is complete or ownership has been transferred, dischargers are required to notify the State Water Board indicating that all State and local requirements have been met in accordance with Special Provision 7 of the general permit.

TYPES OF CONSTRUCTION ACTIVITY NOT COVERED BY THIS GENERAL PERMIT

This general permit does not apply to storm water discharges from those areas on Indian lands and the Lake Tahoe Hydrologic Unit. Storm water discharges in the Lake Tahoe Hydrologic Unit will be regulated by a separate permit(s) adopted by the California Regional Water Quality Control Board, Lahontan Region (Lahontan Regional Water Board). USEPA will regulate storm water discharges on Indian lands. Permit applications for storm water discharges that will be conducted in the Lake Tahoe Hydrologic Unit should be submitted directly to the Lahontan Regional Water Board.

DESCRIPTION OF GENERAL PERMIT CONDITIONS

The following is a brief description of the major provisions of the general permit and the basis for the general permit. Dischargers should read the general permit carefully.

Prohibitions

This general permit authorizes the discharge of storm water associated with construction activity from construction sites. It prohibits the discharge of materials other than storm water and all discharges which contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4 unless a separate NPDES permit has been issued to regulate those discharges.

Effluent Limitations

Permits for storm water discharges associated with construction activity must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require controls of pollutant discharges that utilize best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce pollutants, and any more stringent controls necessary to meet water quality standards.

It is not feasible at this time for the State Water Board to establish numeric effluent limitations. The reasons why establishment of numeric effluent limitations is not feasible is discussed in detail in State Water Board Orders Nos. WQ 91-03 and WQ 91-04. Therefore, the effluent limitations contained in this general permit are narrative and include the requirement to implement appropriate pollution prevention control practices and/or Best Management Practices (BMPs). The BMPs may include treatment of storm water discharges, along with source reduction, which will constitute BAT and BCT and will achieve compliance with water quality standards. The effluent limitations constitute compliance with the requirements of the CWA. However, if storm water discharges cause water quality standards to be exceeded, this general permit may be amended, or the appropriate Regional Water Board may adopt a general permit which replaces this general permit to include additional effluent limitations necessary to achieve water quality standards. Elimination or reduction of non-storm water discharges is a major goal of this general permit. Non-storm water discharges include a wide variety of sources, including improper dumping, spills, or leakage from storage tanks or transfer areas. Non-storm water discharges may contribute a significant pollutant load to receiving waters. Measures to control spills, leakage, and dumping and to prevent illicit connections during construction can often be addressed through BMPs. This general permit prohibits the discharge of materials other than storm water. The general permit, however, recognizes that certain non-storm water discharges may be necessary for the practical performance and completion of construction projects. Such discharges include, but are not limited to: landscape irrigation of erosion control measures, pipe flushing and testing, street washing, and dewatering. Such discharges are allowed by this general permit if the discharges are (1) infeasible to eliminate, (2) comply with BMPs as described in the Storm Water Pollution Prevention Plan, (3) do not cause or contribute to a violation of water quality standards, and (4) are not required to be permitted by the local Regional Water Board (e.g., some Regional Water Boards have adopted general permits for dewatering discharges).

Storm Water Pollution Prevention Plan (SWPPP)

This general permit requires development and implementation of SWPPPs emphasizing storm water BMPs. This approach provides the flexibility necessary to establish control practices which can appropriately address sources of pollutants at different construction activities.

All dischargers must prepare, retain at the construction site, and implement a SWPPP. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges and (2) to describe and ensure the implementation of practices to reduce sediment and other pollutants in storm water discharges. The SWPPP must include BMPs which address source reduction, and, if necessary, should include BMPs which require treatment.

The SWPPPs are considered reports available to the public under Section 308(b) of the CWA and will be made available by the Regional Water Board upon request. Required elements of the SWPPPs include: (1) site description, (2) erosion and sediment controls, (3) waste disposal, (4) implementation of approved local plans, (5) proposed post-construction controls, including description of local post-construction erosion and sediment control requirements, and (6) non-storm water management.

Monitoring Program

Another major feature of the general permit is the development and implementation of a monitoring program. All dischargers are required to conduct inspections of the construction site prior to anticipated storm events and after actual storm events to identify areas contributing to a storm water discharge and to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly implemented in accordance with the terms of the general permit or whether additional control practices are needed.

Each discharger must certify annually that its construction activity is in compliance with the requirements of this general permit and its SWPPP. Dischargers who cannot annually certify compliance or who have had other instances of noncompliance must notify the appropriate Regional Water Board. A well-developed monitoring program will provide a good method for checking on the effectiveness of the SWPPP.

Retention of Records

The discharger is required to retain records of all monitoring information, copies of all reports required by this general permit, and records of all data used to complete the NOI for the construction activity to be covered by the general permit for a period of at least three years. This period may be extended by request of the State and/or Regional Water Boards. With the exception of noncompliance reporting, dischargers are not required to submit the records, except upon specific request by the Regional Water Board.

STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)

ORDER NO. 92-08-DWQ

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL PERMIT NO. CAS000002

WASTE DISCHARGE REQUIREMENTS (WDRS)

FOR

DISCHARGES OF STORM WATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY

The State Water Board finds that:

1. Federal regulations for controlling pollutants in storm water runoff discharges were issued by the U.S. Environmental Protection Agency (USEPA) on November 16, 1990 (40 Code of Federal Regulations (CFR) Parts 122, 123, and 124). The regulations require discharges of storm water associated with construction activity including clearing, grading, and excavation activities (except operations that result in disturbance of less than five acres of total land area and which are not part of a larger common plan of development or sale)[1/] to obtain a NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate storm water pollution.

2. This general permit shall regulate pollutants in discharges of storm water associated with construction activity (storm water discharges) except from those areas on Indian lands, the Lake Tahoe Hydrologic Unit, and where the storm water discharge is determined ineligible for coverage under this general permit by the California Regional Water Quality Control Boards (Regional Water Boards). Attachment 1 contains addresses and telephone numbers of each Regional Water Board office.

3. This general permit does not preempt or supersede the authority of local storm water management agencies to prohibit, restrict, or control storm water discharges to separate storm sewer systems or other watercourses within their jurisdiction, as allowed by State and Federal law.

4. To obtain authorization for current and future storm water discharges pursuant to this general permit, the owner of a site where construction activity occurs (discharger) must submit a Notice of Intent (NOI) and appropriate fee to the State Water Board. Dischargers who submit a NOI and appropriate fee are authorized to discharge storm water under the terms and conditions of this general permit.

5. If an individual NPDES permit is issued to a discharger otherwise subject to this general permit, or an alternative general permit is subsequently adopted which covers storm water discharges regulated by this general permit, the applicability of this general permit to such discharges is automatically terminated on the effective date of the individual permit or the date of approval for coverage under the subsequent general permit.

6. This action to adopt a NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.), in accordance with Section 13389 of the California Water Code.

1/ In a recent ruling, the Ninth Circuit Court of Appeals invalidated the exemption granted by USEPA for storm water discharges from soil disturbances less than five acres but remanded to USEPA for further action. This general permit may be reopened, as necessary, to accommodate a redefinition of the types of storm water discharges that must be permitted.

7. The State Water Board adopted the California Ocean Plan on March 22, 1990 and the California Inland Surface Waters Plan and Enclosed Bays and Estuaries Plan on April 11, 1991. In addition, the Regional Water Boards have adopted and the State Water Board has approved Water Quality Control Plans (Basin Plans). Dischargers regulated by this general permit must comply with the water quality standards in these Plans and subsequent amendments thereto.

8. It is not feasible at this time to establish numeric effluent limitations for pollutants in storm water discharges from construction activities. Instead, the provisions of this general permit that require implementation of Best Management Practices (BMPs) to control and abate the discharge of pollutants in storm water discharges constitute compliance with BAT/BCT requirements and with requirements to achieve water quality standards.

9. Discharges of non-storm water may be necessary for the practical performance and completion of certain construction projects. Such discharges include, but are not limited to: landscape irrigation of erosion control measures, pipe flushing and testing, street washing, and dewatering. Such discharges are allowed under this general permit so long as they comply with BMPs as described in the Storm Water Pollution Prevention Plan and they do not cause or contribute to violation of any water quality standard.

10. Following adoption of this general permit, the Regional Water Boards shall enforce the provisions of this general permit including the monitoring and reporting requirements.

11. Following public notice in accordance with State and Federal laws and regulations, the State Water Board in a public meeting held May 14, 1992 heard and considered all comments. The State Water Board has prepared written responses to all significant comments.

12. This Order is a NPDES permit in compliance with Section 402 of the Clean Water Act (CWA) and shall take effect upon adoption by the State Water Board.

13. This general permit does not authorize discharges of fill or dredged material regulated by the U.S. Army Corps of Engineers under CWA Section 404 and does not constitute a waiver of water quality certification under CWA Section 401.

IT IS HEREBY ORDERED that all dischargers who file a Notice of Intent (NOI) indicating their intention to be regulated under the provisions of this general permit shall comply with the following:

A. DISCHARGE PROHIBITIONS:

1. Discharges of material other than storm water, which are not otherwise regulated by a NPDES permit, to a separate storm sewer system or waters of the nation are prohibited, except as allowed in Provision C.3.

2. Storm water discharges shall not cause or threaten to cause pollution, contamination, or nuisance.

3. Storm water discharges regulated by this general permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR Part 117 and/or 40 CFR Part 302.

B. RECEIVING WATER LIMITATIONS:

1. Storm water discharges to any surface or ground water shall not adversely impact human health or the environment.

2. Storm water discharges shall not cause or contribute to a violation of any applicable water quality standards contained in the California Ocean Plan, Inland Surface Waters Plan, Enclosed Bays and Estuaries Plan, or the applicable Regional Water Board's Basin Plan.

C. SPECIAL PROVISIONS FOR CONSTRUCTION ACTIVITY:

1. All dischargers must file a NOI and appropriate fee for construction activities conducted at each site as required by Attachment 2: Notice of Intent--General Instructions.

2. All dischargers must develop and implement a Storm Water Pollution Prevention Plan in accordance with Section A: Storm Water Pollution Prevention Plan (SWPPP).

3. Discharges of non-storm water are allowed only when necessary for performance and completion of construction projects and where they do not cause or contribute to a violation of any water quality standard. Such discharges must be described in the SWPPP. Wherever feasible, alternatives which do not result in discharge of non-storm water shall be implemented, in accordance with Section A.7 of the SWPPP requirements.

4. All dischargers must develop and implement a monitoring program and reporting plan in accordance with Section B: Monitoring Program and Reporting Requirements.

5. All dischargers must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under their jurisdiction, including applicable requirements in municipal storm water management programs developed to comply with NPDES permits issued by the Regional Water Boards to local agencies.

6. All dischargers must comply with the standard provisions and reporting requirements contained in Section C: Standard Provisions.

7. The discharger may revoke (cancel) coverage under this general permit by submitting to the State Water Board certification, in accordance with the signatory requirements of Section C: Standard Provisions, Items 9 and 10, that construction activity has been completed, that all elements of the SWPPP have been completed, that construction and equipment maintenance waste have been disposed of properly, that the site is in compliance with all local storm water management requirements including erosion/sediment control requirements, policies, and guidelines. In addition, a discharger may revoke (cancel) coverage under this general permit when ownership of all or a portion of the project has been transferred. The new owner must comply with the provisions of Section A(2)(c) and B(3)(b) of this general permit. The revocation should accompany the NOI from the new owner when possible.

8. This general permit will expire on August 20, 1997. Upon reissuance of a NPDES general permit by the State Water Board, dischargers subject to the reissued general permit may be required to file a revised NOI.

D. REGIONAL WATER BOARD AUTHORITIES:

1. Following adoption of this general permit, Regional Water Boards shall:

   a. Implement the provisions of this general permit. Implementation of this general permit may include, but is not limited to, reviewing SWPPPs, reviewing monitoring reports, conducting compliance inspections, and taking enforcement actions.

   b. Issue permits as they deem appropriate to individual dischargers, categories of dischargers, or dischargers in a geographic area. Upon issuance of such permits by a Regional Water Board, the affected dischargers shall no longer be regulated by this general permit.

2. Regional Water Boards may provide guidance to dischargers on SWPPP and Monitoring Program implementation.

3. Regional Water Boards may require dischargers to retain records for more than three years.

4. Regional Water Boards may require additional monitoring and reporting program requirements.

CERTIFICATION

The undersigned, Administrative Assistant to the State Water Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on August 20, 1992.

AYE: W. Don Maughan
Eliseo M. Samaniego
Marc Del Piero
James M. Stubchaer

NO: None

ABSENT: John Caffrey

ABSTAIN: None

Maureen Marché
Administrative Assistant to the Board

Section A: STORM WATER POLLUTION PREVENTION PLAN

1. Objectives

A Storm Water Pollution Prevention Plan (SWPPP) shall be developed and implemented for each construction site covered by this general permit. The SWPPP shall be certified in accordance with the signatory requirements of Standard Provision C.9. The SWPPP shall be developed and amended, when necessary, to meet the following objectives:

a. To identify pollutant sources that may affect the quality of discharges of storm water associated with construction activity (storm water discharges) from the construction site, and

b. To identify, construct, and implement storm water pollution prevention measures (control practices) to reduce pollutants in storm water discharges from the construction site both during construction and after construction is completed.

2. Implementation Schedule

a. For construction activity commencing on and after October 1, 1992, the SWPPP must be developed and implemented concurrent with commencement of construction activities.

b. For construction activity commencing prior to and continuing beyond October 1, 1992, the SWPPP must be developed and implemented by October 1, 1992.

c. For ongoing construction activity involving a change of ownership of property covered by this general permit, the new owner must accept and maintain the existing SWPPP.

3. Availability

The SWPPP shall be kept on site during construction activity and made available upon request of a representative of the Regional Water Board and/or local agency.

4. Required Changes

a. The discharger shall amend the SWPPP whenever there is a change in construction or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, or a municipal separate storm sewer system. The SWPPP should also be amended if it is in violation of any condition of this general permit or has not achieved the general objective of reducing pollutants in storm water discharges.

b. The Regional Water Board, or local agency with the concurrence of the Regional Water Board, may require the discharger to amend the SWPPP.

5. Source Identification

The SWPPP shall provide a description of potential sources which are likely to add significant quantities of pollutants to storm water discharges or which may result in non-storm water discharges from the construction site. The SWPPP shall include, at a minimum, the following items:

a. A map extending approximately one-quarter mile beyond the property boundaries of the construction site showing: the construction site, surface water bodies (including known springs and wetlands[1/]), known wells, an outline of off-site drainage areas that discharge into the construction site, general topography, and the anticipated discharge location(s) where the construction site's storm water discharges to a municipal storm sewer system or other water body. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map(s) showing:

i. Location of control practices used during construction;

ii. Areas used to store soils and wastes;

iii. Areas of cut and fill;

iv. Drainage patterns and slopes anticipated after major grading activities are completed;

v. Areas of soil disturbance;

vi. Surface water locations;

vii. Areas of potential soil erosion where control practices will be used during construction;

viii. Existing and planned paved areas and buildings;

ix. Locations of post-construction control practices;

x. An outline of the drainage area for each on-site storm water discharge point;

xi. Vehicle storage and service areas; and

xii. Areas of existing vegetation.

c. A narrative description of the following:

i. Toxic materials that are known to have been treated, stored, disposed, spilled, or leaked in significant quantities onto the construction site;

ii. Practices to minimize contact of construction materials, equipment, and vehicles with storm water;

iii. Construction material loading, unloading, and access areas;

iv. Preconstruction control practices (if any) to reduce sediment and other pollutants in storm water discharges;

v. Equipment storage, cleaning, and maintenance areas;

1/ The determination of whether wetlands exist shall be made by the person who prepares the SWPPP and shall not be binding upon any other person.

vi. Methods of on-site storage and disposal of construction materials; and

vii. The nature of fill material and existing data describing the soil on the construction site.

d. A list of pollutants (other than sediment) that are likely to be present in storm water discharges in significant quantities. Describe the control practices (if different from Item 6 below) appropriate to reduce these pollutants in the storm water discharges.

e. An estimate of the size of the construction site (in acres or square feet), an estimate of the runoff coefficient of the construction site before and after construction, and an estimate of the percentage of the area of the construction site that is impervious (e.g., pavement, buildings, etc.) before and after construction.

f. A copy of the NOI.

6. Erosion and Sediment Control

The SWPPP shall include:

a. A description of soil stabilization practices. These practices shall be designed to preserve existing vegetation where feasible and to revegetate open areas as soon as feasible after grading or construction. In developing these practices, the discharger shall consider: temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, protection of trees, or other soil stabilization practices. At a minimum, the operator must implement these practices on all disturbed areas during the rainy season.

b. A description or illustration of control practices which, to the extent feasible, will prevent a net increase of sediment load in storm water discharge. In developing control practices, the discharger shall consider a full range of erosion and sediment controls such as detention basins, straw bale dikes, silt fences, earth dikes, brush barriers, velocity dissipation devices, drainage swales, check dams, subsurface drain, pipe slope drain, level spreaders, storm drain inlet protection, rock outlet protection, sediment traps, temporary sediment basins, or other controls. At a minimum, sandbag dikes, silt fences, straw bale dikes, or equivalent controls practices are required for all significant sideslope and downslope boundaries of the construction area. The discharger must consider site-specific and seasonal conditions when designing the control practices.

c. Control practices to reduce the tracking of sediment onto public or private roads. These public and private roads shall be inspected and cleaned as necessary.

d. Control practices to reduce wind erosion.

7. Non-Storm Water Management

The SWPPP shall include provisions which eliminate or reduce to the extent feasible the discharge of materials other than storm water to the storm sewer system and/or receiving waters. Such provisions shall ensure, to the extent feasible, that no materials are discharged in quantities which will have an adverse effect on receiving waters. Materials other than storm water that are discharged shall be listed along with the estimated quantity of the discharged material.

8. Post-Construction Storm Water Management

The SWPPP shall describe the control practices to reduce pollutants in storm water discharges after all construction phases have been completed at the site. These must be consistent with all local post-construction storm water management requirements, policies, and guidelines. The discharger must consider site-specific and seasonal conditions when designing the control practices. Operation and maintenance of control practices after construction is completed shall be addressed, including short- and long-term funding sources and the responsible party.

9. Waste Management and Disposal

All wastes (including equipment maintenance waste) disposed at the site or removed from the site for disposal shall be disposed of in compliance with Federal, State, and local laws, regulations, and ordinances.

10. Maintenance, Inspection, and Repair

The SWPPP shall include maintenance, inspections, and repair procedures to ensure that all grade surfaces, walls, dams and structures, vegetation, erosion and sediment control measures, and other protective devices identified in the site plan are maintained in good and effective condition and are promptly repaired or restored.

11. Training

The SWPPP shall include procedures to ensure that all inspections required in Section B.4 of the Monitoring Program and Reporting Requirements of this general permit and maintenance and repair required in Paragraph 10 of this Section are done by trained personnel.

12. List of Contractors/Subcontractors

The SWPPP shall include a list of all contractors (or subcontractors) responsible for implementing the SWPPP.

13. Other Plans

This SWPPP may incorporate, by reference, the appropriate elements of other plans required by local, State, or Federal agencies. A copy of any requirements incorporated by reference shall be kept at the construction site.

14. Public Access

The SWPPP is considered a report that shall be available to the public under Section 308(b) of the CWA. Upon request by members of the public, the discharger shall make available for review a copy of the SWPPP either to the Regional Water Board or directly to the requestor.

15. Preparer

The SWPPP shall include the signature and title of the person responsible for preparation of the SWPPP and include the date of initial preparation and each amendment, thereto.

Section B: MONITORING PROGRAM AND REPORTING REQUIREMENTS

1. General

Dischargers are required to conduct inspections before and after storm events and to annually certify that they are in compliance with the general permit and their SWPPP. Other than reporting incidents of noncompliance, dischargers are not required to submit reports or certifications.

2. Required Changes

The Regional Water Board may require the discharger to conduct additional site inspections, submit reports and certifications, or to perform sampling and analysis.

3. Implementation

a. The requirements of this Section shall be implemented by October 1, 1992 or commencement of the construction activity. The discharger is responsible for implementing these requirements until construction activity is complete.

b. For ongoing construction activity involving a change in ownership of property covered by this general permit, the new owner must implement the requirements of this Section concurrent with the change of ownership.

4. Site Inspections

Dischargers shall conduct inspections of the construction site prior to anticipated storm events and after actual storm events to identify areas contributing to a discharge of storm water associated with construction activity and to evaluate whether control practices to reduce pollutant loadings identified in the SWPPP are adequate and properly implemented in accordance with the terms of the general permit or whether additional control practices are needed. A record of the inspections must include the date of the inspection, the individual(s) who performed the inspection, and the observations.

5. Compliance Certification

Each discharger must annually certify that its construction activity is in compliance with the requirements of this general permit and its SWPPP. This certification should be based upon the site inspections required in Paragraph 4 of this Section. The first certification must be completed by July 1, 1993, and each July 1 thereafter.

6. Noncompliance Reporting

Dischargers who cannot certify compliance, in accordance with Paragraph 5 of this Section and/or who have had other instances of noncompliance, must notify the appropriate Regional Water Board. The notifications shall identify the type(s) of noncompliance, describe the actions necessary to achieve compliance, and include a time schedule, subject to the modifications by the Regional Water Board, indicating when compliance will be achieved. Noncompliance notifications must be submitted within 30 days of identification of noncompliance.

7. Monitoring Records

Records of all inspections, compliance certifications, and noncompliance reporting must be retained for a period of at least three years. With the exception of noncompliance reporting, dischargers are not required to submit these records.

Section C: STANDARD PROVISIONS FOR CONSTRUCTION ACTIVITY

1. Duty to Comply

The discharger must comply with all of the conditions of this general permit. Any permit noncompliance constitutes a violation of the CWA and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action and/or removal from general permit coverage.

The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this general permit has not yet been modified to incorporate the requirement.

2. General Permit Actions

This general permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the discharger for a general permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any general permit condition.

If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this general permit, this general permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition; and the dischargers so notified.

3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this general permit.

4. Duty to Mitigate

The discharger shall take all responsible steps to minimize or prevent any discharge in violation of this general permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Proper Operation and Maintenance

The discharger shall at all times properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this general permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems, installed by a discharger when necessary to achieve compliance with the conditions of this general permit.

6. Property Rights

This general permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

7. Duty to Provide Information

The discharger shall furnish the Regional Water Board, State Water Board, or USEPA, within a reasonable time, any requested information to determine compliance with this general permit. The discharger shall also furnish, upon request, copies of records required to be kept by this general permit.

8. Inspection and Entry

The discharger shall allow the Regional Water Board, State Water Board, USEPA, and/or, in the case of construction sites which discharge through a municipal separate storm sewer, an authorized representative of the municipal operator of the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the discharger's premises at reasonable times where a regulated construction activity is being conducted or where records must be kept under the conditions of this general permit;

b. Have access to and copy at reasonable times, any records that must be kept under the conditions of this general permit;

c. Inspect at reasonable times the construction site and the related erosion/sediment controls; and

d. Sample or monitor at reasonable times for the purpose of ensuring general permit compliance.

9. Signatory Requirements

a. All Notices of Intent submitted to the State Water Board shall be signed as follows:

1. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of the construction activity if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

3. For a municipality, State, Federal, or other public agency: by either a principal executive officer, ranking elected official, or duly authorized representative. The principal executive officer of a Federal agency includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA).

b. All storm water pollution prevention plans, reports, certifications, or other information required by the general permit and/or requested by the Regional Water Board, State Water Board, USEPA, or the local storm water management agency shall be signed by a person described above or by a duly authorized representative. A person is a duly authorized representative if:

1. The authorization is made in writing by a person described above and retained as part of the SWPPP;

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the construction activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

3. If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the construction activity, a new authorization must be attached to the SWPPP prior to submittal of any reports, information, or certifications to be signed by the authorized representative.

10. Certification

Any person signing documents under Provision 8 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Anticipated Noncompliance

The discharger will give advance notice to the Regional Water Board and local storm water management agency of any planned changes in the construction activity which may result in noncompliance with general permit requirements.

12. Penalties for Falsification of Reports.

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this general permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both.

13. Oil and Hazardous Substance Liability

Nothing in this general permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject under Section 311 of the CWA.

14. Severability

The provisions of this general permit are severable, and, if any provision of this general permit or the application of any provision of this general permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this general permit shall not be affected thereby.

15. Reopener Clause

This general permit may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of USEPA guidance concerning regulated activities, judicial decision, or in accordance with 40 CFR 122.62, 122.63, 122.64, and 124.5.

16. Penalties for Violations of Permit Conditions

a. Section 309 of the CWA provides significant penalties for any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any such section in a permit issued under Section 402. Any person who violates any permit condition of this general permit is subject to a civil penalty not to exceed $25,000 per day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.

b. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties which in some cases are greater than those under the CWA.

17. Availability

A copy of this general permit shall be maintained at the construction site during construction activity and be available to operating personnel.

18. Transfers

This general permit is not transferable. A new owner of an ongoing construction activity must submit a NOI in accordance with the requirements of this general permit to be authorized to discharge under this general permit. An owner who sells property covered by this general permit shall inform the new owner of the duty to file a NOI and shall provide the new owner with a copy of this general permit.

19. Continuation of Expired Permit

This general permit continues in force and effect until a new general permit is issued or the State Water Board rescinds this general permit. Only those dischargers authorized to discharge under the expiring general permit are covered by the continued general permit.

STATE WATER RESOURCES CONTROL BOARD

P. O. Box 100, Sacramento, CA 95812-0100

Legislative and Public Affairs: (916)657-2390
Water Quality Information: (916) 657-0687
Clean Water Programs Information: (916) 739-4400
Water Rights Information: (916) 657-2170

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

NORTH COAST REGION (1)

5550 Skylane Blvd. Suite A
Santa Rosa, CA 95403
(707) 576-2220

SAN FRANCISCO BAY REGION (2)

2101 Webster Street, Ste. 500
Oakland, CA 94612
(510) 464-1255

CENTRAL COAST REGION (3)

81 Higuera St., Suite 200
San Luis Obispo, CA 93401-5414
(805) 549-3147

LOS ANGELES REGION (4)

101 Centre Plaza Drive
Monterey Park, CA 91754-2156
(213) 266-7500

CENTRAL VALLEY REGION (5)

3443 Routier Road, Suite A
Sacramento, CA 95827-3098
(916) 361-5600

Fresno Branch Office

3614 East Ashlan Ave.
Fresno, CA 93726
(209) 445-5116

Redding Branch Office

415 Knollcrest Drive
Redding, CA 96002
(916) 224-4845

LAHONTAN REGION (6)

2092 Lake Tahoe Boulevard, Suite 2
South Lake Tahoe, CA 96150
(916) 544-3481

Victorville Branch Office

Civic Plaza,
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359
(619) 241-6583

COLORADO RIVER BASIN REGION (7)

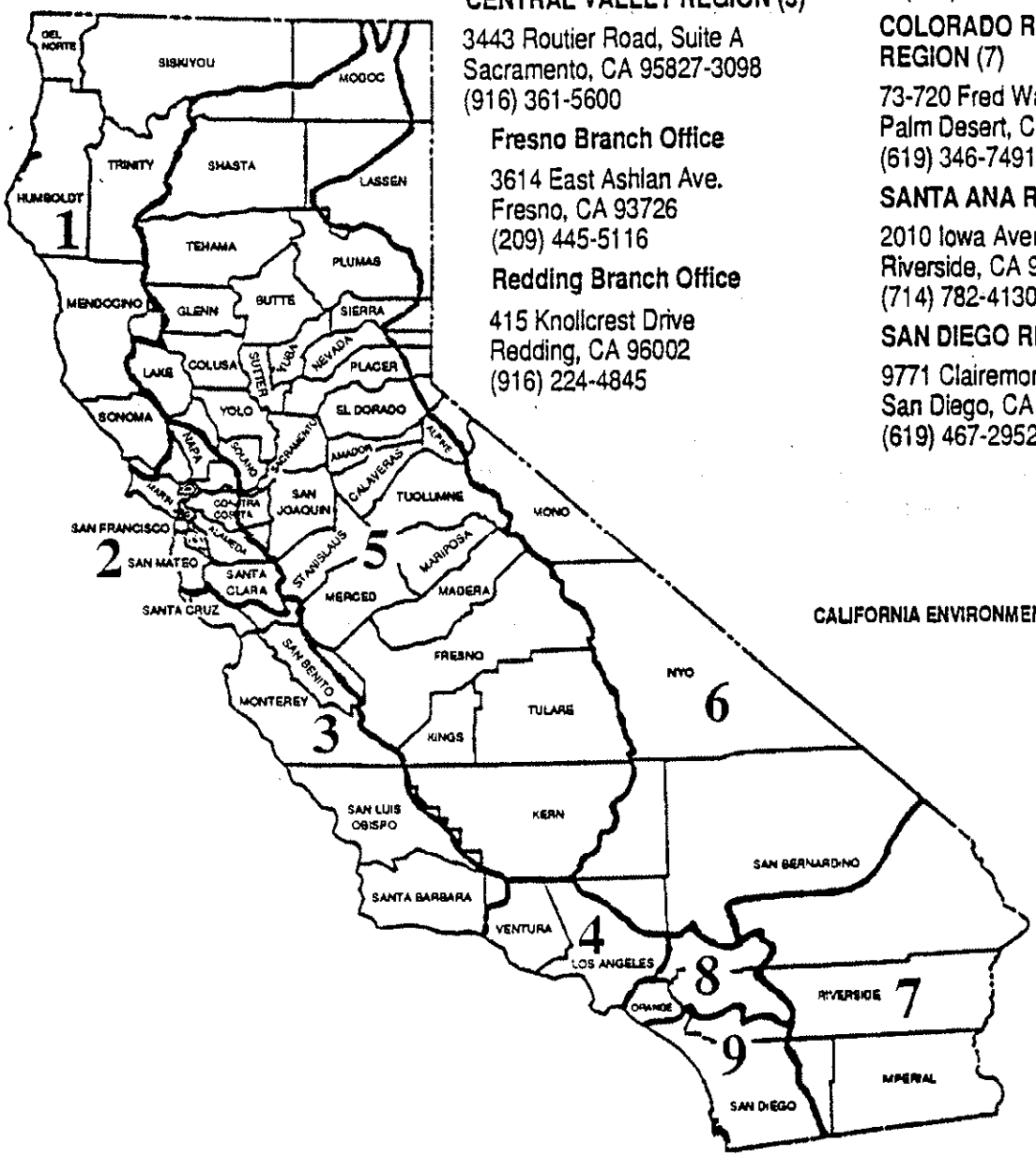
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
(619) 346-7491

SANTA ANA REGION (8)

2010 Iowa Avenue, Suite 100
Riverside, CA 92507-2409
(714) 782-4130

SAN DIEGO REGION (9)

9771 Clairemont Mesa Blvd. Ste. B
San Diego, CA 92124
(619) 467-2952



STATE OF CALIFORNIA
Pete Wilson, Governor

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
James M. Strock, Secretary

Attachment 2

NOTICE OF INTENT (NOI) TO COMPLY WITH THE TERMS OF THE GENERAL PERMIT TO DISCHARGE STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITY

GENERAL INSTRUCTIONS

Who Must Submit

Discharges of storm water associated with construction activity (storm water discharges) that results in the disturbance of five acres or more of total land area or which is part of a larger common area of development or sale must be permitted. Construction activity includes clearing, grading, excavation, and reconstruction of existing facilities involving removal and replacement. Construction activity does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

The owner of the land where the construction activity is occurring is responsible for obtaining a permit. Owners may obtain coverage under the General Storm Water Permit to Discharge Storm Water Associated with Construction Activity (General Permit) by filing a NOI in accordance with the following instructions. Coverage for construction activity conducted on easements (e.g., pipeline construction), or on nearby properties by agreement or permission, shall be obtained by the entity responsible for the construction activity.

Construction Activities Not Covered by This General Permit

Storm water discharges in the Lake Tahoe Hydrologic Unit will be regulated by a separate permit(s) adopted by the California Regional Water Quality Control Board, Lahonton Region, and may not seek coverage under the State Water Board's general permit. Storm water discharges on Indian lands will be regulated by the U.S. Environmental Protection Agency.

Where to Apply

The NOI should be mailed to the State Water Resources Control Board at the following address:

State Water Resources Control Board
Division of Water Quality
Attn: Storm Water Permit Unit
P.O. Box 1977
Sacramento, CA 95812-1977

When to Apply

Owners of ongoing construction must file a NOI, along with the appropriate annual fee, by September 30, 1992. Owners of new construction (those beginning construction after September 30, 1992) must file a NOI prior to the commencement of construction. For ongoing construction activity involving a change of ownership, the new owner must submit a new NOI within 30 days of the date of change of ownership. Preferably, the NOI should be sent with the revocation prepared by the previous owner.

Fees

The current annual fee is $250.00 for each construction site which discharges into a municipal separate storm sewer system regulated by an areawide urban storm water permit and $500.00 for all other construction sites.

Completing the NOI

Completion and submittal of the attached NOI (Form NOI-2) is required to gain coverage under the general permit. It must be completely and accurately filled out. A construction site will be considered to be covered by the general permit upon filing a complete and accurate NOI and submitting the appropriate annual fee. Upon receipt of the NOI and fee, each discharger will be sent a letter containing the discharger's identification number.

Questions?

If you have any questions on completing the NOI after reading the following line-by-line instructions, please call us at (916) 657-1146.

NOI-- BY LINE INSTRUCTIONS

The NOI consists of two parts--a NOI Form (Form NOI-2) and a site map. Please type or print when completing the NOI Form and site map.

Mark one of the three boxes at the top portion of the NOI. Check box 1 if the NOI is being completed for ongoing construction, box 2 if the construction site is new (commencing on or after October 1, 1992), and box 3 if the NOI is being submitted to report changes for a construction site already covered by the general permit. An example of a change that warrants a resubmittal of the NOI would be a change of ownership of the construction site. Complete only those portions of the NOI that apply to the changes (the NOI must always be signed). If box 3 is checked, the WDID No. must be included.

SECTION I--OWNER

Enter the owner of the construction site's official or legal name, address, contact person, and contact person's title and telephone number.

SECTION II--CONSTRUCTION SITE INFORMATION

In Part A, enter the name of the developer (or general contractor), official, or legal name, address, contact person, and contact person's title and telephone number. The contact person should be the construction site manager completely familiar with the construction site and charged with compliance and oversight of the general permit.

In Part B, enter the address, county, and telephone number (if any) of the construction site. Construction sites that do not have a street address must attach to the NOI a legal description of the construction site.

In Part C, indicate whether the construction site is part of a larger common plan of development or sale. For example, indicate yes if the construction activity is occuring on a two-acre site within an industrial park development of greater than five acres. If the construction site is part of a larger common plan of development or sale, name the common plan (e.g., XYZ Estates, ABC Industrial Park).

In Part D, indicate the construction commencement date (month, day, year). When there is a change in ownership of the property that requires a new NOI, the construction commencement date should be the date of the change in ownership.

In Part E, indicate when the construction is expected to be completed.

SECTION III--BILLING ADDRESS

To continue coverage under the general permit, the annual fee must be paid. Use this section to indicate whether the annual fee invoices should be sent to the owner, developer, or other party (include address).

SECTION IV--RECEIVING WATER INFORMATION

In Part A of this section, the owner is required to indicate whether the construction site's storm water runoff discharges to a separate storm sewer system, directly to waters of the United States, or indirectly to waters of the United States.

Discharges to separate storm sewer systems are those that discharge to a collection system operated by municipalities, flood control districts, utilities, or similar entities. Storm water discharges directly to waters of the United States will typically have an outfall structure directly from the facility to a river, creek, ocean, etc. Indirect discharges are those that may flow over adjacent properties or rights-of-way prior to discharging to waters of the United States.

Regardless of point of discharge, the owner must determine the closest receiving water for the construction site's storm water discharge. If discharge is to a separate storm sewer system, the owner of that system should know the receiving water. The name of the receiving water of a direct discharge should be easily available while the receiving water of an indirect discharge may require some effort to identify.

SECTION V--TYPE OF CONSTRUCTION

Indicate the type of construction taking place. Transportation should be checked for the construction of roads. Utility should be checked for installation of sewer, electric, and telephone systems.

SECTION VI--MATERIAL HANDLING/MANAGEMENT PRACTICES

Part A of this section requires identification of the type(s) of materials stored and handled outdoors. If materials other than those listed are maintained on site, please check "other" and describe the type of material.

Part B of this section requests information on proposed management practices to reduce pollutants in storm water discharges. Check the appropriate categories or list other control measures you will use at your construction site.

SECTION VII--SITE INFORMATION

List the size, in acres, of the facility and the percentage of the site that is impervious before construction and after construction is completed.

SECTION VIII--REGULATORY STATUS

Indicate whether the construction site's erosion/sediment control plan must be reviewed and approved by a local agency. If yes, identify the name of the local agency.

SECTION IX--CERTIFICATION

This section must be completed by the owner of the construction site. The certification provides for assurances that the NOI and site map were completed in an accurate and complete fashion and with the knowledge that penalties exist for providing false information. It also requires the owner to certify that the provisions in the general permit will be complied with.

The NOI must be signed by:

For a corporation: a responsible corporate officer (or authorized individual).
For a partnership or sole proprietorship: a general partner or the proprietor, respectively.
For a municipality, State, Federal, or other public agency: either a principal executive officer, ranking elected official, or duly authorized representative.

SITE MAP

Provide a "to scale" drawing of the construction site and its immediate surroundings. Include as much detail about the construction site as possible. At a minimum, show existing and proposed buildings, roadways, storm water collection and discharge points, a north arrow, and the names of adjacent streets.

State of California
State Water Resources Control Board

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE
GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH CONSTRUCTION ACTIVITY (WQ Order No. 92-08-DWQ)

MARK ONLY ONE ITEM	1. ☐ Ongoing Construction 2. ☐ New Construction	3. ☐ Change of Information WDID # _____

I. OWNER

Name			Contact Person
Local Mailing Address			Title
City	State	Zip	Phone

II. CONSTRUCTION SITE INFORMATION

A. Developer			Contact Person
Local Mailing Address			Title
City	State	Zip	Phone
B. Site Address			County
City	State CA	Zip	Phone

C. Is the construction site part of a larger common plan of development or sale ? ☐ Yes ☐ No	If yes, name of plan or development
D. Construction commencement date M M D D Y Y	E. Projected construction completion date M M D D Y Y

III. BILLING ADDRESS

Send to: ☐ OWNER ☐ DEVELOPER ☐ OTHER *(Enter information at right)*	Name		
	Mailing Address		
	City	State	Zip

IV. RECEIVING WATER INFORMATION

A. Does your construction site's storm water discharge to: (Check one)

1. ☐ Storm drain system - Enter system owners name
2. ☐ Directly to waters of U.S. (e.g., river, lake, creek, ocean)
3. ☐ Indirectly to waters of U.S.

B. Name of closest receiving water

STATE USE ONLY

WDID:	Regional Board Office:	Date Permit Issued:

NPDES Permit Number:	Order Number:	Fee Amount Received:	Date NOI Received:
CA _____	_____	$ _____	_____

V. TYPE OF CONSTRUCTION (Check all that apply)

1. ☐ Residential 2. ☐ Commercial 3. ☐ Industrial 4. ☐ Reconstruction 5. ☐ Transportation
6. ☐ Utility 99. ☐ Other (Please List)

VI. MATERIAL HANDLING/MANAGEMENT PRACTICES

A. Types of materials that will be handled and/or stored at the site: (Check all that apply)

1. ☐ Solvents 2. ☐ Metal 3. ☐ Petroleum Products 4. ☐ Plated Products
5. ☐ Asphalt/Concrete 6. ☐ Hazardous Substances 7. ☐ Paints 8. ☐ Wood Treated Products
99. ☐ Other (Please list)

B. Identify proposed management practices to reduce pollutants in storm water discharges: (Check all that apply)

1. ☐ Oil/Water Separator 2. ☐ Erosion Controls 3. ☐ Sedimentation Controls 4. ☐ Overhead Coverage
5. ☐ Detention/Desiltation Pond 99. ☐ Other (Please list)

VII. SITE INFORMATION

A. Total size of construction site:

_____ Acres

B. Percent of site impervious: (Including rooftops)

Before construction _____ % After construction _____ %

VIII. REGULATORY STATUS

Is the site subject to a locally approved erosion/sediment control plan ? ☐ Yes ☐ No

If yes, name of local agency

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan, will be complied with.

Printed Name: _____

Signature: _____ Date: _____

Title: _____

DEFINITIONS

1. "Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, waste disposal, or drainage from raw material storage.

2. "Clean Water Act" ("CWA") means the Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; 33 USC. 1251 et seq.

3. "Construction Site" is the location of the construction activity.

4. "Non-Storm Water Discharge" means any discharge to storm sewer systems that is not composed entirely of storm water except discharges pursuant to a NPDES Permit and discharges resulting from fire fighting activities.

5. "Significant Materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

6. "Significant Quantities" is the volume, concentrations, or mass of a pollutant in storm water discharge that can cause or threaten to cause pollution, contamination, or nuisance; adversely impact human health or the environment; and cause or contribute to a violation of any applicable water quality standards for the receiving water.

7. "Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

8. "Pollution" means "the man-made or man-induced alternation of the chemical, physical, biological, and radiological integrity of water". [Clean Water Act Section 502(19)]. Pollution also means "an alternation of the quality of the waters of the state by waste to a degree which unreasonably affects either...the waters for beneficial uses...or facilities which serve these beneficial uses." [California Water Code Section 13050(1)]

9. "Contamination" means "an impairment of the quality of the waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease ... including any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected." [California Water Code Section 13050(k)]

10. "Nuisance" means "anything which meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life and property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; (3) occurs during or as a result of the treatment or disposal of wastes." [California Water Code Section 13050(m)]

11. "Local Agency" means any agency that is involved with providing review, approval, or oversight of the construction sites' (a) construction activity, (b) erosion and sediment controls, or (c) storm water discharge.

Appendix E

Evaluation of Important Biological Resources and Constraints to Development on the South Bidwell Property, Butte County, California

Prepared for:

South Bidwell Participation Group
c/o Mr. Michael G. Evans
1 Nice Place
Oroville, CA 95966

Prepared by:

Jones & Stokes Associates, Inc.
1725 - 23rd Street, Suite 100
Sacramento, CA 95816
(916) 444-5638

April 26, 1990

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Executive Summary

The South Bidwell Participation Group (South Bidwell) is considering a residential and recreational development within a 820-acre area east of Oroville, Butte County, California. South Bidwell asked Jones & Stokes Associates to prepare an evaluation of the biological resources at the site for use in project planning and design. This report describes important biological resources of the South Bidwell site and identifies constraints that these resources may pose for site development. Specific objectives were to:

- map habitat types,
- conduct surveys for special-status plant and animal species,
- evaluate the status of migratory deer,
- identify constraint zones for use in development, and
- identify strategies to reduce or eliminate impacts to biological resources.

VEGETATION RESOURCES

Eleven plant communities were identified at the South Bidwell area. Hardwood forest and woodland habitat types are most abundant. Major overstory species in these habitats were blue oak and interior live oak, with smaller amounts of valley oak, digger pine, black oak, and ponderosa pine. (See Appendix A for scientific names.) Other habitats included mixed chaparral, montane hardwood riparian, and annual grassland. Less than 4 acres of meadow and freshwater marsh habitats were present.

Suitable habitat was determined to be present for five special-status plant species that are candidates for federal listing: Red Bluff rush, Butte County checkerbloom, Mosquin's clarkia, Enterprise clarkia, and veiny monardella. None of the species were located during intensive surveys conducted in May 1989.

MIGRATORY DEER

The status of migratory deer on the site was studied intensively because all but 55 acres of the South Bidwell area were identified by the California Department of Fish and Game (DFG) as designated deer winter range. This designation could severely restrict the ultimate development density and type on the site.

Field studies were conducted to determine overall levels of deer use and use of various habitats on the site. Two hundred 0.005-acre plots were surveyed for deer fecal

pellets, and 753 shrubs were rated for browse use level. Results showed an overall density of 153 deer pellet groups per acre, which translated to a population estimate of 28 migratory and resident deer. Browse surveys indicated that high densities of deer have used the South Bidwell area for many years.

Deer pellet and browse surveys were used to rate the quality of different habitats for deer on the South Bidwell site. Montane hardwood forest and montane hardwood riparian habitats received highest use by deer. Montane hardwood/chaparral, blue oak woodland, mixed chaparral, and montane hardwood woodland habitat were rated as moderate-quality habitats. Blue oak-valley oak woodland and annual grassland were rated as low-quality deer habitat.

The appropriateness of DFG's assignment of lands to designated winter range and designated development zone (DDZ) land use categories was examined by evaluating whether the criteria were applied correctly and whether designation was consistent with observed deer use at the site. Study results and examination of criteria application indicated that most of the South Bidwell site is correctly considered as designated winter range.

Several small parcels designated as winter range appear to meet criteria for DDZ instead. Portions of several parcels are adjacent to Highway 162 (a designated transportation corridor) and not within a designated roadway "migration window"; such lands should be assigned to DDZ. One of these parcels is also nearly surrounded by areas assigned to DDZ. Reclassification of these small areas appears warranted.

SPECIAL-STATUS RAPTORS

Habitat suitable for the endangered bald eagle was present on the site. Little nesting habitat was present, however, and no birds were observed using suitable trees. Bald eagles would be expected to use the site only irregularly in winter.

Trees suitable for golden eagle nesting are scattered throughout the area, but no nest sites were found. Most of the site is unsuitable for golden eagle foraging because woodland and scrub vegetation is too dense. No golden eagles were observed during field surveys.

Several other raptor species initially identified as having potential to occur were not observed in surveys and are not considered likely to use the site regularly.

DEVELOPMENT CONSTRAINTS

Lands within the South Bidwell area were assigned to constraint zones based on potential significance of impacts and mitigation feasibility. High-constraint areas included

ponds, native bunchgrass stands, and high-quality deer habitat. Moderate-constraint areas included low- and moderate-quality deer winter range, wetland areas, and riparian woodlands. Low-constraint areas included areas currently classified as DDZ.

MITIGATION OPTIONS

Mitigation options were identified to avoid, minimize, or compensate for impacts on biological resources. Avoidance was recommended to prevent impacts on riparian corridors, bunchgrass stands, and wetland plant communities. Low-density development may also be required within areas that fully meet criteria as designated winter range.

The major mitigation measure that may be implemented in designated deer winter range areas of low and moderate values is to cluster higher density development in low-quality deer habitat while permanently maintaining a large area in an undeveloped state. Compensation for habitat losses to development by enhancing the quality of onsite or offsite habitat also may be feasible. Other measures could include incorporating specific design recommendations to minimize conflicts between deer and development.

No special measures appear warranted for protection of habitat for special-status raptors.

CHAPTER 1. Introduction

The South Bidwell Participation Group (South Bidwell) contracted with Jones & Stokes Associates to conduct biological resource surveys of a site about 1 mile south of Lake Oroville, 8 miles east of the community of Oroville, and east and adjacent to the Oroville-Quincy Highway (Highway 162) in Butte County, California (Figure 1-1).

South Bidwell anticipates developing the study site for residential and recreational uses. South Bidwell retained Jones & Stokes Associates to identify significant biological resources in the study area, evaluate potential impacts of anticipated development, and make recommendations that, if implemented, could be used to reduce or fully mitigate those impacts that would likely be identified under the California Environmental Quality Act (CEQA) (1970) as significant effects on the environment.

Objectives of the constraints and opportunities analysis were to:

- identify the significant biological resources that are known from the region and could possibly occur in the study area;
- identify, map, and determine the extent of habitat types of common and significant plant communities in the study area;
- conduct a search for special-status plant species;
- evaluate the status of migratory deer in the study site and determine the appropriateness of the site's current status as designated deer winter range;
- evaluate the status of special-status wildlife species, including raptors, in the study area;
- identify and map constraint zones reflecting sensitivity to significant impacts, as defined in CEQA (1970), and determine feasibility of mitigation; and
- identify and evaluate strategies that could be implemented to mitigate significant impacts resulting from conversion of, or development within, natural habitats.

The initial evaluation of habitats in the study area indicated that none of the region's special-status wildlife species, other than raptors, would be expected to occupy or use the site. Consequently, raptors were identified as the only special-status wildlife needing further evaluation.

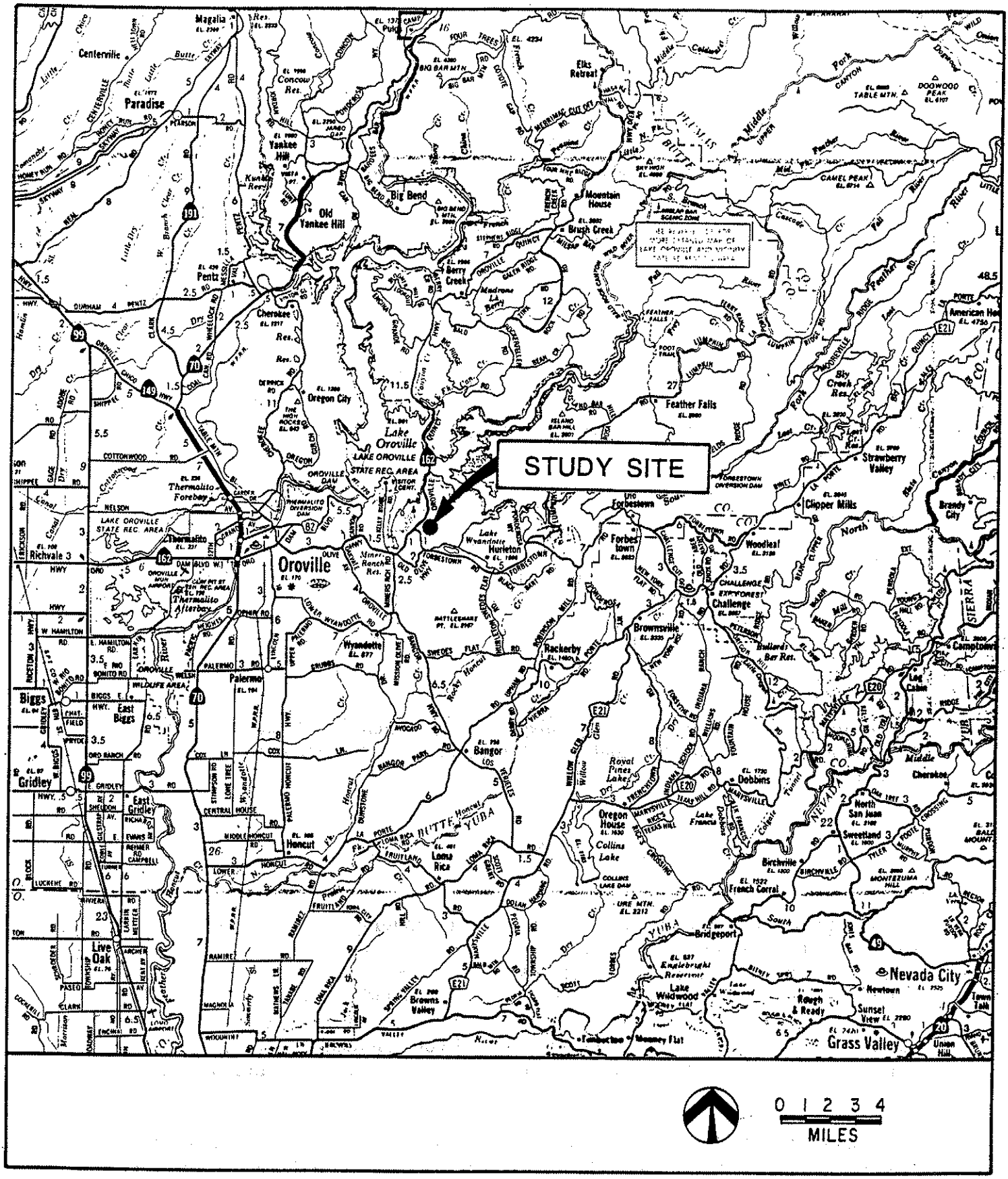

FIGURE 1-1. LOCATION OF THE SOUTH BIDWELL STUDY SITE

CHAPTER 2. Vegetation Resources

INTRODUCTION

Botanical resource surveys were conducted at the South Bidwell study area with the following objectives:

- map and characterize the plant communities;
- locate and delineate locations of significant natural communities (described below); and
- locate and delineate locations of special-status plant species (described below).

DEFINITIONS

Plant Community

A plant community is an assemblage of plants that has a characteristic floristic structure and composition, and that occurs repeatedly under a similar set of environmental conditions.

Significant Natural Community

A significant natural community is a plant community that has special importance because of its ecological value, relative scarcity, susceptibility to threats to remaining occurrences, and other factors (Holland 1986). State CEQA guidelines (Office of Planning and Research and Office of Permit Assistance 1986) indicate that impacts capable of degrading or eliminating uncommon communities represent significant adverse effects. Therefore, in this assessment, significant natural communities include those that would sustain significant adverse impacts if the community was eliminated or substantially disturbed.

Significant natural communities are important because their present rates of loss suggest that additional acreage reductions or habitat degradation threatens the viability of some dependent plant and wildlife species, and could possibly hinder the communities' long-term sustainability. As their extent and number of occurrences diminish, the need to

list dependent plant and wildlife species as rare, threatened, or endangered under state or federal Endangered Species Acts increases. The loss of some significant natural communities can also diminish valued ecosystem functions, such as the roles served by marshes in water filtration and riparian woodlands in stabilizing river banks.

Special-Status Plant Species

In this report, we define special-status plant species to include taxa from the following lists:

- listed, candidate, and proposed species for designation as threatened, or endangered under the federal Endangered Species Act (50 FR 39526-39584, September 27, 1985; 50 CFR 17.12);
- listed, candidate, and proposed species for designation as rare, threatened or endangered under the California Endangered Species Act (California Department of Fish and Game 1989);
- species listed by the California Native Plant Society (CNPS) as rare and endangered (list 1) and species for which additional information is needed (List 3) (Smith and Berg, 1988); and
- other species that would qualify as rare or endangered using definitions in CEQA (1970).

METHODS

Prefield Investigation

A prefield investigation was performed before the site survey was conducted. The objectives of the prefield investigation were to:

- develop a list of special-status plants that are known from, or that could potentially occur in, the study area; and
- compile information on the habitat requirements of special-status plants known from, or suspected to occur in, the study area.

The list of potential special-status plants that are known or suspected to occur in the study area was developed from information in the California Department of Fish and Game's Natural Diversity Data Base (NDDB) (1989), Smith and Berg (1988), Prouty (1982), and file information of Jones & Stokes Associates.

The habitat requirements of potential special-status plants was determined from information in Smith and Berg (1988), Munz (1968), Taylor (1983), and file information of Jones & Stokes Associates and the NDDB.

Field Surveys

Botanists conducted field surveys on May 10-11 1989. The entire study area was surveyed for special-status species. Surveys were "floristic" in nature. During a floristic survey botanists attempt to identify all of the plant species encountered in a study area to the extent necessary to determine if the species is legally protected. Floristic surveys are conducted to ensure that special-status plant species are not inadvertently overlooked merely because they are not expected from a specific area.

Field surveyors employed methods recommended by the California Department of Fish and Game (DFG) (1984) and Nelson (1987). The study site was searched by walking zig-zag transects throughout all accessible portions of the study site. Deviations from the transects were made to permit inspection of any promising or important habitats. Survey timing and intensity were based on the flowering periods and expected density of the special status plants that are known from the region.

Vegetation in the study area was identified and described during field surveys. A community classification was then devised using the scheme developed by Mayer and Laudenslayer (1988). Table 2-1 is a cross-reference between Mayer and Laudenslayer's classification and that developed by Holland (1986). Habitat types were delineated on a color aerial photograph (1986, 1:19,200) obtained from South Bidwell. Habitat designations and boundaries were checked in the field. Acres of each habitat type were determined using planimetry.

RESULTS

Plant Communities

The South Bidwell study area encompasses 11 plant community types: annual grassland, mixed chaparral, blue oak woodland, blue oak-valley oak woodland, montane hardwood woodland, montane hardwood forest, montane hardwood forest/chaparral, montane hardwood-conifer forest, montane hardwood riparian, meadow, and freshwater marsh. A brief description of each community follows.

Annual Grassland

Description. Annual grasslands are strictly herbaceous communities dominated by non-native annual grasses and interspersed with native forbs.

Table 2-1. Vegetation Classification Cross Reference and Habitat Acreages

Wildlife Habitat Type[a]	Plant Community[b]	Acres of Habitat Type
Annual grassland	Non-native grassland	22
Mixed chaparral	Upper Sonoran mixed chaparral	36
Blue oak woodland	Blue oak woodland	244
Blue oak-valley oak woodland	Valley oak woodland	20
Montane hardwood woodland	Live oak woodland	86
Montane hardwood forest	Live oak forest	365
Montane hardwood/chaparral	Live oak forest	104
Montane hardwood-conifer forest	Mixed north slope forest	21
Montane hardwood riparian	Live oak riparian forest	42
Meadow	Montane meadow	3
Freshwater marsh	Valley freshwater marsh	<1
Total		823

[a] Based on Mayer and Laudenslayer (1988).
[b] Based on Holland (1986).

Annual grasslands in the study area are dominated by a mix of non-native annual grasses including soft chess, rip-gut brome, foxtail barley, medusa head, wild oats, and various annual fescues. Intermixed as subdominators are various filaree species. The dominant grasses and filarees are intermixed with a wide variety of annual and bulbaceous forbs such as members of the following genera: brodiaea, checker mallow, larkspur, sanicle white globe lily, clarkia, buttercup, clover, poppy, and lupine.

Distribution in the Study Area. About 22 acres of annual grasslands are found in the study area. Annual grassland species also comprise the understory of blue oak and various montane hardwood communities (described below). Annual grasslands that do not have a tree canopy are relatively uncommon in the study area, only occurring at two widely scattered sites (Figure 2-1).

Values and Significance. Annual grasslands provide important foraging habitat for livestock and wildlife, and they help prevent soil erosion and watershed degradation. Annual grasslands also provide aesthetic values characterized by spring wildflower displays and the golden hillsides found in California's lowlands in summer.

Mixed Chaparral

Description. Mixed chaparral is an evergreen shrub community characterized by dense, often impenetrable shrublands with canopies from 6 to 15 feet tall. The occurrences in the study area are dominated by white-leaved manzanita, buckbrush, toyon, poison-oak, and coffeeberry, which are interspersed in low numbers. Interior live oak and digger pine form a patchy overstory. An herbaceous layer is generally absent, except in canopy openings and at the edges of the chaparral stands.

Distribution in the Study Area. Mixed chaparral encompasses about 36 acres of the study site and is the prevalent community in the northwest portion of the study site where it dominates all slope aspects (Figure 2-1). The chaparral is also patchily distributed on arid south-facing slopes elsewhere in the study area, often intermixed with blue oak and hardwood woodland communities.

Values and Significance. Mixed chaparral provides important foraging and breeding habitat for deer and other wildlife species, and helps stabilize soils and slopes, thereby assisting in maintaining watersheds and protecting water quality.

Blue Oak Woodland

Description. Blue oak woodlands are dominated by a canopy of blue oak, interspersed with interior live oak and digger pine. Blue oak woodlands in the study area vary in character. One extreme form has a dense canopy with cover ranging from 30 to 50 percent; this phase has a shrub understory of buckeye, white-leaved manzanita, poison-oak and buckbrush. The other extreme exhibits an open canopy with cover of generally less than 30 percent. The more sparsely stocked stands have little or no shrub cover. Intermediate

examples occur in the study area. Both extremes, and intermediate phases, have a well-developed herbaceous layer of annual grasslands species, as described above.

Blue oak woodlands on north-facing slopes in the central portion of the study area has an impressive native bunchgrass herbaceous layer (Figure 2-1). The bunchgrass grassland is in a portion of the study site that is lightly grazed, which may account for the presence of this uncommon plant association. Many ecologists believe that mixed bunchgrass stands represent the historic condition of oak woodland understory herbaceous layers (Barry 1972, Heady 1977, Wester 1981).

Over 25 percent of the herbaceous cover in bunchgrass stands comprises native bunchgrass species. Species observed in the bunchgrass stands include purple needlegrass, California melic, and pine bluegrass, Junegrass, blue-stem wildrye, and squirreltail grass. These perennial species are mixed with typical annual grassland species.

Distribution in the Study Area. About 244 acres of the study site support blue oak woodlands. The community usually occurs on xeric, south-facing slopes and ridgetops of the study area (Figure 2-1). The location of that portion of the blue oak woodland that has a bunchgrass layer is also shown in Figure 2-1.

Values and Significance. Blue oak woodlands provide valuable habitat for a variety of wildlife and plant species. This community also helps prevent soil erosion and water quality degradation, and provides aesthetic landscape values (Diamond, et al. 1987).

Blue oak woodlands are becoming increasingly significant because of the effects of cumulative regional losses from habitat conversion on dependent wildlife and plant species, and the possible adverse, long-term effects of current regeneration problems documented in some regions (Lang 1988).

Native bunchgrass grasslands provide benefits similar to those described for annual grasslands. In addition, this community is considered significant because it is believed to represent the dominant native grasslands of presettlement California (Barry 1972, Heady 1977, Wester 1981). Historically, native bunchgrass communities occurred throughout the lowlands and cismontane areas of California. Today, stands of native bunchgrass species are infrequent, being restricted to relatively undisturbed and lightly grazed pockets of native vegetation. Stands with similar levels of bunchgrass species richness and coverage are uncommon in the Sacramento Valley, and especially uncommon in Butte County. Comparable bunchgrass stands do exist, however, at other sites in the Oroville foothills. The historical significance and current limited distribution of this community justifies treating the stand in the study area as a significant natural community.

Blue Oak-Valley Oak Woodland

Description. As the name implies, this community is dominated by a mix of blue oak and valley oaks. This community also has a sparse understory of poison-oak, buckbrush and white-leaved manzanita. The herbaceous layer consists of a typical annual grassland, as described above.

Distribution in the Study Area. Blue oak-valley oak vegetation occupies about 20 acres of the study site. The community occurs on mesic areas (i.e., protected areas with low moisture stress) in the flat valley bottoms associated with the unnamed creek that connects the two ponds in the northeast portion of the study site (Figure 2-1).

Values and Significance. Blue oak-valley oak vegetation provides benefits similar to those described for blue oak woodlands. Valley oaks are, however, more scarce and threatened than blue oaks because they occur on terraces and valley bottoms near waterways. Many sites that traditionally supported valley oaks have been converted to agricultural or urban uses because they have deep, highly fertile soils and are located on high floodplain terraces that rarely flood. Woodlands dominated by valley oak are generally considered significant natural communities because of both the threats facing many of the remaining occurrences and current problems with reproduction in some regions (Lang 1988). The relative value of the study area stands is low because of: 1) interspersion of blue oaks with other species, 2) small acreage, and 3) the area is not within a creek floodplain and therefore lacks the ecological context of other stands associated with riparian habitats of the Great Valley.

Montane Hardwood Woodland

Description. Montane hardwood woodlands in the study area are dominated by interior live oak, with blue oak and digger pine interspersed in low numbers. Canopy cover ranges from 30 to 50 percent. This vegetation type has a sparse midstory of buckeye, buckbrush, white-leaved manzanita, poison-oak, and toyon, and a well-developed annual grassland herbaceous layer.

Distribution in the Study Area. The single occurrence of montane hardwood woodland in the study area encompasses about 86 acres of the study site on the south-facing slope in the northeast corner of the study area (Figure 2-1).

Values and Significance. Montane hardwood woodlands provide the same values as blue oak woodlands. Unlike blue oak and valley oak woodlands, this community is not of concern because it is locally and regionally abundant, is not threatened, and has no apparent reproduction problems.

Montane Hardwood Forest

Description. Montane hardwood forests are similar in composition to montane hardwood woodlands, but their canopy cover exceeds 50 percent. Most occurrences in the study area have dense canopies with coverage exceeding 85 percent. Well-developed shrub understories or herbaceous layers are absent, due primarily to overstory shading. Poison-oak, stick-leaved manzanita, and various grasses and forbs are scattered throughout stands in low numbers.

Distribution in the Study Area. Montane hardwood forests in the study area occur on about 365 acres of the north-facing, mesic slopes and along protected drainage ravines throughout much of the central and southwest portions of the study site (Figure 2-1).

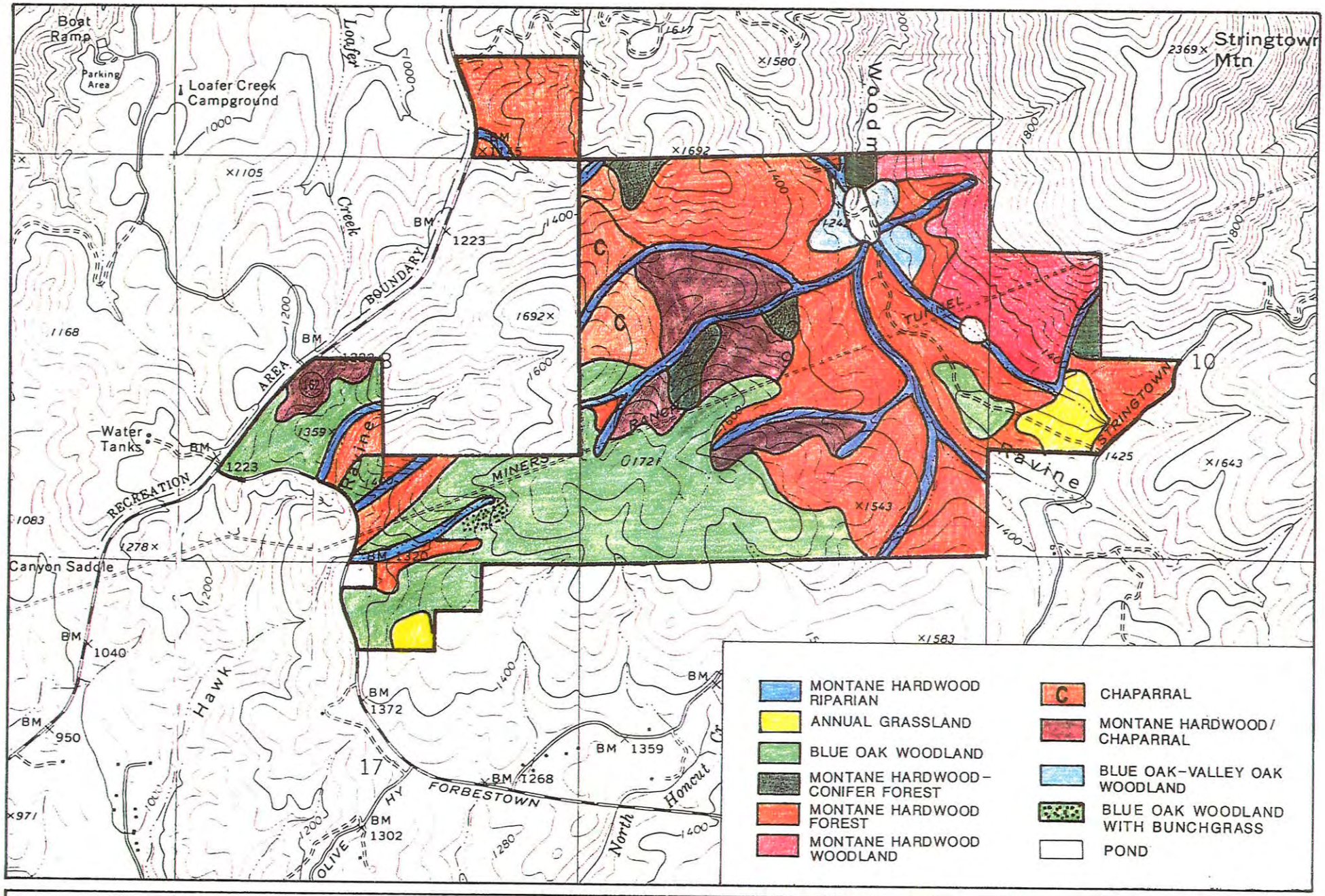

FIGURE 2-1. PLANT COMMUNITIES OF THE SOUTH BIDWELL STUDY AREA

Values and Significance. Montane hardwood forests provide values similar to those described for montane hardwood woodlands.

Montane Hardwood Forest/Chaparral

Description. This vegetation type has the same canopy dominance described earlier for montane hardwood forests, but differs in the composition and density of the shrub understory. The understory is well-developed and consists of dense, impenetrable stands of white-leaved manzanita, poison-oak, buckbrush, toyon, and coffeeberry.

Distribution in the Study Area. Montane hardwood forest/chaparral is located on about 104 acres of several north slopes in the central portion of the study area (Figure 2-1).

Values and Significance. Montane hardwood forests have values similar to those described for montane hardwood woodlands above. In addition, the dense understory provides important cover and foraging habitat for deer and other wildlife.

Montane Hardwood-Conifer Forest

Description. Montane hardwood-conifer forests have a canopy of 40- to 60-foot-tall ponderosa pine and digger pine, with a 30- to 50-foot-tall midstory of black oak and interior live oak. This vegetation type is also characterized by a dense shrub understory of toyon, buckbrush, white-leaved manzanita, poison-oak, and coffeeberry. Seedlings and saplings of incense cedar and ponderosa pine are common in some montane hardwood-conifer stands.

Distribution in the Study Area. Montane hardwood-conifer forests are found on mesic, north-facing slopes at five small, scattered sites in the central and northeast portion of the study area (Figure 2-1). About 21 acres of this community were mapped in the study area.

Values and Significance. This community provides values similar to those described for montane hardwood woodlands.

Montane Hardwood Riparian

Description. Montane hardwood riparian vegetation forms stringers along intermittent drainages in the study area. The vegetation is a mix of riparian-dependent species (i.e., species that habitually occur adjacent to permanent water bodies) and oaks, which also occur in the adjacent uplands. Canopy cover is dense, typically approaching 100 percent.

Riparian-dependent species are found within and immediately adjacent to the creek channel, while oaks occur on the tops of creek banks adjacent to the channel. Riparian-dependent species observed in the project area contribute approximately 5-10 percent of the total tree cover in montane riparian woodlands; the remaining cover comprises oak species.

A clear boundary does not exist in the project area between this community and the adjacent montane hardwood forests because both are dominated by interior live oak. A distinction between the two communities is nonetheless warranted, because the riparian community includes some riparian-dependent trees and has a substantially different understory and herbaceous layer. In addition, the presence of a seasonal creek flowing through forests dominated by interior live oak creates very different wildlife habitat conditions.

Common riparian-dependent species include Fremont cottonwood, arroyo willow, red willow, and Goodding's willow. Interior live oak is the prevalent oak in montane riparian woodlands of the project site, although some blue oaks are interspersed. An occasional big-leaf maple or black oak can also be found in this community. A shrub midstory occurs along creek banks and is composed of poison-oak, honeysuckle, California rose, redbud, and toyon, with wild grape draping over shrubs and trees in some localities.

Creek channels support a sparse herbaceous and subshrub vegetation dominated by California bricklebush, wild grape, and Himalaya berry. Common riparian herbs include aquatic buttercup, spike rush, common monkeyflower, California skullcap, cinquefoil, Pacific rush, Kellogg's yampah, and the narrow-leaved lotus.

A sparse montane hardwood riparian community occurs near the two ponds in the northeast portion of the study site where riparian-dependent trees occur singly or in small, dense stands. Typical species include Fremont cottonwood and arroyo, Gooddings, and red willows. Lake margins support much of the herbaceous vegetation listed for montane riparian woodland.

Distribution in the Study Area. Montane hardwood riparian vegetation is restricted to the edges of intermittent creeks that traverse most of the study site, and around the margins of the two artificial ponds (Figure 2-1). Coverage in the study area was 42 acres.

Values and Significance. Montane hardwood riparian vegetation is valued because of its role in helping maintain water quality, controlling creek bank erosion and its importance to wildlife species as a source of water, cover, food, and travel corridors. Riparian communities are generally treated as significant natural communities because of their high values and their increasing local and regional scarcity. Occurrences in the study area are representative of the locally and regionally widespread live oak-dominated riparian woodlands and therefore, are only important because of their immediate values of protecting water quality and providing habitat for wildlife.

Meadow

Description. Meadow vegetation consists of an herbaceous community of turf-forming perennial graminoids. Dominants in the project area include wiregrass, spike rush, umbrella sedge, slender rush, meadow barley, and dense sedge. Interspersed are a variety of annual and perennial grasses and forbs such as common monkeyflower, toad rush, bittercress, popcorn flower, and aquatic buttercup.

Distribution in the Study Area. Meadows have developed in the study area at the gently sloped edges of the two artificial ponds, and along the edge of the intermittent creek in the flat valley bottom where it flows into the upper artificial pond. The extent in the project area was not determined because the scale of the aerial photographs did not permit delineation of the small area encompassed by this habitat. Probably less than 3 acres are present in the South Bidwell site.

Values and Significance. Meadows in the study area probably would qualify as wetland under the jurisdiction of the U. S. Army Corps of Engineers (COE) pursuant to Section 404 of the Clean Water Act. This community is valued because it provides important foraging habitat for native wildlife and livestock and nesting sites for some bird species. It also helps stabilize shorelines of lakes and creeks, thereby minimizing erosion and helping to maintain water quality. Meadows are typically considered significant natural communities because of their status as a jurisdictional wetland, the current local and regional scarcity of lowland meadow wetlands, and their importance to a wide variety of dependent plant and wildlife species. Meadows in the study area support these values and are relatively uncommon in foothill portions of Butte County.

Freshwater Marsh

Description. Freshwater marshes are emergent aquatic communities that develop in open, permanent water bodies. Occurrences in the project area are dominated by dense swards of cattail and tule.

Distribution in the Study Area. Freshwater marshes are restricted to a few small stands in the artificial ponds in the northeast portion of the study area. Marshes occur as small stands at the southern end of the upper pond, and also occur as narrow stringers around pond margins. The area of marsh habitat was not measured but is less than 1 acre in extent.

Values and Significance. Freshwater marshes qualify as wetlands under the jurisdiction of COE pursuant to Section 404 of the Clean Water Act. This community-type is valued because of its importance to dependent wildlife species, and its role in water filtration and abatement of wind-generated waves that can erode shorelines. The acreage of freshwater marshes in lowland portions of the state has declined dramatically in past decades. The current scarcity and threats facing remaining stands, coupled with its status as a jurisdictional wetland and values to wildlife species, warrant the treatment of marshes as significant natural communities. The small acreage of marsh in the study area makes it of low to moderate value to many wildlife species.

Special-Status Plant Species

Results of the Prefield Investigation

The prefield investigation indicated that five special-status plant species could occur within the study area: Butte County checkerbloom (*Sidalcea robusta*), Red Bluff Rush (*Juncus leiospermus*), Mosquin's clarkia (*Clarkia mosquinii* ssp. *mosquinii*), Enterprise clarkia (*Clarkia mosquinii* ssp. *xerophila*), and the veiny monardella (*Monardella douglasii* ssp. *venosa*) (Table 2-2). Included in Table 2-2 are descriptions of the legal status, known geographic range, and habitat associations for each of these species.

Results of the Field Surveys

Suitable habitat for all five of the potential special-status plant species was detected in the study area, but no populations were located during the field surveys. Separate discussions of each of the potential special-status plants are provided below.

Red Bluff Rush. Red bluff rush is known from vernal pools and ephemeral seeps in Butte, Shasta, and Tehama Counties (Smith and Berg 1988). The nearest extant occurrence is reported from Table Mountain (Jokerst 1983), about 13 miles west of the study site. Meadow margins, ephemeral seeps, and grassy edges of intermittent creeks in the study area were considered suitable habitat for the species. The apparent absence of Red Bluff rush is consistent with the current understanding of its habitat associations. All foothill populations occur in areas with volcanic substrates in vernal pools and ephemeral seeps.

Butte County Checkerbloom. Butte County checkerbloom has been reported from oak woodland and grassland communities and is entirely restricted to Butte County (Smith and Berg 1988). In the study area suitable habitat for this species exists throughout the blue oak woodland, montane hardwood woodlands and forest, montane hardwood-conifer forest, and annual grasslands. A close relative of the Butte County checkerbloom, called the harsh checkerbloom (*Sidalcea malvaeflora* ssp. *asprella*), was found throughout the study site in habitat very similar to that where the Butte County checkerbloom has been observed. The absence of the Butte County checkerbloom could be due to competitive exclusion caused by the harsh checkerbloom. Its apparent absence from the study site is consistent with current knowledge regarding its distribution in Butte County; populations have not been reported south of the Pentz-Magalia Highway (Schlising 1987).

Mosquin's and Enterprise Clarkias. These two clarkia species are associated with grassy openings in cool, densely wooded, protected canyons of the Feather River drainage (Taylor 1983), about 16 miles north of the study site. Both subspecies are presumed extinct (Smith and Berg 1988), possibly eliminated by the construction of Lake Oroville. Marginally suitable habitat for both plants exists within the mixed hardwood-conifer forests of the study area. The suitability of these forests to support the species is considered low, however, because they are not located within cool, protected canyons. No evidence of

Table 2-2. Special-Status Plant Species Suspected With Potential to Occur at the South Bidwell Study Area

Common and Scientific Names	Status* Federal/State/CNPS	Distribution	Habitat
Butte County checkerbloom *Sidalcea robustia*	C2/–/1b	Restricted to the foothills of Butte County	Mesic, protected sites such as north slopes, draws, and areas with partial canopy shading in oak woodlands
Enterprise clarkia *Clarkia mosquinii* ssp. *xerophila*	C2/–/1a	Known only from Enterprise, which is presently submerged under Lake Oroville	Grassy openings in mesic, north slope mixed oak-conifer forests
Mosquin's clarkia *Clarkia mosquinii* ssp. *mosquinii*	C2/–/1a	Known only from a historic site now under Lake Oroville	Grassy openings in mesic, north slope mixed oak-conifer forests
Red Bluff rush *Juncus leiospermus*	C2/–/1b	Central Valley and foothills of the Sierra-Cascade mountains from Red Bluff (Tehama County) south to Merced County	Vernal pools, vernal swales, and seasonal seeps
Veiny monardella *Monardella douglasii* var. *venosa*	C2/–/1a	Scattered sites in the foothills of the Sierra-Cascade mountains; Marysville in the Sacramento Valley	Rocky scree slopes and ephemeral drainages

* Status definitions:

Federal = U. S. Fish and Wildlife Service (USFWS) (FR 50:39526-39584; 50 CFR 17.12).

C2 = A candidate species under review for federal listing. Category 2 includes species for which the USFWS presently has some information indicating that proposing to list them as threatened or endangered is possibly appropriate, but for which further biological research and field study are needed to determine biological vulnerability and threats. Note that Category 2 species are not necessarily less rare or endangered than Category 1 species. The distinction relates to the amount of data available and is therefore administrative and not biological.

State = California Department of Fish and Game (1989).

– = No official state designation.

CNPS = California Native Plant Society (Smith and Berg 1988).

1a = Plants considered extinct in California and elsewhere.
1b = Plants rare, threatened, or endangered in California and elsewhere. Species on this list presumably meet the criteria for listing as threatened or endangered under the state Endangered Species Act.

either subspecies was detected during the field survey. Several other clarkia species, however, were found in the study area (e.g., *Clarkia purpurea* ssp. *quadrivulnera*, *C. rhomboidea*, and *C. affinis*).

Veiny Monardella. The veiny monardella has not been observed in Butte County since the late 1800s. It was collected near Cherokee, about 13 miles west of the study site. Based on observations of related taxa, the species is presumed to prefer rocky, arid slopes on rock scree, and/or rocky ephemeral creeks. Both habitats occur sporadically in the project area, but no evidence of the species was found.

CHAPTER 3. Migratory Deer

INTRODUCTION

This chapter lists the criteria for the identification of Designated Development Zones (DDZ) in Butte County, describes the status of migratory deer in the South Bidwell study area, and assesses the applicability of current DFG delineation of DDZ and non-DDZ lands in the South Bidwell study area.

Migratory Deer at South Bidwell

South Bidwell provides winter range for migratory Columbian black-tailed deer of the Mooretown deer herd and supports a small resident deer herd (Snowden pers. comm.). Migratory deer generally arrive on winter range in early October and remain until early May. Deer will leave winter ranges during March if snow and weather conditions permit their return to higher elevation summer range. Deer from South Bidwell migrate northeast along the system of ridges to summer ranges between the Middle and South Forks of the Feather River, and areas near Little Grass Valley Reservoir and Pilot Peak (Snowden pers. comm.).

Population estimates for the Mooretown deer herd are based on the reported harvest of bucks (Snowden 1983). Previous surveys estimated the population at 4,000 deer (Longhurst, et al 1952). Previous population estimates may not be directly comparable to more recent ones because the boundaries of the Mooretown herd were changed by DFG in 1957 (Snowden 1983). Since 1958, the largest herd population occurred during 1963 to 1967 when peak population size approximated 9,460 deer. The population declined substantially from 1978 to 1982 when deer numbers were estimated at 6,780 (Snowden 1983). Estimates made in 1988 place the number of deer at 7,000; the population is now considered stable (Snowden pers. comm.).

Several factors are believed to have contributed to the decline of the Mooretown deer herd (Snowden 1983); among them are habitat loss from residential development and increased mortality rates resulting from road kills, poaching, and predation by dogs. About 90 percent of the Mooretown herd's winter range is privately owned and substantial development has recently occurred.

Other possible causes of the decline in herd size include a fire suppression program, which has reduced the frequency and extent of wildfires that provide early-successional habitat preferred by migratory deer, and logging, which has both reduced the number of oaks and depleted the supply of acorns, preferred forage for deer.

Designation of Important Deer Winter Range and Development Zones in Butte County

Development of Butte County lands within deer winter range has been a concern to DFG. Parnell (1985) reported that over 40 percent of the winter range habitat in Butte County has been lost to a variety of developments, mostly since 1965. This loss prompted the formation of the Butte County Deer Herd Study Panel (Evans et al. 1984) and the development of DFG's recommended measures for protection of migratory deer habitat in Butte County (Messersmith 1987).

The major goal of all parties in the deer herd winter range protection effort has been to identify areas of high importance to deer and areas of little or no importance where development could proceed. Lands of little or no importance were subsequently identified by DFG as DDZ. DFG agreed not to oppose development of DDZ lands within Butte County on the basis of deer habitat impacts, if mitigation measures were applied.

Winter range lands considered important to migratory deer were identified as critical and designated winter range areas. DFG recommended that subdivision in these areas be restricted to 40- and 20-acre parcel size minimums, respectively (Messersmith 1987). The Butte County Board of Supervisors adopted DFG's development maps, which are now used by Butte County for land use planning (Moore pers. comm.).

Criteria Used by DFG to Identify Winter Ranges

All lands within historic deer winter range in Butte County were evaluated by DFG for their winter range value (Messersmith 1987). Lands were assigned to critical winter range, designated winter range, and DDZ classes based on 40 years of information, including studies of habitat conditions, historical records of deer use, results of radiotelemetry investigations, records of deer kill by hunters and from vehicle collisions, and limited field work (Snowden pers. comm.). The maps were developed by DFG in 1986 and have not been updated.

The winter range area that was evaluated in DFG's Butte County study was too large to allow a detailed assessment of migratory deer habitat values on a parcel-by-parcel basis (Snowden pers. comm.). Consequently, the main focus of the analysis was to identify DDZ where development could proceed. An area was identified as a DDZ if it met one of five criteria (Messersmith 1987):

- the parcel was less than 20 acres,
- deer movement was blocked for at least 0.25 mile by parcels less than or equal to 20 acres,
- habitat was unsuitable for migratory deer,

- the parcel bordered a transportation corridor and was not within a migration window, and

- the land was bordered on three or more sides by parcels of less than 20 acres, and development of these parcels would not block deer movement or affect the surrounding area.

The DDZs were mapped by DFG and are on file with the Butte County Planning Department.

Designation of DDZ and Important Deer Winter Range at South Bidwell

South Bidwell straddles the northern boundary of the DDZ (Figure 3-1). The southwestern corner (SW 1/4 Section 8) of South Bidwell are adjacent to the Oroville-Quincy Highway (Highway 162), a transportation corridor (Snowden 1983). A migration window across Highway 162 is located immediately north of South Bidwell (Figure 3-1). Approximately 55 acres in the southwest portion of South Bidwell are within the DDZ, and the remainder is designated deer winter range.

Application of the General Procedure for Designating Deer Use Areas

DFG methods used to identify DDZs were designed to identify areas that have low value for deer where development with appropriate mitigation could reasonably occur. Information used to determine the importance of lands to migratory deer on winter ranges was based mainly on parcel size rather than habitat suitability and use. Consequently, it was possible for a large land parcel of low value to migratory deer to be identified as critical or designated deer winter range.

Objectives

The field study of deer use and habitat quality was designed to:

- determine the current status of migratory deer at South Bidwell by conducting a systematic inventory of deer habitat use and evaluating the area's habitat suitability; and

- provide data to review the appropriateness of South Bidwell's status as a designated deer winter range.

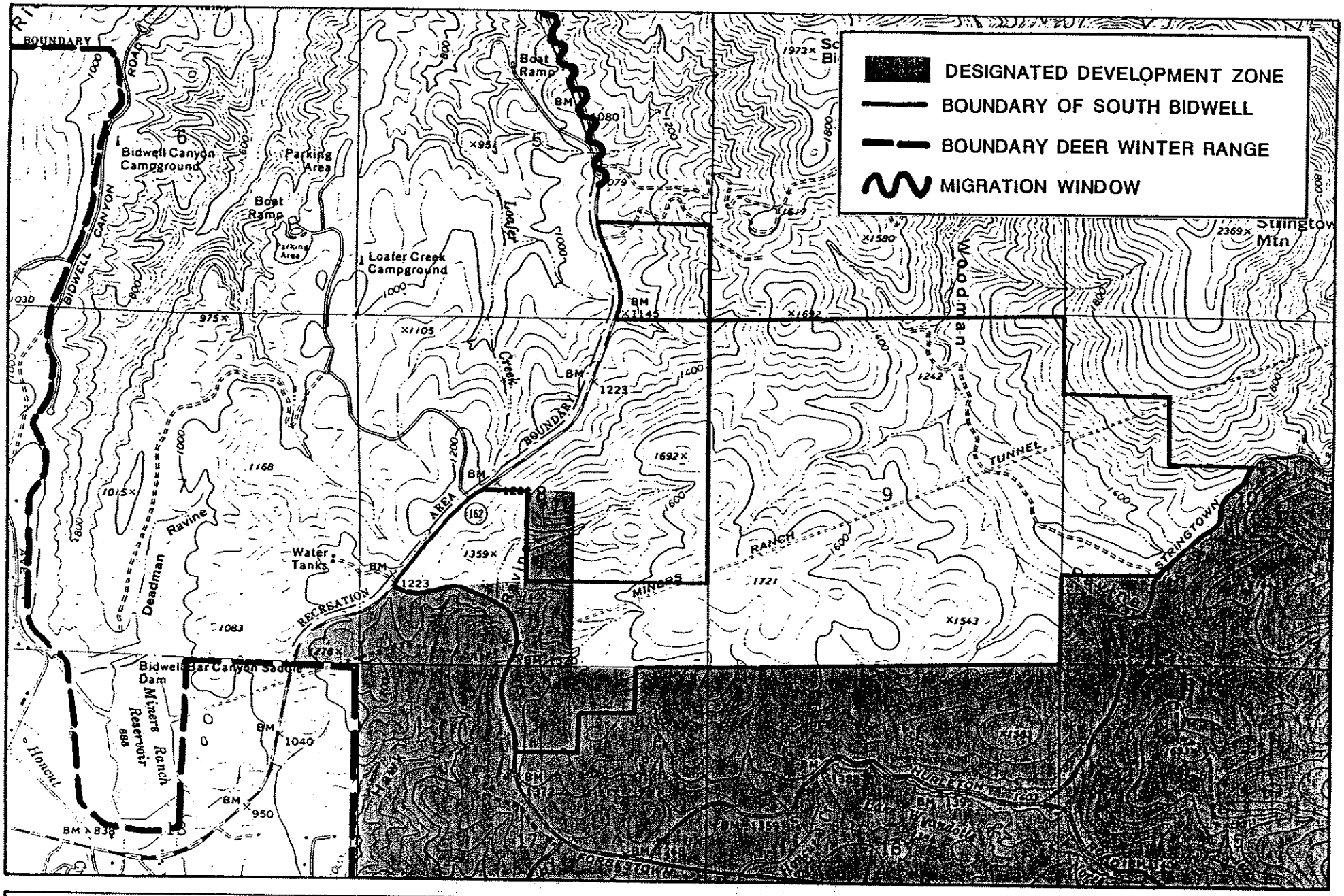

FIGURE 3-1. LOCATION OF DESIGNATED DEVELOPMENT ZONES AND MIGRATORY DEER WINTER RANGE AT SOUTH BIDWELL

Source: Butte County Planning Department File Information

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METHODS

Methods used to identify and map habitats are provided in Chapter 2. The relative abundance and distribution of deer were determined by counting the distribution of deer fecal pellet groups, during July 5 to 7, 1989. Fecal pellet groups were counted in 0.005 acre circular plots, randomly located along randomly selected transects. The number of plots within each habitat type was approximately proportional to the acreage of each habitat type within the study area. Pellet groups from previous seasons were distinguished by deterioration and were not tallied. Deer use was calculated assuming a defecation rate of 13 pellet groups per day (U. S. Forest Service 1969), and that deer occupied the South Bidwell site for 278 days per year (October 1, 1988 to July 5, 1989). Migratory deer occupied the winter range from October 1, 1988 to May 1, 1989 (Snowden pers. comm.).

Deer habitat use was estimated by calculating the density of pellet groups in each habitat type and multiplying by the total number of acres of the habitat (Loft and Kie 1988). Habitat types were then ranked according to the amount of use they received. Total deer use for South Bidwell was determined by adding the habitat use totals.

Deer utilization of browse plants was determined by recording the condition (i.e., form class) of individual browse plants within the pellet group plots. Results from these surveys help to evaluate the current and past levels of deer use. Criteria defining each form class were adapted from the U. S. Forest Service (1969) as follows:

- mostly unavailable - most forage on the plant is unavailable to deer because most of the forage has grown beyond the reach of deer.
- lightly browsed - little or no evidence of browsing, only a slight alteration of natural growth form;
- moderately hedged - evidence of browsing with alteration of natural growth form;
- heavily hedged - substantial evidence of browsing, and the natural growth form has been altered so that plant vigor has declined; and

The quality of browse species in the study area were rated as preferred, staple, or low use. The ratings were based on the classification scheme of Sampson and Jesperson (1963). Species in Sampson and Jesperson's use categories 1 to 2 were considered preferred, 2 to 3 as staple, and 3 to 5 as low-use browse species.

RESULTS

Results of the field studies were based on 200 pellet group plots and ratings of 753 individual browse plants.

Nine of the habitat types identified and described at South Bidwell would potentially be used as deer winter range (Table 3-1). Deer use was sampled in eight of the nine habitats; the montane hardwood-conifer habitat, which is restricted to cooler, moister, northerly aspects was not sampled. Montane hardwood-conifer vegetation occupies 21 acres, or 2 percent of the South Bidwell area. The lack of data from this habitat is not considered significant because northerly aspects provide low suitability winter habitat for deer (Salwasser et al. 1982), and this habitat type occupies a small portion of South Bidwell.

Distribution and Abundance of Deer

Pellet group densities ranged from 500 pellet groups per acre in the montane hardwood riparian habitat to no pellet groups in the annual grassland and blue-valley oak woodland (Table 3-1). The average overall density of 153 pellet groups per acre at South Bidwell was substantially higher than 15 groups per acre in winter range on Lime Saddle Ridge, south of Paradise in Butte County (Jones & Stokes Associates 1989), but substantially less than an average of 304 pellet groups per acre documented from 1954 to 1972 at the East Tehama deer herd winter range (Ramsey 1981), north of the Mooretown herd.

Estimated Population Size

Deer population estimates obtained from pellet group counts generally show moderate to high agreement with estimates obtained by other methods (Neff 1968 and Loft and Kie 1988); however, they should be used as a relative index rather than an absolute number. The total population estimate obtained from pellet group counts at South Bidwell was 28 migratory and resident deer. Deer use at South Bidwell was higher than at Lime Saddle Ridge (Jones & Stokes Associates 1989), because there are no human barriers that block migratory deer using the area. Barriers to migration created by the City of Paradise and Lake Oroville were believed reasonable for low numbers of migratory deer on Lime Saddle Ridge (Jones & Stokes Associates 1989).

The estimate of 28 deer in South Bidwell does not distinguish between migratory and resident deer. Pellet group plots were counted in early July, approximately 65 days after migratory deer left the winter range that year. Therefore, some of the pellet groups were probably from the small population of resident deer that resides in the area.

Table 3-1. Deer Habitat Use Determined by the Frequency of Pellet Groups

Habitat Type	Number of Pellet Group Plots	Number of Pellet Groups	Average Pellet Groups/Acre	Habitat Acres	Pellet Groups/Habitat	Percent Use
Montane hardwood forest	50	8	80	365	29,200	29.4
Montane hardwood riparian	10	10	500	42	21,000	21.2
Montane hardwood/chaparral	20	6	150	104	15,600	15.7
Mixed chaparral	10	7	350	36	12,600	12.7
Blue oak woodland	60	6	50	244	12,200	12.2
Montane hardwood woodland	30	6	100	86	8,600	8.6
Blue oak-valley oak woodland	10	0	0	0	0	0.0
Annual grassland	10	0	0	22	0	0.0
Total	200	43	153.75[a]	899	99,200	99.8

[a] Average number of pellet groups/acre for study area.

Habitat Use

The distribution of pellet groups has been correlated with the distribution of deer, as determined from radiotelemetry studies (Loft and Kie 1988). Therefore, the distribution of pellet groups can be used to rank habitats according to deer use levels.

The highest concentrations of pellet groups were measured along the riparian corridors that drain into the two reservoirs and then to the southeastern corner of the study area (Figure 3-2). High densities were also measured along the interface between the blue oak woodland and montane hardwood forest in the southern portions of the property (Figure 3-2). The lowest concentrations of pellet groups were located along the southwestern corner of the study area.

The montane hardwood forest, which encompasses about 365 acres (38 percent) of the study area, received approximately 30 percent of the estimated deer use, followed by the montane hardwood riparian and montane hardwood/chaparral with 21 and 16 percent total use, respectively (Table 3-1). The mixed chaparral and blue oak woodland habitats each received approximately 12 percent of the total estimated deer use in the study area. The absence of pellet groups in the blue/valley oak woodlands and annual grasslands does not necessarily mean that the areas were not used by deer. Instead, deer use may have been so low that pellet groups did not fall within the randomly located sample plots.

Browse Utilization

Results of browse utilization surveys to determine levels of deer use on browse species available to deer in the study area at South Bidwell are presented in Table 3-2 and in Appendix B. Key information obtained from browse utilization surveys is the proportion of preferred and staple browse plants rated as heavily hedged. Deer use is considered moderate if less than 15 percent of the preferred browse plants or five percent of the staple browse plants are rated as heavily hedged. Deer use is considered high if more than 15 percent of the preferred browse plants or five percent of the staple browse plants are rated as heavily hedged. Forage plants evaluated at South Bidwell included only those plants commonly browsed by migratory deer on winter ranges (Leach and Hiehle 1957).

All habitats except the blue oak woodland and blue-valley oak woodland showed high use by deer (Table 3-2). The percentage of preferred and staple browse plants rated as heavily hedged exceeded the standards for high deer use in the montane hardwood riparian and montane hardwood woodland habitat types. Staple browse plants rated as heavily hedged exceeded standards for high deer use in the montane hardwood forest, montane hardwood forest/chaparral, and mixed chaparral habitat types. Browse utilization was not evaluated in the annual grassland because browse species were absent.

The observation of high deer use of browse species in most habitats at South Bidwell indicates that high densities of migratory and resident deer have been feeding in the area for many years. Levels of browse use by deer in different habitats were closely correlated with deer use levels as determined by pellet group counts.

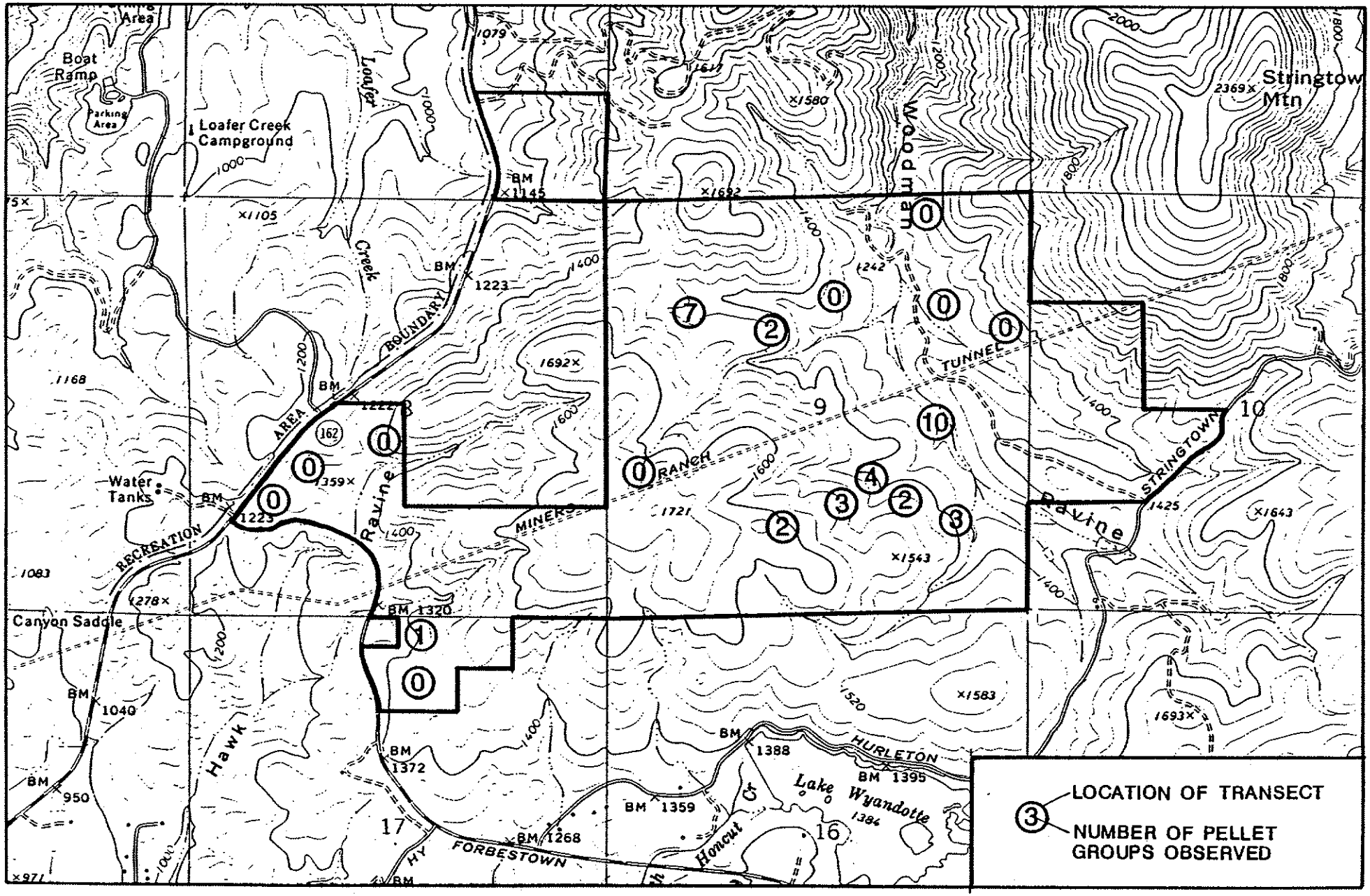

FIGURE 3-2. LOCATION OF PELLET GROUP TRANSECTS AT THE SOUTH BIDWELL STUDY AREA

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Table 3-2. Deer Utilization of Forage Species in Habitats at South Bidwell

Habitat Type and Browse Plant Rating	Number of Shrubs Sampled	Percent Occurrence in Utilization Classes			
		Lightly Hedged	Moderately Hedged	Heavily Hedged	Mostly Unavailable
Montane hardwood forest					
Preferred[a]	73	79.4	5.4	4.1	10.9
Staple	154	76.6	1.9	20.7	0.6
Low use	5	20.0	0.0	20.0	60.0
Subtotal	232	76.3	3.0	15.5	5.1
Montane hardwood riparian					
Preferred	11	36.3	0.0	45.4	18.1
Staple	17	82.3	17.6	5.8	0.0
Low use	1	100.0	0.0	0.0	0.0
Subtotal	29	65.5	6.8	20.6	6.8
Montane hardwood/chaparral					
Preferred	21	85.7	9.5	4.7	0.0
Staple	43	67.4	13.9	18.6	0.0
Low use	2	0.0	0.0	0.0	0.0
Subtotal	66	74.2	12.1	13.6	0.0
Mixed chaparral					
Preferred	5	40.0	0.0	20.0	40.0
Staple	9	77.7	0.0	22.2	0.0
Low use	5	100.0	0.0	40.0	60.0
Subtotal	19	47.3	0.0	26.3	26.3

Table 3-2. Continued

Habitat Type and Browse Plant Species	Number Sampled	Percent Occurrence in Utilization Classes			
		Lightly Hedged	Moderately Hedged	Heavily Hedged	Mostly Unavailable
Blue oak woodland					
Preferred	30	66.6	3.3	0.0	30.0
Staple	198	77.2	19.1	3.5	0.0
Low use	18	83.3	0.0	11.1	5.5
Subtotal	246	76.4	15.8	3.6	4.0
Montane hardwood woodland					
Preferred	39	64.1	0.0	30.7	5.1
Staple	109	77.9	1.8	20.1	0.0
Low use	8	50.0	0.0	50.0	0.0
Other	4	25.0	75.0	0.0	0.0
Subtotal	160	71.8	3.1	23.7	1.2
Blue-oak valley oak woodland					
Preferred	0	0.0	0.0	0.0	0.0
Staple	1	100.0	0.0	0.0	0.0
Low use	0	0.0	0.0	0.0	0.0
Subtotal	1	100	0.0	0.0	0.0
Total	753	74.1	8.1	13.6	4.1

[a] Forage preference index derived from Sampson and Jesperson 1963.

Deer Habitat Ratings

Migratory deer winter habitat was rated using information from the pellet group and browse utilization surveys. Habitat types were rated high quality if they received a high percentage of deer use based on pellet transects and the browse utilization surveys. Habitat types were rated low quality if they received no deer use. All other habitat types were rated as moderate quality for deer.

High-Quality Deer Habitat

The 407 acres of montane hardwood forest and montane hardwood riparian habitats were rated as high quality for deer. Collectively, these two habitats encompass about 43 percent of the study area (Figure 3-3). These two habitats accounted for 50 percent of the deer use estimated for the study area (Table 3-1), and more than 15 percent of the staple browse plants in each habitat were heavily hedged (Table 3-2).

The montane hardwood forest also received the highest deer use levels at Lime Saddle (Jones & Stokes Associates 1989). Montane hardwood forests provide deer with cover and seasonal food items; the trees and shrubs provide hiding and thermal cover for deer; and blue and interior live oaks provide acorns that deer eat during fall after arriving on the winter range. From December to late February deer primarily consume shrub browse species such as buckbrush (also referred to as wedge leaf ceanothus) and interior live oak. Annual grasses and forbs are consumed in large quantities as soon as they become green in late fall. The period of this heavy consumption is usually from March to early May (Leach and Hiehle 1957).

Moderate-Quality Deer Habitat

The 104 acres of montane hardwood/chaparral, 244 acres of blue oak woodland, 36 acres of mixed chaparral, and 26 acres of montane hardwood woodland habitats were rated as moderate quality deer habitat. These habitats encompass approximately 470 acres, or 50 percent of the study area (Figure 3-3). The montane hardwood/chaparral and mixed chaparral habitats received similar levels of deer use, each supporting from 12 to 15 percent of the total deer use in the study area (Table 3-1). More than 15 percent of the staple browse species in each habitat were heavily hedged (Table 3-2). Montane hardwood/chaparral and mixed chaparral also received high deer use in Tuolumne County (Leopold et al. 1951) and at Lime Saddle (Jones & Stokes Associates 1989).

Habitat quality of blue oak woodlands was rated as moderate because deer use was similar to that of the mixed chaparral habitat. Deer graze extensively in this habitat when early fall rains and warm temperatures stimulate growth of annual plants (Leach and Hiehle 1957). Buckbrush, a staple browse species, is used consistently by deer during winter (Leach and Hiehle 1957) and was abundant in the blue oak woodlands of the study site

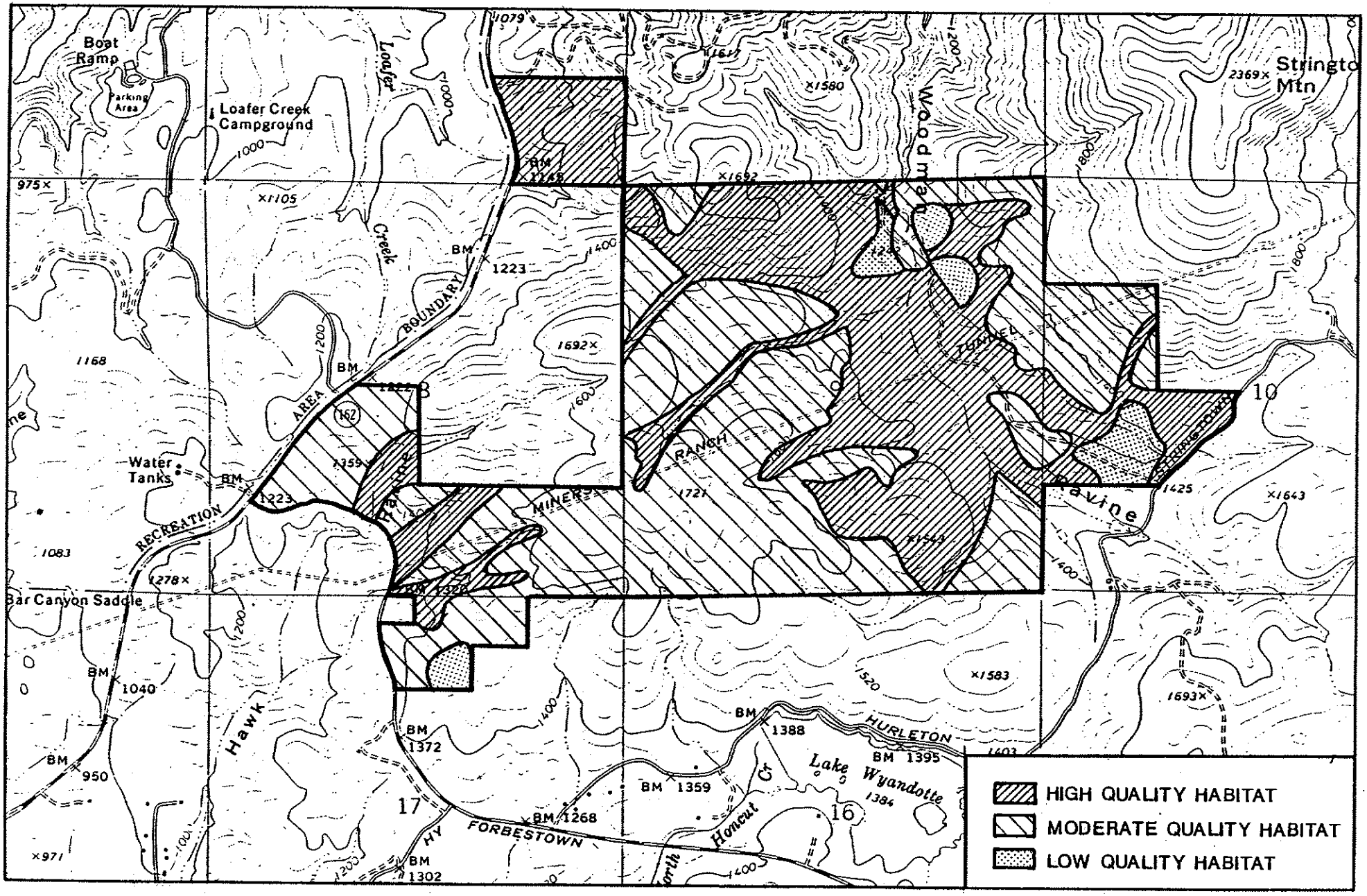

FIGURE 3-3. DISTRIBUTION OF MIGRATORY DEER HABITAT AT SOUTH BIDWELL STUDY AREA

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(Appendix B). At Lime Saddle, the blue oak woodland received eight percent of the deer use (Jones & Stokes Associates 1989).

Estimated levels of deer use in the montane hardwood woodland was lower than that of the other habitat types rated as moderate in this study. This habitat was considered of moderate quality because it supported a high percentage of preferred and staple browse plants that were heavily hedged (Table 3-2), and supports a variety of browse species used by deer (Appendix B). Montane hardwood woodlands contain a variety of oak species, which provide acorns used by deer in fall; a heavy cover of browse plants used by deer in winter; and annual forbs and grasses which are consumed in large quantities by deer during winter and early spring.

Low-Quality Deer Habitat

Blue-valley oak woodlands and annual grasslands were rated as low-quality deer habitat because deer use was not observed in either. This conclusion is also consistent with findings at Lime Saddle, where annual grasslands received very little use and the blue-valley oak woodlands were not used at all (Jones & Stokes Associates 1989).

DISCUSSION

Reevaluation of South Bidwell

Most of South Bidwell was identified as designated deer winter range (Figure 3-1). DFG used five criteria to identify DDZ and deer winter ranges. Each of these criteria are reevaluated below using the results of this study.

Criterion 1: The Parcel Is Less than or Equal to 20 Acres

All of the parcels in South Bidwell are larger than 20 acres, except in the southwest portion of the area.

Criterion 2: Deer Movement Is Blocked for At Least 0.25 Mile by Parcels Less than or Equal to 20 Acres

Deer movement is not blocked by small-acreage parcels along the west, north, and eastern boundaries of South Bidwell. Deer movement may be partially blocked by existing development south of South Bidwell where land has already been subdivided into small parcels. Movement is expected to become more difficult as additional development proceeds.

Criterion 3: Habitat Is Unsuitable for Migratory Deer

Population estimates and range (i.e., browse) condition surveys demonstrate that South Bidwell has suitable habitat for migratory deer. Pellet group surveys provided for a minimum population estimate of 28 deer. Although the population estimate did not distinguish between resident and migratory deer, most of the deer use is probably attributable to migratory deer because they are known to use the winter range (Snowden 1983), and because there are no barriers to prevent them from reaching the site.

Of the 940-acre study area, 407 acres (43 percent) were rated as high-quality deer habitat while 470 acres (50 percent) were considered of moderate quality. Forty-two acres (4 percent) were rated as low-quality deer habitat. The 21 acres (2 percent) of montane hardwood/conifer habitat was not sampled for deer use, but was considered low-quality deer habitat because it occurred on cool, moist, northerly slopes that generally are not used by deer during winter.

Criterion 4: The Parcel Borders a Transportation Corridor and Is Not Within a Migration Window

Portions of South Bidwell bordering Highway 162 are not within a migration window and are therefore consistent with this criterion.

Criterion 5: The Land Is Bordered on Three or More Sides by Parcels of Less than 20 Acres, and Development of the Parcel Would Not Block Deer Movement or Affect the Surrounding Area

The southern border of South Bidwell is adjacent to DDZ. The other three sides of South Bidwell are adjacent to parcels larger than 20 acres. Therefore, the entire South Bidwell area does not meet Criterion 5. Development of South Bidwell, however, would not further restrict deer movement to the south because that area is already a DDZ. A small, triangular portion of the land in the southwest portion of the site is bordered on two sides by DDZ and on one side by a transportation corridor (Figure 3-1), and thus may meet this criterion.

CONCLUSIONS

Reconsideration of DDZ and deer winter range designations appear to be justified in certain portions of South Bidwell. Isolated parcels in the southwestern and northwestern corners of South Bidwell adjacent to Highway 162 (Figure 3-3) are adjacent to a transportation corridor and appear to qualify under DFG criteria for designation as a DDZ.

The isolated parcel in the southwestern corner of the study area (i.e., that portion of South Bidwell in the southwest 1/4 of Section 8) (Figure 3-2) is between a transportation corridor and existing DDZ, and pellet group surveys have indicated low deer use in this

area. The parcel's designation as a DDZ would consolidate the area with adjacent DDZs to the south and east. The area did not receive high use by deer (Figure 3-2), despite the area's high or moderate quality for deer based on revegetation characteristics (Figure 3-3).

Designation of the isolated parcel in the northwest corner of South Bidwell (i.e., southeast corner of Section 5) as DDZ would be consistent with Criterion 4. However, such a designation would affect deer use of montane hardwood forest and montane hardwood riparian habitats, the two highest rated deer habitats in the study area (Figure 3-3); and it creates an isolated DDZ, albeit next to Highway 162, surrounded on these sides by designated migratory deer winter range. The remaining substantial portions of the study site are rated as both high and moderate quality and clearly provide winter habitat to migratory deer. Data and observations support this area's current status as a designated deer winter range.

CHAPTER 4. Special-Status Raptors

INTRODUCTION

Several special-status raptor species could occur at or near the study area, including the federally listed bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) a state species of special concern. Habitat attributes at or near the study site were evaluated to determine their importance to breeding and wintering bald and golden eagles, and other special-status raptors. This chapter also evaluates the potential impacts of anticipated development on special-status raptors in the study area and suggests ways to lessen or avoid these impacts.

METHODS

The evaluation of special-status raptors consisted of a two-phase acquisition of data on species that could occur in the study area and field surveys of the project site and vicinity. Sources of information used to evaluate the potential for special-status raptor species to occur on the project site included the DFG's Natural Diversity Data Base, local DFG biologists, published literature, and file information of Jones & Stokes Associates.

Field surveys for bald and golden eagles were conducted in conjunction with deer use surveys on July 5-7, 1989. All areas of the project site were visited and all habitats were surveyed.

Suitable nesting trees within the study area and those observed in adjacent areas were checked for bald and golden eagle nests. Land within the study area was evaluated to determine its potential as nesting and foraging habitat for bald and golden eagles, and for other sensitive raptors.

Surveys for special-status raptors other than bald and golden eagles were not of sufficient intensity to positively ascertain whether they inhabit or occasionally use the study area. The potential for these species to occur was determined based on evaluations of habitat conditions on the project site.

RESULTS

Bald Eagle

The bald eagle is listed as endangered under the state and federal Endangered Species Act. Suitable nesting and wintering habitat exists near Lake Oroville and along the tributaries of the Feather River where bald eagles are reported to occur during the nesting and wintering seasons (Jurek pers. comm.).

Nesting Bald Eagles

Proximity to open water is the principal factor that determines the suitability of bald eagle nesting habitat. Optimal habitat occurs at shorelines and adjacent areas that support tall trees for nesting, hunting, and perching; allow open flight paths; and are sparsely populated by humans (Whitfield 1974). Lehman (1979) reports that most nest sites are within 1 mile of water.

Bald eagles usually build their nests in mature conifer trees, often ponderosa pine (Lehman 1979), which are uncommon in the South Bidwell study area. Nest sites generally occur in conifer forest stands with at least 20 percent upper canopy cover (Lehman 1979).

The study area has five small stands of ponderosa pine (montane hardwood conifer forest) on north-facing slopes surrounded by montane hardwood forests and mixed chaparral habitats (Figure 2-1). Some of the ponderosa pine trees, which are 1-2 miles from Lake Oroville, are tall and have open flight paths facing the lake. The northwest corner of the study area is approximately 1 mile from Lake Oroville (Figure 1-1).

The Lake Oroville area supported two active bald eagle nests in 1989 (Jurek pers. comm.). One nest, within the Spring Hollow territory, is approximately 3 miles north of the study area in a mature ponderosa pine tree surrounded by oak woodland and chaparral habitats. Habitat conditions at this nest site are similar to those at the study area (Jurek pers. comm.).

Bald eagles have also been observed near Stringtown Mountain (Snowden pers. comm.), about one-half mile east of the northeast corner of the study area (Figure 1-1). A nest site has not been confirmed near Stringtown Mountain (Snowden pers. comm.). A second pair of eagles would not be expected to nest at this location because the site is too close to the nest site north of the study area. Observations of bald eagles near Stringtown Mountain could indicate that an alternate nest for the Spring Hollow territory pair could be located somewhere on or near Stringtown Mountain (Snowden pers. comm.).

Based on the above information, montane hardwood conifer stands in the study area were considered suitable bald eagle nesting habitat. However, neither bald eagles nor bald eagle nests were observed during field surveys of the study site and adjacent areas.

Wintering Bald Eagles

Wintering bald eagles also use large, live and dead trees for perch and nighttime roost sites near lakes, rivers, and large creeks (Snow 1973). Lake Oroville and tributaries of the Feather River represent suitable wintering habitat for bald eagles, and wintering bald eagles are reported annually from this area (DFG 1989). The study area, however, is not considered highly suitable for wintering bald eagles. A substantial amount of suitable habitat is available in areas immediately adjacent to Lake Oroville and major forks of the Feather River (Snowden pers. comm.). The study site is approximately 1 mile southeast of Lake Oroville and several miles southwest of the South Fork of the Feather River. These observations suggest that wintering bald eagles would not be expected to use the study site regularly, although occasional overflights are expected.

Golden Eagle

The golden eagle is a state-listed species of special concern (Remsen 1978). Golden eagles construct nests on cliff ledges, high rocky outcrops, or in large trees. Ponderosa pine, digger pine, and live oak trees are often used as nest trees (Snow 1973). Golden eagles require large expanses of open habitats such as annual grassland, oak savanna, and open chaparral for foraging (Dunstan et al. 1978).

DFG records indicate that golden eagles nest in the general vicinity of the proposed project site. The nearest historic nest site, which was inactive when last checked in 1985, is 3 to 4 miles north of the study site. Golden eagles could also nest at undocumented locations near the study site.

The foothills and mountains of Butte County support high-quality golden eagle nesting and foraging habitat where rocky ledges and mature trees occur on steep ridges overlooking valleys with grasslands and oak savanna habitats.

No rocky outcrops or cliffs considered suitable for golden eagle nests were detected in the study area. Suitable golden eagle nest trees, including digger pine and ponderosa pine, are scattered throughout the area. Neither golden eagles nor their nest sites were found during field surveys of the study site and adjacent areas.

Much of the project site is unsuitable for golden eagle foraging. The area supports two small patches of annual grassland (Figure 2-1). The density of montane hardwood forests and mixed chaparral vegetation in the study area does not permit successful foraging. Blue oak woodlands and montane hardwood woodlands are marginally suitable as foraging habitat and thus could support a low level of golden eagle use.

Other Special-Status Raptor Species

The study site is within the known range of several other special-status raptors, including the black-shouldered kite (*Elanus caeruleus*), a fully protected species in

California, and osprey *(Pandion haliaetus)*, Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk *(Accipiter striatus)*, prairie falcon (*Falco mexicanus*), burrowing owl (*Athene cunicularia*), and long-eared owl (*Asio otus*), all species of special concern (Remsen 1978).

Black-Shouldered kite. Black-shouldered kites were not observed in the study area, which is situated at the eastern edge of the species' range in California. Black-shouldered kites are generally restricted to low elevations where extensive tracts of open foraging habitat, such as grasslands and agricultural lands, provide a high-density source of voles (*Microtus* sp.). Although nesting habitat exists at South Bidwell, suitable foraging habitat is absent. Hence, black-shouldered kites are not expected to occur at the study site.

Osprey. No ospreys or their nests were observed during field surveys of the study site. Osprey nests are usually constructed in large snags or broken-top trees near large bodies of water such as Lake Oroville and the Feather River. An osprey was observed at Lake Oroville in April 1989 during surveys of the site. Ospreys generally prefer to nest near shorelines but will nest as far as 2 miles from a body of water if closer nest sites are unavailable (Airola and Shubert 1981). While some marginally suitable osprey nest trees exist in the study site, areas closer to Lake Oroville and the Feather River provide a greater abundance of higher quality potential nesting habitat.

Cooper's Hawk. The Cooper's hawk is primarily a woodland species that is associated with lowland riparian habitats, foothill oak woodlands, and montane riparian habitats in the Sierra Nevada (Verner and Boss 1980). The study site provides high quality nesting and foraging habitat for Cooper's hawk (Figure 2-1). None was found during field surveys, although the species may nest in the study area and almost surely occurs during winter and in mitigation.

Sharp-Shinned Hawk. Sharp-shinned hawks nest primarily in dense conifer forests, but have also been observed in high elevation deciduous woodlands and montane riparian habitats. This species nests in very low densities in California, while wintering birds are considerably more abundant (Remsen 1978). It is unlikely that sharp-shinned hawks would nest in the study area because of its low elevation. Sharp-shinned hawks probably winter at the project site. No nests or birds were observed during field surveys.

Prairie Falcon. Prairie falcons nest on sheltered ledges on tall vertical cliffs that overlook large, open areas (Snow 1974). Field surveys indicate that suitable cliffs for prairie falcon breeding do not exist in the study area. Prairie falcons could occasionally use the more openly wooded habitats in the study area (Figure 2-1) for foraging, but they were not observed during field surveys.

Burrowing Owl. Suitable burrowing owl habitat consists of treeless expanses that support low-growing vegetation and have suitable burrows (Zarn 1974). The scarcity of open grasslands with low-growing vegetation indicates that burrowing owls would not be expected to use the study area. No burrowing owls or their burrows were found during field surveys.

Long-Eared Owl. Long-eared owls breed in very low densities throughout most of California (Remsen 1978). During the spring-summer breeding season long-eared owls are closely associated with woodland habitats (Johnsgard 1988). They breed in small

numbers in riparian corridors within the blue and live oak woodlands of the Sierra Nevada foothills (Verner and Boss 1980). The heavily-wooded drainage in the northeast corner of the study area is the only highly suitable nesting habitat in the study area. No long-eared owls were observed during field surveys.

CHAPTER 5. Constraints Analysis and Recommendations

Surveys and studies were conducted to identify potential conflicts between anticipated development and biological resources that could, if eliminated or disturbed, sustain significant adverse impacts as this term is defined in California Environmental Quality Act (CEQA) Guidelines (1970).

INTRODUCTION

This chapter analyzes biological constraints; describes measures that could reduce or avoid significant impacts to biological resources; recommends mitigation measures that could ameliorate the effects of, or compensate for, unavoidable significant impacts; and recommends possible courses of action to overcome administrative constraints.

CONSTRAINTS ANALYSIS

Types of Biological Constraints

Types of potential biological constraints identified at South Bidwell include:

- the significant natural communities of blue oak woodland with native bunchgrass understory, montane hardwood riparian, seeps, meadows, and freshwater marshes;
- wetlands and waters under jurisdiction of COE pursuant to Section 404 of the Clean Water Act; and
- designated deer winter range.

Constraint Zones

All habitats in the study area were assigned to one of three constraint categories that reflect the significance of impacts if the habitat was disturbed or eliminated and feasibility of mitigation. Habitats were placed in the high constraint zone if their loss or degradation would constitute a significant impact under CEQA and if unavoidable impacts could not be feasibly mitigable from cost or technical standpoints within the context of development anticipated at the site. Habitats included in the moderate constraint zone are those that

would sustain significant impacts if affected or disturbed but for which feasible mitigation measures exist. The low constraint zone includes habitats that would not sustain significant impacts if affected or disturbed. Constraint zones are mapped in Figure 5-1.

Constraints Analysis

High Constraint Zones

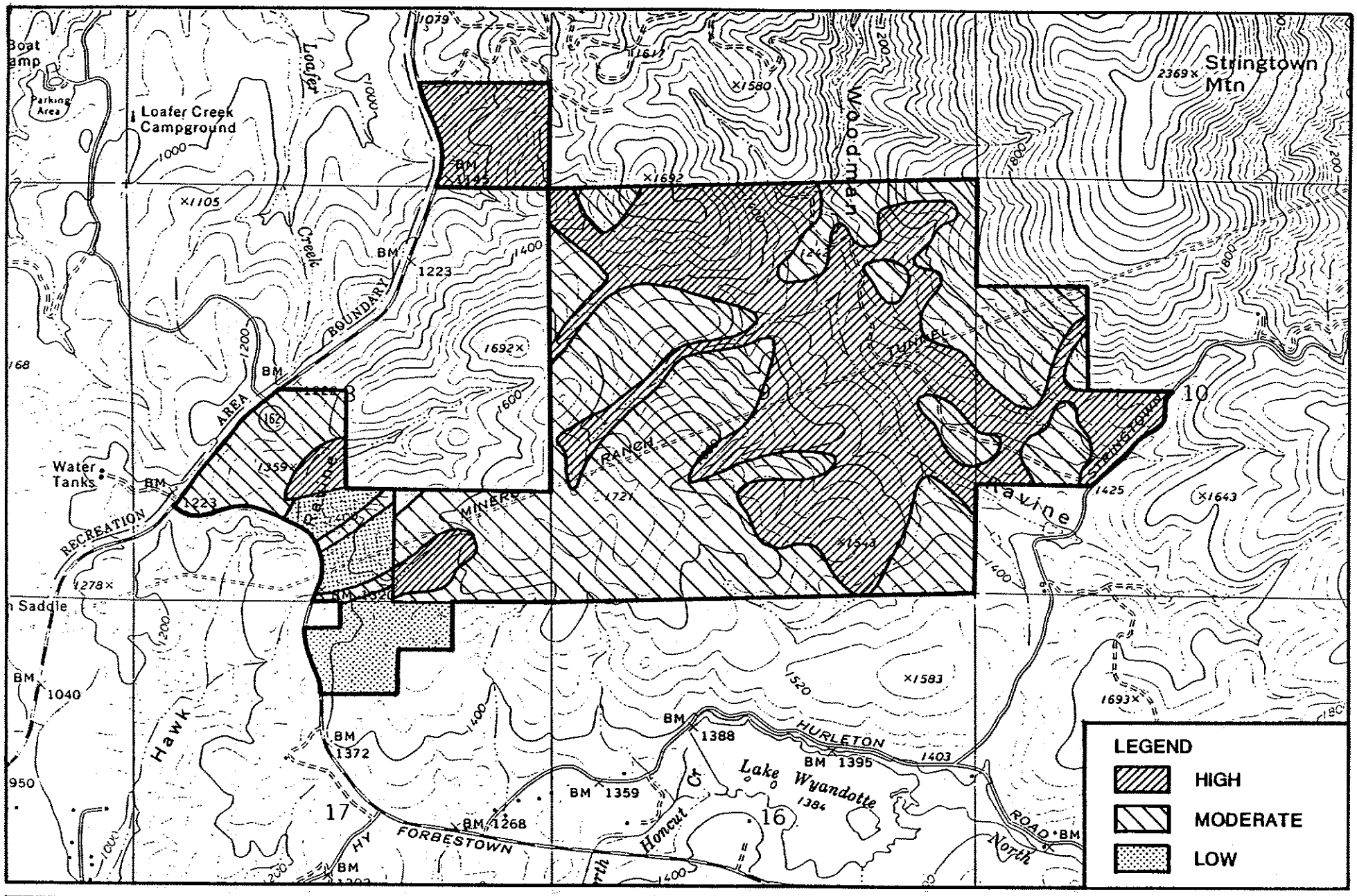
Ponds, bunchgrass stands (Figure 2-1), and high-quality designated deer winter range (Figure 3-3) were included in the high constraint zone (Table 5-1). Loss of pond habitat does not appear feasibly mitigable within the context of development anticipated for South Bidwell. Replacing the bunchgrass stand is theoretically possible but not feasible within the context of the anticipated project because the only suitable replacement sites are in the immediate vicinity of the existing stand.

Mitigating the loss of high-quality deer winter range may be biologically feasible because nearby low-quality habitat could be enhanced to increase its deer capacity, but DFG and Butte County would be expected to oppose development of South Bidwell for several reasons. First, development would violate existing policy regarding designated winter ranges. Second, they may not approve offsite mitigation as a technique to offset losses of substantial amounts of habitat onsite because of the high level of deer use the site currently supports, and its proximity to adjacent developed land and designated deer winter range. Finally, they are likely to contend that enhancement of adjacent areas does not guarantee that deer which have traditionally used the study site will be able to locate and use the enhanced areas.

Moderate Constraint Zones

Meadows, seeps, freshwater marshes, montane hardwood riparian habitat (Figure 2-1), and low- and moderate-quality winter deer habitat (Figure 3-3) are placed in the moderate constraint zone. Loss of meadow, seep, and marsh habitat appears feasible to mitigate because areas are available onsite where these habitats could be suitably re-created and small acreages are involved. Ecological values encompassed by montane hardwood riparian habitat are easily replaced because the woody vegetation is not very different from that existing in montane hardwood forests of the study site. Impacts to montane hardwood riparian habitats resulting from road crossings and other minor features would affect only a small portion of the total extent of this habitat in the study area and could be mitigated by replacement plantings along unvegetated creek banks and implementation of management practices that minimize the construction-related disturbances of siltation, bank destabilization, and vegetation removal adjacent to the construction zone.

High-density development (i.e., at <20-acre parcel sizes) in low- and moderate-quality deer habitat within designated deer winter range could possibly be mitigated by implementing onsite measures that would protect deer movement areas and high-quality habitat (described below), and enhancing low-quality habitat onsite and offsite to



LEGEND

HIGH

MODERATE

LOW

FIGURE 5-1. CONSTRAINT ZONES FOR THE SOUTH BIDWELL SITE

0 2000 FEET

Table 5-1. Constraint Zone Designations

Constraint Zone	Resource/Habitat	Most Intensive Uses That Would Not Result in Significant Impacts
High	Ponds	Passive recreation, fishing
	Bunchgrass stands	Passive recreation, grazing
	High-quality designated deer winter range	Residential development of parcels greater than 20 acres
Moderate	Low- and moderate-quality designated deer winter range not identified by DFG as DDZ	Residential development of parcels less than 20 acres
	Meadows, seeps, and fresh-water marshes	Passive recreation, grazing
	Montane hardwood riparian	Passive recreation, grazing
Low	Areas identified by DFG as DDZs	High-density residential development in conformance with general plan policy

compensate for reduced carrying capacity in the developed areas. Such mitigation efforts, however, may not be fully successful and may not be approved by DFG.

Low Constraint Zones

Designated developed zones (Figure 3-1) that do not include montane hardwood riparian habitat (Figure 3-1) can be developed without mitigation measures because no significant impacts are expected.

MITIGATION OPTIONS

Mitigation approaches are presented for biological resources that could be significantly impacted by development activities at South Bidwell.

Significant Natural Communities

Native Bunchgrass Vegetation

If impacts to the native bunchgrass community are anticipated, a representative portion of the native bunchgrass stand should be set aside and permanently dedicated as nondevelopable open space. An area of at least 3 acres should be protected from initial development and subsequent impacts that might result from future uses, such as grazing, trampling, artificial irrigation, landscaping, and ground-disturbing activities.

Montane Hardwood Riparian

To avoid significant impacts to the montane hardwood riparian habitat, 100-foot-wide buffers from the top of each creek bank should be permanently dedicated as nondevelopable open space and protected by easement or property covenant codes and restrictions. Small losses of the montane hardwood riparian woodland (i.e., segments of less than 200 linear feet) for road crossings and other necessary project features would not necessarily cause significant impacts, but the acreage lost should be minimized and provision made for wildlife movement along the riparian corridors. Protection of riparian corridors would also mitigate potential impacts on some special-status raptor species and addresses administrative constraints associated with DFG Streambed Alteration Agreements and Section 404 of the Clean Water Act. (See "Administrative Constraints and Possible Courses of Action" below.)

Meadows and Freshwater Marshes

Meadows near the upper lake and around the edges of both lakes, and the freshwater marshes in both lakes, would likely qualify as wetlands under the jurisdiction of

COE, which regulates the removal or placement of dredge material or fill in wetlands of the United States. The discussion in the "Administrative Constraints" section clarifies responsibilities under the Clean Water Act.

Loss of the meadow or marsh habitats in the study area could also represent significant adverse impacts under CEQA. This impact is mitigable by avoiding the loss or by providing full compensation for degradation or related habitat losses that result from project construction and development. These habitats could be incorporated into the golf course shown on the concept plan as water hazards (Evans pers. comm.). Meadow and marsh areas should also be designated as nondevelopable open space to ensure their long-term protection after development of the site.

Migratory Winter Deer Range

Mitigation measures for deer winter range can be divided into measures to reduce, ameliorate, or compensate for adverse effects. Other than avoiding development or disturbance of important deer habitat, the major measure that could be used to permit development and maintain deer habitat value is to increase development density in low-quality habitats above the existing level permitted by Butte County (1 unit per 20 acres) in exchange for a reduction in permitted density in high-quality habitats. This measure would cluster development on low-quality habitats and thereby maintain larger blocks of undeveloped high-quality winter deer habitat in the study area. This transfer would require that undeveloped areas be protected in perpetuity as open space.

Other measures to reduce the impacts of development in deer habitat include:

- designing the project to permit unobstructed deer movement through the site and between undeveloped onsite lands,
- establishing undeveloped buffers between undeveloped high-quality deer habitat and areas to be developed,
- requiring low-density development in areas where deer movement is extensive,
- restricting use of fencing that would obstruct deer movement within the project area,
- maintaining undeveloped stream corridors and buffers to provide access to water sources and to maintain movement corridors,
- designing roads in deer movement areas to provide high visibility so drivers could detect deer that cross roads (possible techniques include wide turn radii and clearing rights-of-way of low woody vegetation),

- reducing vegetation density in dense areas that currently inhibit deer movements, and

- establishing strict control measures on pet dogs to prevent them from harassing deer.

Compensation for the loss of designated deer winter range could be accomplished by enhancing nearby land to increase its capacity to support deer. This land should be close enough to the project site to accept the displaced deer. The land may also have to be afforded permanent protection from future development and provided with an endowment to ensure long-term management to compensate for lost winter range.

Habitat could be enhanced by prescribed burning to open up dense forest, woodland, and chaparral habitats. Burning could be designed to release established browse plants and stimulate the germination and growth of new browse shrubs and herbaceous forage. Land within the Lake Oroville State Recreation Area or nearby U. S. Bureau of Land Management land on Stringtown Mountain might be suited for this effort. Habitats in these areas that could provide the greatest increase in value to winter deer include senescent, manzanita-dominated chaparral and live oak forests that lack a well-developed shrub understory. Full compensation for loss of DDZ land could require enhancing at least twice the acreage eliminated by the project. A detailed plan describing the enhancement location, treatment types, schedule, and monitoring needs would need to be prepared based on additional field study.

Other possible onsite or offsite compensation measures include seeding preferred deer forage species, reducing livestock grazing, and developing water sources in areas away from existing sources. A mitigation plan that incorporates one or more of the above measures could be developed to compensate for loss of winter deer range.

Special-Status Raptors

Bald Eagle

Development is not expected to have a direct impact on the nesting pair of bald eagles located about 3 miles to the north of the study area because the distance separating the sites is considered an adequate buffer to protect their nesting activities (Snowden pers. comm.). Mitigation measures would therefore not be necessary to protect this nest site from development in the study area.

The study area does not provide important bald eagle wintering habitat. Development in the study area is not expected to affect wintering bald eagle activity on Lake Oroville and the Feather River. The 1-mile distance from the study area to the nearest open water is considered an adequate buffer against disturbance of bald eagle perching and foraging activities (Snowden pers. comm.). No mitigation would be required.

The study area contains suitable bald eagle nesting habitat. Because of their sensitivity to human disturbance, bald eagles would not be expected to nest in the study area if any part of the study area were substantially developed. Loss or disturbance of the

five isolated potential nest sites that encompass approximately 21 acres of the study site would probably not constitute a significant impact. Based on the proximity of the nearby active nest and the presumed abundance of highly suitable nest sites throughout the mostly wild and rugged canyon country near Lake Oroville and the Feather River, a second pair would not be expected to nest onsite.

Golden Eagle

Development in the study area is not expected to have a direct impact on nesting golden eagles because the site has not been documented as important locally to golden eagles, and no evidence of nesting birds was detected.

Development of the study site would slightly reduce the extent of potentially suitable golden eagle nesting habitat if stands of digger pine, ponderosa pine, and interior oak or live blue oak were eliminated or developed as high use urban areas. Loss of trees to development probably would not substantially reduce the availability of nesting habitat because the project site contains only a few acres of suitable habitat and a large amount of nesting habitat is available locally and regionally. Significant impacts on local populations of golden eagles would not be expected. The negative effects of development in the project area could be reduced by incorporating drainage slopes with small stands of ponderosa pine and digger pine (i.e., montane hardwood-conifer forests) into open space preserves. Maximizing the protection of other wooded habitats would further reduce the potential effects of development on the golden eagle.

Other Special-Status Raptor Species

The black-shouldered kite, osprey, prairie falcon, and burrowing owl are not expected in the project site; thus, development of the study site would result in no impact to these species.

The Cooper's hawk and long-eared owl could possibly nest in the study site. Sharp-shinned hawks are possible winter visitors. Suitable habitat for these species includes the blue oak woodland, montane hardwood woodland, montane hardwood forest, and montane hardwood riparian. Development of the study site reduces potential nesting and foraging habitat for these species. This effect is not expected to be significant because the study area contains only a few areas of suitable habitat and a large amount of nesting habitat is available locally and regionally. Incorporating the preferred habitats of the species into open space areas could reduce this effect by preserving nesting and foraging areas.

While significant direct impacts on nesting raptors are not expected as a result of development of the study site, the cumulative impacts resulting from development throughout the foothill region could eventually cause significant declines in populations of these and other species from loss of foraging and nesting habitat, effects of habitat fragmentation, and habitat disturbance and degradation. Maintenance of deer winter range habitat in other areas, however, would prevent any significant cumulative impact.

Section 404 of the Clean Water Act

Creek channels in the study area qualify as "waters of the United States" under the Clean Water Act. Meadows, seeps, and marshes qualify as wetlands under the Clean Water Act. Sites qualifying as waters and wetlands under the Clean Water Act are under jurisdiction of COE. The act empowers COE to regulate the placement or removal of dredge or fill in jurisdictional waters and wetlands.

COE requires that when non-water-dependent projects would fill or dredge within jurisdictional waters or wetlands an analysis must be provided that demonstrates that all practicable alternatives to filling have been evaluated and shown to be infeasible. Generally, COE will not issue permits for projects where feasible alternatives to filling in wetlands and waters exist.

Filling of less than 1 acre (i.e., cumulative projectwide acreage) of jurisdictional water and wetlands is currently permitted by COE under the existing Nationwide 26 (N-26) permit when certain conditions are met. N-26 permits to fill less than 1 acre do not require an alternative analysis. Filling 1-10 acres of water or wetlands can be covered under the permit, subject to COE's discretion and the applicant's agreement to implement certain measures. COE's Sacramento District, which has jurisdiction over the South Bidwell study site, has been granting nationwide permits for fills of 1-10 acres when adequate compensation is provided and other measures are satisfied. Adequate compensation has recently entailed full in-kind replacement of the habitat acreage and wetland values eliminated by the permitted activity at a replacement ratio of 2:1 (acreage created: eliminated). However, under certain circumstances an individual permit is required.

If future development plans include proposals to fill jurisdictional waters or wetlands, then a wetland delineation using the unified federal methodology (Federal Interagency Committee for Wetland Delineation 1989) should be undertaken. Once complete, the acreage of desired fill in waters and wetlands can be calculated and a future course of action developed. An N-26 permit would apply for cumulative fills of less than 1 acre. Fills exceeding 1 acre would be covered under either an N-26 or individual permit.

DFG - Streambed Alteration Agreement

DFG would require the project applicant to enter into a streambed alteration agreement for incursions into the 100-year floodplain of creeks (California Department of Fish and Game Code, Section 1603). Incursion includes an activity that alters the streambed, such as construction of a bridge or use of heavy machinery in creek channels. Streambed alteration agreements stipulate best management practices that set guidelines and criteria to protect water quality, fish, and wildlife resources; minimize habitat disturbance and loss; and compensate or rectify significant impacts.

DFG's Delineation of Designated Deer Winter Range

The residential development of South Bidwell is currently limited to minimum lot sizes of 20 acres because of the site's status as a designated deer winter range. Conclusions presented in Chapter 3 support this designation for most portions of South Bidwell because they do not meet the criteria for DDZ, and deer use was relatively high. Development proposals with parcels of less than 20 acres would require approval by Butte County, presumably with DFG's concurrence. Based on these restraints, the following recommendations for resolving deer winter range concerns are provided.

- South Bidwell proponents could request that Butte County and DFG change the current designation of the two small parcels adjacent to Highway 162 from designated deer winter range to DDZ. (See Chapter 3.) These two areas qualify under the current criteria used to identify DDZs. If changed to a DDZ, these areas would then be considered as within the low constraint zone.

- South Bidwell could petition Butte County to designate as DDZ the 44-acre portion of the study area identified as low-quality deer habitat (Figure 3-3). Development of these areas would not have a significant effect on the migratory deer herd if deer movement is adequately provided for and deer are protected against predation by domestic pets.

- South Bidwell could request that Butte County and DFG designate as DDZ portions of the moderate-quality deer habitat onsite that is adjacent to existing DDZ (Figure 3-3). Altering the designation probably would require that the applicant provide stringent mitigation to protect high-quality and undeveloped moderate- and high-quality deer habitat from development-related impacts, and develop appropriate onsite or offsite compensation to offset the loss of deer habitat.

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CHAPTER 7. Acknowledgments

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We thank Michael Evans of The South Bidwell Participation Group for assistance throughout the study and Robert M. Taylor, also of The South Bidwell Participation Group, for useful comments on a draft copy of the report. We also thank the following agency personnel for assistance with various study phases: James Snowden and Ronald Jurek (DFG) and Brent Moore (Butte County Planning Department).

Appendix A. Common and Scientific Names of Plant Species Referred to in the Text

Common Name	Scientific Name
Arroyo willow	*Salix lasiolepis*
Big-leaf maple	*Acer macrophyllum*
Bittercress	*Cardamine oligosperma*
Black oak	*Quercus kelloggii*
Blue oak	*Quercus douglasii*
Brodiaea	*Brodiaea californica, Dichelostemma pulchellum,* and *D. multiflorum*
Buckbrush	*Ceanothus cuneatus*
Buckeye	*Aesculus californica*
Butte County checkerbloom	*Sidalcea robusta*
California bricklebush	*Brickellia californica*
California skullcap	*Scutellaria californica*
California rose	*Rosa californica*
California melic	*Melica californica*
Cattail	*Typha latifolia*
Cheatgrass	*Bromus tectorum*
Cinquefoil	*Potentilla glandulosa*
Clarkia	*Clarkia affinis, C. purpurea* ssp. *quadrivulnera,* and *C. unguiculata*
Clover	*Trifolium* sp.
Coffeeberry	*Rhamnus californica* ssp. *tomentella*
Common monkeyflower	*Mimulus guttatus*

Appendix A. Continued

Common Name	Scientific Name
Delphinium	*Delphinium variegatum*
Dense sedge	*Carex densa*
Digger pine	*Pinus sabiniana*
Enterprise clarkia	*Clarkia mosquinii* ssp. *xerophila*
Filaree	*Erodium botrys* and *E. cicutarium*
Foxtail barley	*Hordeum leporinum*
Fremont cottonwood	*Populus fremontii*
Goodding's willow	*Salix gooddingii*
Harsh checkerbloom	*Sidalcea malvaeflora* ssp. *asprella*
Himalaya berry	*Rubus procerus*
Honeysuckle	*Lonicera interrupta*
Interior live oak	*Quercus wislizenii*
Italian ryegrass	*Lolium multiflorum*
Junegrass	*Koeleria cristata*
Lupine	*Lupinus vallicola*
Meadow barley	*Hordeum brachyantherum*
Medusa head	*Taeniatherum asperum*
Mosquin's clarkia	*Clarkia mosquinii* ssp. *mosquinii*
Mugwort	*Artemisia douglasiana*
Narrow-leaved lotus	*Lotus oblongifolia*
Pacific rush	*Juncus effusus* var. *pacificus*
Pine bluegrass	*Poa scabrella*
Poison-oak	*Toxicodendron diversilobum*

Appendix A. Continued

Common Name	Scientific Name
Popcorn flower	*Plagiobothrys fulvus* var. *campestris*, *P. stipitatus*, and *P. nothofulvus*
Poppy	*Eschscholzia californica*
Prickle-seed buttercup	*Ranunculus muricatus*
Purple needlegrass	*Stipa pulchra*
Purple sanicle	*Sanicula bipinnatifida*
Red Bluff rush	*Juncus leiospermus*
Red willow	*Salix laevigata*
Redbud	*Cercis occidentalis*
Sanicle	*Sanicula bipinnata*, *S. bipinnatifida*, and *S. crassicaulis*
Soft chess	*Bromus mollis*
Spike rush	*Eleocharis macrostachya*
Squirreltail grass	*Sitanion hystrix*
Toad rush	*Juncus bufonius*
Toyon	*Heteromeles arbutifolia*
Tule	*Scirpus acutus*
Umbrella sedge	*Cyperus eragrostis*
Valley oak	*Quercus lobata*
Western buttercup	*Ranunculus occidentalis*
White globe lily	*Calochortus albus*
White-leaved manzanita	*Arctostaphylos viscida*
Wild oats	*Avena barbata* and *A. fatua*

Appendix A. Continued

Common Name	Scientific Name
Wild grape	*Vitis californica*
Wiregrass	*Juncus balticus*
Ponderosa pine	*Pinus ponderosa*

Appendix B. Deer Utilization of Individual Browse Species at South Bidwell

Habitat Type (n)[a] and Species	Total Number Sampled	Forage Preference	Number Sampled			
			Lightly Hedged	Moderately Hedged	Heavily Hedged	Mostly Unavailable
Montane hardwood forest (50)						
Blue oak	29	preferred	19	--	2	8
Interior live oak	44	preferred	39	4	1	--
Buckbrush	2	staple	--	--	2	--
Coffeeberry	14	staple	9	--	5	--
Honeysuckle	17	staple	16	1	--	--
Oregon white oak	1	staple	1	--	--	--
Poison-oak	67	staple	48	1	18	--
Toyon	53	staple	44	1	7	1
Manzanita	5	low use	1	--	1	3
Subtotal	232		177	7	36	12
Montane hardwood riparian (10)						
Blue oak	1	preferred	1	--	--	--
Interior live oak	10	preferred	3	--	5	2
Buckbrush	1	staple	--	--	1	--
Coffeeberry	2	staple	2	--	--	--
Honeysuckle	12	staple	11	1	--	--
Poison-oak	2	staple	1	1	--	--
Manzanita	1	low use	1	--	--	--
Subtotal	29		19	2	6	2
Montane hardwood/chaparral (20)						
Blue oak	7	preferred	4	2	1	--
Interior live oak	14	preferred	14	--	--	--
Coffeeberry	1	staple	--	1	--	--
Poison-oak	25	staple	17	--	8	--

Appendix B. Continued

Habitat Type (n)[a] and Species	Total Number Sampled	Forage Preference	Number Sampled: Lightly Hedged	Moderately Hedged	Heavily Hedged	Mostly Unavailable
Toyon	17	staple	12	5	--	--
Manzanita	2	low use	2	--	--	--
Subtotal	66		49	8	9	0
Mixed chaparral (10)						
Blue oak	3	preferred	--	--	1	2
Interior live oak	2	preferred	2	--	--	--
Buckbrush	4	staple	2	--	2	--
Honeysuckle	5	staple	5	--	--	--
Manzanita	5	low use	--	--	2	3
Subtotal	19		9	0	5	5
Blue oak woodland (60)						
Blue oak	30	preferred	20	1	--	9
Buckbrush	54	staple	9	38	7	--
Coffeeberry	2	staple	2	--	--	--
Honeysuckle	44	staple	44	--	--	--
Poison-oak	93	staple	93	--	--	--
Toyon	5	staple	5	--	--	--
Manzanita	18	low use	15	--	2	1
Subtotal	246		188	39	9	10
Montane hardwood woodland (30)						
Black oak	8	preferred	8	--	--	--
Blue oak	13	preferred	8	--	5	--
Interior live oak	18	preferred	9	--	7	2
Canyon live oak	41	staple	37	1	3	--

Appendix B. Continued

Habitat Type (n)[a] and Species	Total Number Sampled	Forage Preference	Number Sampled			
			Lightly Hedged	Moderately Hedged	Heavily Hedged	Mostly Unavailable
Coffeeberry	7	staple	7	--	--	--
Deerbrush	5	staple	5	--	--	--
Honeysuckle	1	staple	1	--	--	--
Poison-oak	48	staple	28	1	19	--
Toyon	4	staple	4	--	--	--
Valley oak	3	staple	3	--	--	--
Manzanita	8	low use	4	--	4	--
Bush monkeyflower	3	unknown	--	3	--	--
Unidentified	1	unknown	1	--	--	--
Subtotal	160		115	5	38	2
Blue-oak valley oak woodland (10)						
Coffeeberry	1	staple	1	--	--	--
Total	753					

[a] Number of plots within each habitat.

JONES & STOKES ASSOCIATES, INC. / 2600 V STREET, SUITE 100 / SACRAMENTO, CA 95818-1914

916/737-3000

FAX 916/737-3030

September 7, 1990

Mr. James Messersmith, Regional Manager
California Department of Fish and Game
1701 Nimbus Road
Rancho Cordova, CA 95670

Dear Mr. Messersmith:

Enclosed is a recent Jones & Stokes Associates report that describes our evaluation of the important biological resources and constraints on a 940-acre area east of Oroville, California. I am requesting a meeting in the field with James Snowden, Unit Biologist, to discuss our report and opportunities available to change the California Department of Fish and Game's (DFG's) recommended land use for a 46-acre Taylor parcel (map attached) from designated winter range to designated development zone (DDZ).

The results of our migratory deer winter range surveys for the 940-acre study area were mostly consistent with DFG's recommended land use as designated deer winter range or DDZ. However, the results of our surveys and evaluation of DFG's criteria for deer range designation and the existing land use designation suggest that DFG's designation should be changed for the 46-acre Taylor parcel.

Most of the Taylor parcel is blue oak woodland and rated as moderate quality habitat; however, no deer or pellet groups were observed on the parcel during our surveys. The parcel should qualify as a DDZ because it is surrounded by DDZ lands on two sides and on the third side by a transportation corridor that is not within a migration window. Changing the land use designation would be consistent with DFG's land use designations to the east and south.

Our surveys also identified potential habitat on the Taylor parcel for the Butte County checkerbloom, a special-status plant; however, none were located during intensive surveys. No bald eagle nesting or important wintering habitat or locally important golden eagle habitat occurs on the parcel.

I will call Mr. Snowden in the next 2 weeks to arrange a field meeting. Please call me if you have any questions.

Sincerely,

Steve Holl
Project Manager

SH:jw

Enclosure

Attachment

cc: Michael Evans
James Snowden
Robert Taylor

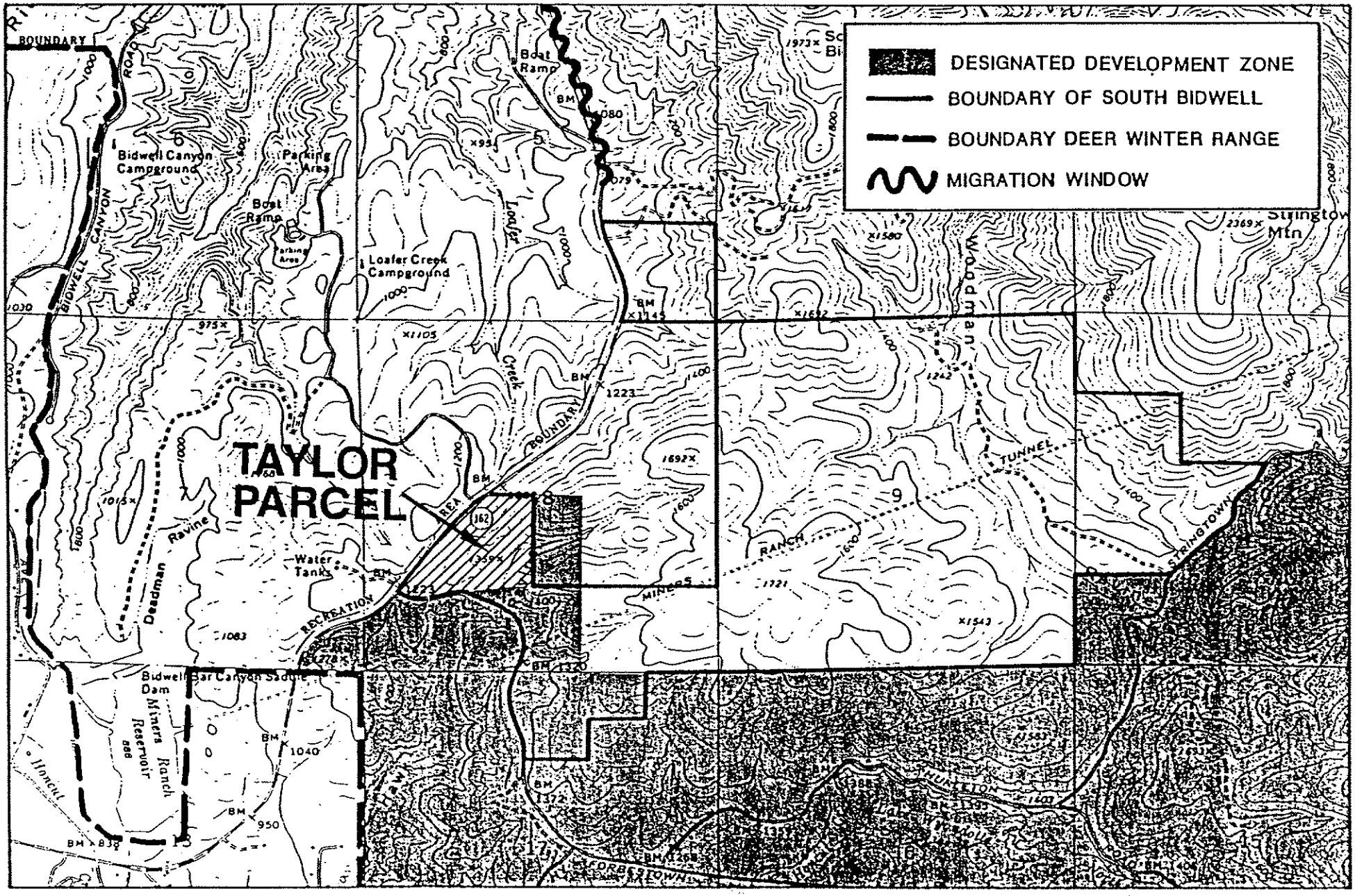

FIGURE 3-1. LOCATION OF DESIGNATED DEVELOPMENT ZONES AND MIGRATORY DEER WINTER RANGE AT SOUTH BIDWELL

Source: Butte County Planning Department File Information.

0 2000 FEET

STATE OF CALIFORNIA—THE RESOURCES AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF FISH AND GAME
REGION 2
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CALIFORNIA 95670
(916) 355-7020

Rec'd 9/20/90

September 18, 1990

Mr. Steve Holl
Jones and Stokes Associates, Inc.
2600 V Street, Suite 100
Sacramento, CA 95818

Dear Mr. Holl:

The Department of Fish and Game (DFG) has reviewed your September 7, 1990 letter regarding Robert Taylor 46-acre parcel (A.P. 72-180-16). Located east of Oroville, the parcel lies within critical winter range of the Mooretown deer herd.

The parcel lies outside of a Designated Development Zone (DDZ), but is bounded by a DDZ on its south and east sides. It is bounded on its west side by Highway 162, an Identified Transportation Corridor (ITC). That portion of the parcel within 500 feet of the ITC qualifies for land division. Since the remainder of the parcel would be small and surrounded on three sides by small parcels, DFG does not object to including A.P. 72-180-16 into the adjacent DDZ provided the Board of Supervisors adopts and implements mitigation measures for residential encroachment impacts on deer winter range and imposes appropriate measures on said parcel.

If we can be of further assistance, please contact Mr. Ron Bertram, Associate Wildlife Biologist, or Ms. Patricia Perkins, Wildlife Management Supervisor, telephone (916) 355-7010.

Sincerely,

James D. Messersmith
Regional Manager

Appendix F

3.0 COMMUNITY DEVELOPMENT STANDARDS

Development within the Stringtown Mountain community will be guided by community development standards to insure that the community presents itself as a quality leisure-oriented development in a very natural and environmentally sensitive setting. Development of each of the components of the plan area will require design review by Butte County Planning and Public Works consistent with the guidelines of the Planned Unit Development Zone (PUD).

The intent of this section is to establish standards and general guidelines which ensure consistent quality while supporting flexibility and the ability to provide unique design solutions.

3.1 Community Design Policies

The design objectives of the Stringtown Mountain Specific Plan are to achieve:

1. A community plan that ties the separate uses together and encourages people to walk rather than use their automobiles within the plan area.

2. A built environment that minimizes disruption of existing natural features, and to the extent practicable, blends with and takes advantage of the natural topography.

3. Maximum potential for energy conservation through building and landscape designs and orientations which recognize the climatic conditions in the area.

4. High quality and aesthetically superior development that relates architectural style, landscaping, lighting, and circulation to produce environments that are pleasing in form, scale, texture, color and variety.

5. Safety and convenience for all residents, employees, and visitors to the community.

6. The provision of a variety of compatible uses within walking distance of one another lending to a more self-sustaining lifestyle within the community.

3.2 Project Site Design Standards

1. Each component of the plan shall be designed to be complete in its function, circulation, drainage, infrastructure, landscaping, and visual aspects.

2. Adequate parking will be provided for each plan component with facilities immediately adjacent to each use within the community.

3. Non-residential land use projects adjacent to residential land use shall minimize noise impacts and light glare on neighboring residential land uses.

4. Building setback flexibility is allowed due to the varying topography of the site but the following building setbacks should be used as a general reference where feasible:

Table 3-1
Minimum Setbacks

	Front Yard	Rear Yard	Side Yard
Single-family	20'	20'	10'
Duplex	20' from edge of right-of-way		
Multi-Family	25' from edge of right-of-way		
Commercial	25' from edge of right-of-way		
Resort complex	15' from edge of right-of-way		
Wellness Center	15' from edge of right-of-way		

5. Buildings shall be sited with regard to the physical features of each project parcel and adjacent parcels. Such features shall be considered as primary design determinants.

6. Buildings, roadways, and other improvements shall conform with the natural topography and minimize grading where feasible.

7. Site design and architecture shall consider solar access, wind protection, shade, and seasonal considerations to enhance the quality of outdoor space.

3.3 Pedestrian Circulation Standards

A primary component of the Stringtown Mountain Specific Plan is site design features that will provide for pedestrian access throughout the plan area. Specific connections between land uses are detailed in Land Use (Section 2)

and Circulation (Section 5). General pedestrian policies that are applicable to all land use include the following:

1. All sub-areas within the plan shall be designed to facilitate pedestrian cross-connections to adjacent uses and access to the area-wide trail system.

2. Bike racks are required within the commercial land uses to promote walking and cycling to work. Bike parking shall be visible from the entry to the commercial area to encourage use.

3.4 Fire Control Guidelines

The vegetation, topography and climate of the plan area create a potentially hazardous fire condition during the summer months. The following guidelines are intended to minimize this hazard:

1. All parcels larger than 1 acre shall provide a minimum 30 foot setback for buildings and accessory buildings from all property lines and/or the center of the road.

2. All parcels less than one acre shall be subject to the setbacks defined in Section 3.2, Project Site Design Standards.

3. Dispose of flammable vegetation and fuels by chipping, burying, burning or removal to a landfill site approved by the local jurisdiction. Disposal of flammable vegetation and fuels caused by site development and construction, road and driveway construction, and fuel modification shall be completed prior to completion of road construction or final inspection of a building permit.

4. Irrigated landscapes and hardscapes such as patios and parking lots should be located strategically as a separation between wildland fuels and structures.

5. Butte County Fire Department (BCFD) review of the project development proposal will be required during project review process to insure the inclusion of fire prevention measures.

6. Fire preventative measures shall be taken during the construction phases of the development. Firebreaks will be installed on ridge lines and in construction and grading areas prior to start of work. Firebreak installation will minimize the removal of native oaks and other native trees as feasible.

7. Fire breaks exist along the periphery and strategically located within the interior of the plan area. These fire breaks will continue to be maintained through build out.

8. Fire retardant plantings will be used strategically to minimize chance of fire.

9. Fuel modification standards will be met in cooperation with the BCFD. Stability of plant communities in grasslands near residential areas will be monitored regularly by the BCFD to determine if brush and other heavy fuel-load plants are encroaching.

10. Open fires and barbecues will be prohibited year-round in natural open space areas.

11. Public access on designated fire access roads by unauthorized motor vehicles will be prohibited by use of barriers and signs.

12. The BCFD shall have the right to declare natural open space areas closed to the residents and public during periods of high fire hazard and will have authority to post appropriate warning devices and signage.

3.5 Grading Standards

A site specific grading plan will be submitted to Butte County for review with each tentative subdivision map or use permit application. The following requirements will apply to all grading activities:

1. All drainage shall conform to the natural character of the landscape and changes to existing creek channels shall be minimized.

2. Profile grades should not exceed sixteen percent (16%). Cuts should be limited to 2:1 slopes and fills to 3:1 slopes. In special circumstances, exceptions may be allowed by the Butte County Department of Public Works.

3. When necessary, retaining walls will be used to ensure stability of cuts and fills. The walls will be subject to approval by the Butte County Department of Public Works, and where possible, will be designed to be aesthetically compatible with the adjacent development.

4. Bench or terrace any cut or fill slope that exceeds thirty feet (30') in height. The bench or terrace will carry surface water off the slope bank to a stable, nonerodible area.

5. Runoff from upslope areas should not be allowed to flow down the face of the cut or fill bank. Surface flows should be diverted with a top-of-cut ditch and dike.

6. Areas should only be graded if they can be developed in a reasonable period of time (project phasing). When the topsoil has been disturbed by scraping, digging, cut and fill, or other earth moving activities, provisions should be made to control erosion until the area is fully developed, paved, landscaped or revegetated.

7. Engineering and construction techniques, including soil stabilization fabrics, rip-rap, diversion dams, gravel subdrains, and cut and fill design shall be utilized to stabilize soil on slopes as determined by the Butte County Public Works Department.

8. If possible, major earth work should be completed before October 15. The construction schedule should be set such that earth moving operations are completed with enough time to install erosion control practices prior to winter.

9. Fill material should not contain organic material or large rocks.

10. Areas of shallow bedrock proposed for landscaping shall be over-excavated and filled with topsoil to ensure adequate rooting depths.

11. Compaction of soils shall be avoided to prevent reduced infiltrations and deprivation of water to soil and vegetation.

12. Temporary revegetation in disturbed areas shall be utilized to reduce erosion.

13. Construction of sediment barriers, placement of hay bales, development of temporary settling areas, installation of energy dissipaters, protection of floodways and/or other acceptable means of reducing sediment loads shall be utilized.

14. A large portion of dust from construction sites is generated by heavy equipment traveling on unpaved access roads. Dust from these roads should be controlled by paving or watering on an "as needed" basis. Dust control measures which are consistent with climatological requirements shall be used.

15. When handling or transporting any material, care should be taken to prevent the material from blowing or spilling on the streets and highways or from becoming airborne. Control strategies include adequate watering of the loads or tarping.

16. Grading and similar activities shall not be conducted when wind speed exceeds twenty (20) miles per hour.

17. A dust suppression plan shall be prepared and submitted to the Butte County Air Pollution Control District (BCAPCD) for review and approval prior to issuance of a grading permit.

3.6 Off-Street Parking Standards

The following off-street parking standards, as designated in the Butte County Zoning Ordinance, will apply to all uses of the plan area:

1. Both single family and multi-family residential development will provide two spaces per unit.

2. The resort will provide one space per room, and one space for every three employees or one space for each 2,000 square feet of gross floor space, whichever is greater.

3. The restaurant facility will provide one space per three seats, but in no case less than one space per 200 square feet of gross floor area.

4. The wellness center facility will provide one space for each 200 square feet of gross floor area.

5. Professional office space will provide one space for each 300 square feet of gross floor area.

6. Retail stores, shops and services will provide one space for each 200 square feet of gross floor area.

3.7 General Architectural Guidelines (Building Form and Style)

It is not possible to anticipate all the architectural themes that may be applied in the plan area. Architecture is a subjective matter, and design standards that specify the use of standardized materials or forms over the entire plan area are not appropriate in this document. However, it is desirable to ensure consistent architectural treatment so that incompatible architectural styles and materials are not placed immediately adjacent to one another. These guidelines include:

1. Building height shall relate to the building location within the plan area. Commercial, professional, and other non-residential buildings adjacent to single family neighborhoods shall not exceed more than two stories in height or thirty-five feet (35').

2. All exterior architectural materials shall be selected in accordance with the seasonal variation in temperatures and precipitation that occur in the area.

3. Architectural treatment, detail, and materials shall be consistent among the buildings in multi-family and duplex neighborhoods and non-residential projects, but should create visual interest through orientation, form, and alignment of individual buildings.

4. Where the rear or side of a non-residential building is visible from a public thoroughfare or public space, such elevations shall be treated with the same materials, colors, and details as the primary frontage.

5. All primary building and project entries shall be well-defined by varied textures, forms, materials, colors, and landscaping, to afford a sense of entry.

6. All accessory structures shall be compatible in material, color, and texture with the main buildings.

3.8 Landscape Guidelines

The natural landscapes within the plan offer a variety of plant communities and serve as habitat for wildlife. These existing landscapes require no irrigation to sustain themselves throughout the dry summers. Natural areas should be preserved as much as feasible and should generally be supplemented with compatible native vegetation that is drought tolerant once established. Landscaped entries to the project sub-areas, and the grounds of the wellness center, resort and commercial area may include plant materials selected for color and other aesthetic considerations. Additional policies are specified in Section 5, Resource Management. Areas within the plan which have been graded for development are required to be replanted and the following policies shall apply:

1. Native plant material shall comprise at least fifty percent (50%) of the replanted areas and shall be drought tolerant.

2. Areas of drought tolerant plantings will be irrigated until established either through a temporary irrigation system or through hand watering.

3. Non native species may comprise a maximum of fifty percent (50%) of the replanted areas. These plantings shall be used mainly in areas of high use or in areas where visual accents are desired. Areas such as entries, patios and parking lots are examples of areas where non native landscaping may be applied.

4. The use of lawn shall be minimized.

5. Large canopy deciduous trees should be planted along the west and south sides of buildings to provide relief from the summer sun where feasible.

6. Irrigated landscapes should be utilized as fire breaks where feasible.

7. Areas to be irrigated shall utilize efficient methods such as drip or bubbler irrigation.

3.9 Screening and Fencing Guidelines

Walls and fencing within the plan area are intended to screen facilities, and to provide sound barriers, privacy, and security. In general, walls are to be kept to a minimum to avoid blocking views or creating a sense of fragmentation among the land uses in the plan area. The following guidelines shall apply:

1. No outside, unscreened storage is permitted, except in residential areas. Loading, service, equipment, and trash enclosure areas shall be fully screened by a combination of fencing, masonry walls, grade separation, and/or dense landscaping.

2. Mechanical equipment, satellite dishes, antennas, and other similar structures shall be ground-mounted when feasible. If not ground-mounted, such equipment shall be screened from the view of streets, adjacent properties, and areas open to the general public through the use of parapet walls, roof wells, or other means incorporated as an integral part of building design. All screens, fencing, and retaining walls shall be compatible in material, color and texture with related buildings.

3. All noise generating mechanical devices shall be of low emission design, and/or located and screened with noise reduction barriers so that their potential as a nuisance to abutting properties is minimized.

3.10 Lighting Guidelines

Exterior lighting within the plan area is intended to provide for safety and security, as well as to enhance building design and landscaping. The commercial areas will be brightly lit in a manner that complements the architecture and level of activity anticipated. Lighting in the multi-family and duplex neighborhoods will be appropriate to the style of the complexes. In the single family detached residential areas lighting will be optional for individual lot owners. Such individual lot lighting may be placed at the entrance to each lot.

1. Project lighting shall not create glare for project occupants or neighboring properties.

2. The style and design of lighting fixtures shall be compatible with building design and consistent within individual projects.

3.11 Street Furniture

All street furniture including trash receptacles, benches, signage and lighting shall utilize a standard or complementary design theme.

Appendix G

TRAFFIC IMPACT ANALYSIS FOR

STRINGTOWN MOUNTAIN SPECIFIC PLAN

Butte County, California

Prepared for

QUAD CONSULTANTS, INC
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Sacramento, California 95618

Prepared by

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June 9, 1993

Job No. 5600-05

KDA

TRAFFIC IMPACT ANALYSIS FOR

STRINGTOWN MOUNTAIN SPECIFIC PLAN
Butte County, California

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KDA

EXISTING SETTING

The **Stringtown Mountain Specific Plan** is located in the foothills of the Sierra Nevada Mountains in Butte County east of the community of Oroville. From the standpoint of Regional Circulation, the project will be served primarily by State Route 162, which connects the Lake Oroville area with the Oroville area and points west. As discussed in the text which follows, the balance of the Butte County road system is made up of rural two lane roads, the capacity of which is governed by such varying factors as alignment, shoulder and traveled way width, passing sight distance and the percentage of trucks and/or recreational vehicles. Because area roads carry a significant amount of recreational traffic during summer months, traffic volumes, as well as actual capacity and operating Levels of Service, vary throughout the year.

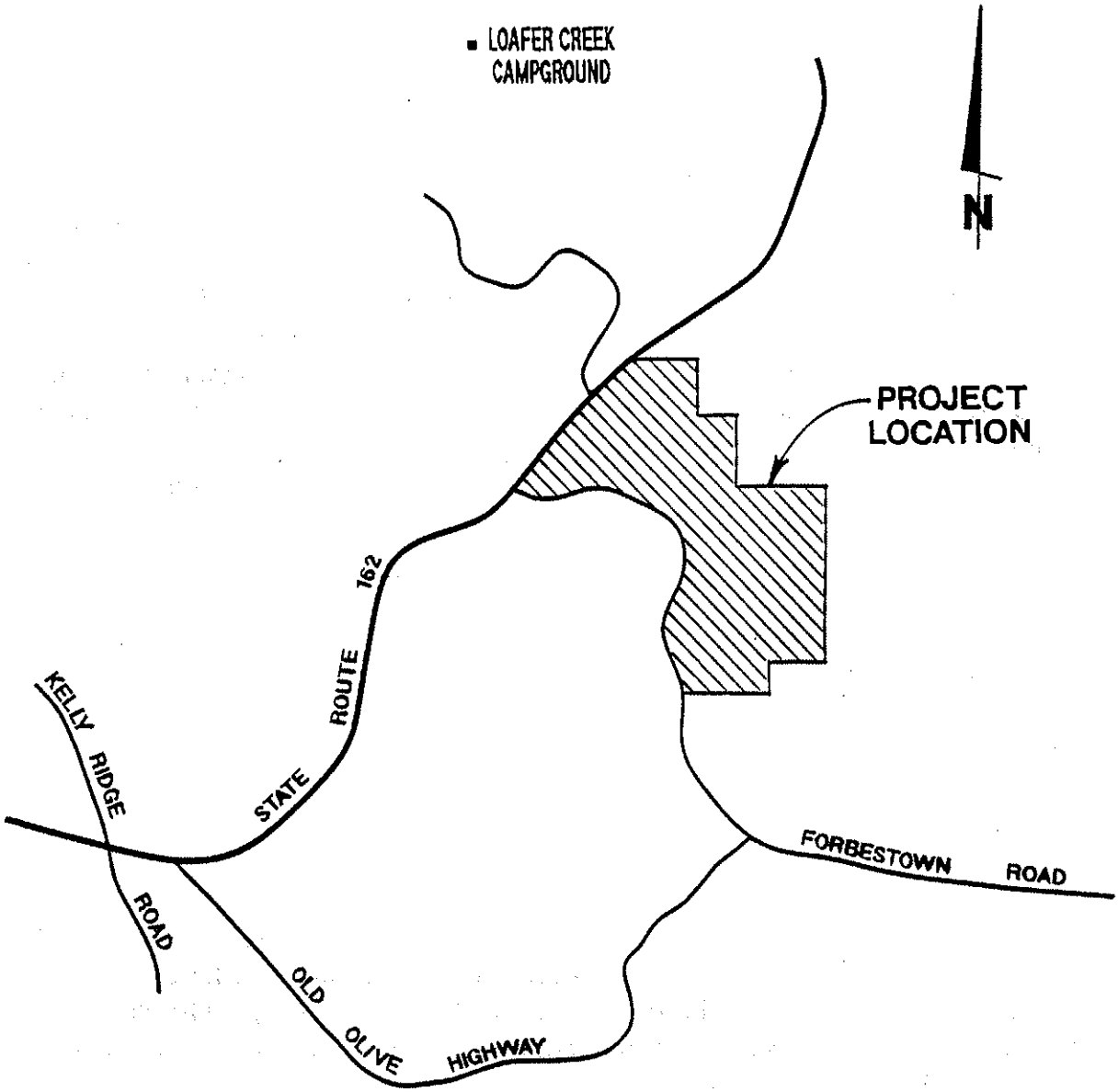
The text which follows documents the physical condition of study area roadways, both in terms of those factors affecting capacity and in terms of safety and general pavement condition. Programmed or planned improvements to each road have been noted. Finally, the practical capacity and Level of Service "C" threshold of study area roads have been calculated.

Study Area Roads

The Stringtown Mountain Specific Plan is generally located adjacent to State Route 162 south of Lake Oroville in Butte County. The project lies east of the Oroville City limits at the intersection of SR 162 and Forbestown Road. (refer to **Figure 1**). The Stringtown Mountain Specific Plan is proposed with one point of access to SR 162, as well as three points of access to Forbestown Road.

A general description of each of the major roads in the study area follows. This information is based on a field survey conducted for this report, as well as review of published sources.

KDA



VICINITY MAP

figure 1

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State Route 162. State Route 162 is a two lane conventional highway, which is classified as a minor collector in the area of Stringtown Mountain. The highway extends about 78 miles across Glenn and Butte Counties in Caltrans District 3 and connects the Oroville Area with SR 99 and Interstate 5.

In the immediate vicinity of the Stringtown Mountain Specific Plan, SR 162 is typically 32 feet wide with two twelve foot wide travel lanes and paved shoulders. Left turn channelization exists at most major intersections, but not at the Forbestown Road intersection. From a capacity standpoint, the alignment of the road typically adheres to the "rolling" and "mountainous" terrain of the foothills.

On many roads in the Sierra Nevada Foothills, the amount of traffic varies significantly throughout the year. This does not appear to be the case on SR 162. The most recent published traffic counts for SR 120 adjacent to the project indicate a 1991 Annual Average Daily Traffic volume (AADT) of 4,350 west of Forbestown Road and 1,750 east of Forbestown Road. These volumes rise slightly to 4,450 and 1,800 vehicles per day (VPD) during peak summer months.

With moderate development anticipated in the rural counties which are tributary to the highway, State Route 162 is expected to carry increasing traffic volumes in the future. The Route Concept Report for SR 162 suggests that an annual growth rate of 2.7% may be achieved, which in turn would suggest year 2010 volumes of 7,200 AADT and 2,900 AADT west and east of Forbestown Road, respectively.

During peak periods, the effects of trucks and recreational vehicles on SR 162 traffic operations can be significant, especially in the vicinity of the Loafer Creek Campground and Day Use area. Caltrans reports that on this segment of the highway an average of about 10% of the total daily traffic volume is trucks, although this percentage drops during peak weekday traffic hours. In addition, significant numbers of recreational vehicles use the road during summer months, as boat launching, day use and camping facilities are available.

The long range concept for this portion of SR 162 includes no planned improvements. The road is expected to remain at its current design standard. Caltrans reports that the highway east of Hillcrest Avenue currently operates at LOS "E" during peak hours, and no improvement to that Level of Service is anticipated.

Forbestown Road. Forbestown Road connects SR 162 with the rural area of eastern Butte County below the south fork of the Feather River. Forbestown Road also extends into the rural area of eastern Yuba County as well.

Forbestown Road is a rural two lane road which varies in width. Just south of SR 162, the road generally has a pavement width of about 32 feet, with paved shoulders which vary from about 3 to 4 feet on each side. In this area, the alignment of the road is flat to rolling and is generally conducive to a travel speed of about 45 to 50 mph. Further east outside the limits of this study, the road narrows and follows a more winding "mountainous" alignment.

The most recent Butte County traffic counts on Forbestown Road indicate that the road carried about 1,290 vehicles per day near the intersection with SR 162 in 1991. Based on observed peak hour traffic and its percentage of AADT (9.5%), we would estimate that Forbestown Road currently carries about 2,000 vehicles per day south of SR 162.

Old Olive Highway. Old Olive Highway is a minor Butte County road which currently connects SR 162 and Forbestown Road. Old Olive Highway is typically about 20 feet wide and follows the generally rolling terrain of the area. The road appears to carry about 820 vehicles per day south of SR 162.

Capacity / Level of Service Analysis

"Level of Service (LOS)" is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening operating conditions, is assigned to an intersection or roadway segment. Table 1 presents the characteristics associated with each LOS grade. As shown in Table 1, LOS "A", "B" and "C" are considered satisfactory to most motorists, while LOS "D" is marginally acceptable. LOS "E" and "F" are associated with severe congestion and delay and are unacceptable to most motorists.

TABLE 1
LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE	SIGNALIZED INTERSECTION	UNSIGNALIZED INTERSECTION	ROADWAY (DAILY)
"A"	Uncongested operations, all queues clear in a single-signal cycle. V/C ≤ 0.60	Little or no delay. Reserve Capacity >400	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. V/C = 0.61-0.70	Short traffic delays. Reserve Capacity 300 - 399	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. V/C = 0.71-0.80	Average traffic delays. Reserve Capacity 200 - 299	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. V/C = 0.81-0.90	Long traffic delays. Reserve Capacity 100 - 199	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). V/C = 0.91-1.00	Very long traffic delays, failure, extreme congestion. Reserve Capacity 0 - 99	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. V/C > 1.00	Intersection blocked by external causes.	Forced flow, breakdown.

The current Butte County General Plan Circulation Element indicates that in rural areas LOS "B" is the formal minimum Level of Service Standard, although LOS "C" is acceptable "when fiscal, environmental, or site constraints are prohibitive"[1]. A similar strategy exists for urban area, except that LOS "D" is the allowed exception to LOS "C". Alternatively, Caltrans has adopted LOS "E" as their "Concept" LOS for State Route 162.

[1]Source: Draft General Plan, Issues and Options Report.

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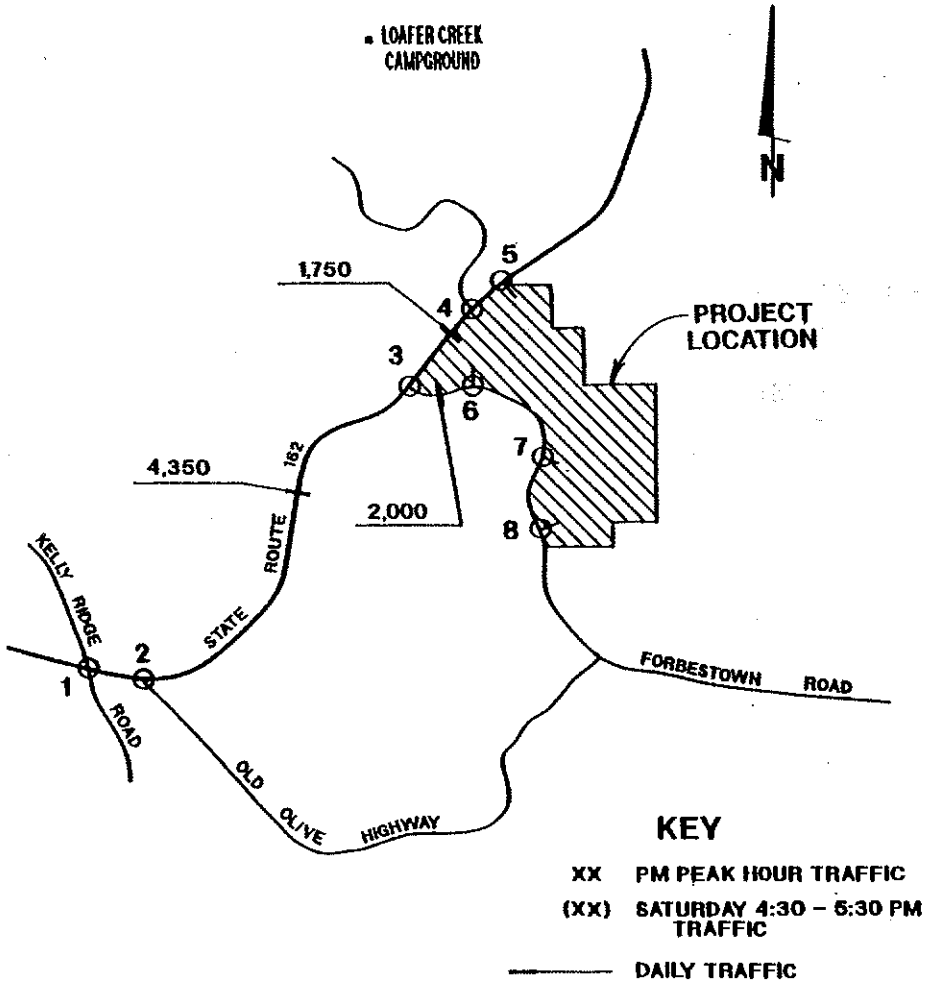
Methodology. Traffic operations on two lane, two way highways are unique. Lane changing, passing and left turns are possible only in the face of oncoming traffic in the opposing lane. Passing demand increases rapidly as traffic volumes increase, while passing capacity in the opposing lane declines as traffic volumes increase. Motorists are forced to adjust their individual travel speed as volume increases and the ability to pass declines.

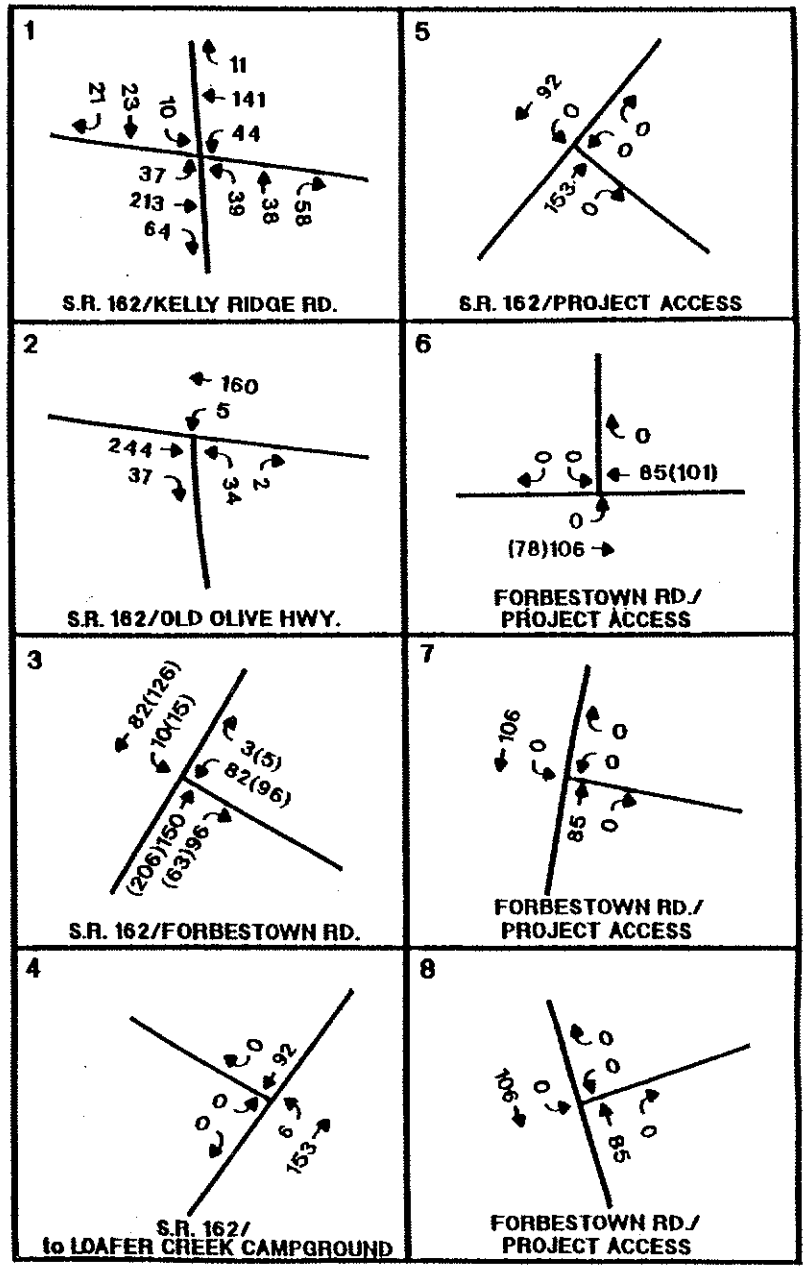
Various methodologies and assumptions are used to calculate Level of Service on two lane rural roads, and the use of any combination of methodologies and assumptions can lead to widely varying conclusions. For this analysis, we have considered two procedures: 1) the 1985 Highway Capacity Manual, and 2) the traffic volume thresholds included in the current Butte County Circulation Element.

The 1985 Highway Capacity Manual (1985 HCM) presents methodologies for calculating practical capacity and Level of Service on rural roads. These procedures account for the effects of physical features and traffic characteristics on average travel speed and delay. The resulting capacities and Levels of Service are expressed in terms of allowable vehicles per hour. As will be evident from the discussions which follow, the practical capacity of many flat two lane rural roads can be quite high, as capacities of 1,500 to 2,200 Vehicle Per Hour (VPH) could be physically accommodated. However, traffic flow conditions at near capacity levels are very poor and are typically described as "stop and go" or "bumper to bumper" conditions. The number of vehicles that can be accommodated under satisfactory Levels of Service is much less. Thus, the maximum flow rate associated with Level of Service "C" can vary greatly and is generally in the range of 400 to 500 VPH, but can be as low as 125 VPH on narrow two lane rural area roads in mountainous terrain.

Alternatively, the current Butte County General Plan Circulation Element suggests daily traffic volume thresholds for various Levels of Service. On two lane streets, LOS "C" thresholds range from 12,800 ADT on surface streets to 14,000 ADT on rural expressways. The Draft General Plan Background Report also suggests that the general limits of LOS "C" are 7,500 ADT on two lane rural roads.

Typical Existing Roadway Segment Levels of Service (LOS). The roadway characteristics assumed in Level of Service and capacity calculations, along with the calculation work sheets are included in the Appendix to this report. Current weekday PM peak hour traffic volumes on local roads and highways were developed from recent traffic counts completed by this consultant, data from other recent studies or from information provided by Caltrans District 3. Current traffic volumes, Levels of Service and practical capacity are presented in Table 2 and illustrated in **Figure 2.**





EXISTING TRAFFIC

figure 2

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TABLE 2
CURRENT TRAFFIC VOLUMES, CAPACITIES, AND LEVELS OF SERVICE

ROAD	LOCATION	CURRENT TRAFFIC VOLUMES PEAK HOUR (Veh/Hr) WEEKDAY PM / SATURDAY PM	CURRENT TRAFFIC VOLUMES DAILY (Veh/Day) WEEKDAY / WEEKEND	CAPACITY LOS C:LOS F (Veh/Hr)	PEAK HOUR LEVEL OF SERVICE WEEKDAY PM / SATURDAY
SR 162					
	West of Kelly Ridge Road	515*	5,300**	620 : 1,970	"C"
	West of Forbestown Road	410*** 590***	4,450** 4,500**	620 : 1,970	"C" "C"
	East of Forbestown Road	245*** 352***	1,750** 1,800**	620 : 1,970	— "
Forbestown Road					
	South of SR 162	191*** 179***	2,000	620 : 1,970	"B" "B"

* Source: "Traffic Study for Encroachment Permit Application prepared for Golden Hills Development", Barnhart - Brown & Associates, 1/93.

** Source: 1991 Traffic Volumes on State Highways, CALTRANS

*** Source: Traffic Counts by **kdANDERSON Transportation Engineers** 5/17/93 - 5/24/93.

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TABLE 3
CURRENT INTERSECTION RESERVE CAPACITIES AND LEVELS OF SERVICE

INTERSECTION	RESERVE CAPACITY*	LOS
	WEEKDAY PM SATURDAY PM	WEEKDAY PM SATURDAY PM
SR 162 & Kelly Ridge Road	260	"C"
SR 162 & Old Olive Highway	369	"B"
SR 162 & Forbestown Road	412 330	"A"
SR 162 & Loafer Creek Access Road	526	"A"

* Reserve Capacity and LOS for "Worst Case" Turning Movement, which is typically the minor street left turn.

As indicated above, the portion of SR 162 in the immediate vicinity of the Stringtown Mountain Specific Plan operates with a good Level of Service during the observed peak hours. This conclusion differs from the Level of Service suggested in the SR 162 Route Concept Report, which suggests that the segment of SR 162 from Hillcrest Avenue to Lake Oroville (P.M. 21.3 to 31.1) operates at LOS "E". The apparent difference results form the terrain assumed for the immediate area of the project, which is "Rolling", versus the terrain further east, which is "Mountainous".

This Level of Service is also different from that described in the Butte County Congestion Management Plan (CMP). That document suggests peak hour Level of Service on the Principal Arterial System, which includes SR 162. The CMP indicates that SR 162 operates at LOS "A" from Kelly Ridge Drive to the end of the route.

Levels of Service on Forbestown Road are currently very good, and LOS "B" is achieved during both periods, based on the HCM methodology for rural roads.

Intersection Levels of Service. As indicated in the discussion of methodologies, Level of Service is also calculated for intersections. For unsignalized intersections, gap acceptance and reserve capacity are the parameters used for Level of Service analysis. Procedures used for calculating unsignalized intersection Level of Service are also presented in the 1985 Highway Capacity Manual.

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Levels of Service at the unsignalized intersections which are controlled by side street stop signs, are indicative of the magnitude of the delay incurred by motorists turning at the intersection. As the length of delay increases, motorists often become impatient and may react by choosing to make unsafe use of shorter gaps in traffic.

Because these calculations ignore the condition of through traffic flow (which is assumed to flow freely) they are not indicative of the overall operation of an intersection. To suggest whether "significance" should be associated with the unsignalized Level of Service, a supplemental traffic signal warrant analysis is performed. A poor unsignalized Level of Service is typically deemed to be significant if traffic volumes meet signal warrants.

Meeting signal warrants signifies that an intersection has unacceptable operating conditions, but it does not mean that installation of a signal is the only way to mitigate those conditions. It is often possible to improve an intersection with additional lanes or improved geometrics so that a signal is not necessary. The signal warrant criteria employed for this study are those presented in the Caltrans Traffic Manual.

Currently the study area intersections operate satisfactorily. During the typical Weekday PM peak hour, the Level of Service drops to "C" for motorists waiting to turn left onto the state highway at the Kelly Ridge Road intersection. At the other study area intersections, this left turn movement operates at LOS "A" or "B".

Alternative Transportation Modes

As with most rural areas, the area east of Oroville is served by limited alternative transportation modes.

Opportunities for bicycles and pedestrians, especially as an alternative to the private automobile are often limited by lack of developed shoulders, sidewalks or pavement width accommodating either mode. In the area of Stringtown Mountain, however, SR 162 and Forbestown Road have sufficient paved shoulders to accommodate bicyclists and pedestrians.

The CMP also summaries current public transit services in Butte County. While service is provided by various carriers in Chico, Oroville and Paradise, no service is provided in the vicinity of the Stringtown Mountain Specific Plan.

PROJECT IMPACTS

This report section describes the impacts resulting solely from development of the Stringtown Mountain Specific Plan. Cumulative impacts resulting from other anticipated development are described later in this report.

Project impacts have been quantified by estimating the number and directional distribution of project trips, and by superimposing those trips onto current traffic volumes. Levels of Service were then recalculated for the "Existing Plus Stringtown Mountain Specific Plan" condition.

Roadway Standards

The Stringtown Mountain Specific Plan is to be served by a combination of public streets and pedestrian pathways. Internal streets will be two lanes wide with 32 feet of pavement. This roadway section will provide two twelve foot travel lanes, in addition to room for bicyclists, although formal bicycle paths will not be striped. The plan also includes an extensive system of pedestrian pathways which will link the resort, commercial and pedestrian uses. The pathways will be five and eight feet wide, with the wider section parallelling Forbestown Road to link the residential and commercial areas.

Trip Generation

The number of automobile trips which will be generated by the project can be estimated through application of known trip generation rates. The rates used for this study were derived from the Institute of Transportation Engineers (ITE) publication, Trip Generation (Fifth Edition).

Residential trip generation rates are typically lower in rural areas, due to such factors as the number of retired persons and the likelihood that residents will combine trips when greater travel distances are involved. However, because the project is relatively close to Oroville, we have conservatively assumed that each occupied dwelling unit would generate 9.55 daily vehicle trips. This is the standard rate suggested by the Institute of Transportation Engineers (ITE) and is generally consistent with the rates for suburban area residences with full-time employment. Each unit would generate 1.01 trips during the PM peak hour and 0.96 trips during the peak hour of Saturday afternoon. As indicated in Table 4, the single family portion of the project is expected to generate 1,528 daily trips.

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The Specific Plan also includes multi-family residences. The ITE rate for apartments has been used for this land use, with 6.5 daily, 0.63 weekday PM and 0.52 weekend peak hour trips being generated by each unit. The multiple family portion of the project will generate 202 daily trips.

The Resort complex includes both lodging and support / recreational facilities. Because these facilities are intended to be self contained, the number of trips which might be generated by these uses will be dependent on the extent to which non-guests and non-residents use the facilities For this analysis, ITE Hotel trip generation rates have been applied to the number of lodging units proposed. These rates imply that each unit would generate 8.7 daily, 0.76 Weekday PM and 0.87 weekend PM peak hour trips. these rates would suggest that the resort should generate 626 daily trips.

The resort will be complimented by a Wellness Center which will cater to guests and residents. The facility is relatively small (i.e., 12,000 sf±) and limited information is available regarding such uses. ITE rates for Health Clubs and Racquet Clubs would suggest that this use would typically generate about 240 daily trips, with 10% of that traffic occurring in peak hours. It should be recognized, however, that the most of the trips generated by this use will be made guests and residents and will not impact the area street system.

A small convenience commercial / office center is also included in the Specific Plan Area. The site will cover 2.8 acres, and assuming typical floor area ratios, approximately 30,000 sf floor area could result. In this application, ITE shopping center rates have been assumed. A site of this size is expected to generate 111 daily trips, 10.2 weekday pm peak hour trips and 13.8 weekend peak hour trips per 1,000 sf. These rates would imply that the commercial site would generate 3,330 daily trips. To a significant extent, the number of trips generated by the commercial center will be dependent on the type of uses actually developed. If the site develops with relatively high intensity retail uses catering to the general public, such as a convenience market, this forecast will be appropriate. If however, the center is dominate by lower intensity uses with limited attraction, such as offices and specialty retail shops, then this forecast will overstate the probable trip generation.

The trip generation characteristics of the commercial center must also account for the extent to which retail services will attract patrons from the stream of traffic already passing the site. In this instance, we have estimated that 25% of the commercial center traffic will be drawn from traffic already on SR 162 and/or Forbestown Road. This "Pass By" trip percentage can often be higher than 25%, but this lower estimate was used to account for the relatively low traffic volume on adjacent streets.

The proposed site plan also includes a 1.1 acre site for a future fire station. A limited number of trips may eventually be associated with this use, although few trips would occur during typical peak hours. Assuming that about 10 to 20 employees workout of the site, daily trip generation would likely be in the range of 40 to 80 daily trips. Because shift changes would not likely occur during normal commute hours, we would not expect significant trips generation during these periods.

As indicated by Table 4, full development of the Stringtown Mountain Specific Plan may add 4,069 new daily trips onto the area street system. Of that total, approximately 10% can be expected during weekday and weekend peak hours.

TABLE 4
TRIP GENERATION

LAND USE	QUANTITY	DAILY TOTAL	WEEKDAY PM PEAK HOUR			WEEKEND PM PEAK HOUR TRIPS		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Res	160 du's	1,528	102	60	162	83	71	154
Internal		<382>	<25>	<15>	<40>	<21>	<18>	<39>
Multiple Family Res	32 du's	202	14	6	20	8	8	16
Internal		<50>	<3	<2>	<5>	<2>	<2>	<4>
Resort Complex	72 units	626	30	25	55	32	31	63
Internal		<313>	<15	<13>	<28>	<16>	<16>	<32>
Wellness Center	2.4 acres	240	12	12	24	12	12	24
Internal		<180>	<9	<9>	<18>	<9>	<9>	<18>
Fire Station	1.1 acres	80	2	2	4	2	2	4
Commercial Center	30,000 sf	3,330	152	152	304	207	207	414
Internal		<565>	<34	<21>	<55>	<30>	<27>	<57>
Pass By Trips (25%)		<832>	<38	<38>	<76>	<52>	<52>	<104>
Net New Commercial Trips		1,933	80	93	173	125	128	253
TOTAL GROSSTRIPS		6,006	312	257	569	344	331	675
Internal Trips Matched		<1,105>	<86>	<60>	<146>	<78>	<72>	<150>
Pass By Commercial Trips		<832>	<38>	<38>	<76>	<52>	<52>	<104>
NET NEW EXTERNAL TRIPS		**4,069**	**188**	**159**	**347**	**214**	**207**	**421**

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Trip Distribution and Assignment

The distribution of trips to and from the project site was determined by reviewing current traffic patterns and by considering three factors: 1) typical trip purposes for each use, 2) potential destinations, and 3) distribution assumptions from other recent traffic studies.

Based on the project's proximity to Oroville, it is reasonable to expect that external trips will be heavily oriented to the west. New trips generated by the commercial center may serve the rural community to the east as well, and face competition from other convenience commercial sites as close as the Kelly Ridge Road / SR 162 intersection. The assumed distribution of project trips is indicated in Table 5.

TABLE 5
PROJECT TRIP DISTRIBUTION

	RESIDENTIAL USES		NON-RESIDENTIAL USES	
DIRECTION	% OF TOTAL	NEW TRIPS	% OF TOTAL	NEW TRIPS
East via SR 162	5%	65	20%	540
Southeast via Forbestown Road	10%	130	40%	1,080
West via SR 162	85%	1,103	40%	1,080
Total	**100%**	**1,298**	**100%**	**2,691**

Having identified the probable distribution of project trips, project traffic was assigned to the area street system. The project trip assignment was superimposed onto current weekday PM and weekend PM peak hour intersection and segment volumes, and the resulting "Existing plus Stringtown Specific Plan Traffic" is indicated in **Figure 3.**

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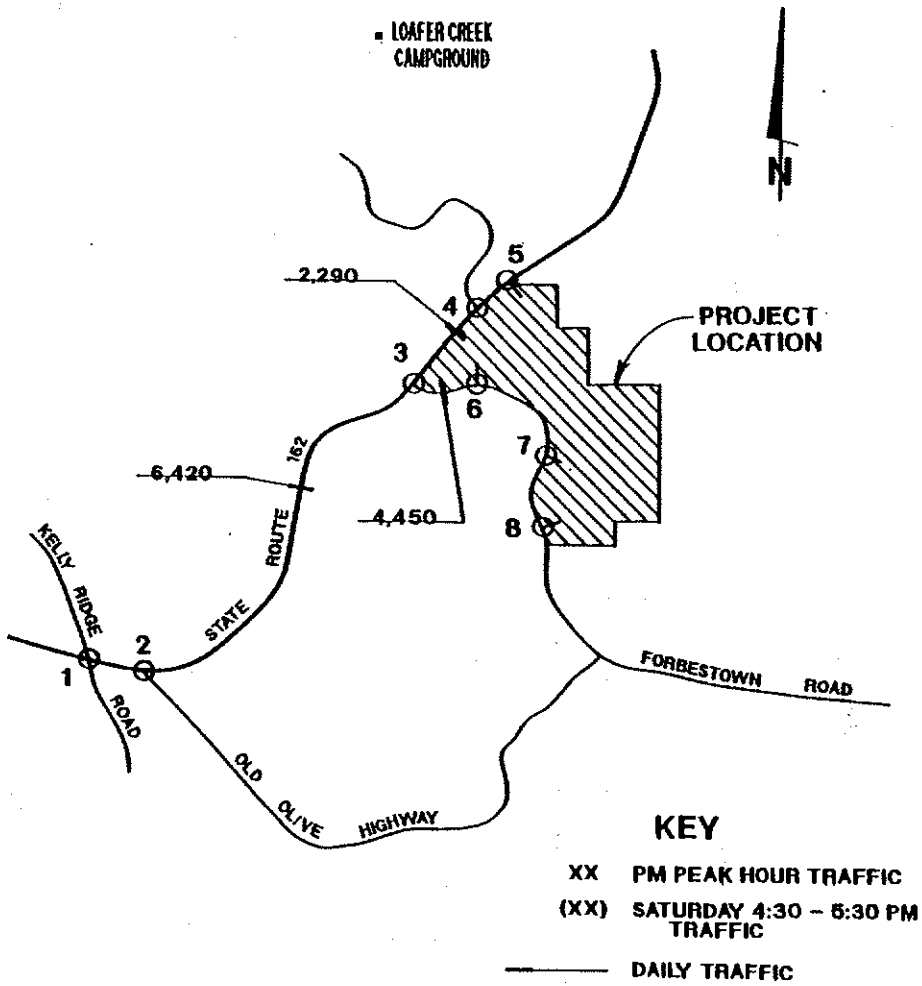

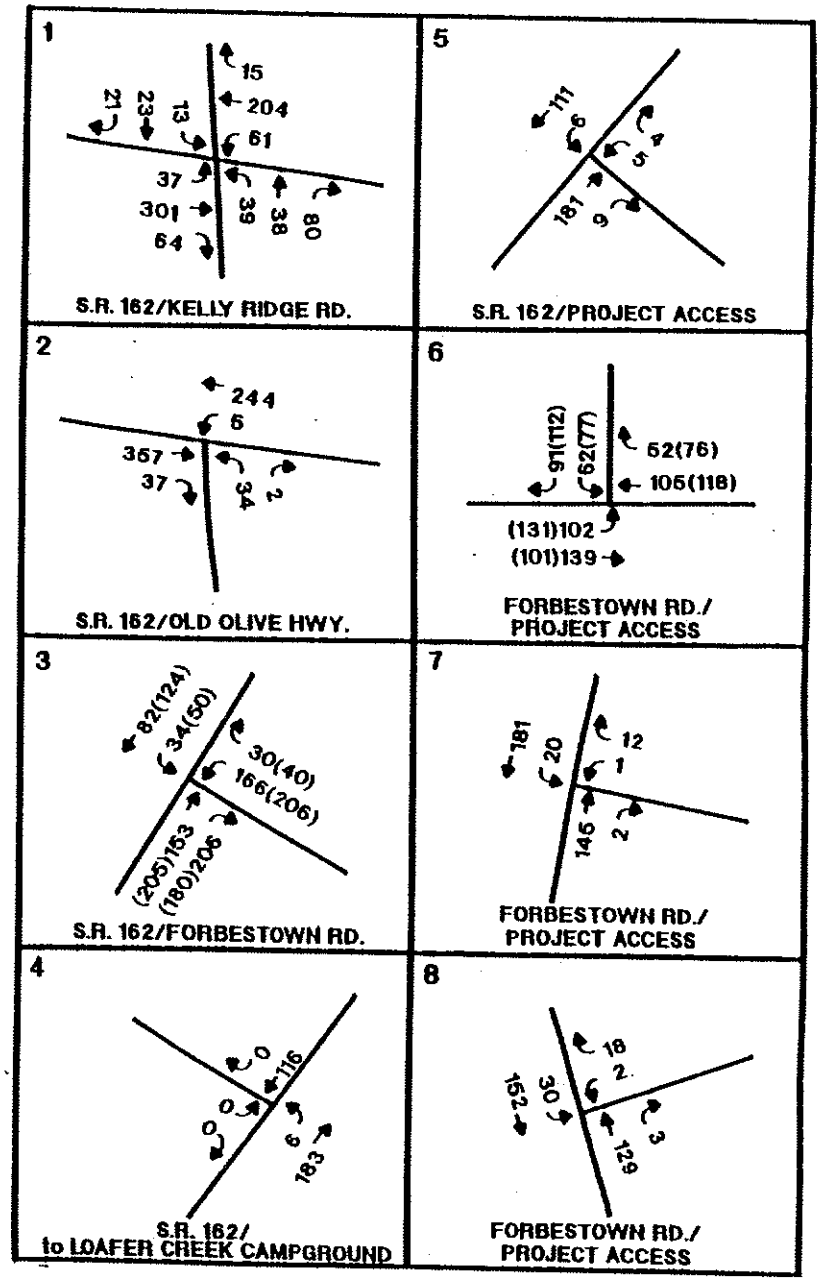

KEY

XX PM PEAK HOUR TRAFFIC

(XX) SATURDAY 4:30 – 5:30 PM TRAFFIC

—— DAILY TRAFFIC

EXISTING PLUS PROJECT TRAFFIC

figure 3

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Existing Plus Stringtown Specific Plan Conditions

To determine project specific impacts, the evaluation parameters described under the Existing Conditions were again considered.

Road Segment Levels of Service. Levels of Service were again calculated assuming the addition of Stringtown Mountain SP traffic to current traffic levels. Table 6 presents the calculated Levels of Service under "Existing plus Project" conditions, assuming the background Weekday PM peak hour and Weekend peak hour traffic volumes previously discussed.

As indicated, the addition of project trips does not result in any significant change in current operational Levels of Service on SR 162. While peak hour Levels of Service may deteriorate from LOS "C" to LOS "D", forecast conditions will remain within Caltrans' adopted Route Concept LOS of "E". The resulting daily traffic volume (i.e., 6,420 west of Forbestown Road and 6,810 west of Kelly Ridge Road) will remain within the LOS "C" threshold suggested in the General Plan Circulation Element.

The addition of project trips would increase current weekday peak hour traffic levels by about 30% to 45% west of Forbestown Road, although that percentage increase drops on segments further east towards Oroville. West of Foothill Boulevard, for example, traffic generated by Stringtown Mountain would represent approximately 8% of current daily traffic.

Should Butte County staff interpret the forecast conditions as exceeding County standards, appropriate mitigation measures would incrementally include development of signalized intersections, auxiliary lanes, passing lanes and ultimately, a four lane section. An appropriate project specific mitigation would therefore involve development of auxiliary lanes at the SR 162 / Forbestown Road intersection.

When built out, Stringtown Mountain will also increase the volume of traffic on Forbestown Road, especially in the immediate vicinity of the Specific Plan. Along the project's frontage, daily traffic volumes will range from 3,670 to 4,450 ADT. While the resulting traffic volume will technically exceed Butte County standards (i.e., LOS "B" or better), the flow of traffic will be significantly below the practical capacity of the road. In addition, the forecast volume would not exceed the general LOS "C" threshold suggested in the General Plan Background Report (i.e., 7,500 ADT). Therefore, we would not characterize this traffic increase as "significant" on the short segment of road involved.

TABLE 6
EXISTING PLUS STRINGTOWN MOUNTAIN SPECIFIC PLAN
TRAFFIC VOLUMES, CAPACITIES, AND LEVELS OF SERVICE

ROAD LOCATION	CAPACITY LOS C:LOS F (Veh/Hr)	EXISTING CONDITIONS PEAK HOUR (Veh/Hr) WEEKDAY PM / SATURDAY PM	EXISTING CONDITIONS DAILY (Veh/Hr) WEEKDAY PM / WEEKEND PM	EXISTING CONDITIONS LOS	EXISTING PLUS STRINGTOWN MOUNTAIN PEAK HOUR (Veh/Hr) WEEKDAY PM / SUNDAY PM	EXISTING PLUS STRINGTOWN MOUNTAIN DAILY (Veh/Hr) WEEKDAY PM / WEEKEND PM	EXISTING PLUS STRINGTOWN MOUNTAIN LOS
SR 162							
West of Kelly Ridge Rd	620 : 1,970	515	5,300	"C"	666	6,810	"D"
West of Forbestown Rd	620 : 1,970	410	4,450	"C"	607	6,420	"C"
		590		"C"	715		"D"
East of Forbestown Rd	620 : 1,970	245	1,750	"B"	299	2,290	"B"
		352		"C"	419		"C"
Forbestown Road							
South of SR 162	620 : 1,970	191	2,000	"B"	436	4,450	"C"
		179		"B"	476		"C"
South of Main Access	620 : 1,970	191	2,000	"B"	358	3,670	"C"
		179		"B"	372		"C"
South of Stringtown SP	620 : 1,970	191	2,000	"B"	286	2,950	"B"

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Intersection Levels of Service. Unsignalized Level of Service was calculated assuming full development of the project. As indicated in Table 7, the addition of project trips would incrementally add to the short delays already occurring at intersections on SR 162, but by itself the project wold not create major delays nor would project traffic create the need for signalization.

Issues Related to Safety

Because the Stringtown Mountain Specific Plan proposes multiple points of access to Forbestown Road and on new access to SR 162, issues associated with the safety of potential project traffic as well as through traffic have been investigated. These issues include the availability of **adequate sight distance** at the points of project access and the need for **left turn lane channelization.**

Sight Distance. Available sight distance was investigated along Forbestown Road. The standards employed are those which are documented in the Caltrans Highway Design Manual. Two standards are suggested, corresponding to different safety concerns.

The most significant evaluation parameter is the availability of "Minimum Safe Stopping Distance". This criteria is documented in Table 201.1 of the Highway Design Manual and suggests the minimum sight distance which must be available for a motorist to perceive a hazard in the road and come to a stop. The range of minimum stopping sight distance requirements is from 200 feet for 30 mph traffic to 430 feet for traffic traveling at 50 mph to 580 feet for traffic traveling at 60 mph. The prevailing operating speed on Forbestown Road near SR 162 would appear to be about 35 mph. The speed on SR 162 is likely to be at least 55 mph.

The second sight distance requirement accounts for the gap in traffic required for motorists to join the traffic stream without influencing approaching traffic. This requirement, termed "Corner Sight Distance", is documented in Table 405.1A of the Highway Design Manual. Corner Sight Distance requirements range from 330 feet at 30 mph to 550 feet at 50 mph to 660 feet at 60 mph.

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TABLE 7
EXISTING PLUS STRINGTOWN MOUNTAIN SPECIFIC PLAN
INTERSECTION RESERVE CAPACITIES AND LEVELS OF SERVICE

INTERSECTION	RESERVE CAPACITY* EXISTING / PLUS PROJECT WEEKDAY PM / SATURDAY PM	LEVEL OF SERVICE EXISTING / PLUS PROJECT WEEKDAY PM / SATURDAY PM
SR 162		
Kelly Ridge Road	260 / 166	"C" / "D"
Old Olive Highway	369 / 254	"B" / "C"
Forbestown Road	412 / 246 330 / 130	"A" / "C" "B" / "D"
Loafer Creek Access	526 / 483	"A" / "A"
Stringtown Mtn Access	/563	/ "A"
Forbestown Road &		
Main SP Access Road	/ 412 347	/ "A" / "B"
SP Residential Access	720	/ "A"
SP Residential Access	719	/ "A"

Having identified applicable standards, we investigated the available sight distance at the various points of proposed project access. Overall, it appears that sight distance will be adequate at most of the new street intersections which are proposed. However, sight distance is somewhat restricted at the main access to Forbestown Road, due to existing topography and to the curvilinear alignment of the road itself. Review of the proposed sight plan indicates, however, that the area of the sight distance restriction is adjacent to the commercial parcel, and we would expect that the sight distance restriction can be eliminated when final sight grading occurs.

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Left Turn Lane Channelization. As indicated earlier, left turn lanes can incrementally increase the capacity and Level of Service on rural roads. Left turn lanes can also be needed to improve safety. The need for left turn lanes from the standpoint of safety has been evaluated using the procedures presented in Table IX-15 in the American Association of State Highway and Transportation Officials (AASHTO) Guidelines For the Design of Streets and Highways. The AASHTO Table presents design hour levels of following and opposing traffic, as well as percentage of vehicles turning, which can be used as a guide for confirming the need for left turn lanes. Our forecasts for project traffic suggest that a significant number of left turns can be expected at the main access to Forbestown Road, but that relatively few left turns would be expected at any of the other new intersections. With these anticipated turning volume, left turn channelization will only be required at the main access road intersection.

Impacts to Alternative Transportation Modes

The development of the Stringtown Mountain Specific Plan would have an incremental impact on the need for facilities to serve alternative transportation modes. While it is not likely that project residents or visitors would be "transit-dependent", the development of alternatives to the private automobile would have a beneficial impact on overall traffic flow and on air quality. The Specific Plan document suggests that a Shuttle system may be developed linking the project with Oroville. Because the shuttle is not a specific part of the project description, its effects have not been included in the estimate of project trip generation. Assuming typical ridership characteristics, a shuttle might be expected to attract 2% to 4% of those Plan Area residents who commute into Oroville for work. This could equate to perhaps 6 to 12 riders per day.

As indicated in the project description, the site includes extensive pedestrian paths and bicycle routes which will promote local circulation. Because SR 162 and Forbestown Road are relatively wide, regional bicycle travel is also possible.

CUMULATIVE IMPACTS

Background Assumptions

The impacts of the Stringtown Mountain Specific Plan have also been considered within the context of cumulative traffic conditions resulting from other anticipated development in Butte County. The basis for this evaluation is the estimate of future background traffic growth contained in the "Traffic Study for Encroachment Permit Application prepared for Golden Hills Development" (Barnhart - Brown & Associates, 1/93). That document utilized traffic volume forecasts from the 1991 Oroville Area Transportation Model as the basis for year 2010 projections. The forecasts also included manually derived trip generation projections for the Golden Hills Shopping Center.

The cumulative traffic forecasts in the Barnhart - Brown study also included assumptions for Stringtown Mountain which were near to but slightly different from those developed herein. To account for these differences, project specific traffic was adjusted to reflect current assumptions. **Figures 4 and 5** illustrate future cumulative traffic volumes with and without the Stringtown Mountain Specific Plan.

Cumulative Traffic Impacts Without Stringtown Mountain Specific Plan

The text which follows describes the impacts of future cumulative traffic within the context of the evaluation parameters described previously.

Roadway Segments. Cumulative peak hour Levels of Service are presented in Table 8. As indicated, the addition of trips from other anticipated Butte County development, as well as through traffic growth, will increase traffic volumes on SR 162 to about 13,000 ADT west of Kelly Ridge Road, with anticipated volumes dropping to about 9,000 ADT just west of Forbestown Road. The resulting weekday PM peak hour traffic volume will operate at LOS "D" to "E". However, while the overall Level of Service on the highway may appear to be poor, it is important to note that as long as major intersections operate satisfactorily, mainline will continue to flow, albeit at progressively slower speeds.

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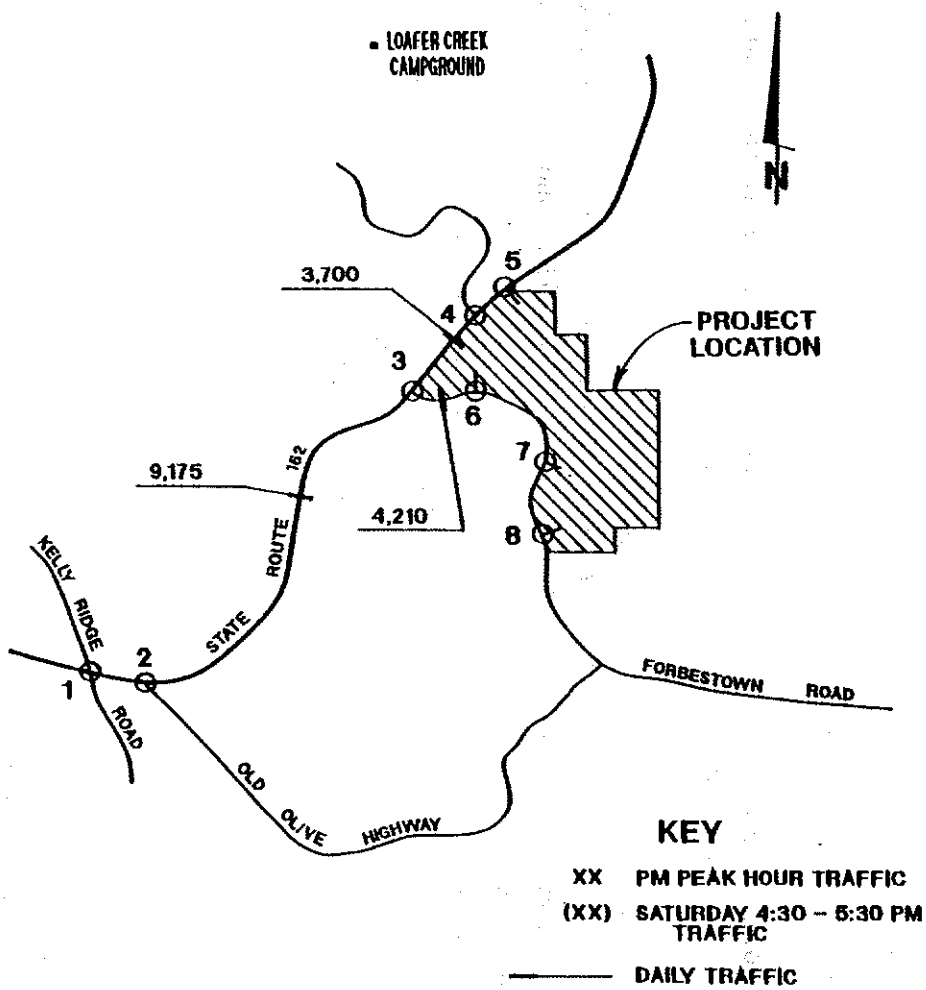

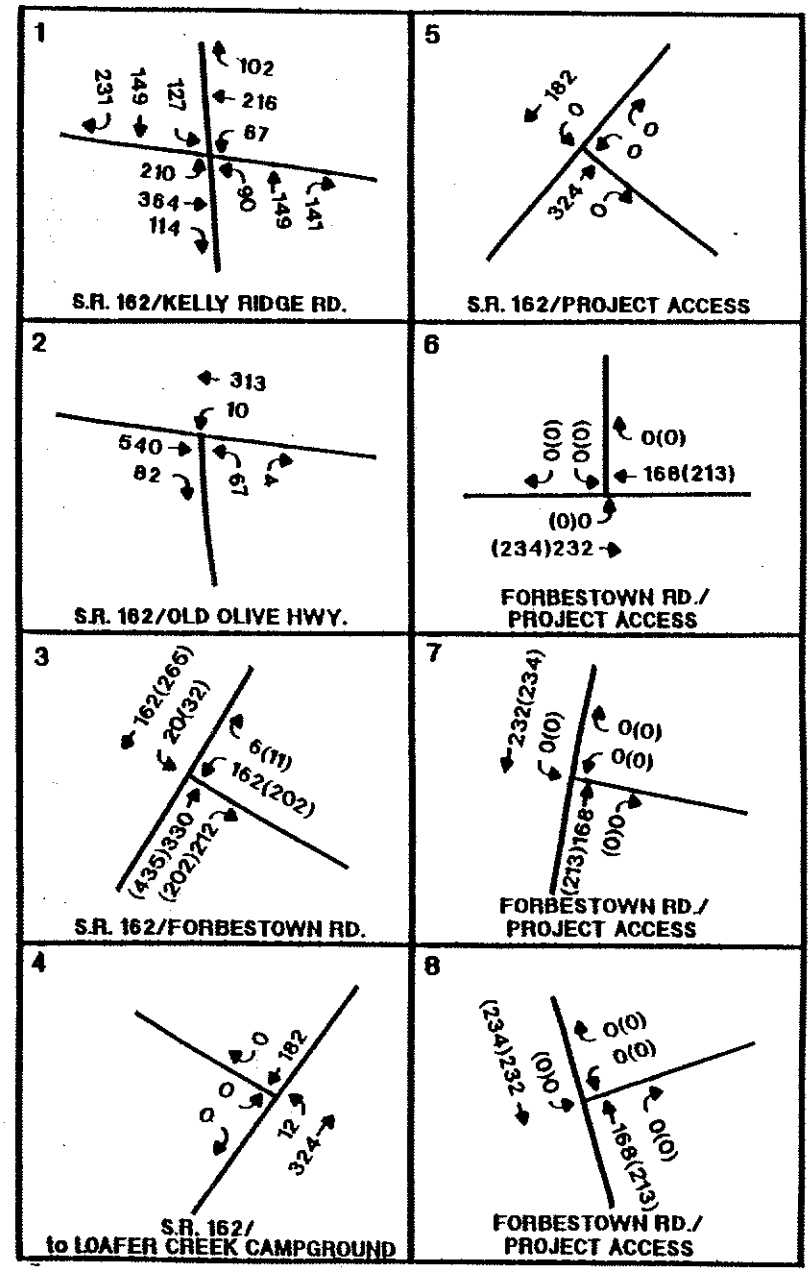

BACKGROUND FUTURE TRAFFIC WITHOUT SPRINGTOWN MOUNTAIN SP

figure 4

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The Butte County Congestion Management Plan (CMP) indicates that several roadway improvements will become necessary in the area west of Kelly Ridge Road within seven years. Signalization of major intersections and passing lanes are included at a cost of $$1.6 million and are noted as RTP Reference #2 and in Butte County CIP Table 4 #16. Widening of SR 162 to four or five lanes west of Kelly Ridge Road is also noted in Butte County CIP Table 4 #19, at an estimated cost of $8.71 million.

Forecast traffic volume in the area west of Forbestown Road is 9,175 ADT. This exceeds the CMP Seven Year forecast of 5,900 ADT and the Caltrans YEAR 2010 estimate of 7,200 ADT. However, as the resulting Level of Service will continue to mirror Caltrans Concept LOS for the highway (i.e., LOS "E"), the forecast increase in background traffic on SR 162, while significant, would not theoretically require mitigation to maintain Caltrans standard. This volume does not exceed the Butte County standard for LOS "B" (i.e., 12,250 on rural expressway).

To some extent, the level of development in the area resulting in these traffic volumes may be indicative of general urbanization of the area. Under more urban conditions, the overall travel speed of traffic on the highway ceases to be the primary consideration, with delay at major intersections being the primary consideration.

The Level of Service on Forbestown Road would be better than on SR 162, although the peak hour level of service would technically fall to LOS "C" south of SR 162, based on the procedures contained in the Highway Capacity Manual. The forecast conditions, however, represent utilization of only about 30% of the theoretical capacity of the road, and the overall flow of traffic would be unimpeded, although perhaps 5 mph slower than current free flow conditions. The forecast volume 4,210 ADT, would remain well within the general LOS "C" threshold of 7,500 ADT suggested in the General Plan Background Report.

TABLE 8
CUMULATIVE PLUS STRINGTOWN MOUNTAIN SPECIFIC PLAN
TRAFFIC VOLUMES, CAPACITIES, AND LEVELS OF SERVICE

ROAD LOCATION	CAPACITY LOS C:LOSF (Veh/Hr)	EXISTING CONDITIONS PEAK HOUR (Veh/Hr) WEEKDAY PM / SATURDAY PM	EXISTING CONDITIONS DAILY (Veh/Hr) WEEKDAY PM / WEEKEND PM	EXISTING CONDITIONS LOS	EXISTING PLUS STRINGTOWN MOUNTAIN PEAK HOUR (Veh/Hr) WEEKDAY PM / SUNDAY PM	EXISTING PLUS STRINGTOWN MOUNTAIN DAILY (Veh/Hr) WEEKDAY PM / WEEKEND PM	EXISTING PLUS STRINGTOWN MOUNTAIN LOS
SR 162							
West of Kelly Ridge Rd	620 : 1,970	1,225	12,900	"E"	1,376	14,490	"E"
West of Forbestown Rd	620 : 1,970	886	9,175	"D"	1,063	11,145	"E"
		1,104		"E"	1,328		"E"
East of Forbestown Rd	620 : 1,970	518	3,700	"C"	572	4,240	"C"
		743		"D"	810		"D"
Forbestown Road							
South of SR 162	620 : 1,970	400	4,210	"C"	645	6,660	"D"
		447		"C"	744		"D"
South of Main Access	620 : 1,970	400	4,210	"C"	567	5,970	"C"
		447		"C"	640		"D"
South of Stringtown SP	620 : 1,970	400	4,210	"C"	495	5,210	"C"

A54

Intersections. As indicated in Table 9, the addition of cumulative traffic through study intersections on SR 162 would result in major delays to motorists attempting to turn onto the state highway, even though through traffic on the highway will not typically be delayed at the intersection. At the Kelly Ridge Road intersection, a traffic signal will be warranted with development of the adjacent shopping center, and that signal will operate at LOS "A". However, at the other study locations on SR 162 which do not warrant signalization, motorists attempting to cross the highway may not be able to find sufficient gaps in traffic (i.e., unsignalized LOS "E-F"). As a result, the frequency of accidents at this location could increase substantially.

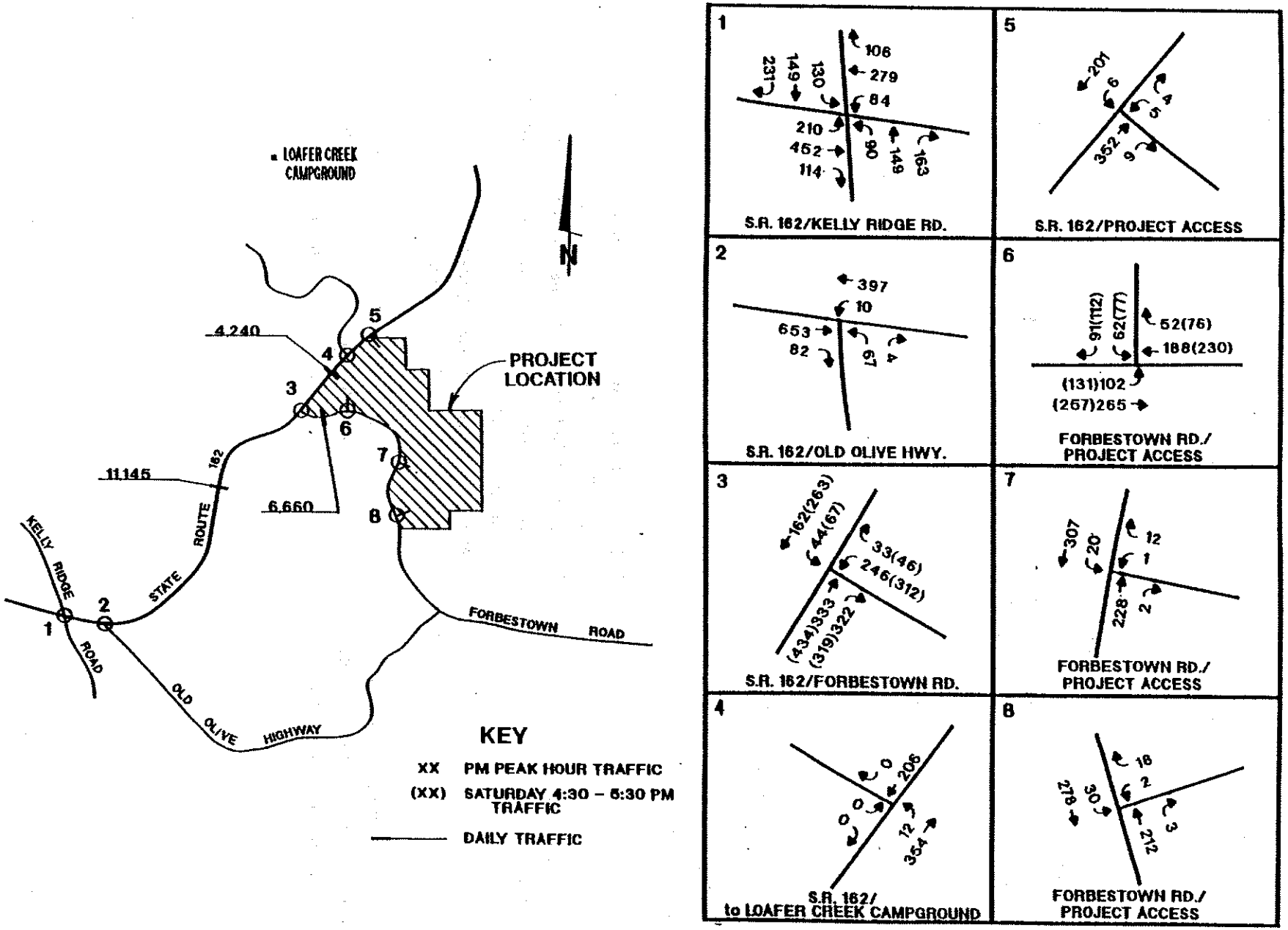
Safety Issues. As background traffic volumes increase, the need for left turn channelization also increases. However, without the development of the Stringtown Mountain Specific Plan, left turn channelization will not become necessary at the SR 162/Forbestown Road intersection.

Cumulative Traffic Impacts With Stringtown Mountain Specific Plan

The text which follows describes the incremental impact of developing the Stringtown Mountain Specific Plan within the context of future cumulative traffic.

Roadway Segments. As indicated in Table 8, the addition of Stringtown Mountain traffic would increase background traffic volumes on SR 162 by about 2,000 ADT west of Forbestown Road. The total volume of traffic on SR 162 west of Forbestown Road would reach 11,145. This increase would exacerbate the relative delays to through traffic described earlier and is considered to be significant. However, the resulting Level of Service (i.e, LOS "E") would remain within Caltrans Concept for the highway. The resulting daily volume would also remain within the Butte Count LOS "B" standard.

As suggested previously, SR 162 widening west of Kelly Ridge Road is already planned. The Specific Plan would contribute to the need for this widening. To meet Butte County standards, the portion of SR 162 west of Forbestown Road would also need to be widened.



FUTURE TRAFFIC WITH SPRINGTOWN MOUNTAIN SP

figure 5

TABLE 9
CUMULATIVE PLUS STRINGTOWN MOUNTAIN SPECIFIC PLAN
INTERSECTION RESERVE CAPACITIES AND LEVELS OF SERVICE

INTERSECTION	RESERVE CAPACITY* EXISTING / PLUS PROJECT WEEKDAY PM / SATURDAY PM	LEVEL OF SERVICE EXISTING / PLUS PROJECT WEEKDAY PM / SATURDAY PM
SR 162		
Kelly Ridge Road	0.55 / 0.70	"A" / "C"
Old Olive Highway	99 / 42	"E" / "E"
Forbestown Road	112 / -36 -28 / -212	"D" / "F" "F" / "F"
Loafer Creek Access	340 / 308	"B" / "B"
Stringtown Mtn Access	/389	/ "B"
Forbestown Road &		
Main SP Access Road	/ 281 188	/ "C" / "D"
SP Residential Access	623	/ "A"
SP Residential Access	617	/ "A"

Development of Stringtown Mountain would further increase cumulative traffic volumes on Forbestown Road. Using the procedures contained in the 1985 Highway Capacity Manual, the resulting traffic volumes would theoretically reach LOS "D" in the immediate vicinity of the project's main access. However, the forecast daily volume of 6,600 ADT will remain within the general LOS "C" threshold identified in the General Plan Background Report.

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Intersections. The addition of Stringtown Mountain traffic would incrementally add to the volume of traffic through intersections on SR 162. As a result, the overall level of delay at unsignalized intersections would theoretically be longer. At the signalized Kelly Ridge Road intersection, LOS "C" would occur. While this exceeds the Butte County standard for rural areas it can be argued that this would in fact be an urban area under cumulative conditions. At the Forbestown Road / SR 162 intersection, the volume of peak hour traffic would theoretically warrant a traffic signal, although alternative mitigation measures are possible to avoid signalization.

The adequacy of project access under cumulative conditions has also been confirmed. Even with the background traffic anticipated, the Level of service for motorists waiting to turn left out of the project will not exceed LOS "D". In view of the relatively low volume of left turning traffic, no improvements beyond the inbound left turn lane at the main driveway described previously would be needed. It will be appropriate, however, to widen the main driveway to permit two exiting lanes.

Issues Related to Safety. Under these conditions, a westbound left turn pocket would be required at the intersection of Forbestown Road and SR 162.

MITIGATIONS

This report section describes the improvements to the study area circulation system which will be required to provide satisfactory Levels of Service. The mitigations discussed are separated into three categories:

1) Improvements which are already needed, whether or not the Stringtown Mountain Specific Plan is built;

2) Mitigations which need to be implemented as a direct result of the Stringtown Mountain Specific Plan;

3) Mitigation measures needed for cumulative development, whether or not Stringtown Mountain Specific Plan is built, and

4) Mitigation measures needed for cumulative development plus Stringtown Mountain Specific Plan.

1) Currently Needed Roadway Improvements

At this time, the study area roadway system operates satisfactorily for the most part. The overall Level of Service on SR 162 in the area just west of Forbestown Road is acceptable, and while peak weekend traffic conditions may occasionally be poor, it would be difficult to justify immediate improvements in response peak conditions.

2) Mitigation Needed due to Stringtown Mountain Specific Plan

The addition of trips generated by the Stringtown Mountain Specific Plan would create impacts which would require the following mitigation:

Impact 1. The development of Stringtown Specific Plan will create traffic volumes warranting a left turn lane at the main access.

Mitigation **Install a Left Turn Lane at Main Project Access.** A southbound left turn lane should be installed on Forbestown Road at this location. Because current background traffic volumes are low, this improvement would not

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theoretically be required until the commercial site is developed. When installed, the left turn lane should long enough to accommodate build out traffic demands and provide proper storage. We recommend that the left turn lane should be 300 feet long plus a transition taper of 200 feet.

This cost should be borne exclusively by the developer.

3) Cumulative Mitigation Without Stringtown Mountain Specific Plan

The volume of background traffic forecast for the year 2010 will require extensive roadway improvements, whether or not Stringtown Mountain is constructed. Some of the improvements described below are already included in the Regional Transportation Plan or County Capital Improvement Plan, while others have not yet been considered.

Improvements to SR 162 west of Kelly Ridge Road. As indicated previously, improvements to SR 162 west of Kelly Ridge Road are included in the RTP and the Butte County CIP at a total cost of $10.31 million. These improvements include intersection signalization, passing lanes, and ultimately, widening SR 162 to a four/ five lane section. With planned improvements, the SR 162 / Kelly Ridge Road intersection will operate at LOS "A", and the overall Level of Service on this segment of SR 162 will also be "A".

4) Cumulative Mitigation with Stringtown Mountain Specific Plan

The development of the Stringtown Mountain Specific Plan will incrementally add to forecast traffic volumes and will result in the need for additional mitigation in the immediate vicinity of the project.

Impact Stringtown Mountain traffic will incrementally add to cumulative traffic volumes on SR 162 west of the project.

Mitigation. The project should contribute its fair share towards the cost of the traffic signal at SR 162 / Kelly Ridge Road, as well as any other corridor improvements for which regional cost sharing programs have been developed.

The Stringtown Mountain Specific Plan should create and implement a **Transportation Management Plan (TMP)** which incorporates various feasible measures for reducing peak hour trip generation. The TMP should include such measures as employee flex-time schedules, car-pool incentives, and potentially, the guest shuttle bus service.

Impact — The addition of project trips will result in traffic volumes which approach Butte County standard on Forbestown Road adjacent to the project.

Mitigation. **Forbestown Road should be widened to a three lane section in the area from SR 162 south through the main project access.** This improvement will incrementally increase the capacity of the road and will result in exclusive left turn and right turn lanes on the Forbestown Road approach to SR 162, as well as the previously described left turn lane at the project access.

The project should contribute its fair share to wards the cost of work on the approach to SR 162.

Impact — Development of the Specific Plan will result in cumulative traffic volumes which warrant signalization of the SR 162 / Forbestown Road intersection, and which create the need for a westbound left turn lane.

Mitigation. While traffic signal warrants may theoretically be met, it will be appropriate to consider alternatives in this rural area. For example, by installing **an eastbound right turn lane** described earlier, the volume of SR 162 traffic included in the signal warrant calculation would be reduced to the point that signalization would only be marginally warranted. Alternatively, an median area **acceleration lane for westbound traffic** could be installed. We would suggest that the project be responsible paying its fair share of the cost of constructing which ever of these two improvements is selected by Butte County, with input from Caltrans on mitigation selection.

Because of the area terrain, implementing any of these improvements may prove difficult. If a traffic signal is installed, it will be necessary to widen SR 162 to develop a westbound left turn lane. This widening will increase the cost of this work significantly, as west of the intersection the existing roadway lies within a major cut section. While the area immediately adjacent to the intersection is already flat and paved and the turn lane itself

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may be installed fairly easily, earthwork will be needed to widen the roadway further west in order to accommodate the transition area in advance of the turn lane.

Similarly, the westbound acceleration area would require significant earthwork in the area west of the intersection as well. Because the length of improvement would be longer that required for the left turn lane transition, the extent of excavation would be substantially greater.

The development of an eastbound right turn lane would appear to be accomplished without major excavation, although embankment will be required to bring the existing terrain up to the grade of the highway.

The Stringtown Mountain Specific Plan should contribute its fair share towards the cost of these improvements.

Appendix H

ARCHAEOLOGICAL INVENTORY SURVEY FOR THE STRINGTOWN MOUNTAIN SPECIFIC PLAN LOCATED NEAR OROVILLE, BUTTE COUNTY, CALIFORNIA

Prepared for
MICHAEL G. EVANS
ONE NICE PLACE
OROVILLE, CALIFORNIA

By
John Furry

December 8, 1992

ARCHAEOLOGICAL INVENTORY SURVEY

DECEMBER 8, 1992

T19N, R3E, A portion of the southern ½ of Section 8 and the north ½ of Section 17, USGS Oroville Dam 7.5' Quad. Approximately 175 acres.

This report details the results of the record search and archaeological inventory survey of approximately 175 acres of land known as the Stringtown Mountain Specific Plan. The property is located approximately 6.5 miles east of Oroville along SR 162, just north and east of the Forbestown Road intersection.

The proposed plan is to rezone the parcel into five parcels of irregular shape. These are to include: single family, multifamily, heavy commercial, conservation and public units.

The project area ranges from rolling hills to relatively steep terrain. It is bisected by several intermittent creeks that run through the property. The ridge tops are relatively flat. There appears to have been some grading in the distant past.

The vegetation on the property consists of oak forest with some pine and considerable manzanita. The surface of the ground was covered in some areas by grasses and leaves from the trees.

Many large rock outcrops were observed on the property. Many of these outcrops were on the tops. There was some evidence of past mining activity.

A review of the quad map prior to conducting the field work indicated that this area may contain cultural material along the creeks, small knolls, ridges and ravines.

This area of the foothills of the Sierra Nevada mountains has been subjected to extensive impacts resulting from early historic and subsequent 20th century mining, farming and commerce activity. Prior occupancy of the area was by the Konkow branch of the Maidu. Overall and based upon a review of the existing topographic and other maps, the project area appears to be one of extremely high sensitivity in respect to historic and prehistoric resources.

Record Search

Prior to conducting the field survey work, the archaeological records maintained by the Northeast Information Center at CSU., Chico were examined for any existing recorded prehistoric or historic sites within or immediately adjacent to the project area. The record search revealed that there are no previously recorded sites located on the parcel. No part of this property has been surveyed in the past for cultural remains. There are several historic and prehistoric sites in the immediate area. The entire area is classified as one of extremely high sensitivity for sites both historic and prehistoric. There have been no surveys near this proposed project. There are ten recorded prehistoric sites recorded within a one mile radius of the project area.

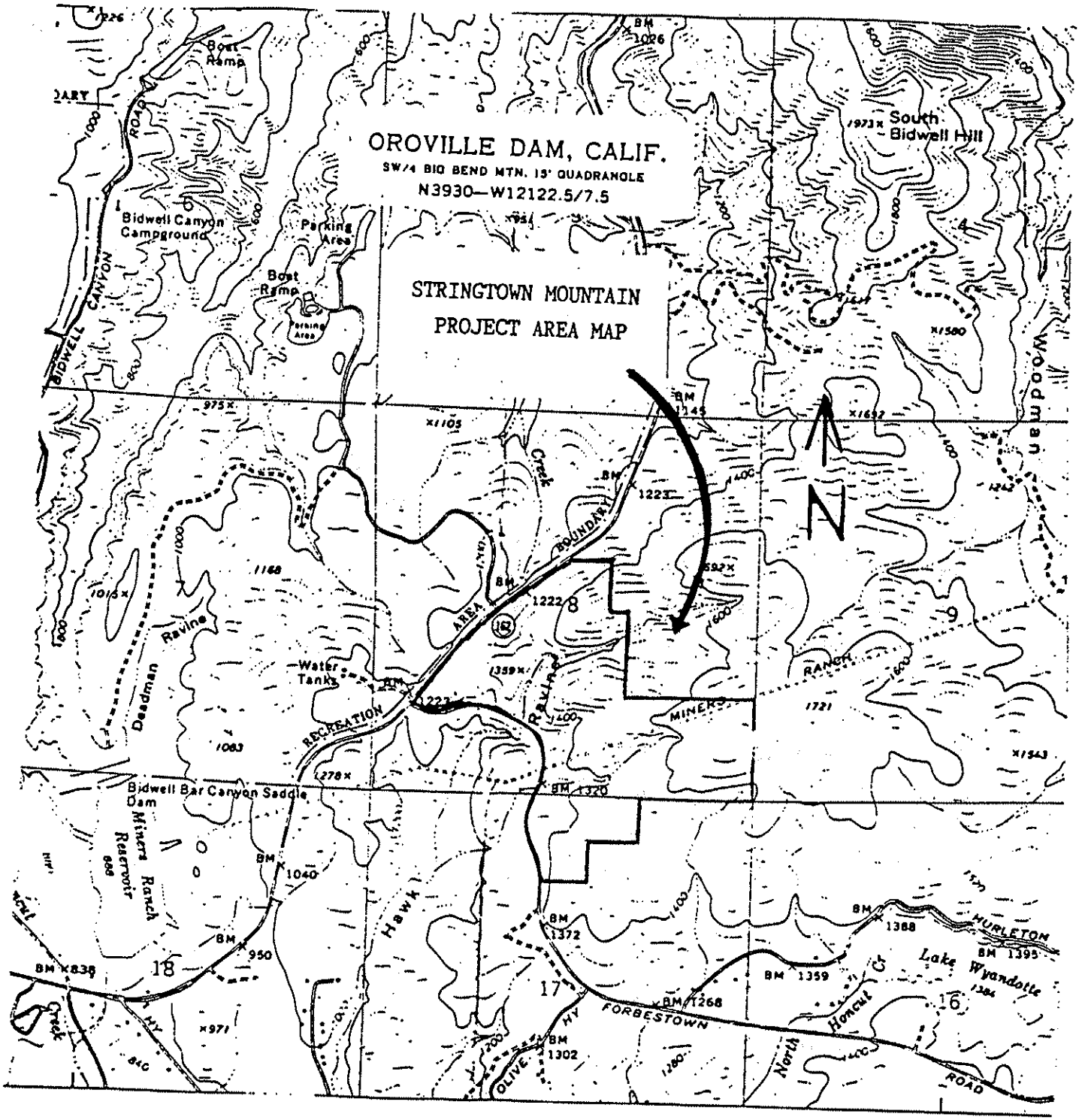
The recommendation from the Northeast Information Center is that the entire parcel be subjected to an intensive archaeological inventory survey to locate and properly record any historic or prehistoric cultural resources which might be encountered during the development of this property, and to recommend the appropriate mitigation measures should significant cultural resources be encountered.

Project Context

Several types of information were considered relevant to

STRINGTOWN MOUNTAIN SPECIFIC PLAN

PROJECT LOCATION MAP



evaluating the types of sites and site distribution which might be encountered within the project area. This information, evaluated prior to conducting the field work, includes data on regional prehistory, ethnography, and early historic era developments in the region. The types of prehistoric sites expected to be encountered would include the following: habitation sites, lithic scatters, and milling stations. Historic resources may include signs of mining activity, ranching and homesteads.

Prehistory

Available ethnographic records do not reveal specific ethnographic villages or sites within the project area. The entire project lies within the territory once occupied by the Konkow branch of the Maidu, a Penutian speaking people who together with the Southern Maidu and the Mountain Maidu occupied large areas of the interior of California. (Riddell 1978)

The Maiduan peoples were probably not the earliest inhabitants of this area. They are believed by some researchers to have entered California from the north sometime around 500 A.D. Before this time the area may have been occupied by a Hokan speaking people. (Kowta 1988:190)

In prehistoric times the Konkow were peoples who subsisted by hunting and gathering. Many of the plants and animals utilized by the Konkow had multiple uses, serving as food, material and religious needs. Roots, stems leaves and seeds of plants were used as food, for basketry, and medicine. Buckeye and the acorn were the primary plant staple. Many small animals were hunted or trapped. Fish were taken with nets, weirs, harpoons, hooks and poison. Insects such as grasshoppers crickets and ants were used as food. (Riddell 1978:373-375)

The location of village sites varied with the topography. In

the foothills, permanent settlements were generally on ridges that separated streams and creeks, on crests, knolls and terraces, or part way down the canyons on small flats. (Dixon 1905:175; Kroeber 1925:395)

Sometime after 800 A.D. the use of rock shelters found in the Tuscan formation in this area intensified. Many bone awls for the use in basket manufacture are found in sites from this time period. The bow and arrow was probably introduced into the area during this time period. This is evidenced by the many small projectile points of the corner notched and stemmed variety found in the area. Slab and bedrock mortars were used to process food (acorns and buckeye). Many of the rock shelters have multiple mortar pits in the floors.

Archaeological Background

Several miles north-west of the project area, the Messilla Valley is of importance. Chronology for the archaeological sites representing the Oroville locality is based on the excavation and analysis of sites encountered with the relocation of the Western Pacific Railroad. This chronology is comprised of four sequential complexes predating the historic period; the Messilla, Bidwell, Sweetwater and Oroville Complexes. (Kowta 1988; Olsen and Riddell 1963; Pitter 1970)

Messilla Complex

Dating prior to 1000 B.C., the Messilla Complex is characterized by large leaf shaped, stemmed and side notched points. These points are large and were most likely used with a spear thrower rather than as arrow points. There may have been seasonal villages and locations such as rock shelters were utilized at different times of the year. The people of the Messilla Complex were most likely very familiar with the property which is in the present survey area. Linguistically, the people of the

Messilla Complex were most likely speakers of a Hokan dialect, related to other cultures of the millingstone cultures of the north state.

Bidwell Complex

Sometime between 1 A.D. and 800 A.D. there was a change in food processing implements in this area. A shift from the use of the mano/metate to the mortar/pestle occurred. Many bone awls for the use in basket manufacture are found from this time period. There was a shift from hard seed gathering-hunting to acorn-buckeye/hunting. Slab and bedrock mortars came into use at this time period. (Ritter 1970)

Sweetwater Complex

The Sweetwater Complex is marked by a dramatic population increase in our study area. Although the people were still hunters/gatherers, they utilized a wide range of plant and animal resources. Of the plant resources, the acorn was the most dominant. The use of caves and rock shelters intensified at this time. The Sweetwater Complex is characterized by the use of very small projectile points and the use of bedrock mortars. The Maidu most likely intruded into the area at this time, forcing the earlier Hokan speaking peoples to the fringe areas of the valley and coast range.

Oroville Complex

The last group of people to occupy the area of our study in prehistory are the present day branch of the Maidu, the Konkow. They represent the Oroville Complex, dating from 1600 A.D. to about 1850. There are still Konkow peoples living in the area. The dominant food resource was the acorn. The projectile points were small arrow points. Slab and bedrock mortars were in use. Riverine resources were utilized, fish, clams and mussels were

taken. Population reached its highest point just before White contact in 1830. (Furry 1990)

In summary, the examination of the ethnographic and archaeological information of the area of the proposed project indicates the possibility of encountering the following types of prehistoric cultural resources:

1. Occupation sites with or without housepits along the banks of drainages.

2. Surface finds (isolates) of basalt or obsidian flakes or artifacts.

3. Food processing stations, which would include bedrock mortars and single mortar pits in boulders.

Historical Background

The pre-gold rush was a period of exploration, fur trapping and early settlement in the north valley. The immediate impact of these early contacts was the decimation of the native population through the introduction of diseases.

The earliest documented exploration of the foothill area of Butte County was by Captain Luis Arguello in 1820. For the next two decades the trappers of the Hudson's Bay Company and the American Fur Company were trapping and trading in the area. (Wells and Chambers 1973:128)

During the period of Mexican rule in California, several persons of note received land grants in what is now Butte County. These land grants included the Farwell Grant and the Arroyo del Chico Grant, later to become Bidwell's Rancho Chico, and Samuel Neal's Esquon Grant near Durham. For the most part these large grants were used to raise cattle. Samuel Neal is recognized as the

first to raise cattle in Northern California. McGie 1982:35-37)

After the discovery of gold in 1848, the influx of miners and merchants to California changed the subsequent history of the region. The following decades are marked by mining Indian removal, settlement, agriculture and commerce. By the 1850's many small towns had sprang up along the Feather River near the project area. Two of these towns are Bidwell Bar and Oroville. Many other towns are now just memories.

Recording Strategy and Field Work

If, during the course of an archaeological inventory survey, cultural resources are encountered, their location, local geology, slope, soils and vegetation will be recorded. Measurements of all cultural resources will be in metric units. For recorded sites, documentation will include sketch maps and compass bearings to important locations.

Field work

The field work portion of this survey was undertaken by John Furry of Butte College on December 2-6, 1992. All of the parcel was subjected to an intensive pedestrian survey which was achieved by walking non-systematic transects spaced at twenty meter intervals. Vegetation was dominated by a mixed oak woodland with an interspersing of pine and manzanita. There was a variety of grasses and brush as groundcover. Much of the property was open and the fire breaks and trails made visibility very good. Most of the property was surrounded by a fire break which also served to mark the parcel boundary.

During the course of this archaeological inventory survey, no prehistoric cultural resources were encountered. The many rock outcrops, creekbanks, ridges, and knolls were intensively

examined.

One historic era site was recorded. This site consists of a mine tunnel entrance. There are no visible traces of a tailing pile in association. No attempt was made to enter the tunnel to determine how far it extends into the hillside. An intensive search of the immediate vicinity failed to find the remains of any associated structures, if they exist. The site was recorded using the temporary field number of SMP-1H.

Recommendations and Mitigations

In view of the negative findings of this archaeological inventory survey, it is recommended that archaeological clearance be granted to all areas of the project. The historic site was recorded, however it lies adjacent to a ravine which is in a designated setback area. Future development near the site may deem it a hazard and the site may have to be sealed for safety concerns.

If, during the development of this project, subsurface cultural resources be encountered, it is recommended that a professional archaeologist be called in to properly identify, record and suggest mitigation measures for such find.

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Appendix I

Measures for Protection of Migratory
Deer Habitat in Butte County
April 15, 1987

This report completes the land use analysis portion of the deer report presented to the Butte County Board of Supervisors on December 2, 1986 and identifies:

- Impacted deer winter range where development may continue with mitigation measures.
- Deer winter range in need of protection.
- Mitigation measures to offset loss of habitat resulting from subdivision and development.
- General Plan revisions.

Implementation of the following criteria will 1) provide guidelines for development in migratory deer ranges, 2) create a fund to be used on projects to improve the quality of the habitat within the remaining deer ranges in the county, 3) control free roaming dogs on deer ranges, 4) allow free movement of deer through remaining deer ranges, and 5) provide long term protection to migratory deer in the county.

Several criteria were used to determine lands where deer use has been or will be adversely affected by present parcel size. Such lands which are identified as "Designated Development Zones", may be further developed with mitigation measures (see Appendices A - I). Implementation of these criteria also determined winter range where development must be carefully controlled in order to provide basic habitat needs (i.e., food, water, and cover) and corridors of travel for migratory deer. The following criteria were used to determine impacted deer ranges and to delineate "Designated Development Zones".

- Parcels are currently less than 20 acres.
- Deer movement (migratory movement or movement to feeding areas, thermal cover, etc.) is blocked by parcels of 5 acres or less forming a barrier 1/4 mile or greater in width. From a planning perspective, it was assumed that all parcels less than 20 acres will eventually be 5 acres or less in size.
- Habitat within the parcel is not suitable for migratory deer.

Lands that border a "transportation corridor" (as identified in the May 1984 Butte County Deer Herd Study Panel Report) that are not within a specifically designated migration "window".

Critical or Designated Deer winter range of 160 acres or less, that is bordered on three or more sides by parcels less than 20 acres is allowed to "fill-in" if the following conditions are met:

- Development will not block deer movement;
- Development of the property will result in a minimum impact upon deer use of surrounding areas.

Appendices A-I delineate "Designated Development Zones" in deer winter range as identified though application of the aforementioned criteria. Implementation of these recommendtions by the County Board of Supervisors will allow additional subdivision within the "Designated Development Zone" with minimal impact on critical deer range.

RECOMMENDATIONS

Lands within the "Designated Development Zones" that are identified in Appendices A-I, may be further subdivided, provided they are subject to the following mitigation measures:

1. The county adopt and implement the deer mitigation fee structure contained in Appendix J.
2. A 40 acre minimum parcel size wildlife constraint be placed on critical deer winter and summer ranges, migration corridors and fawning areas that are outside the "Designated Development Zones". The Land Use Element of the General Plan should be amended to provide this constraint.
3. A 20 acre minimum parcel size wildlife constraint be placed on designated winter and summer ranges and intermediate ranges that are outside "Designated Development Zones". The Land Use Element of the General Plan should be amended to provide this constraint.

4. A wildlife constraint be placed on parcels currently ranging in size from 20.0 to 39.9 acres that are outside "Designated Development Zones", to prevent further subdivision of the land. The Land Use Element of the General Plan should be amended to provide this constraint.

5. The County adopt and enforce a dog control ordinance within migratory deer ranges similar to that contained in Appendix K for migratory deer ranges outside "Designated Development Zones".

6. The County adopt and implement a perimeter fencing ordinance similar to that contained in Appendix L for migratory deer ranges outside"Designated Development Zones".

7. 100 foot and 50 foot buffer zones be established along each side of permanent and intermittent streams, respectfully, in order to maintain critical habitat elements. Theses distances should be expanded to encompass all riparian wetland vegetation where it may exist outside the designated zones. No building should be allowed within these areas.

8. Building envelopes be designated as conditions of approval of parcel or subdivision maps within designated areas for development along identified "transportation corridors".

GENERAL PLAN

The Conservation Element should support the need to regulate development within deer ranges in order to provide for the needs of migratory deer. The Land Use Element of the General Plan should incorporate the following specific policies:

1. Require protection of migratory deer through maintenance of minimum parcel sizes of 40 and 20 acres on Critical and Designated deer winter ranges, respectfully (recommendation numbers 2 and 3).

2. Require that development in identified deer ranges be regulated to facilitate the survival of migratory deer.

3. Provide a means to improve and protect migratory deer habitat in Butte County (recommendation number 1).

4. Place wildlife constraints on deer ranges (recommendation numbers 2, 3, and 4).

5. Require control of free roaming and feral dogs (recommendation number 5).

6. Require that new perimeter fences comply with the fencing ordinance in Appendix L (recommendation number 6).

Attachments

APPENDIX J

Deer Mitigation Fee

Yuba County has adopted a mitigation fee for impacts within migratory deer ranges. The following descriptive language from their April 5, 1985 Final Environmental Impact Report and their fee schedule has been modified to comply with the recommendations in this report and the needs of migratory deer in Butte County.

The practice of off-setting environmental damage by improving areas not connected to a project site is used at both State and Federal levels. These offsite improvements are used for many different kinds of impacts, including loss of wetlands, increased traffic congestion, air quality degradation, and increased demands for school classrooms or recreation space. Mitigation may be accomplished by physically improving deer habitat or assessing a fee that is used to further study, or improve migratory deer habitat elsewhere in Butte County.

Since most development proposals in Butte County involve relatively small parcels or utilize most of the area involved, it is impractical to provide for mitigation measures on site or on other property owned by project proponents. There are a few subdividers in Butte County who do own large multiple parcels and may wish to improve deer habitat on their property elsewhere in the county. These subdividers should be considered independently and be allowed to provide for habitat improvement directly, subject to review and approval by the Department of Fish and Game (DFG). For most subdividers or builders who do not own extensive lands elsewhere, there is no practical way to provide sufficient habitat improvements on their property. For these, assessment of a mitigation fee for habitat improvement elsewhere can serve to mitigate impacts from development of their lands.

The proposed fee schedule is based upon location of the proposed land division within designated winter or critical winter range, size of parcels proposed and estimated effects of development patterns upon migratory deer. Fees increase with requests for smaller parcel sizes and the resultant increase in intensity of impacts. Every subdivision of a parcel into smaller ones would incur an impact fee. Since construction and occupation of a house increases impacts significantly more than just the subdivision of land, fees have been divided into two categories: The first imposed at the parcel map stage and a second at the building permit stage. This provides for a distribution of mitigation measures according to the benefit received. (See Table I)

No fees would be assessed for subdivision of lots which were five or fewer acres at the time of the proposed additional split. Lots of this size are already below the minimum size for supporting migratory deer, and indeed for most resident deer, and are considered already lost as deer habitat.

It is recognized that establishment of a fee schedule and the collection and disbursement of funds incurs employee time and other expenses not currently required. The county may want to collect 15-20% of the habitat improvement fee as compensation for these added costs.

All monies collected in this program would be placed in a special enterprise fund by the county. It would be dispersed to further study deer, improve deer habitat, or to landowners who signed an agreement with the county for specific habitat improvement projects (approved by DFG) and agree to maintain them for a minimum of 10 years. The landowners could either implement the habitat improvement project themselves or participate with DFG concurrence with the California Department of Forestry in their Vegetation Management Program or other similar State or Federal habitat improvement programs. Monies from the impact fee fund would be paid to participating landowners after the agreed upon improvements had been made.

TABLE I

SCHEDULE OF RECOMMENDED IMPACT FEES

Existing Parcel Size	Proposed Lot Size*	Parcel Map Stage		Building Permit Stage	
		Critical Winter Range	Winter Range	Critical Winter Range	Winter Range
40+ acres	40.0+ acres	$-	$-	$-	$-
	20-39.9 acres	$250	$-	$250	$-
	10-19.9 acres	$300	$250	$350	$350
	.1-9.9 acres	$350	$300	$350	$350
20.0-39.9 acres	20.0-39.9 acres	$250	$-	$250	$-
	10.0-19.9 acres	$300	$200	$350	$350
	0.1-9.9 acres	$350	$240	$350	$350
5.1-19.9 acres	10-19.9 acres	$ 75	$ 65	$265	$265
	0.1-9.9 acres	$ 90	$ 75	$265	$265

* Fees would be assessed against each new lot proposed.

APPENDIX K

REVISED BUTTE COUNTY DOG ORDINANCE

112. The provisions of this ordinance shall apply to migratory deer ranges that are outside of lands identified as "Designated Development Zone" in Appendices A-I (see Exhibit available at Butte County Planning Department, 7 County Center Drive, Oroville, for specific locations where ordinance applies).

113. In any instance in which a dog or dogs is/are observed killing, wounding, or pursuing deer, except as noted in Section 114, the person observing this action may take action into and including terminating the dog(s) if it is on their own property, has the permission of the landowner, or is on public lands (e.g., U. S. Forest Service, Bureau of Land Management, etc.).

114. The provisions of Sections 112 and 113 shall not apply to any of the following:

    a. Any area within the corporate limits of any city, or within any developed rural or residential area with lot sizes of less than three acres.

    b. Any dogs being used for the purpose of lawful training or hunting during prescribed dog training or hunting seasons.

    c. Dogs in the immediate presence and under direct control of the owner. The dog must be in close proximity to the owner and the owner must demonstrate effective control of the dog.

115. The provisions of this act do not provide a legal reason for unauthorized trespass. Offending dogs may be shot only by persons with a right or permission to be on the property. All incidents occurring under this provision, whether or not the offending dog or dogs are shot, must be reported to local law enforcement officials including Department of Fish and Game personnel.

APPENDIX L

Perimeter Fencing Ordinance

116. The provisions of this ordinance shall apply to migratory deer ranges that are outside lands identified as "Designated Development Zone" in Appendices A-I (see exhibit available at Butte County Planning Department, 7 County Center Drive, Oroville for specific locations where ordinance applies).

117. Within the areas identified above, perimeter fencing shall be limited to smooth or barbed wire (unless a special use permit is acquired). To allow passage of deer, the fence shall be constructed of five strands or less of barbed wire. The bottom and top wire shall be a minimum of 16 inches and a maximum of 48 inches above the ground.

118. The provisions of Sections 116 and 117 shall not apply to any of the following:

    a. Any area within the corporate limits of any city, or within any developed rural or residential area with lot sizes of five acres or less.

    b. Proposed fencing of garden areas, dwellings, or immediate barn structures.

    c. Proposed fencing to eliminate deer depredation losses to vineyards, alfalfa, etc., where a special use permit has been obtained.

    d. Any existing perimeter fencing.

119. A special use permit may be obtained for a variance to the provisions of Sections 116 and 117 for agriculture purposes (i.e., sheep grazing, deer exclosure perimeter fences to prevent deer depredation losses to agriculture crops).

Appendix J

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Appendix K

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