Draft

Environmental Impact Report/ Environmental Assessment

for the

U.S. Highway 50/ El Dorado Hills Boulevard-Latrobe Road Interchange Project

Volume I: Environmental Impact Report/ Environmental Assessment

El Dorado County
Department of Transportation

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U.S.Highway 50/El Dorado Hills Boulevard - Latrobe Road Interchange Project

DRAFT
ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

El Dorado County Department of Transportation

and

State of California Department of Transportation

and

U.S. Department of Transportation
Federal Highway Administration

Pursuant to: 42 U.S.C. 4332(2)(c)

El Dorado County Department of Transportation:

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Chapter 1. Introduction

PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT

This draft environmental impact report/environmental assessment (EIR/EA) has been prepared to assess the impacts of the proposed reconstruction of the El Dorado Hills Boulevard-Latrobe Road interchange located on U.S. Highway 50.

The proposed project involves the following:

- reconstructing the El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50,
- improving the vertical and horizontal alignment of the interchange on- and off-ramps,
- providing an additional lane at the following locations to accommodate exclusive turn lanes at the intersections (these lanes do not increase the through capacity of El Dorado Hills Boulevard or Latrobe Road):
  - southbound: between Park Drive and the westbound diagonal on-ramp, and between the westbound loop off-ramp and Town Center Boulevard; and
  - northbound: between Town Center Boulevard and the eastbound diagonal on-ramp, and between the eastbound loop off-ramp and Saratoga Way.
- providing dual left-turn lanes at the eastbound and westbound on-ramp intersections, and
- realigning Saratoga Way to intersect with Park Drive to address the existing spacing problem between the westbound on-ramp and the Saratoga Way/El Dorado Hills Boulevard intersection.

The project is being proposed by the El Dorado County Department of Transportation (DOT) and will be constructed in cooperation with the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA). The project includes approval of final engineering designs and advertisement of construction bids for the proposed project, approval of right-of-way acquisition for the proposed project, and approval to award the construction contract for the proposed project and all other discretionary permits and required approvals for the project.

This joint EIR/EA has been prepared by El Dorado County (County) and Caltrans (state lead agencies), and the FHWA (federal lead agency) to meet the requirements of the California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code, Section 21000, et seq.), and the National Environmental Policy Act (NEPA), as amended. This document has been prepared based on the requirements of the State CEQA Guidelines (14 California Administrative Code, Section 14000 et seq.); Council on Environmental Quality (CEQ) NEPA regulations (40 CFR 1500-1508); FHWA Environmental Impact and Related Procedures (23 CFR Part 771); and Caltrans Local Programs Manual, Volume III: Guidelines and Procedures for Processing Environmental Documents.

The EIR/EA is a public document used to analyze the environmental effects of a proposed project, indicate ways to reduce or avoid possible environmental damage, and identify alternatives to the proposed project. The EIR/EA discloses significant impacts under CEQA, growth-inducing impacts, and cumulative impacts of all past, present, and reasonably anticipated future projects.

The EIR/EA is an informational document used in the local planning and decision-making process. The EIR/EA's purpose is not to recommend approval or denial of a project.

The County has encouraged general public and cooperating agency review of this proposed project through the release of a notice of preparation (NOP) and a public scoping meeting that was held on July 15, 1998, at the El Dorado Hill Community Services District Pavilion. This public and agency review process will continue with release of the draft EIR/EA, and additional public meetings and hearings on the draft and final EIR/EA. The purposes of public and agency review include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and assessing alternatives.

In reviewing draft EIR/EAs, individuals should focus on the sufficiency of the document in identifying and analyzing possible impacts on the environment and determining ways in which the adverse effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the environmental effects of the project.

PROJECT BACKGROUND

This project has been planned to address traffic congestion within the overall framework of facilities and infrastructure planning for El Dorado County. The County General Plan and the El Dorado Hills Specific Plan specify the proposed improvements to the El Dorado Hills-Latrobe Road Interchange as needed to accommodate the buildout of western El Dorado County. A project development team, including DOT, consultants, and Caltrans representatives, was formed in 1995 to develop alternative designs for the project. A Preferred Alternative was selected by the County in February 1996, and a Mitigated Negative Declaration was circulated for public review in November 1996. In early 1997, the County responded to public controversy associated with impacts on an existing residential neighborhood adjacent to the project area by performing additional analysis of the impacts and by proposing to recirculate the Mitigated Negative Declaration with additional

proposed mitigation measures. Later in 1997, rather than recirculating the Mitigated Negative Declaration, the County conducted a community outreach effort to solicit public comments and facilitate consensus on alternatives. In June 1998, a new Preferred Alternative configuration was proposed and the Board of Supervisors directed DOT to prepare an EIR/EA as a result of the continuing controversy, the expressed threat of litigation, and concerns about the adequacy of the proposed Mitigated Negative Declaration. Subsequently, the County determined to request federal funding for a portion of the project.

SCOPE OF THE ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT

The DOT prepared and distributed an NOP and an initial study on July 11, 1998 (Appendix A). Interested agencies and individuals submitted comments concerning the scope of the EIR/EA (Appendix A). This EIR/EA includes a discussion of specific issues and concerns identified by the County as potentially adverse.

The environmental effects to be addressed in the draft EIR/EA have been identified based on the results of the initial study checklist and comments in response to the NOP. The scope of the draft EIR/EA includes the following topics:

- Noise
- Air Quality
- Visual Resources
- Traffic
- Land Use and General Plan Consistency
- Earth Resources
- Hydrology and Water Quality
- Biological Resources
- Cultural Resources

The following topics were addressed in the project initial study (May 1996):

- Energy and Mineral Resources
- Public Services and Utilities
- Recreation

The issues of Population and Housing and Risk of Upset were identified as not being potentially significant in the NOP, but public comments received on the NOP requested discussion of potentially significant project impacts on existing housing, including additional development of new housing, public health impacts of air emissions on residents (including potential for asbestos exposure), and potential for exposure to fuel from underground storage tanks near the construction area. The issue of recreation impacts associated with bicycle use through the interchange was also raised as being potentially significant.

The issue of compatibility with existing housing is addressed in Chapter 8, "Land Use and Socioeconomics". Growth inducement and additional housing development are addressed in Chapter 14, "Cumulative Impacts". The air emissions issue is addressed in Chapter 5, "Air Quality". The asbestos and underground storage tanks issues is addressed in Chapter 9, "Earth Resources". The issue of bicycle circulation is addressed in Chapter 7, "Transportation and Circulation".

The draft EIR/EA discusses alternatives to the proposed project and focuses on those alternatives capable of avoiding or substantially lessening the adverse environmental effects of the proposed project. Growth inducement and cumulative impacts associated with the proposed project are also discussed.

TERMINOLOGY USED IN THE ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT

Under CEQA, the following levels denote the significance of impacts:

- a less-than-significant impact would cause no substantial adverse change in the environment,
- a significant impact is one that would cause a substantial adverse effect on the environment,
- a significant and unavoidable impact is one that would cause a substantial adverse effect on the environment and for which no mitigation is available to reduce the impact to a less-than-significant level, and
- a beneficial impact is one that would cause a beneficial effect on the environment.

The term "significant" has a different meaning under CEQA versus NEPA. NEPA does not focus on assessing whether each and every impact is significant or not, as CEQA does. Rather, under NEPA, the presence or absence of a "significant" impact (or set of impacts) on the quality of the human environment determines the type of environmental document that needs to be prepared. Therefore, the significance conclusions identified above apply to CEQA only.

The EIR/EA also recommends mitigation measures. The State CEQA Guidelines (Section 15370) and the CEQ regulations (40 CFR 1508.20) define mitigation as:

(a) avoiding the impact altogether by not taking a certain action or parts of an action;

(b) minimizing impacts by limiting the degree or magnitude of the action and its implementation;

(c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

(d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and

(e) compensating for the impact by replacing or providing substitute resources or environments.

Under NEPA, mitigation is identified for all adverse impacts when mitigation is reasonable. Under CEQA, mitigation is identified for significant impacts.

OTHER AGENCIES THAT WILL USE THE ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

The California Department of Fish and Game (DFG) and U.S. Army Corps of Engineers (Corps) also will use this EIR/EA. The Corps is expected to use the EIR/EA to support approval of a Nationwide Permit under Section 404 of the federal Clean Water Act. California Department of Fish and Game will use this EIR/EA to support issuance of a Streambed Alteration Agreement under Section 1601 of the state Fish and Game Code.

ORGANIZATION OF THE ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT

The content and format of this EIR/EA are designed to meet both the requirements of CEQA and NEPA. In addition to this chapter, the EIR/EA includes the following chapters:

- Chapter 2, "Description of the Proposed Project and Alternatives to the Project", consists of a thorough description of the project, including its location, background, setting, characteristics, phasing and schedule, cost, related projects, and alternatives to the project.
- Chapter 3. Summary of Impacts and Mitigation Measures
- Chapter 4. Noise
- Chapter 5. Air Quality
- Chapter 6. Visual Resources
- Chapter 7. Traffic and Circulation
- Chapter 8. Land Use and Socioeconomics
- Chapter 9. Earth Resources

- Chapter 10. Hydrology and Water Quality
- Chapter 11. Biological Resources
- Chapter 12. Cultural Resources
- Chapter 13. Alternatives to the Proposed Project
- Chapter 14. Cumulative Impacts
- Chapter 15. Citations and List of Agencies Consulted
- Chapter 16. Report Preparation

Technical Appendices:

A. Notice of Preparation and Comment Letters

B. Noise Technical Information

C. Traffic Analysis Technical Appendix

D. Cultural Resource Technical Reports

E. Technical Memorandum Discussing the Saratoga Way Alternative Alignments

F. Hazardous Waste Environmental Site Assessment

G. Wetland Delineation Report and Nationwide Permit Documentation

H. Endangered Species Act Compliance Documentation

I. Technical Memorandum on El Dorado Hills Boulevard/U.S. 50 Interchange Alternatives

J. Community Process Report

K. Valley View Specific Plan CEQA Findings of Fact

For each impact determined to be adverse, feasible mitigation measures are proposed to minimize, rectify, reduce, eliminate, or compensate for the impact. If no feasible measures are available to adequately mitigate the impact, this is indicated as "none available". For impacts that are determined not to be adverse, feasible mitigation measures may be identified to further reduce the impact, or may be identified as "none proposed".

Each topical chapter concludes with a "Significance Conclusions under CEQA" section that describes the criteria for determining the significance of an environmental impact and identifies key

assumptions about the project that were considered in determining impacts. The standards for determining thresholds of significance for each issue area are based on existing standards adopted for the purpose of environmental protection by various public agencies, and on professional practice.

Chapter 2. Description of the Proposed Project and Alternatives to the Project

The proposed project involves the following:

- reconstructing the El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50,
- improving the vertical and horizontal alignment of the interchange on- and off-ramps,
- providing an additional lane at the following locations to accommodate exclusive turn lanes at the intersections (these lanes do not increase the through capacity of El Dorado Hills Boulevard or Latrobe Road):
  - southbound: between Park Drive and the westbound diagonal on-ramp, and between the westbound loop off-ramp and Town Center Boulevard; and
  - northbound: between Town Center Boulevard and the eastbound diagonal on-ramp, and between the eastbound loop off-ramp and Saratoga Way.
- providing dual left-turn lanes at the eastbound and westbound on-ramp intersections, and
- realigning Saratoga Way to intersect with Park Drive to address the existing spacing problem between the westbound on-ramp and the Saratoga Way/El Dorado Hills Boulevard intersection.

The proposed project would be constructed in two phases (see Figures 2-2 and 2-3), as described below under "Project Phasing."

PROJECT LOCATION

The project site is at the El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50 in the foothills of the Sierra Nevada in western El Dorado County, approximately 1.6 kilometers (about 1 mile) east of the Sacramento County line between Folsom and Placerville (Figure 2-1). The existing U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange is the westernmost interchange on U.S. Highway 50 in El Dorado County. El Dorado Hills Boulevard - Latrobe Road is an existing four-lane undercrossing through the interchange. North of

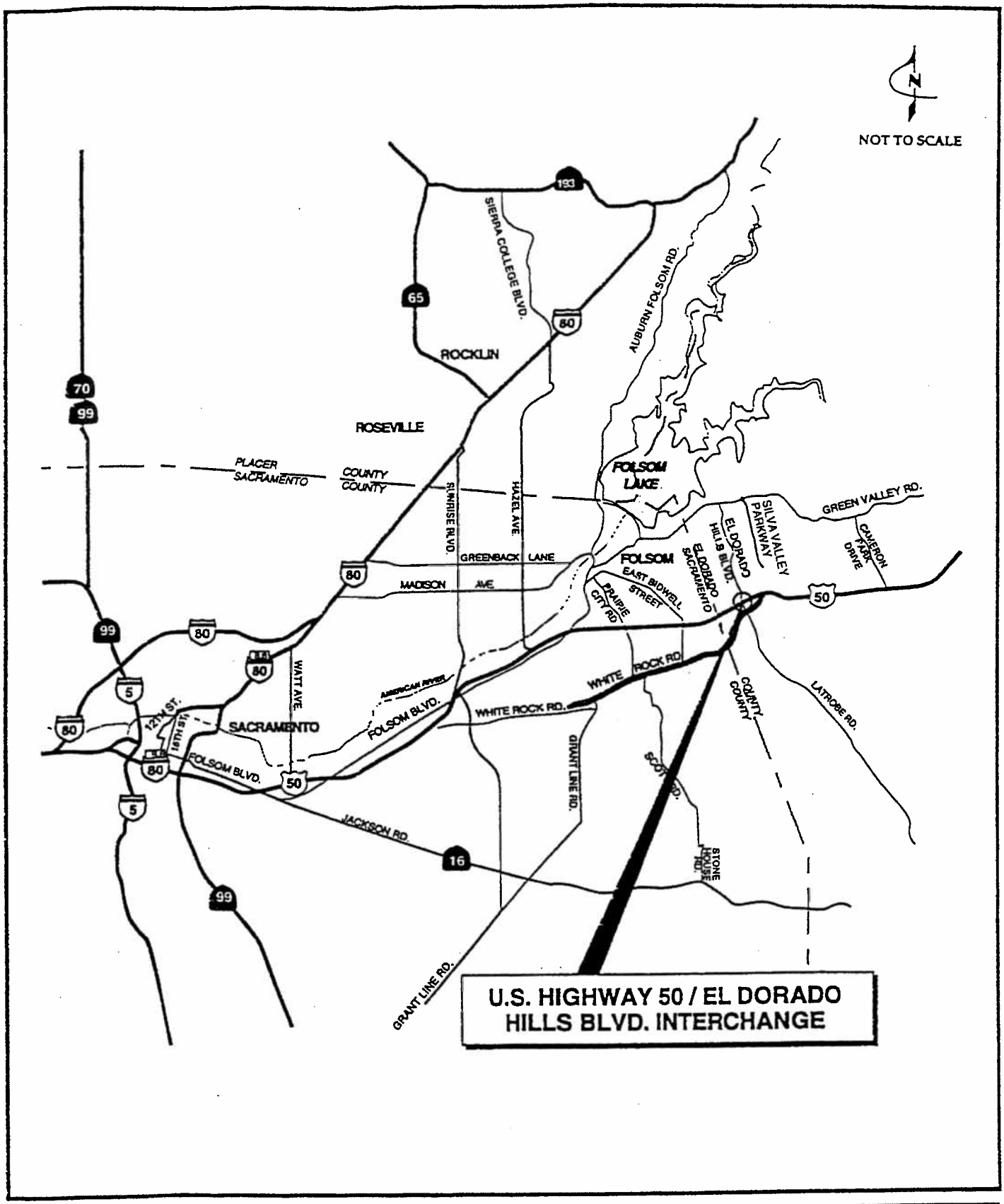
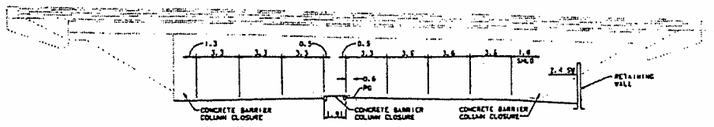
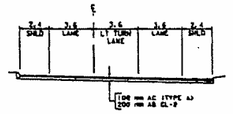


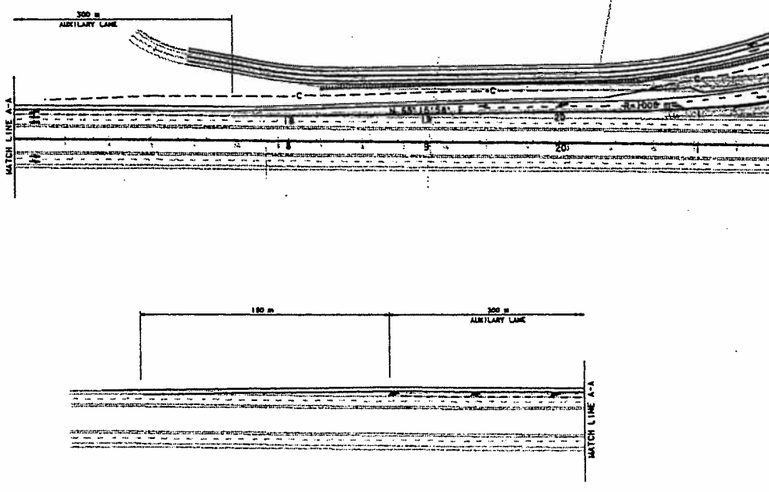
FIGURE 2-1	PROJECT LOCATION	Fehr & Peers Associates, Inc. Transportation Consultants

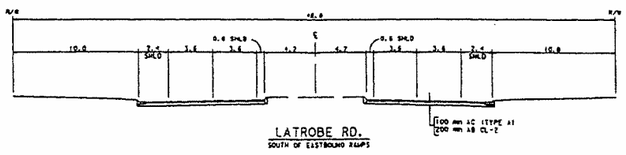


LATROBE ROAD UNDERCROSSING

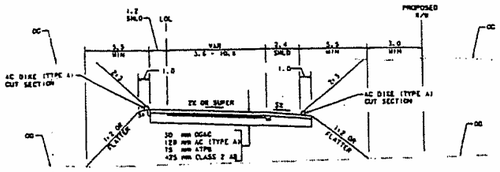


SARATOGA WAY
SOUTH OF ARROWHEAD DR TO PARK DR

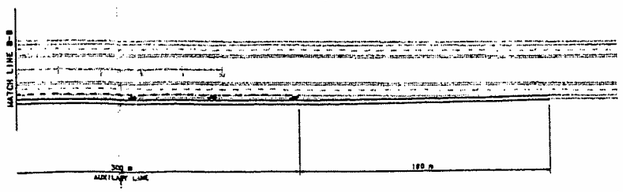




LATROBE RD.
SOUTH OF EASTBOUND RAMPS



TYPICAL RAMP



N

Scale:
1cm = 20m
1:2,000

FIGURE 2-2

HDR

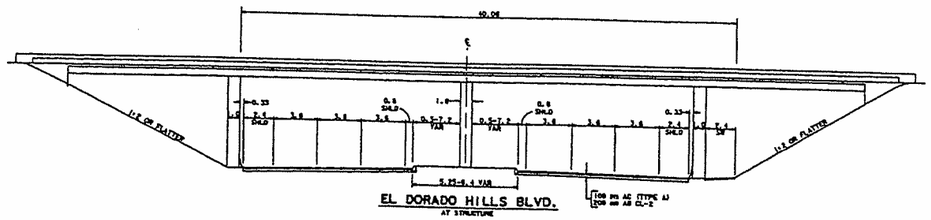
HDR Engineering, Inc.

EL DORADO HILLS BLVD. INTERCHANGE PREFERRED ALTERNATIVE (PHASE 1)

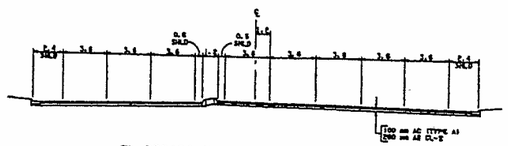
Date: 5/19/99

Scale: 1 : 2000

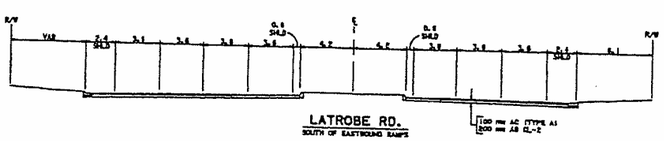
PHASE1.DGN Date plotted: 05/21/99 8:52 am



EL DORADO HILLS BLVD.
AT STRUCTURE



EL DORADO HILLS BLVD./LATROBE RD.
DUAL LEFT TURN POCKETS AT OFF-RAMPS
LOOKING NORTH



LATROBE RD.
SOUTH OF EASTBOUND RAMPS

LEGEND

(XXX) / (XXXX) - AM PEAK HOUR VOLUMES / PM PEAK HOME VOLUMES

TYPICAL RAMP

SARATOGA WAY
SOUTH OF ARROWHEAD DR TO PLANE DR

Scale:
1cm = 20m
1:2,000

HDR Engineering, Inc.

FIGURE 2-3

EL DORADO HILLS BLVD.
INTERCHANGE
PREFERRED ALTERNATIVE
(ULTIMATE PHASE/PHASE 2)

Date 2/25/99

Scale

FIG.2-2.DGN Date plotted: 03/03/99 1:30 pm

U.S. Highway 50, El Dorado Hills Boulevard is a five-lane roadway (three lanes northbound to the Lassen Lane/Serrano Parkway intersection and two lanes southbound), then a four-lane roadway to Saint Andrews/Governors Drive intersection, then a two-lane roadway that provides access to the community of El Dorado Hills and terminates at Green Valley Road. South of U.S. Highway 50, Latrobe Road, a two-lane roadway, terminates at U.S. Highway 16 in Amador County.

PROJECT BACKGROUND

Reconstruction of the El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50 is included in the County General Plan within the overall framework of facilities and infrastructure planning for El Dorado County. The General Plan incorporates the 1988 El Dorado Hills Specific Plan as its guideline for development in the western portion of El Dorado County. The El Dorado Hills Specific Plan specifies that the El Dorado Hills-Latrobe Road Interchange improvements are needed to accommodate the planned buildout of western El Dorado County. The project was addressed in the general plan EIR, certified in January 1996 (State Clearinghouse No. 94012008). The project is also included in the biennial 1996 Metropolitan Transportation Plan and is consistent with the project approved in the El Dorado County Regional Transportation Improvement Program/Federal Transportation Improvement Program.

Since June 1994, the DOT has pursued approval from Caltrans of the U.S. Highway 50/ El Dorado Hills Boulevard-Latrobe Road Interchange Project. A project development team, including DOT, consultants, and Caltrans representatives, was formed in 1995 to obtain timely and efficient Caltrans approval of the Project Study Report/Project Report in order to move into the design phase of the project. The project development team originally evaluated seven alternative design concepts during 1995 (Alternatives 1-7, with Alternative 3 having three design options identified as 3A, 3B, and 3C). Two public meetings were held to consider which of these alternatives should be selected as the Preferred Alternative: an open house meeting held in El Dorado Hills in October 1995 and a presentation of viable alternatives at a Board of Supervisors meeting in December 1995. A Preferred Alternative was selected by El Dorado County (County) on February 1, 1996 (Alternative 3A, with Saratoga Way aligned immediately adjacent to the existing townhomes in the northwest quadrant of the interchange).

The project development team decided that a Mitigated Negative Declaration was the appropriate CEQA document for the proposed interchange project. The Mitigated Negative Declaration was circulated for public review in November 1996.

The County Board of Supervisors met three times during January and February of 1997 to consider approval of the Mitigated Negative Declaration and, on February 4, 1997, directed that the Mitigated Negative Declaration be recirculated with additional proposed mitigation measures. At this time, as a result of DOT's identification of concerns raised by the public regarding selection of the Preferred Alternative, a community outreach effort was initiated by the County to solicit public comments and facilitate consensus. Public outreach efforts were made during February, March, May, and June of 1997, and professional facilitation efforts were conducted beginning in

October 1997 to enhance stakeholder participation, seek consensus, and reduce contention surrounding the proposed interchange project. Ten additional design concepts (Alternatives A-J) were developed during the public outreach process. However, no consensus regarding the Preferred Alternative was reached. A Community Process Report (May 1998) documenting the process was prepared, and the facilitator recommended a modified Preferred Alternative that included an S-curve configuration for Saratoga Way and limited its width to two-lanes.

Based on direction from the Board of Supervisors, DOT, in conjunction with the project development team, has proposed a new Preferred Alternative configuration, consistent with the Community Process Report, that is a hybrid of Alternatives 3A and E that were previously identified. (The "A" in Alternative 3A refers to Option A, which incorporates the configuration of the eastbound diagonal off-ramp in the southwest quadrant.) Alternative E was developed as a result of the community outreach effort and contains the same ramp configurations as Alternative 3A; however, the westbound U.S. Highway 50 on-ramp geometrics are more compact to increase the distance between the ramp improvements and the townhomes located in the northwest quadrant. An S-curve configuration and an ultimate width of two-lanes was proposed for Saratoga Way.

In June 1998, the DOT proposed to the Board of Supervisors that an EIR/EA be prepared because of the controversy surrounding the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road Interchange Project, the expressed threat of litigation, and concerns about the adequacy of the proposed Mitigated Negative Declaration. The Board of Supervisors directed DOT to prepare an EIR/EA on Preferred Alternative 3A-E, which incorporates the S-curve configuration and a two-lane width for the relocated Saratoga Way. The Board of Supervisors also indicated that, as one of the original mitigation measures, the realignment of Saratoga Way would include a connection with Mammouth Way.

In July 1998, the County, as Lead Agency, prepared a Notice of Preparation (NOP) of an EIR/EA for the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road Interchange Project.

SETTING

For ease of description, the interchange is divided spatially into four quadrants (see Figure 2-3). The northwestern and northeastern quadrants contain diagonal, single-lane, westbound, on-and off-ramps, which intersect El Dorado Hills Boulevard at a signalized intersection north of U.S. Highway 50. The westbound on-ramp allows free freeway access (no signalization) for vehicles traveling southbound on El Dorado Hills Boulevard. The southeastern quadrant contains a looped, single-lane, eastbound off-ramp that allows northbound traffic to merge into the northbound lanes of El Dorado Hills Boulevard and controls southbound traffic at a three-way, stop-sign–controlled intersection. A diagonal, single-lane eastbound on-ramp from Latrobe Road originates south of the eastbound off-ramp intersection. This on-ramp allows free freeway access for northbound traffic on Latrobe Road. No interchange features are located within the southwestern quadrant.

To the east of El Dorado Hills Boulevard, Saratoga Way is a four-lane, divided road that serves as the main entrance to a large commercial area. The commercial area consists of two gas stations, Raley's supermarket, fast food establishments, and other business and commercial uses. To the west, Saratoga Way is a two-lane collector road that parallels U.S. Highway 50 and provides access to a relatively small number of single-family and multifamily residential units on Finders Way and Arrowhead Drive. Currently, the west leg of Saratoga Way terminates approximately 0.6 kilometer (about 0.37 mile) west of its intersection with El Dorado Hills Boulevard, but is planned to connect with a proposed extension of Iron Point Road in Folsom, according to the County's General Plan. The intersection of Saratoga Way with El Dorado Hills Boulevard is signalized and located approximately 70 meters (230 feet), centerline to centerline, north of the signalized intersection of the westbound ramps.

The area around the intersection of El Dorado Hills Boulevard and U.S. Highway 50 is planned to be the future hub of economic development in El Dorado County. Existing land uses in this area include golf courses, a fire station, schools, limited commercial, and several residential subdivisions north of the interchange. Residential areas in the northwest quadrant of the interchange include townhomes located just west of El Dorado Hills Boulevard in Park Village and Crescent Ridge subdivisions (see Figures 2-3 and 8-1). In the northeast quadrant of the interchange, there is a large commercial area (accessed directly via Saratoga Way), which attracts numerous trips on the east side of El Dorado Hills Boulevard between Park Drive and U.S. Highway 50. South of the interchange, construction has begun on the planned commercial developments of Town Center East and Town Center West. The El Dorado Hills Business Park is located along the west side of Latrobe Road approximately 0.4 kilometer (about 0.25 mile) south of White Rock Road. Much of the land south of U.S. Highway 50 is currently undeveloped, annual grassland with scattered oak trees, but the area is planned for extensive commercial, industrial, and residential development.

PROJECT PURPOSE AND OBJECTIVES

The proposed project would improve the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange. The County has identified the following objectives that the project is intended to achieve:

- Increase interchange capacity to accommodate existing vehicular traffic and traffic associated with planned growth in El Dorado County, as identified in the 1996 El Dorado County General Plan and the 1988 El Dorado Hills Specific Plan.

- Address existing operational deficiencies and safety problems associated with the interchange, including the spacing problem between the interchange's westbound ramp/El Dorado Hills Boulevard intersection and the Saratoga Way/El Dorado Hills Boulevard intersection (the westbound ramp terminal intersection, located north of U.S. Highway 50 approximately 70 meters [230 feet], centerline to centerline, south of the Saratoga Way intersection, operates with a five-phase signal that is coordinated with

the signal at Saratoga Way. The close spacing between the intersections results in queuing problems).

- Achieve the operational goal of level of service D or better during the a.m. and p.m. peak periods at all ramp and adjacent roadway intersections in the year 2020.
- Meet the design requirements of Caltrans.
- Minimize environmental impacts of the proposed improvements to the extent feasible.

PROJECT CHARACTERISTICS

Proposed Improvements

The proposed project involves the following:

- reconstructing the El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50,
- improving the vertical and horizontal alignment of the interchange on- and off-ramps,
- providing an additional lane at the following locations to accommodate exclusive turn lanes at the intersections (these lanes do not increase the through capacity of El Dorado Hills Boulevard or Latrobe Road):
  - southbound: between Park Drive and the westbound diagonal on-ramp, and between the westbound loop off-ramp and Town Center Boulevard; and
  - northbound: between Town Center Boulevard and the eastbound diagonal on-ramp, and between the eastbound loop off-ramp and Saratoga Way.
- providing dual left-turn lanes at the eastbound and westbound on-ramp intersections, and
- realigning Saratoga Way to intersect with Park Drive to address the existing spacing problem between the westbound on-ramp and the Saratoga Way/El Dorado Hills Boulevard intersection.

Reconstruction of the El Dorado Hills Boulevard interchange is included in the 1996 El Dorado County General Plan. The project is also included in the biennial 1996 Metropolitan Transportation Plan and is consistent with the project approved in the El Dorado County Regional Transportation Improvement Program/Federal Transportation Improvement Program.

The proposed project includes reconstructing the westbound ramps with an L-8 interchange configuration (Figure 2-3). The proposed configuration at the west-bound ramps is a hybrid of two previously identified alternatives considered during the alternatives development process—Alternative 3A and Alternative E (the "A" in Alternative 3A refers to Option A for the configuration of the eastbound diagonal off-ramp in the southwest quadrant). Alternative E, developed as a result of the community outreach effort, contains the same ramp configurations as Alternative 3A; however, the westbound on-ramp geometrics in Alternative E are more compact than those in Alternative 3A to increase the distance between the ramp improvements and the townhomes located in the northwest quadrant. The proposed project also incorporates the previously considered S-curve configuration for the relocated Saratoga Way.

Project Phasing

The proposed project would be constructed in two phases. An interim interchange configuration would be constructed in Phase 1 (see Figure 2-2). The ultimate interchange configuration would be constructed in the Ultimate Phase (or Phase 2) (see Figure 2-3).

Phase 1 would consist of the realignment of the west leg of Saratoga Way, the construction of the westbound loop off-ramp and new structure, the westbound diagonal on-ramp, and the eastbound diagonal on-ramp. The existing eastbound loop off-ramp would be widened near the ramp terminal to provide for two left-turn lanes to southbound Latrobe Road. Ramp metering including an HOV bypass would be provided at the westbound on-ramp. (The eastbound on-ramp is not expected to be metered until the Ultimate Phase.)

The intersection of the eastbound ramps with Latrobe Road will be signalized. El Dorado Hills Boulevard will be widened underneath the existing undercrossing structures to provide dual left turn lanes to the eastbound and westbound ramps intersections. Phase improvements are expected to serve adequately for a number of years while some or all of the related projects described in the "Anticipated Future Projects" section are implemented.

The Ultimate Phase would be initiated at such time as is warranted by monitoring levels of service. The Ultimate Phase will include constructing the new eastbound loop off-ramp and the eastbound diagonal off-ramp, providing an additional southbound lane on El Dorado Hills Boulevard between Park Drive and the westbound on-ramp, and replacing the undercrossing structures.

Both phases of the project are included in the County's 5-year Capital Improvement program with construction of Phase 1 scheduled to begin in fiscal year 2002-2003. Construction of each phase is estimated to require 15 months.

The following discussion describes the proposed improvements on the north and south sides of the interchange.

North Side of Interchange

Phase 1

A westbound loop off-ramp would be constructed in the northwest quadrant with an exclusive right turn to southbound El Dorado Hills Boulevard and one exclusive left-turn lane and one combined left through lane to northbound El Dorado Hills Boulevard. The existing westbound diagonal on-ramp in the northwest quadrant would be replaced with a new on-ramp, across from the east leg of Saratoga Way (east of El Dorado Hills Boulevard). The new on-ramp will be metered with three lanes (including the one HOV bypass lane) transitioning to one lane at the ramp mainline convergence point. The loop off-ramp and diagonal on-ramp would be signalized at the intersection with the east leg of Saratoga Way. A second left-turn lane would be provided for northbound traffic on El Dorado Hills Boulevard to the on-ramp. The existing westbound diagonal off-ramp would be eliminated in the northeast quadrant.

The west leg of Saratoga Way would be reconfigured as an S-curve and realigned to Park Drive to provide space for the new westbound ramps and address the existing spacing problem between the westbound on-ramp and the Saratoga Way/El Dorado Hills Boulevard intersection. In this configuration, Saratoga Way would swing east toward El Dorado Hills Boulevard, and then curve back toward the townhomes located in the northwest quadrant. This configuration is intended to minimize traffic-related impacts on the nearby townhomes and allow usable space in the commercially zoned area that the roadway traverses. Under this project, the County proposes to keep the west leg of Saratoga Way as a two-lane roadway with left-turn pockets at Arrowhead Drive and Mammouth Way.

Ultimate Phase

This phase includes replacing the Highway 50 undercrossing structures. This phase also includes adding a third southbound lane between Park Drive and the westbound diagonal on-ramp and from the westbound loop off-ramp to the south (see the "South Side of Interchange" section below), and adding a third northbound lane between the eastbound loop off-ramp and Saratoga Way.

South Side of Interchange

Phase 1

Southbound El Dorado Hills Boulevard would be widened to provide dual left-turn lanes to the eastbound on-ramp. The eastbound on-ramp would be widened to three lanes and transition to two lanes at the ramp entrance. The intersection at the eastbound ramps would be signalized.

Ultimate Phase

A new eastbound, diagonal off-ramp would be constructed in the southwest quadrant. The ramp would be a single-lane, off-ramp widening to two lanes at the terminus. Traffic using the leftmost right-turn lane would be required to stop at the signal while right-lane traffic would have a free right-turn into an exclusive lane on southbound Latrobe Road. This exclusive lane would continue to the intersection of Town Center Boulevard where it would become an exclusive right-turn lane into the Town Center West. The leftmost right-turn lane would be dedicated for vehicles turning left at Town Center Boulevard or continuing south on White Rock Road.

A new eastbound loop off-ramp, including the new structure crossing Latrobe Road, will be constructed. The ramp will be widened to two lanes with an exclusive right-turn lane to service the northbound El Dorado Hills Boulevard traffic.

As noted above, this phase includes replacing the Highway 50 undercrossing structures. This phase also includes adding a third southbound lane between the westbound loop off-ramp and Town Center Boulevard; and adding a third northbound lane between Town Center Boulevard and the eastbound diagonal on-ramp, and between the eastbound loop off-ramp and Saratoga Way.

Right-of-Way Acquisition

Construction of the proposed project would not require the displacement of any existing structures. Right-of-way would need to be acquired from several properties in all four quadrants of the interchange. The required interchange right-of-way would be dedicated to the State of California. The required right-of-way for the realignment of Saratoga Way would be retained by the County, and it would continue to be maintained by the County.

Lighting and Landscaping

The project includes new lighting and landscaping within the project limits. The lighting is expected to include installation of standard Caltrans Type 30, 31 or 32 standards and luminaries on the freeway at the juncture of each on and off-ramp. These types are generally 300-watt, high pressure sodium luminaries on cobra-type standards with a maximum mounting height of 12.2 meters (approximately 33 feet). At the terminus of each on- and off-ramp on El Dorado Hills Boulevard and on Saratoga Way at its intersections with Mammouth Way and Arrowhead Drive, the County expects to use Caltrans Type 15 or 21 standards (or equivalent). These types are generally 300-watt, high pressure sodium luminaries on cobra-type standards with a maximum mounting height of 10 to 12.2 meters (approximately 28-33 feet). Lighting at the intersections of El Dorado Hills Boulevard and Park Drive and El Dorado Hills Boulevard and the east leg of Saratoga Way would be combined with the signals.

Landscaping will consist of standard erosion control and highway planting that will be drought resistant, require low maintenance, and complement existing area vegetation. Irrigation will be installed and maintained as necessary to maintain the landscaping.

Project Cost Estimate

The total cost of the proposed interchange improvements has been estimated at approximately $22 million in 1999 dollars. Phase 1 is estimated to cost approximately $11 million and the Ultimate Phase (or Phase 2) is estimated to cost $11 million. The project will be funded from the El Dorado Hills Road Impact Fee account and through the use of federal funds made available by the El Dorado County Transportation Commission.

ANTICIPATED FUTURE PROJECTS

Following completion of Phase 1 of the proposed project, the need for subsequent phased improvements on those nearby roadways affecting the El Dorado Hills Boulevard-Latrobe Road interchange has been identified to relieve traffic at the project interchange and to provide acceptable traffic operations until the Ultimate Phase of the proposed project is constructed. These subsequent improvements, identified in the El Dorado County General Plan, include the following:

- connection of White Rock Road to Silva Valley Parkway as a two-lane road to reduce the amount of traffic passing through the project interchange,
- widening White Rock Road to four lanes from Latrobe Road to the Silva Valley Parkway and possible construction of an initial phase of the Silva Valley Parkway/U.S. Highway 50 interchange to further reduce traffic through the project interchange, and
- construction of a high-occupancy vehicle lane on US Highway 50 in the eastbound and westbound directions from Sunrise Boulevard to El Dorado Hills Boulevard.

Whether and when these subsequent improvements are constructed, will affect the timing of and the need for construction of the Phase 2 improvements associated with the proposed project. The phasing of these subsequent improvements will depend heavily on the timing and location of the new land use developments proposed in the County's adopted general plan.

REQUIRED PERMITS AND APPROVALS

Lead Agency Approvals

The discretionary actions required by El Dorado County for project implementation include the following:

- certification of the EIR/EA,
- approval of proposed improvements by the County Board of Supervisors,
- approval of final engineering designs and advertisement of construction bids for the proposed project,
- approval of right-of-way acquisition for the proposed project, and
- approval to award the construction contract for the proposed project.

Approvals by Other Agencies

Caltrans is expected to use this EIR/EA to approve the encroachment permit. The U.S. Army Corps of Engineers is expected to use the EIR/EA to support approval of a Nationwide Permit under Section 404 of the federal Clean Water Act. California Department of Fish and Game will use this EIR/EA to support issuance of a Streambed Alteration Agreement under Section 1601 of the state Fish and Game Code.

ALTERNATIVES TO THE PROPOSED PROJECT

The preferred alternative, as described above, was selected from among more than 20 alternative design concepts that were studied by the County. In the process of screening the alternatives, all of the other previously studied alternatives were rejected from further detailed consideration in the EIR/EA. In each case, these rejected alternatives would not achieve the project objectives, or would not provide substantial environmental advantages over the project proposal, or were substantially similar to other alternatives already under consideration. A brief overview of each of the rejected alternatives is provided in Chapter 13 of this report.

After consideration by the County, two of the previously proposed "build alternatives" have been selected for analysis in the EIR/EA because they could be expected to marginally reduce significant noise and air quality effects of the project, or could otherwise feasibly attain most of the

basic objectives of the project. Three alternatives, the No Project Alternative, Alternative I (formerly identified as Alternative 3A-E as previously proposed by the project development team, but with a two-lane ultimate width for the tangent alignments), and Alternative II (formerly identified as Alternative 2 as previously proposed by the project development team but with the two lane ultimate width, S-curve alignment of Saratoga Way) are described below and will be analyzed in the EIR/EA.

No Project Alternative

Under the No Project Alternative, no interchange improvements would be constructed and Saratoga Way would remain in its current location as a two-lane roadway. The No Project Alternative would maintain the existing U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange configuration (Figure 2-4). The existing interchange configuration is described in detail in the "Setting" section of this chapter, but generally includes diagonal, single-lane westbound on- and off-ramps which intersect El Dorado Hills Boulevard at a signalized intersection north of U.S. Highway 50 and a looped, single-lane eastbound off-ramp that allows traffic to merge into the northbound lanes of El Dorado Hills Boulevard and controls southbound traffic at a three-way, stop sign- controlled intersection. A diagonal, single-lane eastbound on-ramp from Latrobe Road originates south of the eastbound off-ramp intersection. The No Project Alternative was identified as the project development team's "Alternative 7".

The No Project Alternative would not address the projected level of service deterioration at the interchange and surrounding roadways, would not address existing operational deficiencies, and would be substantially inadequate to accommodate projected future traffic volumes associated with approved development and future development proposed in the 1996 El Dorado County General Plan.

The impacts of the No Project Alternative are analyzed comparatively in Chapter 13 of this report.

Alternative I: Saratoga Way Tangent Alignment Alternative

This alternative was developed from the former Preferred Alternative (Alternative 3A-E). It includes the interchange improvements just as they are under the proposed project described under "Project Characteristics" in this chapter, but it involves the relocation of the west leg of Saratoga Way to align with Park Drive with a tangent alignment that is directly adjacent to the existing residences in the northwest quadrant (Figure 2-5). Saratoga Way would be also be maintained as a two-lane road under this alternative.

This alternative proposes the interchange improvements and relocation of Saratoga Way that are considered necessary to feasibly accommodate future traffic volumes, but would keep Saratoga Way at a width of two lanes to intentionally limit its capacity (and therefore the noise and air quality

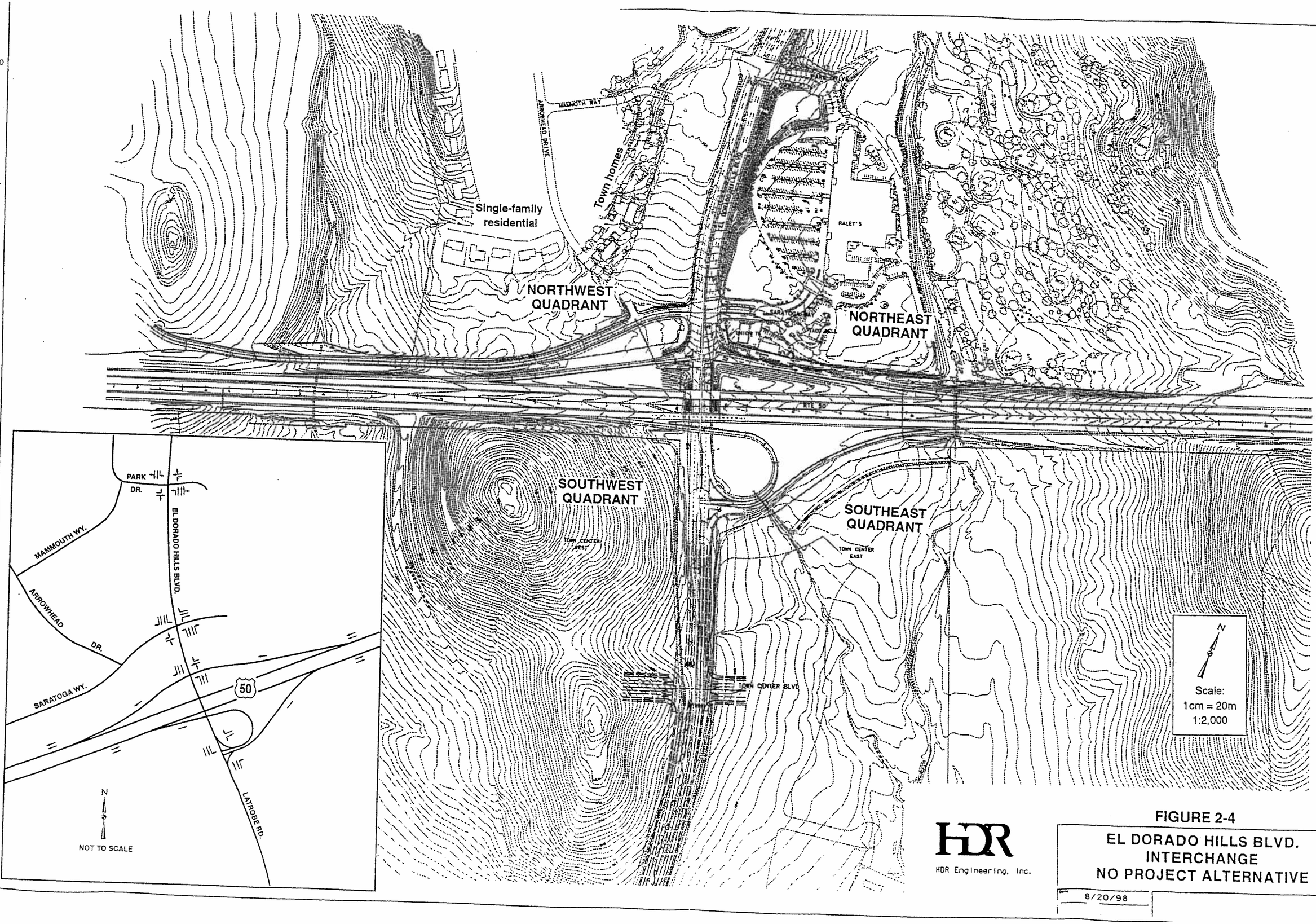


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FIGURE 2-4

EL DORADO HILLS BLVD. INTERCHANGE NO PROJECT ALTERNATIVE

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impacts on adjacent residences). Although this alternative may not fully attain all of the project objectives listed above, it has been selected for further environmental analysis because it has the potential to provide similar levels of service as the proposed project while retaining a more usable commercial parcel between Saratoga Way and El Dorado Hills Boulevard.

A retaining wall may be constructed adjacent to the outside edge of pavement at the 61-meter radius curve at the free right turn for southbound traffic entering the westbound on-ramp. The wall would be set back to provide a 40-kilometer-per-hour stopping sight distance at the curve.

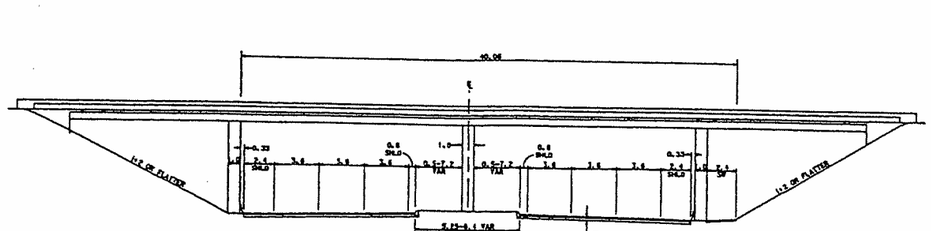
The impacts of the Alternative I: Saratoga Way Tangent Alignment Alternative are analyzed comparatively in Chapter 13, in this report.

Alternative II: New Interchange Configuration (Former Alternative 2)

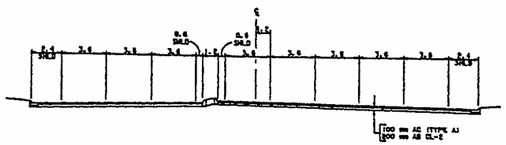
This alternative was formerly identified as Alternative 2 by the project development team. This alternative is a modified L-8 partial cloverleaf interchange configuration with loop off-ramps in the northwest and southeast quadrants, and diagonal off-ramps and on-ramps for westbound traffic (Figure 2-6). The westbound diagonal off-ramp would be stop sign-controlled and feed traffic into the northbound El Dorado Hills Boulevard/westbound diagonal on-ramp/Saratoga Way (east) intersection. The west leg of Saratoga Way would be relocated to align with Park Drive. However, modifications of the original Alternative 2 include incorporating an S-curve configuration for the relocated Saratoga Way (as described above for the preferred alternative) and maintaining Saratoga Way as a two-lane road.

This alternative proposes the interchange improvements and relocation of Saratoga Way that would feasibly accommodate future traffic volumes and generally meet project objectives, but would keep Saratoga Way at an ultimate width of two lanes to intentionally limit its capacity (and therefore the noise and air quality impacts on adjacent residences). This alternative may not significantly reduce environmental impacts, but it may result in marginal reductions in noise and air quality impacts on existing residences in the northwest quadrant. It is also expected to generally attain all of the project objectives and would feasibly accommodate future traffic volumes.

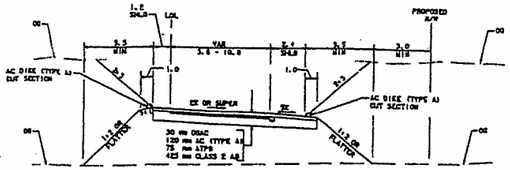
The impacts of the Alternative II: New Interchange Configuration (former Alternative 2) are analyzed comparatively in Chapter 13 of this report.



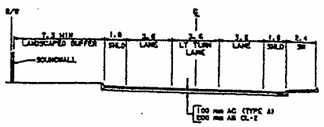
EL DORADO HILLS BLVD.
AT STRUCTURE



EL DORADO HILLS BLVD./LATROBE RD.
DUAL LEFT TURN POCKETS AT ON-RAMPS
LOOKING NORTH



TYPICAL RAMP



SARATOGA WAY
SOUTH OF ARROWHEAD DR TO PARK DR

LATROBE RD.
SOUTH OF EASTBOUND RAMPS

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FIGURE 2-5

EL DORADO HILLS BLVD. INTERCHANGE ALTERNATIVE I

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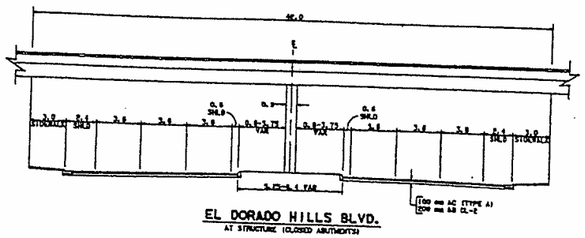
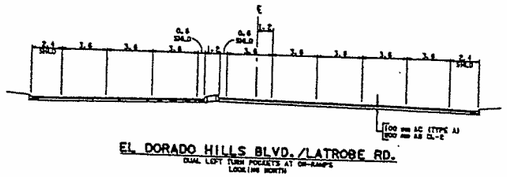
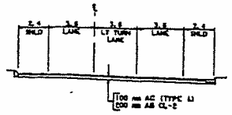
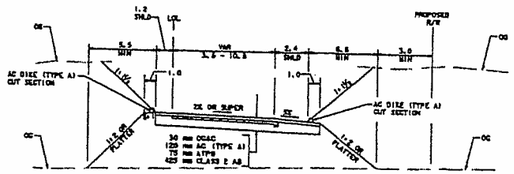






LEGEND

(XXX) / (XXX) - AM PEAK HOUR VOLUMES / PM PEAK HOME VOLUMES



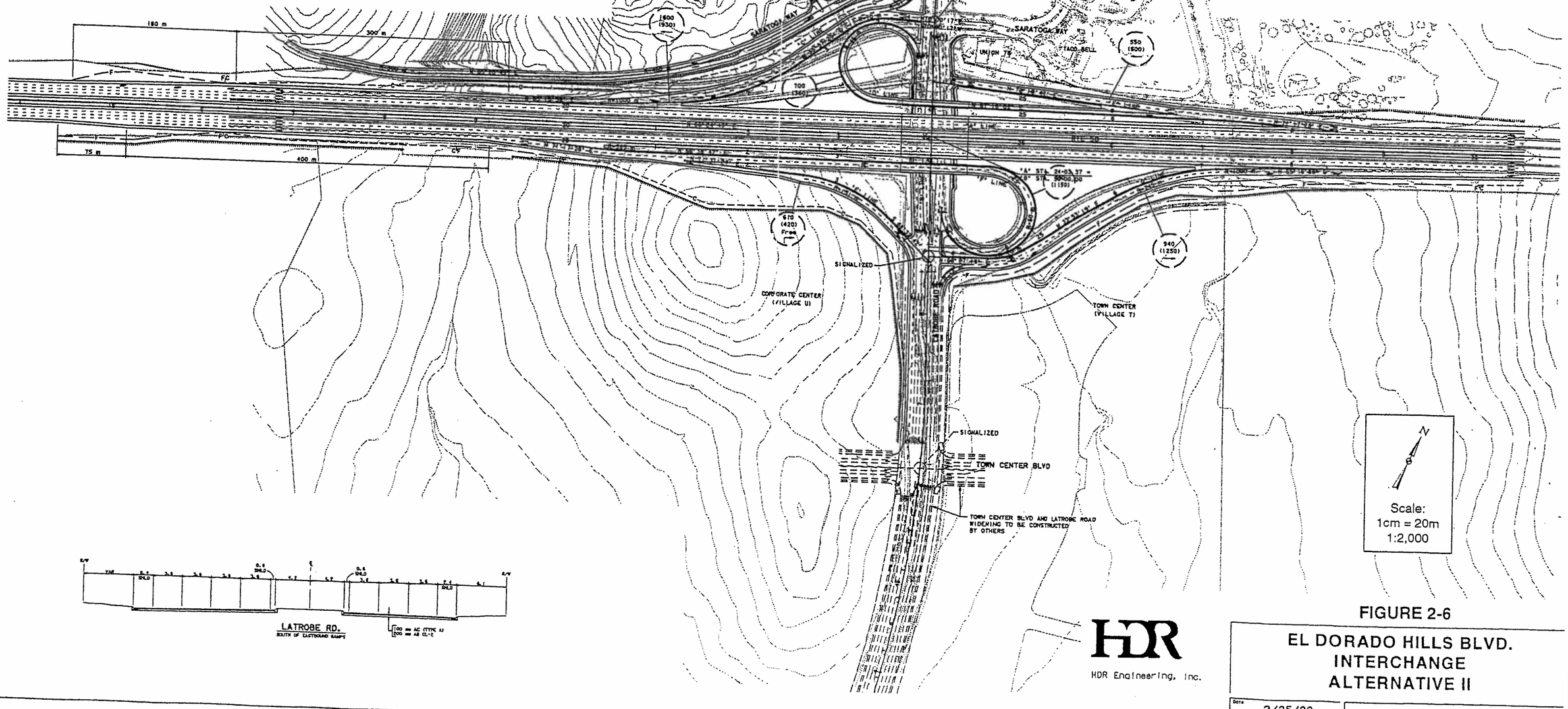


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FIGURE 2-6

EL DORADO HILLS BLVD.
INTERCHANGE
ALTERNATIVE II

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Chapter 3. Summary of Impacts and Mitigation Measures

This chapter presents a summary of project impacts and proposed mitigation measures as required by NEPA and CEQA, and impact conclusions as required by CEQA (State CEQA Guidelines, Sections 15123 and 15126).

Implementing the project would result in various impacts on the environment as identified and described in this report. Some impacts are identified as less than significant under CEQA and either require no mitigation or mitigation measures are proposed to further reduce the identified impact. Some impacts are considered significant before mitigation under CEQA, and mitigation measures are suggested that would reduce these impacts to less-than-significant levels. Other significant impacts are considered significant both before and after implementing the suggested mitigation measures and are therefore described as significant and unavoidable under CEQA. In some cases, no mitigation is available to reduce significant impacts; these impacts are also considered significant and unavoidable under CEQA. Levels of significance under CEQA both before and after mitigation and suggested mitigation measures are identified for all impacts in Table 3-1 at the end of this chapter. For detailed discussions of impacts and suggested mitigation measures of specific topic areas, refer to the appropriate chapters of the report.

EFFECTS FOUND TO BE NOT SIGNIFICANT UNDER CEQA

The following project impacts are considered to be less than significant under CEQA:

- Impact 4.4: Exposure of Existing and Future Commercial Land Uses to Traffic Noise Under 2005 Conditions
- Impact 4.6: Exposure of Existing and Future Commercial Land Uses to Increased Noise Under 2020 Conditions
- Impact 5.1: Temporary Generation of Emissions from Construction of the Project
- Impact 5.2: Conformity with the State Implementation Plan
- Impact 5.3: No Exceedance of Carbon Monoxide Standards in 2005
- Impact 5.4: No Exceedance of Carbon Monoxide Standards in 2020
- Impact 6.1: Short-Term Changes in Views of the Project Site from Construction Activities

- Impact 6.2: Changes to Views of the Project Site from U.S. Highway 50 and Other Public Roads
- Impact 6.4: Changes in Light and Glare
- Impact 7.1: Construction-Related Safety Concerns
- Impact 7.2: Elimination of Park-and-Ride Activities on Saratoga Way
- Impact 7.3: Acceptable Operations on Saratoga Way under No Project and with Project Conditions in 2020
- Impact 8.1: Consistent with General Plan Designation or Zoning
- Impact 8.2: Consistent with Applicable Environmental Plans or Policies Adopted by Agencies with Jurisdiction over the Project
- Impact 8.3: Potential Incompatibility with Existing Land Uses in the Vicinity
- Impact 8.4: Potential Effect on Agricultural Resources or Operations
- Impact 8.5: Potential Disruption or Division of the Physical Arrangement of an Established Community
- Impact 9.1: Increased Short-Term Erosion Rates
- Impact 9.2: Potential Exposure of People to Asbestos
- Impact 10.1: Degradation of Water Quality as a Result of Construction Activities
- Impact 11.1: Loss of Annual and Ruderal Grassland and Disturbance to Wildlife Habitat

In addition, the following topics were found not to have effects that are significant under CEQA:

- population and housing,
- risk of upset,
- energy,
- public services and utilities, and
- recreation.

SIGNIFICANT IMPACTS OF THE PROJECT, UNDER CEQA, THAT CAN BE REDUCED TO LESS-THAN-SIGNIFICANT LEVELS WITH SUGGESTED MITIGATION MEASURES

Under CEQA, the following project impacts are considered significant before mitigation and can be reduced to a less-than-significant level with the suggested mitigation measures:

- Impact 4.1: Exposure of Residents to Noise from Project Construction
- Impact 4.2: Exposure of Residents to Noise from Construction Blasting
- Impact 4.3: Exposure of Residences to Traffic Noise under 2005 Conditions
- Impact 4.5: Exposure of Residents to Traffic Noise under 2020 Conditions
- Impact 6.3: Changes to Views of the Project Site from Residences in the Northwest Quadrant
- Impact 6.5: Consistency with Adopted Plans and Policies Related to Visual Resources
- Impact 10.2: Degradation of Water Quality as a Result of Urban Pollutant Loadings
- Impact 11.2: Loss of Perennial Drainages and Wildlife Habitat
- Impact 12.1: Potential Damage to Currently Unknown Cultural Resources

SIGNIFICANT IMPACTS OF THE PROJECT THAT ARE CONSIDERED UNAVOIDABLE UNDER CEQA

The analysis in this report concludes that none of the impacts of the Preferred Alternative are considered significant and unavoidable under CEQA.

KNOWN AREAS OF CONTROVERSY

The following are known areas of controversy:

- potential impacts of relocation of Saratoga Way on adjacent residences in the northwest quadrant;
- the selection of alternatives to the project that would reduce impacts to residences in the northwest quadrant;

- potential impacts of the planned extension of Saratoga Way to Folsom, as designated by the General Plan (although such an extension is not part of this project);

- potential growth-inducing impacts of the project.

MITIGATION MONITORING

The mitigation measures that are ultimately proposed in the Final EIR are required to be the subject of a mitigation monitoring plan to be prepared by the County and adopted as part of final approval of the project by the Board of Supervisors. The mitigation monitoring plan will be prepared and available for public review along with the Final EIR.

Table 3-1. Impacts of U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road Interchange Project

NEPA and CEQA Impacts	NEPA and CEQA Mitigation Measures	CEQA Level of Significance before Mitigation	CEQA Level of Significance after Mitigation
Impact 4.1. Exposure of Residents to Noise from Project Construction	Mitigation Measure 4.1. Employ Noise-Reduction Construction Measures	S	LTS
Impact 4.2. Exposure of Residents to Noise from Construction Blasting	Mitigation Measure 4.2. Retain a Qualified Blasting Consultant and Limit Peak Overpressures	S	LTS
Impact 4.3. Exposure of Residences to Traffic Noise Under 2005 Conditions	Mitigation Measure 4.3. Construct Sound Barriers Along the Eastern and Southern Property Lines of Residences Located in the Northwest Quadrant of the Interchange.	S	LTS
Impact 4.4. Exposure of Existing and Future Commercial Land Uses to Traffic Noise Under 2005 Conditions	None proposed.	LTS	LTS
Impact 4.5. Exposure of Residents to Traffic Noise Under 2020 Conditions	Mitigation Measure 4.5. Construct Sound Barriers Along the Eastern and Southern Property Lines of Residences Located in the Northwest Quadrant of the Interchange.	S	LTS
Impact 4.6. Exposure of Existing and Future Commercial Land Uses to Increased Noise Under 2020 Conditions	None proposed.	LTS	LTS
Impact 5.1. Temporary Generation of Emissions from Construction of the Project	Comply with El Dorado County APCD's Construction Measures	S	LTS
Impact 5.2. Conformity with the State Implementation Plan	None proposed.	LTS	LTS
Impact 5.3. No Exceedance of Carbon Monoxide Standards in 2005	None proposed.	LTS	LTS
Impact 5.4. No Exceedance of Carbon Monoxide Standards in 2020	None proposed.	LTS	LTS
Impact 6.1. Short-Term Changes in Views of the Project Site from Construction Activities	None proposed.	LTS	LTS
Impact 6.2. Changes to Views of the Project Site from U.S. Highway 50 and Other Public Roads	None proposed.	LTS	LTS

Table 3-1. Continued

NEPA and CEQA Impacts	NEPA and CEQA Mitigation Measures	CEQA Level of Significance before Mitigation	CEQA Level of Significance after Mitigation
Impact 6.3. Changes to Views of the Project Site from Residences in the Northwest Quadrant	Mitigation Measure 6.3. Provide Aesthetic Treatment to Sound Barriers that are Visible from Private Residences	S	LTS
Impact 6.4. Changes in Light and Glare	None proposed	LTS	LTS
Impact 6.5. Consistency with Adopted Plans and Policies Related to Visual Resources	Mitigation Measure 6.5. Replace High-Pressure Sodium Light Fixtures	S	LTS
Impact 7.1. Construction-Related Safety Concerns	Mitigation Measure 7.1. Implement a Construction Traffic-Control Plan	S	LTS
Impact 7.2. Elimination of Park-and-Ride Activities on Saratoga Way	None proposed.	LTS	LTS
Impact 7.3. Acceptable Operations on Saratoga Way under No-Project and with Project Conditions in 2020	None proposed.	LTS	LTS
Impact 8.1. Consistent with General Plan Designation or Zoning	None proposed.	LTS	LTS
Impact 8.2. Consistent with Applicable Environmental Plans or Policies Adopted by Agencies with Jurisdiction over the Project	None proposed.	LTS	LTS
Impact 8.3. Potential Incompatibility with Existing Land Uses in the Vicinity	None proposed.	LTS	LTS
Impact 8.4. Potential Effect on Agricultural Resources or Operations	None proposed.	LTS	LTS
Impact 8.5. Potential Disruption or Division of the Physical Arrangement of an Established Community	None proposed.	LTS	LTS
Impact 9.1. Increased Short-Term Erosion Rates	None proposed.	LTS	LTS
Impact 9.2. Potential Exposure of People to Asbestos	None proposed.	LTS	LTS

NEPA and CEQA Impacts	NEPA and CEQA Mitigation Measures	CEQA Level of Significance before Mitigation	CEQA Level of Significance after Mitigation
Impact 10.1. Degradation of Water Quality as a Result of Construction Activities	None proposed.	LTS	LTS
Impact 10.2. Degradation of Water Quality as a Result of Urban Pollutant Loadings	Mitigation Measure 10.2a. Implement Best Management Practices to Control Urban Pollutants	S	LTS
Impact 11.1. Loss of Annual and Ruderal Grassland and Disturbance to Wildlife Habitat	None proposed.	LTS	LTS
Impact 11.2. Loss of Perennial Drainages and Wildlife Habitat	Mitigation Measure 11.2a. Conduct a Wetland Delineation.	S	LTS
	Mitigation Measure 11.2b. Avoid Disturbance of Drainages and Wetland and Riparian Vegetation.		
	Mitigation Measure 11.2c. Minimize Impacts on Perennial Drainages.		
	Mitigation Measure 11.2d. Compensate for the Loss of Potential Wetland and Riparian Vegetation.		
Impact 12.1. Potential Damage to Currently Unknown Cultural Resources	Mitigation Measure 12.1a. Implement a Plan for the Unanticipated Discovery of Cultural Resources.	S	LTS

CEQA Significance Conclusions: S = significant; LTS = less than significant.

Chapter 4. Noise

This chapter evaluates noise impacts associated with construction and operation of the proposed improvements to the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange. The contents of this chapter are based on the September 1, 1998 report entitled Environmental Noise Analysis - El Dorado Hills Boulevard/U.S. 50 Interchange Modification Project that was prepared by Brown-Buntin Associates (BBA) (Brown-Buntin Associates 1999). A copy of this report is provided in Appendix B-2. Background information on environmental acoustics and definitions of commonly used terminology are provided in Appendix B-1.

AFFECTED ENVIRONMENT

Plans and Policies

El Dorado County General Plan

The El Dorado County General Plan Noise Element establishes noise-level criteria for residential uses; these include an exterior noise-level criterion of 60 decibels (dB), day-night average sound level (L_{dn}) at outdoor activity areas exposed to transportation-related noise sources and an interior noise level criterion of 45 dB L_{dn}. Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn} may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are below 45 dB L_{dn}. The noise element discourages the use of noise walls within the foreground viewshed of U.S. Highway 50 in favor of less intrusive noise mitigation (e.g., landscaped berms and setbacks).

The noise element also specifies noise level performance standards for noise-sensitive uses affected by non-transportation sources. These standards are summarized in Table 4-1. The County does not have planning noise criteria for commercial uses.

Table 4-1. Noise Level Performance Protection Standards for Noise-Sensitive Land Uses Affected by Nontransportation Sources

Noise Level Descriptor	Daytime (7 a.m. to 7 p.m.)		Evening (7 p.m. to 10 p.m.)		Night (10 p.m. to 7 a.m	
	Community	Rural	Community	Rural	Community	Rural
Hourly L_{eq} (dB)	55	50	50	45	45	40
Maximum Level (Db)	70	60	60	55	55	50

Source: El Dorado County 1995.

Federal Highway Administration/California Department of Transportation Noise Abatement Criteria

The criteria for evaluating noise impacts that are used by the Federal High Administration (FHWA) and Caltrans are contained in the Caltrans Traffic Noise Analysis Prot (California Department of Transportation 1998a). The manual establishes noise abatement crit for various land uses, which have been categorized based upon activity. Land uses are categor into five activity categories on the basis of their sensitivity to noise. Table 4-2 provides a descrip of the activity categories, A through E, and the noise abatement criteria for each category expre in terms of hourly A-weighted sound levels (dBA).

Table 4-2. Federal Highway Administration Noise Abatement Criteria

Activity Category	L_{eq} Noise Levels (dBA)	Description of Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and se an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 (exterior)	Developed lands, properties, or activities not included in categories A or B above
D	--	Undeveloped lands
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libra hospitals, and auditoriums

Note: L_{eq} = equivalent sound levels.

Under FHWA regulations (23 CFR 772), traffic- noise impacts occur when predicted design-year noise levels result in a substantial increase in noise or when predicted design-year noise levels approach or exceed the noise abatement criteria described in Table 4-2. Under current Caltrans policy, a noise increase is substantial when the predicted design-year noise levels with the project exceed existing noise levels by 12 dB (California Department of Transportation 1998a). A predicted traffic-noise level is considered to approach noise abatement criteria if it is within 1 dB of the criteria (California Department of Transportation 1998a).

Existing Conditions

Land Uses and Receptors Sensitive to Noise in the Project Vicinity

The northwest and northeast quadrants and part of the southeast quadrant of the interchange are currently developed while the southwest quadrants and part of the southeast quadrant are vacant. Noise-sensitive residential uses are located in the northwest quadrant. Commercial uses are located in the remaining developed areas. The entire area south of the freeway is zoned for commercial uses. The primary concern regarding existing and future traffic-noise levels is within the northwest quadrant of the interchange where existing residential uses are located and future residences are planned.

Noise Monitoring

Existing noise conditions are described here based on noise-level measurements and traffic noise modeling. BBA conducted continuous hourly noise-level measurements at four locations for a period of seven days. The 7-day monitoring period was selected to ensure that results were representative of noise-levels under typical conditions. A 7-day period was selected that avoided holidays and unusual conditions that could depress traffic levels. The measurement locations were selected on the basis of their proximity to the interchange and roadway improvements and represent the noise exposure for the most affected residential uses. Figure 4-1 shows the locations of the noise measurement sites. The following is a description of each measurement site.

Site A - 3919 Hills Court. This site is at 3919 Hills Court. The sound-level meter was placed on the balcony of the residence facing El Dorado Hills Boulevard. There is a privacy fence in the backyard, which BBA found provides no shielding of traffic noise. The measurement site was approximately 138 meters (442 feet) from the El Dorado Hills Boulevard centerline and 200 meters (656 feet) from the U.S. Highway 50 mainline centerline. The primary noise source was traffic on El Dorado Hills Boulevard and the U.S. Highway 50 mainline.

Site B - 956 Kings Canyon. This site is at 956 Kings Canyon. The sound-level meter was in the middle of the backyard at a height of 5 feet above the ground. There was a clear, unobstructed view of U.S. Highway 50 and the westbound on-ramp. The measurement site was approximately 175 meters (575 feet) from the U.S. Highway 50 mainline centerline.

Site C - 707 Platt Circle. This site is at 707 Platt Circle. The sound-level meter w middle of the backyard at a height of 5 feet above the ground. There was a clear, unobstruc of U.S. Highway 50 and the westbound on-ramp. The measurement site was appro 200 meters (656 feet) from the U.S. Highway 50 mainline centerline.

Site D - 3883 Scenic Court. This site is at 3883 Scenic Court. The sound-level m in the middle of the backyard at a height of 8 feet above the ground. There was a clear, uno view of El Dorado Hills Boulevard. The measurement site was approximately 100 meters (from the El Dorado Hills Boulevard centerline.

Sound measurement equipment consisted of Larson Davis Laboratories (LDL) M precision integrating sound-level meters, which were equipped with B&K Type 417 microphones. The measurement equipment was calibrated immediately before and afte meets the pertinent specifications of the American National Standards Institute (ANSI International Electrotechnical Institute (IEC) for Type 1 precision sound measurement s

Noise measurements were conducted in terms of the equivalent sound levels (L_{eq}) statistical descriptors. The noise-level measurements were used to determine statistical traffic-noise levels throughout the day and nighttime periods and to determine the peak-ho noise level and when the peak-hour traffic-noise level occurred. Table 4-3 summarizes t of the measured noise levels. The results of the continuous hourly noise-level measure presented graphically in the Brown-Buntin report provided in Appendix B-2.

Based on the noise-level measurement results in Table 4-3, the peak hour of traff generally between 6:00 a.m. and 8:00 a.m. Therefore, the morning peak-hour traffic volu for the analysis of peak-hour traffic noise. Existing noise levels measured at these residen the County's planning standard of 60 dB L_{dn} for residential uses and approach or e FHWA/Caltrans criteria of 67 dB L_{eq} for residential uses.

Traffic-Noise Modeling of Existing Traffic-Noise Levels

Traffic-noise modeling has also been used to quantify existing noise conditior modeling was conducted using the SOUND32 traffic-noise prediction model and t provided by Fehr & Peers Associates, the project traffic engineer. SOUND32 is Caltra of the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). SOUND32 was de predict hourly L_{eq} values for free-flowing traffic conditions and is generally considered to within 1.5 dB. Free-flow travel speeds were assumed for all roadways and ramps.

Traffic-noise levels were calculated at 18 receiver locations. (Refer to Figu locations of receivers). Table 4-4 provides the results of the traffic-noise modeling. Th the analysis of existing peak-hour traffic-noise levels correlate very well with the measu peak-hour traffic-noise levels. The noise measurement data contained in Table 4-3 indic measured L_{dn} values were generally 1 dB higher than the measured morning peak-hour t levels. Therefore, an offset of +1 dB is added to the modeled peak-hour traffic-noise leve predicted L_{dn} values.

Table 4-3. Summary of Noise Measurement Results

Site	Date	Day	Time of Peak Hour	Comments	Measured Noise Levels (dB)	
					Peak-Hour L_{eq}	L_{dn}
A	8/7/98	Monday	11:00 a.m.	Partial day	62.3	N/A
	8/8/98	Tuesday	9:00 p.m.	Full day	61.0	64.2
	8/9/98	Wednesday	8:00 p.m.	Full day	61.2	63.4
	8/10/98	Thursday	6:00 a.m.	Full day	64.7	65.7
	8/11/98	Friday	6:00 a.m.	Full day	65.6	65.7
	8/12/98	Saturday	6:00 a.m.	Full day	65.7	65.7
	8/13/98	Sunday	12:00 p.m.	Full day	64.8	65.5
	8/14/98	Monday	6:00 a.m.	Partial day	64.1	N/A
B	8/7/98	Monday	7:00 p.m.	Partial day	72.3[a]	N/A
	8/8/98	Tuesday	8:00 p.m.	Full day	66.1	64.2
	8/9/98	Wednesday	8:00 p.m.	Full day	64.1	63.7
	8/10/98	Thursday.	6:00 a.m.	Full day	68.3	67.8
	2/14/98	Saturday	10:00 a.m.	Full day	70.7[a]	71.2[a]
	2/15/98	Sunday	10:00 a.m.	Full day	65.4[a]	67.8[a]
	2/16/98	Monday	2:00 p.m.	Full day	72.9[a]	71.2[a]
C	8/7/98	Monday	12:00 p.m.	Partial day	63.3	N/A
	8/8/98	Tuesday	9:00 a.m.	Full day	63.4	65.0
	8/9/98	Wednesday	10:00 a.m.	Full day	62.8	64.7
	8/10/98	Thursday	6:00 a.m.	Full day	65.3	66.5
	8/11/98	Friday	6:00 a.m.	Full day	66.8	66.8
	8/12/98	Saturday	6:00 a.m.	Full day	66.2	66.3
	8/13/98	Sunday	7:00 a.m.	Full day	64.8	66.2
	8/14/98	Monday	7:00 a.m.	Partial day	65.3	N/A
D	8/10/98	Thurs.	7:00 p.m.	Partial day	62.1	N/A
	8/11/98	Friday	6:00 a.m.	Full day	63.3	63.7
	8/12/98	Saturday	6:00 a.m.	Full day	63.3	64.4
	8/13/98	Sunday	1:00 p.m.	Full day	62.8	64.2
	8/14/98	Monday	7:00 a.m.	Full day	64.2	64.1
	8/15/98	Tuesday	6:00 p.m.	Full day	62.6	62.3
	8/16/98	Wed.	10:00 p.m.	Full day	57.3	60.1
	8/17/98	Thurs.	10:00 a.m.	Partial day	70.4[a]	N/A

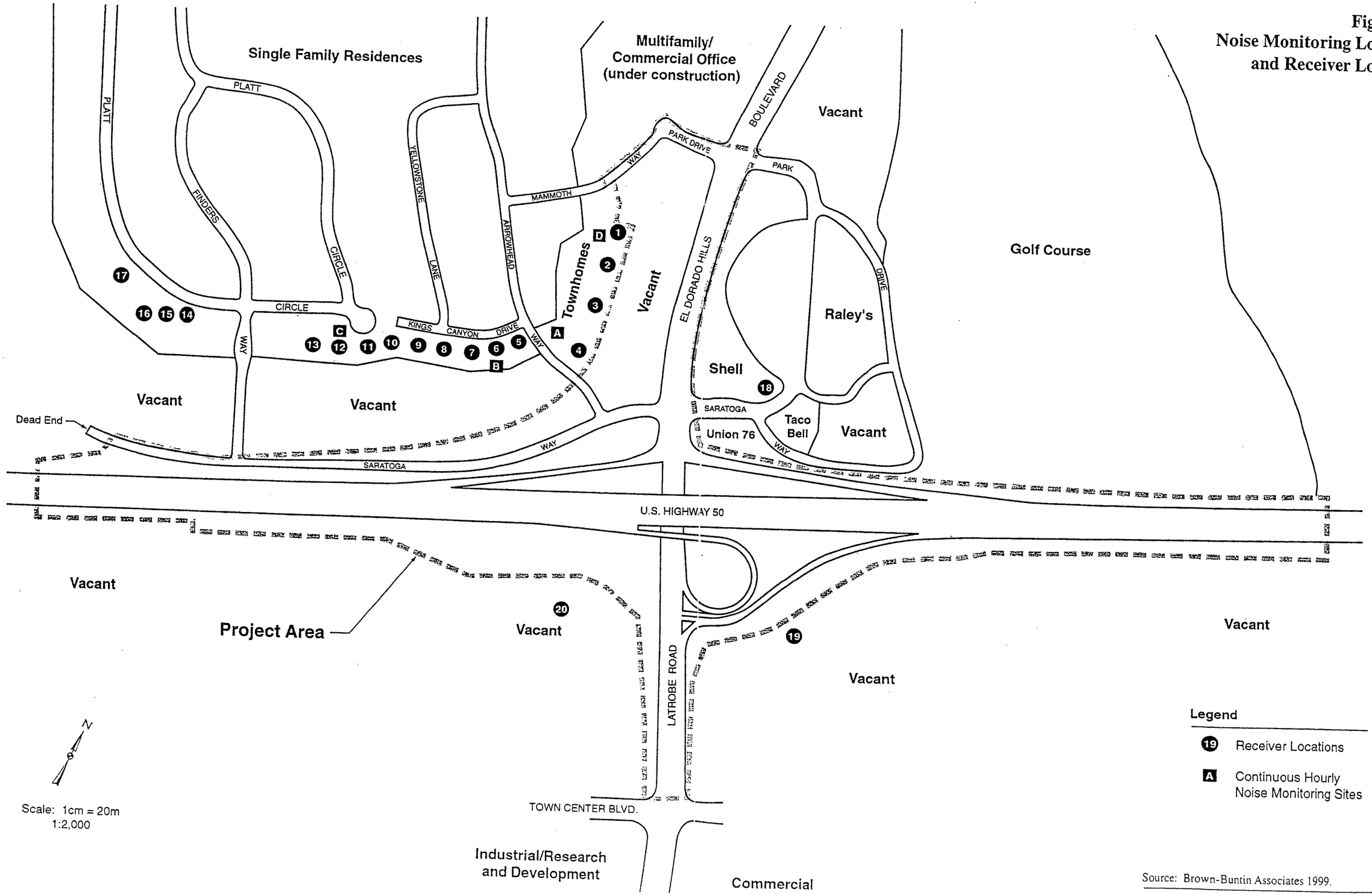
[a] Not attributable to traffic.
N/A = Not applicable because noise was monitored for only part of the day.
Source: Brown-Buntin Associates 1999.

Table 4-4. Existing Traffic-Noise Levels at Receiver Locations

Receiver	Location/Land Use	Predicted Existing Traffic-Noise Levels dB L_{dn}	dB L_{eq}
Northwest Quadrant			
1	Residential	64	63
2	Residential	65	64
3	Residential	66	65
4	Residential	67	66
5	Residential	67	66
6	Residential	67	66
7	Residential	67	66
8	Residential	67	66
9	Residential	67	66
10	Residential	67	66
11	Residential	67	66
12	Residential	67	66
13	Residential	67	66
14	Residential	64	63
15	Residential	64	63
16	Residential	64	63
17	Residential	64	63
Northeast Quadrant			
18	Commercial	68	67
Southwest Quadrant			
19	Vacant	69	68
Southeast Quadrant			
20	Commercial/Vacant	70	69

Source: Brown-Buntin Associates 1999.

Figure 4-1
Noise Monitoring Locations and Receiver Locations



Source: Brown-Buntin Associates 1999.

Jones & Stokes Associates, Inc.

The noise modeling results in Table 4-4 indicate that existing noise levels at these receptors exceed the County's planning standard of 60 dB L_{dn} for residential uses and approach or exceed the FHWA/Caltrans criteria of 67 dB L_{eq} for residential uses.

Residents living in the northwest quadrant of the interchange have raised questions regarding the potential for acoustical reflections from the embankment located along a portion of the south side of U.S. Highway 50 to increase traffic noise at their residences. Existing traffic noise levels, which were predicted using the Sound-32 model, correlate very closely with measured noise levels. This indicates that any potential effects of reflections of traffic noise are accounted for in the analysis.

ENVIRONMENTAL CONSEQUENCES

Methods

Traffic noise under future conditions both with and without the project has been evaluated using SOUND32 and predicted future peak-hour traffic volumes and free-flow travel speeds provided by Fehr & Peers Associates. Predicted traffic-noise levels are compared to future conditions under the No Project Alternative to assess the direct impact that will result with implementation of the Preferred Alternative. Predicted traffic-noise levels are also compared directly to FHWA/Caltrans noise abatement criteria and County planning criteria.

Impacts and Mitigation Measures

Impact 4.1: Exposure of Residents to Noise from Project Construction

During the construction phases of the Preferred Alternative, noise from construction activities would dominate the noise environment in the immediate area of construction. On other interchange improvement projects on U.S. Highway 50, Caltrans has required that construction work associated with the mainline freeway be conducted during nighttime hours to avoid commuter traffic delays. This may be required for this project. Construction noise is regulated by Caltrans standard specifications Section 7-1.01I, Sound Control Requirements. These requirements state that noise levels generated during construction shall comply with applicable local, state, and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturers' specifications.

As indicated in Table 4-5, activities involved in construction would generate noise levels, ranging from 70 to 90 dB at a distance of 50 feet. Construction equipment operations can vary from intermittent to fairly continuous, with multiple pieces of equipment operating concurrently. Assuming that a scraper (88 dBA), a bulldozer (87 dBA), a heavy truck (88 dBA), and a backhoe (85 dBA) are operating concurrently in the same area, peak construction-period noise could be as high as 94 dBA at 50 feet from the construction site.

Table 4-5. Construction Equipment Noise

Type of Equipment	Maximum Level, dBA at 50 feet
Scrapers	88
Bulldozers	87
Heavy trucks	88
Backhoe	85
Pneumatic tools	85

Source: Cunniff 1977.

Noise levels in the vicinity of active construction sites are summarized in Table 4-6. The atmospheric absorption parameter in Table 4-6 reflects minimal absorption for typical construction equipment noise spectra (e.g., bulldozer or truck). Table 4-6 indicates that locations within about 1,900 feet of a construction site may experience occasional episodes of noise levels greater than 60 dBA. Areas within about 600 feet of a construction site will experience episodes with noise levels greater than 70 dBA. Construction activities would be temporary in nature, typically occurring during normal working hours. Nighttime operations or use of unusually noisy equipment could result in annoyance or sleep disruption for nearby residences.

The results presented in Table 4-6 indicate that the construction noise could exceed the County planning standard for non-transportation noise sources summarized in Table 4-3 and that construction noise could be substantially greater than the minimum 1-hour L_{eq} value (48 dBA) measured at the nearest residences.

During construction, traffic noise generated by approaching traffic would be reduced because of the reduction in speed required by working road crews. Conversely, traffic-noise levels of vehicles leaving the construction area would be slightly higher than normal as a result of acceleration. The net effect of the accelerating and decelerating traffic upon noise would not be appreciable. The most important project-generated noise source would be truck traffic associated with transport of heavy materials and equipment. This noise increase would be of short duration and limited primarily to daytime hours.

Table 4-6. Estimated Construction Noise in the Project Area

Distance to Receptor (Feet)	Sound Level at Receptor (dBA)
50	93
100	87
200	81
400	74
600	70
800	68
1,000	65
1,500	61
2,000	58
2,500	55
3,000	52
4,000	48
5,280	44
7,500	37

The following assumptions were used:

Basic sound level drop-off rate:	6.0 dB per doubling of distance
Molecular absorption coefficient:	0.7 dB per 1,000 feet
Anomalous excess attenuation:	1.0 dB per 1,000 feet
Reference Sound Level:	93 dBA
Distance for Reference Sound Level:	50 Feet

Notes: This calculation does not include the effects, if any, of local shielding, which may reduce sound levels further. Except for sounds with highly distinctive tonal characteristics, noise from a particular source will not be identifiable when its noise level is substantially less than background noise levels.

Construction noise may exceed the County's standard for nontransportation noise sources, and the construction-noise level may be substantially above the existing late-night minimum sound levels at the nearest residences. This impact is considered significant.

Mitigation Measure 4.1: Employ Noise-Reduction Construction Measures

The following measures shall be incorporated into contract specifications to reduce the impact of construction noise to a less-than-significant level:

- Unless required by Caltrans, restrict construction within 1,000 feet of residences to daytime hours. Unless required by Caltrans, no construction shall be performed within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 9:00 p.m. and 6:00 a.m. on other days. Any variance from this condition must be approved by the County. Where Caltrans requires construction during nighttime hours,

construction activity shall be staged so that it does not occur over an extended period of time (i.e., more than 14 days at a time).

- All equipment shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust.

- As directed by the County, the contractor shall implement appropriate additional noise mitigation measures, including but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction-noise sources.

Impact 4.2: Exposure of Residents to Noise from Construction Blasting

Noise levels resulting from potential blasting during construction are also a concern. El Dorado County does not have noise-level criteria for evaluating noise impacts associated with blasting activities. However, the following text provides an explanation of criteria that can be employed to determine potential noise impacts associated with project-related blasting noise levels (refer to Appendix B-2, "Environmental Noise Analysis", for further information).

Noise levels from blasting activities are described as impulsive sound levels, which are of very low frequency and of very short duration (generally less than 1 second). These noise levels are reported as linear, peak noise levels, which represent the absolute maximum overpressure produced by a blast. According to researchers investigating public response to blasting, the threshold of persons becoming highly annoyed occurs where peak overpressures exceed about 122 dB. About 10% of the people would be expected to become highly annoyed if peak overpressures exceeded 125 dB. There is very poor correlation between air blasts below 112 dB and the percentage of people highly annoyed. Therefore it can be concluded that peak overpressures below 112 dB would generally not cause people to become annoyed. In fact, people would probably not be startled by such levels, and may not even notice them.

Because noise levels from blasting are generally very low frequency (approximately 2-25 hertz [Hz]), the human ear does not detect the total energy associated with the overall linear sound energy. The A-weighted sound level de-emphasizes the very low frequency and very high frequency components of sound in a manner similar to the response of the human ear. Research on blasting indicates the typical fundamental frequency (the frequency where the majority of sound energy is located) for a blast is in the 20 to 25 Hz range. Applying a typical correction from linear sound levels to A-weighted sound levels at the 25 Hz range and taking into consideration the noise-level data collected by BBA for blasting, a - 40 dB correction can be applied to measured peak overpressures to determine typical A-weighted maximum noise levels.

The Model Community Noise Control Ordinance developed by the State of California establishes recommended exterior maximum noise level criteria for noise sources, such as those associated with blasting activities. The Model Noise Control Ordinance recommends that a maximum noise level (L_{max}) of 70 dBA should be used. This would result in a peak overpressure of

approximately 110 dB, which corresponds to the research discussed above that indicates there is a very poor correlation between air blasts below 112 dB and the percentage of people highly annoyed.

The resulting noise level from blasting activities can be attributed to many variables, which include the size of the explosive charge, the number of charges, the shot timing between charges, the depth below the ground of the charges, and the amount of overburden that is covering the charges.

The specific type and location of the blasting that may be required for this project has not been determined. Based on the proximity of residences to roadway construction, there is potential for blasting to exceed 112 dB peak over pressure and to disturb residences.

Mitigation Measure 4.2: Retain a Qualified Blasting Consultant and Limit Peak Overpressures

If blasting is required, the County shall retain a qualified blasting consultant to determine the size, type, and location of blasting so as to limit the peak overpressure from blasting to 112 dB at the nearest inhabited building facade.

Impact 4.3: Exposure of Residences to Traffic Noise for 2005 Conditions

Table 4-7 shows the results of the traffic noise modeling for the year 2005 under the No Project and Preferred Alternatives. The analysis assumed that under the No Project Alternative the roadway ramp and mainline configurations would remain as they exist today. The analysis also assumed that the U.S. Highway 50 High Occupancy Vehicle (HOV) project would be constructed under the No Project Alternative.

The residential receivers identified within the northwest quadrant represent the first row of residential uses facing the project site. The BBA analysis indicates that future traffic in the year 2005, without implementation of the project, will result in peak-hour traffic-noise levels ranging between 64 dB and 68 dB L_{eq}. The predicted L_{dn} values will range between 65 and 69 dB. Future traffic after implementation of the Preferred Alternative will result in peak-hour traffic-noise levels ranging between 65 dB and 68 dB L_{eq}, and L_{dn} values ranging between 66 dB and 69 dB. With the exception of the predicted 2 dB project-related increase in noise at Receptor 1, project-related increases at all other receptors would be 1 dB or less.

Most residential uses adjacent to the project site will exceed or approach the FHWA/Caltrans peak-hour noise abatement criterion of 67 dB L_{eq}, and all residences will exceed the El Dorado County normally acceptable exterior noise level criterion of 60 dB L_{dn} and the conditionally acceptable exterior noise level criterion of 65 dB L_{dn} with or without implementation of the Preferred Alternative. In effect, excess traffic noise conditions will exist regardless of whether the Preferred Alternative is implemented or not.

The predicted increases in noise resulting from implementation of the Preferred Alternative as compared to the No Project Alternative would be less than 3 dB where noise levels without the project would be below 65 dB Ldn and less than 1.5 dB where noise levels without the project

Table 4-7. Year 2005 Traffic-Noise Levels at Receiver Locations
With and Without the Proposed Interchange and Roadway Improvements

Receiver	Land Use	Year 2005 No Project Alternative		Year 2005 Preferred Alternative	
		dB L_{dn}	dB L_{eq}	dB L_{dn}	dB L_{eq}
Northwest Quadrant					
1	Residential Town Houses	65	64	67	66
2	Residential Town Houses	66	65	67	66
3	Residential Town Houses	67	66	68	67
4	Residential Town Houses	68	67	69	68
5	Residential Single Family	68	67	69	68
6	Residential Single Family	69	68	69	68
7	Residential Single Family	69	68	69	68
8	Residential Single Family	69	68	69	68
9	Residential Single Family	68	67	68	67
10	Residential Single Family	68	67	68	67
11	Residential Single Family	68	67	68	67
12	Residential Single Family	69	68	69	68
13	Residential Single Family	69	68	69	68
14	Residential Single Family	66	65	66	65
15	Residential Single Family	66	65	66	65
16	Residential Single Family	66	65	66	65
17	Residential Single Family	65	64	66	65
Northeast Quadrant					
18	Commercial Fast Food	70	69	70	69
Southeast Quadrant					
19	Commercial Gas Station/Vacant	70	69	71	70
Southwest Quadrant					
20	Vacant	71	70	71	70

Source: Brown-Buntin Associates 1999.

would be greater than 65 dB Ldn. The increases in noise resulting directly from the Preferred Alternative under 2005 conditions, therefore, would not be perceptible.

However, the overall traffic-noise levels resulting from the project and other major roadways in the area exceeds the County planning standard of 60 dB L_{dn} and the FHWA/Caltrans criteria of 67 dB L_{eq} for residential uses.

Mitigation Measure 4.3a involves the construction of sound barriers along the property line of affected residences. Although, the County general plan policy 6.5.1.5 discourages soundwall barriers, in this case, this measure is recommended because sufficient right-of-way for earthen barriers is not available in the locations required. Because the barrier would be designed to address design-year conditions (i.e., 2020 conditions), the use of barriers is discussed in detail in the discussion of 2020 conditions below.

Barriers typically will not provide noise reduction to second-story locations and in some cases barrier heights may be reduced for aesthetic reasons resulting in residential buildings being exposed to exterior noise in excess of 60 dB Ldn. According to general plan policy, noise levels in excess of 60 dB Ldn up to 65 dB Ldn are conditionally acceptable if available exterior noise level reduction measurements have been implemented and interior noise levels are below 45 dB Ldn. When exterior noise levels exceed 60 dB Ldn, potential exists for interior noise levels to exceed the 45 dB Ldn criteria. The potential also exists for the Caltrans 52 dBA Leq interior criterion to be exceeded. Mitigation Measure 4.3b involves upgrading the acoustical insulation of residential structures to ensure that interior noise levels are below 45 dB Ldn and 52 dBA Leq.

Mitigation Measure 4.3a: Construct Sound Barriers along the Eastern and Southern Property Lines of Residences Located in the Northwest Quadrant of the Interchange

Refer to the discussion under Mitigation Measure 4.5.

Mitigation Measure 4.3b: Evaluate the Interior Noise Levels of Residences and Improve the Acoustical Insulation to Result in Interior Noise Levels Below 45 dB Ldn or 52 dB Leq

Subsequent to completion of the proposed project and installation of sound barrier mitigation, the County shall hire a qualified acoustical consultant to conduct a detailed acoustical analysis of traffic noise reduction of the building facades of residences in the project area exposed to traffic noise in excess of 60 dB Ldn. The analysis shall include sampling of exterior and interior sound levels of at least 25% of the affected residences. The analysis shall include simultaneous interior and exterior traffic noise measurements of second-story rooms facing the roadway improvement project site and evaluation of ground-floor rooms where barriers do not reduce exterior levels to 60 dB Ldn or less. Measured exterior to interior noise reduction factors for buildings facades shall be applied to the future predicted traffic noise levels to determine the predicted future interior traffic noise levels. If future predicted traffic noise levels exceed the 45 dB Ldn or 52 dB Leq interior noise level criteria, the County shall determine and implement facade construction improvements to reduce interior noise levels to below 45 dB Ldn or 52 dB Leq. Potential facade improvements to be implemented and funded by the County include replacement of windows and sliding glass doors with acoustically rated windows and doors, treatment of exterior to interior vents to reduce sound

transmission, adding mass to facade walls, and installing fresh air ventilation systems to allow windows and doors to remain closed. This measure shall be implemented and funded by the County. FHWA and Caltrans will not participate in the initial and/or maintenance costs of any insulation measures proposed.

Impact 4.4: Exposure of Existing and Future Commercial Land Uses to Traffic Noise for 2005 Conditions

Receivers in the northeast quadrant are generally not considered noise sensitive and include fast food restaurants, gas stations and other commercial uses. One receiver location representing the nearest fast food restaurant along Saratoga Way was chosen for the analysis. The analysis indicated that future traffic-noise levels without implementation of the project would be 69 dB L_{eq} and 70 dB L_{dn}. Future traffic-noise levels after construction of the Preferred Alternative would not change.

Receivers in the southeast quadrant are also generally not considered noise sensitive, and include fast food restaurants, gas stations and other commercial uses. One receiver location representing the nearest gas station along Latrobe Road was chosen for the analysis. The analysis indicated that future traffic-noise levels without implementation of the project would be 69 dB L_{eq} and 70 dB L_{dn}. Future traffic-noise levels after construction of the Preferred Alternative would increase traffic-noise levels by approximately 1 dB.

There is no development in the southwest quadrant of the project site. One receiver, located approximately 200 meters (656 feet) from the U.S. Highway 50 centerline, was chosen for the analysis. The analysis indicated that future traffic-noise levels without implementation of the project would be 70 dB L_{eq} and 71 dB L_{dn}. Future traffic-noise levels after construction of the Preferred Alternative would not change.

The predicted increase in noise resulting from implementation of the Preferred Alternative compared to the No Project Alternative would be less than 3 dB where noise levels without the project would be below 65 dB L_{dn} and less than 1.5 dB where noise levels without the project would be greater than 65 dB L_{dn}. The increases in noise resulting directly from the Preferred Alternative would not be perceptible.

This impact is further considered less than significant because the overall traffic-noise levels resulting from the project and other major roadways in the area do not approach or exceed the Caltrans criteria of 72 dB Leq for commercial uses. The County does not have a planning standard for commercial uses.

Mitigation Measure: None proposed.

Impact 4.5: Exposure of Residents to Traffic Noise for 2020 Conditions

Table 4-8 shows the results of the traffic noise modeling for the Year 2020 under the No Project and Preferred Alternatives. The analysis assumed that under the No Project Alternative

Table 4-8. Year 2020 Traffic-Noise Levels at Receiver Locations
With and Without the Proposed Interchange and Roadway Improvements

Receiver	Land Use	Year 2020 No Project Alternative		Year 2020 Preferred Alternative	
		dB L_{dn}	dB L_{eq}	dB L_{dn}	dB L_{eq}
Northwest Quadrant					
1	Residential Town Houses	67	66	68	67
2	Residential Town Houses	67	66	68	67
3	Residential Town Houses	68	67	69	68
4	Residential Town Houses	69	68	70	69
5	Residential Single Family	69	68	70	69
6	Residential Single Family	70	69	70	69
7	Residential Single Family	69	68	70	69
8	Residential Single Family	70	69	70	69
9	Residential Single Family	69	68	69	68
10	Residential Single Family	69	68	69	68
11	Residential Single Family	69	68	69	68
12	Residential Single Family	69	68	70	69
13	Residential Single Family	70	69	70	69
14	Residential Single Family	67	66	67	66
15	Residential Single Family	67	66	67	66
16	Residential Single Family	67	66	67	66
17	Residential Single Family	66	65	66	65
Northeast Quadrant					
18	Commercial Fast Food	71	70	71	70
Southeast Quadrant					
19	Commercial Gas Station/Vacant	71	70	72	71
Southwest Quadrant					
20	Vacant	72	71	72	71

the roadway ramp and mainline configurations would remain as they exist today and that the U.S. Highway 50 HOV project would be constructed.

The residential receivers identified within the northwest quadrant represent the first row of residential uses facing the project site. The analysis indicates that future traffic without implementation of the project would result in peak-hour traffic-noise levels ranging between 65 dB and 69 dB L_{eq}. The predicted L_{dn} values would range between 66 and 70 dB. Future traffic after implementation of the Preferred Alternative would result in peak-hour traffic-noise levels ranging between 65 dB and 69 dB L_{eq}, and L_{dn} values ranging between 66 dB and 70 dB. Project-related increases in all cases would be 1 dB or less.

Traffic noise at all residential uses adjacent to the project site would exceed or approach exceedance of the FHWA/Caltrans peak-hour noise abatement criterion of 67 dB L_{eq} and would exceed the El Dorado County normally acceptable exterior noise level criterion of 60 dB L_{dn} and the conditionally acceptable exterior noise level criterion of 65 dB L_{dn} with or without implementation of the Preferred Alternative. In effect, excess traffic noise conditions will exist regardless of whether the Preferred Alternative is implemented or not.

In general, the Preferred Alternative is expected to increase overall traffic noise by approximately 1 dB L_{eq}/L_{dn} at the townhouses located between Mammouth Way and Arrowhead Drive, and at the residences located along Kings Canyon Drive. Residences along Platt Circle further to the west are not expected to experience any increase in traffic noise as a result of the Preferred Alternative.

Predicted increases in noise resulting from implementation of the Preferred Alternative as compared to the No Project Alternative are less than 3 dB where noise levels without the project are below 65 dB L_{dn} and less than 1.5 dB where noise levels without the project are greater than 65 dB L_{dn}. The increases in noise resulting directly from the Preferred Alternative would not be perceptible.

However, the overall traffic-noise levels resulting from the Preferred Alternative and other major roadways in the area exceed the County planning standard of 60 dB L_{dn} and the FHWA/Caltrans criteria of 67 dB L_{eq} for residential uses.

Three sound barrier configurations have been evaluated to identify potential means of reducing traffic noise at residential locations. Shielding by barriers can be obtained by placing walls 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 increases in the distance the sound must travel to pass over the barrier as compared to a straight line from source to receiver. The difference between the distance over a barrier and a straight line between source and receiver is called the "path length difference", and is the basis for calculating barrier noise reduction.

Barrier effectiveness depends upon the relative heights of the source, barrier and receiver. In general, barriers are most effective when placed close to either the receiver or the source. An intermediate barrier location yields a smaller path length difference for a given increase in barrier height than does a location closer to either source or receiver.

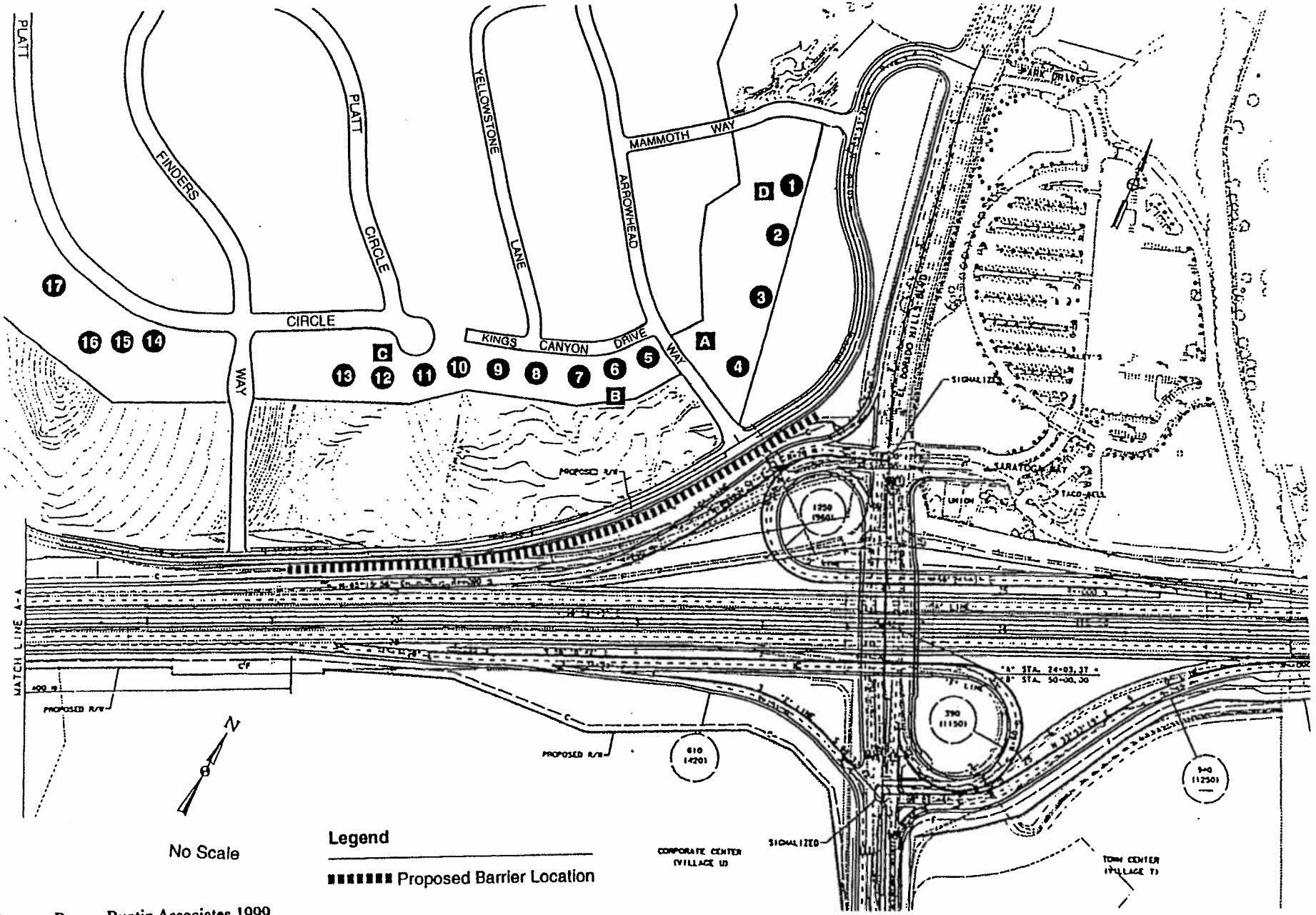
The SOUND32 model and barrier profile analyses were used to determine appropriate barrier heights and barrier configurations that would reduce traffic-noise levels. The SOUND32 analysis, barrier profile analyses, and the elevation cross-section information provided by HDR Engineering were used to evaluate barrier heights and configurations. Only the barrier configurations in the northwest quadrant were evaluated. All of the barrier configurations evaluated meet the reasonableness criteria set forth by Caltrans in the Traffic Noise Analysis Protocol. Refer to the environmental noise analysis report in Appendix B.

The projected barrier performance analysis is accurate for two-lane and four-lane versions of Saratoga Way since U.S. Highway 50 remains the primary noise source at residences adjacent to Saratoga Way.

U.S. Highway 50 Right-of-Way and Westbound On-Ramp Barrier Configuration. The first barrier configuration that was analyzed included a barrier located along the right-of-way between the on-ramp and Saratoga Way, which extends from approximately Station 23+40 to approximately Station 20+25. Because of changes in topography, the barrier was then relocated to the hinge of the westbound on-ramp at approximately Station 20+25, and extended to Station 19+00. This barrier configuration is expected to provide reductions in noise for residences along Kings Canyon and the eastern leg of Platt Circle.

Because backyards and residences on the western leg of Platt Circle (Receivers 14 through 17) are elevated, barriers at these locations would not break the line of sight between the source and receivers and, therefore, would provide no noise reduction.

Figure 4-2 shows the location of the right-of-way and ramp barrier. The results of the analysis are shown in Table 4-9.



Source: Brown-Buntin Associates 1999.

Jones & Stokes Associates, Inc.

Figure 4-2

Location of Right-of-Way and On Ramp Proposed Barrier

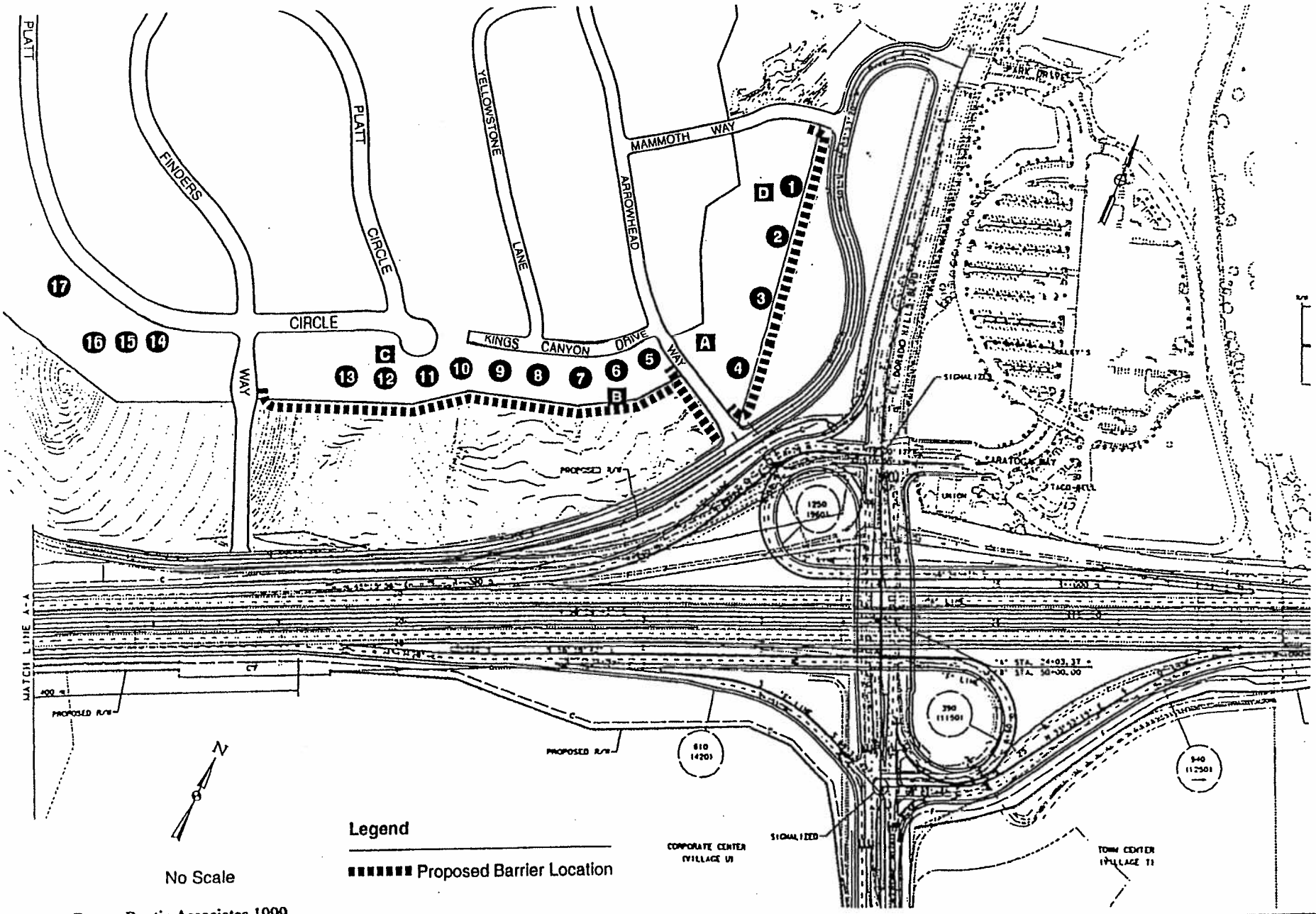
Table 4-9. Predicted U.S. Highway 50 Right-of-Way and Westbound On-Ramp Hinge Wall Barrier Effectiveness (Year 2020 Preferred Alternative)

Receiver	Location	dB L_{eq}/L_{dn} without Barrier	Predicted dB L_{eq}/L_{dn}		
			10-Foot Barrier	12-Foot Barrier	14-Foot Barrier
R1	Scenic Court	67/68	67/68	67/68	67/68
R2	Scenic Court	67/68	67/68	67/68	67/68
R3	Hills Court	68/69	68/69	68/69	68/69
R4	Hills Court	69/70	68/69	67/68	65/66
R5	Kings Canyon	69/70	64/65	63/64	63/64
R6	Kings Canyon	69/70	63/64	62/63	62/63
R7	Kings Canyon	69/70	63/64	62/63	62/63
R8	Kings Canyon	69/70	63/64	62/63	62/63
R9	Kings Canyon	68/69	65/66	64/65	63/64
R10	Platt Circle	68/69	63/64	63/64	63/64
R11	Platt Circle	68/69	63/64	63/64	63/64
R12	Platt Circle	69/69	64/65	63/64	63/64
R13	Platt Circle	69/70	63/64	63/64	62/63

Note: Because backyards and residences on the western leg of Platt Circle (Receivers 14 through 17) are elevated, barriers at these locations would not break the line of sight between the source and receivers and, therefore, would provide no noise reduction.

The analysis indicates that a barrier located at the right-of-way and along the on-ramp hinge could reduce traffic-noise levels at residences along Kings Canyon and Platt Circle to less than the Caltrans/FHWA 67 dB L_{eq} noise-level criterion and to less than the El Dorado County 65 dB L_{dn} conditionally acceptable noise-level criterion. A sound wall in excess of 14 feet would be required to reduce traffic-noise levels to less than the County's normally acceptable noise level criterion of 60 dB L_{dn}. The specified barrier configuration would provide little benefit to the residences along Hills Court and Scenic Court.

Property Line Barriers. The second barrier configuration that was reviewed was a property line barrier along the residences located on Hills Court, Scenic Court, Kings Canyon Way, and eastern leg of Platt Circle. Figure 4-3 shows the locations of the barriers under Option 1. Figure 4-4 shows the locations of the barriers under Option 2. Table 4-10 provides the results of the analysis.

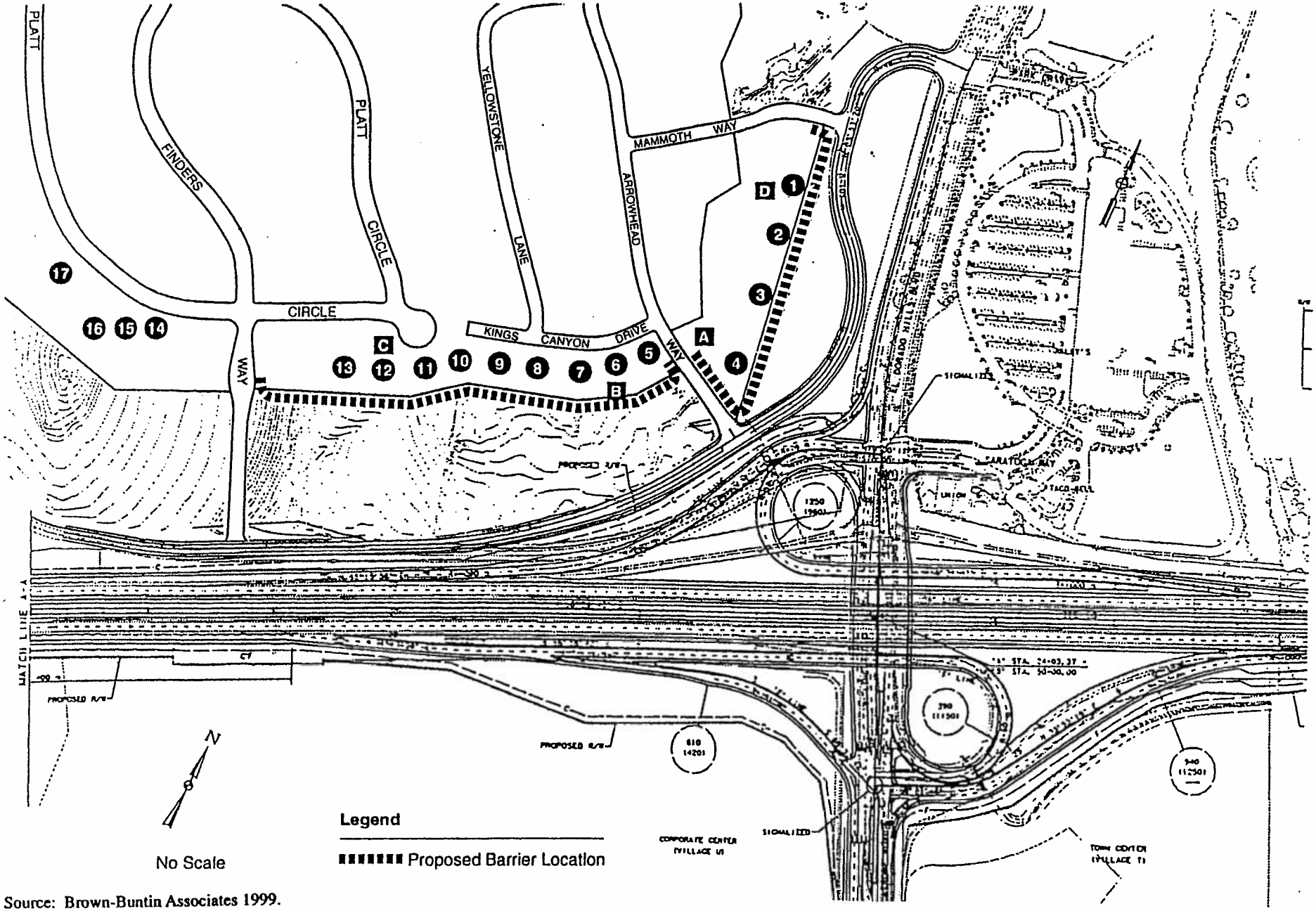


Source: Brown-Buntin Associates 1999.

Jones & Stokes Associates, Inc.

Figure 4-3

Location of Proposed Property Line Barrier: Option 1



Source: Brown-Buntin Associates 1999.

Jones & Stokes Associates, Inc.

Figure 4-4
Location of Proposed Property Line Barrier: Option 2

Table 4-10. Predicted Property Line Barrier Effectiveness
(Year 2020 Preferred Alternative)

Receiver	Location	dB L_{eq}/L_{dn} without Barrier	Predicted dB L_{eq}/L_{dn} 10-Foot Barrier	12-Foot Barrier	14-Foot Barrier
R1	Scenic Court	67/68	57/58	55/56	54/55
R2	Scenic Court	67/68	58/59	56/57	55/56
R3	Hills Court	68/69	59/60	57/58	56/57
R4	Hills Court	69/70	61/62	59/60	58/59
R5	Kings Canyon	69/70	61/62	59/60	58/59
R6	Kings Canyon	69/70	61/62	59/60	58/59
R7	Kings Canyon	69/70	61/62	59/60	58/59
R8	Kings Canyon	69/70	61/62	59/60	58/59
R9	Kings Canyon	68/69	61/62	59/60	58/59
R10	Platt Circle	68/69	60/61	59/60	58/59
R11	Platt Circle	68/69	60/61	59/60	58/59
R12	Platt Circle	69/69	62/63	60/61	58/59
R13	Platt Circle	69/70	62/63	60/61	59/60

Note: Because the backyards and residences on the western leg of Platt Circle (Receivers 14 through 17) are elevated and because they are receiving substantial shielding from existing topography, the barriers at these locations would provide little or no reduction (less than 5 dB) of traffic-noise levels at those residences.

The analysis contained within Table 4-10 indicates that a property-line barrier could reduce traffic-noise levels at residences along Hills Court, Scenic Court, Kings Canyon Way, and the eastern leg of Platt Circle to less than the Caltrans/FHWA 67 dB L_{eq} noise-level criterion, and to the El Dorado County 60 dB L_{dn} noise-level criteria. Because the backyards and residences on the western leg of Platt Circle (Receivers 14 through 17) are elevated and because they are receiving substantial shielding from existing topography, the barriers at these locations would provide little or no reduction (less than 5 dB) of traffic-noise levels at those residences. Barriers that do not provide at least 5 dB of noise attenuation are not considered feasible by Caltrans and FHWA.

Combined U.S. Highway 50 Right-of-Way and Property Line Barrier Configuration. The third barrier configuration that was analyzed included a barrier located along the right-of-way between the on-ramp and Saratoga Way, which extended from approximately Station 23+40 to approximately Station 20+25. Because of changes in topography, the barrier was then relocated to the hinge of the Westbound on-ramp at approximately Station 20+25, and extended to Station 19+00. As a means of providing shielding to the condominiums along Hills Court and Scenic Court, a property line barrier was proposed for those residences. Table 4-11 shows the results of this analysis. Figure 4-5 shows the locations of these barriers.

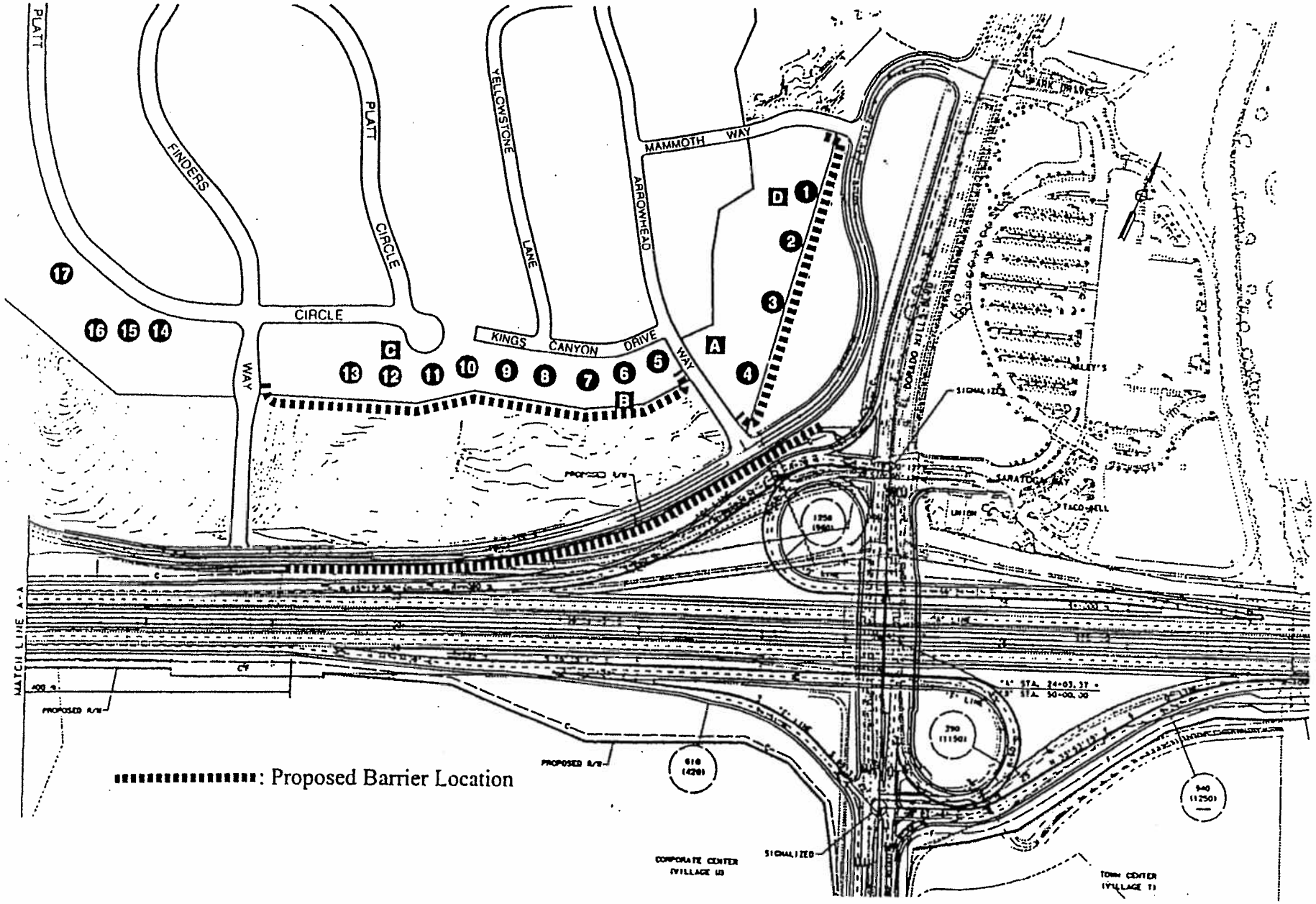


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Figure 4-5
Location of Proposed Combined ROW/Property Line Barrier

Table 4-11. Predicted Combined Right-of-Way/Property Line Barrier Effectiveness
(Year 2020 Preferred Alternative)

Receiver	Location	L_{eq}/L_{dn} (dB) without barrier	Predicted L_{eq}/L_{dn} (dB)			
			8'/10' Barrier[a]		10' Barrier	12' Barrier
R1	Scenic Court	67/68	8'	59/60	57/58	55/56
R2	Scenic Court	67/68	8'	60/61	58/59	56/57
R3	Hills Court	68/69	8'	61/62	59/60	57/58
R4	Hills Court	69/70	8'	63/64	61/62	59/60
R5	Kings Canyon	69/70	10'	64/65	64/65	63/64
R6	Kings Canyon	69/70	10'	63/64	63/64	62/63
R7	Kings Canyon	69/70	10'	63/64	63/64	62/63
R8	Kings Canyon	69/70	10'	63/64	63/64	62/63
R9	Kings Canyon	68/69	10'	65/66	65/66	64/65
R10	Platt Circle	68/69	10'	63/64	63/64	63/64
R11	Platt Circle	68/69	10'	63/64	63/64	63/64
R12	Platt Circle	69/70	10'	64/65	64/65	63/64
R13	Platt Circle	69/70	10'	63/64	63/64	63/64

Note: Because the backyards and residences on the western leg of Platt Circle (Receivers 14 through 17) are elevated and because they are receiving substantial shielding from existing topography, the barriers at these locations would provide little or no reduction (less than 5 dB) of traffic-noise levels at those residences.

[a] Assumes an 8-foot-tall barrier along the property lines and a 10-foot-tall barrier along the right-of-way.

The analysis contained in Table 4-11 indicates that the combined barrier could reduce traffic noise levels at residences along Hills Court, Scenic Court, Kings Canyon Way, and the eastern leg of Platt Circle to less than the Caltrans/FHWA 67 dB Leq noise-level criterion and to less than the El Dorado County 65 dB Ldn noise level criteria. The property-line barrier is recommended because it is the most effective method of reducing traffic noise. The combined right-of-way/property-line barrier is also a reasonable alternative.

Barriers typically will not provide noise reduction to second-story locations and in some cases barrier heights may be reduced for aesthetic reasons resulting in residential buildings being exposed to exterior noise in excess of 60 dB Ldn. According to general plan policy, noise levels in excess of 60 dB Ldn up to 65 dB Ldn are conditionally acceptable if available exterior noise level reduction measurements have been implemented and interior noise levels are below 45 dB Ldn. When exterior noise levels exceed 60 dB Ldn, potential exists for interior noise levels to exceed the 45 dB Ldn criteria. The potential also exists for the Caltrans 52 dBA Leq interior criterion to be exceeded. Mitigation Measure 4.5b involves County upgrading of the acoustical insulation of residential structures to ensure that interior noise levels are below 45 dB Ldn and 52 dBA Leq. (FHWA and Caltrans will not participate in costs of any insulation measures proposed).

Mitigation Measure 4.5a: Construct Sound Barriers Along the Eastern and Southern Property Lines of Residences Located in the Northwest Quadrant of the Interchange

Solid sound barriers shall be constructed along the eastern and southern property lines of residences located in the northwest quadrant of the interchange. Planning level analysis of these barriers indicates that the top of the barriers should be at least 10 feet above the existing ground and that the walls should be located as indicated in Figures 4-3 and 4-4 (Option 1 or Option 2). A qualified acoustical consultant shall be retained to determine the actual height and extent of the walls so as to provide at least 7 dB of noise reduction at the first row of houses located between Finders Way and Mammouth Way. The following criteria should be applied to the design of sound barriers:

- Sound walls should be a uniform, neutral, earth-tone color, such as beige or taupe. The finish should be matte and roughened, such as split-face concrete block and treated, to minimize glare and reduce graffiti potential and should be maintained in the same manner.

- Earthen berms may be substituted for sound walls where sufficient right-of-way exists and should be developed as specified in Mitigation Measure 6.3. Earth should be filled against the surface of the sound barrier that is visible from public roadways. The earth should be placed at a maximum slope of 2:1 and should reduce the exposed visible surface of the noise barrier to 2.2 meters (7 feet) or less.

- The fill slopes created adjacent to the sound walls should be vegetated with highway plantings planted close to the barrier to blend with existing backyard landscapes. Species should include native and drought-tolerant plants as recommended in the El Dorado Hills Specific Plan (El Dorado County 1988). Opportunities for planting clinging vines next to the wall should be maximized. All plantings should be irrigated and professionally maintained, including regular pruning and replacement of dead plants. Vegetative screening of the wall should provide for a minimum 25% cover of the wall surface visible from public roadways within 5 years and a maximum of 50% cover in 10 years. No foliage should extend beyond 18 inches from the top of the barrier.

Mitigation Measure 4.5b: Evaluate the Interior Noise Levels of Residences and Improve the Acoustical Insulation to Result in Interior Noise Levels Being Below 45 dB Ldn or 52 dB Leq

Refer to the discussion under Mitigation Measure 4.3b.

Impact 4.6: Exposure of Existing and Future Commercial Land Uses to Increased Noise for 2020 Conditions

Receivers in the northeast quadrant are generally not considered noise sensitive and include fast food restaurants, gas stations and other commercial uses. One receiver location representing the nearest fast food restaurant along Saratoga Way was chosen for the analysis. The analysis indicated

that future traffic-noise levels without implementation of the project would be 70 dB L_{eq} and 71 dB L_{dn}. Future traffic-noise levels after construction of the Preferred Alternative would not change.

Receivers in the southeast quadrant are generally not considered noise sensitive and include fast food restaurants, gas stations and other commercial uses. One receiver location representing the nearest gas station along Latrobe Road was chosen for the analysis. The analysis indicated that future traffic-noise levels without implementation of the project would be 70 dB L_{eq} and 71 dB L_{dn}. Future traffic-noise levels after construction of the Preferred Alternative would not change.

There is no development in the southwest quadrant of the project site. One receiver location at approximately 200 meters (656 feet) from the U.S. Highway 50 centerline was chosen for the analysis. The analysis indicated that future traffic-noise levels without implementation of the project would be 71 dB L_{eq} and 72 dB L_{dn}. Future traffic-noise levels after construction of the Preferred Alternative would not change.

The direct noise impact of the Preferred Alternative under 2020 conditions on nearby existing and planned commercial uses is considered less than significant because the predicted increase in noise resulting from implementation of the Preferred Alternative as compared to the No Project Alternative would be less than 3 dB where noise levels without the project would be below 65 dB L_{dn} and less than 1.5 dB where noise levels without the project would be greater than 65 dB L_{dn}. The increases in noise resulting directly from the Preferred Alternative would not be perceptible.

This impact is further considered less than significant because the overall traffic- noise levels resulting from the Preferred Alternative and other major roadways in the area do not exceed the Caltrans criteria of 72 dB L_{eq} for commercial uses. The County does not have a planning standard for commercial uses.

Mitigation Measure: None proposed.

SIGNIFICANCE CONCLUSIONS UNDER CEQA

Thresholds of significance for noise impacts were developed based on information contained in the State CEQA Guidelines and professional judgment. A project may have a significant effect on the environment if it will:

- substantially increase the ambient noise levels for adjoining areas or
- expose people to severe noise levels.

For this project, the significance of anticipated noise effects is based on a comparison between predicted noise levels and noise criteria defined by FHWA, Caltrans, and the County. The potential increase in noise from the project is also a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- a 3-dB change is barely perceptible,

- a 5-dB change is clearly perceptible, and
- a 10-dB change is perceived as being twice or half as loud.

These and other factors relating to the duration, frequency, and tonal content of project-related noise are considered when evaluating the significance of changes in sound levels.

Table 4-12 identifies significance thresholds for increases in noise based on recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations (Federal Interagency Committee on Noise 1992). The recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been assumed for this analysis that they are applicable to all sources of noise that are described in terms of cumulative noise exposure metrics, such as the L_{dn} or community noise equivalent level (CNEL). These metrics are generally applied to transportation noise sources, and define noise exposure in terms of average noise exposure during a 24-hour period with penalties added to noise that occurs during the nighttime or evening.

Table 4-12. Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level without Project (L_{dn} or CNEL)	Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise 1992 (as applied by Brown-Buntin Associates).

As indicated in Table 4-4, potentially affected noise sensitive uses in the northwest quadrant of the interchange are currently exposed to noise in excess of 60 dB L_{dn} and in some cases to noise in excess of 65 dB L_{dn}.

The direct noise impacts of the project are assessed by comparing project conditions to no-project conditions. If the increase in noise caused by the project exceeds the significant increase thresholds defined in Table 4-12, then the direct impact of the project is considered significant. If overall noise levels considering the project and other major sources of traffic noise in the area exceed FHWA/Caltrans or County criteria, then the impact of the project is considered significant regardless of the magnitude of the direct increase in noise from the project.

Table 3-1 identifies premitigable and postmitigable significance conclusions for noise impacts based on the above significance criteria.

Chapter 5. Air Quality

AFFECTED ENVIRONMENT

Regional Climate

The project is located in the foothills on the eastern edge of the Sacramento metropolitan area. The area is bounded by the Coast and Diablo ranges on the west and the Sierra Nevada on the east. The project site is about 90 miles east of the Carquinez Strait, a sea-level gap between the Coast Range and the Diablo Range. The prevailing winds are from the west, primarily because of marine breezes through the Carquinez Strait, although during winter the sea breezes diminish and winds from the north and east occur more frequently (California Air Resources Board 1984).

The area experiences episodes of poor atmospheric mixing caused by inversion layers. Inversion layers are formed when temperature increases with elevation above ground or when a mass of warm, dry air settles over a mass of cooler air near the ground. Surface inversions (0–500 feet) are most frequent during winter, and subsidence inversions (1,000–2,000 feet) are most frequent during summer. Inversion layers limit vertical mixing in the atmosphere, trapping pollutants near the surface.

Air Quality Pollutants and Ambient Air Quality Standards

Both the state of California and the federal government have established ambient air quality standards for several different pollutants. Most standards have been set to protect public health; but in some cases, standards have been based on other values (such as protection of crops or avoidance of nuisance conditions). The pollutants of concern in the project area include carbon monoxide (CO), ozone, and inhalable particulate matter (PM10), which is particulate matter smaller than or equal to 10 microns in diameter. Table 5-1 shows the state and federal pollutant standards applicable in California.

Carbon Monoxide

State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 parts per million (ppm), while the federal 1-hour standard is 35 ppm. Both state and federal standards are 9 ppm for the 8-hour averaging period. CO is a public health

Table 5-1. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard, as parts per million (ppm)		Standard, as micrograms per cubic meter ($\mu g/m^3$)		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	8 hours[a]	N/A	0.08	N/A	160	N/A	If 3-year average of annual third-highest daily 8-hour maximum exceeds standard
		1 hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
Nitrogen dioxide	NO_2	Annual average	N/A	0.053	N/A	100	N/A	If exceeded
		1 hour	0.25	N/A	470	N/A	If exceeded	N/A
Sulfur dioxide	SO_2	Annual average	N/A	0.03	N/A	80	N/A	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	N/A	655	N/A	N/A	N/A
Inhalable particulate matter	PM10	Annual geometric mean	N/A	N/A	30	N/A	If exceeded	N/A
		Annual arithmetic mean	N/A	N/A	N/A	50	N/A	If exceeded
		24 hours	N/A	N/A	50	150	N/A	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean[a]	N/A	N/A	N/A	15	N/A	If spatial average exceeded on more than 3 days in 3 years
		24 hours[a]	N/A	N/A	N/A	65	N/A	If exceeds 98th percentile of concentrations in a year

Notes: All standards are based on measurements at 25°C and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
N/A = not applicable.

[a] New standards effective July 1997. Eight-hour ozone standard replaces 1-hour standard after compliance with the 1-hour standard has been attained.

concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Ozone

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, reactive organic gases (ROG) and oxides of nitrogen (NO_x) react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and causes substantial damage to vegetation and other materials.

State and federal standards for ozone have been set for a 1-hour averaging time, and a recent federal standard has been developed for an 8-hour averaging time. The state 1-hour ozone standard is 0.09 ppm, not to be exceeded. The federal 1-hour ozone standard is 0.12 ppm, not to be exceeded more than three times in any 3-year period. The new federal 8-hour standard is 0.08 ppm, not to be exceeded on a 3-year average of third highest daily 8-hour maximum values. The 8-hour ozone standard replaces the federal 1-hour standard after nonattainment areas reach attainment of the 1-hour standard.

Inhalable Particulate Matter

Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Consequently, both the federal and state air quality standards for particulate matter apply to particulate matter 10 microns or less in diameter (generally designated as PM10) and the U.S. Environmental Protection Agency (EPA) has recently added a new standard for particulate matter less than 2.5 microns in diameter (PM2.5). Monitoring data are not yet available for PM2.5.

The state PM10 standards are 50 micrograms per cubic meter ($\mu g/m^3$) as a 24-hour average and 30 $\mu g/m^3$ as an annual geometric mean. The federal PM10 standards are 150 $\mu g/m^3$ as a 24-hour average and 50 $\mu g/m^3$ as an annual arithmetic mean. The federal PM2.5 standards are 65 $\mu g/m^3$ as a 24-hour average and 15 $\mu g/m^3$ as an annual arithmetic mean.

PM10 conditions in the project area result from a mix of rural and urban sources, including agriculture, construction, burning, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

Asbestos Control. Health concerns associated with inhalation of asbestos fibers associated with naturally occurring chrysotile and tremolite asbestos present in serpentine rock in parts of western El Dorado County are addressed by control measures implemented by the El Dorado County Air Pollution Control District (APCD) and grading measures adopted by the El Dorado County Board of Supervisors. These asbestos control measures are described in Chapter 9, "Earth Resources". Impact 9.2 addresses the potential exposure of people to asbestos during project construction. Asbestos is not expected to occur in the immediate project area as indicated on Figure 9-1. With additional implementation of County grading measures to control asbestos, this air contaminant is not expected to be emitted by this project.

Air Pollutant Monitoring Data

Air quality data for the period from 1994 through 1996 from the Placerville monitoring station are summarized in Table 5-2. Also included are ozone monitoring data for a station in the town of Cool, beginning in June 1996. The monitoring data show that the state ozone standard has been exceeded between 26 and 32 times each year between 1994 and 1996. The state CO standard has not been exceeded during the same period. The state 24-hour PM10 standard has been exceeded once between 1994 and 1996, and the state annual PM10 standard has not been exceeded.

The Placerville and Cool monitoring stations are both about 20 miles away from the project site. At present, no monitoring stations exist at the project site. The responsibility for deciding where to locate monitoring stations rests with the California Air Resources Board (ARB). The ARB bases its decision on either a legal mandate or a request from a client (usually an ARB division or an air district) for information that will be used to make management decisions, such as air plan development, or to support enforcement actions. The proposed interchange project does not fit any of the legally mandated ARB criteria (Loscutoff pers. comm.). Therefore, siting a monitor near the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange would have to be based on the recommendation of the El Dorado County APCD. The El Dorado County APCD air pollution control officer has stated that it would be economically unwise to conduct air quality monitoring at this location, because monitoring would not mitigate any air quality impacts associated with the project (Duncan pers. comm.).

The federal Clean Air Act (CAA) establishes air quality standards for several pollutants. Areas that do not meet federal primary air quality standards are designated as nonattainment areas. Areas that comply with federal air quality standards are designated as attainment areas. Areas for which monitoring data are lacking are formally designated unclassified areas, but are generally treated as attainment areas.

Similarly, the California Clean Air Act (CCAA) required the ARB to classify areas within the state as either attainment or nonattainment for the California ambient air quality standards. Currently, El Dorado County is classified as nonattainment for the state and federal ozone standards and the state 24-hour PM10 standard, and is unclassified for CO. Maximum concentrations of other criteria pollutants are currently within federal and state standards.

Table 5-2. Summary of Air Pollutant Monitoring Data

Pollutant	State Standard	Monitoring Year 1994	1995	1996
Ozone				
Highest 1-hour average (ppm) - Placerville	0.09	0.13	0.13	0.13
Number of standard excesses [a]		26	32	31
Highest 1-hour average (ppm) - Cool	0.09	N/A	N/A	0.14
Number of standard excesses - Cool		N/A	N/A	35
Carbon Monoxide (CO)				
Highest 1-hour average (ppm)	20	2	2	1
Number of standard excesses		0	0	0
Highest 8-hour average (ppm)	9.0	1.3	1.2	0.1
Number of standard excesses		0	0	0
Particulate Matter (PM10)				
Highest 24-hour average ($\mu g/m^3$)	50	34	53	58
Number of standard excesses		0	1	1
Annual geometric mean ($\mu g/m^3$)	30	16.4	15.3	14.4

Notes: ppm = parts per million.

$\mu g/m^3$ = micrograms per cubic meter.

CO monitoring data are from the Placerville monitoring station. Ozone monitoring data are from the Placerville and Cool monitoring stations. Monitoring at the Cool station began in June 1996.

[a] For ozone, this refers to the number of days of a given year during which excesses of the 1-hour standard were recorded.

Source: California Air Quality Data 1997.

Existing Carbon Monoxide Concentrations

Existing CO concentrations were determined using the CALINE4 dispersion model. The methodology is described in detail in the "Impacts and Mitigation Measures" section of this chapter. A summary of modeled CO concentrations is shown in Table 5-3. Under existing conditions, the highest modeled CO concentration is 8.4 ppm for the p.m. peak traffic hour, and 5.5 ppm for an 8-hour averaging period. The highest concentration is at a gas station at the northeast quadrant of the interchange. The highest CO concentration found at the residences near Saratoga Way is 7.9 ppm for the p.m. peak hour and 5.2 ppm for an 8-hour averaging period. None of the modeled receptor locations were found to exceed any of the CO standards.

Air Quality Management

Air quality management responsibilities exist at local, state, and federal levels of government. Air quality management planning programs developed during the past decade have generally been in response to requirements established by the federal Clean Air Act; however, the enactment of the CCAA has produced additional changes in the structure and administration of air quality management programs in California.

The CCAA substantially added to the authority and responsibilities of the state's air pollution control districts. The CCAA established an air quality management process that generally parallels the federal process. The CCAA, however, focuses on attainment of the state ambient air quality standards that, for certain pollutants and averaging periods, are more stringent than the comparable federal standards.

The CCAA requires that air districts prepare an air quality attainment plan if the district violates state air quality standards for CO, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), or ozone. No locally prepared attainment plans are required for areas that violate the state PM10 standards. The CCAA requires that the state air quality standards be met as expeditiously as practicable, but does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that will require more time to achieve the standards. The least stringent requirements are set for areas that expect to achieve air quality standards by the end of 1994. The most stringent requirements were set for areas that could not achieve the standards until after 1997.

The air quality attainment plan requirements established by the CCAA are based on the severity of air pollution problems caused by locally generated emissions. Upwind air pollution control districts are required to establish and implement emission control programs commensurate with the extent of pollutant transport to downwind districts.

Air pollution problems in El Dorado County are primarily the result of emissions transported from Sacramento County. However, El Dorado County has been identified as a source of ozone precursor emissions that occasionally contribute to local air quality problems. Consequently, the air

Table 5-3. Summary of Carbon Monoxide Modeling Results

	Modeled Concentration (ppm)													
	Existing Interchange		Preferred Alternative 2005		Alternative 1 2005		Alternative 2 2005		Preferred Alternative 2020		Alternative 1 2020		Alternative 2 2020	
Receptor Number and Description	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour
1 Residence near Saratoga Way	7.9	5.2	5.9	3.9	5.8	3.9	5.7	3.8	6.0	3.9	5.9	3.9	5.4	3.6
2 Residence near Saratoga Way	7.9	5.2	5.9	3.9	5.9	3.9	5.8	3.9	6.1	4.0	6.0	3.9	5.5	3.6
3 Residence near Saratoga Way	7.7	5.1	6.0	4.0	6.0	4.0	5.9	3.9	6.2	4.1	6.2	4.1	5.6	3.7
4 Residence near Saratoga Way	7.9	5.2	6.1	4.1	6.1	4.1	5.9	3.9	6.4	4.2	6.3	4.1	5.6	3.7
5 Residence near Saratoga Way	7.8	5.1	6.0	4.0	6.0	4.0	5.9	3.9	6.3	4.1	6.3	4.1	5.6	3.7
6 Residence near Saratoga Way	7.9	5.2	6.2	4.1	6.2	4.1	6.1	4.1	6.6	4.3	6.8	4.5	5.8	3.8
7 Residence near Saratoga Way	7.8	5.1	6.1	4.1	6.2	4.1	5.9	3.9	6.5	4.3	6.8	4.5	5.4	3.6
8 Residence near Saratoga Way	7.6	5.0	6.0	4.0	6.2	4.1	5.6	3.7	6.3	4.1	6.8	4.5	5.3	3.5
9 Residence near Saratoga Way	7.7	5.1	6.0	4.0	6.2	4.1	5.7	3.8	6.7	4.4	7.1	4.7	5.4	3.6
10 Shopping Center	7.5	4.9	5.8	3.9	5.7	3.8	5.7	3.8	6.6	4.3	6.3	4.1	5.5	3.6
11 Shopping Center	7.6	5.0	6.2	4.1	6.2	4.1	6.0	4.0	6.7	4.4	6.7	4.4	5.8	3.8
12 Shopping Center	7.7	5.1	5.9	3.9	5.9	3.9	5.7	3.8	6.0	3.9	6.0	3.9	5.2	3.4
13 Restaurant	8.0	5.3	6.3	4.2	6.3	4.2	6.1	4.1	6.6	4.3	6.6	4.3	5.8	3.8
14 Gas Station	8.3	5.5	6.8	4.5	6.8	4.5	6.7	4.4	7.0	4.6	7.0	4.6	6.4	4.2
15 Gas Station	8.4	5.5	6.8	4.5	6.8	4.5	6.5	4.3	7.6	5.0	7.6	5.0	6.4	4.2
16 Gas Station	7.6	5.0	5.8	3.9	5.8	3.9	5.4	3.6	5.8	3.8	5.9	3.9	5.1	3.4
17 Restaurant	7.7	5.1	6.0	4.0	6.0	4.0	5.6	3.7	6.3	4.1	6.2	4.1	5.3	3.5
18 Gas Station	7.6	5.0	5.7	3.8	5.7	3.8	5.3	3.5	5.6	3.7	5.6	3.7	5.0	3.3
Maximum Concentration	8.4	5.5	6.8	4.5	6.8	4.5	6.7	4.4	7.6	5.0	7.6	5.0	6.4	4.2

Notes: 1-hour results include a background concentration of 6.1 ppm, 3.9 ppm, and 3.2 ppm for existing conditions, 2005 conditions, and 2020 conditions, respectively.
8-hour results include a background concentration of 4.0 ppm, 2.6 ppm, and 2.1 ppm for existing conditions, 2005 conditions, and 2020 conditions, respectively.
Receptor numbers correspond to the numbers shown on Figure5-1.

quality planning for the El Dorado County must not only correct local air pollution problems but must also reduce the area's impact on downwind air basins.

Based on preparation of its ozone State Implementation Plan, as of June 1, 1995, El Dorado County's nonattainment area classification was switched from a "serious" to a "severe" ozone nonattainment area. The El Dorado County APCD helped prepare the Sacramento Area Regional Ozone Attainment Plan (El Dorado County Air Pollution Control District et al. 1994). That plan is designed to bring the El Dorado County APCD into attainment within the state and federal ozone standards.

ENVIRONMENTAL CONSEQUENCES

Methods

The following section describes the methods used to estimate the level of impact the proposed project would have on air quality near the project site.

Construction-Related Emissions

Construction of the project would result in the temporary generation of emissions of ROG, NO_x, and PM10. Construction-related emissions would result from construction equipment exhaust, exhaust from construction workers' vehicles, land clearing, wind erosion of exposed soil, and asphalt paving. Daily construction-related emissions would vary substantially, depending on the level of activity, length of construction period, the specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Estimated construction-related emissions of ROG, NO_x, and PM10 were calculated using emission factors for construction equipment exhaust emissions (U.S. Environmental Protection Agency 1995) and fugitive PM10 emission factors for soil excavation and soil grading (Midwest Research Institute 1995). Construction-related emissions are based on expected construction equipment that would be used. This analysis assumed construction would require the use of two backhoes, one grader, one tracked tractor, one loader, one excavator, two cranes, one concrete pump, one roller, and one paver, each operating between 4 and 8 hours a day and a construction phase of 1 year. The analysis also assumes that 2 acres would be graded each day, 2 acres would be excavated each day, 1 acre would be paved each day, workers would commute to the site, and materials would be transported to the site.

The El Dorado County APCD will require that Rule 223 (Fugitive Dust Control), Rule 24 (Cutback and Emulsified Asphalt Paving Materials), and Rule 215 (Architectural Coatings) be adhered to during the construction process. In addition, the APCD requires that a fugitive dust prevention and control plan shall be submitted to and approved by the APCD before project construction begins. The estimated fugitive PM10 emissions in this analysis include an emission

reduction to approximate the effect of the dust control that would result with implementation of Rule 223 and the dust control plan.

A summary of construction emissions is shown in Table 5-4.

Table 5-4. Estimated Construction Emissions Pollutants

Type of Emissions	Pollutant				
	ROG	NO_x	SO_x	CO	PM10
Equipment exhaust (ppd)	9.1	69.7	6.0	50.3	6.0
Vehicle exhaust (ppd)	4.6	11.3	N/A	22.1	0.7
Fugitive PM10 (ppd)					96.0
Daily total (ppd)	13.7	81.0	6.0	72.5	102.7
Quarterly total (ppq)	890.5	5,265.0	390.0	4,712.5	6,675.5

ppd = pounds per day.
ppq = pounds per quarter.

Carbon Monoxide Modeling

The ambient air quality effects of project-related CO emissions were evaluated using the CALINE4 dispersion model developed by the California Department of Transportation (Hatano, Benson, and Pinkerton 1989). CALINE4 treats each segment of a roadway as a separate emission source producing a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

The CO modeling analysis used peak-hour traffic volumes and volume to capacity (V/C) ratios. For each segment of the roadway network, peak-hour vehicle speeds were developed based on V/C ratios and equations relating speed to V/C ratio. Additionally, speeds on intersection approach and departure segments were adjusted using Caltrans methodology (California Department of Transportation 1996a).

Vehicle emission rates were estimated using the ARB's EMFAC7F (version 1.1) computer program. Vehicle emission rates were developed for 1998, 2005, and 2020 conditions for a typical winter temperature of 40 degrees Fahrenheit.

Meteorological parameters used in the modeling include a wind speed of 0.5 meter/second, a ground-level temperature inversion (stability class G), and a mixing height limit of 1,000 meters. Wind directions were varied in 10-degree increments to determine the worst-case CO concentrations.

Background CO levels were determined using background CO isopleth maps developed by the Sacramento Metropolitan Air Quality Management District (1994). Background CO levels can be determined a short distance into El Dorado County from the isopleth maps. Potential 8-hour average CO levels were estimated from predicted peak-hour levels. Caltrans recommends that 8-hour concentrations in suburban areas can be assumed to equal 60% of 1-hour concentrations (California Department of Transportation 1996a). Data from the isopleth maps indicates that 8-hour levels are approximately 66% of 1-hour levels. The more conservative 66% factor was used in this analysis.

CO modeling was conducted for the following seven scenarios:

- afternoon peak hour of existing traffic with the proposed project,
- afternoon peak hour of future (2005) traffic with the proposed project,
- afternoon peak hour of future (2005) traffic with Alternative 1,
- afternoon peak hour of future (2005) traffic with Alternative 2,
- afternoon peak hour of future (2020) with the proposed project,
- afternoon peak hour of future (2020) traffic with Alternative 1, and
- afternoon peak hour of future (2020) conditions with Alternative 2.

The modeling analysis included the major roadways in the project area, including U.S. Highway 50, the on- and off-ramps, El Dorado Hills Boulevard/Latrobe Road, and Saratoga Way. Figure 5-1 shows the receptor locations used for the modeling.

Transportation Conformity

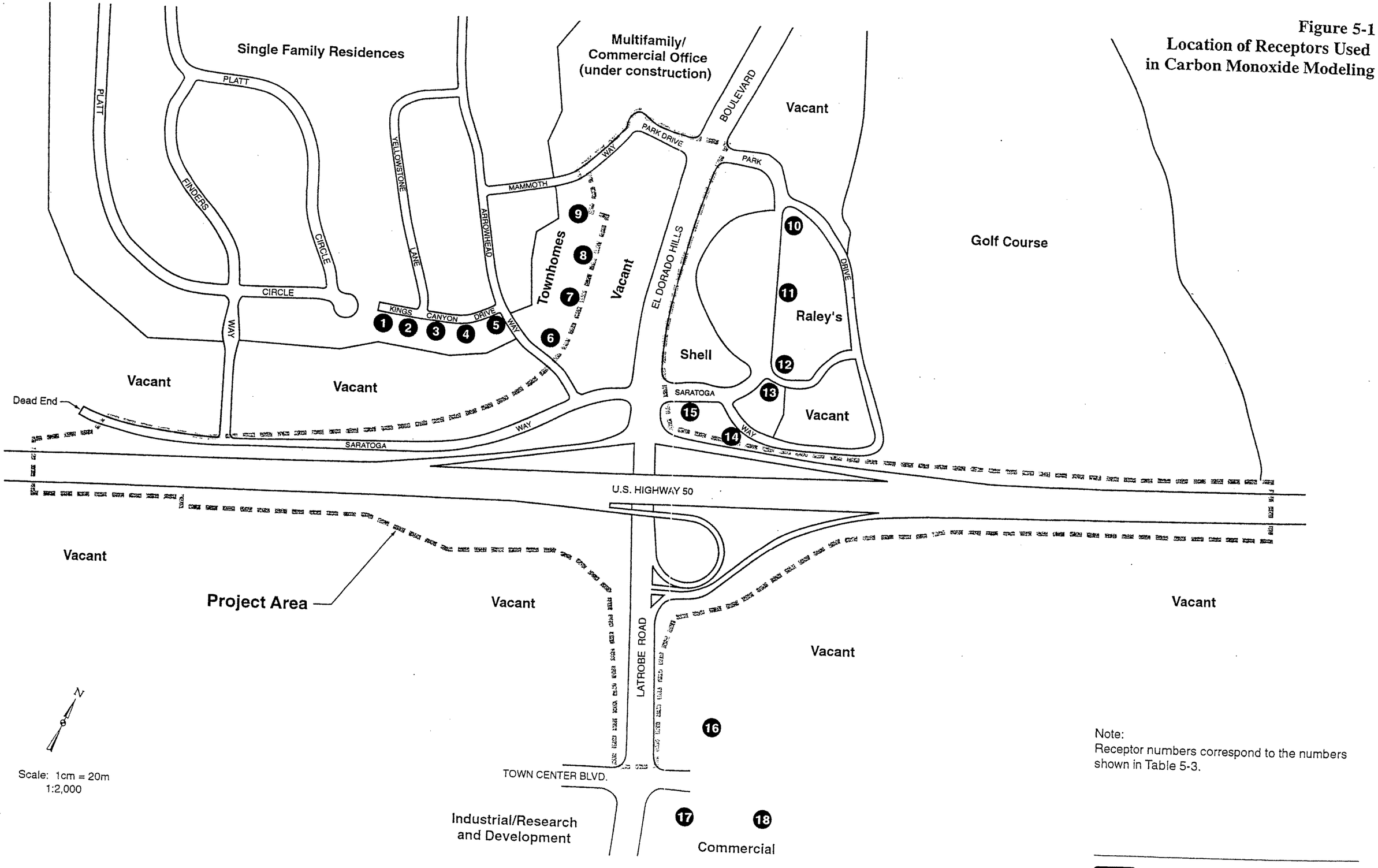
The project has been included in the federal Metropolitan Transportation Improvement Program (MTIP), which is prepared and maintained by the Sacramento Area Council of Governments (SACOG) (Sacramento Area Council of Governments 1996). By including the project in the MTIP, SACOG has shown that the project is consistent with the area's Metropolitan Transportation Plan and is in conformance with the Sacramento Area Regional Ozone Attainment Plan adopted by the El Dorado County APCD. This also means the project conforms with the APCD's transportation conformity rule.

Impacts and Mitigation Measures: Interim (2005) Conditions

Impact 5.1: Temporary Generation of Emissions from Construction of the Project

Construction of the project would result in the temporary generation of emissions from construction. Construction emissions are estimated to be approximately 14 ppd of ROG (891 ppq), 81 ppd of NO_x (5,265 ppq), 6 ppd of SO_x (390 ppq), 73 ppd of CO (4,713 ppq), and 103 ppd of PM10 (6,676 ppq). Emissions of ROG, NO_x, and PM10 are expected to exceed the El Dorado County APCD's daily threshold level of 10 ppd for ROG and NO_x, and 80 ppd for PM10. While construction-related emissions are expected to exceed the daily threshold levels, quarterly emissions

Figure 5-1
Location of Receptors Used
in Carbon Monoxide Modeling



Note:
Receptor numbers correspond to the numbers shown in Table 5-3.

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would be well below the quarterly threshold level of 7,500 pounds. Construction of the project would not exceed the quarterly threshold levels. However, this impact is considered adverse because emissions of ROG, NO_x, and PM10 would exceed daily thresholds.

The following mitigation measure would be required to reduce temporary construction emissions.

Mitigation Measure 5.1: Comply with El Dorado County APCD's Construction Measures

The County shall construct the project using the following measures to reduce construction-related impacts on air quality, as specified in the El Dorado County APCD Rules and Regulations:

- Use low-emission onsite mobile construction equipment.
- Maintain equipment in tune per manufacturer's specifications.
- Retard diesel engine injection timing by two to four degrees unless not recommended by manufacturer (due to lower emission output in-place).
- Use reformulated, low-emission diesel fuel.
- Substitute electric and gasoline-powered equipment for diesel-powered equipment where feasible.
- Use catalytic converters on gasoline-powered equipment.
- Do not leave inactive construction equipment idling for prolonged periods (i.e., more than 2 minutes).
- Schedule construction activities and material hauls that affect traffic flow to off-peak hours.
- Configure construction parking to minimize traffic interference.
- Develop a construction traffic management plan that includes, but is not limited to
  - providing temporary traffic control during all phases of construction activities to improve traffic flow,
  - rerouting construction trucks off congested streets, and
  - provide dedicated turn lanes for movement of construction trucks and equipment onsite and offsite.
- Reestablish ground cover on construction sites through seeding and watering for dust control.

Impact 5.2: Conformity with the State Implementation Plan

The Sacramento Valley Air Basin (SVAB) is a nonattainment area for the state and federal ozone and PM10 ambient air quality standards. Consequently, all new road projects within the SVAB, including the proposed project, must be shown to conform to applicable state or federal (air quality) implementation plans, as required by EPA's transportation conformity requirements (40 CFR, Part 51, Subpart T and 40 CFR, Part 93, Subpart A). To conform, a project must be shown to not cause or contribute to a violation of the federal ozone and PM10 ambient air quality standards.

SACOG is designated by the U.S. Department of Transportation and the EPA as the Metropolitan Transportation Planning Organization (MPO) for the Sacramento ozone non-attainment area. As the MPO, SACOG must prepare and maintain a federal Metropolitan Transportation Plan (MTP) and demonstrate that the MTP meets the federal transportation conformity requirements. The MTP lists all transportation related projects requiring federal funding or other approval by the Federal Highway Administration or Federal Transit Administration. The MTP also includes all nonfederal, regionally significant projects.

Inclusion of a project in an approved MTP is a prerequisite for federal funding. By including a project in the MTP, SACOG assures federal decision-makers that the project is consistent with the area's MTP and the State Implementation Plan for air quality. The 1996 MTP includes the proposed interchange improvement project (Sacramento Area Council of Governments 1996). Because the project is included in the MTP and because the MTP has been approved by the Federal Highway Administration, this impact is not adverse.

Mitigation Measure: None proposed.

Impact 5.3: No Exceedance of Carbon Monoxide Standards in 2005

The CO modeling analysis indicates that with the proposed project the highest predicted CO level in 2005 would be 6.8 ppm for the 1-hour averaging period and 4.5 ppm for the 8-hour averaging period (Table 5-3). This is a substantial reduction in CO concentrations over the existing conditions, based on a reduction of future vehicle emissions associated with changes in the vehicle mix. The preferred alternative would not cause a new violation of the standards or contribute to an existing violation.

Mitigation Measure: None proposed.

Cumulative (2020) Conditions

Impact 5.4: No Exceedance of Carbon Monoxide Standards in 2020

The CO modeling analysis indicates that with the proposed project the highest predicted CO level in 2020 would be 7.6 ppm for the 1-hour averaging period and 5.0 ppm for the 8-hour averaging period (Table 5-3). Because the alternative would not cause a new violation of the standards, or contribute to an existing violation, this impact is considered less than significant.

Mitigation Measure: None proposed.

SIGNIFICANCE CONCLUSIONS UNDER CEQA

The significance thresholds are based on the State CEQA Guidelines. The alternative would have a significant adverse impact if it would:

- violate any ambient air quality standard,
- contribute substantially to an existing or projected air quality violation, or
- expose sensitive receptors to substantial pollutant concentrations.

In addition to the criteria above, the El Dorado County APCD new source review rule contains emission threshold levels for implementation of best available control technology (BACT) and emission offsets. The BACT thresholds are 10 pounds per day (ppd) for ROG or NO_x, 80 ppd for PM10, and 550 ppd for CO. The emission offset thresholds are 7,500 pounds per quarter (ppq) for ROG, NO_x, PM10, and CO; and 12,500 ppq for SO_x. Project-related emissions exceeding these levels would be considered significant.

Table 3-1 identifies premitigation and postmitigation significance conclusions for air quality impacts based on the above significance criteria.

Chapter 6. Visual Resources

This chapter describes the regional visual character, visual resources of the project site, views of the project site from important adjacent vantage points, and the changes in these views that would result from project implementation.

AFFECTED ENVIRONMENT

The aesthetic value of an area is a measure of its visual character and scenic quality combined with the viewer response to the area (Federal Highway Administration 1983). The scenic quality component can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (U.S. Bureau of Land Management 1980). Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure to a viewshed is a function of the number of viewers, the number of views seen, the distance of the views, and the viewing duration. Viewer sensitivity relates to the extent of the public's concern for particular viewscapes.

Both natural and artificial landscape features contribute to perceived visual images and the aesthetic value of a view. Aesthetic value is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Visual images and their perceived visual quality can vary significantly seasonally and even hourly as weather, light, shadow, and the elements that comprise the viewscape change.

Judgments of visual quality must be made based on a regional frame of reference (U.S. Soil Conservation Service 1978). The same landform or visual resource appearing in different geographic areas could have different visual resource quality and sensitivity in each setting. For example, a small hill may be a significant visual element on a flat landscape but have very little significance in mountainous terrain.

Terminology

Numerous methods have been developed to characterize the scenic quality of a viewscape and the viewer response to that resource. A standard approach to visual analysis is that adopted by the Federal Highway Administration; this approach uses the criteria of vividness, intactness, and

unity (Federal Highway Administration 1983, Dunne and Leopold 1978, Jones et al. 1975). These criteria are defined below:

- *Vividness* is the visual power or memorability of landscape components as they combine in visual patterns.

- *Intactness* is the visual integrity of the natural and artificial landscape and its freedom from encroaching elements. This factor can be present in urban and rural landscapes, as well as in natural settings.

- *Unity* is the visual coherence and compositional harmony of the landscape considered as a whole. The careful design of individual components in the artificial landscape enhances the unity of a viewshed.

This study uses a qualitative, descriptive approach at a broad scale for describing and evaluating the visual resources of the project site and the proposed reconstruction of the El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity apparent in a viewscape as modified by its visual sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity. The measure of the quality of a view must be tempered by the overall sensitivity of the viewer.

Aesthetic sensitivity is described in terms of viewer activity, awareness, and visual expectations in relation to the number of viewers and the viewing duration. For example, commuters and nonrecreational travelers have generally fleeting views, and they tend to focus away from surrounding scenery and onto traffic. For this reason, a viewer group composed of commuting travelers is generally considered to have low aesthetic sensitivity. Residential viewers typically have extended viewing periods and are generally concerned about changes in the views from their homes. As a group, residential viewers are considered aesthetically sensitive.

Visibility and visual dominance of landscape elements are described with respect to their placement within the field of view. Foreground elements are those features nearest to the viewer, and background elements are features at a great distance from the viewer. The middle ground of a view is intermediate between the foreground and background. A viewshed is defined as all of the surface area visible from a particular location or sequence of locations (e.g., roadway or trail) (Federal Highway Administration 1983).

The visual character of western El Dorado County is described to provide a regional frame of reference. The visual quality and sensitivity of the project site's visual resources are described below.

Existing Conditions

Regional Visual Character

Western El Dorado County lies in a transitional zone between the Sacramento Valley and the foothills of the western slope of the Sierra Nevada. The region is characterized by rolling hills and small valleys with occasional rock outcrops. The dominant vegetation is annual grassland punctuated by native oak trees (i.e., a savanna landscape). The tree canopy cover and species diversity increases in small draws and valley bottoms where moisture is more readily available. The American River, a popular scenic recreation destination, flows from east to west into Folsom Lake a few miles north of the project site.

The project region is rapidly changing from a rural, pastoral landscape of rangeland and open space to a developed landscape comprised of residential, commercial, and light industrial uses. The development of planned communities, golf courses, small commercial establishments, and computer technology complexes to the west continues to urbanize this region.

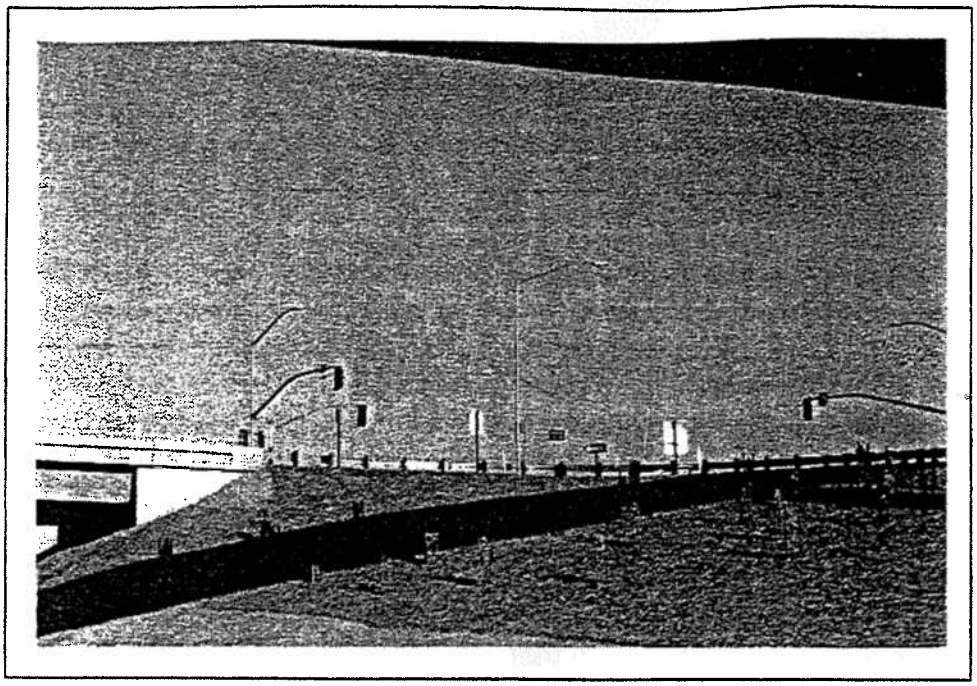
Although development has not forged a unique, cohesive, or indigenous identity or sense of place, efforts have been made to enhance the visual quality of residential, commercial, and industrial facilities. These efforts include the use of stucco-covered and brick-veneered buildings with light and medium earth hues, integration of native river cobble into signage and site features, and provision of landscaping in developed areas.

Visual Resources Associated with the Project Site

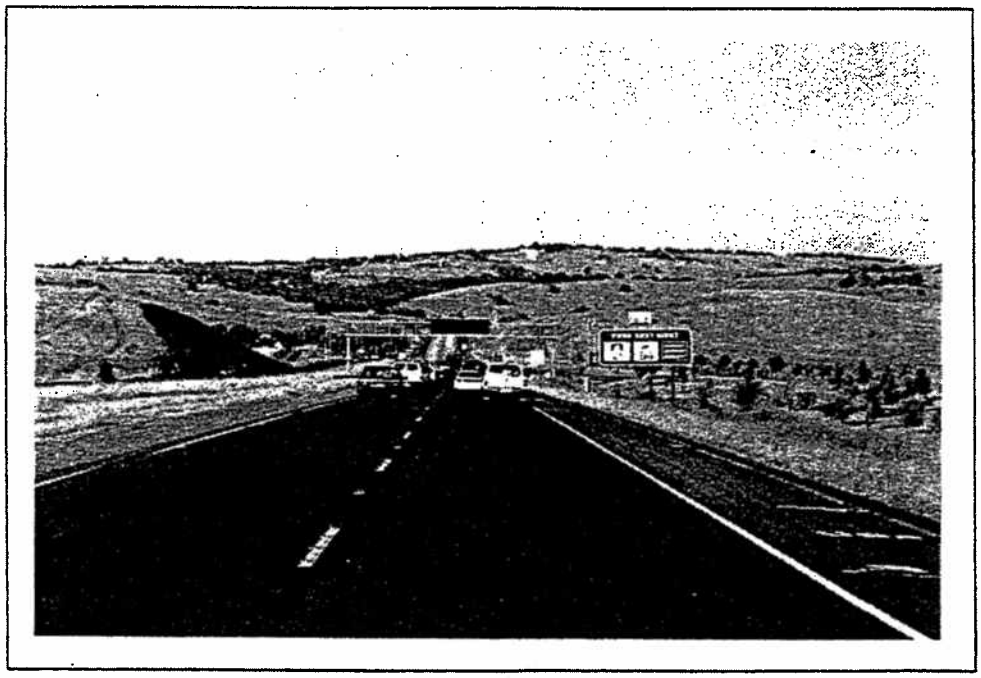
The immediate project vicinity is a hub for recent and future development. The visual character of the project site has evolved from a rural highway setting to a suburban transportation node. This is evident by the presence of gas stations, a supermarket, fast-food establishments, and other commercial development primarily on the north side of U.S. Highway 50 along El Dorado Hills Boulevard. An older, established residential neighborhood is located adjacent to the northwest quadrant of the interchange, including single-family residences and townhouses. The existing interchange is situated in the bottom of a valley and is therefore visible from nearly every direction, particularly from the east along the U.S. Highway 50 corridor (Figures 6-1 and 6-2).

The existing interchange is not landscaped, although mature cottonwood trees and green emergent wetland vegetation occur inside the eastbound loop off-ramp in the southeast quadrant.

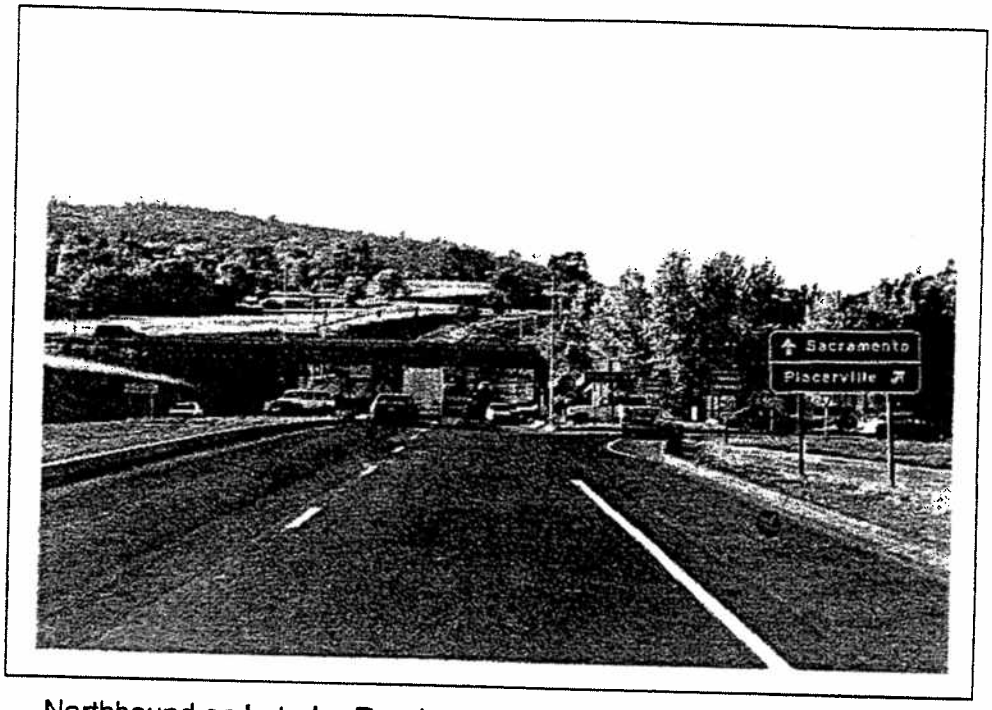
Views associated with the project site lack vividness because they are relatively common and typical of roadside commercial development associated with highway corridors; are less than moderately intact because the development is somewhat obtrusive on the pastoral landscape (particularly to the south); and are moderately unified because the scale, color, and form of existing development is fairly congruent and harmonious.



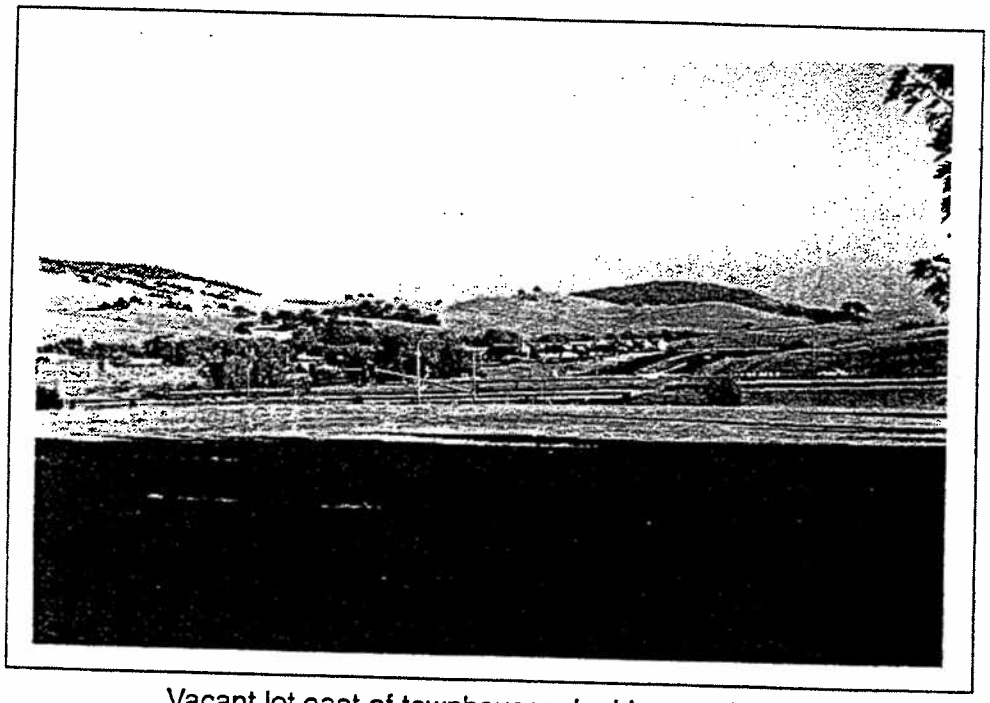
Interchange of U.S. Highway 50 at Prairie City Road recently completed.
Note typical landscaping, use of mulch, and lighting.



Eastbound on U.S. Highway 50, just west of El Dorado Hills Boulevard/Latrobe Road Interchange.
Note absence of any elevated interchange structure. Also note surrounding oak savanna hills.



Northbound on Latrobe Road, south of U.S. Highway 50 at El Dorado Hills Boulevard/Latrobe Road Interchange.
Note dense vegetation which surrounds the townhouses (at far left).



Vacant lot east of townhouses, looking southeast.
Note low profile of interchange and surrounding hills. Shadows in foreground are from perimeter vegetation around the townhouses.

Existing Sources of Light and Glare in the Project Vicinity

The U.S. Highway 50 and El Dorado Hills Boulevard-Latrobe Road interchange is illuminated by approximately 12 fixtures on single-cobra lighting standards. Connecting surface streets are similarly lit, particularly along El Dorado Hills Boulevard and the east leg of Saratoga Way. Many of the retail and fast food establishments are illuminated 24 hours a day. Roadway lighting is primarily of the downcast variety mounted on standards that are approximately 12.2 meters high (40 feet). Other light sources include back-lit, encased plastic signs. Glass and metal surfaces on buildings and the many vehicles traveling in the area contribute a moderate amount of glare.

Views of the Project Site from U.S. Highway 50 and Other Public Roads

The project site occupies the foreground of the viewsheds from the eastbound lanes on U.S. Highway 50, the northbound lane on Latrobe Road, and the southbound lane on El Dorado Hills Boulevard. The interchange can be seen for a longer distance on westbound U.S. Highway 50 because of the long grade that descends into the valley. Because the interchange is in the bowl of a valley, its visibility is enhanced even though adjacent hills slightly screen the interchange and reduce its prominence.

Views of and from this interchange are typical of those associated with a suburban highway corridor. From U.S. Highway 50, El Dorado Hills Boulevard, and Latrobe Road views of the project site lack vividness and are moderately unified and intact. Travelers along this corridor are balanced between recreationists (en route to destinations in the mountain areas around Lake Tahoe), who have relatively high aesthetic sensitivity, and commuters and freight drivers with lower aesthetic sensitivity. U.S. Highway 50 is not a designated scenic corridor in this segment (El Dorado County 1996b, California Department of Transportation 1996b).

Views of the Project Site from Residences in the Northwest Quadrant

Residences in the northwest quadrant of the interchange include townhouses and single-family homes, some of which are two-story homes. The existing interchange is largely obscured and is not readily visible from any of the residences in the northwest quadrant for the following reasons:

- the houses face streets on the north and west (away from the interchange, which is southeast);
- the highway is situated below the elevation of the residences and is at-grade (not elevated) while the connecting surface streets cross under the highway;
- the backyards of the single-family residences include privacy and security fencing with mature vegetation around the perimeter; and

- the townhouses face away from the project site and have parking areas (including structures for covered parking) and mature vegetation planted in dense hedgerows around the perimeter.

Where limited views of the interchange are available, the interchange appears relatively unobtrusive because of its low elevation and profile. From residential vantage points, the most dominant visible features of the interchange are the associated traffic signals, because of their relative height and the changing colors. These residential views have low vividness because of their commonality within the region and low to moderate intactness and unity. Views beyond the interchange consist of low, rolling foothills along the horizon to the southeast. Views of these undeveloped oak savanna hills are moderately vivid, intact, and unified.

Plans and Policies

El Dorado County General Plan Goals and Policies

The El Dorado County General Plan provides the policy and implementation framework to guide development throughout the county. The General Plan, adopted in 1996, includes goals, objectives, and policies specific to visual resources and community design, with an emphasis on maintaining natural landscape features and enhancing community identity. It further offers guidelines concerning scenic corridors, lighting, and signage. The El Dorado Hills Specific Plan further defines use of landscaping for visual/aesthetic control and recommends native and drought-tolerant species, including recommended species for streetscape planting (El Dorado County 1988).

State and Federal Plans

As discussed previously, no local or state officially designated or eligible scenic highways traverse the project vicinity. No other state or federal policies or regulations were identified that are relevant to the potential visual effects of the project.

ENVIRONMENTAL CONSEQUENCES

Methods

The following methods of data collection were used to evaluate the visual character of the proposed project site region, assess the quality and character of the project site's visual resources, and describe views of and from the project site:

- ground-level field reconnaissance, including day and night observation from adjacent residences, roadways, businesses, and the proposed project site;

- interpretation of U.S. Geological Survey (USGS) topographic maps and the proposed site plan; and
- interpretation of general site photographs.

Key Assumptions

Identification of impacts was based on the following key assumptions:

- Construction will be phased; the first phase will consist of realigning Saratoga Way and improving the on- and off-ramps, and the second phase will primarily consist of improving the U.S. Highway 50 mainline.
- Improvements to the U.S. Highway 50 mainline will include nighttime construction.
- Roadway lighting will be consistent with other recently improved nearby interchanges, such as Prairie City Road.
- Highway planting will consist of native trees, shrubs, and groundcover according to the El Dorado Hills Specific Plan. Use of an irrigation system and mulch will be consistent with the recently improved nearby interchange at Prairie City Road.
- Noise barriers will be located along the property line and will be 3.1-meter (10-foot) high and constructed of concrete masonry units or prefabricated panels (see Chapter 4, "Noise").

Impacts and Mitigation Measures

Impact 6.1: Short-Term Changes in Views of the Project Site from Construction Activities

Construction activities associated with implementation of the Preferred Alternative will likely occur in two phases. The initial phase would include the majority of the on- and off-ramp work and realignment of Saratoga Way, and the second phase would include replacement of the undercrossing structures for U.S. Highway 50. Construction activities during both phases would introduce a considerable amount of heavy equipment and associated vehicles, including cranes, dozers, graders, scrapers, and trucks into the viewshed of the public roadways and adjacent residences. Safety and directional signage would also be visible (See Impact 6.5 for a description of lighting impacts.)

Because substantial development is occurring in the vicinity of the El Dorado Hills Boulevard-Latrobe Road interchange and additional construction is proposed, the visible evidence of construction activities and equipment are not new or uncommon components of views of this area.

This is true for the U.S. Highway 50 corridor through eastern Sacramento and western El Dorado Counties, where many similar interchanges have been or soon will be upgraded and developed. Given the relatively low overall vividness, intactness, and unity of the interchange viewshed area and viewers' relative familiarity with construction equipment and activities, the presence of construction equipment and activity would not result in a substantial disruption of the viewshed.

Mitigation Measure: None proposed.

Construction activities associated with the realignment of Saratoga Way would intrude on the foreground viewshed of the adjacent townhouses and residences. Therefore, the implementation of the following mitigation measure is recommended to further reduce the magnitude of this impact.

Recommendation 6.1: Implement screening and limit work hours to reduce construction impacts on residences near Saratoga Way.

Although the impact on the local viewshed from construction activities is considered less than significant, the following measures are recommended to further reduce the magnitude of the impact:

- Construction staging areas for equipment, personal vehicle parking, and material storage should be a minimum of 154 meters (500 feet) from adjacent residences near Saratoga Way. Where possible, opportunities for screening staging areas with existing topography and vegetation should be maximized. If chain-link security fencing is placed around such areas, slats of an earth-tone or other neutral color should be used.

- Hours for construction for the realignment of Saratoga Way should be limited to weekdays from 7:00 a.m. to 5:00 p.m. to avoid visual disruption to adjacent residents during typical nonworking hours.

- See Mitigation Measure 6.5 for further recommendations to reduce construction impacts from the realignment of Saratoga Way.

Impact 6.2: Changes to Views of the Project Site from U.S. Highway 50 and Other Public Roads

Implementation of the project would introduce visual changes, such as a new loop-ramp in the northwest quadrant, an exposed cut-slope in the southwest quadrant, realignment of Saratoga Way, and increased lighting and highway plantings throughout the interchange. To mitigate noise impacts associated with interchange improvements, a noise barrier is proposed in the northwest quadrant along the right-of-way and residential rear-yard property lines. These elements are largely unobtrusive and are similar to and typical of the existing interchange facility and adjacent interchanges to the west. The sound barriers proposed for mitigation, as viewed from the roadways, would follow the same contour and have similar form to existing property fences and hedgerows. Mitigation Measure 4.5a includes measures to substantially reduce the visual impacts of the sound barriers. The cut-slope in the southwest quadrant would be similar to other adjacent roadway cuts

immediately to the east and west along U.S. Highway 50. The cut-slope is likely to be colonized by annual grasses and will be covered by exposed native rock similar to other rock outcrops in the area.

The use of native and drought-tolerant species, as recommended by the El Dorado Hills Specific Plan, for highway plantings and mulch on bare areas would likely enhance the visual quality of the project vicinity. Consistent with species and guidelines identified in the El Dorado Hills Specific Plan, highway plantings should be established to improve views from public roadways by blending disturbed areas with the existing landscape and contributing to a more naturalistic look (El Dorado County 1988). All plantings should be irrigated and professionally maintained, including regular pruning and replacement of dead plants. Bare areas should be mulched at a continuous depth of 2 inches or greater to give the site a more orderly appearance.

Overall, the resultant changes in the viewscape from U.S. Highway 50, El Dorado Hills Boulevard, and Latrobe Road would not be adverse. The new features introduced into the viewshed by the Preferred Alternative would not limit or alter the vividness, intactness or unity of existing views from these corridors.

Mitigation Measure: None proposed.

Recommendation 6.2: Establish highway plantings and mulch bare areas.

Impact 6.3: Changes to Views of the Project Site from Residences in the Northwest Quadrant

As part of the mitigation for sound impacts, sound barriers would be placed along the south or east property lines of residences located on Hills Court, Scenic Court, Kings Canyon Way, and the eastern leg of Platt Circle. Building orientation and height, existing fencing, parking structures, and mature landscape vegetation limit and largely obscure the southern and eastern views from these residences (toward the interchange). However, scattered and filtered views from at-grade locations and less-obscured views from second-story windows would be affected and may be completely blocked by the proposed sound barriers. The sound barriers could block or eliminate these moderately vivid, intact, and unified views of the hills visible in the background beyond the interchange.

Mitigation Measure 6.3: Provide Aesthetic Treatment to Sound Barriers That Are Visible from Private Residences

The following measures should be implemented to reduce the impact from sound barriers on views from private residences in the northwest quadrant:

- Earthen berms may be substituted for sound walls where sufficient right-of-way exists. The berms should be equal in height to the required sound wall, but setback from the property line to minimize the obtrusiveness of this feature in residential viewsheds. Earthen berms should be planted, irrigated, and maintained in a similar manner to the highway plantings and in accordance with the design guidelines outlined in the

El Dorado Hills Specific Plan to enhance the appearance of the berms (El Dorado County 1998). Earthen berms should be setback a minimum of 7.7 meters (25 feet) from the property line and have slopes no steeper than 3:1. The top of the berm should be rolled to alleviate abrupt edges. The berm should be vegetated and maintained with native and drought-tolerant shrubs and ground covers, and no foliage should extend more than 45 centimeters (18 inches) above the crest of the berm. Within 5 years of planting, the vegetation should provide a minimum of 33% cover of the portion of the berm visible from residences and 25% cover of the portion of the berm visible from public roadways. This measure may be implemented in place of a sound wall or in combination with a sound wall with reduced visible height (e.g., a 0.92 meter [3-foot] berm with a 2.1 meter [7-foot] barrier on top, planted and maintained as specified in Mitigation Measure 4.5a).

- As described under Mitigation Measure 4.5a, sound walls should be a uniform, neutral, earth-tone color, such as beige or taupe. The finish should be matte and roughened, such as split-face concrete block to minimize glare and reduce graffiti potential, and should be maintained in the same manner. A two-tone design with a darker color on approximately the bottom 1.8 meters (6 feet) of the barrier and a lighter color for the top 1.2 meters (4 feet) may reduce the sense of verticality of the barrier and may alleviate the appearance of a sheer, monotone wall.

- Residents should be permitted to paint, apply surfacing to, or landscape the side of the barrier facing their property following the resident's submission of a screening plan for approval by the County Department of Transportation. The County Department of Transportation should approve plans based on preserving the structural integrity of the barrier. Costs incurred by the resident for designing and implementing approved screening plans should be reimbursed by the County El Dorado up to $1,500 per dwelling unit as compensation for out-of-pocket expenses incurred by residents choosing to implement such screening plans.

Impact 6.4: Changes in Light and Glare

The number of luminares (light fixtures) that would be installed under the Preferred Alternative would approximately double the existing number. Luminares would be provided along on- and off-ramps, on the loop ramps, and integrated with traffic signals. Specific new locations for luminares would include the intersections of the realigned Saratoga Way with Arrowhead Drive and Mammouth Way. The type of fixtures would be similar to existing light fixtures (i.e., high-pressure sodium lamps mounted singly on standards from 10 to 12.2 meters high [approximately 27 to 33 feet high]).

Realignment of Saratoga Way would route traffic along the eastern boundary of the townhouses, an area which is presently unlit. Light from headlights would, therefore, increase in this area; however, it is expected that fugitive light from vehicle headlights would be generally blocked by the sound barrier. Many of the new luminares would be installed in the northwest quadrant of the interchange, adjacent to residences. The proposed noise barrier and existing dense vegetation would effectively reduce fugitive light at these residences. The specified cut-off type fixtures have an approximate illumination of 2 lux at 23 meters (75 feet), or equivalent to the recommended level

of light for a walkway in a residential area (California Department of Transportation 1995, Harris 1991). (For comparison, the recommended illumination for reading an outdoor bulletin board is 500 to 1,000 lux.) Given that the townhouses, associated parking areas, and most single-family residences have independent safety and security lighting and that the proposed sound barrier would shield residences from encroaching light, the level of illumination and resultant impact introduced by the new luminares would not substantially increase the level of light in this area.

The Preferred Alternative reduces the number of traffic signals on El Dorado Hills Boulevard from three to two. Further, the Preferred Alternative does not include construction of any features which would substantially increase daytime glare, such as highly reflective surfaces like smooth glass or metal, and average daily traffic would not substantially increase as a result of the project itself.

Mitigation Measure 6.4: None proposed.

Impact 6.5: Consistency with Adopted Plans and Policies Related to Visual Resources

The Preferred Alternative is generally consistent with applicable El Dorado County General Plan policies and guidelines set forth in the El Dorado Hills Specific Plan that pertain to visual resources and landscaping. However, the current plan proposes using 300-watt high-pressure sodium (HPS) light fixtures, which are expressly prohibited for exterior lighting in Appendix B, "Design Guidelines of the El Dorado Hills Specific Plan". The use of HPS light fixtures would be in conflict with this adopted policy (El Dorado County 1988).

Mitigation Measure 6.5: Replace High-Pressure Sodium Light Fixtures

High-pressure sodium light fixtures, prohibited by the Design Guidelines contained in the El Dorado Hills Specific Plan should be replaced with mercury vapor, metal halide, or other approved lamps. Lamp choice should be consistent with other fixtures used in the immediate area. Implementation of this mitigation measure will ensure that the Preferred Alternative is consistent with the applicable policies of the El Dorado Hills Specific Plan. (El Dorado County 1988.)

Implementation of the recommendations and mitigation measures proposed for other impacts will further ensure consistency with other existing plans, policies, and objectives through control of nighttime lighting during construction and the use of native and drought-tolerant plants as recommended by the El Dorado Hills Specific Plan. (El Dorado County 1988.)

SIGNIFICANCE CONCLUSION UNDER CEQA

Visual resources impacts are considered significant if a project has a "substantial, demonstrable negative aesthetic effect". Based on professional standards and practices, a project will normally be considered to have a significant impact if it would:

- conflict with adopted visual resource policies;
- substantially reduce the vividness, intactness, or unity of high-quality views; or
- introduce a substantial source of light and glare into the viewshed.

Table 3-1 identifies premitigation and postmitigation significance conclusions for visual resources impacts based on the above significance criteria.

Chapter 7. Traffic and Circulation

This chapter describes the transportation setting, impacts, and mitigation measures associated with the Preferred Alternative. The following section contains the environmental setting information, which describes the existing transportation conditions of the area including the roadway network, transit services and facilities, and pedestrian/bikeway facilities. Because physical changes to the environment that are caused by the project constitute an impact, the setting information provides a context for reviewers to consider the significance of potential transportation impacts. The last section of this chapter describes each significant impact and corresponding mitigation measure.

AFFECTED ENVIRONMENT

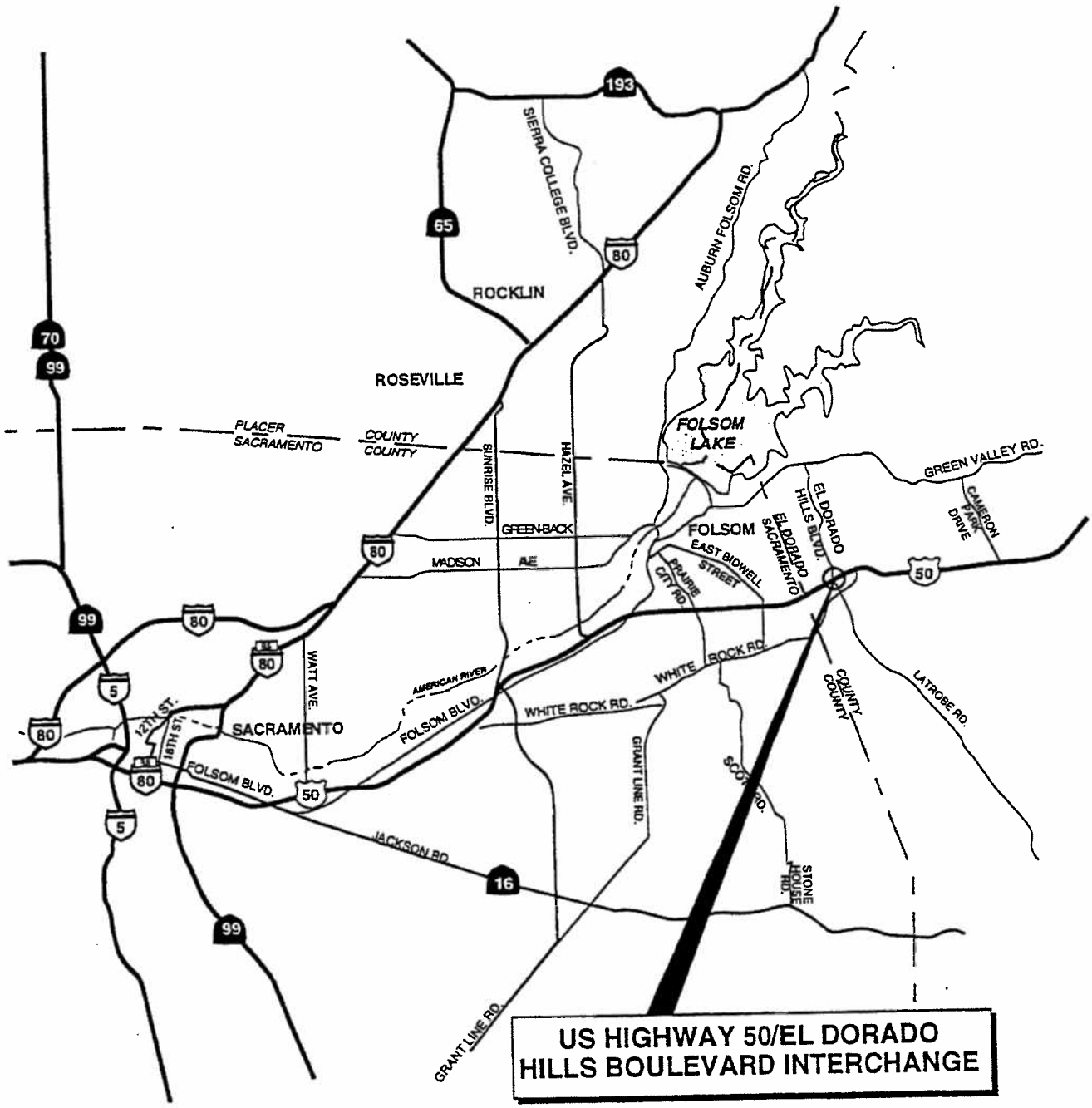
Automobiles are the primary travel mode for most trips in the study area, although the area is also accessible by bus transit and to a lesser degree by walking or bicycling. Recent travel survey data indicates that about 90% of all trips in western El Dorado County are made by automobile (Sacramento Area Council of Governments 1992).

Existing Roadway Network

The El Dorado Hills Boulevard/Latrobe Road interchange with U.S. Highway 50 provides access to the El Dorado Hills area in western El Dorado County (Figure 7-1). It is currently a partial cloverleaf configuration designed to serve moderate traffic volumes via single-lane ramps and a four-lane undercrossing of U.S. Highway 50.

U.S. Highway 50

This four-lane freeway is the primary transportation corridor in El Dorado County. It spans centrally through the county in an east-west direction, and it connects most of the urbanized communities in the county. Motorists traveling eastbound on U.S. Highway 50 toward the El Dorado Hills Boulevard/Latrobe Road interchange experience a 4% downhill grade for 0.5 kilometer followed by a 0.6% downhill grade for 1.6 kilometers before reaching the interchange. A 1.6% downhill grade exists east of the interchange for 0.3 kilometer prior to the Bass Lake Grade (6-7% uphill grade for more than 1.6 kilometers).



US HIGHWAY 50/EL DORADO HILLS BOULEVARD INTERCHANGE

FIGURE 7-1	PROJECT LOCATION	Fehr & Peers Associates, Inc. Transportation Consultants

El Dorado Hills Boulevard

This roadway is a major north-south arterial that connects U.S. Highway 50 and Green Valley Road within the El Dorado Hills area. It consists of two lanes in each direction between U.S. Highway 50 and Saratoga Way, three northbound lanes and two southbound lanes between Saratoga Way and Lassen Lane/Serrano Parkway, two lanes in each direction north to Saint Andrews/Governors Drive intersection, and a two-lane roadway that terminates at Green Valley Road.

Latrobe Road

This roadway extends south from the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange to State Route 16 in Amador County. It has two lanes in each direction between U.S. Highway 50 and White Rock Road and one lane in each direction south of White Rock Road.

Saratoga Way

This two-lane roadway extends west from El Dorado Hills Boulevard parallel to the west leg of U.S. Highway 50 for about 0.8 kilometer. It serves various residential developments north of U.S. Highway 50 (Park Village and Crescent Ridge). Saratoga Way is planned to extend west parallel to U.S. Highway 50 to the Iron Point Road extension in Folsom. The east leg of Saratoga Way serves as the main entrance to a large commercial area consisting of two gas stations, a supermarket, fast food establishments, and other businesses.

Methods

Critical Roadways and Intersections

The transportation and circulation impact analysis focuses on the traffic operations of three primary interchange components:

- **Freeway segments** - which include the mainline U.S. Highway 50 operations west and east of the El Dorado Hills Boulevard-Latrobe Road interchange,
- **Ramp junctions** - which include the junctions (the points at which the ramps enter or exit from U.S. Highway 50) for all ramps, and
- **Intersections** - which include the eastbound and westbound ramp terminal intersections and the intersections of Saratoga Way and Park Drive with El Dorado Hills Boulevard.

Traffic operations are also evaluated on the segments of El Dorado Hills Boulevard, Latrobe Road, and Saratoga Way in the vicinity of the interchange. In addition to the traffic analysis, impacts

of the proposed project on existing and planned transit service and bikeway and pedestrian facilities in the area are evaluated.

Operations Analysis

The specific analysis procedures utilized to evaluate intersections, ramp junctions, and mainline segments are based on the methodologies contained in the Highway Capacity Manual - Special Report 209 (Transportation Research Board 1994). Level of service (LOS) is a term that describes the operating performance of the roadway system. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 7-1 relates the operational characteristics associated with each LOS category for signalized and unsignalized intersections.

Table 7-1. Intersection LOS Thresholds

Level of Service	Description	Signalized Intersections - Average Stopped Delay (seconds per vehicle)	Unsignalized Intersections - Average Total Delay (seconds per vehicle)
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 5.0	≤ 5.0
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	5.1 - 15.0	5.1 - 10.0
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	15.1 - 25.0	10.1 - 20.0
D	Longer delays with unfavorable progression and high volume-to-capacity ratios.	25.1 - 40.0	20.1 - 30.0
E	Higher delays with poor progression and volume-to-capacity ratios approaching 1.0.	40.1 - 60.0	30.1 - 45.0
F	Represents forced or breakdown flow. Demand exceeds capacity.	> 60.0	> 45.0

Sources: Highway Capacity Manual - Special Report 209 (Transportation Research Board 1994), Fehr & Peers Associates 1998.

Table 7-2 shows the LOS density thresholds for ramp junctions and mainline segments.

Traffic signal warrants at unsignalized intersections were evaluated in accordance with Warrant 11 (urban peak-hour traffic volumes warrant) contained in Chapter 9 of the Traffic Manual (California Department of Transportation 1995).

Table 7-2. Ramp Junction and Freeway Mainline Segment LOS Thresholds

	Density (pcpmpl)	
Service Level	Ramp Junctions	Four-Lane Freeway[a]
LOS A	10	10
LOS B	28	16
LOS C	35	24
LOS D	> 35	32
LOS E	Demand flows exceed capacity	39.3[b]

Note: pcpmpl = passenger cars per mile per lane.

[a] Assumes a free-flow speed of 65 miles per hour.
[b] For six-lane freeways, a LOS E density threshold of 43.4 applies.

Source: Highway Capacity Manual - Special Report 209 (Transportation Research Board 1994).

Table 7-3 displays peak-hour volume LOS thresholds for the segment of Saratoga Way west of El Dorado Hills Boulevard.

Table 7-3. Peak-Hour Volume LOS Thresholds on Saratoga Way

	Peak-Hour Traffic Volume				
Roadway	LOS A	LOS B	LOS C	LOS D	LOS E
Saratoga Way - west of El Dorado Hills Boulevard	70	296	638	990	2,073

Source: El Dorado County 1996b.

Study Conditions

This chapter includes an analysis of the following study conditions:

- existing conditions,
- Interim (2005) Conditions with the No Project Alternative,
- Interim (2005) Conditions with the Preferred Alternative,
- Cumulative (2020) Conditions with the No Project Alternative, and
- Cumulative (2020) Conditions with the Preferred Alternative.

Acceptable Levels of Service

Based on Policy 3.5.1.1 of the El Dorado County General Plan, the acceptable level of service for county roadways and intersections is LOS C (because the 2015 Capital Improvement Program would result in LOS C or better operations on the study segments of El Dorado Hills Boulevard, Latrobe Road, and Saratoga Way). The Draft State Route 50 Transportation Concept Report, Caltrans District 3, approved on April 6, 1998 (California Department of Transportation 1998b) identifies LOS E as acceptable for the study segment of U.S. Highway 50.

Existing Conditions

Traffic Operations

Figure 7-2 displays the existing a.m. and p.m. peak-hour traffic volumes and lane configurations at the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange. Traffic counts were conducted in 1997 and 1998.

As shown, the Latrobe Road/U.S. Highway 50 eastbound ramps intersection consists of all-way stop control while the U.S. Highway 50 westbound ramps, Saratoga Way, and Park Drive intersections with El Dorado Hills Boulevard are signalized. Due to the close spacing between the westbound ramps and Saratoga Way (70 meters from centerline to centerline), these two signalized intersections operate as a single intersection with interconnected signal phasing.

Operations were evaluated on mainline U.S. Highway 50 on either side of the El Dorado Hills Boulevard-Latrobe Road interchange during the a.m. and p.m. peak hours. The results are summarized in Table 7-4.

As shown, the segment of U.S. Highway 50 west of the El Dorado Hills Boulevard-Latrobe Road interchange operates at LOS E in the westbound direction during the a.m. peak hour and LOS E in the eastbound direction during the p.m. peak hour. These results are consistent with the existing commute pattern in the area (westbound travel on U.S. Highway 50 in the morning and eastbound travel on U.S. Highway 50 in the evening).

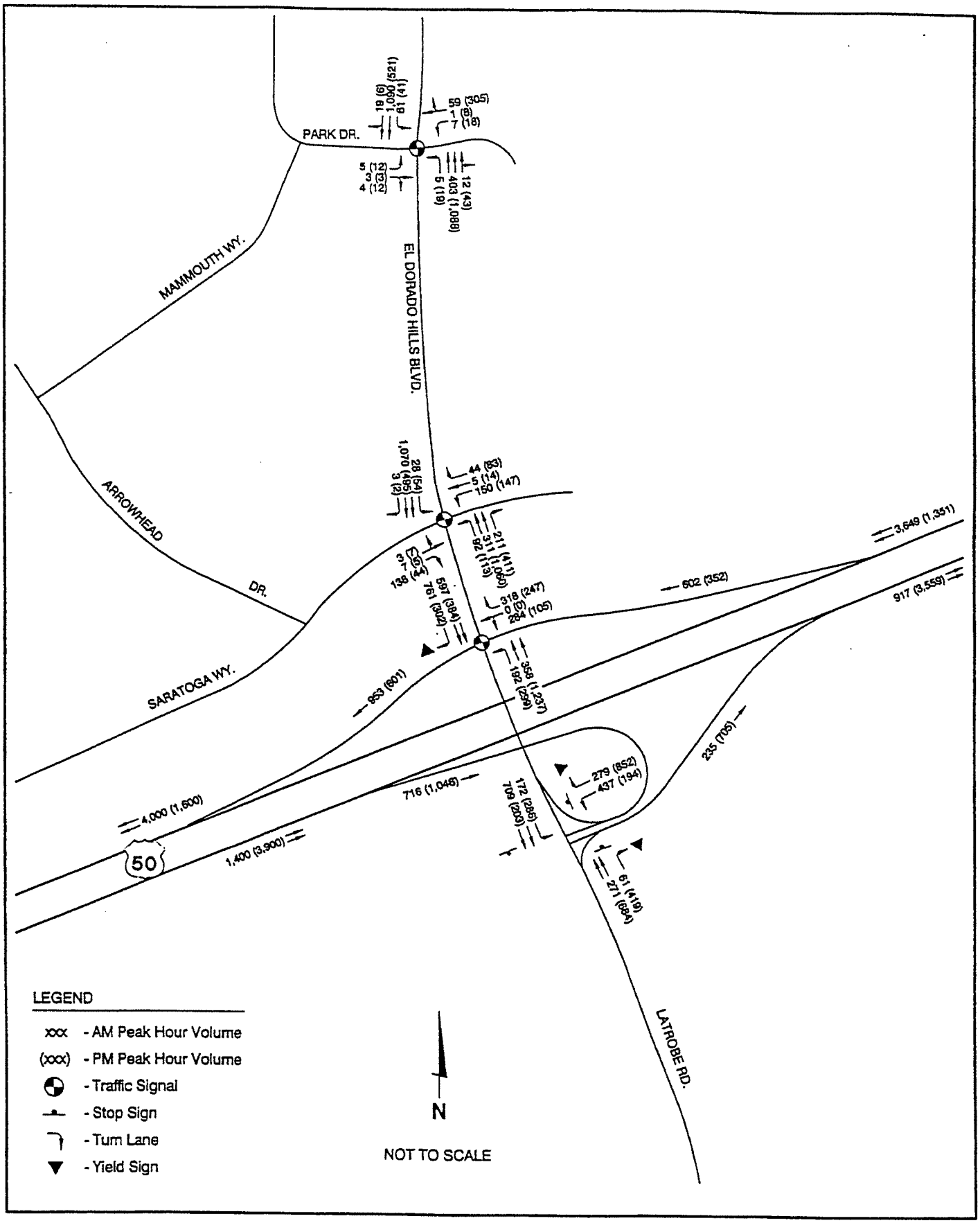


FIGURE 7-2	PEAK HOUR TRAFFIC VOLUMES - EXISTING CONDITIONS	Fehr & Peers Associates, Inc. Transportation Consultants

Table 7-4. Mainline U.S. Highway 50 Peak-Hour Levels of Service - Existing Conditions

Direction	A.M. Peak Hour		P.M. Peak Hour	
	Density (pcpmpl)	Level of Service	Density (pcpmpl)	Level of Service
Eastbound - west of interchange	11	B	32	E
Eastbound - east of interchange	7	A	28	D
Westbound - east of interchange	29	D	11	B
Westbound - west of interchange	33	E	12	B

Note: pcpmpl = passenger cars per mile per lane.

Operations were also evaluated at each of the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road ramp junctions during the a.m. and p.m. peak hours. The results are summarized in Table 7-5 and indicate that the westbound ramps operate at LOS E or F during the a.m. peak hour while the eastbound ramps operate at LOS D or E during the p.m. peak hour.

Table 7-5. Ramp Junction Peak-Hour Levels of Service - Existing Conditions

Direction	A.M. Peak Hour		P.M. Peak Hour	
	Density (pcpmpl)	Level of Service	Density (pcpmpl)	Level of Service
Eastbound Loop Off-Ramp	18	B	41	E
Eastbound Diagonal On-Ramp	12	B	35	D
Westbound Diagonal Off-Ramp	39	E	17	B
Westbound Diagonal On-Ramp	*	F	18	B

Notes: pcpmpl = passenger cars per mile per lane.

* = unstable flow, density cannot be computed.

Field observations indicate that substantial queuing currently occurs during the a.m. peak hour on westbound U.S. Highway 50 from the westbound diagonal on-ramp to beyond Bass Lake Road (i.e., 3.0+ kilometers). Extensive queues also exist on the diagonal on-ramp during this period as on-ramp traffic merges with mainline traffic. These queues extend back onto southbound El Dorado Hills Boulevard beyond the Lassen Lane intersection.

Table 7-6 summarizes the existing a.m. and p.m. peak-hour levels of service at each study intersection.

Table 7-6. Peak-Hour Intersection Operations - Existing Conditions

Intersection	Control	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (seconds per vehicle)	Level of Service	Average Delay (seconds per vehicle)	Level of Service
Latrobe Road/U.S. Highway 50 Eastbound Ramps	All-Way Stop	34	E	> 45	F
El Dorado Hills Blvd./U.S. Highway 50 Westbound Ramps[a]	Signalized	46.6	E	27.9	D
El Dorado Hills Blvd./Saratoga Way[a]	Signalized				
El Dorado Hills Blvd./Park Drive	Signalized	8.6	B	14.6	B

[a] Analyzed as a single intersection due to close spacing and interconnected signal phasing.

According to Table 7-6, the two ramp terminal intersections each operate at LOS D or worse during the a.m. and p.m. peak hours. The El Dorado Hills Boulevard/Park Drive intersection operates at LOS B during each peak hour. Field observations indicate that southbound traffic in the outside lane at the El Dorado Hills Boulevard/Saratoga Way intersection queues back beyond Park Drive during the a.m. peak hour. This is caused by the heavy volume of southbound traffic and the close proximity of Saratoga Way and the westbound ramps, which limits the amount of green time that can be allocated to southbound movements. Substantial queuing also occurs in the northbound direction at each ramp terminal intersection during the p.m. peak hour. Based on field observations, queues from the westbound ramp intersection spill back onto the eastbound loop off-ramp and are beginning to approach the mainline.

A traffic signal is currently warranted at the Latrobe Road/U.S. Highway 50 eastbound ramp intersection according to the peak-hour volume warrant criteria contained in the Traffic Manual (California Department of Transportation 1995).

Operations were also evaluated on Saratoga Way by comparing the existing peak-hour volume to the LOS volume thresholds shown in Table 7-3. The results are summarized in Table 7-7 and indicate that Saratoga Way currently operates at LOS B during each peak hour.

Table 7-7. Peak-Hour Levels of Service on County Roadways - Existing Conditions

Roadway Segment	Volume - Level of Service	
	A.M. Peak Hour	P.M. Peak Hour
Saratoga Way - west of El Dorado Hills Boulevard	248 - B	185 - B

Accident History

Table 7-8 shows a summary of traffic accident data compiled for the Traffic Accident Surveillance and Analysis System (TASAS) data provided by Caltrans for the 3-year period between 1995 and 1997.

Table 7-8. U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road Interchange Traffic Accident History, January 1995 to December 1997

Facility	Total Accidents	Total Fatalities	Actual Accident Rate	Average Accident Rate
U.S. Highway 50[a]	33	0	0.83 per MVM	0.62 per MVM
Eastbound Loop Off-Ramp	8	0	1.06 per MV	1.40 per MV
Eastbound Diagonal On-Ramp	6	0	0.93 per MV	0.80 per MV
Westbound Diagonal Off-Ramp	6	0	1.35 per MV	1.50 per MV
Westbound Diagonal On-Ramp	7	0	0.93 per MV	0.80 per MV

Notes: MVM = million vehicle miles.
MV= million vehicles.

[a] For 1.2-kilometer segment east and west of El Dorado Hills Boulevard/Latrobe Road interchange.

Source: California Department of Transportation 1998c.

Table 7-8 shows that a total of 33 accidents were reported during the 3-year period on the 1.2-kilometer segment of U.S. Highway 50 on either side of the interchange. The actual accident rate for this segment was greater than the average rate for similar facilities. The on-ramps and off-ramps experienced a total of 27 accidents during the three-year period. The actual accident rate was slightly greater than the average at each on-ramp and slightly less than expected at each off-ramp. No fatalities were reported on the mainline or at any of the ramps.

Transit System

El Dorado County's public transit system consists of fixed-route bus service, dial-a-ride bus service, and commuter bus service provided by the El Dorado County Transit Authority (EDCTA). Only the Downtown Sacramento Commuter Route currently operates in the vicinity of the interchange. It includes stops at two locations on El Dorado Hills Boulevard north of Serrano Parkway and a stop at the new multi-modal station located in the northeast quadrant of the Latrobe Road/White Rock Road intersection. This location also serves as a park-and-ride lot. Park-and-ride activities also currently occur on Saratoga Way directly west of El Dorado Hills Boulevard.

Bicycle/Pedestrian System

Field observations indicated the existence of several bicycle and pedestrian facilities in the vicinity of the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange. Sidewalks are provided on the east side of El Dorado Hills Boulevard from the undercrossing to beyond Park Drive. Crosswalks with pedestrian push buttons are provided at the El Dorado Hills Boulevard/ Saratoga Way and El Dorado Hills Boulevard/Park Drive intersections. Although not striped or signed as a bike lane, shoulders exist on either side of El Dorado Hills Boulevard north of Saratoga Way to accommodate bicyclists. Shoulders also exist on either side of Latrobe Road between the eastbound ramp intersection and White Rock Road.

Plans and Policies

The El Dorado County General Plan (1996a and 1996b) provides for long-range direction and policy for the use of land within El Dorado County. It provides a mechanism through which the County can focus on the issues of greatest local concern as well as a basis for rational decision making regarding long-term physical development. Key objectives and policies from the General Plan that are applicable to transportation and circulation issues for the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange are listed below.

Objective 3.1.2: Roadway Design Standards. Develop and enforce safe and efficient roadway design standards that consider the variety of terrain and environmental conditions throughout the County and minimize the degradation of environmental quality.

> **Policy 3.1.2.2**
> A separation of at least 500 feet shall be provided between the terminus of freeway off-ramps and the nearest future intersection.

Objective 3.3.1: Improvement of Interchanges. Improve interchanges along U.S. Highway 50 and the roadway system in the central urban corridor extending from the Sacramento/El Dorado County Line to Camino.

Objective 3.3.2: Minimize Traffic Impacts on the State Highway System. Development projects directly or cumulatively affecting State highways shall mitigate impacts, while recognizing LOS standards and expectations for the future funding for highway improvements.

Policy 3.3.2.1

El Dorado County recognizes that a substantial portion of the impacts to the State highway system is due to external influences and are not within the control of the County. U.S. Highway 50 is a major thoroughfare to the Lake Tahoe Basin and the State of Nevada, with the majority of trips being generated by the Bay Area and Metropolitan Sacramento residents. El Dorado County also realizes that major funding limitations exist within the State system. Legislative policy allows additional growth and development within the County notwithstanding the fact that until State or Federal money can be obtained to improve existing conditions caused by external influences, new growth and development in El Dorado County may exacerbate current congestion. Therefore, it shall be the policy of the County to:

A. Recognize the State highway system within the County as a part of the County's Regional Highway System (RHS).
B. Acknowledge that there is a long-term commitment to providing a safe and efficient highway system.
C. Encourage development in such a way as to minimize impacts to the RHS.
D. Encourage the partnership between El Dorado County, the State, and neighboring jurisdictions to solve State highway problems and funding limitations.
E. Commit local monies, when available, in the partial funding of critical State highway improvements. As a part of this commitment, the County shall continue to pursue the use of development fees from private development as a funding source.
F. Acknowledge that adverse impacts to the State highway system resulting from growth and development within the County will occur until adequate funding is made available and improvements made through projects identified in the adopted State Transportation Improvement Program.
G. Monitor State activities in responding to the needs of the State system within the County and actively pursue highway funding from State and Federal sources.

Objective 3.5.1: Level of Service. Maintain LOS "E" on all county roads. The annual Capital Improvement Program shall target those areas where LOS or safety standards are not being met.

Policy 3.5.1.1

The County shall adopt a roadway plan consistent with planned land use and shall maintain an operating Level of Service of "E" or better on all roadways, consistent with Objective 3.5.1. In addition, all road segments projected in the roadway plan at

the year 2015 to be operating at LOS A, B, or C shall not be allowed to fall below LOS C and all road segments at LOS D shall not fall below LOS D.

The following thresholds are applicable to the study locations based on Objective 3.5.1 (Policy 3.5.1.1 does not apply since the County has not adopted a roadway plan.)

- LOS E for Saratoga Way,
- LOS C for study intersections on Latrobe Road and El Dorado Hills Boulevard, and
- LOS E for U.S. Highway 50.

Policy 3.5.1.3
The County shall identify those roadways with existing or projected capacity problems, prioritize them in terms of mitigation immediacy, and develop programs for planning, financing, and constructing the needed improvements.

Policy 3.5.1.6
The County recognizes that Level of Service is a quantifiable factor which measures the volume of vehicles to the capacity of the roadway at a peak hour or peak period of traffic. The County recognizes that in developing its circulation system, it has to consider such factors as topographical constraints, right-of-way considerations, and other jurisdictions' plans for adjoining road systems. The County recognizes that in certain situations it is not in the County's overall interest to develop a circulation system which is designed for a peak hour or peak period of traffic. These situations may include, but are not limited to, circumstances where the need to promote overall economic development or the need to protect the County's rural atmosphere, which is enhanced by two-lane roads, may outweigh the need to provide a circulation system based upon a peak hour or peak period of traffic. The County therefore recognizes that under certain circumstances a Level of Service below that referenced in Policy 3.5.1.1 may be acceptable. The County makes the finding that the road segments listed below are acceptable at a lower Level of Service. While making this finding, the County will attempt to improve these road segments to a higher Level of Service by pursuing Goals 3.9 and 3.10 of the Circulation Element of the General Plan.

Policy 3.5.1.7
In order to ensure that Level of Service below that identified in Policy 3.5.1.1 occurs only during peak periods and not during more extended periods, the County will require project-specific traffic studies before granting discretionary approvals for projects that will add substantial amounts of traffic to the circulation system. This policy will apply even to projects that do not require General Plan amendments. If such traffic studies show that the projects in question will create, or significantly contribute to, non-peak period traffic congestion below the Level of Service specified in Policy 3.5.1.1, the County shall either condition such projects to eliminate any such impacts or will deny such projects until such time as the circulation system can

absorb the traffic from the project without suffering non-peak period traffic congestion below the Level of Service specified in Policy 3.5.1.1. Alternatively, the County may approve the projects in question if such projects contribute their fair share of money or land toward planned future transportation improvements that can feasibly be constructed within a reasonably foreseeable time frame and will result in the ultimate avoidance of non-peak period traffic congestion below the Level of Service specified in Policy 3.5.1.1.

Objective 3.9.1: Transportation Alternatives. Promote the development of strategies that increase the capacity of the highway system, reduce the level of demand placed on the system, or spread the period of peak demand.

Policy 3.9.1.1
Transportation alternatives that are cost-effective shall be strongly encouraged. A public transit system linking employment, shopping areas, and schools with residential areas should be encouraged.

Policy 3.9.1.5
Project review shall take into account all forms of transportation and circulation systems including rail, bicycle trails, pedestrian paths, equestrian easements, off-site, and on-site parking where appropriate.

Policy 3.9.1.6
Prior to or in conjunction with project review and approval and/or development of a commercial, industrial, or multifamily project within the Community Regions and Rural Centers, the developer shall cooperate with the County in providing for the construction of pedestrian and bicycle paths (separate or integrated) to allow unimpeded circulation within the entire property being developed.

Policy 3.9.1.7
Planned communities shall be designed to incorporate all of the measures under Goal 3.9 and provide for a greater mixture of land uses in closer proximity to better accommodate for alternative transportation modes.

Policy 3.9.2.3
New development shall be required to install bus turnouts, bus shelters, and other public transportation-related improvements where appropriate.

Objective 3.10.2: Regional Transportation Facilities. Develop, in cooperation with appropriate agencies and jurisdictions, regional facilities in a manner that will help to facilitate public transportation ridership and alleviate highway congestion, energy consumption, and air quality problems as determined by the El Dorado County California Clean Air Act Plan.

Policy 3.10.2.1
Identify and designate Park-N-Ride lots and major transfer stations planned by public transportation providers on the Regional Highway System (RHS).

Policy 3.10.2.2
When reviewing development proposals, ensure that sufficient land and facilities are provided for public transportation purposes.

Objective 3.11.3: Interagency Coordination. Promote coordination among the County, cities, and other agencies in providing an integrated bikeway, hiking, and equestrian system that provides linkages across jurisdictional boundaries.

Policy 3.11.3.3
All roadways should have shoulders to accommodate bicycle riders to the maximum extent practical.

ENVIRONMENTAL CONSEQUENCES

The transportation impact analysis was performed to determine the potential effect that implementation of the Preferred Alternative would have on the study area transportation system under interim (2005) and cumulative (2020) conditions.

Methods

Impacts of the project alternatives were assessed using the methods listed in the previous section. The following summarizes the process used for the development of the traffic forecasts and the assumptions regarding planned roadway improvements.

Traffic Forecasts

Traffic volume forecasts at the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange were originally developed for the Final Report - U.S. Highway 50 Interchange Planning Study (Fehr & Peers Associates 1995). The cumulative (2020) peak-hour traffic forecasts from this document were adjusted slightly to reflect the updated traffic count data collected in 1997 and 1998. These updated traffic forecasts are consistent with the forecasts developed for the 1996 El Dorado County General Plan (El Dorado County 1996b).

Interim (2005) traffic forecasts were developed by linearly interpolating between the existing traffic volumes and the cumulative traffic forecasts. Figures 7-3 and 7-4 display peak-hour traffic forecasts for the preferred interchange alternative under interim (2005) and cumulative (2020) conditions, respectively.

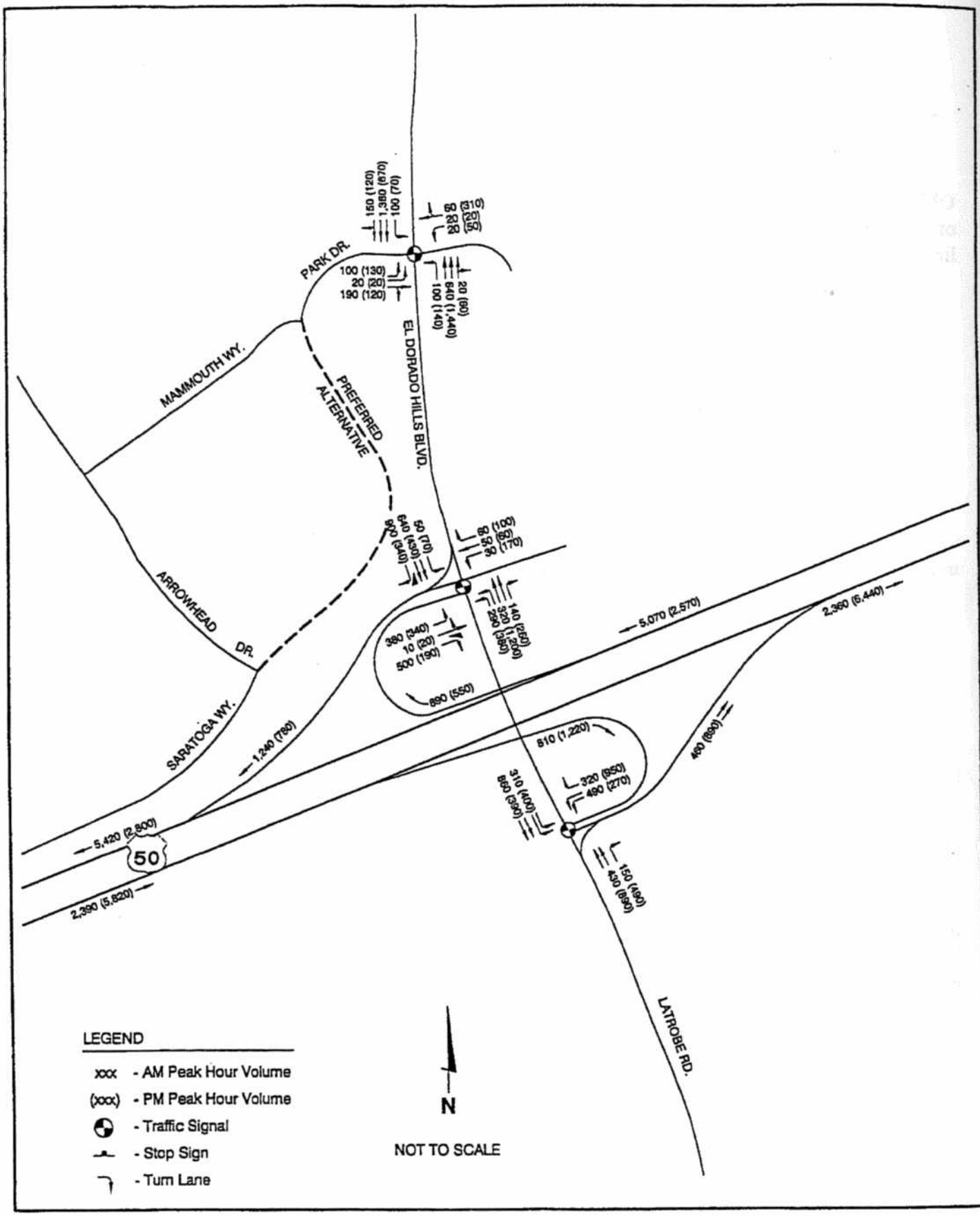


FIGURE 7-3	PEAK HOUR TRAFFIC VOLUMES UNDER INTERIM (2005) CONDITIONS WITH PREFERRED ALTERNATIVE	Fehr & Peers Associates, Inc. Transportation Consultants

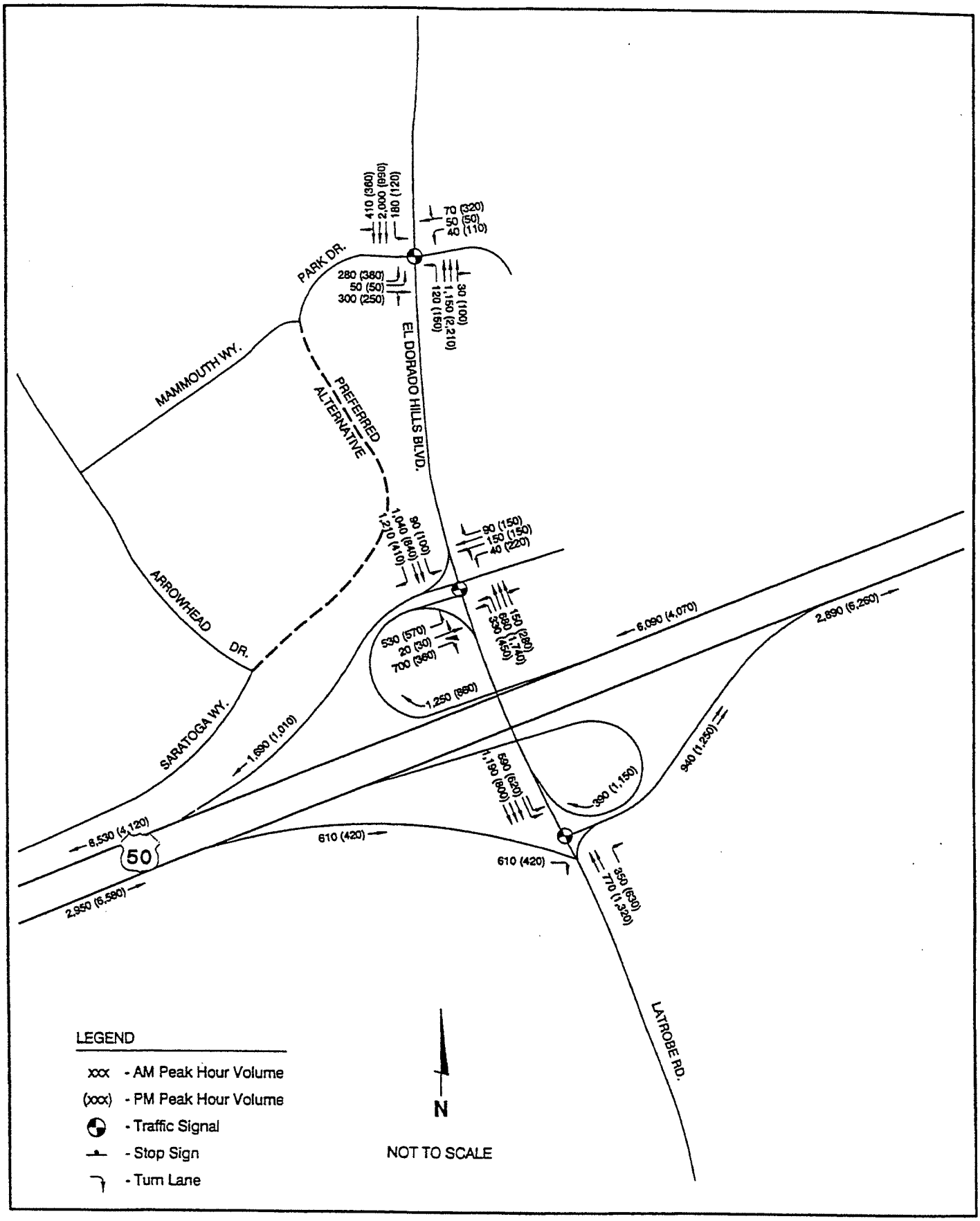


FIGURE 7-4	PEAK HOUR TRAFFIC VOLUMES UNDER CUMULATIVE (2020) CONDITIONS WITH PREFERRED ALTERNATIVE	Fehr & Peers Associates, Inc. Transportation Consultants

Planned Roadway Improvements

The following roadway improvements in the vicinity of the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange are included in the El Dorado County Five-Year Capital Improvement Program (CIP) dated January 6, 1998:

- Construct a high-occupancy vehicle (HOV) lane on U.S. Highway 50 in the eastbound direction from Sunrise Boulevard to El Dorado Hills Boulevard and in the westbound direction from El Dorado Hill Boulevard to Sunrise Boulevard.
- Construct a third southbound through lane on El Dorado Hills Boulevard from Serrano Parkway to the interchange.
- Widen White Rock Road to four lanes from Latrobe Road to the county line.
- Widen Latrobe Road and signalize Investment Boulevard and Golden Foothill Parkway (north) intersections.

These improvements were assumed in place for the interim (2005) conditions analysis. The following roadway improvements identified in the El Dorado County General Plan, in addition to those listed above, were assumed in place for the cumulative (2020) analysis:

- Widen U.S. Highway 50 to four lanes (three mixed-use lanes and one HOV lane) in each direction between South Shingle Springs Road and the Sacramento County line.
- Widen Latrobe Road to six lanes between the interchange and White Rock Road.
- Extend Saratoga Way west as a two-lane roadway to connect with the Iron Point Road extension in Folsom. The El Dorado County General Plan identifies Saratoga Way as a four-lane arterial. Only two lanes were assumed for consistency with the project description.
- Widen White Rock Road to six lanes from Latrobe Road to Silva Valley Parkway.
- Construct Silva Valley Parkway interchange with U.S. Highway 50 and extend Silva Valley Parkway south to White Rock Road and north to Village Green Parkway.

Impacts and Mitigation Measures: Interim (2005) Conditions

Traffic operations were evaluated at the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange under interim (2005) conditions for the Preferred Alternative and the No Project Alternative.

The Preferred Alternative would ultimately consist of a modified type L-8 partial cloverleaf configuration with loop off-ramps in the northwest and southeast quadrants and diagonal off- and on-ramps for eastbound U.S. Highway 50 traffic and a diagonal on-ramp for westbound U.S. Highway 50 traffic. It would include a six-lane undercrossing and signalized operations at both ramp terminal intersections in this ultimate condition. This alternative also includes the realignment of Saratoga Way with an S-curve alignment to intersect El Dorado Hills Boulevard at Park Drive. The relocation of Saratoga Way will allow for the consolidation of the east leg of Saratoga Way and the westbound ramps intersection with El Dorado Hills Boulevard.

As shown in Figure 7-3, the interim interchange configuration includes the relocation of Saratoga Way and the westbound diagonal on-ramp to accommodate the westbound loop off-ramp and additional turn lanes and signalization at each ramp terminal intersection. Also included is the reconstruction and widening of the eastbound loop off-ramp and the eastbound diagonal on-ramp, as well as the signalization of the eastbound ramps intersection with Latrobe Road. No widening or reconstruction of the mainline or eastbound off-ramp of the undercrossing structure is proposed under interim (2005) conditions. Widening of El Dorado Hills/Latrobe Road will take place beneath the existing structure.

Operations were evaluated on mainline U.S. Highway 50 in the vicinity of the El Dorado Hills Boulevard- Latrobe Road interchange during the a.m. and p.m. peak hours under interim (2005) conditions. The results, which are identical for both the No Project and Preferred Alternatives, are summarized in Table 7-9.

Table 7-9 indicates that LOS F operations are expected on westbound U.S. Highway 50 during the a.m. peak hour and eastbound U.S. Highway 50 during the p.m. peak hour on either side of the El Dorado Hills Boulevard-Latrobe Road interchange under either of the interchange alternatives.

Operations were also evaluated under interim (2005) conditions at each of the interchange ramp junctions during the a.m. and p.m. peak hours. The results are summarized in Table 7-10 for each alternative.

Similar to the mainline analysis results, LOS F operations are expected at the westbound off- and on-ramps during the a.m. peak hour and at the eastbound diagonal on-ramp during the p.m. peak hour. It should be noted that while the Preferred Alternative would add capacity to each ramp junction, operations are not improved over the No Project Alternative because of the extreme congestion on mainline U.S. Highway 50.

Table 7-9. Mainline U.S. Highway 50 Peak-Hour Levels of Service - Interim (2005) Conditions

Direction	A.M. Peak Hour		P.M. Peak Hour	
	Density (pcpmpl)	Level of Service	Density (pcpmpl)	Level of Service
Eastbound - west of interchange	16	C	*	F
Eastbound - east of interchange	18	C	*	F
Westbound - east of interchange	*	F	20	C
Westbound - west of interchange	*	F	22	C

Notes: pcpmpl = passenger cars per mile per lane.
* = Demand flow exceeds capacity.
These results apply to both the No Project and Preferred Alternatives.

Table 7-10. Ramp Junction Peak-Hour Levels of Service - Interim (2005) Conditions

Ramp	Level of Service			
	No Project Alternative		Preferred Alternative	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
Eastbound loop off-ramp [a]	Under capacity	Under capacity	Under capacity	Under capacity
Eastbound diagonal on-ramp	C	F	C	F
Westbound loop off-ramp	F	D	F	D
Westbound diagonal on-ramp	F	D	F	C

[a] The outside lane on eastbound U.S. Highway 50 drops at this ramp. Since the exiting volume is less than the practical capacity of 1,800 vehicles per hour, operations are under capacity according to Chapter 5 of the 1994 HCM.

Table 7-11 summarizes the a.m. and p.m. peak-hour levels of service at each study intersection under interim (2005) conditions for the Preferred Alternative and the No Project Alternative. This table shows that each ramp terminal intersection is expected to operate at LOS F during the a.m. and p.m. peak hours under the No Project Alternative. Implementation of the Preferred Alternative would improve operations at each ramp terminal intersection to LOS D or better.

Table 7-11. Peak-Hour Intersection Operations - Interim (2005) Conditions

Intersection	Control	A.M. (P.M.) Peak Hour			
		No Project Alternative		Preferred Alternative	
		Average Delay (seconds per vehicle)	Level of Service	Average Delay (seconds per vehicle)	Level of Service
Latrobe Road/U.S. Highway 50 eastbound ramps	Signalized	> 45 (> 45)	F (F)	21.1 (27.5)	C (D)
El Dorado Hills Boulevard/ U.S. Highway 50 westbound ramps	Signalized	> 60 (> 60)	F (F)	19.8 (18.7)	C (C)
El Dorado Hills Boulevard/ Park Drive	Signalized	13.2 (19.5)	B (C)	14.6 (21.3)	B (C)

Operations were also evaluated on Saratoga Way by comparing the projected peak-hour traffic volume for each alternative to the LOS volume thresholds shown in Table 7-3. The results are summarized in Table 7-12.

Table 7-12. Peak-Hour Levels of Service on Saratoga Way - Interim (2005) Conditions

Roadway Segment	Volume - Level of Service			
	No Project Alternative		Preferred Alternative	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
Saratoga Way - west of El Dorado Hills Boulevard	300 - C	230 - B	580 - C	550 - C

Note: The volumes projected for Saratoga Way are higher under the Preferred Alternative because they include the traffic on both existing Saratoga Way and existing Park Drive.

Table 7-12 shows that Saratoga Way is expected to operate at LOS C or better during each peak hour under interim conditions with either alternative.

Impact 7.1: Construction-Related Safety Concerns

During construction of the Preferred Alternative, motorists, bicyclists, and pedestrians may experience delays and be required to take alternative routes to their respective destinations. Construction-related detours would result in impacts on public safety and could increase conflicts between travel modes (e.g., vehicles, bicyclists, and pedestrians).

Mitigation Measure 7.1: Implement a Construction Traffic-Control Plan

Before construction of each phase of the Preferred Alternative, the County should prepare a construction traffic-control plan that provides for detour signing, routing, and access to adjacent land uses.

Impact 7.2: Elimination of Park-and-Ride Activities on Saratoga Way

Implementation of the Preferred Alternative would require the realignment of Saratoga Way, which would eliminate on-street parking on Saratoga Way for park-and-ride activities. These park-and-ride activities can be accommodated by the recently constructed park-and-ride lot at the Latrobe Road/White Rock Road intersection.

Mitigation Measure: None proposed.

Cumulative (2020) Conditions

Operations were evaluated on mainline U.S. Highway 50 in the vicinity of the El Dorado Hills Boulevard/-Latrobe Road interchange during the a.m. and p.m. peak hours under cumulative (2020) conditions. The results, which are identical for both the No Project and Preferred Alternatives, are summarized in Table 7-13.

Table 7-13. Mainline U.S. Highway 50 Peak-Hour Levels of Service - Cumulative (2020) Conditions

Direction	A.M. Peak Hour		P.M. Peak Hour	
	Density (pcpmpl)	Level of Service	Density (pcpmpl)	Level of Service
Eastbound - West of Interchange	13	B	30	D
Eastbound - East of Interchange	13	B	28	D
Westbound - East of Interchange	27	D	18	C
Westbound - West of Interchange	29	D	18	C

Notes: pcpmpl = passenger cars per mile per lane.
These results assume eight lanes on U.S. Highway 50 and apply to both the No Project and Preferred Alternatives.

Table 7-13 indicates that LOS D operations are expected on westbound U.S. Highway 50 during the a.m. peak hour and eastbound U.S. Highway 50 during the p.m. peak hour on either side of the El Dorado Hills Boulevard-Latrobe Road interchange with either of the interchange alternatives. This is an improvement of two service levels over interim (2005) conditions and is due to the planned widening of U.S. Highway 50 to include three mixed-use lanes and one HOV lane in each direction.

Operations were also evaluated under cumulative (2020) conditions at each interchange ramp junction during the a.m. and p.m. peak hours. The results are summarized in Table 7-14 for each alternative. This table shows that operations are projected at LOS E or worse during the a.m. peak hour at the westbound ramps and during the p.m. peak hour at the eastbound ramps with the No Project Alternative. Implementation of the Preferred Alternative would improve operations to LOS D or better at each ramp junction.

Table 7-14. Ramp Junction Peak-Hour Levels of Service - Cumulative (2020) Conditions

	Level of Service			
	No Project Alternative		Preferred Alternative	
Ramp	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
Eastbound off-ramp	C	E	A	C
Eastbound on-ramp	C	E	B	C
Westbound off-ramp	E	C	C	B
Westbound on-ramp	F	D	D	B

Table 7-15 summarizes the a.m. and p.m. peak-hour levels of service at each study intersection under cumulative (2020) conditions for each interchange alternative.

Table 7-15 shows that operations at each ramp terminal intersection are projected to be at LOS F during the a.m. and p.m. peak hours under the No Project Alternative. Implementation of the Preferred Alternative would improve operations at each ramp terminal intersection to LOS C or better. The extensive southbound queuing from the Saratoga Way intersection would cause traffic to back up through the El Dorado Hills Boulevard/Park Drive intersection, resulting in LOS F during the a.m. peak hour under the No Project Alternative. Operations at the El Dorado Hills Boulevard/Park Drive intersection are projected to improve to LOS D during each peak hour under the Preferred Alternative.

Table 7-15. Peak-Hour Intersection Operations - Cumulative (2020) Conditions

Intersection	Control	A.M. (P.M.) Peak Hour			
		No Project Alternative		Preferred Alternative	
		Average Delay (seconds per vehicle)	Level of Service	Average Delay (seconds per vehicle)	Level of Service
Latrobe Road/U.S. Highway 50 eastbound ramps	Signalized	> 60 (> 60)	F (F)	7.4 (6.1)	B (B)
El Dorado Hills Boulevard/ U.S. Highway 50 westbound ramps	Signalized	> 60 (> 60)	F (F)	23.1 (24.6)	C (C)
El Dorado Hills Boulevard/ Park Drive	Signalized	>60 (35.0)	F[a] (D)	35.7 (39.7)	D (D)

[a] LOS F operations caused by southbound traffic backing through the intersection from the Saratoga Way intersection.

Operations were also evaluated on Saratoga Way by comparing the cumulative peak-hour traffic volume for each alternative to the LOS volume thresholds shown in Table 7-3. The results are summarized in Table 7-16.

Table 7-16. Peak-Hour Levels of Service on Saratoga Way - Cumulative (2020) Conditions

Roadway Segment	Volume - Level of Service			
	No Project Alternative		Preferred Alternative	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
Saratoga Way - west of El Dorado Hills Boulevard	860 - D	880 - D	1,210 - E	1,240 - E

Table 7-16 shows that Saratoga Way is expected to operate at LOS E during each peak hour under cumulative conditions with the Preferred Alternative. Operations improve to LOS D during each peak hour with the No Project Alternative.

Impact 7.2: Elimination of Park-and-Ride Activities on Saratoga Way

Refer to the discussion of this impact under "Impacts and Mitigation Measures: Interim (2005) Conditions". This impact also applies to 2020 conditions.

Mitigation Measure: None proposed.

Impact 7.3: Acceptable Operations on Saratoga Way Under No Project and With Project Conditions in 2020

Implementation of the Preferred Alternative would result in LOS E operations on Saratoga Way in 2020. This level of service is consistent with County Objective 3.5.1.

It should be noted that the El Dorado County General Plan shows Saratoga Way extending west to the City of Folsom as a four-lane road. The proposed project will relocate Saratoga Way as a two-lane road. If and when the County Board of Supervisors decides as a future action, unrelated to this project, to widen Saratoga Way to four lanes, improved operations could be achieved under No Project and With Project conditions in 2020. If a specific proposal for widening and extending Saratoga Way is introduced in the future, such a proposal would undergo separate environmental review.

Mitigation Measure: None proposed.

SIGNIFICANCE CONCLUSIONS UNDER CEQA

For the purposes of the analysis, the criteria listed below were developed to determine the significance of identified impacts based on policies of the El Dorado County General Plan. An impact is considered significant if any of the following would occur:

- Project implementation changes the level of service on any component (mainline or ramp junctions) of the U.S. Highway 50 from acceptable levels (i.e., LOS A, B, C, D, or E) to unacceptable levels (i.e., LOS F).
- Project implementation changes the level of service on any intersection in the vicinity of the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange from acceptable levels (i.e., LOS A, B, or C) to unacceptable levels (i.e., LOS D, E, or F).
- Project implementation changes the level of service on Saratoga Way from acceptable levels (i.e., LOS A, B, C, D, or E) to unacceptable levels (i.e., LOS F).
- Project implementation disrupts existing or planned transit operations and facilities of the El Dorado County Transit Authority.

- Project implementation disrupts existing or planned bicycle or pedestrian facilities contained in the El Dorado County Bikeway Master Plan (El Dorado County 1979).

Table 3-1 identifies premitigation and postmitigation significance conclusions for traffic impacts based on the above significance criteria.

Chapter 8. Land Use and Socioeconomics

INTRODUCTION

This chapter describes the land use and socioeconomic environment and the potential impacts associated with the proposed reconstruction of the El Dorado Hills Boulevard/Latrobe Road interchange located on U.S. Highway 50. The land use and socioeconomic analysis was prepared in accordance with guidance contained in Caltrans' Environmental Handbook Volume 4: Community Impact Assessment (1997).

The analysis conducted to comply with Executive Order 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (1994) was prepared using the FHWA's Interim Guidance for Projects in the NEPA Process (1995) and the U.S. Department of Transportation's Final Environmental Justice Order (1997).

This chapter will address the following topics:

- land use issues,
- public service and utility issues,
- social and environmental justice issues, and
- economic issues (e.g., local business impacts).

Socioeconomic effects are described for the project area and the study area. The project area includes the properties within the right-of-way required for the proposed reconstruction of the interchange. The study area includes the project area and the surrounding neighborhoods encompassed by census tract 307.00. Construction of the proposed project would not result in the displacement of any existing businesses or residential structures; therefore, relocation issues are not discussed further in this analysis. The proposed project's effects on social issues relating to parking and circulation are more fully described in Chapter 7, "Traffic and Circulation", and growth inducement issues are more fully described in Chapter 14, "Cumulative Impacts", of this report.

AFFECTED ENVIRONMENT

Land Use Issues

The area around the intersection of El Dorado Hills Boulevard and U.S. Highway 50 is planned to be the future hub of economic development in El Dorado County. Existing land uses surrounding the project area are primarily residential, commercial, and recreational. This area includes golf courses, a fire station, schools, limited commercial, and several residential subdivisions north of the interchange. Residential areas in the northwest quadrant of the interchange include town homes located just west of El Dorado Hills Boulevard, in Park Village, and Crescent Ridge subdivisions. In the northeast quadrant of the interchange, there is a large commercial area (accessed directly via Saratoga Way), which attracts numerous trips from the east side of El Dorado Hills Boulevard between Park Drive and U.S. Highway 50. The commercial area consists of two gas stations, Raley's supermarket, fast-food establishments, and other business and commercial uses. South of the interchange, construction has begun on the planned commercial developments of Town Center East and Town Center West. The El Dorado Hills Business Park is located along the west side of Latrobe Road approximately 0.4 kilometer (about 0.25 mile) south of White Rock Road. Much of the land south of U.S. Highway 50 is currently undeveloped annual grassland, with scattered oak trees, but the area is planned for extensive commercial, industrial, and residential development.

Plans and Policies

El Dorado County General Plan

The Circulation Element of the 1996 El Dorado County General Plan sets forth the County's comprehensive strategy for planning, developing, and maintaining a countywide transportation system to serve existing and planned land uses in El Dorado County. The Regional Highway System (RHS) component of the Circulation Element outlines the following policies, goals, and objectives relevant to the proposed project (El Dorado County 1996a):

Goal 3.1: Regional Highway System: Provide a regional highway system which serves as the County-wide component of a balanced transportation system.

> **Objective 3.3.1: Coordination with Land Use Map:** Coordinate the Transportation System with the Land Use Plan to ensure that new development is efficiently, safely, and conveniently accessed. The Circulation Map adopted as a part of this element will show all existing and planned arterial and collector roads. The transportation system will be consistent with the Regional Highway System (RHS) and make the most efficient use of the County's existing highway system.
>
> > **Policy 3.1.1.1:** Roadway alignments and widths shall be consistent with the RHS. Standards for reservation of right-of-way, intersection spacing, design, and location

of other points of access from subdivisions and other development shall be included in the County Design and Improvements Standards Manual.

Objective 3.1.2: Roadway Design Standards: Develop and enforce safe and efficient roadway design standards that consider the variety of terrain and environmental conditions throughout the county and minimize the degradation of environmental quality.

Policy 3.1.2.1: The County shall adopt and enforce roadway design standards for use in planning and constructing new or improved roadways. These standards shall be included in the County Design and Improvements Standards Manual.

Policy 3.1.2.2: A separation of at least 500 feet shall be provided between the terminus of freeway off ramps and the nearest future intersection.

Goal 3.2: Land Use Compatibility: Provide a regional highway system which supports land use policies of the County and cities.

Objective 3.2.1: Concurrency: Ensure that safe and efficient transportation and circulation facilities are provided for concurrently with new development.

Goal 3.3: Safe and Efficient Highway System: Provide for safe, convenient, and efficient movement of people and goods through the regional highway system.

Objective 3.3.1: Improvement of Interchanges: Improve interchanges along U.S. Highway 50 and the roadway system in the central urban corridor extending from the Sacramento/El Dorado County Line to Camino.

Policy 3.3.1.1: The County will continue to lead a comprehensive study, with the City of Placerville and the State, to determine the most appropriate alignment and design of the State Route 49 and U.S. Highway 50. The preferred alternative should improve circulation efficiency and minimize adverse impacts on the environment, adjacent neighborhoods, downtown Placerville, and access to South Lake Tahoe.

Goal 3.4: Conform to Environmental Standards: Provide a regional highway system which conforms to applicable environmental quality standards to the extent possible.

Objective 3.4.1: Environmental Compatibility: Provide a regional highway system which, to the extent practical, is compatible with the physical environment, enhances the environmental quality, and conserves the natural resources of the county.

Policy 3.4.1.1: Circulation facilities should be sited and designed in such a way that avoids damage to the County's scenic and environmental resources to the extent feasible. Roads should be planned and designed to minimize disruption of soils, topography, vegetative cover, and wildlife habitat.

Goal 3.5: Acceptable Level of Service: Protect the public safety and welfare, reduce traffic congestion, ensure acceptable level of service (LOS), provide for the movement of people and goods, and conserve the functional integrity of the County-maintained system.

> **Objective 3.5.1: Level of Service:** Maintain LOS "E" on all County roads. The annual Capital Improvement Program shall target those areas where LOS or safety standards are not being met.
>
> > **Policy 3.5.1.1:** The County shall adopt a roadway plan consistent with planned land use and shall maintain an operating LOS of "E" or better on all roadways, consistent with Objective 3.5.1. In addition, all road segments projected in the roadway plan at the year 2015 to be operating at LOS A, B, or C shall not be allowed to fall below LOS C and all road segments at LOS D shall not fall below LOS D.

El Dorado Hills Specific Plan

The 1987 El Dorado Hills Specific Plan is designed to provide for the orderly and systematic development of the El Dorado Hills area in a manner consistent with the policies of El Dorado County and with the characteristics of the land. The General Plan incorporates the 1987 El Dorado Hills Specific Plan as its guideline for development of the western portion of El Dorado County. The 1987 El Dorado Hills Specific Plan includes improvement of the Latrobe Road Interchange in its description of timing for road improvements as necessary to accommodate the build out of western El Dorado County, including improvement of Latrobe Road, from the El Dorado Hills interchange to White Rock Road, to a four-lane, divided roadway concurrent with construction of the Silva Valley interchange (El Dorado County 1988).

Public Service and Utility Issues

Public services and utilities analyzed in this section include water supply, wastewater, solid waste, law enforcement, fire protection, and utilities (electricity, gas, and telephone). Information for this section is based on a visit to the project site (December 29, 1998) and information contained in a draft project study report prepared by HDR Engineering, Inc.

Water and Wastewater Facilities

The El Dorado Irrigation District (EID) provides both water and wastewater services to the El Dorado Hills area. EID's water supply is primarily surface water from several sources, including Sly Park Reservoir and Folsom Lake. El Dorado Hills' primary water supply is Sly Park Reservoir, with a contract from the U.S. Bureau of Reclamation for approximately 23,000 acre-feet per year (af/yr) (El Dorado County 1994). Current peak water demand for the El Dorado Hills area is approximately 10.6 million gallons per day (Bowen pers. comm.).

Wastewater service within the El Dorado Hills area is also maintained by the EID. Sewage is collected through a system of collector and trunk lines for treatment at the El Dorado Hills Wastewater Treatment Plant. The treatment plant is currently undergoing expansion activities and on completion will be capable of processing up to 3 million gallons of sewage daily (Roberts pers. comm.).

Water and wastewater infrastructure located within the proposed project area is described in Table 8-1 below. Existing infrastructure within the project area includes several underground water and sewer lines.

Table 8-1. Existing Utility Infrastructure Located within the Project Area

Utility	Location	Description
Telephone/Communication	South side of U.S. Highway 50, west of the interchange	Various aerial telephone lines
	Along Saratoga Way and north of the westbound ramps	Two underground cables and conduits
	Center of El Dorado Hills Boulevard/Latrobe Road	One fiber optics conduit
Electricity	West side of Latrobe Road from Saratoga Way to eastbound loop	One underground electrical cable
	Along Arrowhead Drive and Saratoga Way	One 3-inch underground electrical duct
	East and west of the interchange	Two overhead electrical transmission lines
Gas	Along Saratoga Way	One 4-inch underground gas line
	Center of El Dorado Hills Boulevard/Latrobe Road interchange	Two stacked gas mains (50 psi)
Sewer	Along El Dorado Hills Boulevard	One 6-inch underground line
Water	Saratoga Way west of Arrowhead Drive to El Dorado Hills Boulevard	One 21-inch and one 8-inch underground line
	Along Arrowhead Drive	One 10-inch underground line
	Along Park Drive and Mammouth Way	One 6-inch underground line

Source: Lopes pers. comm.

Utilities

Pacific Gas and Electric Company (PG&E) provides electrical service to the El Dorado Hills area and the surrounding county. Service is provided through an existing network of aboveground transmission lines and underground pipelines. Existing PG&E utility infrastructure located within the project area is described in Table 8-1.

Telephone service to the area is provided by Pacific Bell. Existing communication infrastructure found within the project area includes both overhead and underground telephone lines and underground fiber optics (Table 8-1).

Solid Waste

Solid waste pickup and disposal within El Dorado Hills is operated and managed by El Dorado Disposal Company, Inc. Presently, several mountain counties, including El Dorado County, transport waste to the state of Nevada (Johnston pers. comm.). Large-scale construction material is typically routed to several specialized handling locations, including the Keifer Landfill, which is located in Sacramento County. Recycling programs are currently in effect to comply with state law that requires each county to reduce its waste-to-landfill rate 50% by 2000.

Emergency Response

Law Enforcement. Law enforcement within the project area and vicinity is provided by the El Dorado County Sheriff's Department. In addition, traffic enforcement and accident investigations in the unincorporated county are provided by the California Highway Patrol. There is a formal mutual aid agreement in effect.

Fire Protection and Emergency Medical Response. Fire protection and emergency medical response services within the project area and vicinity are provided by the El Dorado Hills Fire District. Fire protection service is provided from two stations, which are staffed by 12 full-time fire fighters and 18 volunteers. The District's fire fighting equipment includes three engines, and the average response time ranges from 1 to 5 minutes (El Dorado County 1994). The El Dorado Hills Fire District provides service to the surrounding areas of the county through mutual and automatic aid response agreements.

Social and Environmental Justice Issues

This section examines community cohesion (social or demographic characteristics of the proposed project's study area). Detailed demographic information for the analysis was obtained from 1990 census data for the census tract that includes the project study area. Demographic information was obtained from 1990 census data for census tract 307, which is the census tract that includes the community of El Dorado Hills. The tract comprises an area bounded by the Amador County line to

the south, the Sacramento County line to the west, and the South Fork of the American River to the north. The eastern boundary begins at the point where the South Fork of the American River intersects with Salmon Falls Road. The boundary then continues south along several different roadways and a creek, including Bass Lake Road, Deer Creek, Southern Pacific Railroad Road, and Blue Canyon Road. The eastern boundary terminates at the point where Blue Canyon Road intersects with the Amador County line. Census information for the entire county is also presented for comparative purposes.

Population

The population of El Dorado Hills is currently estimated at 17,128 and accounts for 12% of the County's total 1998 population (Table 8-2). Population in El Dorado County grew fairly rapidly during the 1980-1990 period, with a growth rate of 47%. As shown in Table 8-2, growth rates slowed dramatically during the 1990-1997 period. However, the El Dorado Hills area grew fairly rapidly (62%) during the 1990-1997 period.

Table 8-2. Population Trends for El Dorado Hills and El Dorado County

Area	1980	1990	1998	Change (%) 1980-1990	Change (%) 1990-1997
El Dorado Hills	N/A	10,568	17,128	N/A	62
El Dorado County	85,812	125,995	147,605	47	17

Sources: Sacramento Area Council of Governments 1998, Information Publications 1995, California Department of Finance 1998.

Ethnicity

The project study area is considered somewhat ethnically diverse with minorities accounting for 7% of the population. People of Hispanic descent accounted for 4% of the total population, Asian/Pacific Islanders 2%, African Americans less than 1%, and American Indians accounted for less than 1% of the study area's total population. By comparison, 10% of the County's population is categorized as a minority population (Table 8-3).

A review of the 1990 census data indicated that people residing within the study area are as ethnically diverse as residents of the larger county area and that little difference in ethnic composition exists between the census tract that encompasses the project study area and other surrounding census tracts.

Table 8-3. County and Project Study Area Demographic Characteristics for 1990

Characteristic	El Dorado County	Census Tract 307.00
Population	125,995	10,160
White (%)	90	93
African American (%)	<1	<1
Hispanic (%)	7	4
American Indian (%)	1	<1
Asian/Pacific Islander (%)	2	2
Nonwhite (%)	10	7
Median income	$35,058	$57,558
Below the poverty level (%)	8	1

Source: U.S. Census Bureau 1990.

Income

In 1990, the median income for households in the study area was $57,558 (Table 8-3). By contrast, median household incomes for El Dorado County was only $35,058. Roughly 1% of the study area's total population (approximately 101 persons), live below the poverty level (Table 8-3).

Economic Issues

This section describes the existing economic and employment characteristics of the project and study area. Employment characteristics of the study area are based on 1990 census data. The regional employment study area is the Sacramento Metropolitan Statistical Area (MSA), as defined by the California Employment Development Department. This three-county MSA includes El Dorado County and is a geographic area identified by the U.S. Bureau of Economic Analysis as possessing extensive economic interactions and linkages.

Economic Characteristics

As more fully described above in the "Land Use" section of this chapter, the project area is primarily surrounded by residential, commercial, and recreational uses. In general, existing commercial development is concentrated in the northeast quadrant of the interchange, which attracts numerous trips from the east side of El Dorado Hills Boulevard between Park Drive and U.S. Highway 50 (Figure 8-1). The commercial area consists of two gas stations, a Raley's supermarket,

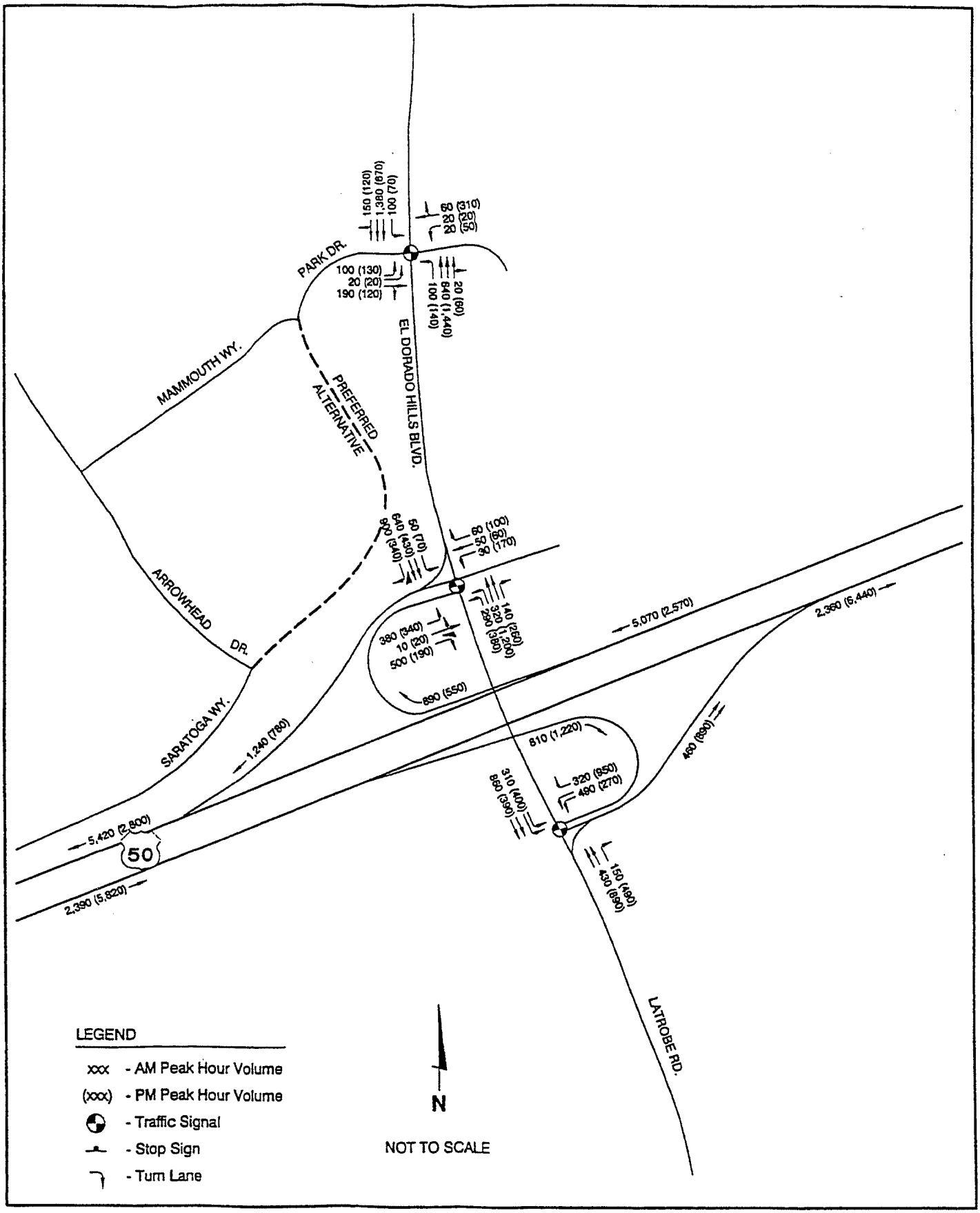


FIGURE 7-3	PEAK HOUR TRAFFIC VOLUMES UNDER INTERIM (2005) CONDITIONS WITH PREFERRED ALTERNATIVE	Fehr & Peers Associates, Inc. Transportation Consultants

Impact 7.1: Construction-Related Safety Concerns

During construction of the Preferred Alternative, motorists, bicyclists, and pedestrians may experience delays and be required to take alternative routes to their respective destinations. Construction-related detours would result in impacts on public safety and could increase conflicts between travel modes (e.g., vehicles, bicyclists, and pedestrians).

Mitigation Measure 7.1: Implement a Construction Traffic-Control Plan

Before construction of each phase of the Preferred Alternative, the County should prepare a construction traffic-control plan that provides for detour signing, routing, and access to adjacent land uses.

Impact 7.2: Elimination of Park-and-Ride Activities on Saratoga Way

Implementation of the Preferred Alternative would require the realignment of Saratoga Way, which would eliminate on-street parking on Saratoga Way for park-and-ride activities. These park-and-ride activities can be accommodated by the recently constructed park-and-ride lot at the Latrobe Road/White Rock Road intersection.

Mitigation Measure: None proposed.

Cumulative (2020) Conditions

Operations were evaluated on mainline U.S. Highway 50 in the vicinity of the El Dorado Hills Boulevard/-Latrobe Road interchange during the a.m. and p.m. peak hours under cumulative (2020) conditions. The results, which are identical for both the No Project and Preferred Alternatives, are summarized in Table 7-13.

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Asian/Pacific Islander (%)	2	2
Nonwhite (%)	10	7
Median income	$35,058	$57,558
Below the poverty level (%)	8	1

Source: U.S. Census Bureau 1990.

Income

In 1990, the median income for households in the study area was $57,558 (Table 8-3). By contrast, median household incomes for El Dorado County was only $35,058. Roughly 1% of the study area's total population (approximately 101 persons), live below the poverty level (Table 8-3).

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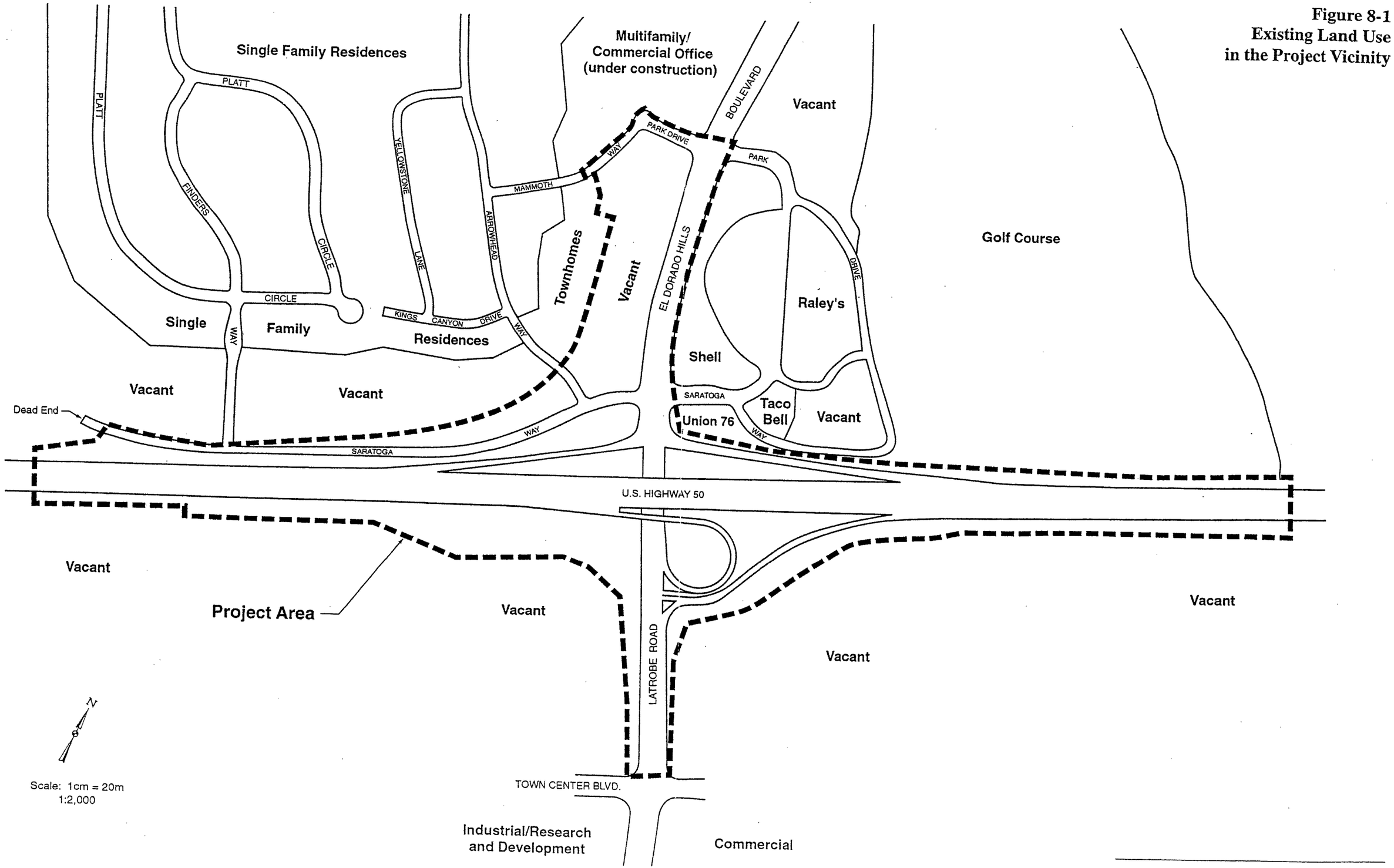


Figure 8-1
Existing Land Use
in the Project Vicinity

Jones & Stokes Associates, Inc.

fast-food establishments, and other business and commercial uses. Access to the larger commercial area is via Saratoga Way.

Employment Characteristics

In 1998, it was estimated that most of the employed residents in the project study area worked in services (29%), followed by retail trade (15%), and construction and government at 12% each (Table 8-4).

Similarly, employment for the Sacramento County MSA was concentrated primarily in services (employing 28% of the total jobs), followed by government (26%), and retail trade at 17% (Table 8-4).

Table 8-4. Employment by Industry for the Study Area and the Sacramento County MSA

Industrial Sector	Study Area (%)	Sacramento County MSA (%)
Agriculture	2	1
Mining	<1	<1
Construction	12	6
Manufacturing	11	7
Transportation and public utilities	6	4
Wholesale trade	5	4
Retail trade	15	17
Finance, insurance, and real estate	8	7
Services	29	28
Government/public administration	12	26
Total	100	100

Sources: U.S. Bureau of the Census 1990, California Employment Development Department 1998.

ENVIRONMENTAL CONSEQUENCES

Land Use Impacts and Mitigation Measures

Impact 8.1: Consistent with General Plan Designation or Zoning

Implementation of the Preferred Alternative would not conflict with general plan designation or zoning. The proposed project is the improvement of the existing El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50. Improvement of the interchange is proposed to enhance transportation and circulation service to the existing surrounding residential, commercial, and recreational land uses, which are consistent with County general plan designation or zoning. The Preferred Alternative would not require a land use or zoning change.

Mitigation Measure: None proposed.

Impact 8.2: Consistent with Applicable Environmental Plans or Policies Adopted by Agencies with Jurisdiction over the Project

Reconstruction of the El Dorado Hills Boulevard-Latrobe Road interchange on U.S. Highway 50 is included in the 1996 County of El Dorado General Plan within the overall framework of facilities and infrastructure planning for El Dorado County. The General Plan incorporates the 1987 El Dorado Hills Specific Plan as its guideline for development of the western portion of El Dorado County. The El Dorado Hills Specific Plan specifies the El Dorado Hills-Latrobe Road Interchange improvements as needed to accommodate the build out of western El Dorado County. The project is also included in the biennial 1994 Metropolitan Transportation Plan and will be constructed to be consistent with the project approved in the El Dorado County Regional Transportation Improvement Program/Federal Transportation Improvement Program. Therefore, implementation of the Preferred Alternative would not conflict with applicable environmental plans or polices adopted by agencies with jurisdiction over the project.

Mitigation Measure: None proposed.

Impact 8.3: Potential Incompatibility with Existing Land Uses in the Vicinity

Implementation of the Preferred Alternative would not be directly incompatible with existing land use in the vicinity. Interchange improvements would expand the current use of the site and are designed to improve traffic flow to surrounding commercial and residential land uses. Therefore, implementation of the Preferred Alternative would be compatible with and would improve access to existing land uses in the vicinity.

Mitigation Measure: None proposed.

Impact 8.4: Potential Effect on Agricultural Resources or Operations

Implementation of the Preferred Alternative would not affect agricultural resources or operations (e.g., impacts on soils or farmlands or impacts from incompatible land uses). The areas surrounding the proposed interchange improvement are primarily commercial and residential. Therefore, implementation of the Preferred Alternative would not affect agricultural operations.

Mitigation Measure: None proposed.

Public Service and Utility Impacts and Mitigation Measures

Impact 8.5: Alteration or Relocation to Existing Water and or Wastewater Utility Infrastructure

The project could potentially affect EID water and wastewater lines located within the project area (Table 8-1). However, this is not considered an adverse impact because, as part of project construction, relocation costs for any services or utilities would be funded. Relocation of potentially affected water supply infrastructure would occur before commencement of interchange improvements to accommodate the proposed project and preserve continuity of service. If services were stopped at any time, EID would provide users with advance notice of the date, time, and duration that service would be stopped. No adverse effects to water and or wastewater utility service will occur with implementation of the proposed project.

Mitigation Measure: None proposed.

Impact 8.6: Alteration or Relocation to Existing Communication, Electricity, and Natural Gas Utility Infrastructure

Project construction could potentially affect communication, electric, and natural gas infrastructure located throughout the project area (Table 8-1). However, this is not considered an adverse impact because relocation costs for any services or utilities would be funded and implemented as part of project construction. Relocation of potentially affected utility infrastructure would occur before commencement of interchange improvements to accommodate the proposed project and preserve continuity of service. If service were stopped at any time, PG&E, and Pacific Bell would provide users with advance notice of the date, time, and duration that service would be stopped. No adverse effects to communication, electricity, and natural gas service will occur with implementation of the proposed project.

Mitigation Measure: None required.

Impact 8.7: Increased Need for Landfill Space

Construction of the project would generate waste materials, including vegetation, asphalt, concrete, and other nonhazardous materials that could be deposited in a landfill. However, the project proponent would properly dispose of all construction waste at an appropriate landfill with adequate capacity.

Mitigation Measure: None required.

Impact 8.8: Interference with Emergency Response Activities

Construction-related activities would interfere with travel on El Dorado Hills Boulevard, Latrobe Road, Saratoga Way, Park Drive, Mammouth Way, and Arrowhead Drive. El Dorado Hills Boulevard and Latrobe Road are considered main access routes used by law enforcement, fire protection, and emergency medical response units. However, if construction prevented emergency response vehicles from gaining access to certain roads, the vehicles would generally use an alternate route. Typically construction plans and schedules are circulated to all emergency response providers before project implementation, and this is not considered an adverse effect on service providers or public safety.

Mitigation Measure: None required.

Social Impacts and Mitigation Measures

Impact 8.9: Potential Interference on Community Cohesion

Community cohesion is the degree to which residents have a sense of belonging to their neighborhoods, groups, and institutions, as a result of continued association over time (California Department of Transportation 1988). Freeway projects may affect community cohesion through construction activities, alteration of circulation patterns in a community, or creation of physical barriers that divide portions of a community.

Construction activities could temporarily affect the predominantly commercial neighborhood by generating dust and noise during construction periods. Additionally, lane closures could temporarily disrupt traffic patterns for commercial uses and commuters traveling to their residences. However, it is unlikely that these temporary effects would be of great enough magnitude to affect the long-term cohesiveness of this area.

Mitigation Measure: None required.

Impact 8.10: No Disproportionate Effect on Minority or Low-Income Populations

In keeping with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations (Federal Register, February 16, 1994, p. 7629) and Title VI of the Civil Rights Act, this section describes the relationship between the socioeconomic characteristics of area residents and neighborhoods and the potential impacts and benefits of the project. Executive Order 12898 requires federal agencies to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately higher adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Title VI of the Civil Rights Act provides that no person in the United States shall, on the ground of race, color, national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

A review of the 1990 census data indicated that the population residing in the study area is as ethnically diverse as the population of the larger county area. Additionally, there is no evidence to suggest that the project study area has a disproportionately high population of minority or low-income residents compared to other areas of the county. To the extent that the project would result in impacts on residences in the study area (such as noise, air quality, and traffic impacts), these impacts would be reduced to less-than-significant levels with implementation of the recommended mitigation. Therefore, no disproportionately high or adverse human health or environmental effects are anticipated to occur on any communities or populations (including minority or low-income populations) for any of the project's design options.

Mitigation Measure: None required.

Economic Impacts and Mitigation Measures

Impact 8.11: Temporary Business Impacts

Temporary changes in circulation patterns on city streets caused by interchange improvement activities would adversely affect specific businesses. Retail businesses that depend on pass-by traffic to generate much of their sales, such as gas stations, fast-food restaurants, and convenience markets, could suffer from reduced sales and gross income if pass-by traffic volumes fall for a substantial length of time. Reductions in sales could, in turn, cause temporary reductions in employment at affected businesses. Conversely, convenience-oriented businesses along streets receiving heavier use because of altered circulation patterns during the construction period could temporarily experience higher levels of sales.

Businesses in the project area that could be adversely affected by street or ramp closures include two gas stations located along El Dorado Hills Boulevard and Saratoga Way. As mentioned above, gas stations typically receive most of their total sales from pass-by traffic. Other businesses in the project area that benefit from their locations near the freeway interchange include the large commercial area that is directly accessed via Saratoga Way. The temporary rerouting of motorists

associated with the closure of these roadways could be mitigated by maintaining temporary access to the affected businesses at all times during construction.

Mitigation Measure 8.11: Implement Mitigation Measure 7.1. Mitigation Measure 7.1 in the traffic section of this EIR/EA is proposed to mitigate this impact. This mitigation measure would require preparation of a construction traffic-control plan that provides for access to adjacent land uses.

Impact 8.12: Increase in Temporary Employment Generated by the Proposed Project

Implementation of the proposed project would generate several temporary construction-related jobs and several additional indirect or secondary jobs. Local and regional job growth and the associated changes to the County's tax base through increased sales tax revenues are considered a beneficial effect.

Mitigation Measure: None required.

SIGNIFICANCE CONCLUSIONS UNDER CEQA

Thresholds of significance for land use and general plan consistency impacts were developed based on information contained in the State CEQA Guidelines and professional judgment. The project would be considered to have a significant impact on land use if it would:

- conflict with general plan designation or zoning,
- conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project,
- be incompatible with existing land use in the vicinity,
- affect agricultural resources or operations (e.g., impacts on soils or farmlands, or impacts from incompatible land uses), or
- disrupt or divide the physical arrangement of an established community (including a low-income or minority community).

Table 3-1 summarizes preconstruction and postconstruction levels of significance for land use and socioeconomics impacts based on the above significance criteria.

Chapter 9. Earth Resources

AFFECTED ENVIRONMENT

Existing Conditions

This section describes the existing geologic and soil conditions of the proposed project site.

Regional Geology and Seismicity

The project site is located in the west-central part of a northwest-trending belt of diverse metamorphic rocks that underlie the western slope of the Sierra Nevada. This belt extends from Mariposa on the south to Lake Almanor on the north, and the age of the included rocks ranges from Paleozoic in age on the east to Mesozoic on the west.

The rocks of the belt are structurally dominated by a series of northwest-trending fault systems. These fault systems separate the rocks of the belt into three principal lithologic terrains that extend throughout the length of the belt. From about the latitude of Placerville and northwest, these terrains are referred to as the eastern, central, and western tectonic blocks, respectively (Loyd 1984). Each of the blocks is composed of thick accumulations of marine sedimentary and volcanic rocks of various types. The blocks have been faulted, deformed, intruded, and metamorphosed on a regional scale. Features such as bedding, foliation, and principal structures generally trend northwest and dip steeply to the east.

The project site lies within the western block of the Sierra Nevada Metamorphic Belt. This portion of the block is underlain by the Copper Hill Volcanics, Salt Springs Slate, and Gopher Ridge Volcanics (all of about mid-mesozoic age) and older volcanic and associated rocks of the Bear Mountain Ophiolite Complex. Two major intrusive bodies, the Rocklin Granodiorite Plutonic and Pine Hill Layered Gabbro Complex, are also present within this portion of the block.

Some of the principal faults within the Sierra Nevada Metamorphic Belt are the northwest trending Calaveras-Shoo Fly thrust, the Melones system, and the Bear Mountain fault zone. The Bear Mountain fault zone passes through the project area. The eastern and southern boundaries of the Sierra Nevada ranges are seismically active, while the center and western margin, where the project is located, are experiencing low seismicity (Wheeldon and Associates 1987). There are no active (i.e., no movement has occurred within the last 10,000 years) faults through the project site nor are active faults present in the general area (Hart 1985). The last movement on the adjacent Bear Mountain fault zone is estimated to have occurred between about 125,000 and 195,000 years ago (Terra

Engineering Consultants 1983). These estimates were made on the basis of soil stratigr assessments of profiles exposed in trenches excavated well south of the project site.

Bedrock Geology and Structure

The area within which the project site is located is underlain by metamorphic volca that comprise a unit within the Foothill Melange, a chaotic intermixture of metasedime metavolcanics of varying lithologies and ages (Loyd 1984), and which in turn comprises a Bear Mountain Ophiolite Complex. Within the site the metavolcanic rocks are mostly u appearance. Where fresh rock is exposed, it is medium to dark greenish gray, mostl occasionally medium grained, mostly slightly to moderately jointed, well to faintly foliated to very hard. Where weathered, the rock is olive brown and medium to moderately hard

The geologic structure of the project site and surrounding area is complex and th long-term tectonic activity believed to be associated with broad-scale, ocean-floor, subdu accretion during the Paleozoic to Mesozoic period (Loyd 1984). The bedding structure c is uniformly northwest striking and steeply northeast to vertically dipping. The predominan of jointing is parallel to the bedding plane. The spacing between joints is mostly 1-3 fee with cross joints (at right angles to the bedding plane) occasionally present.

Surficial Geology and Soils

Surficial deposits within and peripheral to the project site consist of residual soils soils, stream deposits, and artificial fill.

Residual/colluvial soils predominate, and stream deposits are localized along existin ephemeral streams tributary to Carson Creek to the south. Artificial fill is localized a Highway 50 and consists of embankments placed at the time the highway was construc

Residual soils develop from the chemical/mechanical breakdown of bedrock on gently sloping areas, such as the wide, gentle ridgetops and hills that range north to sou the center of the site. Residual soils remain at the origin point of their development. Col develop through the same chemical and mechanical processes, but because of their p sideslopes, slowly creep downslope under the influence of gravity. Rates of creep are us slow, generally a fraction of an inch per year, and usually occur during the wet season wh weakest.

Stream deposits are composed of discontinuing to locally continuous n unconsolidated gravels, cobbles, sand, and silt that occupy the active channels of the strea through the project area.

Residual soils are generally less than 2 feet thick throughout the site. Colluvial s generally thin, but deeper accumulations occur in swale areas as previously described. L

accumulations may reach 5 feet or more. Stream channel deposits are mostly 2-3 feet in maximum thickness, but thicknesses approaching 5 or more feet may occur locally.

The U.S. Soil Conservation Service (SCS) and U.S. Forest Service (USFS) have prepared a soil survey of El Dorado County (U.S. Soil Conservation Service 1974), which shows that the project site and surrounding area are underlain by Auburn silt loam and by Auburn very rocky silt loam. The loams are similar and are typically well-drained, erodible under bare slope conditions, and underlain by hard metamorphic rocks at depths of between 12 to 26 inches. The surface of the soil is brown, about 3 inches thick, and consists of slightly acid silt loam. The subsoil is usually a reddish-yellowish, slightly acid silt loam. Field observations generally confirm the soil survey data, with the exception of locally greater soil thicknesses (colluvial deposits). Field observations show that the soils are buff to pale reddish brown, crumbly, very fine grained to slightly sandy, and slightly to occasionally very rocky silts or clayey silts.

Mineral Resources

The project site is located within the U.S. Geological Survey 15-minute Folsom quadrangle, which is the base map used by the California Division of Mines and Geology (Loyd 1984) to delineate and classify mineral resources of the area, including the project site. The resource evaluation encompasses a variety of metallic and nonmetallic minerals.

There are no known deposits of these minerals within or immediately adjacent to the site. For most of the minerals considered, the site is classified as Mineral Resource Zone-4 (MRZ-4), which is defined as including areas where geologic information does not rule out the presence or absence of such mineral deposits. The site is classified as MRZ-3a for copper, zinc, and lode gold, which indicates an area with regional geologic characteristics favorable for the presence of these types of mineral deposits.

No substantial mining development, current or historical, has occurred within the project area and no prospect pits are shown within the site (Loyd 1984). Additionally, field reconnaissance did not reveal the presence of any readily identifiable surface evidence of past mining or prospecting activity. However, the stream deposits along Carson Creek may have been worked for placer gold sometime in the past. The probability of finding commercially feasible mineral deposits within the project area appears to be low.

Geologic and Seismic Hazards

No geologic hazards were observed within the project area that could preclude or severely constrain the proposed development. While active faults are not known to exist in the region, ground shaking is possible during the useful life of the project, if distant faults should move. The maximum credible earthquake and maximum probable earthquake for the foothills region have been established at Magnitude 6.5 and Magnitude 5.0-5.5, respectively (Wheeldon and Associates 1987). Earthquakes of 5.0-5.5 magnitudes would cause accelerations of 0.2 times gravity (g) to 0.45 g at distances of up to 2 miles from a causative fault (Wheeldon and Associates 1987). These accelerations would

decrease with increasing distance between the causative fault and a site. Therefore, because the nearest active site is 50 miles away (Cleveland Hill fault near Lake Oroville), it is unlikely that any substantial affect would be seen at the site (Jennings 1994).

Bridge Structure Asbestos Evaluation

Bridge No. 25-0071 (Latrobe Road Undercrossing) also known as El Dorado Hill I.C. is on Route 50, P.M. 0.86 in the El Dorado County. This bridge is composed of three structures: left bridge, right bridge, and right outer structure. The left bridge is 47.5 m by 11.4 m. The right bridge is 47.5 m by 11.4 m. The right outer structure is 47.8 m by 6.7 m. These structures are scheduled for a total replacement.

Under National Emission Standards for Hazardous Air Pollutants (NESHAP), before demolition of any building structure (bridges are included) notification to the local APCD is required if the district is a delegated district, otherwise notification must be given to EPA, and California ARB. El Dorado County is not a delegated district; therefore, notification must be given to the EPA and California ARB for this project.

Prior to notification, the bridge was surveyed under NESHAP specifications and various samples were taken by Harry Sadeghi, a certified building inspector and management planner for asbestos. In addition, the plans and as-built were reviewed. The samples suspect for asbestos were tested by Precision Micro-Analysis, a certified laboratory in Sacramento, California.

The survey and plan review were negative for asbestos. The test results were also negative for asbestos. Despite the negative results, NESHAP requires notification to EPA and California ARB at least 10 days before demolition of these structures. Therefore, notification will be given accordingly by Harry Sadeghi, from Caltrans District 3, Office of Environmental Management.

Hazardous Waste Evaluation

Youngdahl & Associates completed an environmental site assessment for the project. The following tasks were performed for this assessment:

- a search of government records databases and Sanborn maps,
- a review of aerial photographs covering the project site,
- interviews with knowledgeable persons,
- a limited site reconnaissance of the project site and adjacent properties, and
- a limited review of site-related documents (see Appendix F for a copy of this assessment).

The conclusions of the assessment are that the project site has historically been a highway interchange and has not been used for any other purpose since its development. Before development as an interchange, the site appears to have been used as grazing land. No recognizable environmental conditions were observed on the project site during the site reconnaissance, and none were identified during the regulatory or historical research conducted for the project site. The surface water runoff originating from the various rights-of-way may, on occasion, contain quantities of hazardous materials; however, indications of a single, large release of a hazardous material were not observed. No further investigation into the past or current use of the project site is recommended based on the results of this assessment.

Underground Storage Tank Evaluation

The Unocal Gas Station located adjacent to the project area on the northeast corner of El Dorado Hills Boulevard and the east leg of Saratoga Way was reconstructed in 1989 and 1990. Three underground fuel storage tanks (USTs) were removed and two new tanks were installed. The contractor excavated to bedrock to remove and dispose of soil that had been contaminated by leaking fuel. Further follow-up sampling was required by the El Dorado County Environmental Management Department to confirm the adequacy of the work. Two core borings were drilled in March 1991 and soil samples revealed non-detectable levels of contamination. A June 13, 1991 letter to Unocal from the El Dorado County Environmental Management Department indicated that no further investigation would be required and that the investigation had been completed. (Payne pers. comm.)

This information indicates that there is little likelihood that project construction activities could inadvertently expose either the construction workers or nearby residents or business employees to contaminated soils during project construction, since project-related grading would not occur on the Unocal site where the USTs were removed, and the associated contamination has been successfully remediated.

Plans and Policies

The following local policies and ordinances are in place to protect people and property from geologic hazards.

Grading, Erosion, and Sediment Control Ordinance

The El Dorado County Grading, Erosion, and Sediment Control Ordinance regulates the grading within the unincorporated areas of the county to safeguard life, limb, health, property, and public welfare; to avoid pollution of water courses with nutrients, sediments or other earthen materials generated or caused by surface runoff on or across the permit area; and to ensure that the intended use of a graded site is consistent with the El Dorado County General Plan, any Specific Plans, and any applicable ordinances including the Zoning Ordinance and the Uniform Building Code (El Dorado County 1991). However, grading done by or under the supervision or construction

control of a public agency that assumes full responsibility for the work to the extent required by law is exempt from the ordinance (Section 15.14.060 B).

Asbestos Control

In April 1998, the El Dorado County Board of Supervisors adopted an interim ordinance to ensure that construction activities in the county are done in a manner that minimizes the release of asbestos fibers into the air. The ordinance requires builders in serpentine areas to:

- pre-wet work areas;
- limit vehicle access and speed;
- cover areas exposed to vehicle travel with non-asbestos material;
- maintain high moisture conditions or apply a "binder" to seal fibers of disturbed surfaces or stockpiles; and
- provide employee notification of potential exposures and risk.

The El Dorado County Board of Supervisors has directed the Director of Environmental Management to ensure compliance with this ordinance throughout the county.

In addition, if the presence of asbestos is suspected in a work area, the federal and California Occupational Safety and Health Administrations have regulations to protect workers. These regulations require air monitoring to determine whether asbestos concentrations exceed certain levels. If the levels are exceeded, steps to eliminate or mitigate the asbestos hazards are required.

In addition, the El Dorado County Air Pollution Control District implemented an existing California Air Resources Board (ARB) control measure, which became effective in 1991, that prohibits the use of serpentine material for surfacing applications if it contains more than 5% asbestos. This regulation also includes requirements that quarry operators test for the asbestos content of serpentine rock sold for surfacing purposes.

ENVIRONMENTAL CONSEQUENCES

Impacts and Mitigation Measures

Impact 9.1: Increased Short-Term Erosion Rates

Grading and excavation activities would disrupt normal soil conditions and remove vegetative cover. Soils in the plan area exhibit a moderate erosion potential that, when combined with ground-

disturbing activities during construction, could substantially increase the potential for wind and water erosion on graded areas and could increase the potential for sedimentation of local water courses.

The existing measures required by local, state, and federal programs to protect water quality (See Chapter 10, "Hydrology and Water Quality") provide adequate measures to prevent adverse effects on the environment. The project would cause minor disruptions, displacements, compaction, or overcovering of the soil that could increase wind or water erosion of soils on the site.

Mitigation Measure: None proposed.

Impact 9.2: Potential Exposure of People to Asbestos

As shown on Figure 9-1, several fault zones cross the project area that include varying amounts of serpentine rock, chrysotile asbestos, and tremolite asbestos. Asbestos disturbed by grading and vehicle traffic could affect construction workers and nearby residents. However, the project is required to comply with existing asbestos control measures adopted by the El Dorado County Board of Supervisors and the ARB, which are adequate to prevent adverse environmental effects.

Mitigation Measure: None proposed.

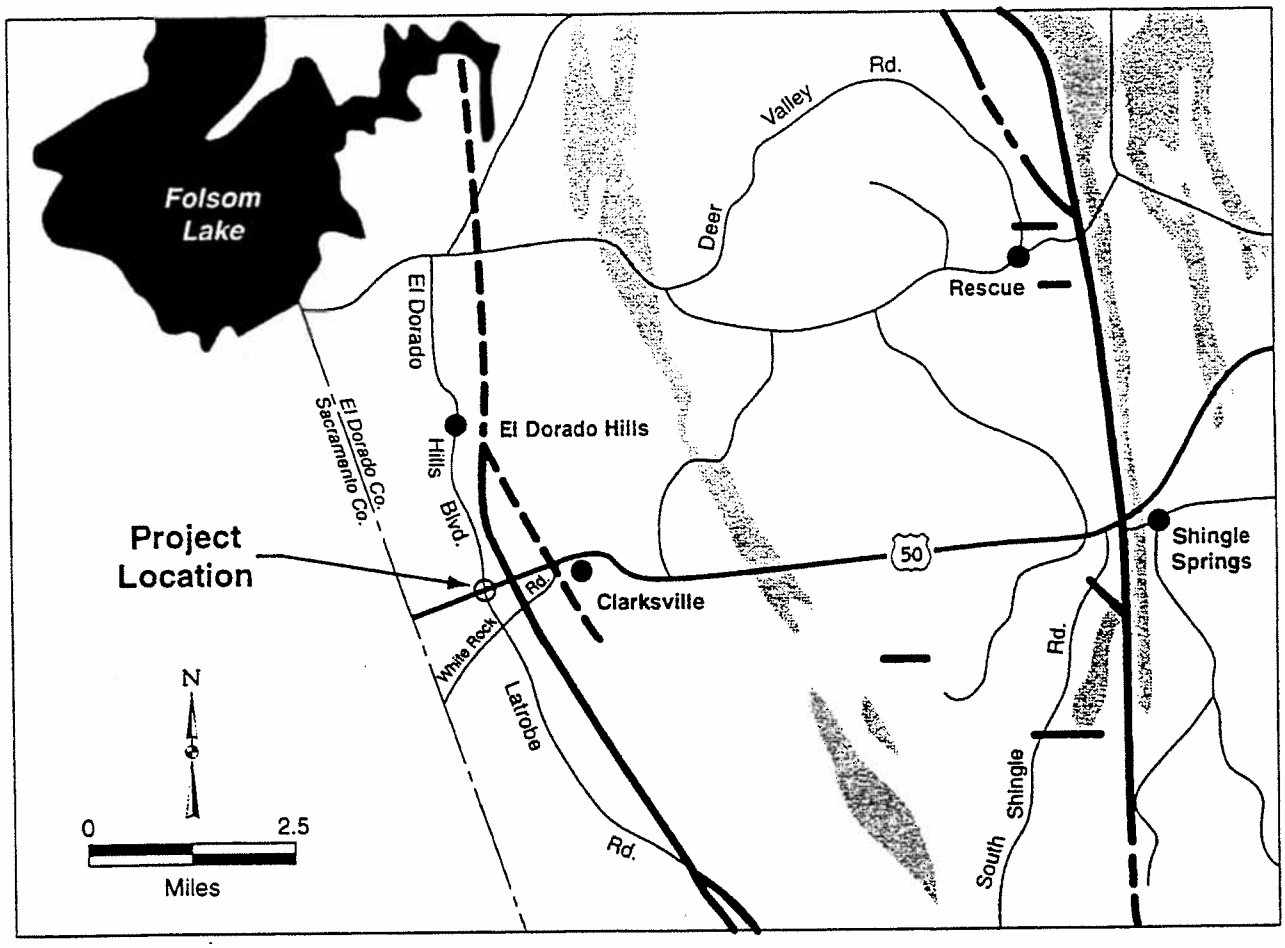
SIGNIFICANCE CONCLUSIONS UNDER CEQA

The following significance thresholds were developed from Appendices G and I of the State CEQA Guidelines and from professional practice. The project would result in a significant impact if it would:

- expose people, structures, or property to geologic hazards, such as earthquakes, landslides, mudslides, or other ground failures, or potentially hazardous materials, such as asbestos, radon, or lead or

- increase wind or water erosion of soils, either on or off the site.

Table 3-1 identifies premitigation and postmitigation significance conclusions for earth resources impacts based on the above significance criteria.



Legend

Ultramafic Rocks Areas containing serpentine rock and related rock types; chrysotile and tremolite asbestos may be present, particularly near faults.

Known Faults Zones of rock fracturing and displacement, from a few feet to a mile or more wide in some locations. Tremolite asbestos is most likely to occur where faults intersect ultramafic rocks and certain other types of rocks.

Inferred Faults Faults where the location or presence is less certain.

Note:
This map shows the general locations of the more significant ultramafic rock areas and faults where serpentine rock, chrysotile asbestos and tremolite asbestos may occur, not the presence or absence of asbestos at specific sites.

Source: California Division of Mines and Geology 1998.

Jones & Stokes Associates, Inc.

Figure 9-1
Locations of Ultramafic Rocks in the Project Area

Chapter 10. Hydrology and Water Quality

AFFECTED ENVIRONMENT

Existing Conditions

This section describes the existing hydrologic and water quality conditions of the proposed project site.

Climate

Summer temperatures in the project area are normally very warm with highs averaging approximately 95°F. Winter temperatures are cool to mild with average lows of approximately 36°F. Freezing temperatures occur every year, but snowfalls are infrequent. The growing season duration (number of days between last freezing temperature of spring to first freezing temperature of fall) is typically 250 days (U. S. Soil Conservation Service 1974).

The project area receives an average annual rainfall of approximately 25 inches. With the exception of light, scattered thundershowers in summer, precipitation is generally limited to winter, when strong flows of marine air generate moderate to heavy rainfalls (U. S. Soil Conservation Service 1974).

Surface Hydrology

Most of the rainfall in the area is quickly converted to runoff and rapidly drains from the area via swales and streams. Rainfall tends to run off the steep slopes quickly. Little resistance or detention of runoff is offered by the relatively thin ground cover. Soils with low permeability allow little of the small amount of precipitation retained on the surface to infiltrate before it is evaporated or lost to evapotranspiration by vegetation. As a result, flows in swales and ephemeral streams are generally of short duration, and little groundwater recharge occurs onsite.

The project area is partially covered by impermeable surfaces associated with U.S. Highway 50 and Latrobe Road/El Dorado Hills Boulevard. Latrobe Road/El Dorado Hills Boulevard consists roadway surface that is slightly elevated above the existing topography. Runoff from Latrobe Road/ El Dorado Hills Boulevard flows off the roadway surface and down the roadway embankment to the natural topography, in the form of sheet runoff unless this runoff is captured in a ditch or

similarly trapped adjacent to the roadway, the runoff continues to flow as sheet runoff toward one of the natural swales that drain the area; alternatively, it infiltrates the soil.

The four unnamed intermittent streams that flow through the project area drain the site and upstream watersheds. They eventually flow into Carson Creek south of the project site. Carson Creek is tributary to the Cosumnes River via Deer Creek. The most significant drainage in the project area, originating about 1 mile north of U.S. Highway 50, parallels the east side of El Dorado Hills Boulevard. Originally, the drainage continued south to Carson Creek; however, development of the Town Center project required rerouting of the drainage to the east along the north side of the westbound exit ramp of U.S. Highway 50.

Most of the runoff from cut sections (portions where the natural topography has been excavated to form the subgrade foundation of the roadway) of U.S. Highway 50 does not flow directly off the roadway surfaces. Instead, runoff is generally conveyed to the highway median or to gutters along the roadside for discharge via storm drains. If the median is permeable, some of the runoff infiltrates the highway foundation, but most of it flows to a storm drain during large storms. Because runoff is collected for disposal via storm drains, it accumulates into larger channelized flows before it is discharged to the surrounding topography. Runoff exiting the U.S. Highway 50 interchange area is collected in a swale that flows through the eastbound exit loop. This swale discharges to a natural channel south of the eastbound on-ramp to U.S. Highway 50.

Flooding

The Federal Emergency Management Agency's Flood Insurance Rate Maps (Community Panel No. 060040 0700 C) indicates that the project is not located within an identified 100-year floodplain. Runoff from the project area, however, contributes to potential flooding on Carson Creek to the south. Because the permeability of the natural ground surface is low, the impervious area of the roadway has little effect on runoff during major storms.

Groundwater Hydrology

Subsurface hydrologic conditions vary throughout the project area. When the streams are flowing, they recharge shallow groundwater in adjacent soils. During drier months, soil moisture drains back to the streams. Groundwater may become seasonally perched on bedrock during the winter and may later form seeps as it drains.

Subsurface water may be present as moisture retained in the soil, shallow or perched groundwater, or emerge from fractured or foliated subsurface bedrock. Much of the fractured bedrock layers underlying the area are water bearing.

Water Quality

Water quality data are not available for surface water in the project area. However, past grazing activities and now urban development have probably degraded the quality of the streams to less than pristine conditions. Consumption and trampling of vegetation by livestock increases erosion by diminishing the natural protection afforded by plant growth. Defecation in the streams by livestock and fecal matter that is washed into the streams during rainfall, serves as a nutrient source for microorganisms in the water. As the microorganisms metabolize the animal wastes, they can reduce or deplete dissolved oxygen concentrations and form excessive growths of algae and other plant life.

Runoff from paved surfaces, principally U.S. Highway 50, contains many different pollutants, most of which are associated with gas, oil, various constituents of exhaust, and other miscellaneous gases given off by automobiles. After the onsite runoff leaves the roadway, most of it is conveyed in the form of overland flow. As the runoff makes its way through the vegetation, a certain amount of biofiltration occurs, which removes some of the pollutants before they reach streams. Channelized flows from storm drains in cut sections of U.S. Highway 50 have much less opportunity to remove pollutants before they reach the stream. Runoff from roads and highways has a limited effect on stream water quality until rainfall reaches a volume sufficient to carry pollutants to the streams.

Plans and Policies

The following local, state, and federal ordinances and permit programs are in place to protect water resources and associated wildlife resources.

Grading, Erosion, and Sediment Control Ordinance

As described in Chapter 9, "Earth Resources", a grading permit is not required for grading done or supervised by a public agency.

National Pollutant Discharge Elimination System Stormwater Discharge Permit

In 1992, the State Water Resources Control Board (SWRCB) adopted a General Construction Storm Water Permit, which requires landowners to file a Notice of Intent (NOI) to discharge stormwater runoff to waters of the United States from land disturbances greater than 5 acres. The permit generally requires dischargers to eliminate non-stormwater discharges to stormwater systems, develop and implement a stormwater pollution prevention plan, and perform inspections of stormwater pollution prevention measures.

Streambed Alteration Agreement

A streambed alteration agreement (California Fish and Game Code, Section 1600 et seq. be required for any work within a creek or stream and its floodplain. Streambed alter agreements, commonly called Section 1601 permits, are administered by the California Depart of Fish and Game and may impose conditions to protect water quality during construction.

Section 404 Permit

Placement of clean fill materials into the waters of the United States is regulate Section 404 the federal Clean Water Act (CWA), which is administered by the Corps. Unde CWA, the Regional Water Quality Control Board must issue or waive Section 401 Water Q Certification, for the project to be permitted under Section 404. Water quality certification rec the evaluation of water quality considerations associated with dredging or placement of fill mat into waters of the United States.

ENVIRONMENTAL CONSEQUENCES

Impacts and Mitigation Measures

Impact 10.1: Degradation of Water Quality as a Result of Construction Activities

The severity of construction-related water quality impacts will be dependent upon soil e potential; construction practices; the frequency, magnitude, and duration of precipitation even proximity to stream channels.

Construction activities would expose disturbed and loosened soils to erosion from ra water, and wind. Soil erosion is the process by which soil particles are removed from the land s by wind, water, or gravity. Most natural erosion occurs at slow rates; however, the rate inc when the land is cleared or altered and left disturbed. Natural soil resistance to rainfall impact e is decreased by construction activities that remove the protective cover of vegetation. Sheet e occurs when slope length and runoff velocity increase on disturbed areas. As runoff accum rivulets form that cut grooves (rills) into the soil surface. If the flow is sufficient, these ril develop into gullies. Excessive stream and channel erosion may occur if runoff volumes an increase as a result of construction activities.

Sedimentation occurs when the velocity of water in which soils particles are suspe slowed sufficiently to allow particles to settle out. Larger particles, such as gravel and sanc out more rapidly than fine particles, such as silt and clay. Sediment is a pollutant in its own ri also transports many substances, such as nutrients, hydrocarbons, and metals.

Although sediment from erosion is the pollutant most frequently associated with construction activity, other pollutants of concern include toxic chemicals and miscellaneous wastes. A typical construction site uses many chemicals or compounds that can be hazardous to aquatic life, should they enter stream channels. Gasoline, oils, grease, solvents, lubricants, and other petroleum-based products are commonly used in construction activities. Many petroleum products contain a variety of toxic compounds and impurities and tend to form oily films on the water surface, altering oxygen diffusion rates. Concrete, soap, trash, and sanitary wastes are other common sources of potentially harmful materials.

Unregulated construction activities would have an adverse effect on the environment. However, measures required by the NPDES, Section 404, and Section 1601 permits (which are being acquired by the County for this project) provide adequate protection of water resources and associated habitats. Consequently this impact is considered less than significant. No mitigation is required.

Mitigation Measure: None proposed.

Impact 10.2: Degradation of Water Quality as a Result of Urban Pollutant Loadings

Urban stormwater is recognized as a major source of pollution that can adversely affect receiving waters. During dry periods, pollutants accumulate on the land surface. These pollutants include inorganic chemicals and minerals (metals, salts) and oil and grease from parking areas and roads. Many of these constituents are in particulate form or adsorbed onto solids (Akan 1993).

The accumulated pollutants are washed off surfaces and are conveyed directly to streams via storm drain infrastructure. A majority of urban pollutants is contained within the "first flush" flow, which is usually the first half-inch of runoff (Akan 1993). Small floodflows have a disproportionately higher concentration of pollutants than larger floods. These higher concentration pulses can occur several times a year (Whipple and Randell 1983).

This impact is considered adverse because accumulation of pollutants and sediments may adversely affect aquatic organisms, and other wildlife using streams. Implement Mitigation Measure 10.2 to reduce this impact to a less-than-significant level.

Mitigation Measure 10.2: Implement Best Management Practices to Control Urban Pollutants

Implementing the following mitigation measures would reduce impacts to less-than-significant levels by controlling urban pollutant loadings.

- The project proponent shall implement best management practices (BMPs) to reduce urban pollutant loadings. These measures may include using vegetative buffer strips, oil and grease traps, sediment traps, and street sweeping to treat runoff from road services before it is discharged to natural waterways.

- The project proponent shall implement a maintenance schedule to inspect structural BMPs and remove accumulated sediments.

Implementation of Mitigation Measure 10.2 would reduce this impact to a less-than-significant level.

SIGNIFICANCE CONCLUSIONS UNDER CEQA

The significance thresholds were based on the State CEQA Guidelines and professional practice. Alterations to the hydraulic characteristics of the water courses were considered significant adverse impacts if the alternative would result in any of the following:

- substantial reduction of floodflow conveyance capacities or
- increased extent or severity of flooding.

Adverse impacts on water quality were considered significant if the project would result in any the following:

- substantial degradation or contamination of a public water supply or
- any alteration of surface water quality, including but not limited to temperature, dissolved oxygen, or turbidity, that substantially diminishes the value of habitat for fish or wildlife.

Alterations to the hydraulic characteristics of the water courses were considered beneficial if the alterations decreased the extent or severity of flooding from existing or projected future conditions. Reducing or preventing the degradation of water quality is considered a beneficial impact.

Table 3-1 identifies premitigation and postmitigation significance conclusions for hydrology and water quality impacts based on the above significance criteria.

Chapter 11. Biological Resources

AFFECTED ENVIRONMENT

Information in this section is based on a review of pertinent literature, the project description, Jones & Stokes Associates' file information about the project area, and a reconnaissance site visit conducted on August 24, 1998. A wetland delineation has been conducted to determine whether the alternatives would be subject to regulation under Section 404 of the Clean Water Act.

Environmental Conditions

The U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road project site is in the transition area between the Sacramento Valley and the Sierra Nevada foothills. Most of the project area is highly modified and disturbed by previous road construction activities, residential development, and commercial development. Residential and commercial development north and south of the project site has modified and eliminated native plant communities and wildlife habitat in the area. Historically, the major land use of the area has been cattle grazing. Two plant communities occur in the study area: annual and ruderal grassland and drainage channels.

Annual and Ruderal Grassland

Annual and ruderal grassland habitat is locally and regionally common. Because of the previous construction activities and road building in the project area, the vegetation consists mostly of non-native ruderal plant species. Annual and ruderal grassland in the affected area is characterized by annual grasses and forbs mixed with a few native forbs. The grassland area consists of wild oats (*Avena fatua*), wild barley (*Hordeum murinum*), yellow starthistle (*Centaurea solstitialis*), and turkey mullein (*Eremocarpus setigerus*).

Wildlife species likely to occur in or near the right-of-way of U.S. Highway 50 are those tolerant of a high degree of human disturbance and are locally and regionally common species. The high level of human disturbance and patchy, fragmented nature of the vegetation makes the project area of very low value to wildlife. Typical wildlife species in the project area include mourning doves (*Zenaida macroura*), American crows (*Corvus brachyrhynchus*), Brewer's blackbirds (*Euphagus cyancephalus*), rock doves (*Columba livia*), western meadowlarks (*Sturnella neglecta*), house finches (*Carpodacus mexicanus*), California ground squirrels (*Spermophilus beecheyi*), and Botta's pocket gophers (*Thomomys bottae*).

Drainages

Four drainages occur in the study area: one roadside drainage in the northwestern q adjacent to the westbound on-ramp, one in the northeastern quadrant (east of Raley's Cente it loops west along the north edge of the westbound off-ramp), one through the middle of off-ramp in the southeast quadrant, and one south of the interchange along Latrobe Road, ne Center Boulevard. Each of these drainages are tributaries of Carson Creek, which is locate south of the freeway interchange. Each of the drainages support potential jurisdictional w

The drainage in the northwest quadrant of the interchange supports seasonal vegetation, mostly cattails (*Typha* sp.). A few scattered seedling Fremont's cottonwoods are in the drainage. This drainage is approximately 2-3 feet across.

East of the business complex in the northeastern quadrant, the drainage is several fee but it narrows down to a width of about 2-3 feet along the westbound off-ramp. The portic drainage along the north side of the westbound off-ramp consists of riparian scrub and e vegetation, including sandbar willow (*Salix sessilifolia*), Himalaya berry (*Rubus discol* cattails.

The drainage in the U.S. Highway 50 interchange is about 4 feet across and has no d streambed or banks. The portion of the drainage in the eastbound loop off-ramp supports e and riparian vegetation, including cattails, Fremont's cottonwoods, and an unidentified Approximately 20 young cottonwoods are present along the drainage; most of the tree diameter at breast height (dbh) of 20 inches or less.

The drainage along Latrobe Road also supports seasonal wetland vegetation.

All of the drainages in the interchange area have low wildlife value. The high level c disturbance (automobiles and pedestrians) and patchy, fragmented nature of the vegetation n wetland and riparian habitats of very low value to wildlife.

Special-Status Species

Special-status species are plants and animals that are legally protected under state an Endangered Species Acts or other regulations, and species that are considered sufficiently r scientific community to qualify for such listing. Special-status plants and animals are spec following categories:

- species listed or proposed for listing as threatened or endangered under th Endangered Species Act (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed and various notices in the Federal Register [proposed species]);

- species that are candidates for possible future listing as threatened or endange the federal Endangered Species Act (61 FR 40: 7596-7613, February 28, 199

- species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CCR 670.5);

- species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380);

- plants listed as rare or endangered under the California Native Plant Protection Act (Cal. Fish and Game Code, Section 1900 et seq.);

- plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (Lists 1B and 2 in Skinner and Pavlik 1994);

- plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in Skinner and Pavlik 1994), which may be included as special-status species on the basis of local significance or recent biological information;

- species listed as sensitive by the local U.S. Forest Service region (Forest Service Manual 2670) or U.S. Bureau of Land Management resource area;

- animal species of special concern to the California Department of Fish and Game (Remsen 1978 [birds], Williams 1986 [mammals], and Jennings and Hayes 1994 [amphibians and reptiles]); and

- animals fully protected in California (Cal. Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Special-Status Plants. Before the field survey, a list of special-status plant species with potential to occur in the study area was compiled based on a record search of California Department of Fish and Game's (DFG's) Natural Diversity Data Base (NDDB) (1998) for the project vicinity and on the Jones & Stokes Associates biologists's experience in the project area. This list is presented in Table 11-1. All the species listed in Table 11-1 occur in vernal pool and alkali wetland habitats or on gabbro formation substrates. These habitats do not occur at or adjacent to the project site; therefore, special-status plant species are not expected to be present on the project site.

Special-Status Wildlife. Before the field survey, a list of special-status wildlife species with potential to occur in the study area was compiled based on a record search of the NDDB (1998) for the project vicinity and on the Jones & Stokes Associates biologists's experience in the project area. This list is presented in Table 11-2. None of these species were observed at the project site or no suitable habitat is present; therefore, these species are not expected to be present on the project site.

Table 11-1. Special-Status Plants with Potential to Occur on the U.S. Highway 50/ El Dorado Boulevard-Latrobe Road Interchange Project Site

Species	Legal Status[a] Federal/State/CNPS	Habitats	Presence in Study Area
Bisbee Peak rushrose *Helianthemum suffrutescens*	SC/--/1B	Gabbro formation	No records; no suitable habitat (i.e., Gabbro formation); not likely to occur at the project site
Bogg's Lake hedge-hyssop *Gratiola heterosepala*	--/E/1B	Vernal pools	No records; no suitable habitat (i.e., vernal pools); not likely to occur at the project site
El Dorado bedstraw *Galium californicum*	E/R/1B	Gabbro formation	No records; no suitable habitat (i.e., Gabbro formation); not likely to occur at the project site
El Dorado County mule ears *Wyethia reticulata*	SC/--/1B	Gabbro formation	No records; no suitable habitat (Gabbro formation); the closest occurrence is approximately 5 miles east of the project site; not likely to occur at the project site
Greene's legenere *Legenee limosa*	SC/--/1B	Vernal pools	No records; no suitable habitat (i.e., vernal pools); not likely to occur at the project site
Greene's tuctoria *Tuctoria greenei*	E/E/1B	Vernal pools	No records; no suitable habitat (i.e., vernal pools); not likely to occur at the project site
Layne's butterweed *Senecio layneae*	T/R/1B	Gabbro formation	No records; no suitable habitat (Gabbro formation); the closest occurrence is approximately 3 miles east of the project site; not likely to occur at the project site
Pine Hill ceanothus *Ceanothus roderickii*	E/R/1B	Gabbro formation	No records; no suitable habitat (Gabbro formation); the nearest occurrence is approximately 6 miles east of the project site; not likely to occur at the project site
Pine Hill flannel bush *Fremontodendron decumbens*	E/R/1B	Gabbro formation	No records; no suitable habitat (Gabbro formation); the nearest occurrence is approximately 6 miles east of the project site; not likely to occur at the project site
Red Bluff rush *Juncus leiospermus*	SC/--/1B	Vernal pools	No records; no suitable habitat (i.e., vernal pools); not likely to occur at the project site

Table 11-1. Continued

Species	Legal Status[a] Federal/State/CNPS	Habitats	Presence in Study Area
Red Hills soaproot *Chlorogalum grandiflorum*	SC/--/1B	Gabbro formation	No records; no suitable habitat (i.e., Gabbro formation); the nearest occurrence is approximately 5 miles east of the project site; not likely to occur at the project site
Sacramento Orcutt grass *Orcuttia viscida*	E/E/1B	Vernal pools	No records; no suitable habitat (i.e., vernal pools); not likely to occur at the project site
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B	Vernal pools	No records; no suitable habitat (i.e., vernal pools); not likely to occur at the project site
Valley spearscale *Atriplex joaquiniana*	SC/--/1B	Alkaline soils	No records; no suitable habitat (i.e., alkaline soils); not expected to occur at the project site

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
T = listed as threatened under the federal Endangered Species Act.
-- = no listing.

State

E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
-- = no listing.

California Native Plant Society

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

Sources: Natural Diversity Data Base 1998.

Table 11-2. Special-Status Wildlife Species with Potential to Occur in
U.S. Highway 50/El Dorado Boulevard-Latrobe Road Interchange Project Site

Species	Legal Status[a] Federal/State	California Distribution	Habitats	Presence in Study Area
Vernal pool tadpole shrimp *Lepidurus packardi*	E/--	Central Valley	Vernal pools and other seasonal wetland pools	No records; no suitable habitat (i.e., vernal pool or suitable seasonal wetlands); not likely to occur at or adjacent to the project site
Vernal pool fairy shrimp *Branchinecta lynchi*	T/--	Central Valley	Vernal pools and other seasonal wetland pools	No records; no suitable habitat (i.e., vernal pool or suitable seasonal wetlands); the nearest occurrence is approximately 4 miles northeast of the project site; not likely to occur at or adjacent to the project site
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Central Valley and Sierra Nevada foothills	Elderberry shrubs	No records; no elderberry shrubs occur at or adjacent to the project site; does not occur at the project site
South forks ground beetle *Nebria darlingtoni*	SC/--	South Fork of American River	Mountain streams	No records; no suitable habitat; not likely to occur at or adjacent to the project site
Winter-run chinook salmon *Oncorhynchus tshawytscha*	E/E	Sacramento River and Delta	Creeks and rivers with gravels for spawning	No records; no suitable stream habitat; does not occur in the study area
Delta smelt *Hypomesus transpacificus*	T/T	Sacramento and San Joaquin River Delta and Suisun Marsh	Sloughs and rivers	No records; no suitable stream habitat; does not occur in the study area
Central Valley steelhead *Oncorhynchus mykiss*	T/--	Central Valley and Sacramento/San Joaquin River Delta	Perennial streams	No records; no suitable stream habitat; does not occur in the study area although it could occur in Deer Creek
Central Valley spring-run	PF/SSC	Klamath, Trinity, and [illegible] River	Creeks and rivers with gravels for spawning	No records; no suitable stream habitat; does not occur in the study area

Table 11-2. Continued

Species	Legal Status[a] Federal/State	California Distribution	Habitats	Presence in Study Area
Green sturgeon Acipenser medirostris	SC/SSC	Sacramento Valley (lowlands), Sacramento-San Joaquin River Delta, and north coast rivers	Rivers and large streams; require cold, clear water for spawning and rearing	No records; no suitable stream habitat; does not occur on the study area
Longfin smelt *Spirinchus thaleichthys*	SC/SSC	Coastal streams; San Francisco Bay; Sacramento River-San Joaquin River Delta; rarely found above Rio Vista	Estuaries	No records; outside of the species known range; does not occur in the study area

Species	Legal Status[a] Federal/State	California Distribution	Habitats	Presence in Study Area
California red-legged frog *Rana aurora draytoni*	T/SSC	Coast Ranges and Sierra Nevada (foothills and mid-elevation)	Streams and ponds with cover; usually breed in perennial streams and ponds, although they can breed in nearly perennial streams; breeding habitat usually includes marsh vegetation and overhanging riparian vegetation	No records in the project area; the nearest occurrence is at Weber Creek, near Placerville, over 9 miles east of the project site; the elevation of the project site is approximately 600 feet; most red-legged frog occurrences are above 1,000 feet in elevation in the Sierra Nevada; no suitable breeding habitat was found

Table 11-2. Continued

Species	Legal Status[a] Federal/State	California Distribution	Habitats	Presence in Study Area
Western pond turtle Clemmys marmorata	SC/SSC	Throughout California, except the higher elevations of the Sierra Nevada	Streams, sloughs, and ponds with adjacent grasslands, savannas, and woodlands	No records; no suitable streams or ponds at the project site; not likely to occur at the project site
Great blue heron *Ardea herodias*	--/--	Throughout California	Colonial nest in tall trees and cliffs; forages along rivers, lakes, marshes, pastures, and fields	Nests approximately 4 miles northwest of project site; no suitable nesting sites or foraging areas at project site; not likely to occur at project site
Great egret *Ardea alba*	--/--	Throughout California	Colonial nest in tall trees and cliffs; forages along rivers, lakes, marshes, pastures, and fields	Nests approximately 4 miles northwest of project site; no suitable nesting sites or foraging areas at project site; not likely to occur at project site
Aleutian Canada goose *Branta canadensis leucopareia*	T/--	The entire population winters in Butte Sink, then moves to Los Banos, Modesto, the Delta, and East Bay reservoirs; stages near Crescent City during spring before migrating to breeding grounds	Roosts in large marshes, flooded fields, stock ponds, and reservoirs; forages in pastures, meadows, and harvested grainfields; corn is especially preferred	No records; no suitable roosting or foraging habitat; not likely to occur at or near the project site
Bald eagle *Haliaeetus leucocephalus*	T/E	Nests in the mountains and coastal areas; winters in mountains and valleys	Nests near rivers and large lakes; forages along lakes, rivers, and wetlands	Winters at Bass Lake, approximately 3 miles east of the project site; no suitable habitat at the project site; does not occur at the project site
Swainson's hawk *Buteo swainsoni*	--/T	Central Valley and Klamath Basin	Valley grasslands and agricultural fields	No records; Swainson's hawks generally nest in the lowlands west of the project site; no suitable nesting sites; marginal foraging habitat; not likely to occur at the project site
White-tailed kite *Elanus leucurus*	--/SSC	Throughout lowland California	Valley and foothill grasslands and wetlands	No records; no suitable nest sites; marginal foraging habitat; not likely to occur at the project site

Species	Legal Status[a] Federal/State	California Distribution	Habitats	Presence in Study Area
American peregrine falcon *Falco peregrinus anatum*	E/E	Permanent resident on the north and south Coast Ranges; may summer on the Cascade and Klamath Ranges south through the Sierra Nevada to Madera County; winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species	No records; no suitable nesting habitat in the region; could occur as a uncommon visitor during migration or during winter
Mountain plover *Charadrius montanus*	PT/SSC	Does not breed in California; in winter, found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties	Occupies open plains or rolling hills with short grasses or very sparse vegetation; nearby bodies of water are not needed; in the Central Valley it uses newly plowed or sprouting grainfields	No records or known traditional foraging areas; annual grasslands in the project are potential foraging habitat, but the human disturbance in the study area would discourage plovers from occurring in the area; most mountain plovers in the Sacramento region tend to occur in the lowlands; not likely to occur in the study area
Western burrowing owl *Athene cunicularia hypugea*	SC/SSC	Throughout lowland California	Annual grasslands; large urban lots, and agricultural fields	No records; marginal nesting habitat; no potential nesting burrows were present; no burrowing owls were observed within 500 feet of the affected area; not expected to occur at the project site

Table 11-2. Continued

Species	Legal Status[a] Federal/State	California Distribution	Habitats	Presence in Study Area
Tricolored blackbird *Agelaius tricolor*	SC/SSC	Largely endemic to California	Undisturbed emergent marsh vegetation and blackberry thickets for nesting; grasslands, pasture, and wetlands for foraging	No records; no suitable nesting habitat; the project site and area is highly disturbed by vehicles and other human activities; the nearest occurrence is at Bass Lake, approximately 3 miles east of the project site; two other occurrences are in Folsom, approximately 4 miles northwest of the project site; not likely to occur at the project site
Pacific western big-eared bat *Corynorhinus (Plecotus) townsendii townsendii*	SC/SSC	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; very sensitive to disturbances and may abandon a roost after onsite visit	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site
Spotted bat *Euderma maculatum*	SC/SSC	Occurs throughout eastern and southern California, the central Sierra Nevada, and the Sierra Nevada foothills bordering the San Joaquin Valley; probably occurs in other portions of the state where habitat is suitable	Roosts primarily in rock crevices; uses arid deserts and open pine forests set in rocky terrain; females may favor ponderosa pine forests during reproduction	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site
Greater western mastiff bat *Eumops perotis californicus*	SC/SSC	Occurs along the eastern San Joaquin Valley from El Dorado County through Kern County; also found along the south Coast, Peninsular, and Transverse Ranges from San Francisco to the Mexico border	Roosts and breeds in deep, narrow rock crevices; may also use crevices in trees, buildings, and tunnels; forages in a variety of semiarid to arid habitats	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site

Species	Legal Status[a] Federal/State	California Distribution	Habitats	Presence in Study Area
Small-footed myotis bat *Myotis ciliobrum*	SC/--	Sierra Nevada; south Coast, Transverse, and Peninsular Ranges; and the Great Basin	Open stands in forests and woodlands, as well as shrublands; uses caves, crevices, and abandoned buildings	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site
Long-eared myotis bat *Myotis evotis*	SC/--	Sierra Nevada, Klamath Mountains, Coast Ranges, and Transverse and Peninsular Ranges	Woodlands	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site
Fringed myotis bat *Myotis thysanodes*	SC/--	Sierra Nevada, Klamath Mountains, Coast Ranges, and Transverse and Peninsular Ranges	Open woodlands	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site
Long-legged myotis bat *Myotis volans*	SC/--	Mountains throughout California	Most common in woodlands and forests above 4,000 feet, but occurs from sea level to 11,000 feet	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site
Yuma myotis bat *Myotis yumanensis*	SC/SSC	Considered common and widespread in northern California; colonies known from Marin and San Francisco Counties	Roosts colonially in a variety of natural and human-made sites, including caves, mines, buildings, bridges, and trees; in northern California, maternity colonies are usually in fire-scarred redwoods, pines, or oaks; forages for insects over water bodies	No records; there are no suitable roosting sites on the interchange; not likely to occur at the project site
San Joaquin pocket mouse *Perognathus inornatus*	SC/--	Occurs along the eastern side of the San Joaquin Valley	Favors grasslands and oak savannas with friable soils	No records; marginal-quality habitat; disturbed by human development and grading activities; not likely to occur at the project site

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
PE = proposed as endangered under the federal Endangered Species Act.
PT = proposed as threatened under the federal Endangered Species Act.
SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
T = listed as threatened under the federal Endangered Species Act.
-- = no listing.

State

E = listed as endangered under the California Endangered Species Act.
SSC = species of special concern in California.
T = listed as threatened under the California Endangered Species Act.
-- = no listing.

Source: Natural Diversity Data Base 1998.

Regulatory Setting

This section summarizes the laws and regulations that apply to the project. A brief explanation of the application of each law is also provided.

Clean Water Act, Section 404. The Corps and the U.S. Environmental Protection Agency (EPA) regulate the placement of fill into "waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States include lakes, rivers, streams and their tributaries, and wetlands. Wetlands are defined for regulatory purposes as areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3, 40 CFR 230.3). Project proponents must obtain a permit from the Corps for all discharges of fill material into waters of the United States, including wetlands, before proceeding with a proposed action.

The Corps may either issue individual permits on a case-by-case basis or general permits on a program level. General permits exist to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits (NWPs) are a type of general permit that cover particular fill activities. All NWPs have a general set of conditions that must be met for the permits to apply to a particular project, as well as specific conditions that apply to each NWP.

Results of Jurisdictional Wetland Delineation. A wetland delineation was conducted on January 12, 1999, to determine whether drainages present in the project area are wetlands that would be regulated by the Corps under Section 404 of the Clean Water Act. Appendix G in Volume II includes the wetland delineation report, wetland delineation map, and a response letter from the Corps dated March 2, 1999, verifying the delineation and concluding that Nationwide Permit Number 26 authorizes the fill of 0.15 acre of waters of the United States, subject to water quality certification or waiver.

The wetlands in the project area occur in four locations: a freshwater marsh in a channel that crosses the interior of the eastbound loop off-ramp in the southeast quadrant (0.33 acre total, of which 0.02 acre would be filled because of a culvert extension on both sides of the existing loop ramp); a freshwater marsh located on the south side of the westbound on-ramp in the northwest quadrant (0.03 acre total, all of which would be filled); a willow riparian scrub located in a channel along the north side of the westbound off-ramp in the northeast quadrant (0.06 acre total, none of which would be filled); and a freshwater marsh located on the north and south sides of U.S. Highway 50 in the floodplain of a small stream that crosses Highway 50 just east of the interchange (0.28 acre, of which 0.10 acre would be filled because of the need to extend the existing culverts on both sides of the highway). A total of 0.15 acre would be filled.

As noted above, the project has been determined to be covered under Nationwide Permit 26. However, Nationwide Permit 26 is due to expire on December 21, 1999. The project will likely be reauthorized under another nationwide permit. The project can likely be permitted under Nationwide Permit 14 (currently "Road Crossings") which will be reauthorized for "Linear Transportation Crossings" on December 21, 1999. The County will reauthorize this project at that time, if required.

The project's compliance with Section 404 of the Clean Water Act is documented in detail in Appendix G of Volume II.

Executive Order 11990: Protection of Wetlands. Executive Order 11990 (May 24, 1977) directs all federal agencies to refrain from assisting in or giving financial support to projects that encroach on public or privately owned wetlands.

The order further requires that federal projects must support a policy to minimize the destruction, loss, or degradation of wetlands. Such a project may not be undertaken, unless the agency has determined that there are no practicable alternatives to such construction and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

The County has evaluated the quality and extent of wetlands that would be affected by the project and the alternatives, as documented in the section above. The impacts on wetlands are addressed in Impact 11-2 of this section.

Only Practicable Alternative Finding. Avoidance alternatives to minimize harm to these wetlands in compliance with Executive Order 11990 have been determined to be infeasible because achievement of the purpose and need of the project requires improvements to the El Dorado Hills/Latrobe Road interchange as documented in Chapter 2, "Description of the Proposed Project and Alternatives to the Project". The County has determined that there are no practicable alternatives to construction impacts on wetlands in the interchange project area. Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Section 7 of the Federal Endangered Species Act. The County has consulted with the USFWS to document compliance with the Endangered Species Act. Appendix H in Volume II documents the project's compliance with the Endangered Species Act. A letter requesting a species list for this project was sent on December 22, 1998. A response letter and species list from USFWS were received on February 4, 1999. Species occurrence and habitat documentation was prepared for each species on the list provided by the USFWS (Tables 11-1 and 11-2). The results of this analysis are that none of the species that could occur in the project area are actually present, based on the absence of habitat required for these species. On May 21, 1999, Caltrans, on behalf of FHWA, requested concurrence from USFWS that the project has no effect on listed species under the Endangered Species Act (see Appendix H). FHWA, Caltrans, and the County are currently coordinating with the USFWS to ensure compliance with Section 7.

California Fish and Game Code, Sections 1601-1607. Under the California Fish and Game Code, Sections 1601-1607, DFG regulates projects that divert, obstruct, or change the natural flow or bed, channel or bank of any river, stream, or lake. Proponents of such projects must notify DFG and enter into a streambed alteration agreement with it. Sections 1601-1607 typically do not apply to drainages that lack a defined bed and banks, such as vernal swales.

ENVIRONMENTAL CONSEQUENCES

Impacts and Mitigation Measures

Impact 11.1. Loss of Annual and Ruderal Grassland and Disturbance to Wildlife Habitat

Construction of the proposed project would result in the loss of a minor amount of annual and ruderal grassland. Wildlife species that use these areas would also be displaced (e.g., birds) or killed (e.g., pocket gophers or ground squirrels). Based on a field evaluation of the site, these impacts are not considered adverse because annual and ruderal grassland habitats are locally and regionally common, have low wildlife value, and do not provide suitable habitat for special-status plant or wildlife species. No mitigation is required.

Mitigation Measure: None proposed.

Impact 11.2. Loss of Perennial Drainages and Wildlife Habitat

Construction of the proposed project would result in the loss or temporary disturbance of perennial drainages and associated wetland and riparian vegetation. This impact is considered significant because perennial drainages are subject to Corps regulation under Section 404 of the CWA and possibly DFG regulation under California Fish and Game Code Sections 1601-1607. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented by the project proponent.

Mitigation Measure 11.2a: Avoid Disturbance of Drainages and Wetland and Riparian Vegetation. The project proponent shall avoid impacts on drainages and on wetland and riparian vegetation whenever possible by protecting existing drainages and associated wetland and riparian vegetation, fencing off those areas with orange construction fencing, and by restricting construction activities to areas outside these fences.

Mitigation Measure 11.2b: Minimize Impacts on Perennial Drainages. The project proponent shall minimize impacts on perennial drainages by developing and implementing an erosion control plan and by limiting construction activities to the dry season. Before any construction activities, the proponent would obtain a Section 404 Permit from the Corps and may need to enter into a streambed alteration agreement with DFG.

Mitigation Measure 11.2c: Compensate for the Loss of Potential Wetland and Riparian Vegetation. If required by the Corps or DFG or both agencies, the project proponent shall compensate for the loss of wetland and riparian vegetation. This could be accomplished by:

- preparing and implementing a mitigation and monitoring plan for these replacement plantings in cooperation with the Corps and DFG and ensuring that the success standards set in this plan are met or

- participating in a wetlands mitigation bank.

SIGNIFICANCE CONCLUSIONS UNDER CEQA

The impacts on vegetation and wildlife resources in the project area were evaluated based on a field survey, literature reviews, and the project description. This section uses the following criteria for determining the level of significance of an environmental impact. An impact is considered significant if it would:

- substantially affect a special-status plant or wildlife species or the species' habitat;
- interfere substantially with the movement of any resident wildlife species;
- substantially affect, reduce the number of, or restrict the range of an endangered or unique species or the habitat of the species;
- substantially diminish the acreage or value of local habitat for wildlife or plants;
- substantially cause the deterioration of existing wildlife habitat;
- adversely affect significant riparian lands, wetlands, or other wildlife habitats;
- result in the filling of jurisdictional wetlands; or
- reduce the acreage of any agricultural crop that serves as valuable foraging or nesting habitat.

Table 3-1 identifies premitigation and postmitigation significance conclusions for biological resources impacts based on the above significance criteria.

Chapter 12. Cultural Resources

AFFECTED ENVIRONMENT

The following section has been adapted from a document produced by Cultural Resources Unlimited (1996). Unless otherwise noted, information presented here was obtained from that document. Additional information is summarized from cultural resources studies prepared for the project in compliance with Section 106 of the National Historic Preservation Act (NHPA).

Existing Conditions

Prehistory

Because the project area is located where the Central Valley meets the western slope of the Sierra Nevada mountain range, it does not fall squarely within a particular "archaeological zone" (as outlined in Moratto 1984). The origins of the populations occupying the area are not clear; however, over time their cultures took on characteristics of the California pattern. Both Martis (high Sierran) and Central Valley traits were present in the area by 1000 B.C., and by A.D. 1500 sites in the area exhibit characteristics associated with central California sites.

Occupants of the area appear to have been influenced by groups from the higher Sierra, the Great Basin, and the Sacramento Valley. Evidence from the earliest stratum of PLA-101 (1500 B.C. to A.D. 500) consists of a Martis-like assemblage, including large slate and basalt projectile points, atlatls weights, bowl mortars, and many core tools. The intermediate stratum dates to approximately A.D. 500 to A.D. 1000. The upper stratum (A.D. 1000 to 1500) may represent the ancestral Nisenan. Artifacts from this level include arrow points and numerous retouched flakes, hopper mortars, a few core tools, and milling stones. (Moratto 1984.)

Ethnography

The project area was inhabited ethnographically by the Nisenan, or Southern Maidu. Nisenan territory encompassed the drainages of the Yuba, Bear, and American Rivers, and the lower drainages of the Feather River. The Nisenan, together with the Maidu and Konkow, their northern neighbors, form the Maiduan language family of the Penutian linguistic stock (Shipley 1978). Kroeber noted three dialects: Northern Hill Nisenan, Southern Hill Nisenan, and Valley Nisenan (Kroeber 1925). Others made finer distinctions (Shipley 1978).

The smallest social and political unit was the family. Each extended family was represented by a leader, who was called to council by a headman. The headman served as an advisor to a village. The headman of the dominant village in a cluster of villages (tribelet) had the authority to call upon the surrounding villages in social and political situations. The duties of the headman were to advise his people, call and direct special festivities, arbitrate disputes, act as an official host, and call the family leaders to council. (Wilson and Towne 1978.)

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Village size ranged from three houses up to 40 or 50. Houses were domed structures covered with earth, and tule or grass, and measured 10 to 15 feet in diameter. Brush shelters were used in the summer and at temporary camps during food gathering rounds. Larger villages often had semi-subterranean dance houses, which were covered in earth and tule or brush, and had a central smokehole at the top and an entrance which faced east. Another common village structure was a granary, used for storing acorns. (Wilson and Towne 1978.)

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna that the rich valley and foothills environment provided. The Nisenan economy was based primarily on acorns, wild game and riverine resources. The only domestic plant was native tobacco (*Nicotiana* spp.), but many wild species were closely husbanded. The acorn crop from the blue (*Quercus douglasii*) and black oaks (*Q. kelloggii*) was so carefully managed that it served as the equivalent of agriculture and could be stored against winter shortfalls in resource abundance. Deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many other insect and animal species were taken when available. (Wilson and Towne 1978.)

Historic Period

Settlement. El Dorado County was one of the first areas settled by gold miners during the Gold Rush. By 1856, seventeen post offices had been established in El Dorado County, including sites at Clarksville, Diamond Springs, Mud Springs (later called El Dorado), and Placerville. By 1858, another 12 post offices had been established, including one at Latrobe.

Clarksville was originally called Clarkson's Village, as indicated on the 1853-1855 General Land Office survey map, and was located along the Placerville Road to White Rock and on to Sacramento. Possibly the earliest Euroamerican structure in the area, the Mormon Tavern (California Landmark 699) was located ½ mile west of Clarksville. A stage stop, the Mormon Tavern was built in 1849, and was enlarged in 1851 by Franklin Winchell. Later it became a station of the Central Overland Pony Express. The land, tavern, and associated buildings were purchased in 1878 by Joseph Joeger, and remained in the hands of that family until 1960. The initial two-lane Highway 50 was placed between the tavern and a barn. When the freeway was expanded to four lanes in 1964, the tavern was in the way. It was slated for removal and was burned in a firefighting exercise.

Mining. With the discovery of gold at Coloma in 1848, thousands of prospectors flooded California. They arrived in the foothills and settled along the river and creeks, hoping to find their

fortunes. By 1850, nearly every foot of the American River and its tributaries was being mined for gold. Yields from surface gravels lasted for several years with the placering method. The most important geologic feature in the area was the Tertiary channel of the American River known as the Deep Blue Lead, which runs from the White Rock vicinity east through Placerville.

Mining in the project vicinity began in the early years of the Gold Rush but apparently never reached large-scale proportions. Initial placer mining efforts leveled out early; however, small-scale mining activity continued intermittently into the 1940s. A ditch associated with early mining activity is located to the east of the project area and appears to have taken water from Carson Creek. This ditch was constructed in the 1850s and, by 1860, was part of a system of reservoirs and ditches. In 1860, George Washington Hill and two other parties sold this system to the Eureka Canal Company, a major supplier of water to mining enterprises in El Dorado County.

Ranching and Farming. By 1866, the area north of Clarksville was interlaced with fencing and road systems and dotted with homes and ranches. Many of the early ranches were engaged in dairy farming; although, agricultural interests were prevalent in the area as well. As mining enterprises waned and business was drawn away from Clarksville as a result of the Sacramento Valley Railroad, many of the smaller land owners sold their holdings to those who were in a position to amass large parcels in the area. Many of these larger landowners continued dairy farming; however, several of them became focused on cattle and sheep raising. These cattle and sheep ranchers normally took their stock to the higher elevations for summer pasture, where more water was available in the hot dry season.

Transportation. There were three major early roads in the Clarksville area. The Placerville Road, the Mormon Hill Toll Road, and the Tong Toll Road. The Placerville Road was a branch of the Carson Emigrant Road, which was established in 1849. This branch forked at Clarksville, one road heading toward Folsom and the other to Sacramento. The route of the Placerville Road near Clarksville eventually evolved into present-day U.S. Highway 50.

The Mormon Hill Toll Road is one of the earliest roads in the region. Originating just east of the Mormon Tavern, a way station ½ mile west of Clarksville, the Mormon Hill Toll Road wound east along the north side of Clarksville. The Tong Toll Road was owned by the Tong family, one of the earliest families to settle at Clarksville. This road originated at the Railroad House, a way station owned by the Tong family at the northeast corner of town, and headed northeast. By 1863, the Tongs had acquired full ownership in the Mormon Hill Toll Road (Deeds G:176), and it may have been incorporated into the Tong Toll Road. The Tong Toll Road eventually was bisected by the 1929 construction of U.S. Highway 50.

In 1866, the Sacramento Valley Railroad, which had been constructed from Sacramento to Folsom, was extended to Placerville. This rail line provided a more expedient mode of transportation for freight than that provided by the Placerville Road. As a result, traffic along the Placerville Road declined sharply, eliminating the need for way stations and hotels along the route. The economy of the Clarksville area quickly declined as towns along the rail route gained in local economic importance. As the population in the foothills grew and more traffic traveled between Placerville and Sacramento, a wider and less circuitous route became necessary. The highway designated as U.S.

Highway 50 originally passed through Clarksville; however, by 1929, the highway was moved to the north of the town and widened, bypassing the town entirely.

Regulatory Setting

State Regulations

CEQA requires public or private projects financed or approved by public agencies to assess the effects of the project on cultural resources. Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance.

CEQA requires that if a project results in significant effects on important cultural resources, then alternative plans or mitigation measures must be considered; however, only important cultural resources need to be addressed. Therefore, before mitigation measures can be developed, the importance of cultural resources must first be determined.

The State CEQA Guidelines define a significant historical resource as "a resource listed or eligible for listing on the California Register of Historical Resources" (Public Resources Code Section 5024.1) A historical resource may be eligible for inclusion in the California Register of Historical Resources (CRHR) if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

Federal Regulations

The project requires compliance with Section 106 of the NHPA. Section 106 requires that federal agencies consider the effects of their actions on properties that may be eligible for listing or are listed in the National Register of Historic Places (NRHP). This project is considered a federal undertaking because of the County's potential application for federal funding.

The Section 106 review process involves five steps:

- identifying and evaluating historic properties,

- assessing the effects of the undertaking on properties that are eligible for listing in the NRHP,

- consulting with the State Historic Preservation Officer (SHPO) and other agencies for the development of a memorandum of agreement (MOA) that addresses the treatment of historic properties,

- receiving Advisory Council on Historic Preservation (ACHP) comments on the MOA or results of the consultation, and

- implementing the project according to the conditions of the MOA.

For this project, not all five steps will need to be implemented because this project will not result in an adverse effect on historic properties.

To comply with Section 106 of the NHPA, the following cultural resources studies were prepared using FHWA guidance (Appendix D):

- an archeological survey report (ASR) identifying archeological and cultural resources in the project area of potential effects (APE) (see "Delineation of the Area of Potential Effects" section below) and

- a historic architectural survey report (HASR) inventorying extant buildings and structures in the project APE that may meet eligibility criteria for listing in the NRHP.

Delineation of the Area of Potential Effects. ACHP regulations define the APE as a "geographic area or areas within which an undertaking may cause changes in the character or use of historic properties (36 CFR 800.2[c]). Before the archeological and architectural inventory and evaluation were conducted, an APE was defined for the project. This APE was approved by FHWA on February 17, 1999. The proposed APE serves as the basis for the determination of boundary limits for the archeological and historic architectural surveys. The APE generally includes parcels immediately adjacent to the project right-of-way. A copy of the approved map is contained in Appendix D.

Methods and Results

Prefield research and fieldwork for this project area had been conducted by Eleanor Derr of Cultural Resources Unlimited in 1996. The work was reviewed and field checked by a Jones & Stokes Associates archaeologist. Reports were prepared following Caltrans' guidelines for Section 106 compliance and submitted to Caltrans for approval.

The prefield research conducted by Cultural Resources Unlimited in 1996 consisted of a records search conducted at the North Central Information Center of the California Historical

Resources Information System at California State University Sacramento, Native American consultation, and a field survey.

Although a number of cultural resource sites, including the Whiterock Road, Historic Highway 50, Carson Immigrant Trail Route, and the former location of the Mormon Tavern, were all nearby, the records search indicated that there were no previously recorded cultural resource sites located within the project area. Native American representatives contacted by letter did not respond with comments. The field survey conducted by Cultural Resources Unlimited did not result in the recordation of any cultural resource sites.

A complex of townhouses is located immediately adjacent to the project area to the west. Because the townhouses are located on a parcel immediately adjacent to the project area, Caltrans requires that they be considered in the effects of the project. The townhouses were included within the project APE and were recorded by a Jones & Stokes Associates architectural historian. The townhouses are duplexes and triplexes and were constructed 25-30 years ago. They have no architectural or historical significance.

Known Resources

No known cultural resources are located within the proposed APE.

ENVIRONMENTAL CONSEQUENCES

Impacts and Mitigation Measures

Impact 12.1: Potential Damage to Currently Unknown Cultural Resources

Unknown cultural resources may be located within the project area. Field surveys can locat only those cultural resources with an above ground component. Cultural resources may be buried under alluvial sediments and may not be locatable by surface inspection alone. Additionally, surfac visibility limitations may prevent the discovery of some cultural resources. It is possible tha construction or operation activities will uncover previously unknown cultural resources.

Mitigation Measure 12.1: Implement a Plan for the Unanticipated Discovery of Cultura Resources. A plan to manage these resources should be established. At a minimum, the plan shoul include the following components:

1. If cultural resources, such as chipped or ground stone, historic debris, buildin foundations, or human bone, are inadvertently discovered during construction operational activities, the developer or operator should:

- stop work in that area within 100 feet of the find, and

- retain a qualified archaeologist to assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the SHPO.

2. If human bone is found as a result of any construction or operational activity, the developer or operator must stop all disturbance activities and notify the El Dorado County Coroner within 48 hours in compliance with California Public Resource Code 5079.94 and 5097.98. If the coroner determines that the remains are Native American, the California Native American Heritage Commission will be notified by the County.

SIGNIFICANCE CONCLUSIONS UNDER CEQA

An impact is considered significant if the project would:

- result in the damage or destruction of prehistoric sites or artifacts that would meet CEQA criteria for significance or federal criteria for significance or

- result in the damage or destruction of historical structures, features, artifacts, landscaping, or sites that would meet CEQA or federal criteria for significance.

Table 3-1 identifies premitigation and postmitigation significance conclusions for cultural resources impacts based on the above significance criteria.

Chapter 13. Alternatives to the Proposed Project

The purpose of the alternatives analysis is to allow for informed decision making and meaningful public participation according to State CEQA Guidelines (Section 15126[d][5]). The EIR/EA must describe a range of reasonable alternatives to the project, or its location, that would feasibly attain most of the basic objectives, but would avoid or substantially lessen any of the significant effects of the project. The comparative merits of the alternatives must be evaluated (Section 15126[d]).

The EIR/EA must include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project (Section 15126[d][3]). This becomes the factual basis for reaching conclusions about the feasibility of various alternatives. If an alternative would cause one or more significant effects, in addition to those that would be caused by the project as proposed, this must be discussed, but at a lesser level of detail.

SCREENING OF PROJECT ALTERNATIVES

The range of alternatives to be examined in the EIR/EA is governed by the "rule of reason" that requires that only those alternatives necessary to make a reasoned choice need be addressed. The State CEQA Guidelines require that the number of alternatives analyzed be limited to those that would avoid or substantially lessen any of the significant effects of the project (Section 15126[d][5]). Of those alternatives, the EIR/EA need only examine in detail those that the lead agency determines could feasibly attain most of the basic objectives of the project. Among the factors that the State CEQA Guidelines specifically identify as those the lead agency can consider in determining feasibility are site suitability; economic viability; availability of infrastructure; general plan consistency; other plan or regulatory limitations; jurisdictional boundaries; and whether there is a reasonable ability to acquire, control, or otherwise have access to an alternative site (Section 15126[d][5][A]).

No one of these factors establishes a fixed limit on the scope of reasonable alternatives. The State CEQA Guidelines indicate that an EIR/EA need not consider an alternative "whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (Section 15126[d][5][C]).

Alternatives That Were Considered but Eliminated from Detailed Consideration

As described in Chapter 2, the County has studied more than 17 alternative desi that have been proposed by the project development team or the public. (For descripti alternatives, see the county technical memorandum in Appendix I and the community pr in Appendix J.) In addition to the preferred alternative, two other alternatives were iden County for detailed examination because they could feasibly attain most of the basic objectives of the project and have the potential to lessen certain significant effects. Th alternatives were incorporated, to various degrees, into the Preferred Alternative, Alte Alternative II:

- **Alternative 2: Modified Type L-8 with Diagonal and Loop Westbound** This alternative was identified by the project development team and is desc County Issue Position Paper. The interchange design concept was suppc public as having the potential to minimize impacts of Saratoga Way on the r the northwest quadrant. With the incorporation of an S-curve alignment f Way this alternative was selected for detailed analysis in this EIR/EA as A (described in Chapter 2 and analyzed below).

- **Alternative 3: Modified Type L-8 with Loop Westbound Off-Ra** alternative was combined with Alternative E as the interchange design for t Alternative and Alternative I. With the incorporation of an S-curve ali Saratoga Way, this alternative was selected for detailed analysis in this E Preferred Alternative and Alternative I are both described in Chapter 2; t Alternative is analyzed in the body of the EIR/EA, and Alternative I is analy

- **Alternative 7: No Build.** This alternative is identified as the No Project Alt is analyzed in detail in this EIR/EA (the No Project Alternative is describe 2 and analyzed below).

- **Alternative E.** This alternative was combined with Alternative 3 as the design for the Preferred Alternative and Alternative I (it is described in C Preferred Alternative is analyzed in the body of the EIR/EA, and Alternative below).

All of the other alternative design concepts were rejected from further detailed c in this EIR/EA for one or more of the following reasons:

- The alternative would not feasibly achieve the project objectives (site economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether there is a reaso to acquire, control, or otherwise have access to an alternative site).

- The alternative would not provide substantial environmental advantages over the project proposal.

- The alternative is substantially similar to other alternatives already under consideration.

A significant conclusion of the quantitative noise and air quality analyses of the Preferred Alternative, Alternative I, and Alternative II is that the effect of U.S. Highway 50 noise levels under existing and future conditions completely overwhelms any effect of the realignment of Saratoga Way (see Chapters 4 and 5). Therefore, alternatives that include moving the alignment of Saratoga Way are ineffective in significantly (or even measurably) reducing the noise and air quality impacts on residential receptors in the northwest quadrant.

A brief description of each of the alternatives that were considered and the specific reasons for their elimination follows.

Alternative 1: Expanded Existing Configuration Interchange

This alternative was identified by the project development team (Appendix I). This alternative was supported by the public as having the potential to minimize the impacts of realignment of Saratoga Way on the residences in the northwest quadrant. This alternative consists of the minimum interchange improvements necessary to feasibly accommodate future traffic volumes, with the minimum of disturbance in the vicinity of the interchange. This alternative maintains the existing interchange configuration, but adds additional lanes in various locations to accommodate the expected future increases in traffic volumes. At the eastbound ramp intersection with Latrobe Road, additional left-turn lanes would be added to accommodate turning movements to the southbound Latrobe Road. Two additional left-turn lanes would also be added to the southbound Latrobe Road approach to the eastbound on-ramp. Additional left-turn lanes would also be added to the northbound El Dorado Hills Boulevard approach to the westbound on-ramp. Both ramp intersections with El Dorado Hills Boulevard-Latrobe Road would be signalized.

Under this alternative, Saratoga Way was originally proposed for eventual expansion to a four-lane road in its existing location as indicated in the general plan, but could be maintained as a two-lane road in its existing location as proposed under the Preferred Alternative. This alternative was originally supported by the public as having the potential to minimize impacts on the residences in the northwest quadrant because Saratoga Way would remain in its existing location in relation to the residences in the northwest quadrant.

This alternative has been reevaluated by the County and rejected from further consideration because it would not feasibly achieve the project objectives. It is not expected to significantly improve traffic conditions and offers no solution to the intersection spacing problem. The fact that Alternative 1 fails to meet operational objectives was also generally acknowledged by the public at the scoping meeting.

Specifically, Alternative 1 was rejected from further consideration because the westbound ramp intersection would not operate acceptably during the p.m. peak period (LOS F) and the existing

close spacing between the westbound ramp and Saratoga Way intersection would remain, resulting in unacceptable operations.

Alternative 4: Type L-8 Cloverleaf Loop-Ramp Interchange

This alternative was identified by the project development team (Appendix I). It consists of a Type L-8 with loop off-ramps in the northwest and southeast quadrants and diagonal on-ramps for eastbound and westbound traffic. It excludes the eastbound diagonal off-ramp in the southwest quadrant.

This alternative was rejected from further consideration because it does not include the eastbound diagonal off-ramp in the southwest quadrant. Alternative 4 was essentially redefined as Alternative 3, Option C, and its primary attributes were incorporated into the intersection design of the Preferred Alternative. Alternative 4 was rejected from further consideration because it would not provide substantial environmental advantages over the Preferred Alternative or Alternative II, and is substantially similar to the Preferred Alternative already under consideration.

Alternative 5: Type L-9 Partial Cloverleaf Loop-Ramp Interchange

This alternative was identified by the project development team (Appendix I). A hybrid version of this alternative that proposes various approaches to the relocation of Saratoga Way has been subsequently proposed in a letter sent by C.A.R.E. in response to the NOP. These options for Saratoga Way are supported by C.A.R.E. to minimize impacts of realignment of Saratoga Way on the residences in the northwest quadrant. The interchange design of Alternative 5 consists of a type L-9 partial cloverleaf loop interchange configuration with loop on-ramps in the northeast and southwest quadrants and diagonal off-ramps and on-ramps for eastbound and westbound traffic.

This alternative interchange design was considered by the County, but rejected from further consideration because it would not provide substantial environmental advantages over the Preferred Alternative. It would require removal of existing commercial establishments in the northeast quadrant and substantially greater earthwork in the southwest quadrant to construct the eastbound diagonal off-ramp and loop on-ramp. These considerations may be expected to result in greater impacts than any of the proposed alternatives. Even with the incorporation of the various design options for Saratoga Way, this alternative was rejected from further consideration because it would not result in substantial environmental advantages for residences in the northwest quadrant over those associated with the Preferred Alternative and Alternative II.

Alternative 6: Modified L-8 Existing Configuration Interchange

This alternative was identified by the project development team (Appendix I). It consists of a similar interchange configuration as the existing interchange with the improvements proposed under Alternative 1, and includes the relocation of the west leg of Saratoga Way to the Park Drive intersection. The signal at the east leg of Saratoga Way would be eliminated and access to the

shopping center would be limited to entering and existing right-turn movements. An unsignalized left turn could be allowed from southbound El Dorado Hills Boulevard at the east leg of Saratoga Way.

This alternative interchange design was considered by the County, but rejected from further consideration because it would not feasibly attain project objectives and would not provide substantial environmental advantages over the Preferred Alternative. It would result in unacceptable operations at the Park Drive intersection because left-turn movements from the Raley's Center would have to turn right onto El Dorado Hills Boulevard and then perform a U-turn at Park Drive to go southbound on El Dorado Hill Boulevard. It would in result Saratoga Way being relocated to the Park Drive intersection, providing no environmental advantages to the residents in the northwest quadrant over those associated with the Preferred Alternative and Alternative II.

Alternative A: Saratoga Way On-Ramp

This alternative was identified by the public (Appendix I). It was suggested by the public as having the potential to minimize impacts of realignment of Saratoga Way on the residences in the northwest quadrant. The interchange design of this alternative is similar to that of Alternative 2. However, the westbound on-ramp would be relocated as a hook ramp on Saratoga Way at the intersection with Arrowhead Drive. This design would allow Saratoga Way to remain in its existing location in relation to the residences in the northwest quadrant.

This alternative interchange design was considered by the County, but rejected from further consideration because it would not feasibly attain project objectives and would not provide substantial environmental advantages over the Preferred Alternative. It would result in unacceptable operations at the El Dorado Hills Boulevard/Saratoga Way intersection and the intersection of Saratoga Way and Arrowhead Drive during the a.m. peak period because of the signalization and left-turn required for traffic to access the freeway. This congestion would cause increased cut-through traffic on Mammouth Way and Arrowhead Drive in the residential neighborhood in the northwest quadrant. For these reasons, this alternative design concept would not feasibly achieve the project objectives of reducing environmental impacts. It would also not provide substantial environmental advantages over the any of the proposed alternatives.

Alternative B. "Slightly North or Mid-Point" Saratoga Way Alignment/Alternative 3 Hybrid

This alternative was identified by the public (Appendix I). It was suggested by the public as having the potential to minimize impacts of realignment of Saratoga Way on the residences in the northwest quadrant. The interchange design is similar to Alternative 3, but Saratoga Way would be relocated to intersect with El Dorado Hill Boulevard mid-way between Park Avenue and the westbound on-ramp intersection instead of at Park Avenue (as in Alternative 3). This new intersection would be limited to right-turn movements only to avoid signalization.

This alternative alignment for Saratoga Way was considered by the County, but rejected from further consideration because it is expected to cause an increase in cut-through traffic on Arrowhead Drive and Mammouth Way and an increase in weaving on southbound El Dorado Hills

Boulevard. Both problems would be caused by eastbound vehicles on Saratoga Way trying to turn northbound onto El Dorado Hill Boulevard. Because of the weaving and delay associated with a right turn and subsequent U-turn on El Dorado Hills Boulevard, up to 150 vehicles per hour would be expected to cut-through the residential neighborhood in the northwest quadrant. For these reasons, this alternative design concept would not feasibly achieve the project objectives of reducing environmental impacts.

Additionally, this alternative alignment for Saratoga Way was rejected from further consideration because it would also not provide substantial environmental advantages over the Preferred Alternative or Alternative II because the small distance that it would move Saratoga Way from the townhouses would be expected to result in imperceptible reductions in noise or air emissions at the townhouses.

Alternative C. Tightened Geometrics for "Slightly North or Mid-Point" Saratoga Way Alignment/Alternative 3 Hybrid

This alternative was identified by the public (Appendix I). This alternative design concept is very similar to Alternative B, but includes tighter ramp geometrics for the westbound on-ramp to increase the distance between the relocated Saratoga Way and the townhouses by about 35 feet.

This alternative was considered by the County but rejected from further consideration for the same reasons as Alternative B. Additionally, moving the alignment for Saratoga Way 35 feet further away from the townhouses than Alternative B would not provide substantial environmental advantages because that small distance would be expected to result in imperceptible reductions in noise or air emissions at the townhouses over those associated with the Preferred Alternative or Alternative II.

Alternative D: Interchange Flyover Ramps

This alternative was identified by the public (Appendix I). This interchange design concept is a modification of the existing configuration. Alternative D is similar to the preferred alternative on the south side. It is similar to Alternative 3 on the north side of the interchange, but the westbound to southbound Latrobe Road movement would be accommodated by a flyover off-ramp that would touch down south of U.S. Highway 50 on the west side of Latrobe Road near Town Center Boulevard. This design would allow Saratoga Way to remain in its existing location in relation to the residences in the northwest quadrant.

This alternative interchange design was considered by the County, but rejected from further consideration because it would not feasibly attain project objectives. Specifically, this interchange design alternative was rejected from further consideration because it is expected to cause unacceptable operating constraints to the intersection of Latrobe Road and Town Center Boulevard, and it fails to eliminate the existing close spacing between the westbound ramps and Saratoga Way intersection, which results in serious operational deficiencies at these intersections. Eliminating this close signal spacing is one of the primary objectives of the project. Additionally, this interchange

design concept was rejected because it is not considered economically viable; the cost of the flyover ramp alone is estimated to be $3.5 million. The cost of such a ramp would be 18% of the total project cost and could not, for that reason, feasibly attain project objectives.

Alternative F. "Slightly North or Mid-Point" Saratoga Way Alignment/Alternative 2 Hybrid

This alternative was identified by the public (Appendix I) and subsequently proposed in a letter sent by C.A.R.E. in response to the NOP. This alternative is similar to Alternative B described above, but involves an interchange design like Alternative 2 (rather than Alternative 3). This alternative was suggested by the public as having the potential to further minimize impacts of Saratoga Way on the residences in the northwest quadrant over those associated with Alternative B. The interchange design is similar to Alternative 2, but Saratoga Way would be relocated to intersect with El Dorado Hill Boulevard mid-way between Park Avenue and the westbound on-ramp intersection instead of at Park Avenue (as in Alternative 2). This new intersection would be limited to right-turn movements only to avoid signalization.

This alternative alignment for Saratoga Way was considered by the County, but rejected from further consideration for the reasons given for Alternative B. In addition, this alternative would cause an increase in cut-through traffic on Arrowhead Drive and Mammouth Way and increases in weaving on southbound El Dorado Hills Boulevard. Both problems would be caused by eastbound vehicles on Saratoga Way trying to turn northbound onto El Dorado Hill Boulevard. Because of the weaving and delay associated with a right turn and subsequent U-turn on El Dorado Hills Boulevard, up to 150 vehicles per hour are expected to cut-through the residential neighborhood in the northwest quadrant. For these reasons, this alternative design concept would not feasibly achieve the project objectives of reducing environmental impacts.

Additionally, this alternative alignment for Saratoga Way was rejected from further consideration because it would also not provide substantial environmental advantages over the Preferred Alternative or Alternative II because the small distance that it would move Saratoga Way from the townhouses would be expected to result in imperceptible reductions in noise or air emissions at the townhouses.

Alternative G: Alternative 2/Alternative 5 Hybrid

This alternative was identified by the public (Appendix I). This interchange design combines the elements of Alternative 2 on the south side of the freeway with the elements of Alternative 5 on the north side, except that there will not be a direct westbound off-ramp in the northeast quadrant. The westbound on-ramp would be located as a loop on-ramp in the northeast quadrant. This design would allow Saratoga Way to remain in its existing location in relation to the residences in the northwest quadrant.

This alternative interchange design was considered by the County, but rejected from further consideration because it would not feasibly attain project objectives. The westbound ramp intersection is expected to operate at LOS F during both a.m. and p.m. peak periods. Two

southbound El Dorado Hills Boulevard to westbound U.S. Highway 50 on-ramp left-turn la required at the Saratoga Way/westbound ramps intersection. Substantial queuing proble anticipated for this southbound left-turn movement. As a result of the elimination of the eas of Saratoga Way, all traffic from the Raley's Center will have to use the Park Drive interse access El Dorado Hills Boulevard. This intersection would also operate at LOS F during t peak period. Construction of the westbound ramps would require removal of existing establis in the northwest quadrant. These considerations may be expected to result in greater traffic than the any of the proposed alternatives.

Alternative I: Single Point Urban Interchange

This design concept was identified by the project development team (Appendix I) detailed version was proposed as Alternative I ("eye") by the public, studied by the County, d in the Community Process Report (Appendix J) (see discussion of Alternatives H and J belo subsequently proposed in a letter sent by C.A.R.E. in response to the NOP. The Single Poir Interchange (SPUI) alternative was supported by the public as having the potential to m impacts of Saratoga Way on the residences in the northwest quadrant. This alternativ concept would consolidate all on- and off-ramps into a single point, signalized intersection u U.S. Highway 50 mainline. It would not require the relocation of Saratoga Way, which v retained in its current intersection with El Dorado Hill Boulevard and the entrance to the Center. The SPUI concept would require raising the U.S. Highway 50 mainline undercrossi 10 feet to accommodate minimum standard vertical clearance at the signalized intersection un the interchange and a grade separated westbound on-ramp over Saratoga Way. This desig allow Saratoga Way to remain in its existing location in relation to the residences in the n quadrant.

This alternative interchange design was considered by the County, but rejected fro consideration because it would not eliminate the problem of two signals in close proximity a result in serious operational deficiencies at the Saratoga Way intersection and the new sin intersection under the freeway mainline. Eliminating this close signal spacing is one of the objectives of the project. The SPUI design concept is predicted to result in LOS F operatio the p.m. peak hour because the northbound El Dorado Hills Boulevard queue at the Sarat intersection would spill back into the ramp intersection blocking several movements. In add SPUI design would require elevating the U.S. Highway 50 overcrossing and tapering appro one-half mile along U.S. Highway 50 in both directions back to grade. Raising the U.S. Hig mainline would require extensive retaining walls in all four quadrants of the interchange to For these reasons, this alternative design concept would not feasibly achieve the project ob

Alternative H: Single Point Urban Interchange with Realignment of Saratoga Wa

This alternative was identified by the public and studied by the County (Appendi essentially the same as the Alternative I/SPUI described above, but Saratoga Way would be with Park Avenue. It was proposed as a partial solution to the intersection spacing proble

SPUI design. This design would require the realignment of Saratoga Way to the intersection of Park Drive and El Dorado Hills Boulevard.

This alternative interchange design was considered by the County, but rejected from further consideration because it would not eliminate the other operational deficiencies and cost problems associated with the SPUI design described above. This alternative would, therefore, not feasibly achieve the project objectives. Also, the realignment of Saratoga Way to Park Drive would not provide substantial environmental advantages over the proposed project because residences would be exposed to similar impacts to those that would be experienced by these residences under the Preferred Alternative or Alternative II.

Alternative J: Single Point Urban Interchange with Iron Point Road/Town Center Boulevard Overcrossing

This alternative was identified by the public and studied by the County (Appendix J). It is essentially the same as the Alternative I/SPUI described above, but the west leg of Town Center Drive would be extended north over U.S. Highway 50 and west to Iron Point Road in Folsom as the planned future connection to Folsom instead of extending Saratoga Way. This would eliminate through traffic on Saratoga Way (it would remain a dead end in its current location and serve only local traffic). This design would allow Saratoga Way to remain in its existing location in relation to the residences in the northwest quadrant.

This alternative interchange design was considered by the County, but rejected from further consideration because it would not eliminate the operational deficiencies and cost problems associated with the SPUI designed described above, and would add the cost of a new overcrossing for Town Center Drive. Also, the County could not reasonably acquire access for an arterial through the Town Center subdivision because it is approved and under construction, and Town Center Boulevard was not planned to extend to the project boundary to provide the right-of-way necessary for the required overcrossing of U.S. Highway 50. This alternative would therefore not feasibly achieve the project objectives.

Saratoga Way Adjacent to El Dorado Hill Boulevard ("Hook" Alternative)

This alternative was identified in the Community Process Report (Appendix J) as being suggested by the public, studied by the County, and subsequently proposed in a letter sent by C.A.R.E. in response to the NOP. This alternative was suggested as having the potential to minimize impacts of the realignment of Saratoga Way on the residences in the northwest quadrant. It consists of development of the interchange as proposed under the Preferred Alternative (or Alternative I). Saratoga Way would be realigned as close to El Dorado Boulevard as possible and "hooked" into the intersection with Park Drive using the maximum permitted radius for its design speed. This alternative may be considered a slight design variation of the S-curve configuration for Saratoga Way proposed under the Preferred Alternative.

This alternative alignment for Saratoga Way was considered by the County, but reje further consideration because it is considered substantially similar to the S-curve alignme the Preferred Alternative and Alternative II. Also, it would not provide substantial envi advantages over the either of these alternatives because the small distance that it wo Saratoga Way to the east would result in imperceptible reductions in noise or air emiss townhouses. Additionally, it would result in the creation of a lot inside the "hook" that wo small for the type of commercial development permitted in this location and would have n practicable access. (Lopes pers. comm. 1998.)

Saratoga Way through Middle of Property

This alternative was identified in the Community Process Report (Appendix J suggested by the public as having the potential to minimize impacts of realignment of Sar on the residences in the northwest quadrant. It consists of development of the inte proposed under the Preferred Alternative (or Alternative II). Saratoga Way would be rea far enough to the north to provide for the interchange. The realignment would place Sar on a slight curve north into the middle of the undeveloped commercial lot approximately p and midway between El Dorado Boulevard and the townhouses to "T" into Park Drive j its existing intersection with El Dorado Hill Boulevard. This alternative may be conside design variation of the S-curve configuration for Saratoga Way proposed under the Alternative.

This alternative alignment for Saratoga Way was considered by the County, but re further consideration because it is considered substantially similar to the S-curve alignn the Preferred Alternative and Alternative II. Also, it would also not provide environmental advantages over the either of these alternatives because the small distance t move Saratoga Way to the east would be expected to result in imperceptible reductions air emission at the townhouses. Additionally, it would result in the creation of two long lots on each side of the realigned Saratoga Way that would be difficult to use for commercial development permitted in this location because of the lack of sufficient lo

Town Center Boulevard Frontage Road South of U.S. Highway 50

This alternative was identified by the public during the scoping meeting, and s proposed in a letter sent by C.A.R.E. in response to the NOP. This alternative was sugg public as having the potential to minimize impacts of realignment of Saratoga Way on th in the northwest quadrant. It consists of development of the interchange as propose Preferred Alternative or Alternative II and development of a new east-west frontage ro of U.S. Highway 50 from Town Center Boulevard west into Sacramento County to the f Ranch Road interchange on U.S. Highway 50. This new arterial road would essentiall planned function of Saratoga Way. Saratoga Way would serve as a two-lane local col permanent cul-de-sac or dead end west of Finders Way (at its current location). It would next to El Dorado Hill Boulevard and connected with the Park Drive intersection configuration.

This alternative was considered by the County, but rejected from further consideration because the County could not reasonably acquire access for an arterial through the Town Center subdivision because it is approved and under construction, and Town Center Boulevard was not extended to the project boundary to serve as an arterial roadway (Payne pers. comm.). It is also considered topographically unsuitable, requiring steep grades or extensive cut and fills to extend a road west on the south side of U.S. Highway 50 (Payne pers. comm.). In addition, replacing the planned extension of Saratoga Way with an arterial road south of U.S. Highway 50 is not consistent with the El Dorado County General Plan, the Sacramento County General Plan, and the City of Folsom General Plan. Although an arterial will be needed north of U.S. Highway 50 to serve planned development in El Dorado County and Folsom, in Sacramento County land south of U.S. Highway 50 is designated for agriculture and outside of the urban services boundary (the alternative could, therefore, be growth-inducing). Finally, an arterial south of U.S. Highway 50 is considered functionally redundant because of the close proximity of White Rock Road (Payne pers. comm.). For these reasons, this potential alignment would not feasibly achieve the project objectives.

This potential alignment would also not provide substantial environmental advantages over the proposed project because it would need to traverse an open space parcel that was designated to buffer the existing residences in the Springfield Meadows subdivision from U.S. Highway 50. This would be expected to expose these existing residences to similar impacts to those that would be experienced by the residences north of the Saratoga Way realignment under the proposed project.

ANALYSIS OF ALTERNATIVES TO THE PROPOSED PROJECT

No Project Alternative

As described in more detail in Chapter 2, the No Project Alternative involves maintaining the U.S. Highway 50/ El Dorado Hills Boulevard - Latrobe Road interchange in its current configuration. However, future growth of the area is expected to continue as planned. In addition, the extension of Saratoga Way as a four-lane arterial as designated in the general plan is assumed to occur by 2020.

Noise

Under the No Project Alternative, no improvements to the interchange would be made and no project impacts would occur. The existing U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange configuration would be maintained and Saratoga Way would remain in its current location as a two-lane roadway under 2005 conditions. Under 2005 conditions, most residential uses adjacent to the project site will exceed or approach exceedance of the FHWA/Caltrans peak-hour noise abatement criterion of 67 dB L_{eq}. Additionally, all residences adjacent to the project site will exceed the El Dorado County normally acceptable exterior noise level criterion of 60 dB L_{dn}, and the conditionally acceptable exterior noise level criterion of 65 dB L_{dn} with or without implementation of the proposed project.

Under cumulative (2020) conditions, traffic noise at all residential uses adjacent to the project site will exceed or approach exceedance of the FHWA/Caltrans peak-hour noise abatement criterion of 67 dB L_{eq}. In addition, under 2020 conditions traffic noise at all residences will exceed the El Dorado County normally acceptable exterior noise level criterion of 60 dB L_{dn}, and the conditionally acceptable exterior noise level criterion of 65 dB L_{dn} with or without implementation of the proposed project.

Construction of sound barriers as described in Chapter 4 would be required to reduce traffic-noise levels at adjacent residences to below both the FHWA/Caltrans peak-hour noise abatement criterion and the County's normally acceptable noise criterion.

Air Quality

No construction-related emissions would result. Although adverse transportation-related impacts are expected to occur under No Project 2005 conditions (as discussed below), CO emissions would not exceed state or federal CO standards for 1-hour and 8-hour averaging times.

Under No Project cumulative (2020) conditions vehicle-related CO emissions would not exceed state or federal CO standards for 1-hour and 8-hour averaging times.

Visual Resources

The existing visual resources associated with the interchange would be expected to remain generally unchanged, but buildout of vacant land as planned for the vicinity is expected to substantially change the quality of views of and from the interchange.

Traffic

Under 2005 conditions, the following adverse transportation impacts have been identified as associated with the No Project Alternative:

Impact: Unacceptable Operations at U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road Interchange. As shown in Table 7-11, implementation of the No Project Alternative would result in LOS F operations at each ramp terminal intersection under 2005 conditions. At the westbound ramp intersection, the primary cause of the delays is the close spacing in relation to the Saratoga Way intersection, which results in inefficient signal operations. Delays at the eastbound ramp intersection are due to the lack of sufficient turn lanes, especially for the southbound and westbound left-turning movements. This is considered an adverse impact.

Mitigation Measure: None Available. As shown in the analysis of the Preferred Alternative, substantial physical improvements, such as intersection, roadway and ramp widenings, would be necessary to meet the project objectives. Other less extensive improvements were considered as a part of the Project Study Report process. Although some were found to improve

operations, none achieved the project objective of eliminating LOS F operations and would not, therefore, mitigate the impact to a less-than-adverse level. Improvements to non-automobile transportation, such as bus transit improvements and transportation-demand management strategies, were also considered, but would not reduce the automobile demand sufficiently to meet the project objectives. Therefore, this impact would be considered adverse under the No Project Alternative in 2005.

Impact: Disruptions to Future Transit Service. Implementation of the No Project Alternative would result in LOS F at each ramp terminal intersection, which would substantially inhibit the efficiency of transit service through the interchange. This is considered an adverse impact.

Mitigation Measure: None Available. As shown in the analysis of the Preferred Alternative, substantial physical improvements, such as intersection, roadway and ramp widenings, would be necessary to improve operations to efficiently serve transit vehicles. Other less extensive improvements were considered as a part of the Project Study Report process. Although some were found to improve operations, none achieved the project objective of eliminating LOS F operations and would not, therefore, mitigate the impact to a less-than-adverse level. Improvements to non-automobile transportation, such as bus transit improvements and transportation-demand management strategies, were also considered, but would not reduce the automobile demand sufficiently to improve operations to efficiently serve transit vehicles. Therefore, this impact is considered adverse under 2005 conditions even with mitigation.

Impact: Interference with Planned Bicycle Facilities. Implementation of the No Project Alternative would not provide for a Class II bike lane through the interchange, as planned in the El Dorado County Bikeway Master Plan (1979). This is considered an adverse impact.

Mitigation Measure: Construct Class II Bike Lanes. El Dorado Hills Boulevard and Latrobe Road should be widened to provide 2.4 meters of paved shoulder near the interchange. Although not signed or striped as a Class II bike lane, these shoulders will accommodate on-street bicycle travel. This would reduce this impact to below the identified thresholds.

Under cumulative (2020) conditions the following adverse transportation impacts have been identified as associated with the No Project Alternative.

Impact: Unacceptable Operations at U.S. Highway 50/El Dorado Hills Boulevard/ Latrobe Road Interchange. As shown in Table 7-15, implementation of the No Project Alternative would result in LOS F operations at each ramp terminal intersection under 2020 conditions. At the westbound ramp intersection, the primary cause of the delays is the close spacing in relation to the Saratoga Way intersection, which results in inefficient signal operations. Delays at the eastbound ramp intersection are due to the lack of sufficient turn lanes, especially for the southbound and westbound left-turning movements. This is considered an adverse impact.

Mitigation Measure: None Available. As shown in the analysis of the Preferred Alternative, substantial physical improvements, such as intersection, roadway and ramp widenings, would be necessary to meet the project objectives. Other less extensive improvements were

considered as a part of the Project Study Report process. Although some were found to improve operations, none achieved the project objective of eliminating LOS F operations and would not, therefore, mitigate the impact. Improvements to non-automobile transportation, such as bus transit improvements and transportation-demand management strategies, were also considered, but would not reduce the automobile demand sufficiently to meet the project objectives. Therefore, this impact is considered adverse even with mitigation.

Impact: Unacceptable Operations at the El Dorado Hills Boulevard/Park Drive Intersection. As shown in Table 7-15, implementation of the No Project Alternative would result in LOS F operations during the a.m. peak hour under 2020 conditions.

Mitigation Measure: None Available. As shown in the analysis of the Preferred Alternative, substantial physical improvements, such as intersection, roadway and ramp widenings, would be necessary to meet the project objectives. Other less extensive improvements were considered as a part of the Project Study Report process. Although some were found to improve operations, none achieved the project objective of eliminating LOS F operations and would not therefore, mitigate the impact. Improvements to non-automobile transportation, such as bus transi improvements and transportation demand management strategies, were also considered, but woulc not reduce the automobile demand sufficiently to meet the project objectives. Therefore, this impac is considered adverse even with mitigation.

Impact: Disruptions to Future Transit Service. Implementation of the No Projec Alternative would result in LOS F at each ramp terminal intersection, which would substantiall inhibit the efficiency of transit service through the interchange. This is considered an adverse impact

Mitigation Measure: None Available. As shown in the analysis of the Preferre Alternative, substantial physical improvements, such as intersection, roadway and ramp widenings would be necessary to improve operations to efficiently serve transit vehicles. Other less extensiv improvements were considered as a part of the Project Study Report process. Although some wer found to improve operations, none achieved the project objective of eliminating LOS F operation and would not, therefore, mitigate the impact. Improvements to non-automobile transportation, suc as bus transit improvements and transportation-demand management strategies, were also considere but would not reduce the automobile demand sufficiently to improve operations to efficiently serv transit vehicles. Therefore, this impact is considered adverse even with mitigation.

Impact: Interference with Planned Bicycle Facilities. Implementation of the No Proje Alternative would not provide for a Class II bike lane through the interchange, as planned in th El Dorado County Bikeway Master Plan (1979). This is considered an adverse impact.

Mitigation Measure: Construct Class II Bike Lanes. El Dorado Hills Boulevard a Latrobe Road should be widened to provide 2.4 meters of paved shoulder near the interchang Although not signed or striped as a Class II bike lane, these shoulders will accommodate on-stre bicycle travel. This measure would mitigate this impact.

Impact: Acceptable Operations on Saratoga Way. Implementation of the No Project Alternative would result in LOS D operations on a two-lane Saratoga Way under cumulative conditions. This impact is not considered adverse since the level of service is consistent with County Objective 3.5.1.

Mitigation Measure: None proposed.

Land Use and General Plan Consistency

The No Project Alternative would not address the projected level of service deterioration at the interchange and surrounding roadways, would not address existing operational deficiencies, and would be substantially inadequate to accommodate projected future traffic volumes associated with approved development and future development projected in the 1996 El Dorado County General Plan. The No Project Alternative would not, therefore, be consistent with County General Plan policies. The No Project Alternative would also not be consistent with the El Dorado Hills Specific Plan, which specifies El Dorado Hills Boulevard -Latrobe Road Interchange improvements as needed to accommodate the buildout of western El Dorado County.

Earth Resources

Because no project-related grading would occur, there would be no potential for increased rates of erosion or exposure of people to asbestos.

Hydrology and Water Quality

There would be no alterations to the existing stormwater drainage system, but increased vehicle volumes in the project area could contribute to a small increase in urban pollutant loadings and further degradation to surface water quality.

Biological Resources

There would be no alterations to the existing stormwater drainage system, so the associated seasonal wetlands adjacent to the interchange would not be affected.

Cultural Resources

Because no project-related grading would occur, there would be no potential for damage to currently unknown cultural resources.

Alternative I

As described in more detail in Chapter 2, Alternative I would be es
Preferred Alternative with the exception that Saratoga Way would be realign
Park Drive to west of Finders Way, passing immediately adjacent to the ex
northwest quadrant.

Noise

Alternative I assumes that the interchange improvements would r
the Preferred Alternative. However, the realignment of Saratoga Way wo
residences, and would not include an S-curve configuration. Most noise
Alternative I and the recommended mitigation measures would be the same
for the Preferred Alternative.

The results of the analysis indicate that traffic-noise levels predi
would not be measurably different from those predicted for the Preferred
shows a comparison of the No Project Alternative, the Preferred Alternat
analyses of traffic-noise impacts for the Year 2005. Table 13-2 shows
Project Alternative, the Preferred Alternative, and the Alternative I analyse
for the Year 2020. In general, all residential uses adjacent to the project sit
the FHWA/Caltrans peak-hour noise abatement criterion of 67 dB L_{eq}. All
El Dorado County normally acceptable exterior noise level criterion
conditionally acceptable exterior noise level criterion of 65 dB L_{dn}.

It should be noted that although all noise levels are reporte
SOUND32 model predicts traffic noise levels in tenths of a dB. The ac
indicate that the four townhomes facing toward El Dorado Hills Boulevard
of the project site, will experience an increase in traffic noise levels be
L_{eq}/L_{dn}. However, because of known limits of accuracy of the Caltra
Caltrans staff have requested that all traffic noise levels should be reporte
dB increase in traffic-noise levels is considered imperceptible.

In summary, construction and traffic noise impacts of Alternati
described for the Preferred Alternative project.

Air Quality

Most air quality impacts associated with Alternative I would b
Chapter 5 for the Preferred Alternative. The following impact woul
Alternative I than the impact described under Impacts 5.3 and 5.4, but w
adverse.

Impact: No Exceedance of Carbon Monoxide Standards. Alternative I assumes that the interchange improvements would remain as proposed under the Preferred Alternative, but Saratoga Way would be closer to adjacent residences. Table 13-3 indicates that the highest predicted CO level under the 2005 Alternative I scenario would be 6.8 ppm for the 1-hour averaging period and 4.5 ppm for the 8-hour averaging period. As under the Preferred Alternative, this is a substantial reduction in CO concentrations over the existing conditions. Because this alternative would not cause a new violation of the standards, or contribute to an existing violation, this impact is not considered adverse.

Table 13-3 also indicates that the highest predicted CO level under the 2020 Alternative I scenario would be 7.6 ppm for the 1-hour averaging period and 5.0 ppm for the 8-hour averaging period. Because the alternative would not cause a new violation of the standards, or contribute to an existing violation, this impact is not considered adverse.

Table 13-1. Year 2005 Traffic Noise Levels at Receiver Locations
(Comparison of Alternatives)

		Year 2005 No Project Alternative		Year 2005 Preferred Alternative		Year 2005 Alternative I	
Receiver	Land Use	L_{dn}, dB	L_{eq}, dB	L_{dn}, dB	L_{eq}, dB	L_{dn}, dB	L_{eq}, dB
Northwest Quadrant							
1	Residential	65	64	67	66	67	66
2	Residential	66	65	67	66	67	66
3	Residential	67	66	68	67	68	67
4	Residential	68	67	69	68	69	68
5	Residential	68	67	69	68	69	68
6	Residential	69	68	69	68	69	68
7	Residential	69	68	69	68	69	68
8	Residential	69	68	69	68	69	68
9	Residential	68	67	68	67	68	67
10	Residential	68	67	68	67	68	67
11	Residential	68	67	68	67	68	67
12	Residential	69	68	69	68	69	68
13	Residential	69	68	69	68	69	68
14	Residential	66	65	66	65	66	65
15	Residential	66	65	66	65	66	65
16	Residential	66	65	66	65	66	65
17	Residential	65	64	66	65	66	65
Northeast Quadrant							
18	Commercial	70	69	70	69	70	69
Southeast Quadrant							
19	Commercial	70	69	71	70	71	70
Southwest Quadrant							
20	Vacant	71	70	71	70	71	70

Table 13-2. Year 2020 Traffic Noise Levels at Receiver Locations
(Comparison of Alternatives)

		Year 2020 No Project		Year 2020 Pref. Alt.		Year 2020 Alt I	
Receiver	Land Use	L_{dn}, dB	L_{eq}, dB	L_{dn}, dB	L_{eq}, dB	L_{dn}, dB	L_{eq}, dB
Northwest Quadrant							
1	Residential	67	66	68	67	68	67
2	Residential	67	66	68	67	68	67
3	Residential	68	67	69	68	69	68
4	Residential	69	68	70	69	70	69
5	Residential	69	68	70	69	70	69
6	Residential	70	69	70	69	70	69
7	Residential	69	68	70	69	70	69
8	Residential	70	69	70	69	70	69
9	Residential	69	68	69	68	69	68
10	Residential	69	68	69	68	69	68
11	Residential	69	68	69	68	69	68
12	Residential	69	68	70	69	70	69
13	Residential	70	69	70	69	70	69
14	Residential	67	66	67	66	67	66
15	Residential	67	66	67	66	67	66
16	Residential	67	66	67	66	67	66
17	Residential	66	65	66	65	66	65
Northeast Quadrant							
18	Commercial	71	70	71	70	71	70
Southeast Quadrant							
19	Commercial	71	70	72	71	72	71
Southwest Quadrant							
20	Vacant	72	71	72	71	72	71

The predicted CO levels are reported in concentrations that vary from .01 ppm to 0.5 ppm at a given receptor between the various alternatives (compare for example the 1-hour concentration at receptor number 9). The modeling results indicate that the four townhouses facing El Dorado Hills Boulevard (receptors 6-9) in the northwest quadrant of the project site, will experience CO levels under Alternative I that are the same or .01 ppm to .02 ppm higher than those associated with the Preferred Alternative. Under Alternative II , CO concentrations at these receptors would be slightly lower than those associated with either Alternative I or the Preferred Alternative (see discussion under Alternative II). However, due to the known limits to accuracy of the CALINE4 model, these differences are not considered adverse.

Mitigation Measure. None proposed.

Table 13-3. Summary of Carbon Monoxide Modeling Results

Receptor Number and Description	Modeled Concentration (ppm)													
	Existing Interchange		Preferred Alternative 2005		Alternative 1 2005		Alternative 2 2005		Preferred Alternative 2020		Alternative 1 2020		Alternative 2 2020	
	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour
1 Residence near Saratoga Way	7.9	5.2	5.9	3.9	5.8	3.9	5.7	3.8	6.0	3.9	5.9	3.9	5.4	3.6
2 Residence near Saratoga Way	7.9	5.2	5.9	3.9	5.9	3.9	5.8	3.9	6.1	4.0	6.0	3.9	5.5	3.6
3 Residence near Saratoga Way	7.7	5.1	6.0	4.0	6.0	4.0	5.9	3.9	6.2	4.1	6.2	4.1	5.6	3.7
4 Residence near Saratoga Way	7.9	5.2	6.1	4.1	6.1	4.1	5.9	3.9	6.4	4.2	6.3	4.1	5.6	3.7
5 Residence near Saratoga Way	7.8	5.1	6.0	4.0	6.0	4.0	5.9	3.9	6.3	4.1	6.3	4.1	5.6	3.7
6 Residence near Saratoga Way	7.9	5.2	6.2	4.1	6.2	4.1	6.1	4.1	6.6	4.3	6.8	4.5	5.8	3.8
7 Residence near Saratoga Way	7.8	5.1	6.1	4.1	6.2	4.1	5.9	3.9	6.5	4.3	6.8	4.5	5.4	3.6
8 Residence near Saratoga Way	7.6	5.0	6.0	4.0	6.2	4.1	5.6	3.7	6.3	4.1	6.8	4.5	5.3	3.5
9 Residence near Saratoga Way	7.7	5.1	6.0	4.0	6.2	4.1	5.7	3.8	6.7	4.4	7.1	4.7	5.4	3.6
10 Shopping Center	7.5	4.9	5.8	3.9	5.7	3.8	5.7	3.8	6.6	4.3	6.3	4.1	5.5	3.6
11 Shopping Center	7.6	5.0	6.2	4.1	6.2	4.1	6.0	4.0	6.7	4.4	6.7	4.4	5 8	3.8
12 Shopping Center	7.7	5.1	5.9	3.9	5.9	3.9	5.7	3.8	6.0	3.9	6.0	3.9	5.2	3.4
13 Restaurant	8.0	5.3	6.3	4.2	6.3	4.2	6.1	4.1	6.6	4.3	6.6	4.3	5.8	3.8
14 Gas Station	8.3	5.5	6.8	4.5	6.8	4.5	6.7	4.4	7.0	4.6	7.0	4.6	6.4	4.2
15 Gas Station	8.4	5.5	6.8	4.5	6.8	4.5	6.5	4.3	7.6	5.0	7.6	5.0	6.4	4.2
16 Gas Station	7.6	5.0	5.8	3.9	5.8	3.9	5.4	3.6	5.8	3.8	5.9	3.9	5.1	3.4
17 Restaurant	7.7	5.1	6.0	4.0	6.0	4.0	5.6	3.7	6.3	4.1	6.2	4.1	5.3	3.5
18 Gas Station	7.6	5.0	5.7	3.8	5.7	3.8	5.3	3.5	5.6	3.7	5.6	3.7	5.0	3.3
Maximum Concentration	8.4	5.5	6.8	4.5	6.8	4.5	6.7	4.4	7.6	5.0	7.6	5.0	6.4	4.2

Notes: 1-hour results include a background concentration of 6.1 ppm, 3.9 ppm, and 3.2 ppm for existing conditions, 2005 conditions, and 2020 conditions, respectively.
8-hour results include a background concentration of 4.0 ppm, 2.6 ppm, and 2.1 ppm for existing conditions, 2005 conditions, and 2020 conditions, respectively.
Receptor numbers correspond to the numbers shown on Figure5-1.

Visual Resources

Most visual impacts associa
would be the same as described in C
of Saratoga Way proposed under A
townhouses in the northwest quadr

**Impact: Changes in Vie
Quadrant.** The close proximity of
changes to views from the townh
described for the Preferred Alterna

**Mitigation Measure: Pro
from Private Residences.** Consti
impacts of the Preferred Alternativ
recommended to screen adverse cha
treatments to the sound wall. If the
effectively compensate for this imp

Impact: Changes in Lig
would cause light from the new lum
to be directly visible to the town
determined not to be adverse for th
would be adverse under Alternative
and location of the luminaries wou
at the townhouses adjacent to M
increased. This is considered an a

**Mitigation Measure: In
from Residences.** The luminarie
Arrowhead Drive intersections sho
residences. The cut-off shields s
directly visible from any windows
compensate for this impact. This

Traffic

The mainline, ramp junc
are identical to the results for the
of the intersection analysis do va
Table 13-4 summarizes the a.m. a
interim (2005) conditions for Al
cumulative (2020) conditions. T
would be identical to the Preferr

Table 13-4. Peak-Hour Intersection Operations - Interim (2005) Conditions

Intersection	Control	A.M. (P.M.) Peak Hour			
		Alternative I		Alternative II	
		Average Delay (seconds per vehicle)	Level of Service	Average Delay (seconds per vehicle)	Level of Service
Latrobe Road/ U.S. Highway 50 eastbound ramps	Signalized	21.1 (27.5)	C (D)	17.7 (31.8)	C (D)
El Dorado Hills Boulevard/ U.S. Highway 50 westbound ramps	Signalized	19.8 (18.7)	C (C)	21.8 (15.0)	C (B)
El Dorado Hills Boulevard/ U.S. Highway 50 westbound off-ramp	Two-way stop	Not applicable		2.3 (22.9)[a]	A (D)
El Dorado Hills Boulevard/ Park Drive	Signalized	14.6 (21.3)	B (C)	16.3 (19.1)	B (C)

[a] Delay shown is a weighted average of all movements at the intersection. The westbound diagonal off-ramp right-turning movement operates at LOS F during the p.m. peak hour.

Because implementation of Alternative I would result in the same transportation impacts identified for the Preferred Alternative (see Chapter 7), each mitigation measure recommended for the impacts of the Preferred Alternative would also apply to Alternative I.

Land Use and General Plan Consistency

Land use impacts are the same for Alternative I as those described in Chapter 8 for the Preferred Alternative. However, Alternative I would maintain a more usable commercial parcel between Saratoga Way and El Dorado Hills Boulevard and would reduce potential right-of-way acquisition costs.

Table 13-5. Peak-Hour Intersection Operations - Cumulative (2020) Conditions

Intersection	Control	A.M. (P.M.) Peak Hour		
		Alternative I		Alternati
		Average Delay (seconds per vehicle)	Level of Service	Average Delay (seconds per vehicle)
Latrobe Road/ U.S. Highway 50 eastbound ramps	Signalized	7.4 (6.1)	B (B)	7.7 (7.2)
El Dorado Hills Boulevard/ U.S. Highway 50 westbound ramps	Signalized	23.1 (24.6)	C (C)	21.2 (10.5)
El Dorado Hills Boulevard/ U.S. Highway 50 westbound off-ramp	Two-way stop	Not applicable		2.8 (36.0)[a]
El Dorado Hills Boulevard/ Park Drive	Signalized	35.7 (39.7)	D (D)	36.9 (36.4)

[a] Delay shown is a weighted average of all movements at the intersection. The westbound diago right-turning movement operates at LOS F during the p.m. peak hour.

Earth Resources

Grading impacts of Alternative I would be substantially the same as thos Chapter 9 for the Preferred Alternative. Although grading would occur somewhat clc residences in the northwest quadrant under Alternative I, the associated impacts of short-term erosion rates and potential exposure of people to asbestos are consid adverse, as described for the Preferred Alternative.

Hydrology and Water Quality

Hydrology and water quality impacts of Alternative I would be substantia those described in Chapter 10 for the Preferred Alternative. The identified impacts activities and urban pollutant loadings associated with the Preferred Alternative are to be adverse, or would be mitigated for Alternative I.

Biological Resources

Biological resource impacts of Alternative I are identical to the impacts described in Chapter 11 for the Preferred Alternative.

Cultural Resources

Cultural resource impacts of Alternative I are identical to the impacts described in Chapter 12 for the Preferred Alternative.

Alternative II

Alternative II is similar to the Preferred Alternative, but includes a westbound diagonal off-ramp with two stop-controlled, right-turn lanes. Signalized left-turn movements from the westbound loop off-ramp onto El Dorado Hills Boulevard would not be included as in the Preferred Alternative.

Noise

Alternative II involves a modification of the westbound off-ramp which splits the northbound traffic to a ramp that goes directly to El Dorado Hills Boulevard and southbound traffic to a loop ramp in the northwest quadrant. Use of the ramp by northbound traffic will reduce traffic on the loop ramp. From a noise perspective, the change in traffic on these ramps will have little or no effect on residences in the northwest quadrant of the interchange or commercial uses in the northeast quadrant of the interchange because of the high noise levels generated by traffic on mainline U.S. Highway 50 and El Dorado Hills Boulevard.

Construction noise impacts of Alternative II are the same as those described for the Preferred Alternative. As indicated in Tables 13-1 and 13-2, traffic noise impacts of Alternative II are also the same as those described for the Preferred Alternative.

Construction of sound barriers, as described in Chapter 4, would be required to reduce traffic-noise levels at adjacent residences to below both the FHWA/Caltrans peak-hour noise abatement criterion and the County's normally acceptable noise criterion.

Air Quality

Most air quality impacts associated with Alternative II would be the same as those described in Chapter 5 for the Preferred Alternative. Table 13-3 indicates that the CO level under the 2005 Alternative II scenario would be the same or slightly lower than either the Preferred Alternative or Alternative I at many of the residential receptors in the northwest quadrant. As under the Preferred Alternative, this is a substantial reduction in CO concentrations over the existing conditions.

Table 13-3 indicates that the highest predicted CO level under the 2 scenario would be 6.7 ppm for the 1-hour averaging period and 4.4 ppm for th period. Because the alternative would not cause a new violation of the standar an existing violation, this impact is considered not to be adverse.

Table 13-3 also indicates that the highest predicted CO level under the scenario would be 6.4 ppm for the 1-hour averaging period and 4.2 ppm for th period. Because the alternative would not cause a new violation of the standar an existing violation, this impact is considered not to be adverse.

The modeling results indicate that the four townhouses facing El Dora (receptors 6-9) in the northwest quadrant of the project site, will experienc Alternative II that are generally .01 ppm to .04 ppm lower than those associate Alternative in 2005. CO levels would be .01 ppm to .06 ppm lower than th Alternative I in 2005.

Visual Resources

The visual impacts associated with Alternative II and the recommended would be identical to those described in Chapter 6 for the Preferred Alternativ

Traffic

Implementation of Alternative II would result in the same transportatic for the Preferred Alternative (see Chapter 7). Intersection operations und similar to the Preferred Alternative and Alternative I (see Tables 13-4 an Alternative II includes the unsignalized El Dorado Hills Boulevard/U.S. Highw ramp intersection, which is expected to operate at LOS E in 2005 and LOS F in peak hour. Severe queuing is expected on the westbound off-ramp because o signalized westbound loop off-ramp (70 meters to the north) intersection. Nc this signalized intersection will frequently queue back beyond the westboun thereby preventing right turns onto El Dorado Hills Boulevard. Queuing on the off-ramp is expected to extend back onto the mainline by 2020, thereby bl westbound loop off-ramp and creating safety concerns from potential rear- mainline.

Impact: Unacceptable Operations at the El Dorado Hills Westbound Off-Ramp Intersection in 2020. Implementation of Alternative F operations at the unsignalized El Dorado Hills Boulevard/U.S. Highway 5(intersection under 2020 conditions. Furthermore, extensive queuing would c the traffic flow on the mainline and on the westbound loop off-ramp. This is impact.

Mitigation Measure: None Available. The design of Alternative II provides for dual right-turn lanes with substantial vehicle storage. However, the operational problems identified above would still occur. The provision of a third right-turn lane was considered but rejected as infeasible because of the operational problems that would be caused by having three vehicles turning right onto El Dorado Hills Boulevard from an unsignalized approach. Therefore, this impact is considered adverse even with mitigation.

Land Use and General Plan Consistency

Land use impacts are the same for Alternative II as those described in Chapter 8 for the Preferred Alternative.

Earth Resources

Grading impacts of Alternative II would be substantially the same as those described in Chapter 9 for the Preferred Alternative.

Hydrology and Water Quality

Hydrology and water quality impacts of Alternative II would be substantially the same as those described in Chapter 10 for the Preferred Alternative.

Biological Resources

Biological resource impacts of Alternative II would be identical to the impacts described in Chapter 11 for the Preferred Alternative.

Cultural Resources

Cultural resource impacts of Alternative II would be identical to the impacts described in Chapter 12 for the Preferred Alternative.

Chapter 14. Cumulative Impacts, Growth-Inducing Impacts, and Other Requirements

CUMULATIVE IMPACTS EVALUATION

The State CEQA Guidelines require a discussion of cumulative impacts of a project when a project's incremental effect is cumulatively considerable. Cumulative impacts occur when two or more individual effects together create a considerable environmental impact, or when they compound or increase other impacts. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the proposed project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result when individually minor but collectively significant projects take place over a period of time. A project's contribution is less than cumulatively considerable, and therefore less than significant under CEQA, if the project is required to implement its fair share of mitigation measures designated to alleviate the cumulative impact (State CEQA Guidelines, Section 15130 (a)).

The possible future projects considered can consist of a list of specific projects or a summary of projections contained in an adopted general plan designated to evaluate regional or area-wide conditions (State CEQA Guidelines, Section 15130). The noise, air quality, and traffic cumulative impact analyses presented below rely on regional traffic modeling, as described in "Traffic Forecasts". The approach used to analyze cumulative impacts for all other environmental topics follows the "list" approach, as described in "Past, Present, and Probable Future Projects".

According to NEPA regulations, a cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions (40 CFR 1508.7).

Traffic Forecasts

The information in this section is summarized from the "Final Draft Traffic Analysis Report for the U.S. 50/El Dorado Hills Boulevard/Latrobe Road Interchange Improvements" by Fehr & Peers Associates (February 23, 1999) and the "Traffic Forecasts" section in Chapter 7 of this report.

Traffic forecasts used in the traffic impact analysis conducted for the proposed project (see Chapter 7 of this report, "Traffic and Circulation") were developed as part of the "U.S. Highway 50 Interchange Planning Study through Folsom and Western El Dorado County" (Fehr & Peers

Associates 1995). The study evaluated future demand and interchange needs for the entire corridor through Folsom and western El Dorado County from Folsom Boulevard to the Silva Valley Parkway. Roadway network assumptions are consistent with the Folsom General Plan, El Dorado County General Plan, and an updated version of the Prairie City Model. (The Prairie City Model was developed by Caltrans for the U.S. Highway 50/Prairie City Road Interchange Project Report.) To develop the traffic forecasts, the Sacramento Area Regional Model (SACMET) was adapted to include network detail in eastern Folsom and western El Dorado County to more accurately reflect future travel conditions, particularly along the eastern end of the corridor. The final assumptions were based on direction by Caltrans, the City of Folsom, and El Dorado County regarding land use and network changes in 2005 and 2020. The 2005 traffic forecasts were developed by interpolating between existing and 2020 traffic forecasts.

The transportation improvements assumed in the 2005 and 2020 analyses are listed in Chapter 7, "Traffic and Circulation", of this report in the "Planned Roadway Improvements" section. The 2005 analysis includes those improvements in the vicinity of the proposed project contained in the El Dorado County Five-Year Capital Improvement Program, dated January 6, 1998. In addition, the 2020 analysis contains improvements identified in the El Dorado County General Plan.

Past, Present, and Probable Future Projects

Information on past, present, and probable future projects was obtained from El Dorado County staff. Table 14-1 presents a list of projects considered in this cumulative analysis. The location of these projects is presented in Figure 14-1. These projects include:

- projects that have been approved but are not built or are under construction; and
- projects for which an application has been received.

As noted above, a list of probable transportation improvements is contained in Chapter 7 of this report.

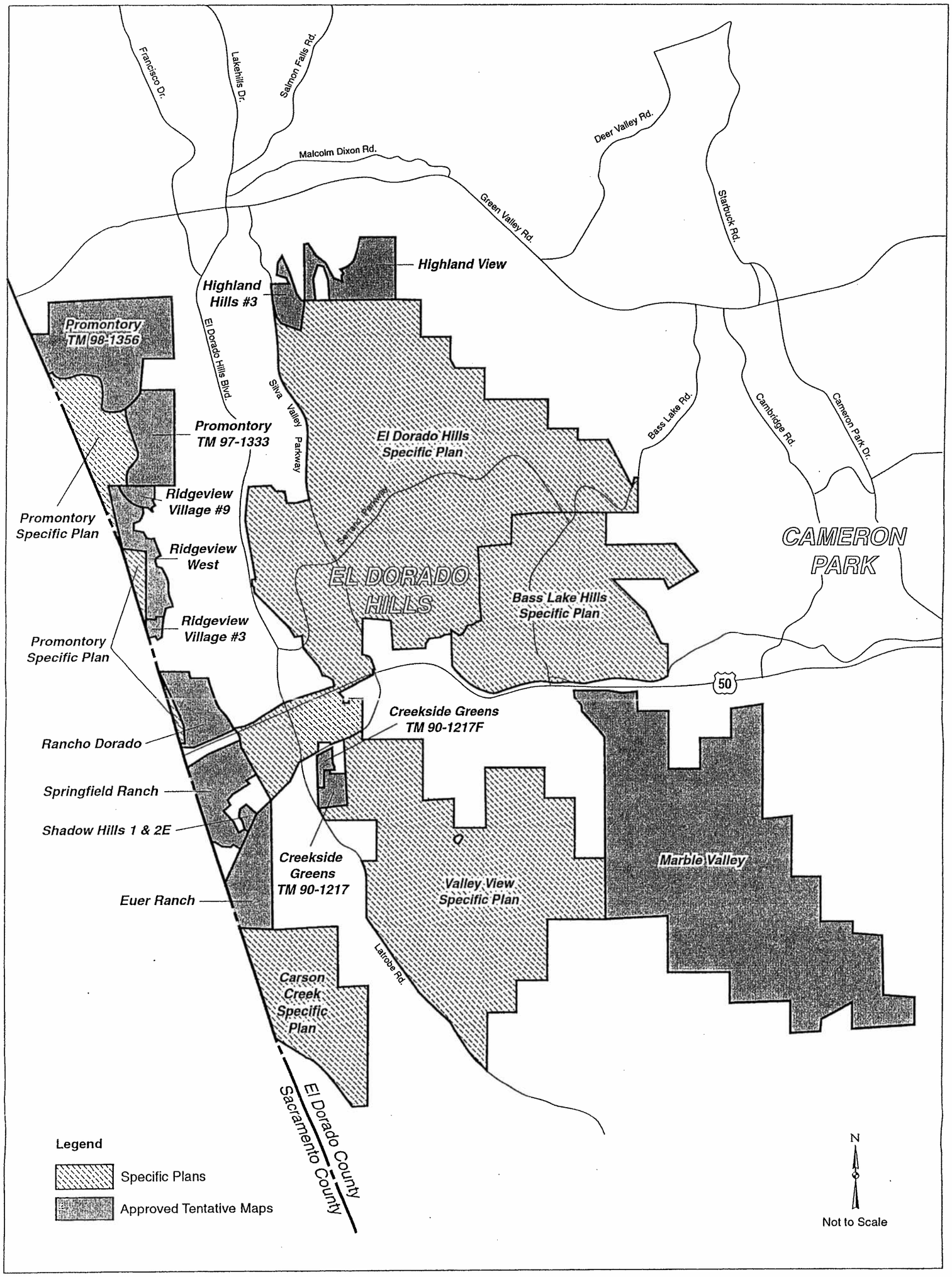
Assessment of Cumulative Impacts

The following analysis addresses the environmental issues that are discussed in Chapters 4 through 12 of this report.

Table 14-1. Cumulative Development Projects in El Dorado Hills

Project	Type	Size	Status
Specific Plans			
Bass Lake Hills Specific Plan	Residential	1,255 acres, 1,458 DUs [1]	TM [2] approved 2/96; not yet constructed; in litigation
Carson Creek Specific Plan	Age-restricted residential, industrial, or research and development, parks, stream corridors/wetlands	716 acres, 1,700 age-restricted DUs 18 non-age restricted DUs	TM approved; not yet constructed
El Dorado Hills Specific Plan	Residential	3,756 acres, 4,453 DUs	TM approved on approx. 60% of site; approx. 30% of sites recorded; under construction in approx. sixth year of 20-year master plan
Promontory Specific Plan	Residential, office, commercial, schools, parks, riparian corridor, public trail	999 acres, 1,100 DUs	TM approved 10/98; not yet constructed
Valley View Specific Plan	Residential, commercial/ office, public/semi-public, parks and recreation, and open space/buffer	2037 acres, 2,840 DUs	Specific plan approved 9/99; no TM approval
Tentative Maps			
Ridgeview Village #3	Residential	13 acres, 10 DUs	TM expired on 10/18/99
Highland Hills Unit 3	Residential	53 acres, 13 DUs	TM approved 11/97, not yet constructed
Highland View	Residential	166 acres; 156 DUs	Under construction
Ridgeview Village #9	Residential	25 acres; 48 DUs	TM expired; time extension on hold; subject to general plan litigation writ of mandate
Shadow Hills 1 & 2E	Residential	12 acres; 37 DUs	TM approved 1/99; not yet constructed
Rancho Dorado	Residential	126 acres; 207 DUs	TM approved 10/98; not yet constructed
Springfield Ranch	Residential	141 acres; 258 DUs	TM approved 9/92; not yet constructed
Creekside Greens (TM 90-1217)	Residential	36 acres, 139 DUs	Under construction
Creekside Greens (TM 90-1217F)	Residential	17 acres; 61 DUs	Under construction
Marble Valley	Residential	2,263 acres; 398 DUs	TM approved 6/97; not yet constructed
Ridgeview West	Residential	114 acres; 85 DUs	TM expired 8/99; automatic time extension pending
Euer Ranch	Residential	167 acres; 476 DUs	TM approved 3/97; not yet constructed
Promontory (TM 97-1333)	Residential	171 acres; 122 DUs	TM approved 10/98; not yet constructed
Promontory (TM 98-1356)	Residential	450 acres; 609 DUs	Continued by Board of Supervisors until 12/99

[1] DUs = dwelling units
[2] TM = tentative map



Jones & Sources Associates, Inc.

Figure 14-1
Cumulative Development Projects in El Dorado Hills

Noise

The 2005 and 2020 noise analyses in Chapter 4, "Noise", are inherently cumulative and are based on the 2005 and 2020 traffic impact analyses contained in Chapter 7, "Traffic and Circulation" (see also the "Traffic Forecasts" section of this chapter).

The increase in noise levels in 2005 and 2020 resulting from the proposed project (as compared to No Project 2005 and 2020 conditions, respectively) would be less than 3 dB and, therefore, imperceptible. However, the overall 2005 and 2020 traffic noise levels resulting from background growth exceed the County planning standard of 60 dB L_{dn} and the FHWA/Caltrans criteria of 67 dB L_{eq} for residential uses. These cumulative impacts would be reduced to levels below County and FHWA/Caltrans standards with implementation of Mitigation Measures 4.3a for 2005 conditions and 4.5a for 2020 conditions (Construct Sound Barriers along the Eastern and Southern Property Lines of Residences Located in the Northwest Quadrant of the Interchange) and Mitigation Measures 4.3b (2005) and 4.5b (2020) (Evaluate the Interior Noise Levels of Residences and Improve the Acoustical Insulation to Result in Interior Noise Levels below 45 dB L_{dn} or 52 dB L_{eq}). The project's incremental contribution to 2005 and 2020 cumulative noise levels is less than significant under CEQA; the difference in noise levels in 2005 with and without project conditions, and in 2020 with and without project conditions, would be imperceptible. However, under FHWA regulations, a traffic noise impact is considered to occur and noise abatement measures must be considered when predicted noise levels approach or exceed the noise abatement criteria specified in the regulation. The County also has noise-level criteria for residential uses. Because the overall cumulative 2005 and 2020 noise impacts are predicted to approach or exceed FHWA noise abatement criteria and the County's noise-level criteria, 2005 and 2020 noise impacts are mitigated to below FHWA and County standards and, therefore, under CEQA would be considered less than significant after mitigation.

Air Quality

The 2005 and 2020 analyses conducted for air quality that are contained in Chapter 5, "Air Quality", are inherently cumulative analyses and are based on the 2005 and 2020 traffic impact analyses contained in Chapter 7 (see also the "Traffic Forecasts" section above).

In 2005 and 2020, the project is found to conform with the 1996 Metropolitan Transportation Plan and, therefore, does not cause or contribute to a violation of the federal ozone and PM10 ambient air quality standards. In addition, the proposed project would not cause a new violation or contribute to an existing violation of CO standards in 2005 or 2020. Therefore, although the proposed project would incrementally increase CO concentrations for sensitive receptors, its incremental contribution to cumulative operational-related air quality impacts would be less than significant.

Cumulative development in the project vicinity would also result in an increase in exhaust, dust, and other miscellaneous short-term emissions associated with construction activity of approved and planned development (see Table 14-1). Construction of the proposed project would result in the

temporary generation of emissions from construction. Emissions of ROG, NO_x, and PM10 are expected to exceed the El Dorado County Air Pollution Control District's (APCD's) daily threshold level of 10 pounds per day (ppd) for ROG and NO_x and 80 ppd for PM10. While construction-related emissions are expected to exceed the daily threshold levels, quarterly emissions associated with the project would be well below the quarterly threshold level of 7,500 pounds. Implementation of Mitigation Measure 5.1 (Comply with El Dorado County APCD's Construction Measures) would reduce short-term air quality impacts to less-than-significant levels under CEQA. Therefore, the project's incremental contribution to cumulative short-term emissions would be less than significant under CEQA since the project is implementing its fair share of mitigation measures designed to reduce cumulative impacts.

Visual Resources

Cumulative development in the project vicinity (see Table 14-1) would result in long-term changes to the aesthetic character of many locations, from open, undeveloped lands to more suburban and urban uses. Views from roadways and U.S. Highway 50 and from local residences would be altered. For residents in the northwest quadrant, moderately vivid, intact, and unified views of the hills that are visible in the background beyond the interchange would be changed by the ongoing development that is planned and approved for the project vicinity.

The proposed project would introduce new visual elements to the interchange, such as a new loop-ramp in the northwest quadrant, an exposed cut-slope in the southwest quadrant, realignment of Saratoga Way, and increased lighting and highway plantings throughout the interchange. These elements, as viewed from existing roads, would be unobtrusive and similar to the existing interchange facility.

Sound barriers proposed as mitigation to address traffic noise impacts of the project would change views of the project sites for residences in the northwest quadrant. The proposed barriers would affect and might completely block scattered and filtered views of the project site from at-grade locations, as well as less-obscured views from second-story windows.

Because the proposed project would adversely impact the views from residences in the northwest quadrant, it would incrementally contribute to significant cumulative visual quality impacts under CEQA. Providing aesthetic treatments to the proposed sound barriers, as described in Mitigation Measure 6.3, would reduce the project's incremental contribution to less than significant under CEQA.

Traffic and Circulation

The 2005 and 2020 analyses conducted for traffic and circulation that are contained in Chapter 7, "Traffic and Circulation", are inherently cumulative (see also the "Traffic Forecasts" section above).

The purpose of the proposed project is to increase interchange capacity to accommodate existing and planned growth. Under 2005 conditions, the project would add capacity to each ramp junction. Traffic operations, however, would not improve over the No Project conditions on the westbound off- and on-ramps during the a.m. peak hour and at the eastbound diagonal on-ramp during the p.m. peak hour due to the extreme congestion on mainline U.S. Highway 50 (see Table 7-10). Implementation of the proposed project, however, would improve operations at each ramp terminal intersection. Level of service (LOS) at each ramp terminal intersection (Table 7-11) and on Saratoga Way west of El Dorado Hills Boulevard (Table 7-12) would be acceptable under With Project 2005 conditions.

Under 2020 conditions, the proposed project would improve operations at each ramp junction to LOS D or better (Table 7-13). The proposed project would also improve operations at each ramp terminal intersection from LOS F to LOS C or better (Table 7-14). The project would exacerbate level of service on Saratoga Way from LOS D under 2020 No Project conditions to LOS E under 2020 With Project conditions (see Table 7-15). LOS D and E are considered acceptable levels of service based on County's General Plan Objective 3.5.1. This degradation in level of service is considered a significant incremental contribution to a cumulative impact under CEQA. To mitigate the project's incremental contribution to a less-than-significant level under CEQA, the County will implement the County's General Plan Circulation Element Circulation Map (Volume 1, Chapter 3, page 49), which designates Saratoga Way as a four-lane roadway to be extended to the proposed extension of Iron Point Road in Folsom, if and when volumes on Saratoga Way exceed acceptable levels of service under the County's general plan requirements. If and when the County Board of Supervisors decide as a future action, unrelated to this project, to widen Saratoga Way to four lanes, improved operations could be achieved under No Project and With Project conditions in 2020. If a specific proposal for widening and extending Saratoga Way is introduced in the future, such a proposal would undergo separate environmental review.

Land Use and Socioeconomics

The proposed project entails reconstruction of an existing interchange within the footprint of the existing facility. The project would not result in or contribute to land use conflicts or impacts on agricultural resources.

If construction of the proposed project overlaps with construction of any projects listed in Table 14-1, and if these projects share common infrastructure, cumulative impacts could occur on EID water and wastewater lines and communication, electricity, and natural gas infrastructure. In addition, emergency response activities could be affected if multiple, concurrent projects are constructed along routes used by emergency response vehicles. The project's incremental contribution to these impacts is expected to be less than significant under CEQA since the project would include funding for the relocation of utilities. Users of these utilities would also be notified prior to any disruption of service, and emergency response providers would be notified of construction plans and schedules in advance.

Earth Resources

Cumulative development in the project vicinity (see Table 14-1) could result in increased rates of erosion and sedimentation of local water courses and could expose people to asbestos due to ground surface disturbance. The proposed project would incrementally contribute to these impacts on earth resources. However, applying the existing erosion and asbestos control measures required by local, state, and federal agencies would reduce the project's incremental contribution to these impacts to a less-than-significant level under CEQA. The additive impacts of cumulative development on erosion, sedimentation, and asbestos exposure would also be reduced if each planned development incorporated erosion and asbestos control measures into project design.

Hydrology and Water Quality

Cumulative development in the project vicinity (see Table 14-1) could result in increased frequency and extent of flooding, temporary degradation of water quality due to construction activities, and long-term degradation of water quality due to urban pollutants.

The proposed project; portions of the El Dorado Hills, Bass Lake Hills, Carson Creek, and Valley View Specific Plan areas; and Marble Valley, Creekside Greens, Euer Ranch, Shadow Hills, Springfield Ranch, and Rancho Dorado (see Figure 14-1) all drain south to Carson Creek and the Cosumnes River. The remaining areas identified in Figure 14-1 drain north to Allegheny or Willow Creeks and the American River. With development of these areas, the volume of runoff during large flood events would not be substantially greater than under natural conditions, as the soils are relatively impermeable soils; however, the rate of runoff might be much greater. Urbanization generally reduces the time necessary for concentrated runoff to collect in channels, especially in steep areas, resulting in greater peak flow. This, in turn, may result in a greater extent or increased frequency of flooding.

Cumulatively, development in the project vicinity is likely to result in significant flood-related impacts. (The extent, frequency, and duration of this flooding would require extensive hydrologic and hydraulic modeling that is impossible at this time because data essential to running those models such as the location and areal extent of paved surfaces in future probable projects, do not presently exist. Therefore, any models or projections would be wholly speculative.) However, because the proposed project is located close to the valley floor of the Carson Creek drainage and involves reconstruction of an existing interchange in an area that is already paved, the proposed project is expected to increase runoff rates by a negligible amount when compared to existing conditions. Therefore, the proposed project's incremental contribution to flooding in the Carson Creek drainage is considered less than significant under CEQA.

Cumulative development in the project vicinity could result in temporary degradation of water quality due to ground disturbance and construction activities. The proposed project would incrementally contribute to short-term water quality impacts. Applying erosion control measures required by local, state, and federal agencies would ensure that the project's incremental contribution to cumulative impacts is less than significant without mitigation because it will be implementing

fair share of protective measures. If implemented as part of each planned development project, these measures would also reduce the additive impacts caused by cumulative development.

Cumulative development in the project vicinity could result in degradation of water quality over the long-term due to urban runoff. However, implementation of the project would improve the level of service at the Highway 50/El Dorado Hills Boulevard-Latrobe Road interchange and at adjacent intersections (with the exception of Saratoga Way in 2020, as explained in the "Traffic and Circulation section above and in Chapter 7, "Traffic and Circulation"). Reducing congestion means less braking, shifting, and accelerating, which in turn reduces the quantities of brake and clutch dust, exhaust particles, and oil drips (identified in Chapter 10, "Hydrology and Water Quality", as principal roadway pollutants) that accumulate on the roadway. In addition, applying Mitigation Measure 10.2 (Implement Best Management Practices to Control Urban Pollutants) would further reduce urban pollutant loadings. Therefore, the proposed project's incremental contribution to water quality degradation in the Carson Creek drainage is considered less than significant under CEQA. The additive impacts of cumulative development on water quality would also be reduced if each planned project incorporated Best Management Practices into project design.

Biological Resources

The proposed project would result in the filling of 0.15 acres of seasonal wetlands in an intermittent drainage. Cumulative development in the project vicinity would also result in impacts on seasonal wetlands, including Plunkett Creek and the Carson Creek drainages. Therefore, the project would incrementally contribute to significant cumulative impacts under CEQA on waters of the United States, including seasonal wetlands. The project's incremental contribution would be mitigated to a less-than-significant level by implementing Mitigation Measures 11.2a (Avoid Disturbance of Drainages and Wetland and Riparian Vegetation), 11.2b (Minimize Impacts on Perennial Drainages), and 11.2c (Compensate for the Loss of Potential Wetland and Riparian Vegetation). The project would also comply with Section 404 of the federal Clean Water Act (see Appendix G of Volume II).

Habitat for special-status plants does not occur on or adjacent to the project site. No special-status wildlife species were observed at the project site, and no suitable habitat for special-status wildlife species is present. Therefore, the proposed project is not expected to impact special-status plant or wildlife species, and would not contribute to these impacts on a cumulative basis.

Cultural Resources

Future development of the projects listed in Table 14-1 has the potential to damage cultural resources located on or under the construction site. If resources are found and not properly recorded or removed, then a cumulative loss of cultural resources could occur.

No known cultural resources are known to occur within the project site. The project's potential incremental contribution to adverse effects on unknown cultural resources would be avoided

by implementing Mitigation Measure 12.1 (Implement a Plan for the Unanticipated Discovery of Cultural Resources).

GROWTH INDUCEMENT

Section 15126.2(d) of the State CEQA Guidelines provides the following guidance in discussing growth-inducing impacts of the proposed project:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Responses to CEQA Guidance

Would the project foster economic or population growth or the construction of additional housing?

The proposed project is considered a mitigation measure to address existing and future traffic and circulation impacts on existing, planned, and approved development in El Dorado Hills. It is being proposed to accommodate the additional economic and population growth that has been planned for and approved. (Approximately 70% of total vehicle trips on the El Dorado Hills Boulevard-Latrobe Road interchange in 2015 will be going to or coming from El Dorado Hills. Of the remaining 30%, 16% will be from the Cameron Park/Shingle Springs area, and the remaining 14% will represent trips from various other parts of the county.)

Table 14-1 presents a list of major specific plans and tentative maps in El Dorado Hills (see also Figure 14-1). As noted in Table 14-1, all of these projects, except the Valley View Specific Plan, have approved tentative maps. (It should also be noted that three projects listed in Table 14-1, with a total of 143 dwelling units, have expired tentative maps. If these projects do not receive approval of time extensions on their tentative maps, they could be subject to the general plan litigation writ of mandate, as described below.) Therefore, planned development in El Dorado Hills can proceed (with the exception of Valley View), even if the proposed project is not implemented since final map approval is a ministerial action if the conditions of the tentative map are met. The proposed project would not foster the vast majority of economic or population growth in the El Dorado Hills area.

(The 2,840 residential units proposed by the Valley View Specific Plan represent 20.0% of the total 14,188 units proposed by the projects presented in Table 14-1.)

It should also be noted that the litigation against the County's General Plan does not change the conclusion that the proposed project would not foster the vast majority of planned growth in the El Dorado Hills area. The final writ of mandate and judgment in this court case allows the following:

- projects that do not require discretionary land use approvals to move forward, and
- discretionary approvals for residential projects subject to development agreements effective prior to the invalidation of the general plan.

Therefore, the writ of mandate allows all projects with approved tentative maps and/or development agreements effective before February 5, 1999 (i.e., all projects listed in Table 14-1 except the Bass Lake Hills Specific Plan and projects specified as having expired tentative maps without approved time extensions [see the "Comments" column in Table 14-1]) to move forward.

Would the project remove obstacles to population growth?

Congestion and unacceptable levels of service at this interchange may function as an obstacle to future growth in the El Dorado Hills area if they hamper or delay market decisions to build additional planned and approved residential and commercial projects, even those that are already vested. The proposed project would remove this obstacle to growth. However, congestion and unacceptable levels of service by themselves might not substantially affect market demand for additional residential and employment-generating uses; lack of adequate services, such as sewer and water services, would likely have a more direct effect on market demand.

Due to the recently enacted Measure Y, implementation of the proposed project would likely remove an obstacle to development planned for by the Valley View Specific Plan. Measure Y adds a new policy to the El Dorado County General Plan that states that traffic from residential development projects of five or more parcels of land must not result in LOS F or worse traffic congestion during weekday, peak-hour periods on any highway, road, interchange or intersection in the unincorporated areas of the county. Mitigation Measure T-16, adopted as part of Valley View Specific Plan approval, requires that every tentative map proposed by the applicant or his successor comply with the applicable level of service specified in the new policy enacted by Measure Y. Because the proposed interchange reconstruction would mitigate traffic impacts associated with the Valley View Specific Plan (see Impacts and Mitigation Measures T-3 and T-4 identified in the CEQA Findings of Fact for the Valley View Specific Plan, December 1998), implementation of the proposed project may be required to implement Mitigation Measure T-16.

Would the project tax existing community facilities?

The project would not directly influence the demand for other community facilities.

Would the project encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively?

The proposed project could foster development related to the Valley View Specific Plan by improving the interchange. It could also remove congestion-related obstacles to development planned for by the Valley View Specific Plan. Therefore, the proposed project could facilitate development, as planned for by the Valley View Specific Plan, that could significantly affect the environment, individually and cumulatively. The environmental impacts of implementing the Valley View Specific Plan were analyzed in the Final EIR for the Valley View Specific Plan (1998), hereby incorporated by reference. The CEQA Findings of Fact and Statement of Overriding Considerations for the Valley View Specific Plan, which contains a summary of impacts and mitigation measures, are included in Appendix K of Volume II of this report.

OTHER REQUIREMENTS

Short-Term Uses versus Long-Term Productivity

The Council of Environmental Quality (CEQ) NEPA regulations require that the environmental document include a discussion of the "relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity..." (40 CFR 1502.16). CEQA's requirement for a discussion of short-term uses versus long-term productivity was repealed in 1994.

The cumulative and long-term effects of the proposed project on the environment are described above under "Assessment of Cumulative Impacts". Other long-term commitments not seriously affecting the state of the environment include the resources necessary to construct the project, such as sand, gravel, and steel.

The long-term benefits of the project include increasing interchange capacity to accommodate existing and future, planned vehicular traffic; addressing existing operational deficiencies and safety problems associated with the interchange; and achieving LOS D at all ramp and adjacent roadway intersections in the year 2020.

Irreversible and Irretrievable Commitment of Resources

The CEQ NEPA regulations require that the environmental document include a discussion of "any irreversible and irretrievable commitments of resources which would be involved in the proposed action" (40 CFR 1502.16). CEQA does not require such a discussion unless the project involves the adoption or amendment of a plan, policy, or ordinance; determinations by a local agency formation commission; or an environmental impact statement (CEQA Guidelines 15127).

Implementation of the proposed project would result in an irretrievable commitment of energy and other nonrenewable resources used in building materials to construct the project. In addition, the project would preclude commercial development on a portion of the presently available commercial land located northwest of the intersection of El Dorado Hills Boulevard and Saratoga Way, as Saratoga Way would be relocated through this site.

Environmentally Preferred Alternative

CEQA requires that an environmentally preferred alternative be identified in the EIR. Chapter 13 addresses the impacts of the alternatives. Although the No Project Alternative would not result in any construction-related impacts, a number of significant traffic and circulation impacts associated with this alternative preclude its identification as the environmentally preferred alternative. Of the remaining alternatives, the Preferred Alternative is the environmentally preferred alternative because it has the least adverse traffic and circulation impacts, with the least air quality, noise, and visual impacts to residences in the northwest quadrant. Alternative II has almost unmeasurable additional reductions in air quality and noise impacts to residences in the northwest quadrant, but would result in a significant and unavoidable traffic impact.

Chapter 15. Citations and List of Agencies Consulted

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LIST OF AGENCIES CONSULTED

The following is a list of agencies consulted in preparing this report.

Federal Agencies

Federal Highway Administration
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service

State Agencies and Independent Commissions

California Air Resources Board
California Department of Fish and Game
California Department of Parks and Recreation
Caltrans, District 3
Central Valley Regional Water Quality Control Board
Native American Heritage Commission
State Office of Historic Preservation

Local/Regional Agencies and Special Districts

El Dorado County Air Pollution Control District
El Dorado County Department of Transportation
El Dorado County Environmental Management Department
El Dorado County Health Department
El Dorado County Planning Department
El Dorado County Transportation Commission
El Dorado County Transit Authority
El Dorado Hills Fire Department
El Dorado Irrigation District
City of Folsom
Sacramento Area Council of Governments

Private Organizations

Pacific Gas & Electric

Chapter 16. Report Preparation

This EIR was prepared by El Dorado County DOT with technical assistance from several consulting engineers and environmental specialists. The persons involved in its preparation, their roles, and their qualifications are listed below.

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15 years of experience

FEHR & PEERS ASSOCIATES, INC. – TRANSPORTATION CONSULTANTS

Matthew Henry, P.E. – Transportation Engineer
B.S., Civil Engineering, Memphis State University, Memphis, Tennessee -
12 years of experience