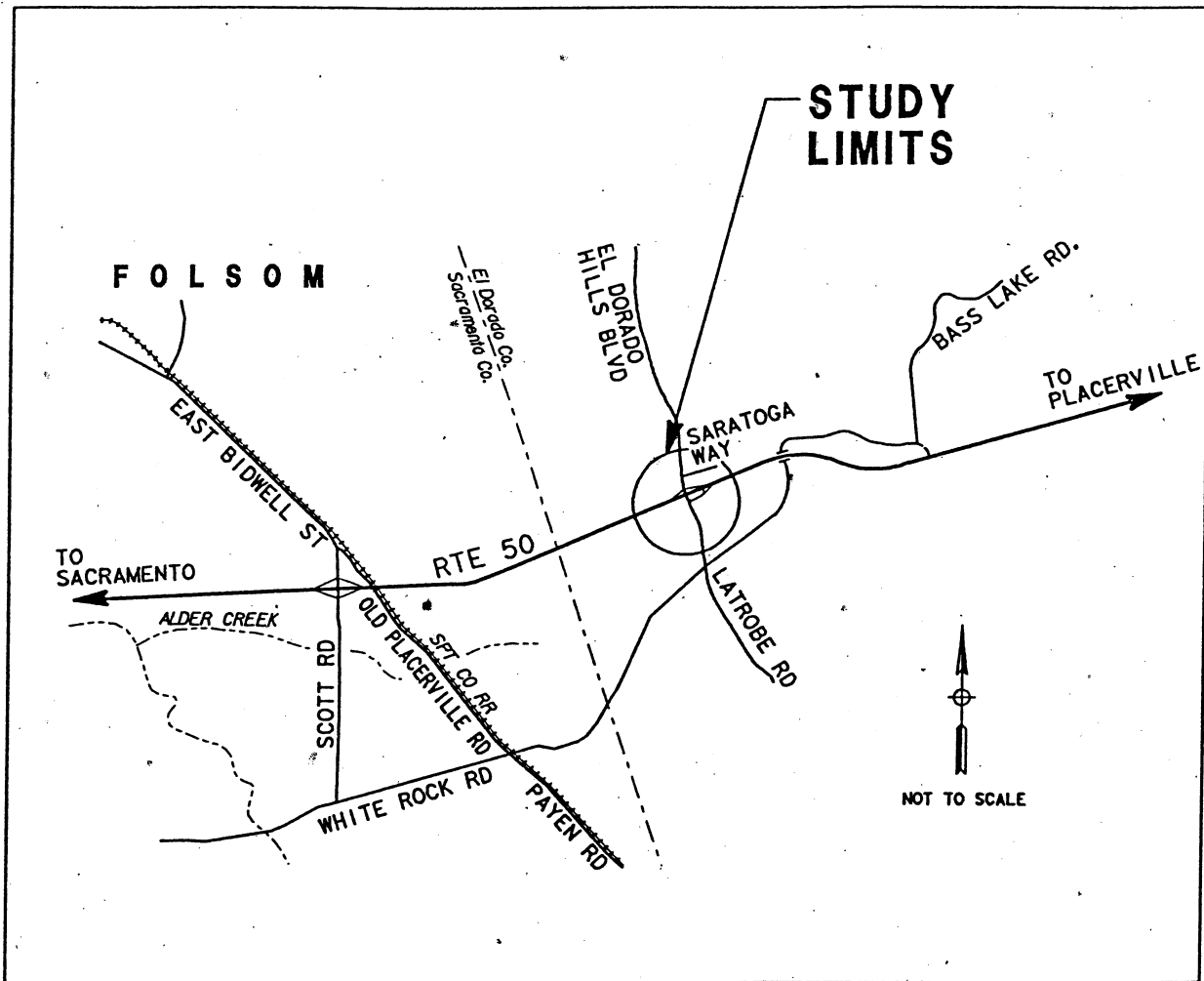
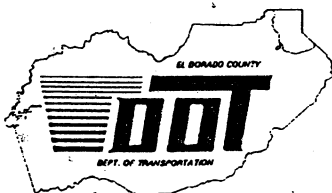


PROJECT STUDY REPORT/PROJECT REPORT



Route 50/El Dorado Hills Boulevard/Latrobe Road Interchange Reconstruction



Presented by


**HDR Engineering, Inc.
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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
 COMBINED DRAFT PROJECT STUDY REPORT/PROJECT REPORT (PSR/PR)

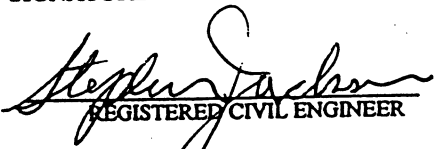


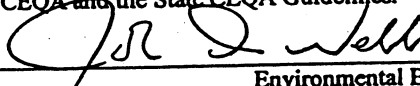

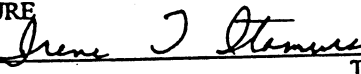
APPLICANT El Dorado County	DATE 6/2/00	DIST/CO/RTE/KP(PM) 03-ED-50-KP 0.3/2.5 (PM 0.2/1.6)
PREPARED BY Stephen R. Jackson, P.E.	BRIEF PROJECT DESCRIPTION Route 50/ El Dorado Hills Blvd/Latrobe Rd. Interchange Reconstruction	
TITLE HDR Engineering, Inc.		

REGISTERED ENGINEER STAMP



I attest to the technical information contained herein and the engineering data upon which recommendation, conclusions, and decisions were based.

SIGNATURE

 REGISTERED CIVIL ENGINEER
 6/1/00
 DATE

PERMIT NO. (If appropriate)	EA 434100
CALTRANS RESPONSIBLE UNIT	03-198
PROJECT MANAGER RECOMMENDATION <i>Michael Gorge</i>	DATE 6/9/00
TITLE/POSITION <i>Senior TE / Special Funded</i>	UNIT 03-198
ENVIRONMENTAL STATUS Based on the information submitted, I have determined <ul style="list-style-type: none"> Project is categorically exempt under the State CEQA Guidelines Final EIR (or ND) prepared for the project complies with CEQA and the State CEQA Guidelines.  Environmental Branch Chief	
RIGHT OF WAY CERTIFICATION "I have reviewed the right-of-way information contained in this Project Report and the right of Way Data Sheet attached hereto, and find the data to be complete, current, and accurate."  District Division Chief for Right of Way	
PROJECT APPROVAL Based on the information submitted, I have determined <ul style="list-style-type: none"> I have considered the information contained in the Final EIR or ND prepared by <u>El Dorado County</u> (local agency) and I approve the State highway portion of the project. I approve the project SIGNATURE  TITLE/POSITION District Director - 03 6/9/00 DATE	

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PROPOSAL

This combined Project Study Report/Project Report (PSR/PR) proposes reconstructing the El Dorado Hills Boulevard/Latrobe Road Interchange on U.S. Highway 50 from kilometer post (KP) 0.28 to 2.25 (See Attachment 1). Reconstructing the interchange is necessary for improving vehicular access from the growing community of El Dorado Hills to U.S. Highway 50 for projected traffic identified in the County of El Dorado's 1996 General Plan. The Project will also improve the vertical and horizontal alignment of the interchange on and off ramps, and widen El Dorado Hills Boulevard/Latrobe Road (see Attachments 3). The proposed project, Modified Alternative 3A/B, has an estimated total construction and right-of-way cost of \$22,666,000, with an estimated cost of \$11,246,000 for the Ultimate Phase, and a total estimated cost of \$11,420,000 for the interim Phase 1 improvements. All costs are in 1998 dollars (see Attachment 10 for a detailed estimate).

This project was initiated by the County of El Dorado. Initially the project was to be 100% locally funded and local funds have been allocated for the construction. With the passage of SB 45 there is an opportunity for the County to obtain STIP-RIP funds to fund a portion of the project. It has not been determined whether STIP-RIP funds will be used, what the exact funding ratios would be, or what the support responsibilities would be (i.e. PA and ED, PS&E, R/W Engineer and Construction Engineer). Therefore cost estimates for support activities are not included in this report.

The project is consistent with the El Dorado County Regional Transportation Improvement Program/Federal Transportation Improvement Program (RTIP/FTIP), and is included in the biennial 1998 Metropolitan Transportation Plan (MTP).

BACKGROUND

General Information

In July 1995, engineering and environmental studies were initiated to begin preliminary project development and preparation of the environmental document for the reconstruction of the El Dorado Hills Boulevard/Latrobe Road Interchange. The Project Development Team (Team) is made up of project personnel listed on page 69 of this report. The Team has met periodically to discuss the status of current studies and obtain suggestions and comments on the various proposed alternatives.

This combined PSR/PR and all supporting technical reports were prepared using the International System of Units (Metric system).

El Dorado County General Plan

In January 1996, the County of El Dorado adopted its General Plan. The General Plan identifies the nature of essential public services and facilities needed to accommodate growth in El Dorado County. A program EIR was prepared and certified in January 1996 that analyzes the impacts to the General Plan (State Clearinghouse Number 94012008). The General Plan incorporates the El Dorado Hills Specific Plan as its guideline for development in the western portion of El Dorado County. The El Dorado Hills Specific Plan, adopted in 1988, was designed to be consistent with and represent an expansion of the El Dorado County Long Range Plan and the El Dorado Hills /Salmon Falls Area Plan. The El Dorado Hills Specific plan provides for the orderly and systematic development of the Plan Area, which is comprised of approximately 1,620 hectares (ha) of property, and sets the future road network necessary for buildout of western El Dorado County.

The General Plan includes reconstruction of the El Dorado Hills Boulevard/Latrobe Road Interchange within the overall framework of facilities and infrastructure planning for El Dorado County. The reconstruction of the El Dorado Hills Boulevard/Latrobe Road Interchange is needed to accommodate the buildout of western El Dorado County as specified in the Specific Plan.

The core 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 western El Dorado County. Existing land uses in this area include golf courses, fire station, schools, limited commercial, and several residential subdivisions north of the interchange. There is a commercial center 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 0.42 kilometers south of White Rock Road. Currently, it is at approximately 10 to 15 percent of its buildout capacity. The Business Park generates a steady flow of traffic during the morning and evening peak hours.

El Dorado Hills Specific Plan

The El Dorado Hills Specific Plan identifies growth in commercial, residential, recreational, community, and business developments. A majority of plan area, approximately 1100 ha, is owned by Serrano Associates. Other major landowners in the

plan area include El Dorado Hills Investors Ltd. with 110 ha. Planned developments in the area include the buildout of the 370-ha El Dorado Hills Business Park located south of White Rock Road and west of Latrobe Road. The Plan identifies over 800 ha designated for residential development. This includes the development of North Uplands Golf Course Neighborhood north of Serrano Parkway and east of Silva Valley Parkway; South Uplands Golf Course Neighborhood lying between the North Uplands Golf Course Neighborhood and U.S. Highway 50; and the Valley Floor Neighborhood located west of Silva Valley Parkway between U.S. Highway 50 and Harvard Way. In the area north and west of the El Dorado Hills Boulevard/U.S. Highway 50 interchange 150 ha are designated for golf courses and a distinct town center consisting of an 11-ha community center including parkland, recreation and leisure services, public services and some retail. According to the Specific Plan, commercial land uses are limited to the major commercial area south of U.S. Highway 50 at Latrobe Road. Major commercial development planned for the area consists of Town Center East and West (Villages U and T). These two villages total approximately 100 ha of commercial development consisting of services for area residents and U.S. Highway 50 travelers. Types of uses to be included in this area are major retail department stores, automotive sale and service, hotel/convention center, restaurants, highway commercial and office parks. Interim commercial uses may be developed to provide an economic base and services to the El Dorado Hills community until the population can support a regional commercial center.

Circulation System

The Circulation System on which the General Plan is based is depicted by the General Plan Circulation Map for the year 2015, which shows all existing and planned arterial and collector roads in El Dorado County (See Attachment 2). The General Plan Circulation Map was adopted as part of the General Plan and is consistent with the County Regional Highway System (RHS). The RHS depicts a network of major thoroughfares comprising urban and rural portions of state highways; six, four, and two lane suburban roads; and four, and two lane rural roads. As mitigation measures for the significant growth anticipated by the El Dorado Hills Specific Plan, numerous road improvements have been identified to support Plan Buildout. The El Dorado County General Plan identifies the need for certain roads, in addition to State highway construction. It includes a network of arterial and local roads east of El Dorado Hills and between El Dorado Hills and Cameron Park with major urban development planned for that area. In addition to the improvements at the El Dorado Hills Boulevard /Latrobe Road Interchange, Caltrans, the County of El Dorado, and the City of Folsom are planning several other projects along U.S. Highway 50. Two new interchanges with U.S. Highway 50, one in Sacramento County near the County line, the Russell Ranch Interchange, and one at Silva Valley

Road and U.S. Highway 50, the Silva Valley Interchange, are proposed. An approved Project Report has been completed for the Silva Valley Interchange (Jan. 1991) with an accompanying Final EIR (State Clearinghouse Number 88050215, Feb. 1990). Also included in the General Plan are modifications to the Bass Lake Road/U.S. Highway 50 Interchange.

The primary roads in this area of the County are El Dorado Hills Boulevard, Latrobe Road, White Rock Road, Silva Valley Parkway, Serrano Parkway, Francisco Drive, Green Valley Road, and the planned extension of Saratoga Way. Improvements to these roadways as proposed in the General Plan and El Dorado Specific Plan include:

- Widening El Dorado Hills Boulevard to six lanes from Saratoga Way to Serrano Parkway and widen to four lanes from Serrano Parkway to Green Valley Road.
- Constructing Silva Valley Parkway as a four-lane divided road from Serrano Parkway to U.S. Highway 50.
- Upgrading the easterly leg of White Rock Road to a six lane divided roadway from Latrobe Road to U.S. Highway 50 at the Silva Valley Interchange, and the westerly leg of white Rock Road to a four-lane divided road from Latrobe Road to the County line.
- Widening Latrobe Road to six lanes between U.S. Highway 50 and White Rock Road, and to four lanes from White Rock Road south to Carson Creek.
- Widening Green Valley Road to a four lane divided road between Silva Valley Parkway and Russell Ranch Boulevard.
- Constructing Serrano Parkway as a two lane road from El Dorado Hills Boulevard to Silva Valley Parkway, and as a four lane road from Silva Valley Parkway to the golf course country club, and a two lane road from the golf course country club to Bass Lake Road.
- Extending Saratoga Way as a four-lane roadway from El Dorado Hills Boulevard to Iron Point Road in the City of Folsom.

Writ of Mandate

In 1998, the validity of the 1996 El Dorado County General Plan was challenged in court. The Court ultimately ruled in 1999 that the substance of the General Plan complied fully with the law; however, the court invalidated the plan due to inadequacies in the environmental review that accompanied its adoption. The court issued a Writ of Mandate that governs the County's consideration and approval of land-use development projects in the interim period while the County addresses the legal deficiencies found by the court.

Several aspects of the Writ of Mandate are pertinent to the proposed project and its environmental review, particularly in the areas of traffic and growth-inducing impacts. First, the Writ of Mandate generally suspends the County's authority to issue any discretionary land use approvals or entitlements for residential housing development. Second, the Writ of Mandate authorizes the County to issue approvals that are ministerial in nature, specifically including final subdivision maps and building permits. Third, the Writ of Mandate allows the County, upon the making of specified findings, to issue discretionary approvals such as tentative subdivision maps and map extensions for residential development that is occurring pursuant to an existing development agreement. Fourth, the Writ of Mandate allows the County, upon the making of specified findings, to issue any approvals for non-residential development, provided that the property is already zoned for the use and was designated for the use on both the 1996 General Plan and its immediate predecessor. Fifth, the Writ of Mandate authorizes the County, upon the making of specified findings, to: approve projects, including capital projects, submitted to it for review by other government agencies; approve and carry out any capital improvement projects of the County, except if their sole or primary purpose is to serve future development which would itself require approvals not permitted by the Writ of Mandate; and authorize the repair, remodeling, reconstruction, or replacement of existing structures if it does not expand or increase the intensity of the use of the structure.

In 1999, the County developed a revised land use scenario consistent with the Writ of Mandate. This land use scenario maintains most of the 1996 General Plan land uses in the El Dorado Hills/Latrobe area, but includes some notable reductions in other areas of El Dorado County.

Support/Opposition

The El Dorado Hills Boulevard/Latrobe Road Interchange reconstruction project is consistent with the adopted land use plans and policies established by the El Dorado Hills Specific Plan, 1988, and the El Dorado County General Plan, 1996, and does not conflict with the adopted land use plans of El Dorado County.

The proposed reconstruction of the El Dorado Hills Boulevard/Latrobe Road Interchange is met with mixed reactions from the community. Overall the community and local government of El Dorado County support the project and the benefit it will provide to traffic congestion relief. However, there is a local group of citizens consisting of homeowners and townhouse owners in the northwestern quadrant who are in opposition to the proposed project. The local citizen's group, which goes by the name of Citizens Against Road Encroachment (CARE), was formed in 1997 as an organization of El

Dorado Hills homeowners, consisting of the El Dorado Hills Townhouses Association and individual homeowners in Park Village, Crescent Ridge and other nearby villages, who are opposed to the interchange project and in particular to the realignment of Saratoga Way.

Public Meetings

A public Open House for the El Dorado Hills Boulevard/Latrobe Road Interchange reconstruction project was held on October 24, 1995, at the El Dorado Hills Community Services District facilities located in El Dorado Hills. The purpose of the open house was to introduce the project to the public and solicit input from the community. The viable build alternatives were presented for discussion and comment by the public. Oral and written comments were received at the meeting. The vast majority of those attending the open house were in favor of the project. The project was also presented to the El Dorado County Board of Supervisors (BOS) on December 12, 1995, at the meeting held annually in El Dorado Hills.

El Dorado County DOT went before the BOS on January 1, 1997, to propose approval of the project environmental document which the project team had determined to be Negative Declaration. It was at this BOS meeting that the first public opposition to the project was brought forward by CARE. Expanded noise analysis was performed for the project and the Negative Declaration was brought back before the Board for approval on February 4, 1997. After receiving testimony from those present, the Board directed DOT staff to add additional mitigation measures to the Negative Declaration and to re-circulate the document to provide an additional opportunity for all neighborhood groups to participate in the alternative selection process. DOT staff proceeded to revise the Mitigated Negative Declaration using the testimony expressed and realized that there was a lack of understanding on the part of the concerned neighbors as to the criteria used in selection of the project alternatives and the "preferred alternative." In an effort to improve communication with the concerned neighbors, an outreach effort was initiated to collect comments and generate dialogue in the hope of reaching a consensus about the project and its alternatives.

Community Outreach Effort

The DOT staff and other members of the Team met with a small group of concerned neighbors on February 26 and March 26, 1997, to discuss the existing project alternatives and to obtain feedback and comments from the public participants. A new group of alternatives (A-G) were developed during the outreach process and each of these

alternatives suggested by the public was analyzed by the Team. The outreach effort was helpful, but a consensus could not be reached. Additional attempts at public outreach were made on May 14, 1997, with the El Dorado Hills Area Planning Advisory Committee meeting and on June 5, 1997, with the El Dorado Hills Community Council meeting in a continued effort of project explanation and consensus building. The outreach process spanned a period of approximately 5 months and included 4 meetings. A total of 14 alternatives were analyzed (including the original seven alternatives from the PSR/PR and the seven new alternatives from the outreach effort) but an agreed upon "preferred alternative" which was acceptable to all parties involved could not be found.

On August 19, 1997, DOT staff went before the Board to summarize the outreach effort and its results, and to suggest that an EIR be prepared as the PSR/PR's supporting environmental document. At this meeting, the BOS authorized DOT to spend up to \$10,000 to engage a mediator in an effort to reach an effective level of communication with the concerned parties of interest.

Mediation Effort

In October 1997 Thorpe, Van Camp & Associates/Strategic Design Associates (TVA/SDA) entered into a contract with the County El Dorado to participate in the process of preparing the way for improvements to the U.S. Highway 50 interchange at El Dorado Hills Boulevard. TVA/SDA was brought in to facilitate a process through which to seek consensus on the project alternatives and reduce contention around the proposed project. TVA/SDA met with all of the involved stakeholders for the purpose of identifying and clarifying the issue. Over 30 meetings were held with individual interest groups and others knowledgeable about the proposed interchange improvements. A day-long Open Session was held at the El Dorado Hills Community Center on November 19, 1997, and two meetings (one full day, January 9, 1998, one half day, March 6, 1998) were held to allow the various parties to meet face to face and express their concerns to a larger forum while exploring new ideas and possibilities. An additional three alternatives were considered during the mediation effort for a project total of 17 alternatives. Though this process did not produce a clear cut "preferred alternative," recommendations were developed at the conclusion of the process. The recommendations were presented to the BOS on May 19, 1998, in the form a Community Process Report. The following summarizes the recommendations developed in the Community Process Report:

- Saratoga Way – Select S-curve alignment for the realignment of Saratoga Way. Construct Saratoga Way as a two-lane road east of Wilson Way.
- Interchange – Continue to support the "preferred alternative" (Alternative 3-E) for interchange design.

- Related Improvements – Place high priority on construction of the Silva Valley interchange and improvements to White Rock Road. Work with the Folsom-El Dorado Joint Powers Authority on related improvements in Sacramento County.

The BOS then directed DOT staff to proceed with the EIR as the environmental document for the project. The Board also specified that Alternative 3-E (See “Proposal and Alternatives” section elsewhere in this report) with Saratoga Way realigned as a two-lane road with the “S” curve alignment be presented as the “preferred alternative” for the project.

Saratoga Way is designated in the El Dorado County 1996 General Plan Circulation element as a four-lane roadway. Alternative 3-E as adopted by the Board of Supervisors, would require an amendment to the adopted General Plan Circulation Element.

EIR Certification and BOS Proposed Project Selection

In a Public Hearing on May 23, 2000, BOS certified the EIR and selected a modified version of Alternative 3A/B as the “proposed project.” The proposed project includes a 2-lane tangent alignment of Saratoga Way, instead of the S-Curve alignment previously selected by the BOS as the “preferred alternative” for the EIR preparation.

Commitments

The County of El Dorado is committed to funding the construction and right-of-way costs of the proposed interchange with local moneys or possibly with STIP funds, if available. The project will be consistent with the El Dorado County RTIP/FTIP and is included in the biennial 1998 MTP.

PROPOSAL DESCRIPTION

PROPOSAL AND ALTERNATIVES

This section of the PSR/PR will discuss the numerous alternatives that were analyzed for the U.S. Highway 50/El Dorado Hills Boulevard/Latrobe Road Interchange reconstruction project. The alternatives analyzed for this project can be separated into two groups. The first group of alternatives consists of Alternatives 1 through 7. These are the original alternatives that were analyzed by the Team and included in the original Draft PSR/PR for the project. This group of alternatives is described in the section "Original PSR/PR Alternatives." The second group of alternatives to be discussed consists of Alternatives A through J. This group includes the alternatives that were developed and analyzed by the Team during the community outreach effort and mediation process. This group of alternatives is described in the section "Public Outreach Alternatives."

Original PSR/PR Alternatives

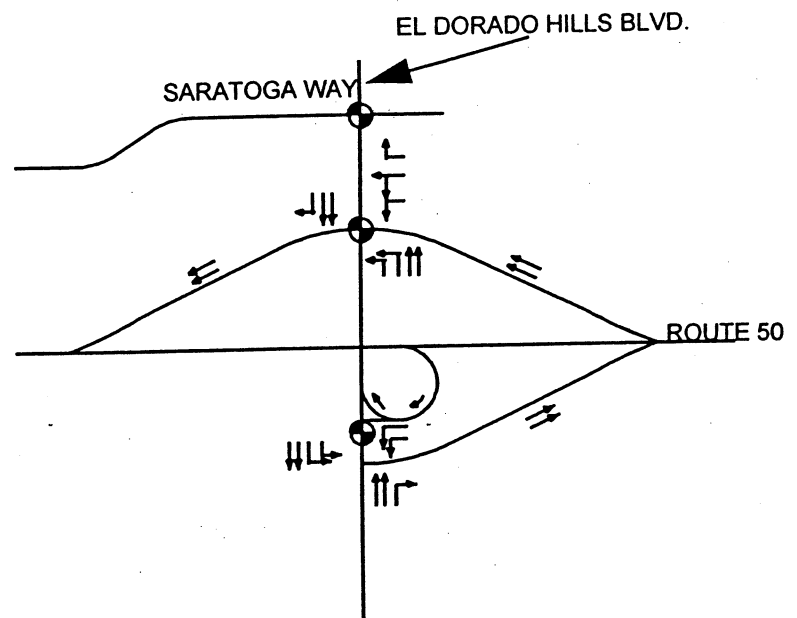
Initially, seven alternatives were considered for the reconstruction of the El Dorado Hills Boulevard/Latrobe Road Interchange. The general operational characteristics of each alternative were analyzed to determine the advantages and disadvantages of each. These results are discussed in Attachment 11, pages 15-22. The seven alternatives were then screened based on the operational analysis and input from Caltrans and El Dorado County staff. The alternatives provide for a future eight lane U.S. Highway 50 freeway section consisting of the existing lanes plus the proposed future widening of one outside lane and the addition of a median High Occupancy Vehicle (HOV) lane in each direction. A future auxiliary lane is planned between the El Dorado Hills Boulevard interchange and the proposed Silva Valley Parkway interchange for both eastbound and westbound U.S. Highway 50. This auxiliary lane is also provided for in all the project alternatives.

The seven alternatives initially identified are described below, along with a discussion of the advantages and disadvantages of each.

Alternative 1

Alternative 1 incorporates the existing interchange configuration with additional lanes to handle the expected demand in 2020. At the south side of the interchange, additional left-turn lanes will be added to the loop off-ramp approach and the southbound Latrobe Road approach to the eastbound ramp intersection. The eastbound diagonal on-ramp will be widened to three lanes, transition to two lanes at the entrance and conform to

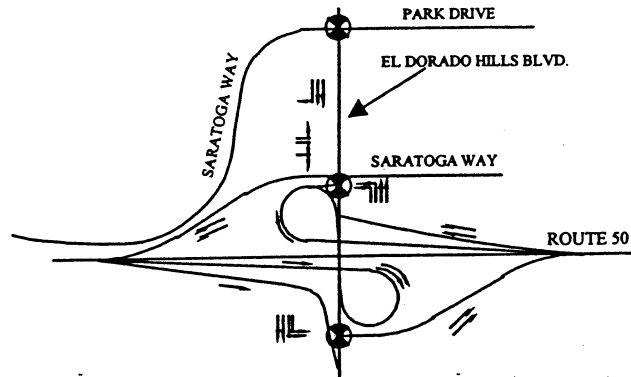
the planned auxiliary lane up to Silva Valley Parkway. At the north side of the interchange additional left turn lanes would also be added to El Dorado Hills Boulevard at the northbound approach to the westbound ramp intersection. The westbound diagonal on-ramp will be widened to accommodate two lanes and a free right turn from the southbound approach of El Dorado Hills Boulevard. The westbound diagonal off-ramp will be widened to two lanes, with two left turn lanes, one through and one right turn at the ramp terminal. Both the eastbound ramp intersection and westbound ramp intersection will be signalized. Saratoga Way will remain signalized and at the existing location.



Preliminary analysis of Alternative 1 revealed that it was not desirable for the ultimate interchange configuration. Alternative 1 does not significantly improve traffic operations and offers no solution to the signal spacing problem between the westbound ramp intersection and Saratoga Way. Specifically this alternative fails to operate acceptably at the westbound ramp intersection during the p.m. peak hour. Alternative 1 was eliminated from further study because it presented no advantages when compared to the other five build alternatives.

Alternative 2

Alternative 2 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 eastbound and west bound traffic. (See Attachment 7).



North Side of Interchange--

The west leg of Saratoga Way will be realigned to Park Drive. The westbound diagonal on-ramp will be located across from the east leg of Saratoga Way. Dual left turn lanes will be provided for northbound traffic on El Dorado Hills Boulevard to the on-ramp. A westbound loop off-ramp will be added with an exclusive right turn to southbound El Dorado Hills Boulevard in the northwest quadrant. The westbound diagonal off-ramp will be reconstructed to serve westbound to northbound traffic on El Dorado Hills Boulevard. The intersection at the westbound diagonal off-ramp terminal will have stop sign control. The intersection of the westbound on-ramp and Saratoga Way will be signalized.

South Side of Interchange--

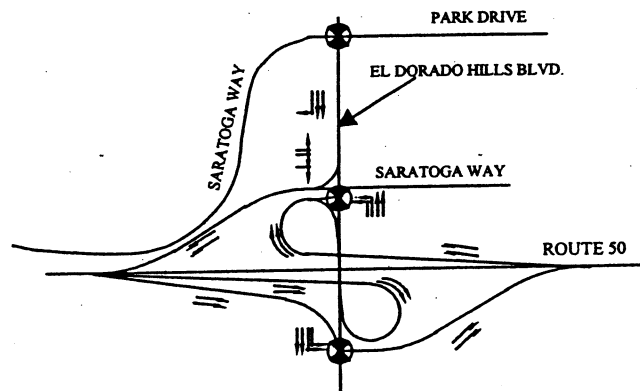
An eastbound diagonal off-ramp with a free right turn to southbound Latrobe Road will be added in the southwest quadrant. The free right turn lane will continue as a through lane along southbound Latrobe Road to the intersection of Town Center Boulevard where the lane will become an exclusive right turn lane into the Corporate Center (Village U) development. The eastbound loop off-ramp will provide an exclusive right turn lane to service the eastbound to northbound traffic on El Dorado Hills Boulevard/Latrobe Road. Southbound El Dorado Hills Boulevard will be widened to provide dual left turn lanes to the eastbound on-ramp. The eastbound on-ramp will be widened for three lanes and transition to two lanes at the ramp entrance. The eastbound on-ramp will conform to the auxiliary lane to be added up to Silva Valley Parkway. The intersection at the eastbound ramps will be signalized.

This alternative was considered to be a viable build alternative. The spacing problem between the westbound off-ramp and Saratoga Way would still exist. There is also a

potential for traffic traveling northbound on El Dorado Hills Boulevard to back up and block the intersection of the westbound off-ramp during peak hours. This situation may lead to traffic queuing problems on the off-ramp extending back to the freeway mainline. Because this alternative does not address the spacing problem between Saratoga Way and the westbound ramps and has a potential for queuing problems, Alternative 2 is not proposed as the preferred alternative.

Alternative 3

Alternative 3 is also a modified type L-8 configuration. It is similar to Alternative 2, but excludes the diagonal westbound off-ramp. (See Attachments 3, 4, and 6).



North Side of Interchange--

The west leg of Saratoga Way will be realigned as in Alternative 2. The westbound diagonal on-ramp will be located opposite the east leg of Saratoga Way as in Alternative 2. A retaining wall will 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 retaining wall is proposed with this alternative to preserve right of way and to accommodate the approved development plan for this property. The wall will be set back to provide a 40 kilometer per hour (km/h) stopping sight distance at the curve. A westbound loop off-ramp will be constructed in the northwest quadrant serving westbound to northbound and southbound traffic on El Dorado Hills Boulevard. The loop off-ramp and diagonal on-ramp will be signalized at the intersection with Saratoga Way.

South Side of Interchange--

The eastbound loop off-ramp and the eastbound diagonal off-ramp will be as described for Alternative 2. Three different options are proposed for the eastbound diagonal off-ramp in the southwest quadrant for Alternative 3.

Option A (Alternative 3A – see Attachment 4) proposes a two lane ramp with a single free right turn and a signalized right turn at the terminal. Traffic in the left most right-turn lane will be required to stop at the signal before turning right. Traffic in the rightmost right-turn lane will be allowed a free right turn into an exclusive lane which would continue

southbound on Latrobe Road to the intersection of Town Center Boulevard where it becomes an exclusive right turn lane into the Corporate Center (Village U). The advantage of an option consisting of a free right turn lane and a signalized right turn lane is to eliminate any potential weaving problems south of the intersection. The signalized left most right-turn lane from the eastbound off-ramp would be dedicated for vehicles turning left at Town Center Boulevard or White Rock Road.

Option B (Alternative 3B -see Attachment 4) proposes to construct the off-ramp with a single free right turn lane only as described in Alternative 2.

Option C (Alternative 3C -see Attachment 6) will propose an interchange configuration without the eastbound diagonal off-ramp. This alternative will consist of dual left turn lanes from the eastbound loop off-ramp. Alternative 3C was originally analyzed as a separate alternative, Alternative 4. However because of the similarities between Alternatives 3 and 4, except for the eastbound diagonal off-ramp, it was decided to combine Alternative 4 with Alternative 3 as Option C.

Traffic analyses indicate that the interchange and El Dorado Hills Boulevard would operate acceptably into the year 2020 under each Alternative 3 configuration, Option A, B or C (See Attachment 11, Table 19). The Team decided that the preferred alternative for the future interchange should include the eastbound diagonal off-ramp for purposes of reserving right of way and programming project funds. Alternative 3C was dropped from further consideration as the preferred project alternative.

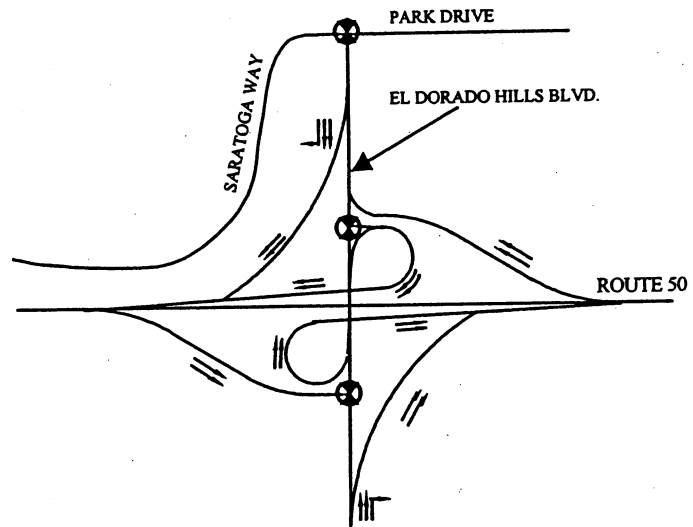
Alternative 3A/B results in acceptable levels of service at the ramp intersections and improves the signal spacing on the north side. This alternative also avoids the need for the existing westbound diagonal off-ramp.

Alternative 4

See Alternative 3 Option C described above.

Alternative 5

Alternative 5 is a standard type L-9 configuration. This alternative consists of loop on-ramps in the northeast and southwest quadrants and diagonal off-ramps and on-ramps for eastbound and west bound traffic on U.S. Highway 50. The intersections of the westbound diagonal off-ramp and eastbound

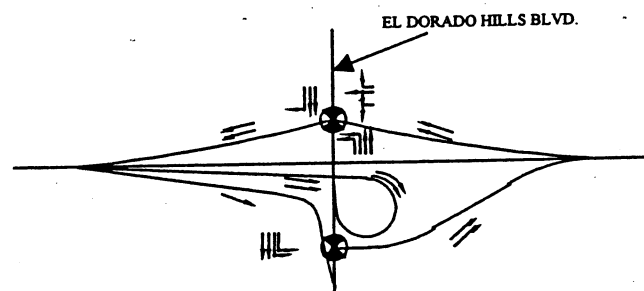


diagonal off-ramp termini at El Dorado Hills Boulevard will be signalized. The west leg of Saratoga Way will be realigned to Park Drive and the east leg of Saratoga Way would be eliminated.

Alternative 5 was considered to have more disadvantages than advantages when compared with the other proposed build alternatives and was eliminated in the initial alternatives screening. Cited disadvantages included the removal of existing commercial establishments at Saratoga Way and El Dorado Hills Boulevard, and the elimination of access to adjacent existing and planned developments along El Dorado Hills Boulevard between Saratoga Way and Park Drive. This alternative involves substantial land use/property impacts and did not provide substantially improved operations in comparison to the other build alternatives.

Alternative 6

Alternative 6 is a modification of the current interchange configuration. (See Attachment 8).



North Side of Interchange--

The westbound on-ramp and westbound off-ramp will be reconstructed as a tight diamond configuration. The intersection of the westbound ramp termini and El Dorado Hills Boulevard will be signalized. The west leg of Saratoga Way will be relocated to Park

Drive. The signal at the east leg of Saratoga Way will be eliminated and access would be limited to entering and exiting right turn movements. An unsignalized left turn would be allowed from southbound El Dorado Hills Boulevard into the east leg of Saratoga Way. Traffic from Saratoga Way wanting to travel southbound on El Dorado Hills Boulevard or access the westbound on-ramp would be required to make a U-turn at the Park Drive intersection.

South Side of Interchange--

The interchange configuration proposed for Alternative 6 is identical to the configuration proposed for Alternative 2.

Alternative 6 offers a possible solution to the signal spacing problem at the U.S. Highway 50 westbound ramps and Saratoga Way. This alternative would also minimize construction costs by eliminating the need for a westbound loop off-ramp structure. However, preliminary traffic analysis for this alternative showed that the intersection at Park Drive and El Dorado Hills Boulevard would not be able to handle the increase in traffic without capacity increasing modifications. The traffic analysis revealed that the existing intersection would not be capable of handling the large number of vehicles expected to make U-turns at the signal. This alternative would also limit the access to the east leg of Saratoga Way. Based on the above disadvantages, Alternative 6 is not proposed as the preferred alternative, but was considered to be a viable build alternative after the initial alternatives screening.

Alternative 7

Alternative 7 is the No-Build Alternative (See Attachment 9 for the existing interchange). Selection of the No-Build Alternative would result in the level of service deterioration and the existing interchange operation would not be adequate to accommodate projected traffic volumes. The No-Build Alternative was withdrawn because it would not improve existing conditions and accommodate development proposed in the 1996 El Dorado County General Plan.

Community Outreach Alternatives

During the community outreach effort several new alternatives were developed in addition to the original Alternatives 1 through 7. Many of these alternatives were similar to one of the original seven alternatives with the difference being the alignment proposed for the west leg of Saratoga Way. A "Fatal Flaw" level traffic analysis was conducted for each alternative in order to provide a comparison of the operations to the original alternatives, Alternatives 1-7. These results are discussed in Attachment 11. Geometric characteristics

of each alternative were also considered. These additional ten alternatives, discussed in the following sections, were then screened based on the operational analysis, geometric analysis and input from the Team and members of the community. As with the original seven alternatives, all alternatives provide for a future eight lane U.S. Highway 50 freeway section consisting of the existing lanes plus the proposed future widening of one outside lane and the addition of a median HOV lane in each direction. A future auxiliary lane is planned between the El Dorado Hills Boulevard interchange and the proposed Silva Valley Parkway interchange for both eastbound and westbound U.S. Highway 50. This auxiliary lane is also provided for in all the project alternatives.

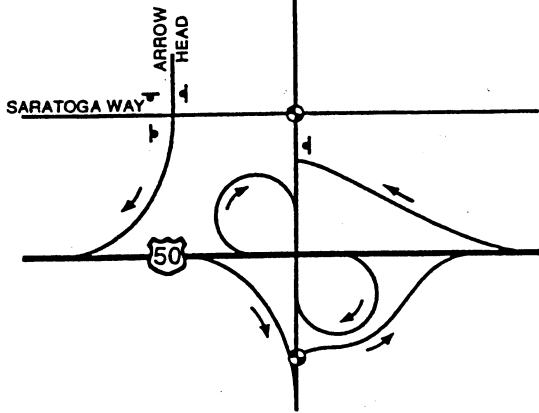
The ten additional alternatives identified, Alternatives A through J, are described below along with a discussion of the advantages and disadvantages of each and the reasoning behind whether or not the alternative was considered as a viable alternative for the project. A schematic of each of the ten additional alternatives, Alternatives A through J, is shown in Figures 1 and 2.

Alternative A:

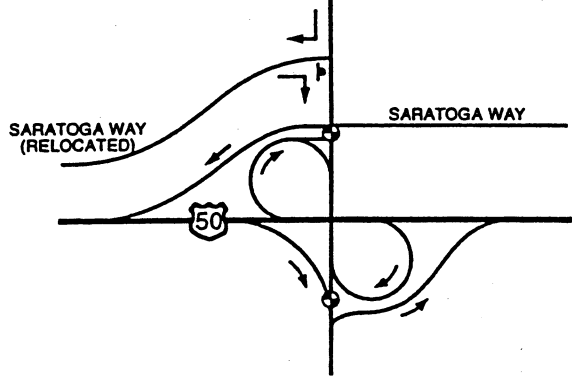
Alternative A is similar to the original PSR/PR alternative, Alternative 2. This alternative proposes the same configuration on the south side of the interchange as Alternative 2. On the north side, the westbound on-ramp is configured as an isolated hook ramp located on Saratoga Way (west) at the intersection of Arrowhead Drive (See Figure 1).

This configuration is not considered viable for two reasons. The first reason is because this alternative involves an isolated hook on-ramp. The Caltrans Highway Design Manual states that hook ramps or slip ramps preferably should be avoided in the design of new or reconstructed interchanges. Hook ramps are often forced into tight situations that lead to less than desirable geometrics. The second reason is because this alternative proposes an isolated on-ramp. Interchanges with all ramps connecting with a single cross-street are preferred. The main reason Alternative A was eliminated as a viable alternative was because traffic operations for this alternative were inferior to other alternatives that were analyzed. The El Dorado Hills Boulevard/Saratoga Way intersection would not operate at an acceptable level of service during the AM peak period because the heavy volume of southbound El Dorado Hills Boulevard right-turn traffic onto Saratoga Way (west) would be controlled by a signal (no longer a free movement as proposed in other viable interchange alternatives studied). The resultant queues on El Dorado Hills Boulevard would back up past the Park Drive intersection. In addition, the Saratoga Way

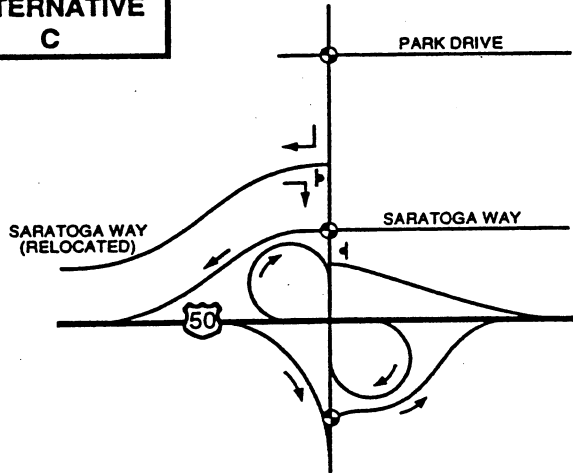
ALTERNATIVE A



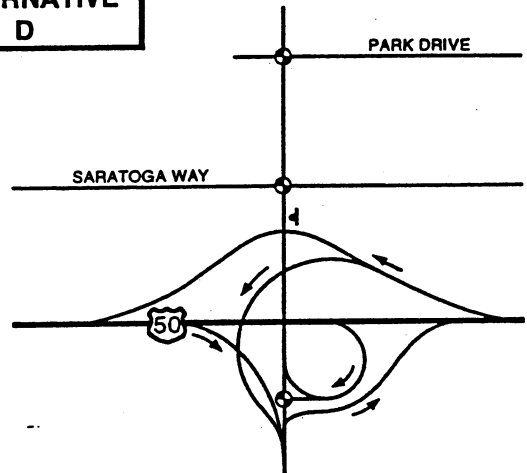
ALTERNATIVE B



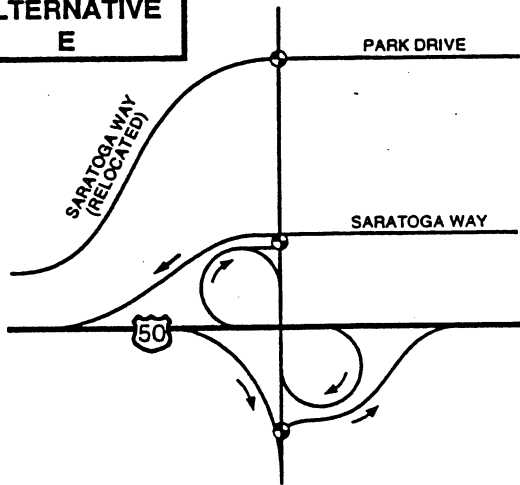
ALTERNATIVE C



ALTERNATIVE D



ALTERNATIVE E



LEGEND:



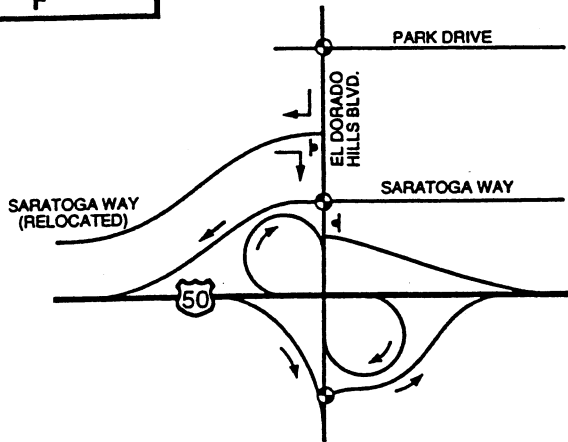
-  = STOP SIGN
-  = TRAFFIC SIGNAL

FIGURE 1

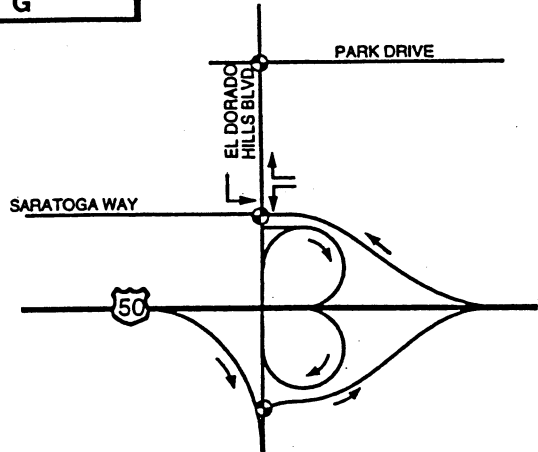
INTERCHANGE ALTERNATIVES

fp Fehr & Peers Associates, Inc.
Transportation Consultants

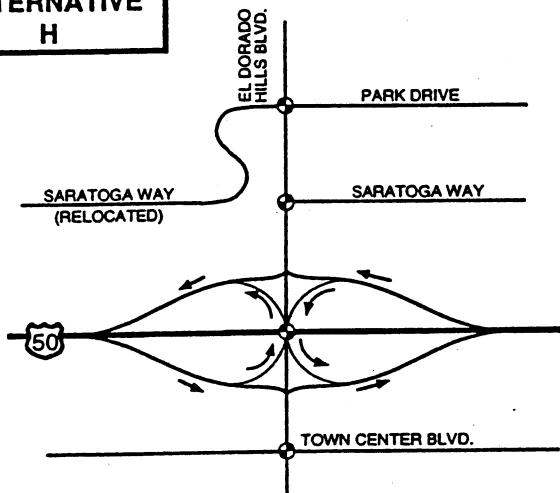
ALTERNATIVE F



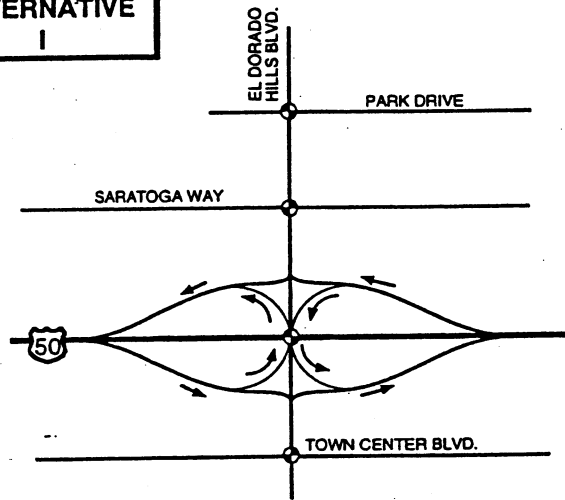
ALTERNATIVE G



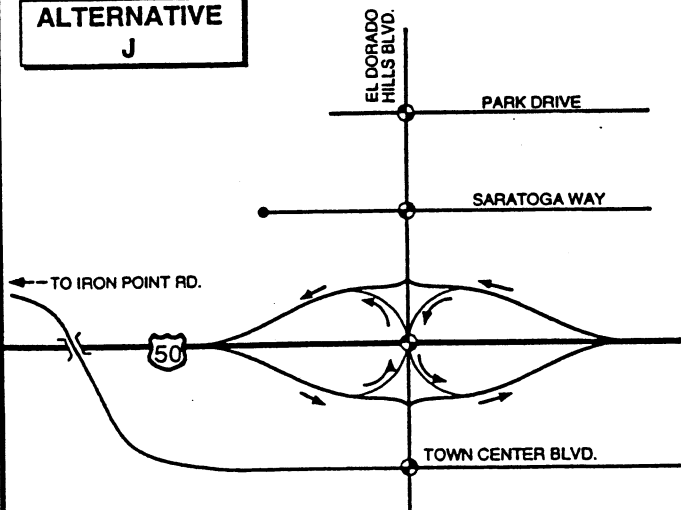
ALTERNATIVE H



ALTERNATIVE I



ALTERNATIVE J



Not To Scale

LEGEND:
 = STOP SIGN
 = TRAFFIC SIGNAL

FIGURE 2

INTERCHANGE ALTERNATIVES

fp Fehr & Peers Associates, Inc.
 Transportation Consultants

(west)/Arrowhead Drive intersection would not operate at an acceptable level of service during AM peak periods even with a traffic signal and dual left-turn lanes at the westbound on-ramp approach. Extensive queues would result in blockage to the El Dorado Hills Boulevard/Saratoga Way intersection. It is anticipated that approximately 100-150 vehicles per hour during the peak period would divert through the neighborhood along Arrowhead Drive and Mammoth Way to avoid the congested area. This interchange was not considered to be a viable alternative and was dropped from further consideration.

Alternative B:

Alternative B is identical to the original PSR/PR Alternative 3A/B for the interchange configuration. The only difference between Alternative B and Alternative 3A/B is the configuration of the west leg of Saratoga Way. In this alternative, the relocated leg of Saratoga Way (west) would intersect El Dorado Hills Boulevard between Park Drive and the westbound on-ramp intersection, approximately 160 m north of the westbound on-ramp intersection (See Figure 1). The new Saratoga Way intersection with El Dorado Hills Boulevard would be controlled by a stop sign and limited to right-turn movements only to avoid the need for signalization.

Left-turning movements would be reassigned as follows:

- Traffic traveling northbound on El Dorado Hills Boulevard and headed west on Saratoga Way would proceed to Park Drive and U-turn to access Saratoga Way.
- Traffic traveling eastbound on Saratoga Way and headed north on El Dorado Hills Boulevard would U-turn at the Saratoga Way (east) signalized intersection.

The proposed improvements provided acceptable operations at all intersections, provided that a dual left turn lane is constructed for traffic on southbound El Dorado Hills Boulevard turning left or making a U-turn at the signal with Saratoga Way (east). However, because of the difficulties in weaving across three lanes of southbound El Dorado Hills Boulevard traffic to access the left turn lane at the signal and the delays associated with U-turns, it is anticipated that traffic from Saratoga Way wanting to access northbound El Dorado Hills Boulevard would use adjacent neighborhood streets to reach a signalized intersection. Cut-through traffic will increase in the adjacent neighborhoods via Arrowhead Drive and Mammoth Way as much as 150 vehicles per hour during the peak periods.

Alternative B was considered to be a viable alternative from a traffic operations and geometric standpoint. This alternative was not viewed favorably by residents on Mammoth Way, Arrowhead Drive and adjacent neighborhood streets. Local residents expressed

concern with weaving across southbound El Dorado Hills Boulevard to make a U-turn at the Saratoga Way (east) signal. When compared with the other viable alternatives under study, this alternative was viewed the least favorably. This alternative was dropped from further consideration as the preferred project alternative based on this opinion.

Alternative C:

Alternative C is identical to the original PSR/PR Alternative 2 for the interchange. The only difference between Alternative C and Alternative 2 is the configuration of the west leg of Saratoga Way and the WB diagonal on-ramp. The west leg of Saratoga Way would be located as described in Alternative B. The interchange configuration for Alternative C is similar to the interchange configuration described in the original PSR/PR Alternative 2, except for the geometrics of the westbound on-ramp (See Figure 1). In this alternative it is proposed to tighten the geometrics of the westbound on-ramp in order to increase the distance between the on-ramp and the residences located in the northwest quadrant. In order to "tighten" the geometrics at the westbound on-ramp, the 70 m radius curve at the beginning of the ramp was lengthened while the 300 m radius curve was replaced with a 260 m radius curve. The resulting geometrics pull the on-ramp a maximum of 9 m (27 ft) closer to U.S. Highway 50. The new on-ramp alignment will consist of a reversing curve with a short tangent between the 70 m radius curve and the proceeding 260 m minimum radius curve. With the tightened geometrics on the ramp a portion of Saratoga Way (west) west of Arrowhead Drive can be shifted slightly to the south, pulling it approximately 9 m maximum, further away from the residences in that quadrant. Caltrans has reviewed this change to the westbound on-ramp geometrics and did not object to the new design. Because this change to westbound on-ramp does not negatively impact the geometrics at the westbound on-ramp, and it provides the benefit of increasing the separation between the residences in the northwest quadrant and Saratoga Way and the on-ramp, these geometrics were considered to be a benefit.

Alternative C is identical to Alternative 2 from a traffic operations standpoint. This alternative will raise the same traffic concerns with the Saratoga Way intersection with El Dorado Hills Boulevard as Alternative B, and for the same reasons as stated under Alternative 2 and Alternative B this alternative was also dropped from further consideration. The tightened geometrics at the westbound on-ramp however were incorporated into several of the other additional alternatives studied.

Alternative D:

Alternative D will replace the westbound loop off-ramp with a fly-over ramp for westbound U.S. Highway 50 to southbound Latrobe Road movement. The ramp configuration on the south side of the interchange will remain the same as in Alternative 3A/B. On the north side of the interchange, there will be a diagonal westbound on-ramp, a diagonal westbound off-ramp for the westbound U.S. Highway 50 to northbound El Dorado Hills Boulevard movement and the westbound U.S. Highway 50 to southbound Latrobe Road fly-over ramp (See Figure 1). This alternative was suggested because it would eliminate the need for the westbound loop off-ramp in the northwest quadrant. By eliminating the loop ramp, the westbound on-ramp could be moved to the southwest, closer to U.S. Highway 50 and further away from the residences in the northwest quadrant. Saratoga Way could then be moved farther south and west placing it farther away from the residences that are located closest to the current alignment of Saratoga Way. However, this alternative would still require either Saratoga Way to be relocated as shown in Alternative 3, or two closely spaced signals (one at the westbound ramps intersection and one at the Saratoga Way intersection) as currently exists. A signal will still be required at the intersection of Saratoga Way if it remains in the existing location. A signal is also required at the westbound on-ramp to allow the northbound El Dorado Hills Boulevard to westbound U.S. Highway 50 movement.

Alternative D is not considered to be a viable alternative based on the following reasons. Traffic operations will not be improved with this alternative. The existing signal spacing problem on the north side of the interchange will still exist unless Saratoga Way is relocated. Construction of the westbound fly-over off-ramp would not only be costly but would have an aesthetic impact as well. The fly-over ramp would have to be at least 720 m long to meet standard design speed and vertical sight distance requirements. The fly-over ramp would be located at least 8 m above the current U.S. Highway 50 undercrossing structure and the proposed eastbound off-ramp structure. Even with maximum vertical grades, the fly-over ramp would not be able to connect with southbound Latrobe Road until just north of the Town Center Boulevard intersection, creating unacceptable merging conditions and operational constraints at this location. The cost of the ramp structure alone would be approximately \$3.5 million. Alternative D did not appear to offer any benefits over the other viable alternatives and was dropped from further consideration as the preferred project alternative.

Alternative E:

Alternative E is identical to Alternative 3A from the original PSR/PR alternatives except that it incorporates the tightened westbound on-ramp geometrics described under Alternative C (See Figure 1). The retaining wall described under the original PSR/PR Alternative 3 is not necessary in this alternative. With the 'S' curve alignment of the west leg of Saratoga Way it is no longer necessary to preserve right of way to accommodate the commercial development. The 61 m radius curve at the free right turn for southbound traffic entering the westbound on-ramp can be increased to 70 m to provide for a 40 km/h design speed with this alternative. Traffic operations for this configuration would be the same as for Alternative 3A. This configuration was determined to be a viable alternative and was carried forward for consideration as the preferred project alternative.

Alternative F:

Alternative F is a combination of Alternative 2 and Alternative B. The interchange configuration would be identical to that described in Alternative 2. Saratoga Way (west) would be relocated to intersect El Dorado Hills Boulevard between Park Drive and the westbound on-ramp intersection, approximately 160 m north of the westbound on-ramp intersection, as described in Alternative B (See Figure 2). The new Saratoga Way intersection with El Dorado Hills Boulevard would be controlled by a stop sign and limited to right-turn movements only to avoid the need for signalization.

A number of the residents saw a benefit to this alternative. They felt that eliminating the two-lane loop off-ramp in the northwest quadrant would help reduce impacts to the residences located in that quadrant.

As with Alternative B, the difficulties in weaving across three lanes of southbound El Dorado Hills Boulevard traffic and the delays associated with U-turns, it is anticipated that cut-through traffic will increase in the adjacent neighborhoods via Arrowhead Drive and Mammoth Way by as much as 150 vehicles per hour during the peak periods. The potential queuing problem for the westbound direct off-ramp described in Alternative 2 also applies to this alternative. It is anticipated that vehicle queues at the westbound diagonal off-ramp could result in vehicles backing onto the U.S. Highway 50 mainline. In a letter (June 4, 1997) written by Caltrans in regards to the review of Alternative F, it was stated that the direct westbound off ramp is unacceptable for the same reasons that were stated for Alternative 2, in the PSR/PR. Alternative F, was dropped from consideration as the preferred alternative for the same reasons given for dropping Alternative B, coupled with the problems associated with the direct westbound off-ramp.

Alternative G:

The south side of the interchange configuration is identical to Alternative 2. The north side interchange configuration is similar to a L-9 configuration, except that there will not be a direct westbound on-ramp in the northwest quadrant. All the westbound ramps would be located in the northeast quadrant. This alternative proposes a westbound loop on-ramp and a westbound direct off-ramp in the northeast quadrant. Saratoga Way (west) would remain at its existing location. Access to the Raley's Center via the east leg of Saratoga Way would be eliminated. The westbound ramps would intersect El Dorado Hills Boulevard at a signalized intersection with Saratoga Way (west) (See Figure 2).

This configuration is not considered viable. The westbound ramp intersection will operate at an unacceptable LOS F during both AM and PM peak periods. Two southbound El Dorado Hills Boulevard to the westbound U.S. Highway 50 on-ramp left-turn lanes are required at the Saratoga Way / westbound ramps intersection. Substantial queuing problems are anticipated for this southbound left-turn movement. Due to the elimination of the eastern leg of Saratoga Way, all traffic from the Raley's center will have to use the Park Dr. intersection to access El Dorado Hills Boulevard. This would result in increased traffic on the westbound approach of the Park Drive intersection causing the intersection to operate at LOS F during the PM peak period. This alternative was dropped from further consideration as the preferred alternative due to unacceptable traffic operations.

Alternative H:

Alternative H consists of a Single Point Urban Interchange SPUI configuration (See Figure 2). This alternative would require the realignment of Saratoga Way (west) to the intersection of El Dorado Hills Boulevard and Park Drive as described in Alternative 3. The SPUI is a configuration that consolidates all on and off-ramps into a single point signalized intersection. The SPUI design is most commonly used in an urban situation when right-of-way is constrained and space for building more typical interchange configurations does not exist. The Team originally discussed the SPUI as a potential alternative however it was not considered to be a viable alternative at the time due to high costs associated with the alternative and the fact that the alternative would not significantly improve traffic operations at the interchange. The El Dorado Hills site was not considered to represent a site where typically a SPUI would be considered. The SPUI alternative was brought up again during the Community Process Report effort so a more detailed traffic analysis was conducted and a preliminary cost estimate was developed.

Results of the detailed traffic analysis showed that the primary operational problems with the SPUI at this location are related to the proximity of the SPUI intersection of the on- and off-ramps to the Saratoga Way (east) intersection. LOS F operations are expected at the ramps intersection during the PM peak hour because the northbound El Dorado Hills Boulevard queue at the Saratoga Way intersection would spill back approximately 190 m, blocking several movements at the ramps intersection, particularly the westbound ramp movements. Southbound movements on El Dorado Hills Boulevard approaching the Saratoga Way intersection would queue back to near the Park Drive intersection during the AM peak hour. Blockage of this intersection may be avoided, but would require a high level of green time. The spacing between the SPUI and the Saratoga Way intersections is not adequate and will cause operational deficiencies.

Geometrics were also an issue with the SPUI alternative. In order to provide minimum vertical clearance at El Dorado Hills Boulevard/Latrobe Road with a SPUI structure, the U.S. Highway 50 mainline would have to be raised. This would involve reconstructing the eastbound and westbound mainline lanes for approximately 700 m in each direction and the construction of a new undercrossing structure with relatively long span lengths to maintain sufficient horizontal clearances for the four ramps which terminate under the structure. The new structure alone was estimated to cost approximately \$4.6 million. The total estimated cost of a SPUI at this location is approximately \$29 million. This alternative was not considered to be viable and was eliminated from further consideration based on unacceptable traffic operations and high cost for construction,

Alternative I:

Alternative I is similar to Alternative H. This alternative proposes a SPUI configuration with Saratoga Way (west) remaining at its current location (See Figure 2).

Alternative I will have the same traffic operation and geometric problems as those discussed for Alternative H. The total construction cost of Alternative I was estimated to be approximately \$27 million. Alternative I was not considered to be a viable alternative and was dropped from further consideration due to the poor traffic operations and the excessive costs.

Alternative J:

Alternative J is similar to Alternative H. This alternative proposes a SPUI configuration at the interchange, but the Iron Point Road/Saratoga Way (west) extension would cross over U.S. Highway 50 and connect to Latrobe Road south of the interchange at the Town Center Boulevard intersection. Existing Saratoga Way (west) would connect to El Dorado Hills

Boulevard at its existing location, but would not connect to the Iron Point Road/Saratoga Way (west) extension (See Figure 2).

The SPUI in Alternative J will have the same traffic operation problems as those discussed for Alternative H. This alternative is anticipated to divert approximately 2000 vehicles per day to Wilson Boulevard. In addition to the high costs associated with the SPUI as discussed in Alternative H, this alternative will add an additional \$1.6 million for a new Iron Point Road Overcrossing structure and approximately \$4.2 million in additional right-of-way costs to acquire right-of-way for the connection of Iron Point Road / Saratoga Way extension to Town Center Boulevard. The total cost for Alternative J was estimated at \$34.3 million.

Due to insufficient traffic operations at the interchange and excessive construction costs this alternative was not considered to be a viable alternative and was dropped from further consideration.

Additional Alternatives Discussed:

There were several additional alternative solutions for interchange improvements that were proposed by the public during the community outreach process. Several of these alternatives suggested the use of an isolated off-ramp on the east side of the interchange. These alternatives were considered to be non-viable alternatives because they proposed an isolated off-ramp. Caltrans has a firm policy regarding isolated off-ramps which states: "The use of isolated off-ramps or partial interchanges should be avoided because of the potential for wrong-way movements and added driver confusion." Any alternatives proposing an isolated off-ramp were not considered for this project.

One alternative was discussed which proposed leaving the west leg of Saratoga Way at its existing location and elevating the westbound direct on-ramp above Saratoga Way and tying into U.S. Highway 50. In this alternative, the westerly portion of Saratoga Way would be realigned adjacent to the westbound loop off-ramp. The proposed westbound on-ramp would function as a direct connector for southbound El Dorado Hills Boulevard to U.S. Highway 50. The westbound on-ramp would pass over Saratoga Way on an elevated structure. An isolated hook westbound on-ramp would be located off of Saratoga Way west of Arrowhead Drive, the hook ramp would tie into U.S. Highway 50 west of the direct on-ramp junction. Southbound El Dorado Hills Boulevard traffic would access westbound U.S. Highway 50 by making a left turn onto Saratoga Way and using the westbound hook on-ramp. This alternative was analyzed for geometric viability. The disadvantages of this alternative consisted of additional construction cost of approximately \$1 million to construct the westbound on-ramp structure; construction of an isolated hook on-ramp at

Saratoga Way (west); an increase in traffic on Saratoga Way between the proposed hook on-ramp and El Dorado Hills Boulevard; and the grade line of the westbound direct connector ramp would be approximately 10 ft above the surrounding terrain as it approaches U.S. Highway 50 resulting in an increase in noise levels and negative visual impacts in the northwest quadrant. This alternative was not specifically analyzed for traffic operations because it was determined to be non-feasible based on the geometric issues described above. It can however be assumed that the traffic operations at the isolated westbound hook on-ramp would have the same operational problems as were described for the westbound hook on-ramp in Alternative A. This alternative was determined to be nonviable, having more negative impacts to the northwest quadrant than the other viable alternatives proposed, and was dropped from further consideration.

Preferred Alternative

A four step process was undertaken to evaluate alternative interchange configurations and to select a preferred interchange alternative. The seven original PSR/PR alternatives, Alternatives 1-7, were initially identified for preliminary evaluation. After the initial evaluation the three viable build alternatives, Alternatives 2, 3, and 6 were identified and analyzed in more detail under both year 2005 and 2020 traffic conditions. Based on the results of this second analysis, Alternative 3A was originally selected as the preferred project alternative. Later in 1997, the County conducted the community outreach effort to solicit public comments and facilitate consensus on alternatives. Several new alternatives (Alternatives A-J) were suggested during this process. Each of these alternatives was evaluated at a fatal-flaw level to consider whether it warranted further study as the preferred alternative.

At the conclusion of the community outreach effort, a report was produced by TVA/SDA in May of 1998 titled the "Community Process Report." This report recommended that the preferred interchange alternative consist of Alternative 3 with the modifications to the westbound on-ramp described in Alternative E. Saratoga Way (west) would be two lanes and realigned to Park Drive along a two-lane "S-Curve" alignment (See Attachment 3). The Board of Supervisors voted to adopt Alternative 3/E with the two-lane "S-Curve" alignment of Saratoga Way as the new preferred project alternative on May 19, 1998.

Proposing a two-lane Saratoga Way in the preferred project alternative necessitates an amendment to the 1996 County of El Dorado General Plan which designates Saratoga way as a four-lane roadway.

Proposed Project

At the conclusion of the EIR certification, the modified version of Alternative 3A/B including a lane tangent alignment was selected by the BOS as the “proposed project.”

The County found the preferred alternative to be economically infeasible because realizing Saratoga Way as an S-Curve would result in right-of-way acquisitions costs that would be approximately twice as much as the tangent alignment in the Alternative 3A/B. The modified version of Alternative 3A/B allows the commercial uses to be developed to a greater potential.

For the purposes of this report, the “proposed project” is defined as a modified version of Alternative 3A/B with Saratoga Way being realigned initially as a two-lane roadway with provisions for future widening to a four-lane roadway if decided necessary by the County to eventually accommodate future traffic volumes. Detailed traffic analysis was then conducted for the proposed project. The proposed project will provide standard acceleration and deceleration lanes and standard auxiliary lanes at the interchange on- and off-ramps to improve ramp junction operations. The ramp tapers with U.S. Highway 50 will provide for the future widening of U.S. Highway 50 and the future addition of proposed auxiliary lanes between the El Dorado Hills Boulevard interchange and the Silva Valley interchange to the east.

Roadway drainage design for the proposed project will follow the flow patterns of the existing project area. The existing culverts will be extended and replaced as necessary to convey roadway drainage to existing outlet areas. Existing ditches will also be examined for proper drainage flows. Landscaping will consist of standard erosion control and highway planting that will be drought resistance, low-maintenance, complementary to the existing vegetation, and not obstruct sight distance. Permanent erosion control features will provide protection on slopes and ditches. Temporary erosion control features will be put into place during construction for control of erosion and water pollution.

Project Phasing

The proposed project will be constructed in two phases. An interim interchange configuration will be constructed in Phase 1 (See Attachment 5). The ultimate interchange configuration will be constructed in the Ultimate Phase (See Attachment 3). The proposed project phases are described below. The traffic analysis and construction triggers for each phase are described in further detail in Attachment 11, Section IX.

Phase 1--

Phase 1 will 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 will be widened near the ramp terminal to provide for two left turn lanes to southbound Latrobe Road. Ramp metering including and HOV bypass will be provided at the westbound on-ramp. The intersection of the EB 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 (See Attachment 5). The estimated total capital cost of the proposed Phase 1 improvements is \$11,420,000 (1998). This cost includes purchase of all right-of-way.

The County's current schedule for the Phase 1 project assuming that the County is the lead agency is as follows:

Phase 1 - Interchange

Task	Estimated Date of Completion
Certify Environmental Document	May 2000
Complete Project Design (PS&E)	June 2001
Right of Way Certification	June 2001
Begin Advertisement (By County)	July 2001
Construction	September 2001 - September 2002

The proposed Phase 1 improvements were evaluated at each ramp terminal intersection in 2005 and 2010. Separate analyses were conducted with and without the Silva Valley Parkway/White Rock Road connection. The results are summarized in Table 21 of Attachment 11. Traffic analysis shows that both the ramp terminal intersections operate acceptably under the year 2005 conditions with or without the Silva Valley connection. By the year 2010, operations are acceptable with the Silva Valley Parkway/White Rock Road connection, but the U.S. Highway 50 eastbound ramps intersection would operate unacceptably without the connection. In order to provide acceptable operations at the eastbound ramps intersection for the year 2010, the County must implement one or more of the related White Rock Road/Silva Valley Parkway connection improvement projects described below.

Ultimate Interchange Phase--

The ultimate phase will include the construction of the new eastbound loop off-ramp, the eastbound diagonal off-ramp, widening of El Dorado Hills Boulevard to six lanes and the replacement of the undercrossing structures as shown in Attachment 3.

Related Projects--

Following the 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. Two other County improvement projects are anticipated during the planning horizon. These relate to the proposed U.S. Highway 50/Silva Valley Parkway interchange and the widening/extension of White Rock Road as described below:

- Connection of White Rock Road to Silva Valley Parkway as a two-lane road to reduce the amount of traffic passing through the El Dorado Hills Boulevard/Latrobe Road Interchange.
- Construct an initial phase of the U.S. Highway 50/Silva Valley Parkway interchange to further reduce the volume through the El Dorado Hills Boulevard interchange.
- Widen White Rock Road to four lanes from Latrobe Road to the Silva Valley Interchange.

Project Costs

Proposed Project Capital Cost--

The following are the estimated proposed project capital costs for Phase 1 of the interchange construction and the Ultimate Phase of the interchange construction (1998 Dollars):

Phase 1 - Interchange

Item	Cost (1998)
Roadway	\$5,633,000
Structure	\$1,068,000
Right-of-Way*	\$4,719,000
Total	\$11,420,000 **
*Right-of-way will be dedicated to the State by El Dorado County (2000 Dollars).	
**Support cost not included	

Ultimate Interchange

Item	Cost (1998)
Roadway	\$5,369,000
Structure	\$5,877,000
Right-of-Way*	\$0
Total	\$11,246,000..
*Right-of-way will be purchased in Phase 1.	
**Support costs not included.	

The total cost for the entire project shall be the cost of Phase 1 added to the Ultimate Phase cost for a total capital cost of \$22,666,000 (1998).

A detailed cost estimate is included for each phase in Attachment 10.

Effectiveness in Relieving Problem

The proposed project will effectively improve vehicular access from El Dorado Hills to U.S. Highway 50 and accommodate the projected traffic identified in El Dorado County's 1996 General Plan. It will improve the overall local circulation in western El Dorado County by providing additional capacity at the interchange, realigning Saratoga Way and eliminating the close intersection spacing existing between the westbound ramps and Saratoga Way. The proposed project may also improve safety by improving the vertical and horizontal alignment of the interchange ramps, signaling the intersection of the

eastbound ramps and Latrobe Road and widening El Dorado Hills Boulevard/Latrobe Road.

Proposal Funding

This project was initiated by the County of El Dorado. Initially the project was to be 100% locally funded. Local funds have been allocated for the construction of this project from moneys collected for the El Dorado Hills Area funding source. With the passage of SB 45 there is an opportunity for the County to obtain STIP-RIP funds to fund a portion of the project. Whether STIP-RIP funds will be used and the exact funding ratios have not been determined. The project is consistent with the El Dorado County RTIP/FTIP and is included in the biennial 1998 MTP. Required right-of-way will be dedicated to the State for this project. Construction of the first phase of the proposed project is expected to begin in September 2001 and would require approximately 12 months to complete.

EXISTING FACILITY

The existing El Dorado Hills Boulevard/Latrobe Road Interchange is the westernmost interchange on U.S. Highway 50 in El Dorado County. This interchange is located in the foothills of the Sierra Nevada Range, at an approximate elevation of 189 m. The project site lies within the boundaries of the U.S. Geological Survey 7.5 minute in the Clarksville topographic quadrangle map. North of U.S. Highway 50, El Dorado Hills Boulevard provides access to the community of El Dorado Hills including the existing commercial development east of El Dorado Hills Boulevard, the El Dorado Hills golf course and the proposed recreational and residential developments identified in the Specific Plan north and west of the interchange. South of U.S. Highway 50, Latrobe Road provides access to the new commercial developments of the Corporate Center (Village U) and Town Center (Village T) north of White Rock Road, the planned Carson Creek business development and El Dorado Hills Business Park west of Latrobe Road.

The El Dorado Hills Boulevard/Latrobe Road Interchange is a low capacity interchange resembling a compact diamond (Type L-1) on the north side and a cloverleaf (Type L-8) on the south side (See Attachment 9). The interchange was constructed in 1965 with single lane diagonal ramps in the northeast and northwest quadrants, a single lane loop off-ramp and a single lane diagonal on-ramp in the southeast quadrant. The ramps have 3.66 meter lanes, 2.44 meter right shoulders and 0.61 meter left shoulders with type B-2 concrete curbs. The eastbound loop off-ramp consists of a 46 meter radius curve and is a one lane ramp, widening to two lanes at the terminal with a yield controlled right turn and a stop controlled left turn lane. The eastbound diagonal on-ramp is a single lane ramp consisting of a 50 meter radius curve followed by a 305 meter radius curve. The westbound on ramp is a short, single lane ramp with a 4.7 percent rising grade. The westbound off-ramp consists of a single lane with a flat 0.29 percent grade. The intersection of El Dorado Hills Boulevard with westbound ramp termini is currently controlled with a signal. The intersection of Latrobe Road with the eastbound ramp termini is controlled with stop signs.

El Dorado Hills Boulevard/Latrobe Road between the ramp intersections consists of two 3.6 meter lanes in each direction plus a 3.6 meter left turn pocket at each ramp intersection. The roadway has 2.4 meter outside shoulders and 0.6 meter inside shoulders and a raised median from the intersection of the westbound ramps north. A 1.52 meter sidewalk is provided along the northbound edge of shoulder. Bridge columns are located beneath the structure in the median and along the outside shoulders (approximately 2.6 meters from the edge of traveled way along southbound side and 6 meters from the edge

of traveled way along the northbound side). North of the interchange El Dorado Hills Boulevard continues as a five-lane arterial, with three northbound lanes and two southbound lanes. South of the interchange Latrobe Road is a two lane conventional road. The section of Latrobe Road between the eastbound ramps intersection and White Rock Road is currently under construction to widen to a four lane divided roadway with left turn pockets at A Street. The existing structural section for El Dorado Hills Boulevard/Latrobe Road consists of asphalt concrete and aggregate base.

Saratoga Way is a two lane divided road that serves as the main entrance to a large commercial area to the east of El Dorado Hills Boulevard, consisting of two gas stations, Raley's, 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 services several single family and multi-family residences. The intersection of Saratoga Way with El Dorado Hills Boulevard is signalized and located approximately 35 meters north of the signalized intersection of the westbound ramps.

STRUCTURES

The El Dorado Hills Boulevard/Latrobe Road undercrossing structure consists of three structures. Separate structures carry eastbound (Bridge No. 25-0071R) and westbound (Bridge No. 25-0071L) U.S. Highway 50 mainline traffic. Each structure has two 3.66 meter lanes with a 1.52 meter inside shoulder and an 2.44 meter outside shoulder. A third structure for the eastbound off-ramp (Bridge No. 25-00071S) consists of one 3.66 meter lane, an 2.44 meter outside shoulder and a 0.61 meter inside shoulder. Existing minimum vertical clearance at these structures is 4.63 m. All three structures are four span open abutment structures.

MAINLINE

U.S. Highway 50 between kilometer post 0.28 to 2.52 is a four lane, controlled access east west freeway. The facility consists of two 3.6 meter lanes and 2.44 meter outside shoulders in each direction with a 19.7 meter median. West of the El Dorado Hills Boulevard/Latrobe Road Interchange U.S. Highway 50 is located on a fairly flat grade and east of the interchange it begins to climb on a 4.6 percent grade. U.S. Highway 50 is the main connector between Sacramento and South Lake Tahoe and carries high volumes of commuter, commercial, and recreational traffic. It also serves El Dorado County, the City of Folsom, and eastern Sacramento County residents who commute to Sacramento area employment sites. Terrain along the north and south sides of U.S. Highway 50 generally consists of rolling hills with some steep grades.

U.S. Highway 50 a.m. and p.m. peak hour volumes range from 3,900 vehicles per hour west of the El Dorado Hills Boulevard/Latrobe Road Interchange to 3,600 vehicles per hour east of the interchange in each direction. The corresponding (LOS) for the mainline is shown in Attachment 11, Table 3.

DEFICIENCIES

Caltrans has identified LOS E as the concept LOS for acceptable operations on U.S. Highway 50 in western El Dorado County, according to the State Route 50 Transportation Concept Report, Caltrans District 3, April 6, 1998.

The traffic analysis evaluated operations on mainline U.S. Highway 50 on both sides of the interchange to determine peak hour operation conditions. Results of this analysis determined that U.S. Highway 50 west of the interchange operates at a LOS E during the a.m. peak hour and U.S. Highway 50 east of the interchange operates at LOS E during the p.m. peak hour.

Operations were evaluated at each of the ramp junctions during the a.m. and p.m. peak hour. The traffic analysis of the existing El Dorado Hills Boulevard/Latrobe Road Interchange indicates 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. 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 exit on the westbound 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. There is a steep uphill grade on the westbound diagonal on-ramp, which makes weaving onto mainline U.S. Highway 50 difficult for traffic entering the ramp. This condition is made worse when a number of heavy vehicles are on the ramp. The eastbound diagonal on-ramp consists of a tight 50 meter radius curve to the left, a short 48 meter tangent section followed by a 305 meter radius curve to the right. The eastbound to northbound movement from the eastbound loop off-ramp has a short lane merge taper with El Dorado Hills Boulevard. This movement and the east bound ramp intersection operation was improved with new traffic signal system in January 2000.

The westbound ramp terminal intersection operates at a Level of Service E during the a.m. peak hour. The close spacing, (approximately 70 meters centerline to centerline) between the signalized intersections of the westbound ramps and Saratoga Way with El Dorado Hills Boulevard results in greater delays and increased lost time through the corridor. 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. Substantial queuing also occurs in the northbound direction at each ramp terminal intersection during the p.m. peak hour. Based on the field observations queues from the westbound intersection spill back onto the eastbound loop off-ramp and are beginning to approach the mainline.

Traffic analysis of the existing conditions show a need for improvements to the existing interchange built in 1965. Reconstructing the El Dorado Hills Boulevard/Latrobe Interchange is necessary to improve vehicular access and accommodate the forecasted traffic volumes identified in El Dorado County's 1996 General Plan.

ENVIRONMENTAL STATUS

The Draft EIR/EA has been prepared in accordance with Caltrans environmental procedures as well as State and federal environmental regulations. The enclosed Draft EIR/EA and final EIR/EA are the appropriate documents for the proposal (See Attachment 16).

The reconstruction of the existing El Dorado Hill Boulevard/Latrobe Road Interchange is classified as a Category 4A project because it requires new right-of-way and does not require a route location adoption or a revision to the existing freeway agreement

The County of El Dorado has retained an environmental consultant to conduct environmental studies to assess the impacts associated with the proposed project.

A joint Draft EIR/EA has been prepared by El Dorado County and Caltrans (state lead agency), and the FHWA (federal lead agency) to meet the requirements of the California Environmental Quality Act (CEQA) of 1970, as amended (Pub. Res. Code, Section 21000 et seq.), and the National Environmental Policy Act (NEPA), as amended. The 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 (see Attachment 16).

The County prepared and distributed an NOP and an initial study on July 11, 1998. Interested agencies and individuals submitted comments concerning the scope of the EIR/EA (on file at DOT). The environmental effects addressed in the Draft EIR/EA have been identified based on the results of the initial study checklist and the NOP and comments on potential significant environmental effects submitted to the County in response to the NOP. The Draft EIR/EA includes analysis on the following topics: Noise, Air Quality, Visual Resources, Traffic, Land Use and General Plan Consistency, Earth Resources, Hydrology and Water Quality, Biological Resources, and Cultural Resources. 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 on these topics.

The public review period for the Draft EIR/EA began on November 15, 1999, and ended 45 days later on December 30, 1999. Copies of the report were also made available for review at the main library in Placerville, the West Slope branch library, and the El

Dorado Hills Community Services District office. Notices of availability of the Draft EIR/EA were also published in the Folsom Telegraph on November 17, 1999; the Sacramento Bee on November 12, 1999; and in the Mountain Democrat on November 12 and 15, 1999. Copies of the Draft EIR/EA were mailed directly to numerous agencies, organizations, and interested groups and persons for review. The Final EIR/EA including response to comments (from Draft) was completed on April 20, 2000, and made available to the public for review. The BOS certified the EIR/EA on May 23, 2000, after receiving public testimony.

TRAFFIC DATA

The traffic analysis work for this effort began in 1995, with the initial results documented in the Final Draft Traffic Analysis Report for the U.S. Highway 50/El Dorado Hills Boulevard/Latrobe Road Interchange, Fehr & Peers Associates, August 16, 1996. In 1997, El Dorado County undertook a public participation process that included a review of several additional interchange alternatives. The revised 1997/1998 analysis included slight modifications to the original traffic forecast and operations analysis. The specific details of this revised analysis are described in Chapter VIII of the traffic report (See Attachment 11).

The following traffic data and analyses were used for the project traffic study:

- Traffic Forecasts - Traffic forecasts utilized in this study were developed as part of the U.S. Highway 50 Interchange Planning Study through Folsom and Western El Dorado County, Fehr & Peers Associates, November 1995. Traffic forecasts were developed by updating the Caltrans 1993 U.S. Highway 50/Prairie City Road Interchange Project Report traffic data to reflect the most recent land use and road network assumptions. The 1993 Prairie City Road Model is an adaptation of the Sacramento Area Regional Model (SACMET) developed by the Sacramento Area Council of Governments (SACOG). This methodology is explained in more detail in Attachment 11, page 10.
- The freeway segments were analyzed using the Highway Capacity Manual - Special Report 209, Transportation Research Board, 1994, (HCM).
- The ramp junction and ramp terminal intersection LOS was analyzed using the procedures in the 1994 HCM. The 1994 HCM was utilized to assess LOS at signalized intersections.
- The unsignalized intersections were evaluated for peak hour traffic signal warrants in accordance with Warrant 11 (Urban peak hour traffic volumes warrant) contained in the 1995 Caltrans Traffic Manual.

- Ramp metering evaluation was conducted using the August 1995 Caltrans Ramp Meter Design Guidelines.

Existing Conditions

Attachment 11, Figure 2 displays the current peak hour traffic volumes for the existing interchange and U.S. Highway 50. Traffic counts were conducted in 1997 and 1998. Access to U.S. Highway 50 via El Dorado Hills Boulevard/Latrobe Road is provided by the existing combination Type L-1, Type L-8 interchange. The freeway segment analysis is shown in Attachment 11, Table 3. The segments of U.S. Highway 50 west of the interchange operate 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. East of the interchange the freeway operates at LOS D during the peak hours. The ramp junction and ramp terminal analyses are shown in Attachment 11, Tables 4 and 5. The westbound ramp junctions 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 (Attachment 11, Tables 4). The EB ramps intersection with Latrobe Road was recently signalized in December 1999/January 2000. The WB ramps/El Dorado Hills Blvd/Saratoga Way intersection currently operates at LOS E during the a.m. peak hour and LOS D during the p.m. peak hour.

Land Use Assumptions

For this project, Caltrans, the City of Folsom and El Dorado County provided direction regarding land use and network changes for each planning horizon. The 1993 Prairie City Model, the 1992 Folsom East Area Facilities Plan Model and the 1994 El Dorado County General Plan Model were primary sources for land use data. The traffic forecasts for 2005 conditions used the Prairie City Model development data for Folsom districts and assumed no development for Sacramento County districts. In El Dorado County, the County's 1990 base data and the 2015 market data were interpolated to derive 2005 development levels. The net increase from the 2005 Prairie City Model to the 2005 U.S. Highway 50 Corridor Study Model is 4,185 units (14 percent increase) and 3,075 jobs (six percent increase) due to increased development in El Dorado County.

For 2020 conditions, residential units and employment from the Prairie City Model were increased in the Folsom area by 1 percent per year for five years from 2015, unless it was already built out in the Folsom General Plan. No developments were assumed in Sacramento County. In El Dorado County, the County's market based 2015 forecasts were increased by 2.71 percent per year for residential units and 3.7 percent per year for employment between 2015 and 2020 based on growth rates supplied by El Dorado County. The net increase from the 2015 Prairie City Model to the 2020 U.S. Highway 50 Corridor Study Model is 12,265 units or 2,453 units (28 percent increase), and 2,622 jobs

per year (17 percent increase). Most of this significant increase is attributed to the growth in El Dorado County. Road network assumptions are listed in Attachment 2, page 10.

The County is currently in the process of preparing an interim traffic impact mitigation fee program consistent with the Writ of Mandate-allowed development scenario it developed in 1999. The Writ of Mandate is discussed earlier in the Background section of this report. In conjunction with that effort, updated traffic forecasts were developed for buildout conditions. The results indicate that while the ramp and intersection volumes are generally consistent with the levels projected under the 1996 General Plan-based forecasts, the mainline U.S. Highway 50 forecasts are much lower, due primarily to the reduced development levels outside the El Dorado Hill/Latrobe area.

Alternatives Analysis

As part of the traffic analysis study, interchange alternatives were evaluated for future conditions to determine the configuration that would best serve the cumulative traffic growth in the area. A four step screening process was undertaken to evaluate alternative interchange configurations and to select a preferred interchange:

- **Step 1: Preliminary Analysis of Initial Alternatives.** The six original alternatives were analyzed for general operational characteristics of the ramp terminal intersections for each configuration. The results of this analysis are shown in Attachment 11, Table 7.
- **Step 2: Analysis of Screened Alternatives.** Ramp terminal intersections, storage requirements and other operational issues were analyzed for each screened alternative under both 2005 and 2020 conditions. The results of this analysis are shown in Attachment 11, Tables 8, 9, 10, 11, and 12.
- **Step 3: Analysis of the Public Input Alternatives.** Following completion of the initial analysis (Steps 1 and 2), El Dorado County undertook an extensive public input process which generated several other alternatives. These alternatives were evaluated at a fatal-flaw level to consider whether it warranted further study. The results of this analysis are discussed in Attachment 11, Chapter VII.
- **Step 4: Detailed Analysis of Preferred Configuration.** Based on the results of Steps 1-3 a preferred configuration was selected. Additional analysis focused on mainline segments (west and east of the interchange), ramp junctions analysis for all ramps, ramp terminal intersections and the intersection of Saratoga Way/Park Drive with El Dorado Hills Boulevard, ramp metering, corridor operations and phasing of the ultimate improvements. The results of this analysis are shown in Attachment 11, Tables 13, 14, 15, 16, 17, 18, 19, 20 and 21.

Screened Alternatives Analysis

Year 2005 Conditions

Ramp Junctions and Ramp Terminal Intersections--

The ramp terminal intersection analyses are shown in Attachment 11, Table 8. The ramp terminal intersection analysis for 2005 indicates that each intersection will operate acceptably. Alternative 3 provides a slightly lower quality of operations due to the removal of the diagonal WB off-ramp.

Year 2020 Conditions

Ramp Terminal Intersections--

The terminal analyses are shown in Attachment 11, Table 10. The intersection analysis indicates that each alternative will provide acceptable intersection operations at both ramp intersections in 2020. However the intersection of El Dorado Hills Boulevard/Park Drive will operate at LOS F during the p.m. peak hour under Alternative 6.

Advantages and disadvantages of the project alternatives with respect to traffic operations are shown in Attachment 11, Table 12.

Preferred Alternative Analysis

The next level of detailed analysis conducted for the preferred alternative included an assessment of the mainline segments, ramp junctions, and ramp terminal intersections under both 2005 and 2020 conditions. A signal progression analysis of the El Dorado Hills Boulevard/Latrobe Road corridor was also conducted under 2020 conditions to determine whether the corridor would function acceptably under a worst case scenario.

For the purposes of the traffic report (Attachment 11), the "preferred alternative" was defined as Alternative 3 with Saratoga Way being realigned as a four-lane roadway and intersecting El Dorado Hills Boulevard at Park Drive. A traffic analysis was later done for the Draft EIR/EA Report for the U.S. Highway 50/El Dorado Hills Boulevard-Latrobe Road Interchange Project (Attachment 16). This analysis included evaluating the preferred alternative (Alternative 3E) with a two-lane Saratoga Way. Traffic operations were evaluated for both the interim (2005) and the ultimate (2020) conditions.

Year 2005 Conditions

U.S. Highway 50 Mainline--

The U.S. Highway 50 mainline configuration assumed for the year interim 2005 consists of the two existing mixed flow traffic lanes in each direction with the addition of the planned HOV lane in the median area in each direction between El Dorado Hills Boulevard and Sunrise Boulevard.

The operational analysis results for the year 2005 (Attachment 11, Table 13) indicate 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 both east and west of the El Dorado Hills Boulevard/Latrobe Road interchange. This result was common for both the two-lane (Attachment 16, Table 7-9) and four-lane Saratoga Way configuration.

Ramp Junctions and Ramp Terminal Intersections--

The ramp junction and ramp terminal analyses are shown in Attachment 11, Tables 14 and 15. 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. While the preferred alternative would add capacity to each ramp junction, operations are not improved because of the extreme congestion on mainline U.S. Highway 50. The ramp terminal intersection analysis for 2005 indicates that each intersection will operate acceptably at LOS D or better during the a.m. and p.m. peak hour. These results are common under both the two-lane (Attachment 16, Table 7-10 and 7-11) and four-lane alternative configuration for Saratoga Way.

Saratoga Way--

Operations were also evaluated on Saratoga Way by comparing the projected peak-hour traffic volume to the LOS volume thresholds shown in Table 7-3 of Attachment 16 for the realigned two-lane roadway. Results indicate that Saratoga Way is expected to operate at LOS C or better during each peak hour as a two-lane roadway under interim 2005 conditions (Attachment 16, Table 7-12).

Year 2020 Conditions

U.S. Highway 50 Mainline--

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 the cumulative or ultimate (2020) conditions. According to the Circulation Element of the General Plan, by the year 2020 U.S. Highway 50 will consist of three mixed use lanes and one HOV lane in each direction. This configuration for the mainline was included in the traffic analysis for 2020 conditions. The results for 2020 analysis indicate 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. This improvement in operations is due to the planned widening of U.S. Highway 50 (see Attachment 11, Table 16). This result was common for both the analyses with a four-lane Saratoga Way and a two-lane Saratoga Way (Attachment 16, Table 7-13).

Ramp Junctions and Ramp Terminal Intersections

Operations were analyzed under year 2020 conditions at each interchange ramp junction during the a.m. and p.m. peak hours (see Attachment 11, Table 17). The results show that implementation of the preferred alternative would improve operations over no project from LOS E or LOS F to LOS D or better at each ramp junction.

Operations were also evaluated under the ultimate (2020) conditions at each study intersection. Attachment 11, Table 18 shows that operations at each ramp terminal intersection are projected to operate acceptably with a LOS C during the a.m. and p.m. peak hours. Operations at the El Dorado Hills Boulevard/Park Drive intersection are projected to be LOS D during each peak hour. These results were common for both the analyses with a four-lane Saratoga Way configuration and a two-lane Saratoga Way (Attachment 16, Table 7-14 and 7-15).

Saratoga Way--

Operations were also evaluated for a two-lane Saratoga Way by comparing the cumulative (2020) peak hour traffic volume to the LOS thresholds shown in Table 7-3 of Attachment 16. The results of this analysis show that Saratoga Way is expected to operate at LOS E during each peak hour (Attachment 16, Table 7-16).

To achieve the County's current acceptable LOS (LOS C) mandated in the El Dorado County General Plan, Saratoga Way should be widened to four lanes by 2020. A four-lane Saratoga Way is consistent with the 1996 El Dorado County General Plan and the 20-Year Capitol Improvement Program. The proposed project will reserve right-of-way to provide for the future widening of Saratoga Way to a four-lane roadway if the County decides to do so under a separate project.

Corridor Progression Analysis

A corridor progression analysis was conducted for the preferred alternative. The corridor progression analysis investigated operations of a coordinated system of traffic signals located at the White Rock Road, Town Center Boulevard, EB ramps, WB ramps, and Park Drive intersections. Figure 8, of Attachment 11, shows the year 2020 forecasts for each intersection.

The preferred interchange alternative was analyzed using the TRAF-NETSIM simulation software. The analysis was conducted for two variations of the EB diagonal off-ramp configuration. The two variations analyzed included the diagonal off-ramp with a single 'free' right turn and a signalized right turn, and a diagonal off-ramp with a single free right turn only. The results of the simulation are shown in Attachment 11, Table 19. The results indicate that both variations provide acceptable operations throughout the corridor.

Ramp Metering

The preferred alternative proposes to meter the westbound on-ramp in the interim phase of the project. A ramp metering analysis was conducted for 2005 conditions to determine the maximum metering rate the westbound on-ramp can accommodate before the queue exceeds available storage capacity. The proposed westbound on-ramp includes an HOV-bypass lane assumed to serve 17% of the total demand. The results of this analysis are shown in Attachment 11, Table 20. Results show that a minimum metering rate of 520 vphpl is necessary at the westbound on-ramp to ensure sufficient storage on the ramp. A ramp metering analysis was not done for the eastbound on-ramp since for this ramp is not expected to be metered until the Ultimate Phase (2020) of the project.

Local Circulation

The El Dorado County General Plan sets forth guidelines for the development of transportation infrastructure to meet anticipated growth. All of the facilities listed below are included in the 1996 El Dorado County General Plan and are planned for completion by the year 2015. Many of these facilities will be funded through traffic impact mitigation fees or constructed by developers as conditions of development. Because of this, predicting the date of completion of these facilities is totally dependent upon market conditions. Proposed improvements include the following (See Attachment 11, Figure 9):

- Silva Valley Parkway - (From Harvard Way to U.S. Highway 50) extend as a four divided arterial and construct the Silva Valley Parkway/U.S. Highway 50 Interchange.
- Saratoga Way - extend as a four-lane roadway between Folsom and El Dorado Hills Boulevard.
- El Dorado Hills Boulevard - widen El Dorado Hills Boulevard to six lanes from Saratoga Way to Serrano Parkway, and widen to four lanes from Serrano Parkway to Green Valley Road.
- Green Valley Road - widen to a four-lane divided roadway from the Sacramento County Line to Francisco Drive, and to a four-lane roadway east of Francisco Drive.
- White Rock Road - widen to six lanes from Silva Valley Parkway to Latrobe Road, and to four lanes west of Latrobe Road to the Sacramento County Line.
- Latrobe Road – widen to six lanes from U.S. Highway 50 to White Rock Road, and four lanes south of White Rock Road.
- Serrano Parkway - construct Serrano Parkway as a two to four- lane road from El Dorado Hills Boulevard to Bass Lake Road.
- Construct a multi-modal transfer facility at the intersection of White Rock Road and Latrobe Road. The first phase will serve carpools, vanpools, and bicycles and also

serve as a park-and-ride lot for El Dorado Transit. A proposed second phase would accommodate light rail.

The improvements mentioned above are proposed to provide a comprehensive local circulation system designed to minimize local travel on U.S. Highway 50, as well as reduce single occupant travel.

ACCIDENT DATA

The current accident data, shown in TASAS Table B, Attachment 12, covers a 36-month period from October 1, 1995, to September 30, 1998, within the project limits. The actual and average accident rates on U.S. Highway 50 are 0.41 ACC/MVM and 0.62 ACC/MVM, respectively in the eastbound direction and 0.56 ACC/MVM and 0.62 ACC/MVM in the westbound direction. A total of 26 accidents (11 eastbound and 15 westbound) were reported with one fatality and 10 injuries on this portion of U.S. Highway 50. A total of 32 accidents occurred on the interchange ramps. There was no apparent pattern to the mainline accidents. However, 16 of the accidents were multi-vehicle accidents, eight occurred at night and 1 was on wet pavement. The total accident rate on this section of U.S. Highway 50 is about 66 percent of the statewide average in the eastbound direction and 90 percent of the statewide average in the westbound direction for total accidents on this type of facility. The following table shows the actual and average accident data on eastbound U.S. Highway 50 for the period 1995 through 1998.

Accident Type	Number of Accidents	Actual (ACC/MVM)*	Average (ACC/MVM)*
Fatality Accidents	0	0.00	0.006
Injury Accidents	6	0.22	0.25
Property Damage Only	5		
Total Accidents	11	0.41	0.62
*Accidents per Million Vehicle Miles. (Oct 1995 through Sept 1998, postmiles 0.50 to 1.249)			

The following table shows the actual and average accident data on westbound U.S. Highway 50 for the period 1995 through 1998.

Accident Type	Number of Accidents	Actual (ACC/MVM)*	Average (ACC/MVM)*
Fatality Accidents	1	0.017	0.006
Fatality + Injury Accidents	5	0.19	0.25
Property Damage Only	10		
Total Accidents	25	0.56	0.62
*Accidents per Million Vehicle Miles. (Oct 1995 through Sept 1998, postmiles 0.50 to 1.249)			

The actual and average accident rates on the ramps at El Dorado Hills Boulevard/Latrobe Road Interchange for the period 1995 through 1998 are as follows:

Location	Number of Accidents	Actual (ACC/MV)*	Average (ACC/MV)*
Westbound (WB) On-Ramp	9	1.04	0.80
Eastbound (EB) Off-Ramp	7	0.81	1.40
Eastbound (EB) On-Ramp	7	1.26	0.80
Westbound (WB) Off-Ramp	7	1.77	1.50
Accidents per Million Vehicles. (Oct 1995 through Sept 1998, postmiles 0.50 to 1.249)			

The current accident data for the ramps show no reported fatalities, three injuries on the westbound on-ramp, six injuries on the westbound off-ramp, two injuries on the eastbound off-ramp and two injuries on the eastbound on-ramp. The actual accident rate is greater than the average accident rate for the westbound on-ramp, the eastbound on-ramp and the westbound off-ramp. The majority of the accidents at the eastbound on-ramp involved a vehicle traveling east on the ramp running off the road to the right. Four of the accidents involved a vehicle proceeding northbound striking or being struck by a southbound vehicle turning left from Latrobe Road to the on-ramp. Over half of the accidents that occurred at the eastbound off-ramp were similar broadside type accidents involving a northbound vehicle and a vehicle turning from the eastbound off-ramp. The occurrence of this type of accident should be reduced with the installation of the traffic signal that is proposed for the intersection of the eastbound ramps with Latrobe Road.

The accidents that have occurred at the westbound ramps tend to be congestion related type accidents. Four of the nine accidents at the westbound on-ramp and six of the nine accidents at the westbound off-ramp were rear end accidents involving two or more vehicles.

TRAFFIC SIGNALS

The eastbound ramp terminal intersection at Latrobe Road was improved with a new traffic signal system in January 2000. The intersection was previously controlled with stop signs. The ramp terminal intersection analysis for the previous condition showed that the eastbound ramp terminal intersection operated unacceptably during the p.m. peak hour, with a LOS F and a +45 seconds/vehicle delay. A review of the peak hour signal warrant contained in the Traffic Manual, 1991, indicated that the eastbound ramp intersection met peak hour warrants for a traffic signal (See Attachment 11, Table 5). The proposed project includes a signal at this intersection. The new traffic signal is expected to provide acceptable operations for both the a.m. and p.m. peak hours in the year 2005 with a LOS C and a 21.1 seconds/vehicle delay for the a.m. peak hour, and a LOS D 27.5 seconds/vehicle/delay for the p.m. peak hour. The ultimate configuration is expected to operate with a LOS B and a 6.1 to 7.4 seconds/vehicle delay for the p.m. and a.m. peak hours in the year 2020 (Attachment 11 Tables 15 and 18).

The westbound ramp terminal intersection (north of U.S. Highway 50) operates on a five phase traffic signal coordinated with the signal at Saratoga Way (approximately 35 meters north). The proposed project intends to eliminate the signal at the existing westbound ramp intersection, relocating the westbound on-ramp opposite Saratoga Way east and signaling this intersection. The ramp terminal intersection analysis in for the year 2005 indicates that this intersection will provide acceptable operations for both the a.m. and p.m. peak hours, with a LOS C and a 18.7 to 19.8 seconds/vehicle delay. The ultimate configuration is expected to operate with a LOS C and a 23.1 to 24.6 seconds/vehicle delay for the a.m. and p.m. peak hours in the 2020 (Attachment 11, Tables 15 and 18).

The signal at the intersection of Park Drive/Saratoga Way with El Dorado Hills Boulevard under the preferred alternative with a four lane Saratoga Way for the year 2005, will operate at a LOS B (14.6 seconds/vehicle delay) in a.m. peak hour and at a LOS C (21.3 seconds/vehicle delay) in the p.m. peak hour. For the year 2020, the intersection is expected to operate with a LOS D and 35.7 to 39.7 seconds/vehicle delay in the a.m. and p.m. peak hours (See Attachment 11, Tables 15 and 18). These results are the same for a two-lane Saratoga Way configuration (Attachment 16, Tables 7-11 and 7-15).

NON-STANDARD DESIGN FEATURES

The proposed project will meet current mandatory and advisory design standards except for the exceptions identified to the mandatory and advisory design standards discussed below.

MANDATORY DESIGN EXCEPTIONS

The following mandatory design exceptions were identified for the proposed project for the Phase 1 and Ultimate Interchange improvements:

- Design speed and standards for grade for the existing El Dorado Hills Boulevard profile.
- Standard lane widths of 3.6 meters and standard outside shoulder widths of 2.4 meters.

The existing profile along El Dorado Hills Boulevard between the eastbound and westbound ramp terminal intersections is composed of a maximum grade of 7.9 percent and a minimum grade of 0.35 percent. Vertical curves along the profile are as follows: 55 meter sag vertical curve from Sta. "B" 49+15 to 50+00 ($V=78$ km/h), a 76 meter vertical curve from Sta. "B" 50+08 to 50+84 ($V=40$ km/h) and a 30.5 meter crest vertical curve from Sta. "B" 50+84 to 51+14 ($V=55$ km/h). The vertical curves on the existing El Dorado Hills Boulevard profile allow design speeds ranging from 40 km/h to 78 km/h. According to Section 101.2 of the Caltrans Highway Design Manual (HDM), Table 101.2, the Design Speed for local facilities connecting to a freeway or expressway should be 75 km/h (Advisory Standard) and not less than 55 km/h (Mandatory Standard). The standards of Index 204.3 of the HDM specify a maximum grade of 7 percent for urban highways in rolling terrain. Although the 7.9 percent maximum grade exceeds the 7 percent maximum, the 7.9 percent grade is only instantaneous at the point of the reversing vertical curve. The length of the existing profile which exceeds the 7 percent maximum grade is only 20 meters long.

Reconstruction of El Dorado Hills Boulevard and modifications to make the existing profile standard are not proposed as part of this project. The existing profile for El Dorado Hills Boulevard with the mandatory design exceptions mentioned above will be maintained for both the Phase 1 and Ultimate Interchange improvements. The area exceeding the 7 percent grade standard is in a reduced speed zone with signalized

intersections and does not create a safety problem. The cost to reconstruct the existing profile is estimated to be \$1.3 million. The nonstandard 55 meter sag vertical curve is located beneath the existing structure. Lighting will be provided along El Dorado Hills Boulevard/Latrobe Road at the sag vertical curves as part of the interchange improvements. The lighting of the sag vertical curve will eliminate the headlight sight distance restrictions.

Phase 1 proposes to widen El Dorado Hills Boulevard/Latrobe Road to two through lanes in each direction with dual left turn lanes provided at the eastbound and westbound ramp terminal intersections. Widening beneath the existing undercrossing structures is constrained by the locations of the existing columns. In order to provide the number of lanes necessary to handle the increased traffic volumes, nonstandard lane widths and outside shoulder widths are proposed beneath the existing mainline structures. Approximately 16.2 meters of clear horizontal width between bridge columns exists in the northbound direction. There is approximately 11.2 meters of clear horizontal width between bridge columns in the southbound direction. Three 3.6 meter lanes and one 3.3 meter lane with a 1.6 meter outside shoulder is proposed in the northbound direction and three 3.3 meter lanes with a 1.3 meter outside shoulder is proposed in the southbound direction. The HDM Index 308.1 and 301.1 require a basic lane width of 3.6 meter. Index 405.2 specifies 3.6 meter lanes for left turn lanes. Index 302.1 requires 2.4 meter outside shoulders for conventional highways in urban areas with speeds less than 75 km/h and curbed medians. The 3.3 m lane widths and 1.3 m and 1.6 m outside shoulder widths are only required for the Phase 1 project. Standard lane and shoulder widths will be provided with the Ultimate construction project.

Currently the bridge columns beneath the existing undercrossing structures are protected by raised concrete curb. It is proposed in Phase 1 to protect the columns at the outside edge of traveled way in both the northbound and southbound direction with a concrete column closure and a G.R.E.A.T. crash cushion system at the approach ends of the column barrier. The columns at the inside edge of traveled way will also be protected by a column closure barrier and a G.R.E.A.T. crash cushion system at the approach ends as well as being bordered with a raised median providing the standard horizontal clearance from the face of curb to the column face.

The interchange improvements proposed for Phase 1 and the Ultimate Phase of the proposed project will not lessen safety on this portion of El Dorado Hills Boulevard. The conditions discussed above do not create an unsafe condition and the cost of \$1.3 million to reconstruct the El Dorado Hills Boulevard profile and the cost of \$5.2 million to

replace the mainline structure as part of the Phase 1 improvements are not justified. Lane and shoulder width standards will be met with the Ultimate construction project.

These exceptions to the mandatory design standards have been discussed with and approved by Ron Nelson, District Coordinator, Office of Project Planning and Design (OPPD). Mr. Nelson stated that a formal signed design exception is not required.

ADVISORY DESIGN EXCEPTIONS

Exceptions to the advisory standards outlined in the Caltrans Highway Design Manual (HDM) have been identified for the Phase 1 and Ultimate Interchange improvements for the proposed project. The project includes exceptions to the vertical curve design standards for conventional highways. An Advisory Standard Design Exception Fact Sheet for this exception to the HDM advisory design standards for vertical curves was approved on June 18, 1996 and is included as Attachment 13.

IMPACT ON UTILITIES

This project will require coordination with local utility companies for the proposed El Dorado Hills Boulevard/Latrobe Road Interchange reconstruction on U.S. Highway 50. The following utilities may be affected by this project:

- Pacific Gas & Electric gas distribution main.
- Pacific Gas & Electric overhead and underground electrical lines.
- Pacific Bell overhead and underground telephone lines and underground fiber optics
- El Dorado Irrigation District water and sewer facilities.

STRUCTURES

The interchange in the proposed project, will consist of three new structures, a mainline structure for both U.S. Highway 50 eastbound and westbound traffic and separate structures for the eastbound loop off-ramp and the westbound loop off-ramp. The new westbound loop off-ramp structure will be constructed as part of the Phase 1 interchange improvements. The U.S. Highway 50 mainline structure and the eastbound off-ramp structure will be built in the Ultimate Phase. A final Structures Advance Planning Study is in Attachment 14.

Complete reconstruction of the existing structures will be required in the Ultimate Phase in order to widen El Dorado Hills Boulevard/Latrobe Road to the ultimate width providing for three through lanes in each direction and dual left turn lanes with standard lane widths and shoulder widths beneath U.S. Highway 50. Future widening on the U.S. Highway 50 mainline also necessitates structure work at this location.

Construction of the new structures will be staged in order to provide two lanes of traffic in each direction on U.S. Highway 50 during construction of the new mainline structure.

PHASE 1 - INTERCHANGE

The proposed new U.S. Highway 50 westbound off-ramp structure will consist of a four-span, prestressed, precast concrete I-beam structure. This structure type was chosen in order to match the structure type proposed for the new U.S. Highway 50 mainline structure. Falsework will not be required in the construction of the off-ramp structure due to the precast, concrete I-beam structure type. The abutments at the ends of the structure will be seat type abutments with a pile foundation. Slope paving below the abutments will be a 1:2 slope. All bents will consist of eight, 1.0 meter diameter columns and a reinforced concrete cap. Column foundations are assumed to have either spread or pile footings. The bridge superstructure will accommodate the future widening on U.S. Highway 50.

Ultimate Interchange

The proposed U.S. Highway 50 mainline structure will consist of a single four-span, continuous precast concrete I-beam bridge. This structure type was chosen because of the vertical clearance constraint over El Dorado Hills Boulevard. Reasoning for the structure types chosen is discussed further in Attachment 14. Falsework will not be required in the construction of the proposed structure due to the precast I-beam structure

type. A single structure is required to accommodate necessary traffic lanes during stage construction. Construction can be staged so that one direction of traffic is detoured to the median area while either the eastbound or westbound structure is removed and the new structure is built (See Attachment 14).

The proposed U.S. Highway 50 eastbound off-ramp structure will consist of a four-span, prestressed, precast concrete I-beam bridge. This structure type was chosen to match the structure type proposed for the U.S. Highway 50 mainline structure. Falsework will not be required in the construction of the structure due to the precast, concrete I-beam structure type. The abutments at the ends of the structure will be seat type abutments with a pile foundation. Slope paving below the abutments will be a 1:2 slope. All bents will consist of eight, 1.0 meter diameter columns and a reinforced concrete cap. Column foundations are assumed to have either spread or pile footings. The bridge superstructure will accommodate the future widening on U.S. Highway 50.

Vertical clearance at all three proposed structures will meet Caltrans minimum vertical clearance standards. It is anticipated that standard approach slabs will be used on the new structures.

HIGHWAY PLANTING

Construction of the proposed project would result in some loss of ruderal (non-native) vegetation. The non-native grass and herbaceous species are expected to rapidly re-establish in the disturbed areas reducing the amount that would be permanently lost. Emergent wetland vegetation, including cattail and yellow water cress occurs onsite in drainage ditches. Cottonwood trees, the only tree species present on the site also occurs near onsite drainage ditches. The vegetation along the drainage ditches may also be disturbed by the proposed project construction.

The proposed project will include landscaping within the project limits. Landscaping will consist of standard erosion control and highway planting that will be drought resistant, require low maintenance and complement the existing vegetation.

EFFECT OF PROJECT ON EXISTING FEATURES

The existing topography will be disturbed when excavation is done and embankment is placed to construct the new ramps, undercrossing approaches and structures. However, the proposed interchange was designed to incorporate the existing undercrossing and partial ramp embankments where possible to minimize the natural topography disturbance. The project will require imported material to balance the earthwork volumes. It is anticipated that grading for planned developments in the area will generate surplus material to use as imported borrow. It is expected that borrow pits will not be required. Contour grading may be provided and the existing drainage patterns will remain the same. It is anticipated that finished slopes will not be steeper than existing slopes. The slopes will be rounded and flattened wherever possible; and all fills will be a minimum of 5.5 meter from edge of shoulder to toe of slope. In areas where mainline widening occurs, the slopes will be graded to provide a minimum clearance of 5.5 meter between the catch point of the cut slope and the proposed right-of-way line.

The project will create additional surface areas of pavement that may increase storm water runoff, however, the existing drainage patterns will remain the same. A hydraulic and drainage control plan will be prepared before beginning construction to address storm water storage and conveyance. Erosion control, sediment control and energy dissipaters will be used to reduce storm water runoff during and after construction. All disturbed slopes are to be revegetated according to the planting concept. Most of the excavation and grading activities may be limited to the dry season from April to October.

PROPOSED INTERCHANGE LANDSCAPING

Landscaping incorporated into the proposed interchange improvements will be of drought-resistant varieties. In order to preserve the vegetative character of the El Dorado Hills area, plantings shall consist of native trees, shrubs and ground cover as well as species which are compatible with California/Mediterranean climate. Current Caltrans landscape improvement guidelines and the guidelines set forth in the El Dorado Hills Specific Plan will be followed.

CORRIDOR LANDSCAPE CONCEPT

Plantings proposed within the State right-of-way will be in keeping with current Caltrans landscape improvement guidelines. Native plants and grasses to the El Dorado Hills area, including species which are compatible with California/Mediterranean climate, will be incorporated into the corridor design.

PERMITS

Required permits will likely include:

- Caltrans Encroachment Permit.
- U.S. Army COE of Engineers (COE) Section 404 Nationwide Permit Number 14 or 26.
- Streambed Alteration Agreements 1601 Permit (California Department of Fish and Game Code 1600 et. seq.).

The proposed reconstruction of the interchange would result in the loss or temporary disturbance of perennial drainages and associated wetland and riparian vegetation. Approximately 0.42 acre of wetlands are present in drainage channels within the footprint of the proposed project. Federal jurisdiction over these wetlands is subject to verification by the COE. An additional 0.28 acre of stream channel and adjacent wetlands within the proposed project footprint are tributary to waters of the United States and are therefore also subject to federal jurisdiction. Construction work associated with the preferred interchange will result in a total of 0.15 acre of wetlands being filled.

The perennial drainages are subject to COE regulation under Section 404 of the Clean Water Act and possibly Department of Fish and Game regulation under California Fish and Game Code Sections 1601-1607.

A wetlands delineation was conducted to determine whether drainages present in the project area were wetlands that would be regulated by the COE under Section 404. A response letter was received from the COE verifying the delineation and concluding that Nationwide Permit Number 26 authorizes the fill of 0.15 acre (less than one-third of an acre) of waters of the United States, subject to water quality certification or waiver. In addition, Nationwide Permit Number 26 is due to expire on September 15, 1999. The County must contact the COE for work extending beyond this date. The project's compliance with Section 404 of the Clean Water Act is documented in detail in the Draft EIR/EA (Attachment 16).

Mitigation measures as described in the EIR/EA must be taken to avoid disturbance to drainages and wetland and riparian vegetation and to minimize impacts to perennial drainages. These measures may include protecting existing drainages and associated wetland and riparian vegetation by fencing off those areas with orange construction fencing and by restricting construction activities to areas outside these fences. The project proponent shall also minimize impacts on perennial drainages by developing and

implementing an erosion control plan and limiting construction activities to the dry season. Before any construction activities, the project proponent would obtain a Section 404 Permit from the COE and may need to enter into a streambed alteration agreement. If required, the loss of wetland and riparian vegetation may need to be compensated by preparing and implementing a mitigation and monitoring plan for replacement plantings or participating in a wetlands mitigation bank.

RIGHT OF WAY REQUIRED

The reconstruction the existing of El Dorado Hills Boulevard/Latrobe Road Interchange will not affect any residences or building structures. Right-of-way will be acquired and dedicated from several properties in all four quadrants. However, the proposed alternative minimizes right-of-way impacts to adjacent properties. All right-of-way will be acquired and dedicated during Phase 1 of the project. A Right-of-Way Data Sheet is included in Attachment 15.

HAZARDOUS MATERIALS

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

The conclusion 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. 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.

Of the nearby hazardous materials storage sites, only the Union 76 site is located within close proximity to the interchange. No spills or leaks have been identified at this site. Soils investigation at the site revealed non-detectable levels of contamination.

The three existing bridge structures are scheduled for a total replacement in the Ultimate Phase of the project. Before demolition of any structure notification to the EPA and California ARB is necessary. The structures were surveyed and various samples were taken to determine if asbestos might be present. The survey and plan review were negative for asbestos. Test results of the samples were also negative for asbestos.

On February 3, 2000, 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 El Dorado County Board of Supervisors has directed the Director of Environmental Management to ensure compliance with this ordinance throughout the county. 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 California Air Resources Board, which are adequate to prevent adverse environmental effects.

REMARKS

TRAFFIC MANAGEMENT PLAN (TMP)

Since Phase 1 of the proposed improvements to the El Dorado Hills Boulevard/Latrobe Road Interchange will be constructed in stages, minimal delays are anticipated on U.S. Highway 50, El Dorado Hills Boulevard, Latrobe Road and Saratoga Way. The construction plan is anticipated to have three stages.

- Stage I:** Realign the west leg Saratoga Way to Park Drive. Construct the westbound loop off-ramp structure and begin construction on the westbound loop off-ramp. Begin construction of the westbound on-ramp. Construct the new eastbound on-ramp. Begin widening on El Dorado Hills Boulevard/Latrobe Road.
- Stage II:** Route traffic to the realigned Saratoga Way. Complete construction of the westbound on-ramp and complete the new westbound off-ramp. Move traffic to the new eastbound on-ramp and widen the existing eastbound loop off-ramp. Complete widening on El Dorado Hills Boulevard/Latrobe Road.
- Stage III:** Move traffic to the new westbound on- and off-ramps. Obliterate any existing or temporary pavement. Remove signal at the existing westbound ramps.

The traffic management plan will provide for continuous through traffic on El Dorado Hills Boulevard, Latrobe Road and Saratoga Way. The proposed staging will provide at least one lane in each direction at the undercrossing and one lane on the ramps during construction. El Dorado Hills Boulevard/Latrobe Road widening at the undercrossing will be completed behind temporary railing (Type K) to minimize impacts to through traffic. The ramp connections and auxiliary lane construction will also be completed behind temporary railing (Type K) to minimize impacts to through traffic on the mainline. There may be brief periods for stage changeovers when lane closures and flag persons will be required to direct traffic. This scenario will provide maximum safety to the public from construction activities and protect work persons from traffic hazards. The public shall be notified in advance of possible delays on U.S. Highway 50, El Dorado Hills Boulevard, Latrobe Road, Saratoga Way and other adjacent roads during interchange construction.

The replacement of the existing mainline and eastbound off-ramp structures in the Ultimate Interchange Phase will have a greater impact on area traffic than the Phase 1 improvements. The construction of the new structures and removal of the existing structures will be done in stages to minimize disruption to U.S. Highway 50 traffic. The following discussion addresses one possible staging scenario.

The eastbound diagonal off-ramp will be constructed in the first stage. Construction of the eastbound loop off-ramp structure would also take place at this time. Eastbound traffic wanting to travel northbound on El Dorado Hills Boulevard may have to use the diagonal off-ramp and/or be detoured to the Silva Valley interchange at times during construction of the new eastbound loop off-ramp. The structure type proposed for the eastbound ramp does not require falsework and minimizes construction time to complete.

The new mainline structure will be constructed in several stages to minimize disruption to U.S. Highway 50 traffic. It is important to maintain at least two lanes of traffic in each direction on U.S. Highway 50 during the construction of the new mainline structure. A single structure is required to accommodate the needed traffic lanes during construction. Maintaining the existing mainline profile for the new structure will allow for new structure construction to take place in stages while traffic remains on the existing structures.

The first stage of construction would include the construction of a width of new structure in the median between the two existing structures. This new portion of structure will be wide enough to accommodate two 3.6 m lanes of traffic with standard shoulder widths. Temporary Type K railing will be utilized to separate existing traffic in both directions from the bridge construction taking place. Once the new width of structure is completed one direction of mainline traffic, say westbound will be detoured with the use of temporary pavement tapers, to the median area and the new width of structure. Connection to the westbound off-ramps will be maintained during this detour. The existing westbound mainline structure will then be removed and the westbound segment of new structure will be constructed. Once the westbound portion of structure construction is complete, traffic will be routed back to the westbound lanes while the eastbound mainline traffic is detoured to the median area. Connection to the eastbound on- and off-ramps will be maintained during the detour. The existing eastbound structure will then be removed and the new portion of structure will be constructed in this direction. Once complete, the eastbound traffic will be routed back to the new portion of structure and all temporary pavement for detours and ramp connections will be removed. Temporary Type K railing will be used to direct traffic in both directions during detours

and to separate traffic from construction areas. See Attachment 14 for a stage construction drawing.

The traffic management plan will provide for continuous through traffic on El Dorado Hills Boulevard and Latrobe Road. The proposed staging will provide at least one lane in each direction at the undercrossing and at least one lane on the ramps during construction. Active construction work will be separated from traffic on El Dorado Hills Boulevard/Latrobe Road with temporary railing Type K. There may be brief periods for stage changeovers and bridge removal when lane closures, detours and flag persons will be required to direct traffic. Removal of the existing structures may necessitate closing El Dorado Hills Boulevard/Latrobe Road for short periods of time while traffic is detoured to either the Silva Valley Interchange or the proposed Russell Ranch Interchange. This scenario will provide maximum safety to the public from construction activities and protect work persons from traffic hazards. The public shall be notified in advance of possible delays or detours on U.S. Highway 50, El Dorado Hills Boulevard, Latrobe Road and other adjacent roads during interchange construction.

COOPERATIVE FEATURES

A Cooperative Agreement will be implemented between Caltrans and the County of El Dorado to define responsibilities and funding of the project development work for this project. The PSR/PR, design, construction cost, right-of-way acquisition, utility relocation costs for this project will be 100 percent locally funded by the County of El Dorado unless the STIP funds are available. The Cooperative Agreement will define responsibilities to maintain any detours on county streets during construction and restore county streets to original condition after construction is completed. Caltrans and the County of El Dorado will enter into a maintenance agreement to maintain the freeway, structures, and planting upon approval of the completed construction contract. The Maintenance Agreement must be executed before the approval of the Encroachment Permit.

PARK AND RIDE FACILITIES

Rideshare facilities are considered an integral part of future bus and carpool service to and from the planned developments. El Dorado County and Caltrans have a continuous program to develop park-and-ride facilities. There are currently ten park and ride facilities in the County, all adjacent to U.S. Highway 50. There is an informal park-and-ride facility located in the immediate project area on Saratoga Way at El Dorado Hills Boulevard consisting of approximately 30 spaces and additional on-street parking. The

realignment of Saratoga Way would eliminate the existing on-street parking on Saratoga Way for park-and-ride activities. The recently constructed park-and-ride lot at the Latrobe Road/White Rock Road intersection can accommodate these park-and-ride activities.

IMPACTS ON NON-MOTORIZED TRANSPORTATION AND PEDESTRIANS

The proposed El Dorado Hills Boulevard/Latrobe Road Interchange will provide 1.5-2.4 meter sidewalks on both sides of Latrobe Road from the undercrossing south to White Rock Road, and on the east side of El Dorado Hills Boulevard only from the undercrossing to beyond Park Drive. Curb ramps for pedestrians and crosswalks with pedestrian push buttons will also be provided. The project will include 1.8 meter Class II bike lanes. The bike lanes are not exclusive because they are part of the 2.4 meter shoulder. Parking will not be permitted along El Dorado Hills Boulevard/Latrobe Road.

HIGH OCCUPANCY VEHICLE (HOV) LANES AND RAMP METERING

The El Dorado County Five-Year Capital Improvement Program (CIP), dated January 6, 1998, includes construction of a 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 Hills Boulevard to Sunrise Boulevard. The project was programmed in June of 1998. The project is scheduled for design by July of 2000, and construction in the spring of 2001.

Phase 1 of the preferred project will provide a HOV bypass lane and California Highway Patrol (CHP) enforcement area on the westbound on-ramp. This on-ramp will be metered as part of the Phase 1 project.

Right-of-way will be preserved to provide HOV bypass lane and a CHP enforcement area on the eastbound on-ramp for future construction at such time that the U.S. Highway 50 eastbound HOV lane is extended east toward Shingle Springs. This ramp will not be metered as part of the Phase 1 project however, underground ramp metering equipment (loop detectors, conduit, etc.) shall be installed at the eastbound on-ramp as part of the Phase 1 project.

LIGHT RAIL TRANSIT (LRT)

There is currently no passenger rail service to El Dorado County. Future Light Rail Transit is proposed along White Rock Road and south along the west side of Latrobe Road to the Southern Pacific (SP) Railroad tracks. A multi modal transportation facility is planned at the intersection of White Rock Road and Latrobe Road which will accommodate LRT. The Joint Power Association (JPA) is currently negotiating with Southern Pacific Transportation Company to acquire existing railroad right-of-way for future LRT. The JPA includes members from the City of Folsom, LRT, Sacramento County and El Dorado County.

CONSISTENCY WITH OTHER PLANNING

This project is compatible with local, regional and statewide planning efforts. The Congestion Management Plan (CMP) for Sacramento County identifies a concept LOS E on urban highways and arterials. U.S. Highway 50 is listed as having a year 2020 concept LOS E in the August 1992 Caltrans District System Management Plan.

The interchange is being improved in part to accommodate existing and planned local development, consistent with buildout of the 1996 El Dorado County General Plan. The project will be consistent with the El Dorado County RTIP/FTIP and is included in the biennial 1994 Metropolitan Transportation Plan (MTP).

The County would amend the 1996 General Plan if the project is adopted as proposed in the preferred alternative with a two-lane Saratoga Way.

VALUE ANALYSIS

No formal Value Analysis study has been conducted. However, Value Analysis techniques were used informally by the project study team and the Team in developing the concepts of this project. The Team, through many discussions, determined that the proposed alternative was the most viable solution to providing adequate access and minimizing right-of-way acquisition. Changes were recommended and incorporated into the project as a result of the Value Analysis techniques used. The horizontal and vertical alignments were adjusted to minimize right-of-way impacts to adjacent properties and to develop a more economical vertical profile. Value Analysis techniques were also employed in the analysis of the proposed structure type for the new mainline and off ramp structures.

PROJECT REVIEWS

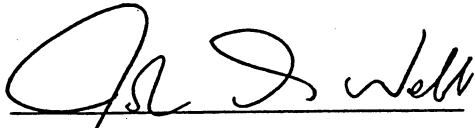
This project has been reviewed by Ron Nelson of the Office of Project Planning and Design (OPPD), by the El Dorado County and Caltrans staff. All reviewers have concurred with the project.

FREEWAY AGREEMENT

The existing freeway agreement will not need to be revised because access control will remain the same. No new public road connections are proposed with this project.

ENVIRONMENTAL CERTIFICATION

I have reviewed the environmental information contained in this PSR/PR and the Draft EIR/EA attached separately and find the data to be complete, current, and accurate (see Attachment 16).

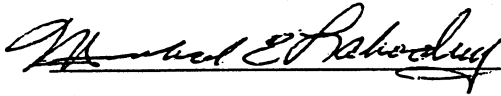


John Webb, Chief
Office of Environmental Management

6/2/2000
Date

RIGHT-OF-WAY CERTIFICATION

I have reviewed the right-of-way information contained in this Project Report and the Right-of- Way Data Sheet attached hereto and find the data to be complete, current and accurate (see Attachment 15).



Clay Nystrom
District Division Chief
Right-of-Way

6-9-00

Date

PROJECT CONTACTS

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Debbie Loh	Jones and Stokes Associates, Inc.	(916) 737-3000
Matt Henry	Project Manager, Fehr & Peers	(925) 284-3200

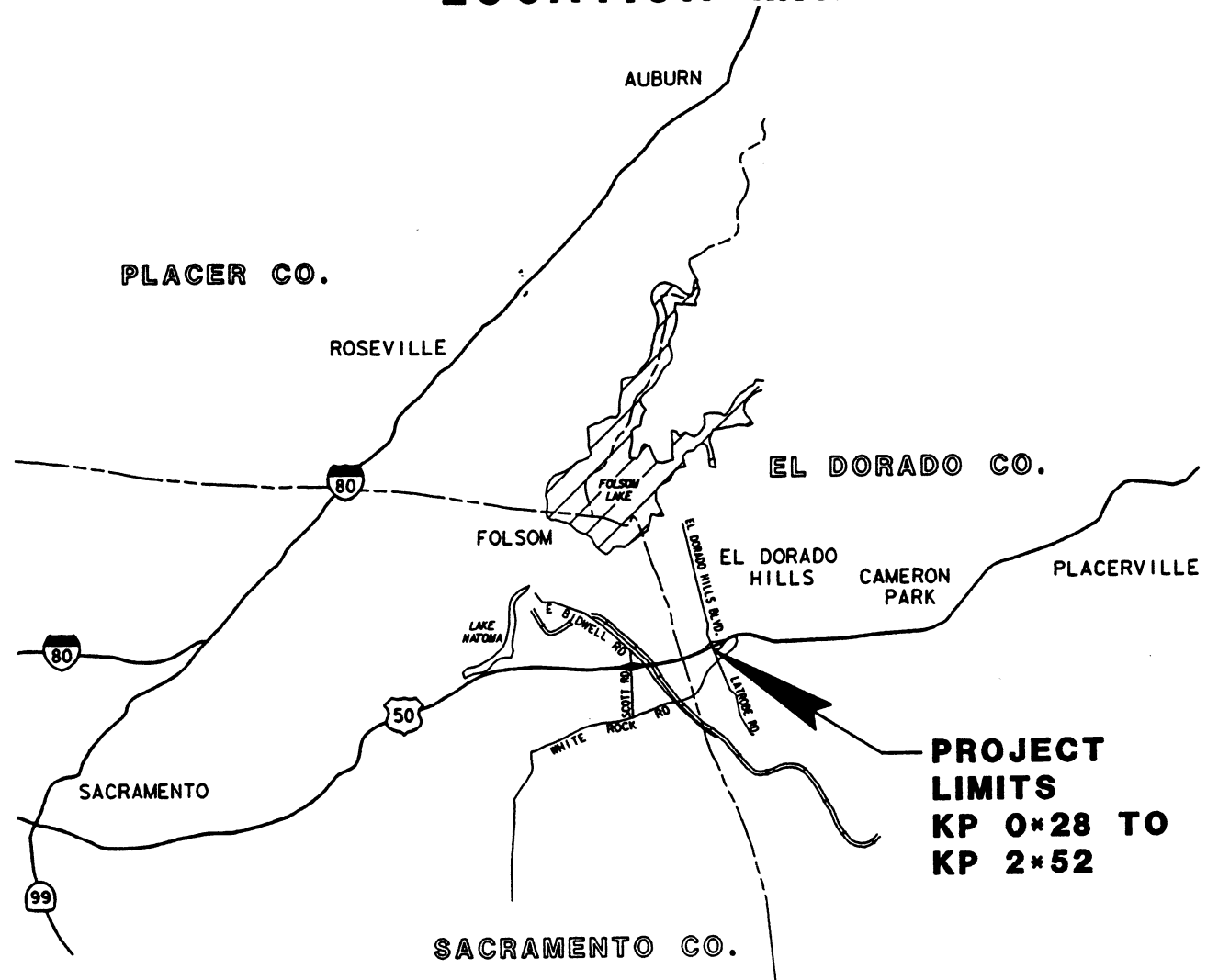
RECOMMENDATION

It is recommended that this PSR/PR for the U.S. Highway 50/El Dorado Hills Boulevard/Latrobe Road Interchange reconstruction project be approved and that modified alternative 3A/B be selected as the "proposed project." Project to be funded with a combination of local and STIP funds to be determined.

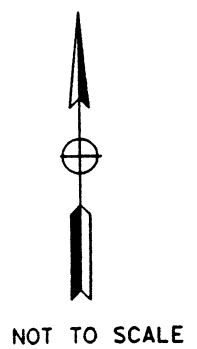
ATTACHMENTS

Attachment 1	Location Map and Vicinity Map
Attachment 2	El Dorado County General Plan Circulation Map
Attachment 3	Alternative 3/E Interchange Configuration Eastbound Loop Off-Ramp Profile Eastbound Off-Ramp Profile Eastbound On-Ramp Profile Westbound Loop Off-Ramp Profile Westbound On-Ramp Profile El Dorado Hills Boulevard/Latrobe Road Profile Undercrossing and Typical U.S. Highway 50 at Structures Typical Section Eastbound and Westbound U.S. Highway 50 Typical Sections Ramp Typical Section
Attachment 4	Alternative 3A and B Interchange Configuration
Attachment 5	Alternative 3, Phase 1 Interchange Configuration Undercrossing and Typical Sections
Attachment 6	Alternative 3C Configuration Undercrossing and Typical Sections
Attachment 7	Alternative 2 Configuration
Attachment 8	Alternative 6 Configuration
Attachment 9	Existing Interchange
Attachment 10	Preliminary Project Cost Estimates Phase 1 and Ultimate Summaries
Attachment 11	Traffic Analysis Report
Attachment 12	TASAS Table B, District 3 Selective Accident Rate Calculations
Attachment 13	Advisory Design Exception Fact Sheet
Attachment 14	Draft Advance Planning Study
Attachment 15	Draft Right-of-Way Data Sheet
Attachment 16	Draft EIR (Attached Separately)

LOCATION MAP

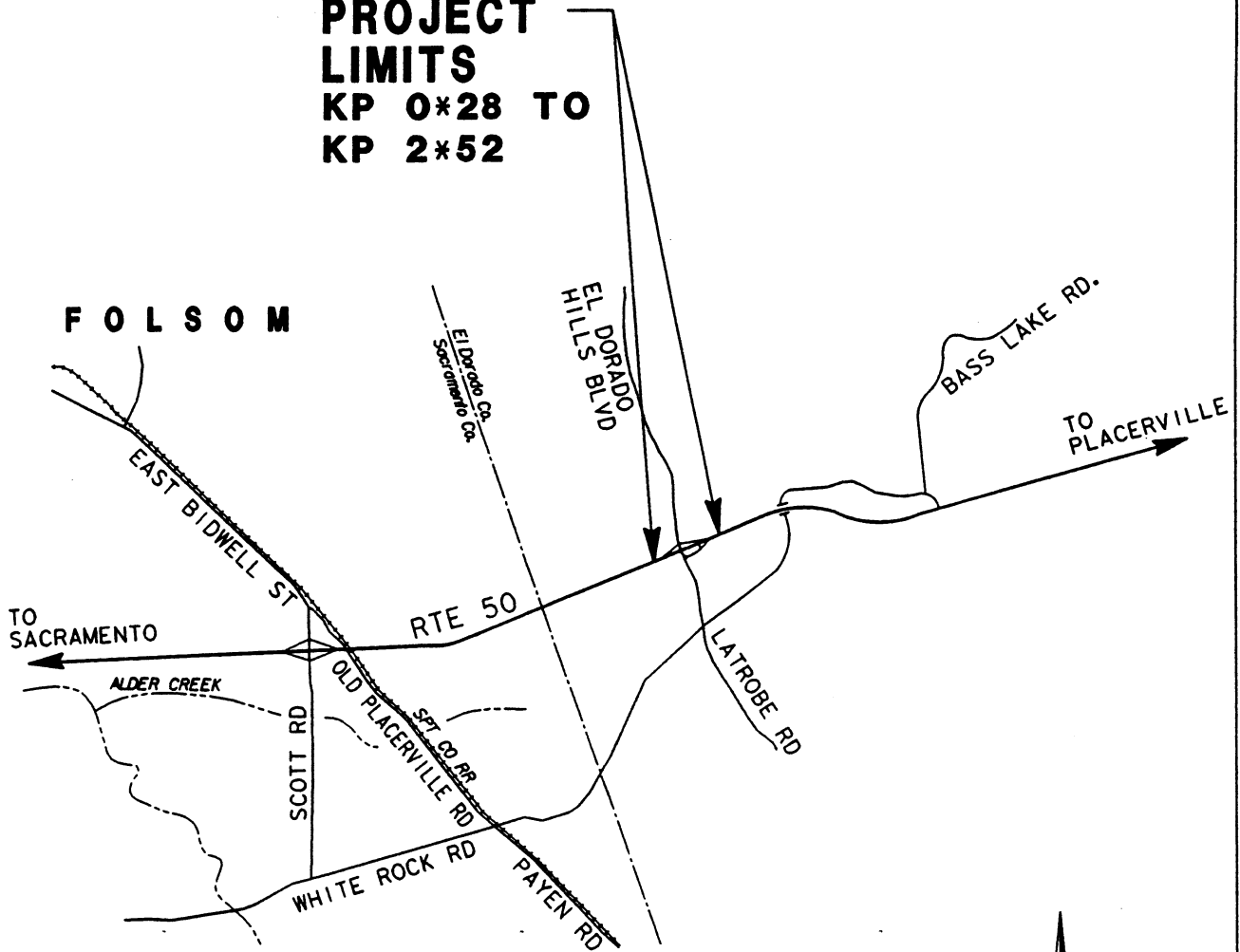


**PROJECT
LIMITS
KP 0+28 TO
KP 2+52**



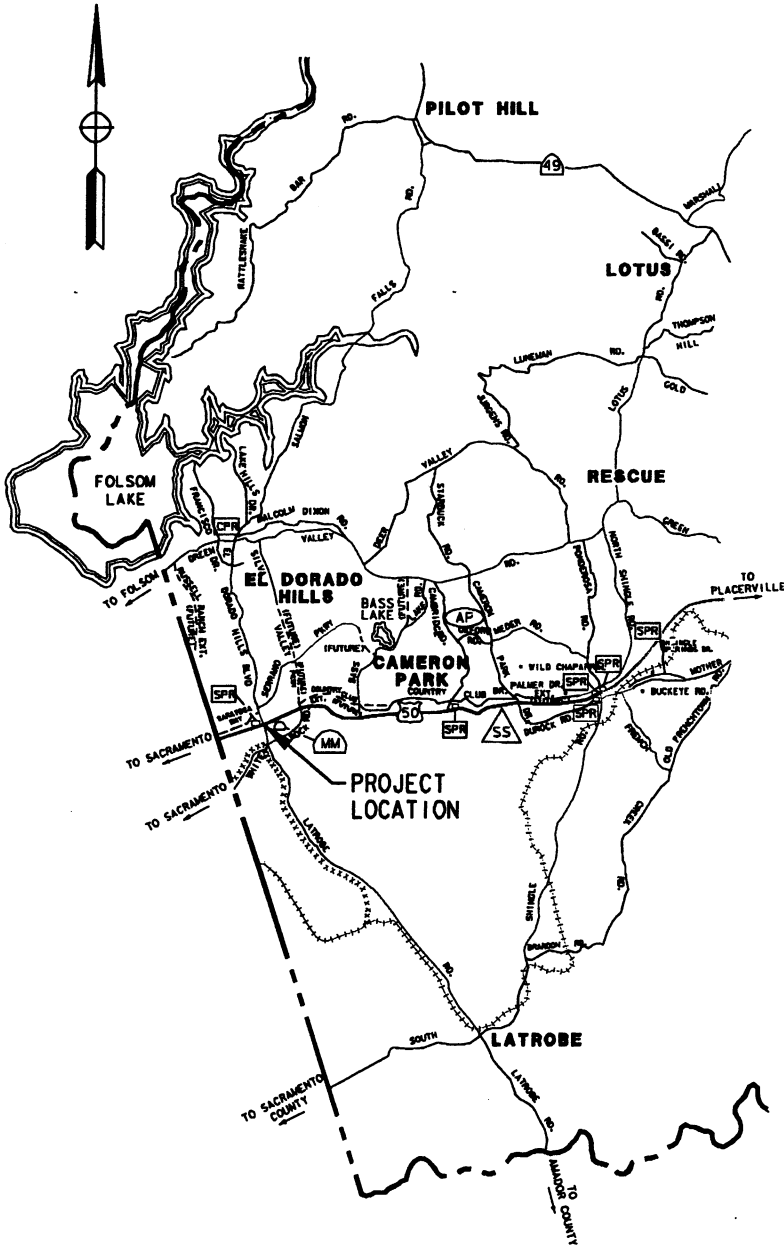
VICINITY MAP

**PROJECT
LIMITS
KP 0*28 TO
KP 2*52**



NOT TO SCALE

EL DORADO COUNTY GENERAL PLAN CIRCULATION MAP



LEGEND

- 2 LANE ROAD
- 2 LANE ROAD WITH SPOT IMPROVEMENTS
- 4 LANES UNDIVIDED ROADWAY (80 FT. WIDE ROW/64 FT. WIDE RD.)*
- 4 LANES DIVIDED ROAD (100 FT. WIDE ROW/84 FT. WIDE RD.)*
- 6 LANES DIVIDED ROAD (130 FT. WIDE ROW/108 FT. WIDE RD.)*
- 4 LANE FREEWAY (206 FT. WIDE ROW)
- 6 LANE FREEWAY (230 FT. WIDE ROW)
- 8 LANE FREEWAY (254 FT. WIDE ROW)
- - - FUTURE ROAD
- - - COUNTY BOUNDARY
- ~ LAKES/RESERVOIRS
- ++++ SOUTHERN PACIFIC RAILROAD
- x x x x PROPOSED OPTIONS FOR LIGHT RAIL
- [SPR] STATE PARK AND RIDE LOCATION
- [CPR] COUNTY PARK AND RIDE LOCATION
- [BT] BUS TERMINAL - GREYHOUND
- [SS] SATELLITE STATION (BUS) - AMTRAK
- [MM] MULTI - MODAL FACILITY
- [AP] AIRPORT

* - CANDIDATE ROADS FOR CLASS II OR CLASS III BIKE TRAILS

NOTE: SLOPE BANKS AND DRAINAGE MAY REQUIRE MORE RIGHT-OF-WAY

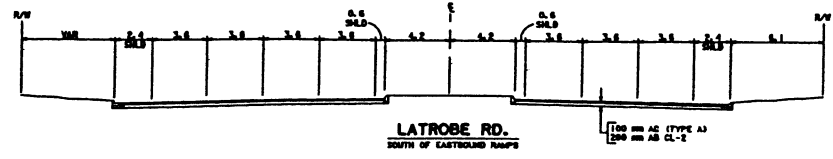
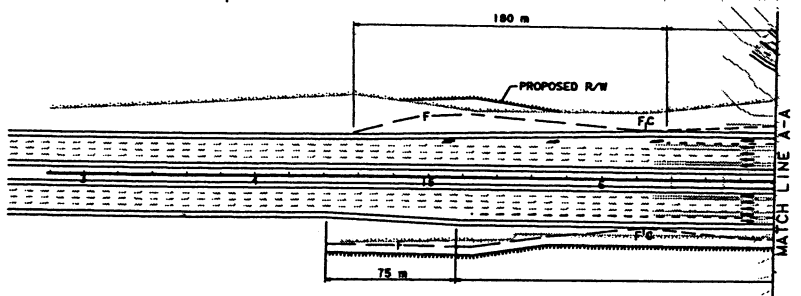
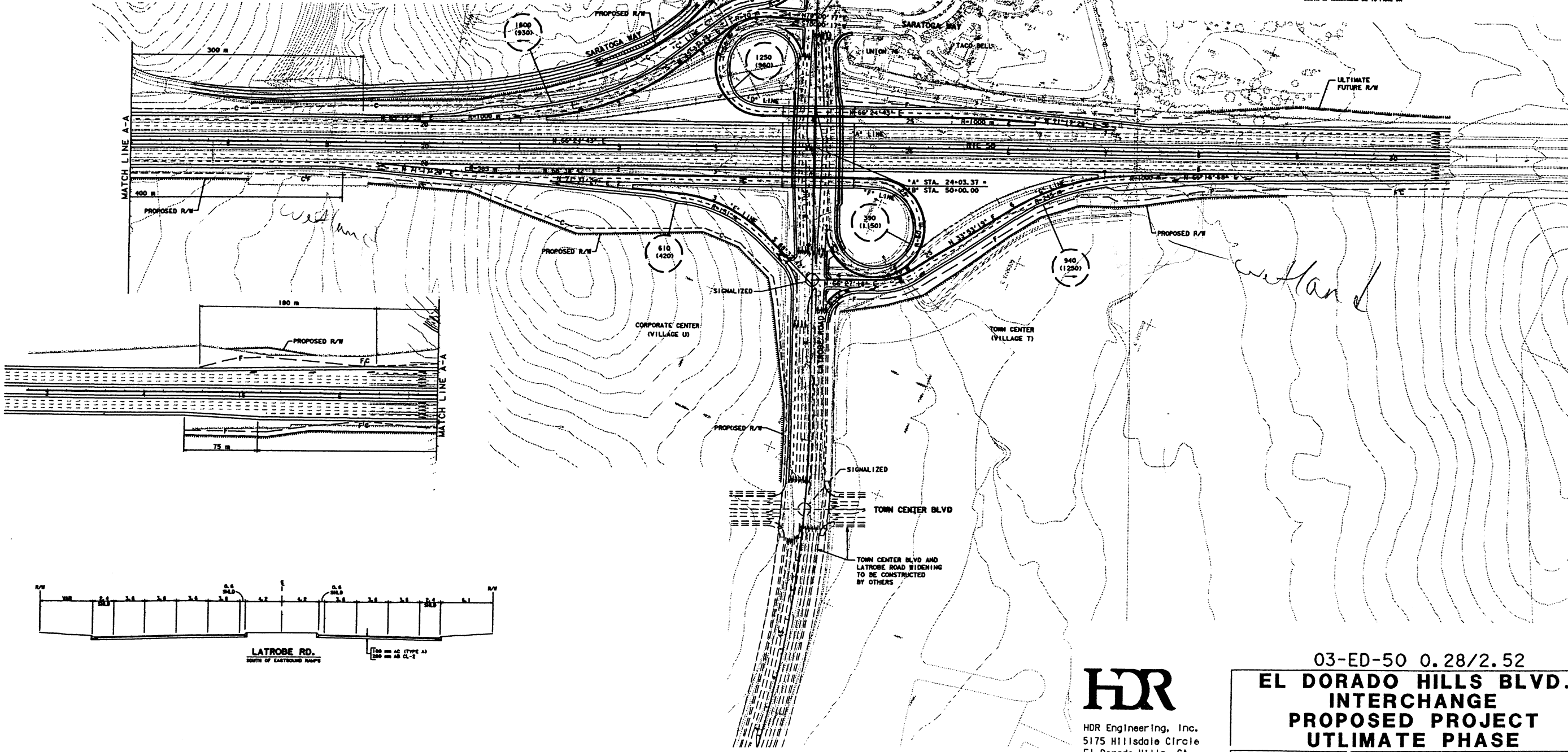
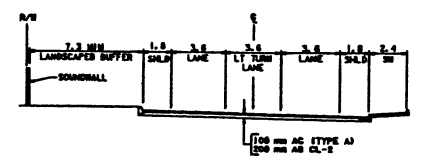
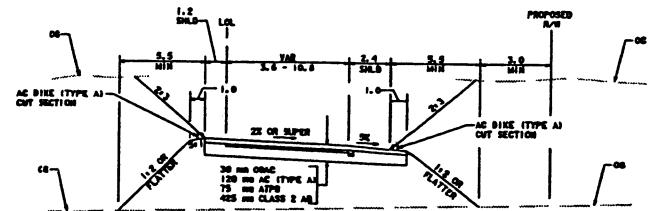
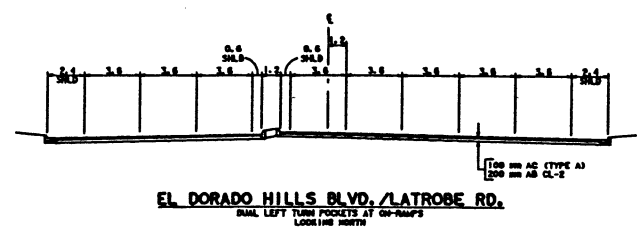
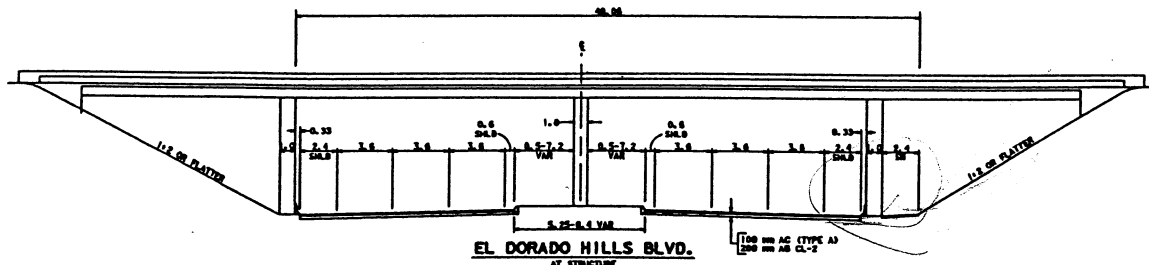
NOTES:

1. EL DORADO COUNTY GENERAL PLAN, CIRCULATION ELEMENT - ADOPTED BY THE BOARD OF SUPERVISORS JANUARY 23, 1996, RESOLUTION NO. 10-96.
2. PROPOSED CIRCULATION SYSTEM TO YEAR 2015.
3. THIS DOCUMENT IS A DYNAMIC REPRESENTATION OF THE PRESENT AND FUTURE ROAD SYSTEM WHICH WILL CHANGE AS NEW INFORMATION BECOMES AVAILABLE. AS THE COUNTY REVIEWS SPECIFIC DEVELOPMENT PROPOSALS, IT RESERVES THE RIGHT TO MAKE MODIFICATIONS, THROUGH GENERAL PLAN AMENDMENT, NECESSARY TO IMPROVE ROAD SAFETY AND/OR PROVIDE ADDITIONAL CAPACITY.

ATTACHMENT 2

LEGEND

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 (XXX) - PM PEAK HOUR VOLUMES



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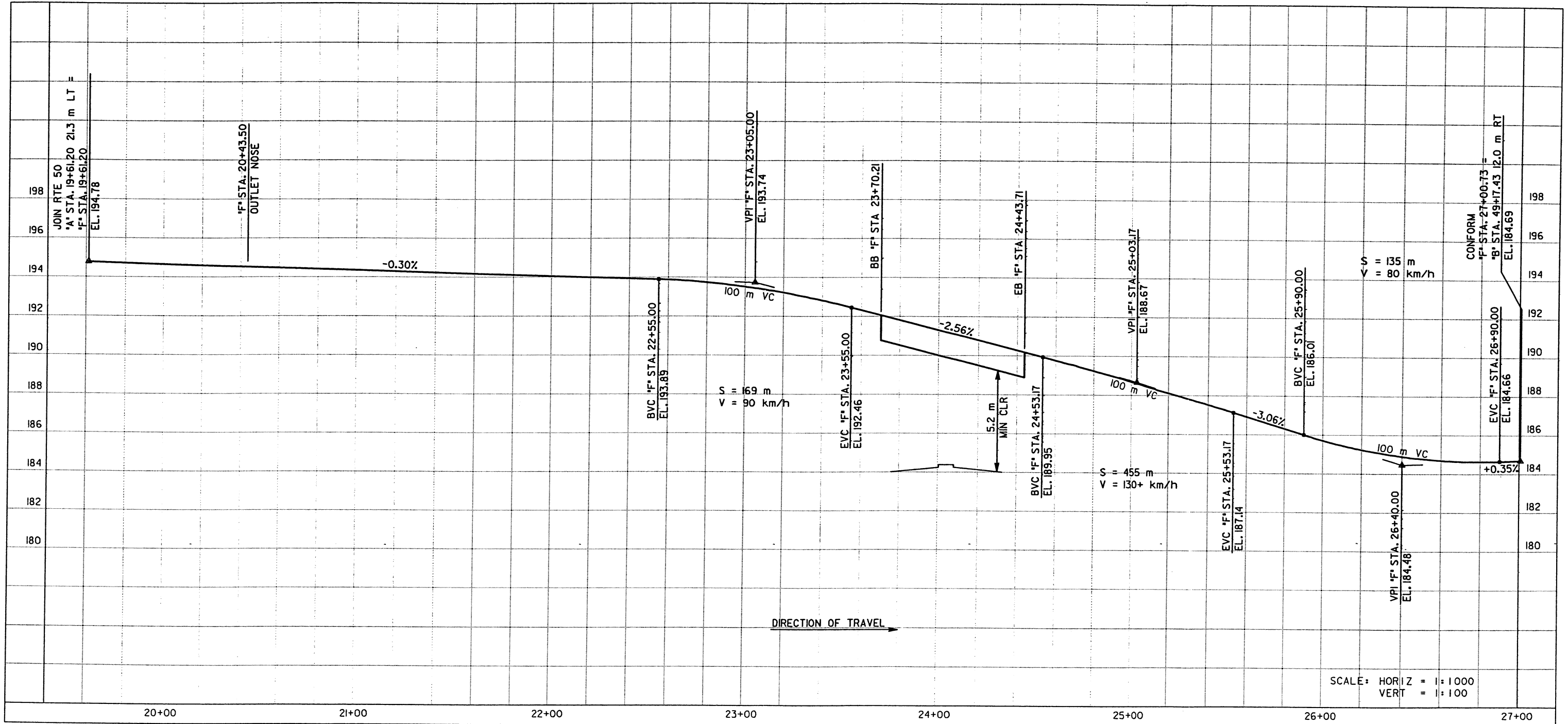
HDR Engineering, Inc.
 5175 Hillside Circle
 El Dorado Hills, CA
 95630-5700

03-ED-50 0.28/2.52
**EL DORADO HILLS BLVD.
 INTERCHANGE
 PROPOSED PROJECT
 ULTIMATE PHASE**

Date: 5/30/00
 Scale: 1"=2000

ATTACHMENT 3

DATE: 2-May-96 10:15



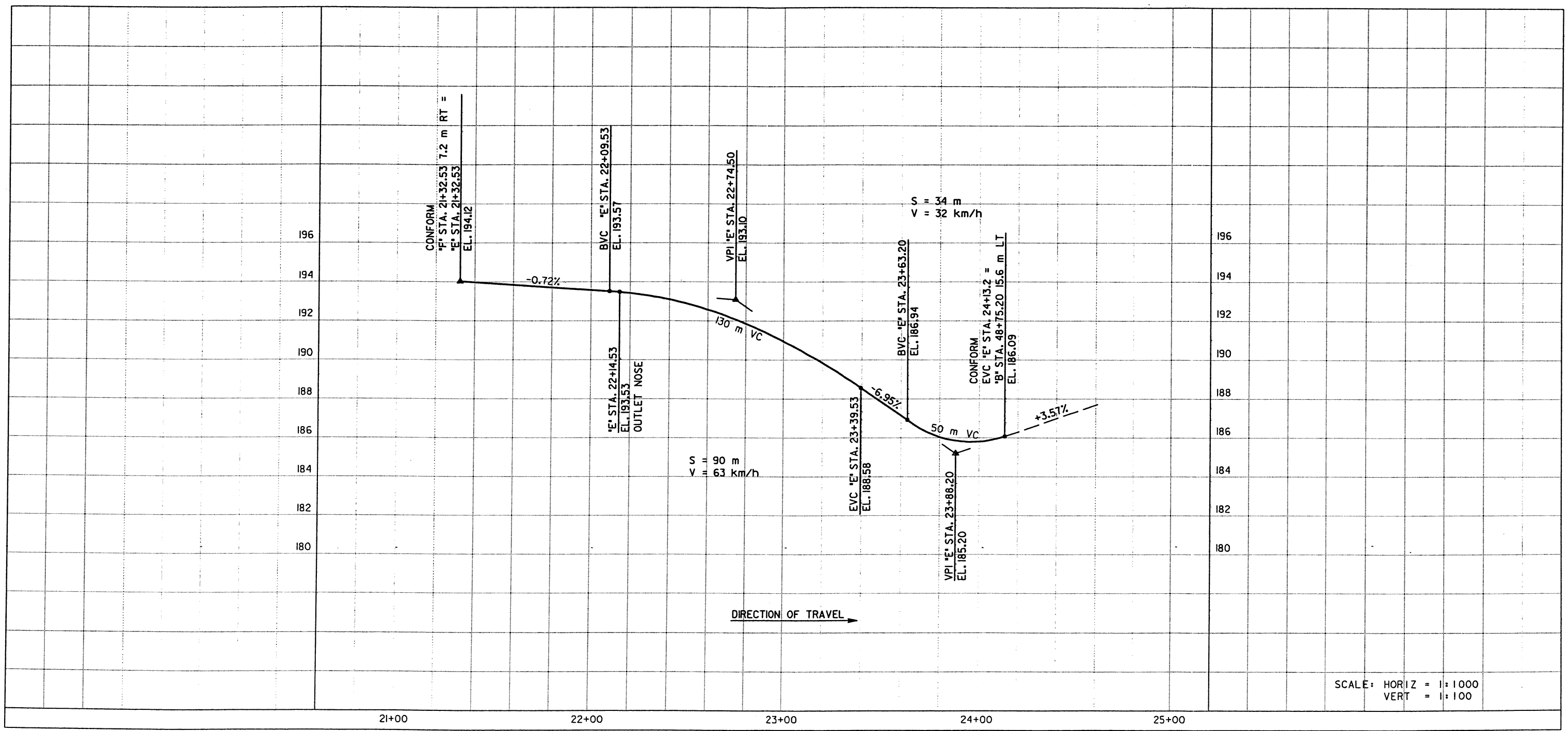
**EL DORADO HILLS BLVD.
EB LOOP OFF-RAMP**



HDR Engineering, Inc.
5175 Hillside Circle
El Dorado Hills, CA
95762-5700

03-Sac-50-0.28/2.52
**EL DORADO HILLS BLVD.
INTERCHANGE-ALT. 3
PROFILE**
 Date: 8/25/98
 Scale: ATTACHMENT 3

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DATE: 2-May-96 10:15 A



**EL DORADO HILLS BLVD.
EB OFF-RAMP**



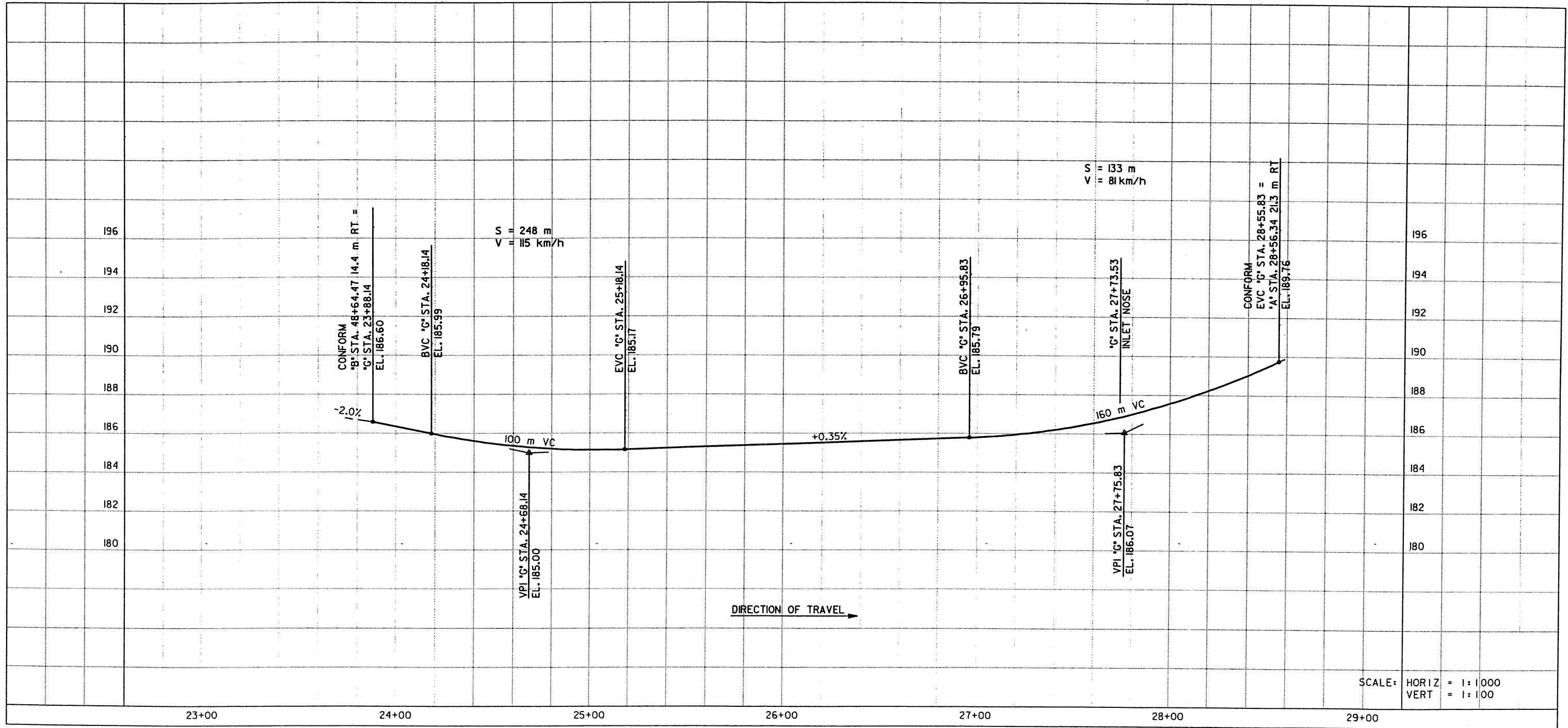
HDR Engineering, Inc.
5175 Hillsdale Circle
El Dorado Hills, CA
95762-5700

03-Sac-50-0.28/2.52
**EL DORADO HILLS BLVD.
INTERCHANGE-ALT. 3
PROFILE**

Date: 8/25/98
Scale:

ATTACHMENT 3

DATE: 2-May-96 10:15 .dgn



**EL DORADO HILLS BLVD.
EB ON-RAMP**



HDR Engineering, Inc.
5175 Hillisdale Circle
El Dorado Hills, CA
95762-5700

03-Sac-50-0.28/2.52

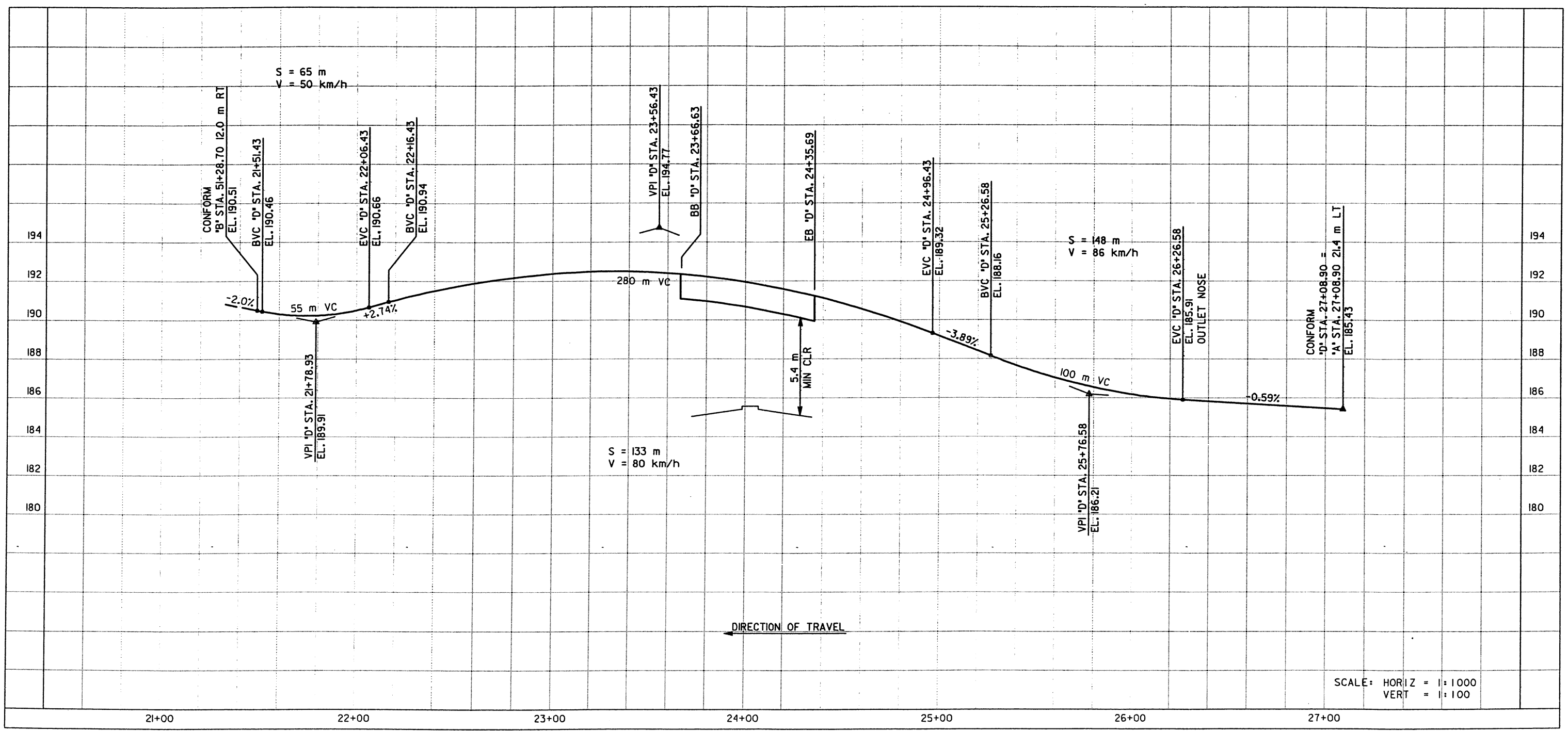
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INTERCHANGE-ALT. 3
PROFILE**

Date: 8/25/98

Scale: **ATTACHMENT 3**

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VERT = 1:100

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EL DORADO HILLS BLVD.
WB LOOP OFF-RAMP

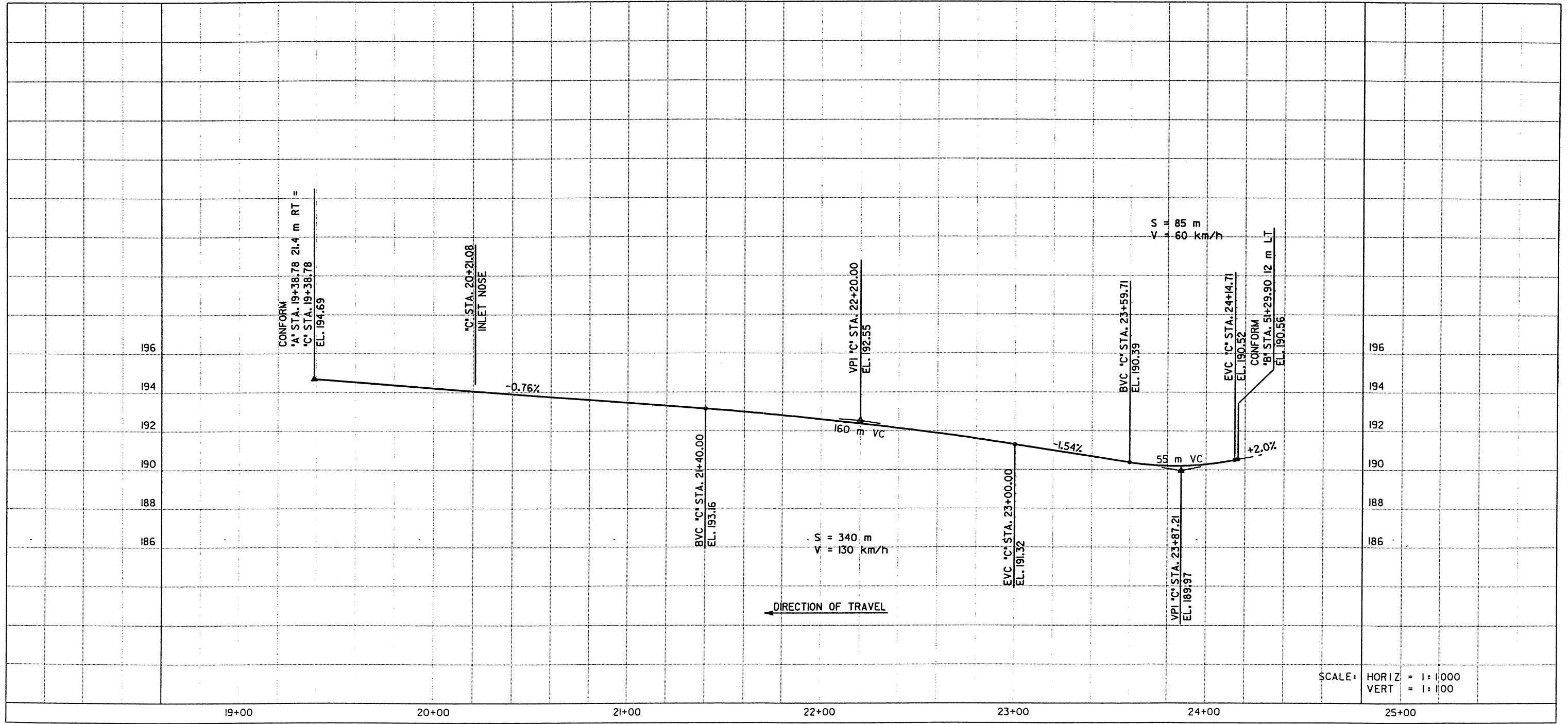
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03-Sac-50-0.28/2.52
**EL DORADO HILLS BLVD.
INTERCHANGE-ALT. 3
PROFILE**
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Scale:
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EL DORADO HILLS BLVD.
WB ON-RAMP

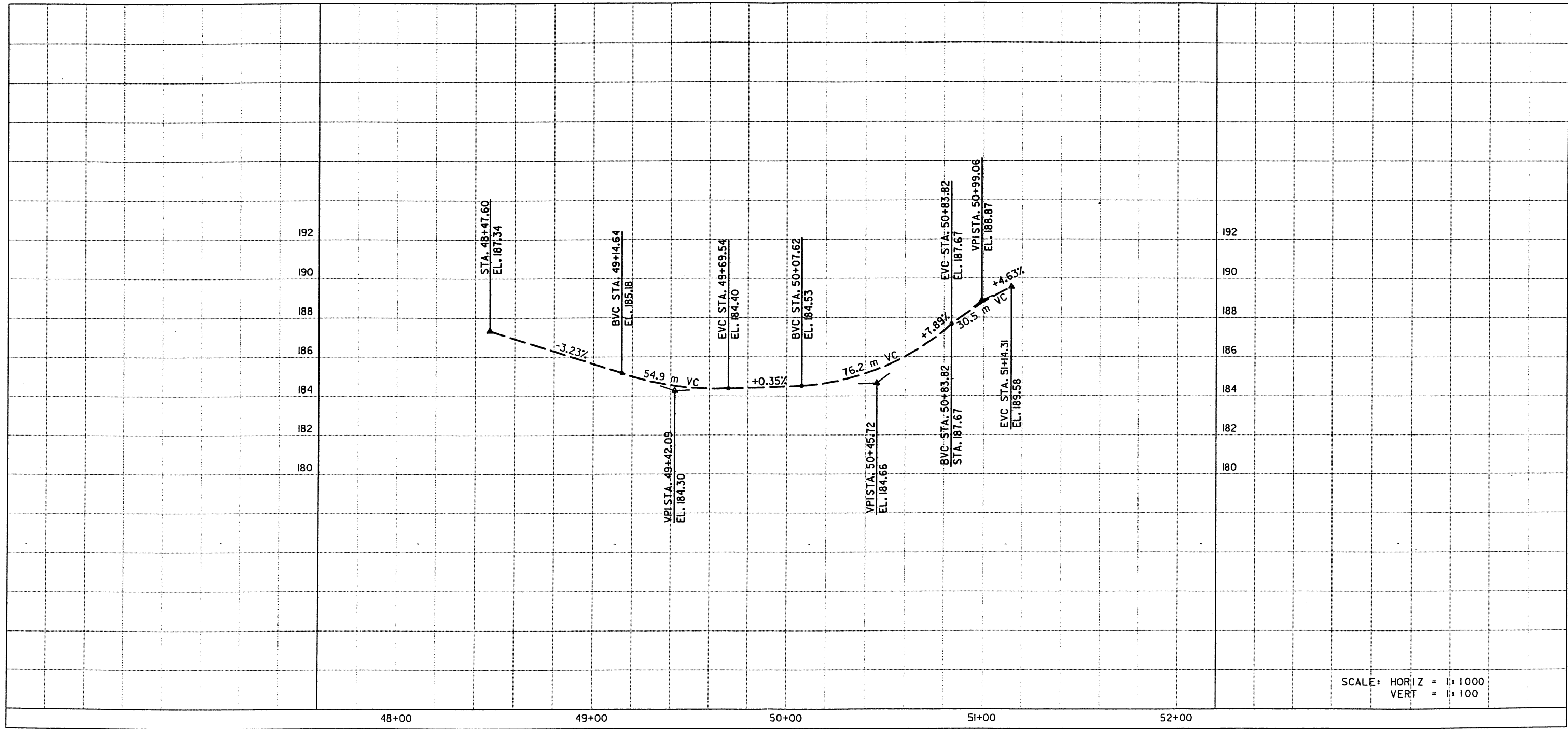


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03-Sac-50-0.28/2.52
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INTERCHANGE-ALT. 3
PROFILE**
Date: 8/25/98
Scale:
ATTACHMENT 3

DATE: 2-May-96 10:15 A

D
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C
I
B
I



SCALE: HORIZ = 1:1000
VERT = 1:100

EL DORADO HILLS BLVD.

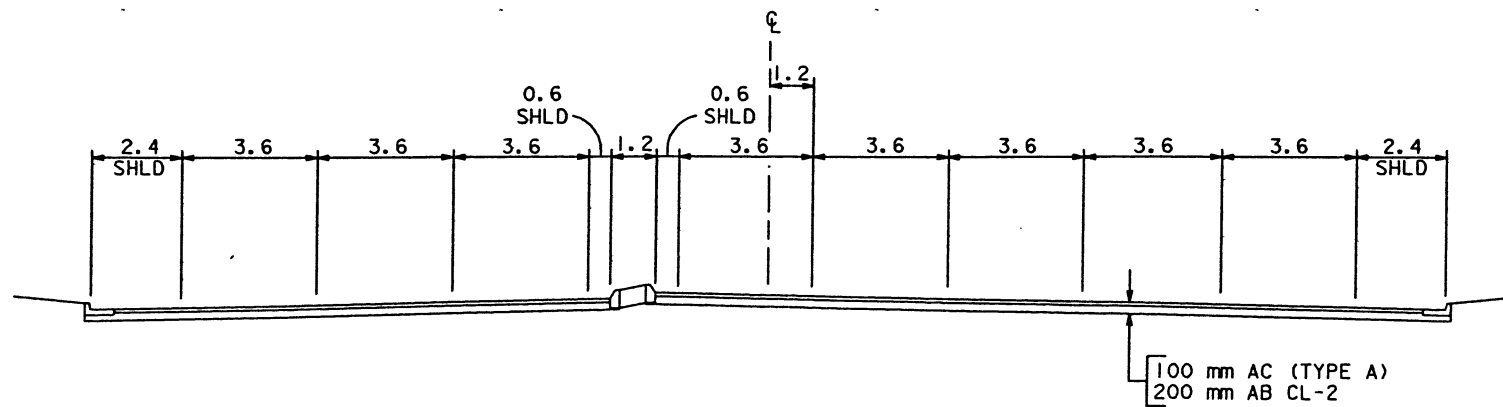
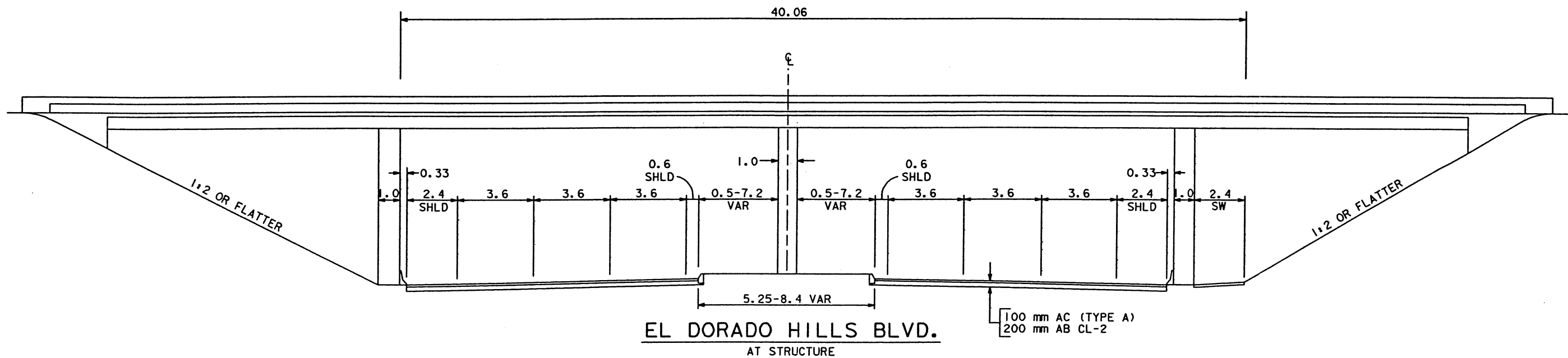
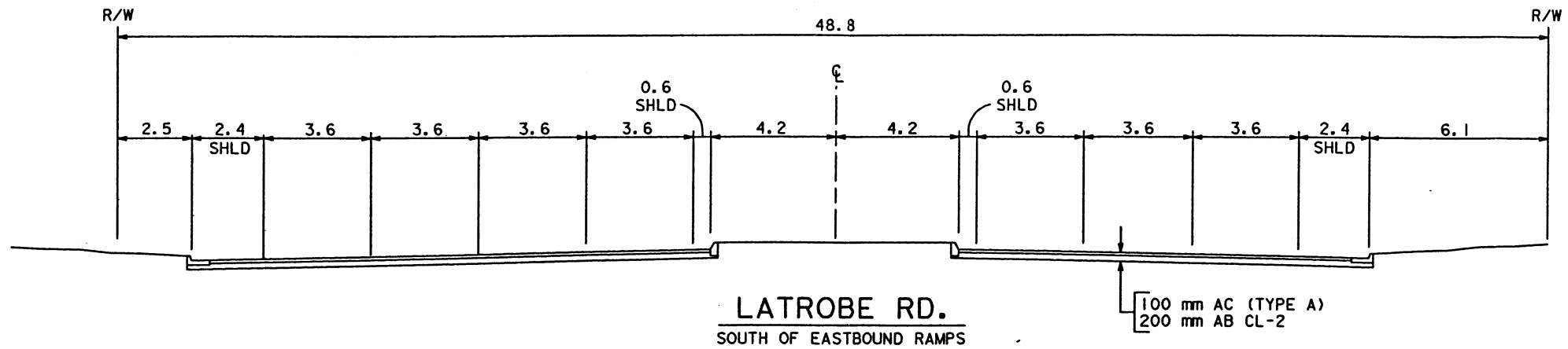


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95762-5700

03-Sac-50-0.28/2.52
**EL DORADO HILLS BLVD.
INTERCHANGE
EXISTING PROFILE**

Date: 8/25/98
Scale:

ATTACHMENT 3



NOTE:
ALL DIMENSIONS ARE IN METERS (m)
EXCEPT AS NOTED.



HDR Engineering, Inc.
5175 Hillside Circle
El Dorado Hills, CA
95762-5700

03-ED-50-0.47/1.26

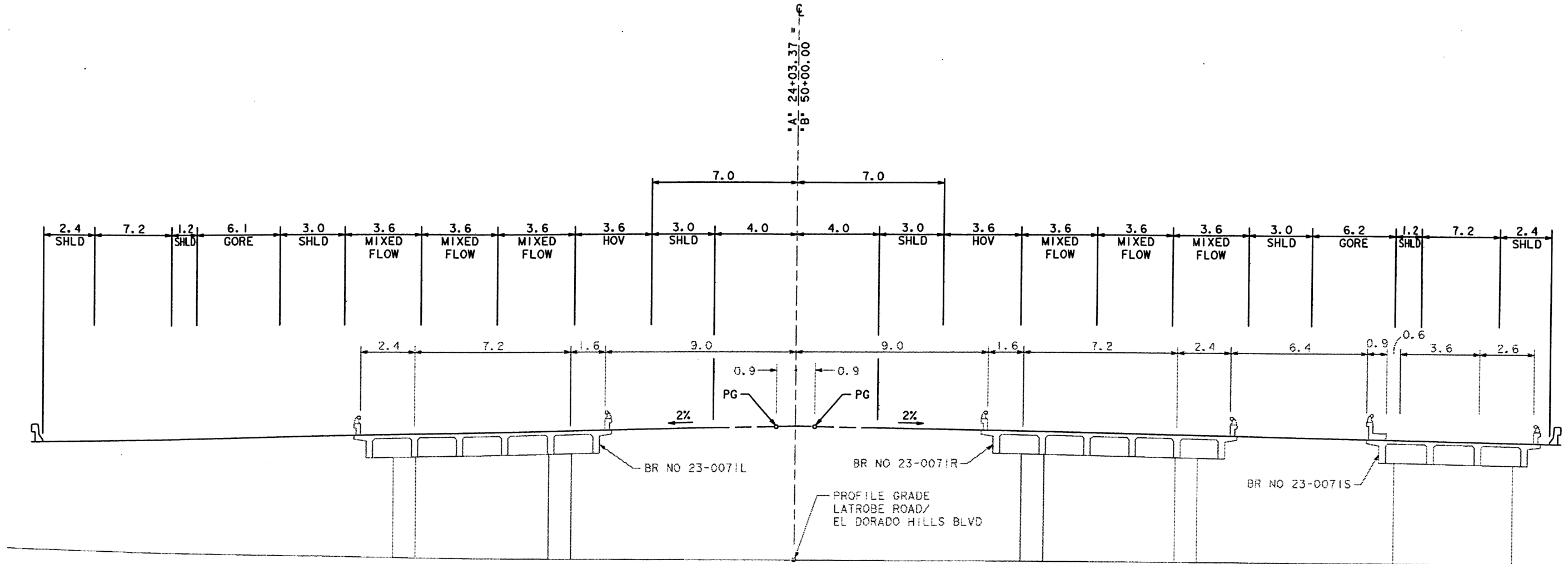
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INTERCHANGE-ALT. 3
TYPICAL SECTIONS

Date: 8/25/98

Scale: NO SCALE

ATTACHMENT 3

DATE: 2-May-96 10:31 A



ROUTE 50
 AT LATROBE ROAD UNDERCROSSING
 (STA 'A' 24+03.37)

NOTE:
 ALL DIMENSIONS ARE IN METERS (m)
 EXCEPT AS NOTED.



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 5175 Hillside Circle
 El Dorado Hills, CA
 95762-5700

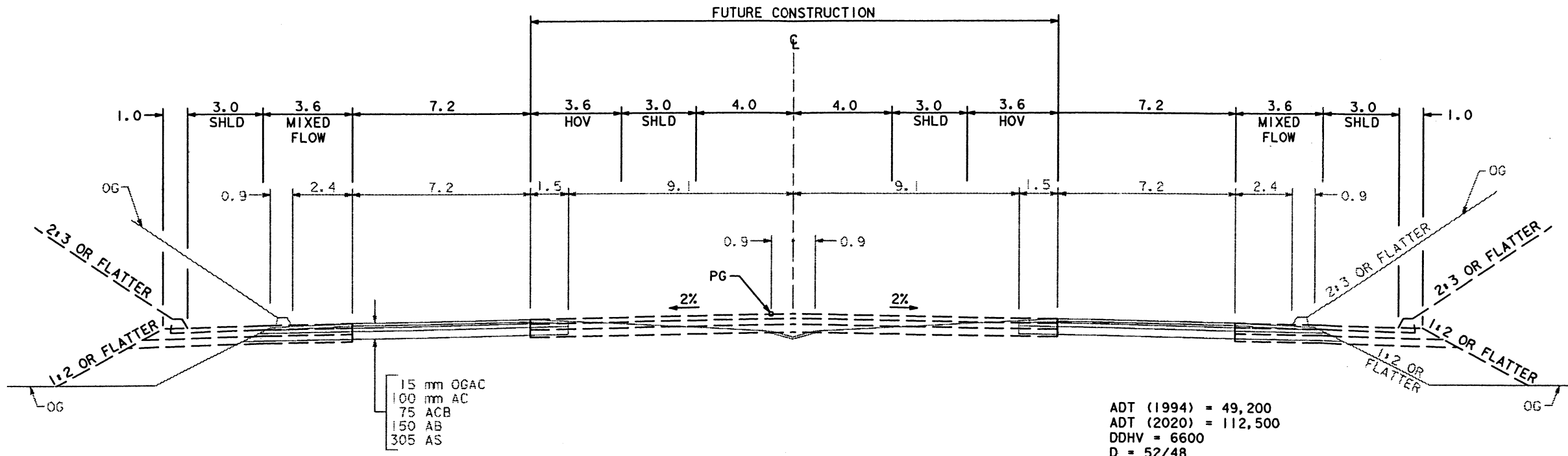
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**EL DORADO HILLS BLVD.
 INTERCHANGE
 TYPICAL SECTIONS**

Date: 8/25/98
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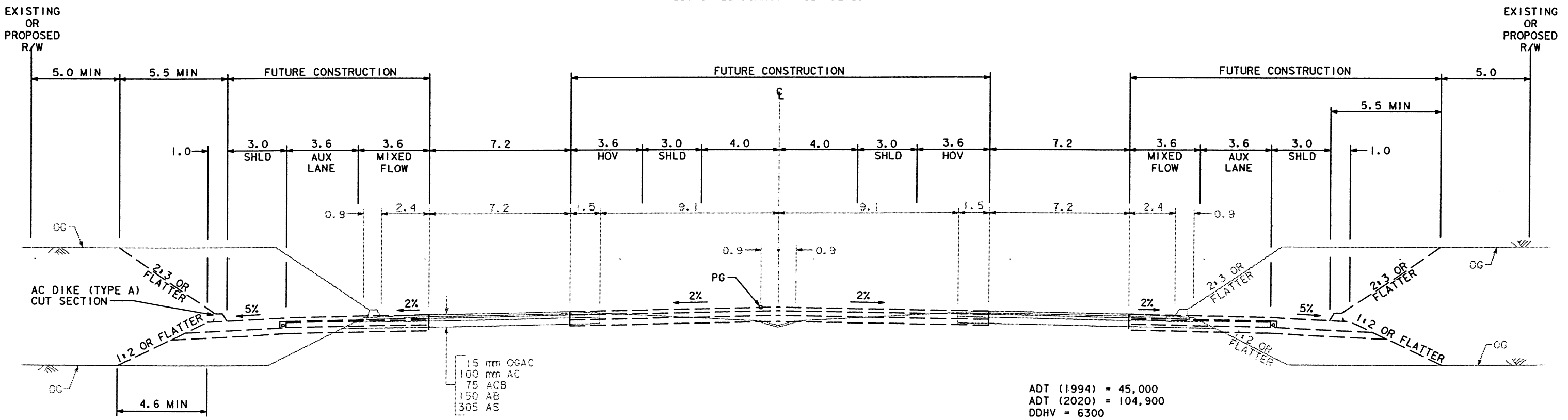
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c:\projects\025\typical.dgn
 DATE: 2-May-96 10:31 A



ADT (1994) = 49,200
 ADT (2020) = 112,500
 DDHV = 6600
 D = 52/48
 T = 6%

ROUTE 50
 WEST OF EL DORADO HILLS BLVD.



ADT (1994) = 45,000
 ADT (2020) = 104,900
 DDHV = 6300
 D = 52/48
 T = 6%

ROUTE 50
 EAST OF EL DORADO HILLS BLVD.
 TO SILVA VALLEY PARKWAY INTERCHANGE

NOTE:
 ALL DIMENSIONS ARE IN METERS (m)
 EXCEPT AS NOTED.

03-ED-50-0.47/1.26



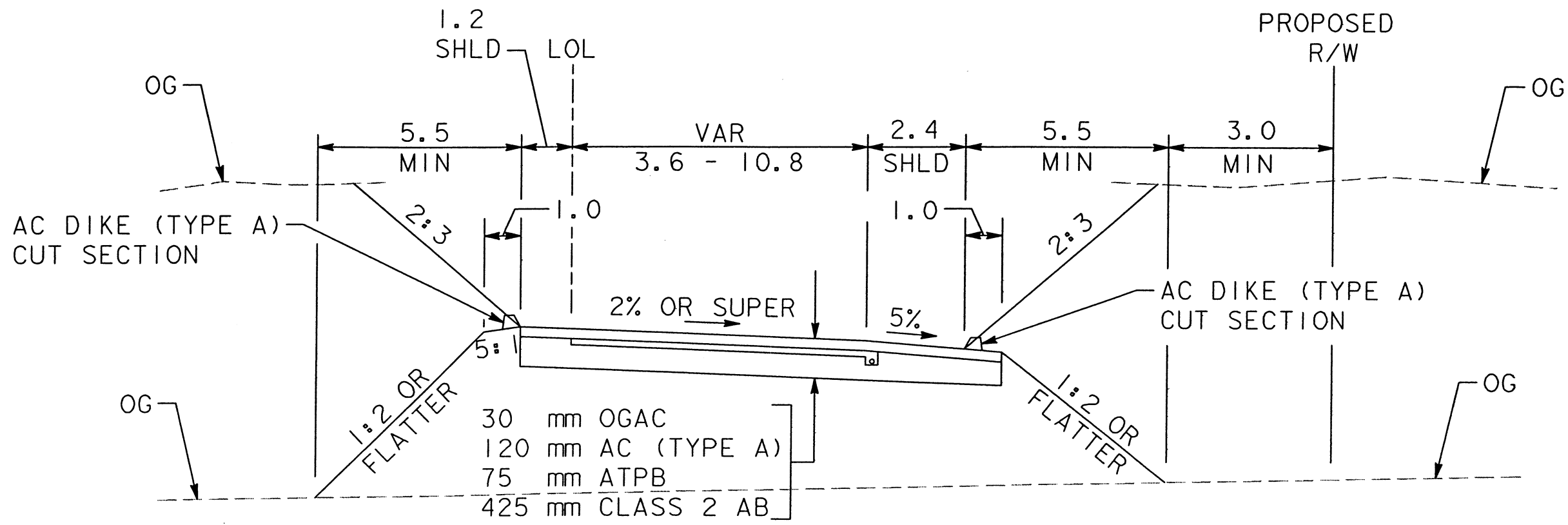
HDR Engineering, Inc.
 5175 Hillside Circle
 El Dorado Hills, CA
 95762-5700

**EL DORADO HILLS BLVD.
 INTERCHANGE
 TYPICAL SECTIONS**

Date: 8/25/98
 Scale: NO SCALE

ATTACHMENT 3

03-ED-50-0.47/1.26.dgn
 2-May-96 10:31



TYPICAL RAMP

NOTE:
ALL DIMENSIONS ARE IN METERS (m)
EXCEPT AS NOTED.



HDR Engineering, Inc.
5175 Hillside Circle
El Dorado Hills, CA
95762-5700

03-ED-50-0.47/1.26

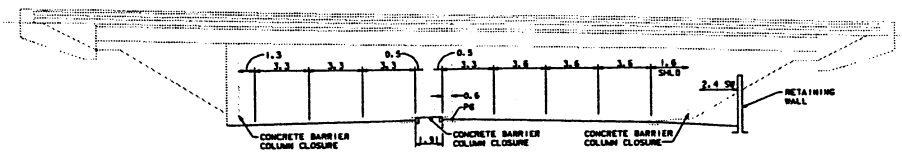
**EL DORADO HILLS BLVD.
INTERCHANGE
TYPICAL SECTIONS**

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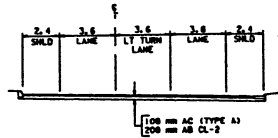
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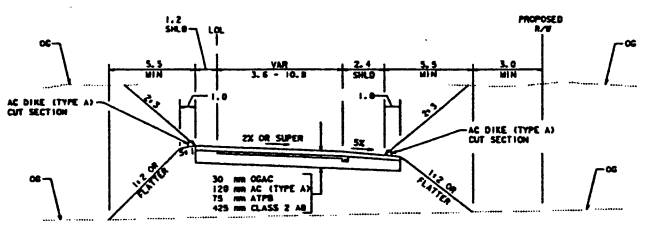
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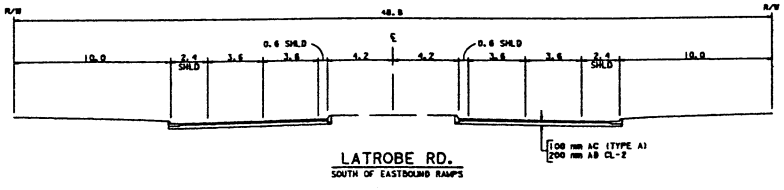
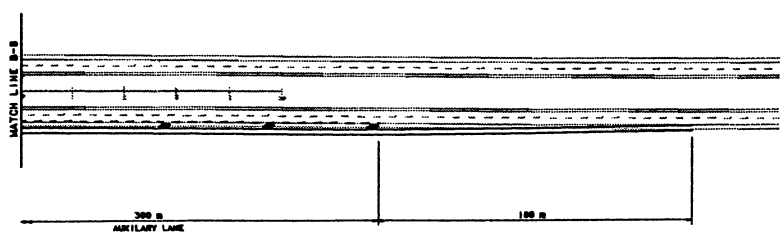
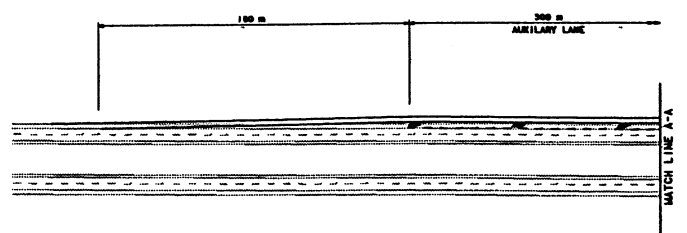
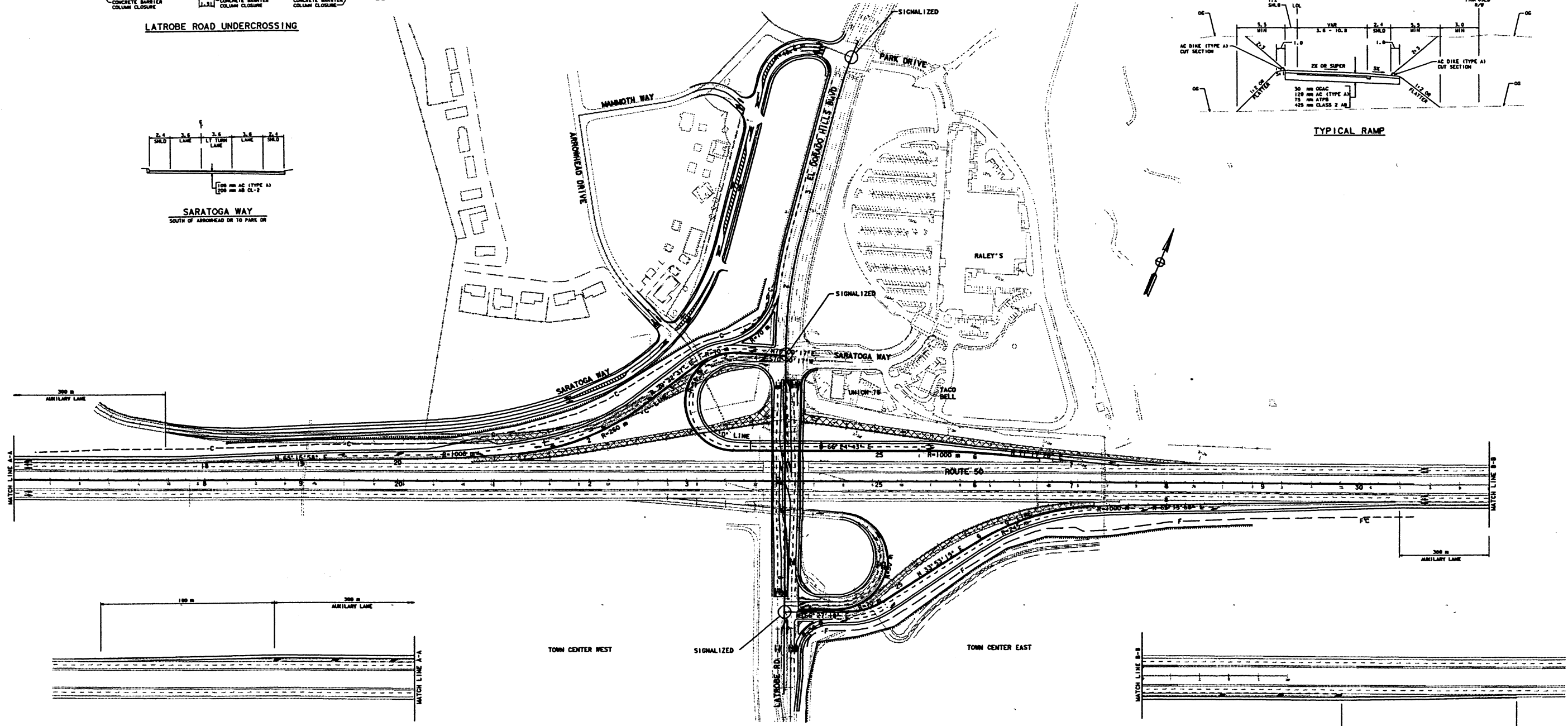
LATROBE ROAD UNDERCROSSING



SARATOGA WAY SOUTH OF ARROWHEAD DR TO PARK DR



TYPICAL RAMP



LATROBE RD. SOUTH OF EASTBOUND RAMP



HDR Engineering, Inc.
5175 Hillisdale Circle
El Dorado Hills, CA
95630-5700

03-ED-50-KP 0.28/2.52

**EL DORADO HILLS BLVD.
INTERCHANGE
PROPOSED PROJECT
PHASE I**

Date: 5/30/00
Scale: 1:2000

ATTACHMENT 3

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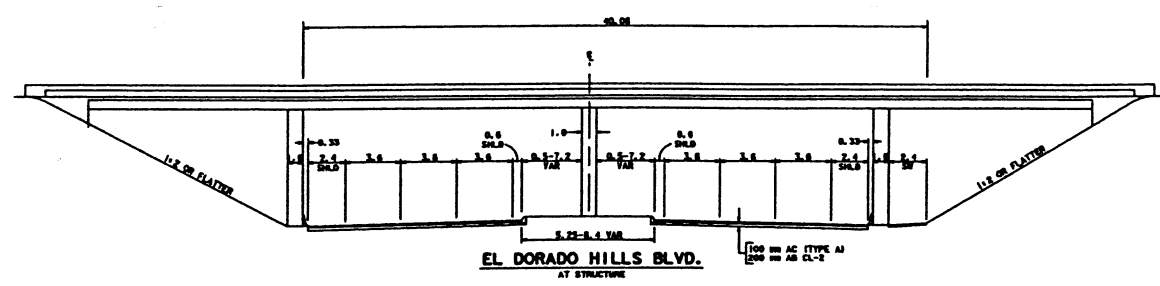
2 11 X 17 (S)

Large Maps

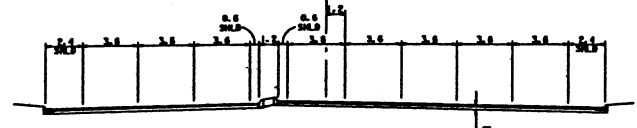
Phase 1

Ultimate Phase

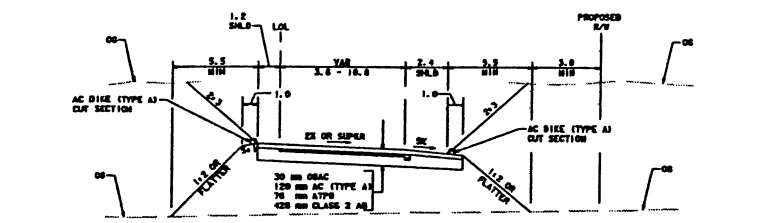
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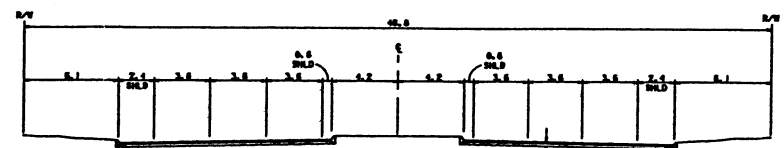
EL DORADO HILLS BLVD. AT STRUCTURE



EL DORADO HILLS BLVD. / LATROBE RD.



TYPICAL RAMP



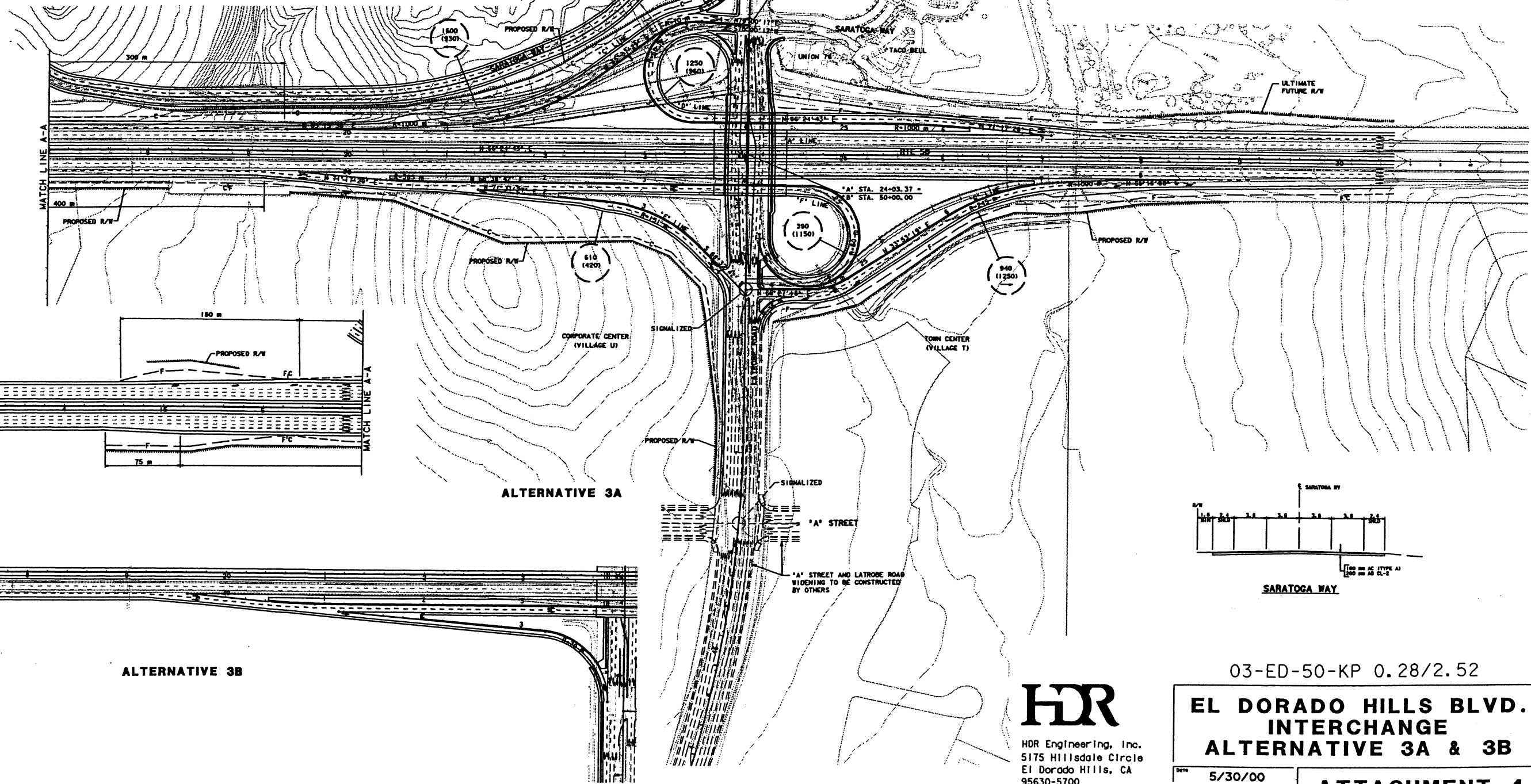
LATROBE RD.



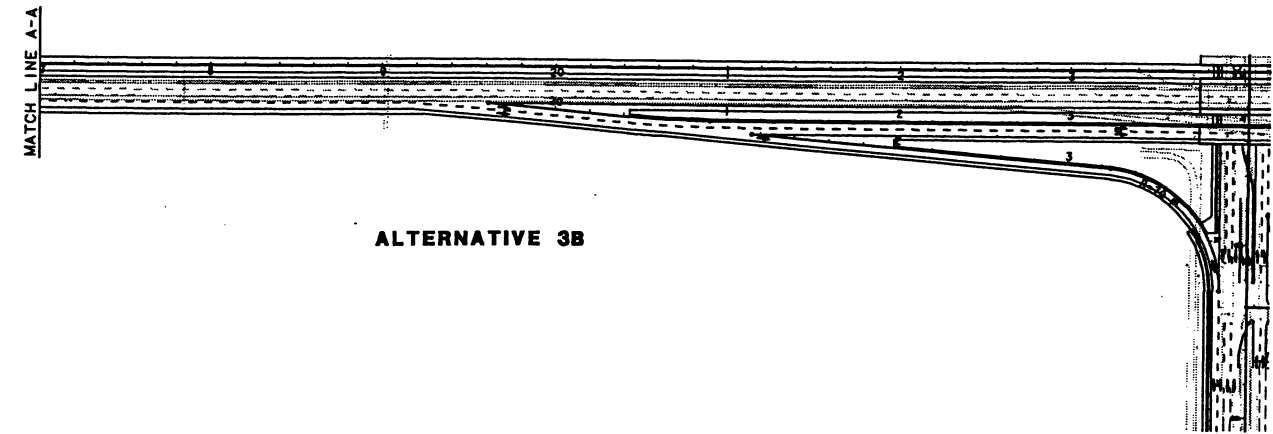
SARATOGA WAY

LEGEND

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



ALTERNATIVE 3A



ALTERNATIVE 3B



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El Dorado Hills, CA
95630-5700

03-ED-50-KP 0.28/2.52

EL DORADO HILLS BLVD.
INTERCHANGE
ALTERNATIVE 3A & 3B

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Scale: 1" = 200'

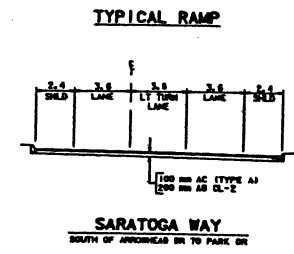
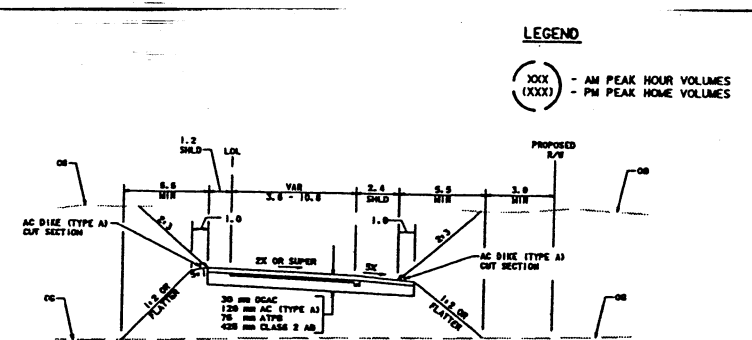
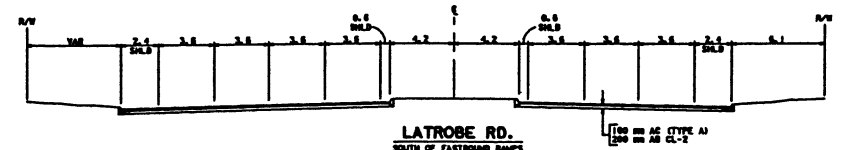
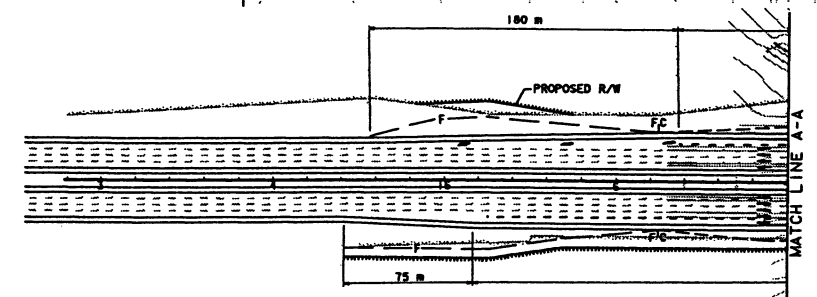
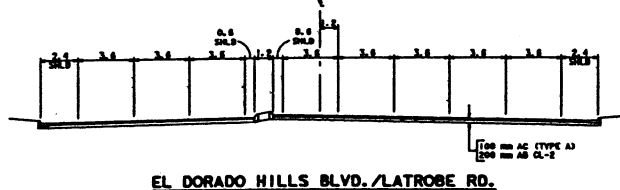
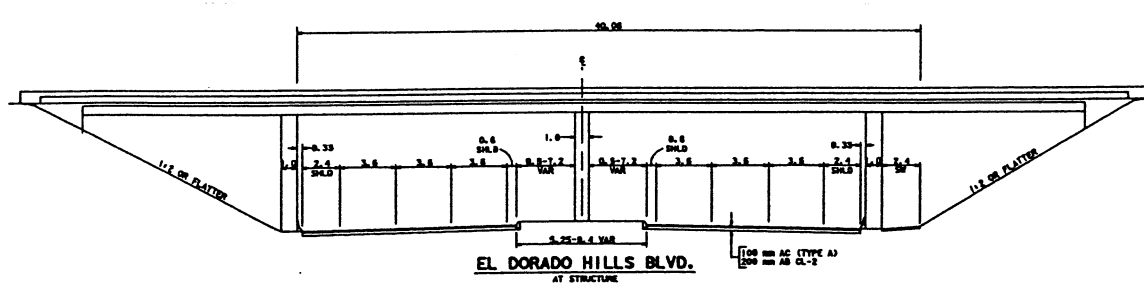
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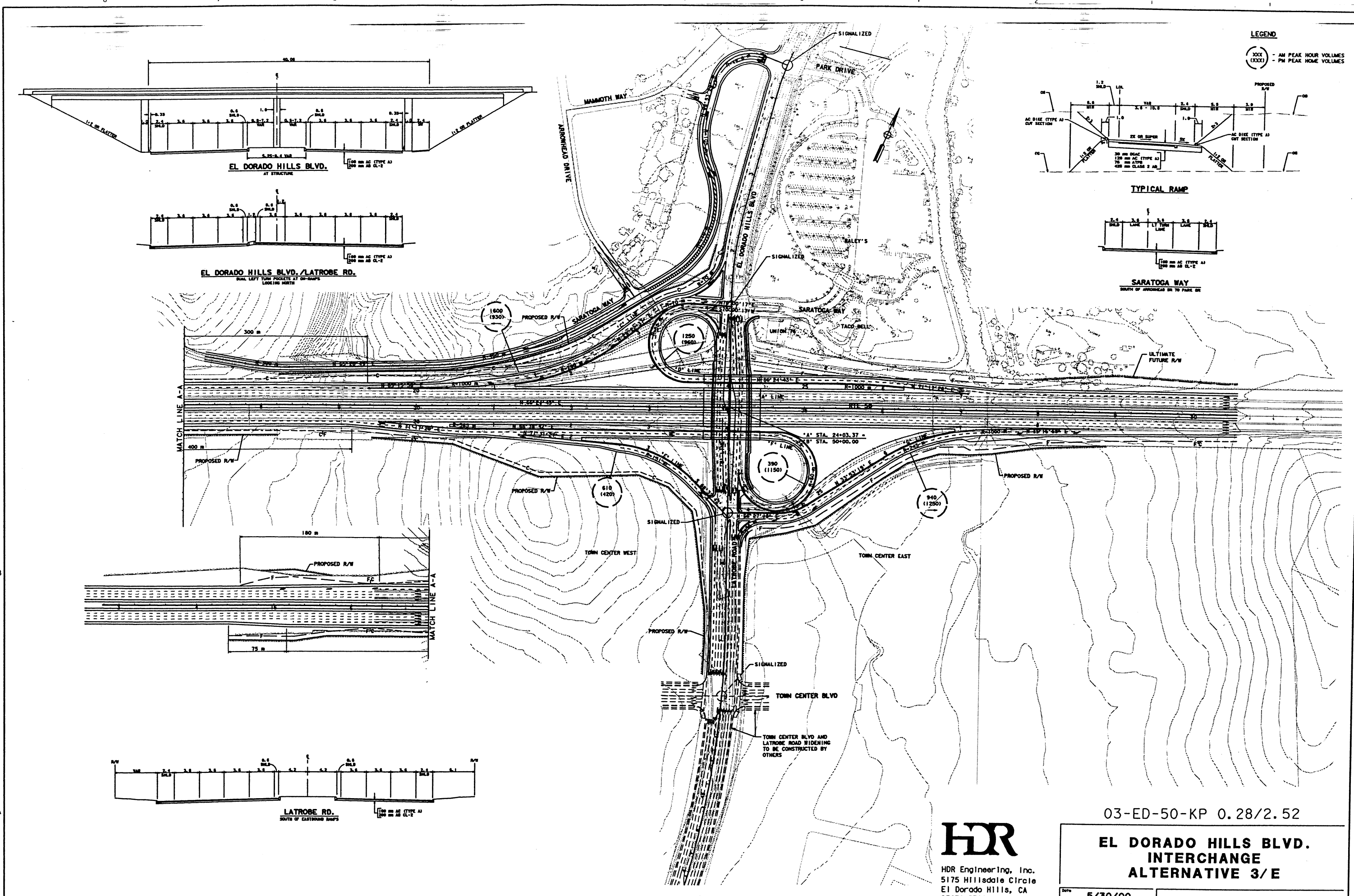
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Large map
Alternative 3A & 3B

PREF_LO.DGN Date plotted: 06/01/2000 10:56 am



LEGEND
 (XXX) - AM PEAK HOUR VOLUMES
 (XXX) - PM PEAK HOUR VOLUMES



HDR
 HDR Engineering, Inc.
 5175 Hillisdale Circle
 El Dorado Hills, CA
 95630-5700

03-ED-50-KP 0.28/2.52

**EL DORADO HILLS BLVD.
 INTERCHANGE
 ALTERNATIVE 3/E**

Date	5/30/00
Scale	1:2000

ATTACHMENT 5

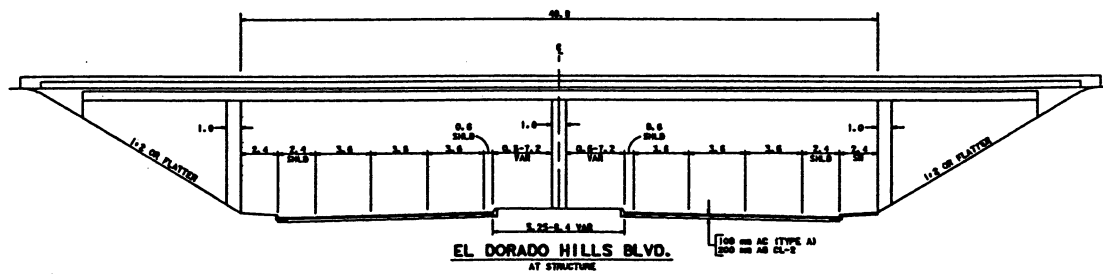
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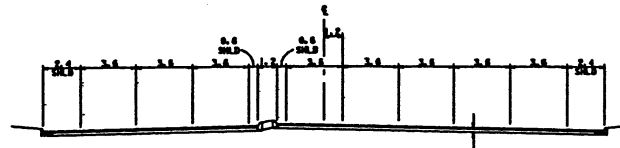
Large map
Alternative 3/E

Attachment 5

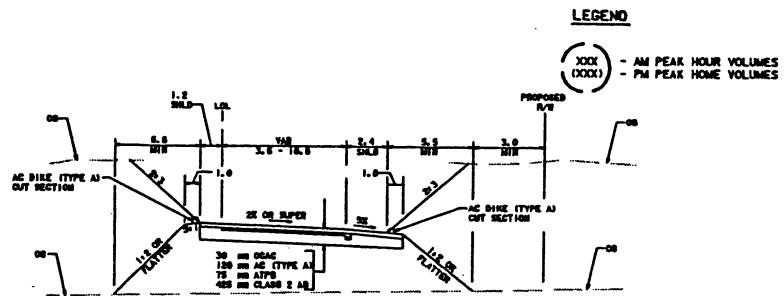
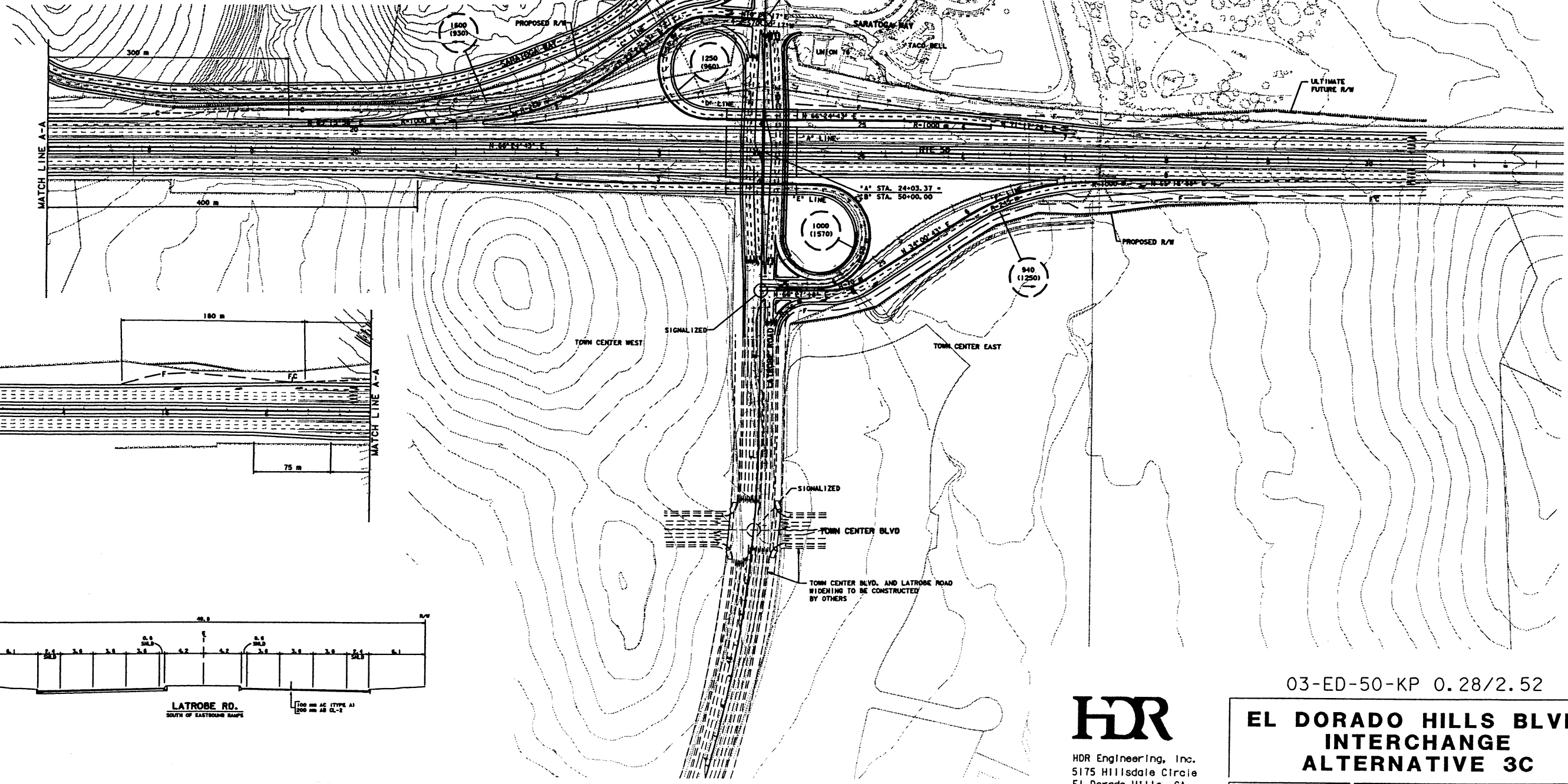
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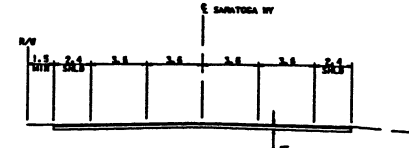
EL DORADO HILLS BLVD. AT STRUCTURE



EL DORADO HILLS BLVD. / LATROBE RD.



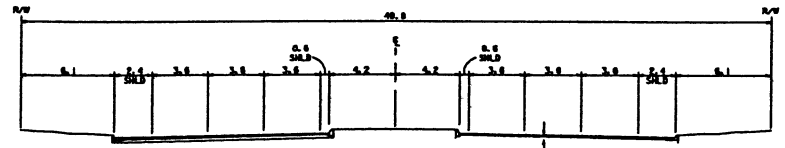
TYPICAL RAMP



SARATOGA WAY

LEGEND

1000' (0000) - AM PEAK HOUR VOLUMES
1000' (0000) - PM PEAK HOUR VOLUMES



LATROBE RD. SOUTH OF EASTBOUND RAMP



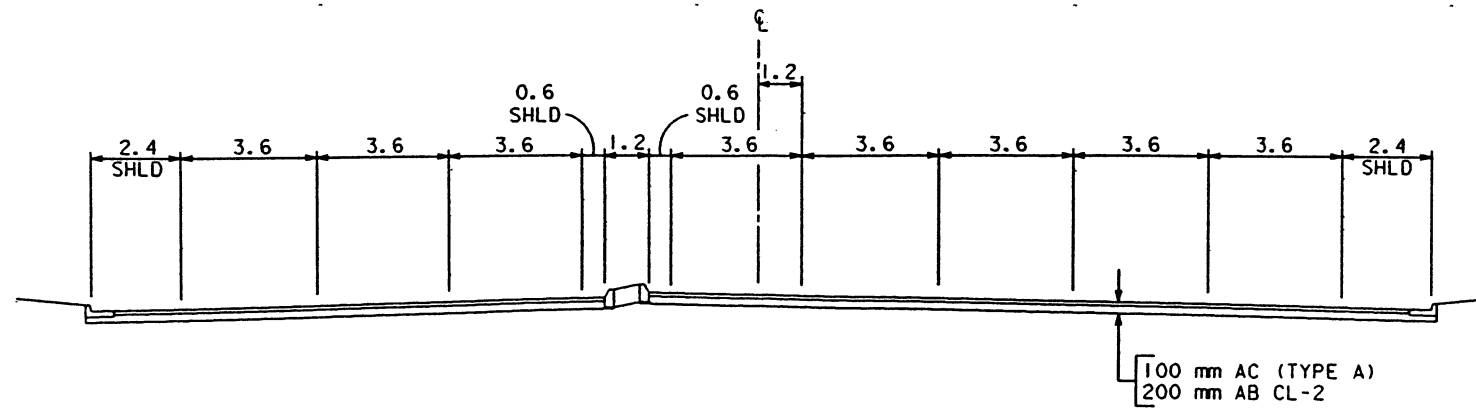
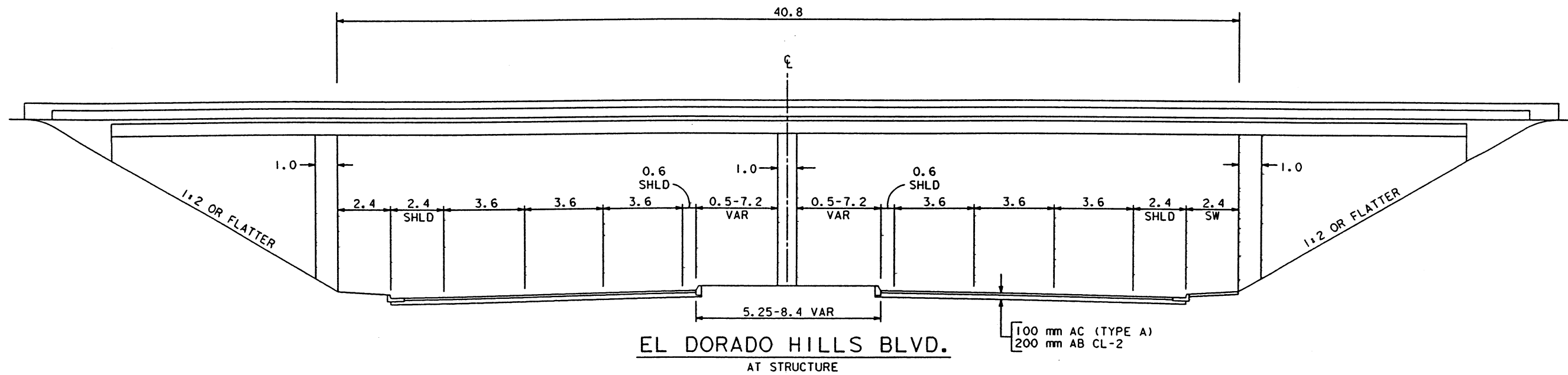
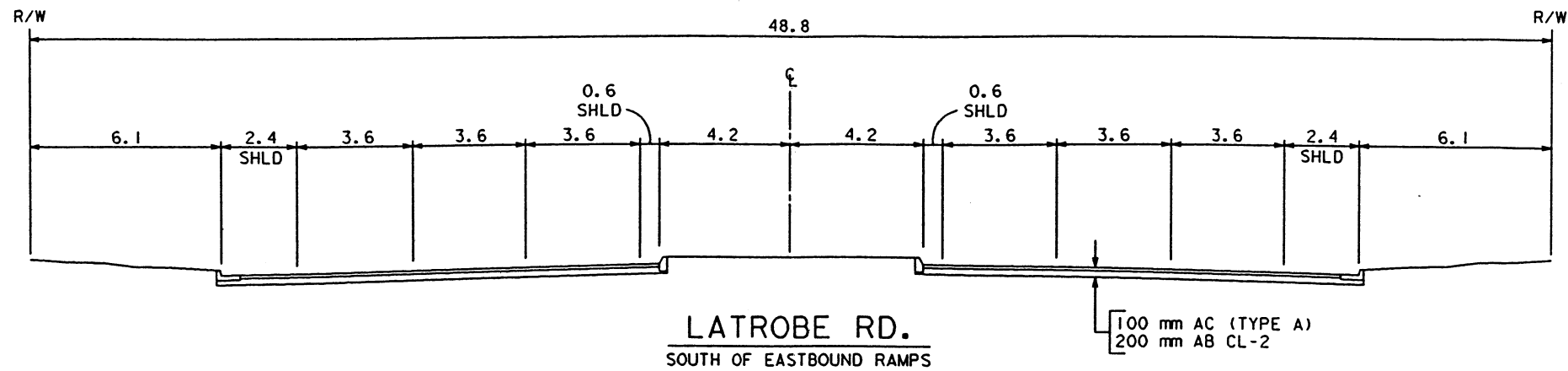
HDR Engineering, Inc.
5175 Hillside Circle
El Dorado Hills, CA
95630-5700

03-ED-50-KP 0.28/2.52

EL DORADO HILLS BLVD.
INTERCHANGE
ALTERNATIVE 3C

DATE 5/30/00
SCALE 1:2000

ATTACHMENT 6



NOTE:
ALL DIMENSIONS ARE IN METERS (m)
EXCEPT AS NOTED.

FILE: c:\00176\025\typxsec.dgn
DATE: 2-May-96 10:31



HDR Engineering, Inc.
5175 Hillside Circle
El Dorado Hills, CA
95762-5700

03-ED-50-0.47/1.26

**EL DORADO HILLS BLVD.
INTERCHANGE-ALT. 3C
TYPICAL SECTIONS**

Date 5/2/96

Scale NO SCALE

ATTACHMENT 6

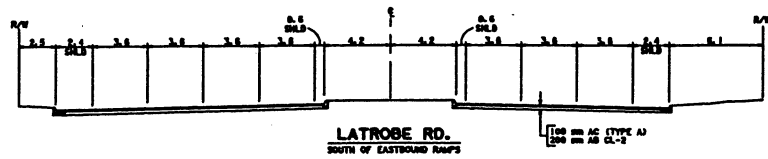
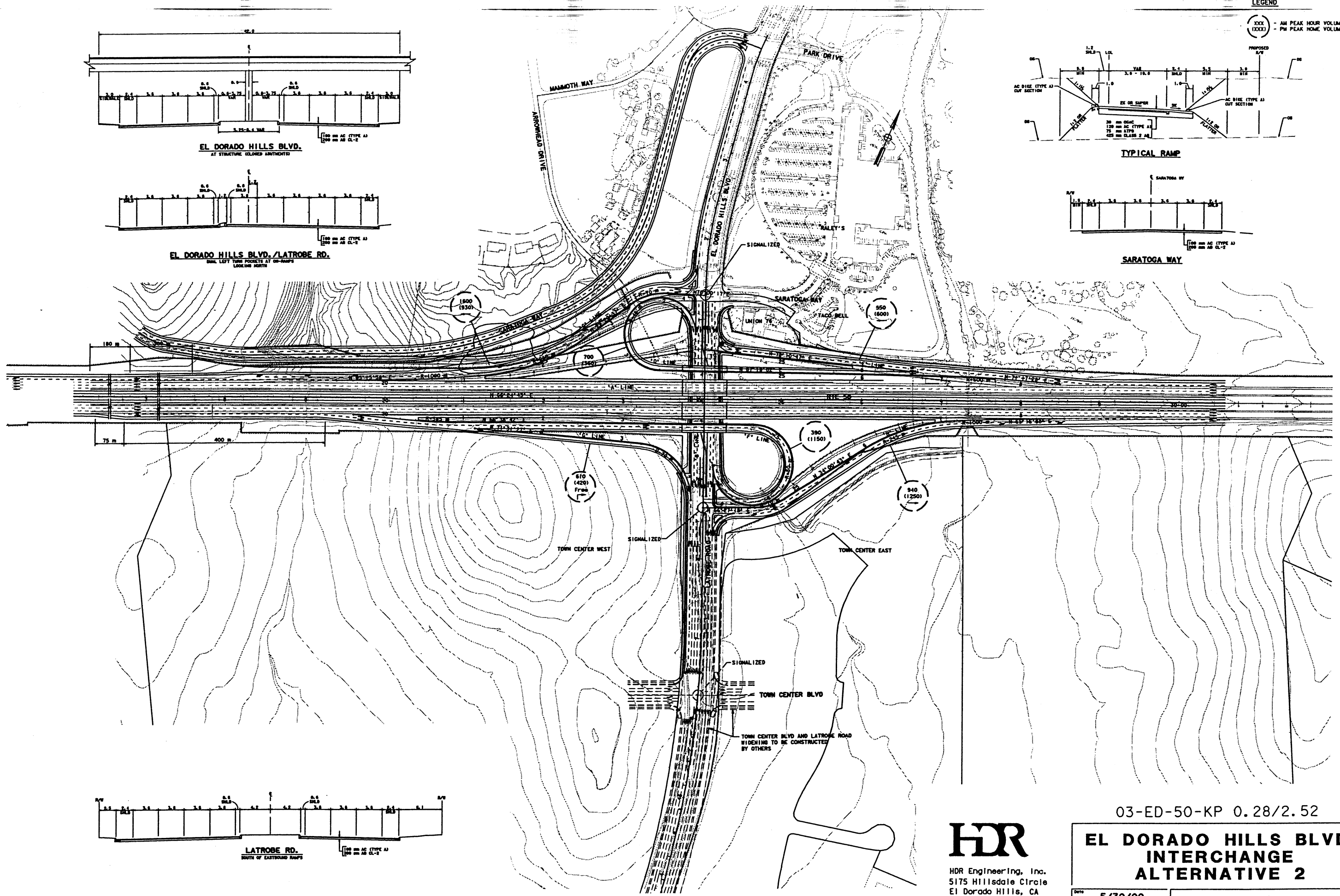
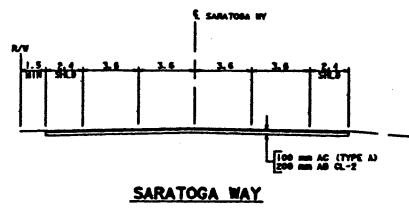
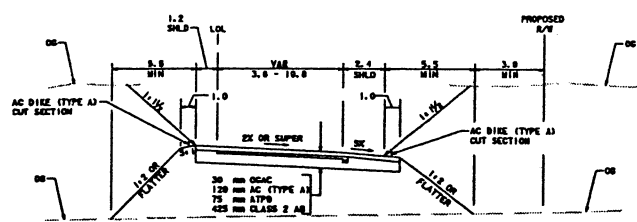
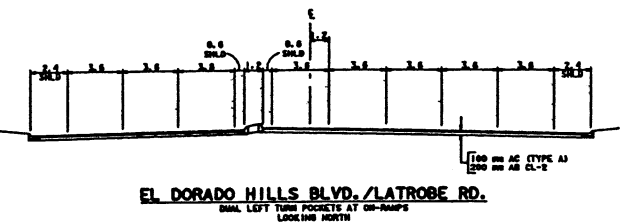
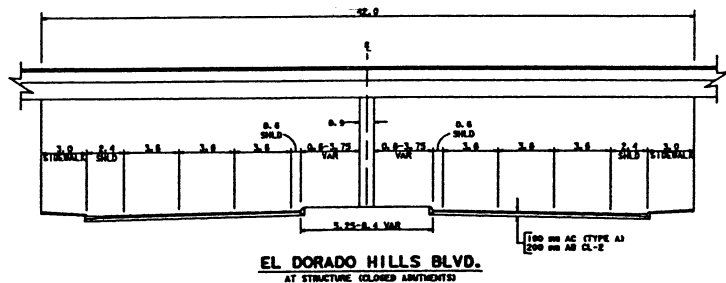
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11 X 17 (S)

Large map
Alternative 3C
Attachment 6

LEGEND

XXXX (XXXX) - AM PEAK HOUR VOLUMES
XXXX (XXXX) - PM PEAK HOUR VOLUMES



FILE: c:\00176\025\F017612.dgn
DATE: 2-May-96 09:00



HDR Engineering, Inc.
5175 Hillisdale Circle
El Dorado Hills, CA
95630-5700

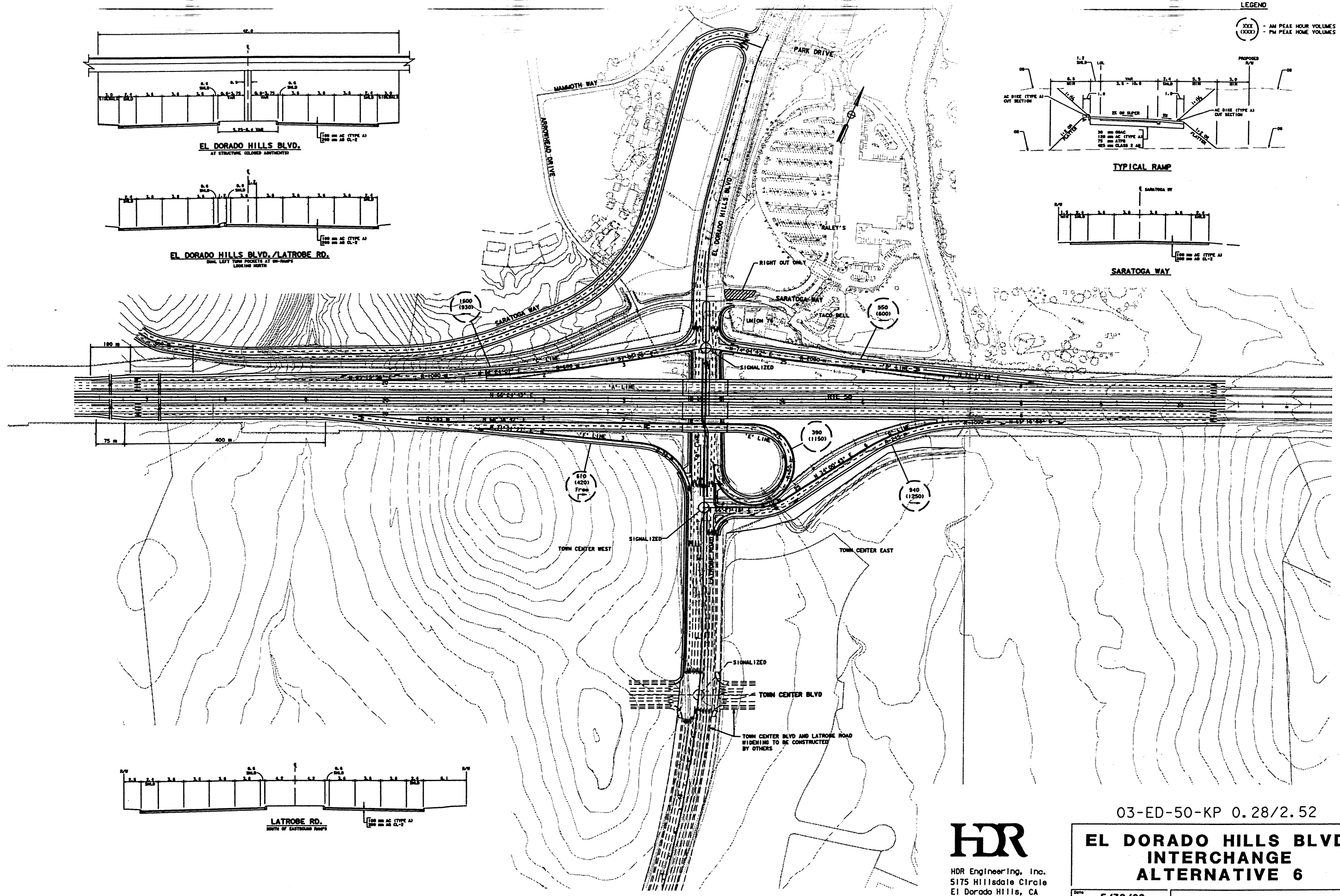
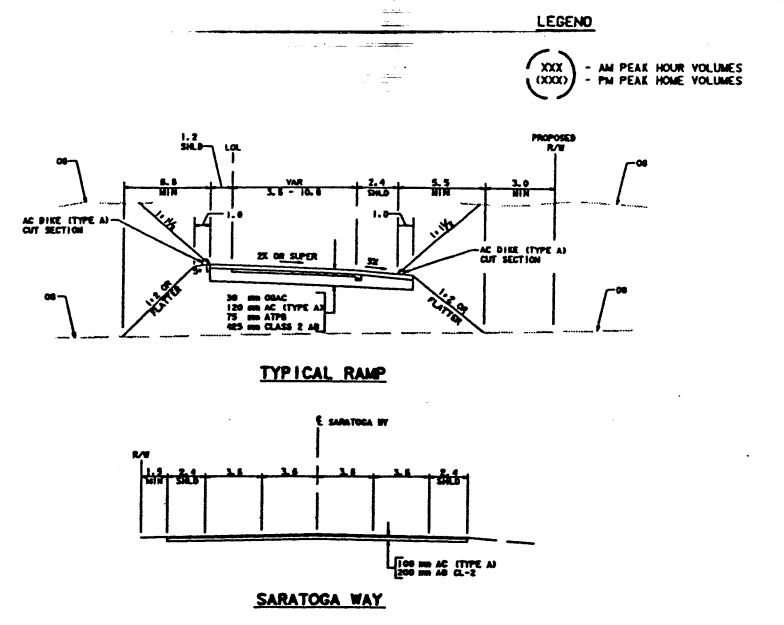
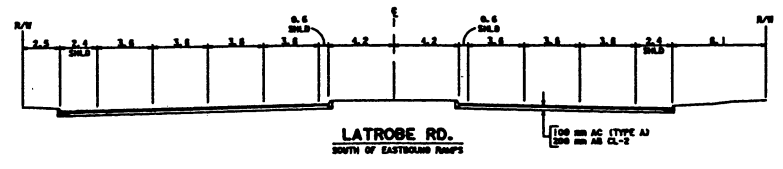
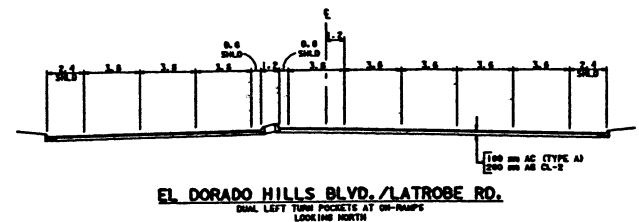
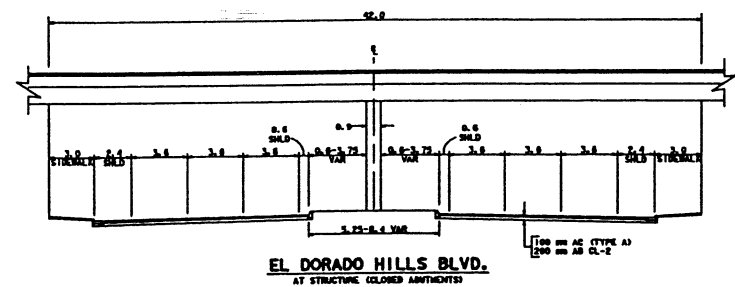
03-ED-50-KP 0.28/2.52

EL DORADO HILLS BLVD. INTERCHANGE ALTERNATIVE 2

Date: 5/30/00
Scale: 1" = 2000'

ATTACHMENT 7

D
C
B



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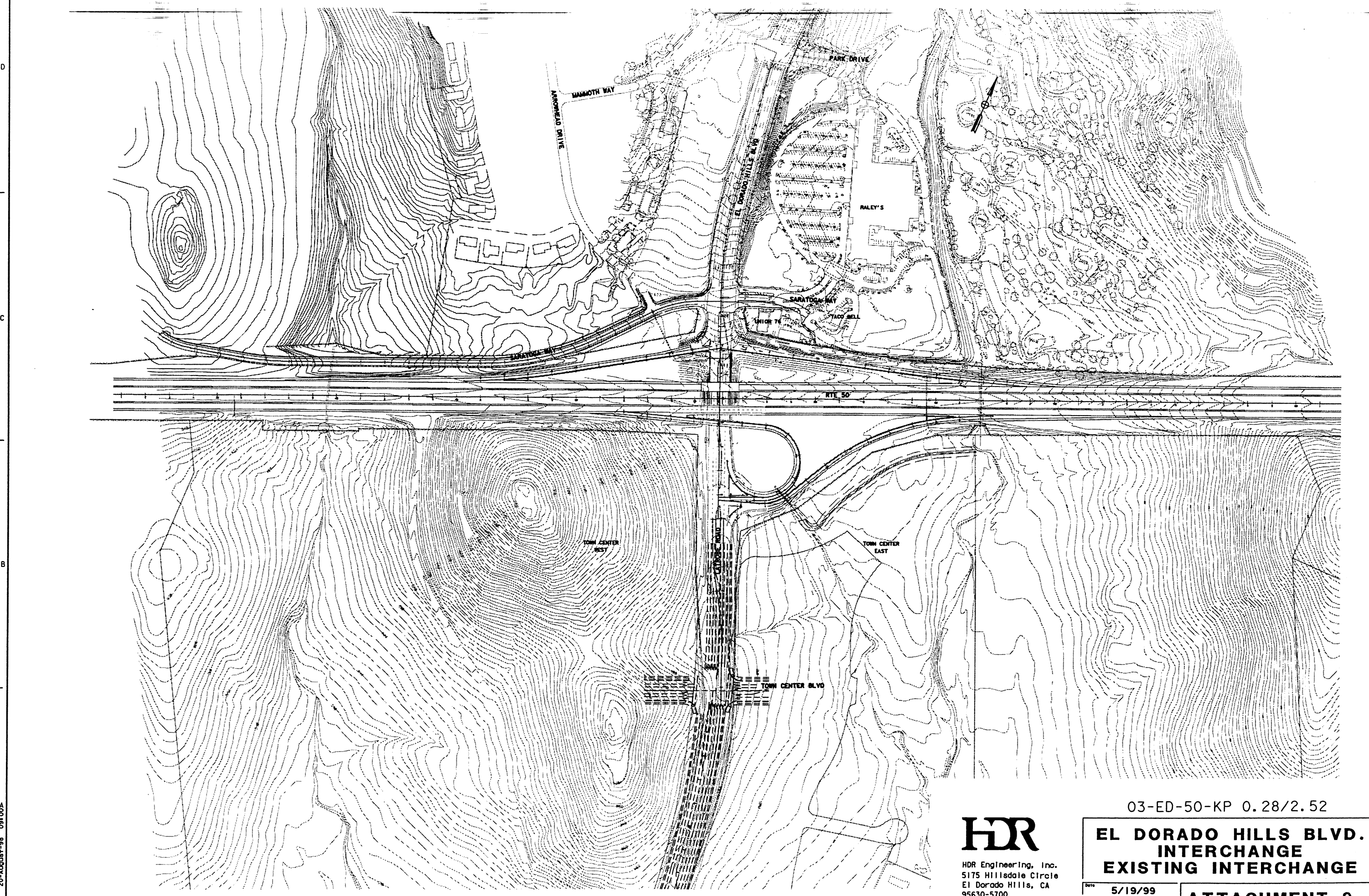
HDR
 HDR Engineering, Inc.
 5175 Hillisdale Circle
 El Dorado Hills, CA
 95630-5700

03-ED-50-KP 0.28/2.52

**EL DORADO HILLS BLVD.
 INTERCHANGE
 ALTERNATIVE 6**

Date	5/30/00	ATTACHMENT 8
Scale	1" = 2000'	

FILE: c:\76\ANORLD.L.DCN
DATE: 20-AUGUST-98 09:00



03-ED-50-KP 0.28/2.52



HDR Engineering, Inc.
5175 Hillside Circle
El Dorado Hills, CA
95630-5700

**EL DORADO HILLS BLVD.
INTERCHANGE
EXISTING INTERCHANGE**

Date: 5/19/99
Scale: 1"=2000

ATTACHMENT 9

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

	<u>DIST-CO-RTE</u>
	<u>03/ED/50</u>
Type of Estimate	<u>PSR/PR</u>
Program Code	<u>Local Funds</u>
KP	<u>0.28/2.52</u>
EA	<u>03198-434100</u>
PP No.	<u> </u>

Project Description:

On U.S. Highway 50 in El Dorado County at the El Dorado Hills Blvd./Latrobe

Road Interchange.

Proposed Improvement Interchange Reconstruction - Phase 1

Construct new WB 50 Loop off-ramp with structure. Reconstruct WB and EB on-ramps;
widen El Dorado Hills Blvd./Latrobe Road, and realign Saratoga Way

Proposed Project.

ROADWAY ITEMS	<u>\$5,633,000</u>
STRUCTURES ITEMS	<u>\$1,068,000</u>
SUBTOTAL CONSTRUCTION	<u>\$6,701,000</u>
RIGHT OF WAY	<u>\$4,719,000</u>
TOTAL PROJECT COST	<u>\$11,420,000</u>

Reviewed by Project Engineer _____
(Signature)

Approved by Project Manager _____
(Signature)

Phone No. (916) 351-3800 Date: March 1999

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE
03-ED-50
0.28/2.52
03198-434100

KP
EA
PP No.

I. ROADWAY ITEMS

Section 1 Earthwork	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Roadway Excavation	65,300	M3	\$8.00	\$522,400	
Imported Borrow	3,000	M3	\$6.00	\$18,000	
Clearing & Grubbing	1	LS	\$15,000.00	\$15,000	
Develop Water Supply	1	LS	\$10,000.00	\$10,000	
Remove AC Surfacing	19,000	M2	\$5.00	\$95,000	
Remove Base & Surfacing	500	M3	\$17.00	\$8,500	
Remove AC Dike	2,200	M	\$5.00	\$11,000	
Remove Concrete	360	M3	\$75.00	\$27,000	
Obiliterate/Remove Pavement	6,100	M2	\$3.00	\$18,300	
		Total Roadway			<u>\$725,200</u>
Section 2 Structural Section					
Asphalt Concrete (Type A)	17,700	TONNE	\$40.00	\$708,000	
Asphalt Treated Permeable Base	5,500	M2	\$50.00	\$275,000	
Class 2 Aggregate Base	13,320	M3	\$40.00	\$532,800	
Lime Treated Base	4,100	M3	\$50.00	\$205,000	
Asphalt Concrete (Open Graded)	2,050	TONNE	\$45.00	\$92,250	
Paint Binder (Tack Coat)	11	TONNE	\$500.00	\$5,500	
		Total Structural Section			<u>\$1,818,550</u>
Section 3 Drainage					
Drainage	1	LS	\$150,000.00	\$150,000	
		Total Drainage			<u>\$150,000</u>
Section 4 Specialty Items					
Place AC Dike	2800	M	\$6.00	\$16,800	
Minor Concrete (Minor Structure)	24	M3	\$1,200.00	\$28,800	
Minor Concrete (Curb & Sidewalk)	260	M3	\$300.00	\$78,000	
Wheelchair Ramps	11	EA	\$1,200.00	\$13,200	
Edge Drains	2,900	M	\$20.00	\$58,000	
		Subtotal Specialty			<u>\$194,800</u>

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

	<u>DIST-CO-RTE</u>
	<u>03-Pla-80</u>
KP	<u>0.28/2.52</u>
EA	<u>03198-434100</u>
PP No.	<u> </u>

Section 4 Specialty Items (con	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Crash Cushion, G.R.E.A.T.	<u>3</u>	<u>EA</u>	<u>\$30,000.00</u>	<u>\$90,000</u>	
				<u>\$0</u>	
Retaining Wall (Under Exist St)	<u>1</u>	<u>LS</u>	<u>\$50,000.00</u>	<u>\$50,000</u>	
Soundwall	<u>550</u>	<u>M2</u>	<u>\$180.00</u>	<u>\$99,000</u>	
MBGR	<u>38</u>	<u>M</u>	<u>\$70.00</u>	<u>\$2,660</u>	
Fence	<u>710</u>	<u>M</u>	<u>\$30.00</u>	<u>\$21,300</u>	
Landscape/Irrigation	<u>1</u>	<u>LS</u>	<u>\$180,000.00</u>	<u>\$180,000</u>	
Erosion Control	<u>1</u>	<u>LS</u>	<u>\$40,000.00</u>	<u>\$40,000</u>	
Concrete Barrier	<u>120</u>	<u>M</u>	<u>\$150.00</u>	<u>\$18,000</u>	
			Subtotal Specialty		<u>\$500,960</u>
			Total Specialty		<u>\$695,760</u>

Section 5 Traffic Items

100 mm (4") Traffic Stripe	<u>7100</u>	<u>M</u>	<u>\$1.25</u>	<u>\$8,875</u>	
200 mm (8") Traffic Stripe	<u>1400</u>	<u>M</u>	<u>\$3.75</u>	<u>\$5,250</u>	
300 mm (12") Traffic Stripe	<u>60</u>	<u>M</u>	<u>\$8.00</u>	<u>\$480</u>	
Pavement Markings	<u>160</u>	<u>M2</u>	<u>\$20.00</u>	<u>\$3,200</u>	
Remove Traffic Stripe	<u>630</u>	<u>M</u>	<u>\$1.00</u>	<u>\$630</u>	
Signing	<u>1</u>	<u>LS</u>	<u>\$21,000.00</u>	<u>\$21,000</u>	
Construction Area Signs	<u>1</u>	<u>LS</u>	<u>\$7,000.00</u>	<u>\$7,000</u>	
Signals	<u>1</u>	<u>LS</u>	<u>\$300,000.00</u>	<u>\$300,000</u>	
Lighting	<u>1</u>	<u>LS</u>	<u>\$40,000.00</u>	<u>\$40,000</u>	
Ramp Metering	<u>1</u>	<u>LS</u>	<u>\$90,000.00</u>	<u>\$90,000</u>	
Traffic Control Systems	<u>1</u>	<u>LS</u>	<u>\$210,000.00</u>	<u>\$210,000</u>	
Traffic Management Plan	<u>1</u>	<u>LS</u>	<u>\$50,000.00</u>	<u>\$50,000</u>	
			Total Traffic Items		<u>\$736,435</u>
			SUBTOTAL SECTION 1-5		<u>\$4,125,945</u>
			USE		<u>\$4,126,000</u>

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE
03-ED-50
0.28/2.52
03198-434100

KP
EA
PP No.

Section 6 Minor Items

Subtotal Sections 1-5	<u>\$4,126,000</u> x (5%)	<u>\$206,300</u>
	Total Minor Items	<u>\$207,000</u>

Section 7 Roadway Mobilization

Subtotal Sections 1-5	<u>\$4,126,000</u>	
Minor Items	<u>\$207,000</u>	
Sum	<u>\$4,333,000</u> x (5%)	<u>\$216,650</u>
	Total Roadway Mobilization	<u>\$217,000</u>

Section 8 Roadway Additions

Supplemental

Subtotal Section 1-5	<u>\$4,126,000</u>	
Minor Items	<u>\$207,000</u>	
Sum	<u>\$4,333,000</u> x (5%)	<u>\$216,650</u>

Contingencies

Subtotal Section 1-5	<u>\$4,126,000</u>	
Minor Items	<u>\$207,000</u>	
Sum	<u>\$4,333,000</u> x (20%)	<u>\$866,600</u>

Total Additional \$1,083,250

TOTAL ROADWAY ITEMS \$5,633,195
(Total of Section 1-8)

USE \$5,633,000

Estimate Prepared Teresa Lopes

Phone #: (916) 351-3800

Date: March 1999

Update: _____

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE
03-ED-50
0.28/2.52
03198-434100

KP
EA
PP No.

II. STRUCTURES ITEMS

Bridge Name	<u>WB Hwy50 Off-Ramp</u>
Structure Type	<u>Precast, I-Beam</u>
Width, m. (out to out)	<u>11.87</u>
Span Lengths, m.	<u>73.6</u>
Total Area, sq. m.	<u>875</u>
Footing Type (pile/spread)	<u>Spread Ftg w/Piles</u>
Cost per sq. m. (incl 10% mobilization and 25% contingency)	<u>\$1,180</u>
Total Cost for Structure	<u>\$1,032,500</u>
Approach Slabs	<u>\$29,100</u>
Slope Paving	<u>\$6,230</u>
Bridge Removal	<u>N/A</u>
Total Struct. & Rem.	<u>\$1,067,830</u>
USE	<u>\$1,068,000</u>
Total Structures Items	<u>\$1,068,000</u>

COMMENTS:

Estimate Prepared By: Teresa Lopes Phone (916) 351-3800
Date: Mar-99
Update: _____

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

PM	<u>03-ED-50</u>
KP	<u>0,28/2.51</u>
EA	<u>03198-414100</u>
PP No.	<u> </u>

III. RIGHT OF WAY	<u>Current (1998 \$) Values</u>	<u>Escalation Rate</u>	<u>Escalated Values</u>
Acquisition, including excess lands and damages to remainder's)	<u>\$3,866,732</u>	<u>6.00%</u>	<u>\$4,344,660</u>
Utility Relocation (State share)	<u>\$286,500</u>	<u>5.00%</u>	<u>\$315,866</u>
Clearance/Demolition	<u> </u>	<u> </u>	<u> </u>
RAP	<u> </u>	<u> </u>	<u> </u>
Title and Escrow Fees	<u>\$58,197</u>	<u> </u>	<u>\$58,197</u>
Total Right of Way (Current Value)	<u>\$4,211,429</u>	<u> </u>	<u> </u>
TOTAL ESCALATED RIGHT OF WAY			<u>\$4,718,723</u>
TOTAL RIGHT OF WAY			<u>\$4,718,723</u>
USE			<u>\$4,719,600</u>

COMMENTS: All required right-of-way purchases and utility relocation work performed under Phase 1.
Right of way costs escalated to assumed year of right of way purchase
25% Contingencies Included in Current Values.

Estimate Prepared By Teresa Lopez Phone # (916) 351-3800

Date: March 1999

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

	DIST-CO-RTE
	03-ED-50
Type of Estimate	PSR/PR
Program Code	Local Funds
KP	0.28/2.52
EA	03198-434100
PP No.	

Project Description:

On U.S. Highway 50 in El Dorado County at the El Dorado Hills Blvd/Latrobe Road

Interchange.

Proposed Improvement Interchange Reconstruction - Ultimate Phase

Replace U.S. Highway 50 mainline structure. Reconstruct EB loop off-ramp and replace structure.

Construct new EB diagonal off-ramp and widen El Dorado Hills Blvd. to 6 lanes.

Proposed Project

ROADWAY ITEMS	\$5,369,000
STRUCTURES ITEMS	\$5,877,000
SUBTOTAL CONSTRUCTION	\$11,246,000
RIGHT OF WAY	\$0
TOTAL PROJECT COST	\$11,246,000

Reviewed by Project Engineer _____
(Signature)

Approved by Project Manager _____
(Signature)

Phone No. (916) 351-3800 Date: March 1999

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE
03-ED-50
0.28/2.52
03198-434100

KP
EA
PP No.

I. ROADWAY ITEMS

Section 1 Earthwork	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Roadway Excavation	195,000	M3	\$9.00	\$1,755,000	
Imported Borrow		M3	\$0.00	\$0	
Clearing & Grubbing	1	LS	\$5,000.00	\$5,000	
Develop Water Supply	1	LS	\$5,000.00	\$5,000	
Remove AC Surfacing	800	M2	\$5.00	\$4,000	
Remove Base & Surfacing	5,600	M3	\$17.00	\$95,200	
Remove AC Dike	700	M	\$5.00	\$3,500	
Remove Concrete	150	M3	\$75.00	\$11,250	
			Total Earthwork		\$1,878,950
Section 2 Structural Section					
Asphalt Concrete	10,000	TONNE	\$40.00	\$400,000	
Asphalt Treated Permeable Base	1,000	M3	\$50.00	\$50,000	
Class 2 Aggregate	8,500	M3	\$40.00	\$340,000	
Lime Treated Base	2,800	M3	\$50.00	\$140,000	
Asphalt Concrete (Open Graded)	1,300	TONNE	\$45.00	\$58,500	
Paint Binder (Tack Coat)	7	TONNE	\$500.00	\$3,500	
			Total Structural		\$992,000
Section 3 Drainage					
Drainage	1	LS	\$106,000.00	\$106,000	
			Total Drainage		\$106,000
Section 4 Specialty Items					
Place AC Dike (Type A)	1,400	M	\$6.00	\$8,400	
Minor Concrete (Curb & SW)	160	M3	\$300.00	\$48,000	
Wheelchair Ramps	9	EA	\$1,200.00	\$10,800	
Edge Drains	1900	M	\$20.00	\$38,000	
			Subtotal Specialty		\$105,200

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

03-ED-50

KP

0.28/2.52

EA

03198-434100

PP No.

Section 4 Specialty Items (con	Quantity	Unit	Unit Price	Unit Cost	<u>Section Cost</u>
Remove Concrete Barrier	180	M	\$25.00	\$4,500	
Remove Retaining Wall	60	M	\$170.00	\$10,200	
Relocate Crash Cushion	3	EA	\$3,000.00	\$9,000	
Concrete Barrier	120	M	\$150.00	\$18,000	
MBGR	150	M	\$70.00	\$10,500	
Fence	570	M	\$30.00	\$17,100	
Landscape/Irrigation	1	LS	\$50,000.00	\$50,000	
Erosion Control	1	LS	\$30,000.00	\$30,000	
			Subtotal Specialty		<u>\$149,300</u>
			Total Specialty		<u>\$254,500</u>
Section 5 Traffic Items					
100 mm (4") Traffic Stripe	6,700	M	\$1.25	\$8,375	
200 mm (8") Traffic Stripe	850	M	\$3.75	\$3,188	
300 mm (12") Traffic Stripe	50	M	\$8.00	\$400	
Pavement Markings	90	M2	\$20.00	\$1,800	
Lighting	1	LS	\$40,000.00	\$40,000	
Signal	1	LS	\$35,000.00	\$35,000	
Signing	1	LS	\$110,000.00	\$110,000	
Construction Area Signs	1	LS	\$7,000.00	\$7,000	
Traffic Control Systems	1	LS	\$300,000.00	\$300,000	
Traffic Management Plan	1	LS	\$50,000.00	\$50,000	
			Total Traffic Items		<u>\$555,763</u>
			SUBTOTAL SECTION 1-5		<u>\$3,787,213</u>
				USE	<u>\$3,787,000</u>

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE
03-ED-50
0.28/2.52
03198-434100

KP
EA
PP No.

Section 6 Minor Items

Subtotal Sections 1-5 \$3,787,000 x (5%) \$189,350

Total Minor Items \$189,350

Section 7 Roadway Mobilization

Subtotal Sections 1-5 \$3,787,000

Minor Items \$189,350

Sum \$3,976,350 x (10%) \$397,635

Total Roadway Mobilization \$397,635

Section 8 Roadway Additions

Supplemental

Subtotal Section 1-5 \$3,787,000

Minor Items \$189,350

Sum \$3,976,350 x (5%) \$198,818

Contingencies

Subtotal Section 1-5 \$3,787,000

Minor Items \$189,350

Sum \$3,976,350 x (20%) \$795,270

Total Additional \$994,088

TOTAL ROADWAY ITEMS \$5,368,073
(Total of Section 1-8)

USE \$5,369,000

Estimate Prepared Teresa Lopes

Phone #: (916) 351-3800

Date: March 1999

Update: _____

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

	DIST-CO-RTE
	03-ED-50
KP	0.28/2.52
EA	03198-434100
PP No.	

II. STRUCTURES ITEMS

	No.1	No.2
Bridge Name	Hwy50 Mainline	EB Loop Off-Ramp
Structure Type	Precast, I-Beam	Precast, I-Beam
Width, m. (out to out)	49.88	11.87
Span Lengths, m.	73.6	73.6
Total Area, sq. m.	3,670	875
Footing Type (pile/spread)	Spread Ftg w/Piles	Spread Ftg w/Piles
Cost per sq. m. (incl 10% mobilization and 25% contingency)	\$1,180	\$1,180
Total Cost for Structure	\$4,330,600	\$1,032,500
Cost for Approach Slabs	\$122,300	\$29,100
Slope Paving	\$26,150	\$6,230
Bridge Removal	\$248,000	\$82,500
Total Struct. & Rem.	\$4,727,050	\$1,150,330
USE	\$4,727,000	\$1,150,000
TOTAL STRUCTURES ITEMS		\$5,877,000

COMMENTS: _____

Estimate Prepared By: Teresa Lopes

Phone #: (916) 351-3800

Date: Mar-99

Update: _____

PRELIMINARY
PROJECT COST ESTIMATE SUMMARY

	<u>DIST-CO-RTE</u>
PM	<u>03-ED-50</u>
KP	<u>0.28/2.52</u>
PP No.	<u>03198-434100</u>
	<u> </u>

III. RIGHT OF WAY	<u>Current Values</u>	<u>Escalation Rate</u>	<u>Escalated Values</u>
Acquisition, including excess lands and damages to remainder(s)	\$0.00	6.00%	\$0
Utility Relocation (State share)	\$0	5.00%	\$0
Clearance/Demolition			
RAP			
Title and Escrow Fees	\$0		\$0
Total R/W (Current Value)	<u>\$0.00</u>		
			<u> </u>
			Total Escalated Right of Way <u>\$0</u>
			<u> </u>
			TOTAL RIGHT OF WAY <u>\$0</u>
			<u> </u>
			USE <u>\$0</u>

COMMENTS: All project right-of-way purchased under Phase 1.
25% Contingencies included in Current Values.

Estimate Prepared By: Teresa Lopes Phone # (916) 351-3800

Date: March 1999

***Final Draft Traffic Analysis Report
for the
U.S. 50/El Dorado Hills Boulevard/Latrobe Road
Interchange Improvements***

***Prepared for:
HDR Engineering
El Dorado County***

February 23, 1999

952-468



Fehr & Peers Associates
Transportation Consultants

3685 Mt Diablo Blvd
Suite 301
Lafayette, CA 94549
925-284-3200
FAX 925-284-2691

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I. INTRODUCTION

The El Dorado Hills Boulevard/Latrobe Road interchange with U.S. Highway 50 is located in western El Dorado County. It is currently a partial cloverleaf configuration designed to serve moderate traffic volumes via single-lane ramps and a four-lane section under U.S. Highway 50. With continuing development in western El Dorado County, increasing traffic demands are being placed on the interchange.

Purpose

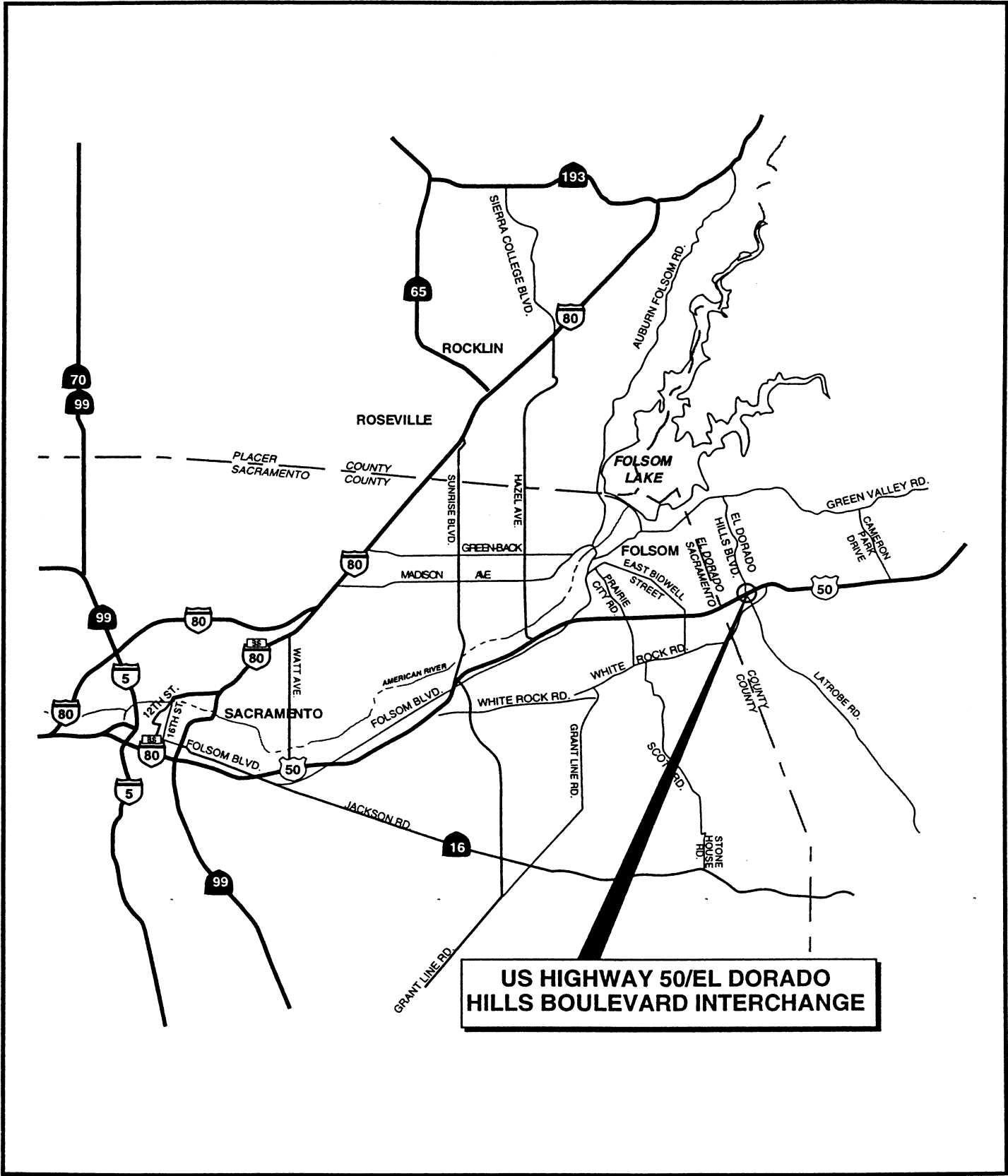
The purpose of this report is to document the existing and future traffic conditions associated with the planned improvement of the El Dorado Hills Boulevard/Latrobe Road interchange. As a part of this study, interchange alternatives were evaluated for future conditions to determine the configuration that would best serve the cumulative traffic growth in the area. The study also provides a recommended phasing plan for the interchange improvements. The results contained in this report will serve as the basis for the traffic operations section of the Project Study Report/Project Report.

Study Area

Figure 1 shows the location of the project along U.S. Highway 50 in El Dorado County. This study encompasses the interchange and adjacent sections of U.S. Highway 50. This area of the County is planned to serve extensive residential, commercial, office and industrial land uses.

Chronology of the Analysis

The analysis work for this effort began in 1995, with the initial results documented in the *Draft Final Traffic Analysis Report for the U.S. Highway 50/ El Dorado Hills Boulevard/Latrobe Road Interchange*, Fehr & Peers Associates, August 16, 1996. For that initial analysis effort, traffic forecasts were developed based on the latest land use assumptions available at that time. Analysis methods were also consistent with those most readily practiced at that time. Six alternatives were evaluated in detail and specific conclusions were reached in the effort.



**US HIGHWAY 50/EL DORADO
HILLS BOULEVARD INTERCHANGE**

FIGURE 1

PROJECT LOCATION

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In 1997, El Dorado County undertook a public participation process that included a review of several additional interchange alternatives. This revised analysis culminated in 1998, with the completion of the analysis for this document, as well as the environmental impact report. This 1997/1998 effort included slight modifications to the traffic forecast and operations analysis. The specific details of this revised analysis are described in Chapter VIII of this report. As documented below, the conclusions of both the initial and revised analyses are identical.

Analysis Methodology

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 1 relates the operational characteristics associated with each level of service category for signalized and unsignalized intersections.

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

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

Table 2 shows the level of service density thresholds for ramp junctions and mainline segments.

Table 2		
Ramp Junction and Freeway Mainline Segment Level of Service Thresholds		
Service Level	Density (passenger cars per mile per lane)	
	Ramp Junctions	Four-Lane Freeway ¹
LOS A	10	10
LOS B	20	16
LOS C	28	24
LOS D	35	32
LOS E	>35	39.3 ²

Notes: ¹ Assumes a free-flow speed of 65 miles per hour.
² For six-lane freeways, a LOS E density threshold of 43.4 applies.
 Source: *Highway Capacity Manual – Special Report 209* (Transportation Research Board, 1994)

Traffic signal warrants at unsignalized intersections were evaluated in accordance with Warrant 11 (urban peak hour traffic volumes warrant) contained in the *Traffic Manual* (Caltrans, 1995).

The evaluation of ramp metering was conducted using information contained in the *Ramp Meter Design Guidelines*, Caltrans, August, 1995.

Concept Level of Service

According to *State Route 50 Transportation Concept Report*, Caltrans District 3, April 6, 1998, LOS E is the concept level of service for this segment of U.S. Highway 50. This concept LOS was used for the freeway segments and ramp junctions. Level of service C was identified as the concept LOS for County intersections in accordance with Policy 3.5.1.1. of the El Dorado County General Plan.

II. EXISTING CONDITIONS

This section describes the existing roadway system in the vicinity of the U.S. Highway 50 / El Dorado Hills Boulevard/Latrobe Road interchange and current operating conditions during the morning and evening peak hours. The results presented below are based on the most recent traffic counts and analysis methods for the revised analysis.

Street System

U.S. Highway 50 is a regional roadway that extends from Sacramento on the west to Lake Tahoe on the east. In the vicinity of the project, it is a four-lane freeway. Eastbound traffic experiences a 2.5 percent, 500-meter downhill grade just west of the interchange, and then a 5-7 percent, 2.8-kilometer uphill grade east of the interchange.

El Dorado Hills Boulevard begins at U.S. Highway 50 and extends north into El Dorado Hills, terminating at Green Valley Road. Latrobe Road is a two-lane roadway extending south of the interchange and terminating at State Route 16 in Amador County. A four-lane roadway undercrossing currently exists through the interchange area.

Figure 2 shows the existing traffic volumes and lane configurations at the interchange. The existing mainline traffic volumes for U.S. Highway 50 were developed using information from the *Traffic Volume Data Book*, California Department of Transportation, 1996. Peak hour traffic counts were conducted in 1997 and 1998 at the intersections.

Operations Analysis

Freeway Segments

The freeway segments on both sides of the interchange were analyzed to determine peak hour operating conditions. Table 3 summarizes the freeway operating conditions adjacent to the interchange.

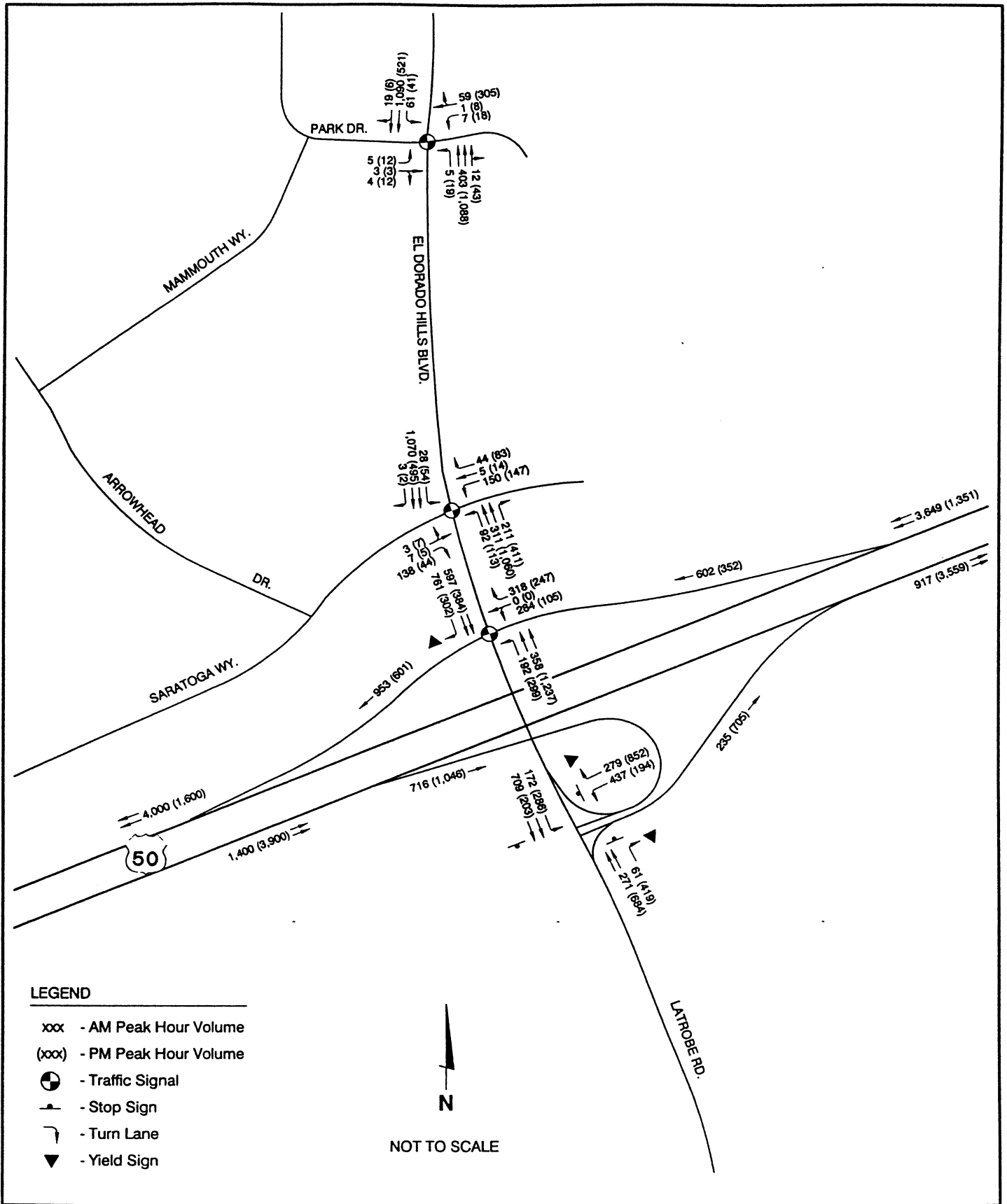


FIGURE 2

PEAK HOUR TRAFFIC VOLUMES - EXISTING CONDITIONS

Freeway Segment	AM Peak Hour		PM Peak Hour	
	Density (pcpmpl)	Level of Service	Density (pcpmpl)	Level of Service
U.S. Highway 50 EB west of Interchange	11	B	32	E
U.S. Highway 50 EB east of Interchange	7	B	28	D
U.S. Highway 50 WB east of Interchange	29	D	11	B
U.S. Highway 50 WB west of Interchange	33	E	12	B

As shown, the segment of U.S. Highway 50 west of the 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. LOS B operations exist in the off-peak (i.e., opposite) direction.

Ramp Junctions

An operations analysis was performed for the ramp junctions to identify current operating conditions. Table 4 shows the results of the analysis (see Appendix A of separately bound technical appendix for calculations).

Ramp Junction	AM Peak Hour		PM 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: * = Unstable flow, density cannot be computed.

The results of Table 4 show 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. Field observations indicate that substantial queuing occurs during the a.m. peak hour on westbound U.S. Highway 50 from the westbound diagonal on-ramp beyond Bass Lake Road. Extensive queues also exist on the diagonal on-ramp during this period as on-ramp traffic merges with mainline traffic.

Ramp Terminal Intersections

The eastbound ramp terminal intersection is currently unsignalized with stop signs controlling all approaches. The westbound ramp terminal intersection (north of U.S. Highway 50) operates on a five-phase traffic signal coordinated with the signal at Saratoga Way (approximately 35 meters north). The close spacing of the two intersections requires coordinated operations to prevent queuing problems between the intersections. Table 5 summarizes the levels of service at the two ramp terminal intersections (see Appendix A of separately bound technical appendix for calculations).

Intersection	Control	AM Peak Hour LOS and Delay	PM Peak Hour LOS and Delay	Peak Hour Signal Warrant Met?
U.S. 50 WB ramps/El Dorado Hills Boulevard/Saratoga Way	Signalized ¹	E 46.6 sec/veh	D 27.9 sec/veh	-
U.S. 50 EB ramps/Latrobe Road	All-Way Stop	E 34 sec/veh	F >45 sec/veh	Yes

Notes: ¹ Analyzed as a single intersection due to close spacing and interconnected signal phasing.

Table 5 indicates that each intersection operates at LOS D or worse during each peak hour. A review of the peak hour signal warrant contained in the *Traffic Manual*, California Department of Transportation, 1991, indicates that the eastbound ramp intersection currently meets peak hour warrants for a traffic signal.

Accident History

Table 6 shows a summary of the traffic accident data in the vicinity of the interchange compiled for the Traffic Accident Surveillance and Analysis System (TASAS) provided by Caltrans for the three-year period between 1995 and 1997.

Table 6				
U.S. Highway 50 / El Dorado Hills Boulevard/Latrobe Road Interchange Accident History				
January, 1995 through December, 1997				
Location	Total Accidents in 3 yr period	Total Fatalities in 3 yr period	Actual Accident Rate	Average Accident Rate
U.S. Highway 50	33	0	0.83 per MVM	0.62 per MVM
Westbound on-ramp	7	0	0.93 per MV	0.80 per MV
Westbound off-ramp	6	0	1.35 per MV	1.50 per MV
Eastbound on-ramp	6	0	0.93 per MV	0.80 per MV
Eastbound loop off-ramp	8	0	1.06 per MV	1.40 per MV
Notes: MVM = Million vehicle miles.				
MV = Million vehicles.				
Source: Caltrans District 3 TASAS Table B Data.				

As this data indicates, the mainline segment through the interchange area experiences accidents at a rate higher than the statewide average, as does the eastbound on-ramp and the westbound on-ramp. None of the accidents resulted in a fatality.

III. TRAFFIC FORECASTS

As described in Chapter I, traffic forecasts were initially developed in 1995 and used as the basis of the initial alternatives analysis. These forecasts were later refined based on updated traffic count and land use assumptions for the revised analysis conducted in 1997 and 1998. The following describes the assumptions used for developing the initial traffic forecasts. The process used for the refined forecasts is described in Chapter VIII of this report.

Methodology

Traffic forecasts utilized in this study were developed as a part of the *U.S. Highway 50 Interchange Planning Study through Folsom and Western El Dorado County*, Fehr & Peers Associates, November, 1995. The study evaluated future demand and interchange needs for the entire corridor through Folsom and western El Dorado County. The following briefly summarizes the process undertaken to develop the traffic forecasts and the results for the El Dorado Hills Boulevard interchange. A more detailed discussion of the methodology used to develop the forecasts is provided in the *U.S. Highway 50 Interchange Planning Study* report.

In order to develop traffic forecasts for this study, the work performed by Caltrans District 3 for the U.S. Highway 50 / Prairie City Road Interchange Project Report in 1993 was updated to reflect the most recent land use and road network assumptions. Caltrans staff developed the Prairie City Model (PCM), which is an adaptation of the Sacramento Area Regional Model (SACMET) developed by the Sacramento Area Council of Governments. For the purposes of this study, the PCM was enhanced by the addition of zonal and network detail in East Folsom and western El Dorado County to more accurately reflect future travel conditions, particularly along the eastern end of the corridor where the 1994 El Dorado County General Plan includes several new development proposals. The final assumptions were based on direction by Caltrans, the City of Folsom and El Dorado County regarding land use and network changes for each planning horizon.

Land Use Assumptions

Three primary land use data sources were reviewed for this effort: the Prairie City Model (1993), the Folsom East Area Facilities Plan Model (1992) and the El Dorado County General Plan Model (1994). For the 2005 condition, this study used the Prairie City Model development data for the Folsom districts, as they generally seemed reasonable for this study. No development was assumed for the Sacramento County districts south of Folsom. In El Dorado County, year 2005 development levels were derived by interpolation between the County's 1990 base data and the 2015 market data provided by County staff. It should be noted that the net increase from the 2005 Prairie City Model to the 2005 Highway 50 Corridor Study Model is 4,185 units and 3,075 jobs because of the increased development in

El Dorado County. This represents a 14 percent increase in residential units and a 6 percent increase in employment over that assumed for the Prairie City Model analysis.

For the 2020 condition, residential units and employment from the PCM were increased in the Folsom area by 1 percent per year for five years up from 2015, unless it was already built out according to the Folsom General Plan. No new development was assumed for the Sacramento County districts. In El Dorado County, the County's market based 2015 projections were increased by 2.71 percent annually for residential units and 3.7 percent annually for employment between 2015 and 2020 based on annual growth rates supplied by El Dorado County. It should be noted that the net increase from the 2015 Prairie City Model to the 2020 Highway 50 Corridor Study Model is 12,265 units or 2,453 units per year. Employment is projected to grow by 2,622 jobs per year. This represents a substantial increase in housing (28 percent) and employment (17 percent) over that assumed by Caltrans in the 2015 Prairie City Model - most of which is projected to occur in El Dorado County.

An important refinement to the traffic model that complimented the increased development with the 2005 and 2020 scenarios was the addition of traffic analysis zone detail throughout the study area. This additional zonal detail is consistent with the level of increased development for each scenario.

Road Network Assumptions

Assumptions for the road network were developed after reviewing the data contained in the Prairie City Model, the Folsom General Plan and the El Dorado County General Plan. In general, road network assumptions were held consistent with the plans from each applicable jurisdiction.

Caltrans and the affected local jurisdictions reviewed and approved the land use and roadway network assumptions for both the 2005 and 2020 scenarios before they were used to generate traffic forecasts.

Initial Traffic Forecasts

Forecasts of daily volumes were developed using the traffic model. Morning and evening peak hour volumes for the interchange were developed by estimating peak hour percentages using existing peaking information. Minor adjustments in volumes were made to reflect future expectations of lower peak hour percentages due to increases in congestion duration. Figure 3 displays the 2005 and 2020 peak hour traffic demand forecasts for the mainline and each ramp terminal intersection.

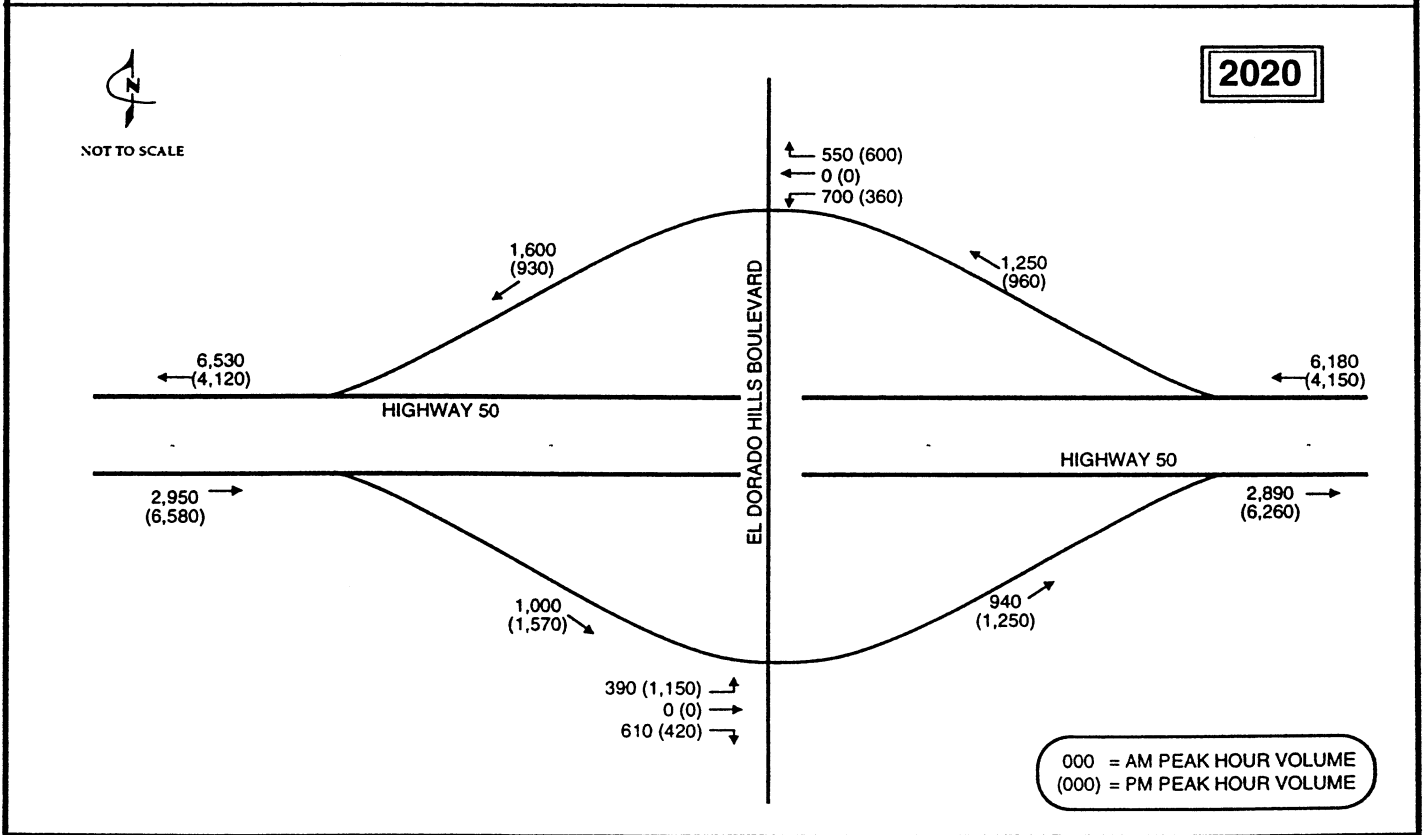
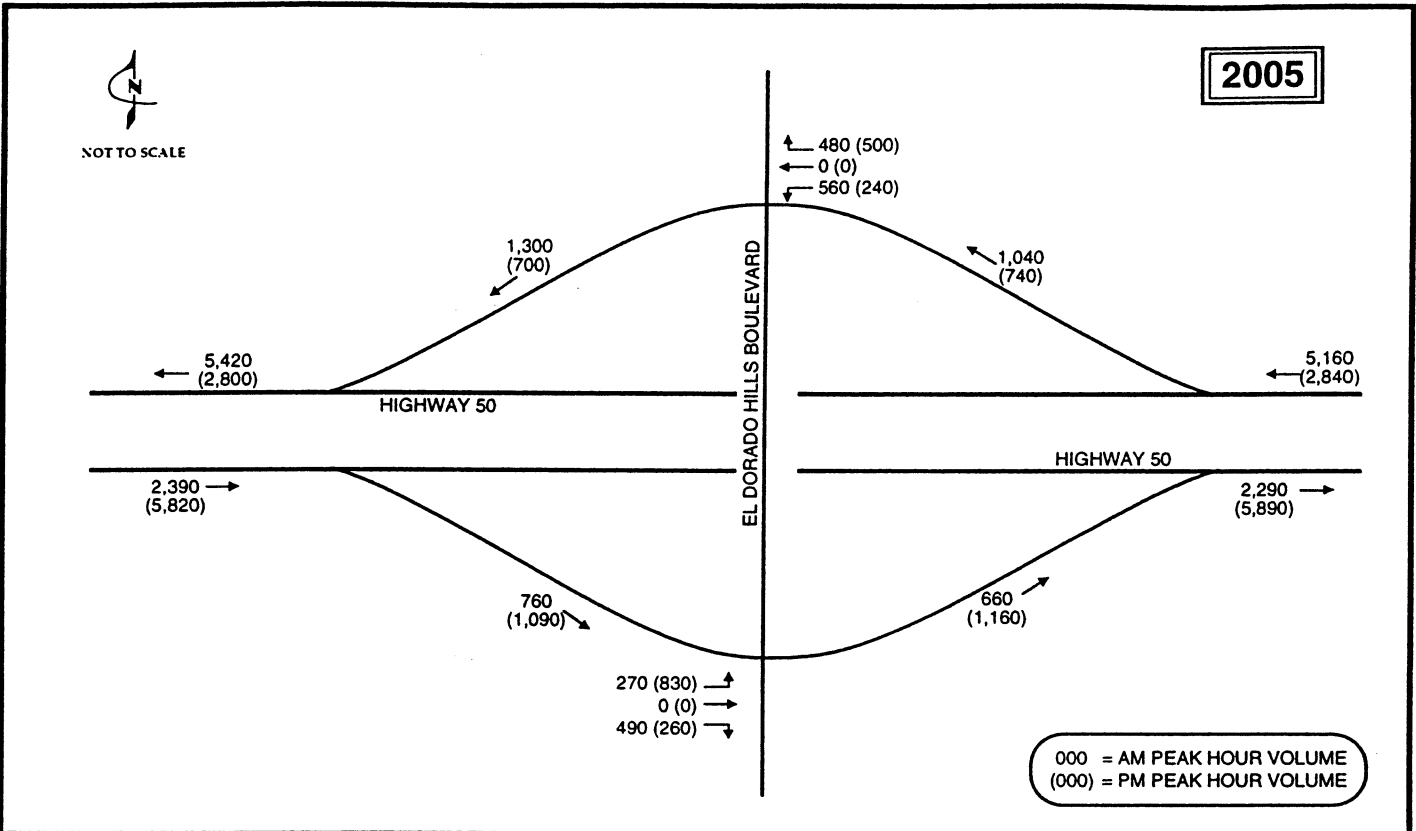


FIGURE 3

FUTURE YEAR TRAFFIC DEMAND FORECASTS

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As shown on Figure 3, the predominant travel direction on the mainline will continue to be to and from the west. The projected increase in employment for Folsom and western El Dorado County will result in somewhat higher eastbound volumes. However, for the morning peak hour, the eastbound traffic volumes are not expected to reach the levels of westbound traffic in the evening commute period.

IV. PROJECT ALTERNATIVES SCREENING PROCESS

A four-step screening process was undertaken to evaluate alternative interchange configurations and to select a preferred interchange. This chapter provides a description of the screening process, while the subsequent chapters document the more detailed analysis of alternatives.

Step 1 - Preliminary Analysis of Initial Alternatives

Six alternative interchange configurations were initially identified for preliminary evaluation. The general operational characteristics of the ramp terminal intersections for each configuration were analyzed to determine the relative advantages and disadvantages of each alternative. This step is summarized in Chapter V of this report.

Step 2 - Analysis of Screened Alternatives

Based on the operational characteristics of each alternative, as well as input provided by Caltrans and El Dorado County Department of Transportation staff, three screened alternatives were identified for more detailed analysis. Ramp terminal intersections, storage requirements, and other operational issues were analyzed for each screened alternative under both 2005 and 2020 conditions. This step is summarized in Chapter VI of this report.

Step 3 - Analysis of the Public Input Alternatives

Following completion of the initial analysis (Steps 1 and 2), El Dorado County undertook an extensive public input process wherein several other alternatives were suggested. Each alternative was evaluated at a fatal-flaw level to consider whether it warranted further study. This step is summarized in Chapter VII of this report.

Step 4 - Detailed Analysis of Preferred Configuration

Based on the results of Steps 1-3, a preferred configuration was selected. Additional analysis focused on mainline segment and ramp junction analysis, ramp metering, corridor operations and phasing of the ultimate improvements. This step is summarized in Chapter VIII of this report.

V. ANALYSIS OF INITIAL ALTERNATIVES

Figure 4 displays the configuration of six alternatives initially considered. A general description of each is given below.

Alternative 1 - consists of the current interchange configuration with additional lanes to handle the expected demand in 2020. At the eastbound ramp intersection, additional left-turn lanes would be added to the loop off-ramp approach and the southbound Latrobe Road approach. Additional left-turn lanes would also be added to the westbound and northbound approaches at the westbound ramp intersection. Both intersections would be signalized.

Alternative 2 - is a modified L-8 partial cloverleaf interchange configuration with loop off-ramps in the northwest and southeast quadrants and diagonal off- and on-ramps for eastbound and westbound traffic on U.S. 50. Alternative 2 includes a six-lane undercrossing with signalized operations at both ramp terminal intersections. The westbound diagonal off-ramp would be stop-sign controlled.

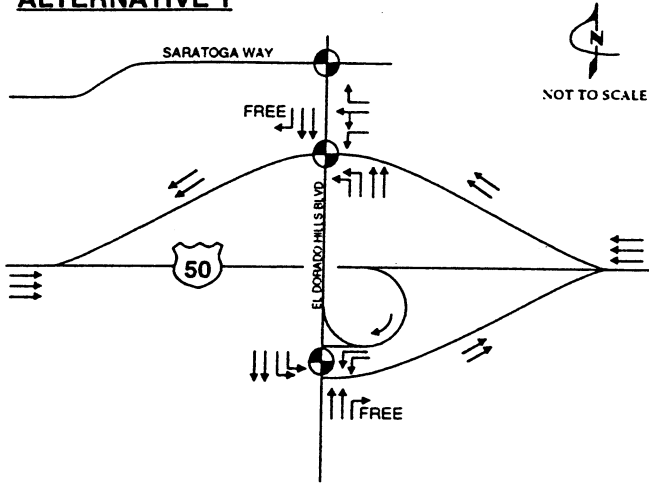
Alternative 3 - is also a modified type L-8 configuration. It is similar to Alternative 2, but excludes the diagonal westbound off-ramp. Instead, this demand would be accommodated via two left-turn lanes from the westbound loop off-ramp. In addition, a single 'free' right-turn lane would serve the demand on the eastbound diagonal off-ramp.

Alternative 4 - is a type L-8 configuration, similar to Alternative 3, but excludes the diagonal eastbound off-ramp. Instead, the eastbound loop off-ramp will consist of two left-turn lanes to serve the demand.

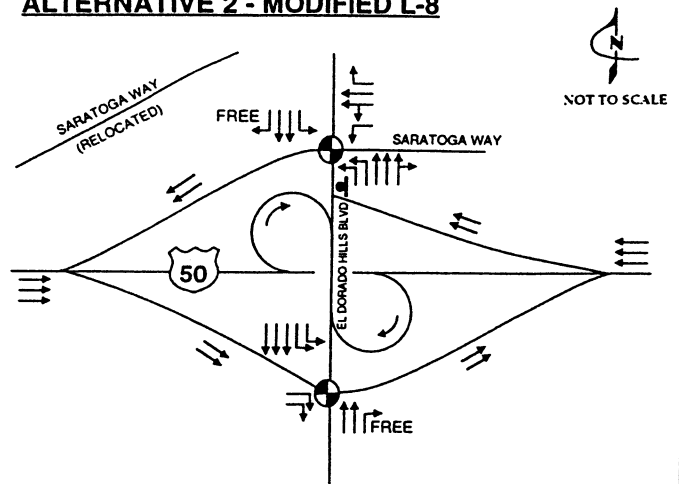
Alternative 5 - is a type L-9 configuration. It consists of loop on-ramps in the northeast and southwest quadrants and diagonal off- and on-ramps for eastbound and westbound traffic on U.S. 50.

Alternative 6 - includes an eastbound loop off-ramp and eastbound diagonal on- and off-ramps. In the westbound direction, the diagonal on- and off-ramps would remain in their present locations. West of El Dorado Hills Boulevard, Saratoga Way would be relocated to intersect at Park Drive. The westbound approach of Saratoga Way to El Dorado Hills Boulevard would be stop-controlled with left-turns to El Dorado Hills Boulevard prohibited.

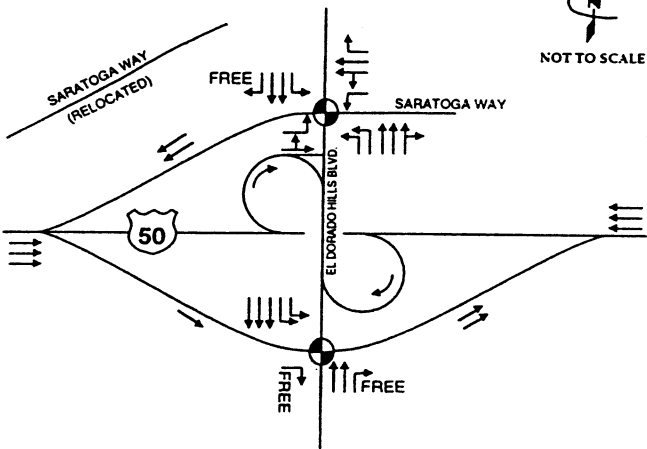
ALTERNATIVE 1



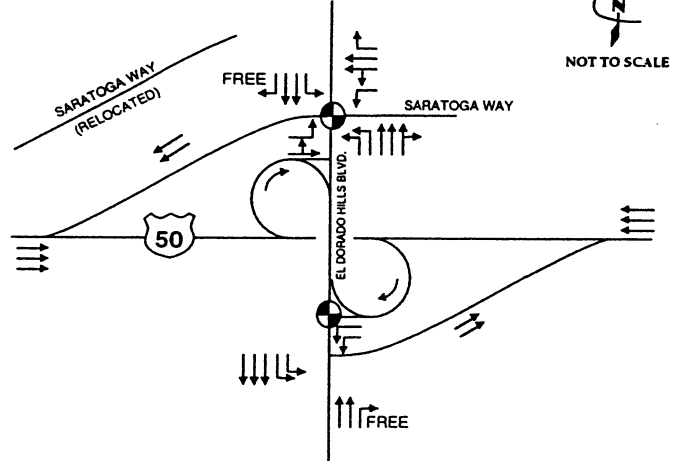
ALTERNATIVE 2 - MODIFIED L-8



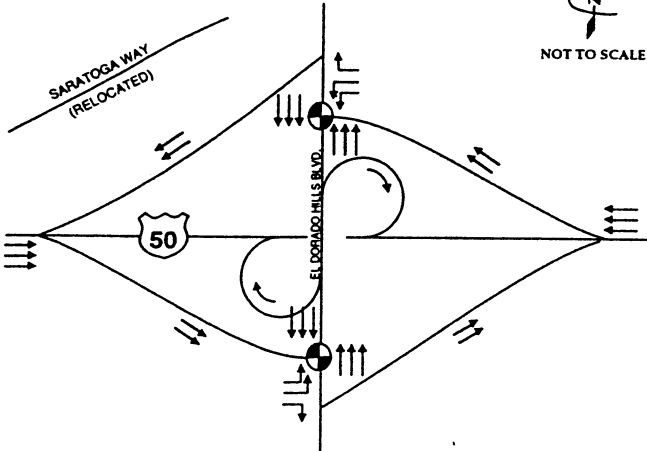
ALTERNATIVE 3 - MODIFIED L-8



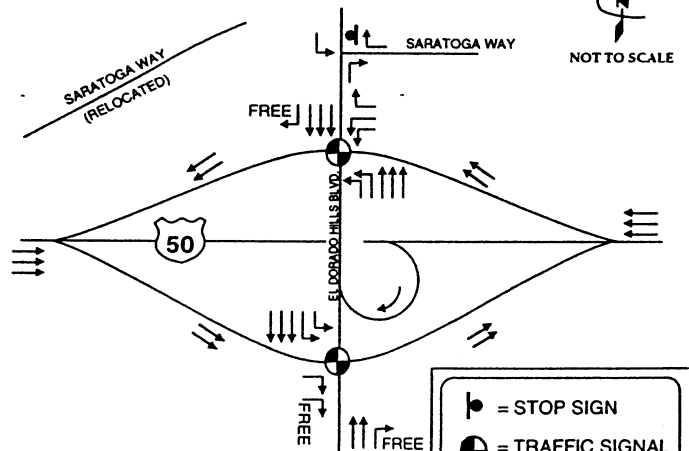
ALTERNATIVE 4 - TYPE L-8



ALTERNATIVE 5 - TYPE L-9



ALTERNATIVE 6 - MODIFIED L-8





 = STOP SIGN
 = TRAFFIC SIGNAL

FIGURE 4

PRELIMINARY INTERCHANGE ALTERNATIVES

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Operations Analysis

To evaluate the operational effectiveness of the initial alternatives, each was analyzed under 2020 conditions. Table 7 summarizes operating conditions for each ramp terminal intersection in 2020 under the each alternative.

Preliminary Alternative	Eastbound Ramp Intersection		Westbound Ramp Intersection	
	AM LOS Delay	PM LOS Delay	AM LOS Delay	PM LOS Delay
Alternative 1	C - 22.9 sec/veh	C - 16.7 sec/veh	C - 18.0 sec/veh	F - +60 sec/veh
Alternative 2	B - 10.9 sec/veh	B - 11.8 sec/veh	B - 11.2 sec/veh	B - 14.2 sec/veh
Alternative 3	B - 5.6 sec/veh	B - 8.0 sec/veh	C - 24.0 sec/veh	C - 24.7 sec/veh
Alternative 4	C - 15.5 sec/veh	C - 16.8 sec/veh	C - 21.0 sec/veh	C - 21.7 sec/veh
Alternative 5	B - 14.3 sec/veh	B - 12.1 sec/veh	B - 12.2 sec/veh	B - 12.4 sec/veh
Alternative 6	B - 12.0 sec/veh	B - 13.7 sec/veh	C - 15.5 sec/veh	C - 15.6 sec/veh

Note: Results are based on intersection operations including movements controlled by the traffic signal. Free-flowing movements not controlled by the signal are not included.

The results indicate that Alternatives 2-6 would provide acceptable ramp terminal intersection operations in 2020. Each would provide level of service 'C' or better during the a.m. and p.m. peak hours. Alternative 1 fails to operate acceptably at the westbound ramp intersection during the p.m. peak hour. This is due to the inability of two through lanes to handle the heavy northbound p.m. peak hour through volume and the close proximity of the westbound ramp intersection and the Saratoga Way intersection.

Selection of Screened Alternatives

Based on the results of the initial operations analysis, as well as several other design and environmental factors, the list of six initial interchange alternatives was reduced to three screened alternatives. Alternatives 2, 3, and 6 were selected for further analysis. Alternative 1 was eliminated because the ramp intersection analysis failed to provide acceptable operations, and the close proximity of Saratoga Way to the westbound ramp intersection caused high levels of congestion. Alternative 4 was not carried forward because although its configuration is similar to Alternative 3, its operations were not as good. Alternative 5 was eliminated because it involved substantial land use/property impacts, but did not provide substantially improved operations in comparison to the other alternatives.

VI. ANALYSIS OF SCREENED ALTERNATIVES

To further the screening process, Alternatives 2, 3, and 6 were evaluated in greater detail. This section summarizes the future year operations analysis of the alternatives for both 2005 and 2020 conditions.

2005 Conditions

Ramp Terminal Intersections

The ramp terminal intersections were evaluated assuming traffic signals in place for alternatives. Table 8 summarizes the levels of service at the intersections in 2005 (see Appendix C of separately bound technical appendix for calculations).

Intersection	AM (PM) Peak Hour Levels of Service		
	Alternative 2	Alternative 3	Alternative 6
U.S. Highway 50 WB Ramps/ El Dorado Hills Boulevard	B – 10.2 sec/veh (B – 12.3 sec/veh)	C – 18.0 sec/veh (C – 22.1 sec/veh)	B – 14.7 sec/veh (B – 14.6 sec/veh)
U.S. Highway 50 EB Ramps/Latrobe Road	B – 10.0 sec/veh (B – 10.9 sec/veh)	A – 4.9 sec/veh (B – 7.8 sec/veh)	B – 10.5 sec/veh (B – 12.6 sec/veh)
El Dorado Hills Boulevard / Park Drive	B – 10.6 sec/veh (C – 20.7 sec/veh)	B – 10.6 sec/veh (C – 20.7 sec/veh)	B – 11.3 sec/veh (D – 25.4 sec/veh)
Note: Results are based on intersection operations including movements controlled by the traffic signal. Free-flowing movements not controlled by the signal are not included.			

As indicated in Table 8, each intersection will operate acceptably in 2005 under each screened alternative. Alternative 3 provides a slightly lower quality of operations at the westbound ramp intersection due to the removal of the diagonal westbound off-ramp. The various land configurations (free rights vs. signalized rights) on the eastbound approach at the eastbound ramp intersection display similar levels of service.

Storage Requirements

The storage requirements were computed for each movement under each screened alternative (see Table 9). The values shown represent the storage capacity necessary so that less than five percent of queues exceed the available capacity. In the calculation, it was assumed that each queued vehicle was seven meters in length. Based on a review of the preliminary plans, no storage problems are anticipated in 2005.

Table 9			
Ramp Intersection Storage Requirements - 2005 Conditions			
Intersection	AM (PM) Ramp Storage Requirements (meters)		
	Alternative 2	Alternative 3	Alternative 6
Eastbound Ramp Intersection			
Eastbound right turn (2 lanes/ free/ 1 lane)	84 (56)	free	70 (49)
Northbound through (2 lanes)	84 (154)	84 (154)	84 (154)
Northbound right turn (free)	free	free	free
Southbound left turn (2 lanes)	84 (98)	84 (98)	84 (98)
Southbound through (3 lanes)	98 (49)	98 (49)	98 (49)
Westbound Ramp Intersection			
Eastbound left turn (2 lanes)	n.a.	84 (84)	n.a.
Northbound left turn (2 lanes)	56 (77)	56 (77)	56 (77)
Northbound through / right turn (3 lanes)	112 (189)	70 (147)	70 (147)
Westbound left turn (1 lane/ 1 lane/ 2 lanes)	28 (49)	28 (49)	71 (49)
Westbound left/through (2 lanes/ 2 lanes/ n.a.)	21 (56)	21 (56)	n.a.
Westbound right turn (1 lane)	21 (56)	21 (56)	133 (140)
Southbound left turn (1 lane / 1 lane / n.a.)	28 (42)	28 (42)	n.a.
Southbound through (2 lanes/ 2 lanes/ 3 lanes)	126 (112)	126 (112)	91 (77)
Southbound right turn (free)	free	free	free
Notes: Storage lengths calculated using the Poisson distribution queuing equation. Cycle lengths for each intersection assumed to be 90 seconds. n.a. = not applicable.			

2020 Conditions

Ramp Terminal Intersections

The ramp terminal intersections were evaluated under projected traffic conditions in 2020. Table 10 summarizes the levels of service at the intersections (see Appendix B for calculations).

Table 10			
Ramp Terminal Intersection Analysis - 2020 Conditions			
Intersection	AM (PM) Peak Hour Levels of Service		
	Alternative 2	Alternative 3	Alternative 6
U.S. Highway 50 WB Ramps / El Dorado Hills Boulevard	B – 11.4 sec/veh (B – 14.2 sec/veh)	C – 24.0 sec/veh (C – 24.7 sec/veh)	C – 15.5 sec/veh (C – 15.6 sec/veh)
U.S. Highway 50 EB Ramps / Latrobe Road	B – 10.9 sec/veh (B – 11.8 sec/veh)	B – 5.6 sec/veh (B – 8.0 sec/veh)	B – 12.0 sec/veh (B – 13.7 sec/veh)
El Dorado Hills Boulevard/Park Drive	B – 14.9 sec/veh (D – 36.5 sec/veh)	B – 14.9 sec/veh (D – 36.5 sec/veh)	C – 15.6 sec/veh (F – +60 sec/veh)
Note: Results are based on intersection operations including movements controlled by the traffic signal. Free-flowing movements not controlled by the signal are not included.			

Table 10 indicates that each alternative will provide acceptable intersection operations in 2020. The best level of service at the U.S. Highway 50 westbound ramps / El Dorado Hills Boulevard intersection is achieved under Alternative 2. As with the 2005 analysis, the various lane configurations (free rights vs. signalized rights) on the eastbound ramp intersection display similar levels of service under 2020 conditions.

The El Dorado Hills Boulevard/Park Drive intersection is projected to operate at LOS F during the p.m. peak hour under Alternative 6. This is due to the elimination of access to southbound El Dorado Hills Boulevard from the adjacent shopping center via Saratoga Way. Instead, nearly all of the heavy movement out of the shopping center (southbound) is forced to use Park Drive, which features only two approach lanes. Widening of this approach would be difficult and very expensive due to topographical constraints.

Storage Requirements

The storage requirements were computed for each movement under each screened alternative (see Table 11). The values shown represent the storage capacity necessary so that less than five percent of queues exceed the available capacity. In the calculation, it was assumed that each queued vehicle was seven meters in length. Based on a review of the preliminary plans, no storage problems are anticipated in 2020.

Table 11			
Ramp Intersection Storage Requirements - 2020 Conditions			
Intersection	AM (PM) Ramp Storage Requirements (meters)		
	Alternative 2	Alternative 3	Alternative 6
<i>Eastbound Ramp Intersection</i>			
Eastbound right turn (2 lanes/ free/ 1 lane)	198 (77)	free	84 (56)
Northbound through (2 lanes)	119 (182)	119 (182)	119 (182)
Northbound right turn (free)	free	free	free
Southbound left turn (2 lanes)	98 (105)	98 (105)	98 (105)
Southbound through (3 lanes)	119 (70)	119 (70)	119 (70)
<i>Westbound Ramp Intersection</i>			
Eastbound left turn (2 lanes)	n.a.	91 (98)	n.a.
Northbound left turn (2 lanes)	70 (91)	70 (91)	70 (91)
Northbound through / right turn (3 lanes)	133 (224)	91 (182)	91 (182)
Westbound left turn (1 lanes/ 1 lane/ 2 lanes)	28 (49)	28 (49)	112 (70)
Westbound left/through (2 lanes/ 2 lanes / n.a.)	21 (56)	21 (56)	n.a.
Westbound right turn (1 lane)	21 (56)	21 (56)	147 (161)
Southbound left turn (1 lane/ 1 lane / n.a.)	28 (42)	28 (42)	n.a.
Southbound through (2 lanes/ 2 lanes/ 3 lanes)	154 (126)	154 (126)	112 (70)
Southbound right turn (free)	free	free	free
Notes: Storage lengths calculated using the Poisson distribution queuing equation. Cycle lengths for each intersection assumed to be 90 seconds. n.a. = not applicable.			

Conclusions and Recommendations

The following provides a summary of the conclusions and recommendations resulting from the analysis of the three screened interchange alternatives.

Alternatives Comparison

Table 12 provides a summary of traffic-related advantages and disadvantages of each alternative.

Table 12 Traffic-Related Advantages and Disadvantages of the Screened Alternatives		
Alternative	Advantages	Disadvantages
Alternative 2	<ul style="list-style-type: none"> • Results in acceptable levels of service at both ramp intersections. • Relocation of Saratoga Way intersection improves spacing of signals. • Fewer conflicting movements at the eastbound ramp intersection. 	<ul style="list-style-type: none"> • Westbound diagonal off-ramp intersects El Dorado Hills Boulevard just south of Saratoga Way intersection which could result in queuing problems back onto the mainline. • Loop off-ramps not considered desirable by Caltrans.
Alternative 3	<ul style="list-style-type: none"> • Results in acceptable levels of service at both ramp intersections. • Relocation of Saratoga Way intersection improves spacing of signals. • Fewer conflicting movements at the eastbound ramp intersection. • Avoids need for WB diagonal off-ramp with only minor deterioration in LOS (B to C). 	<ul style="list-style-type: none"> • Loop off-ramps not considered desirable by Caltrans.
Alternative 6	<ul style="list-style-type: none"> • Results in acceptable levels of service at both ramp intersections. • Relocation of Saratoga Way intersection spacing of signals. • Avoids construction of additional loop off-ramps. 	<ul style="list-style-type: none"> • Would hinder access to existing developments by eliminating the left-turn egress. • Results in LOS F operations at the El Dorado Hills Blvd/Park Drive intersection in 2020.

Recommendations

Given the traffic-related advantages and disadvantages of each of the screened alternatives, Alternative 3 was selected as the preferred configuration. Alternative 6 was eliminated because it would result in LOS F operations at the El Dorado Hills Boulevard/Park Drive intersection in 2020. Alternative 2 was not considered as effective as Alternative 3 because of the potential for queuing problems associated with the westbound diagonal off-ramp under Alternative 2.

In terms of the eastbound off-ramp movements, the analysis indicates that the traffic volumes can be accommodated via dual left-turn lanes from the loop off-ramp. However, it is recommended that right-of-way be preserved for the potential addition of a diagonal off-ramp should the volumes dictate the need in the future. Caltrans also recommended that an exclusive right-turn lane be provided for northbound El Dorado Hills Boulevard traffic at the westbound ramp intersection.

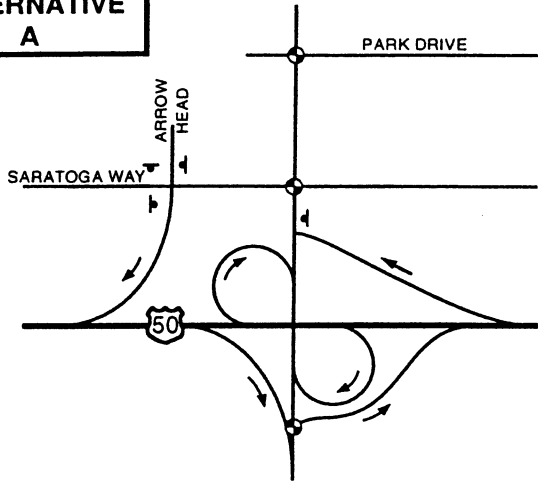
Chapter VIII of this report provide a more detailed analysis of this preferred alternative and the phasing of the improvements is discussed in more detail in Chapter IX.

VII. ANALYSIS OF THE PUBLIC INPUT ALTERNATIVES

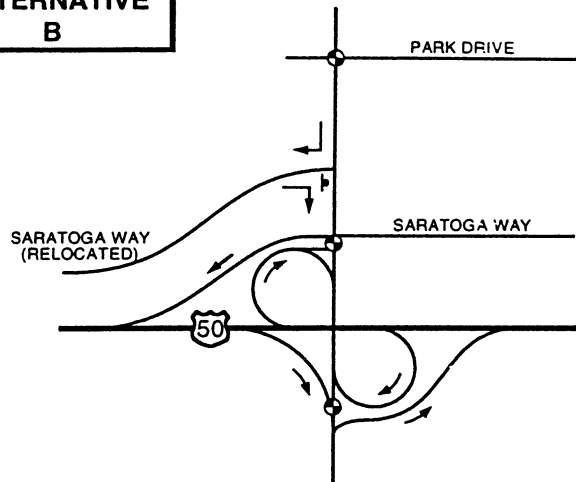
Beginning in early 1997, El Dorado County undertook an extensive public input process wherein meetings were held with key stakeholders (i.e., area homeowners and business owners) to discuss the results and to consider additional suggestions. A total of ten alternatives were considered in some detail in conjunction with that process. These alternatives were given letter designations (i.e., A-J) to distinguish them from the number alternatives described above.

Figure 5 displays the general features of each of the public input alternatives. A “fatal flaw” level of analysis was conducted for each alternative in order to provide a comparison of its operations to the others previously considered. In general, the results of the analysis indicated that these options did not provide the same level of operational benefit as the preferred alternative (3). In the case of Alternatives A, B, C, F, H, I, and J, the close spacing of intersections would cause LOS F and vehicular queuing and weaving concerns. Alternatives D and G would involve a substantial increase in cost and would also fail to provide acceptable operations. Alternative E is essentially the configuration of the preferred alternative with slightly modified geometrics in the northwest quadrant to allow for more distance between the interchange and the adjacent residences. More detailed summary of the analysis of each alternative is contained in the separately-bound appendix to this report.

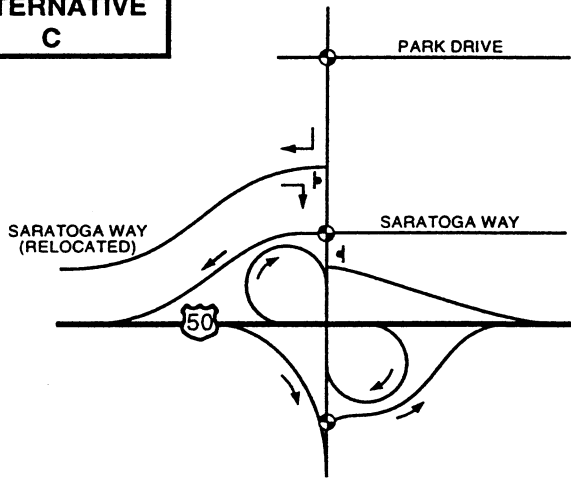
ALTERNATIVE A



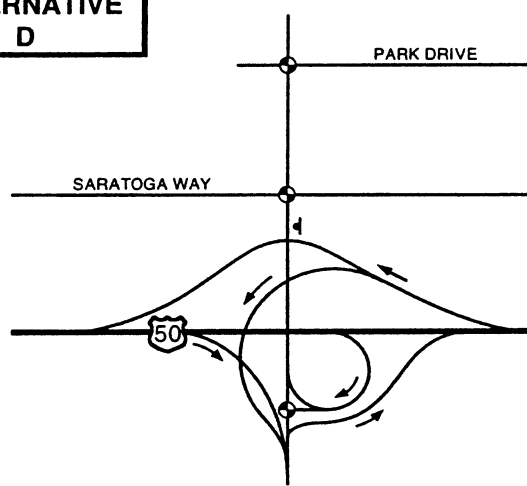
ALTERNATIVE B



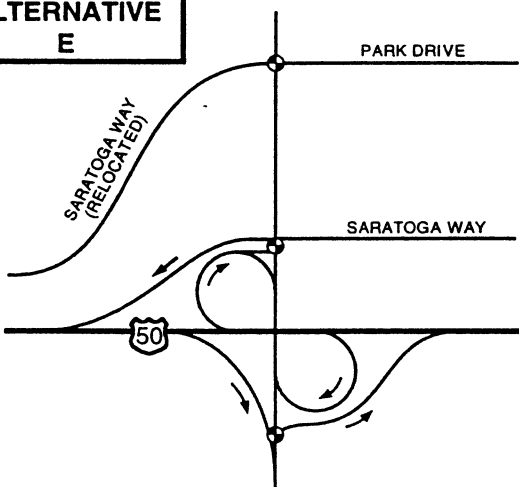
ALTERNATIVE C



ALTERNATIVE D



ALTERNATIVE E



Not To Scale

LEGEND:

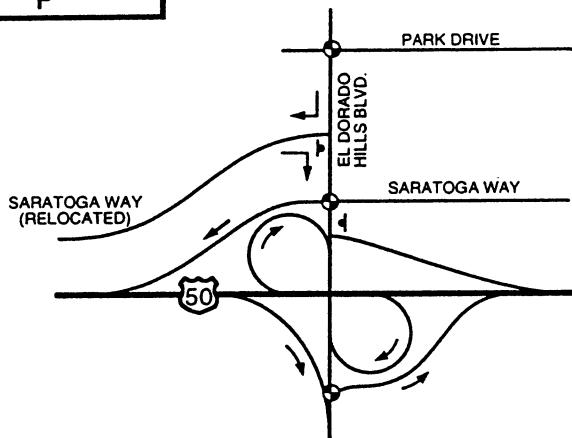
-  = STOP SIGN
-  = TRAFFIC SIGNAL

FIGURE 5

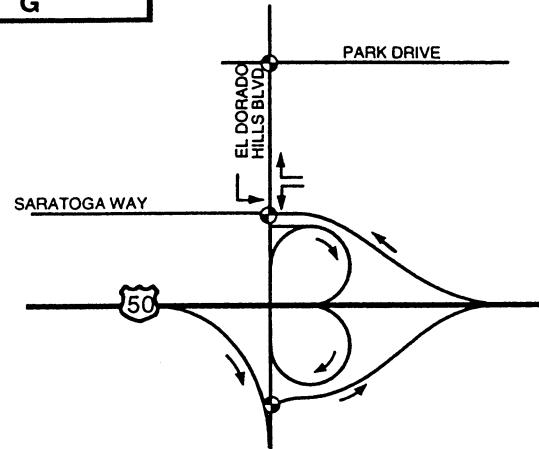
INTERCHANGE ALTERNATIVES

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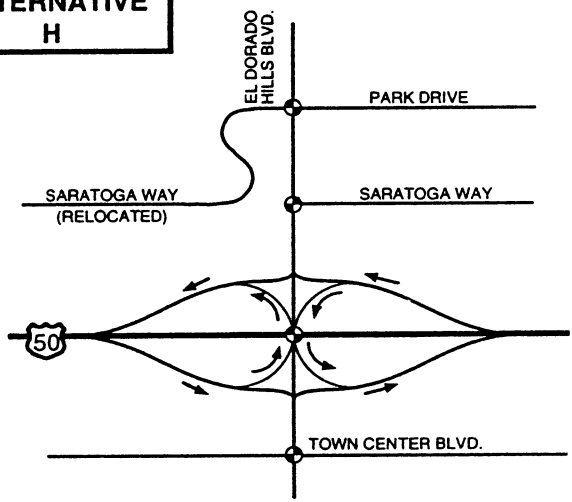
ALTERNATIVE F



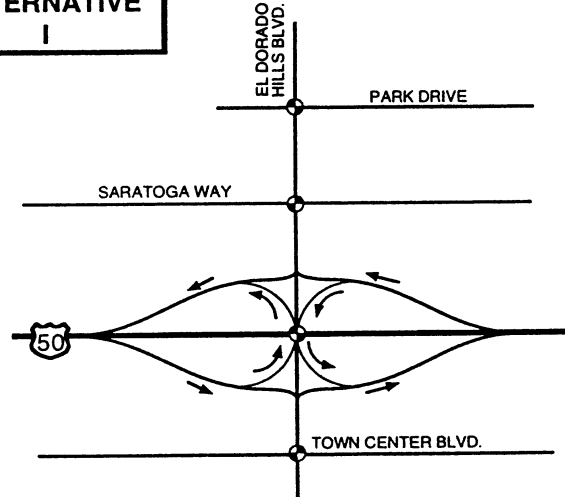
ALTERNATIVE G



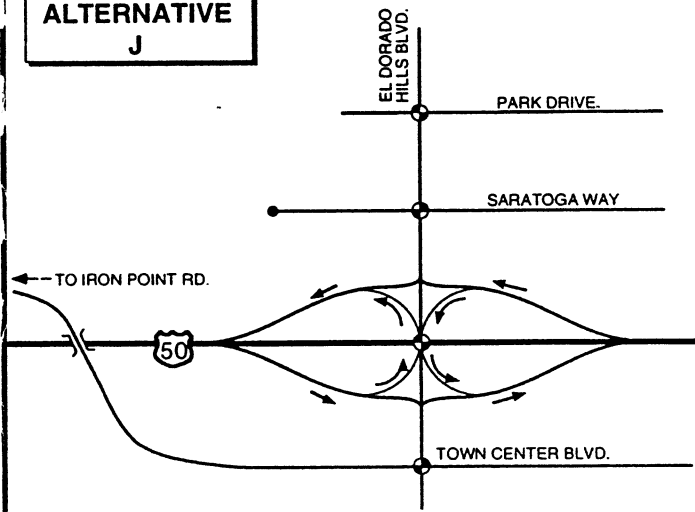
ALTERNATIVE H



ALTERNATIVE I



ALTERNATIVE J



LEGEND:



-  = STOP SIGN
-  = TRAFFIC SIGNAL

FIGURE 5 (con't)

INTERCHANGE ALTERNATIVES

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VIII. ANALYSIS OF THE PREFERRED ALTERNATIVE

The next level of detailed analysis conducted for the preferred alternative included an assessment of the mainline segments, ramp junctions, and ramp terminal intersections under both 2005 and 2020 conditions. A signal progression analysis of the El Dorado Hills Boulevard/Latrobe Road corridor was also conducted under 2020 conditions to determine whether the corridor would function acceptably under a worst case scenario. A ramp metering analysis was conducted for 2005 conditions because estimating the effects of ramp metering is very difficult beyond the ten-year horizon.

It should be noted that for the purposes of this report, the “preferred alternative” is defined as Alternative 3 with Saratoga Way being realigned as a four-lane roadway and intersecting El Dorado Hills Boulevard at Park Drive. While the El Dorado County General Plan identifies the ultimate need for four lanes on Saratoga Way east of El Dorado Hills Boulevard, the *Draft Environmental Impact Report for the U.S. 50/El Dorado Hills Boulevard/Latrobe Road Interchange Improvements*, Jones and Stokes Associates, 1999 also considers the impacts of this road with only two lanes.

Refined Traffic Forecasts

As documented above, slight refinements were made to the traffic forecasts in 1998 to be more consistent with the 1996 El Dorado County General Plan and traffic model analysis and in consideration of more recent traffic count information collected in 1997 and 1998. Figures 6 and 7 show the refined morning and evening peak hour traffic volumes at each intersection under 2005 and 2020 conditions, respectively. The year 2005 forecasts were developed by linearly interpolating between the existing and 2020 volumes.

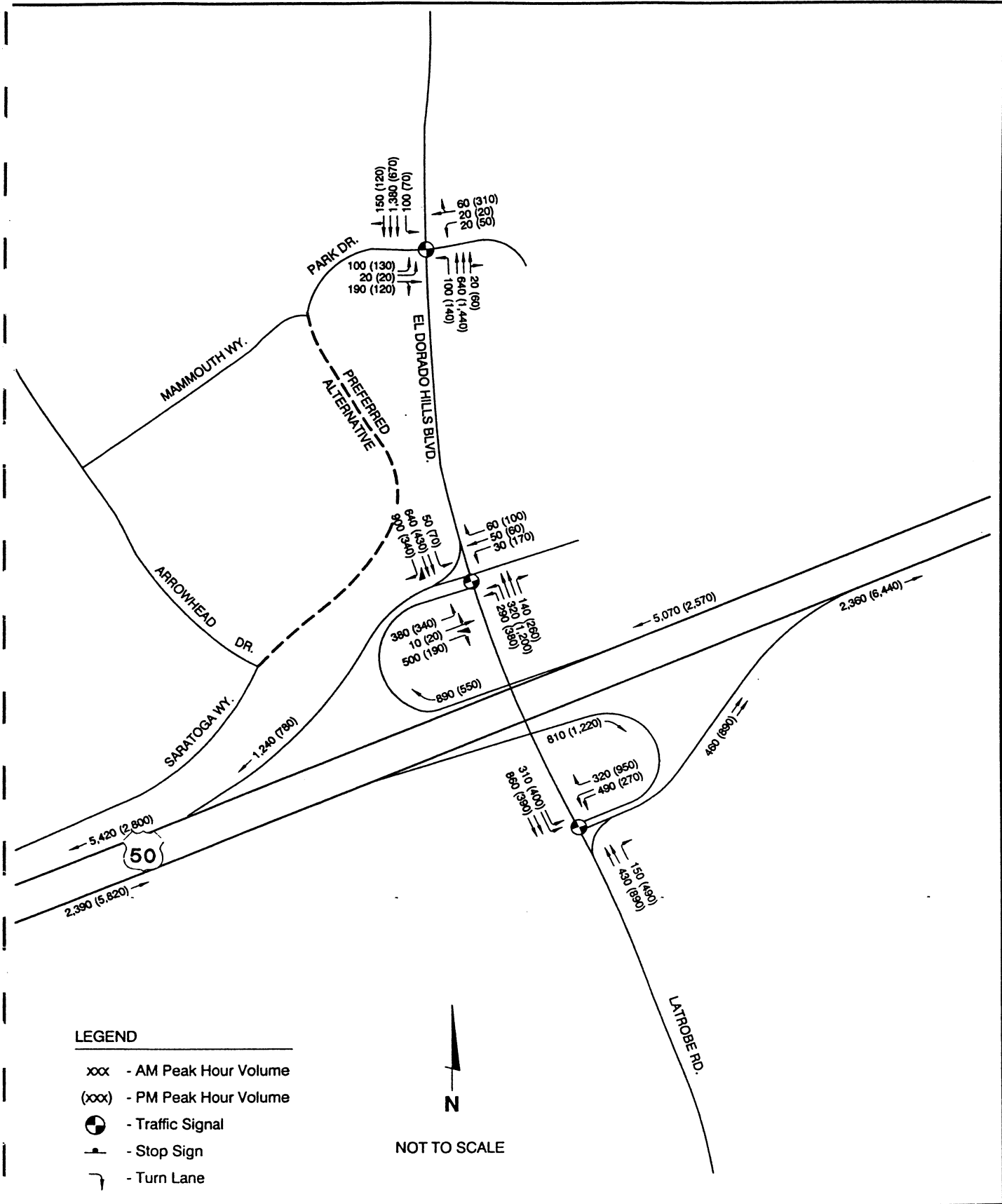


FIGURE 6

PEAK HOUR TRAFFIC VOLUMES UNDER INTERIM (2005) CONDITIONS WITH PREFERRED ALTERNATIVE

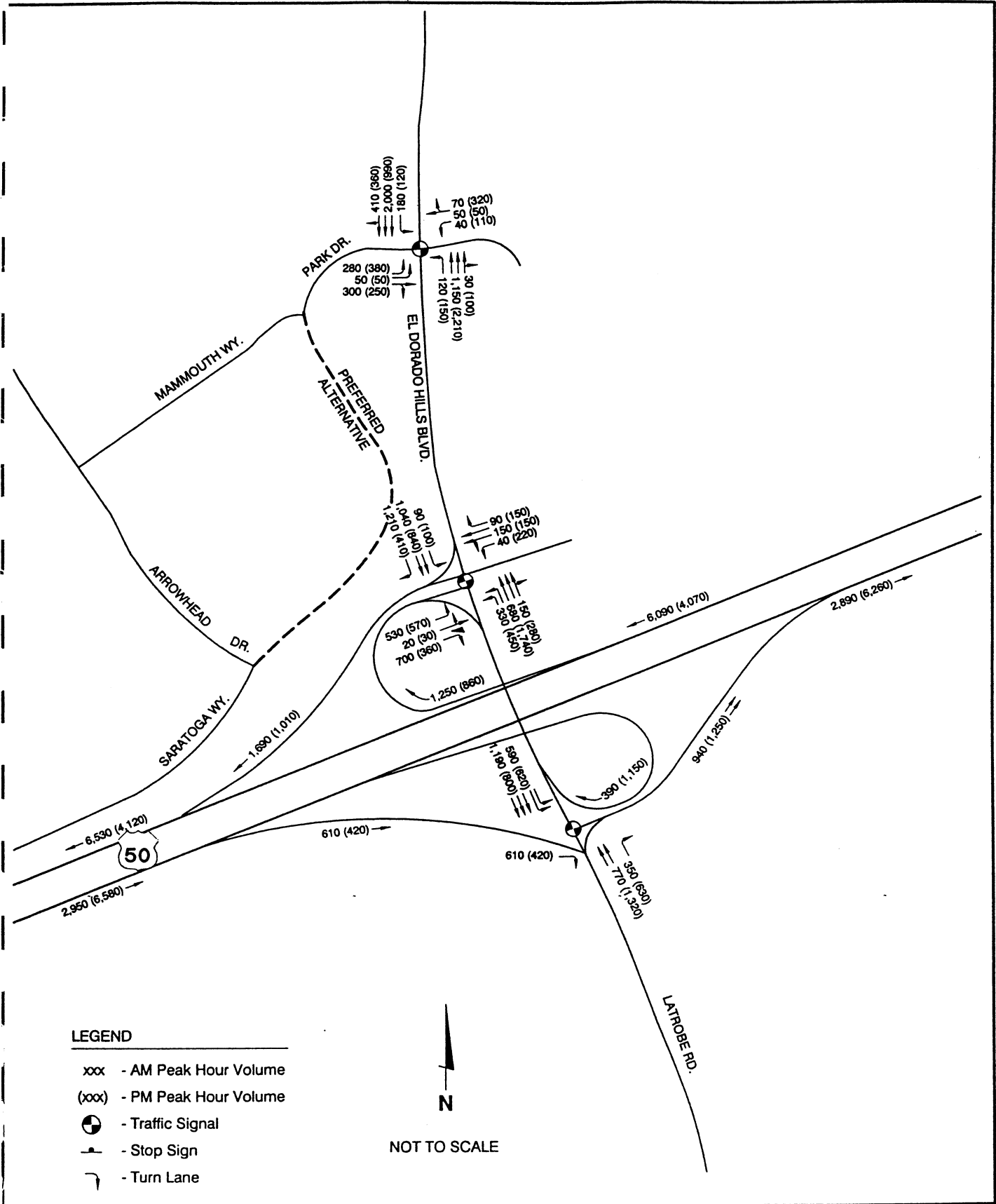


FIGURE 7

PEAK HOUR TRAFFIC VOLUMES UNDER CUMULATIVE (2020) CONDITIONS WITH PREFERRED ALTERNATIVE

Operations Analysis – Year 2005 Conditions

Operations were evaluated on mainline U.S. 50 in the vicinity of the El Dorado Hills Boulevard/Latrobe Road interchange during the a.m. and p.m. peak hours under year 2005 conditions. The results are summarized in Table 13.

Table 13 Mainline U.S. 50 Peak Hour Levels of Service – Year 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	19	C

Notes: Assumes that HOV lanes are extended to the interchange by 2005.
* = Demand exceeds capacity.

Table 13 indicates that LOS F operations are expected on westbound U.S. 50 during the a.m. peak hour and eastbound U.S. 50 during the p.m. peak hour on both sides of the El Dorado Hills Boulevard/Latrobe Road interchange under either of the interchange alternatives.

Operations were also evaluated under year 2005 conditions at each of the interchange ramp junctions during the a.m. and p.m. peak hours. The results are summarized in Table 14 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 because of the extreme congestion on mainline U.S. 50.

Table 14 Ramp Junction Peak Hour Levels of Service – Year 2005 Conditions		
Ramp	Level of Service	
	A.M. Peak Hour	P.M. Peak Hour
Eastbound Loop Off-Ramp ¹	Under Capacity	Under Capacity
Eastbound Diagonal On-Ramp	C	F
Westbound Loop Off-Ramp	F	D
Westbound Diagonal On-Ramp	F	C

Note:¹ The outside lane on eastbound U.S. 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.
² Assumes that the off-ramp junction is prior to the addition of the mainline HOV lane.

Table 15 summarizes the a.m. and p.m. peak hour levels of service at each study intersection under year 2005 conditions. This table shows that each ramp terminal intersection is expected to operate at LOS D or better during the a.m. and p.m. peak hours.

Intersection	Control	A.M. (P.M.) Peak Hour	
		Average Delay (sec/veh)	Level of Service
Latrobe Road/ U.S. 50 EB Ramps	Signalized	21.1 (27.5)	C (D)
El dorado Hills Boulevard/ U.S. 50 WB Ramps	Signalized	19.8 (18.7)	C (C)
El Dorado Hills Boulevard/ Park Drive	Signalized	14.6 (21.3)	B (C)

Operations Analysis – Year 2020 Conditions

Operations were evaluated on mainline U.S. 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 are summarized in Table 16.

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

Note: These results assume eight lanes on U.S. 50 consistent with the El Dorado County General Plan.

Table 16 indicates that LOS D operations are expected on westbound U.S. 50 during the a.m. peak hour and eastbound U.S. 50 during the p.m. peak hour on either side of the El Dorado Hills Boulevard/Latrobe Road interchange. This improvement in operations is due to the planned widening of U.S. 50 to include three mixed-use lanes and one HOV lane in each direction according to the El Dorado County General Plan.

Operations were also evaluated under year 2020 conditions at each interchange ramp junction during the a.m. and p.m. peak hours. The results are summarized in Table 17 for each alternative. This table shows that implementation of the preferred alternative would improve operations to LOS D or better at each ramp junction.

Ramp	Level of Service	
	A.M. Peak Hour	P.M. Peak Hour
Eastbound Off-Ramp	A	C
Eastbound On-Ramp	B	C
Westbound Off-Ramp	C	B
Westbound On-Ramp	D	B

Table 18 summarizes the a.m. and p.m. peak hour levels of service at each study intersection under cumulative (2020) conditions for each interchange alternative.

Intersection	Control	Preferred Alternative	
		Average Delay (sec/veh)	Level of Service
Latrobe Road/ U.S. 50 EB Ramps	Signalized	7.4 (6.1)	B (B)
El Dorado Hills Boulevard/ U.S. 50 WB Ramps	Signalized	23.1 (24.6)	C (C)
El Dorado Hills Boulevard/ Park Drive	Signalized	35.7 (39.7)	D (D)

Table 18 shows that operations at each ramp terminal intersection are projected to be at LOS C or better during the a.m. and p.m. peak hours. Operations at the El Dorado Hills Boulevard/Park Drive intersection are projected to be at LOS C or D during each peak hour.

Corridor Progression Analysis

The corridor progression analysis investigated operations of a coordinated system of traffic signals located at the White Rock Road, A Street, eastbound ramps, westbound ramps, and Park Drive intersections. Figure 8 shows the year 2020 forecasts for each intersection.

The preferred interchange alternative was analyzed using the TRAF-NETSIM simulation software. This software provides a visual representation of traffic operations throughout the corridor with the preferred alternative in place. Simulation of the network is useful to identify potential operating problems and refine the proposed signal timings, geometrics, and

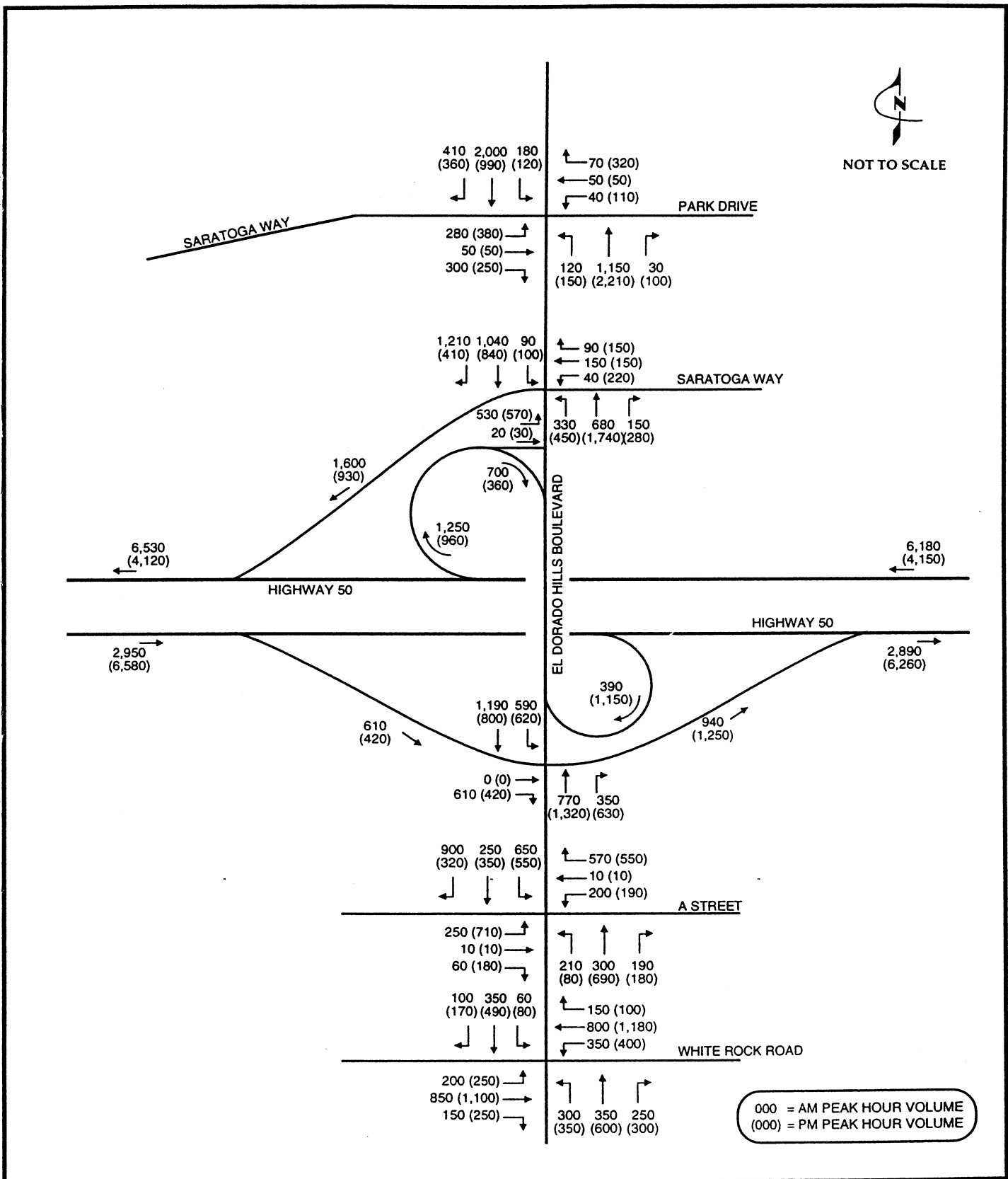


FIGURE 8

2020 CORRIDOR TRAFFIC DEMAND FORECASTS

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storage bay lengths under 2020 conditions during the a.m. and p.m. peak hours. Year 2005 operations were also simulated to consider potential interim-year operations.

The analysis was conducted for two variations of the eastbound ramp configuration under Alternative 3. The following alternatives were analyzed to accommodate the eastbound-to-southbound demand:

- Alternative 3A - Diagonal off-ramp with a single 'free' right turn and a signalized right turn; and
- Alternative 3B - Diagonal off-ramp with a single 'free' right turn.

The purpose of the alternative consisting of a 'free' right turn lane and a signalized right turn lane is to eliminate a potential weaving problem south of the intersection. The signalized right-turn lane would be dedicated for vehicles turning left at A Street or White Rock Road.

Both of the variations of the preferred alternative were simulated under 2020 conditions to identify potential operating problems. Using forecast traffic volumes, lane geometrics, turn-bay storage lengths and intersection spacing (*El Dorado Hills Boulevard Interchange Alt. 3a and 3b* site plan, HDR Engineering, May, 1996) and signal timings as inputs, the TRAF-NETSIM software was used to simulate operating conditions in 2020.

Table 19 shows the results of the simulation for each variation of the preferred alternative (analysis output is provided in Appendix F of the separately bound technical appendix).

Table 19					
El Dorado Hills Boulevard Simulation – 2020 Conditions					
Alternative	Level of Service ²				
	White Rock Rd	Town Center Blvd.	US 50 EB Ramps	US 50 WB Ramps	Park Drive
<i>AM Peak Hour</i>					
<u>Alt 3A</u> - US 50 EB Diagonal Off-Ramp Free RT and Signalized RT	D – 25.1 sec/veh	C – 21.4 sec/veh	B – 9.0 sec/veh	C – 15.1 sec/veh	D – 39.5 sec/veh
<u>Alt 3B</u> - US 50 EB Diagonal Off-ramp Free RT	D – 27.9 sec/veh	C – 20.7 sec/veh	B – 8.1 sec/veh	C – 17.0 sec/veh	D – 39.7 sec/veh
<i>PM Peak Hour</i>					
<u>Alt 3A</u> - US 50 EB Diagonal Off-Ramp Free RT and Signalized RT	D – 38.6 sec/veh	D – 26.6 sec/veh	B – 6.4 sec/veh	C – 24.8 sec/veh	D – 31.1 sec/veh
<u>Alt 3B</u> - US 50 EB Diagonal Off-ramp Free RT	D – 39.7 sec/veh	C – 22.9 sec/veh	B – 7.5 sec/veh	C – 27.5 sec/veh	D – 29.5 sec/veh
Notes LOS based on the average stopped delay.					

The results indicate that both variations of the preferred alternative provides LOS D or better operations throughout the corridor. The intersection phasing and signal timings shown in Appendix F provide adequate progression through the corridor. Alternatives 3A and 3B display similar operational characteristics.

The simulation indicated that a serious merge problem does not occur under Alternative 3B (free right-turn from eastbound off-ramp). The amount of merging is expected to be greatest during the a.m. peak hour when about 250 vehicles are expected to turn left at Town Center Boulevard from the eastbound off-ramp. An additional 700 vehicles are expected to turn right at Town Center Boulevard from southbound El Dorado Hills Boulevard. However, as the simulation showed, the distance between the eastbound ramp terminal intersection and the Town Center Boulevard intersection (about 200 meters) allows for adequate time to safely merge into the desired lane.

The proposed storage lengths were evaluated using the simulation program. The results indicated that the only storage problem occurs on the northbound El Dorado Hills Boulevard approach to Park Drive. During the p.m. peak hour, the heavy volume of traffic travelling northbound on El Dorado Hills Boulevard will frequently block access to the left-turn lane to Saratoga Way. It is recommended that the left-turn lane be lengthened from 25 meters to at least 50 meters to reduce the likelihood of it being blocked by northbound through traffic.

Ramp Metering

A ramp metering analysis was conducted for 2005 conditions to determine the maximum metering rate each on-ramp can accommodate before the queue exceeds available storage capacity. The results are shown in Table 20. The analysis was conducted in accordance with *Caltrans Ramp Meter Design Guidelines*, August, 1995. The following assumptions were used.

1. The westbound on-ramp would include an HOV-bypass lane serving 17 percent of the total demand.
2. Similar to the analysis conducted by Caltrans for the Prairie City Road interchange, the ramp metering analysis was conducted over a three-hour peak period. Using existing data of on-ramp demand at Folsom Boulevard and U.S. Highway 50, it was assumed that:
 - Hour 1: 97% of peak hour volume;
 - Hour 2: The peak hour (100%); and
 - Hour 3: 68% of peak hour volume.

A more detailed discussion of this process is provided in the *U.S. Highway 50 Interchange Planning Study*.

3. A queued vehicle was assumed nine meters in length.

Table 20 indicates that lower metering rates (between 240 and 400 vehicles per hour per lane (vphpl) will result in queues at each on-ramp which exceed the on-ramp storage capacity. A minimum metering rate of 520 vphpl is necessary at the westbound on-ramp to ensure that the queue does not back into the ramp terminal intersection. Similarly, the metering rate at the eastbound on-ramp should not be less than 460 vphpl.

On-Ramp	Peak Period	Total Peak Hour Demand	SOV Peak Hour Volume	Metering Rate (vphpl)	Maximum Queue per Lane (meters)	Average Vehicle Delay (min.)
WB Diagonal	AM	1,300	1,080	240	6,500	51
WB Diagonal	AM	1,300	1,080	400	2,414	21
WB Diagonal	AM	1,300	1,080	520 ¹	216	1
EB Diagonal	PM	1,160	960	240	5,075	46
EB Diagonal	PM	1,160	960	400	1,353	12
EB Diagonal	PM	1,160	960	460 ¹	252	2

Note: ¹ Minimum metering rate for queue not to exceed on-ramp storage capacity.

IX. PHASING OF INTERCHANGE IMPROVEMENTS

This section examines the phasing of the preferred interchange improvements. The interchange would be improved in two phases. Each phase is described below.

Phase 1 Improvements

- Construct a westbound loop off-ramp which features an exclusive right-turn lane (for southbound traffic) and two left-turn lanes at the El Dorado Hills Boulevard/Saratoga Way intersection.
- Relocate and widen the westbound diagonal on-ramp to two lanes in conjunction with the construction of the westbound loop off-ramp.
- Relocate the segment of Saratoga Way west of El Dorado Hills Boulevard to the Park Drive intersection to the north.
- Provide a second left-turn lane on the northbound approach to the westbound ramp intersection.
- Construct second left-turn lanes on the southbound and westbound approaches of the eastbound ramp intersection and install a traffic signal at the intersection. In this phase, the westbound right-turn movement from the loop off-ramp should be controlled by the traffic signal (i.e., not constructed as a free movement) because of the lack of a receiving lane.
- Relocate the eastbound diagonal on-ramp in conjunction with the widening of the eastbound loop off-ramp.

Phase 2 Improvements - Ultimate

- Widen El Dorado Hills Boulevard under U.S. 50 from four to six lanes and consider construction of an eastbound diagonal off-ramp when warranted by traffic volumes.

Other Related Improvements

In addition to the improvements to the interchange itself, two other improvement projects are anticipated during the planning horizon. These relate to the proposed U.S. 50/Silva Valley Parkway interchange and the widening/extension of White Rock Road as described below.

- Connect White Rock Road to Silva Valley Parkway as a two-lane road to reduce the amount of traffic passing through the interchange on El Dorado Hills Boulevard.
- Construct an initial phase of the U.S. 50/Silva Valley Parkway interchange to further reduce the volume through the El Dorado Hills Boulevard interchange.
- Widen White Rock Road to four lanes from Latrobe Road to U.S. 50 at the Silva Valley Interchange.

Triggers for Interchange Phasing Improvements and Other Related Projects

An analysis was conducted to determine the length of time that each phase would provide acceptable traffic operations at the interchange. As shown in Chapter II of this report (in Tables 3 and 4), the Phase 1 improvements are needed immediately to address the capacity problems at the eastbound off-ramp, the limited intersection spacing at the westbound ramp intersection and the grade problems for the westbound diagonal on-ramp. An analysis was then conducted to determine the trigger between Phase 1 of the interchange and the extension of White Rock Road to Silva Valley Parkway as described above under other related improvements.

The proposed Phase 1 improvements were evaluated at each ramp terminal intersection in 2005 and 2010. Separate analyses were conducted with and without the Silva Valley Parkway/White Rock Road connection (see Appendix G). The results are summarized in Table 21.

Intersection	AM (PM) Peak Hour Levels of Service			
	2005		2010	
	Without Silva Valley Parkway/ White Rock Road Connection	With Silva Valley Parkway / White Rock Road Connection	Without Silva Valley Parkway/ White Rock Road Connection	With Silva Valley Parkway / White Rock Road Connection
U.S. Highway 50 WB Ramps / El Dorado Hills Boulevard	C – 24.6 sec/veh (D – 39.3 sec/veh)	C – 23.5 sec/veh (D – 32.2 sec/veh)	D – 37.9 sec/veh (D – 39.9 sec/veh)	C – 24.6 sec/veh (D – 32.5 sec/veh)
U.S. Highway 50 EB Ramps / Latrobe Road	B – 12.5 sec/veh (D – 33.7 sec/veh)	B – 12.7 sec/veh (D – 34.8 sec/veh)	B – 13.1 sec/veh (F – +60 sec/veh)	B – 13.9 sec/veh (D – 36.7 sec/veh)

As this shows, Phase 1 improvements provide acceptable operations through 2005. By 2010, the eastbound ramp intersection is projected to operate unacceptably without the Silva Valley Parkway/White Rock Road connection. With the connection, operations improve to LOS D. Therefore, the extension of White Rock Road to Silva Valley Parkway would provide acceptable operations for an additional five years after Phase 1 (i.e., up to 2010). It is difficult to estimate the precise timing of the other improvements triggered beyond 2005 and 2010. The analysis relies heavily on the timing and location of new development, which becomes more difficult to accurately predict in the latter years of the study horizon. However, the results of this analysis indicate that the U.S. Highway 50 westbound ramp/ El Dorado Hills Boulevard intersection is the key facility in terms of triggering the subsequent improvement projects. Once the intersection operations of this intersection degrade to LOS E, the next phase of improvements is required. The exact years in which each phase will be triggered depends on the timing and location of area land use developments.

X. LOCAL CIRCULATION ISSUES

The El Dorado County General Plan sets forth guidelines for the development of transportation infrastructure to meet anticipated growth in the area. Figure 9 shows the planned local circulation system in 2015 in the vicinity of the U.S. Highway 50/El Dorado Hills Boulevard/Latrobe Road interchange.

Proposed improvements include the following:

- Extend Silva Valley Parkway as a four-lane divided roadway from Harvard Way to U.S. Highway 50 and construct the U.S. Highway 50/Silva Valley Parkway interchange;
- Extend Saratoga Way as a four-lane roadway between Folsom and El Dorado Hills Boulevard;
- Widen El Dorado Hills Boulevard to six lanes from Saratoga Way to Serrano Parkway, and to four lanes divided from Serrano Parkway to Green Valley Road;
- Improve Green Valley Road to a four-lane divided roadway from the Sacramento County Line to Francisco Drive, and four lanes east of Francisco Drive;
- Widen White Rock Road to six lanes from Silva Valley Parkway to Latrobe Road, and to four lanes west of Latrobe Road to the Sacramento County Line;
- Widen Latrobe Road to six lanes from U.S. Highway 50 to White Rock Road, and four lanes south of White Rock Road;
- Construct Serrano Parkway as a two- to four-lane road from El Dorado Hills Boulevard to Bass Lake Road; and
- Construct a multi-modal transfer facility at the intersection of White Rock Road and Latrobe Road. The first phase will serve carpools, vanpools, and bicycles and serve El Dorado Transit as a park-and-ride lot. A proposed second phase would accommodate light rail.

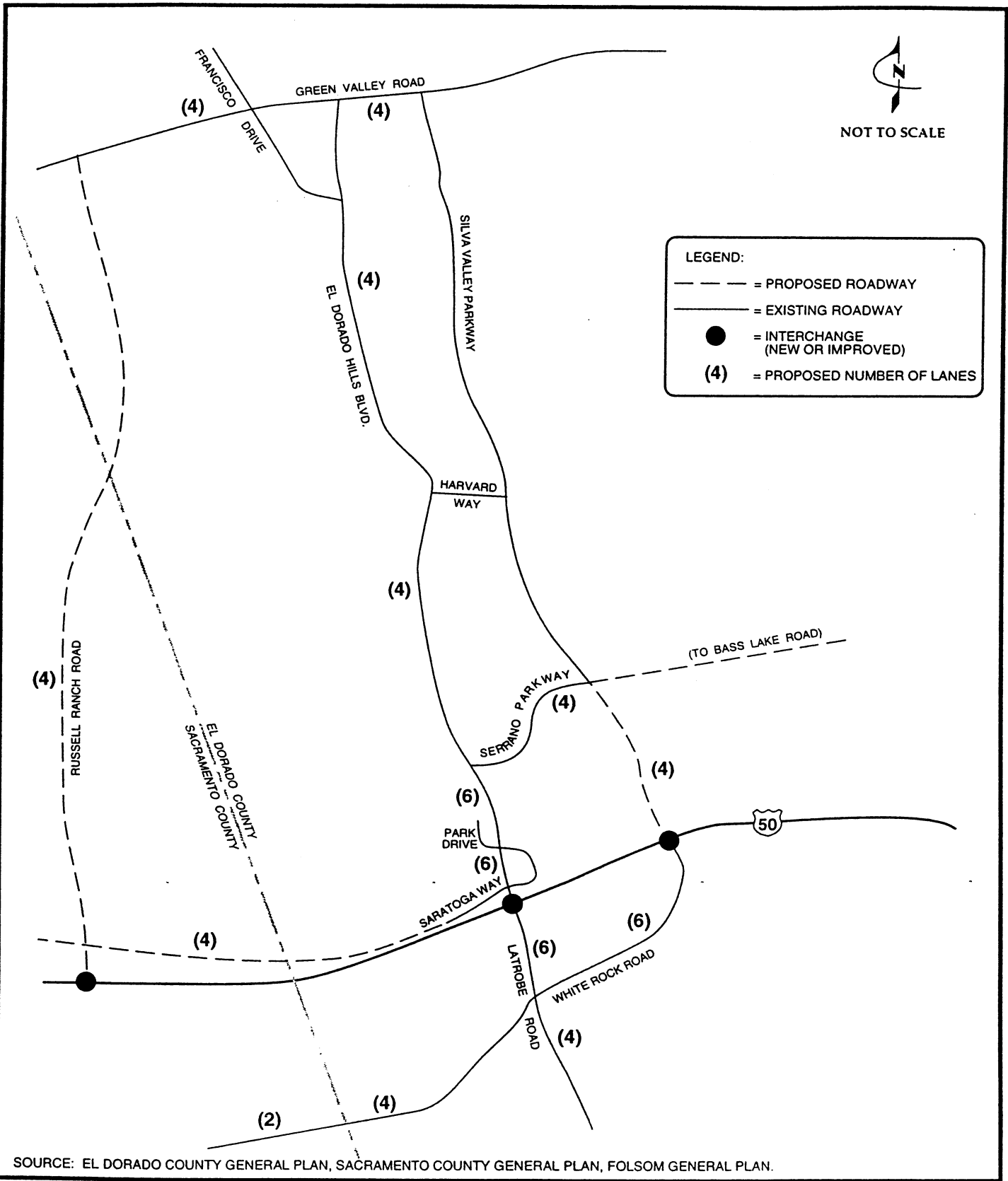


FIGURE 9

**2015
CIRCULATION SYSTEM**

fp Fehr & Peers Associates, Inc.
Transportation Consultants

These improvements will provide a comprehensive local circulation system designed to minimize local travel on U.S. Highway 50. The close proximity of the Silva Valley Parkway interchange, the roadways parallel to U.S. Highway 50 on both sides (i.e., Saratoga Way, White Rock Road and Serrano Parkway) and the multi-modal transfer station all serve to improve local traffic circulation and to provide opportunities to reduce single occupant travel.

It should be noted that the *Draft Environmental Impact Report for the U.S. 50/El Dorado Hills Boulevard/Latrobe Road Interchange Improvements*, Jones and Stokes Associates, 1998, evaluates the impacts of constructing Saratoga Way as a two-lane roadway in 2015, instead of a four-lane roadway as identified in the El Dorado County General Plan. This document also considers varying alignments of Saratoga Way including a route parallel to El Dorado Hills Boulevard and an S-shaped alignment. The environmental document concludes that acceptable operations cannot be maintained in 2015 with only two lanes on Saratoga Way.

TASAS TABLE B DISTRICT 03
 SELECTIVE ACCIDENT RATE CALCULATION
 ROUTE SEQUENCE

LOCATION	DESCRIPTION	RA (RUS)	CRP	RA * NUMBER OF ACCIDENTS/SIGNIFICANCE * PBR	ADT	TOTAL * (W/ OR N/W)	ADT * (W/ OR N/W)	ACCIDENT RATE	ACCS/MV+ OR MVM-*	PAT F+I	TOT F+I	AVERAGS	TOT						
050 RD	0.500 THRU 80 001.499 EAST	160		11	0	6	8	1	3	0	24.4	26.10	.000	.22	.41	.006	.25	.62	
03-0001	1.000N 95-10-01 98-09-30 36 NO (S)			15	1	4	5	12	0	5	1	24.4	26.70	.037	.19	.56	.006	.25	.62
050 RD	0.500 THRU 80 001.499 WEST	160		15	1	4	5	12	0	5	1	24.4	26.70	.037	.19	.56	.006	.25	.62
03-0001	1.000M 95-10-01 98-09-30 36 NO (S)																		

TASAS TABLE B DISTRICT 03
 SELECTIVE ACCIDENT RATE CALCULATION
 ROUTE SEQUENCE

LOCATION	DESCRIPTION	RA	#-NUMBER OF ACCIDENTS/SIGNIFICANCE	PER	ADT	TOTAL	←-ACCIDENT RATE	ACCS/MVT	OR	MVM-*							
		GRP	MULTI	KLD	MA/MI	MV+ OR	ACTUAL	AVERAGE		TOT							
		(RUS)	F+I	VEH	WBT	DARK	INJ	X-ST	WVH	FAT	F+I	TOT					
050 ED	0.686 WBOH FR EC DORADO H.B.L	R12	9	0	3	5	4	1	0	7.9	8.64+	.000	.35	1.04	.002	.32	.80
03-0001	95-10-01 98-09-10 16 NO (S)					H92											

*F. OBSOLETE. NV USED IN RATES

TASAS TABLE B DISTRICT 03
 SELECTIVE ACCIDENT RATE CALCULATION
 ROUTE SEQUENCE

LOCATION	DESCRIPTION	CRP (RUS)	DA (RUS)	CRP (RUS)	DA (RUS)	INJ	F+I VEH	MULTI	NET DARK	INJ	X-ST	ADT	TOTAL	ACCIDENT RATE	ACCS/NV+	OR	MVM	AVERAGE	TOT	F+I	TOT
050 ED	1.048 WBOFF TO BL DORADO H.BC	95-10-01	98-09-10	36	MO	9	0	6	9	2	2	0	4.6	5.08	.000	1.18	1.77	.005	.59	1.50	
03-0001																					

...DENOTES MV USED IN RATES

CASAS TABLE B DISTRICT 03
 SELECTIVE ACCIDENT RATE CALCULATION
 ROUTE SEQUENCE

LOCATION	DESCRIPTION	RA	NUMBER OF ACCIDENTS/SIGNIFICANCE	PER	ADT	TOTAL	ACCIDENT RATE	ACCS/NVT	OR	MVN					
		GRP	MULTI	KID	WACH	MVP	ACTUAL	AVERAGE		TOT					
		(RUS)	VEH	WET	DARK	INJ	X-ST	FAT	F+I	F+I					
		RI7	INJ	F+I	FAT	INJ	X-ST	FAT	F+I	TOT					
050 ED	1.041 EB OR FR LATROBB	7	0	2	4	2	0	5.1	5.55+	.000	.36	1.26	.002	.32	.80
03-0001	95-10-01 98-09-30 16 NO (S)														

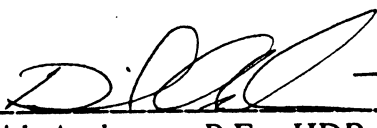
DEMOTES. REV. USED. IN RATES

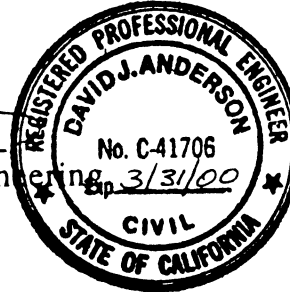
TASAS TABLE B DISTRICT 03
SELECTIVE ACCIDENT RATE CALCULATION
ROUTE SEQUENCE


LOCATION	DESCRIPTION	RA	#-NUMBER OF ACCIDENTS/SIGNIFICANCE*	PER	ADT	TOTAL	*-ACCIDENT RATE	ACCS/MY*	OR	NVM-*								
		GRP		NUTL	MED	MAIM	NY+ OR	ACTUAL	AVERAGE									
		{RUS}	TOT	F+I	V8H	NET	DARK	INJ	X-ST	NVM								
			INJ	F+I	V8H	NET	DARK	INJ	X-ST	NVM								
050 ED	0.812 ED OFF TO LATROBE	R22	7	0	2	2	6	1	1	0	7.9	8.61+	.000	.23	.81	.004	.54	1.40
03-0001	95-10-01 98-09-30 36 MO (S)																	

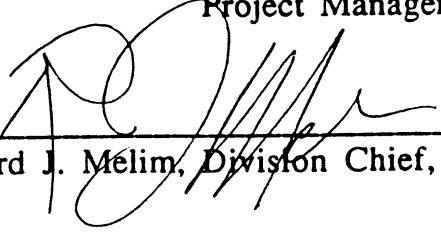
* DENOTES NULLIFIED (U) RATES.

EXCEPTIONS FROM ADVISORY DESIGN STANDARDS

Prepared by: 
David Anderson P.E., HDR Engineering



Approval Recommended by: 
Michael S. Forga,
Project Manager

Approved by: 
Richard J. Melim, Division Chief, Design

Date 6/18/96

I. Standards for which exception is requested.

Highway Design Manual-Chapter 200, topic 204-"Grade", Index 204.4 "Vertical Curves" states that for algebraic grade differences of less than 2% or design speeds less than 60 km/hr, the vertical curve length should be a minimum of 60 m.

II. Reasons for exception.

The existing undercrossing profile includes one 55 m sag vertical curve and one 30.5 m crest vertical curve. These exist within a signalized interchange and there is not a sight distance or safety problem. Approximately 600 meters of the undercrossing road would have to be reconstructed at a cost of \$1.3 million to eliminate these curves.

The exception request was discussed with Ron Nelson, Project Development Coordinator for OPPD, and he agreed granting the exception was appropriate.



03-ED-50
KP 0.28/2.52
EA 03198-434100

September 1999

FINAL STRUCTURE PLANNING STUDY

ROUTE 50 / EL DORADO HILLS BOULEVARD / LATROBE ROAD
INTERCHANGE RECONSTRUCTION

California Department of Transportation
District 3

Technical Memorandum
DRAFT STRUCTURE PLANNING STUDY
03-ED-50-KP 0.8 EA 03198-434100
ROUTE 50 / EL DORADO HILLS BOULEVARD / LATROBE ROAD
INTERCHANGE RECONSTRUCTION

February 1999

Prepared by:

Conrad Bridges, P.E.

Date

HDR Engineering, Inc.
271 Turn Pike Drive
Folsom, CA 95630

TECHNICAL MEMORANDUM

To: California Department of Transportation
Department of Structures
Attention: Joel Escobar

File: 03-Ed-50-0.8
03-434101
Latrobe Road UC (Replace)
Br. No. 25-0071R/L
Latrobe Road UC (Replace)
Br. No. 25-0071S
Latrobe Road UC (New)
Br. No. (Not Yet Assigned)

From: HDR Engineering, Inc.

Date: February 24, 1999

Re: Draft El Dorado Hills Blvd Interchange Advance Planning Study

The purpose of this memorandum is to present the results of the Structures Advance Planning Study for the proposed El Dorado Hills Blvd Interchange reconstruction project.

PROPOSED PROJECT

The proposed project consists of reconstructing the El Dorado Hills Boulevard/Route 50 Interchange and widening El Dorado Hills Blvd/Latrobe Road to a six lane divided facility with dual left turn lanes at the ramp intersections. The preferred project alternative will realign Saratoga Way to Park Avenue, reconstruct the eastbound (EB) and westbound (WB) on-ramps, construct a new WB loop off-ramp in the northwest quadrant, and construct a new EB diagonal off-ramp in the southwest quadrant of the interchange. Future mainline widening is planned for Route 50. According to traffic studies (U.S. Route 50 Corridor Study 11/95) the likely configuration for the widening in each direction will consist of one mixed flow lane to the outside of the existing facility and one high occupancy vehicle (HOV) lane in the median. Due to the El Dorado Hills Boulevard/Latrobe Road widening and the modifications proposed for the interchange, the existing interchange structures will need to be replaced.

The proposed ultimate configuration for the El Dorado Hills Boulevard Interchange will consist of three new structures; a mainline structure for Route 50 eastbound (EB) and westbound (WB) traffic, and separate eastbound and westbound Route 50 off-ramp structures. The interchange reconstruction will be built in two phases. The new WB Route 50 off-ramp structure will be constructed in Phase I. The Route 50 mainline structure and EB off-ramp structure will be built in the Ultimate Phase.

ROUTE 50 MAINLINE STRUCTURE

The proposed Route 50 mainline structure will consist of a single four-span, continuous, precast concrete I beam structure. This structure type was chosen because of the vertical clearance constraint over El Dorado

Hills Boulevard. Vertical clearance at the existing structure meets Caltrans minimum vertical clearance requirements at 4.63 meters. The new structure proposed at this location must be longer, to accommodate the El Dorado Hills Blvd/Latrobe Road widening, and wider to accommodate the future Route 50 widening. To replace the existing concrete box girder structure with a new structure of the same type would require the new structure to have a thicker structure depth than existing. Increasing the structure depth would decrease the available vertical clearance between the new structure and El Dorado Hills Blvd. to below Caltrans minimum standards. The cross slopes resulting from the mainline widening at the existing structure would also cause a reduction in the existing vertical clearance. Falsework clearance was another factor which had to be considered when selecting the structure type. The Caltrans Highway Design Manual Section 204.6 "Grade line of Structures", states that the minimum falsework clearance over nonfreeways shall be 4.6 m. This clearance could not be obtained with the existing profiles.

Four options were investigated for providing the minimum vertical clearance at the mainline structure:

- Increase the vertical clearance at the new structure by raising the profile grade of Route 50 and/or
- Increase the vertical clearance at the new structure by lowering the profile grade of El Dorado Hills/ Blvd Latrobe Road
- Provide less than the Caltrans standard minimum vertical clearance and detour all truck traffic during construction
- Propose a structure type for the new mainline structure which would minimize structure depth and eliminate the need for falsework

Options were explored for raising the Route 50 profile and lowering the El Dorado Hills Boulevard/Latrobe Road profiles. In order to raise the profile of Route 50, approximately 925 m of the mainline would require reconstruction. The cost to raise the profile of Route 50 would be approximately \$5 million. The cost to lower El Dorado Hills Boulevard/ Latrobe Road was also investigated. The approximate total for this work would be \$1.3 million. Because of the extensive cost and potential impacts to traffic and existing facilities associated with adjusting either profile grade, this did not appear to be the best option. The option of detouring truck traffic was discussed with El Dorado County. Because the vertical clearance during construction of a CIP/PS box girder structure will be severely constrained all truck traffic would have to be detoured. A detour could be accomplished using the proposed Silva Valley Interchange to the east and the proposed Russell Ranch Interchange to the west. The County was not in favor of this option. The detouring option could also result in safety problems. It was decided to pursue the fourth option and propose a structure type which would minimize structure depth and provide the Caltrans standard minimum vertical clearance of 4.6 meters. Falsework will not be required in the construction of the proposed structure due to the precast concrete I-beam structure type.

The proposed new bridge superstructure will accommodate the future widening on Route 50 and will consist of three mixed flow lanes and an HOV lane in both the eastbound and westbound direction. It will also accommodate a 3.0 meter shoulder on each side of each direction of traffic and a Caltrans standard type 26 barrier rail on each side of the structure.

Abutment 1 and Abutment 5 of the proposed structure will be seat type abutments with a pile foundation. Slope paving below the abutments will be at a 2: 1 slope. Bent 2 and Bent 4 will be located 0.5 meters

beyond the edge of shoulder. There will be a 2.4 meter sidewalk located to the outside of Bent 2 and Bent 4. Bent 3 will be located along the centerline of El Dorado Hills Blvd/Latrobe Road. All bents will consist of eight, 1.0 meter diameter columns and a reinforced concrete bent cap. Column foundations are assumed to have either spread or pile footings.

Planned dimensions for the new structure are 73.6 meters in length and 49.88 meters in width. This results in a total area of 3671.2 square meters. A cost of \$1180/square meter was estimated including 10% mobilization and 25% contingencies for a total structure cost of \$4,330,600 for the mainline Route 50 structure.

OFF-RAMP STRUCTURES

Two new off-ramp structures are required for the new WB loop off-ramp in the northwest quadrant and the reconstructed EB loop off-ramp in the southeast quadrant. The ramp structures will be constructed on separate profiles from the mainline. The mainline vertical clearance constraints do not apply to the ramp structures.

The proposed Route 50 off-ramp structures consist of two four-span, prestressed, precast, continuous concrete I-beam bridges. The same structure type was chosen for the ramp structures as is proposed for the mainline structure for aesthetic reasons and to match the soffit line (bottom of bridge) of the new Route 50 mainline structure. Falsework will not be required in the construction of the off-ramps due to the precast, concrete I-beam structure type.

The bridge superstructure for both off ramp structures will consist of two traffic lanes a 2.4 meter shoulder to the right of traffic and a 1.2 meter shoulder to the left of traffic. A Caltrans standard type 26 barrier rail will be placed on each side of each structure.

Abutment 1 and Abutment 5 are seat type abutments with a pile foundation. Slope paving below the abutments will be at a 2:1 slope. Bent 2 and Bent 4 will be located 0.5 meters beyond the edge of shoulder. There will be a 2.4 meter sidewalk located to the outside of the Bent 2 and Bent 4. Bent 3 will be located along the centerline of El Dorado Hills/Latrobe Road. All bents will consist of two, 1.0 meter diameter columns and a reinforced concrete bent cap. Column foundations are assumed to have either spread or pile footings.

Planned dimensions for each structure are 73.6 meters in length and 11.87 meters in width. This results in a total area of 873.63 square meters. A cost of \$1180/square meter is estimated including 10% mobilization and 25% contingencies for a total structure cost of \$1,032,500 per structure.

CONSTRUCTION PHASING

Construction staging was also a factor to be considered in proposing a structure type for the new mainline Route 50 structure.

Phase 1

Since Phase 1 of the proposed improvements to the El Dorado Hills Boulevard/Latrobe Road Interchange will be constructed in stages, minimal delays are anticipated on Route 50, El Dorado Hills Boulevard, Latrobe Road and Saratoga Way. The construction plan is anticipated to have three stages.

Stage I: Realign the west leg Saratoga Way to Park Drive. Construct the westbound loop off-ramp structure and begin construction on the westbound loop off-ramp. Begin construction of the westbound on-ramp. Construct the new eastbound on-ramp. Begin widening on El Dorado Hills Boulevard/Latrobe Road.

Stage II: Route traffic to the realigned Saratoga Way. Complete construction of the westbound on-ramp and complete the new westbound off-ramp. Move traffic to the new eastbound on-ramp and widen the existing eastbound loop off-ramp. Complete widening on El Dorado Hills Boulevard/Latrobe Road.

Stage III: Move traffic to the new westbound on- and off-ramps. Obliterate any existing or temporary pavement. Remove signal at the existing westbound ramps.

The traffic management plan will provide for continuous through traffic on El Dorado Hills Boulevard, Latrobe Road and Saratoga Way. The proposed staging will provide at least one lane in each direction at the undercrossing and one lane on the ramps during construction. El Dorado Hills Boulevard/Latrobe Road widening at the undercrossing will be completed behind temporary railing (Type K) to minimize impacts to through traffic. The ramp connections and auxiliary lane construction on Highway 50 will also be completed behind temporary railing (Type K) to minimize impacts to through traffic on the mainline. There may be brief periods for stage changeovers when lane closures and flagpersons will be required to direct traffic. This scenario will provide maximum safety to the public from construction activities and protect workpersons from traffic hazards. The public shall be notified in advance of possible delays on Route 50, El Dorado Hills Boulevard, Latrobe Road, Saratoga Way and other adjacent roads during interchange construction.

Ultimate Phase

The replacement of the existing mainline and eastbound off-ramp structures in the Ultimate Interchange Phase will have a greater impact on area traffic than the Phase 1 improvements. The construction of the new structures and removal of the existing structures will be done in stages to minimize disruption to Route 50 traffic. The following discussion addresses one possible staging scenario.

The eastbound diagonal off-ramp will be constructed in the first stage. Construction of the eastbound loop off-ramp structure would also take place at this time. Eastbound traffic wanting to travel northbound on El Dorado Hills Boulevard may have to use the diagonal off-ramp and/or be detoured to the Silva Valley interchange at times during construction of the new eastbound loop off-ramp. The structure type proposed for the eastbound ramp does not require falsework and minimizes construction time to complete.

The new mainline structure will be constructed in several stages to minimize disruption to Route 50 traffic. It is important to maintain at least two 3.6 m lanes of traffic in each direction on Route 50 during the

construction of the new mainline structure. A single structure is required to accommodate the needed traffic lanes during construction. Maintaining the existing mainline profile for the new structure will allow for new structure construction to take place in stages while traffic remains on the existing structures.

The first stage of construction would include the construction of a width of new structure in the median between the two existing structures. This new portion of structure will be wide enough to accommodate two 3.6 m lanes of traffic. Temporary Type K railing will be utilized to separate existing traffic in both directions from the bridge construction taking place. Once the new width of structure is completed one direction of mainline traffic, say westbound will be detoured with the use of temporary pavement tapers, to the median area and the new width of structure. Connection to the westbound off-ramps will be maintained during this detour. The existing westbound mainline structure will then be removed and the westbound segment of new structure will be constructed. Once the westbound portion of structure construction is complete, traffic will be routed back to the westbound lanes while the eastbound mainline traffic is detoured to the median area. Connection to the eastbound on- and off-ramps will be maintained during the detour. The existing eastbound structure will then be removed and the new portion of structure will be constructed in this direction. Once complete, the eastbound traffic will be routed back to the new portion of structure and all temporary pavement for detours and ramp connections will be removed. Temporary Type K railing will be used to direct traffic in both directions during detours and to separate traffic from construction areas.


The traffic management plan will provide for continuous through traffic on El Dorado Hills Boulevard and Latrobe Road. The proposed staging will provide at least one lane in each direction at the undercrossing and at least one lane on the ramps during construction. Active construction work will be separated from traffic on El Dorado Hills Boulevard/Latrobe Road with temporary railing Type K. There may be brief periods for stage changeovers and bridge removal when lane closures, detours and flagpersons will be required to direct traffic. Removal of the existing structures may necessitate closing El Dorado Hills Boulevard/Latrobe Road for short periods of time while traffic is detoured to either the Silva Valley Interchange or the proposed Russell Ranch Interchange. This scenario will provide maximum safety to the public from construction activities and protect workpersons from traffic hazards. The public shall be notified in advance of possible delays or detours on Route 50, El Dorado Hills Boulevard, Latrobe Road and other adjacent roads during interchange construction.

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03	ED	50	KP 0.28/2.52		

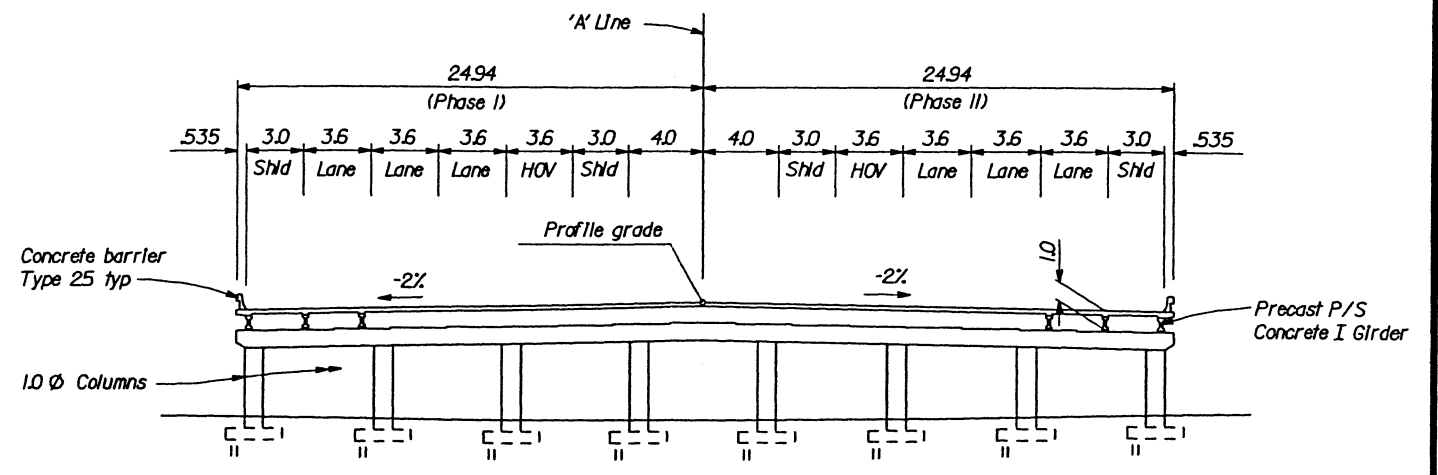
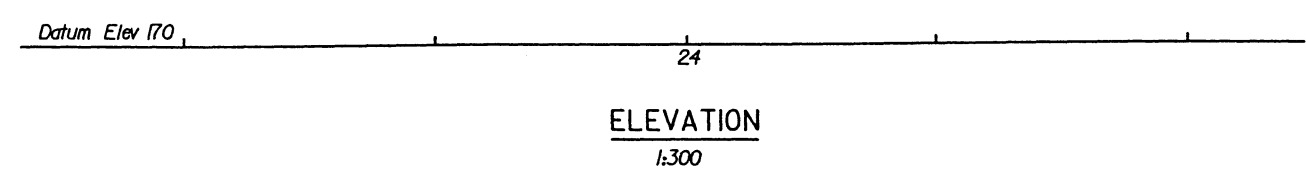
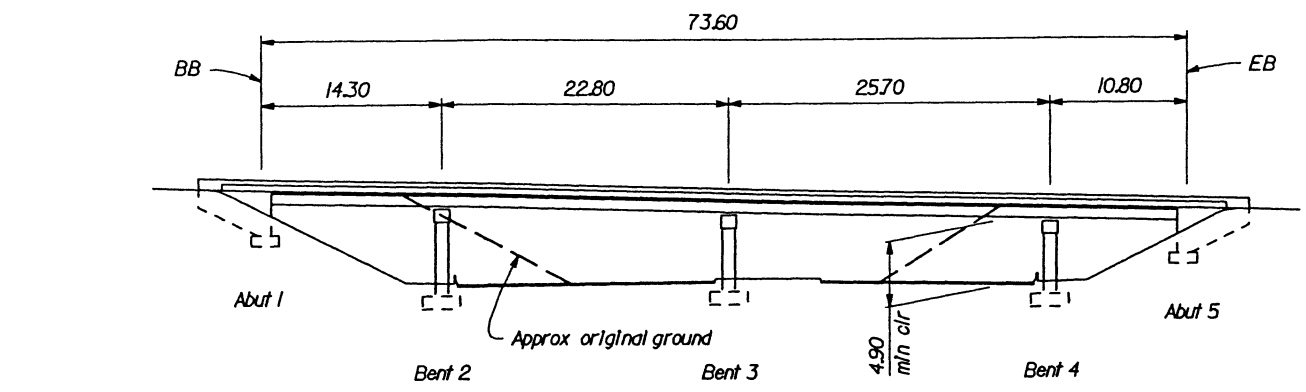
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PLANS APPROVAL DATE

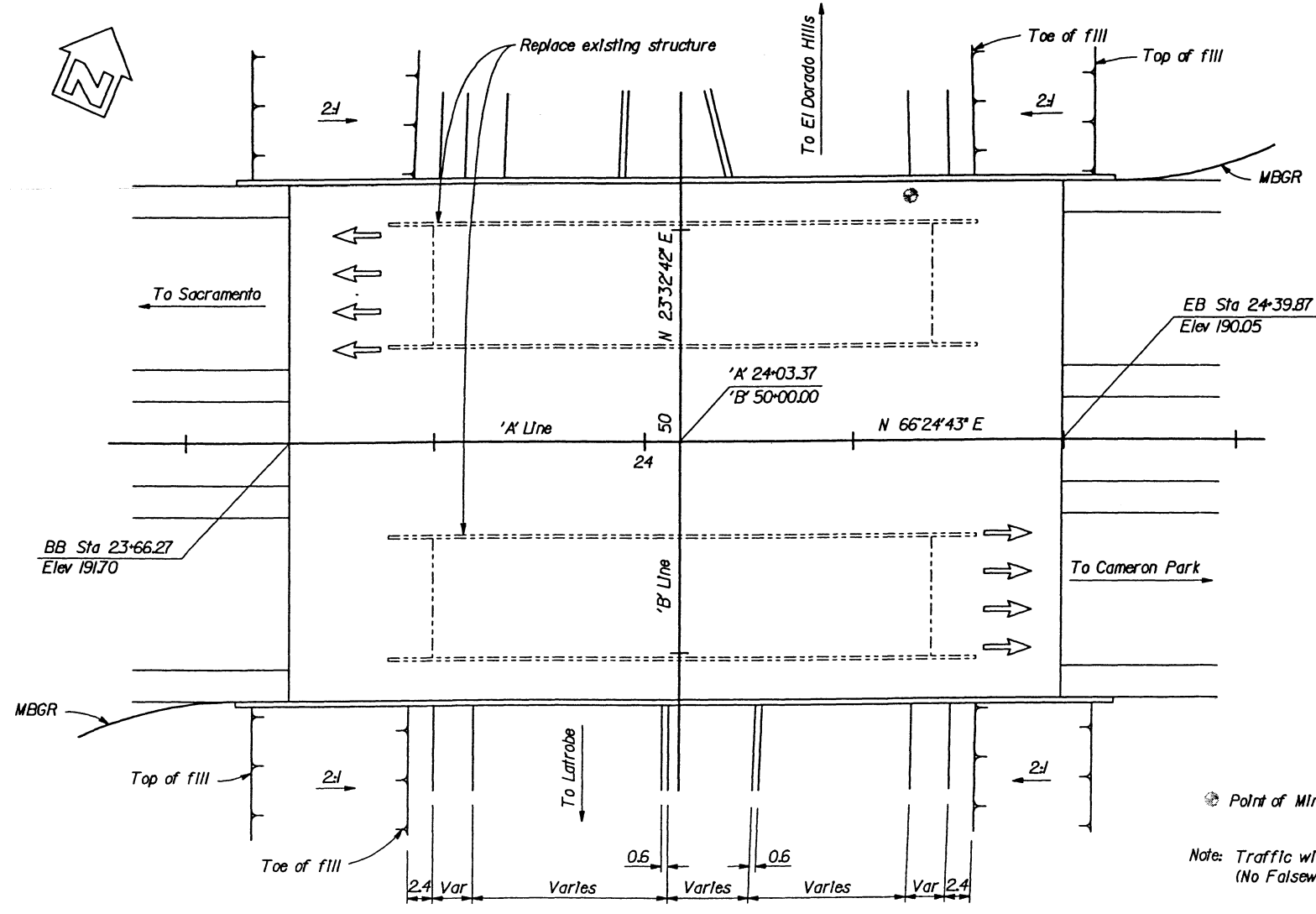
HDR ENGINEERING, INC.
271 TURN PIKE DRIVE
FOLSOM, CA. 95630



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TYPICAL SECTION
1:200



PLAN
1:300

Point of Minimum vertical clearance

Note: Traffic will pass through construction.
(No Falsework allowed over traffic)

Date of Estimate	01-31-96
Structure Depth	- 1.00
Length	- 73.60
Width	- 49.88
Area	- 3670 m ²
Cost/ Including 10% Mobilization & 25% Contingency	- \$ 3,670,000
Total Cost m ²	- \$ 1000/m ²

METRIC
ALL DIMENSIONS AND ELEVATIONS ARE IN METERS (M) EXCEPT AS NOTED.

DESIGN OVERSIGHT	DESIGN BY	CHECKED	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 25-00715	LATROBE ROAD UNDERCROSSING ADVANCE PLANNING STUDY
STAMP OFF DATE	DETAILS BY	CHECKED	PROJECT ENGINEER	KP	
	QUANTITIES BY	CHECKED		1.38	
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS			0 20 40 60 80	CU EA	DISREGARD PRINTS BEARING EARLIER REVISION DATES
					REVISION DATES (PRELIMINARY STAGE ONLY)
					SHEET OF

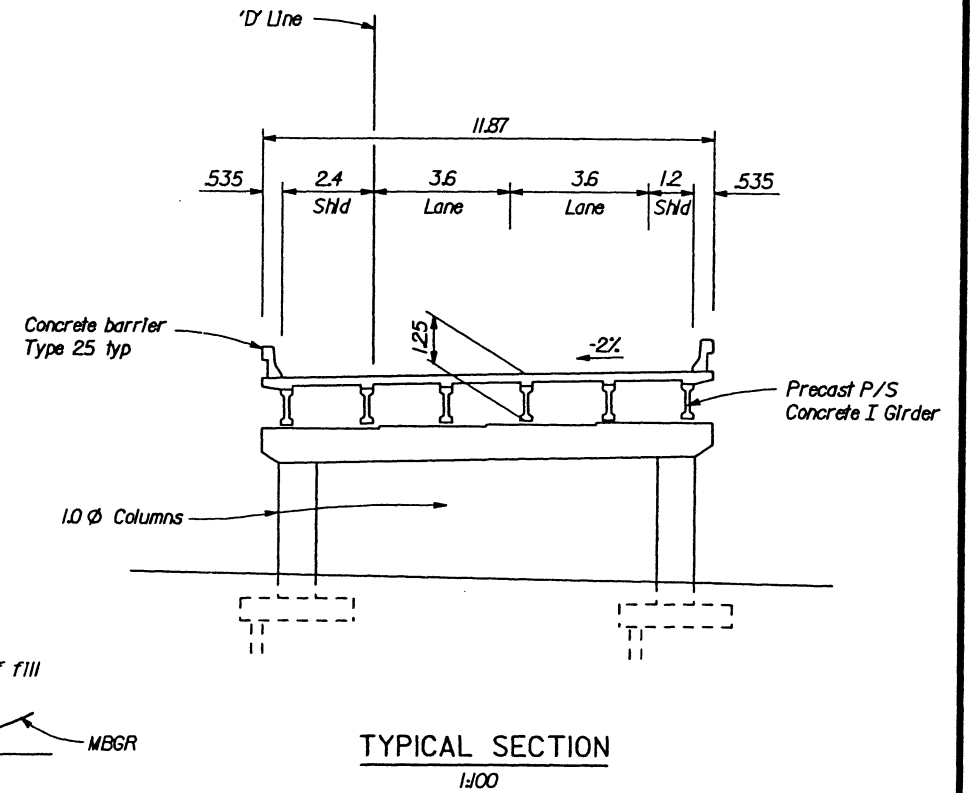
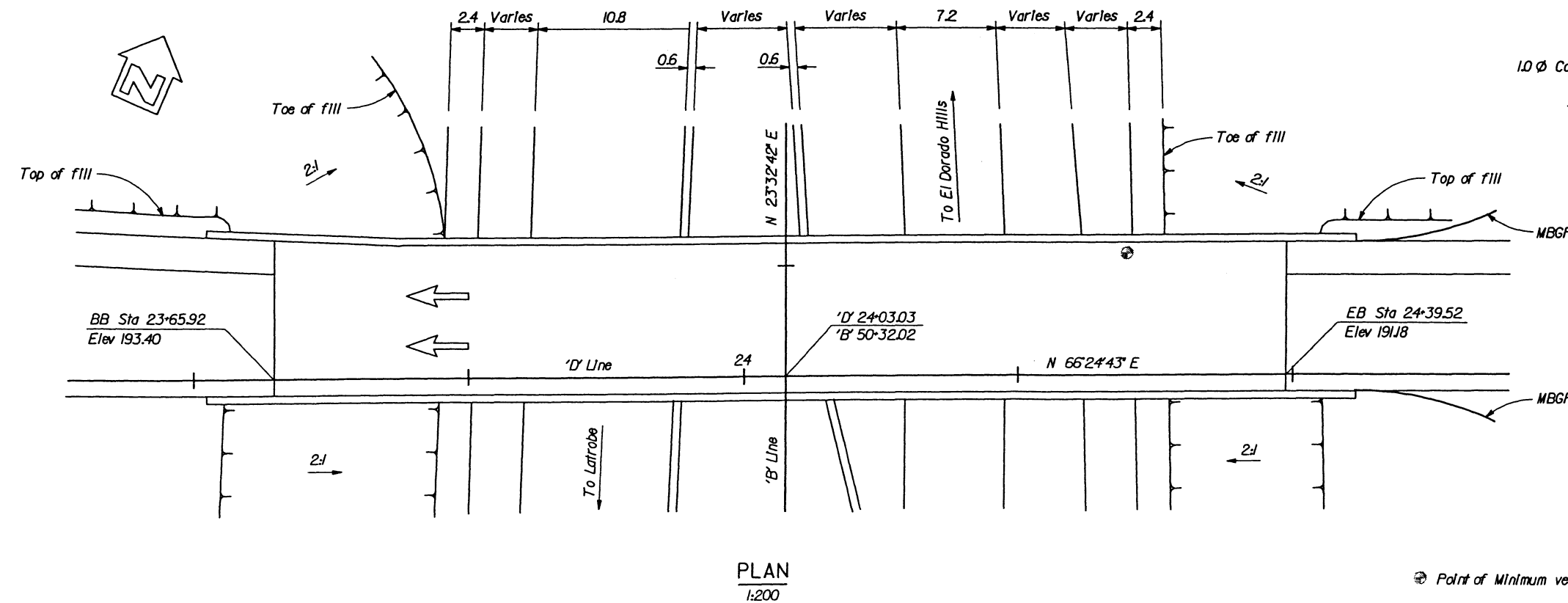
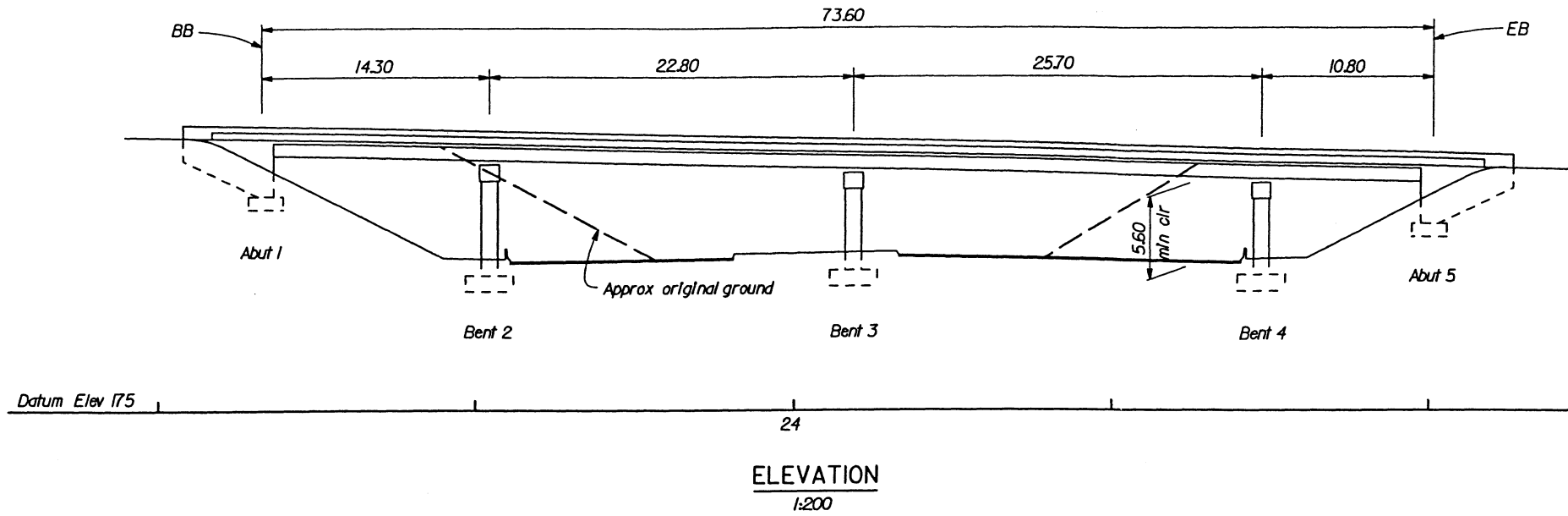
DIST	COUNTY	ROUTE	KILOMETER POSTS TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	ED	50	KP 0.28/2.52		

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

HDR ENGINEERING, INC.
271 TURN PIKE DRIVE
FOLSOM, CA. 95630

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Date of Estimate	01-31-96
Structure Depth	1.25
Length	73.60
Width	11.87
Area	875 m ²
Cost/ Including 10% Mobilization & 25% Contingency	\$ 861,000
Total Cost m ²	\$ 984/m ²

⊙ Point of Minimum vertical clearance
Note: Traffic will pass through construction.
(No Falsework allowed over traffic)

METRIC
ALL DIMENSIONS AND ELEVATIONS ARE IN METERS (m) EXCEPT AS NOTED.

DESIGN OVERSIGHT	DESIGN BY	CHECKED	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 25-00715 KP 1.38	LATROBE ROAD UNDERCROSSING ADVANCE PLANNING STUDY
SIGNOFF DATE	DETAILS BY	CHECKED	PROJECT ENGINEER	DISREGARD PRINTS BEARING EARLIER REVISION DATES	
	QUANTITIES BY	CHECKED	ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF

DIST	COUNTY	ROUTE	KILOMETER POSTS TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	ED	50	KP 0.28/2.52		

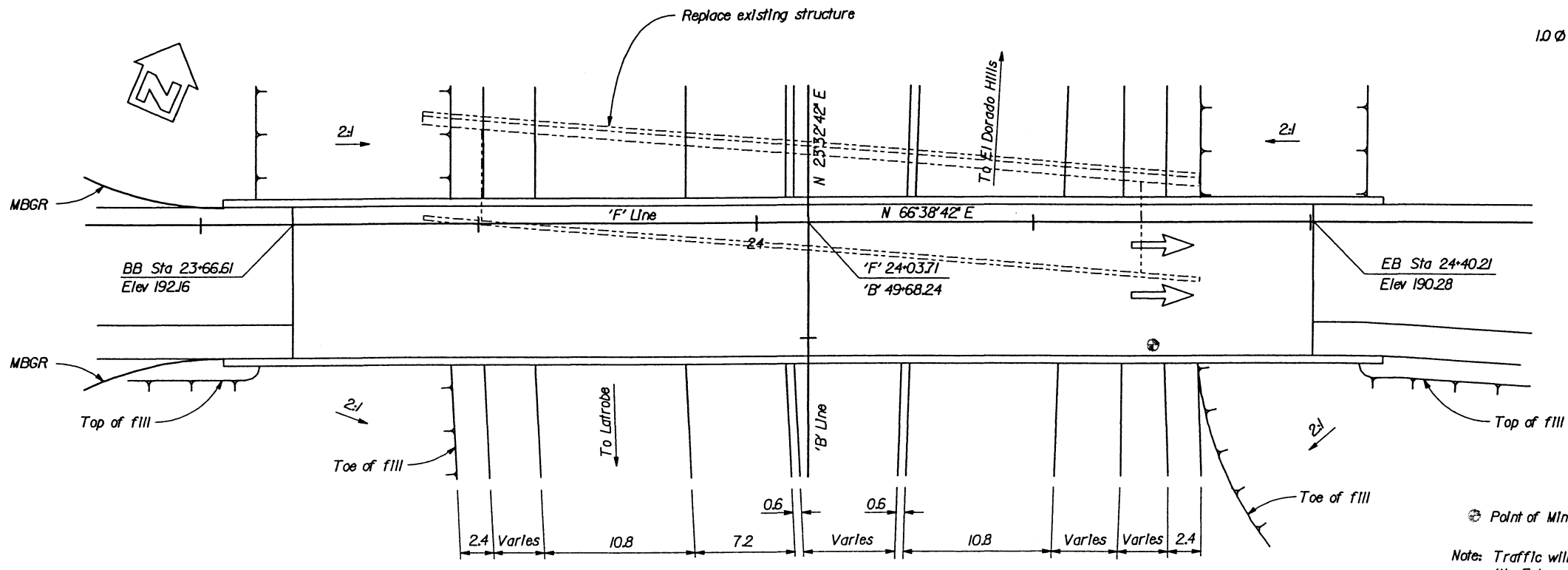
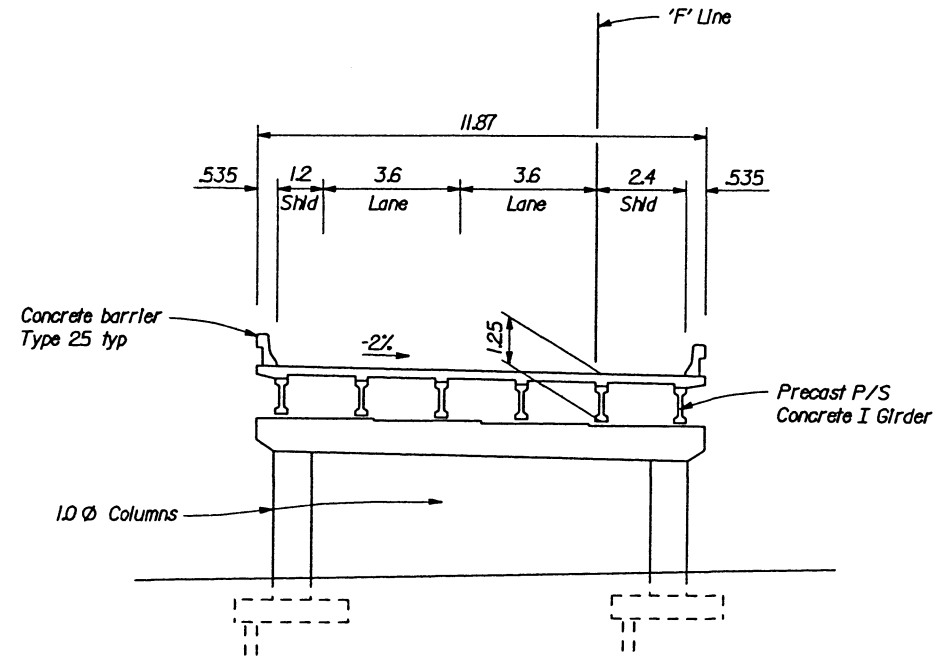
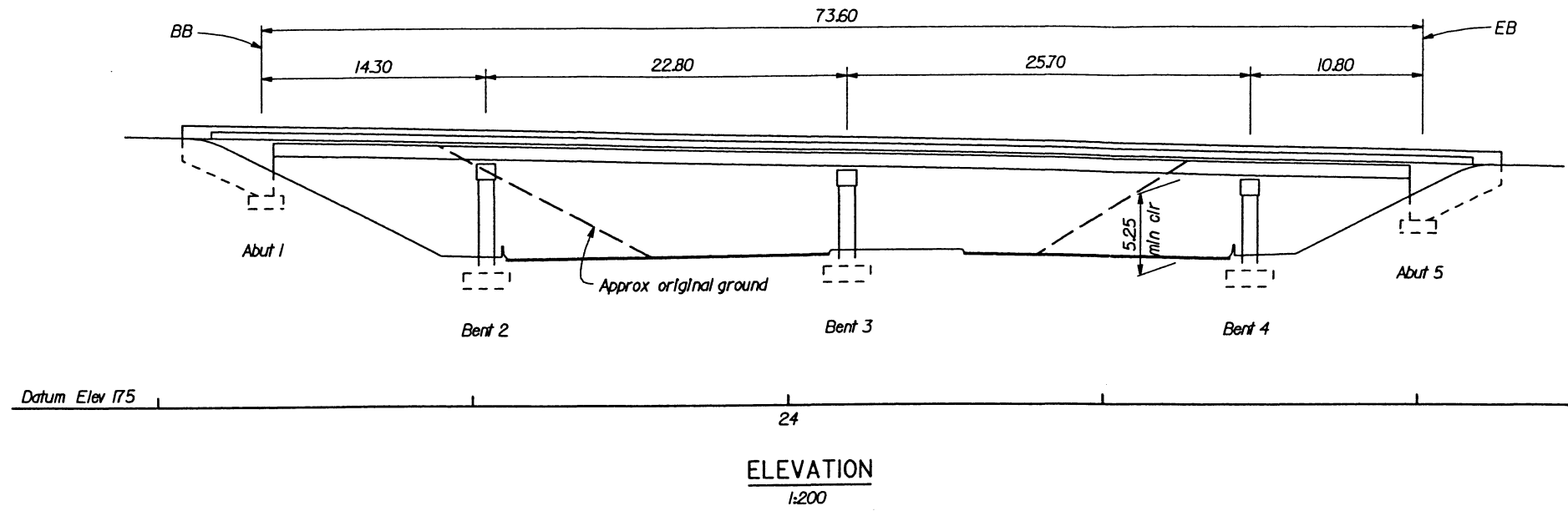


REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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271 TURN PIKE DRIVE
FOLSOM, CA. 95630

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Total Cost m ²	\$ 984/m ²

METRIC
ALL DIMENSIONS AND ELEVATIONS ARE IN METERS (m) EXCEPT AS NOTED.

DESIGN OVERSIGHT	DESIGN BY	CHECKED	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	LATROBE ROAD UNDERCROSSING ADVANCE PLANNING STUDY
SIGNOFF DATE	DETAILS BY	CHECKED		25-00715	
	QUANTITIES BY	CHECKED		KP	
				1.38	
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS			0 20 40 60 80	CU EA	DISREGARD PRINTS BEARING EARLIER REVISION DATES
					REVISION DATES (PRELIMINARY STAGE ONLY)
					08/28/96

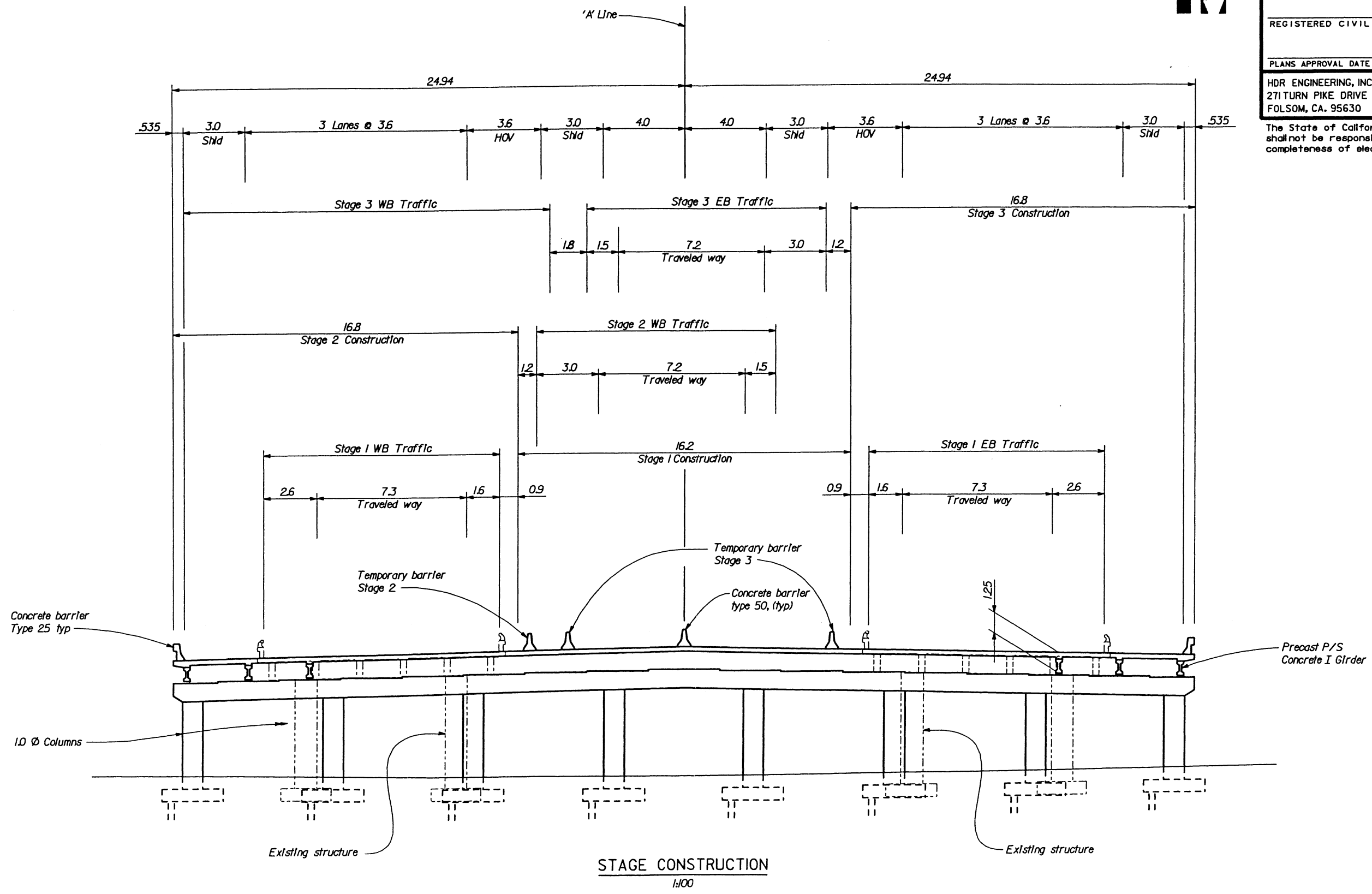


DIST	COUNTY	ROUTE	KILOMETER POSTS TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	ED	50	KP 0.28/2.52		



REGISTERED CIVIL ENGINEER
 PLANS APPROVAL DATE
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STAGE CONSTRUCTION
1:100

ALL DIMENSIONS AND ELEVATIONS ARE IN METERS (m) EXCEPT AS NOTED.

FILE: s0176stg.dgn Date plotted: 05/31/200 .26 cm

DESIGN OVERSIGHT	DESIGN BY	CHECKED	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	PROJECT ENGINEER	BRIDGE NO. 25-00715	LATROBE ROAD UNDERCROSSING ADVANCE PLANNING STUDY
	DETAILS BY	CHECKED			KP	
	QUANTITIES BY	CHECKED			1.38	
START DATE	ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS			CU	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)
			0 20 40 60 80	EA		SHEET OF

RIGHT OF WAY DATA SHEET

To: Mike Forga, Chief
 Special Funded Projects
 Caltrans, District 3

Date: June 1, 2000

03-ED-50-KP 0.28/2.52
 EA: 03198-434100

Attention: Susan Sears
 Special Funded Projects
 Right of Way

Project Description:
 El Dorado Hills Boulevard/Latrobe Road
 Interchange Reconstruction
 Modified Alternative 3A/B - Phase I

Subject: Right of Way Data Sheet

1. Assumptions and Limitations:

- a. This preliminary estimate is a rough estimate due to the limited mapping and parcel information available to the appraiser at this stage of the project. This estimate is based on the assumption that the title to the properties is marketable and no provisions have been made to protect the right-of-way. The appraisers have analyzed sales of small and large commercial sites in western El Dorado County and eastern Sacramento County to estimate the value of the portions to be acquired from each of the properties affected. No formal survey of the properties was made. No soils analysis or survey has been made available to the appraisers. No abnormal surface or subsurface soil conditions are assumed to exist on the properties.
- b. The County of El Dorado is the lead agency for this project.
- c. Utility relocation costs, where no prior encroachment permit exists, are assumed to be split between the County and the Utility Company.
- d. 25% contingency applied to costs

2. Right of Way Estimate:

	Current Value (1998 \$s) <u>(Future Use)</u>	Escalation <u>Rate/Year</u>	Escalated <u>Values</u>
Acquisition (including excess lands, damages, and goodwill)	\$3,866,732	6.00%	\$4,344,660
Utility Relocation (County Share)	\$286,500	5.00%	\$315,866
Clearance and/or Demolition	N/A		
Relocation Assistance (RAP)	N/A		
Title and Escrow	\$58,197		\$58,197
Environmental Mitigation Sites	N/A		
Park & Ride Sites	N/A		

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 EA # 03198-434100
 Page 2

Total R/W Costs (Current Value) \$4,211,429

Total R/W Costs (Escalated to 2000)

\$4,718,723
 Say \$4,719,000

Construction Contract Work
 (unescalated - add to Section 98
 Roadway Items) N/A

Anticipated Right of Way Certification: June 2001

3. Parcel Data:

Type	Dual Appr.	Utilities	RR Involvements
X <u> </u>		None <u> </u>	None <u> </u> <u>X</u>
A* <u>5</u>		U4-1 <u> </u>	C&M Agrmt <u> </u>
B <u> </u>	B <u> </u>	-2 <u> </u>	Svc Contract <u> </u>
C <u>2</u>	C <u> </u>	-3 <u> </u>	Lic/RE/Clauses <u> </u>
D <u> </u>	D <u> </u>	-4 <u>4</u>	
		US-7 <u> </u>	
* <u>5</u> Undeveloped Commercial Properties by dedication, partial takes		-8 <u> </u>	Misc. R/W Work: <u> </u>
		-9 <u>4</u>	None <u> </u>
Total <u>7</u>			RAP Displ. <u> </u>
			Clear/Demo. <u> </u>
			Const. Perm. <u> </u>
			Condemnation <u>2</u>

Areas: Right of Way 6.5 ha No. Excess Parcels 0 Excess 0

4. Are there any major items of construction contract work?
 Yes No X (If yes, explain)

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5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).
No R/W required.

A general description of the affected parcels is as follows:

- The highest and best use of each of the parcels affected by the project is commercial based on their current zoning. All parcels are vacant and are partial takes. No improvements are affected by the proposed acquisition.
- Three parcels are zoned CP (Planned Commercial.) Two will be acquired and one will be dedicated.
- The remaining four parcels are zoned GC-PD (General Commercial - Planned Development.) All will be dedicated.

6. Is there an effect on assessed valuation? Yes _____
Not Significant _____ No X (If yes, explain)

7. Are utility facilities or rights of way affected?
Yes X No _____ (If yes, attach Utility Information Sheet)

8. Are railroad facilities or rights of way affected?
Yes _____ No X (If yes, attach Railroad Information Sheet)

9. Were any previously unidentified sites with hazardous waste and/or material found? Yes _____
None Evident X (If yes, attach memorandum per Procedural Handbook Volume 1, Section 101.011)

Date: June 1, 2000
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The existence of hazardous substances which may or may not be present on the properties were not called to the attention of nor did the appraisers become aware of such during the inspection. There is no knowledge of the existence of hazardous materials on or in the affected properties.

10. Are RAP displacements required? Yes _____ No X (If yes, provide the following information)

No. of single-family _____ No. of business/nonprofit _____
No. of multi-family _____ No. of farms _____

Based on (Draft/Final) Relocation Impact (Statement/Study) dated _____, it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there material sites (imported borrow) and/or disposal sites required?
Yes _____ No X (If yes, explain)

12. Are there potential relinquishments and/or vacations?
Yes _____ No X (If yes, explain)

13. Are there any existing and/or potential Airspace sites?
Yes _____ No X (If yes, explain)

14. Are there off-site environmental mitigation sites required?
Yes _____ No X (If yes, explain)

Date: June 1, 2000
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Page 5

15. Are there off-site park & ride sites required?
Yes _____ No X (If yes, explain)

16. Indicate the anticipated Right of Way Schedule and lead time requirements.

Right of Way certification should be no later than June 2001. Pypscan lead time (from maps to R/W to project certification): 8 months.

17. Is it anticipated that any Right of Way work would be performed by Caltrans staff?
Yes _____ No X* (no, discuss)

*Oversight responsibility by Caltrans

All Right of Way work will be done by County of El Dorado

Evaluation prepared by: Kris Payne
Kris Payne
EDCDOT

I have personally reviewed this Right of Way Data Sheet. It is my opinion that the probable Highest and Best Use, estimated values, and assumptions are reasonable and proper, subject to the limiting conditions set forth, and find this Data Sheet to be complete.

Michael E. Nystrom
Clay Nystrom
Deputy District Director
Right of Way

6-9-00
Date

UTILITY INFORMATION SHEET

Date: June 1, 2000
03-ED-KP 0.28/2.52
EA:03198-434100

Project Description:
El Dorado Hills Boulevard/Latrobe Road
Interchange Reconstruction
Modified Alternative 3A/B - Phase 1

1. Utility Relocation Cost: \$ 286,500

Escalation Rate: 5.00%

2. Utility Involvement:

U4-1	_____	U5-7	_____
-2	_____	-8	_____
-3	_____	-9	<u>4</u>
-4	<u>4</u>		

3. Name of utility companies involved in project:

Pacific Bell
Pacific Gas and Electric Company (PG&E)
El Dorado Irrigation District

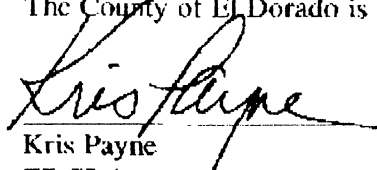
4. Types of facilities and agreements required:

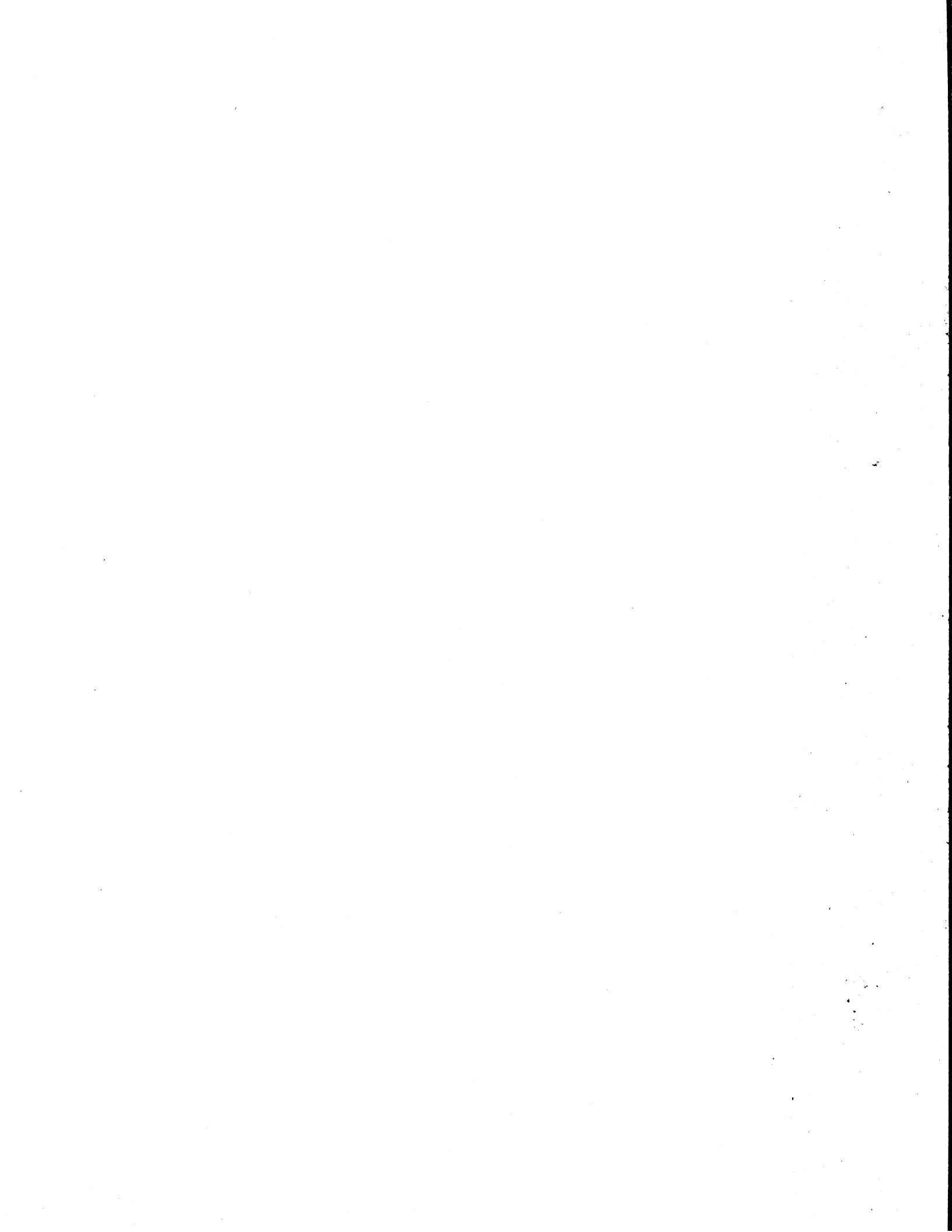
El Dorado Irrigation District sewer and water lines	-	Notice
Pacific Bell telephone overhead and underground facilities	-	Notice
PG&E gas lines	-	Notice
PG&E electrical overhead and underground facilities	-	Notice

5. Additional information concerning utility involvements on this project:

1. The \$286,500 is shown as relocation costs in 1998 dollars.
2. The County of El Dorado is the lead agency for this project.

Prepared by:


Kris Payne
EDCDOT



Draft and Final Environmental Documents:

**ENVIRONMENTAL IMPACT REPORT
ENVIRONMENTAL ASSESSMENT
(EIR/EA)**

(Attached Separately)