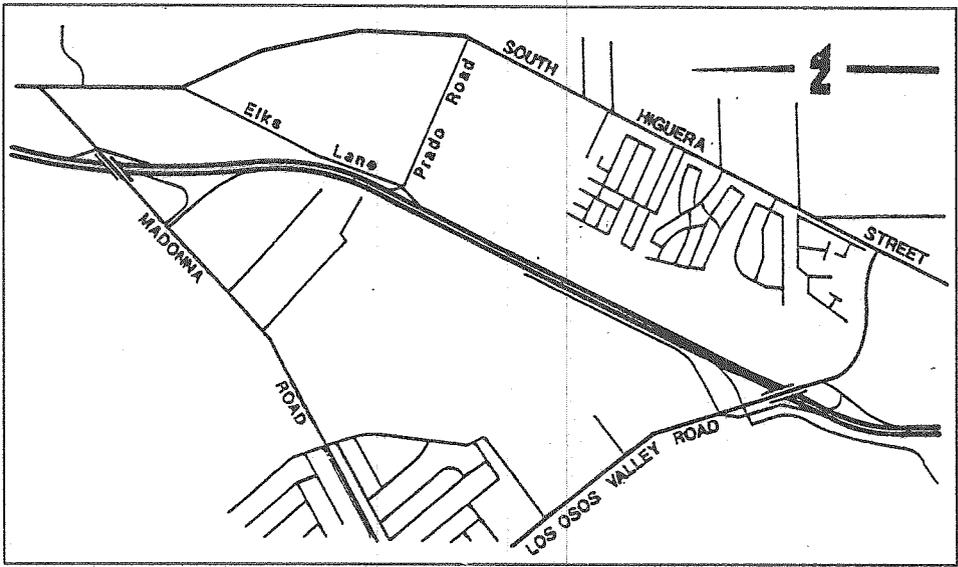


EA: 41120K

05 - SLO - 101 - KP 43.1
November 1996



PROJECT STUDY REPORT



ON ROUTE: 101
PRADO ROAD INTERCHANGE

APPROVED:

DISTRICT DIRECTOR

12/6/96
DATE

APPROVAL RECOMMENDED BY:

DISTRICT DIVISION CHIEF,
PROJECT COORDINATION

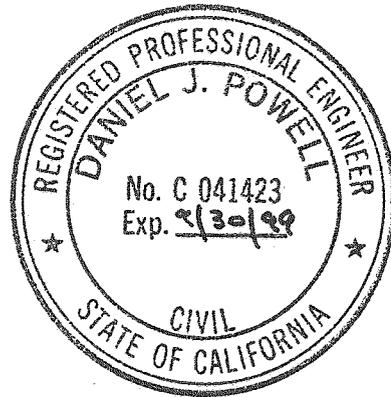
SUBMITTED BY:

PROJECT MANAGER

This Project Study Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained therein and the engineering data upon which recommendations, conclusions, and decisions are based.

Daniel J. Powell
REGISTERED CIVIL ENGINEER

11/27/96
DATE



PROJECT STUDY REPORT**1. INTRODUCTION**

The City of San Luis Obispo proposes to reconstruct the existing partial interchange at Prado Road by extending Prado Road to the west, across the freeway and constructing on and off ramps for the southbound direction. The project is required to accommodate existing and projected traffic and reduce congestion at the adjacent interchanges. Three alternatives are under consideration; a type L-1 tight diamond combined with a type L-2 standard diamond, a type L-2 standard diamond combined with a type L-8 partial cloverleaf, and a type L-2 standard diamond (Attachments 2, 3, and 4). All alternatives include auxiliary lanes and/or a collector-distributor between the proposed Prado Road interchange and the Madonna Road interchange located immediately to the north. Approximate construction costs range from \$6.9 million to \$9.9 million. If approved, this project would be funded by the City of San Luis Obispo through private developer funding and possibly City general funds.

2. BACKGROUND

Route 101 is part of the National Highway System and presently is a four-lane freeway that runs north-south through the study area, connecting the Pismo Beach area with San Luis Obispo. In the study area, Route 101 has full interchanges at Los Osos Valley Road to the south and Madonna Road to the north. Prado Road presently has a compact diamond off-ramp and a hook on-ramp in the northbound direction only. This partial interchange is located more than 1.5 km from the Los Osos Valley Road interchange but less than 1.5 km from the Madonna Road interchange. An exception from the mandatory design standard for interchange spacing has been approved for this project (Attachment 5).

The Los Osos Valley Road interchange currently is a combination L-2, spread diamond on the west side and a type L-7 cloverleaf on the east side. The Madonna Road interchange is a type L-8-cloverleaf on the west side and a type L-2 spread diamond on the east side. This section of Route 101 was constructed in 1962 and the Madonna Road overcrossing was widened in 1987. Traffic demand has increased substantially on these interchanges due to development in the area.

The proposed project is identified in the Circulation Element of the City of San Luis Obispo General Plan and is consistent with the 1994 Regional Transportation Plan (see Attachments 1.2 and 1.3). The design concepts are being coordinated with current plans by the City of San Luis Obispo to extend Prado Road across the freeway to intersect with Madonna Road and the ultimate designation of Prado Road as Route 227. The project is also being coordinated with the San Luis Obispo Council of Governments and their Major Investment Study (MIS) of the Route 101/227 corridor. In addition, the project is

being coordinated with Caltrans' plans for widening the freeway to six lanes by constructing the fifth and sixth lane in the median.

Data for the 36-month period from August 1991 through August 1994 indicates that there were 36 accidents in the Prado Road section of Route 101 between KP 41.7 (PM 25.9) and KP 44.3 (PM 27.5) which resulted in an actual rate of .47 versus the expected rate of .93 (see Attachment 8). There appears to be no pattern either in the type or cause of accident although 11 of the accidents occurred on the Prado Road interchange off-ramp or the off-ramp intersection.

3. NEED AND PURPOSE

Development in the southern part of the City of San Luis Obispo, during the 30 years since the freeway was constructed, resulted in an increase in demand for access to and from Route 101. No improvements have been made to the freeway or interchanges with the exception of the 1987 widening of the Madonna Road overcrossing. During the P. M. peak, the Madonna Road and Los Osos Valley Road interchange ramp terminal intersections currently operate at LOS D or better with the exception of the Madonna Road/southbound Route 101 ramp intersection which operates at LOS E (see Attachment 6). In year 2010, these intersections are projected to operate at LOS F due to substantial growth in traffic over the next 20 years. A full interchange at Prado Road will help distribute traffic between the Madonna, Prado, and Los Osos Valley Road interchanges however some improvements to these existing interchanges will also be required. A complete mainline and ramp analysis for year 2010 conditions indicates that the proposed facility will operate acceptably (see Attachment 7).

The present Prado Road ramps do not conform to the current policy on isolated off ramps and partial interchanges. Section 502.2 of the Highway Design Manual states that these types of facilities should be avoided because of the potential for wrong-way movements and added driver confusion.

Environmental concerns regarding growth inducement, cumulative impacts, and reduction in agricultural land have been addressed in the comprehensive EIR prepared for the City of San Luis Obispo's Land Use and Circulation Element of the General Plan. The San Luis Obispo City Council, however, intends to preserve as much open space as possible and has encouraged the development of interchange alternatives with minimal right of way requirements.

4. ALTERNATIVES

Sixteen alternatives were studied by the Project Development Team (PDT). A value analysis was made of all alternatives and three were selected by the PDT for further study. Among the alternatives considered but dropped from further study were a single

point urban interchange, a Prado Road undercrossing alternative and a “minimum project alternative”. The minimum project alternative project is defined by the Project Development Procedures Manual as a project that fits into “realistic funding expectation” and “will address the most severe problems outlined in the project justification.” As noted in Section 3, Need and Purpose, the proposed project is needed to improve LOS at the adjacent interchanges. The Madonna Road interchange, located to the north, has already had a major improvement and additional improvements are not economically or environmentally feasible. Improvements to the Los Osos Valley Road interchange, located to the south, will be studied in the future as a result of expected development. Currently, the City has not identified funding for the Los Osos Valley Road improvements. Schematic layouts of the alternatives selected for further consideration are included as Attachments 2, 3 and 4. Major features are as follows:

1. Alternative A: This alternative would combine a type L-1 tight diamond on the east side of Route 101 with a type L-2 standard diamond on the west side (see Attachment 2). The Prado Road and Madonna Road interchanges would be linked on the west side by a collector-distributor road and the Madonna Road interchange modified to serve as the exit for both interchanges. The southbound traffic would enter the freeway at the Prado Road interchange. On the east side, an auxiliary lane would be provided between the Prado and Madonna Road interchanges.
2. Alternative B: This alternative combines a type L-2 standard diamond on the west side with a type L-8 partial cloverleaf, located in the northeast quadrant of the interchange (see Attachment 3). Auxiliary lanes would connect the Prado Road and Madonna Road interchanges on both the east and west sides of Route 101.
3. Alternative C: This alternative would construct a type L-2 standard diamond at Prado Road and include an auxiliary lane between the Prado Road and Madonna Road interchange on both sides of the freeway (see Attachment 4).
4. Alternative D: This alternative would be a “No Project” alternative. Under this alternative, the existing four-lane freeway and northbound off and on ramps at Prado Road would remain the same as they are today. An overcrossing of Prado Road, southbound off and on ramps, and auxiliary lanes would not be constructed.

All build alternatives include a relocation of Elks Lane located in the northeast quadrant of the proposed interchange.

The estimated cost in 1996 dollars is summarized as follows:

(\$1,000)	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
Roadway Items	6,785	3,677	4,250
Structure Items	1,485	1,743	1,351
Subtotal Construction	8,270	5,420	5,602
Right-of-Way*	1,676	2,318	1,271
TOTAL	9,946	7,738	6,873

* Right of Way cost estimate was prepared by Caltrans(see Attachment 11)

Analysis of Proposal

Land Use - The City has designated future retail commercial planned development on the west side of Route 101 at Prado Road and is currently considering a request to rezone an area designated for offices to commercial on the east side of Route 101.

Traffic Analysis - A mainline and ramp analysis was made for each of the proposed alternatives under three scenarios for Route 101; six mixed flow lanes, six lanes with two lanes reserved for HOV and four mixed flow lanes with no HOV (see Attachment 7). The analysis included all ramp merge and diverge points for the proposed Prado Road interchange and adjacent ramps at the Madonna Road interchange to the north and the Los Osos Valley Road interchange to the south. The analysis reflects the year 2010 conditions which incorporates buildout of the San Luis Obispo General Plan and partial buildout of the remainder of the County. The traffic volumes were derived from the City's traffic model adjusted for Caltrans mainline and ramp counts.

The analysis showed that Alternative A would operate satisfactorily under the six lane flow condition with the exception of the southbound Madonna Road/Prado Road off-ramp. A single lane ramp would not provide enough capacity and a double lane ramp would result in weaving problems unless the southbound Madonna Road traffic is separated from the Prado Road traffic. This will be accomplished by relocating the off ramp a minimum of 180 meters to the north to allow adequate distance for guide signing. The Prado Road on-ramp also would experience capacity problems at the mainline merge. This can be eliminated by merging the Madonna Road traffic approximately 300 meters prior to the Prado Road traffic. Alternative A under the HOV scenario, requires an auxiliary lane on the east side between Prado Road and Madonna Road.

The analysis also showed that Alternative B would require an auxiliary lane between Madonna Road and Prado Road in the southbound direction for the six lane, all mixed flow scenario. The HOV scenario requires auxiliary lanes in both the southbound and northbound directions. The analysis showed similar results for Alternative C.

Analysis of Alternatives

An analysis of the three alternatives, listing advantages and disadvantages, are presented below.

ALT.	DESCRIPTION	ADVANTAGE	DISADVANTAGE
A	Tight diamond + standard diamond w/C-D road and aux. lane	Tight diamond requires less ROW on the east side	Tight diamond requires unsightly retaining walls at Prado Road
			Greater impact on west side development
			Potential signing difficulty for Prado & Madonna exits -
			Less conventional
			Greater impact on existing landscaping
			Highest total cost
B	Standard diamond w/aux lanes	Good access to City corp. yard	Requires most ROW on east
			LOS E for Prado NB on ramp & Madonna NB off with HOV
C	Standard diamond w/aux. lanes	Least cost	More ROW required than tight diamond
		Best traffic operations	

5. SYSTEM PLANNING

The 1986 Route Concept Report, calls for a six-lane freeway with an operational LOS D. For the purpose of this Project Study Report, Route 101 is expected to be widened to a six-lane freeway. Widening into the median will accommodate the two additional lanes and is consistent with the District strategy for freeway widening in this vicinity. In addition, this project should be designed so that auxiliary lanes can be constructed between Prado and Los Osos Valley Road in the future.

As noted above the San Luis Obispo Council of Governments is currently preparing a Major Investment Study (MIS) of the Route 101/227 corridor. The proposed interchange is consistent with the MIS and the proposal by the City of San Luis Obispo to designate the extended Prado Road as Route 227.

6. HAZARDOUS MATERIAL/WASTE

The project area is characterized by a mixture of commercial and agricultural uses. Land uses on the east side include a drive-in theater, an old service station and the City corporation yard. On the west side, land uses include the Central Coast Plaza and agricultural land. The City has indicated that the former service station has been certified by the County of San Luis Obispo as no longer contaminated. In addition the City has indicated that the UNOCAL pipeline that runs along the east side of Route 101, and predates the freeway, was replaced 5 or 6 years ago and the pipeline area is presumed to be free from hazardous materials. Alternatives B and C require right-of-way from the old service station property.

7. TRAFFIC MANAGEMENT PLAN

A traffic management plan will be required to allow for the installation and removal of the overcrossing falsework. If Alternative A is selected, the construction could be staged so that the new Prado Road interchange ramps on the west side are constructed first so southbound freeway traffic could be detoured on the ramps. On the east side, northbound traffic could be diverted at South Higuera Street and return to Route 101 at Madonna Road. Alternative B could use a similar detour arrangement. If Alternative C is selected, the new Prado Road interchange ramps on both sides of the freeway could be used to detour the traffic. Cost of the traffic management plan is minimal and is included in the cost estimate contingency.

8. ENVIRONMENTAL CLEARANCE

Potential environmental issues and constraints were identified by a Preliminary Environmental Analysis Report (PEAR). The PEAR addressed environmental issues such as land use, hazardous waste, air quality, noise, water resources, floodplains, biological resources, and cultural resources. None of these issues appear to be of major significance, however the project does have the potential to affect special-status plant and wildlife if one or more species occurs on the project site. Seasonal surveys are needed to determine their presence before a conclusion can be reached. The probability of special-status species occurring is considered to be relatively low. Any potential impacts can also be reduced by avoiding the wetlands that are adjacent to the project area. An initial study should be prepared to determine the potential for significant impacts. Based on the PEAR it appears that Negative Declaration will be prepared for this project.

A visual impact assessment should be prepared and photosimulations of the proposed project developed. In addition, cultural resources surveys should be made. The proposed project is currently included in the regional transportation plan (RTIP).

9. FUNDING/SCHEDULING

This project will be 100% funded by the City of San Luis Obispo including PR/ED and PS&E for both construction and cost and staff time. The proposed schedule is as follows:

Start Project Report/Environmental Document	1/97
Complete PR/Environmental Document	1/98
Complete Plans, Specifications & Estimates	1/99
Right of Way Certification	1/99
Start Construction	3/99
Complete Construction	6/00

Total costs in 1999 dollars including right of way costs are estimated as follows:
Alternative A \$11.1 million, Alternative B \$8.7 million and Alternative C \$7.8 million.

Further project development will require the execution of a cooperative agreement with the City of San Luis Obispo.

10. DISTRICT CONTACT

The Caltrans District 5 Project Manager for this PSR was:

Jerry Gibbs
Caltrans, Local Funded Projects Branch
(805) 542-4606

11. REVIEWS AND COORDINATION

This PSR was developed by collaboration of Project Development Team members. In addition to the above Project Manager, the PDT consisted of the following members.

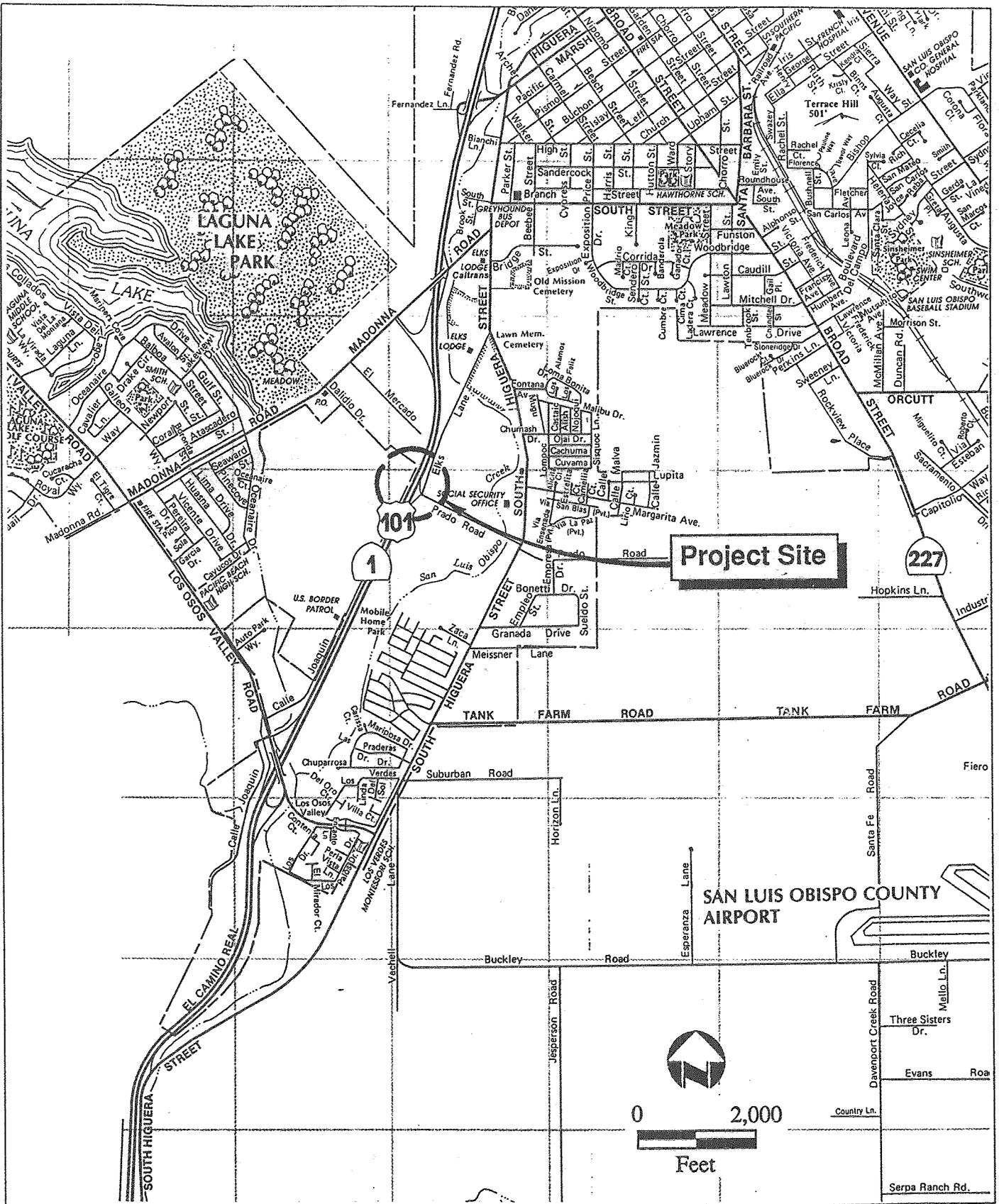
Aileen Loe Caltrans, District 5 Environmental Branch (805) 549-3103	Mike McCluskey City of San Luis Obispo Public Works Director (805) 781-7210	Debra Heumann Caltrans, District 5 Special Studies Branch (805) 549-3120	Dan Powell Nolte and Associates, Inc. Project Manager (510) 934-8060
Wayne Peterson City of San Luis Obispo City Engineer (805) 781-7200	Kim Erickson Jones & Stokes Associates Environmental Planner (916) 737-3000	Jim Daisa Fehr & Peers Associates Traffic Engineer (510) 284-3200	Jill Peterson San Luis Obispo COG Transportation Engineer (805) 781-5764
Terry Sanville City of San Luis Obispo Principal Transportation Planner (805) 781-7178	Kenneth Hintzman Caltrans State & Local Devel. Prog (916) 653-3420		

12. RECOMMENDATIONS

It is recommended that this Project Study Report is approved and that a Cooperative Agreement with the City of San Luis Obispo be prepared and approved.

ATTACHMENTS

1. Location Map
 - 1.1 City of San Luis Obispo Circulation Element Streets Classification Map
 - 1.2 City of San Luis Obispo Circulation Element Truck Route Map
2. Alternative A
3. Alternative B
4. Alternative C
5. Typical Cross Sections
6. Fact Sheet, Exceptions to Mandatory Design Standard
7. US 101/ Prado Road Project Study Report - Operations Analysis
8. US 101/Prado Road PSR - Operating Analysis/Prado Road PSR - Revised Mainline and Ramp Analysis
9. TASAS Table B
10. Preliminary Project Cost Estimate
11. Right-of-way Data Sheets



**ATTACHMENT 1.1
LOCATION MAP**

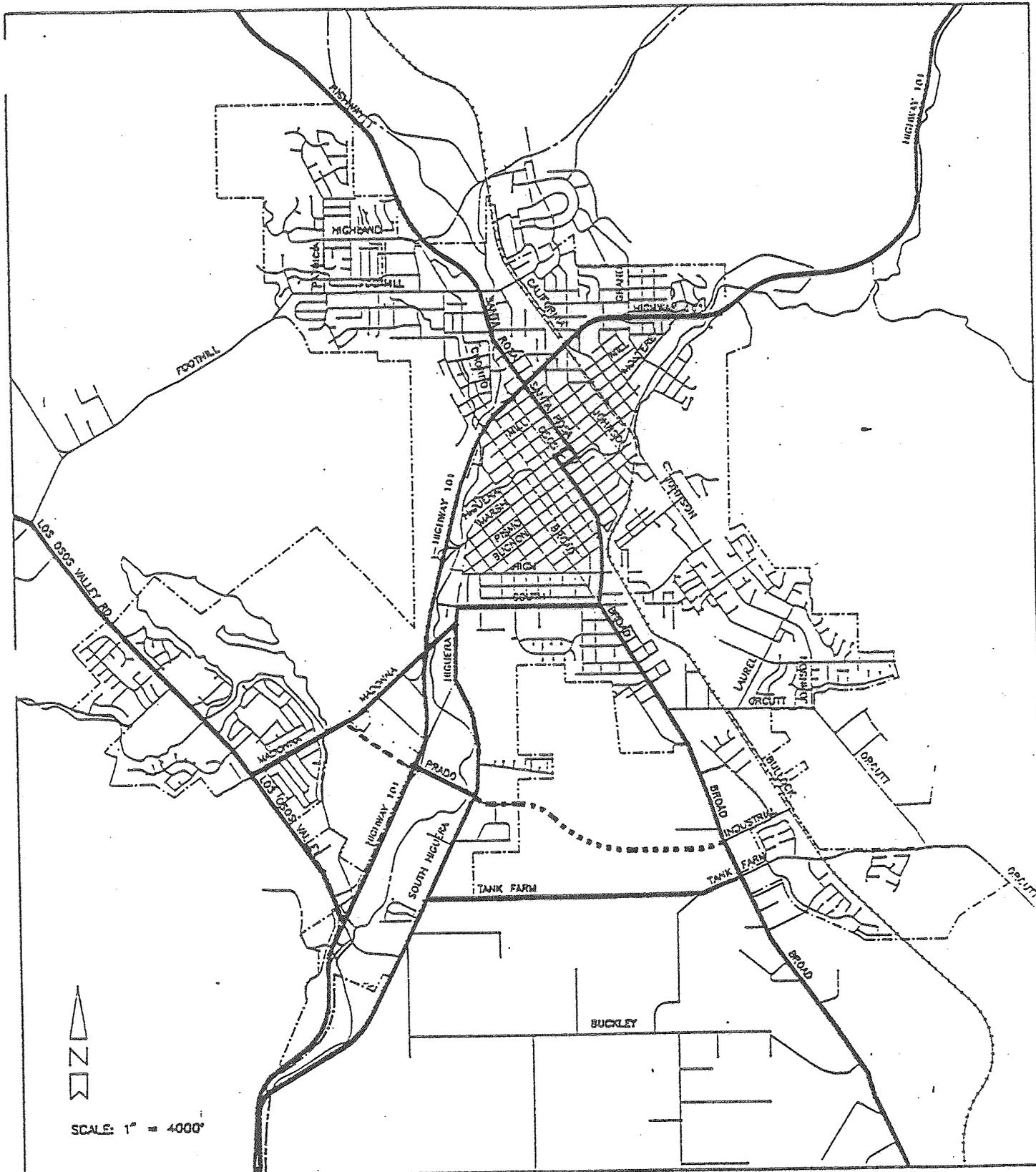
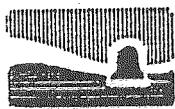


FIGURE #5: TRUCK ROUTE MAP



CITY OF SAN LUIS OBISPO

TRUCK ROUTE LEGEND

-  EXISTING TRUCK ROUTE
-  FUTURE TRUCK ROUTE



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
05	SLO	101		

REGISTERED CIVIL ENGINEER (DATE)	PLANS APPROVAL DATE
CITY OF SAN LUIS OBISPO 990 PALM STREET SAN LUIS OBISPO, CA. 93403-8100	
NOLTE and ASSOCIATES 60 S. MARKET STREET, SUITE 300 SAN JOSE, CA. 95113	

REGISTERED PROFESSIONAL ENGINEER	NO. 15612388
CIVIL ENGINEER	STATE OF CALIFORNIA

ALTERNATIVE A
PRADO ROAD
1:10,000
ATTACHMENT 2



DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
05	SLO	101		

REGISTERED CIVIL ENGINEER (0412)
 PLANS APPROVAL DATE _____
 CITY OF SAN LUIS OBISPO
 990 PALM STREET
 SAN LUIS OBISPO, CA. 93403-8100

NOTE and ASSOCIATES
 60 S. MARKET STREET, SUITE 300
 SAN JOSE, CA 95113

REGISTERED PROFESSIONAL ENGINEER
 No. _____
 Exp. _____
 STATE OF CALIFORNIA

FILE REFUSION PLANS

ALTERNATIVE B
PRADO ROAD
ATTACHMENT 3

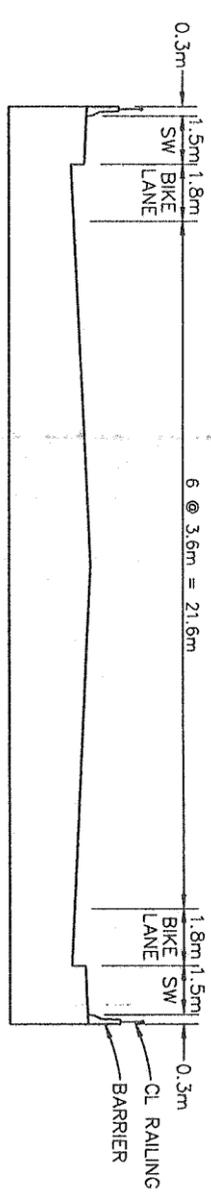


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
05	SLO	101		

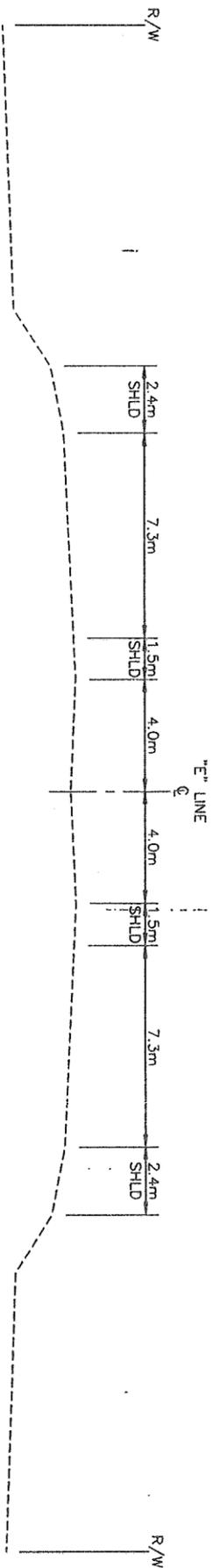
REGISTERED CIVIL ENGINEER (DATE)	REGISTERED PROFESSIONAL ENGINEER
PLANS APPROVAL DATE	
CITY OF SAN LUIS OBISPO 990 PALM STREET SAN LUIS OBISPO, CA. 93403-8100	
NOLTE and ASSOCIATES 60 S MARKET STREET, SUITE 300 SAN JOSE, CA. 95113	

ALTERNATIVE C
 PRADO ROAD
 ATTACHMENT 4

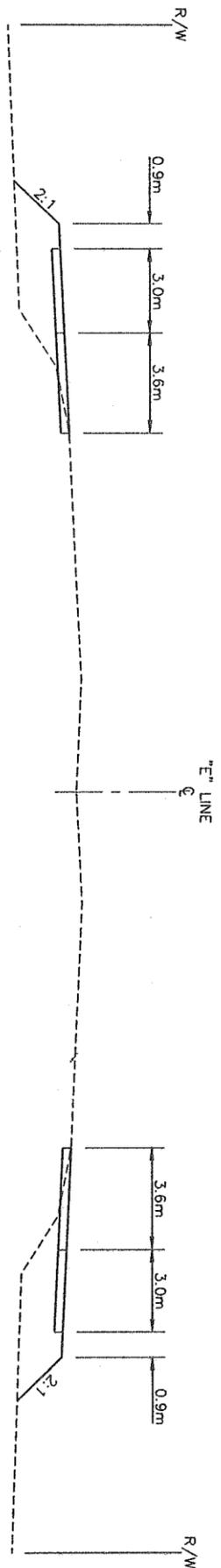
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION		DESIGN OVERSIGHT	CALCULATED/DESIGNED BY	CPM	DATE	REVISED BY				
			CHECKED BY	RAL		DATE REVISED				



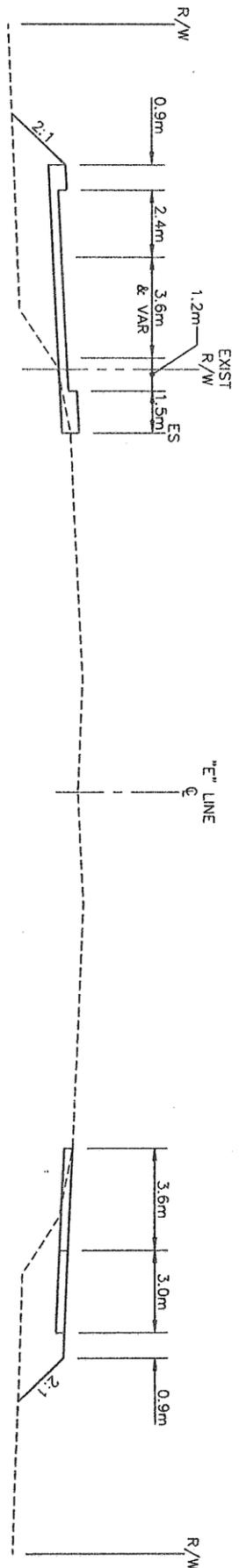
TYPICAL SECTION
PRADO ROAD OC



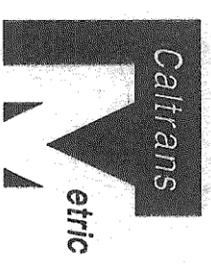
ROUTE 101
EXISTING (NO WIDENING)



ROUTE 101-ALTERNATIVE B & C
PRADO RD TO MADONNA RD



ROUTE 101-ALTERNATIVE A
PRADO RD TO MADONNA RD



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
05	SLO	101		

REGISTERED CIVIL ENGINEER (DATE)

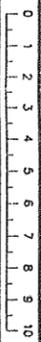
PLANS APPROVAL DATE

CITY OF SAN LUIS OBISPO
990 PALM STREET
SAN LUIS OBISPO, CA 95403-8100

NOLTE and ASSOCIATES
60 S. MARKET STREET, SUITE 300
SAN JOSE, CA 95113

REGISTERED PROFESSIONAL ENGINEER
C. P. METZGER
No. _____
Exp. _____
STATE OF CALIFORNIA

FOR REDUCED PLANS
ORIGINAL SCALE IS IN CENTIMETERS



TYPICAL SECTIONS

1:100

X-1

LAST REVISION	09/22/06	JDL
	06.16	

CU
SIST
ENG - N.S./D.S./S.A./D.S./D.A./M.H.

05 - SLO - 101 - KP 43.1
Prado Road Interchange



Fact Sheet EXCEPTIONS TO MANDATORY DESIGN STANDARDS



Prepared by:

Daniel J. Powell
NOLTE and ASSOCIATES, Inc.

Submitted by:

Debra J. Heumann
Debra J. Heumann
Design Engineer

4-11-96
Date

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Telephone

Recommended
for Approval:

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Jerald T. Gibbs
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Concurrence
by:

Steve N. Price
Steve N. Price
District Division Chief
Project Development

4/17/96
Date

(805) 549-3108
Telephone

Approved by:

Kenneth Hintzman
Kenneth Hintzman
Project Development Coordinator
for OPPD Chief

4-11-96
Date

1. **PROPOSED PROJECT AND NONSTANDARD FEATURE**

A. **PROJECT DESCRIPTION:** The project, located at KP 43.1 (PM 26.8), in the City of San Luis Obispo, would construct a full interchange at the existing Prado Road interchange on Route 101 by extending Prado Road to the west, across the freeway and eventually to Madonna Road. Three alternative interchange configurations are under consideration at this time. Alternative A (Attachment 2) would combine a type L-1 tight diamond on the east side with a type L-2 standard diamond on the west side. The Prado Road and Madonna Road interchanges would be linked on the west side by a collector- distributor road and the Madonna Road interchange modified to serve as the exit for both interchanges. The southbound traffic would enter the freeway at the Prado Road interchange. On the east side, an auxiliary lane would be provided between the Prado Road and Madonna Road interchanges. Alternative B (Attachment 3) combines a type L-2 standard diamond on the west side with a type L-8 partial cloverleaf on the east side. Auxiliary lanes would connect the Prado and Madonna Road interchanges in both the northbound and southbound directions. Alternative C (Attachment 4) is a type L-2 standard diamond interchange and includes auxiliary lanes in both directions between Prado Road and Madonna Road.

B. **NONSTANDARD FEATURE:** The proposed interchange will be located less than 1.5 km from the Madonna Road interchange which is located 1.0 km (.6 miles) to the north. The proposed interchange will improve conditions in the area by constructing a complete interchange to replace the partial interchange and by reducing traffic congestion on the adjacent interchanges.

Auxiliary lanes, as required by HDM index 504.5, are provided for all alternatives between the Madonna Road and Prado Road interchanges. The weaving distances between Prado Road and Los Osos Valley Road interchanges are greater than the minimum of 600m. The level of service for the weaving sections is E or better and conforms to the requirements of the San Luis Obispo Congestion Management Program. The analysis of the weaving sections as discussed by HDM index 504.7 are addressed in the Fehr & Peers Associates analysis of the mainline and ramps for the proposed Prado Road interchange (Attachment 5).

C. **STANDARD FOR WHICH EXCEPTION IS REQUESTED:** Index 501.3, Spacing, of the Highway Design Manual (HDM), states that "The minimum interchange spacing shall be 1.5 km in urban areas, 3.0 km in rural areas, and 3.0 km between freeway-to-freeway interchanges and local street interchanges."

D. **EXISTING HIGHWAY:** Part of the National Highway System, Route 101, is a four-lane freeway that runs north-south through the study area, connecting the Pismo Beach area with San Luis Obispo. In the study area, Route 101 has full interchanges at Los Osos Valley Road and Madonna Road. Prado Road presently has a compact diamond off-ramp and a hook on-ramp in the northbound direction only. This partial interchange is located more than 1.5 km

(1517 m) from the adjacent interchange to the south at Los Osos Valley Road but less than 1.5 km from the Madonna Road interchange to the north.

This section of Route 101 was constructed in 1962. The Madonna Road overcrossing was widened in 1987. General highway characteristics are as follows:

Traveled way (each way)	3.6 m each (2-12 ft)
Outside shoulders	2.4 m (8 ft)
Inside shoulder	1.5 m (5 ft)
Median width (etw to etw)	11 m (36 ft)
Design speed	110 km/h (70 mph) horizontal curves = 760 m (2500) ft minimum
Sight distance	230 m (750 ft) minimum
Grades	essentially flat, max. grade approx. 2%
Cross slopes	2% on tangent south of Prado Road
Superelevation	5% max. north between Prado and Madonna Roads
Minimum Vertical Clearance	4.67m (15'-4") at the northbound lanes of the Madonna Road overcrossing

E. **TOTAL PROJECT COST:** The estimated cost in 1995 dollars, including utility relocation, is summarized as follows: (\$ 1,000)

	Alternative A	Alternative B	Alternative C
Roadway Items	5,883	3,677	4,250
Structure Items	1,831	2,267	1,776
Subtotal Construction	7,714	5,944	6,026
Right of Way	1,507	2,045	1,169
Total	9,221	7,989	7,196

No environmental costs are anticipated.

2. **REASON FOR REQUESTING EXCEPTION:** An exception to Section 501.3 of the HDM is requested because it is not economically feasible to provide 1.5 km spacing between the Prado Road and Madonna Road interchanges. Location of the Prado Road interchange further to the south would reduce the spacing between the Prado Road and Los Osos Valley Road interchanges to less than 1.5 km. Relocation of the Madonna Road interchange to the north would be very expensive and also adversely impact the Marsh Road interchange located to the north.

HDM states that spacing of less than 1.5 km may be developed in urban areas by the use of auxiliary lanes and collector- distributor roads. The HDM also notes that the use of isolated off ramps or partial interchanges, such as the present Prado Road interchange, should be avoided. An analysis of the mainline and ramps for the proposed Prado Road interchange was made by Fehr & Peers Associates (Attachment 5).

3. ADDED COST TO MAKE STANDARD

Added cost to make standard is very expensive. As noted above, a relocation of the Madonna Road interchange to the north would negatively impact the Marsh Road interchange and would cost at least \$15 million. A braided ramp concept does not increase the interchanging spacing but it would increase the spacing between the on/off ramps. The additional cost for the longer ramps and additional structure will add an estimated \$8 million to the cost of the project excluding right of way and environmental mitigation costs. The braided ramps will have a significant impact on the commercial center on the west side and the creek on the east side. It is doubtful that approval by the Corps of Engineers would be granted for wetland loss caused by this alternative.

4. TRAFFIC DATA

The design year(2020) AADT on Route 101 is forecasted to be 76,000 south of the Prado Road interchange and 88,400 north of the interchange. The design hourly volume has been forecasted for two scenarios, a six mixed flow lane freeway configuration and a six-lane facility with two lanes reserved for HOV use. The forecasted design hourly volumes are: south of Prado Road, 4100 to 4800 for mixed flow and 3600 to 3800 for HOV's; north of Prado Road, 5000 for mixed flow and 3500 to 4600 for HOV's.

5. ACCIDENT ANALYSIS

Data for the 36-month period from August 1991 through August 1994 indicates that there were 36 accidents in the Prado Road section of Route 101 between KP 41.7 (PM 25.9) and KP 44.3 (PM 27.5) which resulted in an actual rate of .47 versus the expected rate of .93 (Attachment 6). There appears to be no pattern either in the type or cause of accident although 11 of the accidents occurred on the Prado Road interchange off-ramp or the off-ramp intersection.

Data during the same period indicates that there were 24 accidents in the Madonna Road interchange section of Route 101 between KP 43.6 (PM 27.08) and KP 44.6 (PM 27.75) which resulted in an actual rate of .14 versus the expected rate of 1.00. Eight of the accidents occurred on the ramps or the off-ramp intersections, 5 on southbound ramps and 3 on the northbound ramps.

Construction of a full interchange with auxiliary lanes may not contribute to any increase in the accident rate.

6. INCREMENTAL IMPROVEMENTS

An incremental improvement of the existing interchange by constructing southbound ramps without constructing an overcrossing will not improve traffic conditions in the area and is not acceptable.

7. **FUTURE CONSTRUCTION**

The Route Concept Report calls for a six-lane freeway between Los Osos Valley Road and Madonna Road. Funding has not been provided for this widening. A major investment study is presently being conducted by San Luis Obispo Council of Governments.

8. **PROJECT REVIEWS**

Tim Craggs, Headquarters Project Development Coordinator, has reviewed the project preliminary geometrics in March, 1995.

9. **ATTACHMENTS**

1. Location Map
2. Alternative A
3. Alternative B
4. Alternative C
5. Prado Road PSR - Revised Mainline and Ramp Analysis
6. TASAS Table B



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TECHNICAL MEMORANDUM

Date: August 12, 1996
To: Nolte & Associates
Dan Powell
From: James M. Daisa, P.E.
Subject: US 101/Prado Road Project Study Report-Operations Analysis

This memorandum summarizes the operations analysis for the proposed US 101/Prado Road interchange in San Luis Obispo. The analysis consists of existing and future (year 2020) Levels of Service at the Prado Road interchange intersections, intersections within the adjacent interchanges at Madonna Road and Los Osos Valley Road, and ramp junction and mainline service levels on US 101. This memorandum briefly describes the assumptions and methods used in the analysis, and discusses the findings.

There are two primary objectives of this analysis:

- 1) Analyze the need for auxiliary lanes on US 101 between the proposed Prado Road interchange and the adjacent interchanges at Madonna and Los Osos Valley Roads.
- 2) Evaluate two types of interchange configurations at the proposed Prado Road interchange and determine the required lane configurations to maintain acceptable peak hour service levels.

The first objective, analyzing the need for auxiliary lanes, was analyzed in detail and presented to the City of San Luis Obispo and Caltrans District 5 in a March 11, 1996 letter to Nolte Associates. The conclusion of that analysis was that auxiliary lanes are required between the Prado Road and Madonna interchanges in the northbound and southbound directions, but are not required between the Prado and Los Osos Valley interchanges. These findings are summarized in this memorandum, and the detailed March 11 analysis is attached as an appendix.

Conclusions

The operations analysis results in the following key findings:

- Twenty year traffic projections result in the need for auxiliary lanes on US 101 between the Prado and Madonna interchanges.



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- While the proposed Prado Road interchange relieves some of the traffic demand on adjacent interchanges, substantial growth in traffic will cause the Madonna and Los Osos Valley Road interchange ramp intersections to fail (LOS F) with existing lane configurations. These interchanges will require improvements to accommodate future growth in traffic.
- The proposed Prado Road interchange will operate acceptably (LOS D or better) with either a spread diamond (Type L-2) or tight diamond (Type L-1) configuration.
- Both the spread and tight diamond configurations require a six-lane Prado Road overcrossing (two through lanes in each direction and two turn lanes in the median).
- The spread diamond configuration requires less right-of-way than the tight diamond configuration at the east and west ends of the overcrossing to accommodate approach lanes.

Study Area

The study area for this analysis is shown in Figure 1. It encompasses US 101 from the Madonna Road interchange south to the Los Osos Valley Road interchange. The existing Prado Road interchange is located between these two interchanges. Ramp junction intersections with surface streets are analyzed at all three interchanges. The analysis includes the intersection of Madonna Road and South Higuera Street, located just east of the Madonna interchange. The existing lane configurations at the study intersections are shown in Figure 2.

Prado Road Interchange Configurations

Two configurations are analyzed for the proposed Prado Road interchange, 1) a spread diamond (Type L-2) interchange, and 2) a tight diamond (type L-1) interchange. Both of these configurations can be accommodated in the Alternative C design. Evaluation of the spread diamond interchange allows analysis of the surface street ramp junctions as isolated intersections due to the distance between them. Due to the proximity of ramp junction intersections in the tight diamond configuration, they are analyzed as synchronized intersections operating essentially as a single intersection with split phasing on all approaches.

Traffic Forecasts

Existing average daily, and afternoon peak hour mainline, ramp, and intersection traffic volumes are from traffic counts conducted in 1995, or derived from the base year (1990) San Luis Obispo Citywide Traffic Model. Traffic counts are used where available. Model generated traffic volumes are adjusted to account for inaccuracies in the model. Figure 3 presents the existing average daily and PM peak hour traffic volumes at the study facilities.

Forecast average daily, and afternoon peak hour volumes are derived from the General Plan Buildout Citywide Traffic Model, reflecting conditions in the year 2020. Raw model volumes



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are adjusted to account for model inaccuracies in the base year version. Since US 101 forecasts exceed the capacity of the freeway, mainline and off-ramp traffic has been "constrained" to equal mainline capacity, about 4,000 vehicles per hour per direction. A detailed discussion of the constrained forecasts and the ramifications of demand exceeding capacity is included in the March 11 analysis located in the appendix. Figure 4 presents the year 2020 average daily and PM peak hour traffic projections at the study facilities.

Assumptions and Methodology

Mainline Lane Configurations

The existing conditions analysis of the mainline and ramp junctions assume the existing number of lanes on US 101, two lanes in each direction. Future analysis of mainline and ramp junctions also assume two lanes in each direction. See March 11 analysis in appendix for further assumptions related to mainline and ramp junctions.

Intersection Lane Configurations and Control

The existing conditions analysis of intersections assumes the existing lane configurations, control, and signal phasing and timing. Future analysis of intersections assumes existing configurations, control, and signal phasings and timing, except at the Prado Road interchange. The proposed Prado Road interchange intersection lane configurations and signal phasing and timing has been designed to permit acceptable operation. Details of the operations analysis assumptions (phasing, cycle lengths, phase timings) are shown in the service level calculation worksheets in the appendix.

Capacities

For the operations analysis, mainline capacity is assumed to be 2,000 vehicles per hour per lane. Intersections are analyzed assuming an ideal saturation flow rate of 1,900 vehicles per hour. The ideal saturation flow rate is adjusted based on the standard adjustments presented in the 1994 Highway Capacity Manual.

Methodology

Mainline and ramp junction service levels are based on the techniques presented in the Caltrans Highway Design Manual and Traffic Bulletin No. 4. Intersection service levels are based on the operations method presented in the 1994 Highway Capacity Manual for signalized and unsignalized intersections.



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Operations Analysis

Existing Intersection Levels of Service

Table 1 presents the existing intersection service levels in the PM peak hour. All except one intersection presently operates at LOS D or better. The intersection of Madonna Road with the US 101 southbound ramps operates at a LOS E.

Existing Mainline and Ramp Junction Levels of Service

Table 2 presents the existing mainline and ramp junction service levels in the PM peak hour. All of the ramp junction merge and diverge points between the Madonna and Los Osos Valley interchanges operate at LOS A. Similarly, mainline operations are at LOS A at all ramp junctions, with directional traffic volumes less than 2,500 vehicles per hour.

Year 2020 Intersection Levels of Service

Table 3 presents the projected intersection service levels in the PM peak hour. With existing lane configurations the surface street ramp junction intersections at the Madonna and Los Osos Valley interchanges will operate at LOS F due to substantial growth in traffic volumes over the next 20 years. While the proposed Prado Road interchange relieves some of the traffic demand at the adjacent interchanges, the future demand at the Madonna and Los Osos Valley interchange ramp intersections substantially exceed the capacity of the present lane configurations. The Madonna and Los Osos Valley Road interchanges will require improvements to accommodate the projected growth in traffic.¹ The intersection of Madonna/South Higuera operates at LOS C in the future. While the traffic at some movements increase at this intersection, several movements decrease due to diversion of traffic to the full the Prado Road interchange.

The analysis of the Prado Road interchange intersections is presented in Table 3 for the two interchange configurations. Based on traffic projections, the ramp intersections warrant signalization.

- The ramp intersections in the spread diamond (Type L-2) interchange will operate at LOS B and LOS C based on the lane configurations shown in Figure 5.
- The ramp intersections in the tight diamond (Type L-1) interchange will operate at LOS D based on the lane configuration shown in Figure 6.

¹ The San Luis Obispo Congestion Management Program (CMP) includes improvement projects to the Madonna and Los Osos Valley Road interchanges. Local funds totaling \$350,000 is specified for improvements to the Madonna Road on and off-ramps, and \$3,000,000 in developer funds are specified for widening the overcrossing and signal and drainage improvements at the Los Osos Valley Road interchange. The fiscal year for funding these projects is yet to be determined. In addition, the CMP reserves funds for various Project Study Reports sponsored by SLOCOG.



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As shown in Figures 5 and 6, the lane requirements are different between the two configurations. While both configurations require a 6-lane Prado Road overcrossing (2 through lanes in each direction and 2 left turn lanes in the median), the spread diamond configuration requires less right-of-way on the east and west ends of the overcrossing to accommodate approach lanes. Even in the spread diamond configuration (Figure 5) the required westbound right turn lane may impact the right-of-way of a recently proposed development project located adjacent to the northeast quadrant of the interchange. The tight diamond configuration (Figure 6) would have an even greater impact on the development proposal.

Year 2020 Mainline and Ramp Junction Levels of Service

Table 4 summarizes the findings of the March 11 analysis located in the appendix. The March 11 analysis determined the need for auxiliary lanes between the Prado and Madonna interchanges in both directions, as reflected in Table 4. All of the ramp junction merge and diverge points between the Madonna and Los Osos Valley interchanges will operate at LOS E or better. The mainline, with demand exceeding capacity requiring constraining of upstream volumes, will operate at LOS E within the study area. LOS E is the future service level standard adopted by the San Luis Obispo Congestion Management Agency for mainline operations through the City of San Luis Obispo. The weave sections between the Prado and Madonna interchanges will operate at LOS D or better.

Prado Road Interchange Queuing Analysis

The operations analysis includes estimations of the average and maximum queue lengths for each lane group during any given cycle in the PM peak hour. The turn bay storage lengths shown in Figures 5 and 6 are based on the maximum queue lengths determined in the analyses. Off-ramp queues at the Prado Road interchange are relatively short and do not back-up onto the mainline.

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Table 1

US 101/PRADO ROAD PROJECT STUDY REPORT
INTERSECTION LEVELS OF SERVICE¹

Existing Conditions (PM Peak)²

Intersection	LOS	Delay (sec./veh.)
Madonna/101 NB Ramps	D	27.4
Madonna/101 SB Ramps	E	46.1
Madonna/South Higuera	B	11.0
Prado/101 NB Ramps ³	A	3.9
Los Osos Valley/101 NB Ramps	C	17.8
Los Osos Valley/101 SB Ramps	B	14.6

-
- ¹ Intersection service levels based on 1994 Highway Capacity Manual operations methodology. See Figure 2 for existing lane configurations.
 - ² Existing traffic volumes and service levels derived from the City of San Luis Obispo Base Year (1990) Citywide Traffic Model, except the intersections of Madonna/South Higuera and Prado/101 NB ramps which are from 1995 pm peak hour turning movement counts. See Figure 3 for existing PM peak hour turning volumes.
 - ³ All-way stop controlled intersection analyzed using 1994 Highway Capacity Manual techniques.

Table 2
US 101/PRADO ROAD PROJECT STUDY REPORT
MAINLINE/RAMP LEVELS OF SERVICE¹

Existing Conditions (PM Peak Hour)²

Segment	Junction Type	Flow Rate	LOS	Mainline LOS at Junction
Los Osos to Prado NB	Merge	859	A	A
Los Osos to Prado NB	Diverge	965	A	A
Prado to Madonna NB	Merge	1102	A	A
Prado to Madonna NB	Diverge	466	A	A
Madonna to Los Osos SB	Merge	819	A	A
Madonna to Los Osos SB	Diverge	808	A	A

-
- 1 Service levels based on Caltrans Highway Design Manual and Traffic Bulletin #4 methodologies.
 - 2 Existing traffic volumes on mainline and ramps derived from 1990 Caltrans traffic counts and the 1990 Citywide Traffic Model. See Figure 3 for existing PM peak hour traffic volumes.
 - 3 Maximum capacity of merge or diverge ramp junction is 2,000 vehicles per hour.

Table 3

US 101/PRADO ROAD PROJECT STUDY REPORT
INTERSECTION LEVELS OF SERVICE¹

Year 2020 Conditions (PM Peak)²

Intersection	LOS	Delay (sec./veh.)
Madonna/101 NB Ramps	F	3
Madonna/101 SB Ramps	F	3
Madonna/South Higuera	C	21.0
Los Osos Valley/101 NB Ramps	F	3
Los Osos Valley/101 SB Ramps	F	3
Prado/101 Interchange		
1. Spread diamond configuration		
Prado/101 NB Ramps	B	10.3
Prado/101 SB Ramps	C	24.9
2. Tight diamond configuration	D	38.1

¹ Intersection service levels based on 1994 Highway Capacity Manual operations methodology. All intersections except at the Prado Road interchange assume existing lane configurations. See Figure 5 and 6 for Prado Road intersection configurations.

² Year 2020 traffic volumes are derived from the General Plan Buildout Citywide Traffic Model (San Luis Obispo). See Figure 4 for 2020 PM peak hour turning volumes.

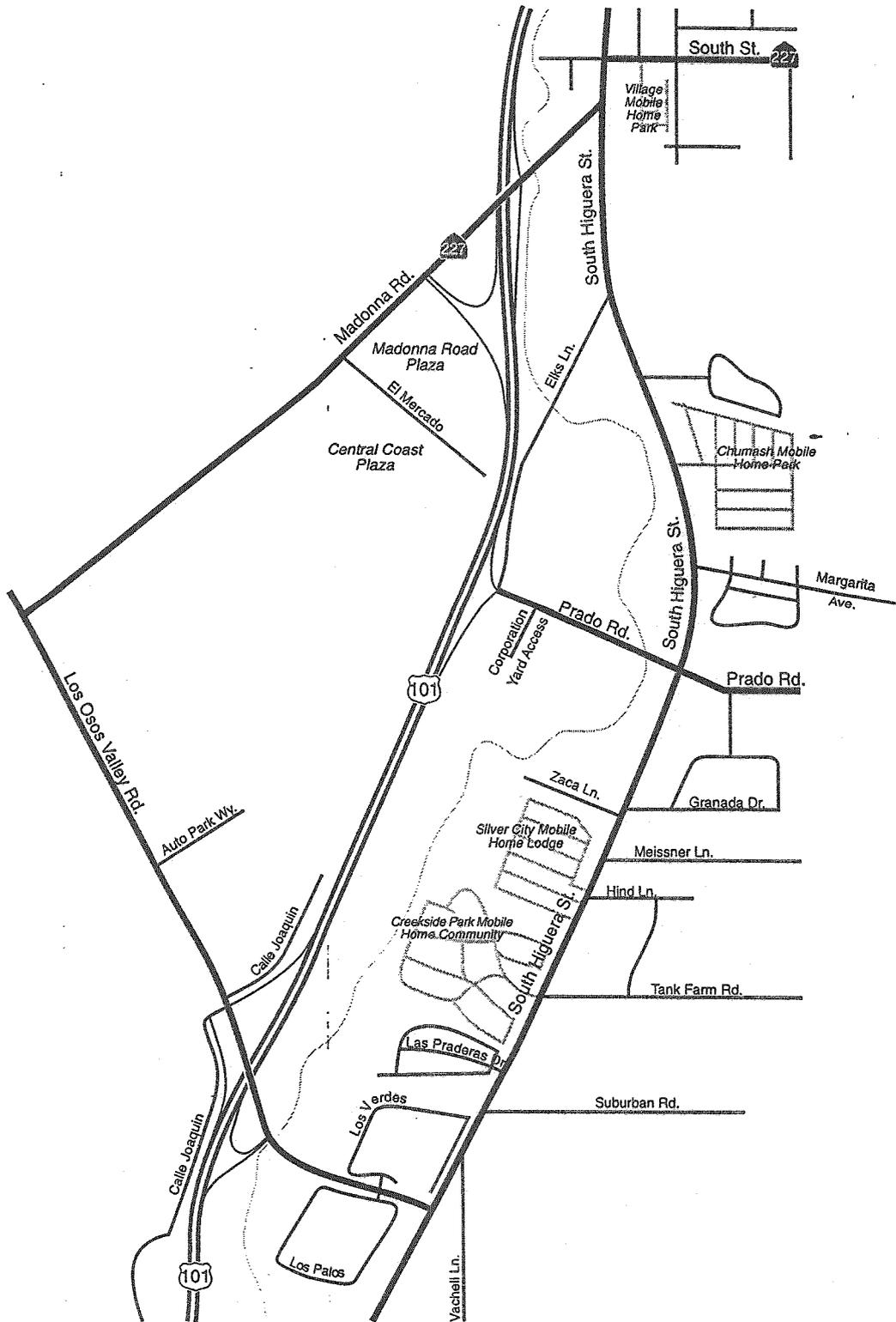
³ Intersections operating at LOS F experience average vehicle delays in excess of 60 seconds.

Table 4
US 101/PRADO ROAD PROJECT STUDY REPORT
MAINLINE/RAMP LEVELS OF SERVICE¹

Year 2020 Conditions (PM Peak Hour)²

Segment	Junction Type	Flow Rate	LOS	Mainline LOS at Junction
Los Osos to Prado NB	Merge	1820	E	E
Los Osos to Prado NB ⁴	Diverge	1674	D	E
Prado to Madonna NB	Weave ⁵	Alt. B	C	E
Prado to Madonna NB	Weave ⁵	Alt. C	B	E
Madonna to Prado	Weave ⁵	Alt. B	D	E
Madonna to Prado	Weave ⁵	Alt. C	D	E
Prado to Los Osos SB	Merge	1851	E	E
Prado to Los Osos SB	Diverge	1812	E	E

- 1 Service levels based on Caltrans Highway Design Manual and Traffic Bulletin #4 methodologies.
- 2 Year 2020 traffic volumes on mainline and ramps derived from General Plan Buildout Citywide Traffic Model. See Figure 4 for PM peak hour traffic volumes. Detailed ramp junction and weaving analysis is located in appendix.
- 3 Maximum capacity of merge or diverge ramp junction is 2,000 vehicles per hour.
- 4 Prado Road merges and diverges are the same for a tight diamond or standard diamond configuration.
- 5 The project includes auxiliary lanes between Prado Road and Madonna Road in both directions.



Not to Scale

FIGURE 1

**PROJECT STUDY AREA
EXISTING ROADWAYS AND INTERSECTIONS**

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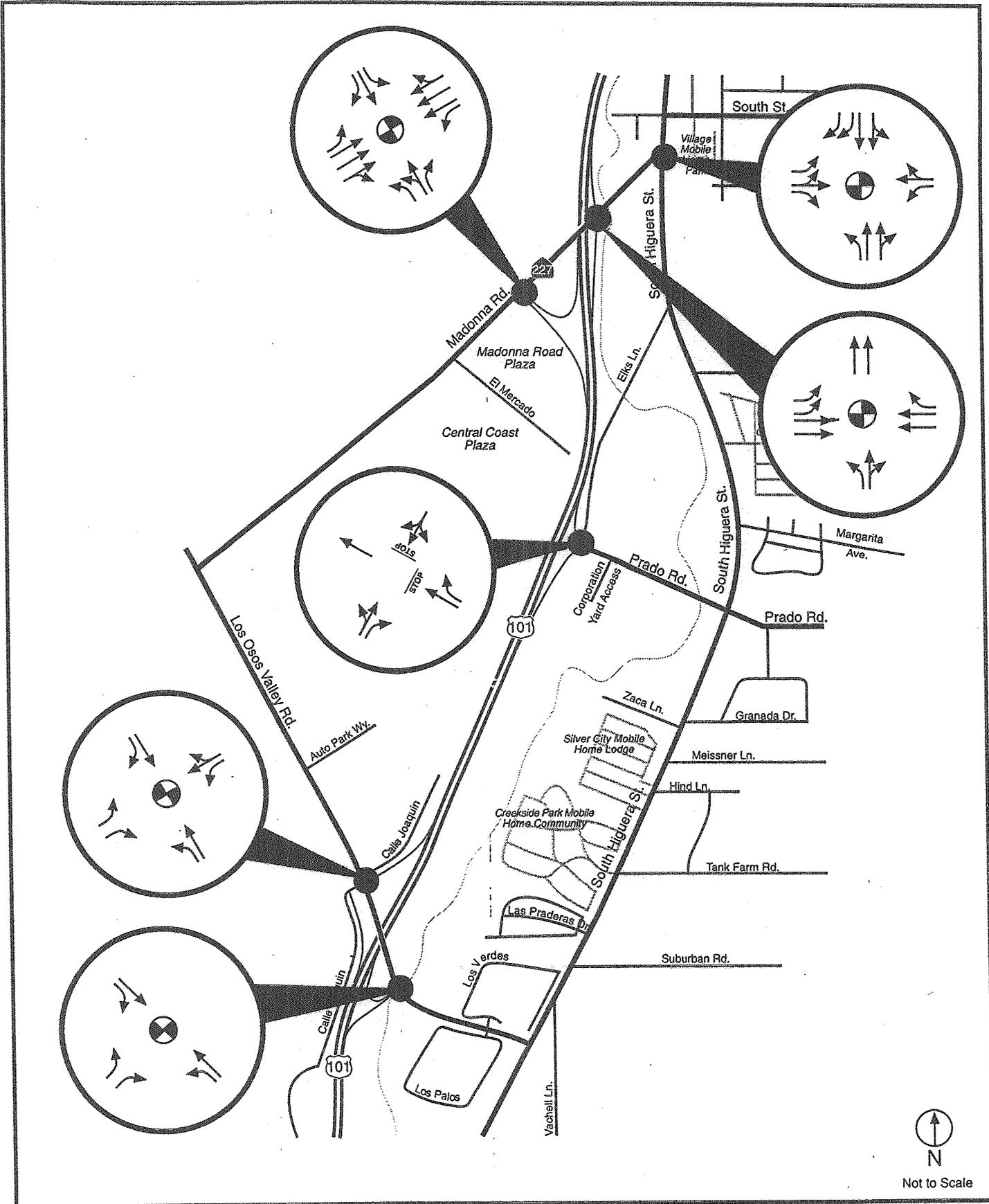


FIGURE 2

EXISTING
LANE CONFIGURATIONS

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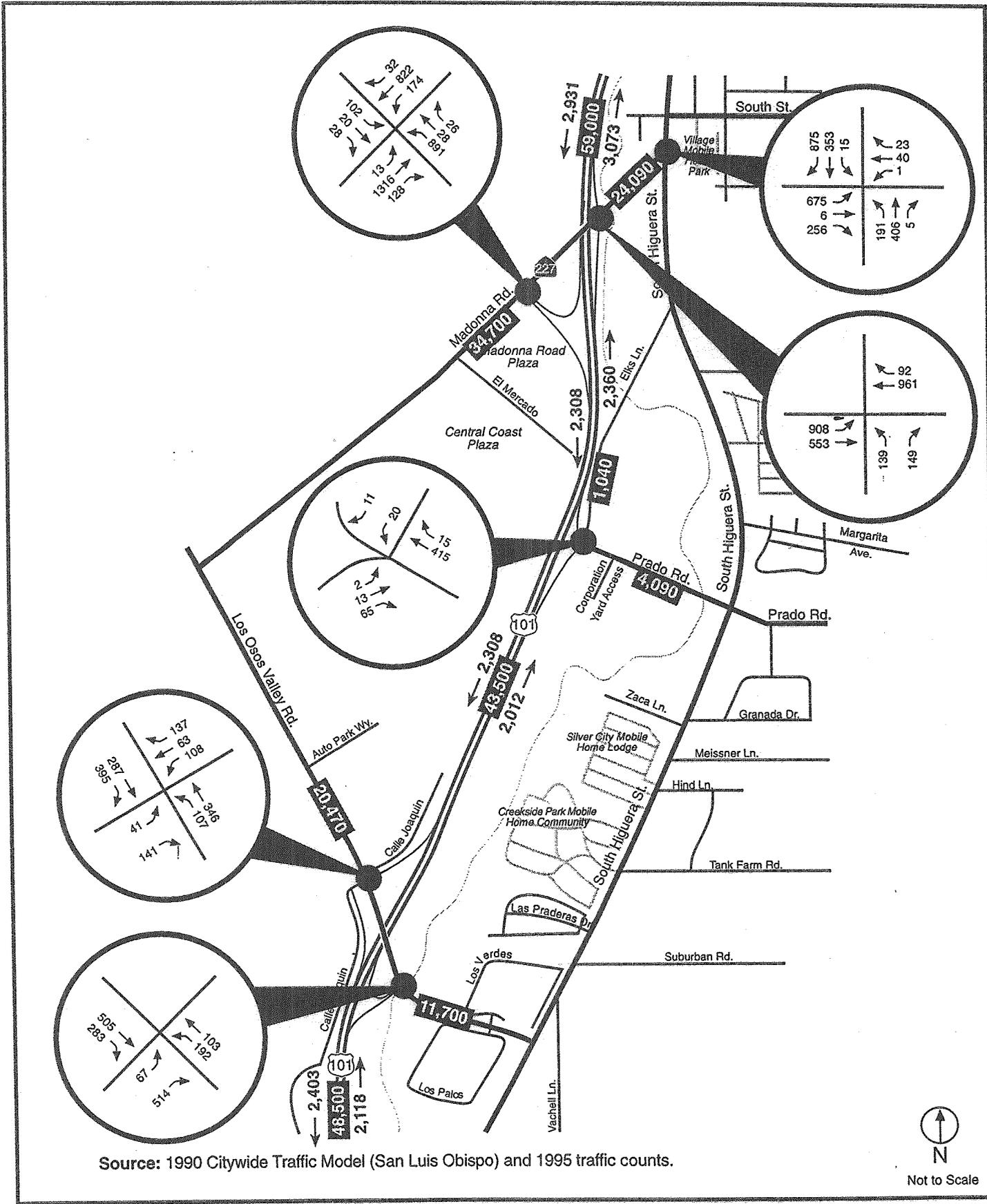


FIGURE 3

**EXISTING CONDITIONS
ADT & PM PEAK HOUR VOLUMES**

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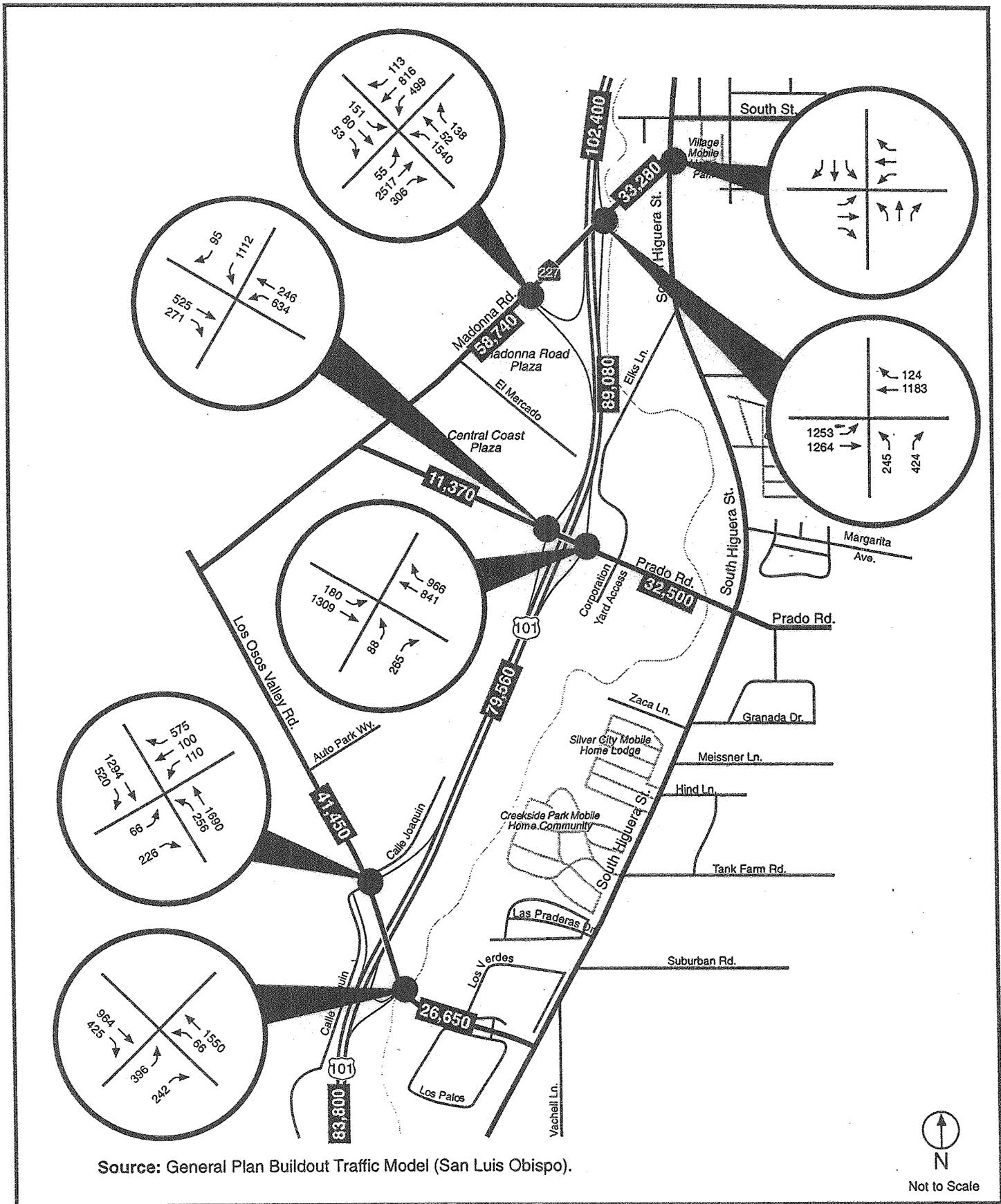
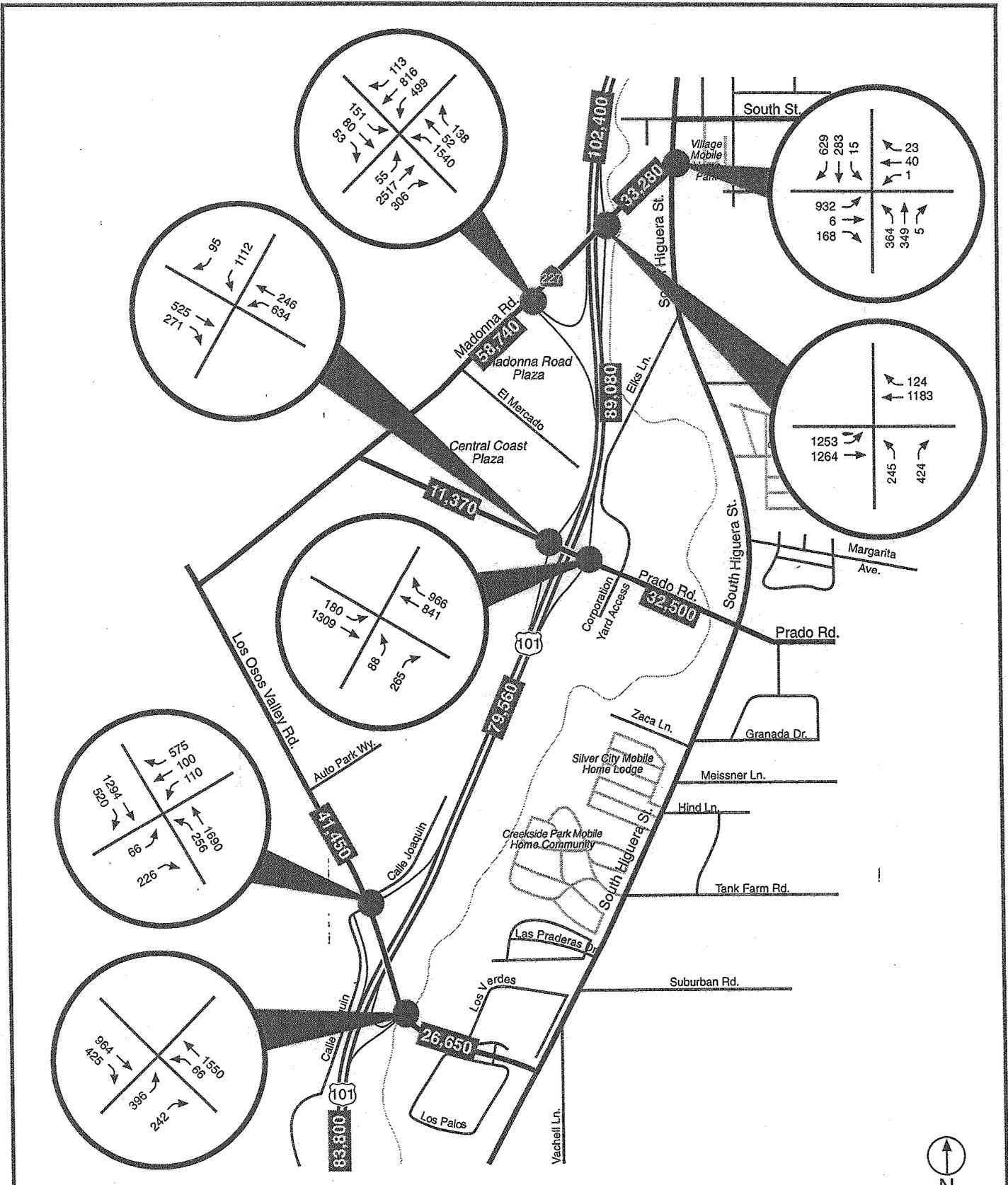


FIGURE 4

**YEAR 2020 CONDITIONS
ADT & PM PEAK HOUR VOLUMES**

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Source: General Plan Buildout Traffic Model (San Luis Obispo).

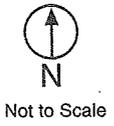


FIGURE 4

**YEAR 2020 CONDITIONS
ADT & PM PEAK HOUR VOLUMES**

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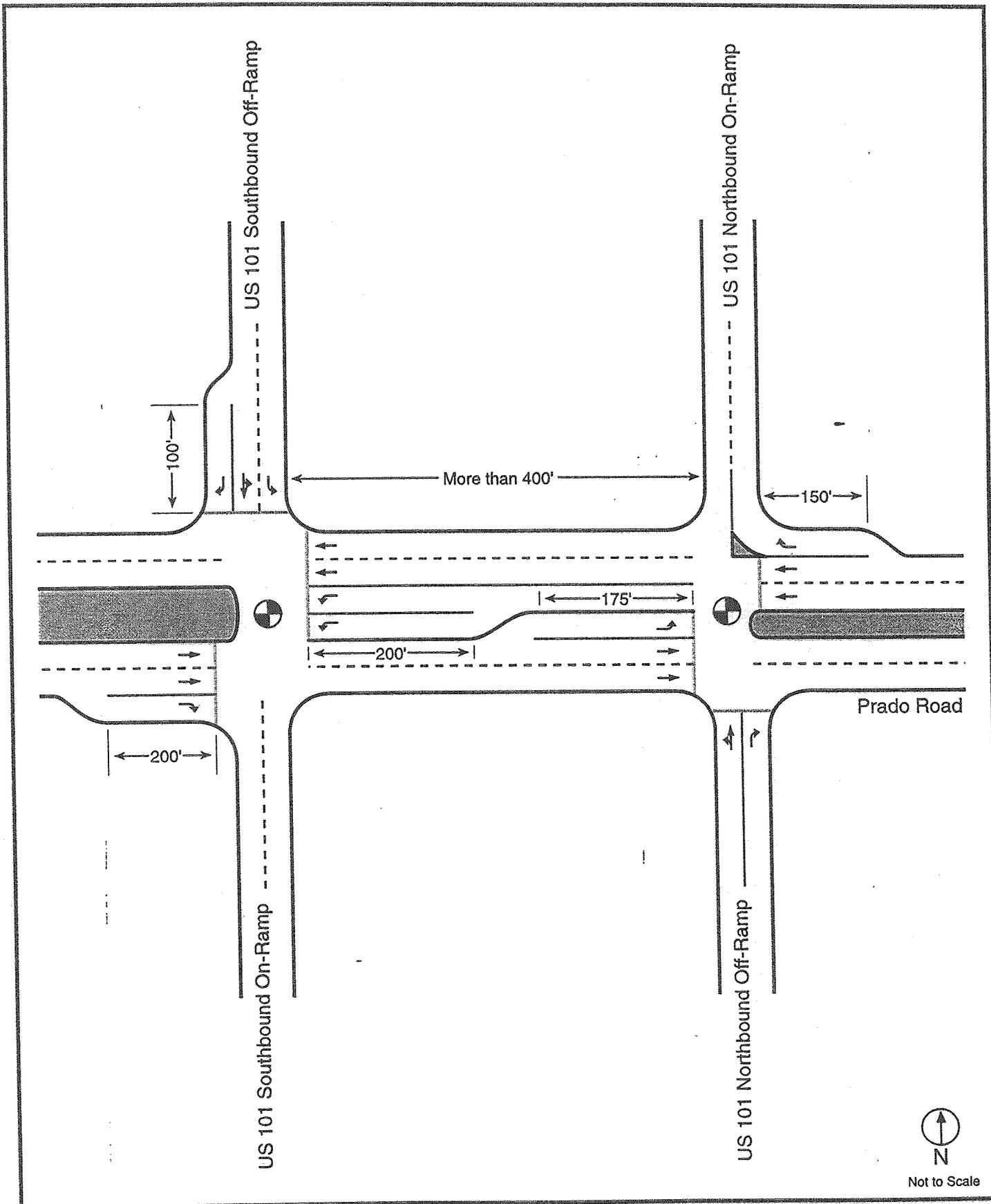


FIGURE 5

**PRADO ROAD / US 101 INTERCHANGE
SPREAD DIAMOND CONFIGURATION
LANE REQUIREMENTS**

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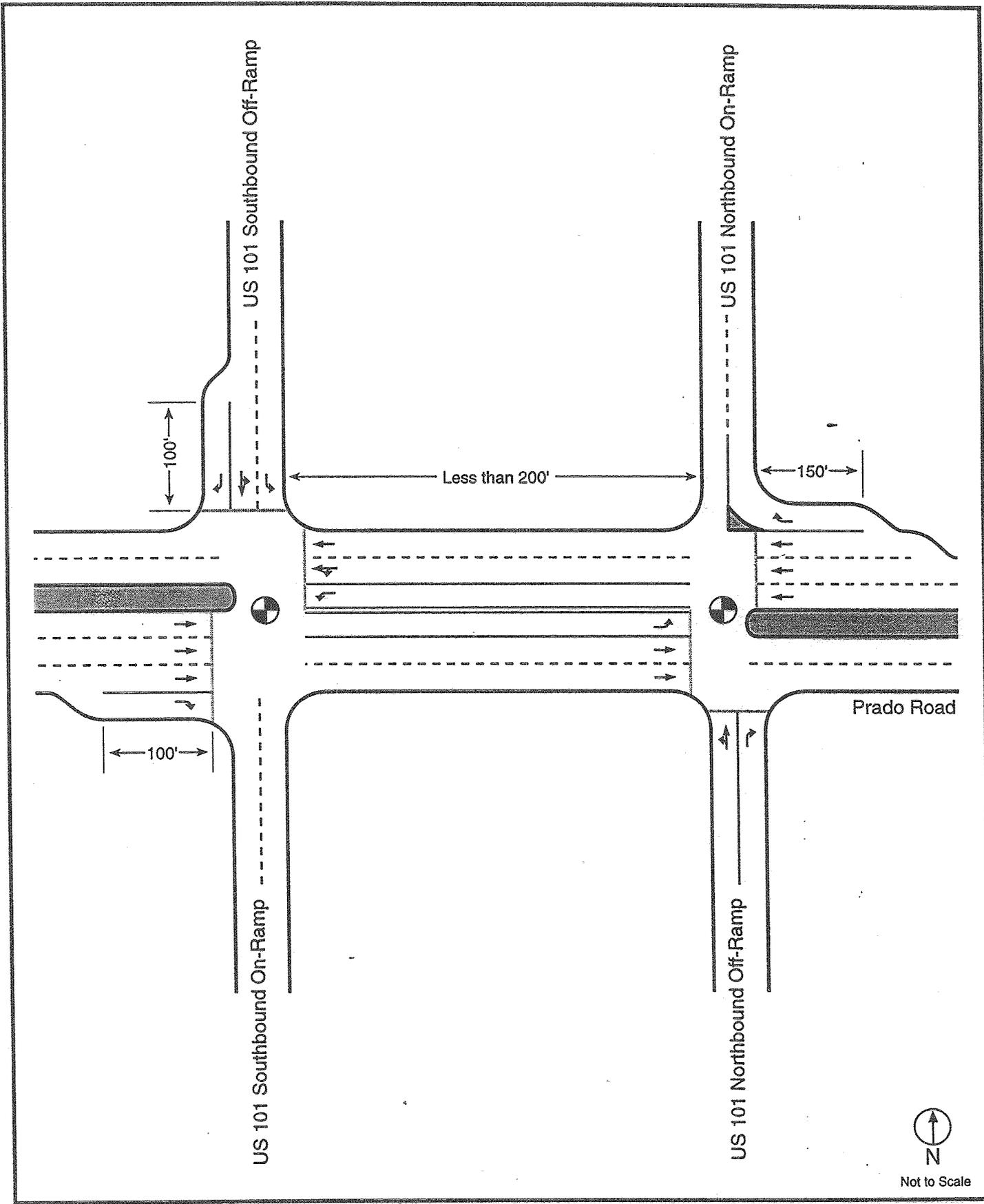


FIGURE 6

**PRADO ROAD / US 101 INTERCHANGE
TIGHT DIAMOND CONFIGURATION
LANE REQUIREMENTS**

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March 11, 1996

Mr. Dan Powell
Nolte & Associates
2950 Buskirk Avenue, Suite 225
Walnut Creek, CA 94596

**Subject: Prado Road Project Study Report-Auxiliary Lane Analysis with
Four Lane US 101**

Dear Dan:

The analysis contained in this letter was prepared in response to Caltrans request that the Project Study Report evaluate the need for auxiliary lanes on US 101 prior to widening of the highway to six lanes. Our March 29, 1995 report included analysis of the mainline assuming two scenarios, 1) three mixed flow lanes in each direction and, 2) two mixed flow lanes and one HOV lane in each direction. The analysis contained in this letter assumes two mixed flow lanes in each direction and no HOV lanes.

This letter addresses the following:

- Future traffic projections
- Constrained mainline demand methodology
- Assumptions used in the analysis (truck percentages, lanes, etc.)
- Criteria for requiring auxiliary lanes
- Service level calculations and results
- Qualitative discussion of the potential impacts of implementing ramp metering within the US 101 corridor

Conclusion

With one exception, the ramp junction and weaving analyses result in acceptable operation (LOS E or better) in all of the alternatives with southbound and northbound auxiliary lanes between the Madonna and Prado Road interchanges and with standard ramp merges and diverges between the Prado and Los Osos Valley Road interchanges. The exception is Alternative A which does not require a southbound auxiliary lane between Madonna and Prado due to its frontage road design. In addition, the combined southbound Madonna and Prado on-ramp merge would operate unacceptably, but can be improved by creating two successive on-ramps separated by about 305 meters.

Traffic Forecasts

The traffic forecasts reflect conditions with buildout of the San Luis Obispo General Plan, and partial buildout of the remainder of the County. The traffic volumes, derived from the San Luis Obispo Citywide traffic model, have been adjusted using a post-assignment calibration technique. Calibration adjustments are based on comparison of the 1990 model's projections with mainline and ramp counts published by Caltrans. The adjustments are applied to the model's average daily traffic (ADT) projections. Calibration adjustments for City streets are



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based on City traffic counts. For peak hour operations analysis, calibrated average daily traffic volumes on the mainline are converted to reflect the 30th highest hour, identified by Caltrans as the design hour for this project. Conversion of average daily traffic to peak hour traffic on City streets and ramps is based on the peak hour factors between the ADT and peak hour traffic models.

Constrained Traffic Forecasts

The traffic forecasts described above represent unconstrained capacity on the mainline. Because these forecasts represent "travel demand", adjustments must be made to reflect actual highway capacities at locations where the forecasts exceed capacity. The adjusted traffic forecasts are referred to as "constrained" because traffic entering the study area from upstream of the Madonna and Los Osos Valley Road interchanges is reduced until it equals mainline capacity (2,000 vehicles per hour per lane), the practical level of traffic which can be accommodated on the highway.

One of the effects of traffic demand exceeding available road capacity is "peak-hour spreading". Peak hour traffic reflects that one hour during the analysis period when traffic levels reach its highest point. Under ideal conditions, this point is below the hourly road capacity. If, however, peak hour demands exceed available capacity, hourly traffic equals capacity and the remaining demand which cannot be accommodated "spreads" into the hour(s) before and after the peak hour. The extent of the spread depends on the highway's available reserve capacity during the hours before and after the peak hour. For example, if the unmet demand equals 1,000 vehicles per hour (vph) and the highway's reserve capacity equals 500 vph before and 300 vph after the peak hour, then there will be 200 vph of demand which cannot be accommodated in the three hour period requiring a spread into a fourth hour.

An estimate of the duration of peak hour spreading within the study area is shown in the Table 1. The unmet peak hour demand in the southbound direction (1,817 vph) will spread beyond the two adjacent hours before and after the peak hour, a spread duration greater than 4 hours. In the southbound direction the unmet demand (325 vph) will spread into three adjacent hours. The duration of the peak hour spread is long because existing traffic counts indicate that Highway 101 experiences similar levels of traffic for about a three hour peak period. If this trend extends into the future then there will be little reserve capacity in the hours immediately adjacent to the peak hour.

Another effect of traffic demand exceeding capacity is re-routing of trips from the mainline to parallel surface street routes. This will particularly affect short intra-city trips that normally use the freeway to travel from one end of the City to the other. When the mainline reaches capacity and delay increases, travel on parallel surface streets becomes more convenient. The result of this phenomena is, of course, more congestion on surface streets.

A third effect of traffic demand exceeding capacity is a reduction in discretionary trips during the peak hours. It is important to remember that "traffic models" predict pure "demand" based on the draw between productions (housing) and attractions (jobs). The model cannot account for decisions individual drivers choose in making trips during the peak hours. For example,



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10% to 15% of the trips forecast by travel demand models are home-based-shopping trips. When congestion levels increase this type of discretionary travel reduces because the individual can choose to make the trip during a less congested time.

Therefore this analysis constrains the mainline traffic volumes upstream of the study area to reflect the capacity of the freeway regardless of the theoretical demand. Mainline volumes are constrained to 2,000 vehicles per hour per lane, resulting in 4,000 vehicles per hour per direction for a four lane highway. The remaining demand is assumed to spread to the hours before and after the peak hour, use parallel routes to the freeway, or choose to make discretionary trips during less congested times. Figures 1 through 3 illustrate the configuration of each alternative and show the constrained PM peak hour traffic volumes on the mainline and ramps.

Assumptions

Percentage of Trucks

At the suggestion of Caltrans staff¹, the percentage of trucks on US 101 is assumed to be 5% based on the findings reported in the Route 101 Cuesta Grade Final Travel Survey Report, April 1993, Page 16. The percentage of trucks using the on and off-ramps at the Los Osos Valley, Prado, and Madonna Road interchanges is assumed to be 2%.

Directional Splits

The directional split of peak hour traffic on the mainline for each interchange alternative is shown in Figures 1 through 3. The merge, diverge, and auxiliary lane analyses are based on each direction of travel, northbound and southbound.

Grade Line

The grade between the Marsh Road and Los Osos Valley Road interchanges is negligible and the analysis reflects this.

Number of Lanes

The analysis assumes the existing number of lanes on Highway 101 through the study area, two mixed flow lanes in each direction and no HOV lanes.

Design Service Level and Criteria for Requiring Auxiliary Lanes

The Caltrans Design Manual indicates that weaving areas should be designed for LOS C or D operation in urban areas. However Caltrans District 5 defers to the San Luis Obispo



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Congestion Management Program's adopted service level standard for Route 101 through the City of San Luis Obispo². The adopted standard for US 101 in the study area is LOS E.

The methodologies used in this analysis are the Traffic Bulletin #4 (TB4) technique for ramp merge and diverge analyses and the Highway Design Manual nomograph for weaving sections. The TB4 technique is now included in the Highway Design Manual and Figures 504.7C and 504.7E are used to determine lane utilization. Figure 504.7A (Leisch nomograph) is used to check the service level of recommended auxiliary lanes.

The criteria to determine the need for an auxiliary lane between interchanges is if the projected traffic volumes cause either the ramp junction or the mainline to fall below a LOS E and cannot be mitigated with appropriate and less costly measures.

Analysis Results

The analysis evaluates merge and diverge operations at ramp junctions between the Prado and Los Osos Valley Road interchanges both southbound and northbound. Except for Alternative A (which has a frontage road between the Madonna and Prado interchanges), the analysis evaluates weaving segments between the Madonna and Prado Road interchanges both southbound and northbound because the designs include auxiliary lanes on these segments.

Table 2 summarizes the results of the merge and diverge analyses and Graphs 1 through 4 summarize the results of the weaving analyses.

Ramp Junction Analyses

1. Alternative A

Because the frontage road design combines the southbound Madonna and Prado Road on-ramps, the merge with the mainline exceeds 2,000 vehicles per hour per lane and operates at LOS F. The mainline will operate at LOS E at all of the ramp junctions.

In Alternative A, traffic entering US 101 southbound from Madonna Road uses the frontage road passing underneath the Prado Road structure and merging with the Prado Road southbound on-ramp prior to merging with the mainline. At the mainline merge, the ramp accommodates about 1,800 vehicles per hour resulting in a LOS F.

A method to improve the operation of the Prado Road southbound on-ramp is to merge the Madonna Road on-ramp traffic with US 101 about 305 meters prior to the Prado Road merge, creating two successive on ramps as shown in Figure 4. This would result in a LOS C for the Madonna entering traffic and a LOS E for the Prado entering traffic at the merge as shown in



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Table 2. The southbound diverge and northbound merges and diverges between Los Osos Valley Road and Prado Road operate at LOS E or better. With this design modification the mainline operates at LOS B at the Madonna on-ramp junction and LOS E at the Prado on-ramp junction.

2. Alternative B

The southbound and northbound merges and diverges between the Prado and Los Osos Valley Road interchanges operate at LOS E or better as shown in Table 1. The southbound diverge at Los Osos Valley Road and the northbound merges and diverges operate the same as in Alternative A. The mainline will operate at LOS E at all of the ramp junctions.

3. Alternative C

Except for a variation in the distance between ramps, Alternative C is the same as Alternative B and its merges and diverges southbound and northbound operate at the same level, LOS E or better. The mainline will operate at LOS E at all of the ramp junctions.

Weaving Segment Analysis

1. Alternative A

Because of the southbound frontage road design in Alternative A there is no auxiliary lane between the Madonna and Prado Road interchanges. In the northbound direction, the weave between the Prado and Madonna interchanges will operate at LOS B, while the mainline will operate at LOS E as shown in Graph 1.

2. Alternative B

Graph 2 shows the service level for the southbound weave between the Madonna and Prado interchanges in Alternative B. The weave operates at LOS D and the mainline operates at LOS E. In the northbound direction, the weave between the Prado and Madonna interchanges operates at LOS C and the mainline at LOS E as shown in Graph 3.

3. Alternative C

In the southbound direction Alternative C weaving conditions are the same as in Alternative B, operating at LOS D with the mainline operating at LOS E as shown in Graph 2. In the northbound direction the weave between the Prado and Madonna interchanges operates at LOS B and the mainline at LOS E as shown in Graph 4.

Mainline Lane Utilization

In addition to the ramp junction and weaving section analyses, mainline lane utilization was checked to ensure that mainline sections operate at 2000 vehicles per hour (vph) per lane or less. For mainline sections with auxiliary lanes, the Leisch nomographs (Figure 504.7A) are used to determine the lane utilization. Mainline sections between interchanges without



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auxiliary lanes were checked in the junction analysis using technique outlined in the Highway Design Manual and Traffic Bulletin No. 4. In all cases the outer lane utilization was less than 2,000 vph (LOS E/F threshold) and since the volume in these sections is less than 4,000 vph the inner lane utilization is also less than 2,000 vph.

Potential Impacts of Ramp Metering

The projected mainline and on-ramp volumes used in this analysis suggest the potential for implementing ramp metering in the future. Ramp metering is used to reduce the number of vehicles entering the freeway eliminating turbulence at the merges and keeping mainline traffic flowing. The rate of metering is typically based on mainline volumes, but can be increased if ramp queues become so long as to severely interfere with surface street operations. Ramp metering is not effective at isolated ramps and must be implemented corridor wide. Corridor wide metering eliminates the opportunity for drivers to divert to unmetered ramps in an attempt to avoid delay.

In San Luis Obispo the metered corridor would encompass the on-ramps in both directions between the Monterey Street and Los Osos Valley Road interchanges.

Most of the interchanges through the downtown area are older hook ramp interchanges and are closely spaced. The hook ramps have little storage for queued vehicles and would likely experience severe queuing if metering rates are less than the practical maximum of 900 vehicles per hour.

The effect of ramp metering on surface streets is similar to, and in fact related to, the effect of constrained mainline operations as described above. The effects are:

- Peak hour spreading- as highway travel demand increases and exceeds the capacity of the mainline, fewer vehicles can enter the freeway during the peak hour even without ramp metering. While ramp metering permits the mainline to move more freely the effect is the same, fewer vehicles can enter the mainline. The result is that the highway system cannot accommodate the hourly demand which then will spread into the hours before and after the peak hour.
- Diversion of trips- a congested mainline and metered ramps results in some drivers choosing alternative routes. In particular, drivers making short intra-city trips that may normally use the freeway may now use surface streets to reach their destination. Longer trips will also be affected and diversion to an alternative route such as Highway 227 will increase.



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Mr. Dan Powell
Nolte & Associates
Page 7

- Reduction in discretionary trips- congestion has the effect of reducing non-essential travel during the peak hours. To avoid unnecessary delay, drivers making trips for shopping and social purposes may choose to make the trip at a more convenient time when the streets and highways are less congested.

The amount of ramp storage is crucial for effective ramp metering. When long and damaging queues begin to severely interfere with the operation and safety of surface streets, metering rates increase. This defeats the purpose of ramp metering and it becomes ineffective. A preliminary evaluation of the City's ramp configurations shows that the hook ramp interchanges have very limited storage and right-of-way and it is unlikely that many of these ramps could be modified to provide the required amount of storage.

Please call me if you have any questions or require further information.

Sincerely,

FEHR & PEERS ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read 'J. Daisa'.

James M. Daisa, P.E.
Associate

/jd

941-738

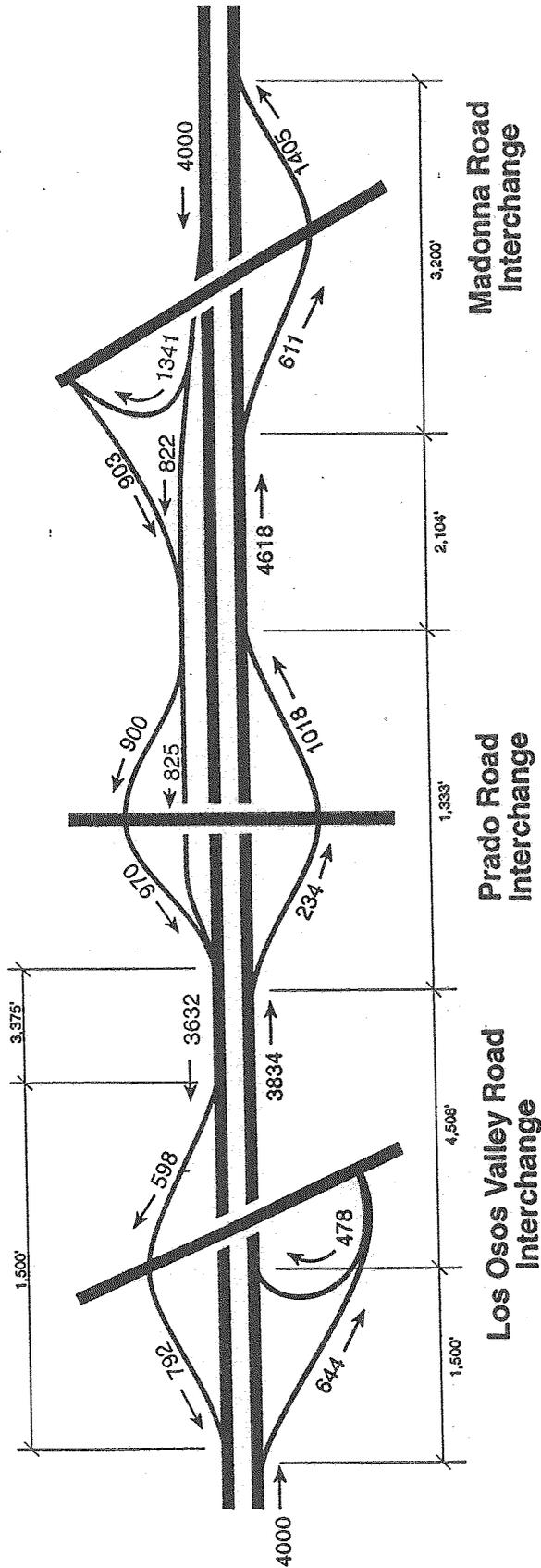
Table 1

ESTIMATED DURATION OF PEAK HOUR SPREADING

Reserve Capacity in Hours Before Peak Hour (4-5 PM)			Reserve Capacity in Hours After Peak Hour (4-5 PM)		
	% of Peak Hour	Reserve Capacity		% of Peak Hour	Reserve Capacity
One Direction Reserve Capacity					
3-4 PM	3%	120	5-6 PM	2%	80
2+3 PM	11%	440	6-7 PM	26%	1,040
Total reserve capacity during a 3 hour peak period: 200 vph					
Total reserve capacity during a 5 hour peak period: 1,680 vph					
<p>The information above was derived from recent Caltrans traffic counts on Highway 101 in the vicinity of Madonna Road. The percent of the peak hour for the adjacent hours assumes that the peak hour volume equals capacity (as it will in the future) and there is zero reserve capacity in the peak hour. For example, the volume during the hour of 3-4 PM is 97% of the peak hour volume (4-5 PM) leaving 3% reserve capacity.</p>					
Future excess peak hour demand on southbound Highway 101: 1,817 vph					
Future excess peak hour demand on northbound Highway 101: 325 vph					
Duration of peak hour spread in southbound direction: 4+ hours					
Duration of peak hour spread in northbound direction: 3 hours					
<p>The estimated duration of peak hour spreading assumes that the peak hour demand spreads into the hour before the peak hour. Once the hour before the peak hour reached capacity, the excess demand was assumed to spread into the hour after the peak hour and so forth until all of the excess demand is met.</p>					

Table 2

LEVEL OF SERVICE CALCULATIONS FOR RAMP JUNCTIONS										
Segment	Subject Ramp Junction Type	Upstream Mainline Vol.	Subject Ramp Vol.	Upstream Ramp Vol.	Downstream Ramp Vol.	% Through in Lane One	Lane One Through Vol.	Flow Rate	LOS	Mainline LOS at Junction
Alternative A										
Prado to Los Osos Valley Road SB	Merge	1837	1795	[1]	598	25%	459	2254	F	E
Prado to Los Osos Valley Road SB	Diverge	3632	598	1795	[2]	40%	1214	1812	E	E
Los Osos Valley to Prado Road NB	Merge	3356	478	[1]	234	40%	1342	1820	E	E
Los Osos Valley to Prado Road NB	Diverge	3834	234	478	[2]	40%	1440	1674	D	E
Alternative A Mitigation (Separate Madonna and Prado SB On Ramps)										
SB Madonna On-Ramp Merge	Merge	1837	825	[1]	[2]	25%	459	1284	C	B
SB Prado On-Ramp Merge	Merge	2662	970	825	598	25%	495	1924	E	E
Alternative B										
Prado to Los Osos Valley Road SB	Merge	2740	892	[1]	598	35%	959	1851	E	E
Prado to Los Osos Valley Road SB	Diverge	3632	598	892	[2]	40%	1214	1812	E	E
Los Osos Valley to Prado Road NB	Merge	3356	478	[1]	234	40%	1342	1820	E	E
Los Osos Valley to Prado Road NB	Diverge	3834	234	478	[2]	40%	1440	1674	D	E
Alternative C										
Prado to Los Osos Valley Road SB	Merge	2740	892	[1]	598	35%	959	1851	E	E
Prado to Los Osos Valley Road SB	Diverge	3632	598	892	[2]	40%	1214	1812	E	E
Los Osos Valley to Prado Road NB	Merge	3356	478	[1]	234	40%	1342	1820	E	E
Los Osos Valley to Prado Road NB	Diverge	3834	234	478	[2]	40%	1440	1674	D	E
[1] Not applicable to calculation because upstream ramp is an off-ramp and does not affect lane one volumes at subject ramp.										
[2] Not applicable to calculation because downstream ramp is an on-ramp and does not affect lane one volumes at subject ramp.										
Notes:										
Service level technique is based on methodology presented in Traffic Bulletin No. 4 and the Caltrans Highway Design Manual.										
Lane 1 through volumes are calculated using Table 504.7C in the Highway Design Manual. Lane 1 ramp volumes are calculated using Table 504.7E in the Highway Design Manual. If lane 1 ramp volumes calculate to be less than 50% than total ramp volumes are included in the lane 1 through volume calculation.										



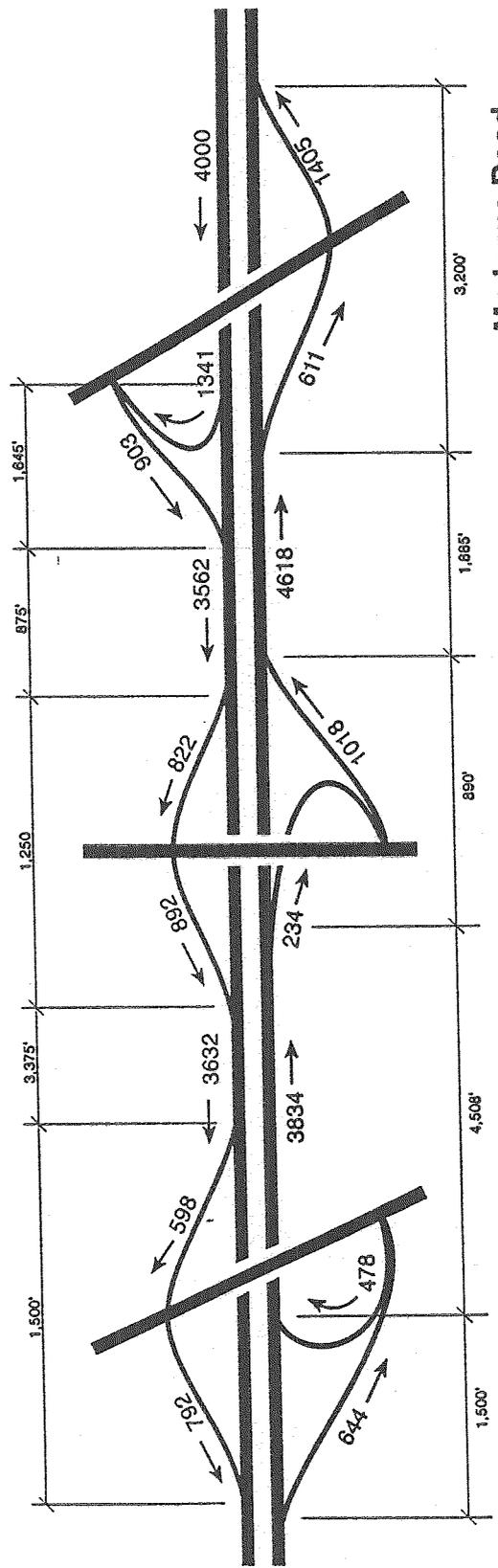
Mainline Assumptions:
 Two mixed flow lanes in each direction. No HOV lanes. No auxiliary lane between Marsh and Madonna southbound.

Note: Volumes reflect 5% trucks using a PCE of 2. Mainline volumes are constrained to 2000 vphpl upstream of the study area, which reduces the demand on the downstream off-ramps. Mainline volumes reflect 30th highest hour.

**CONFIGURATION AND PM PEAK
 HOUR TRAFFIC VOLUMES
 ALTERNATIVE A**

fp Fehr & Peers Associates, Inc.
 Transportation Consultants

FIGURE 1



Los Osos Valley Road Interchange

Prado Road Interchange

Madonna Road Interchange



Not to Scale

Mainline Assumptions:

Two mixed flow lanes in each direction. No HOV lanes. No auxiliary lane between Marsh and Madonna southbound.

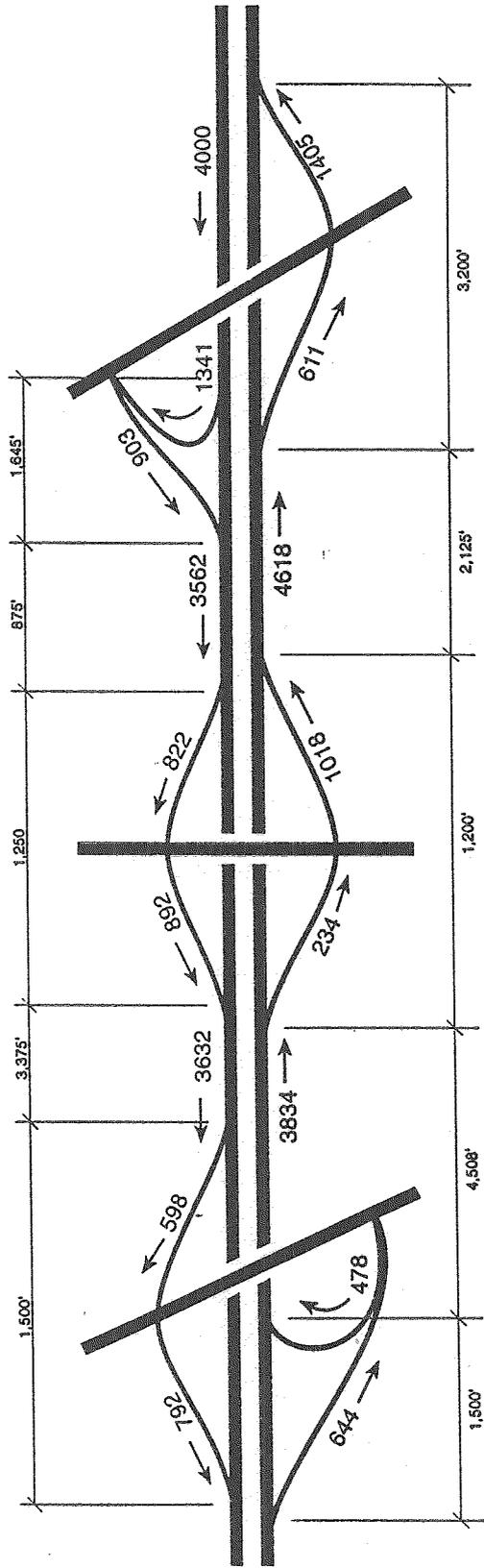
Note: Volumes reflect 5% trucks using a PCE of 2. Mainline volumes are constrained to 2000 vphpl upstream of the study area, which reduces the demand on the downstream off-ramps. Mainline volumes reflect 30th highest hour.

CONFIGURATION AND PM PEAK HOUR TRAFFIC VOLUMES ALTERNATIVE B



Fehr & Peers Associates, Inc.
Transportation Consultants

FIGURE 2



Madonna Road Interchange

Prado Road Interchange

Los Osos Valley Road Interchange



Not to Scale

Mainline Assumptions:

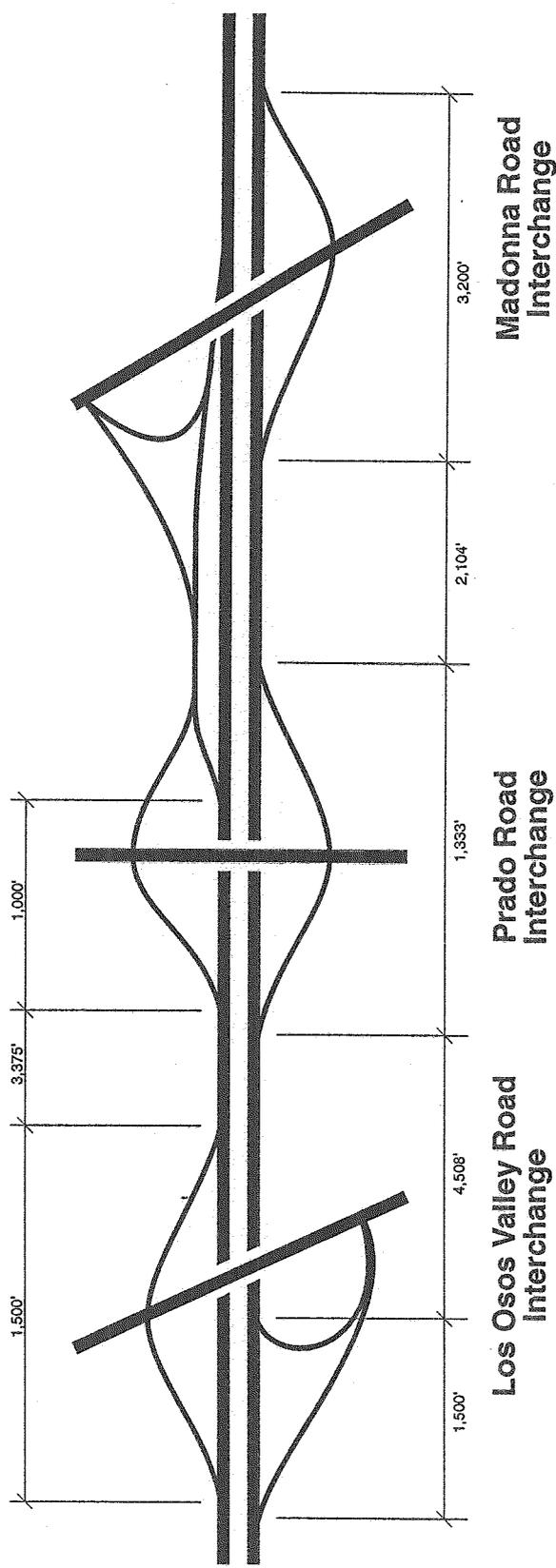
Two mixed flow lanes in each direction. No HOV lanes. No auxiliary lane between Marsh and Madonna southbound.

Note: Volumes reflect 5% trucks using a PCE of 2. Mainline volumes are constrained to 2000 yphpl upstream of the study area, which reduces the demand on the downstream off-ramps. Mainline volumes reflect 30th highest hour.

CONFIGURATION AND PM PEAK HOUR TRAFFIC VOLUMES ALTERNATIVE C



FIGURE 3



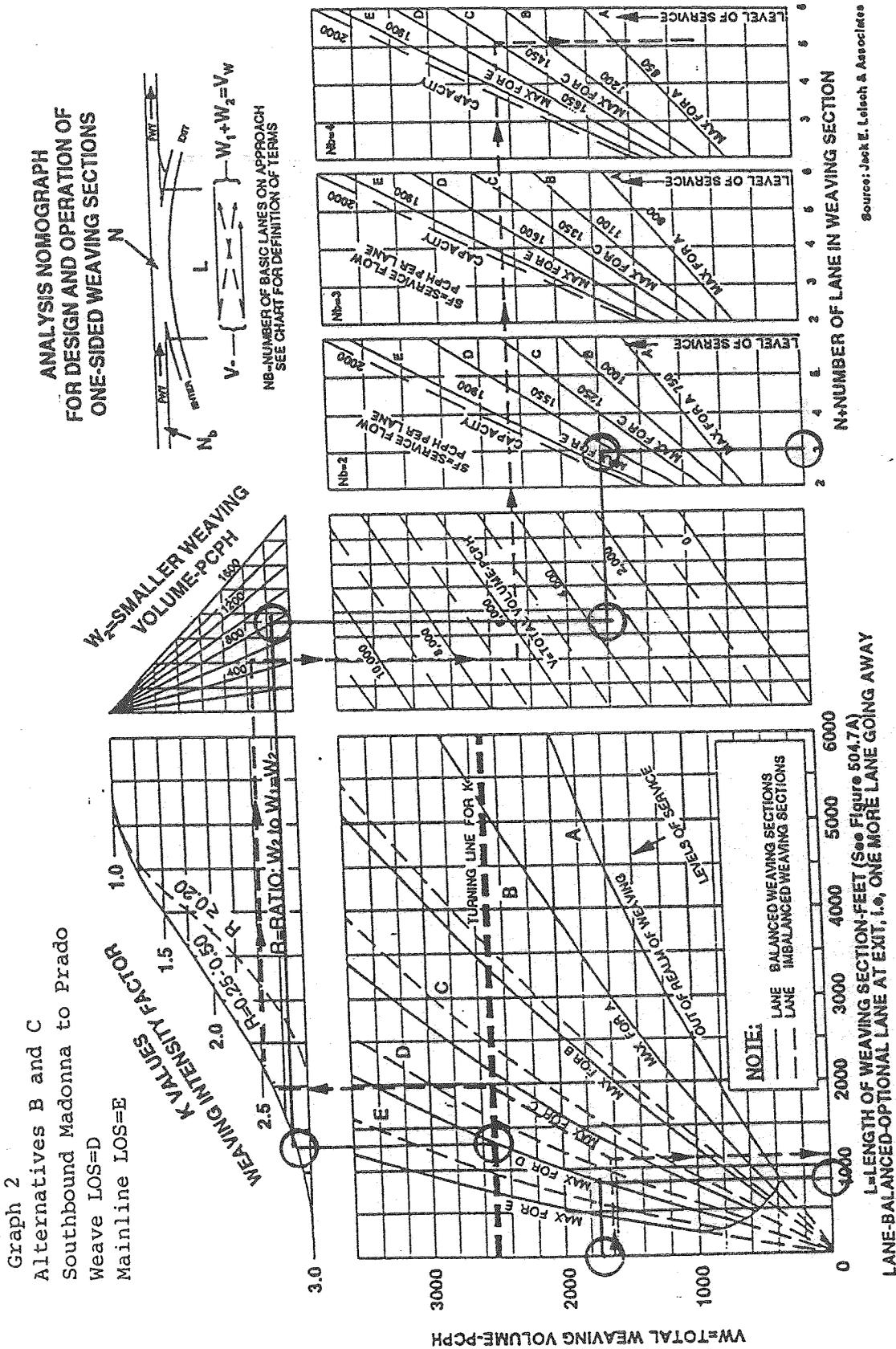
Not to Scale

**ALTERNATIVE A - IMPROVED SOUTHBOUND MERGE OPERATION
 CONVERT COMBINED MADONNA-PRADO ON-RAMPS
 TO TWO SUCCESSIVE RAMPS 305 METERS APART**

F Fehr & Peers Associates, Inc.
 Transportation Consultants

FIGURE 4

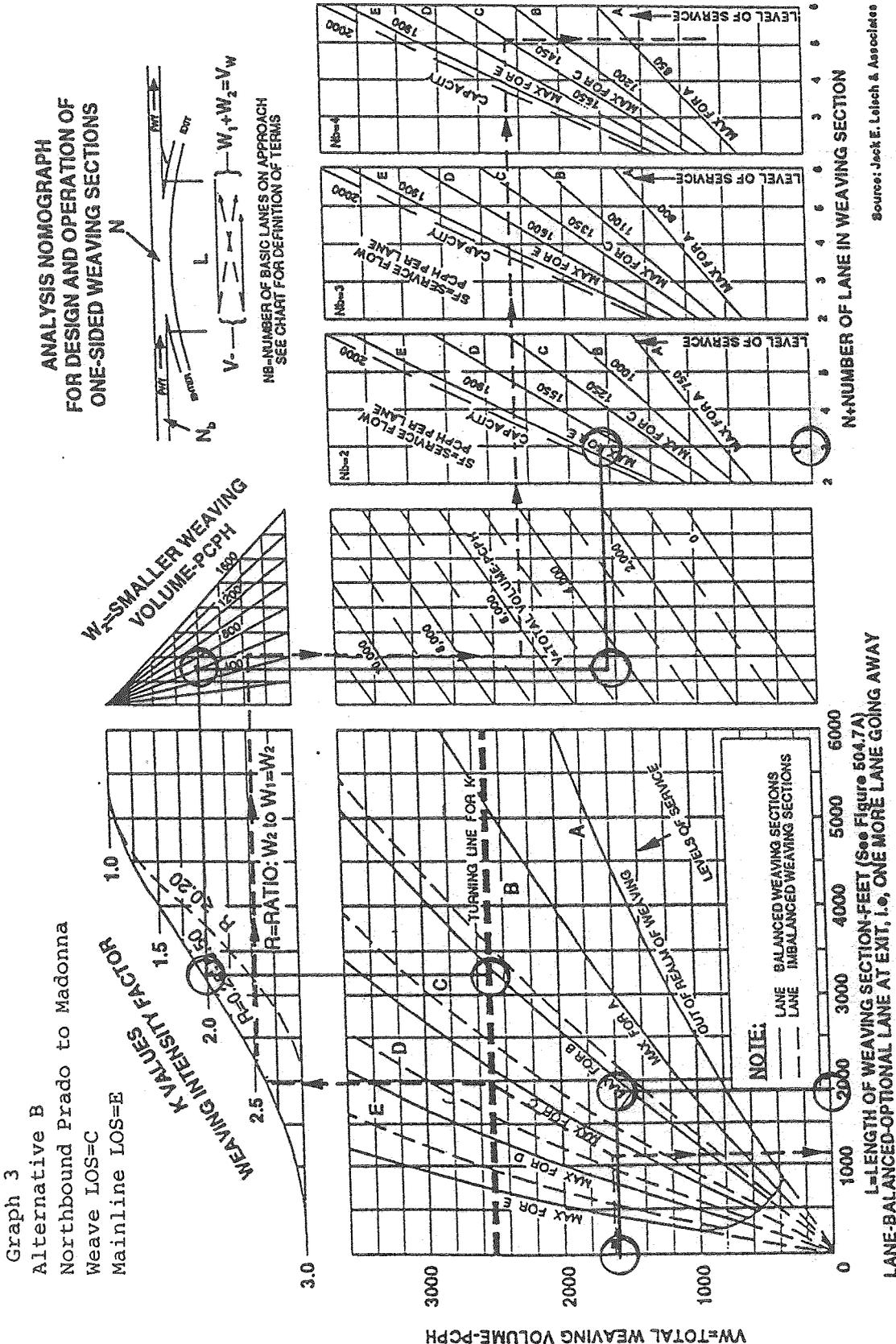
Figure 504.7A



Graph 2
 Alternatives B and C
 Southbound Madonna to Prado
 Weave LOS=D
 Mainline LOS=E

Design Curve for Freeway and Collector Weaving Sections

Figure 504.7A



Source: Jack E. Leitch & Associates

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or V_w) followed by projection to the right, intersecting the desired weaving LOS; a vertical drop from this point provides weaving distance $L = 1900$ feet. Returning to first intersection point of V_w with LOS line, an upward projection along the LOS is intersected with the horizontal, heavy dashed, "turning line for K;" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V , from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2; this would be rounded to $N = 5$ lanes.

Design Curve for Freeway and Collector Weaving Sections

Los Osos Valley Road Interchange- Highway section with ramps.

AXR253-D 02-08-95 TASAS TABLE B DISTRICT SELECTIVE ACCIDENT RATE CALCULATION COMBINED RATES PAGE 1

RA	--NUMBER OF ACCIDENTS/SIGNIFICANCE*		PER		*ADT		* TOTAL		*-ACCIDENT RATE		ACCS/MV+ OR MVH-*	
GRP	TOT	FAT	INJ	F+I	VER	MULTI	KID	MAIN	MV+ OR	ACTUAL	TOT	FAT
(RUS)	TOT	FAT	INJ	F+I	VER	WET	DARK	INJ	X-ST	MVM	FAT	F+I
B	17	0	6	6	11	2	3	0	47.1	32.62	.000	.18
								9			.52	.012
RATES COMBINED FOR THIS REQUEST												
05-0001	0.632M	91-08-01	94-08-01	36	MO	(U)					.38	.97

Madonna Road Interchange- Highway section with ramps

AXR253-D 02-08-95 TASAS TABLE B DISTRICT SELECTIVE ACCIDENT RATE CALCULATION COMBINED RATES PAGE 1

RA	--NUMBER OF ACCIDENTS/SIGNIFICANCE*		PER		*ADT		* TOTAL		*-ACCIDENT RATE		ACCS/MV+ OR MVH-*	
GRP	TOT	FAT	INJ	F+I	VER	MULTI	KID	MAIN	MV+ OR	ACTUAL	TOT	FAT
(RUS)	TOT	FAT	INJ	F+I	VER	WET	DARK	INJ	X-ST	MVM	FAT	F+I
B	24	0	5	5	10	3	6	0	49.8	36.54	.000	.14
								6			.66	.012
RATES COMBINED FOR THIS REQUEST												
05-0001	0.670H	91-08-01	94-08-01	36	MO	(U)					.39	1.00

Prado Road Interchange- Highway section with ramps

AXR253-D 02-08-95 TASAS TABLE B DISTRICT SELECTIVE ACCIDENT RATE CALCULATION COMBINED RATES PAGE 1

RA	--NUMBER OF ACCIDENTS/SIGNIFICANCE*		PER		*ADT		* TOTAL		*-ACCIDENT RATE		ACCS/MV+ OR MVH-*	
GRP	TOT	FAT	INJ	F+I	VER	MULTI	KID	MAIN	MV+ OR	ACTUAL	TOT	FAT
(RUS)	TOT	FAT	INJ	F+I	VER	WET	DARK	INJ	X-ST	MVM	FAT	F+I
B	36	0	14	14	20	2	7	0	43.6	75.98	.000	.18
								19			.47	.011
RATES COMBINED FOR THIS REQUEST												
05-0001	1.590H	91-08-01	94-08-01	36	MO	(U)					.37	.93

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

<u>DIST-CO-RTE</u>	<u>05- SLO-101</u>
Type of Estimate: (Pre-PSR, PSR, PR, etc.)	<u>PSR</u>
Program Code:	<u>Code 2</u>
PM	<u>26.0</u>
EA	<u>411200</u>
PP. No.	<u>12390000</u>

Project Description:

Limits On Route 101 between Los Osos Valley Road and Madonna Road.

Proposed Improvement (Scope) New full interchange at Prado Road to provide new overcrossing and replace existing partial interchange.

Alternative "A"-Tight diamond with retaining walls on east side of Route 101 and spread diamond on west side of Route 101 with collector-distributor Road southbound between Madonna Road and Prado Road.

ROADWAY ITEMS	<u>\$6,785,153</u>
STRUCTURE ITEMS	<u>\$1,484,700</u>
SUBTOTAL CONSTRUCTION	<u>\$8,269,853</u>
RIGHT OF WAY	<u>\$1,676,440</u>
TOTAL PROJECT COST	<u>\$9,946,292</u>

Reviewed by Program Manager Signature _____ Date _____

Approved by Project Manager Signature _____ Date _____

Phone _____

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM	26.0
EA	411200
PP No.	

I. ROADWAY ITEMS

<u>Section 1 Earthwork</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Unit Cost</u>	<u>Section Cost</u>
Roadway Excavation	12000	m3	\$13	\$156,000	
Imported Borrow	240000	m3	\$10	\$2,400,000	
Clearing & Grubbing	5	ha	\$5,000	\$25,000	
Develop Water Supply	1	LS	\$10,000	\$10,000	
				<u>Total Earthwork</u>	<u>\$2,591,000</u>

Section 2 Structural Section (Assume 0.5' AC, 1.5' AB)

PCC Pavement () Depth			\$0	\$0	
PCC Pavement () Depth			\$0	\$0	
Asphalt Concrete	15000	TONNE	\$33	\$495,000	
Lean Concrete			\$0	\$0	
Cement-Treated Base			\$0	\$0	
Aggregate Base	18100	m3	\$20	\$362,000	
Aggregate Subbase			\$0	\$0	
Permeable Material Blanket & Edge Drains			\$0	\$0	
				<u>Total Structural Section</u>	<u>\$857,000</u>

Section 3 Drainage

Large Drainage Facilities			\$0	\$0	
Storm Drains	10	EA	\$1,500	\$15,000	
Pumping Plants			\$0	\$0	
Project Drain (X-Drain, oversize, etc.)			\$0	\$0	
				<u>Total Earthwork</u>	<u>\$15,000</u>

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

<u>DIST-CO-RTE</u>	
	05-SLO-101
PM	26.0
EA	411200
PP No.	

<u>Section 4 Specialty Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Unit Cost</u>	<u>Section Cost</u>
Retaining Walls	1	LS	\$835,000	\$835,000	
Soundwalls			\$0	\$0	
Equipment/Animal Passes			\$0	\$0	
Relocate Private Irrigation Facilities			\$0	\$0	
Landscaping/Irrigation			\$0	\$0	
(normally separate project)	1	LS	\$100,000	\$100,000	
Erosion Control			\$0	\$0	
Slope Protection			\$0	\$0	
Barriers and Guardrails			\$0	\$0	
Hazardous Waste Work			\$0	\$0	
Environmental Mitigation			\$0	\$0	
Sidewalks	1350	m2	\$25	\$33,750	
					<u>\$968,750</u>

<u>Section 5 Traffic Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Unit Cost</u>	<u>Section Cost</u>
Lighting	12	EA	\$2,000	\$24,000	
Traffic Signals	2	EA	\$80,000	\$160,000	
Permanent Signing			\$0	# \$0	
Traffic Control Systems			\$0	\$0	
Traffic Management Plan			\$0	\$0	
					<u>\$184,000</u>

SUBTOTAL SECTIONS 1-5 \$4,615,750

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

<u>DIST-CO-RTE</u>	
	<u>05-SLO-101</u>
PM	<u>26.0</u>
EA	<u>411200</u>
PP No.	<u> </u>

Section 6 Minor Item

<u>Subtotal Sections 1 - 5</u>	<u>\$4,615,750</u>		<u>Unit Cost</u>		<u>Section Cost</u>
		X (5%)	<u>\$230,788</u>		
					<u>Total Minor Items \$230,788</u>

Section 7 Roadway Mobilization

<u>Subtotal Sections 1 - 5</u>	<u>\$4,615,750</u>				
<u>Minor Items</u>	<u>\$230,788</u>				
<u>Sum</u>	<u>\$4,846,538</u>	X (10%)	<u>\$484,654</u>		
					<u>Total Roadway Mobilization \$484,654</u>

Section 8 Roadway Additions

<u>Supplemental</u>					
<u>Subtotal Sections 1 - 5</u>	<u>\$4,615,750</u>				
<u>Minor Items</u>	<u>\$230,788</u>				
<u>Sum</u>	<u>\$4,846,538</u>	X (5%)	<u>\$242,327</u>		

<u>Contingencies</u>					
<u>Subtotal Sections 1 - 5</u>	<u>\$4,615,750</u>				
<u>Minor Items</u>	<u>\$230,788</u>				
<u>Sum</u>	<u>\$4,846,538</u>	X (25%)	<u>\$1,211,634</u>		

Total Roadway Additions \$1,453,961

TOTAL ROADWAY ITEMS \$6,785,153
(Total of Sections 1-8)

Estimate Prepared by Chris Metzger Phone (408)- 287-3400 Date November, 1996

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26.0

EA 411200

PP No. _____

III. STRUCTURE ITEMS

	STRUCTURE		
	<u>No. 1</u>	<u>No. 2</u>	<u>No. 3</u>
Bridge Name			
Structure Type			
Width m (Out to Out)	28.8		
Span Lengths m	52.6		
Total Area Sq. m	1515		
Footing Type (pile/spread)			
Cost per Sq. m (Incl. 10% mobilization and 25% contingence)	980		
Total Cost for Structure	\$1,484,700	\$0	\$0
Other			

* Add additional structures as necessary

SUBTOTAL STRUCTURES ITEMS \$1,484,700

Railroad Related Costs _____

TOTAL STRUCTURES ITEMS \$1,484,700

Estimate Prepared by Waan Chui

Phone (408) 287-4300

Date November, 1996

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

	<u>05-SLO-101</u>
PM	<u>26.0</u>
EA	<u>411200</u>
PP No.	<u> </u>

III. RIGHT OF WAY

Right of Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocation occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance, see Chapter I, Caltrans, Right of Way Procedural Handbook.

	<u>Current Values (Future Use)</u>	<u>Escalation Rates</u>		<u>Escalated Values*</u>
Acquisition, including excess lands and damages to remainder(s).	<u>\$1,353,125</u>	<u>3%</u>	-	<u>\$1,615,702</u>
Utility Relocation (State Share)	<u>\$20,000</u>	<u>5%</u>		<u>\$26,802</u>
Clearance/Demolition	<u>\$0</u>	<u>0%</u>		<u>\$0</u>
RAP	<u>\$0</u>	<u>0%</u>		<u>\$0</u>
Title and Escrow Fees	<u>\$11,250</u>	<u>0%</u>		<u>\$11,250</u>
CONSTRUCTION CONTRACT WORK	<u>\$22,686</u>	<u>0%</u>		<u>\$22,686</u>
TOTAL RIGHT OF WAY (CURR. VALUE)	<u>\$1,407,061</u>	TOT.ESC.RW		<u>\$1,676,440</u>

*Escalated to 1996

Estimate Prepared by District 5 ROW (see attachment 11, Right of Way Data Sheet)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

<u>DIST-CO-RTE</u>	<u>05-SLO-101</u>
Type of Estimate: (Pre-PSR, PSR, PR, etc.)	<u>PSR</u>
Program Code:	<u>Code 2</u>
PM	<u>26.0</u>
EA	<u>411200</u>
PP. No.	<u>12390000</u>

Project Description:

Limits On Route 101 between Los Osos Valley Road and Madonna Road.

Proposed Improvement (Scope) New full interchange at Prado Road to provide new overcrossing and replace existing partial interchange.

Alternative "B" - Spread diamond with looped northbound 101 exit ramp. Auxiliary lanes both directions from Prado Road to Madonna Road.

ROADWAY ITEMS	<u>\$3,676,838</u>
STRUCTURE ITEMS	<u>\$1,743,638</u>
SUBTOTAL CONSTRUCTION	<u>\$5,420,476</u>
RIGHT OF WAY	<u>\$2,317,536</u>
TOTAL PROJECT COST	<u>\$7,738,012</u>

Reviewed by Program Manager Signature _____ Date _____

Approved by Project Manager Signature _____ Date _____
 Phone _____

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM

26.0

EA

411200

PP No.

I. ROADWAY ITEMS

<u>Section 1 Earthwork</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Unit Cost</u>	<u>Section Cost</u>
Roadway Excavation	7500	m3	\$13	\$97,500	
Imported Borrow	150000	m3	\$10	\$1,500,000	
Clearing & Grubbing	6	ha	\$5,000	\$30,000	
Develop Water Supply	1	LS	\$10,000	\$10,000	
<u>Total Earthwork</u>					<u>\$1,637,500</u>

Section 2 Structural Section (Assume 0.5' AC, 1.5' AB)

PCC Pavement () Depth			\$0	\$0	
PCC Pavement () Depth			\$0	\$0	
Asphalt Concrete	11000	TONNE	\$33	\$363,000	
Lean Concrete			\$0	\$0	
Cement-Treated Base			\$0	\$0	
Aggregate Base	13400	m3	\$20	\$268,000	
Aggregate Subbase			\$0	\$0	
Permeable Material Blanket & Edge Drains			\$0	\$0	
<u>Total Structural Section</u>					<u>\$631,000</u>

Section 3 Drainage

Large Drainage Facilities			\$0	\$0	
Storm Drains	10	EA	\$1,500	\$15,000	
Pumping Plants			\$0	\$0	
Project Drain (X-Drain, oversize, etc.)			\$0	\$0	
<u>Total Earthwork</u>					<u>\$15,000</u>

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26.0

EA 411200

PP No. _____

<u>Section 4 Specialty Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Unit Cost</u>	<u>Section Cost</u>
Retaining Walls			\$0	\$0	
Soundwalls			\$0	\$0	
Equipment/Animal Passes			\$0	\$0	
Relocate Private Irrigation Facilities			\$0	\$0	
Landscaping/Irrigation (normally separate project)			\$0	\$0	-
Erosion Control			\$0	\$0	
Slope Protection			\$0	\$0	
Barriers and Guardrails			\$0	\$0	
Hazardous Waste Work			\$0	\$0	
Environmental Mitigation			\$0	\$0	
Sidewalks	1350	m2	\$25	\$33,750	
					<u>\$33,750</u>

Section 5 Traffic Items

Lighting	12	EA	\$2,000	\$24,000	
Traffic Signals	2	EA	\$80,000	\$160,000	
Permanent Signing			\$0	\$0	
Traffic Control Systems			\$0	\$0	
Traffic Management Plan			\$0	\$0	
					<u>\$184,000</u>

SUBTOTAL SECTIONS 1-5 \$2,501,250

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

	<u>05-SLO-101</u>
PM	<u>26.0</u>
EA	<u>411200</u>
PP No.	<u> </u>

Section 6 Minor Item

Subtotal Sections 1 - 5 \$2,501,250

Unit Cost
X (5-10%) \$125,063

Section Cost

Total Minor Items \$125,063

Section 7 Roadway Mobilization

Subtotal Sections 1 - 5 \$2,501,250

Minor Items \$125,063

Sum \$2,626,313

X (5-10%) \$262,631

Total Roadway Mobilization \$262,631

Section 8 Roadway Additions

Supplemental
Subtotal Sections 1 - 5 \$2,501,250

Minor Items \$125,063

Sum \$2,626,313

X (5-10%) \$131,316

Contingencies
Subtotal Sections 1 - 5 \$2,501,250

Minor Items \$125,063

Sum \$2,626,313

X (25%) \$656,578

Total Roadway Additions \$787,894

TOTAL ROADWAY ITEMS \$3,676,838
(Total of Sections 1-8)

Estimate Prepared by Chris Metzger Phone (408) 287-3400

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26.0

EA 411200

PP No. _____

III. STRUCTURE ITEMS

	<u>No. 1</u>	STRUCTURE <u>No. 2</u>	<u>No. 3</u>
Bridge Name	_____	_____	_____ *
Structure Type	_____	_____	_____
Width m (Out to Out)	<u>28.8</u>	_____	_____
Span Lengths m	<u>65.1</u>	_____	_____
Total Area Sq. m	<u>1875</u>	_____	_____
Footing Type (pile/spread)	_____	_____	_____
Cost per Sq. m (Incl. 10% mobilization and 25% contingenc	<u>930</u>	_____	_____
Total Cost for Structure	<u>\$1,743,638</u>	<u>\$0</u>	<u>\$0</u>
Other	_____	_____	_____
* Add additional structures as necessary			
	SUBTOTAL STRUCTURES ITEMS		<u>\$1,743,638</u>
Railroad Related Costs	_____	_____	_____
	TOTAL STRUCTURES ITEMS		<u>\$1,743,638</u>

Estimate Prepared by Waan Chui

Phone (408) 287-3400

Date November, 1996

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26

EA 411200

PP No.

III. RIGHT OF WAY

Right of Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocation occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance, see Chapter I, Caltrans, Right of Way Procedural Handbook.

	<u>Current Values (Future Use)</u>	<u>Escalation Rates</u>		<u>Escalated Values*</u>
Acquisition, including excess lands and damages to remainder(s).	<u>\$1,897,625</u>	<u>3%</u>	-	<u>\$2,265,863</u>
Utility Relocation (State Share)	<u>\$12,500</u>	<u>5%</u>		<u>\$16,751</u>
Clearance/Demolition	<u>\$625</u>	<u>3%</u>		<u>\$746</u>
RAP	<u>\$1,875</u>	<u>3%</u>		<u>\$2,239</u>
Title and Escrow Fees	<u>\$11,250</u>	<u>0%</u>		<u>\$11,250</u>
CONSTRUCTION CONTRACT WORK	<u>\$20,686</u>	<u>0%</u>		<u>\$20,686</u>
TOTAL RIGHT OF WAY (CURR. VALUE)	<u>\$1,944,561</u>	TOT.ESC.R/W		<u>\$2,317,536</u>

*Escalated to 1996

Estimate Prepared by District 5 ROW see attachment 11, Right of Way Data Sheet)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

<u>DIST-CO-RTE</u>	<u>05-SLO-101</u>
Type of Estimate: (Pre-PSR, PSR, PR, etc.)	PSR
Program Code:	Code 2
PM	CPM
EA	411200
PP. No.	12390000

Project Description:

Limits On Route 101 between Los Osos Valley Road and Madonna Road.

Proposed Improvement (Scope) New full interchange at Prado Road to provide new overcrossing and replace existing partial interchange.

Alternative "C" - Spread Diamond Interchange

ROADWAY ITEMS	<u>\$4,250,285</u>
STRUCTURE ITEMS	<u>\$1,351,480</u>
SUBTOTAL CONSTRUCTION	<u>\$5,601,765</u>
RIGHT OF WAY	<u>\$1,271,598</u>
TOTAL PROJECT COST	<u>\$6,873,363</u>

Reviewed by Program Manager

Signature _____ Date _____

Approved by Project Manager

Signature _____ Date _____

Phone _____

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26.0

EA 411200

PP No. _____

I. ROADWAY ITEMS

<u>Section 1 Earthwork</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Unit Cost</u>	<u>Section Cost</u>
Roadway Excavation	9000	m3	\$13	\$117,000	
Imported Borrow	180000	m3	\$10	\$1,800,000	
Clearing & Grubbing	5	ha	\$5,000	\$25,000	
Develop Water Supply	1	LS	\$10,000	\$10,000	
					<u>Total Earthwork</u>
					<u>\$1,952,000</u>

Section 2 Structural Section (Assume 0.5' AC, 1.5' AB)

PCC Pavement () Depth			\$0	\$0	
PCC Pavement () Depth			\$0	\$0	
Asphalt Concrete	12200	TONNE	\$33	\$402,600	
Lean Concrete			\$0	\$0	
Cement-Treated Base			\$0	\$0	
Aggregate Base	15200	m3	\$20	\$304,000	
Aggregate Subbase			\$0	\$0	
Permeable Material Blanket & Edge Drains			\$0	\$0	
					<u>Total Structural Section</u>
					<u>\$706,600</u>

Section 3 Drainage

Large Drainage Facilities			\$0	\$0	
Storm Drains	10	EA	\$1,500	\$15,000	
Pumping Plants			\$0	\$0	
Project Drain (X-Drain, oversize, etc.)			\$0	\$0	
					<u>Total Earthwork</u>
					<u>\$15,000</u>

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26.0

EA 411200

PP No. _____

<u>Section 4 Specialty Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Unit Cost</u>	<u>Section Cost</u>
Retaining Walls			\$0	\$0	
Soundwalls			\$0	\$0	
Equipment/Animal Passes			\$0	\$0	
Relocate Private Irrigation Facilities			\$0	\$0	
Landscaping/Irrigation (normally separate project)			\$0	\$0	
Erosion Control			\$0	\$0	
Slope Protection			\$0	\$0	
Barriers and Guardrails			\$0	\$0	
Hazardous Waste Work			\$0	\$0	
Environmental Mitigation			\$0	\$0	
Sidewalks	1350	m2	\$25	\$33,750	
					<u>\$33,750</u>
<u>Section 5 Traffic Items</u>					
Lighting	12	EA	\$2,000	\$24,000	
Traffic Signals	2	EA	\$80,000	\$160,000	
Permanent Signing			\$0	\$0	
Traffic Control Systems			\$0	\$0	
Traffic Management Plan			\$0	\$0	
					<u>\$184,000</u>
SUBTOTAL SECTIONS 1-5					<u>\$2,891,350</u>

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26.0

EA 411200

PP No. _____

Section 6 Minor Item

Subtotal Sections 1 - 5 \$2,891,350

Unit Cost
\$144,568

Section Cost

Total Minor Items \$144,568

Section 7 Roadway Mobilization

Subtotal Sections 1 - 5 \$2,891,350

Minor Items \$144,568

Sum \$3,035,918

X (5-10%) \$303,592

Total Roadway Mobilization \$303,592

Section 8 Roadway Additions

Supplemental
Subtotal Sections 1 - 5 \$2,891,350

Minor Items \$144,568

Sum \$3,035,918

X (5-10%) \$151,796

Contingencies

Subtotal Sections 1 - 5 \$2,891,350

Minor Items \$144,568

Sum \$3,035,918

X (25%) \$758,979

Total Roadway Additions \$910,775

TOTAL ROADWAY ITEMS \$4,250,285

(Total of Sections 1-8)

Estimate Prepared by Chris Metzger Phone (408) 287-3400 Date November, 1996

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

05-SLO-101

PM 26.0

EA 411200

PP No. _____

III. STRUCTURE ITEMS

	<u>No. 1</u>	STRUCTURE <u>No. 2</u>	<u>No. 3</u>
Bridge Name			*
Structure Type	_____	_____	_____
Width m (Out to Out)	288	_____	_____
Span Lengths m	51	_____	_____
Total Area Sq. m	1469	_____	_____
Footing Type (pile/spread)	_____	_____	_____
Cost per Sq. m (Incl. 10% mobilization and 25% conting)	920	_____	_____
Total Cost for Structure	<u>\$1,351,480</u>	<u>\$0</u>	<u>\$0</u>
Other	_____	_____	_____

* Add additional structures as necessary

SUBTOTAL STRUCTURES ITEMS \$1,351,480

Railroad Related Costs _____

TOTAL STRUCTURES ITEMS \$1,351,480

Estimate Prepared by Waan Chui

Phone (408) 287-3400

Date November 1996

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE

	<u>05-SLO-101</u>
PM	<u>26.0</u>
EA	<u>411200</u>
PP No.	<u> </u>

III. RIGHT OF WAY

Right of Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocation occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance, see Chapter I, Caltrans, Right of Way Procedural Handbook.

	<u>Current Values</u> <u>(Future Use)</u>	<u>Escalation Rates</u>	<u>Escalated Values*</u>
Acquisition, including excess lands and damages to remainder(s).	<u>\$1,023,750</u>	<u>3%</u>	<u>\$1,222,411</u>
Utility Relocation (State Share)	<u>\$12,500</u>	<u>5%</u>	<u>\$16,751</u>
Clearance/Demolition	<u>\$0</u>	<u>0%</u>	<u>\$0</u>
RAP	<u>\$0</u>	<u>0%</u>	<u>\$0</u>
Title and Escrow Fees	<u>\$11,250</u>	<u>0%</u>	<u>\$11,250</u>
CONSTRUCTION CONTRACT WORK	<u>\$21,186</u>	<u>0%</u>	<u>\$21,186</u>
TOTAL RIGHT OF WAY (CURR. VALUE)	<u>\$1,068,686</u>	TOT.ESC.R/W	<u>\$1,271,598</u>

*Escalated to 1996

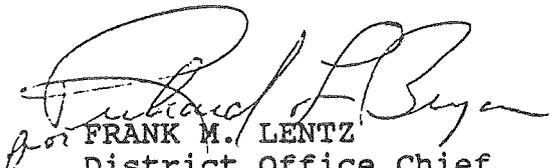
Estimate Prepared by Caltrans District 5 ROW (See attachment 11, Right of Way Data Sheet)

Memorandum

To : JERRY GIBBS
Local Funded Projects

Date : January 27, 1995

File No. : Capital Outlay


for FRANK M. LENTZ
District Office Chief
From : DEPARTMENT OF TRANSPORTATION
Right of Way

Subject : DATA SHEET REQUEST FOR EA 41120K

Attached are completed data sheet reports for alternative A, B, & C, for the proposed Prado Road Interchange for the City of San Luis Obispo.

As requested, we have divided the Right of Way costs for each alternative into Right of Way needs for the east side and west side of State Route 101 as follows:

	<u>West</u>	<u>East</u>	<u>Total</u>
Alt A - R/W Acquisition Cost	\$873,836	\$ 753,116	\$1,626,952
R/W Utility Relocation	<u>22,613</u>	<u>4,189</u>	<u>26,802</u>
	\$896,449	\$ 757,305	\$1,653,754
Alt B - R/W Acquisition Cost	\$744,908	\$1,535,191	\$2,280,099
R/W Utility Relocation	<u>12,563</u>	<u>4,188</u>	<u>16,751</u>
	\$757,471	\$1,539,379	\$2,296,850
Alt C - R/W Acquisition Cost	\$736,619	\$ 497,042	\$1,233,661
R/W Utility Relocation	<u>12,563</u>	<u>4,188</u>	<u>16,751</u>
	\$749,182	\$ 501,230	\$1,250,412

If you have any further questions concerning the cost breakdown, please contact Jim Amberg at 3207.

JHA:sam

RIGHT OF WAY DATA SHEET REPORT

TO: LOCAL FUNDED PROJECTS
 ATTN: JERRY GIBBS
 FROM: FRANK M. LENTZ, Deputy District Director
 Right of Way

Date 01/26/95
 Dist 5 Co SLO Rte 101 PM 26.0
 Request Date: 10/12/94
 EA 41120K Alternate No. A
 Proj. Des: PRADO INTERCHANGE

SUBJECT: RIGHT OF WAY DATA SHEET

1. RIGHT OF WAY COST ESTIMATE:	Current Value (Future Use)	Escalation Rate	Escalated Value
A. Acquisition, including Excess Lands, Damages and Goodwill	\$ <u>1,353,125</u>	(3.00)%	\$ <u>1,615,702</u>
B. Utility Relocation (State Share)	\$ <u>20,000</u>	(5.00)%	\$ <u>26,802</u>
C. Relocation Assistance	\$ <u>0</u>	(3.00)%	\$ <u>0</u>
D. Clearance/Demolition	\$ <u>0</u>	(3.00)%	\$ <u>0</u>
E. Title and Escrow Fees	\$ <u>11,250</u>		\$ <u>11,250</u>
F. Expert Witness Fees	\$ <u>0</u>	(3.00)%	\$ <u>0</u>
G. Total Current Value (Future Use)	\$ <u>1,384,375</u>		
H. TOTAL ESCALATED VALUE (If Current Value is \$100,000 or more)			\$ <u>1,653,754</u>
I. Construction Contract Work	\$ <u>22,686</u>		

[] PMCS cost R/W 1 Screen Print Attached

2. Anticipated Date of Right of Way Certification tb/ /

3. Indicate the anticipated Right of Way schedule and lead-time requirements. (Discuss if District proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated).

Last PYPSCAN listed a 09/96 target Right of Way Certification.

4. PYPSCAN lead-time 20 months (from Reg. Right of Way to project certification).

5. Parcel Data:

Type	Dual/Appr	Utilities	RR Involvements:
X <u>0</u>		U4-1 <u>4</u>	None <u>X</u>
A <u>0</u>		-2 <u>0</u>	Const & Maint Agreement <u> </u>
B <u>2</u>	<u>0</u>	-3 <u>0</u>	Service Contract <u> </u>
C <u>4</u>	<u>0</u>	-4 <u>3</u>	Lic/Right Entry/Clauses <u> </u>
D <u>0</u>	<u>0</u>	U5-7 <u>0</u>	
		-8 <u>6</u>	Misc R/W Work:
Total <u>6</u>		-9 <u>0</u>	RAP Displacements <u>0</u>
			Clear/Demolitions <u>0</u>
			Construction Permits <u>0</u>
			Condemnation <u>0</u>

Areas: Right of Way 256,568.4 sq ft Excess Parcels 215 sq ft No. of Exess Parcels 0

Enter EVNT , SCAN Screens 01/23/95 by gel

Enter AGRE Screen (Railroad data only) na/ / by gel

6. Are there any items of construction contract work? NO

Relocate: Electroliers, valves, electrical panels, concrete and steel sign, poster panel, shed, liquid storage tank; recreate driveways, drainage channel.

7. Provide a general description of the right of way and excess lands required (zoning, use, major improvements critical or sensitive parcels, etc.). No Right Of Way required

Zones: Commercial, C/OS, O/PD, PF, RSF.

Uses: Shopping centers, drive-in theater, U-Haul rentals, waste water treatment, agricultural.

8. Is there an effect on assessed valuation? NO

9. Are Utility facilities or rights of way affected? YES (Attach Utility Information Sheet)

10. Are Railroad facilities or rights of way affected? NO

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

12. Are RAP displacements required? NO

13. Are there material borrow and/or disposal sites required? NO

14. Are there potential relinquishments and/or abandonments? NO

Realigned Elks Lane

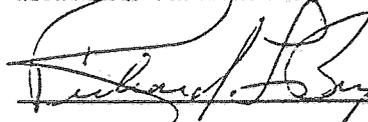
15. Are there any existing and/or potential Airspace sites? NO

16. Are environmental mitigation parcels required? NO

17. Is it anticipated that all Right of Way work will be performed by Caltrans staff? YES

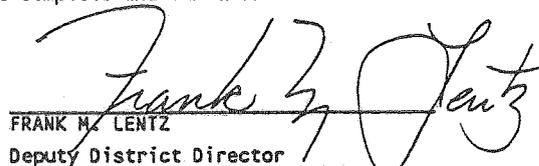
18. This evaluation has been prepared by the Chief Right of Way Engineering Surveyor, Railroad Liasison Agent, Utility Relocation Coordinator, Right of Way Value Estimator, Right of Way Capital Plan Administrator, and Planning and Management Estimating Coordinator.

RECOMMENDED FOR APPROVAL:

 Date 1-27-95

Senior Right of Way Agent
Right of Way Planning and Management

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.


FRANK M. LENTZ
Deputy District Director
Right of Way

1-25-95
Date

RIGHT OF WAY DATA SHEET REPORT

TO: LOCAL FUNDED PROJECTS
 ATTN: JERRY GIBBS
 FROM: FRANK M. LENTZ, Deputy District Director
 Right of Way

Date 01/26/95
 Dist 5 Co SLO Rte 101 PM 26.0
 Request Date: 10/12/94
 EA 41120K Alternate No. B
 Proj. Des: PRADO INTERCHANGE

SUBJECT: RIGHT OF WAY DATA SHEET

1. RIGHT OF WAY COST ESTIMATE:

	Current Value (Future Use)	Escalation Rate	Escalated Value
A. Acquisition, including Excess Lands, Damages and Goodwill	\$ <u>1,897,625</u>	<u>(3.00)%</u>	\$ <u>2,265,863</u>
B. Utility Relocation (State Share)	\$ <u>12,500</u>	<u>(5.00)%</u>	\$ <u>16,751</u>
C. Relocation Assistance	\$ <u>1,875</u>	<u>(3.00)%</u>	\$ <u>- 2,239</u>
D. Clearance/Demolition	\$ <u>625</u>	<u>(3.00)%</u>	\$ <u>746</u>
E. Title and Escrow Fees	\$ <u>11,250</u>		\$ <u>11,250</u>
F. Expert Witness Fees	\$ <u>0</u>	<u>(3.00)%</u>	\$ <u>0</u>
G. Total Current Value (Future Use)	\$ <u>1,923,875</u>		
H. TOTAL ESCALATED VALUE (If Current Value is \$100,000 or more)			\$ <u>2,296,850</u>
I. Construction Contract Work	\$ <u>20,686</u>		

[] PMCS cost R/W 1 Screen Print Attached

2. Anticipated Date of Right of Way Certification tb/ /

3. Indicate the anticipated Right of Way schedule and lead-time requirements. (Discuss if District proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated).

Last PYPSCAN listed a 09/96 target Right of Way Certification.

4. PYPSCAN lead-time 20 months (from Reg. Right of Way to project certification):

5. Parcel Data:

Type	Dual/Appr	Utilities	RR Involvements:
X <u>0</u>		U4-1 <u>4</u>	None <u>X</u>
A <u>0</u>		-2 <u>0</u>	Const & Maint Agreement <u> </u>
B <u>3</u>	<u>0</u>	-3 <u>0</u>	Service Contract <u> </u>
C <u>3</u>	<u>0</u>	-4 <u>3</u>	Lic/Right Entry/Clauses <u> </u>
D <u>0</u>	<u>0</u>	U5-7 <u>0</u>	
		-8 <u>6</u>	Misc R/W Work:
Total <u>6</u>		-9 <u>0</u>	RAP Displacements <u>1</u>
			Clear/Demolitions <u>1</u>
			Construction Permits <u>0</u>
			Condemnation <u>0</u>

Areas: Right of Way 324,086.4 sq Excess Parcels 3,767 sq ft No. of Excess Parcels 0

Enter EVNT , SCAN Screens 01/23/95 by gel

Enter AGRE Screen (Railroad data only) na/ / by gel

6. Are there any items of construction contract work? NO

Relocate: Electroliers, valves, electrical panels, concrete and steel sign, poster panel, shed, liquid storage tank;

Reconstruct: Driveways.

7. Provide a general description of the right of way and excess lands required (zoning, use, major improvements critical or sensitive parcels, etc.). No Right Of Way required

Zones: Commercial, C/OS, O/PD, PF, RSF.

Uses: Shopping centers, drive-in theater, U-Haul rentals, waste water treatment, ag.

8. Is there an effect on assessed valuation? NO

9. Are Utility facilities or rights of way affected? YES (Attach Utility Information Sheet)

10. Are Railroad facilities or rights of way affected? NO

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

12. Are RAP displacements required? YES

No. of single family	0	No. of business/nonporfit	1
No. of multi-family	0	No. of farms	0

Based on Draft/Final Relocation impact Statement/Study dated / /

it is anticipated that sufficient replacement housing will be available without Last Resort Housing.

13. Are there material borrow and/or disposal sites required? NO

14. Are there potential relinquishments and/or abandonments? NO

Realigned Elks Lane.

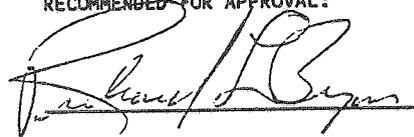
15. Are there any existing and/or potential Airspace sites? NO

16. Are environmental mitigation parcels required? NO

17. Is it anticipated that all Right of Way work will be performed by Caltrans staff? YES

18. This evaluation has been prepared by the Chief Right of Way Engineering Surveyor, Railroad Liaison Agent, Utility Relocation Coordinator, Right of Way Value Estimator, Right of Way Capital Plan Administrator, and Planning and Management Estimating Coordinator.

RECOMMENDED FOR APPROVAL:

 Date 1-24-95

Senior Right of Way Agent
Right of Way Planning and Management

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.


FRANK M. LENTZ
Deputy District Director
Right of Way

1-25-95
Date

RIGHT OF WAY DATA SHEET REPORT

TO: LOCAL FUNDED PROJECTS

Date 01/26/95

ATTN: JERRY GIBBS

Dist 5 Co SLO Rte 101 PM 26.0

Request Date: 10/12/94

FROM: FRANK M. LENTZ, Deputy District Director
Right of Way

EA 41120K Alternate No. C

Proj. Des: PRADO INTERCHANGE

SUBJECT: RIGHT OF WAY DATA SHEET

1. RIGHT OF WAY COST ESTIMATE:

	Current Value (Future Use)	Escalation Rate	Escalated Value
A. Acquisition, including Excess Lands, Damages and Goodwill	\$ <u>1,023,750</u>	<u>(3.00)%</u>	\$ <u>1,222,411</u>
B. Utility Relocation (State Share)	\$ <u>12,500</u>	<u>(5.00)%</u>	\$ <u>16,751</u>
C. Relocation Assistance	\$ <u>0</u>	<u>(3.00)%</u>	\$ <u>0</u>
D. Clearance/Demolition	\$ <u>0</u>	<u>(3.00)%</u>	\$ <u>0</u>
E. Title and Escrow Fees	\$ <u>11,250</u>		\$ <u>11,250</u>
F. Expert Witness Fees	\$ <u>0</u>	<u>(3.00)%</u>	\$ <u>0</u>
G. Total Current Value (Future Use)	\$ <u>1,047,500</u>		
H. TOTAL ESCALATED VALUE (If Current Value is \$100,000 or more)			\$ <u>1,250,412</u>
I. Construction Contract Work	\$ <u>21,186</u>		

[] PMCS cost R/W 1 Screen Print Attached

2. Anticipated Date of Right of Way Certification tb/ /

3. Indicate the anticipated Right of Way schedule and lead-time requirements. (Discuss if District proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated).

Last PYPSCAN listed a 09/96 target Right of Way Certification.

4. PYPSCAN lead-time 20 months (from Reg. Right of Way to project certification).

5. Parcel Data:

Type	Dual/Appr	Utilities	RR Involvements:
X <u>0</u>		U4-1 <u>4</u>	None <u>X</u>
A <u>0</u>		-2 <u>0</u>	Const & Maint Agreement <u> </u>
B <u>2</u>	<u>0</u>	-3 <u>0</u>	Service Contract <u> </u>
C <u>4</u>	<u>0</u>	-4 <u>3</u>	Lic/Right Entry/Clauses <u> </u>
D <u>0</u>	<u>0</u>	U5-7 <u>0</u>	
		-8 <u>6</u>	
		-9 <u>0</u>	
Total <u>6</u>			Misc R/W Work:
			RAP Displacements <u>0</u>
			Clear/Demolitions <u>0</u>
			Construction Permits <u>0</u>
			Condemnation <u>0</u>

Areas: Right of Way 204732 sq. ft. Excess Parcels 215 sq. ft. No. of Excess Parcels 0

Enter EVNT , SCAN Screens 01/23/95 by gel

Enter AGRE Screen (Railroad data only) na/ / by gel

6. Are there any items of construction contract work? NO

Relocate: Electroliers, valves, electrical panels, concrete and steel sign, poster panel, shed, liquid storage tank;

Recreate: Driveways.

7. Provide a general description of the right of way and excess lands required (zoning, use, major improvements critical or sensitive parcels, etc.). No Right Of Way required

Zones: Commercial, C/OS, O/PD, PF, RSF

Uses: Shopping centers, drive-in theater, U-Haul rentals, waste water treatment, ag.

8. Is there an effect on assessed valuation? NO

9. Are Utility facilities or rights of way affected? YES (Attach Utility Information Sheet)

10. Are Railroad facilities or rights of way affected? NO

11. Were any previously unidentified sites with hazardous waste and/or material found?
(If yes, attach memorandum per Procedural Handbook Volume 1, Section 101.011)

12. Are RAP displacements required? NO

13. Are there material borrow and/or disposal sites required? NO

14. Are there potential relinquishments and/or abandonments? NO

Realigned Elks Lane.

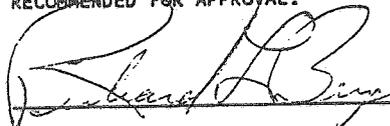
15. Are there any existing and/or potential Airspace sites? NO

16. Are environmental mitigation parcels required? NO

17. Is it anticipated that all Right of Way work will be performed by Caltrans staff? YES

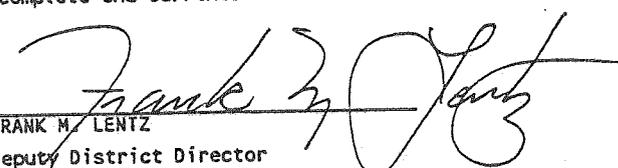
18. This evaluation has been prepared by the Chief Right of Way Engineering Surveyor, Railroad Liasison Agent, Utility Relocation Coordinator, Right of Way Value Estimator, Right of Way Capital Plan Administrator, and Planning and Management Estimating Coordinator.

RECOMMENDED FOR APPROVAL:

 Date 1-24-95

Senior Right of Way Agent
Right of Way Planning and Management

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.


FRANK M. LENTZ
Deputy District Director
Right of Way

Date 1-25-95

Before Data Sheet

COST 05 41120K RW1		M SLD 101		26.0		1 D		P=F11 N=F12 *CAPITAL PLAN*	
A #41120K STIP #0405		LSTPGM		TOT PGM		APV COST			
PGM #HE11		FP CODE #NH		95 PGM		STATE 95		96	
ELEM #FCR		LOCKOUT				FED 95		96	
RI		R/W CONTB				CONTB 95		96	
EA	EST DTE	CAT	APPR	COMP	TO DO				
PCLS	DOLLARS	TITLE	ACQ	UTIL	RELOC	DEMO&CLR	PY'S		
TOTAL									* .03
PRIOR									* .00
94-95									* .00
95-96									* .01
96-97									* .02
97-98									* .00
98-99									* .00
99-00									* .00
00-01									* .00
01-02									* .00
02-03									* .00
PA&ED	ENV CLR	RW MAPS	REG RW	DT PS&E	RW CERT	RDY LIST	CNST FY		
*TB/ /		*TB/ /	*TB/ /	*TB/ /	*TB/ /				
*01/95		*03/95	*03/96	*07/96	*09/96	*09/96			

COST-REMARKS
 THERE ARE NO COST-RW SCREENS FOR THIS PROJECT

After Data Sheet

COST 05 41120K RW1		M SLD 101		26.0		1 D		P=F11 N=F12 *CAPITAL PLAN*	
A #41120K STIP #0405		LSTPGM		TOT PGM		APV COST			
PGM #HE11		FP CODE #NH		95 PGM		STATE 95		96	
ELEM #FCR		LOCKOUT				FED 95		96	
RI 9		R/W CONTB				CONTB 95		96	
EA	EST DTE	CAT	APPR	COMP	TO DO				
LCLSHR	DOLLARS	TITLE	ACQ	UTIL	RELOC	DEMO&CLR	PY'S		
TOTAL	6	2,296	11	2,265	17	2	1		* .03
PRIOR									* .00
94-95									* .00
95-96									* .01
96-97									* .02
97-98									* .00
98-99	1	457	4	453					* .00
99-00	1	437	7	680					* .00
00-01	4	925		906	17	2	1		* .00
01-02		113		113					* .00
02-03		113		113					* .00
PA&ED	ENV CLR	RW MAPS	REG RW	DT PS&E	RW CERT	RDY LIST	CNST FY		
*TB/ /		*TB/ /	*TB/ /	*TB/ /	*TB/ /				
*01/95		*03/95	*03/96	*07/96	*09/96	*09/96			

COST-REMARKS ALT #2 * SHOWN- HIGHEST R/W * COST OF 3 ALTS JHA

PROJECT DATA HAS BEEN UPDATED
 Jerry Gibbs - Local Funded Projects
 Mike Grantham - Proj. Mgmt Control
 Nancy Wickersham - Prog. Mgmt.

JHA
 JAN 27 1995