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TRAFFIC AND PARKING STUDIES

TM5257 RPL4
ER01-09-019

March 24, 2005

County DPLU

RE: TM 5257
Location of March 17, 2005 Comments Letter On Traffic

Comment	
1	Table of Contents included
2	Page 4 Paragraph 5
3	Table 2 Page 7
4	Top Paragraph Page 15
5	Last Paragraph Page 1
6	3rd Paragraph Page 24 and top Paragraph Page 26
7 & 8	Project have been eliminated
9	The project engineer will comply
10	First Paragraph Page 25 and last Paragraph Page 25
11	Table 8 Page 25

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TRAFFIC AND PARKING STUDIES

JF414
March 24, 2005

A Focused Traffic Impact Study For TM-5257, Sunset Vista, In Ramona

Introduction

In mid-May 2004, the developer retained this consultant to conduct a focused traffic impact study for his proposed Sunset Vista project located in Ramona, California. That TIS is now complete and this report will document its findings.

The Project

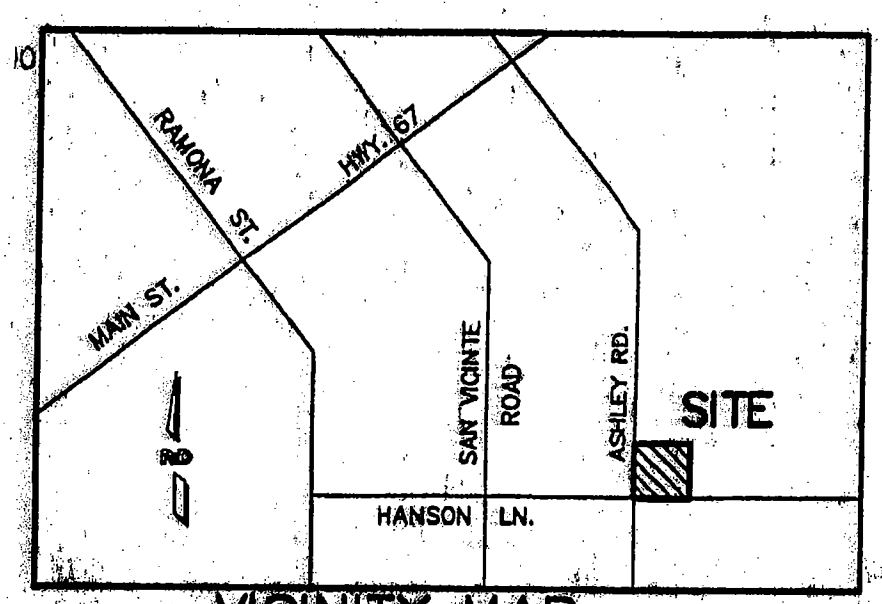
Figure 1 locates the project in Ramona. Note that TM 5257 is located in the northeast quadrant of the Hanson Lane and Ashley Road intersection. Figure 2 is a site plan for the project. Note that there is an existing residence on the project, its traffic will be in the existing traffic of the area, and the project will have traffic from only 7 net new residences.

Figure 2 also shows that all residences will be located on a private road cul de sac with access to and from Hanson Road only.

Conduct Of The Study

Existing traffic counts were made at the nearby Hanson Road / San Vicente signalized intersection since it will be the primary intersection impacted by the project. After generating the projects traffic, a single zone traffic assignment was obtained from Source Point to help distribute the projects traffic to the road system in order to measure the projects traffic impact on segments and intersections. Finally, the cumulative traffic from 80 projects in the Ramona area was added to the existing and project traffic, in order to determine if the project has a cumulatively considerable impact on the area roadways.

This consultant cannot comment on the staff comment to access the project only on Ashley Rd instead of Hanson Lane. Either would be satisfactory from a traffic view, however, after years of work and expense it seems that Hanson Lane could stay as the access location since Ashley Road never surfaced before.



VICINITY MAP

NO SCALE

TM-5257

PROJECT LOCATION MAP

FIGURE 1

FIGURE 1 - PROJECT SITE TRAFFIC NOISE CONTOURS

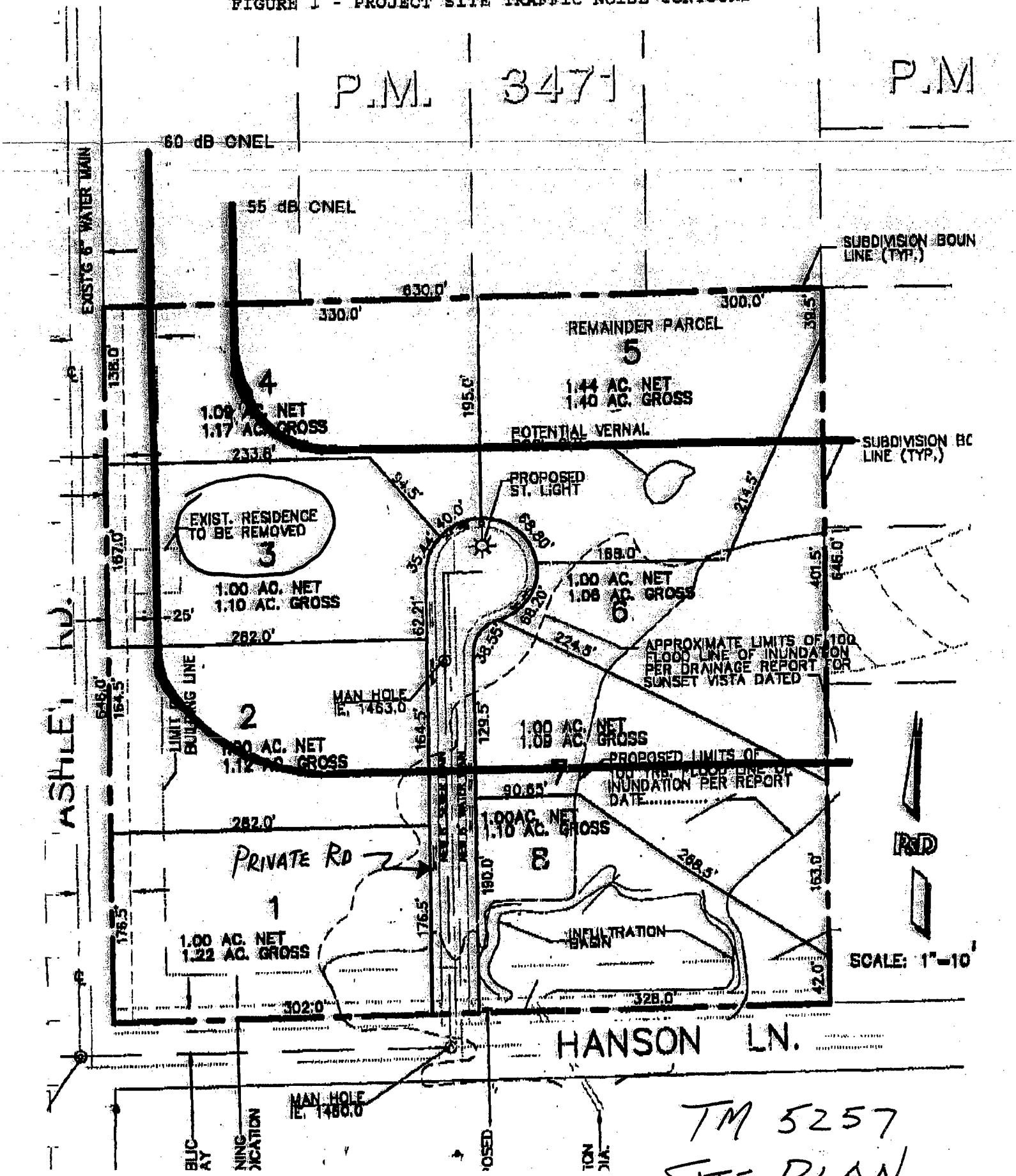


FIGURE 2

Existing Traffic And Circulation

Figure 3 summarizes the traffic counts on the roadways in the project area. The ADT counts are from County counts shown in the Appendix or other sources ((A6-A9). The peak hour counts were made by Traffic Data Service Southwest on 4/28/04 and are also shown in the Appendix (A2-A5).

Figure 4 shows the existing lane geometrics at the San Vicente / Hanson Lane intersection that will be used in the LOS and delay calculations at this project impacted intersection during this study analysis.
Also shown on Figure 4 is the County General Plan Circulation Element roadway classification and planned roadway cross sections. The existing roadways are not constructed to these standards.

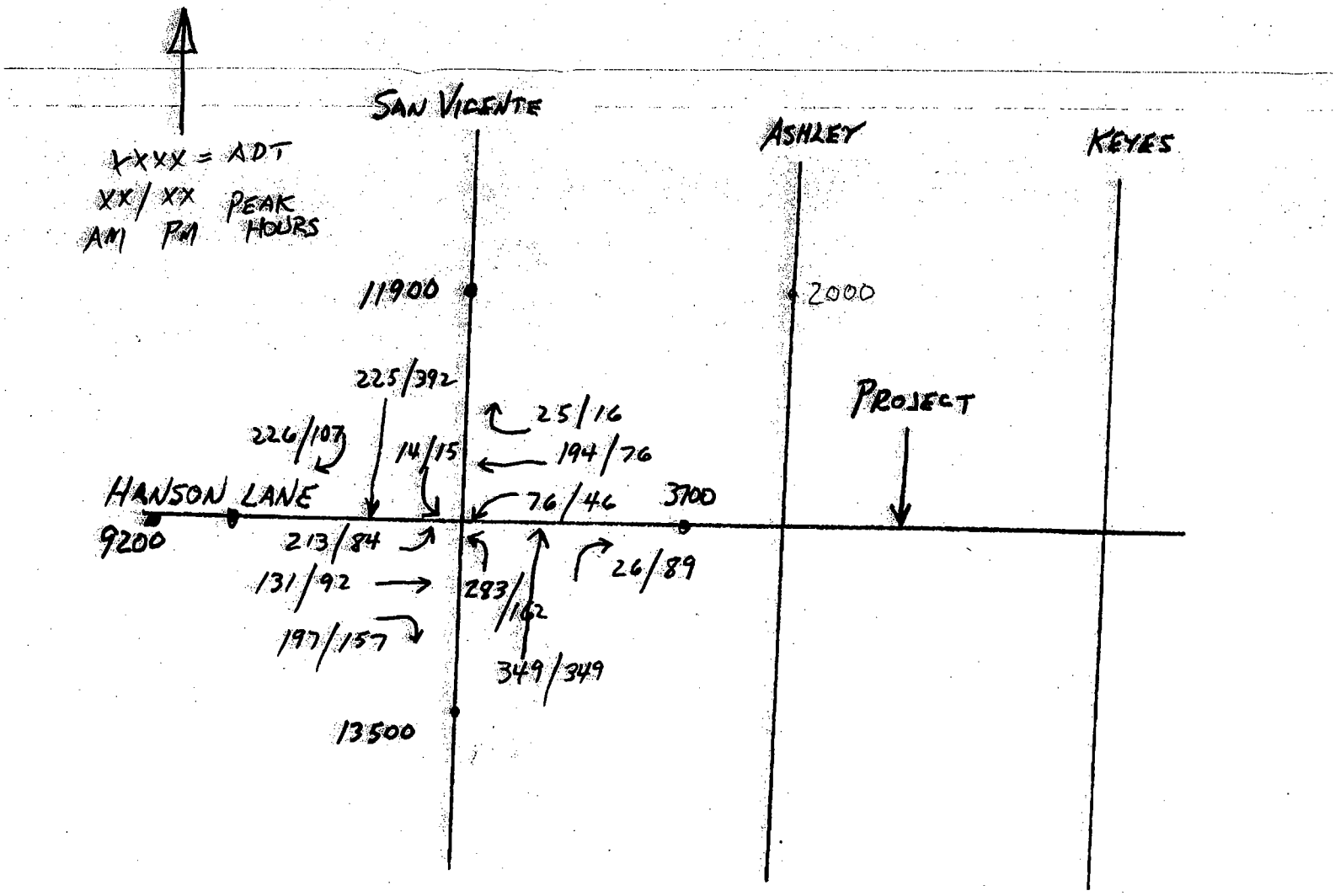
As shown on Figure 4, Hanson Lane along the project is classified as a Collector Road of 64/84 ft. cross section. At the present time Hanson Lane is 64 feet curb to curb just west of San Vicente and 56 feet just east of San Vicente. At Ashley and along the project it is only 40 feet wide. It has a double yellow centerline and 5 foot wide bike lanes east of San Vicente and along the project. Here and there, there are graded shoulders that, with the bike lanes, will allow emergency parking. In this area, Hanson has 45 MPH speed limit and a 4 way stop at Ashley.

Ashley is classified as a Rural Collector with a 40/84 foot cross section. In the project area, Ashley is 30 foot wide at the present time with only a double yellow centerline. Here and there, there are graded, gravel/sand shoulders that will allow emergency parking. Ashley here has a 45 MPH speed limit but as it approaches downtown Ramona, has a 25 MPH speed limit.

San Vicente near Hanson Lane is shown on Figure 4 to be a Major Road with a proposed 82/102 cross section. At the present time however, it is 64 foot wide curb to curb at Hanson. North and South of Hanson, however it only acts as a 2 lane roadway. Figure 4 shows the lanes at the signalized intersection of Hanson / San Vicente. The speed limit on San Vicente is 50 MPH but emergency parkers along it would have to jump the curb near Hanson, in order to get on the shoulder.

Keyes, north of Hanson is 28 to 30 foot wide, with a double yellow centerline and a 40 MPH speed limit. In a number of places, sand/gravel shoulders will allow off pavement, emergency parking.

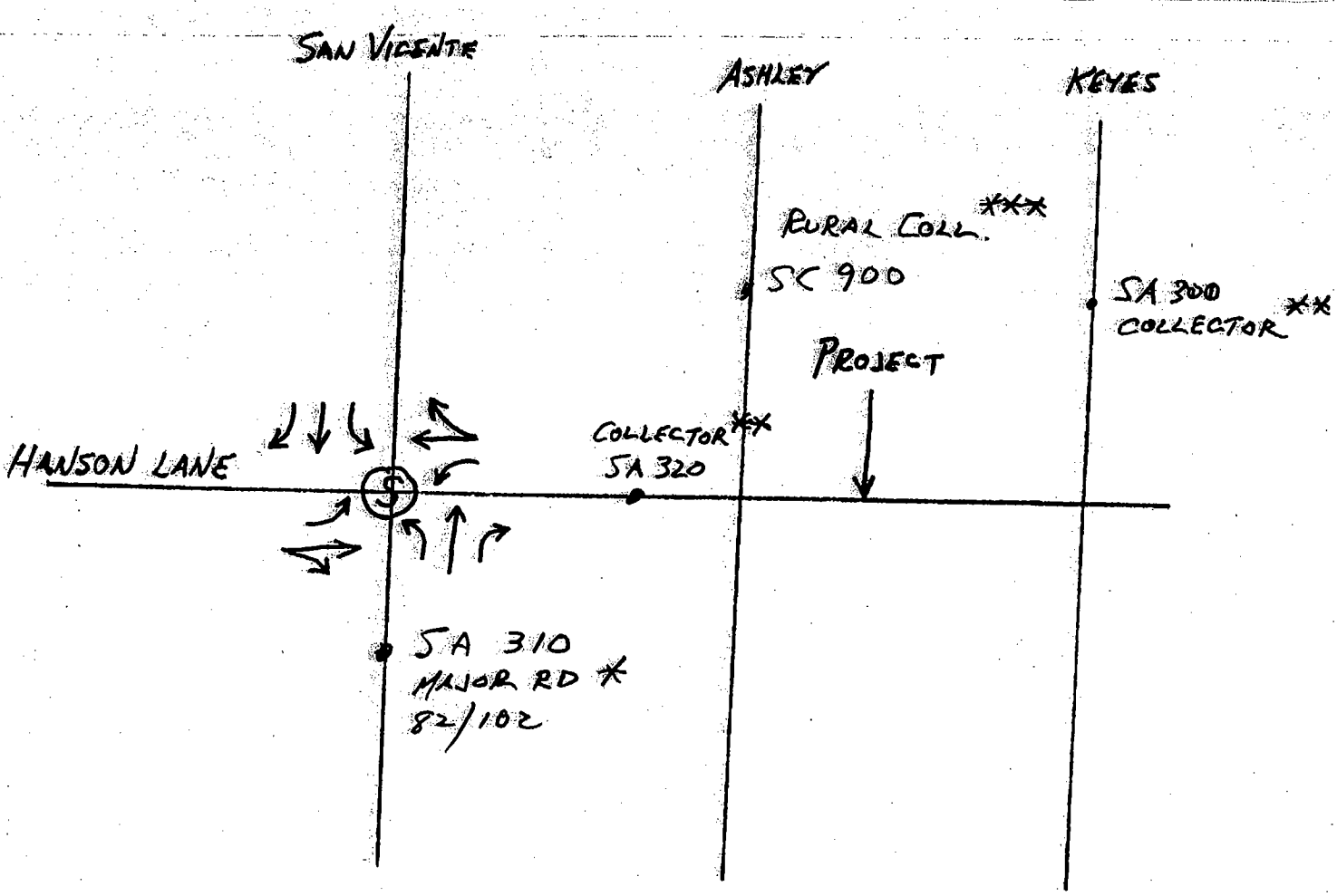
South of Hanson, Keyes is a dead end roadway, has a paved surface of about 26 foot width, has no pavement marking and has no speed limit (prima facie). Keyes stops for Hanson. Keyes Road in the future is to be part of the "southern bypass" around downtown Ramona.



LOCAL AREA
EXISTING TRAFFIC

TM 5257

FIGURE 3



GEOMETRICS AND CIRCULATION SYSTEM CLASSIFICATION

TM 5257

* = 82/102
** = 64/84
*** = 40/84

FIGURE 4

Using the peak hour traffic of Figure 3 and the geometrics of Figure 4, a signalized, HCM analysis was made to determine the existing peak hour delay and LOS at Hanson / San Vicente. Table 1 shows this existing delay and LOS while the analysis is in the Appendix.

Table 1
Existing Intersection Delays And LOS's

Intersection		Delay	LOS
Hanson & San Vicente			
	AM	44.0	D
	PM	33.0	C

The existing segment volumes of Figure 3 were used to also measure the existing LOS of the segments of roadways near the project when compared to County Standards for equivalent street widths. (Appendix A11) Table 2 below shows the existing segment LOS.

Table 2
Existing Segment LOS and V/C Ratio

Segment	LOS E* Capacity	Existing Volume	LOS*
Hanson Lane Barnett to San Vicente	16200	3700	B
Hanson Lane Ledesna to San Vicente	16200	9200	D
San Vicente Hanson to 10th	16200	11900	E
San Vicente Hanson to Wildcat Canyon	16200	13500	E

* When compared to County Standards - See Appendix A11

Since the existing volumes result in LOS E on San Vicente, by County Guidelines, if the project adds one ADT to these segments, it will have a cumulatively significant traffic impact on these segments.

Project Traffic Generation

With the existing traffic and roadways analyzed, it is time to estimate the projects traffic generation. The project is to consist of eight, estate residential lots. However, an existing

house will be removed leaving only seven new lots to generate traffic since the existing lots traffic is counted in the existing traffic.

Using SanDags regional traffic generation rates, Table 3 shows the projects traffic generation.

Table 3
Project Estimated Traffic Generation

				Peak Hour *			
		ADT	Two Way	AM		PM	
Land Use	Units	Rate	ADT	In	Out	In	Out
Estate Residential	7	12	84	1	6	6	2

* At 8% of ADT split 3:7 in AM and 10% of ADT split 7:3 in PM

As shown in Table 3, the project generates very low traffic volumes.

Project Traffic Distribution

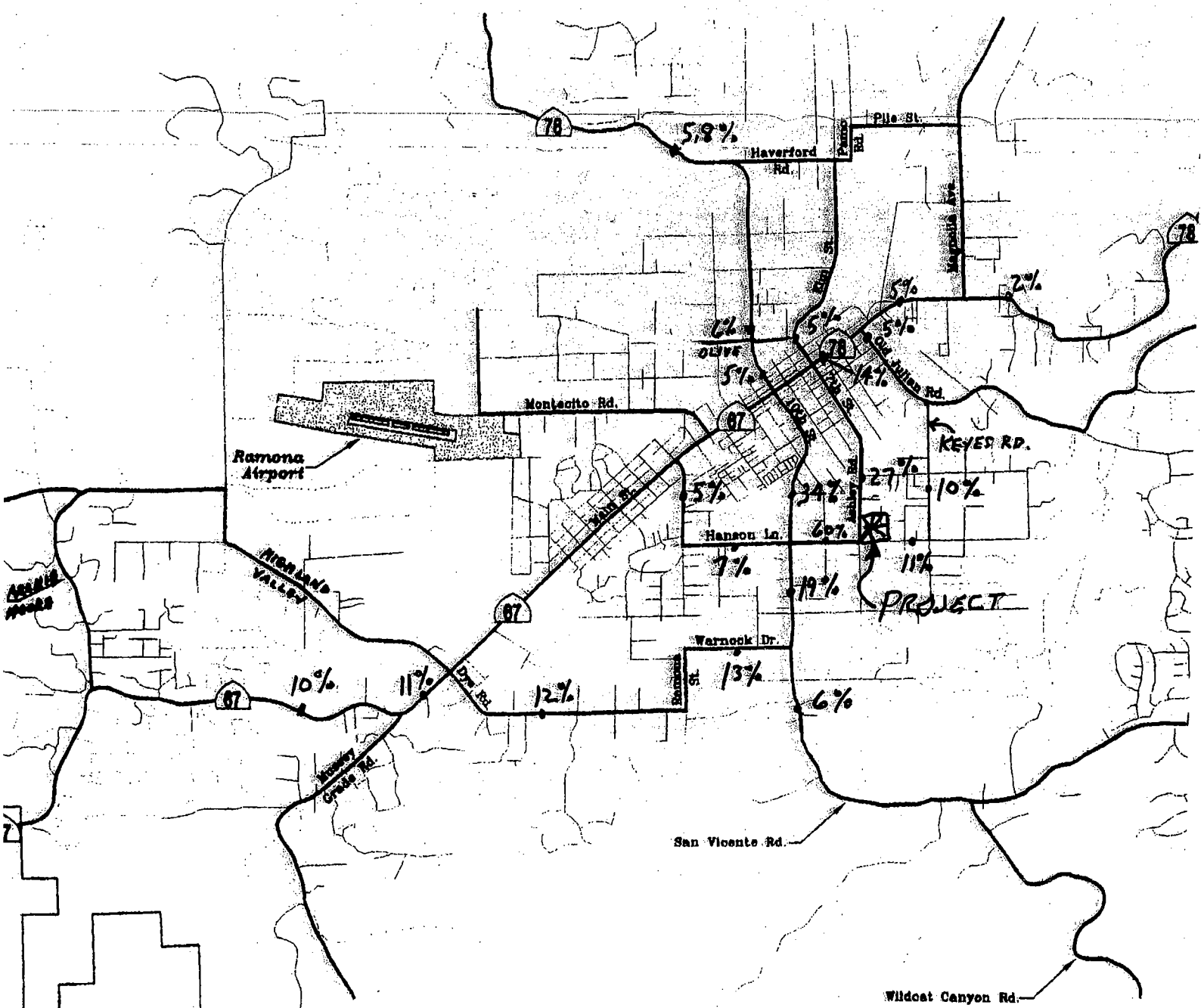
In order to quantify a projects traffic impact on the important intersections and segments nearby, it is necessary to make a project traffic assignment by use of the project traffic of Table 3, distributed in the various directions. In order to estimate TM 5257's distribution, a single zone traffic assignment was obtained from SanDag. Figure 5 shows the project estimated traffic distribution as estimated from that SanDag single zone assignment.

Project Traffic Assignment

Using the projects generated traffic of Table 3 and the distribution of Figure 5, a project traffic assignment was made. Figure 6 shows the local area project traffic to be used in the Hanson / San Vicente intersection analysis and the nearby segment analysis, while Figure 7 expands the project ADT's to segments more distant from the project.

Project Traffic Analysis

By adding the peak hour project traffic of Figure 6 to the existing traffic of Figure 3, a before and after project delay and LOS comparison can be made. This comparison will reveal the true direct impact of the project on this intersection with existing geometrics. If in the future, the geometrics are changed to provide more lanes, the projects traffic impact will be even less than it is now. Figure 8 shows the combined before and after project traffic to be used in the same HCM analysis as used to derive Table 1. Table 4 below compares the before and after project delay.

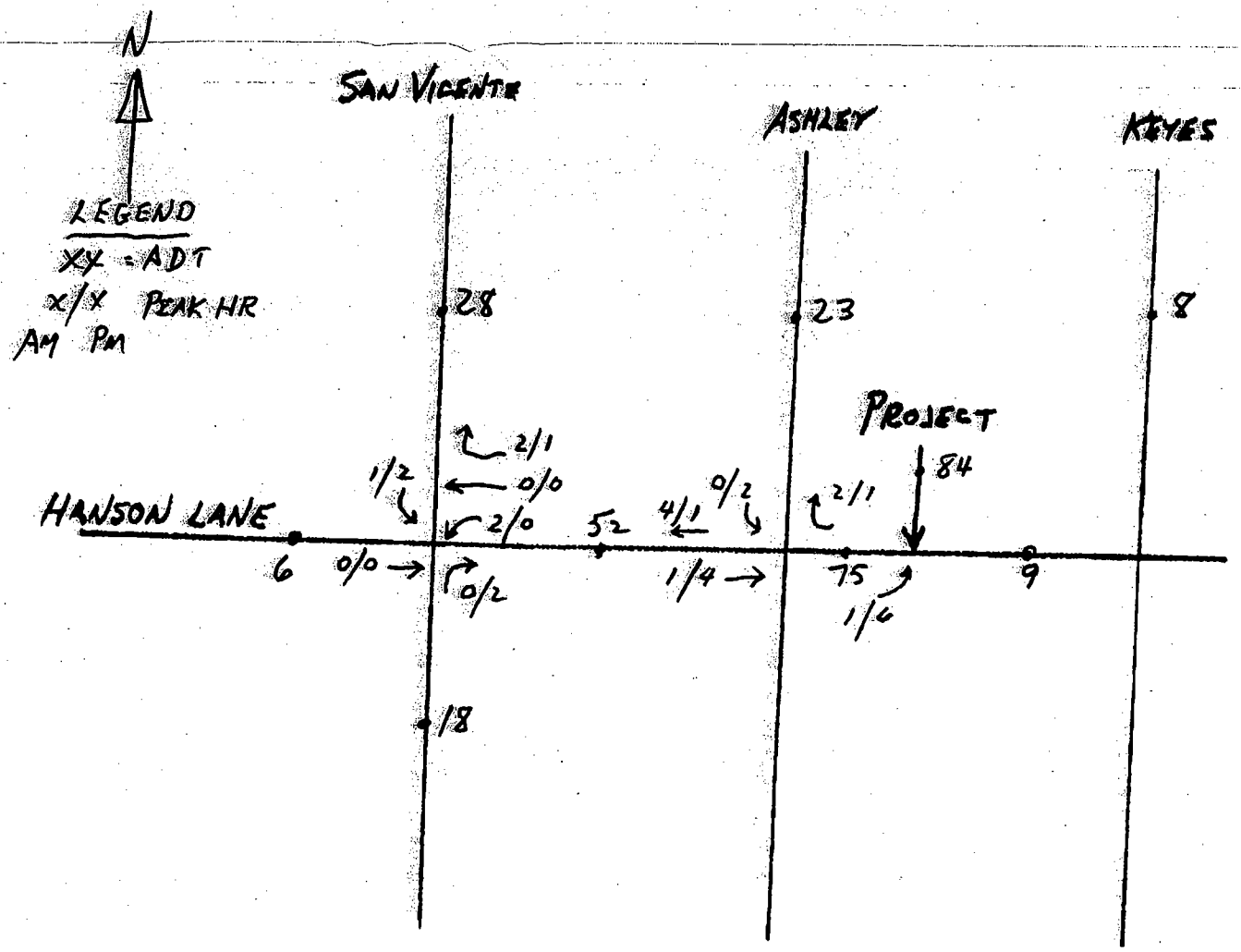


PROJECT TM-5257

TRAFFIC DISTRIBUTION

FROM SANDAG SERIES 10 CITY/COUNTY

FIGURE 5



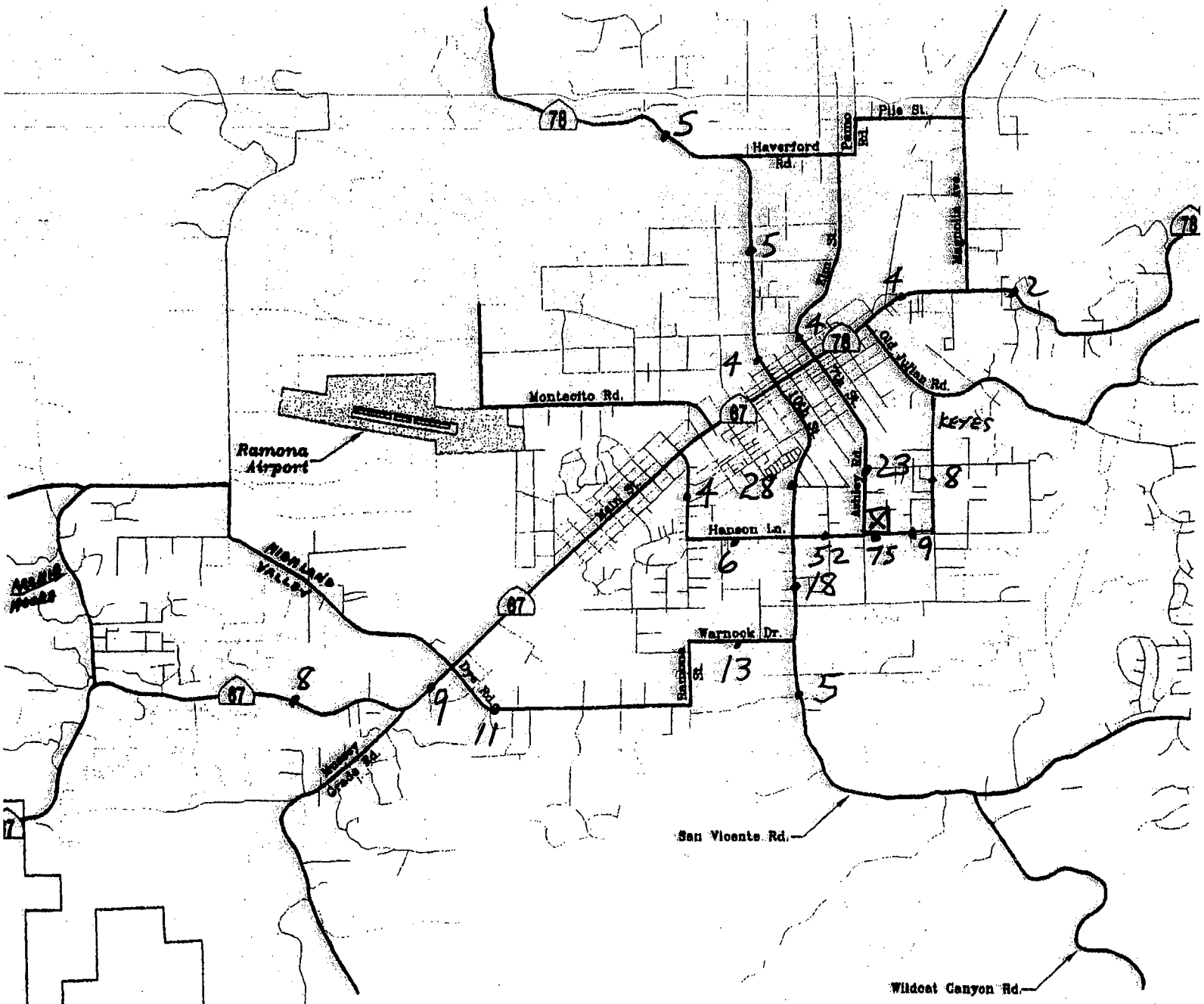
LOCAL AREA

PROJECT TRAFFIC ONLY

TM 5257

84 ADT
AM 1 IN 6 OUT
PM 6 IN 2 OUT

FIGURE 6

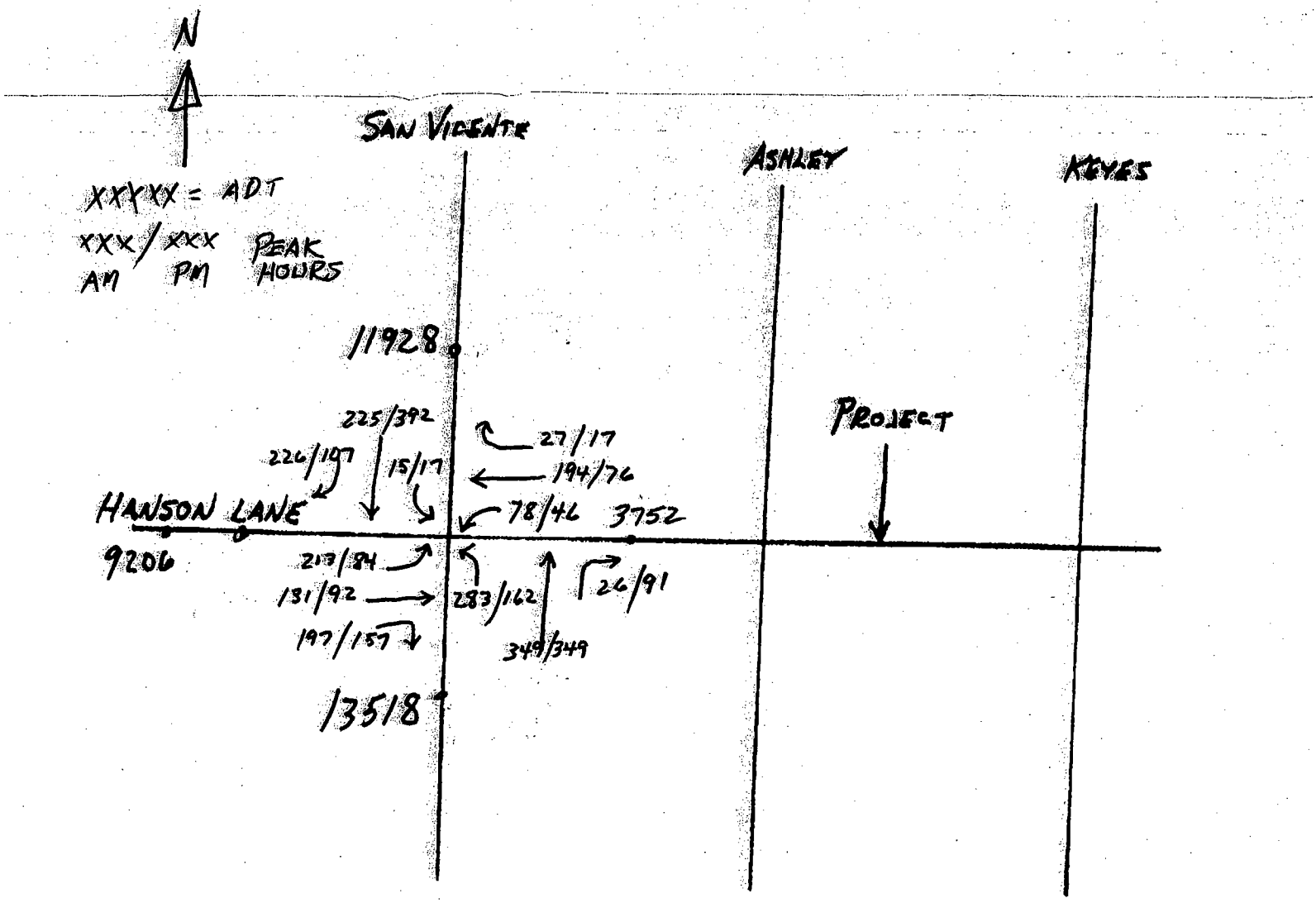


TM-5257

PROJECT ADT ONLY

(84 ADT TOTAL)

FIGURE 7



COMBINED
LOCAL AREA
EXISTING + PROJECT TRAFFIC

TM 5257

FIGURE 8

Table 4

Before And After Project Intersection Delay And LOS's

Intersection		Before Delay	Before LOS	After Project Delay	After Project LOS	Change Delay	Change LOS	Sig?*
Hanson & San Vicente								
	AM	44.0	D	44.1	D	+0.1	none	no
	PM	33.0	C	33.0	C	+0.0	none	no

*When compared to County Standards - See Appendix A14

As shown in Table 4, the project has no significant direct impact on the Hanson / San Vicente intersection since the new County Guidelines allow 2 secs. of delay (See Appendix A14).

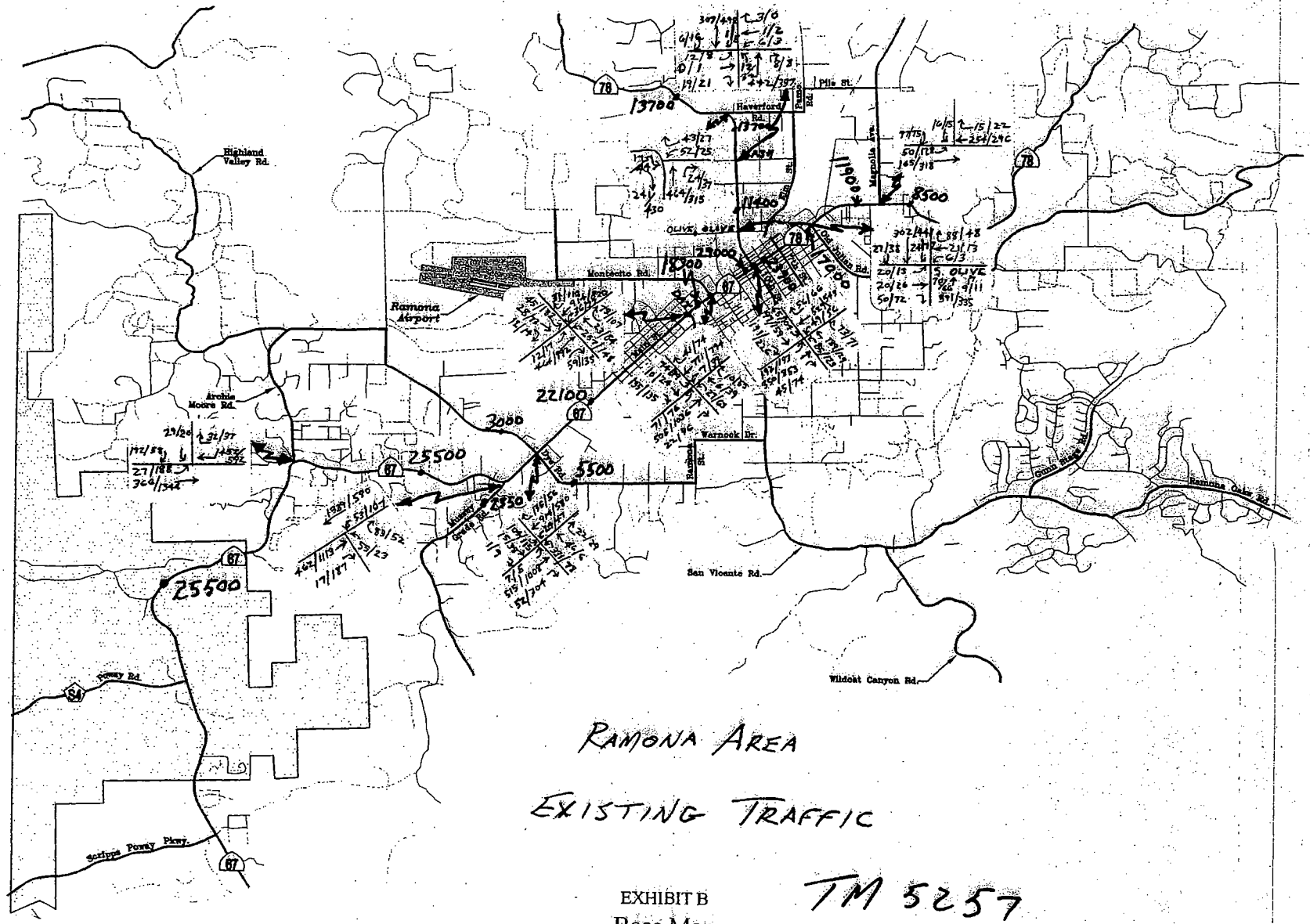
The combined segment volumes shown on Figure 8 can be used in a before and after project segment analysis using the data from Table 2 as the before project data. Table 5 below shows this before and after project comparison.

Table 5
Before and After Project Segment LOS and V/C Ratio

Segment	LOS E* Capacity	Existing Volume	Existing LOS	After Project Volume	After Project LOS	Change LOS	Signif?
Hanson Lane							
Barnett to San Vicente	16200	3700	B	3752	B	none	no
Hanson Lane							
Ledsma to San Vicente	16200	9200	D	9206	D	none	no
San Vicente							
Hanson to 10th	16200	11900	E	11928	E	none	no
San Vicente							
Hanson to Wildcat	16200	13500	E	13518	E	none	no

Like the intersection of Table 4, Table 5 shows that the project has no significant direct impact on the nearby, important, segments near the project. However since the existing traffic creates LOS E on the San Vicente segments, the project will have a cumulative impact.

At more distance from the project however, it is a different segment story. Figure 9 shows existing traffic in the Ramona Area as gathered recently by a number of traffic consultants. Note that SR 67 from Day/Ramona southwesterly has over 22000 ADT up to 25500 in the Archie Moore Road area. On the existing two lane, SR 67, this means that SR 67 in this area is at LOS F - with only existing traffic. Under the County's new



RAMONA AREA

EXISTING TRAFFIC

TM 5257

EXHIBIT B
Base Map

NO SCALE

CD-S 5703-Graphics.dwg

FIGURE 9

Guidelines for Determining Significance of Traffic, any project that adds even one daily trip to a LOS F roadway will have a cumulatively significant traffic impact on that roadway. Thus TM 4962 will have a cumulatively significant traffic impact on SR 67 since Figure 7 shows 9 or 8 ADT on the LOS F sections and thus TM 5257 must help mitigate the cumulative traffic impacts. In the vicinity of the 10th/SR 78 intersection, 10th is carrying almost 25 trips most of which are in the commercial/office area since only 5 go to SR 78 south. On 7th/Ashley, about 20 project trips approach SR 78. Of these, again, most stop in "downtown" since only 4 travel SR 78 north.

Cumulative Traffic

In addition to the analyses conducted previously for existing and existing plus project traffic, an analysis must be conducted for all approved projects whose traffic is not yet in existing traffic, as well as other pending or proposed projects.

County DPLU staff prepared a list of 49 cumulative projects in the Ramona area affecting roadways used by the project. Figure 10 shows this cumulative list. With the cooperation of County DPW staff and their "blessing", and since the task of gathering the traffic data from these 49 projects was so great, five traffic engineering consultants got together, divided up the project, and then combined the traffic data from each into one large publication to be used by all as a base for the cumulative traffic needs in the Ramona area.

By the time this work was completed, the consultant's on their own added other projects until the final completed list was made up of 60 projects. The last page of the report (See Appendix for the traffic report for the 60 cumulative projects) combines the Ramona cumulative traffic and is shown and summarized on Figure 11.

About 9/20/04, the consultants were provided another list of Ramona projects dated 9/17/04 and containing 80 projects. This list contains the original 49 plus 31 additional. Figures 12 A, B, and C are the second list.

The consultants, on November 10, 2004 completed the cumulative traffic study of the 80 projects on the October 17th list. The new study contains all the traffic from the 49 projects on the original list plus the 31 others. The data for these additional projects is shown in the Appendix with the original Appendix for the 49 projects but Figure 13 shows the new, total combined, 80 project, ADT summary of cumulative traffic to be used in this TM 5257 project study.

Cumulative Traffic Analysis

By using the ADT's of Figure 13 and local area Figure 14, the segment comparison of Table 5 can be expanded to show the segment LOS's with existing + cumulative + project traffic. Table 6 shows this three traffic scenario segment comparison while Figure 15 shows the combined traffic of existing + project + cumulative local area traffic used in Table 6.

TABLE A

Ramona "Other Projects" Listing

POTENTIAL PROJECT LISTING FOR CUMULATIVE ANALYSIS FOR REVISED TRAFFIC ANALYSIS - TM5194RPL2

MUP 02-005	RANCHO CANADA	David Sibbet	ACTIVE	3/11/2002
MUP 03-035	MOUNTAIN VALLEY RANCH	David Sibbet	ACTIVE	5/30/2003
MUP 70-370 W2	SALVATION ARMY CAMP MUP	Joseph Farace	ACTIVE	11/18/2001
MUP 84-004 W1	A TOUCH FROM ABOVE MINISTRIES	Dag Bunnemeyer	ACTIVE	1/12/2000
MUP 92-008 W1	Rancho San Vicente	Bill Stocks	ACTIVE	11/21/2003
MUP 99-017 W3	Ramona Disposal Service	Shannon Murphy	ACTIVE	10/17/2002
STP 02-064	Souza Site Plan	Dag Bunnemeyer	ACTIVE	10/18/2002
STP 03-044	BIG APPLE BAGELS	Robert Forsythe	ACTIVE	7/1/2003
TM4844	BLACK CANYON			
TM 4962 RP5	M.D.S.DEV.CORP./DECA	Sami Raya	ACTIVE	9/8/2002
TM 5194 RP2	TEYSSIER TM	Marette Esperance	ACTIVE	12/13/2002
TM 5198 rp3	A NATURAL HIGH INC	Bill Stocks	ACTIVE	1/5/2004
TM 5235 RP1	Monte Vista Ranch	Marette Esperance	ACTIVE	1/8/2004
TM 5250 RP2	MONTECITO RANCH	Bill Stocks	ACTIVE	11/27/2002
TM 5253 RPL4	Oak Country Estates	Bill Stocks	ACTIVE	11/12/2003
TM 5254 RP1	Rainbird Rd	Marette Esperance	ACTIVE	10/31/2002
TM 5257 rp1	sunset vista	Sami Raya	ACTIVE	6/10/2001
TM 5294 RP1	SPITSBERGER SUBDIVISION	Bill Stocks	ACTIVE	8/2/2003
TM 5302 RP1	ELLIOT TM		ACTIVE	2/3/2004
TM 5307 RP2	LAKESIDE VENTURES TM	Stella Caldwell	ACTIVE	1/28/2004
TM 5311	meadow builders	Dag Bunnemeyer	ACTIVE	4/2/2003
TM 5329		David Sibbet	ACTIVE	6/6/2003
TM 5344	505 PROPERTIES PAA/ Cumming Ranch	Shannon Murphy	ACTIVE	10/31/2003
TM 5347	Nickel Creek	Stella Caldwell	ACTIVE	12/11/2003
TPM 20299	Fenton Ranch Grading		ACTIVE	2/17/2004
TPM 20564 rp3	McCANDLESS TPM	Christine Clary	ACTIVE	6/24/2002
TPM 20656	Humphus TPM	Flores Bishop	ACTIVE	1/14/2002
TPM 20679 RPT	Herold	Flores Bishop	ACTIVE	1/6/2004
TPM 20692	Meane / Slota sp20	Flores Bishop	ACTIVE	6/18/2002
TPM 20703 RP1	Herald - Ashley Rd	Flores Bishop	ACTIVE	4/23/2003
TPM 20747	KVAAS TPM	Flores Bishop	ACTIVE	5/27/2003
TPM 20749	Saffan TPM	Flores Bishop	ACTIVE	5/5/2003
TPM 20760	LEDERMA LANE	Flores Bishop	ACTIVE	7/7/2003
TPM 20766 RPL	Wakeman TPM	Flores Bishop	ACTIVE	2/17/2004
TPM 20769	Thompson	Christine Clary	ACTIVE	6/18/2003
TPM 20770	taylor tpm	Robert Forsythe	ACTIVE	6/18/2003
TPM 20771 RP1	Tentative Parcel Map	Robert Forsythe	ACTIVE	2/3/2004
TPM 20792	McDonald	Ed Gouegne	ACTIVE	12/10/2003
TPM 20801	Herman TPM	Christine Clary	ACTIVE	1/15/2004
TPM 20825	Young TPM	Christine Clary	ACTIVE	2/10/2004
TPM 20829	Estes Parcel Map	Assigned EMS Lead Pl	ACTIVE	2/18/2004
TM4979 rp4	Fenton Ranch	Bill Stocks	COMPLETE	6/24/1996
TPM 19982TE	Koury TPM		COMPLETE	2002
TM 5138	WELSH TM	XX-Robert Rushlow	COMPLETE	2001
TM 5188 rp1	Brisson	Sami Raya	COMPLETE	2000
TM5267	Roberts TM	Sami Raya	COMPLETE	2003
TM 5244 rp14	stonecrest development inc	Sami Raya	COMPLETE	2004
TPM 20318	Brinkler TPM	XX-Robert Rushlow	COMPLETE	2003
TPM 20498 rp2	Bagley & quisenberry family trust	Sami Raya	COMPLETE	2001

CD-T 3703-Graphics_Comp

FIGURE 10

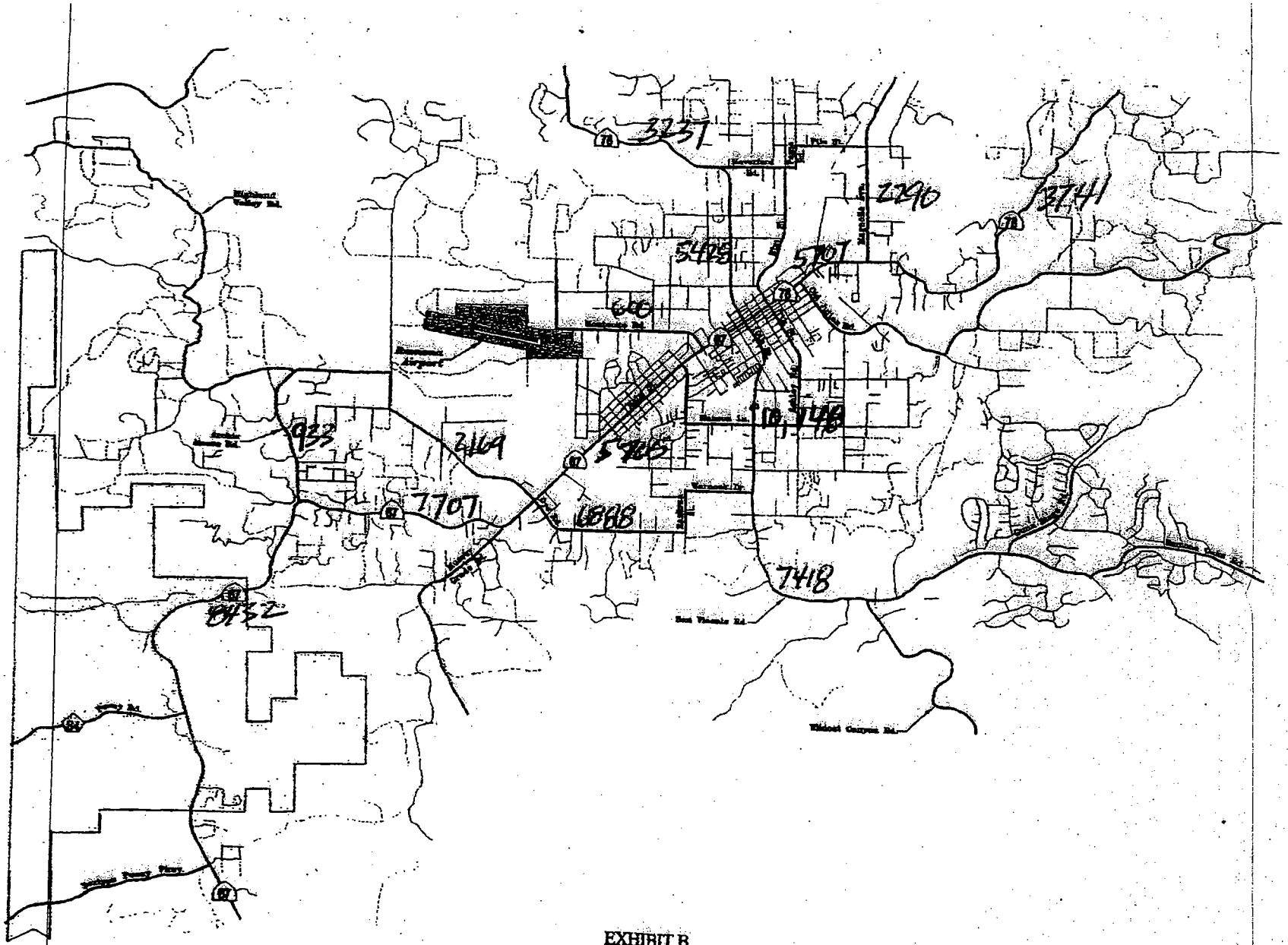


EXHIBIT B
Base Map

COMBINED TOTAL
7/26/04

FROM APPENDIX

FIGURE 11

Arrows are new
✓ were done

28

LIST OF PROJECTS IN RAMONA WITH TRAFFICE RELATED IMPACTS
as of September 17, 2004

Project #	Project Name	Acreage	Aplication Status	Number of Lots/Units or Square Footage	Description	Parcel #	Community Plan
MUP 70-379 W2	Salvation Army Camp	562	Active	N/A	summer camp and retreat center	322-030-02,10, and 322-060-01, 08	Ramona
MUP 78-121-06	Grace Community Church	Not Listed	Active	N/A	Add parking lot, driveway, shade strucutre, add to church new classrooms (modular)	284-310-01	Ramona
MUP 89-019	Ramona Mobile Oil-Car Wash	1.2	Approved 4/24/2003	N/A	change car wash-add pumps	282-222-13, 14, 15, 16	Ramona
MUP 96-017	Ramona Disposal Service	Not Listed	Active	N/A	Ramona Disposal Service / Transfer Station increase in capacity to 700 tons per day	281-121-21	Ramona
MUP 00-004	Kevin O'Conner 535 Haverford Rd.	4.74	Approved 9/1/2000	N/A	mup for boyne valley ranch for group care	279-180-25	Ramona
MUP 00-081	Winterview-3rd Replacement	Not Listed	Approved 4/5/2002	36 lots.	Landscape Plan - TM 5224	288-250-25	Ramona
MUP 02-005	Rancho Canada Bed and Breakfast	5	Active	N/A	BED & BREAKFAST (Monte Vista Ranch) in Ramona	328-010-02, 328-020-08, 09, 328-021-01, portion of 328-070-01	Ramona
MUP 03-035	Mountain Valley Ranch	portion of 25.48	Active	1	Equestrian Center on SR 78 in Ramona	portion of 281-484-43	Ramona
MUP 03-085	Hellman Changing Options Group Care	0.92	Approved 2/20/2004	N/A	group care	281-460-21	Ramona
MUP 03-094	Nielsen MUP	1.74	Active	N/A	MUP for auto yard	281-121-26	Ramona
STP 85-003	Canyon Crest Apts.	9.63	Active	N/A	Converting Existing and Adding Senior Apartment Housing	281-160-23	Ramona
STP 00-013	SSA Enterprises	0.62	Approved 10/9/2001	12 units	12 Unit Apartment Complex (see CG 4279)	281-342-01	Ramona
STP 00-100					500 ADT		Ramona
MUP 71-396W2	Ramona Airport Expansion						
STP 01-004	Alamo Mini Storage- Easement Vacations (No New Trips)	4.78	Approved 9/9/2002	N/A	B, "D", "S", site plan	281-130-03	Ramona
STP 01-022	Olympic Public Storage	4.02	Approved 9/4/2003	2	improvement plans for UY 4422	281-182-03, 04	Ramona
STP 01-030	Daniel Vengler	0.72	Approved 2/14/2003	3882 sq.ft.	union bank building 3882 sf (see CG 4521)	282-262-17	Ramona
STP 01-074	Burch Business Church	9.13	Approved 2/21/2003	34,500 sq.ft	34,500 office,operations and storage space for construction and light manufacturing	281-122-25	Ramona
STP 01-083	Express Car Wish Site Plan	2	Approved 11/25/2002	N/A	STP for Car Wash	281-262-16	Ramona
STP 02-040	Barron STP	Not Listed	Active	5	ramona D5 and B for auto body shop	281-351-04, 05, 06, 07, 08	Ramona
STP 02-064	Souza Site Plan- One Stop Rental Site Plan (trips accounted for under TM)	4.21	Active	N/A	B & D site plan for industrial park in Ramona	281-122-21, 22	Ramona
STP 02-077	Ramona Library	6.79	Approved 12/22/2003	N/A	county library	281-191-04, 05, 06, and 281-182-06, 12, 13	Ramona
STP 03-044	Big Apple Bagles	0.4	Active	N/A	retail center	282-141-56	Ramona
STP 03-077	The Meurs Building	Not Listed	Approved 3/22/2004	N/A	B Site Plan for Comm. Bldg.	281-402-05	Ramona
STP 03-079	Olive St Self Storage	4.49	Active	N/A	Site plan B and S for self storage on Olive Street in Ramona	281-065-19	Ramona
STP 03-081	Ramona Automotive	1	Active	N/A	auto repair / fully enclosed	282-211-04	Ramona
STP 04-048	Ramona Fitness	Not Listed	Active	N/A	Ramona fitness center	281-352-13	Ramona
TM 4844	Black Canyon	60.34	Active	45 lots	Habitat Loss Permit - Replaces HLP 01-013	244-120-40 th 47, 279-131-26, 28, 29, 244-140-01 thru 19, 244-141-01 thru 12, 244-142-01 th 14	Ramona
TM 4862	Luelf Ranch in Ramona Dye Road	393	Active	96 lots	96 lots on 393 acres also includes a	Not listed	Ramona

Updated by DPLU Staff,
September 17, 2004

18

FIGURE 12A

26 NEW (11 ACTIVE 15 APPROVED

34

LIST OF PROJECTS IN RAMONA WITH TRAFFICE RELATED IMPACTS
as of September 17, 2004

TM 4962	M.D.S.DEV.CORP./DECA	75.82	Active	30 lots	RAMONA replacement RP5 relocation of rd and open space easement to be vacated	279-121-45	Ramona
TM 5008	Ramona Ridge Estates	219	Active	25 lots	25 LOT SUBDIVISION	286-041-04	Ramona
TM 5136	Welsh TM	14.8	Approved 8/28/1998	12 lots	add bldg pads	282-342-16, 17, 19	Ramona
TM 5188	Brisson	3.75	Approved 2/20/2003	15 lots	15 Lots	284-202-09, 10	Ramona
TM 5194	TEYSSIER TM	289	Active	37 lots	37 LOT SUBDIVISION	279-030-02, 06, 07, 08, 10, 11, 279-010-09, 19	Ramona
TM 5198	A NATURAL HIGH INC	147.68	Active	38 lots	Replacement Map	277-111-09, 277-121-05, 08	Ramona
TM 5235	Monte Vista Oaks	40,425.70	Active	670 lots	Res. subdivision with a guest lodge, etc.	01, 328-020-08, 09, 328-090-01, 328-010-02, 327-130-02, 329-030-02, 328-100-01, 328-050-01, 327-030-03	Ramona
TM 5244	Stonecrest Development Inc.	69.57	Approved 2/5/04	14 lots	14 lot tm no prior er #	279-093-41	Ramona
TM 5250	MONTECITO RANCH	935	Active	417 lots	417 sfd on 935 ac with historical park and school	Not listed	Ramona
TM 5253	Oak Country Estates	768	Active	57 lots	formerly highland valley estates	382-011-03 thru 06, 379-192-15, 379-010-06, 33	Ramona
TM 5254	Development Venture/ Rambard Rd	327	Active	67 lots	replace TM withdraw vesting request(STP)	288-050-15, 331-031-08	Ramona
TM 5257	Sunset Vista	9.57	Active	7 lots	7 lot major subdivision	284-032-17	Ramona
TM 5267	ROBERTS TM	48.26	Active (replaced)	8 lots	8 LOT SUB.	279-091-70, 72	Ramona
TM 5294	SPITSBERGER SUBDIVISION	137.53	Active	21 lots	ER review for SPA 03-004	327-031-02	Ramona
TM 5302	ELLIOT TM	21.6	Active	77 lots	TM FOR 77 LOTS assigned under REZ 04-02	282-261-62, 282-370-01, 02, 19, 20	Ramona
TM 5307	LAKESIDE VENTURES TM	202	Active	8 lots	8 lot subdivision	388-202-25, 26	Ramona
TM 5311	Meadow Builders	8.27	Active	12 lots	12 lot tm	284-320-79	Ramona
TM 5329	Mt. Woodson, The Gallery	84.15	Active	22 lots	single-family residence	Not listed	Ramona
TM 5344	805 PROPERTIES PAA/ Cumming Ranch	682.02	Active	136 lots	PAA TO CHANGE FROM .25 TO 1AC ZONING.	282-010-30, 43, 282-021-01, 02, 282-022-01, 282-041-09	Ramona
TM 5347	Nickel Creek	10.1	Active	45 units	Replacement map for 45 Condominiums on 4 lots	281-100-23, 34	Ramona
TM 5368	Maple Street Business Park Condos	2.87	Active	16 lots	Tentative Map 16 lot split	281-121-13, 23	Ramona
TM 5378	ESTATES AT MCDONALD PARK TM	12.77	Active	11 lots	ESTATES AT MCDONALD PARK TM	282-341-02, 17	Ramona
TPM 19962 TE	Koury- Old Julian Highway	17.03	Approved 10/9/2002	4 lots	Ramona off of Julian hwy	281-490-41	Ramona
TPM 20299 RPL	Fenton Ranch (TM 4979) Bandy Canyon	302	Approved 6/23/1999	N/A	16251 Bandy Canyon Rd between Ysabel Creek Rd and Hwy 78	276-040-02, 04, 06	Ramona
TPM 20318	Brinkler- Aimall Lane	8.87	Approved 10/20/2003	2 lots	2 Parcel minor subdivision on Garjan Lane	278-351-09	Ramona
TPM 20370	Lynn Thomas	8.53	Approved 10/22/1998	2 lots	2 LOT MINOR SUBDIVISION	277-111-37	Ramona
TPM 20401	RCDK Reality II	45.22	Approved 3/3/2000	4 lots	4 LOT SUBDIVISION	283-055-24	Ramona
TPM 20402	Lee	8.32	Approved 1/28/1999	2 lots	2 LOT MINOR SUBDIVISION	277-111-38	Ramona
TPM 20466	Sgobassi	19.82	Approved 9/22/2003	2 lots	SGOBASSI TPM	276-023-15	Ramona
TPM 20496	Quisenberry	17.1	Approved 10/4/2000	4 lots	4 lot minor subdivision	283-055-58	Ramona
TPM 20496 RPL2	Bagley/ Quisenberry- Garyn Ct.	37.46	Approved 8/22/2001	4 lots	Not Listed	279-092-02	Ramona
TPM 20564 RPL3	Mc Candlers- Pahl's Way	41.1	Active	5 lots	4 LOTS PLUS DES. REMAINDER PARCEL	279-151-11, 15	Ramona
TPM 20698	Dahl	3.52	Approved 2/28/2003	4 lots	4+	281-030-52	Ramona
TPM 20616	BORYSEWICZ, EDWARD	67.1	Approved 2/3/2003	4 lots	TPM 4 PARCELS AND REMAINDER APN 327-011-36	327-011-36	Ramona

Updated by DPLU Staff,
September 17, 2004

FIG. 12B

LIST OF PROJECTS IN RAMONA WITH TRAFFICE RELATED IMPACTS
as of September 17, 2004

TPM 20650	Huber TPM	12.88	Approved 8/12/2003	3 lots	3 PARCEL LOT SPLIT	283-061-32	Ramona
TPM 20656	Humphus- Barnett Road	2.53	Active	4 lots	Not Listed	284-310-17	Ramona
TPM 20665	Bush TPM	1.02	Approved 10/20/2003	4 lots	4 lot subdivision	284-173-31	Ramona
TPM 20679 RPL	Herold- Hillcrest Lane	4.68	Active	4 lots	4 lots	284-270-06	Ramona
TPM 20692	Means- Salida Del Sol	38.07	Active	3 lots	3 lots over .10ac in GP category 20	277-100-53	Ramona
TPM 20703 RPL	Herold- Ashley Lane	2.5	Active	4 lots	4 lots	284-031-01	Ramona
TPM 20724	Quisenberry	1.25	Active	4 lots	4 lots replacement map	282-273-23	Ramona
TPM 20747	KVAAS- Rainbird Road	60	Active	5 lots	TPM to create 4 lots plus a remainder	331-040-21, 22	Ramona
TPM 20749	Saffian- Lilac Road	20	Active	4 lots	TPM to create four lots	244-100-13	Ramona
TPM 20760	Ledesma- Ledesma Lane	2.53	Active	4 lots	4 lot minor subdivision	282-320-08	Ramona
TPM 20766 RPL	Wakeman- Old Julian Road	21.41	Active	5 lots	4 lots plus remainder	284-070-83, 84	Ramona
TPM 20769	Thompson- Haverford Road	11.97	Active	2 lots	2 lots	279-180-12	Ramona
TPM 20770	Taylor- Hwy 67	34.67	Active	5 lots	4 lots and remainder	278-411-09	Ramona
TPM 20771 RPL	718 Tenth Street	1.01	Active	4 lots	Not Listed	284-173-32	Ramona
TPM 20792	McDonald- Hanson Way	11.32	Active	5 lots	4+remainder	282-341-17	Ramona
TPM 20801	Hermain- El Paso Street	10.11	Active	4 lots	TPM for 4 lots	281-622-15	Ramona
TPM 20808	Young- Sixteenth Street	1.77	Active	5 lots	4 plus remainder	282-273-07	Ramona
TPM 20809	Bates- Bandy Canyon/ Highland Valley	30.33	Active	5 lots	Not Listed	276-023-08	Ramona

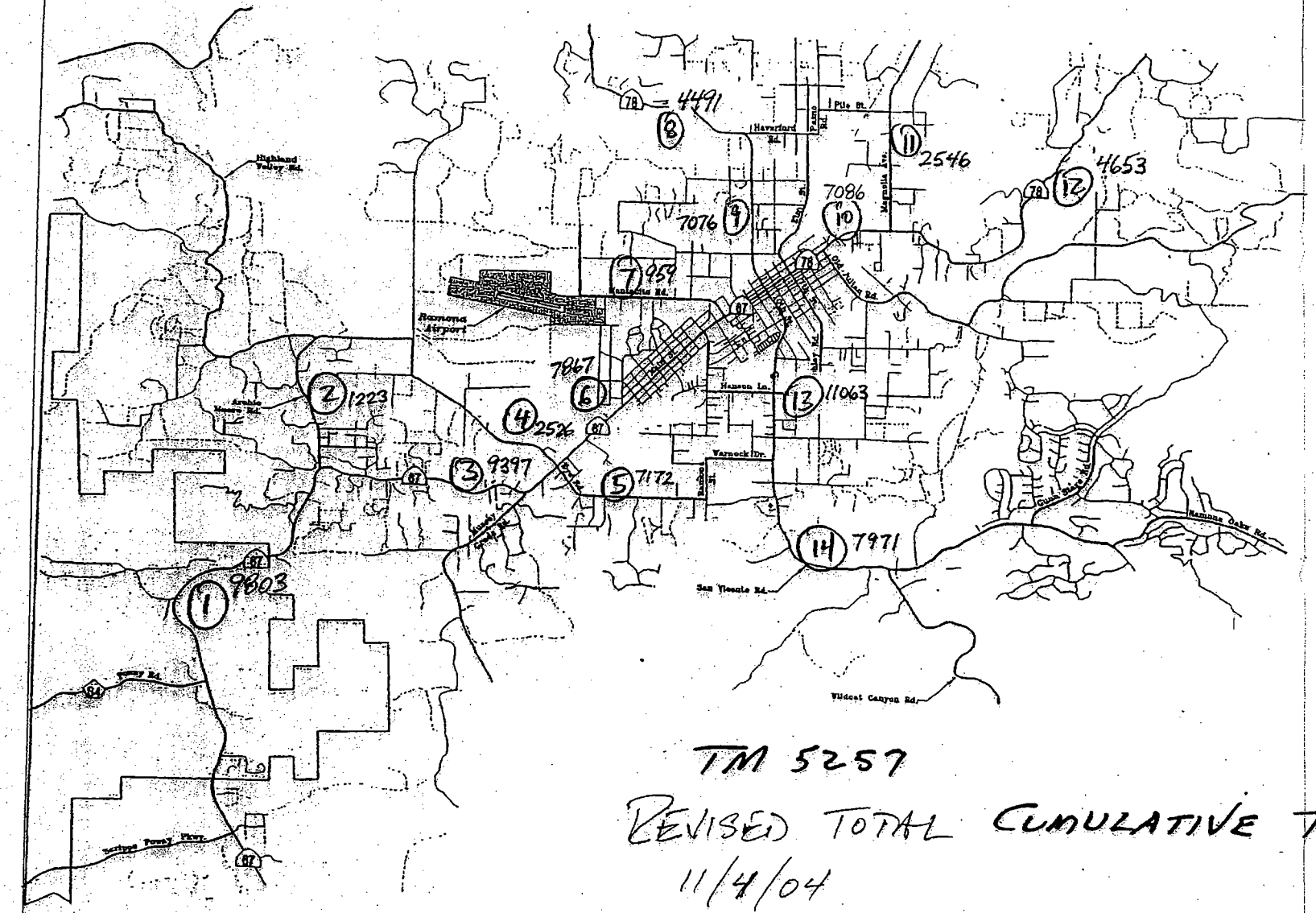
The projects listed above represent County projects that were either approved or active within the Ramona Community Planning boundaries as of September 17, 2004. This list only includes projects that were included in the Urban Systems Associates Report, dated July 26, 2004 and historical data ending in September 17, 2004 in County databases including LDMS, KIVA and the GIS Discretionary Project Layer. The number of lots and square footage has not been verified with active case files.

Updated by DPLU Staff,
September 17, 2004

FIGURE 12 C

20

18



TM 5257

REVISED TOTAL CUMULATIVE TRAFFIC

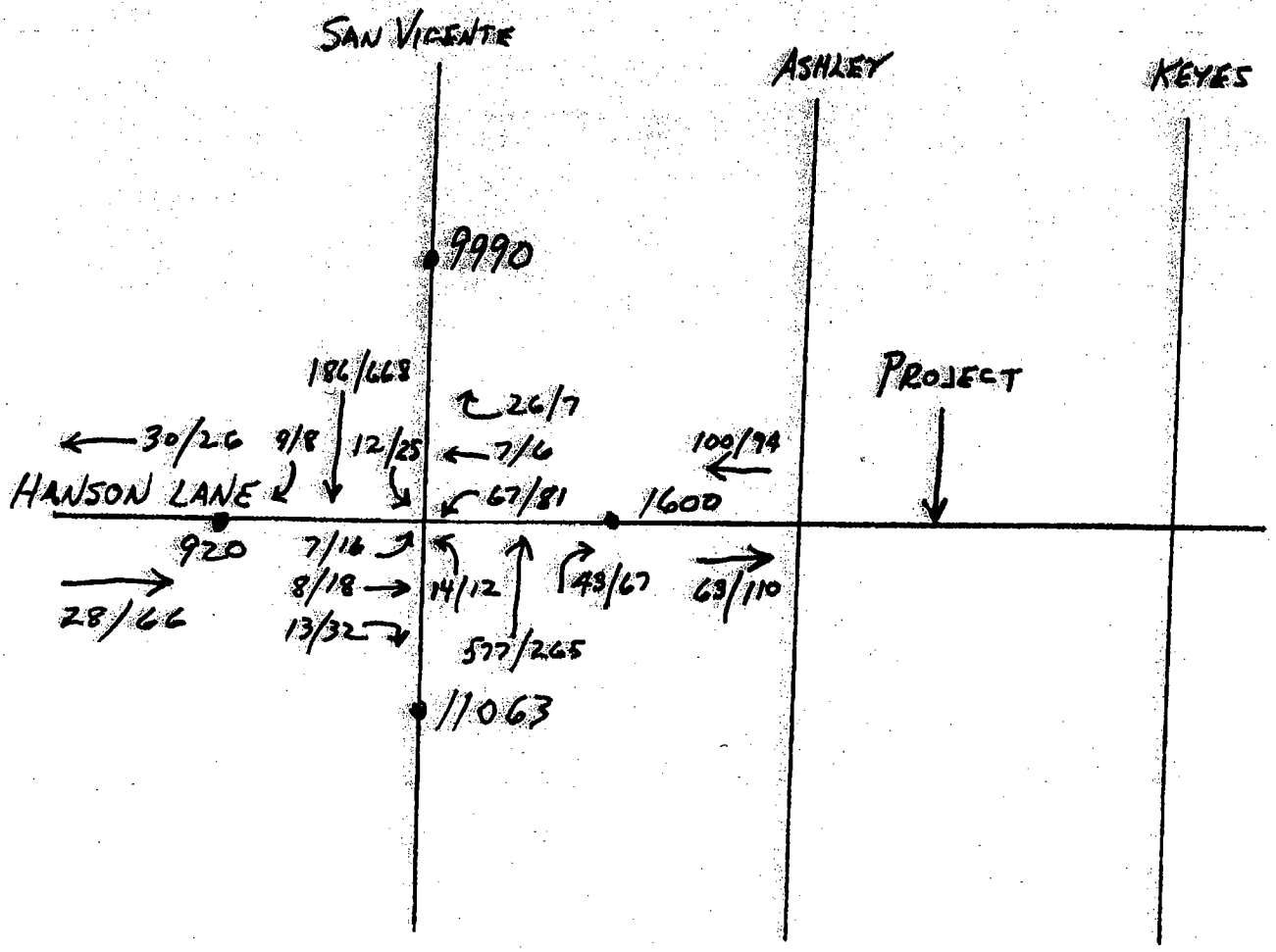
11/4/04

N

NO SCALE

INCLUDES 7/26/04 TOTAL AND 25 NEW CUMULATIVE PROJECTS FROM COUNTY'S 9/17/04 LIST.

FIGURE 13

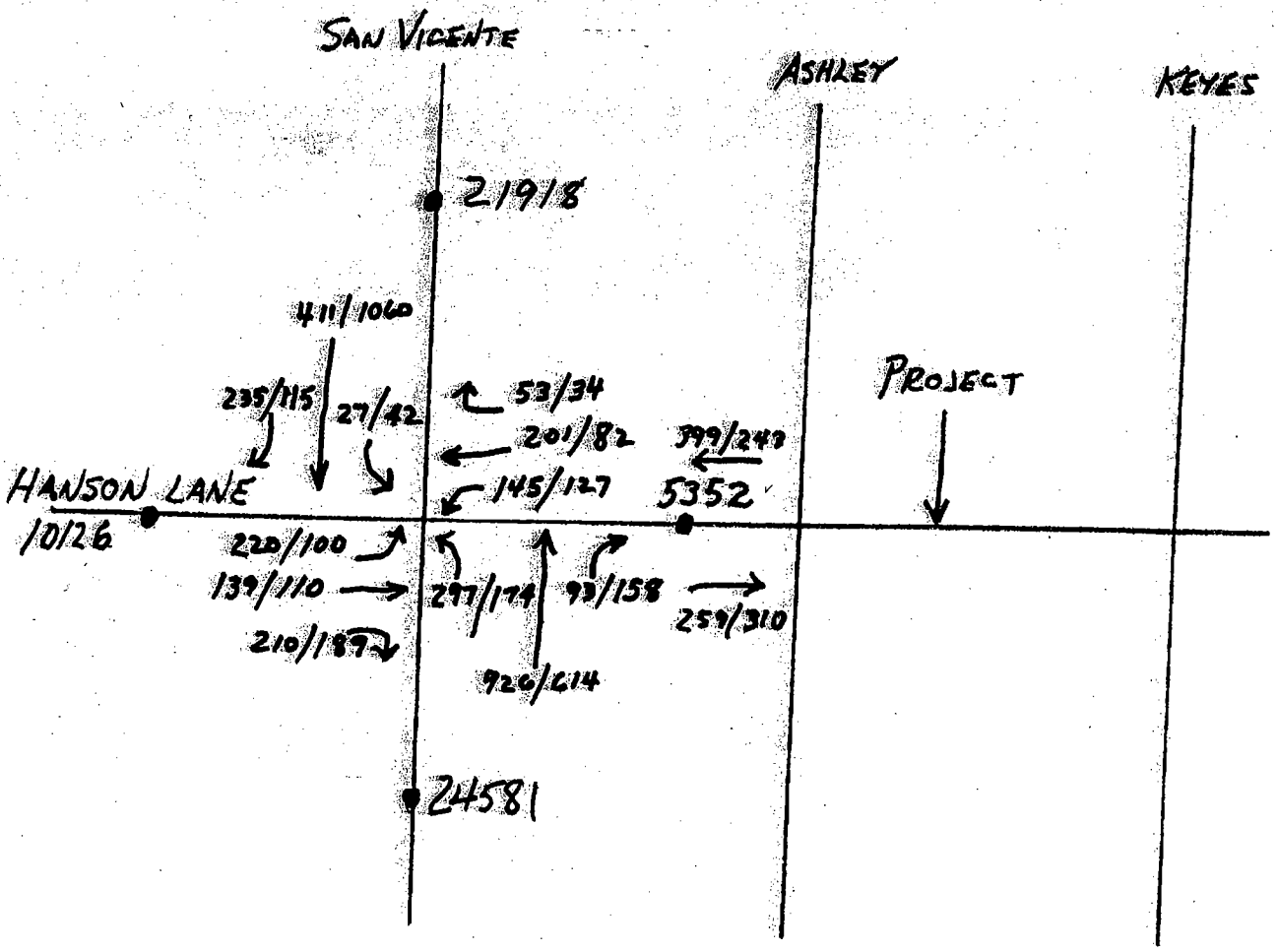


N

XXX = ADT
XX/XX
AM PM PK. HRS.

TM 5257
LOCAL AREA CUMULATIVE TRAFFIC

FIGURE 14



TM 5257
LOCAL AREA COMBINED
EXISTING + PROJECT + CUMULATIVE
TRAFFIC

FIGURE 15

Table 6

Segment LOS Comparison With Existing + Project + Cumulative Traffic (3 Scenario)

Segment	LOS E* Capacity	Existing Volume	Existing LOS	Existing + Project Volume	Existing + Project LOS	Existing + Project + Cumulative Volume	Existing + Project + Cumulative LOS	Change*
Hanson Lane Barnett to San Vicente	16200	3700	B	3752	B	5352	C	B to C
Hanson Lane Ledesma to San Vicente	16200	9200	D	9206	D	10126	D	none
San Vicente Hanson to 10th	16200	11900	E	11928	E	21918	F	E to F
San Vicente Hanson to Wildcat	16200	13500	E	13518	E	24581	F	E to F

*Change from existing

As shown in Table 6, though the project has no direct impact, it does have a cumulative impact and the addition of the cumulative traffic to the nearby system changes the San Vicente segments from LOS E to F.

As mentioned previously, just because on the local segments there is no direct or cumulative impact does not mean that the project has no cumulative impact! Other studies have shown that in the Ramona area, existing traffic on SR 67 from Dye Road to Mussey Grade produces LOS F before any new traffic is added. Other studies have also shown that with all the cumulative traffic the SR 67 segments from Montecito to SR 78, and SR 78 from Olive to Villa and from Old Julian to Magnolia, will also be LOS E or F. Thus under the Guidelines, since the project will contribute at least one ADT to these segments, the project will have a cumulative impact on all these segments too!

The traffic of Figure 15 with the combined three scenario traffic volumes can also be used in the intersection calculations that led to the delays and LOS's of Tables 1 and 4. The calculations were made and are in the Appendix(A15) but Table 7 summarizes the findings.

Table 7

Intersection Delays And LOS's With Existing, Existing + Project, And Existing + Project + Cumulative Traffic

	Existing Traffic		Existing + Project Traffic		Existing+Project+Cumulative		
Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay Change*
Hanson & San Vicente							
AM	44.0	D	44.1	D	88.0	F	+44.0 sec
PM	33.0	C	33.0	C	98.4	F	+65.4 sec

*From existing

As shown in Table 7, though the project has almost no impact on the above intersection, the cumulative traffic changes the delay and LOS very significantly. Other studies have also shown that with all the cumulative traffic, SR 67 at Archie Moore, at Mussey Grade, at Dye/Highland Valley, and at SR 78, will all be LOS E or F along with Hanson at Ramona and SR 78 at Magnolia.

Therefore, just as with the segments, TM 5257 has no direct impact on the critical intersection, but because of cumulative traffic, the project will have a cumulatively considerable cumulative traffic impact on many intersections and thus must help mitigate the traffic impacts.

Mitigation

As has been shown in this TIS, the TPM 5257 project has no direct, significant, traffic impacts on either segments or intersections. However, because of existing volumes on some segments of SR 67 and the cumulative traffic yet to come, there are intersections and more distant segments that go to LOS F when this traffic is combined. Therefore, under the County Guidelines, the project must help mitigate the problems.

A small project such as TM 5257 cannot do anything meaningful to mitigate the cumulative impacts on segments and intersections. It is much more effective to pool its funds with all the others, so that then the County can pick and choose the most meaningful projects to mitigate all the cumulative impacts. The soon to be adopted County Transportation Impact (TIF) fee program will do just this, and TM 5257 should join this program to help mitigate its minor impacts on the Table 8 list below.

Table 8
Segments And Intersections Where TM 5257 Will Have Cumulative Impacts

Segments:
SR 67
1. Dye Road to Archie Moore
2. Montecito to SR 78 (Main & Pine)
SR 78
1. Olive to Villa
2. Old Julian Rd. to Magnolia
San Vicente Rd.
1. Hanson to Wildcat Canyon
2. Hanson to 10th

Intersections:
SR 67 & Archie Moore
SR 67 & Mussey Grade
SR 67 & Dye Road / Highland Valley
SR 67 & SR 78 (Main & Pine)
Hanson at Ramona
Hanson at San Vicente
SR 78 at Magnolia

Also, if desired by the County, the TM 5257 project could contribute its fair share to the Rte. 78 - Olive intersection and the Rte 78 project from 7th to 3rd street that would create a two way left turn lane.

Conclusions, Recommendations, and Mitigation

As shown herein, the project has no direct traffic impacts on the intersections or segments in the Ramona area.

Because some intersections and roadway segments are at LOS E & F with existing traffic and all the forthcoming cumulative traffic, the project has cumulatively considerable traffic impacts on some intersections and roadway segments in the Ramona area and thus must help mitigate them.

The project roadways will meet all of the County's Private Road Standards according to the project Civil Engineer.

It is recommended that the project dedicate and construct its required, one half of the ultimate Hanson Lane width (1/2 of 64/84) and one half of the ultimate Ashley Road width.

If desired by the County, the project could contribute its fair share to the SR 78 Olive project and/or the Rte 78 - 7th to 3rd project.

In lieu of the above, if desired by the county, the project will pay its 8 EDU share of the proposed Ramona TIP program when adopted.

With implementation of the above, the County and residents of Ramona can be sure that TM 5257 has mitigated its minimal traffic impacts upon the Ramona roadways.

James W. Federhart 3/24/05

Federhart & Associates

REGISTERED PROFESSIONAL ENGINEER
JAMES W. FEDERHART
No. 136
Exp. 3/31/06
TRAFFIC
STATE OF CALIFORNIA

F

APPENDIX

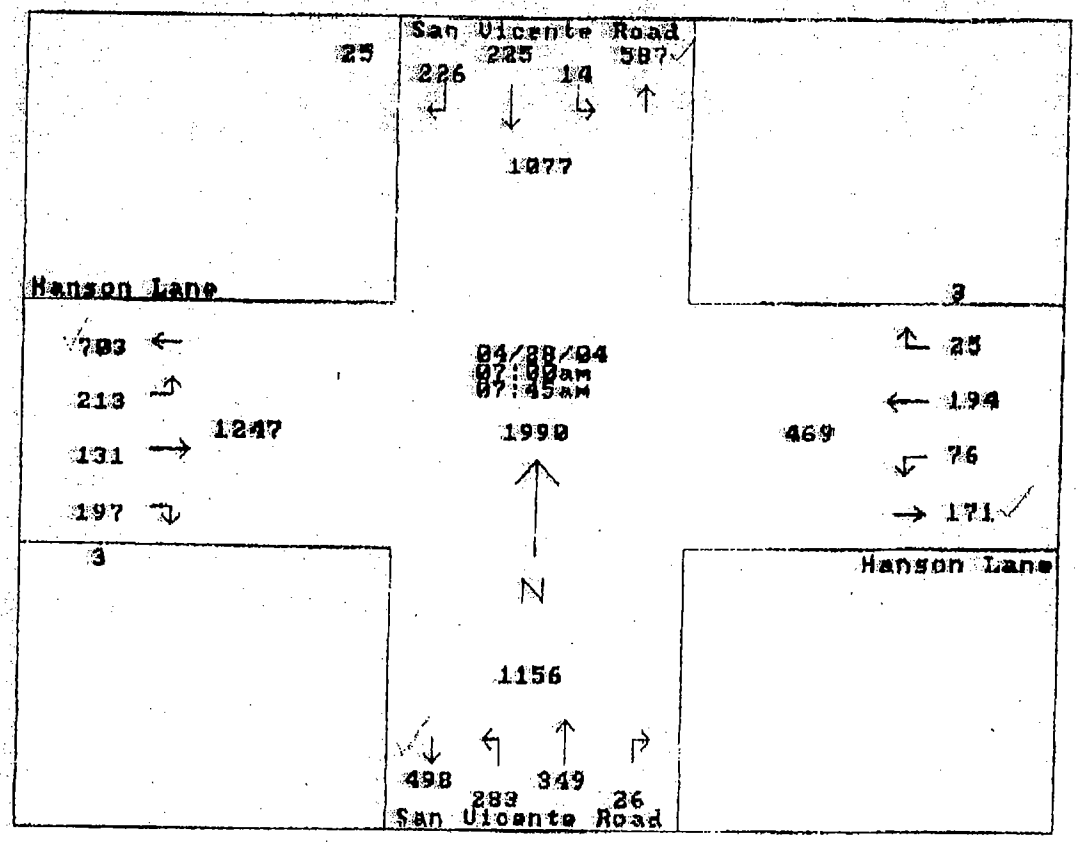
Weather : Clear & Dry
Counted by : M. Adams
Board # : D1-2172
Location : San Vicente Rd & Hanson Ln

Traffic Data Service Southwest
9773 Maine Avenue
Lakeside, CA 92040
(619) 390-8495 fax (619) 390-8427

Study Name: 04146010
Site Code : 00146010
Start Date: 04/28/04
Page : 2

Group 1

Start Time	San Vicente Road Southbound				Hanson Lane Westbound				San Vicente Road Northbound				Hanson Lane Eastbound				Intvl. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	



A2

Traffic Data Service Southwest
9773 Maine Avenue
Lakeside, CA 92040
(619) 390-8495 fax (619) 390-8427

Weather : Clear & Dry
Counted by : M.Adams
Board # : 01-2172
Location : San Vicente Rd & Hanson Ln

Study Name: 04146010
Site Code : 00146010
Start Date: 04/28/04
Page : 1

Group 1

Start Time	San Vicente Road Southbound Left	Thru	Right	Peds	Hanson Lane Westbound Left	Thru	Right	Peds	San Vicente Road Northbound Left	Thru	Right	Peds	Hanson Lane Eastbound Left	Thru	Right	Peds	Intvl. Total
04/28/04																	
07:00	6	50	94	15	7	91	13	2	121	88	5	0	79	48	67	2	688
07:15	8	56	73	10	15	54	4	1	88	72	3	0	63	36	57	1	541
07:30	0	67	43	0	32	38	3	0	44	87	6	0	48	35	52	0	455
07:45	0	52	16	0	22	11	5	0	30	102	12	0	23	12	21	0	306
Hour	14	225	226	25	76	194	25	3	283	349	26	0	213	131	197	3	1990
08:00	3	63	9	0	18	20	4	0	27	102	13	0	14	7	20	0	300
08:15	3	59	12	0	22	20	8	0	32	96	13	2	24	10	20	0	321
08:30	1	58	37	3	20	28	2	0	21	78	11	0	11	12	11	0	293
08:45	1	43	45	0	11	33	3	0	38	82	13	0	24	20	17	0	330
Hour	8	223	103	3	71	101	17	0	118	358	50	2	73	49	68	0	1244
Total	22	448	329	28	147	295	42	3	401	707	76	2	286	180	265	3	3234
% Apr.	2.6	54.1	39.7	3.3	30.1	60.5	8.6	0.6	33.8	59.6	6.4	0.1	38.9	24.5	36.1	0.4	-
% Int.	0.6	13.8	10.1	0.8	4.5	9.1	1.2	-	12.3	21.8	2.3	-	8.8	5.5	8.1	-	-

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/28/04 to 08:45 on 04/28/04

Time	07:00				07:00				07:00				07:00			
Vol.	14	225	226	25	76	194	25	3	283	349	26	0	213	131	197	3
Pct.	2.8	45.9	46.1	5.1	25.5	65.1	8.3	1.0	43.0	53.0	3.9	0.0	39.1	24.0	36.2	0.5
Total	490				298				658				544			
High	07:00				07:00				07:00				07:00			
Vol.	6	50	94	15	7	91	13	2	121	88	5	0	79	48	67	2
Total	165				113				214				196			
PHF	0.742				0.659				0.768				0.693			

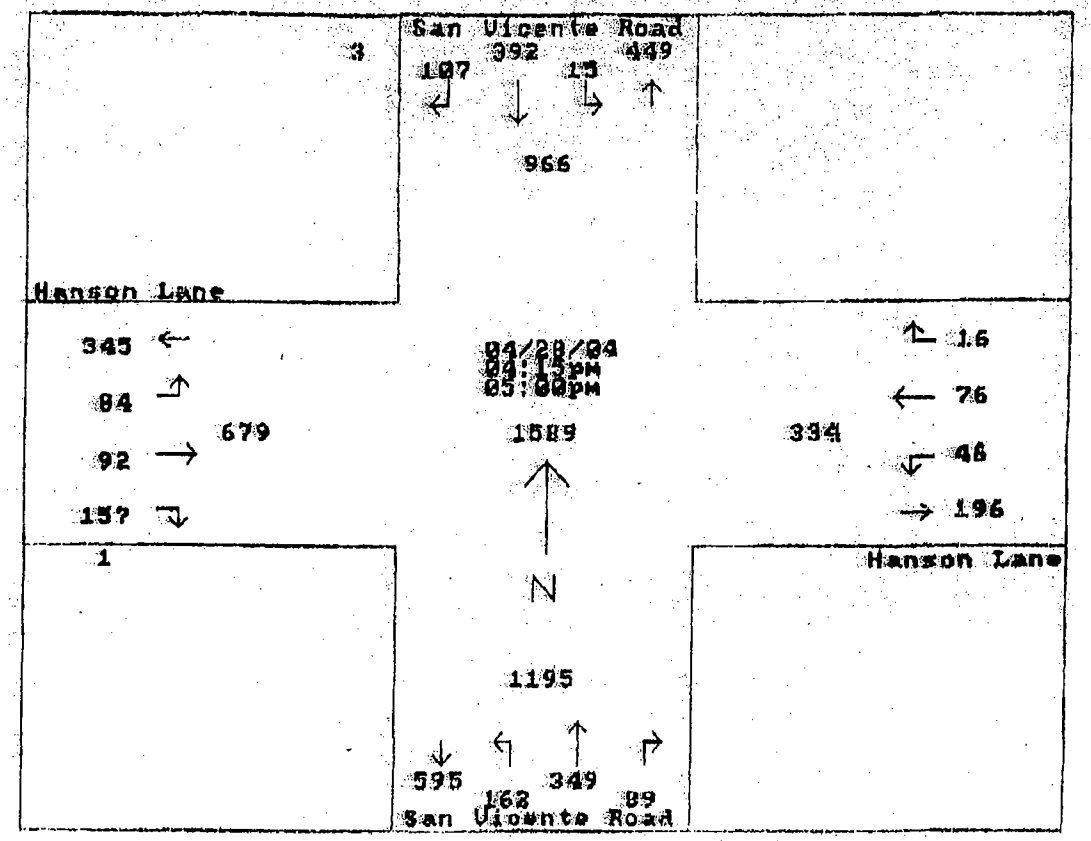
Weather : Clear & Dry
Counted by : M.Adams
Board # : D1-2172
Location : San Vicente Rd & Hanson Ln

Traffic Data Service Southwest
9773 Maine Avenue
Lakeside, CA 92040
(619) 390-8495 fax (619) 390-8427

Study Name: 04146012
Site Code : 00146012
Start Date: 04/28/04
Page : 2

Group 1

Start Time	San Vicente Road Southbound				Hanson Lane Westbound				San Vicente Road Northbound				Hanson Lane Eastbound				Intvl. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	



Traffic Data Service Southwest
9773 Maine Avenue
Lakeside, CA 92040
(619) 390-8495 fax (619) 390-8427

Weather : Clear & Dry
Counted by : M.Adams
Board # : 01-2172
Location : San Vicente Rd & Hanson Ln

Study Name: 04146010
Site Code : 00146010
Start Date: 04/28/04
Page : 1

Group 1

	San Vicente Road Southbound				Hanson Lane Westbound				San Vicente Road Northbound				Hanson Lane Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Intvl. Total
04/28/04																	
07:00	6	50	94	15	7	91	13	2	121	88	5	0	79	48	67	2	688
07:15	8	56	73	10	15	54	4	1	88	72	3	0	63	36	57	1	541
07:30	0	67	43	0	32	38	3	0	44	87	6	0	48	35	52	0	455
07:45	0	52	16	0	22	11	5	0	30	102	12	0	23	12	21	0	306
Hour	14	225	226	25	76	194	25	3	283	349	26	0	213	131	197	3	1990
08:00	3	63	9	0	18	20	4	0	27	102	13	0	14	7	20	0	300
08:15	3	59	12	0	22	20	8	0	32	96	33	2	24	10	20	0	321
08:30	1	58	37	3	20	28	2	0	21	78	11	0	11	12	11	0	293
08:45	1	43	45	0	11	33	3	0	38	82	13	0	24	20	17	0	330
Hour	8	223	103	3	71	101	17	0	118	358	50	2	73	49	68	0	1244
Total	22	448	329	28	147	295	42	3	401	707	76	2	286	180	265	3	3234
% Apr.	2.6	54.1	39.7	3.3	30.1	60.5	8.6	0.6	33.8	59.6	6.4	0.1	38.9	24.5	36.1	0.4	-
% Int.	0.6	13.8	10.1	0.8	4.5	9.1	1.2	-	12.3	21.8	2.3	-	8.8	5.5	8.1	-	-

Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 04/28/04 to 08:45 on 04/28/04

Time	07:00				07:00				07:00				07:00			
Vol.	14	225	226	25	76	194	25	3	283	349	26	0	213	131	197	3
Pct.	2.8	45.9	46.1	5.1	25.5	65.1	8.3	1.0	43.0	53.0	3.9	0.0	39.1	24.0	36.2	0.5
Total	490				298				658				544			
High	07:00				07:00				07:00				07:00			
Vol.	6	50	94	15	7	91	13	2	121	88	5	0	79	48	67	2
Total	165				113				214				196			
PHF	0.742				0.659				0.768				0.693			

A5

[redacted] CALIFORNIA
[redacted] TRAFFIC CENSUS LISTING
[redacted] 11/01/71 TO 12/08/02

[redacted]	[redacted]	LOCATION CODE	HPS PG	HPS CRD	TYPE	BEGIN DATE	BGN DAY	WEA	PRD	ADT	24 HR VOL	VEH DIR	AM PEAK BEGIN TIME	AM PEAK BEGIN COUNT	AM PEAK BEGIN AT: DAY	PM PEAK BEGIN TIME	PM PEAK BEGIN COUNT	PM PEAK BEGIN AT: DAY	CHANGE PERCENT
[redacted]	E KBYES RD	27979-27976	3L1-	N06	4	09/30/99	TH	CLR	1		345	W	06:30	40	TH	19:00	28	TH	10.0
NSON LN	E RAMONA ST	27977-07097	3L1-	P06	4	12/15/80	MO	CLR	1		2030	X	07:15	320	MO	13:45	280	MO	0.0
					4	09/29/82	WE	CLY	1		1370	W	11:45	160	WE	14:45	160	WE	0.0
					4	04/03/89	MO	CLR	1		1860	W	06:45	260	MO	14:15	290	MO	35.0
					4	11/18/96	MO	CLR	1		6009	X	06:45	888	TU	14:15	667	MO	196.0
					4	03/14/00	TU	CLR	1		7219	X	06:45	1011	TU	14:00	791	TU	0.0
					4	10/27/00	FR	CLY	1		9199	X	07:00	1119	FR	14:15	1023	FR	27.0
					4	10/28/00	SA	CLY	1		6436	X	10:45	574	SU	13:15	588	SU	30.0
SON LN	W SAN VICENTE RD	27978-00285	3L1-	H06	2	08/09/78	WE	CLR	1		1770	X	11:45	130	WE	16:15	180	WE	0.0
					2	08/27/79	MO	CLR	1		3630	X	08:45	240	MO	17:15	520	MO	105.0
					2	09/08/80	MO	CLR	1		3160	X	08:00	460	MO	16:30	260	MO	12.0
					2	08/11/81	TU	CLR	1		1680	X	09:15	120	TU	19:00	190	TU	46.0
					2	07/27/83	WE	CLR	1		1910	X	07:30	190	WE	16:15	180	WE	13.0
					4	05/16/84	WE	CLR	1		1550	E	11:30	170	WE	13:30	180	WE	0.0
					2	07/30/84	MO	CLR	1		2050	X	07:30	280	MO	12:00	280	MO	7.0
					4	09/17/84	MO	CLR	1		1650	E	06:45	140	MO	14:15	210	MO	6.0
					2	08/19/85	MO	CLR	1		2210	X	09:30	150	MO	17:00	310	MO	8.0
					2	08/18/86	MO	CLR	1		2000	X	11:15	130	MO	17:15	240	TU	10.0
					2	08/26/87	WE	CLR	1		2620	X	07:45	200	WE	16:30	280	WE	31.0
					2	09/12/88	MO	CLR	1		3760	X	07:00	500	MO	14:15	480	MO	43.0
					4	03/16/90	FR	CLR	1		2400	E	07:15	280	FR	14:15	328	FR	45.0
					2	08/16/90	TH	CLR	1		3138	X	10:15	267	FR	17:15	329	TH	16.0
					2	08/14/91	WE	CLR	1		3514	X	11:00	205	TH	17:00	407	WE	11.0
					2	09/03/92	TH	CLR	1		5148	X	07:30	321	FR	16:45	556	TH	46.0
					2	09/15/93	WE	CLR	1		4960	X	07:00	723	TH	14:15	604	WE	3.0
					4	04/11/94	MO	CLR	1		2983	E	06:45	313	TU	14:15	407	MO	24.0
					4	10/23/96	WE	CLR	1		3555	E	06:45	373	TH	14:15	479	WE	19.0
					4	03/09/00	TH	CLR	1		7950	X	06:45	1171	TH	14:00	872	TH	0.0
					4	03/26/02	TU	CLR	1		2477	E	11:00	145	TU	17:00	314	TU	0.0
					4	03/26/02	TU	CLR	1		2731	W	10:15	204	TU	16:15	220	TU	0.0
SON CANYON RD	N DEHESA RD	29694-06298	6	-B05	2	06/14/78	WE	CLR	1		1100	X	06:15	90	WE	17:15	120	WE	0.0
					2	06/06/79	WE	CLY	1		1300	X	06:00	80	WE	16:00	130	WE	18.0
					2	05/27/80	TU	CLY	1		1170	X	07:00	80	TU	15:30	110	TU	10.0
					2	06/22/81	MO	CLR	1		1170	X	10:30	80	MO	17:15	120	MO	0.0
					2	04/21/82	WE	CLR	1		1380	X	07:15	100	WE	15:30	130	WE	17.0
					2	04/18/83	MO	CLY	1		1340	X	07:15	110	MO	16:15	130	MO	2.0
					2	04/23/84	MO	CLR	1		1550	X	07:00	100	MO	16:30	150	MO	15.0
					2	04/08/85	MO	CLR	1		1675	X	06:00	110	MO	16:30	170	MO	8.0
					2	04/16/86	WE	CLY	1		1750	X	11:30	130	WE	15:30	170	WE	4.0
					2	04/30/87	TH	CLY	1		1130	X	11:45	30	TH	16:00	160	TH	35.0
					2	04/04/88	MO	CLR	1		2180	X	07:15	260	MO	16:15	190	MO	92.0
					2	05/16/89	TU	CLY	1		1900	X	06:30	130	TU	16:15	180	TU	12.0
					2	05/21/90	MO	CLY	1		2421	X	08:30	179	TU	16:00	215	MO	27.0
					4	04/08/91	MO	CLR	1		1125	S	07:45	88	TU	16:30	97	MO	0.0
					2	04/21/92	TU	CLR	1		1992	X	07:00	141	WE	16:45	199	TU	17.0
					4	10/27/92	TU	CLR	1		895	S	06:45	101	WE	16:45	75	TU	20.0
					2	03/01/93	MO	CLR	1		2290	X	07:15	177	WE	16:45	208	TU	14.0

COUNTY OF SAN DIEGO

Primary Street	First Cross Street	Second Cross Street	Average Weekday Traffic Volumes (Thousands) 1997	1998	1999	2000	2001	2000-2001 Change
ROUTE 94	DULZURA	ROUTE 188/TECATE RD	7.1	6.8	6.8N	6.3	6.5	3%
ROUTE 94	ROUTE 188/TECATE RD	BUCKMAN SPRINGS RD	1.6	1.6	1.7	1.7	1.9	12%
ROUTE 94	BUCKMAN SPRINGS RD	OLD HIGHWAY 80	1.1	1.1	1.2	1.2	1.3	8%
ROUTE 94/OLD HWY 80	OLD HIGHWAY 80	RIBBONWOOD RD	1.7	1.7	1.7	1.8	1.7	-6%
ROUTE 94/RIBBONWOOD RD	INTERSTATE 8	OLD HIGHWAY 80	0.8	0.9	0.8	0.8	0.8	0%
ROUTE 188/TECATE RD	ROUTE 94	U.S./MEXICO BORDER	5.8	6.2	6.5	6.1	6.3	3%
ROYAL RD	WINTER GARDENS BLVD	JACKSON HILL DR	3.4N	3.4N	3.4N	3.4N	3.6	6%
SANDIA CREEK DR	ROCK MOUNTAIN DR	DE LUZ RD	1.1N	1.1N	1.1N	1.1N	1.1N	0%
SAN DIEGUITO RD	CITY LIMITS	EL APAJO	9.0N	9.0N	9.0N	10.4	10.4N	0%
SAN DIEGUITO RD	EL APAJO	CIRCA DEL NORTE (E)	5.8N	5.8N	5.8N	5.9	5.9N	0%
SAN FELIPE RD	ROUTE 79	MONTEZUMA VALLEY RD	1.4	1.4N	1.4N	1.4N	1.4N	0%
SAN FELIPE RD	MONTEZUMA VALLEY RD	ROUTE 78	1.5N	1.5N	1.5N	1.5N	1.5N	0%
SAN MIGUEL RD	BONITA RD	PROCTOR VALLEY RD	6.4N	6.4N	6.4N	6.4N	5.4	-16%
SANTA MARGARITA DR	HILLCREST LN	MISSION RD	2.8N	2.8N	2.8N	2.8N	2.8N	0%
SAN VICENTE RD	10TH ST/H ST	HANSON LN	11.2N	11.2N	11.2N	11.9	11.9N	0%
SAN VICENTE RD	HANSON LN	WILDCAT CANYON RD	14.1N	14.1N	14.1N	13.5	13.5N	0%
SAN VICENTE RD	WILDCAT CANYON RD	GUNN STAGE RD	12.3N	12.3N	12.3N	14.9	14.9N	0%
SAN VICENTE RD	GUNN STAGE RD	RAMONA OAKS RD	6.9N	6.9N	6.9N	8.0E	8.0N	0%
SKYLINE TRUCK TRAIL	LYONS VALLEY RD	LAWSON VALLEY RD	2.2N	2.2N	2.2N	2.2N	2.2N	0%
SKYLINE TRUCK TRAIL	LAWSON VALLEY RD	HONEY SPRINGS RD	0.8N	0.8N	0.8N	0.8N	0.8N	0%
SOUTH BARCELONA ST	CAMPO RD	AUSTIN DR	8.5N	8.5N	8.5N	8.5N	8.5N	0%
SO. BAY PKWY	PARADISE VALLEY RD	WORTHINGTON/SWEETWATER RD	33.9N	33.9N	33.9N	33.9N	33.9N	0%
SO. BAY PKWY	WORTHINGTON/SWEETWATER RD	BRIARWOOD RD	54.6N	54.6N	54.6N	54.6N	54.6N	0%
S GRADE RD (PALOMAR MTN.)	ROUTE 76	PALOMAR MTN	0.4N	0.4N	0.4N	0.4N	0.4N	0%
SOUTH GRADE RD	ARNOLD WAY	TAVERN RD	3.6N	3.6N	3.6N	3.6N	3.6N	0%

COUNTY OF SAN DIEGO

Primary Street	First Cross Street	Second Cross Street	Average Weekday Traffic Volumes (Thousands) 1997	1998	1999	2000	2001	2000-2001 Change
GUM TREE LN	STAGE COACH LN	LIVE OAK PARK RD	1.5N	1.5N	1.1	1.5	1.5N	0%
GUNN STAGE RD	SAN VICENTE RD	NORTH	4.1N	4.1N	4.1N	4.1N	4.1N	0%
HANSON LN	RAMONA ST	SAN VICENTE RD	6.0N	6.0N	6.0N	9.2	9.2N	0%
HANSON LN	SAN VICENTE RD	KEYES RD	2.8N	2.8N	2.8N	3.7	3.7N	0%
HARBISON CANYON RD	ARNOLD WAY	FRANCES DR	5.0N	3.8	3.8N	3.8N	3.8N	0%
HARBISON CANYON RD	FRANCES DR	DEHESA RD	1.8N	1.7	1.7N	1.7N	1.7N	0%
HARMONY GROVE RD	ELFIN FOREST RD	KAUANA LOA DR	2.2N	2.2N	2.2N	2.2N	2.2N	0%
HARNESS ST	SWEETWATER RD	HELIX ST	4.1N	4.1N	4.1N	4.1N	4.1N	0%
HAVERFORD RD	ROUTE 76	ELM ST	1.6N	1.6N	1.6N	1.6N	1.6N	0%
HELIX ST	KENWOOD DR	LAMAR ST	5.3N	5.3N	5.3N	5.3N	5.3N	0%
HELIX ST	LAMAR ST	KNOB HILL DR	2.5N	2.5N	3.0	3.0N	3.0N	0%
HELIX ST	KNOB HILL DR	JAMACHA RD	4.1N	4.1N	4.1N	3.1	3.1N	0%
HENDERSON CANYON RD	BORREGO SPRINGS RD	PEG LEG RD	0.2N	0.2N	0.2N	0.2N	0.2N	0%
HIGHLAND VALLEY RD	BANDY CANYON RD	ARCHIE MOORE RD	1.2N	1.2N	1.2N	1.3	1.3N	0%
HIGHLAND VALLEY RD	ARCHIE MOORE RD	ROUTE 67	2.0N	2.0N	2.0N	3.0	3.0N	0%
HILLSDALE RD	JAMACHA BLVD	VISTA GRANDE RD	11.9N	11.9N	11.9N	11.9N	11.9N	0%
HILLSDALE RD	VISTA GRANDE RD	WILLOW GLEN DR	3.1N	5.4	5.4N	5.4N	5.4N	0%
HONEY SPRINGS RD	ROUTE 94/CAMPO RD	LYONS VALLEY RD	0.7N	0.7N	0.7N	1.7	1.7N	0%
HUMPHRIES RD	ROUTE 188	EMERY RD	0.4N	0.4N	0.4N	0.4N	0.4N	0%
HWY 8 BUSINESS RT	LAKE JENNINGS PARK RD	LOS COCHES RD	8.1N	8.1N	8.1N	8.1N	8.1N	0%
HWY 8 BUSINESS RT/E MAIN	LOS COCHES RD	PEPPER DR	10.7N	10.7N	10.7N	10.7N	10.7N	0%
IDAHO AVE	SAN PASQUAL VALLEY/RT 78	BEAR VALLEY PKWY	2.3N	2.3N	2.3N	2.3N	2.3N	0%
IDAHO AVE	BEAR VALLEY PKWY	CITRUS AVE	1.0N	1.0N	1.0N	1.0N	1.0N	0%
INDUSTRY RD	ROUTE 67/WINTER GARDENS B	CHANNEL RD	6.0N	6.0N	6.0N	6.0N	6.0N	0%
JACKSON HILL DR	PEPPER DR	ROYAL RD	2.0N	2.0N	2.0N	2.0N	2.0N	0%

DEPARTMENT OF PUBLIC WORKS
SAN DIEGO COUNTY, CALIFORNIA
COUNTY - MASTER TRAFFIC CENSUS LISTING
01/01/71 TO 12/08/02

LOCATION OF COUNTER		LOCATION CODE	HPS PG	HPS CRD	TYPE	BEGIN DATE	BGN DAY	WEA	PRD	ADT	24 HR VOL	VEH DIR	AM PEAK BEGIN AT: TIME	COUNT	DAY	PM PEAK BEGIN AT: TIME	COUNT	DAY	CHANGE PERCENT
SAN VICENTE RD	W WARNOCK DR	26603-30051	3L1	-J09	4	03/20/90	TU	CLR	1		4270	E	11:00	246	WE	16:45	409	TU	0.0
					4	04/11/94	MO	CLR	1		5804	E	07:15	314	TU	17:15	609	MO	35.0
					4	02/22/95	WE	CLR	1		4647	E	07:00	241	TH	16:45	482	WE	19.0
					4	03/26/02	TU	CLR	1		5120	W	10:30	297	TU	16:30	495	TU	0.0
					4	03/26/02	TU	CLR	1		5628	E	10:00	434	TU	15:45	471	TU	0.0
SAN VICENTE RD	E HANSON LN	30051-00285	3L1	-J08	4	05/16/84	WE	CLR	1		2720	N	06:45	250	WE	15:45	210	WE	0.0
					4	09/17/84	MO	CLR	1		2750	N	08:00	260	MO	14:30	220	MO	1.0
					4	12/02/86	TU	CLR	1		7600	X	05:45	540	TU	14:00	640	TU	0.0
					4	03/16/90	FR	CLR	1		4973	W	07:45	524	FR	17:30	391	FR	0.0
					4	04/11/94	MO	CLR	1		4746	W	07:00	466	TU	15:30	357	MO	4.0
					4	10/23/96	WE	CLR	1		5005	W	07:00	518	TH	17:45	430	WE	5.0
					4	10/28/00	SA	CLY	1		11329	X	11:00	871	SA	13:30	890	SA	0.0
					4	10/31/00	TU	CLY	1		12526	X	07:45	959	TU	17:15	1204	TU	10.0
SAN VICENTE RD	E BARGER PL PVT	00285-90985	3L1	-J06	4	09/28/93	TU	CLR	1		5017	W	08:00	424	WE	14:15	485	TU	0.0
					4	04/14/94	TH	CLR	1		5113	W	08:15	397	FR	14:15	446	TH	1.0
					4	05/03/95	WE	RAI	4		9287	X	07:00	692	TH	14:15	797	FR	0.0
	W HANSON LN	00285-90985			4	10/17/95	TU	CLR	4		11215	X	07:45	1019	WE	14:15	1036	TU	20.0
					4	11/06/96	WE	CLR	4		4564	E	07:00	501	TH	17:00	420	WE	0.0
					4	04/20/98	MO	CLR	4		9485	X	06:45	750	TU	14:00	842	MO	15.0
					4	10/27/00	FR	CLY	1		11861	X	07:00	932	FR	14:15	1089	FR	0.0
					4	10/28/00	SA	CLY	1		9848	X	11:00	778	SA	15:30	741	SA	16.0
					4	03/26/02	TU	CLR	1		5500	E	09:45	426	TU	16:00	439	TU	0.0
					4	03/26/02	TU	CLR	1		5432	W	10:45	316	TU	17:00	538	TU	0.0
SAN VICENTE RD	W BARGER PL PVT	90985-00192	3L1	-J05	4	05/16/84	WE	CLR	1		3120	S	07:00	310	WE	15:00	270	WE	0.0
					4	09/17/84	MO	CLR	1		3200	S	06:45	320	MO	16:30	320	MO	2.0
					4	03/16/90	FR	CLR	1		5045	E	07:15	351	FR	16:45	455	FR	0.0
					4	04/11/94	MO	CLR	1		4548	E	06:45	360	TU	17:15	441	MO	9.0
					4	11/21/95	TU	CLR	4		4676	E	08:45	383	WE	14:15	397	TU	0.0
					4	03/26/02	TU	CLR	4		4348	W	10:00	330	TU	15:30	377	TU	0.0
					4	03/26/02	TU	CLR	4		4130	E	10:00	252	TU	16:30	436	TU	0.0
SAN VICENTE RD	N H ST/TENTH ST	00192-27996	3L1	-J03	4	09/28/93	TU	CLR	1		2699	S	07:00	249	WE	17:00	266	TU	0.0
					4	04/14/94	TH	CLR	1		3309	S	07:00	266	FR	16:45	318	TH	22.0
	S	00192-27996			4	04/19/78	WE	CLR	1		1970	N	07:45	170	WE	12:00	180	WE	0.0
					4	03/20/90	TU	CLR	1		3241	N	07:30	265	WE	16:30	262	TU	64.0
					4	04/14/94	TH	CLR	1		3372	N	06:45	269	FR	14:15	292	TH	4.0
					4	05/03/95	WE	CLY	4		7486	X	07:00	587	TH	14:15	657	TH	0.0
					4	11/21/95	TU	CLR	4		4253	N	10:15	265	WE	16:15	415	TU	0.0
					4	10/09/96	WE	CLR	4		3404	N	06:45	317	TH	14:00	335	WE	19.0
					4	12/18/01	TU	CLR	1		3571	N	07:00	352	TU	14:00	329	TU	0.0
SANDIA CREEK DR	N DE LUZ RD	29719-05885	2	-B02	4	04/23/79	MO	CLR	1		620	X	09:15	60	MO	12:15	70	MO	0.0
					3	10/10/79	WE	CLR	1		200	X	06:15	20	WE	12:00	20	WE	67.0
					4	02/11/80	MO	CLR	1		430	X	07:30	40	MO	15:30	50	MO	115.0
					3	11/04/81	WE	CLR	1		510	X	11:00	50	WE	16:15	60	WE	18.0
					3	09/26/83	MO	CLR	1		575	X	08:00	50	MO	17:15	60	MO	12.0
					3	10/14/85	MO	CLR	1		390	X	07:15	40	MO	13:00	40	MO	[illegible]

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hanson & San Viciente

Cycle (sec): 105 Critical Vol./Cap. (X): 0.805
Loss Time (sec): 16 (Y+R = 4 sec) Average Delay (sec/veh): 44.0
Optimal Cycle: 89 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1 0 1	0 1		1 0 1	0 1		1 0 0	1 0		1 0 0	1 0	
Volume Module: EXIST AM												
Base Vol:	283	349	26	14	225	226	213	131	197	76	194	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	283	349	26	14	225	226	213	131	197	76	194	25
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	283	349	26	14	225	226	213	131	197	76	194	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	314	387	29	16	249	250	236	145	218	84	215	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	314	387	29	16	249	250	236	145	218	84	215	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	314	387	29	16	249	250	236	145	218	84	215	28
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.98	0.83	0.93	0.98	0.83	0.93	0.89	0.89	0.93	0.96	0.96
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.60	1.00	0.89	0.11
Final Sat.:	1769	1862	1583	1769	1862	1583	1769	677	1018	1769	1621	209
Capacity Analysis Module:												
Vol/Sat:	0.18	0.21	0.02	0.01	0.13	0.16	0.13	0.21	0.21	0.05	0.13	0.13
Crit Moves:	****					****		****			****	
Green/Cycle:	0.22	0.34	0.34	0.08	0.20	0.20	0.27	0.27	0.27	0.16	0.16	0.16
Volume/Cap:	0.81	0.61	0.05	0.11	0.68	0.81	0.50	0.81	0.81	0.29	0.81	0.81
Uniform Del:	38.8	29.0	23.4	45.1	39.1	40.3	32.6	36.0	36.0	38.5	42.2	42.2
IncremntDel:	11.6	1.8	0.0	0.4	5.2	14.2	0.8	10.2	10.2	0.6	14.6	14.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	50.4	30.7	23.4	45.4	44.3	54.4	33.5	46.1	46.1	39.0	56.8	56.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	50.4	30.7	23.4	45.4	44.3	54.4	33.5	46.1	46.1	39.0	56.8	56.8
HCM2kAvg:	12	11	1	1	9	10	7	13	13	3	10	10

Traffix 7.7.0715 (c) 2004 Dowling Assoc. Licensed to KATZ, OKITSU SAN DIEGO

A10

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hanson & San Viciente

Cycle (sec): 105 Critical Vol./Cap. (X): 0.654
Loss Time (sec): 16 (Y+R = 4 sec) Average Delay (sec/veh): 33.0
Optimal Cycle: 64 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1 0 1	0 1		1 0 1	0 1		1 0 0	1 0		1 0 0	1 0	
Volume Module: EXIST PM												
Base Vol:	162	349	89	15	392	107	84	92	157	46	76	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	162	349	89	15	392	107	84	92	157	46	76	16
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	162	349	89	15	392	107	84	92	157	46	76	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	180	387	99	17	434	119	93	102	174	51	84	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	180	387	99	17	434	119	93	102	174	51	84	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	180	387	99	17	434	119	93	102	174	51	84	18
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.98	0.83	0.93	0.98	0.83	0.93	0.89	0.89	0.93	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.37	0.63	1.00	0.83	0.17
Final Sat.:	1769	1862	1583	1769	1862	1583	1769	623	1062	1769	1498	315
Capacity Analysis Module:												
Vol/Sat:	0.10	0.21	0.06	0.01	0.23	0.07	0.05	0.16	0.16	0.03	0.06	0.06
Crit Moves:	****				****				****			****
Green/Cycle:	0.16	0.42	0.42	0.10	0.36	0.36	0.25	0.25	0.25	0.09	0.09	0.09
Volume/Cap:	0.65	0.50	0.15	0.10	0.65	0.21	0.21	0.65	0.65	0.34	0.65	0.65
Uniform Del:	41.7	22.6	19.1	43.4	28.4	23.5	31.2	35.3	35.3	45.2	46.5	46.5
IncremntDel:	5.6	0.5	0.1	0.3	2.4	0.2	0.2	3.7	3.7	1.3	9.6	9.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	47.3	23.1	19.2	43.6	30.7	23.7	31.4	39.0	39.0	46.5	56.1	56.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	47.3	23.1	19.2	43.6	30.7	23.7	31.4	39.0	39.0	46.5	56.1	56.1
HCM2kAvg:	7	9	2	1	12	3	3	9	9	2	4	4

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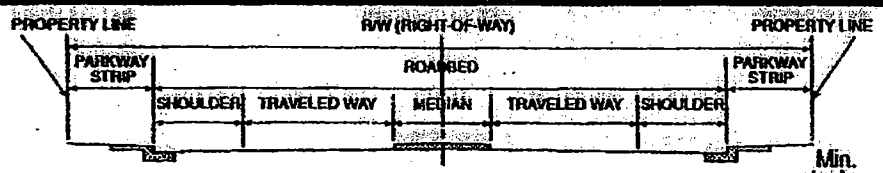
SUMMARY OF COUNTY OF SAN DIEGO PUBLIC ROAD STANDARDS†



CLASS	CIRCULATION ELEMENT ROAD CROSS-SECTIONS									AVERAGE DAILY VEHICLE TRIPS (ADT) LEVEL OF SERVICE (LOS)				
	Median	Traveled way	Shoulder	Parkway strip	Roadbed	R/W*	Min.curve radius	Max. grades	Min. design speed (mph)	A Free flow	B Steady flow	C Stable flow	D Approach unstable	E Unstable flow
EXPRESSWAY Divided highway with only selected public road access with full grade separations	34'	36'	10'	10'	126'	146'	1200'	6%	55	<36,000	<54,000	<70,000	<86,000	<108,000
PRIME ARTERIAL Divided highway, signalized intersections, access control, or extra lanes as required	14'	36'	8'	10'	102'	122'	1200'	6%	55	<22,200	<37,000	<44,600	<50,000	<57,000
MAJOR ROAD 4-lane divided road, access & parking controlled as necessary	14'	24'	8'	10'	78'	98'	1200'	7%	55	<14,800	<24,700	<29,600	<33,400	<37,000
COLLECTOR 4-lane undivided road	—	24'	8'	10'	64'	84'	700'	7%	45	<13,700	<22,800	<27,400	<30,800	<34,200
LIGHT COLLECTOR 2-lane undivided road	—	12'	8'	10'	40'	60'	700'	9%	45	<1,900	<4,100	<7,100	<10,900	<16,200
RURAL COLLECTOR 2-lane undivided road, extra R/W allows greater flexibility & upgrade	—	12'	8'	22'	40'	84'	500'	12%	40	<1,900	<4,100	<7,100	<10,900	<16,200
RURAL LIGHT COLLECTOR 2-lane undivided road,decreased "curve radii" standards	—	12'	8'	10'	40'	60'	500'	12%	40	<1,900	<4,100	<7,100	<10,900	<16,200
RURAL MOUNTAIN 2-lane undivided road appropriate only in rural mountain areas	—	12'	8'	30'	40'	100'	500'	12%	40	<1,900	<4,100	<7,100	<10,900	<16,200
RECREATIONAL PARKWAY Recreational routes for travel pleasure purposes	—	12'	8'	30'	40'	100'	400'	12%	25	<1,900	<4,100	<7,100	<10,900	<16,200
NON-CIRCULATION ROADS														
RESIDENTIAL COLLECTOR	—	12'	8'	10'	40'	60'	300'	12%	30	<4,500				
RESIDENTIAL STREET	—	12'	6'	10'	36'	56'	200'	15%	30	<1,500				
RESIDENTIAL LOOP/CUL-DE-SAC	—	12'	4'	10'	32'	52'	200'	15%	30	<200				

Levels of service are not applied to non-circulation roads since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors. Not all non-circulation road classifications are shown.

*Additional pavement and R/W may be required for C.E. Collectors and L.L.Collectors in Industrial/Commercial Zones; 4 and 12 ft., respectively. C.E. roads needing additional turn lanes will require an additional 12 to 14 ft. of pavement and R/W for each lane. C.E. roads designated with Bike Lanes will require an additional 10 ft. of pavement and R/W.

†For full standards, refer to Public Road Standards, adopted by the Board of Supervisors on 2/26/92

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APPENDIX

Table A-1
Roadway Segment Level of Service Definitions

Level of Service (LOS) Definitions

The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort, convenience, and safety. Levels of service for freeway segments can generally be categorized as follows:

LOS	V/C	Congestion/Delay	Traffic Description
(Used for surface streets, freeways, expressways and conventional highways)			
"A"	<0.41	None	Free flow.
"B"	0.42-0.62	None	Free to stable flow, light to moderate volumes.
"C"	0.63-0.80	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
(Used for surface streets and conventional highways)			
"F"	<1.00	Considerable	Forced or breakdown flow. Delay measured in average travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.
(Used for freeways and expressways)			
"F(0)"	1.01-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
"F(1)"	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
"F(2)"	1.36-1.45	Very Severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
"F(3)"	>1.46	Extremely Severe 3+ hours of delay	Gridlock

SOURCE: Caltrans, 1992.

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hanson & San Viciente

Cycle (sec): 105 Critical Vol./Cap. (X): 0.807
Loss Time (sec): 16 (Y+R = 4 sec) Average Delay (sec/veh): 44.1
Optimal Cycle: 90 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1 0	1 0	1	1 0	1 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module: EXIST+PROJ-AM												
Base Vol:	283	349	26	15	225	226	213	131	197	78	194	27
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	283	349	26	15	225	226	213	131	197	78	194	27
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	283	349	26	15	225	226	213	131	197	78	194	27
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	314	387	29	17	249	250	236	145	218	86	215	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	314	387	29	17	249	250	236	145	218	86	215	30
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	314	387	29	17	249	250	236	145	218	86	215	30
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.98	0.83	0.93	0.98	0.83	0.93	0.89	0.89	0.93	0.96	0.96
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.60	1.00	0.88	0.12
Final Sat.:	1769	1862	1583	1769	1862	1583	1769	677	1018	1769	1605	223
Capacity Analysis Module:												
Vol/Sat:	0.18	0.21	0.02	0.01	0.13	0.16	0.13	0.21	0.21	0.05	0.13	0.13
Crit Moves:	****					****		****				****
Green/Cycle:	0.22	0.34	0.34	0.08	0.20	0.20	0.27	0.27	0.27	0.17	0.17	0.17
Volume/Cap:	0.81	0.61	0.05	0.12	0.68	0.81	0.50	0.81	0.81	0.29	0.81	0.81
Uniform Del:	38.9	29.0	23.4	45.1	39.2	40.3	32.7	36.0	36.0	38.4	42.2	42.2
IncremntDel:	11.8	1.8	0.0	0.4	5.2	14.4	0.9	10.3	10.3	0.6	14.6	14.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	50.6	30.8	23.5	45.5	44.4	54.7	33.5	46.3	46.3	39.0	56.8	56.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	50.6	30.8	23.5	45.5	44.4	54.7	33.5	46.3	46.3	39.0	56.8	56.8
HCM2kAvg:	12	11	1	1	9	10	7	13	13	3	10	10

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hanson & San Viciente

Cycle (sec): 105 Critical Vol./Cap. (X): 0.655
Loss Time (sec): 16 (Y+R = 4 sec) Average Delay (sec/veh): 33.0
Optimal Cycle: 64 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1 0	1 0	1	1 0	1 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module: EXIST+PROJ-PM												
Base Vol:	162	349	91	17	392	107	84	92	157	46	76	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	162	349	91	17	392	107	84	92	157	46	76	17
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	162	349	91	17	392	107	84	92	157	46	76	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	180	387	101	19	434	119	93	102	174	51	84	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	180	387	101	19	434	119	93	102	174	51	84	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	180	387	101	19	434	119	93	102	174	51	84	19
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.98	0.83	0.93	0.98	0.83	0.93	0.89	0.89	0.93	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.37	0.63	1.00	0.82	0.18
Final Sat.:	1769	1862	1583	1769	1862	1583	1769	623	1062	1769	1491	331
Capacity Analysis Module:												
Vol/Sat:	0.10	0.21	0.06	0.01	0.23	0.07	0.05	0.16	0.16	0.03	0.06	0.06
Crit Moves:	****				****				****		****	
Green/Cycle:	0.15	0.42	0.42	0.10	0.36	0.36	0.25	0.25	0.25	0.09	0.09	0.09
Volume/Cap:	0.66	0.50	0.15	0.11	0.66	0.21	0.21	0.66	0.66	0.33	0.66	0.66
Uniform Del:	41.7	22.6	19.1	43.4	28.4	23.5	31.2	35.3	35.3	45.1	46.4	46.4
IncremntDel:	5.6	0.5	0.1	0.3	2.4	0.2	0.2	3.7	3.7	1.3	9.6	9.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	47.4	23.1	19.3	43.7	30.8	23.7	31.4	39.0	39.0	46.4	56.0	56.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	47.4	23.1	19.3	43.7	30.8	23.7	31.4	39.0	39.0	46.4	56.0	56.0
HCM2kAvg:	7	9	2	1	12	3	3	9	9	2	4	4

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Table 2

Measure of Significant Project Traffic Impacts for Circulation Element Roads, Signalized Intersections, and Ramps

Level of Service With Project	Allowable Change due to Project Impact						
	Freeways		Roadway Segments*		Intersections**	Ramps***	Ramps with >15 min. delay
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)	Delay (min.)
E & F	0.01	1	0.02	1	2	-	2

* For County arterials which are not identified in SANDAG's Regional Transportation Plan and Congestion Management Plan as regionally significant arterials, then significance may be measured based upon an increase in average daily traffic. The allowable change (ADT) due to project impacts in this instance would be identified in Table 1.

** Signalized intersections

*** See Attachment E for ramp metering analysis.

KEY
V/C = Volume to Capacity ratio
Speed = Speed measured in miles per hour
Delay = Average stopped delay per vehicle measured in seconds, or minutes
LOS = Level of Service
ADT = Average Daily Trips

4.3 Intersections

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and unsignalized intersections.

4.3.1 Signalized

Exceedance of the following significance guidelines will be considered substantial evidence that private development and public improvement projects will have a significant volume and/or level of service traffic impact on a signalized intersection if:

- ***The additional or redistributed ADT generated by the proposed project will cause a signalized intersection to operate below LOS D and will significantly increase congestion as identified in Table 1, and/or***

A/4

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hanson & San Viciente

Cycle (sec): 105 Critical Vol./Cap. (X): 1.123
Loss Time (sec): 16 (Y+R = 4 sec) Average Delay (sec/veh): 88.0
Optimal Cycle: 120 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1 0	1 0	1	1 0	1 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module: EXIST+PROJ+CUM-AM												
Base Vol:	297	926	93	27	411	235	220	139	210	145	201	53
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	297	926	93	27	411	235	220	139	210	145	201	53
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	297	926	93	27	411	235	220	139	210	145	201	53
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	329	1026	103	30	455	260	244	154	233	161	223	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	329	1026	103	30	455	260	244	154	233	161	223	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	329	1026	103	30	455	260	244	154	233	161	223	59
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.98	0.83	0.93	0.98	0.83	0.93	0.89	0.89	0.93	0.95	0.95
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.60	1.00	0.79	0.21
Final Sat.:	1769	1862	1583	1769	1862	1583	1769	675	1020	1769	1428	376
Capacity Analysis Module:												
Vol/Sat:	0.19	0.55	0.07	0.02	0.24	0.16	0.14	0.23	0.23	0.09	0.16	0.16
Crit Moves:		****		****					****		****	
Green/Cycle:	0.22	0.47	0.47	0.05	0.29	0.29	0.20	0.20	0.20	0.13	0.13	0.13
Volume/Cap:	0.83	1.17	0.14	0.36	0.83	0.56	0.71	1.17	1.17	0.68	1.17	1.17
Uniform Del:	38.8	27.8	15.7	48.4	34.6	31.3	39.4	42.3	42.3	43.4	45.5	45.5
IncremntDel:	13.7	88.3	0.1	2.6	10.3	1.5	6.5	104	103.7	7.9	111	111.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	52.5	116	15.8	51.0	44.8	32.8	46.0	146	145.9	51.2	157	156.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	52.5	116	15.8	51.0	44.8	32.8	46.0	146	145.9	51.2	157	156.9
HCM2kAvg:	13	54	2	1	16	8	9	23	23	7	17	17

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Hanson & San Viciente

Cycle (sec): 105 Critical Vol./Cap. (X): 1.199
Loss Time (sec): 16 (Y+R = 4 sec) Average Delay (sec/veh): 98.4
Optimal Cycle: 120 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Lanes:	1 0	1 0	1	1 0	1 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module: EXIST+PROJ+CUM-PM												
Base Vol:	174	614	158	42	1060	115	100	110	189	127	82	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	174	614	158	42	1060	115	100	110	189	127	82	34
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	174	614	158	42	1060	115	100	110	189	127	82	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	193	680	175	47	1175	127	111	122	209	141	91	38
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	193	680	175	47	1175	127	111	122	209	141	91	38
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	193	680	175	47	1175	127	111	122	209	141	91	38
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.98	0.83	0.93	0.98	0.83	0.93	0.89	0.89	0.93	0.94	0.94
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.37	0.63	1.00	0.71	0.29
Final Sat.:	1769	1862	1583	1769	1862	1583	1769	620	1065	1769	1258	522
Capacity Analysis Module:												
Vol/Sat:	0.11	0.37	0.11	0.03	0.63	0.08	0.06	0.20	0.20	0.08	0.07	0.07
Crit Moves:	****				****				****	****		
Green/Cycle:	0.09	0.55	0.55	0.07	0.53	0.53	0.16	0.16	0.16	0.07	0.07	0.07
Volume/Cap:	1.20	0.67	0.20	0.37	1.20	0.15	0.38	1.20	1.20	1.20	1.09	1.09
Uniform Del:	47.7	17.0	12.2	46.5	24.9	12.8	39.1	43.9	43.9	49.0	49.0	49.0
IncremntDel:	134.3	1.7	0.1	1.8	99.3	0.1	0.8	119	118.9	146.0	108	108.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	182.0	18.8	12.3	48.4	124	12.9	40.0	163	162.8	195.0	157	157.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	182.0	18.8	12.3	48.4	124	12.9	40.0	163	162.8	195.0	157	157.4
HCM2kAvg:	13	16	3	2	64	2	4	20	20	10	8	8

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