

# **APPENDIX G**

## **TRAFFIC AND CIRCULATION STUDY**

**TRAFFIC AND CIRCULATION STUDY  
FOR THE  
MALIBU LA PAZ PROJECT**

APRIL 2005

PREPARED FOR

**CHRISTOPHER A. JOSEPH & ASSOCIATES**

PREPARED BY

**KAKU ASSOCIATES**  
A Corporation

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## I. INTRODUCTION

This report documents the results of a study conducted by Kaku Associates, Inc. to evaluate the potential traffic impacts of the proposed Malibu La Paz project at 3700 La Paz Lane, located in the City of Malibu, California.

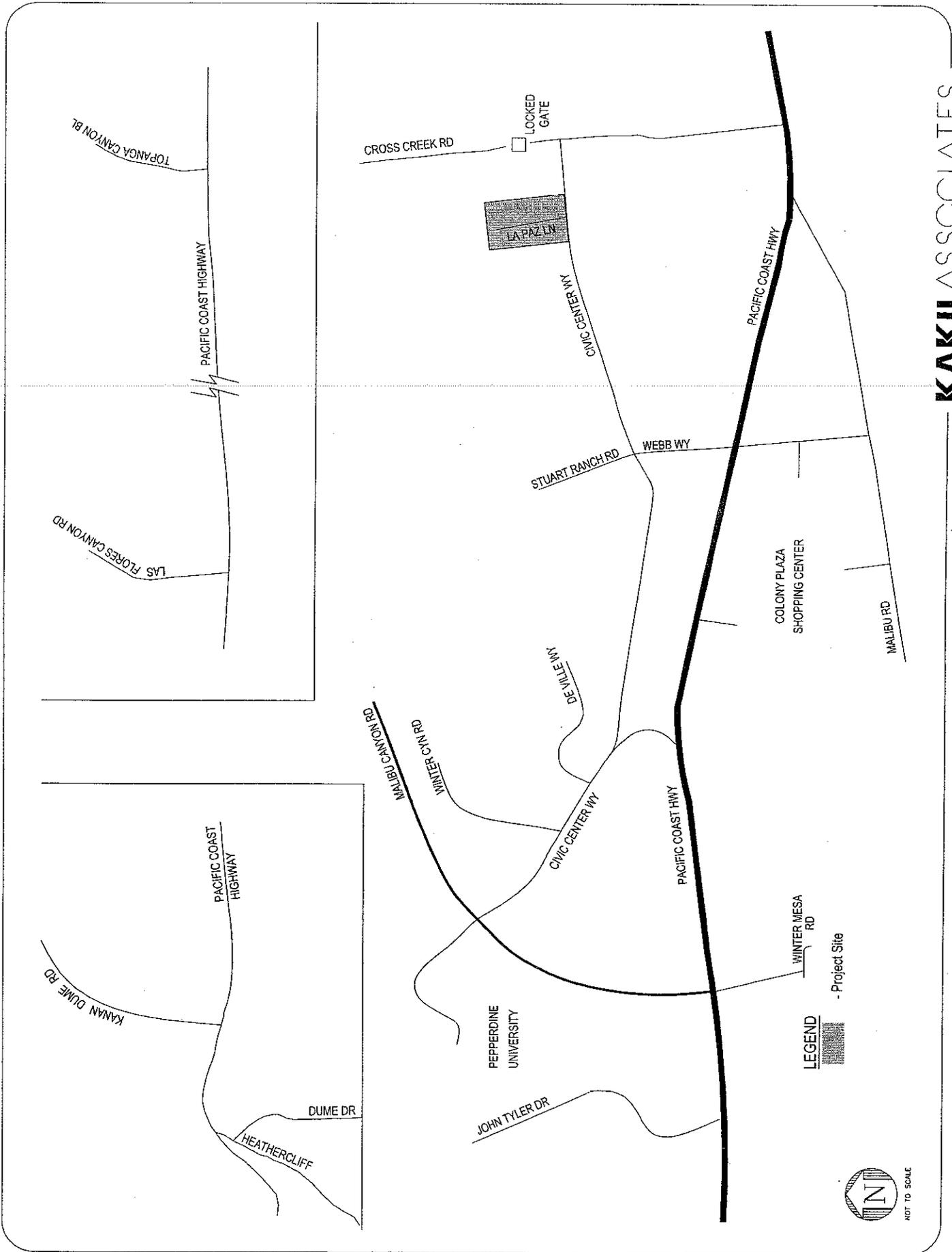
### PROJECT DESCRIPTION

The project site, as shown in Figure 1, is located north of Civic Center Way and west of Cross Creek Road. The entire project site is currently vacant and totals 15.3 acres. Two development scenarios exist for this project: Preferred Project and Alternative Project. Table 1 highlights the differences between the development scenarios. Completion of either project scenario would result in the division of the entire site into smaller parcels of varying size; however, with either scenario, site access would be provided via La Paz Lane.

#### **Preferred Project**

The Preferred Project would result in the division of the project site into three individual parcels (Parcels A, B & C) of varying size. Upon completion, the three parcels would provide 130,935 square feet of commercial floor space. Figures 2A and 2B depict the Preferred Project site plan.

- Proposed development on Parcel A would consist of seven buildings and total 67,880 square feet of commercial floor area. By land use classification, the buildings would provide a total of 52,800 square feet for retail space and 15,080 square feet for office space.
- Proposed development on Parcel B would consist of three buildings and total 43,055 square feet of commercial floor area. By land use classification, the buildings would provide a total of 24,310 square feet for retail space and 18,745 square feet for office space.

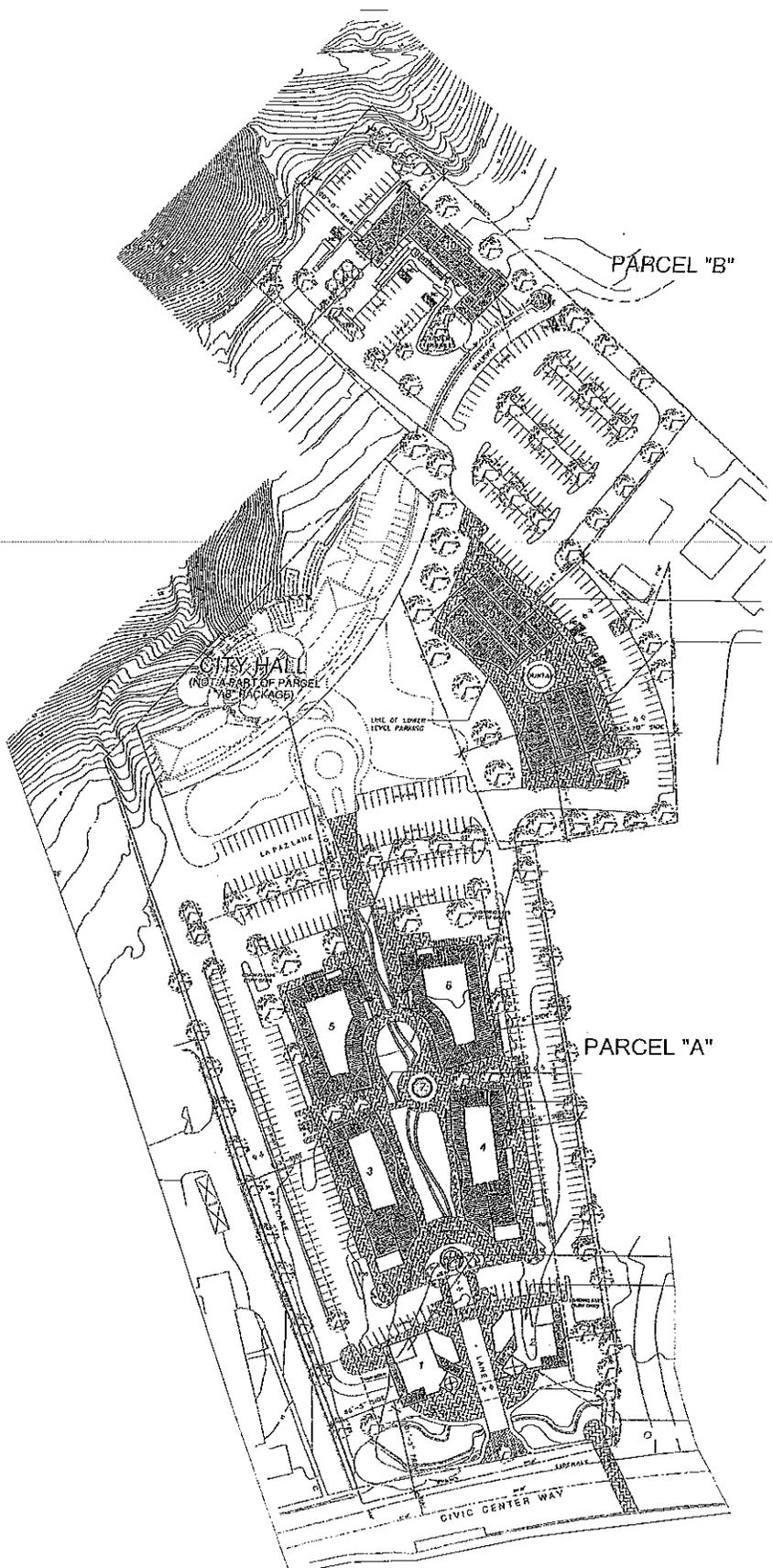


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**FIGURE 1  
PROJECT SITE**

**TABLE 1  
FLOOR AREA BREAKDOWN**

<b><u>Preferred Project</u></b>		
Parcel A		
Retail		52,800 sq ft
Office		<u>15,080</u> sq ft
	<i>Subtotal</i>	67,880 sq ft
Parcel B		
Retail		24,310 sq ft
Office		<u>18,745</u> sq ft
	<i>Subtotal</i>	43,055 sq ft
Parcel C		
City Hall		20,000 sq ft
<b>Total Floor Area</b>		<b>130,935 sq ft</b>
<b><u>Alternative Project</u></b>		
Parcel A		
Retail		52,800 sq ft
Parcel B		
Retail		24,310 sq ft
Office		<u>20,890</u> sq ft
	<i>Subtotal</i>	45,200 sq ft
<b>Total Floor Area</b>		<b>98,000 sq ft</b>



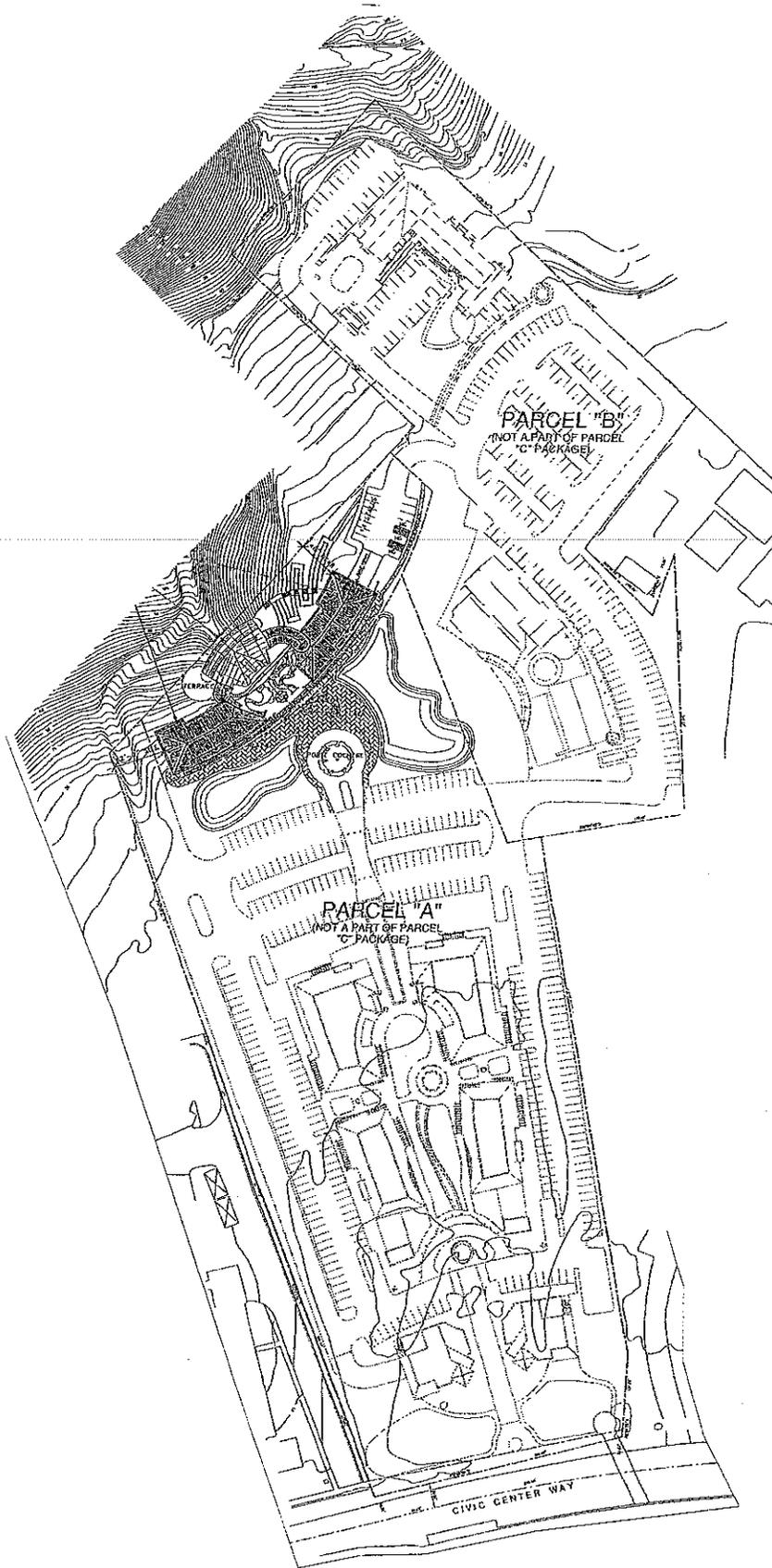
Source: Christopher A. Joseph & Associates, 2004

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FIGURE 2A  
PREFERRED SITE PLAN - PARCELS A & B



NOT TO SCALE



Source: Christopher A. Joseph & Associates, 2004

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FIGURE 2B  
PROJECT SITE PLAN - CITY HALL (PARCEL C)

- Proposed development on Parcel C would consist of one 20,000 square foot office building for use as City Hall.

### **Alternative Project**

The Alternative Project will result in the division of the project site into two parcels (Parcels A & B) of varying size. Upon completion, the parcels would provide 98,000 square feet of commercial floor space. Figures 3A and 3B depict the Alternative Project site plan.

- Proposed development on Parcel A would consist of seven buildings providing 52,800 square feet of retail space.
- Proposed development on Parcel B would consist of three buildings with a total of 45,200 square feet of commercial floor area. By land use classification, the buildings would provide a total of 24,310 square feet for retail space and 20,890 square feet for office space.

### **STUDY SCOPE**

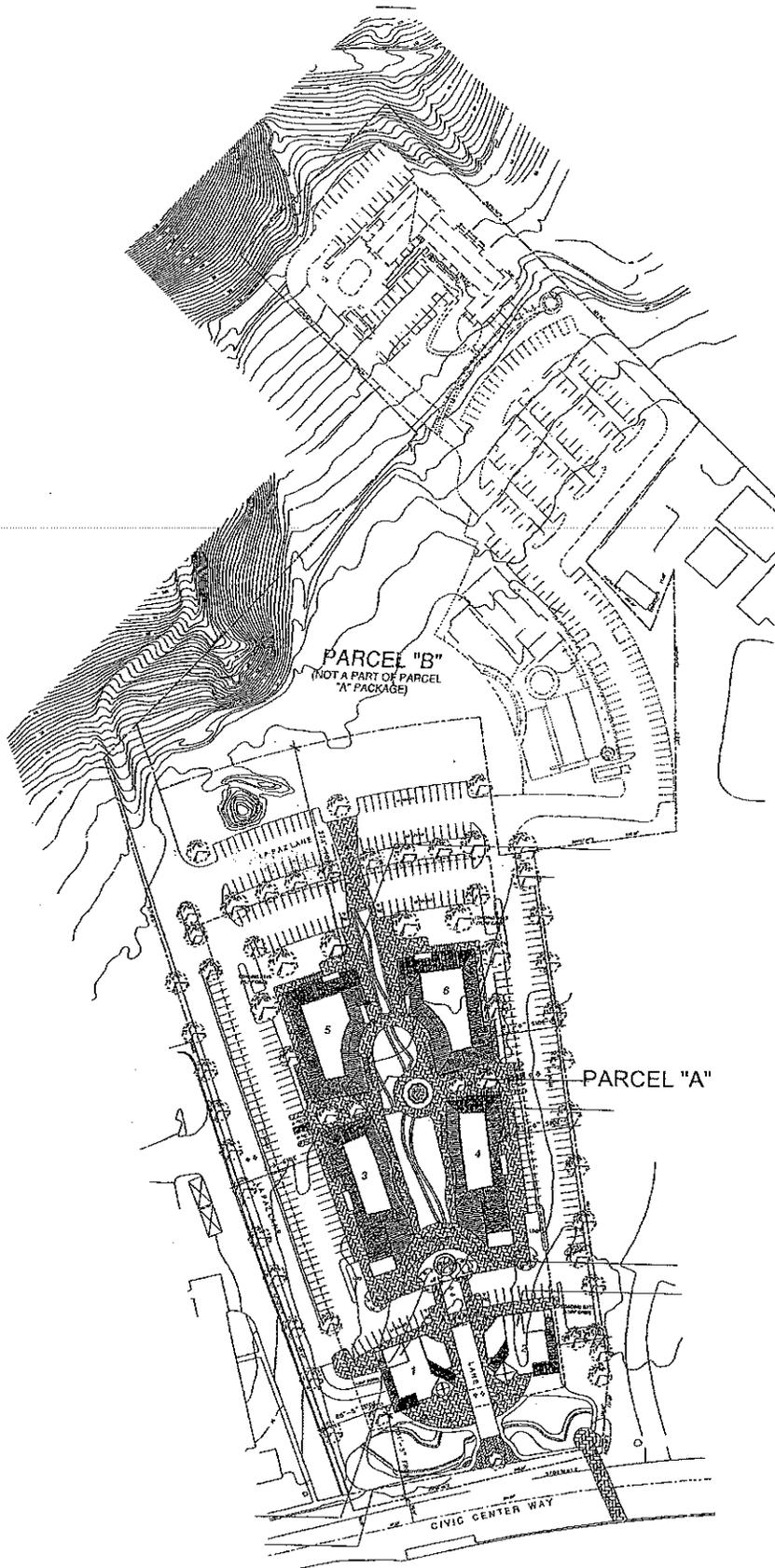
The scope of analysis for this study was developed in conjunction with the City of Malibu. The base assumptions, technical methodologies, and geographic coverage of the study were all identified as part of the study approach.

The study, which is directed at the analysis of potential project-generated traffic impacts on the street system, assumes completion of the proposed project in 2007. The potential impacts of the proposed development were projected for 2007. The study includes an analysis of the following traffic scenarios for the Preferred Project and the Alternative Project:

- Existing Conditions (2004) - The analysis of existing traffic conditions intends to provide a basis for the remainder of the study. The existing conditions analysis includes an assessment of streets and highways, traffic volumes, and operating conditions.
- Cumulative Base Conditions (2007) - Future traffic conditions without the proposed projects are projected for the year 2007. This analysis forecasts future traffic growth and estimate operating conditions that could be expected without the addition of project traffic by the year 2007.



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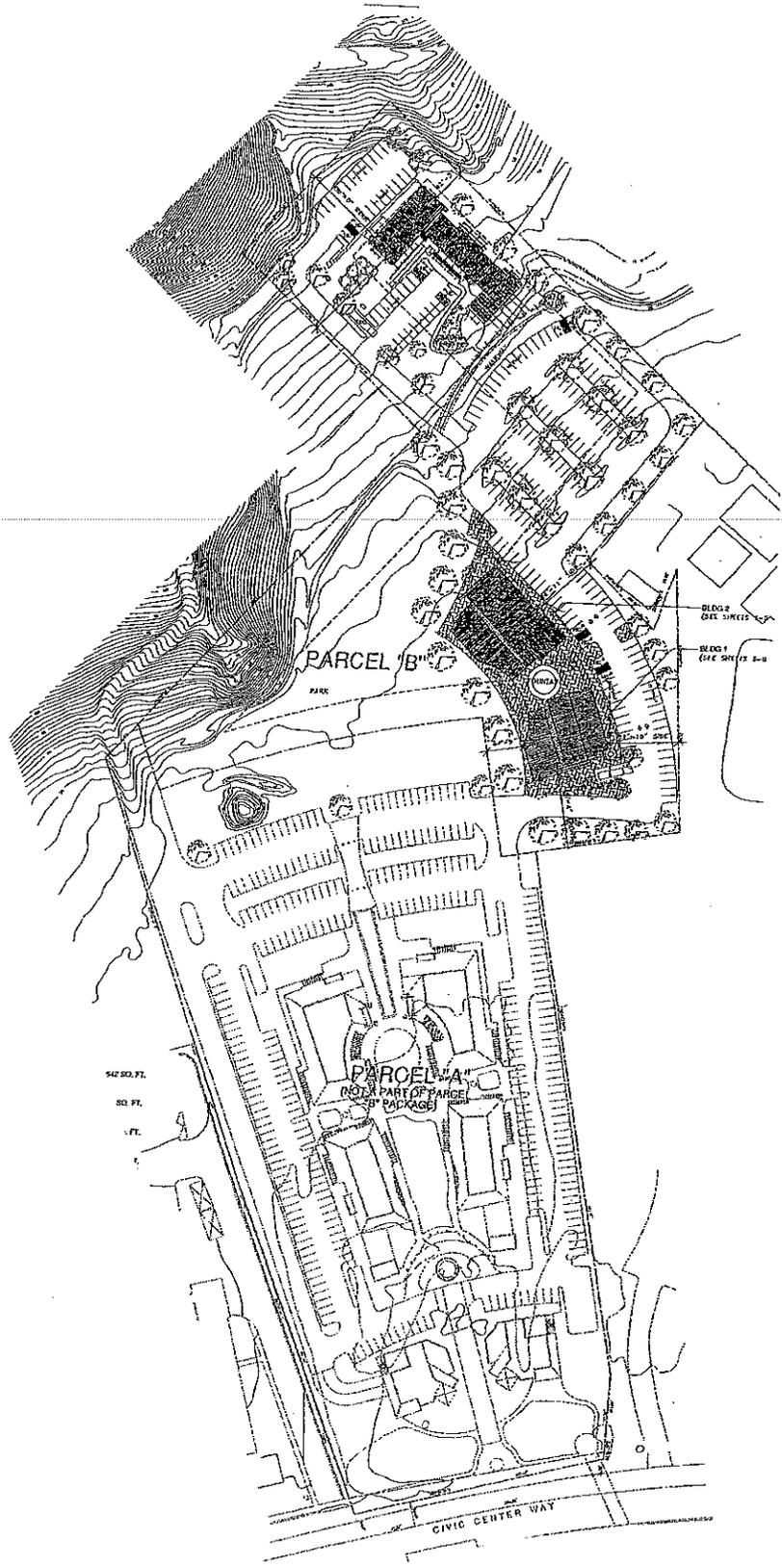
Source: Christopher A. Joseph & Associates, 2004

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FIGURE 3A  
ALTERNATIVE PROJECT SITE PLAN - PARCEL A



NOT TO SCALE



Source: Christopher A. Joseph & Associates, 2004

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FIGURE 3B  
ALTERNATIVE PROJECT SITE PLAN - PARCEL B

- Cumulative plus Project Conditions (2007) - Traffic expected to be generated by the project is added to the cumulative base traffic forecasts. These traffic projections are used to identify potential impacts of the operating conditions in the year 2007.

The City of Malibu identified the following intersections to be analyzed for each of the scenarios described above:

1. Kanan Dume Road & Pacific Coast Highway
2. Malibu Canyon Road & Pacific Coast Highway
3. Webb Way & Pacific Coast Highway
4. Cross Creek Road & Pacific Coast Highway
5. Las Flores Canyon Road & Pacific Coast Highway
6. Topanga Canyon Boulevard & Pacific Coast Highway
7. Malibu Canyon Road & Civic Center Way
8. Webb Way & Civic Center Way
9. Cross Creek Road & Civic Center Way

Figure 4 illustrates the locations of the nine analyzed intersections. As shown, the major roadways intersecting Pacific Coast Highway are included in the study area in addition to the intersections adjacent to the proposed project sites.

Additionally, the city has requested a two-lane roadway analysis of Malibu Canyon Road between the Hughes Research Lab and Piuma Road (north of the Civic Center area) using the County of Los Angeles Public Works criteria.

## **ORGANIZATION OF REPORT**

This report is divided into seven chapters. Chapter II describes the existing circulation system, traffic volumes, and conditions within the study area. The methodologies used to forecast future traffic volumes are described in Chapter III. Chapter IV presents an assessment of potential traffic impacts for the Preferred Project. Chapter V discusses the potential project impacts resulting from the Alternative Project. Chapter VI presents the Congestion Management Program (CMP) analysis. Finally, a summary of the analysis comprises Chapter VII.

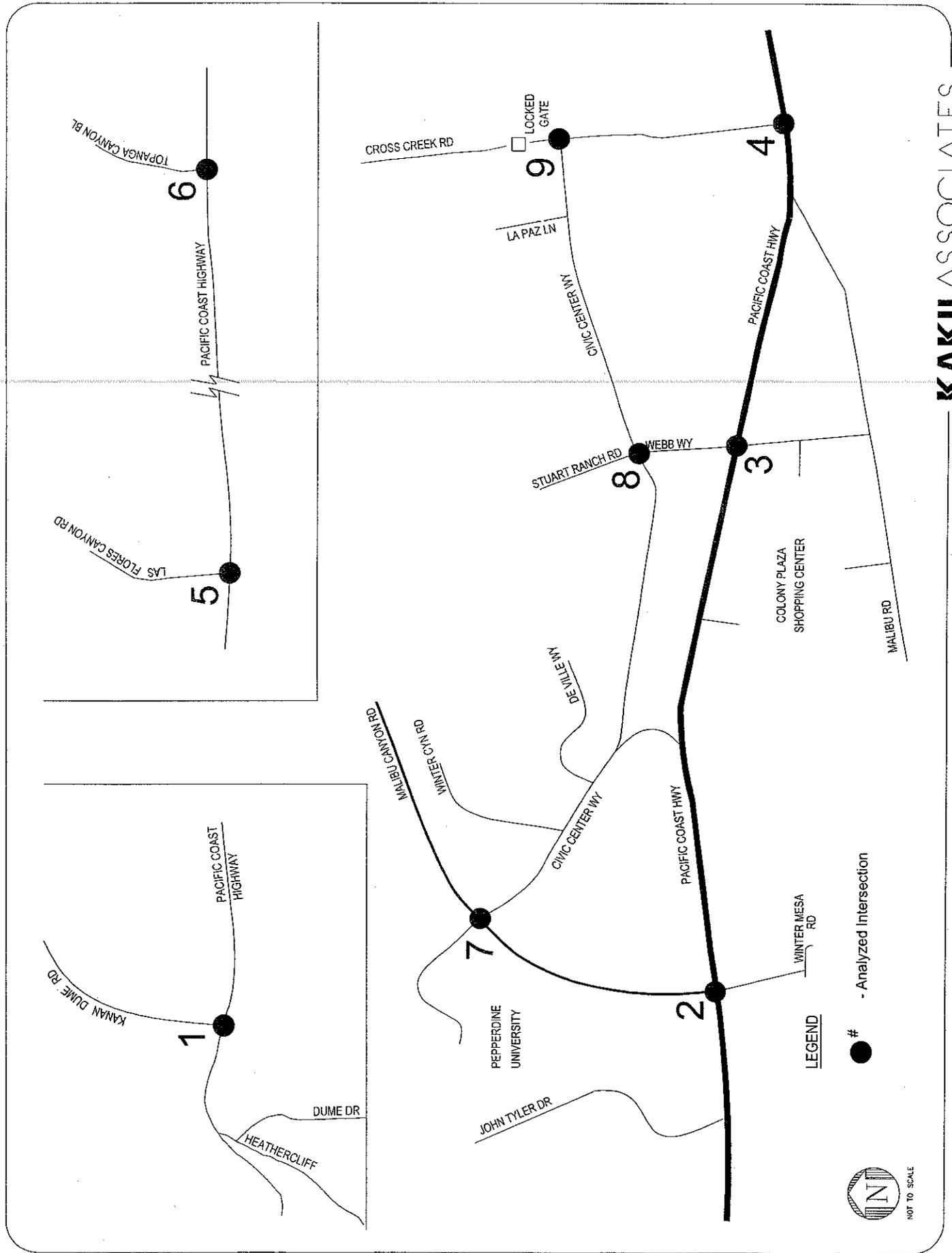


FIGURE 4  
LOCATION OF ANALYZED INTERSECTIONS

## II. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions within the study area. The assessment of conditions relevant to this study includes an inventory of the street system, the traffic volumes on these facilities, operating conditions at key intersections, and the current transit services in the study area.

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### EXISTING STREET SYSTEM

The Pacific Coast Highway provides the primary access to the Malibu La Paz project. The following briefly describes the major streets serving the study area:

- Pacific Coast Highway (PCH) - PCH is a state route (SR 1) aligned in an east-west direction adjacent to the project site. PCH provides four travel lanes in the vicinity of the proposed project sites. PCH, traveling east to Santa Monica, becomes the Santa Monica Freeway (I-10) and provides access to the Los Angeles area. The average daily traffic on PCH ranges from 68,000 vehicles east of Topanga Canyon Boulevard to 27,500 vehicles west of Trancas Canyon Road, with 50,000 vehicles between Cross Creek Road and Webb Way (Source: Caltrans, 2003). The posted speed limit is between 45 and 55 miles per hour (mph). PCH is a designated route in Los Angeles County's Congestion Management Program (CMP route).
- Kanan Dume Road - Kanan Dume Road is a north-south road that provides two travel lanes within the City of Malibu and four lanes north of the city limits to the Ventura Freeway (US 101). It provides regional access from the Santa Monica Mountains area to the Malibu area. The speed limit is generally 50 mph.
- Malibu Canyon Road - Malibu Canyon Road is a north-south road that generally provides two travel lanes across the Santa Monica Mountains and becomes Las Virgenes Road near Mulholland Highway. Malibu Canyon Road provides four travel lanes between Civic Center Way and PCH. On the weekdays during the morning peak period from 6 to 9 a.m., southbound left turns from Malibu Canyon Road to Civic Center Way are prohibited in order to limit "Z" traffic through the Civic Center area. The posted speed limit is 45 mph.
- Webb Way - Webb Way is a north-south road that provides four to five travel lanes between Civic Center Way and Malibu Road. Webb Way provides access to the Malibu Civic Center and the Malibu Colony area.

- Civic Center Way - Civic Center Way is an east-west road that provides two travel lanes between the Pepperdine campus and the Civic Center area. The posted speed limit is 40 mph, except near the school at Vista Pacifica Street where the speed limit is 25 mph when children are present.
- Cross Creek Road - Cross Creek Road is a north-south road that provides two travel lanes from north of Civic Center Way to PCH. Cross Creek Road serves the Malibu Civic Center area.
- Las Flores Canyon Road - Las Flores Canyon Road is a north-south road that provides two travel lanes from the Santa Monica mountain area to PCH. The posted speed limit is 25 mph.
- Topanga Canyon Boulevard - Topanga Canyon Boulevard is a state route (SR 27) that travels in a north-south direction. Topanga Canyon Boulevard provides two travel lanes from the San Fernando Valley to PCH. The posted speed limit is 35 mph. Topanga Canyon Boulevard is a designated CMP route.

Appendix A contains diagrams of the existing lane configurations at the analyzed intersections.

## **EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE**

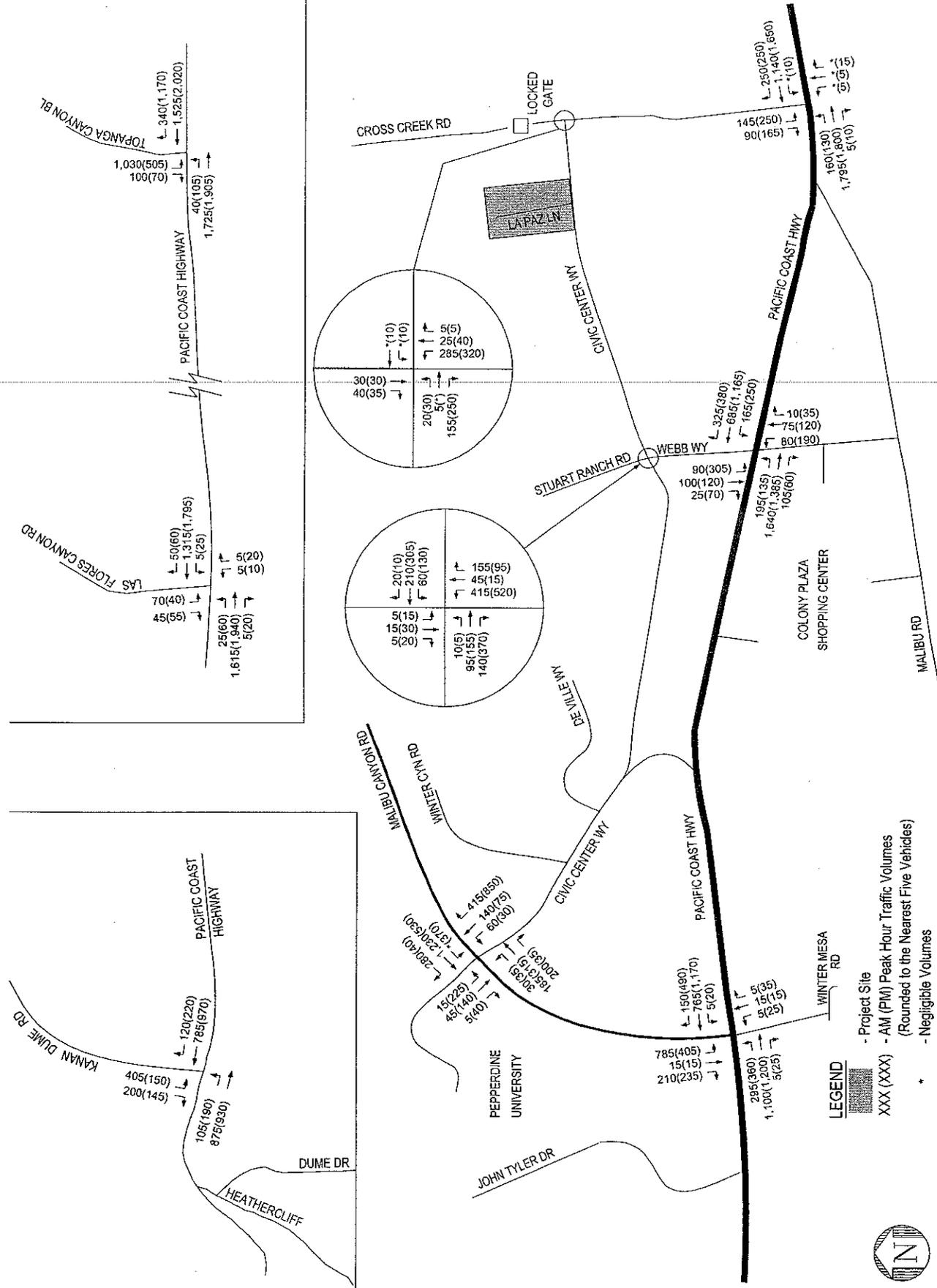
The following sections present the existing peak hour traffic volumes, a description of the methodology used to analyze operating conditions, and the resulting level of service at each of the study intersections.

### **Existing Traffic Volumes**

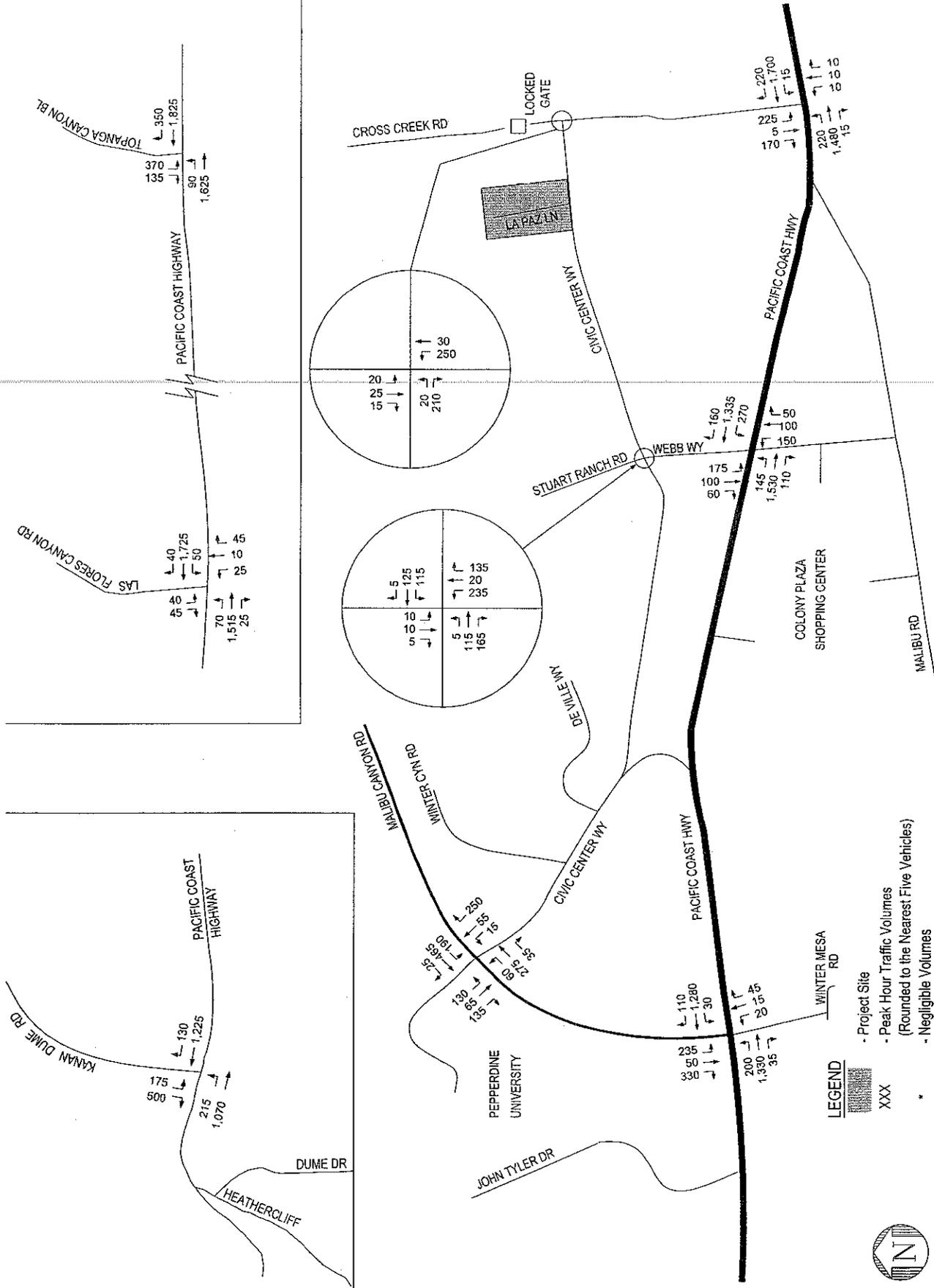
New peak period traffic counts were collected for this project in April and May 2003 for the following periods: the weekday morning peak period (7:00 to 9:00 a.m.), the weekday afternoon peak period (4:00 to 6:00 p.m.), and the Saturday midday peak period (12 to 2:00 p.m.). The traffic volumes were adjusted to reflect 2004 levels by adding 1.5% in order to account for regional growth between the time of the counts and the present. Figure 5 illustrates weekday morning and afternoon peak hour traffic volumes, and Figure 6 illustrates the Saturday midday peak hour traffic volumes.

New weekday daily traffic volume data (ADT) was collected on Malibu Canyon Road in May 2003. Approximately 21,200 vehicles travel along the Malibu Canyon Road segment between

**FIGURE 5  
EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES**



**FIGURE 6  
EXISTING SATURDAY MID-DAY TRAFFIC VOLUMES**



the Hughes Research Lab and Pioma Road, including 1,918 in the a.m. peak hour and 2,012 in the p.m. peak hour. The directional volumes on this roadway segment vary by time of day: 23% northbound/77% southbound in the a.m. peak hour and 68% northbound/32% southbound in the p.m. peak hour, or roughly 20%/80% in the a.m. peak hour and 30%/70% in the p.m. peak hour. Based on the two-lane roadway capacities used by Los Angeles County (2,300 passenger cars per hour (PCPH) in the a.m. peak hour and 2,500 PCPH in the p.m. peak hour), the existing roadway is operating at a vehicle to capacity ratio (V/C) of 0.834 and LOS D in the a.m. peak hour and a V/C of 0.805 and LOS D in the p.m. peak hour.

### **Level of Service Methodology**

Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overload conditions at LOS F. Tables 2 and 3 provide definitions for the various levels of service for signalized and unsignalized intersections, respectively.

Seven of the nine analyzed intersections are controlled by traffic signals. The two remaining intersections, Webb Way & Civic Center Way and Cross Creek Road & Civic Center Way, are controlled by stop signs on one or more of the approaches. The Intersection Capacity Utilization (ICU) method of intersection analysis was used to determine the intersection V/C ratio and the corresponding level of service for the signalized intersections.

The two intersections controlled by stop signs were analyzed using the unsignalized method from the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2000), which calculates the average vehicle delay and level of service using the relationships indicated in Table 3. The calculations to estimate the average vehicle delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

### **Existing Levels of Service**

Table 4 summarizes the peak hour V/C ratio, or vehicle delay, along with the corresponding level of service at each of the study intersections under existing conditions on weekdays. Eight of the nine intersections during the weekday morning peak hour and five of the nine intersections during

**TABLE 2**  
**LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS**

<b>Level of Service</b>	<b>Volume/Capacity Ratio</b>	<b>Definition</b>
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 - 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	Over 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: *Highway Capacity Manual, Special Report 209*; Transportation Research Board, 1997.

**TABLE 3**  
**LEVEL OF SERVICE DEFINITIONS FOR**  
**STOP-CONTROLLED INTERSECTIONS**

<b>Level of Service</b>	<b>Average Vehicle Delay (seconds)</b>
A	$\leq 10.0$
B	$> 10.0$ and $\leq 15.0$
C	$> 15.0$ and $\leq 25.0$
D	$> 25.0$ and $\leq 35.0$
E	$> 35.0$ and $\leq 50.0$
F	$> 50.0$

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209, Third Edition, 2000.*

**TABLE 4  
EXISTING WEEKDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE**

Intersection	Peak Hour	Existing	
		V/C or Delay	LOS
1. Kanan Dume Road & Pacific Coast Highway	AM	0.568	A
	PM	0.580	A
2. Malibu Canyon Road & Pacific Coast Highway	AM	0.783	C
	PM	0.813	D
3. Webb Way & Pacific Coast Highway	AM	0.660	B
	PM	0.831	D
4. Cross Creek Road & Pacific Coast Highway	AM	0.721	C
	PM	0.881	D
5. Las Flores Canyon Road & Pacific Coast Highway	AM	0.688	B
	PM	0.795	C
6. Topanga Canyon Boulevard & Pacific Coast Highway	AM	1.042	F
	PM	0.937	E
7. Malibu Canyon Road & Civic Center Way	AM	0.656	B
	PM	0.735	C
8. Webb Way & Civic Center Way [a]	AM	20.3	C
	PM	51.1	F
Webb Way & Civic Center Way [c]	AM	0.540	A
	PM	0.664	B
9. Cross Creek Rd & Civic Center Way [b]	AM	9.5	A
	PM	10.9	B
Cross Creek Rd & Civic Center Way [c]	AM	0.433	A
	PM	0.524	A

**Note:**

- [a] Intersection is controlled by stop signs on all approaches.  
Value shown represents average vehicle delay (seconds) for the intersection.
- [b] Intersection is controlled by stop signs on the minor approaches.  
Value shown represents average vehicle delay (seconds) for the most constrained approach.
- [c] Intersection is analyzed as Signalized to determine project impacts.

the weekday afternoon peak hour currently operate at LOS C or better. The intersections that operate at LOS D or worse during either the weekday morning and/or afternoon peak hour are:

- Malibu Canyon Road & PCH (afternoon peak hour only)
- Webb Way & PCH (afternoon peak hour only)
- Cross Creek Road & PCH (afternoon peak hour only)
- Topanga Canyon Boulevard & PCH (morning and afternoon peak hours)
- Webb Way & Civic Center Way (afternoon peak hour only)

Table 5 shows the existing summer Saturday midday peak hour V/C ratio and the corresponding level of service at each of the study intersections. Seven of the nine intersections currently operate at LOS C or better during the summer Saturday midday peak hour. The intersections that operate at LOS D or worse during the summer Saturday midday peak hour are:

- Webb Way & PCH
- Cross Creek Road & PCH

#### **EXISTING TRANSIT SERVICE**

One bus line operated by Los Angeles County Metropolitan Transportation Authority (MTA) serves the study area. Line 434 is an east/west line from downtown Los Angeles to the Trancas Canyon area. Line 434 travels on PCH, Cross Creek Road, Civic Center Way, and Malibu Canyon Road through the study area.

**TABLE 5  
EXISTING SATURDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE**

Intersection	Peak Hour	Existing	
		V/C or Delay	LOS
1. Kanan Dume Road & Pacific Coast Highway	MID	0.797	C
2. Malibu Canyon Road & Pacific Coast Highway	MID	0.770	C
3. Webb Way & Pacific Coast Highway	MID	0.811	D
4. Cross Creek Road & Pacific Coast Highway	MID	0.938	E
5. Las Flores Canyon Road & Pacific Coast Highway	MID	0.755	C
6. Topanga Canyon Boulevard & Pacific Coast Highway	MID	0.752	C
7. Malibu Canyon Road & Civic Center Way	MID	0.517	A
8. Webb Way & Civic Center Way [a]	MID	11.1	B
Webb Way & Civic Center Way [c]	MID	0.412	A
9. Cross Creek Rd & Civic Center Rd [b]	MID	9.3	A
Cross Creek Rd & Civic Center Rd [c]	MID	0.436	A

**Note:**

- [a] Intersection is controlled by stop signs on all approaches.  
Value shown represents average vehicle delay (seconds) for the intersection.
- [b] Intersection is controlled by stop signs on the minor approaches.  
Value shown represents average vehicle delay (seconds) for the most constrained approach.
- [c] Intersection is analyzed as Signalized to determine project impacts.

### III. FUTURE TRAFFIC CONDITIONS

To evaluate the potential impact of the proposed projects on the local street system, it was necessary to develop estimates of future traffic conditions both with and without the project. Forecasts of future traffic conditions without the proposed projects, referred to as the cumulative base conditions, reflect traffic increases due to general regional growth as well as development and traffic increases generated by other specific developments in the vicinity of the project site. The cumulative base conditions were analyzed for 2007. The estimated project traffic was then added to the cumulative base traffic forecast; this resulted in projected volumes reflecting future conditions with the addition of project traffic. This is referred to as the cumulative plus project conditions.

#### CUMULATIVE BASE TRAFFIC PROJECTIONS

The cumulative base traffic projections include two elements. The first is the growth in the existing background traffic volumes reflecting the effects of overall regional growth and development in and around the study area, referred to as ambient growth. The second is the traffic generated by specific cumulative projects located within or near the study area.

#### Ambient Growth in Traffic (Year 2007)

The ambient regional growth in traffic is estimated by adjusting upward the existing traffic volumes along the regional corridors by a growth factor. These corridors include PCH, Kanan Dume Road, Malibu Canyon Road, and Topanga Canyon Boulevard. The files from Caltrans indicate that traffic in the study area has historically increased by approximately 1.5% per year. Using this growth rate, the 2004 existing traffic volumes were adjusted upward by 4.5% to reflect the three years of regional growth expected from 2004 to 2007. As described below, both the regional corridors and the local facilities would be affected by traffic growth resulting from the future local development projects, which are referred to as cumulative projects.

### **Traffic Generated by Cumulative Development Projects**

Traffic expected from other specific development projects within the study area was also considered. Information regarding potential future projects that are either under construction, planned, or proposed for development was obtained from several sources, including recently conducted traffic studies and City of Malibu files. Table 6 lists the cumulative projects and Figure 7 illustrates the locations of these projects.

Although most of the cumulative projects are in the planning stages, the cumulative base conditions conservatively assume that all of the projects would be fully built by 2007. Trip generation estimates for these projects were prepared for the cumulative projects using rates and equations contained in *Trip Generation, 6th Edition* (Institute of Transportation Engineers, 1997). The trip rates relevant to this study are summarized in Table 7. The specialty retail (ITE 814) rates for the morning peak hour and Saturday midday peak period are not directly available. In light of this, a comparison was performed between the available specialty retail and shopping center trip rates; the comparison reveals that specialty retail represents approximately 70% of the trips generated by a shopping center. This proportion was then applied to the appropriate shopping center (ITE 820) rate to derive the morning peak hour and Saturday midday peak period rates for the retail component.

As shown in Table 6, the cumulative projects are projected to generate approximately 10,967 weekday daily trips, including 714 weekday morning peak hour trips, and 1,249 weekday afternoon peak hour trips. For Saturday, the cumulative projects are expected to generate approximately 8,202 daily trips, including 1,083 midday peak hour trips.

The geographic distribution of the traffic generated by the future development projects depends on several factors. These factors include the type and density of the proposed land use, the geographic distribution of population from which the patrons and employees of the proposed development are drawn, and the location of the projects in relation to the surrounding street system. Because land uses for the projects included in the cumulative projects list in Table 5 would serve the immediate areas rather than the entire region, the traffic distribution patterns are generally local in nature, based on the population within the City of Malibu and its adjacent areas.

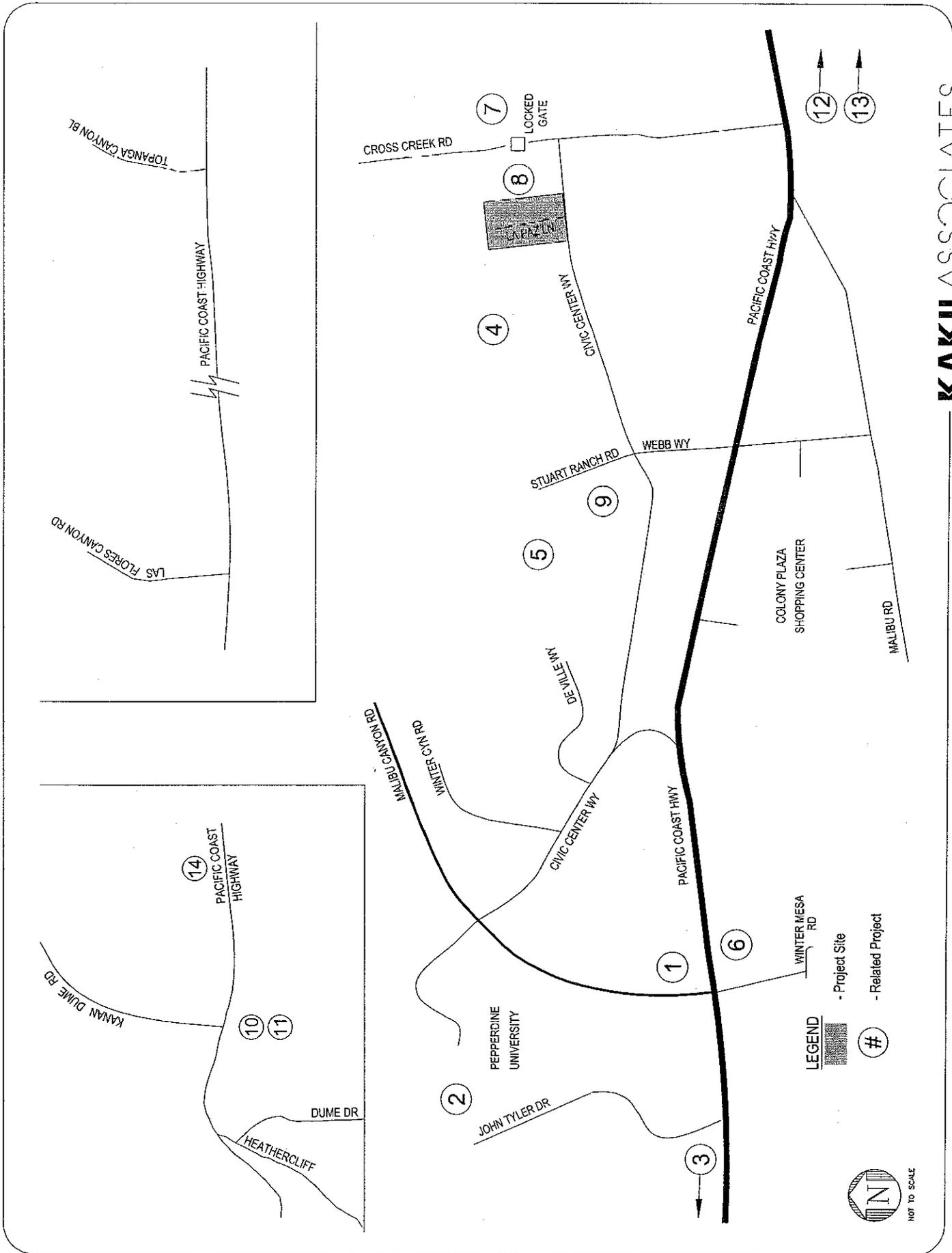
The traffic from the list of cumulative projects was assigned to the local street system and used to reflect the cumulative growth in the area.

TABLE 6  
CUMULATIVE PROJECTS TRIP GENERATION ESTIMATES

Map #	Land Use	Size	WEEKDAY									SATURDAY			
			Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips	Mid-Day Peak Hour Trips				
				In	Out	Total	In	Out	Total		In	Out	Total		
1	Rancho Malibu Hotel [a]														
	Hotel	146 rms	880	30	15	45	25	40	65	880	57	63	120		
	Health Club	6,062 s.f.	250	-	-	-	15	10	25	250	16	10	20		
	Cultural Center	9,000 s.f.	410	5	-	5	20	20	40	320	25	18	43		
	Subtotal		1,540	35	15	50	60	70	130	1,450	98	91	189		
2	Pepperdine University Upper Campus [b]														
	Commuter Student	120	315	38	1	39	9	23	32	n/a	n/a	n/a	n/a		
	Resident Student	400	450	10	2	12	16	32	48	n/a	n/a	n/a	156		
	Commuter Faculty/Staff	48	146	11	-	11	3	11	14	n/a	n/a	n/a	n/a		
	Resident Faculty	58	164	4	8	12	8	9	17	75	8	7	15		
	Other Individuals	58	152	7	5	12	7	10	17	75	8	7	15		
	Subtotal		1,227	70	16	86	43	85	128	930	94	92	186		
3	Forge Lodge (26025 Pacific Coast Highway) Bed and Breakfast	28 rms	249	11	8	19	10	11	21	294	12	12	24		
4	Pepperdine Office Development Office [c]	65,000 s.f.	953	116	16	132	23	112	135	157	15	12	27		
5	Proposed Senior Housing	36 units	144	3	3	6	6	4	10	144	5	5	10		
6	Single Family Housing Development	8 units	77	2	4	6	5	3	8	81	4	4	8		
7	Adamson Self-Storage	56,600 s.f.	141	5	3	8	8	7	15	131	12	10	22		
8	Shultz Office [c]	20,850 s.f.	398	47	6	53	18	85	103	63	6	5	11		
	Retail (Pharmacy)	16,000 s.f.	1,441	30	21	51	60	62	122	122	60	62	122		
	Less 35% Pass-by		(504)	(11)	(7)	(18)	(21)	(22)	(43)	(43)	(21)	(22)	(43)		
	Subtotal		1,335	67	20	86	57	125	182	142	45	45	90		
9	Yamaguchi Office [c]	67,000 s.f.	976	120	16	136	23	115	138	182	15	12	27		
	Retail	42,271 s.f.	3,918	59	37	96	171	185	356	5,326	259	239	498		
	Less 50% Pass-by		(1,959)	(30)	(19)	(48)	(86)	(93)	(178)	(2,663)	(130)	(120)	(250)		
	Subtotal		2,935	149	35	184	108	208	316	2,825	144	131	275		
10	Residential	6 units	57	1	4	5	4	2	6	61	3	3	6		
11	Office	13,500 s.f.	285	33	5	38	7	35	42	47	4	3	7		
12	Malibu Pier [d] Restaurant / Retail	10,237 s.f.	1,107	41	22	63	48	48	96	1,205	83	60	143		
13	Windsail Restaurant	7,275 s.f.	691	-	-	-	39	19	58	681	49	34	83		
	Community Room	980 s.f.	-	1	-	1	1	1	5	9	4	2	6		
	Day Spa	1,300 s.f.	-	-	-	-	3	3	6	6	1	-	1		
	Subtotal		691	1	-	1	43	23	69	696	54	36	90		
14	Office	10,000 s.f.	226	26	4	30	15	76	91	40	3	3	6		
TOTAL CUMULATIVE PROJECT TRIP GENERATION			10,967	560	154	714	437	809	1,249	8,202	576	507	1,083		

Note:

- Trip Generation from Institute of Transportation Engineers (ITE). "Trip Generation, 6th Edition, 1997." Unless otherwise noted.
- [a] Trip generation from Rancho Malibu Hotel EIR.
- [b] Trip generation from "Pepperdine University Upper Campus Development Draft EIR", July 1998.
- [c] ITE 5th Edition trip generation rates for the PM peak hour were used for office land use when less than 100,000 square feet.
- [d] Based on Malibu Pier Rehabilitation Traffic Study, January 2002.



**KAKU ASSOCIATES**

**FIGURE 7**  
**LOCATION OF RELATED PROJECTS**

TABLE 7  
TRIP GENERATION RATES

Land Use	Weekday							Saturday			
	Average Daily Rate	AM Peak Hour			PM Peak Hour			Average Daily Rate	Mid-day Peak Hour		
		Rate	%In	%Out	Rate	%In	%Out		Rate	%In	%Out
Single-Family House (Trips per dwelling unit)	9.57	0.75	25%	75%	1.01	64%	36%	10.09	0.94	54%	46%
Apartment (Trips per unit)	6.63	0.51	16%	84%	0.62	67%	33%	6.39	0.52	50%	50%
Senior Housing (Trips per unit)	4 [2]	0.17	45%	55%	0.27	56%	44%	4	0.27	50%	50%
Bed and Breakfast (Trips per room)	8.92	0.67	58%	42%	0.71	49%	51%	10.5	0.87	50%	50%
General Office Building (Trips per 1,000 sf)	[1]	[1]	88%	12%	[1]	17%	83%	[1]	[1]	54%	46%
Medical Office (Trips per 1,000 sf)	36.13	2.43	80%	20%	3.66	27%	73%	8.96	3.63	57%	43%
Retail (Trips per 1,000 sf)	[1]	[1]	61%	39%	[1]	48%	52%	[1]	[1]	52%	48%
Quality Restaurant (Trips per 1,000 sf)	89.95	0.81	60% [2]	40% [2]	7.49	67%	33%	94.36	10.82	59%	41%
Restaurant (High-turnover) (Trips per seats)	4.83	0.47	52%	48%	0.42	42%	58%	6.21	0.88	58%	42%
Self Storage (Trips per 1,000 sf)	2.5	0.15	59%	41%	0.26	51%	49%	2.33	0.4	53%	47%
Specialty Retail [5] (Trips per 1,000 sf)	40.67	0.72	61%	39%	2.59	43%	57%	42.04	3.48	52%	48%
Pharmacy [6] (Trips per 1,000 sf)	90.06	3.2	59%	41%	7.63	49%	51%	n/a	7.63	49%	51%

Note:

Trip Generation from Institute of Transportation Engineers (ITE), "Trip Generation, 6th Edition, 1997." Unless otherwise noted.

[1] Office and Retail rates vary according to the size of development.

Trip generation for office was calculated using the following formulas:

Weekday Daily:	$\ln(T) = 0.768 \ln(X) + 3.654$
Weekday AM Peak Hour:	$\ln(T) = 0.797 \ln(X) + 1.558$
Weekday PM Peak Hour: (ITE 6th Ed.) Office $\geq 100$ ksf	$T = 1.121 (X) + 79,295$
Weekday PM Peak Hour: (ITE 5th Ed.) Office $< 100$ ksf	$\ln(T) = 0.737 \ln(X) + 1.831$
Saturday Daily:	$T = 2.136 (X) + 18,473$
Saturday Mid-day Peak Hour:	$\ln(T) = 0.814 \ln(X) - 0.115$

Trip generation for retail shopping centers was calculated using the following formulas:

Weekday Daily:	$\ln(T) = 0.643 \ln(X) + 5.866$
Weekday AM Peak Hour:	$\ln(T) = 0.596 \ln(X) + 2.329$
Weekday PM Peak Hour:	$\ln(T) = 0.660 \ln(X) + 3.403$
Saturday Daily:	$\ln(T) = 0.628 \ln(X) + 6.229$
Saturday Mid-day Peak Hour:	$\ln(T) = 0.651 \ln(X) + 3.773$

Where:

$\ln$  = Natural logarithm

T = Two-way volume of traffic (total trip-ends)

X = Area in 1,000 gross square feet of leasable area

[2] SANDAG, "Traffic Generators, July 1998."

[3] ITE Hospital rates used.

[4] Trip generation rates from the "Traffic & Circulation Study for the Proposed Museum of TV & Radio", Kaku Associates, August 1994.

[5] - No rate available for specialty retail (ITE 814) during AM and Saturday midday peak hours. The proportional rate of shopping center (ITE 820) was applied. A comparison of trip rates indicates that specialty retail generates approximately 70% of shopping center trips; therefore this proportion was applied to the shopping center rates and used to estimate trip generation for specialty retail.

[6] No Saturday mid-day rate available, weekday PM rate assumed.

### **Cumulative Base Traffic Volumes**

The cumulative base traffic volumes, future conditions without the proposed project, were developed by adding the traffic expected from the cumulative projects to the existing weekday and Saturday volumes, which had been increased by 4.5% to reflect ambient growth. Figures 8 and 9 display the resulting weekday and Saturday peak hour traffic volumes at the nine analyzed intersections. These volumes represent the cumulative base conditions for 2007.

The same process was also applied to the existing traffic volumes on Malibu Canyon Road: expected traffic from cumulative projects and an increase of 4.5% was added to represent future conditions within the study area. The projected cumulative base volumes on this roadway segment are 2,207 in the a.m. peak hour (0.960 v/c, LOS E) and 2,492 in the p.m. peak hour (0.997 v/c, LOS E).

### **TRANSPORTATION IMPROVEMENTS**

Physical street system improvements that are expected to be implemented by 2007 within the study area were included in the analysis of cumulative base conditions. Physical improvements developed as measures to mitigate impacts generated by the cumulative projects listed in Table 5 were not assumed for the cumulative base conditions. Most of the cumulative projects are in the planning stage and have not yet been approved by the City of Malibu.

### **PCH Corridor Improvement**

The County of Los Angeles, Caltrans, and the municipalities along PCH from the McClure Tunnel in Santa Monica to Trancas Canyon Road have agreed to participate in the implementation of a multi-jurisdictional advanced traffic management system. This system would involve traffic signals system monitoring, control, and synchronization capabilities; real-time database management of traffic information; incident response capabilities; and inter-jurisdictional data exchange among the affected agencies' engineering and maintenance staff. The County of Los Angeles Department of Public Works indicates that the proposed multi-jurisdiction traffic management system is expected to be fully operational by 2005.

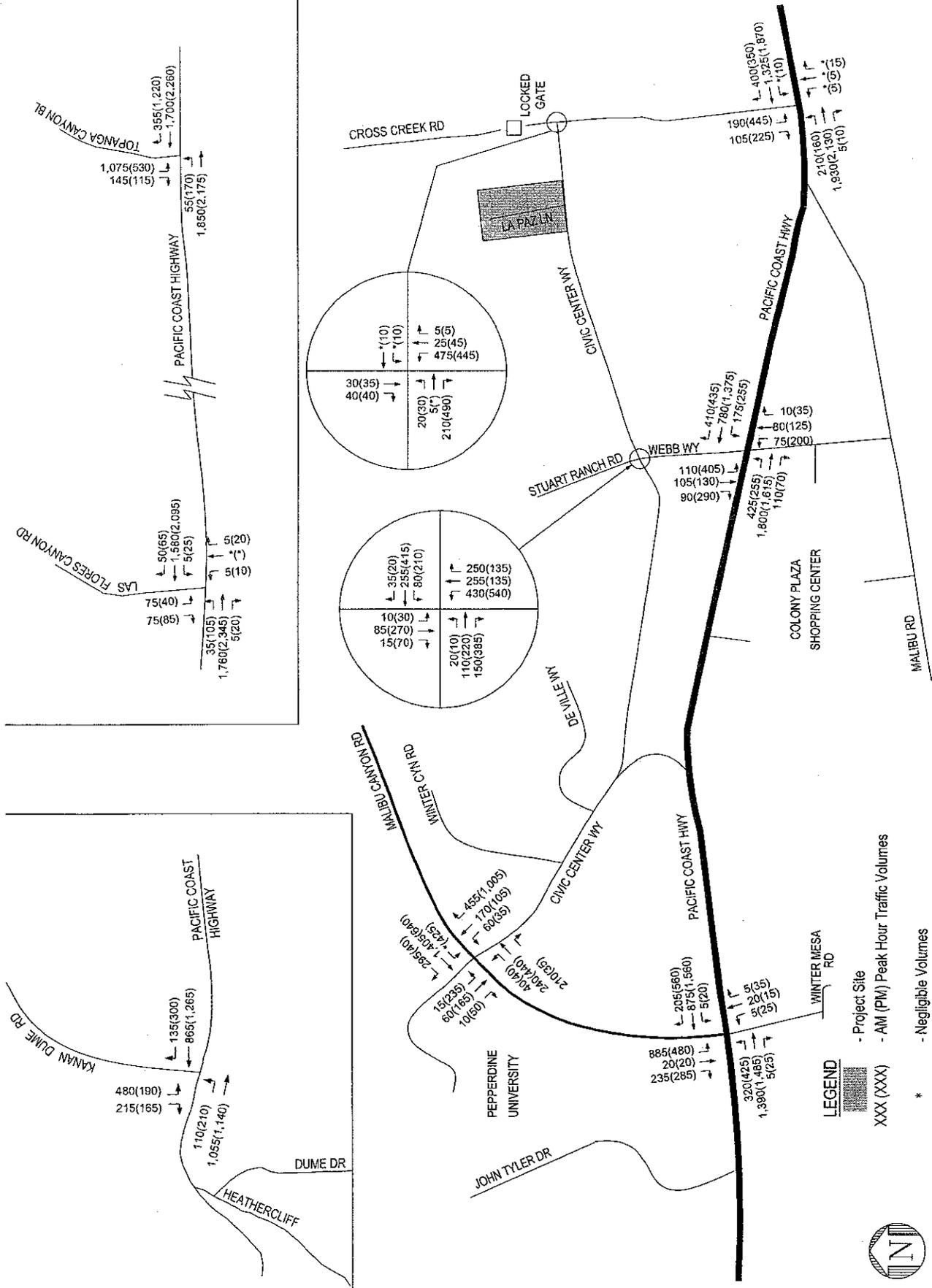
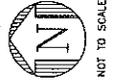


FIGURE 8 CUMULATIVE BASE WEEKDAY PEAK HOUR TRAFFIC VOLUMES





The City of Los Angeles has implemented a traffic management system, the Automated Traffic Surveillance and Control (ATSAC) system that is already operational at many locations throughout Los Angeles. This system is considered to increase capacity by 7% at each intersection included in the system. Like the ATSAC system, the proposed advanced traffic management system along PCH is expected to increase capacity at the intersections. For the purposes of this study, capacity increases of 7% were applied to the analyzed intersections along PCH for the cumulative base conditions to reflect this improvement.

## **PROJECT TRAFFIC VOLUMES**

The process used to develop traffic forecasts for the projects involved the use of a three-step process, similar to that described above for the cumulative projects. This process includes trip generation, trip distribution, and traffic assignment.

### **Project Traffic Generation**

As summarized in Table 1, the proposed development includes a mix of office and specialty retail uses on the site. Trip generation rates and equations from the Institute of Transportation Engineers' *Trip Generation, 6th Edition* were applied to these land uses to estimate the magnitude of the trips associated with the proposed development.

The trip generation estimates for the retail component of the proposed project include an adjustment to the volumes at the five intersections furthest from the project site based on the pass-by trip reduction:

- **Pass-By Adjustment:** Pass-by reductions represent those trips on the roadway system that are expected to be attracted to the site once the proposed projects are implemented. While these are new to the site itself, they are not new to the roadway system and should be deducted from the calculations to avoid double counting these trips. These are trips that are not specifically attracted to the area by the retail facility but were in the vicinity and were diverted to the site. These trips are not considered new to the area and are not considered trips generated by the project. Pass-by reductions for this project were determined through average trip reductions from *Trip Generation, 5<sup>th</sup> edition*.

Table 8 summarizes the trip generation estimate for the proposed project. The proposed project would generate a net increase of approximately 2,850 weekday daily trips, including 150 weekday morning peak hour trips and 250 weekday afternoon peak hour trips. For Saturday, the projects would generate approximately 2,250 net new daily trips, including 200 midday peak hour trips.

### **Project Traffic Distribution/Assignment**

Similar to the cumulative projects, the geographic distribution of the traffic generated by the proposed project depends on several factors. These factors include the type and density of the proposed land use, the geographic distribution of population from which the patrons and employees of the proposed development are drawn, and the location of the projects in relation to the surrounding street system.

The trips generated by the proposed project and summarized in Table 8 were assigned to the street system. Figure 10 illustrates the traffic generated by the proposed project only during the weekday morning and afternoon peak hour at the nine analyzed intersections. Figure 11 illustrates the traffic generated only by the proposed project during the Saturday midday peak hour at the nine analyzed intersections.

### **CUMULATIVE PLUS PROJECT TRAFFIC PROJECTIONS**

The traffic volumes generated by the project were added to the cumulative base traffic projections to develop the cumulative plus project traffic forecasts. Figure 12 illustrates the resultant traffic volumes that represent future conditions in the year 2007 with the addition of project traffic for the weekday morning and afternoon peak hour. Figure 13 illustrates the resultant traffic volumes that represent future conditions with the addition of project traffic for the Saturday midday peak hour volumes.

The cumulative plus project forecast volumes for the analyzed Malibu Canyon Road segment is approximately 2,231 in the a.m. peak hour (0.970 v/c, LOS E) and 2,537 in the p.m. peak hour (1.015 v/c, LOS F). Thus, the project would increase the cumulative base traffic volumes by 1.1% in the a.m. period peak hour (24 vehicles) and by 1.8% in the p.m. period peak hour (45 vehicles).

TABLE 8  
PROJECT TRIP GENERATION ESTIMATES

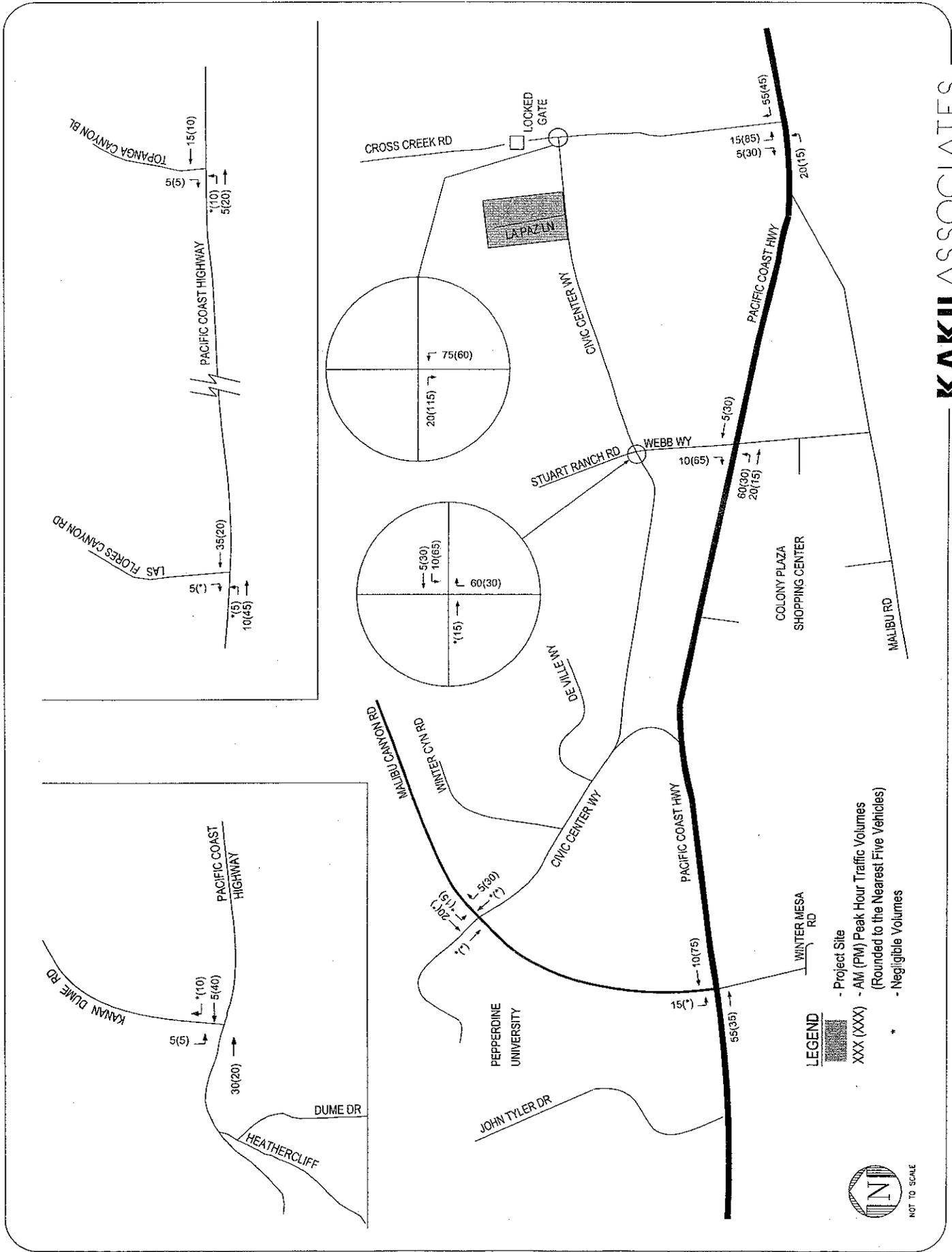
Land Use	Size	Weekday						Saturday															
		Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips		Daily Trips		Mid-day Trips													
		In	Out	In	Out	In	Out	In	Out	In	Out	Total											
<b>Preferred Project</b>																							
General Office	53,825 sf	825	14	20	98	118	133	13	10	23													
Specialty Retail	77,110 sf	3,136	22	86	114	200	3,242	139	129	268													
35% Retail Pass By		(1,098)	(8)	(30)	(40)	(70)	(1,135)	(49)	(45)	(94)													
<b>TOTAL</b>		<b>2,863</b>	<b>28</b>	<b>76</b>	<b>172</b>	<b>248</b>	<b>2,241</b>	<b>103</b>	<b>94</b>	<b>197</b>													

Trip Rates: (General Office)  
 Weekday Daily:  $\text{Ln}(T) = 0.768 \text{ Ln}(X) + 3.654$   
 Weekday AM Peak Hour:  $\text{Ln}(T) = 0.797 \text{ Ln}(X) + 1.558$   
 Weekday PM Peak Hour:  $\text{Ln}(T) = 0.737 \text{ Ln}(X) + 1.831$   
 Saturday Daily:  $T = 2.136 (X) + 18.473$   
 Saturday Mid-day Peak Hour:  $\text{Ln}(T) = 0.814 \text{ Ln}(X) - 0.115$

Trip Rates: (Specialty Retail)  
 Daily Weekday - 40.67 per 1,000 sf  
 AM - 0.72 per 1,000 sf[a]  
 PM - 2.59 per 1,000 sf  
 Daily Weekend - 42.04 per 1,000 sf  
 Saturday Midday - 3.48 per 1,000 sf

Notes:  
 [a] - No rate available for specialty retail (ITE 814) during AM and Saturday midday peak hours. The proportional rate of shopping center (ITE 820) was applied. A comparison of trip rates indicates that specialty retail generates approximately 70% of shopping center trips; therefore this proportion was applied to the shopping center rates and used to estimate trip generation for specialty retail.

Source: Trip Generation, 6th Edition; ITE, 1997.



**FIGURE 10**  
**PROJECT ONLY WEEKDAY PEAK HOUR TRAFFIC VOLUMES**

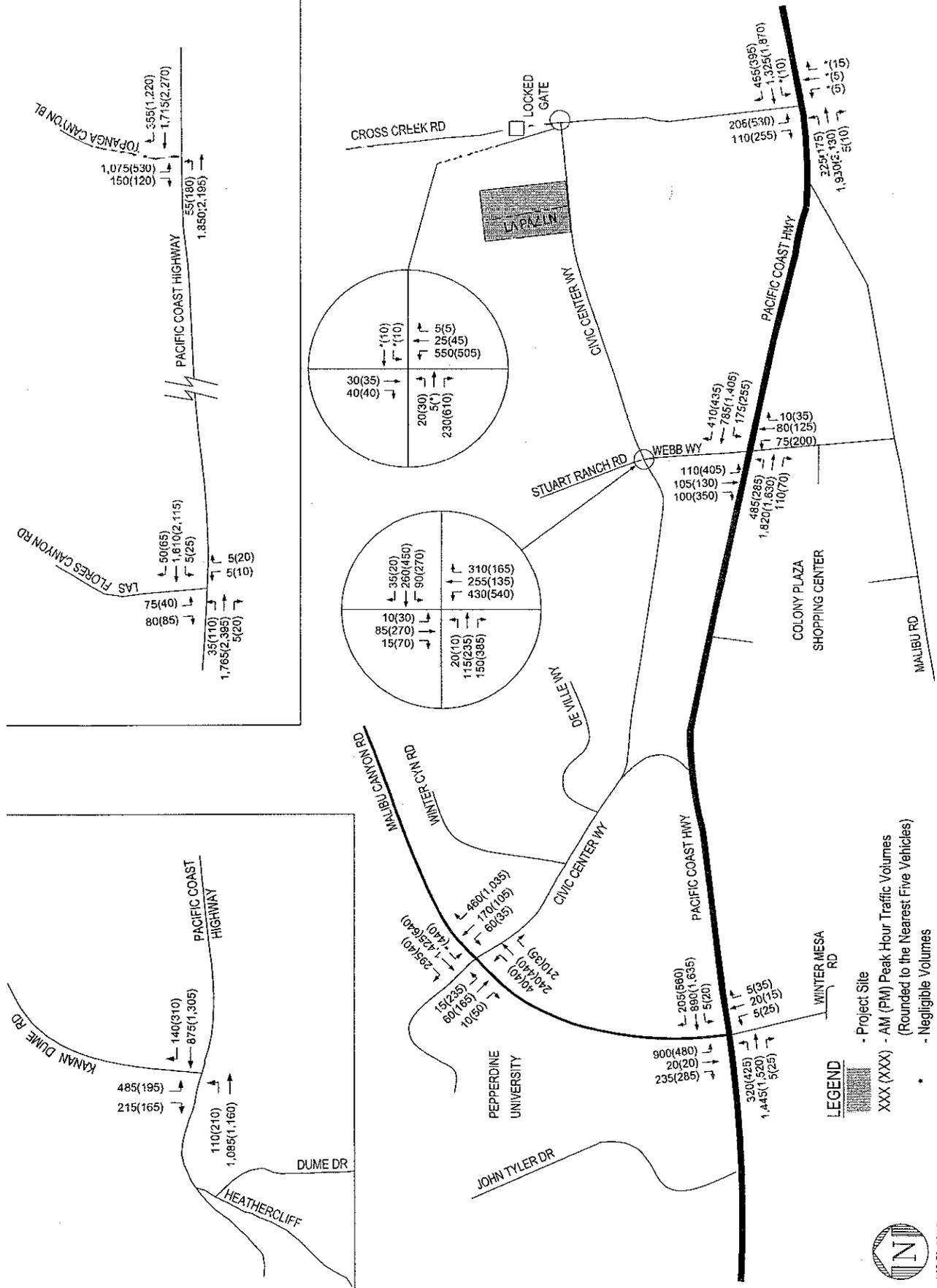
**LEGEND**

- Project Site
- AM (PM) Peak Hour Traffic Volumes (Rounded to the Nearest Five Vehicles)
- Negligible Volumes



NOT TO SCALE





**FIGURE 12**  
**CUMULATIVE PLUS PROJECT WEEKDAY PEAK HOUR TRAFFIC VOLUMES**



#### IV. TRAFFIC IMPACT ANALYSIS

The results of the analysis of potential impacts of project traffic from the project on the local street system are summarized in this chapter. The analysis compares the projected operating conditions at each study intersection under the cumulative base and cumulative plus project conditions for 2007. The potential impacts are identified using significance criteria established by the City of Malibu and County of Los Angeles. Mitigation measures have been developed to mitigate these project impacts where feasible.

All of the intersection capacity analyses for future conditions reflect the effect of the planned traffic management and control improvements on PCH that are expected to increase the capacity of each of the signalized intersections by 7%.

#### SIGNIFICANT TRAFFIC IMPACT CRITERIA

The criteria within City of Malibu to determine if a project would have a significant traffic impact were applied at the eight study area intersections located in the city. Analysis of the intersection of Topanga Canyon Boulevard and Pacific Coast Highway, which is not located in Malibu, utilized the criteria established by the County of Los Angeles Department of Public Works.

The City of Malibu standard indicates that a project impact would be considered significant if the following conditions are met:

#### Intersection Condition with Project Traffic

LOS  
D, E, or F

V/C Ratio  
>0.800

#### Project-related Increase in V/C Ratio

equal to or greater than 0.020

Using these criteria, a project would not have a significant impact at an intersection if it were projected to operate at LOS A, B, or C after the addition of project traffic, regardless of the magnitude of the increase in the V/C ratio. If the intersection, however, were operating at a LOS

D, E, or F after the addition of project traffic and if the incremental change in the V/C ratio is 0.020 or greater, the project would be considered to have a significant impact.

The County of Los Angeles Department of Public Works standard indicates that a project impact would be considered significant if the following conditions are met:

<u>Intersection Condition with Project Traffic</u>		<u>Project-related Increase in V/C Ratio</u>
<u>LOS</u>	<u>V/C Ratio</u>	
C	0.701 – 0.800	equal to or greater than 0.040
D	0.801 – 0.900	equal to or greater than 0.020
E, F	> 0.900	equal to or greater than 0.010

Using these criteria, a project would not have a significant impact at an intersection if it is projected to operate at LOS A, B, or C after the addition of project traffic and if the incremental change in the V/C ratio is less than 0.040. The project would have a significant impact at an intersection if it is projected to operate at a LOS D after the addition of project traffic and if the incremental change in the V/C ratio is 0.020 or greater, or if it operates at LOS E or F and the incremental increase in V/C is 0.010 or greater.

In addition, roadway segment analysis was performed using the County of Los Angeles Public Works standard. It indicates that a project impact is significant on two-lane roadways if the following conditions are met:

<u>Roadway Condition</u>	<u>(PCPH)</u>	<u>% Increase in Passenger Car per Hour by Project</u>		
		<u>Pre-Project LOS</u>		
<u>Directional Split</u>	<u>Total Capacity</u>	<u>C</u>	<u>D</u>	<u>E/E</u>
50/50	2,800	4%	2%	1%
60/40	2,650	4%	2%	1%
70/30	2,500	4%	2%	1%
80/20	2,300	4%	2%	1%
90/10	2,100	4%	2%	1%
100/0	2,000	4%	2%	1%

Using these criteria, a project would not have a significant impact if the incremental increase of traffic were less than the percentages listed above. The project would have a significant impact on a two-lane roadway if it is projected to operate at a LOS D after the addition of project traffic and if the incremental change in the PCPH is 2% or greater, or if it operates at LOS E or F and the incremental increase in PCPH is 1% or greater.

### **CUMULATIVE BASE TRAFFIC CONDITIONS**

The first step in the impact analysis was to analyze the projected operating conditions at each of the intersections under future conditions without the project, i.e., the cumulative base scenario. The cumulative base traffic volumes for weekday and Saturday peak hours provided in Figures 8 and 9 were analyzed to determine the V/C ratio and corresponding LOS for each location under these base conditions. Table 9 summarizes the results of the analysis for the weekday peak hours under cumulative base conditions and shows that eight of the nine analyzed intersections are projected to operate at LOS D or worse during the morning or afternoon peak hour, or both. These intersections are:

- Malibu Canyon Road & PCH (both peak hours)
- Webb Way & PCH (afternoon peak hour only)
- Cross Creek Road & PCH (morning peak hour only)
- Las Flores Canyon Road & PCH (afternoon peak hour only)
- Topanga Canyon Boulevard & PCH (both peak hours)
- Malibu Canyon Road & Civic Center Way (afternoon peak hour only)
- Webb Way & Civic Center Way (both peak hours)
- Cross Creek Road & Civic Center Way (afternoon peak hour only)

During the Saturday midday hour, Table 10 indicates that five of the nine analyzed intersections are projected to operate at LOS D or worse. They are:

- Kanan Dume Road & PCH
- Malibu Canyon Road & PCH
- Webb Way & PCH
- Cross Creek Road & PCH
- Las Flores Canyon Road & PCH

TABLE 9  
 FUTURE CONDITIONS WEEKDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE

Intersection	Peak Hour	Cumulative Base		Cumulative Plus Preferred Project			Cumulative Plus Project w/Mitigation				
		V/C or Delay	LOS	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact
1. Kanan Dume Road & Pacific Coast Highway	AM	0.557	A	0.561	A	0.004	NO				
	PM	0.632	B	0.646	B	0.014	NO				
2. Malibu Canyon Road & Pacific Coast Highway	AM	0.841	D	0.864	D	0.023	YES	[d]			
	PM	0.929	E	0.953	E	0.024	YES	[d]			
3. Webb Way & Pacific Coast Highway	AM	0.680	B	0.718	C	0.038	NO	0.653	B	-0.027	NO
	PM	0.951	E	0.981	E	0.030	YES	0.902	E	-0.049	NO
4. Cross Creek Road & Pacific Coast Highway	AM	0.774	C	0.808	D	0.034	YES	0.716	C	-0.058	NO
	PM	1.002	F	1.058	F	0.056	YES	0.935	E	-0.067	NO
5. Las Flores Canyon Road & Pacific Coast Highway	AM	0.685	B	0.689	B	0.004	NO				
	PM	0.873	D	0.890	D	0.017	NO				
6. Topanga Canyon Boulevard & Pacific Coast Highway	AM	1.029	F	1.030	F	0.001	NO				
	PM	0.942	E	0.948	E	0.006	NO				
7. Malibu Canyon Road & Civic Center Way	AM	0.748	C	0.755	C	0.007	NO				
	PM	0.874	D	0.886	D	0.012	NO				
8. Webb Way & Civic Center Way [a]	AM	85.1	F	84.5	F						
	PM	159.0	F	159.0	F						
Webb Way & Civic Center Way [c]	AM	0.730	C	0.733	C	0.003	NO	0.559	A	-0.171	NO
	PM	0.947	E	0.991	E	0.044	YES	0.896	D	-0.051	NO
9. Cross Creek Rd & Civic Center Way [b]	AM			18.0	C						
	PM			39.8	E						
Cross Creek Rd & Civic Center Way [c]	AM	0.589	A	0.648	B	0.059	NO	[d]			
	PM	0.755	C	0.864	D	0.109	YES	[d]			

Note:  
 [a] Intersection is controlled by stop signs on all approaches. Value shown represents average vehicle delay (seconds) for the intersection.  
 [b] Intersection is controlled by stop signs on the minor approaches. Value shown represents average vehicle delay (seconds) for the most constrained approach.  
 [c] Intersection is analyzed as Signalized to determine project impacts.  
 [d] No feasible mitigation possible.

**TABLE 10  
FUTURE CONDITIONS SATURDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE**

Intersection	Peak Hour	Cumulative Base		Cumulative Plus Project				Cumulative Plus Project w/Mitigation			
		V/C or Delay	LOS	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact
1. Kanan Dume Road & Pacific Coast Highway	MID	0.817	D	0.824	D	0.007	NO				
2. Malibu Canyon Road & Pacific Coast Highway	MID	0.815	D	0.827	D	0.012	NO				
3. Webb Way & Pacific Coast Highway	MID	0.914	E	0.949	E	0.035	YES	0.871	D	-0.043	NO
4. Cross Creek Road & Pacific Coast Highway	MID	1.069	F	1.126	F	0.057	YES	0.988	E	-0.081	NO
5. Las Flores Canyon Road & Pacific Coast Highway	MID	0.829	D	0.842	D	0.013	NO				
6. Topanga Canyon Boulevard & Pacific Coast Highway	MID	0.765	C	0.769	C	0.004	NO				
7. Malibu Canyon Road & Civic Center Way	MID	0.649	B	0.664	B	0.015	NO				
8. Webb Way & Civic Center Way [a]	MID	22.2	C	24.4	C	0.039	NO	0.554	A	-0.050	NO
Webb Way & Civic Center Way [c]	MID	0.604	B	0.643	B	0.039	NO				
9. Cross Creek Rd & Civic Center Way [b]	MID	0.660	B	22.3	C	0.101	NO				
Cross Creek Rd & Civic Center Way [c]	MID	0.660	B	0.761	C	0.101	NO				

**Note:**

- [a] Intersection is controlled by stop signs on all approaches. Value shown represents average vehicle delay (seconds) for the intersection.
- [b] Intersection is controlled by stop signs on the minor approaches. Value shown represents average vehicle delay (seconds) for the most constrained approach.
- [c] Intersection is analyzed as Signalized to determine project impacts.

## **CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS**

The next step in the analysis was to assess future conditions with the addition of project traffic. The results of the analysis summarized in Table 9 indicate the same eight intersections are projected to operate at LOS D or worse with the addition of project traffic during the weekday peak hours. As indicated in Table 10, the addition of project traffic would result in the same five intersections operating at LOS D or worse during the Saturday midday peak hours in the cumulative plus project scenario as under the cumulative base scenario.

## **POTENTIAL PROJECT IMPACTS**

The next step in the impact analysis was the application of the significance criteria from the City of Malibu at the eight intersections located in the city and the application of the County of Los Angeles criteria for the one intersection located in the county. This step identified the locations projected to be significantly impacted by project traffic.

The results of the analysis indicate that proposed project for Malibu La Paz would significantly impact five of the nine analyzed intersections and the analyzed roadway segment. The impacted locations are:

- Malibu Canyon Road & PCH (weekday morning and afternoon)
- Webb Way & PCH (weekday afternoon and Saturday midday)
- Cross Creek Road & PCH (weekday morning and afternoon and Saturday midday)
- Webb Way & Civic Center Way (weekday afternoon only)
- Cross Creek Road & Civic Center Way (weekday afternoon only)
- Segment of Malibu Canyon Road between the Hughes Research Lab and Piuma Road (weekday morning and afternoon)

Analysis of the segment of Malibu Canyon Road between the Hughes Research Lab and Piuma Road shows that it would be significantly impacted by project traffic in the morning and afternoon peak hours, as the level of project-related increase would exceed the identified 1% threshold.

## PROPOSED MITIGATION MEASURES

Mitigation measures have been identified where feasible for each of the intersections potentially impacted by the addition of traffic from the Malibu La Paz project. The development of mitigation measures was limited to those that were considered physically feasible and could be implemented without the acquisition of additional right-of-way. The following improvements satisfy these criteria and are proposed as measures to mitigate the potential project impacts identified above. Lane configuration diagrams of these mitigations are presented in Appendix A:

- ✓ • Malibu Canyon Road & PCH: No feasible mitigation was identified for this intersection.
- ① • Webb Way & PCH: Mitigating project impacts at the intersection of Webb Way & Pacific Coast Highway would entail restriping and widening Webb Way between Pacific Coast Highway and Civic Center Way to provide a six-lane cross section with three lanes in each direction. The northbound departure currently provides two travel lanes and widening along the east side of Webb Way north of PCH would be necessary to accommodate the additional northbound lane. The widening of Webb Way to provide a six-lane cross section would increase the storage capacity on Webb Way to minimize the potential for overflow conditions.

The addition of dual left-turn lanes to the eastbound approach on Pacific Coast Highway is also recommended; this would entail narrowing the raised center median. The existing travel lanes on PCH at this intersection are substandard (i.e. less than 12 feet wide). This mitigation can fit within the existing traveled way with substandard lane widths (less than 12 feet); the resulting lane configuration would consist of a raised median, an 11- and 10-foot left-turn lane, one 11-foot through lane, two 10-foot through lanes and one 11-foot right-turn lane. Shifting the east and west legs of the intersection (approach and departure) several feet to the north would allow the use of standard width lanes with this mitigation.

- ② • Cross Creek Road & PCH: The impact of project traffic on the intersection of Cross Creek Road & Pacific Coast Highway could be mitigated by the addition of a right-turn lane westbound on Pacific Coast Highway. This mitigation would improve the traffic movement along westbound Pacific Coast Highway.

Sufficient right-of-way exists on Pacific Coast Highway to accommodate the proposed westbound right-turn lane at Cross Creek Road. The existing roadway, however, is not centered within the existing right-of-way. In order to implement a new westbound right-turn lane at this location, the roadway centerline must be shifted to the south as Pacific Coast Highway passes through the Cross Creek Road intersection. The mitigation would result in the loss of approximately 12 on-street parking spaces on the shoulder of the south side of PCH west of Cross Creek. It would also result in a substandard 11-foot westbound left-turn lane on PCH at Cross Creek Road, which would require Caltrans approval.

③

- Webb Way & Civic Center Way: Mitigating the project impact would entail installing a new traffic signal and widening Webb Way to a six-lane cross section south of the intersection with Civic Center Way. The northbound approach and the eastbound approach would each be restriped to include one left-turn lane, one through lane, and one right-turn lane. The southbound approach would be widened to provide one left-turn lane and one shared through/right lane. The intersection would be restriped to accommodate the new lanes. Widening the east side of Webb Way between PCH and Civic Center Way would be necessary for the proposed six-lane cross section. Results of the signal warrant analysis are provided in Appendix C.
- ✓ • Cross Creek Road & Civic Center Way: No feasible mitigation was identified for this intersection. While a physically feasible mitigation is possible for this intersection, there are overriding considerations preventing physical mitigations. The Malibu City Council adopted the Cross Creek Road Improvement Project in September 2004, under which the intersection of Cross Creek Road will be stop-controlled and narrowed to a single lane on all approaches. Providing additional traffic capacity at this intersection is considered to be undesirable by the City Council.
- Malibu Canyon Road between the Hughes Research Lab and Piuma Road - No feasible mitigation has been identified for this roadway. This two-lane segment of Malibu Canyon Road is designated as a major highway on the Los Angeles County Master Plan of Highways, with a standard 100-foot right-of-way. The actual right-of-way on this segment of Malibu Canyon Road is predominantly 80 feet. Because the roadway is located on the wall of a steep canyon between Malibu Creek and the adjacent mountainside, physical conditions in this area limit the potential for capacity enhancements (i.e., widening to four lanes). For these reasons, no mitigation appears feasible.

Based on requests from the City of Malibu, it is expected that a "fair share" district would be established in the Civic Center area. This requires the applicant to contribute their fair share portion of mitigation costs to the city; in turn, these funds are used in conjunction with other funds collected from previously approved and other development projects in the City of Malibu. Ultimately, the fair share zone would prevent over-mitigation of the street network.

**EFFECTIVENESS OF PROPOSED MITIGATION MEASURES**

The effectiveness of the proposed improvements described above was analyzed at each of the significantly impacted locations using the same methodology used in the impact analysis. The results of the analysis in Table 9 indicates that the proposed improvements would mitigate project impacts at three of the five locations identified in the analysis of the weekday cumulative plus project conditions. These intersections include: Webb Way & PCH, Cross Creek Road & PCH, and Webb Way & Civic Center Way.

Table 10 indicates that the proposed improvements would mitigate project impacts at the intersections of Webb Way & PCH and Cross Creek Road & PCH during Saturday cumulative plus project conditions.

No feasible mitigation measures were identified at the intersection of Malibu Canyon Road & PCH. Because PCH is currently built out, no physical improvements can be implemented without acquiring additional right-of-way. No feasible mitigation measures were identified for Malibu Canyon Road, due to physical constraints.

## V. ALTERNATIVE PROJECT ANALYSIS

As discussed in Chapter I, two buildout scenarios exist for this project. Differences between the two scenarios include the total number and size of buildings. The Alternative Project proposes to provide a total of 98,000 square feet of commercial floor space, resulting in a smaller project when compared to the Preferred Alternative.

### Alternative Project Trip Generation Estimates

Due to the reduced size of the project, the trip generation estimates for the Alternative Project have been adjusted accordingly. The methods for estimating the project trip generation and project trip credits are discussed in Chapter III; the same methods were applied to the Alternative Project trip generation estimates. As shown in Table 11, the Alternative Project is expected to generate approximately 2,450 net new weekday trips, including 90 trips for the a.m. peak hour and approximately 190 trips in the p.m. peak hour. Saturday trip generation is estimated to be approximately 2,170 net new trips, including 185 midday peak hour trips. The weekday and Saturday peak hour Alternative Project trips are depicted in Figures 14 and 15. These trip estimates were then added to the cumulative base conditions (Figures 8 & 9), creating the cumulative plus Alternative Project scenario. Figures 16 and 17 display the resulting weekday and Saturday cumulative plus Alternative Project volumes, respectively.

### Alternative Project Impact Analysis

The resulting traffic volumes were assigned to the surrounding street system and analyzed in the same manner as the Preferred Project. Tables 12 and 13 summarize the analysis of the weekday and Saturday cumulative plus Alternative Project scenarios. Under weekday conditions, eight of the nine analyzed intersections are expected to operate at LOS D or worse; five of the intersections are expected to operate at LOS D or worse under Saturday

TABLE 11  
ALTERNATIVE PROJECT TRIP GENERATION ESTIMATES

Land Use	Size	Weekday						Saturday					
		Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips		Daily Trips	Mid-day Trips					
			In	Out	In	Out		In	Out	Total			
<b>Preferred Project</b>													
General Office	20,890 sf	399	47	7	54	10	49	59	63	6	5	11	
Specialty Retail	77,110 sf	3,136	34	22	56	86	114	200	3,242	140	128	268	
35% Retail Pass By		(1,098)	(12)	(8)	(19)	(30)	(40)	(70)	(1,135)	(49)	(45)	(94)	
<b>TOTAL</b>		2,437	69	21	90	66	123	188	2,170	97	83	185	

Trip Rates: (General Office)

Weekday Daily:  $\text{Ln}(T) = 0.768 \text{Ln}(X) + 3.654$

Weekday AM Peak Hour:  $\text{Ln}(T) = 0.797 \text{Ln}(X) + 1.558$

Weekday PM Peak Hour:  $\text{Ln}(T) = 0.737 \text{Ln}(X) + 1.831$

Saturday Daily:  $T = 2.136(X) + 18.473$

Saturday Mid-day Peak Hour:  $\text{Ln}(T) = 0.814 \text{Ln}(X) - 0.115$

Notes:

[a] - No rate available for specialty retail (ITE 814) during AM and Saturday midday peak hours. The proportional rate of shopping center (ITE 820) was applied. A comparison of trip rates indicates that specialty retails generates approximately 70% of shopping center trips; therefore this proportion was applied to the shopping center rates and used to estimate trip generation for specialty retail.

Source: Trip Generation, 6th Edition; ITE, 1997.





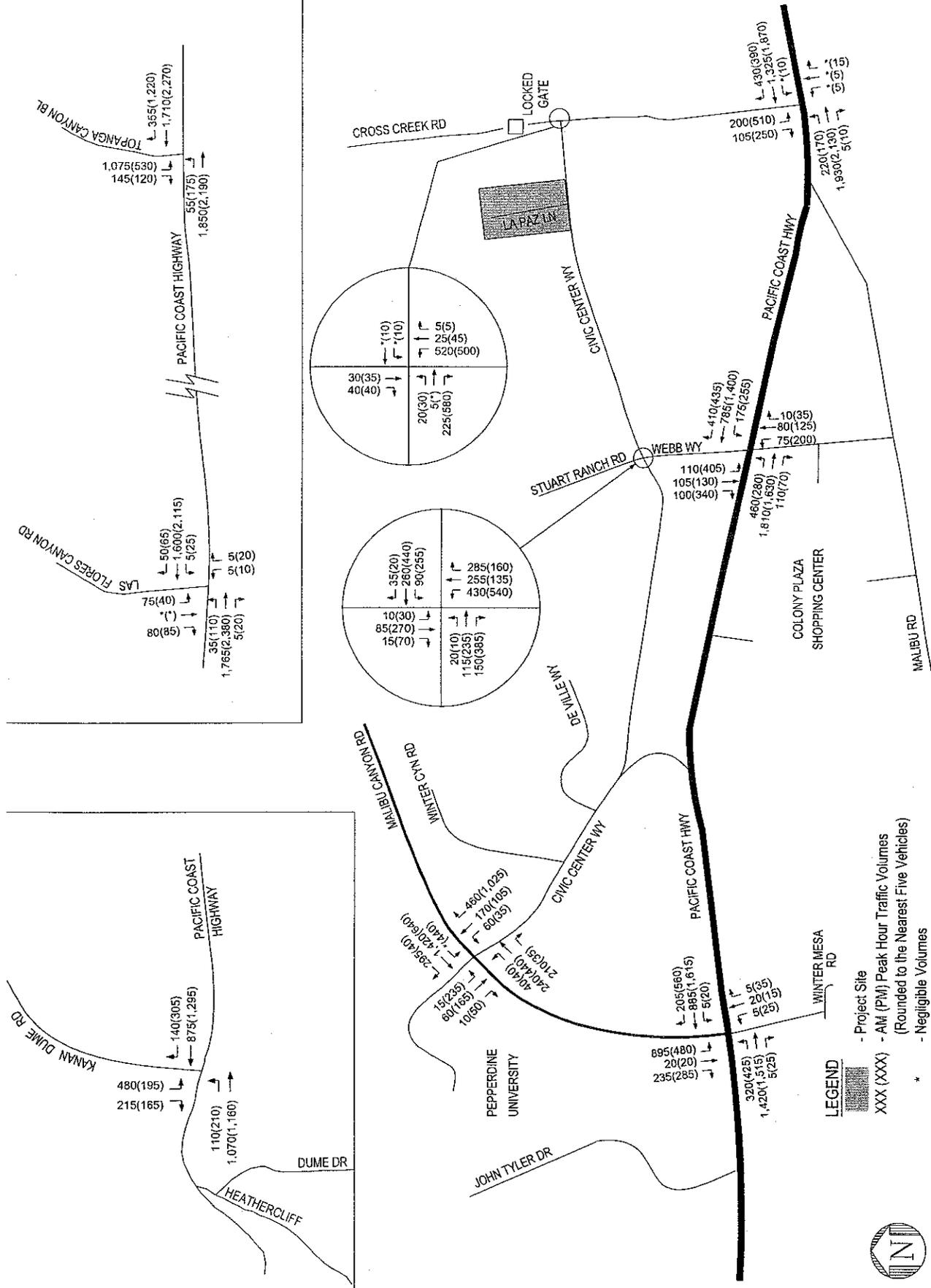


FIGURE 16 CUMULATIVE PLUS ALTERNATIVE PROJECT WEEKDAY PEAK HOUR TRAFFIC VOLUMES



TABLE 12  
FUTURE ALTERNATIVE CONDITIONS WEEKDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE

Intersection	Peak Hour	Cumulative Base		Cumulative Plus Alternative Project			Cumulative Plus Alternative w/Mitigation				
		V/C or Delay	LOS	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact
1. Kanan Dume Road & Pacific Coast Highway	AM	0.557	A	0.560	A	0.003	NO				
	PM	0.632	B	0.642	B	0.010	NO				
2. Malibu Canyon Road & Pacific Coast Highway	AM	0.841	D	0.855	D	0.014	NO				
	PM	0.929	E	0.946	E	0.017	NO				
3. Webb Way & Pacific Coast Highway	AM	0.680	B	0.703	C	0.023	NO	0.654	B	-0.026	NO
	PM	0.951	E	0.977	E	0.026	YES	0.911	E	-0.040	NO
4. Cross Creek Road & Pacific Coast Highway	AM	0.774	C	0.796	C	0.022	NO	0.715	C	-0.059	NO
	PM	1.002	F	1.049	F	0.047	YES	0.927	E	-0.075	NO
5. Las Flores Canyon Road & Pacific Coast Highway	AM	0.685	B	0.687	B	0.002	NO				
	PM	0.873	D	0.885	D	0.012	NO				
6. Topanga Canyon Boulevard & Pacific Coast Highway	AM	1.029	F	1.029	F	0.000	NO				
	PM	0.942	E	0.946	E	0.004	NO				
7. Malibu Canyon Road & Civic Center Way	AM	0.748	C	0.752	C	0.004	NO				
	PM	0.874	D	0.884	D	0.010	NO				
8. Webb Way & Civic Center Way [a]	AM	85.1	F	84.8	F						
	PM	159.0	F	158.0	F						
Webb Way & Civic Center Way [c]	AM	0.730	C	0.733	C	0.003	NO	0.559	A	-0.171	NO
	PM	0.947	E	0.982	E	0.035	YES	0.886	D	-0.061	NO
9. Cross Creek Rd & Civic Center Way [b]	AM			16.2	C						
	PM			34.5	D						
Cross Creek Rd & Civic Center Way [c]	AM	0.589	A	0.626	B	0.037	NO	[d]			
	PM	0.755	C	0.844	D	0.089	YES	[d]			

Note:

- [a] Intersection is controlled by stop signs on all approaches. Value shown represents average vehicle delay (seconds) for the intersection.
- [b] Intersection is controlled by stop signs on the minor approaches. Value shown represents average vehicle delay (seconds) for the most constrained approach.
- [c] Intersection is analyzed as Signalized to determine project impacts.
- [d] No feasible mitigation.

**TABLE 13  
FUTURE ALTERNATIVE CONDITIONS SATURDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE**

Intersection	Peak Hour	Cumulative Base		Cumulative Plus Alternative Project				Cumulative Plus Alternative w/Mitigation			
		V/C or Delay	LOS	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact	V/C or Delay	LOS	Project Increase in V/C or Delay	Significant Project Impact
1. Kanan Dume Road & Pacific Coast Highway	MID	0.817	D	0.824	D	0.007	NO				
2. Malibu Canyon Road & Pacific Coast Highway	MID	0.815	D	0.827	D	0.012	NO				
3. Webb Way & Pacific Coast Highway	MID	0.914	E	0.948	E	0.034	YES	0.871	D	-0.043	NO
4. Cross Creek Road & Pacific Coast Highway	MID	1.069	F	1.123	F	0.054	YES	0.986	E	-0.083	NO
5. Las Flores Canyon Road & Pacific Coast Highway	MID	0.829	D	0.84	D	0.011	NO				
6. Topanga Canyon Boulevard & Pacific Coast Highway	MID	0.765	C	0.769	C	0.004	NO				
7. Malibu Canyon Road & Civic Center Way	MID	0.663	B	0.672	B	0.009	NO				
8. Webb Way & Civic Center Way [a]	MID	22.2	C	24.3	C	0.038	NO	0.553	A	-0.051	NO
Webb Way & Civic Center Way [c]	MID	0.604	B	0.642	B	0.038	NO				
9. Cross Creek Rd & Civic Center Way [b]	MID	0.660	B	21.8	C	0.097	NO				
Cross Creek Rd & Civic Center Way [c]	MID	0.660	B	0.757	C	0.097	NO				

**Note:**

- [a] Intersection is controlled by stop signs on all approaches. Value shown represents average vehicle delay (seconds) for the intersection.
- [b] Intersection is controlled by stop signs on the minor approaches. Value shown represents average vehicle delay (seconds) for the most constrained approach.
- [c] Intersection is analyzed as Signalized to determine project impacts.

conditions. The same number of intersections is projected to operate poorly under these conditions as with the Preferred Project.

The cumulative plus Alternative Project forecast for the analyzed Malibu Canyon Road segment is approximately 2,222 trips in the a.m. peak hour (0.966 v/c, LOS E) and 2,528 in the p.m. peak hour (1.011 v/c, LOS F). Thus, the project would increase the cumulative base traffic volumes by 0.7% in the a.m. period peak hour (15 vehicles) and by 1.4% in the p.m. period peak hour (36 vehicles).

With the Alternative Project, four significant intersection impacts and one roadway segment impact are expected. This represents a reduction of one significantly impacted intersection, Malibu Canyon Road & PCH, when compared to the Preferred Project. The impacted locations are as follows:

- Webb Way & PCH (weekday afternoon and Saturday midday)
- Cross Creek Road & PCH (weekday morning and afternoon and Saturday midday)
- Webb Way & Civic Center Way (weekday afternoon only)
- Cross Creek Road & Civic Center Way (weekday afternoon only)
- Segment of Malibu Canyon Road between the Hughes Research Lab and Piuma Road (weekday afternoon only)

The same mitigation measures proposed in Chapter IV are proposed for the cumulative plus Alternative Project conditions. As indicated in Tables 12 and 13, the mitigation measures would fully mitigate three of the four projected intersection impacts with the Project Alternative, but no feasible mitigation has been identified for the roadway segment. The Malibu City Council's adoption of the Cross Creek Road Improvement Project in September 2004 prevents mitigation at the intersection of Cross Creek Road & Civic Center Way.

## VI. CONGESTION MANAGEMENT ANALYSIS

Intersection analyses complying with Los Angeles County 2004 Congestion Management Program (CMP) requirements were also completed. The Transportation Impact Analysis (TIA) section of the CMP requirements describes the threshold criteria used to identify potential CMP monitoring locations that needed to be included in the traffic analysis. Based on the CMP criteria, the following locations need analysis:

- All CMP arterial monitoring intersections, including monitored freeway on- or off-ramp intersections, where the proposed project would add 50 or more trips during either the a.m. or p.m. weekday peak hours (of adjacent street traffic).
- All mainline freeway monitoring locations where the project would add 150 or more trips, in either direction, during either the weekday a.m. or p.m. peak hours.

Based on the threshold criteria of the CMP, it was determined that the following CMP monitoring locations need analysis in the TIA: Kanan Dume Road & PCH, Malibu Canyon Road & PCH, Las Flores Canyon Road & PCH, and Topanga Canyon Boulevard & PCH. No freeway monitoring locations satisfied the CMP criteria for analysis.

### **CMP SIGNIFICANT TRAFFIC IMPACT CRITERIA**

The MTA has established CMP TIA significance criteria indicating that a significant impact occurs when the proposed project's traffic increases demand at a CMP freeway facility or arterial monitoring location by 2% of capacity (i.e., V/C increase  $\geq$  or equal to 0.02) and the location is projected to operate at LOS F (V/C  $>$  1.00). Under this criterion, a project would not be considered to have a significant impact if the analyzed facility is operating at LOS E or better after the addition of project traffic. If the facility is operating at LOS F with project traffic, however, and the incremental change in the V/C ratio caused by the project is 0.02 or greater, the project would be considered to have a significant impact.

The arterial intersection levels of service (LOS) were determined using standards established by the MTA indicating that the V/C ratio should be computed using a capacity of 1600 per intersection plus 0.10 for vehicle clearance, as well as the LOS definitions provided in Table 2.

### **CMP ARTERIAL INTERSECTION ANALYSIS**

The cumulative plus project weekday scenario was used to conduct the CMP arterial analysis. The results of the CMP impact analysis summarized in Table 14 indicate that the proposed project would not create significant CMP arterial intersection impacts.

**TABLE 14  
CMP ARTERIAL INTERSECTION ANALYSIS**

Intersection	Peak Hour	Cumulative Base		Cumulative Plus Preferred Project			Significant Project Impact
		V/C or Delay	LOS	V/C or Delay	LOS	Project Increase in V/C or Delay	
1. Kanan Dume Road & Pacific Coast Highway	AM	0.557	A	0.561	A	0.004	NO
	PM	0.632	B	0.646	B	0.014	NO
2. Malibu Canyon Road & Pacific Coast Highway	AM	0.841	D	0.864	D	0.023	NO
	PM	0.929	E	0.953	E	0.024	NO
5. Las Flores Canyon Road & Pacific Coast Highway	AM	0.685	B	0.689	B	0.004	NO
	PM	0.873	D	0.890	D	0.017	NO
6. Topanga Canyon Boulevard & Pacific Coast Highway	AM	1.029	F	1.030	F	0.001	NO
	PM	0.942	E	0.948	E	0.006	NO

## VII. SUMMARY AND CONCLUSIONS

This study was undertaken to analyze the potential traffic impacts of the Malibu La Paz project proposed for 3700 La Paz Lane.

The following summarizes the results of this analysis:

- The project proposes to develop a total of 77,110 square feet of retail space and 53,825 square feet of office space on the site.
- A total of nine intersections were analyzed for this project as determined by the City of Malibu. Of these, eight are located in the City of Malibu and one, the intersection of Topanga Canyon Boulevard and Pacific Coast Highway, is located in the County of Los Angeles. Seven of the intersections are signalized and two are stop-controlled. Analysis of the two-lane roadway between the Hughes Research Lab and Piuma Road was also conducted.
- Eight of the nine intersections during the weekday morning peak hour and five of the nine intersections during the weekday afternoon peak hour currently operate at LOS C or better. During the Saturday midday peak hour, seven of nine intersections currently operate at LOS C or better.
- The project is expected to generate a net increase in traffic of approximately 2,850 weekday daily trips, including 150 weekday morning peak hour trips, and approximately 250 weekday afternoon peak hour trips. Saturday net trip generation is estimated at approximately 2,250 daily trips, including approximately 200 midday peak hour trips.
- Under cumulative base conditions, eight of the nine analyzed intersections are projected to operate at LOS D or worse during the weekday morning or afternoon peak hour, or both. Five of the nine analyzed intersections are projected to operate at LOS D or worse during the Saturday midday peak hour.
- Significant impacts are projected at five of the nine analyzed intersections and at the analyzed roadway segment under the cumulative plus project conditions.
- The proposed roadway improvements would mitigate the impacts at all but two of the significantly impacted intersections and one roadway segment for all analyzed time periods. Due to physical constraints, no feasible mitigation measure has been identified for the intersection of Malibu Canyon Road & PCH or the segment of Malibu Canyon Road between the Hughes Research Lab and Piuma Road. The Malibu City Council's adoption of the Cross Creek Road Improvement Project in September 2004 prevents mitigation at the intersection of Cross Creek Road & Civic Center Way.

- The City of Malibu has requested that a "fair-share" mitigation district be established in the Civic Center area. This would require developers to contribute a fair share of mitigation fees into a fund for future implementation.
- An Alternative Project scenario was evaluated, which would develop a total of 77,110 square feet of retail space and 20,890 square feet of office space on the site. The Alternative Project would significantly impact four study intersections (one less than the Preferred Project) and one roadway segment. Measures were developed that would fully mitigate three of the four intersection impacts; Cross Creek Road & Civic Center Way cannot be mitigated. No feasible mitigation was identified for the impacted roadway segment.
- Analyses conducted to satisfy the Los Angeles County Congestion Management Program (CMP) determined that neither the Preferred Project nor the Alternative Project would significantly impact any of the four CMP arterial monitoring locations in the vicinity of the project site.