

Appendix B

**Traffic Impact Study**

**Prepared by Kaku Associates, Inc. (2002)**

**TRAFFIC STUDY  
FOR  
CABRILLO MARINA PHASE II**

NOVEMBER 2002

PREPARED FOR  
**PORT OF LOS ANGELES**

PREPARED BY

**KAKU ASSOCIATES**  
*A Corporation*

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FOR  
CABRILLO MARINA PHASE II**

November 2002

Prepared for:

**PORT OF LOS ANGELES**

Prepared by:

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## TABLE OF CONTENTS

I.	Introduction .....	1
	Project Description .....	1
	Study Scope .....	1
	Organization of Report .....	4
II.	Existing Conditions .....	5
	Study Area .....	5
	Existing Street System .....	5
	Existing Traffic Volumes and Levels of Service.....	7
	Existing Transit Service .....	11
III.	Future Year 2008 Traffic Projections.....	14
	Cumulative Base Traffic Projections .....	14
	Project Traffic Volumes .....	24
	Cumulative Plus Project Traffic Projections.....	30
IV.	Future Year 2008 Traffic Impact Analysis .....	33
	Significant Traffic Impact Criteria.....	33
	Cumulative Base Traffic Conditions .....	34
	Cumulative Plus Project Traffic Conditions.....	34
	Project Impacts.....	34
	Mitigation Measures.....	36
	Effectiveness of Mitigation Measures .....	37
V.	Site Access & Parking Analysis .....	39
	Site Access .....	39
	Alternative Designs of Miner Street & 22 <sup>nd</sup> Street.....	40
	Pedestrian Circulation.....	41
	Parking Analysis .....	42
VI.	Summary and Conclusions.....	44
	Appendix A: Intersection Lane Configurations	
	Appendix B: Traffic Count Data	
	Appendix C: Intersection Level of Service Worksheets	

## LIST OF FIGURES

### NO.

1	Location of Analyzed Intersections .....	2
2	Site Plan .....	3
3	Existing Weekday Peak Hour Traffic Volumes.....	8
4	Existing Weekend Peak Hour Traffic Volumes.....	9
5	Existing Transit Lines.....	13
6	Future Weekday Peak Hour Traffic Volumes, Existing Plus Ambient Growth.....	15
7	Future Weekend Peak Hour Traffic Volumes, Existing Plus Ambient Growth .....	16
8	Location of Related Projects.....	19
9	Weekday Cumulative Project Only Peak Hour Traffic Volumes.....	20
10	Weekend Cumulative Project Only Peak Hour Traffic Volumes.....	21
11	Weekday Cumulative Base Peak Hour Traffic Volumes .....	22
12	Weekend Cumulative Base Peak Hour Traffic Volumes .....	23
13	Project Trip Distribution .....	27
14	Weekday Project Only Peak Hour Traffic Volumes.....	28
15	Weekend Project Only Peak Hour Traffic Volumes .....	29
16	Weekday Cumulative Plus Project Peak Hour Traffic Volumes .....	31
17	Weekend Cumulative Plus Project Peak Hour Traffic Volumes.....	32

## LIST OF TABLES

### NO.

1	Existing Surface Street Characteristics .....	6
2	Level of Service Definitions for Signalized Intersections .....	10
3	Intersections Level of Service Analysis – Existing Conditions (Year 2002).....	12
4	Cumulative Project Trip Generation .....	18
5	Project Trip Generation Rates .....	25
6	Project Trip Generation .....	26
7	Intersection Levels of Service Analysis – Future Conditions (Year 2008) .....	35
8	Intersection Levels of Service Analysis – Future Conditions with Mitigation (Year 2008).....	38
9	Parking Requirement and Proposed Supply .....	43

## I. INTRODUCTION

This report documents the assumptions, methodologies, and findings of a study conducted by Kaku Associates, Inc., to evaluate the potential traffic impacts of the proposed Cabrillo Marina Phase II project located in the southeastern area of San Pedro, California. A similar project proposed on this site was the subject of a traffic study and environmental impact report in 1998.<sup>1</sup>

### PROJECT DESCRIPTION

The majority of the Cabrillo Marina Phase II project is located west of Miner Street and south of 22<sup>nd</sup> Street in San Pedro, California. A portion of this project is located north of 22<sup>nd</sup> Street. Figure 1 illustrates the location of the proposed project in relation to the surrounding street system. The proposed re-development of the area would include boat slips, boat storage, retail, restaurants, and offices. The site plan for the project is shown in Figure 2.

### STUDY SCOPE

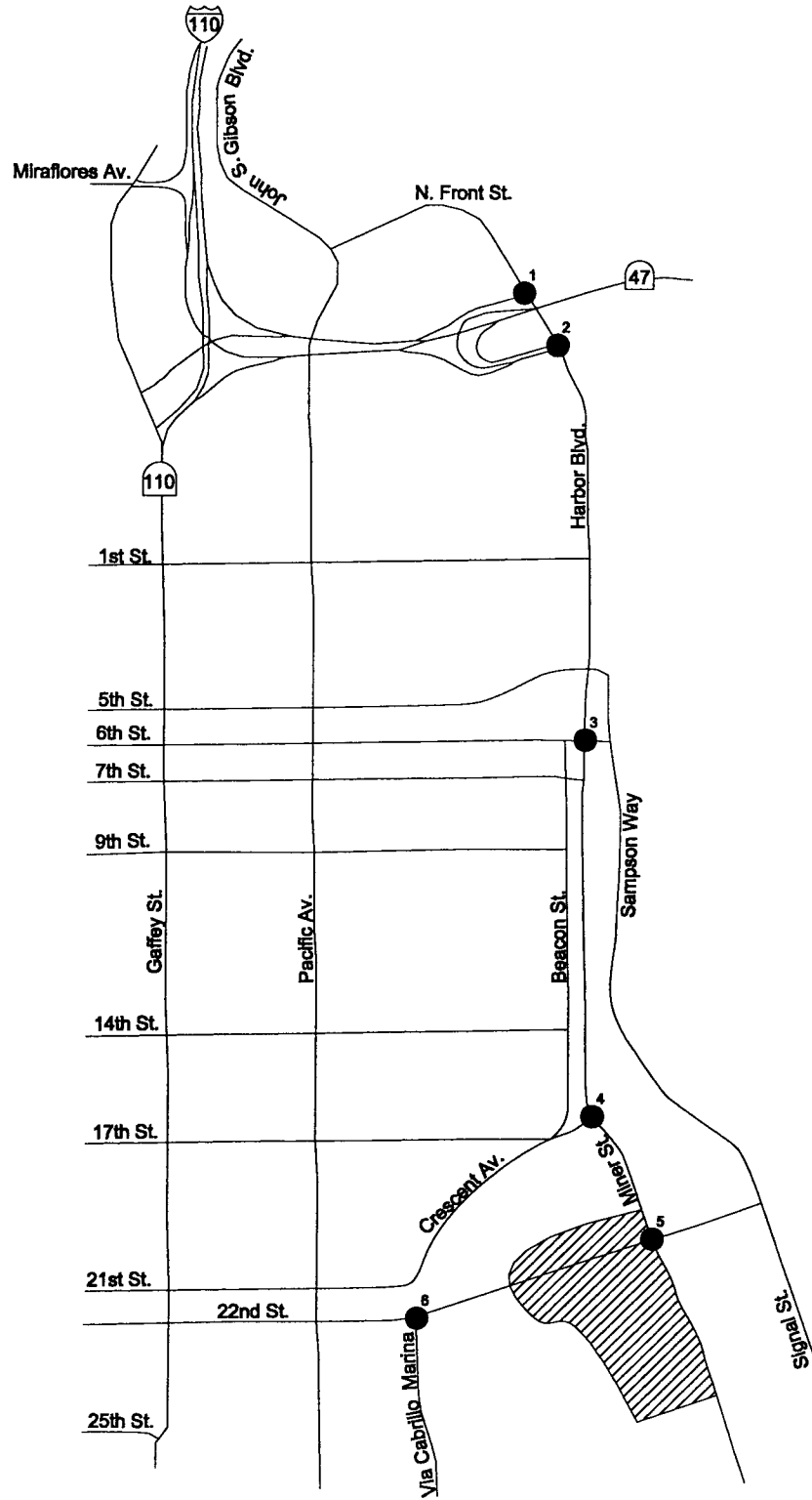
The scope of work for this study was developed in conjunction with the City of Los Angeles Department of Transportation (LADOT). The base assumptions and technical methodologies were discussed as part of the study approach. The study analyzes potential project-generated traffic impacts on the adjacent street system, assuming completion of the project by Year 2008. The analysis of future year traffic forecasts is based on projected conditions in Year 2008 both with and without the addition of the project traffic. The following traffic scenarios have been developed and analyzed as part of this study.

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<sup>1</sup> *Draft Supplemental Environmental Impact Report for the West Channel/Cabrillo Marina Phase II Development Project*, Environmental Management Division, Los Angeles Harbor Department (November, 1998).



NOT TO SCALE



**LEGEND:**

- - Analyzed Intersections
- ▨ - Project Site

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FIGURE 1  
LOCATION OF ANALYZED INTERSECTIONS AND STUDY AREA

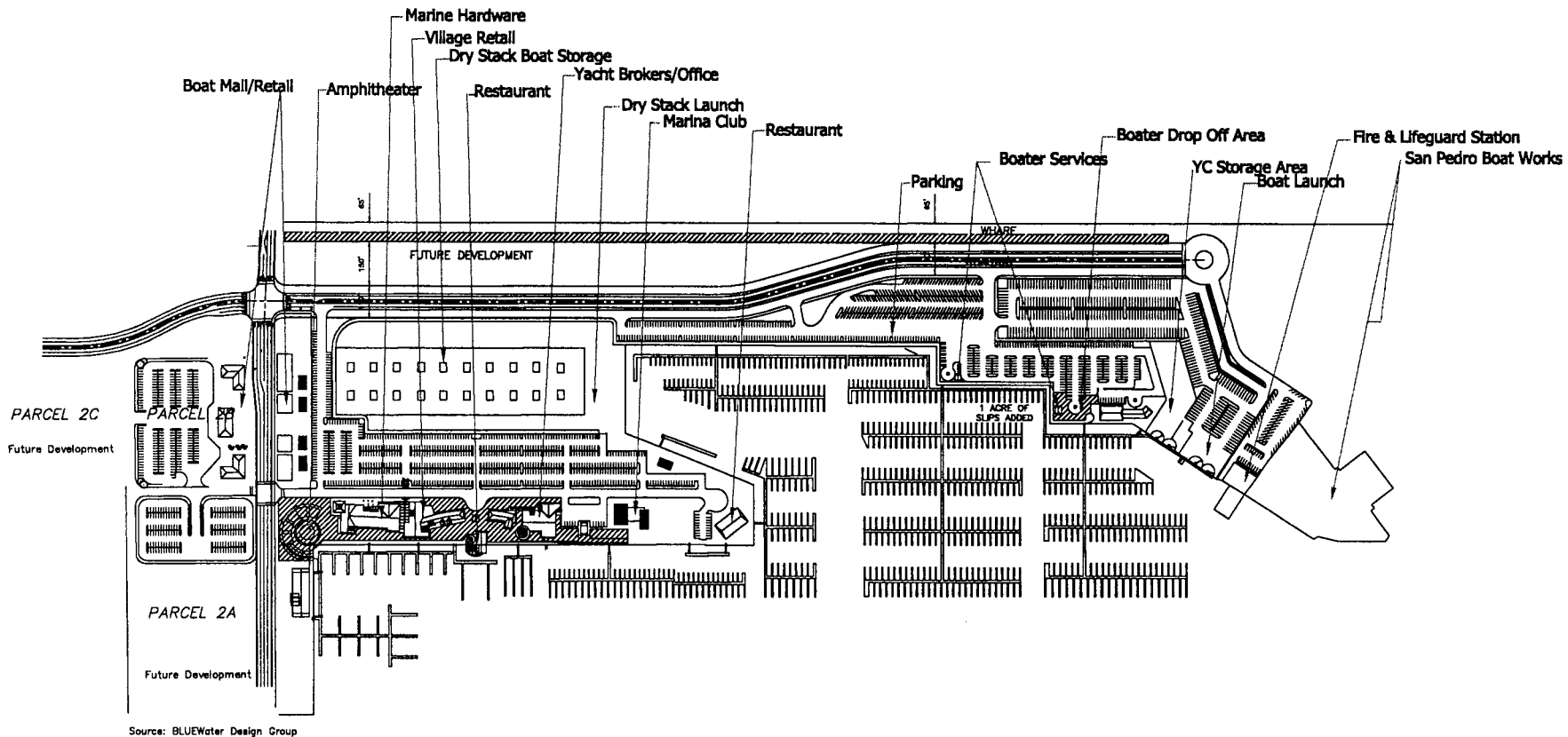


FIGURE 2  
 SITE PLAN



- Existing 2002 Conditions - The analysis of existing traffic conditions provides a basis for the remainder of the study. The existing conditions analysis includes a description of the street system serving the site, current traffic volumes, and an assessment of the operating conditions at these locations.
- Cumulative Base (2008) Conditions - Future traffic conditions without the proposed project will be developed for the year 2008. The objective of this analysis is to project future traffic growth and operating conditions that could be expected to result from regional growth and related projects in the vicinity of the project site by the year 2008.
- Cumulative (2008) Plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under future conditions with the addition of project-generated traffic. The impacts of the proposed project on future traffic operating conditions can then be identified.

LADOT has identified the following six intersections for analysis:

1. Harbor Boulevard & I-110 NB On-Ramp
2. Harbor Boulevard & SR-47 Ramps/Swinford Street
3. Harbor Boulevard & 6<sup>th</sup> Street
4. Harbor Boulevard/Miner Street & Crescent Avenue
5. Miner Street & 22<sup>nd</sup> Street
6. Via Cabrillo Marina & 22<sup>nd</sup> Street

The locations of these six analyzed intersections are illustrated in Figure 1.

## **ORGANIZATION OF REPORT**

This report is divided into six chapters. Chapter I provides an introduction to the study and presents details of the various elements of the study. Chapter II describes the existing conditions in the study area, including an inventory of the streets and highways in the study area, a summary of traffic volumes, and an assessment of the operating conditions of these streets. The methodologies used to develop traffic forecasts for the Cumulative Base and Cumulative Plus Project scenarios and the forecasts themselves are included in Chapter III. Chapter IV presents an assessment of potential project traffic impacts of the proposed project and any proposed mitigation measures that may be needed. Chapter V presents an assessment of vehicular and pedestrian access to the site and of the potential parking impacts of the proposed project. Chapter VI provides the summary of the results. Appendices to this report include details of the technical analysis.

## **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 a description of the study area, an inventory of the local street system in the vicinity of the project site, a review of traffic volumes on these facilities, an assessment of the resultant operating conditions, and the current transit service in the study area. A detailed description of these elements is presented in this chapter.

### **STUDY AREA**

The proposed project is located near the intersection of Miner Street and 22<sup>nd</sup> Street in San Pedro, California. Both streets provide direct access to the site, while regional access is provided by the Harbor Freeway (I-110) and the Terminal Island Freeway (SR-47). The study area for this analysis is located in the area of San Pedro east of Gaffey Street, as shown in Figure 1.

### **EXISTING STREET SYSTEM**

As indicated, both Miner Street and 22<sup>nd</sup> Street provide direct access to the project site. Local access to these streets is provided by Gaffey Street, Pacific Avenue, and Harbor Boulevard. Primary regional access to the site is provided by I-110 and SR-47. Table 1 provides a description of the physical characteristics of all key streets within the study area. Diagrams of the existing lane configurations at each of the six analyzed intersections are illustrated in Appendix A.

**TABLE 1  
EXISTING SURFACE STREET CHARACTERISTICS**

SEGMENT	FROM	TO	NO. LANES		MEDIAN TYPE	PARKING RESTRICTIONS		SPEED LIMIT
			NB/EB	SB/WB		NB/EB	SB/WB	
HARBOR BL	I-110 NB On-Ramp	SR-47 Ramps	2	2	DY	NSAT	NSAT	35
	SR-47 Ramps	Beacon St	2	2	RM	NSAT	NSAT	35
	Beacon St	Santa Cruz St	2	2	RM	NSAT	2 hr 8a-6p	35
	Santa Cruz St	5th St	2	2	RM	PA	PA	35
	5th St	6th St	2	2	RM	NSAT	PA	35
	6th St	7th St	2	2	RM	NSAT	NSAT	35
	7th St	Crescent Ave	2	2	RM	PA	PA	35
22ND ST	Via Cabrillo Way	1/2 way to Miner St	2	2	DY	3hr 10A-10P	NSAT	25
	1/2 way to Miner St	Miner St	2	2	DY	NSAT	NSAT	25
	Miner St	Sampson Way	2	2	DY	NSAT	NSAT	25
	Sampson Way	Signal Pl	2	2	DY	angle - 1 hr	NSAT	25
MINER ST	Crescent Way	22nd St	2	2	DY	NSAT	NSAT	35
	22nd St	end	1	1	SDY	NSAT	NSAT	25
VIA CABRILLO MARINA	22nd St	end	2	2	RM	NSAT	NSAT	25
6TH ST	Centre St	Harbor St	1	1	DY	2 hr 8a-6p	2 hr 8a-6p	25
SAMPSON WY	5th St	6th St	1	1	SDY	2 hr 8a-6p	angle, 2 hr 8a-6p	25
	6th St	Nagoya Wy	1	1	2LT	NSAT	NSAT	25
	Nagoya Wy	Skytower Way St	2	2	DY	NSAT	NSAT	25
	Skytower Way St	Signal Pl	1	1	DY	NSAT	NSAT	25
	Signal Pl	22nd St	2	2	DY	NSAT	NSAT	25
CRESCENT AV	21st St	20th St	1	1	DY	NSAT	PA	35
	20th St	17th St	1	1	SDY	NSAT	PA	35
	17th St	Miner St	1	1	DY	NSAT	NSAT	35

**Notes:**

RM = Raised Median  
 2LT = Dual Left Turn  
 SDY = Single SDYellow  
 DY = Double Yellow  
 UD = Undivided Lane

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

This section presents the existing peak hour turning movement traffic volumes for each of the intersections analyzed in the study, describes the methodology used to assess the traffic conditions at each intersection, and analyzes the resulting operating conditions at each, indicating volume/capacity ratios and levels of service.

### **Existing Traffic Volumes**

Weekday morning and evening peak hour traffic counts, and weekend mid-day peak hour traffic counts, were conducted at the six analyzed intersections and are presented in Appendix B. These weekday and weekend traffic volumes, which are illustrated in Figures 3 and 4 respectively, represent for the purposes of this analysis the Existing 2002 conditions.

### **Level of Service Methodology**

Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow on the street system, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. LOS D is typically recognized as the minimum acceptable level of service in urban areas. Level of service definitions for signalized intersections are provided in Table 2.

Four of the six analyzed intersections are controlled by traffic signals. The intersection of Harbor Boulevard/Miner Street & Crescent Avenue is stop controlled and the intersection of Harbor Boulevard & I-110 NB On-Ramp is uncontrolled. These two intersections were analyzed as signalized intersections for the purpose of evaluating the significance of project-related traffic.

The "Critical Movement Analysis-Planning" (Transportation Research Board, 1980) method of intersection capacity analysis was used to determine the intersection volume to capacity (V/C) ratio and corresponding level of service for the turning movements and intersection characteristics at the signalized intersections. Table 2 defines the ranges of V/C ratios and corresponding levels of service for signalized intersections.

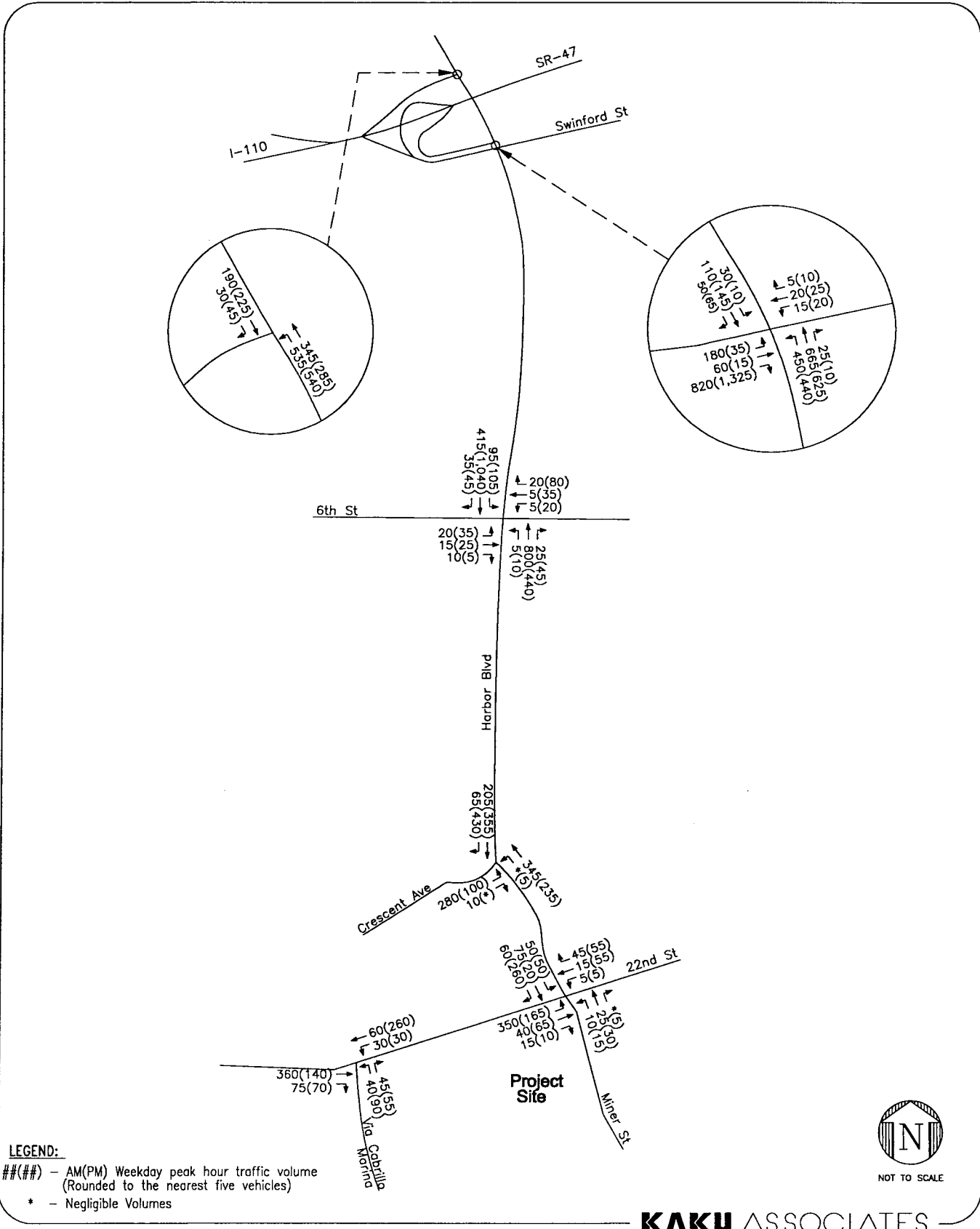


FIGURE 3  
 EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES

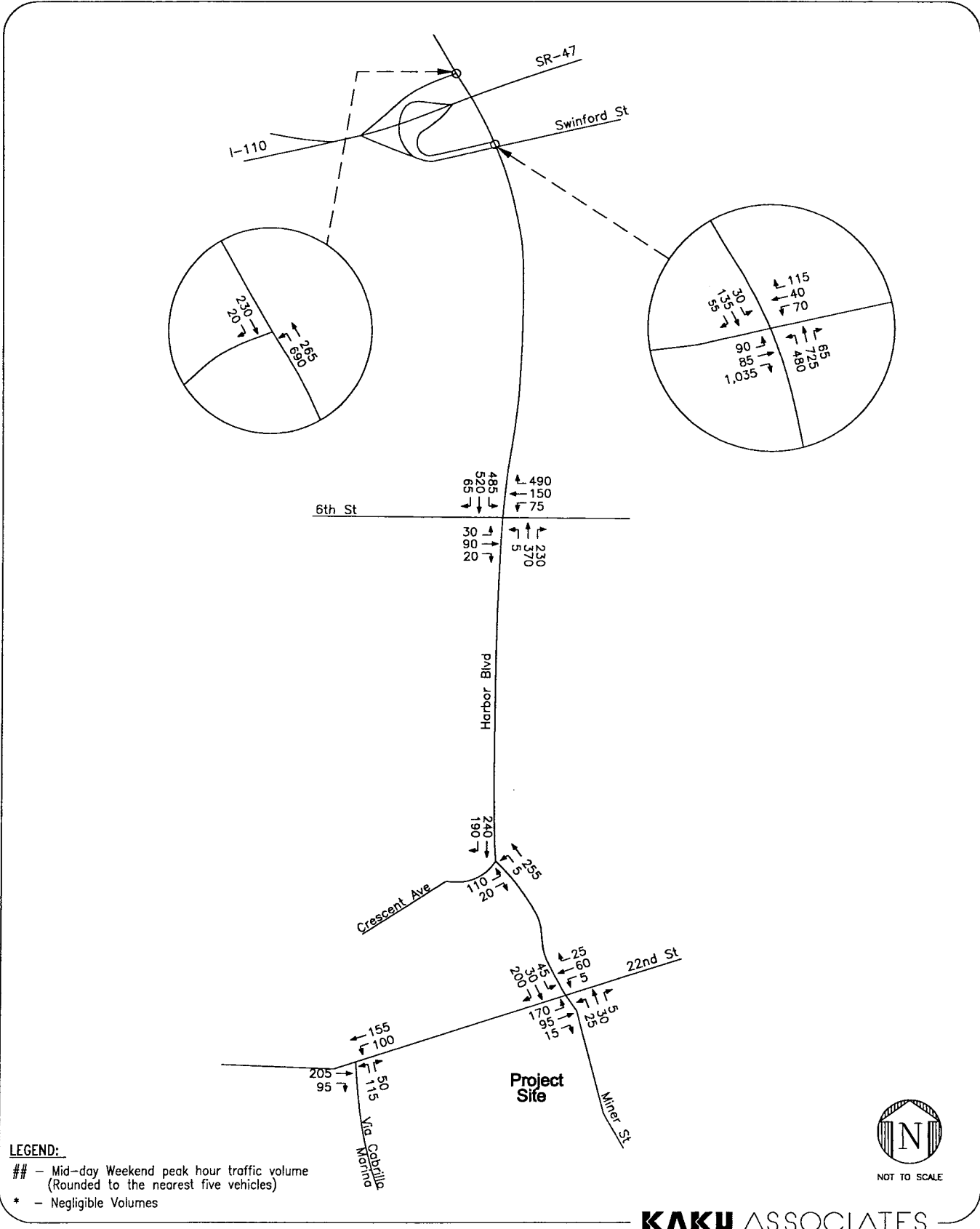


FIGURE 4  
 EXISTING WEEKEND PEAK HOUR TRAFFIC VOLUMES

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

LEVEL OF SERVICE	VOLUME/CAPACITY RATIO (V/C)	DEFINITION
A	$\leq 0.600$	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	$> 0.600 \leq 0.700$	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	$> 0.700 \leq 0.800$	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	$> 0.800 \leq 0.900$	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	$> 0.900 \leq 1.000$	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	$> 1.000$	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersectin approaches. Tremendous delays with continuously increasing queue lengths.

SOURCE: Transportation Research Board, *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*, 1980.

### **Existing Levels of Service**

The traffic volumes presented in Figure 3 and Figure 4 were analyzed using the intersection capacity analysis methodology described above to determine the current operating conditions at the six study intersections.

Table 3 summarizes the results of this analysis, indicating the existing weekday morning and evening peak hour V/C ratio, weekend mid-day peak hour V/C ratio, and corresponding level of service at each analyzed intersection. As indicated in the table, all of the intersections are currently operating at an acceptable level of service, i.e., LOS D or better, during all analyzed time periods.

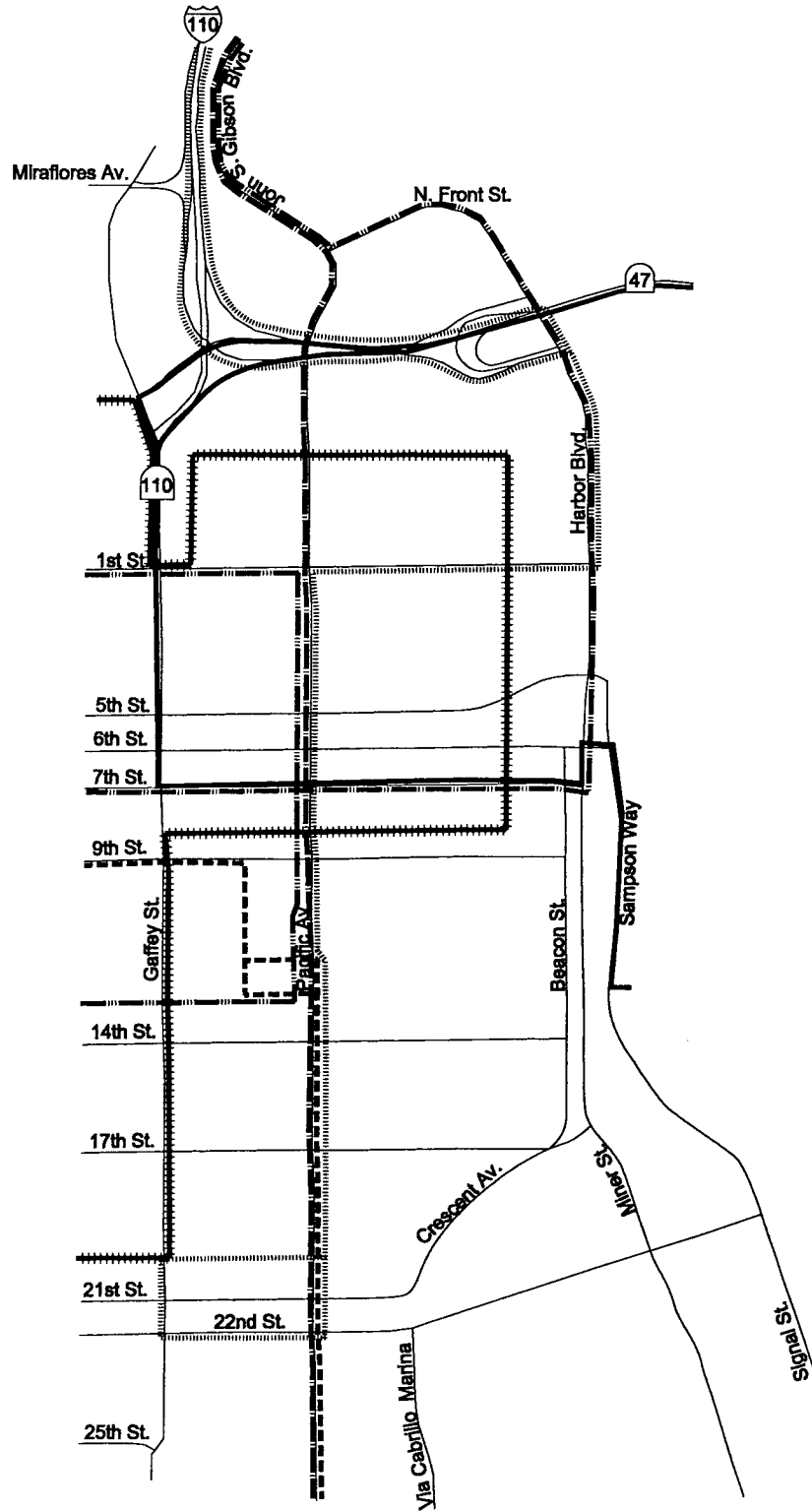
### **EXISTING TRANSIT SERVICE**

Several public transit agencies, including the Los Angeles Department of Transportation (LADOT), the Metropolitan Transit Authority (MTA), and the Municipal Area Express (MX), currently provide bus service within the study area and within the vicinity of the project. The travel routes of the transit lines are illustrated in Figure 5.



**TABLE 3**  
**INTERSECTION LEVEL OF SERVICE ANALYSIS**  
**EXISTING CONDITIONS (YEAR 2002)**

Intersection	Weekday & Weekend Peak Hour		
	Peak Hour	V/C	LOS
1. Harbor Bl & I-110 NB On-Ramp	AM	0.429	A
	PM	0.451	A
	Weekend	0.543	A
2. Harbor Bl & SR-47 Ramps / Swinford St	AM	0.700	C
	PM	0.873	D
	Weekend	0.857	D
3. Harbor Bl & 6th St	AM	0.379	A
	PM	0.438	A
	Weekend	0.679	B
4. Harbor Bl/ Miner St & Crescent Av	AM	0.308	A
	PM	0.357	A
	Weekend	0.233	A
5. Miner St & 22nd St	AM	0.348	A
	PM	0.358	A
	Weekend	0.321	A
6. Via Cabrillo Marina & 22nd St	AM	0.192	A
	PM	0.131	A
	Weekend	0.221	A



**LEGEND:**

- ..... - 445 MTA Transit Line
- - 446 MTA Transit Line
- - 447 MTA Transit Line
- - 205 MTA Transit Line
- - 142 LADOT Community Connection Transit Line
- - 147 LADOT Community Connection Transit Line
- - MX3 Municipal Area Express Transit Line

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FIGURE 5  
EXISTING TRANSIT LINES

### III. FUTURE YEAR 2008 TRAFFIC PROJECTIONS

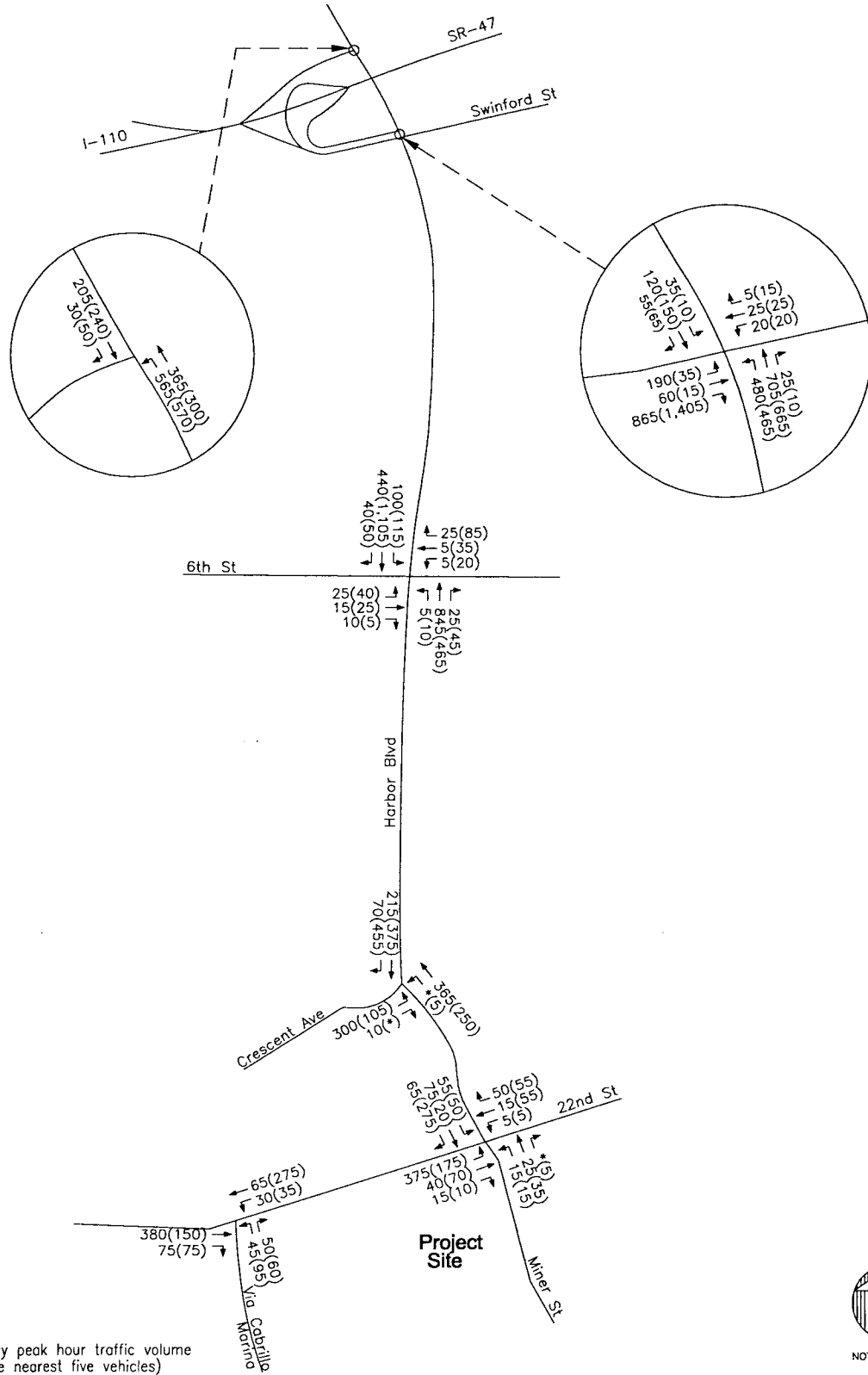
In order to properly evaluate the potential impact of the proposed project on the local street system, it was necessary to develop estimates of future traffic conditions both with and without the project. Future traffic volumes without the project were first estimated, representing the Cumulative Base conditions. The traffic generated by the proposed project was then estimated and separately assigned to the surrounding street system. The sum of the Cumulative Base and project-generated traffic represents the Cumulative Plus Project conditions.

#### CUMULATIVE BASE TRAFFIC PROJECTIONS

The Cumulative Base traffic projections reflect growth in traffic from two primary sources. The first source is background or ambient growth in the existing traffic volumes, which reflects the effects of overall regional growth both in and outside the study area. The second source is the traffic generated by specific projects located within, or in the vicinity of, the study area. These factors are described below.

##### **Areawide Traffic Growth**

The LADOT staff indicated that traffic volumes in the vicinity of the study area have increased historically at a rate of about one percent per year. Future increases in the background traffic volumes due to regional growth and development are assumed to continue at this rate. With the assumed completion date of 2008, the existing 2002 traffic volumes were adjusted upward by a factor of 6 percent to reflect this areawide regional growth. The resulting Existing Plus Ambient Growth traffic volumes are illustrated in Figure 6 for the weekday morning and evening peak hour volumes and Figure 7 for the weekend mid-day peak hour volumes.



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**FIGURE 6**  
**FUTURE WEEKDAY PEAK HOUR TRAFFIC VOLUMES**  
**EXISTING PLUS AMBIENT GROWTH**

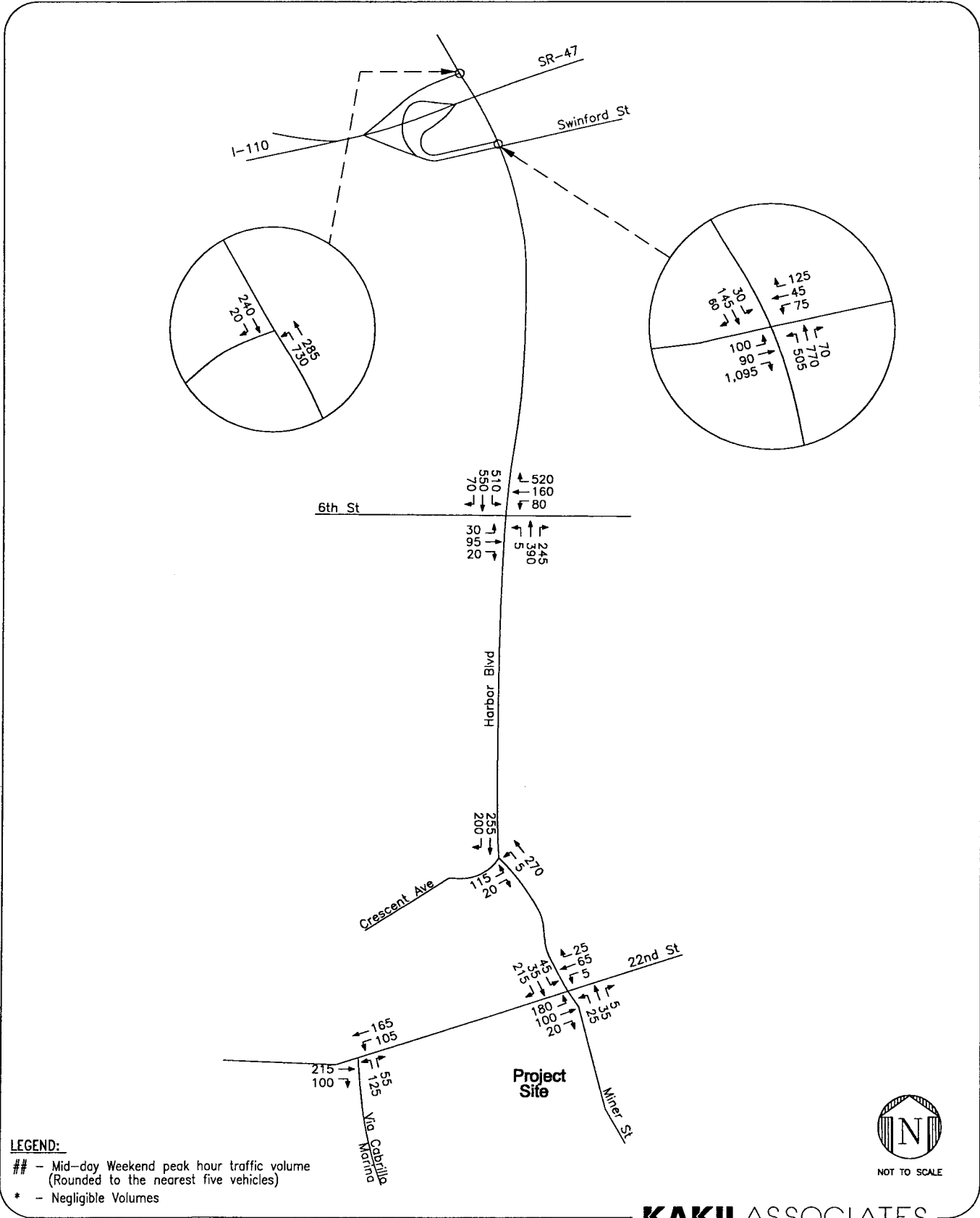


FIGURE 7  
 FUTURE WEEKEND PEAK HOUR TRAFFIC VOLUMES  
 EXISTING PLUS AMBIENT GROWTH

## **Cumulative Project Traffic Generation and Assignment**

As indicated, the second major source of traffic growth in the study area is expected from other future development projects in the area. These "cumulative projects" are those planned developments expected to be completed within the same timeframe as the proposed project. Data describing cumulative projects in the area was obtained from the City of Los Angeles Department of Transportation and the Port of Los Angeles. Twelve cumulative projects were identified within the study area and are summarized in Table 4. Their locations are illustrated in Figure 8.

**Trip Generation.** Trip generation estimates for each of the cumulative projects were developed using trip generation rates contained in *Trip Generation, 6<sup>th</sup> Edition* (Institute of Transportation Engineers, 1997). As summarized in Table 4, the cumulative projects are expected to generate approximately 1,659 trips during the weekday morning peak hour, 3,602 trips during the weekday evening peak hour, and 3,855 trips during the weekend mid-day peak hour.

**Trip Distribution.** The geographic distribution of the traffic generated by the cumulative projects depends on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the employees and potential patrons of the proposed developments are drawn, and the location of the projects in relation to the surrounding street system. Traffic related to the relocation of Fisherman's Village (Cumulative Project 2) would not be new traffic but would rather be shifted from its existing distribution. This has resulted in a net negative assignment through certain intersection movements.

**Traffic Assignment.** The trip generation estimates were assigned to the local street system using the trip distribution pattern described above. The resulting Related Project Only traffic volumes are illustrated in Figure 9 for the weekday morning and evening peak hour volumes and Figure 10 for the weekend mid-day peak hour volumes. These volumes, which were then added to the existing traffic volumes after the adjustment for ambient growth, are illustrated in Figures 11 and 12. They represent Cumulative Base conditions, i.e., future conditions without the proposed project.

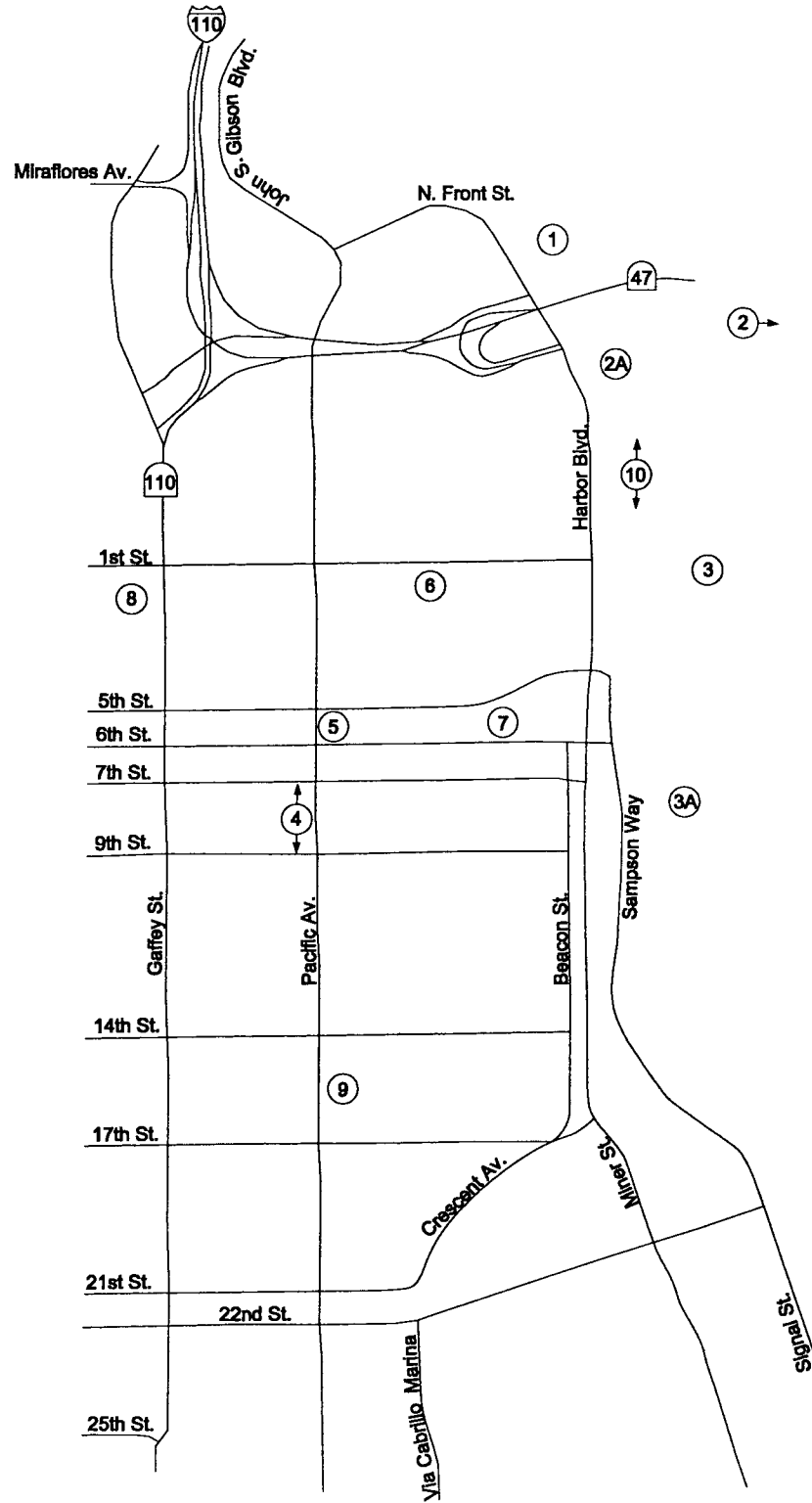
**Table 4  
Cumulative Project Trip Generation  
Cabrillo Marina**

No.	Element	ITE LU Code	Size	Units	Weekday							Saturday			
					Daily Total	AM Peak Hour		Total	PM Peak Hour		Daily Total	Mid-Day Peak Hour			
						In	Out		In	Out		Total	In	Out	Total
1	West Basin Marine Terminal Improvements - POLA Automobiles [9]	n/a	n/a	n/a	400	110	15	125	70	110	180	400	70	33	103
2	Carnival Cruise Terminal - Relocation [2]	n/a	n/a	n/a	2,627	152	152	304	51	48	99	2,627	209	162	371
2A	Carnival Cruise Terminal - Removal [2]	n/a	n/a	n/a	(2,627)	(152)	(152)	(304)	(51)	(48)	(99)	(2,627)	(209)	(162)	(371)
3	Fisherman's Village & Day Cruises - Relocation High-Turnover Restaurant [1] Day Cruise Ships [5] Remove Ex. Rio Doce Pasha [3]  Net New Trips	832 n/a 010	70 8 (17)	KSF ships acres	9,124 531 (203) 9,452	67 39 (7) 99	62 0 (11) 51	130 39 (19) 150	228 37 (8) 257	152 132 (9) 275	380 169 (17) 532	11,086 468 (101) 11,453	882 68 (7) 943	518 83 (11) 590	1,400 151 (19) 1,532
3A	Fisherman's Village & Day Cruises - Removal High-Turnover Restaurant Day Cruise Ships [5]  Net New Trips	832 n/a	70 8	KSF ships	(9,124) (531) (9,655)	(67) (39) (106)	(62) 0 (62)	(130) (39) (169)	(228) (37) (265)	(152) (132) (284)	(380) (169) (549)	(11,086) (468) (11,554)	(882) (68) (950)	(518) (83) (601)	(1,400) (151) (1,551)
4	Pacific Corridor Redevelopment Project [4] Commercial/Retail [6] Manufacturing Residential  Net New Trips	820 140 220	602 223 1,380	KSF KSF DU	25,836 854 9,149 30,463	378 126 113 524	242 38 591 740	620 163 704 1,264	1,081 60 573 1,456	1,171 106 282 1,325	2,251 165 856 2,781	25,294 333 8,818 29,278	1,556 31 481 1,758	1,436 31 237 1,448	2,992 63 718 3,206
5	Night Club/Sports Bar [7]	n/a	17	KSF	932	14	7	21	181	85	266	932	181	85	266
6	Mt. Sinai Missionary Baptist Church	n/a	15	KSF	374	30	30	60	37	26	63	144	36	13	48
7	Regal Theater [8]	n/a	1	Screen	153	0	0	0	51	38	89	529	52	43	90
8	Gas Station & Minimart [7]	n/a	1	KSF	1,953	61	61	121	81	81	161	1,953	81	81	161
9	15th Street Elementary School - San Pedro	520	300	students	306	51	36	87	36	42	78	0	0	0	0
10	Pedestrian Promenade	n/a	n/a	n/a	NEGLIGIBLE TRIPS										
11	Fishing Reef	n/a	n/a	n/a	NEGLIGIBLE TRIPS										
12	Cabrillo Beach Aquarium Expansion	n/a	n/a	n/a	NEGLIGIBLE TRIPS										
<b>Total Net New Trips</b>					<b>34,378</b>	<b>783</b>	<b>877</b>	<b>1,659</b>	<b>1,904</b>	<b>1,698</b>	<b>3,602</b>	<b>33,135</b>	<b>2,169</b>	<b>1,692</b>	<b>3,855</b>

Note: Sizes of the existing Ports O' Call Village, Fisherman's Village, 22nd Street Landing Uses, Westways Terminal and Rio Doce Pasha sites are estimated.  
 [1] Based on field observations at this location, AM weekday trips were assumed to be 20% of the ITE rate and PM weekday trips were assumed to be 50% of the ITE rate.  
 [2] Based on data from "Traffic and Parking Study for the Carnival Cruise Passenger Terminal" for the Port of Long Beach (Kaku Associates, July 2000) page 23.  
 [3] Peak hour rates based on percentage of peak hour to daily of LU 030 (Truck Terminal); assume that Saturday trip generation equals 50% of weekday and that Saturday peak hour equals weekday AM peak hour.  
 [4] Based on data from "Pacific Corridor Redevelopment Project, Final EIR, Appendix F" for the City of LA (Meyer, Mohaddes Associates, November 2001). The Net New Trips reflects a 15% reduction in trips due to local "linked" trip estimates.  
 [5] Based on an assumed typical operating scenario.  
 [6] ITE Trip Generation, 6th Edition, Rates for AM and Saturday Peak Hours estimated based on proportions in the data on Shopping Centers (ITE LU 820). Pass-by trips were assumed to be 25% of all retail commercial trips.  
 [7] Weekend mid-day rates assumed to be the same as the weekday p.m. peak rates.  
 [8] Theater is to be 2,714 s.f. This size supports the assumption of a single screen auditorium.  
 [9] Weekday mid-day and daily totals used for weekend totals. This is a conservative estimate.



NOT TO SCALE



**LEGEND:**

① - Cumulative Project Number

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FIGURE 8  
LOCATION OF RELATED PROJECTS



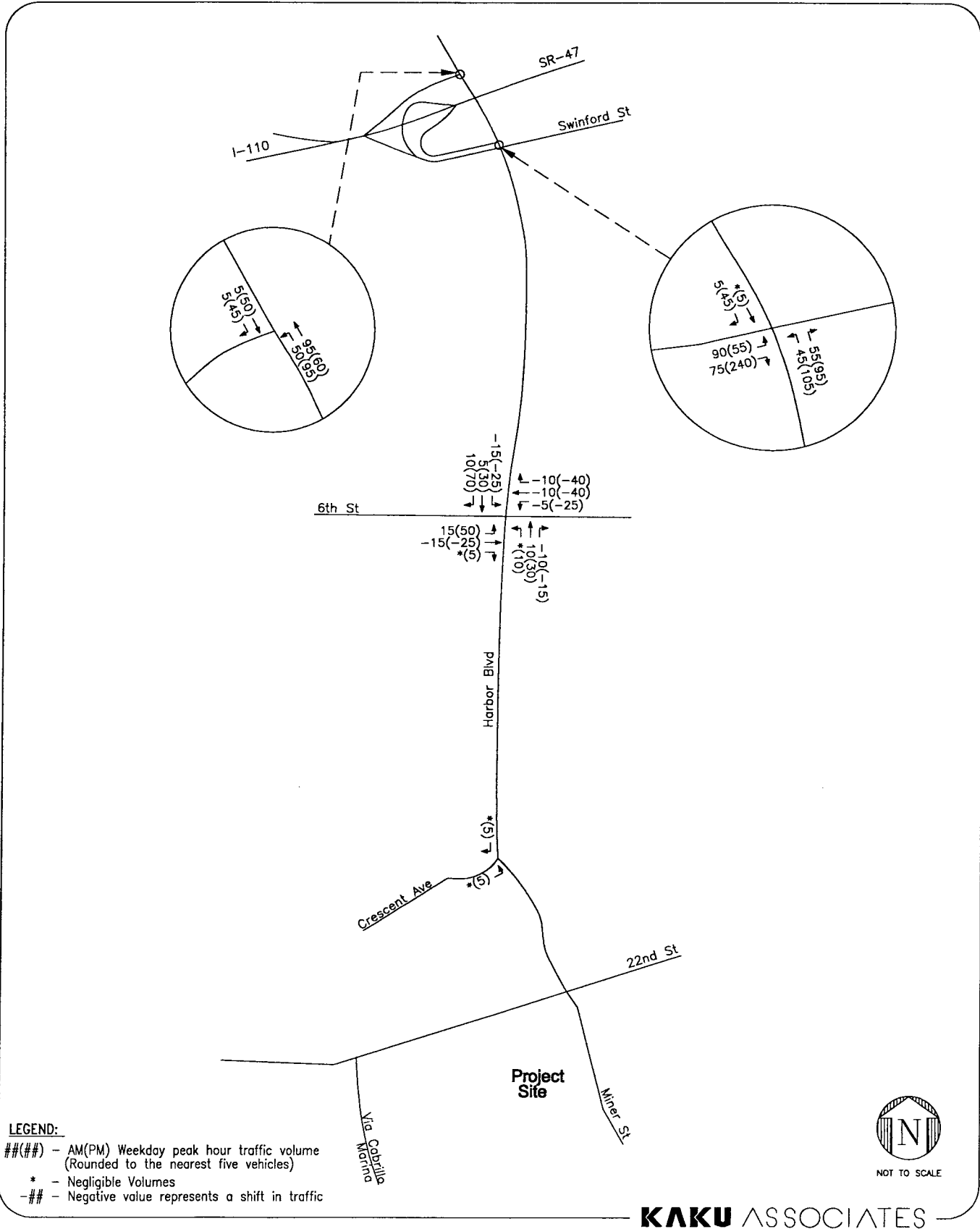


FIGURE 9  
WEEKDAY CUMULATIVE PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES

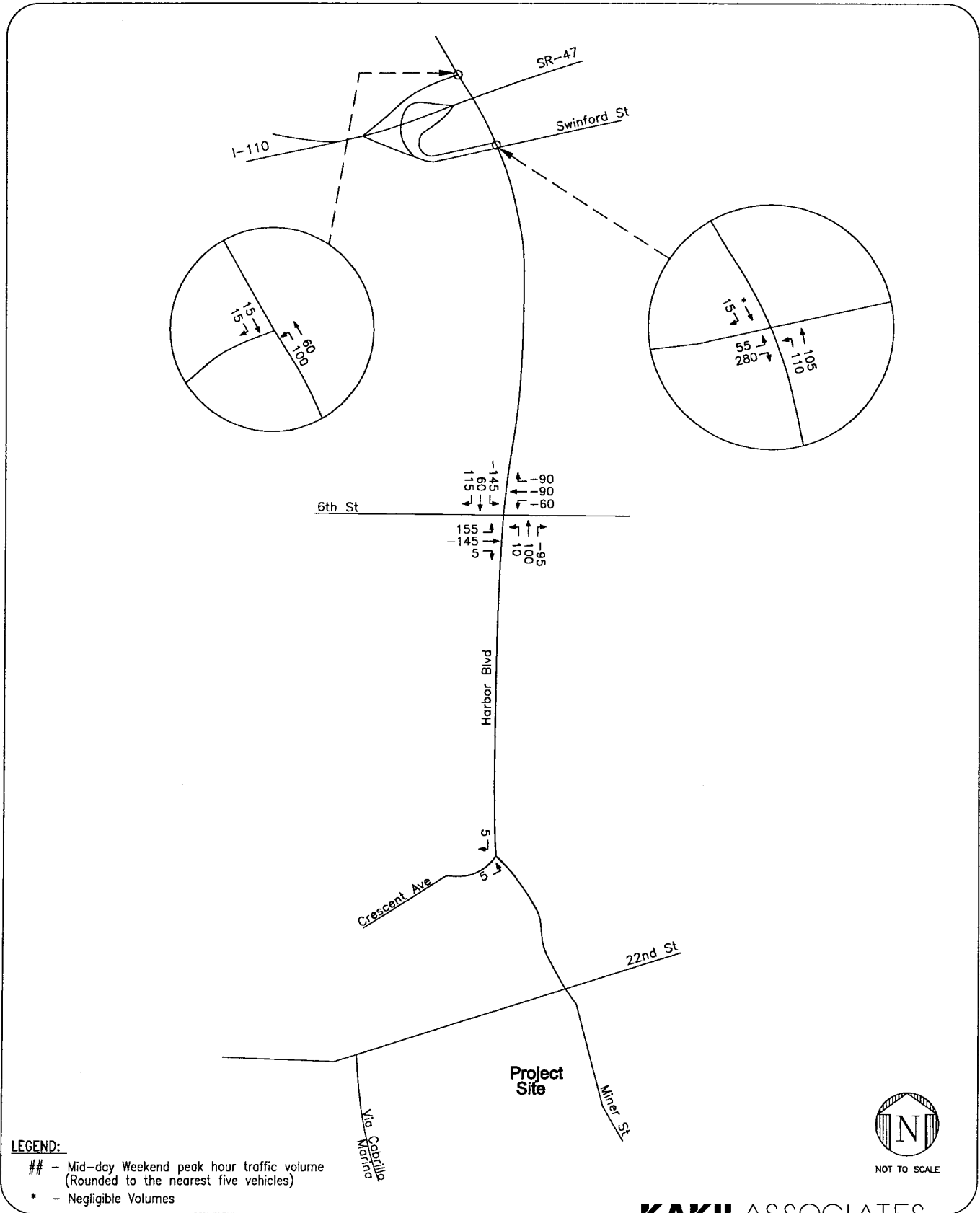


FIGURE 10  
 WEEKEND CUMULATIVE PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES

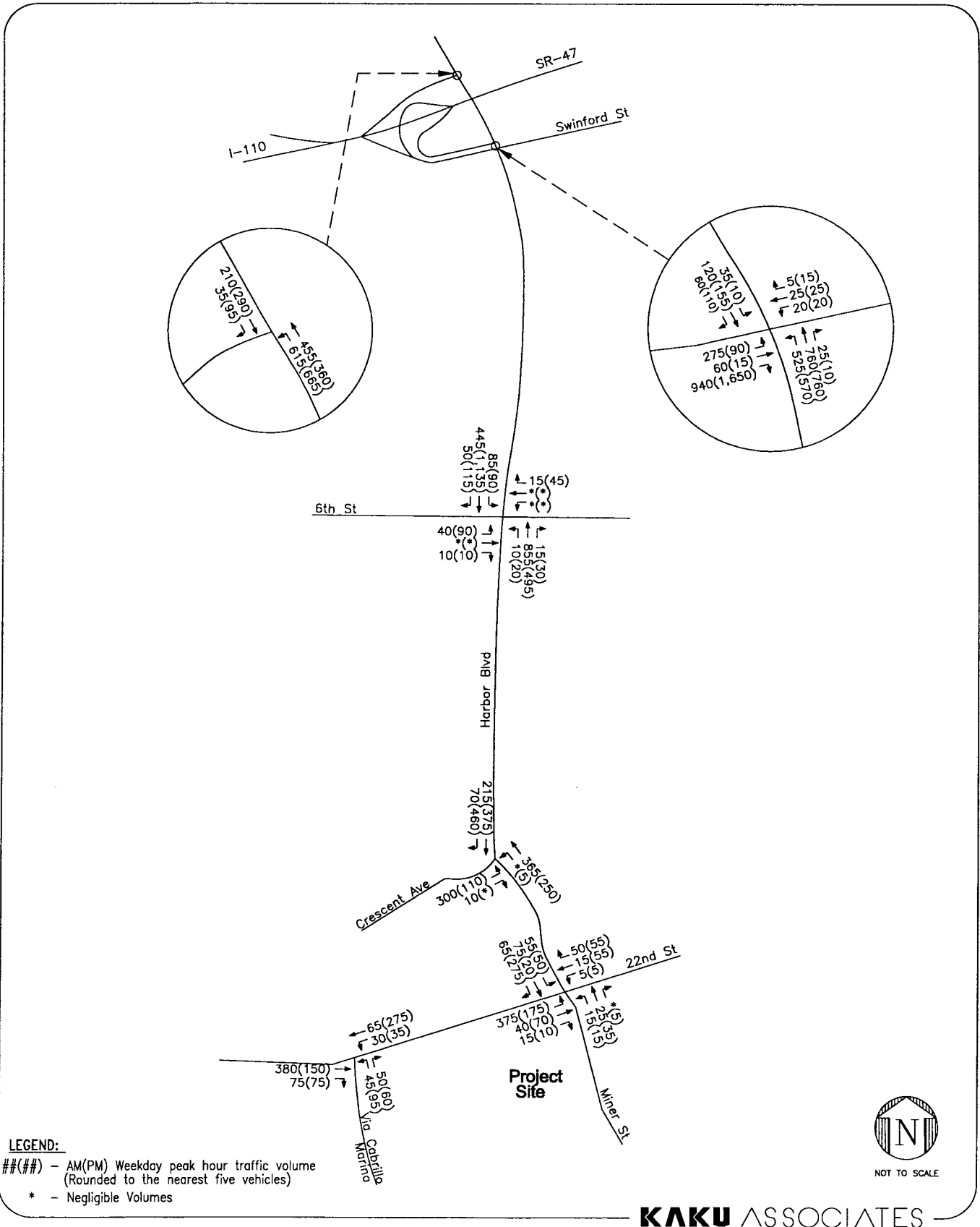


FIGURE 11  
 WEEKDAY CUMULATIVE BASE PEAK HOUR TRAFFIC VOLUMES

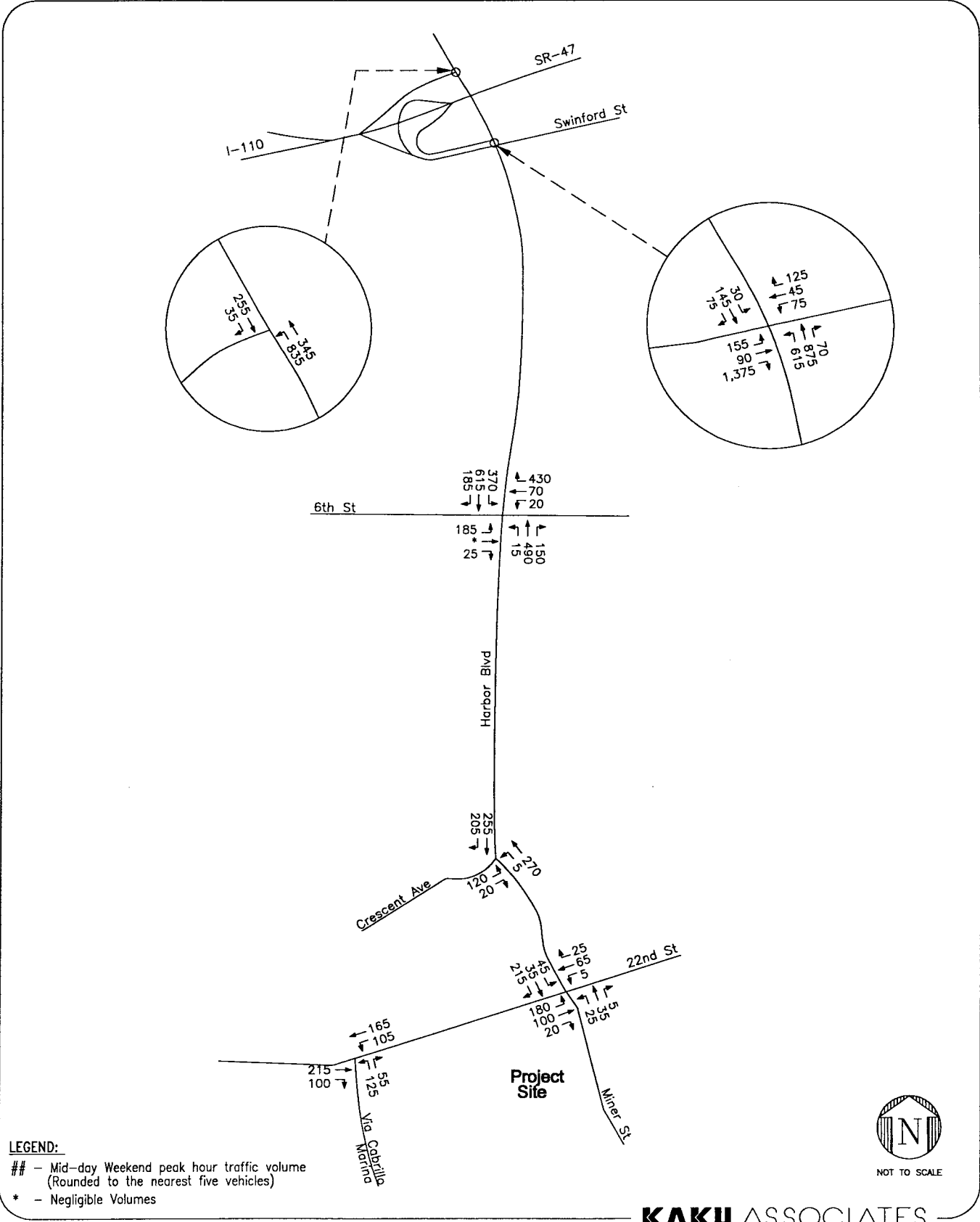


FIGURE 12  
 WEEKEND CUMULATIVE BASE PEAK HOUR TRAFFIC VOLUMES

## **PROJECT TRAFFIC VOLUMES**

The development of traffic generation estimates for the proposed project involves the use of a three-step process similar to that discussed above for the cumulative projects.

### **Project Traffic Generation**

As indicated, the proposed project consists of re-developing the existing site to accommodate a variety of land uses. Trip generation rates from the *Trip Generation, 6<sup>th</sup> Edition* were used to estimate the number of new trips associated with the development of the proposed project as well as the number of existing trips to be removed. Trip generation rates used in this study are shown in Table 5. The estimate of net future trips expected to be generated by the proposed project is summarized in Table 6. As shown, it is estimated that the project would generate 131 trips during the weekday morning peak hour, 262 trips during the weekday evening peak hour, and 585 trips during the weekend mid-day peak hour.

### **Project Traffic Distribution**

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 uses, the geographic distribution of population from which the employees and potential patrons of the proposed development are drawn, and the location of the project in relation to the surrounding street system. The specific distribution pattern for this project is illustrated in Figure 13.

### **Project Traffic Assignment**

The traffic expected to be generated by the proposed project was assigned to the street network using the distribution pattern described in Figure 13. The assignment of this traffic for each of the six intersections analyzed in this study is shown in Figure 14 for the weekday morning and evening peak hour periods and in Figure 15 for the weekend mid-day peak hour period.

**TABLE 5  
CABRILLO MARINA PROJECT TRIP GENERATION RATES**

Land Use	Unit	(1) Code/ Source	Weekday Trip Rate						Weekend Trip Rate				Internal Capture Reduction Rate (%)	
			Daily	AM Peak			PM Peak			Daily	Peak Hour			
				Total	% In	% Out	Total	% In	% Out		Total	% In		% Out
Boat Slips	Slips	(2) 420 / ITE	2.96	0.08	33	67	0.19	60	40	3.22	0.38	40	60	0
Dry Stack Boat Storage	Boat use	(2) 420 / ITE	2.96	0.08	33	67	0.19	60	40	3.22	0.38	40	60	0
Marine Retail	1000 s.f.	814 / ITE	40.67	1.20	60	40	2.59	43	57	42.04	4.93	57	43	30
Yacht Brokers	1000 s.f.	841 / ITE	37.50	2.21	73	27	2.80	40	60	21.03	2.97	51	49	30
Restaurant	1000 s.f.	832 / ITE	130.34	9.27	52	48	10.86	60	40	158.37	20.00	63	37	60
Restaurant	1000 s.f.	831 / ITE	89.95	0.81	60	40	7.49	67	33	94.36	10.82	59	41	50
Marina Club	1000 s.f.	495 / ITE	22.88	1.32	66	34	1.75	34	66	13.60	1.48	56	44	80
Boat Mall & Trailer Storage	1000 s.f.	841 / ITE	37.50	2.21	73	27	2.80	40	60	21.03	2.97	51	49	30
Yacht Club	1000 s.f.	495 / ITE	22.88	1.32	66	34	1.75	34	66	13.60	1.48	56	44	0
Storage Building	1000 s.f.	151 / ITE	2.50	0.15	59	41	0.26	51	49	2.33	0.40	50	50	90
Market/Deli	1000 s.f.	815 / ITE	56.63	0.99	66	34	4.24	50	50	72.03	7.66	51	49	70
Plaza	Negligible new trips													

**Trips to be Replaced by Proposed Project**

Existing Boat Slips	Slips	(2) 420 / ITE	2.96	0.08	33	67	0.19	60	40	3.22	0.38	40	60	0
Warehouse (3)	1000 s.f.	150 / ITE (3)	1.24	0.11	82	18	0.13	76	24	0.31	0.03	64	36	0

(1) All rates from "Trip Generation", 6th Edition, Institute of Transportation Engineers unless otherwise stated.

(2) Weekend peak hour rate from "Traffic Analysis Report for West Channel/Cabrillo Marina Phase II Development," Everest International Consultants, Inc. (September, 1998).

(3) ITE warehouse rates reduced by 75% to reflect lower than average level of activity at these warehouses.

**TABLE 6  
CABRILLO MARINA PROJECT TRIP GENERATION**

Land Use	Unit	Size	Site-Generated Weekday Trips <sup>(2)</sup>						Site-Generated Weekend Trips <sup>(2)</sup>				
			Daily	AM Peak Hour			PM Peak Hour			Daily	Peak Hour		
				Total	In	Out	Total	In	Out		Total	In	Out
Boat Slips	Slips	675	1,998	54	18	36	128	77	51	2,174	257	103	154
Dry Stack Boat Storage	Boat use	<sup>(1)</sup> 1000	148	4	1	3	10	6	4	966	114	46	68
Marine Retail	1000 s.f.	42	1,196	35	21	14	76	33	43	1,236	145	83	62
Yacht Brokers	1000 s.f.	25	656	39	28	10	49	20	29	368	52	27	25
Restaurant	1000 s.f.	5	261	19	10	9	22	13	9	317	40	25	15
Restaurant	1000 s.f.	10	450	4	2	2	37	25	12	472	54	32	22
Marina Club	1000 s.f.	10	46	3	2	1	4	1	2	27	3	2	1
Boat Mall & Trailer Storage	1000 s.f.	20	525	31	23	8	39	16	24	294	42	21	20
Yacht Club	1000 s.f.	10	229	13	9	4	18	6	12	136	15	8	7
Storage Building	1000 s.f.	20	5	0	0	0	1	0	0	5	1	0	0
Market/Deli	1000 s.f.	5	85	1	1	1	6	3	3	108	11	6	6
Boat Storage	spaces	<sup>(1)</sup> 335	50	1	0	1	3	2	1	643	38	15	23
Plaza	Negligible new trips									0			
			0										
<b>Total Trips Generated by Project</b>			<b>5,647</b>	<b>204</b>	<b>115</b>	<b>89</b>	<b>392</b>	<b>201</b>	<b>191</b>	<b>6,746</b>	<b>771</b>	<b>367</b>	<b>404</b>

Warehouse 6 (3,4)	1000 s.f.	30	37	3	3	1	4	1	3	9	1	1	0
Warehouses 9 and 10 (4)	1000 s.f.	135	167	15	12	3	17	4	13	41	4	3	1
Chilean Fruit Warehouse (Shed Berths 54-56) (4)	1000 s.f.	161	200	18	15	3	21	5	16	49	5	3	2
Existing Boat Slips	Slips	<sup>(5)</sup> 530	1,376	37	12	25	88	53	35	1,452	177	71	106

<b>Net New Trips</b>			<b>3,867</b>	<b>131</b>	<b>73</b>	<b>58</b>	<b>262</b>	<b>138</b>	<b>124</b>	<b>5,194</b>	<b>585</b>	<b>290</b>	<b>295</b>
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(1) Assume 5% (50 boats) and 30% (300 boats) of boat storage to be actively used during weekday and weekend respectively.

(2) Trips have been adjusted for internal capture. See internal capture rates in "Trip Generation Rates" Table.

(3) The actual size of Warehouse 6 is 74,100 s.f. Only 40% of the existing space is currently occupied.

(4) ITE rates reduced by 75% to reflect lower than average level of activity at these warehouses.

(5) Consider only 85% of existing slips (i.e., 451 slips) for conservative estimation.

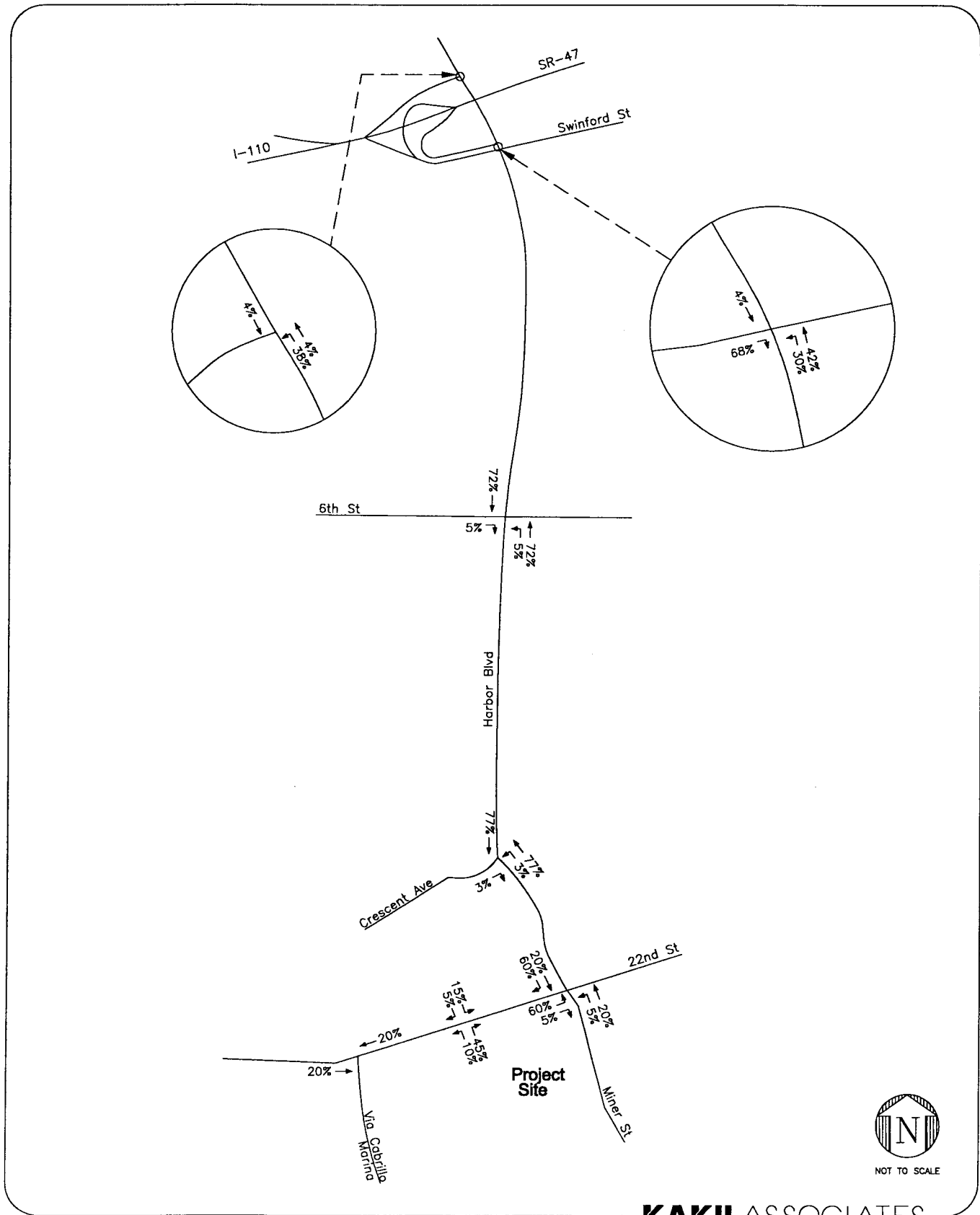


FIGURE 13  
PROJECT TRIP DISTRIBUTION



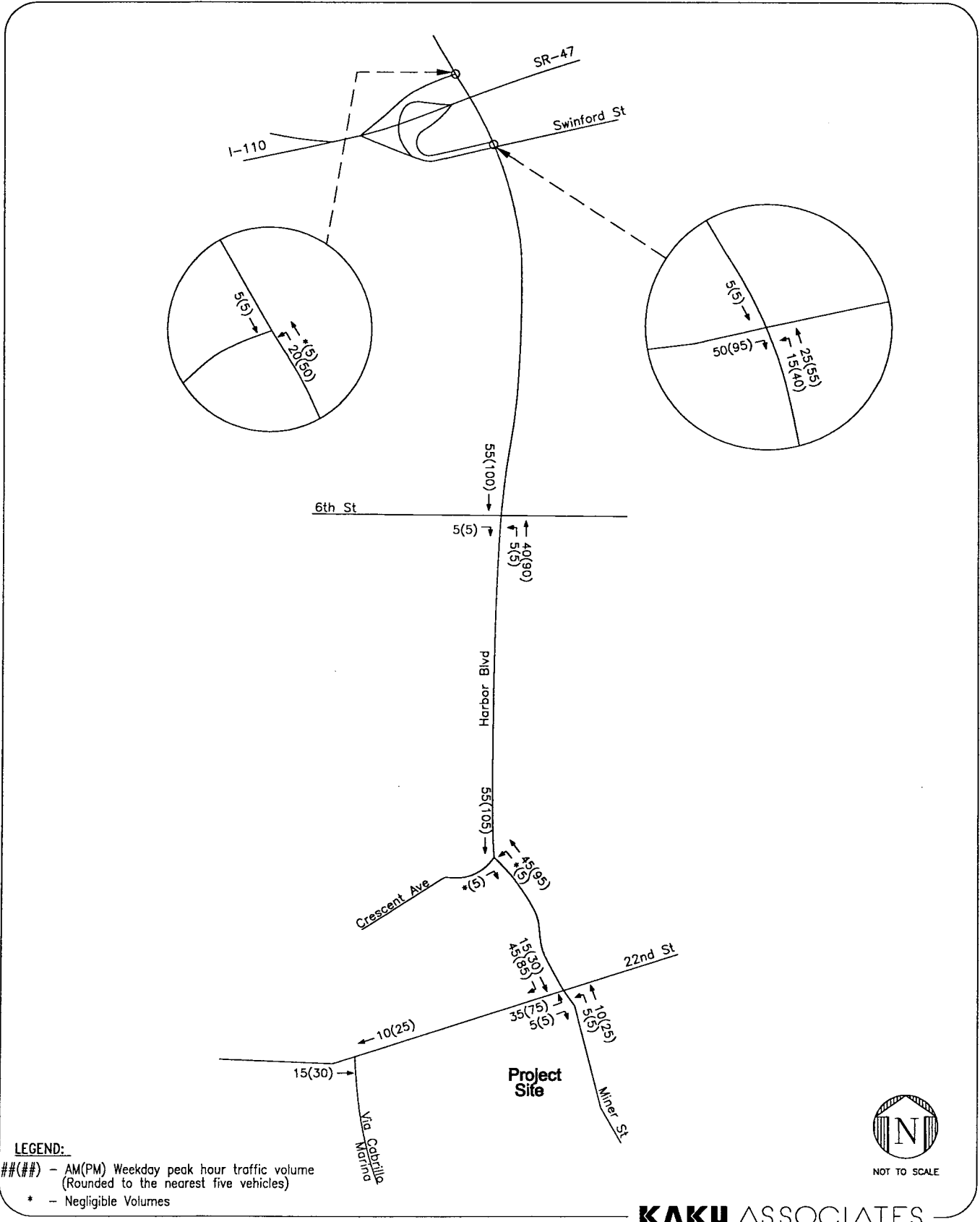
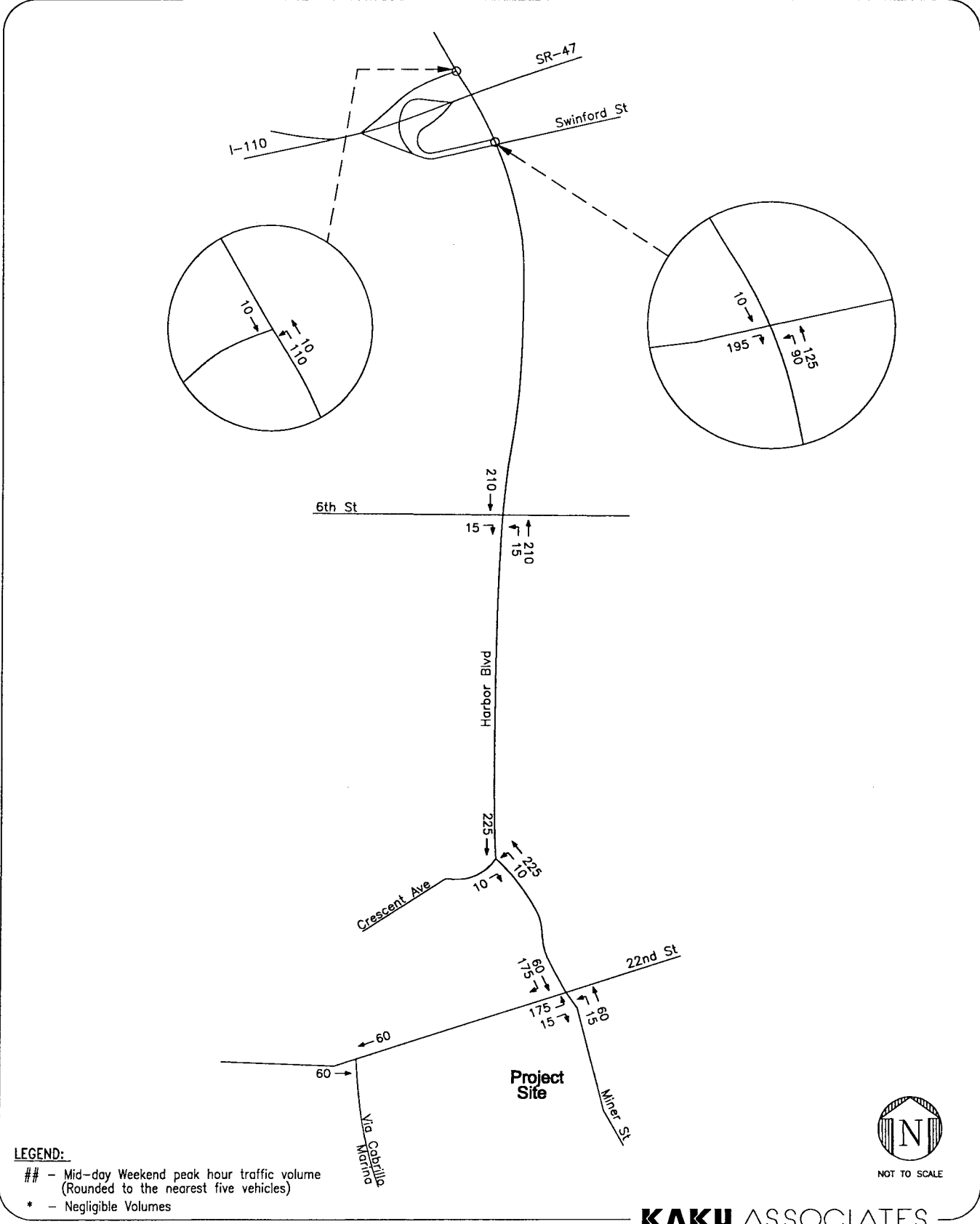


FIGURE 14  
 WEEKDAY PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES



**KAKU ASSOCIATES**

**FIGURE 15**  
**WEEKEND PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES**

## **CUMULATIVE PLUS PROJECT TRAFFIC PROJECTIONS**

The project-generated traffic volumes from Figure 14 were added to the Cumulative Base traffic volumes illustrated in Figure 11 to develop Cumulative Plus Project weekday morning and evening peak hour traffic volumes as illustrated in Figure 16. The project-generated traffic volumes from Figure 15 were added to the Cumulative Base traffic volumes illustrated in Figure 12 to develop Cumulative Plus Project weekend mid-day peak hour traffic volumes as illustrated in Figure 17.

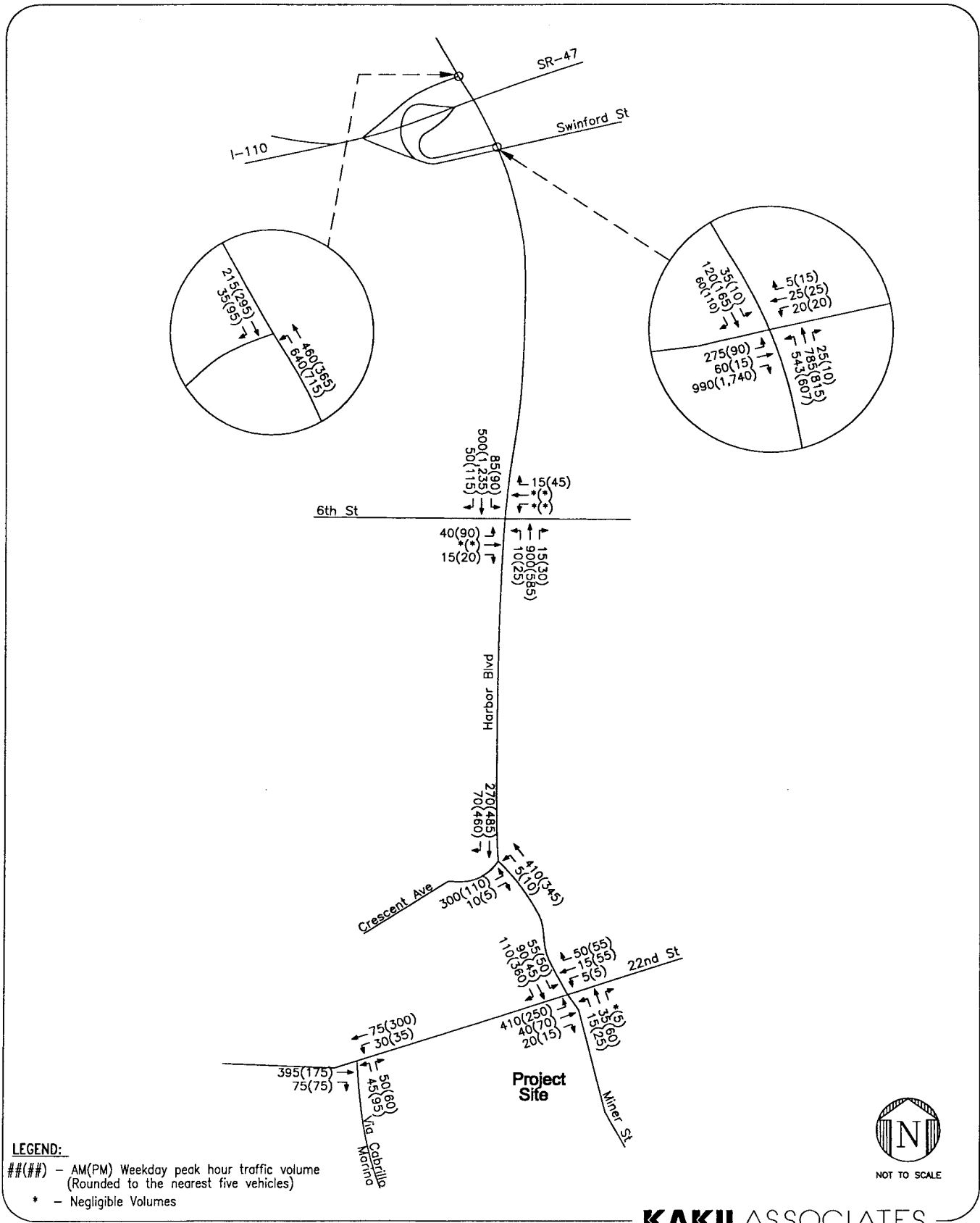


FIGURE 16  
 WEEKDAY CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

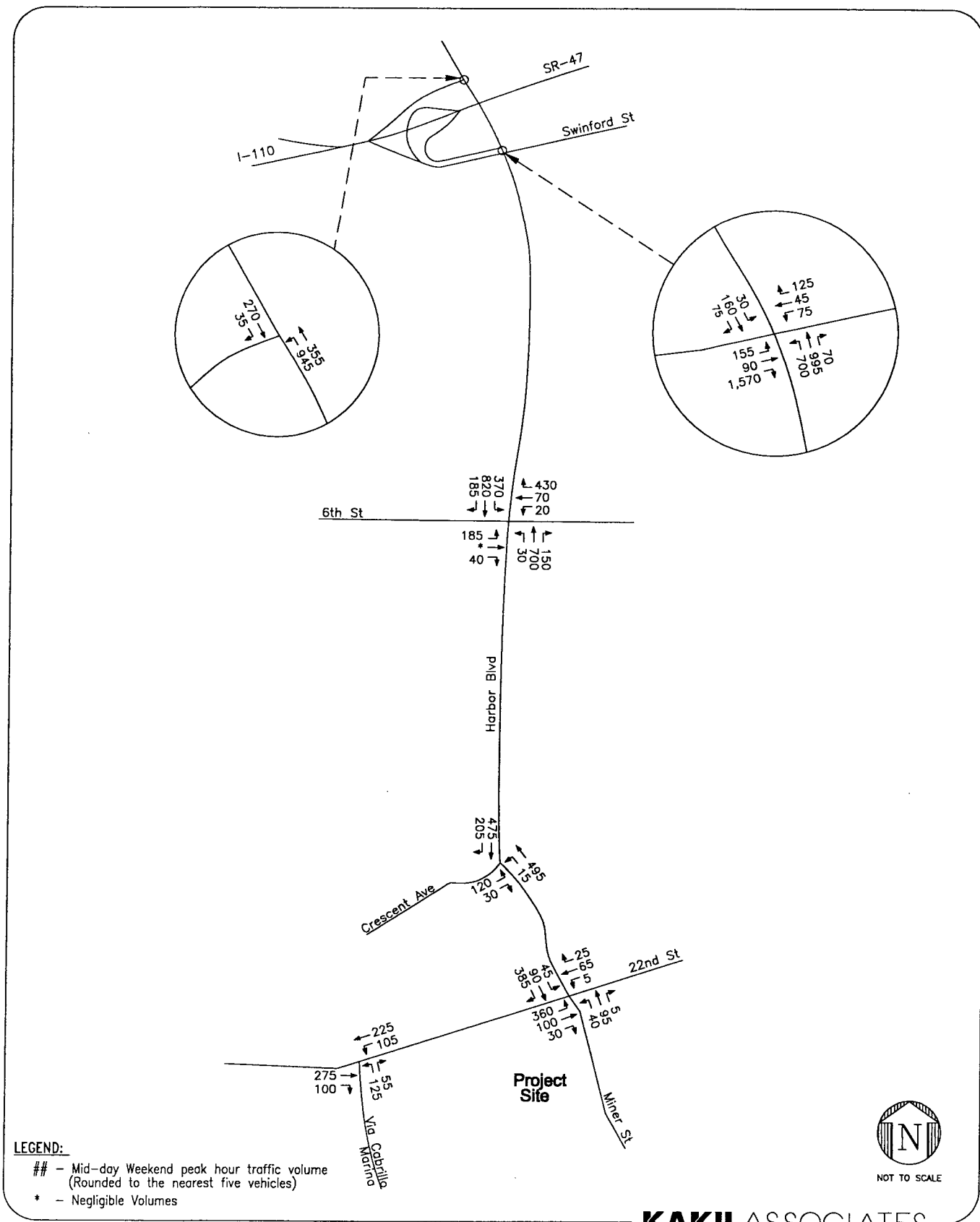


FIGURE 17  
WEEKEND CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

#### IV. FUTURE YEAR 2008 TRAFFIC IMPACT ANALYSIS

The traffic impact analysis compares the projected levels of service at each study intersection under the Cumulative Base and Cumulative Plus Project conditions to estimate the incremental increase in the V/C ratio caused by the proposed project. This provides the information needed to assess the potential impact of the project using significance criteria established by LADOT.

#### SIGNIFICANT TRAFFIC IMPACT CRITERIA

The City of Los Angeles Department of Transportation has established threshold criteria used to determine if a project has a significant traffic impact at an intersection. For the purposes of evaluating potential impacts, the stop-controlled intersections were analyzed as signalized intersections to determine a V/C ratio. Under the LADOT standard, a project impact would be considered significant if the following conditions are met:

<u>Intersection Condition</u> <u>With Project Traffic</u>		<u>Project-Related Increase</u>
<u>LOS</u>	<u>V/C Ratio</u>	<u>in 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, for example, a project would not have a significant impact at an intersection if it is operating at LOS C after the addition of project traffic and the incremental change in the V/C ratio is less than 0.040. However, if the intersection is operating at a LOS F after the addition of project traffic and the incremental change in the V/C ratio is 0.010 or greater, the project would be considered to have a significant impact at this location.

## **CUMULATIVE BASE TRAFFIC CONDITIONS**

The Year 2008 Cumulative Base peak hour traffic volumes were analyzed to determine the projected V/C ratio and level of service for each analyzed intersection. Table 7 summarizes the future levels of service. As indicated in Table 7, five of the six study intersections are projected to operate at an acceptable level of service (LOS D or better) during all analyzed time periods. The intersection of Harbor Boulevard & SR-47 Ramps/Swinford Street is projected to operate at LOS F during the weekday evening peak hour and weekend mid-day peak hour.

## **CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS**

The resulting Cumulative Plus Project peak hour traffic volumes, illustrated in Figures 16 and 17, were analyzed to determine the projected future operating conditions with the addition of the proposed project traffic. The results of the Cumulative Plus Project analysis, which are presented in Table 7, indicate that the project would cause the intersection of Harbor Boulevard & 6<sup>th</sup> Street to decline from LOS B to LOS C in the weekend peak hour and the intersection of Harbor Boulevard & I-110 NB On-Ramp to decline from LOS A to LOS B in the weekday PM peak hour and from LOS B to LOS C in the weekend peak hour.

The intersection of Miner Street & 22<sup>nd</sup> Street has two future configuration alternatives, as discussed in Chapter V below. Both alternatives were analyzed under the Cumulative Plus Project conditions and were found to operate at acceptable levels of service.

## **PROJECT IMPACTS**

Applying the criteria for determining the significance of the project traffic impacts, it was determined that the proposed project would have a significant impact at the intersections of Harbor Boulevard & I-110 NB On-Ramp and Harbor Boulevard & 6<sup>th</sup> Street during the weekend

**TABLE 7**  
**INTERSECTION LEVEL OF SERVICE ANALYSIS**  
**FUTURE CONDITIONS (YEAR 2008)**

Intersection	Peak Hour	Cumulative Base		Cumulative Base Plus Project			
		V/C	LOS	V/C	LOS	Increase in V/C	Significant Impact
1. Harbor Bl & I-110 NB On-Ramp	AM	0.494	A	0.509	A	0.015	NO
	PM	0.571	A	0.605	B	0.034	NO
	Weekend	0.653	B	0.731	C	0.078	YES
2. Harbor Bl & SR-47 Ramps / Swinford St	AM	0.802	D	0.835	D	0.033	YES
	PM	1.092	F	1.155	F	0.063	YES
	Weekend	1.087	F	1.227	F	0.140	YES
3. Harbor Bl & 6th St	AM	0.393	A	0.408	A	0.015	NO
	PM	0.516	A	0.556	A	0.040	NO
	Weekend	0.661	B	0.735	C	0.074	YES
4. Harbor Bl/ Miner St & Crescent Av	AM	0.327	A	0.344	A	0.017	NO
	PM	0.383	A	0.397	A	0.014	NO
	Weekend	0.251	A	0.337	A	0.086	NO
5. Miner St & 22nd St (Shifted Eastward Alternative)	AM	0.369	A	0.278	A	-0.091	NO
	PM	0.380	A	0.409	A	0.029	NO
	Weekend	0.340	A	0.449	A	0.109	NO
5. Miner St & 22nd St (Existing Location Alternative)	AM	0.369	A	0.409	A	0.040	NO
	PM	0.380	A	0.522	A	0.142	NO
	Weekend	0.340	A	0.583	A	0.243	NO
6. Via Cabrillo Marina & 22nd St	AM	0.204	A	0.209	A	0.005	NO
	PM	0.138	A	0.147	A	0.009	NO
	Weekend	0.234	A	0.255	A	0.021	NO



mid-day peak hour and at Harbor Boulevard & SR-47 Ramps/Swinford Street during all analyzed time periods. The impacts identified here are identical to those identified in the traffic study and environmental impact report for the previously proposed (1998) project on the site.

## **MITIGATION MEASURES**

The traffic impact analysis determined that the proposed development would generate significant traffic impacts at the intersections of Harbor Boulevard & I-110 NB On-Ramp, Harbor Boulevard & SR-47 Ramps/Swinford Street, and Harbor Boulevard & 6<sup>th</sup> Street under Cumulative Plus Project conditions. As determined by LADOT during the review of the previously proposed project and confirmed in discussions on the currently proposed project, the impacts at the intersections of Harbor Boulevard & I-110 NB On-Ramp and Harbor Boulevard & 6<sup>th</sup> Street are not considered significant and will not be mitigated due to the following reasons.

- The intersections will operate at a reasonably good level of service 'C' under the Cumulative Plus Project conditions.
- The traffic impact from the project is seasonal and occurs only during the summer weekend period, rather than on a typical weekday.
- Improvements such as signalization at the I-110 ramp junction may cause undesirable disruption during other non-peak times.

The recommended improvement measure described below for the intersection of Harbor Boulevard & SR-47 Ramps/Swinford Street was found to be feasible during the review of the previously proposed project.

- Harbor Boulevard & SR-47 Ramps/Swinford Street – To improve the intersection operation and to reduce the left-turn congestion on the northbound approach, it is proposed that a second left-turn lane be added to the northbound approach. The resulting lane configuration will be two left-turn lanes, two through lanes, and one shared through/right-turn lane. This change would involve removing the raised median and re-striping the intersection. During the review of the previously proposed project on the site, LADOT staff prepared a preliminary design plan that demonstrated the feasibility of these improvements.

## **EFFECTIVENESS OF MITIGATION MEASURES**

The effectiveness of the recommended mitigation improvements was analyzed by re-evaluating the significantly impacted intersection. This analysis was based on the same methodologies and techniques as in the preceding Cumulative Base and Cumulative plus Project analyses, with the exception that the recommended mitigation measures were assumed to be “in place” at the affected intersection. The results of the Cumulative Plus Project with Mitigations analysis, which are presented in Table 8, indicate that the intersection of Harbor Boulevard & SR-47 Ramps/Swinford Street is projected to operate at LOS B during the AM peak hour and at LOS E during the PM peak hour and weekend mid-day peak hour, and would effectively mitigate the impact of project-related trips at this intersection.

**TABLE 8**  
**INTERSECTION LEVEL OF SERVICE ANALYSIS**  
**FUTURE CONDITIONS - WITH MITIGATION (YEAR 2008)**

Intersection	Peak Hour	Cumulative Base		Cumulative Base Plus Project				Cumulative Base Plus Project with Mitigation			
		V/C	LOS	V/C	LOS	Increase in V/C	Significant Impact	V/C	LOS	Increase in V/C	Significant Impact
2. Harbor Bl & SR-47 Ramps / Swinford St	AM	0.802	D	0.835	D	0.033	YES	0.657	B	-0.145	NO
	PM	1.092	F	1.155	F	0.063	YES	0.956	E	-0.136	NO
	Weekend	1.087	F	1.227	F	0.140	YES	0.997	E	-0.090	NO

## V. SITE ACCESS & PARKING ANALYSIS

### SITE ACCESS

Access to the project site is via Harbor Boulevard and 22<sup>nd</sup> Street, as shown in Figure 2. A primary access point would be created at the future intersection of two project driveways with 22<sup>nd</sup> Street, west of Miner Street. The project proposes that this location would be signalized to facilitate traffic flow and to assist pedestrians in safely crossing 22<sup>nd</sup> Street to reach the various uses proposed on the site by the project. The northbound and the southbound driveways would each provide a shared left-turn/through lane and a right-turn lane. The project proposes that the eastbound and westbound approaches to this future intersection would each provide a shared left-turn/through lane and a shared right-turn/through lane. In the cumulative plus project conditions, the future intersection of 22<sup>nd</sup> Street with the primary project driveways is projected to operate at LOS A during all analyzed time periods as summarized below.

<u>Analysis Period</u>	<u>V/C Ratio</u>	<u>LOS</u>
Weekday AM Peak Hour	0.221	A
Weekday PM Peak Hour	0.240	A
Weekend Mid-Day Peak Hour	0.407	A

While not required as mitigation for the proposed project, it is recommended that 22<sup>nd</sup> Street be re-striped provide left-turn lanes at this location, resulting in eastbound and westbound lane configurations of one left-turn lane, one through lane and one shared through/right-turn lane, to provide storage for vehicles entering the project site and to improve traffic flow on 22<sup>nd</sup> Street.

The proposed project would provide four driveways on the west side of Miner Street south of 22<sup>nd</sup> Street, each of which would be controlled by a stop sign. The site plan for the proposed project shows this segment of Miner Street (south of 22<sup>nd</sup> Street) as a two-lane roadway divided by an unbroken raised and landscaped center median, similar to the existing Via Cabrillo Marina. It is

recommended that breaks in the raised median and left-turn pockets be provided at these driveways to facilitate the flow of traffic into and out of the parking lots located in this area of the project.

## **ALTERNATIVE DESIGNS OF MINER STREET & 22<sup>ND</sup> STREET**

Two future design alternatives were evaluated for the intersection of Miner Street & 22<sup>nd</sup> Street, referred to here as the "Eastward Shifted Alternative" and the "Existing Location Alternative." Given the limited curb-to-curb width, it is assumed that neither alternative would provide a raised center median on 22<sup>nd</sup> Street.

The Eastward Shifted Alternative would shift the southern leg of the intersection eastward by approximately 100 feet to facilitate the development of the proposed dry stack storage building. It would also shift the northern leg of the intersection eastward beginning approximately 600 feet north of 22<sup>nd</sup> Street in order to align it directly with the shifted southern leg. The lane configuration proposed for the Aligned Alternative proposed as part of the project is shown in Appendix A.

This alternative would abandon the existing railroad grade crossing on 22<sup>nd</sup> Street and the rail line parallel to Miner Street from that point southward. The road alignment would require relocating the existing railroad tracks approximately 120 to 190 feet eastward and moving the existing station to the southeast quadrant of the proposed new Miner Street & 22<sup>nd</sup> Street intersection, where a new at-grade crossing would be created on 22<sup>nd</sup> Street. Traffic flow on 22<sup>nd</sup> Street would be temporarily disrupted during train passage events, although the extent of this disruption cannot currently be quantified because future operating plans for this rail line are not available.

While the creation of any new grade crossing necessitates the careful control of vehicular traffic, the geometry of the crossing that would be created under this alternative is not unusual. Because the railroad tracks would cross 22<sup>nd</sup> Street at a right angle, vehicles approaching the crossing would not be unusually likely to accidentally drive around lowered gate arms during the presence of a train. Given the width of the roadway at this point and the length of the rail line that would need to be protected, it is likely that the crossing could be controlled with a single gate arm on each approach. The creation of this new grade crossing would require the approval of the

California Public Utilities Commission, which oversees rail safety in the State. If the existing rail line were not relocated east of the shifted Miner Street, a new grade crossing would be created on Miner Street and additional safety issues would arise. For this reason, the project proposes relocation of the existing rail line.

Additionally, the proposed reconfiguration of the Miner Street/22<sup>nd</sup> Street intersection will require the removal and relocation of signalization, new directional and thematic signage, and appropriate roadway lighting, striping and markings. The proposed improvements will ensure adequate provision of rail, vehicle, and pedestrian separation and safety.

The Existing Location Alternative for the intersection of Miner Street & 22<sup>nd</sup> Street would not relocate the existing intersection of Miner Street & 22<sup>nd</sup> Street but would shift Miner Street south of 22<sup>nd</sup> Street approximately 150 feet to the west between 22<sup>nd</sup> Street and a point south of Adams Drive. The shifted segment of 22<sup>nd</sup> Street, this alternative would improve Miner Street to a 28-foot curb-to-curb width and a painted center median. It would retain the existing lane geometry on three legs of the intersection and the existing at-grade crossing but would modify the existing northbound lane configuration to provide a shared left-turn/through lane and a shared right-turn/through lane. The future lane configuration assumed for this alternative in this analysis is shown in Appendix A.

As discussed above in Chapter IV, both alternatives for this intersection would operate acceptably under Cumulative Plus Project conditions.

## **PEDESTRIAN CIRCULATION**

Pedestrian circulation would occur along nearly the entire perimeter of the project site south of 22<sup>nd</sup> Street. The existing Cabrillo Marina Phase I promenade would be extended eastward into the project site along the waterfront to the proposed plaza. The future signalized intersection of the project driveways with 22<sup>nd</sup> Street would be provided with pedestrian crosswalks. From that point, the pedestrian pathway would continue southward adjacent to the plaza, marine retail uses, yacht brokers, marina club and restaurants. The pedestrian pathway would then follow the shoreline northward to the dry stack launching area where it would continue along northward,

eastward and southward parallel to the dry stack building. It would then rejoin the waterfront and continue southward to proposed yacht club near the southern end of the project site. For safety reasons, pedestrians would not be allowed to pass through the dry stack launching area, nor through the proposed boat launch area at the southern end of the project site. In addition to the proposed pedestrian pathway along the waterfront, the project would construct a sidewalk along the western side of the realigned segment of Miner Street south of 22<sup>nd</sup> Street.

The provision of the proposed pedestrian pathway along the waterfront areas of this project appears to be consistent with the concept of providing continuous public access to the waterfront. The technical report for the *Waterfront Access Program* (Max Development LLC and Los Angeles Harbor Watts Economic Development Corporation, 2002) shows a promenade alignment along the entire waterfront of the project area but notes that its specific routing and design would be subject to redevelopment plans for pier sites.

## **PARKING ANALYSIS**

Parking for the proposed project will be located for convenience of the public in proportion to the specific uses being served. The total proposed parking supply is 1,696 spaces in four parking areas. The location and total spaces for each lot is as follows:

- Parking Lot 1 (735 spaces) – Located near the retail/dry stack area
- Parking Lot 2 (204 spaces) – Located on the north side of 22<sup>nd</sup> Street
- Parking Lot 3 (605 spaces) – Located adjacent to the Watchorn Basin
- Replacement of 22<sup>nd</sup> Street Landing parking (152 spaces) located on the north side of 22<sup>nd</sup> Street

Information provided by the applicant, shown in Table 9, estimates a total parking requirement of 1,664 parking spaces, based on relevant City of Los Angeles and California State Department of Boating and Waterways standards plus the full replacement of the existing parking on the site that now serves 22<sup>nd</sup> Street Landing. Because the proposed parking supply of 1,696 parking spaces exceeds both the forecast parking demand and the required parking supply no significant parking impact is expected.

**TABLE 9  
CABRILLO MARINA PARKING REQUIREMENT & PROPOSED SUPPLY**

<b>Land Use</b>	<b>Size</b>	<b>Unit</b>	<b>Assumed Parking Ratio</b>	<b>Parking Requirement</b>
Boat Slips	675	Slips	0.6 / slip	405
Dry Stack Boat Storage (2)	1000	Boat use	0.33 / boat	330
Marine Retail	42	1000 s.f.	5 / 1,000	210
Yacht Brokers	25	1000 s.f.	4 / 1,000	100
Restaurant	5	1000 s.f.	10 / 1,000	50
Restaurant	10	1000 s.f.	10 / 1,000	100
Marina Club	10	1000 s.f.	5 / 1,000	50
Boat Mall & Trailer Storage	20	1000 s.f.	5 / 1,000	100
Yacht Club & Storage	10	1000 s.f.	4 / 1,000	40
Storage Building	20	1000 s.f.	1 / 1,000	20
Market/Deli	5	1000 s.f.	5 / 1,000	25
Boat Storage	335	spaces	0.25 / boat	84
Replacement Parking for 22 <sup>nd</sup> Street Landing	150	spaces	1 space / 1 space	150

<b>Parking Required</b>	<b>1,664</b>
<b>Parking Provided</b>	<b>1,696</b>

Source: Project Applicant, based on City of Los Angeles Planning and Zoning Code, Section 12.21, 9/13/2000 revision and California Department of Boating & Waterways standards.



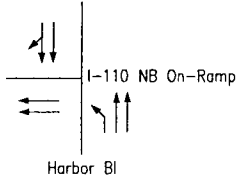
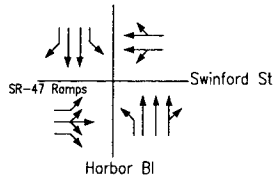
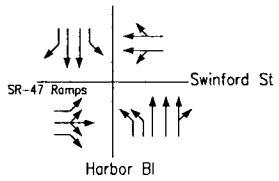
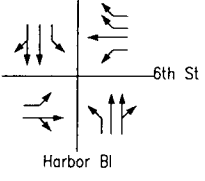
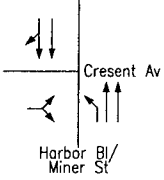
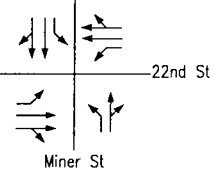
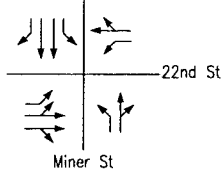
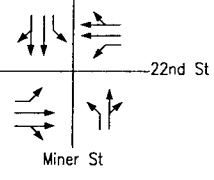
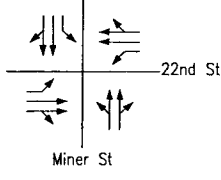
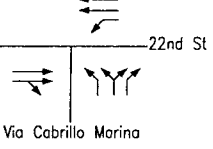
## VI. SUMMARY AND CONCLUSIONS

This study was undertaken to analyze the potential traffic and parking impacts of the proposed Cabrillo Marina Phase II Project on the local street system. The following summarizes the results of this analysis:

- Six intersections were analyzed within the study area for this project. All of the intersections are currently operating at an acceptable level of service (LOS D or better) during the analyzed time periods: weekday morning, weekday evening, and weekend mid-day peak hours.
- The proposed project would consist of redeveloping the site to include new boat slips, boat storage, retail, restaurants, and offices. At completion in 2008, the proposed project is expected to generate approximately 131 new trips during morning peak hour, 262 new trips during the evening peak hour, and 585 new trips during the weekend mid-day peak hour.
- Under Cumulative Base conditions, five of the six study intersections are projected to operate at an acceptable level of service (LOS D or better) during the weekday morning, weekday evening, or weekend mid-day peak hours. The intersection of Harbor Boulevard & SR-47 Ramps/Swinford Street is projected to operate at LOS F during the weekday evening peak hour and the weekend mid-day peak hour.
- Analysis of projected Cumulative Plus Project conditions indicates that the proposed project would have a significant impact at the intersection of Harbor Boulevard & SR-47 Ramps/Swinford Street during all analyzed time periods.
- The proposed improvement measure for Harbor Boulevard & SR-47 Ramps/Swinford Street is to re-stripe the northbound approach to add a second left-turn lane. This measure was found to fully mitigate the impact of project traffic at this intersection.
- The proposed project intends to provide 1,696 parking spaces. Based on relevant City and State standards, it is estimated that the project would require a parking supply of 1,664 spaces. Because the proposed parking supply exceeds both the projected demand and the estimated requirement, no significant parking impact is expected.

**SUBAPPENDIX B.1**  
**INTERSECTION LANE CONFIGURATIONS**

# INTERSECTION LANE CONFIGURATIONS

	Existing & Cumulative Base	Cumulative Base Plus Project	With Mitigation
1. Harbor Bl & I-110 NB On-Ramp	 <p style="text-align: center;">Harbor Bl</p>	SAME AS EXISTING	N/A
2. Harbor Bl & SR-47 Ramps/ Swinford St	 <p style="text-align: center;">Harbor Bl</p>	SAME AS EXISTING	 <p style="text-align: center;">Harbor Bl</p>
3. Harbor Bl & 6th St	 <p style="text-align: center;">Harbor Bl</p>	SAME AS EXISTING	N/A
4. Harbor Bl/Miner St & Crescent Av	 <p style="text-align: center;">Harbor Bl/ Miner St</p>	SAME AS EXISTING	N/A
5. Miner St & 22nd St (Shifted Eastward Alternative)	 <p style="text-align: center;">Miner St</p>	 <p style="text-align: center;">Miner St</p>	N/A
Miner St & 22nd St (Existing Location Alternative)	 <p style="text-align: center;">Miner St</p>	 <p style="text-align: center;">Miner St</p>	N/A
6. Via Cabrillo Marina & 22nd St	 <p style="text-align: center;">Via Cabrillo Marina</p>	SAME AS EXISTING	N/A

**SUBAPPENDIX B.2**  
**TRAFFIC COUNT DATA**



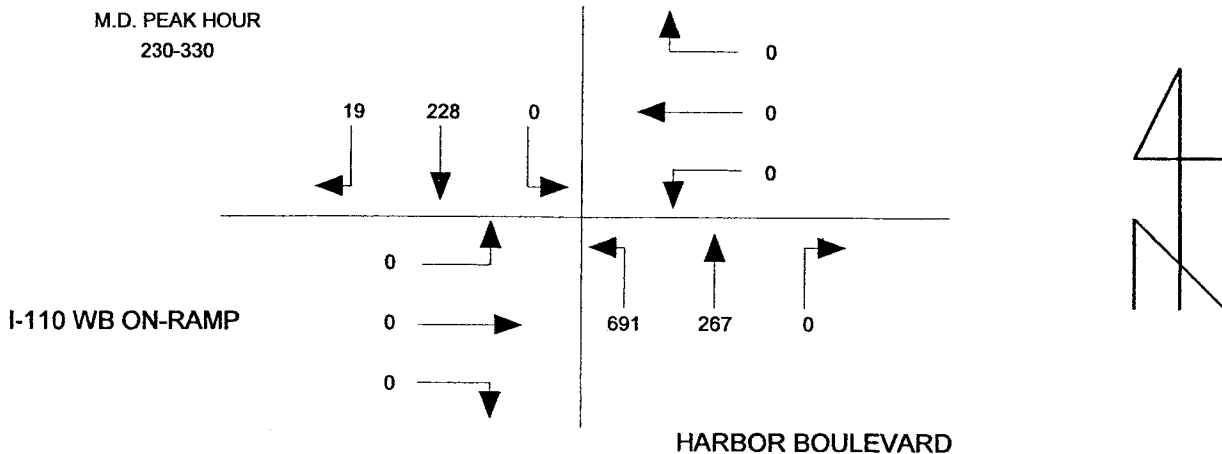


## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES  
 PROJECT: CABRILLO MARINA EXPANSION - PHASE II  
 DATE: SUNDAY, AUGUST 25TH, 2002  
 PERIOD: 1:00 PM TO 5:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD  
 E/W I-110 WB ON-RAMP

15 MIN COUNTS													
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-115	5	58	0	0	0	0	0	54	143	0	0	0	260
115-130	3	58	0	0	0	0	0	55	143	0	0	0	259
130-145	3	67	0	0	0	0	0	73	147	0	0	0	290
145-200	6	71	0	0	0	0	0	43	144	0	0	0	264
200-215	1	60	0	0	0	0	0	64	129	0	0	0	254
215-230	6	55	0	0	0	0	0	64	159	0	0	0	284
230-245	4	55	0	0	0	0	0	55	165	0	0	0	279
245-300	2	62	0	0	0	0	0	64	164	0	0	0	292
300-315	4	63	0	0	0	0	0	66	167	0	0	0	300
315-330	9	48	0	0	0	0	0	82	195	0	0	0	334
330-345	7	42	0	0	0	0	0	43	150	0	0	0	242
345-400	2	40	0	0	0	0	0	54	146	0	0	0	242
400-415	4	52	0	0	0	0	0	48	182	0	0	0	286
415-430	3	53	0	0	0	0	0	56	188	0	0	0	300
430-445	1	36	0	0	0	0	0	64	187	0	0	0	288
445-500	2	48	0	0	0	0	0	65	179	0	0	0	294

HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-200	17	254	0	0	0	0	0	225	577	0	0	0	1073
115-215	13	256	0	0	0	0	0	235	563	0	0	0	1067
130-230	16	253	0	0	0	0	0	244	579	0	0	0	1092
145-245	17	241	0	0	0	0	0	226	597	0	0	0	1081
200-300	13	232	0	0	0	0	0	247	617	0	0	0	1109
215-315	16	235	0	0	0	0	0	249	655	0	0	0	1155
230-330	19	228	0	0	0	0	0	267	691	0	0	0	1205
245-345	22	215	0	0	0	0	0	255	676	0	0	0	1168
300-400	22	193	0	0	0	0	0	245	658	0	0	0	1118
315-415	22	182	0	0	0	0	0	227	673	0	0	0	1104
330-430	16	187	0	0	0	0	0	201	666	0	0	0	1070
345-445	10	181	0	0	0	0	0	222	703	0	0	0	1116
400-500	10	189	0	0	0	0	0	233	736	0	0	0	1168



# WILTEC

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## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: MEYER, MOHADES ASSOCIATES, INC.  
 PROJECT: PORT OF LOS ANGELES TRUCK CLASSIFICATION COUNTS  
 DATE: WEDNESDAY, JULY 31, 2002  
 PERIOD: 7:00 AM TO 9:00 AM  
 INTERSECTION: N/S HARBOR BOULEVARD  
 E/W SR-47 EB OFF RAMP/SWINFORD STREET

15-MIN COUNTS	1 SBRT						2 SBTH						3 SBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	6	0	0	0	5	11	18	0	0	0	0	1	19	2	0	0	0	7	9
715-730	5	1	0	0	1	7	21	0	0	0	0	6	27	6	0	0	0	4	10
730-745	5	1	0	3	2	11	25	0	0	0	0	6	31	3	0	0	0	2	5
745-800	8	1	1	2	1	13	17	0	0	0	0	2	19	5	0	0	0	6	11
800-815	9	5	0	1	5	20	27	0	0	0	0	7	34	4	0	0	0	2	6
815-830	8	4	0	1	0	13	25	0	0	0	0	9	34	2	0	0	0	3	5
830-845	6	7	0	0	0	13	24	0	0	0	0	3	27	6	0	0	0	1	7
845-900	6	9	3	2	0	20	23	0	0	0	0	7	30	6	0	0	0	3	9
HOUR TOTALS																			
700-800	24	3	1	5	9	42	81	0	0	0	0	15	96	16	0	0	0	19	35
715-815	27	6	1	6	9	51	90	0	0	0	0	21	111	18	0	0	0	14	32
730-830	30	11	1	7	8	57	94	0	0	0	0	24	118	14	0	0	0	13	27
745-845	31	17	1	4	6	59	93	0	0	0	0	21	114	17	0	0	0	12	29
800-900	29	25	3	4	5	66	99	0	0	0	0	26	125	18	0	0	0	9	27

15-MIN COUNTS	4 WBRT						5 WBTH						6 WBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	6	0	0	0	0	6	6	0	0	0	0	6	12	3	0	0	0	0	3
715-730	1	0	0	0	1	2	4	0	0	0	0	7	11	3	0	0	0	0	3
730-745	1	0	0	0	0	1	1	0	0	0	0	5	6	4	0	0	0	0	4
745-800	1	0	0	0	1	2	1	0	0	0	0	1	2	4	0	0	0	0	4
800-815	1	0	0	0	0	1	2	1	0	0	0	3	4	1	0	0	0	1	6
815-830	2	0	0	0	0	2	3	0	0	0	0	3	5	0	0	0	0	5	
830-845	0	0	0	0	0	0	2	0	0	0	0	1	3	3	0	0	0	2	5
845-900	1	0	0	0	1	2	3	0	0	0	0	1	4	2	0	0	0	1	3
HOUR TOTALS																			
700-800	9	0	0	0	2	11	12	0	0	0	0	19	31	14	0	0	0	0	14
715-815	4	0	0	0	2	6	8	1	0	0	0	13	22	15	1	0	0	1	17
730-830	5	0	0	0	1	6	7	1	0	0	0	8	14	17	1	0	0	1	19
745-845	4	0	0	0	1	5	8	1	0	0	0	2	11	16	1	0	0	3	20
800-900	4	0	0	0	1	5	10	1	0	0	0	2	13	14	1	0	0	4	19

15-MIN COUNTS	7 NBRT						8 NBTH						9 NBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	5	0	0	0	0	5	149	0	0	0	0	5	154	41	3	0	1	0	45
715-730	3	0	0	0	0	3	141	0	0	2	2	2	145	114	3	0	0	2	119
730-745	6	0	0	0	0	6	196	1	0	1	6	204	118	2	0	0	0	3	123
745-800	7	0	0	0	0	7	173	0	0	0	2	175	96	2	0	0	0	3	101
800-815	9	0	0	0	0	9	137	1	0	0	2	140	108	0	0	0	1	109	
815-830	7	0	0	0	0	7	154	0	0	0	5	159	84	0	0	0	3	87	
830-845	11	0	0	0	0	11	113	0	0	0	2	115	74	0	0	0	3	77	
845-900	5	0	1	0	0	6	107	0	0	0	6	113	60	1	0	2	4	67	
HOUR TOTALS																			
700-800	21	0	0	0	0	21	659	1	0	3	15	678	369	10	0	1	8	388	
715-815	25	0	0	0	0	25	647	2	0	3	12	664	436	7	0	0	5	452	
730-830	29	0	0	0	0	29	660	2	0	1	15	678	406	4	0	0	10	420	
745-845	34	0	0	0	0	34	577	1	0	0	11	589	362	2	0	0	10	374	
800-900	32	0	1	0	0	33	511	1	0	0	15	527	326	1	0	2	11	340	

15-MIN COUNTS	10 EBRT						11 EBTH						12 EBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	113	0	0	0	3	116	7	0	0	0	2	9	7	4	1	7	4	23	
715-730	162	2	0	1	4	169	14	0	1	1	3	19	12	6	3	12	5	38	
730-745	208	0	0	0	3	211	10	1	0	0	0	11	10	7	2	10	7	36	
745-800	233	0	1	0	3	237	14	0	0	0	0	14	17	8	6	23	5	59	
800-815	197	0	0	1	3	201	13	0	0	0	1	14	16	9	1	13	6	45	
815-830	113	0	0	4	2	119	15	0	0	0	2	17	11	14	3	14	3	45	
830-845	163	1	1	0	13	178	7	0	0	0	1	8	7	12	2	14	2	37	
845-900	137	0	0	0	6	143	8	0	0	0	5	13	12	12	1	27	2	54	
HOUR TOTALS																			
700-800	716	2	1	1	13	733	45	1	1	1	5	53	46	25	12	52	21	156	
715-815	800	2	1	2	13	818	51	1	1	4	58	55	30	12	58	23	178	452	
730-830	751	0	1	5	11	768	52	1	0	0	3	56	54	38	12	60	21	185	
745-845	706	1	2	5	21	735	49	0	0	0	4	53	51	43	12	64	16	186	
800-900	610	1	1	5	24	641	43	0	0	0	9	52	46	47	7	68	13	181	



# WILTEC

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## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: MEYER, MOHADDES ASSOCIATES, INC.  
 PROJECT: PORT OF LOS ANGELES TRUCK CLASSIFICATION COUNTS  
 DATE: WEDNESDAY, JULY 31ST, 2002  
 PERIOD: 4:00 PM TO 8:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD  
 E/W SR-47 EB OFF RAMP/SWINFORD STREET

15-MIN COUNTS	1 SBRT						2 SBTH						3 SBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	6	11	2	3	2	24	29	0	0	0	0	29	1	0	1	0	0	2
415-430	7	7	0	3	0	17	29	2	0	0	2	33	1	0	0	0	0	1
430-445	14	4	0	6	0	24	29	0	0	0	1	30	7	0	0	0	7	
445-500	14	3	1	4	0	22	38	1	0	0	3	42	1	0	0	0	1	
500-515	12	0	0	2	0	14	38	1	0	0	0	39	2	0	0	0	2	
515-530	11	0	0	0	1	12	32	0	0	0	5	37	4	0	0	0	4	
530-545	15	0	0	0	0	15	24	0	0	0	1	25	2	0	0	0	2	
545-600	5	0	0	0	0	5	42	0	0	0	5	47	0	0	0	0	0	
<b>HOURLY TOTALS</b>																		
400-500	41	25	3	16	2	87	125	3	0	0	8	134	10	0	1	0	11	
415-515	47	14	1	15	0	77	134	4	0	0	6	144	11	0	0	0	11	
430-430	51	7	1	12	1	72	137	2	0	0	9	148	14	0	0	0	14	
445-545	52	3	1	6	1	63	132	0	0	0	9	143	9	0	0	0	9	
500-600	43	0	0	2	1	46	136	1	0	0	11	148	8	0	0	0	8	

15-MIN COUNTS	4 WBRT						5 WBTH						6 WBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	4	0	0	0	1	5	6	0	0	0	0	6	7	0	0	0	0	7
415-430	6	0	0	0	1	7	2	0	0	0	0	2	7	0	0	0	0	7
430-445	21	0	0	0	0	21	7	0	0	0	1	8	4	0	0	0	4	
445-500	2	0	0	0	1	3	5	1	0	0	0	6	4	0	0	0	4	
500-515	3	0	0	0	0	3	5	0	0	0	1	6	8	0	0	0	6	
515-530	3	0	0	0	0	3	4	0	0	0	0	4	4	0	0	0	4	
530-545	3	0	0	0	0	3	7	0	0	0	1	8	5	0	0	0	5	
545-600	4	0	0	0	0	4	3	0	0	0	0	3	2	0	0	0	2	
<b>HOURLY TOTALS</b>																		
400-500	33	0	0	0	3	36	20	1	0	0	1	22	22	0	0	0	22	
415-515	32	0	0	0	2	34	19	1	0	0	2	22	21	0	0	0	21	
430-530	29	0	0	0	1	30	21	1	0	0	2	24	18	0	0	0	18	
445-545	11	0	0	0	1	12	21	0	0	0	2	23	19	0	0	0	19	
500-600	13	0	0	0	0	13	19	0	0	0	2	21	17	0	0	0	17	

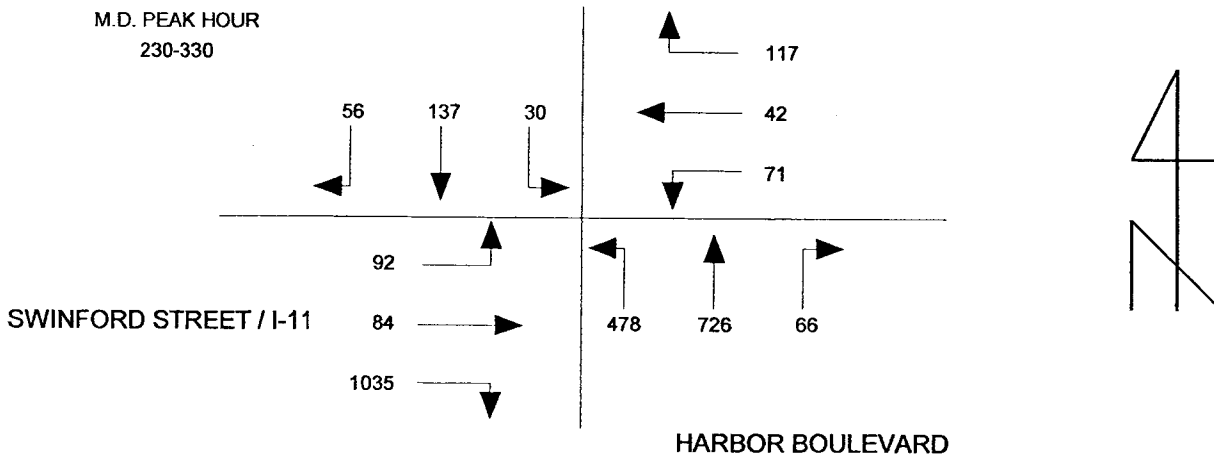
15-MIN COUNTS	7 NBRT						8 NBTH						9 NBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	4	0	0	0	0	4	173	1	0	0	1	175	91	1	1	1	0	94
415-430	3	0	0	0	0	3	108	1	0	0	5	114	60	1	0	0	0	61
430-445	5	0	0	0	0	5	190	0	0	0	4	194	88	0	0	0	1	89
445-500	3	0	0	0	0	3	132	0	0	0	1	133	86	1	0	0	3	90
500-515	0	0	0	0	0	0	215	1	0	0	1	217	128	0	0	2	1	131
515-530	2	0	0	0	0	2	145	1	0	0	0	146	88	0	0	0	0	88
530-545	6	0	0	0	0	6	129	0	0	0	2	131	130	0	0	0	1	131
545-600	2	0	0	0	0	2	118	0	0	0	3	121	84	0	0	1	1	86
<b>HOURLY TOTALS</b>																		
400-500	15	0	0	0	0	15	603	2	0	0	11	616	325	3	1	1	4	334
415-515	11	0	0	0	0	11	645	2	0	0	11	658	362	2	0	2	5	371
430-530	10	0	0	0	0	10	682	2	0	0	6	690	390	1	0	2	5	398
445-545	11	0	0	0	0	11	621	0	0	0	4	625	432	0	0	2	5	440
500-600	10	0	0	0	0	10	607	2	0	0	6	615	430	0	0	3	3	436

15-MIN COUNTS	10 EBRT						11 EBTH						12 EBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	212	3	0	1	4	220	10	0	0	0	0	10	4	8	4	16	0	32
415-430	287	3	0	1	5	296	6	0	0	0	0	6	11	8	0	4	0	23
430-445	223	2	0	1	4	230	2	0	0	0	0	2	4	0	0	1	1	6
445-500	333	3	1	2	4	343	3	0	0	0	1	4	9	0	0	0	0	9
500-515	335	2	0	1	1	339	0	0	0	0	0	0	9	0	0	0	0	9
515-530	322	0	0	0	1	323	2	0	0	0	1	3	6	0	0	0	0	6
530-545	318	1	0	0	4	323	7	0	0	0	0	7	9	0	0	1	0	10
545-600	307	2	0	0	4	313	3	0	0	0	0	3	6	0	0	0	0	6
<b>HOURLY TOTALS</b>																		
400-500	1055	11	1	5	17	1089	21	0	0	0	1	22	28	16	4	21	1	70
415-515	1178	10	1	5	14	1208	11	0	0	0	1	12	33	8	0	5	1	47
430-530	1213	7	1	4	10	1235	7	0	0	0	2	9	28	0	0	1	1	30
445-545	1306	6	1	3	10	1326	12	0	0	0	2	14	33	0	0	1	0	34
500-600	1280	5	0	1	10	1296	12	0	0	0	1	13	30	0	0	1	0	31

## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES  
 PROJECT: CABRILLO MARINA EXPANSION - PHASE II  
 DATE: SUNDAY, AUGUST 25TH, 2002  
 PERIOD: 1:00 PM TO 5:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD  
 E/W SWINFORD STREET / I-110 EB RAMP

15 MIN COUNTS													
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-115	18	26	8	45	22	21	30	138	117	213	52	18	708
115-130	17	29	19	33	14	21	24	118	95	260	63	35	728
130-145	26	30	13	40	13	26	58	148	97	243	63	21	778
145-200	15	42	15	21	14	17	33	138	106	208	47	17	673
200-215	19	32	11	22	4	8	24	155	102	250	28	22	677
215-230	16	29	8	49	10	23	34	150	93	249	40	19	720
230-245	15	33	3	32	6	15	21	153	105	266	30	28	707
245-300	10	44	7	20	16	19	21	190	154	270	27	18	796
300-315	14	31	11	30	15	21	10	158	107	267	16	22	702
315-330	17	29	9	35	5	16	14	225	112	232	11	24	729
330-345	10	21	4	21	10	13	9	157	113	243	17	11	629
345-400	21	18	4	14	3	9	13	182	134	231	17	8	654
400-415	13	35	5	25	6	12	11	196	104	209	16	12	644
415-430	12	34	3	20	7	11	7	239	125	257	10	8	733
430-445	6	30	3	44	20	12	11	201	119	249	8	5	708
445-500	11	32	2	20	20	17	7	202	102	310	6	11	740
HOOR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-200	76	127	55	139	63	85	145	542	415	924	225	91	2887
115-215	77	133	58	116	45	72	139	559	400	961	201	95	2856
130-230	76	133	47	132	41	74	149	591	398	950	178	79	2848
145-245	65	136	37	124	34	63	112	596	406	973	145	86	2777
200-300	60	138	29	123	36	65	100	648	454	1035	125	87	2900
215-315	55	137	29	131	47	78	86	651	459	1052	113	87	2925
230-330	56	137	30	117	42	71	66	726	478	1035	84	92	2934
245-345	51	125	31	106	46	69	54	730	486	1012	71	75	2856
300-400	62	99	28	100	33	59	46	722	466	973	61	65	2714
315-415	61	103	22	95	24	50	47	760	463	915	61	55	2656
330-430	56	108	16	80	26	45	40	774	476	940	60	39	2660
345-445	52	117	15	103	36	44	42	818	482	946	51	33	2739
400-500	42	131	13	109	53	52	36	838	450	1025	40	36	2825



# WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: MEYER, MOHADDES ASSOCIATES, INC.  
 PROJECT: PORT OF LOS ANGELES TRUCK CLASSIFICATION COUNTS  
 DATE: WEDNESDAY, AUGUST 21ST, 2002  
 PERIOD: 7:00 AM TO 9:00 AM  
 INTERSECTION: N/S HARBOR BOULEVARD  
 E/W 6TH STREET

15-MIN COUNTS	1 SBRT						2 SBTH						3 SBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	4	0	0	0	0	4	80	0	0	0	0	84	14	0	0	0	1	2	17
715-730	6	0	0	0	0	6	63	0	0	0	0	67	19	0	0	0	0	5	24
730-745	5	0	0	0	0	5	108	0	0	1	6	115	14	0	0	0	0	3	17
745-800	12	0	0	0	0	12	139	0	0	0	4	143	30	0	0	0	0	4	34
800-815	5	0	0	0	0	5	56	0	0	0	6	62	19	0	0	0	0	3	22
815-830	15	0	0	0	0	15	87	0	0	0	7	94	20	0	0	0	0	2	22
830-845	16	0	0	0	1	17	76	0	0	0	5	81	21	0	0	0	0	5	26
845-900	11	0	0	0	0	11	75	0	1	0	8	84	20	0	0	0	0	0	20
HOUR TOTALS																			
700-800	27	0	0	0	0	27	390	0	0	1	18	409	77	0	0	0	1	14	92
715-815	28	0	0	0	0	28	366	0	0	1	20	387	82	0	0	0	0	15	97
730-830	37	0	0	0	0	37	390	0	0	1	23	414	83	0	0	0	0	12	95
745-845	48	0	0	0	1	49	358	0	0	0	22	380	90	0	0	0	0	14	104
800-900	47	0	0	0	1	48	294	0	1	0	26	321	80	0	0	0	0	10	90

15-MIN COUNTS	4 WBRT						5 WBTH						6 WBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	5	0	0	0	0	5	2	0	0	0	0	2	1	0	0	0	0	0	1
715-730	1	0	0	0	0	1	4	0	0	0	0	4	1	0	0	0	0	0	1
730-745	2	0	0	0	0	3	5	1	0	0	0	6	1	0	0	0	0	0	1
745-800	4	0	0	0	0	4	2	0	0	0	0	2	1	0	0	0	0	0	1
800-815	5	0	0	0	0	5	1	0	0	0	0	1	2	0	0	0	0	0	2
815-830	6	0	0	0	0	6	2	0	0	0	0	2	3	0	0	0	0	0	3
830-845	5	0	0	0	0	5	5	0	0	0	0	5	4	0	0	0	0	1	5
845-900	5	0	0	0	0	5	1	0	0	0	0	1	1	0	0	0	0	0	1
HOUR TOTALS																			
700-800	12	0	0	0	0	12	9	0	0	0	0	9	4	0	0	0	0	0	4
715-815	12	0	0	0	0	12	8	0	0	0	0	8	5	0	0	0	0	0	5
730-830	17	0	0	0	0	17	6	0	0	0	0	6	7	0	0	0	0	0	7
745-845	20	0	0	0	0	20	10	0	0	0	0	10	10	0	0	0	0	1	11
800-900	21	0	0	0	0	21	9	0	0	0	0	9	10	0	0	0	0	1	11

15-MIN COUNTS	7 NBRT						8 NBTH						9 NBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	2	0	0	0	0	2	164	1	0	0	1	166	1	0	0	0	0	0	1
715-730	2	0	0	0	0	2	194	0	0	0	1	195	2	0	0	0	0	0	2
730-745	4	0	0	0	0	4	218	0	0	0	2	220	0	0	0	0	0	0	0
745-800	10	0	0	0	0	10	221	0	0	0	2	223	3	0	0	0	0	0	3
800-815	5	0	0	0	0	5	166	0	0	1	18	185	2	0	0	0	0	0	2
815-830	2	0	0	0	1	3	163	1	0	1	1	166	2	0	0	0	0	0	2
830-845	4	0	0	0	0	4	142	0	0	0	2	144	5	0	0	0	0	0	5
845-900	7	0	0	0	0	7	82	0	0	0	2	84	1	0	0	0	0	0	1
HOUR TOTALS																			
700-800	18	0	0	0	0	18	797	1	0	6	11	815	6	0	0	0	0	0	6
715-815	21	0	0	0	0	21	799	0	0	6	27	832	7	0	0	0	0	0	7
730-830	21	0	0	0	1	22	788	1	0	6	23	796	7	0	0	0	0	0	7
745-845	21	0	0	0	1	22	692	1	0	6	24	723	12	0	0	0	0	0	12
800-900	18	0	0	0	1	19	553	1	0	4	24	582	10	0	0	0	0	0	10

15-MIN COUNTS	10 EBRT						11 EBTH						12 EBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
700-715	3	0	0	0	0	3	4	0	0	0	0	4	4	0	0	0	0	0	4
715-730	0	0	0	0	0	0	2	0	0	0	0	2	8	0	0	0	0	0	8
730-745	2	0	0	0	0	2	4	0	0	0	1	5	5	0	0	0	0	0	5
745-800	1	0	0	0	0	1	2	0	0	0	0	2	8	0	0	0	0	1	9
800-815	4	0	0	0	0	4	4	0	0	0	0	4	5	0	0	0	0	0	5
815-830	4	0	0	0	0	4	5	0	0	0	0	5	3	0	0	0	0	0	3
830-845	2	0	0	0	0	2	6	0	0	0	0	6	4	0	0	0	0	0	4
845-900	1	0	0	0	0	1	3	0	0	0	1	4	6	0	0	0	0	0	6
HOUR TOTALS																			
700-800	6	0	0	0	0	6	12	0	0	1	0	13	25	0	0	0	0	1	26
715-815	7	0	0	0	0	7	12	0	0	1	0	13	26	0	0	0	0	1	27
730-830	11	0	0	0	0	11	15	0	0	1	0	16	21	0	0	0	0	1	22
745-845	11	0	0	0	0	11	17	0	0	0	0	17	20	0	0	0	0	1	21
800-900	11	0	0	0	0	11	18	0	0	0	1	19	18	0	0	0	0	0	18

# WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: MEYER, MOHADDES ASSOCIATES, INC.  
 PROJECT: PORT OF LOS ANGELES TRUCK CLASSIFICATION COUNTS  
 DATE: WEDNESDAY, AUGUST 21ST, 2002  
 PERIOD: 4:00 PM TO 6:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD  
 E/W 6TH STREET

15-MIN COUNTS	1 SBRT						2 SBTH						3 SBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
400-415	12	0	0	0	0	12	144	0	0	0	0	147	23	0	0	0	0	2	25
415-430	9	0	0	0	0	9	174	0	1	0	0	3	178	31	0	0	0	0	32
430-445	11	0	0	0	0	11	222	0	0	0	0	3	225	30	0	0	0	1	31
445-500	18	0	0	0	0	18	285	0	0	0	0	5	290	31	0	0	0	0	31
500-515	3	0	0	0	1	4	218	0	0	0	0	2	220	17	0	0	0	1	18
515-530	13	0	0	0	1	14	239	0	0	0	0	2	241	23	0	0	0	0	23
530-545	9	0	0	0	0	9	287	0	0	0	0	4	291	34	0	0	0	1	35
545-600	10	0	0	0	0	10	210	1	0	0	0	1	212	28	0	0	0	0	28
<b>HOUR TOTALS</b>																			
400-500	50	0	0	0	0	50	825	0	1	0	14	840	115	0	0	0	0	4	119
415-515	41	0	0	0	1	42	899	0	1	0	13	913	109	0	0	0	0	3	112
430-530	45	0	0	0	2	47	964	0	0	0	12	976	101	0	0	0	0	2	103
445-545	13	0	0	0	2	15	129	0	0	0	13	142	105	0	0	0	0	2	107
500-600	35	0	0	0	2	37	954	1	0	0	9	964	102	0	0	0	0	2	104

15-MIN COUNTS	4 WBRT						5 WBTH						6 WBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
400-415	16	0	0	0	1	17	10	0	0	0	0	10	7	0	0	0	0	0	7
415-430	21	0	0	0	0	21	11	0	0	0	0	11	7	0	0	0	0	0	7
430-445	22	0	0	0	0	22	13	0	0	0	1	14	1	0	0	0	0	1	1
445-500	25	0	0	0	0	25	10	0	0	0	0	10	5	0	0	0	0	0	5
500-515	20	0	0	0	0	20	6	0	0	0	1	7	3	0	0	0	0	0	3
515-530	18	0	0	0	0	18	8	0	0	0	0	8	8	0	0	0	0	0	8
530-545	16	0	0	0	0	16	9	0	0	0	0	9	5	0	0	0	0	0	5
545-600	18	0	0	0	0	18	7	0	0	0	0	7	4	0	0	0	0	0	4
<b>HOUR TOTALS</b>																			
400-500	84	0	0	0	1	85	44	0	0	0	1	45	20	0	0	0	0	0	20
415-515	88	0	0	0	0	88	40	0	0	0	2	42	16	0	0	0	0	0	16
430-530	85	0	0	0	0	85	37	0	0	0	2	39	17	0	0	0	0	0	17
445-545	29	0	0	0	0	29	23	0	0	0	1	24	21	0	0	0	0	0	21
500-600	72	0	0	0	0	72	30	0	0	0	1	31	20	0	0	0	0	0	20

15-MIN COUNTS	7 NBRT						8 NBTH						9 NBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
400-415	7	0	0	0	0	7	108	0	0	2	4	114	2	0	0	0	0	0	2
415-430	8	0	0	0	0	8	94	0	0	1	3	98	4	0	0	0	0	0	4
430-445	12	0	0	0	0	12	125	0	0	0	0	125	1	0	0	0	0	0	1
445-500	7	0	0	0	0	7	103	0	0	1	1	105	5	0	0	0	0	0	5
500-515	8	0	0	0	0	8	126	0	0	0	1	127	2	0	0	0	0	0	2
515-530	16	0	0	0	1	17	94	0	0	1	2	97	0	0	0	0	0	0	0
530-545	12	0	0	0	0	12	109	0	0	0	1	110	2	0	0	0	0	0	2
545-600	11	0	0	0	0	11	125	0	0	0	2	127	0	0	0	0	0	0	0
<b>HOUR TOTALS</b>																			
400-500	34	0	0	0	0	34	430	0	0	4	8	442	12	0	0	0	0	0	12
415-515	35	0	0	0	0	35	448	0	0	2	5	455	12	0	0	0	0	0	12
430-530	43	0	0	0	1	44	448	0	0	2	4	454	8	0	0	0	0	0	8
445-545	13	0	0	0	1	14	432	0	0	2	5	439	9	0	0	0	0	0	9
500-600	47	0	0	0	1	48	454	0	0	1	6	461	4	0	0	0	0	0	4

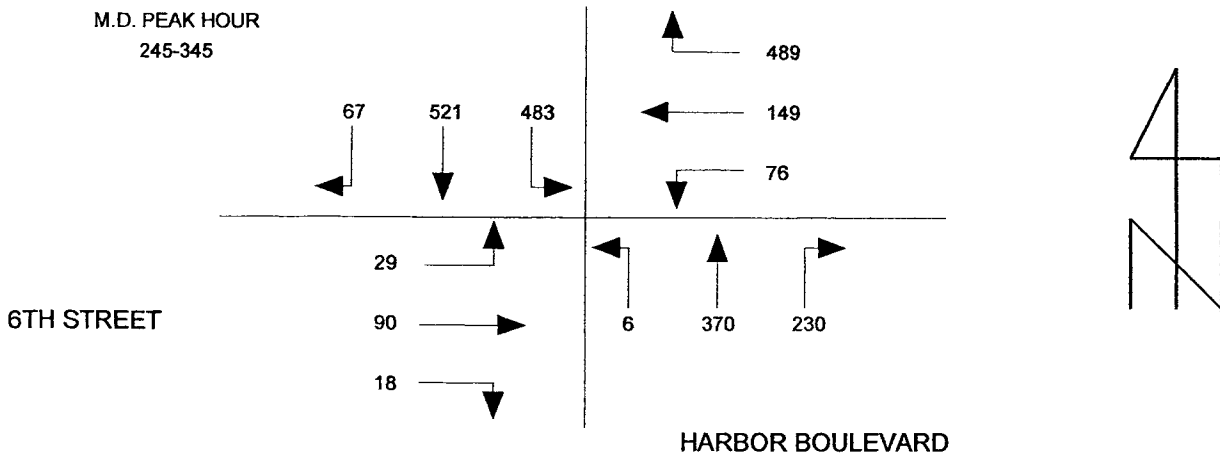
15-MIN COUNTS	10 EBRT						11 EBTH						12 EBLT						
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	
400-415	4	0	0	0	0	4	3	0	0	0	0	3	11	0	0	0	0	1	12
415-430	2	0	0	0	0	2	7	0	0	0	0	7	4	0	0	0	0	0	4
430-445	4	0	0	0	0	4	2	0	0	0	0	2	11	0	0	0	0	0	11
445-500	4	0	0	0	0	4	6	0	0	0	0	6	7	0	0	0	1	0	8
500-515	1	0	0	0	0	1	4	0	0	0	0	4	11	0	0	0	0	0	11
515-530	1	0	0	0	0	1	7	0	0	0	0	7	9	0	0	0	0	0	9
530-545	0	0	0	0	0	0	6	0	0	0	0	6	9	0	0	0	0	0	9
545-600	0	0	0	0	0	0	8	0	0	0	0	8	5	0	0	0	0	0	5
<b>HOUR TOTALS</b>																			
400-500	14	0	0	0	0	14	18	0	0	0	0	18	33	0	0	0	1	1	35
415-515	11	0	0	0	0	11	19	0	0	0	0	19	33	0	0	0	1	0	34
430-530	10	0	0	0	0	10	19	0	0	0	0	19	38	0	0	0	1	0	39
445-545	8	0	0	0	0	8	23	0	0	0	0	23	36	0	0	0	1	0	37
500-600	2	0	0	0	0	2	25	0	0	0	0	25	34	0	0	0	0	0	34

## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES  
 PROJECT: CABRILLO MARINA EXPANSION - PHASE II  
 DATE: SUNDAY, AUGUST 25TH, 2002  
 PERIOD: 1:00 PM TO 5:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD  
 E/W 6TH STREET

15 MIN COUNTS													
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-115	19	147	130	57	14	7	65	99	5	4	23	7	577
115-130	13	110	127	81	17	13	42	100	1	5	30	6	545
130-145	12	100	101	83	18	8	82	121	5	1	20	7	558
145-200	20	137	129	94	18	18	67	89	1	2	30	8	613
200-215	14	116	129	93	35	10	54	93	1	2	29	5	581
215-230	15	120	114	114	34	20	51	103	0	3	19	6	599
230-245	9	109	123	100	38	10	59	89	3	1	22	18	581
245-300	16	140	130	120	30	14	64	92	2	2	27	3	640
300-315	12	124	134	111	36	25	48	84	0	3	17	9	603
315-330	20	141	101	135	37	24	61	126	4	3	26	7	685
330-345	19	116	118	123	46	13	57	68	0	10	20	10	600
345-400	11	117	88	113	30	13	39	88	0	0	17	6	522
400-415	23	127	88	165	45	18	48	115	2	2	15	13	661
415-430	14	111	113	115	34	13	46	103	2	6	22	14	593
430-445	11	120	95	132	39	3	42	99	0	0	14	15	570
445-500	6	126	87	87	34	10	46	114	3	1	8	9	531

HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-200	64	494	487	315	67	46	256	409	12	12	103	28	2293
115-215	59	463	486	351	88	49	245	403	8	10	109	26	2297
130-230	61	473	473	384	105	56	254	406	7	8	98	26	2351
145-245	58	482	495	401	125	58	231	374	5	8	100	37	2374
200-300	54	485	496	427	137	54	228	377	6	8	97	32	2401
215-315	52	493	501	445	138	69	222	368	5	9	85	36	2423
230-330	57	514	488	466	141	73	232	391	9	9	92	37	2509
245-345	67	521	483	489	149	76	230	370	6	18	90	29	2528
300-400	62	498	441	482	149	75	205	366	4	16	80	32	2410
315-415	73	501	395	536	158	68	205	397	6	15	78	36	2468
330-430	67	471	407	516	155	57	190	374	4	18	74	43	2376
345-445	59	475	384	525	148	47	175	405	4	8	68	48	2346
400-500	54	484	383	499	152	44	182	431	7	9	59	51	2355



# WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: MEYER, MOHADDES ASSOCIATES, INC.  
 PROJECT: PORT OF LOS ANGELES TRUCK CLASSIFICATION COUNTS  
 DATE: WEDNESDAY, AUGUST 21ST, 2002  
 PERIOD: 7:00 AM TO 9:00 AM  
 INTERSECTION: N/S HARBOR BOULEVARD/MINER STREET  
 E/W CRESCENT AVENUE

15-MIN COUNTS	1 SBRT						2 SBTH						3 SBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
700-715	9	0	0	0	0	9	34	0	0	2	3	39	0	0	0	0	0	0
715-730	18	0	0	0	0	18	41	0	0	1	1	43	0	0	0	0	0	0
730-745	18	0	0	0	1	19	51	0	0	0	2	53	0	0	0	0	0	0
745-800	25	0	0	0	0	25	59	0	1	2	1	63	0	0	0	0	0	0
800-815	6	0	0	0	0	6	43	0	0	0	1	44	0	0	0	0	0	0
815-830	15	0	0	0	0	15	35	0	0	0	4	39	0	0	0	0	0	0
830-845	19	0	0	0	0	19	47	0	0	0	4	51	0	0	0	0	0	0
845-900	17	0	0	0	1	18	40	0	0	0	3	43	0	0	0	0	0	0
<b>HOUR TOTALS</b>																		
700-800	68	0	0	0	1	69	185	0	1	5	7	198	0	0	0	0	0	0
715-815	65	0	0	0	0	65	194	0	1	3	5	203	0	0	0	0	0	0
730-830	64	0	0	0	1	65	188	0	1	2	8	199	0	0	0	0	0	0
745-845	65	0	0	0	0	65	184	0	1	2	10	197	0	0	0	0	0	0
800-900	57	0	0	0	1	58	165	0	0	0	12	177	0	0	0	0	0	0

15-MIN COUNTS	4 WBRT						5 WBTH						6 WBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
700-715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715-730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
730-745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
745-800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800-815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
815-830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
830-845	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
845-900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOUR TOTALS</b>																		
700-800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715-815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
730-830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
745-845	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800-900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

15-MIN COUNTS	7 NBRT						8 NBTH						9 NBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
700-715	0	0	0	0	0	0	40	1	0	0	0	41	6	0	0	0	0	6
715-730	0	0	0	0	0	0	83	0	1	1	9	94	0	0	0	0	0	0
730-745	0	0	0	0	0	0	86	1	0	1	0	88	2	0	0	0	0	2
745-800	0	0	0	0	0	0	90	1	0	1	5	97	0	0	0	0	0	0
800-815	0	0	0	0	0	0	57	0	0	0	8	65	0	0	0	0	0	0
815-830	0	0	0	0	0	0	63	0	0	1	2	66	0	0	0	0	1	1
830-845	0	0	0	0	0	0	50	0	0	1	3	54	2	0	0	0	0	2
845-900	0	0	0	0	0	0	29	0	0	0	3	32	1	0	0	0	0	1
<b>HOUR TOTALS</b>																		
700-800	0	0	0	0	0	0	299	3	1	3	14	320	8	0	0	0	0	8
715-815	0	0	0	0	0	0	315	2	1	3	22	344	2	0	0	0	0	2
730-830	0	0	0	0	0	0	296	2	0	3	15	316	2	0	0	0	1	3
745-845	0	0	0	0	0	0	260	1	0	3	18	282	2	0	0	0	1	3
800-900	0	0	0	0	0	0	199	0	0	2	16	217	3	0	0	0	1	4

15-MIN COUNTS	10 EBRT						11 EBTH						12 EBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
700-715	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	0	0	45
715-730	2	0	0	0	0	2	0	0	0	0	0	0	68	0	0	0	0	68
730-745	2	0	0	0	0	2	0	0	0	0	0	0	77	0	0	0	0	77
745-800	2	0	0	0	0	2	0	0	0	0	0	0	73	0	0	0	0	73
800-815	2	0	0	0	0	2	0	0	0	0	0	0	63	0	0	0	1	64
815-830	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	30
830-845	3	0	0	0	0	3	0	0	0	0	0	0	49	0	0	0	0	49
845-900	1	0	0	0	0	1	0	0	0	0	0	0	35	0	0	0	0	35
<b>HOUR TOTALS</b>																		
700-800	6	0	0	0	0	6	0	0	0	0	0	0	263	0	0	0	0	263
715-815	8	0	0	0	0	8	0	0	0	0	0	0	281	0	0	0	0	282
730-830	6	0	0	0	0	6	0	0	0	0	0	0	243	0	0	0	1	244
745-845	7	0	0	0	0	7	0	0	0	0	0	0	215	0	0	0	1	216
800-900	6	0	0	0	0	6	0	0	0	0	0	0	177	0	0	0	1	178

# WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: MEYER, MOHADES ASSOCIATES, INC.  
 PROJECT: PORT OF LOS ANGELES TRUCK CLASSIFICATION COUNTS  
 DATE: WEDNESDAY, AUGUST 21ST, 2002  
 PERIOD: 4:00 PM TO 6:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD/MINER STREET  
 E/W CRESCENT AVENUE

15-MIN COUNTS	1 SBRT						2 SBTH						3 SBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	58	0	0	0	0	58	59	0	0	1	0	63	0	0	0	0	0	0
415-430	71	0	0	0	0	71	70	0	1	0	1	72	0	0	0	0	0	0
430-445	99	0	0	0	0	99	76	0	1	0	2	79	0	0	0	0	0	0
445-500	120	0	0	0	0	120	89	0	0	0	0	89	0	0	0	0	0	0
500-515	106	0	0	0	0	106	84	0	0	0	1	85	0	0	0	0	0	0
515-530	104	0	0	0	0	104	103	0	0	0	0	103	0	0	0	0	0	0
530-545	117	0	0	0	0	117	100	0	0	0	0	100	0	0	0	0	0	0
545-600	95	0	0	0	0	95	74	0	0	0	1	75	0	0	0	0	0	0
HOUR TOTALS																		
400-500	348	0	0	0	0	348	294	0	2	1	6	303	0	0	0	0	0	0
415-515	396	0	0	0	0	396	319	0	2	0	4	325	0	0	0	0	0	0
430-530	429	0	0	0	0	429	352	0	1	0	3	356	0	0	0	0	0	0
445-545	447	0	0	0	0	447	376	0	0	0	1	377	0	0	0	0	0	0
500-600	422	0	0	0	0	422	361	0	0	0	2	363	0	0	0	0	0	0

15-MIN COUNTS	4 WBRT						5 WBTH						6 WBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS																		
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

15-MIN COUNTS	7 NBRT						8 NBTH						9 NBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	0	0	0	0	0	0	64	0	0	1	5	70	2	0	0	0	0	2
415-430	0	0	0	0	0	0	43	0	0	0	3	46	2	0	0	0	0	2
430-445	0	0	0	0	0	0	54	0	0	0	3	57	0	0	0	0	0	0
445-500	0	0	0	0	0	0	74	0	0	1	2	77	3	0	0	0	0	3
500-515	0	0	0	0	0	0	49	0	0	0	2	51	1	0	0	0	0	1
515-530	0	0	0	0	0	0	48	0	0	1	1	50	1	0	0	0	0	1
530-545	0	0	0	0	0	0	47	0	0	0	0	47	2	0	0	0	0	2
545-600	0	0	0	0	0	0	50	0	0	0	1	51	3	0	0	0	0	3
HOUR TOTALS																		
400-500	0	0	0	0	0	0	235	0	0	2	13	250	7	0	0	0	0	7
415-515	0	0	0	0	0	0	220	0	0	1	10	231	6	0	0	0	0	6
430-530	0	0	0	0	0	0	225	0	0	2	8	235	5	0	0	0	0	5
445-545	0	0	0	0	0	0	218	0	0	2	5	225	7	0	0	0	0	7
500-600	0	0	0	0	0	0	194	0	0	1	4	199	7	0	0	0	0	7

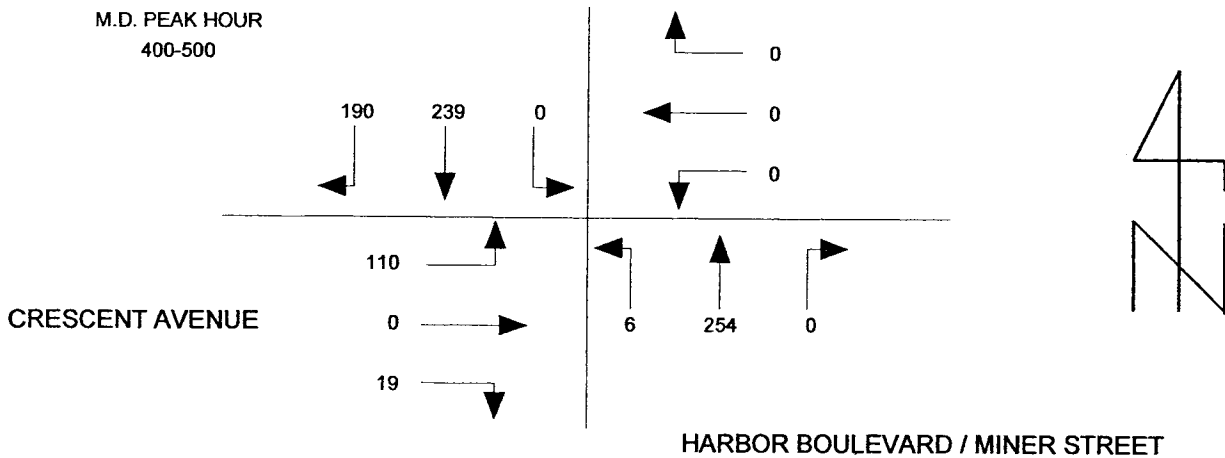
15-MIN COUNTS	10 EBRT						11 EBTH						12 EBLT					
	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL	AUTOS	BOB-T	CHASS	CONT	OTHR	TOTAL
400-415	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	28
415-430	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	21
430-445	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0	29
445-500	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	20
500-515	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	28
515-530	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	24
530-545	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	23
545-600	0	0	0	0	0	0	0	0	0	0	0	0	34	0	0	0	0	34
HOUR TOTALS																		
400-500	0	0	0	0	0	0	0	0	0	0	0	0	98	0	0	0	0	98
415-515	0	0	0	0	0	0	0	0	0	0	0	0	98	0	0	0	0	98
430-530	0	0	0	0	0	0	0	0	0	0	0	0	101	0	0	0	0	101
445-545	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0	0	95
500-600	0	0	0	0	0	0	0	0	0	0	0	0	109	0	0	0	0	109

## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES  
 PROJECT: CABRILLO MARINA EXPANSION - PHASE II  
 DATE: SUNDAY, AUGUST 25TH, 2002  
 PERIOD: 1:00 PM TO 5:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD / MINER STREET  
 E/W CRESCENT AVENUE

15 MIN COUNTS													
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-115	21	63	0	0	0	0	0	50	0	3	0	15	152
115-130	22	66	0	0	0	0	0	51	1	3	0	23	166
130-145	37	91	0	0	0	0	0	60	3	4	0	25	220
145-200	34	61	0	0	0	0	0	61	3	4	0	26	189
200-215	32	51	0	0	0	0	0	39	1	1	0	28	152
215-230	51	63	0	0	0	0	0	52	2	6	0	30	204
230-245	33	51	0	0	0	0	0	43	2	8	0	27	164
245-300	45	65	0	0	0	0	0	57	2	6	0	35	210
300-315	56	64	0	0	0	0	0	46	2	2	0	26	196
315-330	55	91	0	0	0	0	0	64	2	0	0	21	233
330-345	28	57	0	0	0	0	0	54	2	2	0	13	156
345-400	28	65	0	0	0	0	0	63	2	1	0	19	178
400-415	47	81	0	0	0	0	0	65	3	4	0	33	233
415-430	45	47	0	0	0	0	0	58	1	9	0	21	181
430-445	45	47	0	0	0	0	0	61	0	3	0	25	181
445-500	53	64	0	0	0	0	0	70	2	3	0	31	223

HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-200	114	281	0	0	0	0	0	222	7	14	0	89	727
115-215	125	269	0	0	0	0	0	211	8	12	0	102	727
130-230	154	266	0	0	0	0	0	212	9	15	0	109	765
145-245	150	226	0	0	0	0	0	195	8	19	0	111	709
200-300	161	230	0	0	0	0	0	191	7	21	0	120	730
215-315	185	243	0	0	0	0	0	198	8	22	0	118	774
230-330	189	271	0	0	0	0	0	210	8	16	0	109	803
245-345	184	277	0	0	0	0	0	221	8	10	0	95	795
300-400	167	277	0	0	0	0	0	227	8	5	0	79	763
315-415	158	294	0	0	0	0	0	246	9	7	0	86	800
330-430	148	250	0	0	0	0	0	240	8	16	0	86	748
345-445	165	240	0	0	0	0	0	247	6	17	0	98	773
400-500	190	239	0	0	0	0	0	254	6	19	0	110	818





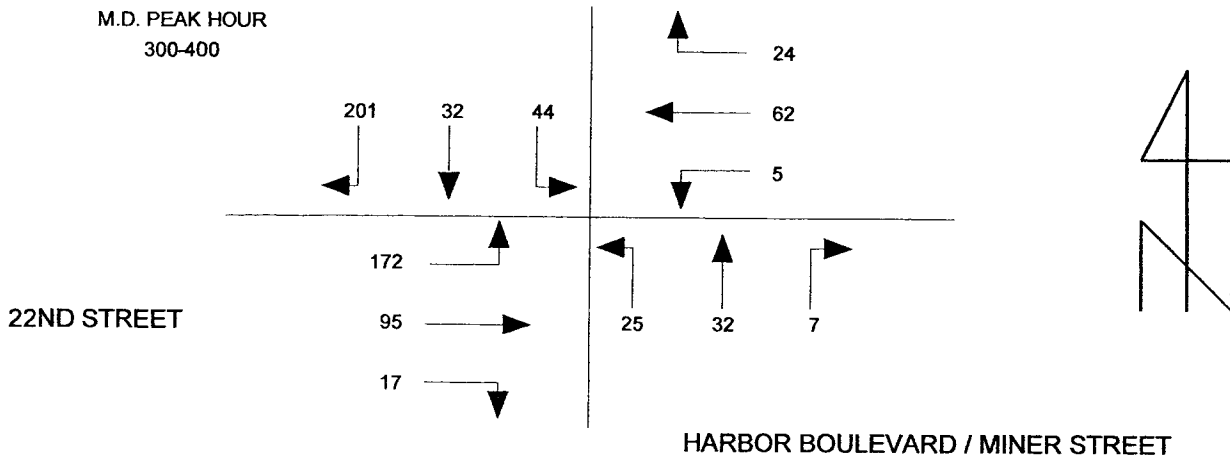


## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES  
 PROJECT: CABRILLO MARINA EXPANSION - PHASE II  
 DATE: SUNDAY, AUGUST 25TH, 2002  
 PERIOD: 1:00 PM TO 5:00 PM  
 INTERSECTION: N/S HARBOR BOULEVARD / MINER STREET  
 E/W 22ND STREET

15 MIN COUNTS													
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-115	46	6	5	9	16	0	3	8	2	1	12	32	140
115-130	56	6	4	6	19	0	1	5	4	0	15	32	148
130-145	52	12	10	3	8	0	2	7	1	7	21	50	173
145-200	54	12	8	5	11	1	5	14	6	5	10	42	173
200-215	34	8	11	7	26	1	2	4	6	5	20	28	152
215-230	37	11	13	4	11	1	3	7	4	7	14	38	150
230-245	38	5	19	7	15	0	0	7	0	4	19	33	147
245-300	44	7	15	7	10	2	1	11	6	6	13	39	161
300-315	48	6	10	4	20	2	3	2	9	5	33	40	182
315-330	63	11	9	7	15	2	1	9	4	5	17	41	184
330-345	41	10	10	5	15	0	1	14	5	3	24	46	174
345-400	49	5	15	8	12	1	2	7	7	4	21	45	176
400-415	47	9	11	10	11	3	3	12	1	4	21	40	172
415-430	37	5	14	5	14	2	1	10	6	3	15	47	159
430-445	30	9	9	3	13	0	1	6	6	4	12	47	140
445-500	47	10	9	8	9	0	2	13	4	1	9	54	166

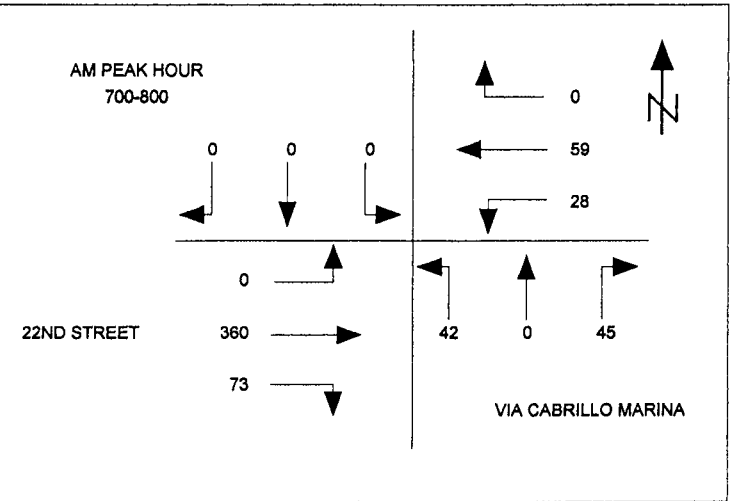
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-200	208	36	27	23	54	1	11	34	13	13	58	156	634
115-215	196	38	33	21	64	2	10	30	17	17	66	152	646
130-230	177	43	42	19	56	3	12	32	17	24	65	158	648
145-245	163	36	51	23	63	3	10	32	16	21	63	141	622
200-300	153	31	58	25	62	4	6	29	16	22	66	138	610
215-315	167	29	57	22	56	5	7	27	19	22	79	150	640
230-330	193	29	53	25	60	6	5	29	19	20	82	153	674
245-345	196	34	44	23	60	6	6	36	24	19	87	166	701
300-400	201	32	44	24	62	5	7	32	25	17	95	172	716
315-415	200	35	45	30	53	6	7	42	17	16	83	172	706
330-430	174	29	50	28	52	6	7	43	19	14	81	178	681
345-445	163	28	49	26	50	6	7	35	20	15	69	179	647
400-500	161	33	43	26	47	5	7	41	17	12	57	188	637



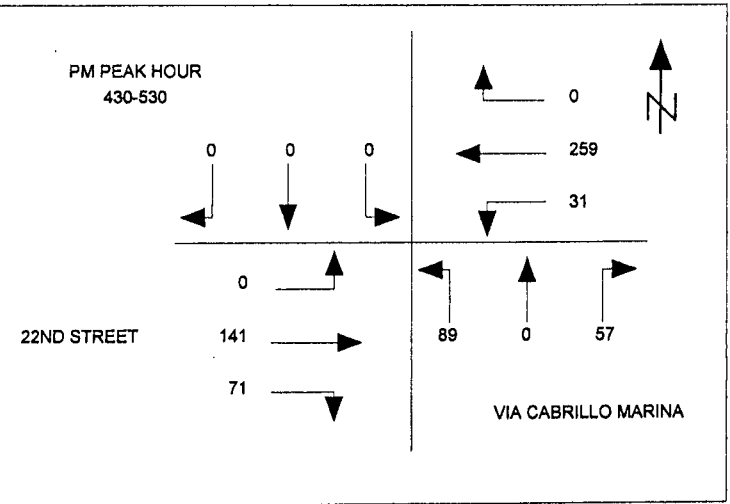
## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES  
 PROJECT: CABRILLO MARINA EXPANSION - PHASE II  
 DATE: TUESDAY, AUGUST 27TH, 2002  
 PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM  
 INTERSECTION: N/S VIA CABRILLO MARINA  
 E/W 22ND STREET

15 MIN COUNTS														7:00 AM TO 8:00 AM													
PERIOD	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		
700-715	0	0	0	0	11	5	4	0	9	20	86	0	135	0	0	0	0	22	8	13	0	10	16	54	0	123	
715-730	0	0	0	0	16	8	15	0	13	20	114	0	186	0	0	0	0	10	16	13	0	10	16	54	0	123	
730-745	0	0	0	0	10	7	13	0	10	17	106	0	163	0	0	0	0	13	8	15	0	13	20	114	0	186	
745-800	0	0	0	0	13	10	3	0	6	10	68	0	110	0	0	0	0	10	7	13	0	10	17	106	0	163	
800-815	0	0	0	0	20	7	11	0	12	14	71	0	135	0	0	0	0	13	10	3	0	6	10	68	0	110	
815-830	0	0	0	0	10	22	8	0	9	13	61	0	123	0	0	0	0	20	7	11	0	12	14	71	0	135	
830-845	0	0	0	0	17	6	8	0	10	20	54	0	115	0	0	0	0	10	22	8	0	9	13	61	0	123	
845-900	0	0	0	0	17	6	8	0	10	20	54	0	115	0	0	0	0	17	6	8	0	10	20	54	0	115	
HOOR TOTALS																											
TIME	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		
700-800	0	0	0	0	59	28	45	0	42	73	360	0	607	0	0	0	0	59	28	45	0	42	73	360	0	607	
715-815	0	0	0	0	61	33	44	0	39	63	342	0	582	0	0	0	0	61	33	44	0	39	63	342	0	582	
730-830	0	0	0	0	59	32	42	0	41	61	359	0	594	0	0	0	0	59	32	42	0	41	61	359	0	594	
745-845	0	0	0	0	53	46	35	0	37	54	306	0	531	0	0	0	0	53	46	35	0	37	54	306	0	531	
800-900	0	0	0	0	60	45	30	0	37	57	254	0	483	0	0	0	0	60	45	30	0	37	57	254	0	483	



15 MIN COUNTS														4:00 PM TO 6:00 PM													
PERIOD	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		
400-415	0	0	0	0	44	10	15	0	28	21	40	0	158	0	0	0	0	44	10	15	0	28	21	40	0	158	
415-430	0	0	0	0	47	5	9	0	13	11	25	0	110	0	0	0	0	47	5	9	0	13	11	25	0	110	
430-445	0	0	0	0	53	4	8	0	22	19	43	0	149	0	0	0	0	53	4	8	0	22	19	43	0	149	
445-500	0	0	0	0	77	7	12	0	30	18	36	0	180	0	0	0	0	77	7	12	0	30	18	36	0	180	
500-515	0	0	0	0	51	5	20	0	22	13	23	0	134	0	0	0	0	51	5	20	0	22	13	23	0	134	
515-530	0	0	0	0	78	15	17	0	15	21	39	0	185	0	0	0	0	78	15	17	0	15	21	39	0	185	
530-545	0	0	0	0	30	10	11	0	15	16	20	0	102	0	0	0	0	30	10	11	0	15	16	20	0	102	
545-600	0	0	0	0	84	15	11	0	22	12	39	0	183	0	0	0	0	84	15	11	0	22	12	39	0	183	
HOOR TOTALS																											
TIME	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT		
400-500	0	0	0	0	221	26	44	0	93	69	144	0	597	0	0	0	0	221	26	44	0	93	69	144	0	597	
415-515	0	0	0	0	228	21	49	0	87	61	127	0	573	0	0	0	0	228	21	49	0	87	61	127	0	573	
430-530	0	0	0	0	259	31	57	0	89	71	141	0	648	0	0	0	0	259	31	57	0	89	71	141	0	648	
445-545	0	0	0	0	236	37	60	0	82	68	118	0	601	0	0	0	0	236	37	60	0	82	68	118	0	601	
500-600	0	0	0	0	243	45	59	0	74	62	121	0	604	0	0	0	0	243	45	59	0	74	62	121	0	604	

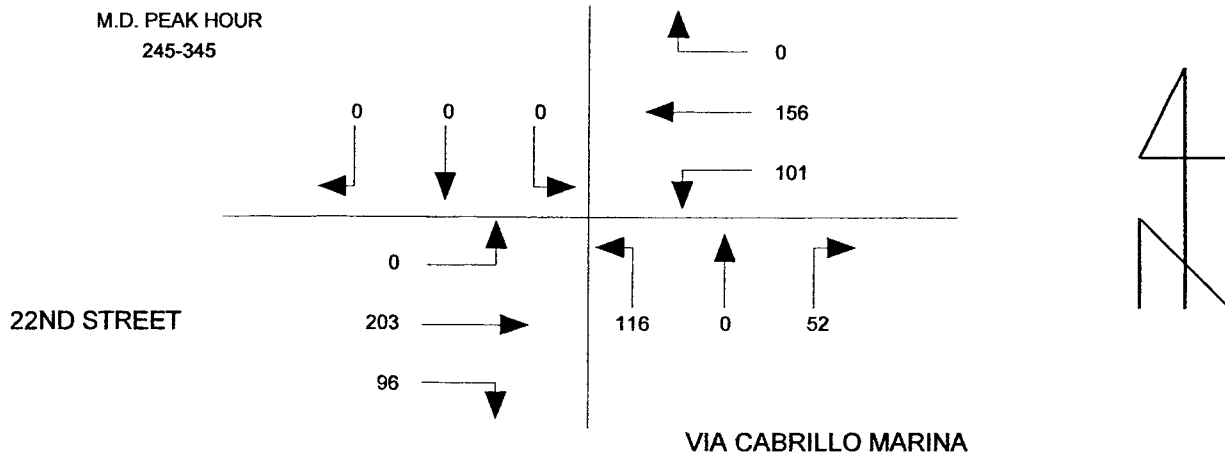


## INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES  
 PROJECT: CABRILLO MARINA EXPANSION - PHASE II  
 DATE: SUNDAY, AUGUST 25TH, 2002  
 PERIOD: 1:00 PM TO 5:00 PM  
 INTERSECTION: N/S VIA CABRILLO MARINA  
 E/W 22ND STREET

15 MIN COUNTS													
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-115	0	0	0	0	33	21	6	0	19	12	35	0	126
115-130	0	0	0	0	39	32	7	0	26	25	43	0	172
130-145	0	0	0	0	40	27	17	0	26	27	55	0	192
145-200	0	0	0	0	48	24	9	0	27	24	33	0	165
200-215	0	0	0	0	56	20	10	0	30	22	32	0	170
215-230	0	0	0	0	26	10	9	0	14	32	36	0	127
230-245	0	0	0	0	35	28	15	0	32	25	49	0	184
245-300	0	0	0	0	31	27	11	0	24	26	43	0	162
300-315	0	0	0	0	47	28	11	0	27	24	52	0	189
315-330	0	0	0	0	35	16	24	0	25	23	52	0	175
330-345	0	0	0	0	43	30	6	0	40	23	56	0	198
345-400	0	0	0	0	35	20	14	0	27	19	43	0	158
400-415	0	0	0	0	24	37	9	0	13	19	42	0	144
415-430	0	0	0	0	47	22	9	0	37	18	51	0	184
430-445	0	0	0	0	29	11	16	0	23	9	28	0	116
445-500	0	0	0	0	33	16	12	0	15	13	43	0	132

HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
100-200	0	0	0	0	160	104	39	0	98	88	166	0	655
115-215	0	0	0	0	183	103	43	0	109	98	163	0	699
130-230	0	0	0	0	170	81	45	0	97	105	156	0	654
145-245	0	0	0	0	165	82	43	0	103	103	150	0	646
200-300	0	0	0	0	148	85	45	0	100	105	160	0	643
215-315	0	0	0	0	139	93	46	0	97	107	180	0	662
230-330	0	0	0	0	148	99	61	0	108	98	196	0	710
245-345	0	0	0	0	156	101	52	0	116	96	203	0	724
300-400	0	0	0	0	160	94	55	0	119	89	203	0	720
315-415	0	0	0	0	137	103	53	0	105	84	193	0	675
330-430	0	0	0	0	149	109	38	0	117	79	192	0	684
345-445	0	0	0	0	135	90	48	0	100	65	164	0	602
400-500	0	0	0	0	133	86	46	0	88	59	164	0	576



**SUBAPPENDIX B.3**

**INTERSECTION LEVEL OF SERVICE WORKSHEETS**

**EXISTING CONDITIONS**

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  AM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	533	343	0	0	192	29	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	533	343	0	0	192	29	0	0	0	0	0	0
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="111"/>                  B: <input type="text" value="0"/> </div>															
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>	<div style="text-align: center;"> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                  A: <input type="text" value="172"/>                  B: <input type="text" value="533"/> </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">V/C RATIO</th> <th style="text-align: left;">LOS</th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
V/C RATIO	LOS															
0.00 - 0.60	A															
0.61 - 0.70	B															
0.71 - 0.80	C															
0.81 - 0.90	D															
0.91 - 1.00	E															

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{533 + 111 + 0 + 0}{1500} = 0.429$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	540	284	0	0	226	46	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	540	284	0	0	226	46	0	0	0	0	0	0
LANE	1	2			1	1						
SIGNAL	Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto	

### Critical Movements Diagram

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">SouthBound</p> <p>A: <input style="width: 50px;" type="text" value="136"/></p> <p>B: <input style="width: 50px;" type="text" value="0"/></p> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">EastBound</p> <p>A: <input style="width: 50px;" type="text" value="0"/></p> <p>B: <input style="width: 50px;" type="text" value="0"/></p> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">WestBound</p> <p>A: <input style="width: 50px;" type="text" value="0"/></p> <p>B: <input style="width: 50px;" type="text" value="0"/></p> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">NorthBound</p> <p>A: <input style="width: 50px;" type="text" value="142"/></p> <p>B: <input style="width: 50px;" type="text" value="540"/></p> </div>	<div style="text-align: center;"> </div>	<p><u>V/C RATIO</u></p> <p>0.00 - 0.60</p> <p>0.61 - 0.70</p> <p>0.71 - 0.80</p> <p>0.81 - 0.90</p> <p>0.91 - 1.00</p>	<p><u>LOS</u></p> <p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p>
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A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{540 + 136 + 0 + 0}{1500} = 0.451$

LOS = A



## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	691	267	0	0	228	19	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	691	267	0	0	228	19	0	0	0	0	0	0
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="124"/>                  B: <input type="text" value="0"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E
<p>A = Adjusted Through/Right Volume                  B = Adjusted Left Volume                  * = ATSAC Benefit</p>				
<p><b>Results</b></p> <p>North/South Critical Movements = B(N/B) + A(S/B)</p> <p>West/East Critical Movements = B(W/B) + A(E/B)</p> <p style="text-align: center;">                 V/C = <math>\frac{691 + 124 + 0 + 0}{1500} = 0.543</math>      LOS = A             </p>				

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	452	664	25	32	111	51	17	22	6	178	58	818
AMBIENT												
RELATED												
PROJECT												
TOTAL	452	664	25	32	111	51	17	22	6	178	58	818
LANE	1	2	1	1	2	1	1	1	1	1	1	1
SIGNAL	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="OLA"/>

### Critical Movements Diagram

SouthBound
A: <input type="text" value="56"/>
B: <input type="text" value="32"/>

EastBound
A: <input type="text" value="438"/>
B: <input type="text" value="178"/>

WestBound
A: <input type="text" value="28"/>
B: <input type="text" value="17"/>

NorthBound
A: <input type="text" value="230"/>
B: <input type="text" value="452"/>

	<u>V/C RATIO</u>	<u>LOS</u>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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#### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{452 + 56 + 17 + 438}{1375} = 0.700$       LOS = C

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	440	627	11	9	143	63	19	24	12	34	14	1326
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>440</b>	<b>627</b>	<b>11</b>	<b>9</b>	<b>143</b>	<b>63</b>	<b>19</b>	<b>24</b>	<b>12</b>	<b>34</b>	<b>14</b>	<b>1326</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="72"/>                  B: <input style="width: 50px;" type="text" value="9"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50px;" type="text" value="670"/>                  B: <input style="width: 50px;" type="text" value="34"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50px;" type="text" value="36"/>                  B: <input style="width: 50px;" type="text" value="19"/> </div>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{440 + 72 + 19 + 670}{1375} = 0.873 \quad \text{LOS} = D$$

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	478	726	66	30	137	56	71	42	117	92	84	1035
AMBIENT												
RELATED												
PROJECT												
TOTAL	478	726	66	30	137	56	71	42	117	92	84	1035
LANE	1	2	1	1	2	1	1	1	1	1	1	1
SIGNAL	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="OLA"/>

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="69"/>                  B: <input type="text" value="30"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="560"/>                  B: <input type="text" value="92"/> </div>	<div style="text-align: center;">                   ↑             </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="159"/>                  B: <input type="text" value="71"/> </div>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E
<p>A = Adjusted Through/Right Volume                  B = Adjusted Left Volume                  * = ATSAC Benefit</p>				
<p><b>Results</b></p> <p>North/South Critical Movements = B(N/B) + A(S/B)</p> <p>West/East Critical Movements = B(W/B) + A(E/B)</p> <p style="text-align: center;">                 V/C = <math>\frac{478 + 69 + 71 + 560}{1375} = 0.857</math>      LOS = D             </p>				

## INTERSECTION DATA SUMMARY SHEET

N/S: <input style="width: 80%;" type="text" value="Harbor Bl"/>	W/E: <input style="width: 80%;" type="text" value="6th St"/>	I/S No: <input style="width: 50%;" type="text" value="3"/>
AM/PM: <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	Comments: <input style="width: 80%;" type="text" value="Existing Conditions"/>	
COUNT DATE: <input style="width: 80%;" type="text"/>	STUDY DATE: <input style="width: 80%;" type="text"/>	GROWTH FACTOR: <input style="width: 80%;" type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	7	798	24	95	414	37	7	6	22	22	16	11
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>7</b>	<b>798</b>	<b>24</b>	<b>95</b>	<b>414</b>	<b>37</b>	<b>7</b>	<b>6</b>	<b>22</b>	<b>22</b>	<b>16</b>	<b>11</b>
LANE												
SIGNAL	Phasing: <input type="text" value="Prot-Fix"/>		RTOR: <input type="text" value="Auto"/>	Phasing: <input type="text" value="Prot-Fix"/>		RTOR: <input type="text" value="Auto"/>	Phasing: <input type="text" value="Perm"/>		RTOR: <input type="text" value="Auto"/>	Phasing: <input type="text" value="Perm"/>		RTOR: <input type="text" value="Auto"/>

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50%;" type="text" value="226"/>                  B: <input style="width: 50%; background-color: #cccccc;" type="text" value="95"/> </div>															
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50%; background-color: #cccccc;" type="text" value="27"/>                  B: <input style="width: 50%;" type="text" value="22"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">   <b>NorthBound</b>                  A: <input style="width: 50%; background-color: #cccccc;" type="text" value="411"/>                  B: <input style="width: 50%;" type="text" value="7"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50%;" type="text" value="6"/>                  B: <input style="width: 50%; background-color: #cccccc;" type="text" value="7"/> </div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>V/C RATIO</th> <th>LOS</th> </tr> </thead> <tbody> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </tbody> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E	
V/C RATIO	LOS															
0.00 - 0.60	A															
0.61 - 0.70	B															
0.71 - 0.80	C															
0.81 - 0.90	D															
0.91 - 1.00	E															

**A = Adjusted Through/Right Volume**  
**B = Adjusted Left Volume**  
**\* = ATSAC Benefit**

---

**Results**

North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{411 + 95 + 7 + 27}{1425} = 0.379$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	9	439	44	107	1042	45	21	34	79	37	23	6
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>9</b>	<b>439</b>	<b>44</b>	<b>107</b>	<b>1042</b>	<b>45</b>	<b>21</b>	<b>34</b>	<b>79</b>	<b>37</b>	<b>23</b>	<b>6</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

SouthBound	
A:	544
B:	107

EastBound	
A:	29
B:	37

WestBound	
A:	34
B:	21

NorthBound	
A:	242
B:	9

	<u>V/C RATIO</u>	<u>LOS</u>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

V/C =  $\frac{9 + 544 + 34 + 37}{1425} = 0.438$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:	<input type="text" value="Harbor BI"/>	W/E:	<input type="text" value="6th St"/>	I/S No:	<input type="text" value="3"/>	
AM/PM:	<input type="text" value="PM"/>	Comments:	<input type="text" value="Existing Conditions for Saturday"/>			
COUNT DATE:	<input type="text"/>	STUDY DATE:	<input type="text"/>	GROWTH FACTOR:	<input type="text"/>	

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	6	370	230	483	521	67	76	149	489	29	90	18
AMBIENT												
RELATED												
PROJECT												
TOTAL	6	370	230	483	521	67	76	149	489	29	90	18
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="294"/> B: <input type="text" value="483"/>			
<b>EastBound</b> A: <input type="text" value="108"/> B: <input type="text" value="29"/>		<b>WestBound</b> A: <input type="text" value="149"/> B: <input type="text" value="76"/>	<u>V/C RATIO</u> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<u>LOS</u> A B C D E
<b>NorthBound</b> A: <input type="text" value="300"/> B: <input type="text" value="6"/>				

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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#### Results

North/South Critical Movements =  $A(N/B) + B(S/B)$   
 West/East Critical Movements =  $B(W/B) + A(E/B)$

$V/C = \frac{300 + 483 + 76 + 108}{1425} = 0.679$       LOS = B

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations														
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
EXISTING	2	344	0	0	203	66	0	0	0	282	0	8		
AMBIENT														
RELATED														
PROJECT														
TOTAL	2	344	0	0	203	66	0	0	0	282	0	8		
LANE	1	2					1	1					1	
SIGNAL	Phasing Perm	RTOR Auto					Phasing Perm	RTOR Auto					Phasing Perm	RTOR Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="135"/>                  B: <input type="text" value="0"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="290"/>                  B: <input type="text" value="282"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">                 ↑                  *             </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                  A: <input type="text" value="172"/>                  B: <input type="text" value="2"/> </div>	
		<u>V/C RATIO</u>		<u>LOS</u>
		0.00 - 0.60		A
		0.61 - 0.70		B
		0.71 - 0.80		C
		0.81 - 0.90		D
		0.91 - 1.00		E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSSAC Benefit

---

**Results**

North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{172 + 0 + 0 + 290}{1500} = 0.308$

LOS = A



## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
<b>EXISTING</b>	5	235	0	0	356	429	0	0	0	101	0	0
<b>AMBIENT</b>												
<b>RELATED</b>												
<b>PROJECT</b>												
<b>TOTAL</b>	5	235	0	0	356	429	0	0	0	101	0	0
<b>LANE</b>												
<b>SIGNAL</b>	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="429"/>                  B: <input style="width: 50px;" type="text" value="0"/> </div>		
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50px;" type="text" value="101"/>                  B: <input style="width: 50px;" type="text" value="101"/> </div>	<div style="text-align: center; margin: 0 auto;"> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50px;" type="text" value="0"/>                  B: <input style="width: 50px;" type="text" value="0"/> </div>	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                  A: <input style="width: 50px;" type="text" value="118"/>                  B: <input style="width: 50px;" type="text" value="5"/> </div>		

	<b>V/C RATIO</b>	<b>LOS</b>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{5 + 429 + 0 + 101}{1500} = 0.357$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations													
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
EXISTING	6	254	0	0	239	190	0	0	0	110	0	19	
AMBIENT													
RELATED													
PROJECT													
TOTAL	6	254	0	0	239	190	0	0	0	110	0	19	
LANE	1	2					1	1				1	
SIGNAL	Phasing Perm	RTOR Auto					Phasing Perm	RTOR Auto				Phasing Perm	RTOR Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="215"/>                  B: <input style="width: 50px;" type="text" value="0"/> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>EastBound</b>                      A: <input style="width: 50px;" type="text" value="129"/>                      B: <input style="width: 50px;" type="text" value="110"/> </div> <div style="text-align: center; margin: 0 20px;"> <input style="width: 20px; height: 20px;" type="checkbox"/> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>WestBound</b>                      A: <input style="width: 50px;" type="text" value="0"/>                      B: <input style="width: 50px;" type="text" value="0"/> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 5px; text-align: center;"> <b>NorthBound</b>                  A: <input style="width: 50px;" type="text" value="127"/>                  B: <input style="width: 50px;" type="text" value="6"/> </div>		<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;"><u>V/C RATIO</u></th> <th style="text-align: left;"><u>LOS</u></th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	<u>V/C RATIO</u>	<u>LOS</u>	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
<u>V/C RATIO</u>	<u>LOS</u>														
0.00 - 0.60	A														
0.61 - 0.70	B														
0.71 - 0.80	C														
0.81 - 0.90	D														
0.91 - 1.00	E														

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{6 + 215 + 0 + 129}{1500} = 0.233$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
<b>EXISTING</b>	12	24	2	50	73	62	7	16	46	352	39	16
<b>AMBIENT</b>												
<b>RELATED</b>												
<b>PROJECT</b>												
<b>TOTAL</b>	12	24	2	50	73	62	7	16	46	352	39	16
<b>LANE</b>												
<b>SIGNAL</b>	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="68"/>                  B: <input type="text" value="50"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="28"/>                  B: <input type="text" value="352"/> </div>	<div style="text-align: center; margin: 0 auto;"> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="46"/>                  B: <input type="text" value="7"/> </div>	<b>V/C RATIO</b>	<b>LOS</b>
			0.00 - 0.60	A
			0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{12 + 68 + 46 + 352}{1375} = 0.348$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	16	32	4	48	18	259	5	53	53	164	64	8
AMBIENT												
RELATED												
PROJECT												
TOTAL	16	32	4	48	18	259	5	53	53	164	64	8
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="259"/>                  B: <input type="text" value="48"/> </div>		
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="36"/>                  B: <input type="text" value="164"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="53"/>                  B: <input type="text" value="5"/> </div>	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                  A: <input type="text" value="36"/>                  B: <input type="text" value="16"/> </div>		

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

**A = Adjusted Through/Right Volume**  
**B = Adjusted Left Volume**  
**\* = ATSAC Benefit**

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{16 + 259 + 53 + 164}{1375} = 0.358$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
<b>EXISTING</b>	25	32	7	44	32	201	5	62	24	172	95	17
<b>AMBIENT</b>												
<b>RELATED</b>												
<b>PROJECT</b>												
<b>TOTAL</b>	25	32	7	44	32	201	5	62	24	172	95	17
<b>LANE</b>												
<b>SIGNAL</b>	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

SouthBound	
A:	201
B:	44

EastBound	
A:	56
B:	172

WestBound	
A:	43
B:	5

	<b>NorthBound</b>	
	A: 39	
	B: 25	

	<b>V/C RATIO</b>	<b>LOS</b>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

**Results**

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{25 + 201 + 43 + 172}{1375} = 0.321$

LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

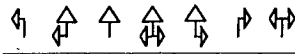

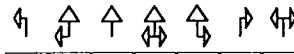
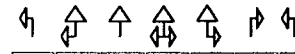
COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	42	0	45	0	0	0	28	59	0	0	360	73
AMBIENT												
RELATED												
PROJECT												
TOTAL	42	0	45	0	0	0	28	59	0	0	360	73
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	<none>		<none>	Perm		Auto	Prot-Fix		Auto


Critical Movements Diagram																														
<table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">EastBound</td> <td style="text-align: center;">↑</td> <td style="text-align: center;">WestBound</td> </tr> <tr> <td>A: <input type="text" value="217"/></td> <td></td> <td>A: <input type="text" value="30"/></td> </tr> <tr> <td>B: <input type="text" value="0"/></td> <td></td> <td>B: <input type="text" value="28"/></td> </tr> </table>	EastBound	↑	WestBound	A: <input type="text" value="217"/>		A: <input type="text" value="30"/>	B: <input type="text" value="0"/>		B: <input type="text" value="28"/>	<table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">SouthBound</td> </tr> <tr> <td>A: <input type="text" value="0"/></td> </tr> <tr> <td>B: <input type="text" value="0"/></td> </tr> </table>	SouthBound	A: <input type="text" value="0"/>	B: <input type="text" value="0"/>	<table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">NorthBound</td> </tr> <tr> <td>A: <input type="text" value="29"/></td> </tr> <tr> <td>B: <input type="text" value="29"/></td> </tr> </table>	NorthBound	A: <input type="text" value="29"/>	B: <input type="text" value="29"/>	<table style="width: 100%;"> <tr> <th style="text-align: left;">V/C RATIO</th> <th style="text-align: left;">LOS</th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
EastBound	↑	WestBound																												
A: <input type="text" value="217"/>		A: <input type="text" value="30"/>																												
B: <input type="text" value="0"/>		B: <input type="text" value="28"/>																												
SouthBound																														
A: <input type="text" value="0"/>																														
B: <input type="text" value="0"/>																														
NorthBound																														
A: <input type="text" value="29"/>																														
B: <input type="text" value="29"/>																														
V/C RATIO	LOS																													
0.00 - 0.60	A																													
0.61 - 0.70	B																													
0.71 - 0.80	C																													
0.81 - 0.90	D																													
0.91 - 1.00	E																													
<p>A = Adjusted Through/Right Volume                  B = Adjusted Left Volume                  * = ATSSAC Benefit</p>																														
<p><b>Results</b></p> <p>North/South Critical Movements = A(N/B) + A(S/B)</p> <p>West/East Critical Movements = B(W/B) + A(E/B)</p> <p>V/C = <math>\frac{29 + 0 + 28 + 217}{1425} = 0.192</math>      LOS = A</p>																														

## INTERSECTION DATA SUMMARY SHEET

N/S: <input style="width: 80%;" type="text" value="Via Cabrillo Marina"/>	W/E: <input style="width: 80%;" type="text" value="22nd St"/>	I/S No: <input style="width: 80%;" type="text" value="6"/>
AM/PM: <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	Comments: <input style="width: 90%;" type="text" value="Existing Conditions"/>	
COUNT DATE: <input style="width: 80%;" type="text"/>	STUDY DATE: <input style="width: 80%;" type="text"/>	GROWTH FACTOR: <input style="width: 80%;" type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	89	0	57	0	0	0	31	259	0	0	141	71
AMBIENT												
RELATED												
PROJECT												
TOTAL	89	0	57	0	0	0	31	259	0	0	141	71
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	<none>		<none>	Perm		Auto	Prot-Fix		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input style="width: 80%;" type="text" value="0"/> B: <input style="width: 80%;" type="text" value="0"/>			
<b>EastBound</b> A: <input style="width: 80%;" type="text" value="106"/> B: <input style="width: 80%;" type="text" value="0"/>		<b>WestBound</b> A: <input style="width: 80%;" type="text" value="130"/> B: <input style="width: 80%;" type="text" value="31"/>	<u>V/C RATIO</u>	<u>LOS</u>
			0.00 - 0.60	A
			0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E
A = Adjusted Through/Right Volume B = Adjusted Left Volume * = ATSAC Benefit				
<b>Results</b>				
North/South Critical Movements = A(N/B) + A(S/B)				
West/East Critical Movements = B(W/B) + A(E/B)				
$V/C = \frac{49 + 0 + 31 + 106}{1425} = 0.131 \quad \text{LOS} = A$				

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	116	0	52	0	0	0	101	156	0	0	203	96
AMBIENT												
RELATED												
PROJECT												
TOTAL	116	0	52	0	0	0	101	156	0	0	203	96
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	<none>		<none>	Perm		Auto	Prot-Fix		Auto

### Critical Movements Diagram

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">                 SouthBound                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">                 EastBound                  A: <input type="text" value="150"/>                  B: <input type="text" value="0"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">                 WestBound                  A: <input type="text" value="78"/>                  B: <input type="text" value="101"/> </div>	V/C RATIO 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	LOS A B C D E
--	---	--	--	------------------------------

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

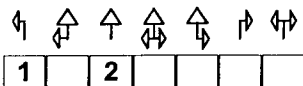
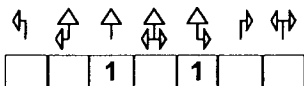


V/C =  $\frac{64 + 0 + 101 + 150}{1425} = 0.221$       LOS = A




## **CUMULATIVE BASE CONDITIONS**

## INTERSECTION DATA SUMMARY SHEET

N/S: <input style="width: 80%;" type="text" value="Harbor BI"/>	W/E: <input style="width: 80%;" type="text" value="SR-47 WB On-Ramp"/>	I/S No: <input style="width: 80%;" type="text" value="1"/>
AM/PM: <input style="width: 50px;" type="text" value="AM"/>	Comments: <input style="width: 80%;" type="text" value="Cumulative Base Conditions"/>	
COUNT DATE: <input style="width: 80px;" type="text"/>	STUDY DATE: <input style="width: 80px;" type="text"/>	GROWTH FACTOR: <input style="width: 80px;" type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	617	457	0	0	210	37	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	617	457	0	0	210	37	0	0	0	0	0	0
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input style="width: 50px;" type="text" value="124"/> B: <input style="width: 50px;" type="text" value="0"/>			
<b>EastBound</b> A: <input style="width: 50px;" type="text" value="0"/> B: <input style="width: 50px;" type="text" value="0"/>		<b>WestBound</b> A: <input style="width: 50px;" type="text" value="0"/> B: <input style="width: 50px;" type="text" value="0"/>	<b>NorthBound</b> A: <input style="width: 50px;" type="text" value="229"/> B: <input style="width: 50px;" type="text" value="617"/>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00
				<b>LOS</b> A B C D E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

#### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{617 + 124 + 0 + 0}{1500} = 0.494$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	665	361	0	0	289	93	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	665	361	0	0	289	93	0	0	0	0	0	0
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="191"/> B: <input type="text" value="0"/>			
<b>EastBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>		<b>WestBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>	<b>V/C RATIO</b>	<b>LOS</b>
			0.00 - 0.60	A
			0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E
A = Adjusted Through/Right Volume B = Adjusted Left Volume * = ATSAC Benefit				
<b>Results</b>				
North/South Critical Movements = B(N/B) + A(S/B)				
West/East Critical Movements = B(W/B) + A(E/B)				
$V/C = \frac{665 + 191 + 0 + 0}{1500} = 0.571 \quad \text{LOS} = A$				

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	834	343	0	0	257	33	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	834	343	0	0	257	33	0	0	0	0	0	0
LANE	1	2			1	1						
SIGNAL	Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto	

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="145"/>                  B: <input style="width: 50px;" type="text" value="0"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50px;" type="text" value="0"/>                  B: <input style="width: 50px;" type="text" value="0"/> </div>	<div style="text-align: center;">                   ↑             </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50px;" type="text" value="0"/>                  B: <input style="width: 50px;" type="text" value="0"/> </div>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{834 + 145 + 0 + 0}{1500} = 0.653$

LOS = B

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	525	761	27	34	118	60	18	23	6	277	61	941
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>525</b>	<b>761</b>	<b>27</b>	<b>34</b>	<b>118</b>	<b>60</b>	<b>18</b>	<b>23</b>	<b>6</b>	<b>277</b>	<b>61</b>	<b>941</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="59"/> B: <input type="text" value="34"/>			
<b>EastBound</b> A: <input type="text" value="501"/> B: <input type="text" value="277"/>		<b>WestBound</b> A: <input type="text" value="29"/> B: <input type="text" value="18"/>	<b>NorthBound</b> A: <input type="text" value="263"/> B: <input type="text" value="525"/>	
				<b>V/C RATIO</b> <b>LOS</b> 0.00 - 0.60      A 0.61 - 0.70      B 0.71 - 0.80      C 0.81 - 0.90      D 0.91 - 1.00      E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{525 + 59 + 18 + 501}{1375} = 0.802 \quad \text{LOS} = D$$

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	570	761	12	10	157	111	20	25	13	92	15	1648
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>570</b>	<b>761</b>	<b>12</b>	<b>10</b>	<b>157</b>	<b>111</b>	<b>20</b>	<b>25</b>	<b>13</b>	<b>92</b>	<b>15</b>	<b>1648</b>
LANE	1	2	1	1	2	1	1	1	1	1	1	1
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

SouthBound	
A:	79
B:	10

EastBound	
A:	832
B:	92

WestBound	
A:	38
B:	20

NorthBound	
A:	258
B:	570

	V/C RATIO	LOS
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{570 + 79 + 20 + 832}{1375} = 1.092$

LOS = F

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	614	874	70	32	147	73	75	45	124	154	89	1375
AMBIENT												
RELATED												
PROJECT												
TOTAL	614	874	70	32	147	73	75	45	124	154	89	1375
LANE	1	2	1	1	2	1	1	1	1	1	1	1
SIGNAL	Phasing Prot-Fix	RTOR Auto		Phasing Prot-Fix	RTOR Auto		Phasing Prot-Fix	RTOR Auto		Phasing Prot-Fix	RTOR OLA	

### Critical Movements Diagram

EastBound	↑	WestBound
A: <input style="width: 50px;" type="text" value="732"/>		A: <input style="width: 50px;" type="text" value="169"/>
B: <input style="width: 50px;" type="text" value="154"/>		B: <input style="width: 50px;" type="text" value="75"/>

SouthBound	↓	NorthBound
A: <input style="width: 50px;" type="text" value="74"/>		A: <input style="width: 50px;" type="text" value="315"/>
B: <input style="width: 50px;" type="text" value="32"/>		B: <input style="width: 50px;" type="text" value="614"/>

	<b>V/C RATIO</b>	<b>LOS</b>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{614 + 74 + 75 + 732}{1375} = 1.087 \quad \text{LOS} = F$$

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  AM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	8	857	15	85	445	49	1	-3	14	39	1	12
AMBIENT												
RELATED												
PROJECT												
TOTAL	8	857	15	85	445	49	1	-3	14	39	1	12
LANE												
	1	1	1	1	1	1	1	1	2	1	1	1
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

SouthBound	
A:	247
B:	85

EastBound	
A:	13
B:	39

WestBound	
A:	0
B:	1

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{436 + 85 + 0 + 39}{1425} = 0.393$

LOS = A



## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	19	495	30	88	1135	116	-4	-4	44	91	-1	11
AMBIENT												
RELATED												
PROJECT												
TOTAL	19	495	30	88	1135	116	-4	-4	44	91	-1	11
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

<b>SouthBound</b> A: <input type="text" value="626"/> B: <input type="text" value="88"/>		<b>WestBound</b> A: <input type="text" value="0"/> B: <input type="text" value="-4"/>	<b>V/C RATIO</b>	<b>LOS</b>
<b>EastBound</b> A: <input type="text" value="10"/> B: <input type="text" value="91"/>			0.00 - 0.60	A
			0.61 - 0.70	B
<b>NorthBound</b> A: <input type="text" value="263"/> B: <input type="text" value="19"/>			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

V/C =  $\frac{19 + 626 + 0 + 91}{1425} = 0.516$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:	<input type="text" value="Harbor BI"/>	W/E:	<input type="text" value="6th St"/>	I/S No:	<input type="text" value="3"/>
AM/PM:	<input type="text" value="PM"/>	Comments:	<input type="text" value="Cumulative Base Conditions for Saturday"/>		
COUNT DATE:	<input type="text"/>	STUDY DATE:	<input type="text"/>	GROWTH FACTOR:	<input type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	15	491	149	369	614	187	20	68	428	185	-47	23
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>15</b>	<b>491</b>	<b>149</b>	<b>369</b>	<b>614</b>	<b>187</b>	<b>20</b>	<b>68</b>	<b>428</b>	<b>185</b>	<b>-47</b>	<b>23</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="401"/> B: <input type="text" value="369"/>		
<b>EastBound</b> A: <input type="text" value="0"/> B: <input type="text" value="185"/>		<b>WestBound</b> A: <input type="text" value="68"/> B: <input type="text" value="20"/>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00
<b>NorthBound</b> A: <input type="text" value="320"/> B: <input type="text" value="15"/>			<b>LOS</b> A B C D E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

V/C =  $\frac{320 + 369 + 68 + 185}{1425} = 0.661$       LOS = B

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	2	365	0	0	215	71	0	0	0	300	0	8
AMBIENT												
RELATED												
PROJECT												
TOTAL	2	365	0	0	215	71	0	0	0	300	0	8
LANE	1	2			1	1						1
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <b>SouthBound</b>                  A: <input type="text" value="143"/>                  B: <input type="text" value="0"/> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <b>EastBound</b>                      A: <input type="text" value="308"/>                      B: <input type="text" value="300"/> </div> <div style="text-align: center; width: 10%; font-size: 2em;">↑</div> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <b>WestBound</b>                      A: <input type="text" value="0"/>                      B: <input type="text" value="0"/> </div> </div> </div> <div style="border: 1px solid black; padding: 5px;"> <b>NorthBound</b>                  A: <input type="text" value="183"/>                  B: <input type="text" value="2"/> </div>		
		<b>V/C RATIO</b>	<b>LOS</b>
		0.00 - 0.60	A
		0.61 - 0.70	B
		0.71 - 0.80	C
		0.81 - 0.90	D
		0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{183 + 0 + 0 + 308}{1500} = 0.327$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	5	249	0	0	377	458	0	0	0	111	0	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	5	249	0	0	377	458	0	0	0	111	0	0
LANE	1	2			1	1						1
SIGNAL	Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto	

### Critical Movements Diagram

SouthBound
A: <input type="text" value="458"/>
B: <input type="text" value="0"/>

EastBound
A: <input type="text" value="111"/>
B: <input type="text" value="111"/>

WestBound
A: <input type="text" value="0"/>
B: <input type="text" value="0"/>

NorthBound
A: <input type="text" value="125"/>
B: <input type="text" value="5"/>

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

#### Results

North/South Critical Movements =  $B(N/B) + A(S/B)$

West/East Critical Movements =  $B(W/B) + A(E/B)$

$V/C = \frac{5 + 458 + 0 + 111}{1500} = 0.383$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	6	269	0	0	253	204	0	0	0	121	0	20
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>6</b>	<b>269</b>	<b>0</b>	<b>0</b>	<b>253</b>	<b>204</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>121</b>	<b>0</b>	<b>20</b>
LANE	1	2			1	1						1
SIGNAL	Phasing <input type="text" value="Perm"/> RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/> RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/> RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/> RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/> RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/> RTOR <input type="text" value="Auto"/>	

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="229"/> B: <input type="text" value="0"/>			
<b>EastBound</b> A: <input type="text" value="141"/> B: <input type="text" value="121"/>		<b>WestBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>	<b>NorthBound</b> A: <input type="text" value="135"/> B: <input type="text" value="6"/>	
				<b>V/C RATIO</b> <b>LOS</b> 0.00 - 0.60      A 0.61 - 0.70      B 0.71 - 0.80      C 0.81 - 0.90      D 0.91 - 1.00      E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{6 + 229 + 0 + 141}{1500} = 0.251$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  AM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	13	25	2	53	77	66	7	17	49	373	41	17
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>13</b>	<b>25</b>	<b>2</b>	<b>53</b>	<b>77</b>	<b>66</b>	<b>7</b>	<b>17</b>	<b>49</b>	<b>373</b>	<b>41</b>	<b>17</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

SouthBound	
A:	72
B:	53

EastBound	
A:	29
B:	373

WestBound	
A:	49
B:	7

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

**A = Adjusted Through/Right Volume**  
**B = Adjusted Left Volume**  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{13 + 72 + 49 + 373}{1375} = 0.369$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	17	34	4	51	19	275	5	56	56	174	68	8
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>17</b>	<b>34</b>	<b>4</b>	<b>51</b>	<b>19</b>	<b>275</b>	<b>5</b>	<b>56</b>	<b>56</b>	<b>174</b>	<b>68</b>	<b>8</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                      A: <input type="text" value="275"/>                      B: <input type="text" value="51"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                      A: <input type="text" value="56"/>                      B: <input type="text" value="5"/> </div>	<b>V/C RATIO</b>	<b>LOS</b>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                      A: <input type="text" value="38"/>                      B: <input type="text" value="174"/> </div>			0.00 - 0.60	A
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                      A: <input type="text" value="38"/>                      B: <input type="text" value="17"/> </div>		0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{17 + 275 + 56 + 174}{1375} = 0.380$

LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	27	34	7	47	34	213	5	66	25	182	101	18
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>27</b>	<b>34</b>	<b>7</b>	<b>47</b>	<b>34</b>	<b>213</b>	<b>5</b>	<b>66</b>	<b>25</b>	<b>182</b>	<b>101</b>	<b>18</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

SouthBound	
A:	213
B:	47

EastBound	
A:	60
B:	182

WestBound	
A:	46
B:	5

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

#### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{27 + 213 + 46 + 182}{1375} = 0.340$ 
LOS = A



## INTERSECTION DATA SUMMARY SHEET

N/S: <input type="text" value="Via Cabrillo Marina"/>	WE: <input type="text" value="22nd St"/>	I/S No: <input type="text" value="6"/>
AM/PM: <input type="text" value="AM"/>	Comments: <input type="text" value="Cumulative Base Conditions"/>	
COUNT DATE: <input type="text"/>	STUDY DATE: <input type="text"/>	GROWTH FACTOR: <input type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	45	0	48	0	0	0	30	63	0	0	382	77
AMBIENT												
RELATED												
PROJECT												
TOTAL	45	0	48	0	0	0	30	63	0	0	382	77
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	<none>		<none>	Perm		Auto	Prot-Fix		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>		
<b>EastBound</b> A: <input type="text" value="230"/> B: <input type="text" value="0"/>		<b>WestBound</b> A: <input type="text" value="32"/> B: <input type="text" value="30"/>	
	<b>NorthBound</b> A: <input type="text" value="31"/> B: <input type="text" value="31"/>		

	<u>V/C RATIO</u>	<u>LOS</u>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements =  $A(N/B) + A(S/B)$   
 West/East Critical Movements =  $B(W/B) + A(E/B)$

$V/C = \frac{31 + 0 + 30 + 230}{1425} = 0.204$

LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	94	0	60	0	0	0	33	275	0	0	149	75
AMBIENT												
RELATED												
PROJECT												
TOTAL	94	0	60	0	0	0	33	275	0	0	149	75
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	<none>		<none>	Perm		Auto	Prot-Fix		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>														
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="112"/>                  B: <input type="text" value="0"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="138"/>                  B: <input type="text" value="33"/> </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">V/C RATIO</th> <th style="text-align: left;">LOS</th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
V/C RATIO	LOS														
0.00 - 0.60	A														
0.61 - 0.70	B														
0.71 - 0.80	C														
0.81 - 0.90	D														
0.91 - 1.00	E														
<p>A = Adjusted Through/Right Volume                  B = Adjusted Left Volume                  * = ATSAC Benefit</p>															
<p><b>Results</b></p> <p>North/South Critical Movements = A(N/B) + A(S/B)</p> <p>West/East Critical Movements = B(W/B) + A(E/B)</p> <p style="text-align: center;">                 V/C = <math>\frac{51 + 0 + 33 + 112}{1425} = 0.138</math>      LOS = A             </p>															

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	123	0	55	0	0	0	107	165	0	0	215	102
AMBIENT												
RELATED												
PROJECT												
TOTAL	123	0	55	0	0	0	107	165	0	0	215	102
LANE	1			1	1		1	2			1	1
SIGNAL	Phasing Perm	RTOR Auto		Phasing <none>	RTOR <none>		Phasing Perm	RTOR Auto		Phasing Prot-Fix	RTOR Auto	

### Critical Movements Diagram

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">EastBound</td> <td style="text-align: center;">↑</td> <td style="text-align: center;">WestBound</td> </tr> <tr> <td>A: <input type="text" value="159"/></td> <td></td> <td>A: <input type="text" value="83"/></td> </tr> <tr> <td>B: <input type="text" value="0"/></td> <td></td> <td>B: <input type="text" value="107"/></td> </tr> </table>	EastBound	↑	WestBound	A: <input type="text" value="159"/>		A: <input type="text" value="83"/>	B: <input type="text" value="0"/>		B: <input type="text" value="107"/>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">SouthBound</td> <td style="text-align: center;">↑</td> <td style="text-align: center;">NorthBound</td> </tr> <tr> <td>A: <input type="text" value="0"/></td> <td></td> <td>A: <input type="text" value="55"/></td> </tr> <tr> <td>B: <input type="text" value="0"/></td> <td></td> <td>B: <input type="text" value="68"/></td> </tr> </table>	SouthBound	↑	NorthBound	A: <input type="text" value="0"/>		A: <input type="text" value="55"/>	B: <input type="text" value="0"/>		B: <input type="text" value="68"/>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>V/C RATIO</u></td> <td style="text-align: center;"><u>LOS</u></td> </tr> <tr> <td style="text-align: center;">0.00 - 0.60</td> <td style="text-align: center;">A</td> </tr> <tr> <td style="text-align: center;">0.61 - 0.70</td> <td style="text-align: center;">B</td> </tr> <tr> <td style="text-align: center;">0.71 - 0.80</td> <td style="text-align: center;">C</td> </tr> <tr> <td style="text-align: center;">0.81 - 0.90</td> <td style="text-align: center;">D</td> </tr> <tr> <td style="text-align: center;">0.91 - 1.00</td> <td style="text-align: center;">E</td> </tr> </table>	<u>V/C RATIO</u>	<u>LOS</u>	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
EastBound	↑	WestBound																														
A: <input type="text" value="159"/>		A: <input type="text" value="83"/>																														
B: <input type="text" value="0"/>		B: <input type="text" value="107"/>																														
SouthBound	↑	NorthBound																														
A: <input type="text" value="0"/>		A: <input type="text" value="55"/>																														
B: <input type="text" value="0"/>		B: <input type="text" value="68"/>																														
<u>V/C RATIO</u>	<u>LOS</u>																															
0.00 - 0.60	A																															
0.61 - 0.70	B																															
0.71 - 0.80	C																															
0.81 - 0.90	D																															
0.91 - 1.00	E																															

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

#### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{68 + 0 + 107 + 159}{1425} = 0.234$       LOS = A

**CUMULATIVE PLUS PROJECT CONDITIONS**

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	639	459	0	0	213	37	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>639</b>	<b>459</b>	<b>0</b>	<b>0</b>	<b>213</b>	<b>37</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="125"/> B: <input type="text" value="0"/>		
<b>EastBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>		<b>WestBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>	
	<b>NorthBound</b> A: <input type="text" value="230"/> B: <input type="text" value="639"/>		

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{639 + 125 + 0 + 0}{1500} = 0.509$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	713	366	0	0	295	93	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>713</b>	<b>366</b>	<b>0</b>	<b>0</b>	<b>295</b>	<b>93</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>	<input type="text" value="Perm"/>		<input type="text" value="Auto"/>

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="194"/> B: <input type="text" value="0"/>															
<b>EastBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>		<b>WestBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>	<b>NorthBound</b> A: <input type="text" value="183"/> B: <input type="text" value="713"/>													
				<table border="0"> <tr> <th style="text-align: left;">V/C RATIO</th> <th style="text-align: left;">LOS</th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
V/C RATIO	LOS															
0.00 - 0.60	A															
0.61 - 0.70	B															
0.71 - 0.80	C															
0.81 - 0.90	D															
0.91 - 1.00	E															

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{713 + 194 + 0 + 0}{1500} = 0.605$ 
LOS = B

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	945	354	0	0	268	33	0	0	0	0	0	0
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>945</b>	<b>354</b>	<b>0</b>	<b>0</b>	<b>268</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
LANE												
SIGNAL	Phasing <input type="text" value="Perm"/>	RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/>	RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/>	RTOR <input type="text" value="Auto"/>		Phasing <input type="text" value="Perm"/>	RTOR <input type="text" value="Auto"/>	

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="151"/>                  B: <input type="text" value="0"/> </div>		
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                  A: <input type="text" value="177"/>                  B: <input type="text" value="945"/> </div>		

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{945 + 151 + 0 + 0}{1500} = 0.731$ 
LOS = C

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	543	786	27	34	121	60	18	23	6	277	61	991
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>543</b>	<b>786</b>	<b>27</b>	<b>34</b>	<b>121</b>	<b>60</b>	<b>18</b>	<b>23</b>	<b>6</b>	<b>277</b>	<b>61</b>	<b>991</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                      A: <input type="text" value="61"/>                      B: <input type="text" value="34"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                      A: <input type="text" value="29"/>                      B: <input type="text" value="18"/> </div>	<u>V/C RATIO</u>	<u>LOS</u>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                      A: <input type="text" value="526"/>                      B: <input type="text" value="277"/> </div>			0.00 - 0.60	A
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                      A: <input type="text" value="271"/>                      B: <input type="text" value="543"/> </div>		0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{543 + 61 + 18 + 526}{1375} = 0.835$       LOS = D



## INTERSECTION DATA SUMMARY SHEET

N/S:	<input type="text" value="Harbor Bl"/>	W/E:	<input type="text" value="SR-47 &amp; Swinford St"/>	I/S No:	<input type="text" value="2"/>
AM/PM:	<input type="text" value="PM"/>	Comments:	<input type="text" value="Cumulative Plus Project Conditions"/>		
COUNT DATE:	<input type="text"/>	STUDY DATE:	<input type="text"/>	GROWTH FACTOR:	<input type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	607	813	12	10	163	111	20	25	13	92	15	1742
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>607</b>	<b>813</b>	<b>12</b>	<b>10</b>	<b>163</b>	<b>111</b>	<b>20</b>	<b>25</b>	<b>13</b>	<b>92</b>	<b>15</b>	<b>1742</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="82"/>                  B: <input style="width: 50px;" type="text" value="10"/> </div>															
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50px;" type="text" value="879"/>                  B: <input style="width: 50px;" type="text" value="92"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50px;" type="text" value="38"/>                  B: <input style="width: 50px;" type="text" value="20"/> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                  A: <input style="width: 50px;" type="text" value="275"/>                  B: <input style="width: 50px;" type="text" value="607"/> </div>	<table style="margin: 0 auto;"> <tr> <th>V/C RATIO</th> <th>LOS</th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
V/C RATIO	LOS															
0.00 - 0.60	A															
0.61 - 0.70	B															
0.71 - 0.80	C															
0.81 - 0.90	D															
0.91 - 1.00	E															

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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#### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{607 + 82 + 20 + 879}{1375} = 1.155$       LOS = F

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	702	997	70	32	158	73	75	45	124	154	89	1572
AMBIENT												
RELATED												
PROJECT												
TOTAL	702	997	70	32	158	73	75	45	124	154	89	1572
LANE	1	2	1	1	2	1	1	1	1	1	1	1
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="79"/>                  B: <input style="width: 50px;" type="text" value="32"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50px;" type="text" value="831"/>                  B: <input style="width: 50px;" type="text" value="154"/> </div>	<div style="text-align: center; margin: 0 auto;"> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50px;" type="text" value="169"/>                  B: <input style="width: 50px;" type="text" value="75"/> </div>	<b>V/C RATIO</b>	<b>LOS</b>
			0.00 - 0.60	A
			0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{702 + 79 + 75 + 831}{1375} = 1.227$

LOS = F

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  AM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	11	899	15	85	498	49	1	-3	14	39	1	16
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>11</b>	<b>899</b>	<b>15</b>	<b>85</b>	<b>498</b>	<b>49</b>	<b>1</b>	<b>-3</b>	<b>14</b>	<b>39</b>	<b>1</b>	<b>16</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="274"/>                  B: <input style="background-color: #cccccc;" type="text" value="85"/> </div>															
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="17"/>                  B: <input style="background-color: #cccccc;" type="text" value="39"/> </div>	<div style="text-align: center; margin: 0 auto;"> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="background-color: #cccccc;" type="text" value="0"/>                  B: <input type="text" value="1"/> </div>	<table border="0"> <tr> <th>V/C RATIO</th> <th>LOS</th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E	
V/C RATIO	LOS															
0.00 - 0.60	A															
0.61 - 0.70	B															
0.71 - 0.80	C															
0.81 - 0.90	D															
0.91 - 1.00	E															
<p>A = Adjusted Through/Right Volume                  B = Adjusted Left Volume                  * = ATSAC Benefit</p>																
<p><b>Results</b></p> <p>North/South Critical Movements = A(N/B) + B(S/B)                  West/East Critical Movements = A(W/B) + B(E/B)</p> <p style="text-align: center;">                 V/C = <math>\frac{457 + 85 + 0 + 39}{1425} = 0.408</math>      LOS = A             </p>																

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	25	585	30	88	1235	116	-4	-4	44	91	-1	18
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>25</b>	<b>585</b>	<b>30</b>	<b>88</b>	<b>1235</b>	<b>116</b>	<b>-4</b>	<b>-4</b>	<b>44</b>	<b>91</b>	<b>-1</b>	<b>18</b>
LANE	1			1			1			1		
SIGNAL	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Prot-Fix"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Perm"/>		RTOR <input type="text" value="Auto"/>	Phasing <input type="text" value="Perm"/>		RTOR <input type="text" value="Auto"/>

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="676"/>                  B: <input style="width: 50px;" type="text" value="88"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50px;" type="text" value="17"/>                  B: <input style="width: 50px;" type="text" value="91"/> </div>	<div style="text-align: center; margin: 0 auto;"> </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50px;" type="text" value="0"/>                  B: <input style="width: 50px;" type="text" value="-4"/> </div>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{25 + 676 + 0 + 91}{1425} = 0.556 \quad \text{LOS} = A$$

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	30	702	149	369	822	187	20	68	428	185	-47	38
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>30</b>	<b>702</b>	<b>149</b>	<b>369</b>	<b>822</b>	<b>187</b>	<b>20</b>	<b>68</b>	<b>428</b>	<b>185</b>	<b>-47</b>	<b>38</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

SouthBound	
A:	505
B:	369

EastBound	
A:	0
B:	185

WestBound	
A:	68
B:	20

NorthBound	
A:	426
B:	30

	V/C RATIO	LOS
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

**A = Adjusted Through/Right Volume**  
**B = Adjusted Left Volume**  
**\* = ATSAC Benefit**

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### Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{426 + 369 + 68 + 185}{1425} = 0.735$ 
LOS = C

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	4	409	0	0	271	71	0	0	0	300	0	11
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>4</b>	<b>409</b>	<b>0</b>	<b>0</b>	<b>271</b>	<b>71</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>300</b>	<b>0</b>	<b>11</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="171"/>                  B: <input type="text" value="0"/> </div>		
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="311"/>                  B: <input type="text" value="300"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div>	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>NorthBound</b>                  A: <input type="text" value="205"/>                  B: <input type="text" value="4"/> </div>		

	<b>V/C RATIO</b>	<b>LOS</b>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSSAC Benefit

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### Results

North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{205 + 0 + 0 + 311}{1500} = 0.344 \quad \text{LOS} = A$$

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	9	345	0	0	484	458	0	0	0	111	0	4
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>9</b>	<b>345</b>	<b>0</b>	<b>0</b>	<b>484</b>	<b>458</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>111</b>	<b>0</b>	<b>4</b>
LANE												
SIGNAL	Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto		Phasing Perm	RTOR Auto	

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="471"/> B: <input type="text" value="0"/>			
<b>EastBound</b> A: <input type="text" value="115"/> B: <input type="text" value="111"/>		<b>WestBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E
A = Adjusted Through/Right Volume B = Adjusted Left Volume * = ATSAC Benefit				
<b>Results</b> North/South Critical Movements = B(N/B) + A(S/B) West/East Critical Movements = B(W/B) + A(E/B)				
V/C = $\frac{9 + 471 + 0 + 115}{1500} = 0.397$ LOS = A				

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	15	495	0	0	476	204	0	0	0	121	0	29
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>15</b>	<b>495</b>	<b>0</b>	<b>0</b>	<b>476</b>	<b>204</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>121</b>	<b>0</b>	<b>29</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="340"/> B: <input type="text" value="0"/>		
<b>EastBound</b> A: <input type="text" value="150"/> B: <input type="text" value="121"/>		<b>WestBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>	
	<b>NorthBound</b> A: <input type="text" value="248"/> B: <input type="text" value="15"/>		

	<u>V/C RATIO</u>	<u>LOS</u>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSA Benefit

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{15 + 340 + 0 + 150}{1500} = 0.337$       LOS = A



## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  AM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	16	37	2	53	92	110	7	17	49	408	41	21
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>16</b>	<b>37</b>	<b>2</b>	<b>53</b>	<b>92</b>	<b>110</b>	<b>7</b>	<b>17</b>	<b>49</b>	<b>408</b>	<b>41</b>	<b>21</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Var		Auto	Prot-Var		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="46"/>                  B: <input style="background-color: #cccccc;" type="text" value="53"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="62"/>                  B: <input style="background-color: #cccccc;" type="text" value="224"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="background-color: #cccccc;" type="text" value="66"/>                  B: <input type="text" value="7"/> </div>	<b>V/C RATIO</b>	<b>LOS</b>
			0.00 - 0.60	A
			0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E

**A = Adjusted Through/Right Volume**  
**B = Adjusted Left Volume**  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

V/C =  $\frac{39 + 53 + 66 + 224}{1375} = 0.278$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:





Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	23	59	4	51	47	358	5	56	56	249	68	15
AMBIENT												
RELATED												
PROJECT												
TOTAL	23	59	4	51	47	358	5	56	56	249	68	15
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Var		Auto	Prot-Var		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram


	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input type="text" value="290"/>                  B: <input type="text" value="51"/> </div>														
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input type="text" value="83"/>                  B: <input type="text" value="137"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input type="text" value="112"/>                  B: <input type="text" value="5"/> </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">V/C RATIO</th> <th style="text-align: left;">LOS</th> </tr> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
V/C RATIO	LOS														
0.00 - 0.60	A														
0.61 - 0.70	B														
0.71 - 0.80	C														
0.81 - 0.90	D														
0.91 - 1.00	E														
<p>A = Adjusted Through/Right Volume                  B = Adjusted Left Volume                  * = ATSAC Benefit</p>															
<p><b>Results</b></p> <p>North/South Critical Movements = B(N/B) + A(S/B)</p> <p>West/East Critical Movements = A(W/B) + B(E/B)</p> <p style="text-align: center;">                 V/C = <math>\frac{23 + 290 + 112 + 137}{1375} = 0.409</math>      LOS = A             </p>															

## INTERSECTION DATA SUMMARY SHEET

N/S:	<input type="text" value="Miner St"/>	W/E:	<input type="text" value="22nd St"/>	I/S No:	<input type="text" value="5"/>
AM/PM:	<input type="text" value="PM"/>	Comments:	<input type="text" value="Cum Plus Project Conditions for Saturday"/>		
COUNT DATE:	<input type="text"/>	STUDY DATE:	<input type="text"/>	GROWTH FACTOR:	<input type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
<b>EXISTING</b>	41	93	7	47	92	386	5	66	25	358	101	32
<b>AMBIENT</b>												
<b>RELATED</b>												
<b>PROJECT</b>												
<b>TOTAL</b>	41	93	7	47	92	386	5	66	25	358	101	32
<b>LANE</b>												
<b>SIGNAL</b>	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Var		Auto	Prot-Var		Auto	Prot-Var		Auto	Prot-Var		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>                  A: <input style="width: 50px;" type="text" value="288"/>                  B: <input style="width: 50px;" type="text" value="47"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>                  A: <input style="width: 50px;" type="text" value="133"/>                  B: <input style="width: 50px;" type="text" value="197"/> </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>                  A: <input style="width: 50px;" type="text" value="91"/>                  B: <input style="width: 50px;" type="text" value="5"/> </div>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

V/C =  $\frac{41 + 288 + 91 + 197}{1375} = 0.449$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  AM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	16	37	2	53	92	110	7	17	49	408	41	21
AMBIENT												
RELATED												
PROJECT												
TOTAL	16	37	2	53	92	110	7	17	49	408	41	21
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Fix		Auto	Prot-Fix		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="110"/> B: <input type="text" value="53"/>			
<b>EastBound</b> A: <input type="text" value="31"/> B: <input type="text" value="408"/>		<b>WestBound</b> A: <input type="text" value="49"/> B: <input type="text" value="7"/>	<b>NorthBound</b> A: <input type="text" value="28"/> B: <input type="text" value="16"/>	
				<b>V/C RATIO</b> <b>LOS</b> 0.00 - 0.60      A 0.61 - 0.70      B 0.71 - 0.80      C 0.81 - 0.90      D 0.91 - 1.00      E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

V/C =  $\frac{16 + 110 + 49 + 408}{1425} = 0.409$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	23	59	4	51	47	358	5	56	56	249	68	15
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>23</b>	<b>59</b>	<b>4</b>	<b>51</b>	<b>47</b>	<b>358</b>	<b>5</b>	<b>56</b>	<b>56</b>	<b>249</b>	<b>68</b>	<b>15</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Split		Auto	Split		Auto	Prot-Fix		Auto	Prot-Fix		Auto

### Critical Movements Diagram

SouthBound	
A:	358
B:	51

EastBound	
A:	42
B:	249

WestBound	
A:	56
B:	5

NorthBound	
A:	55
B:	23

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = A(N/B) + A(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{55 + 358 + 56 + 249}{1375} = 0.522$

LOS = A

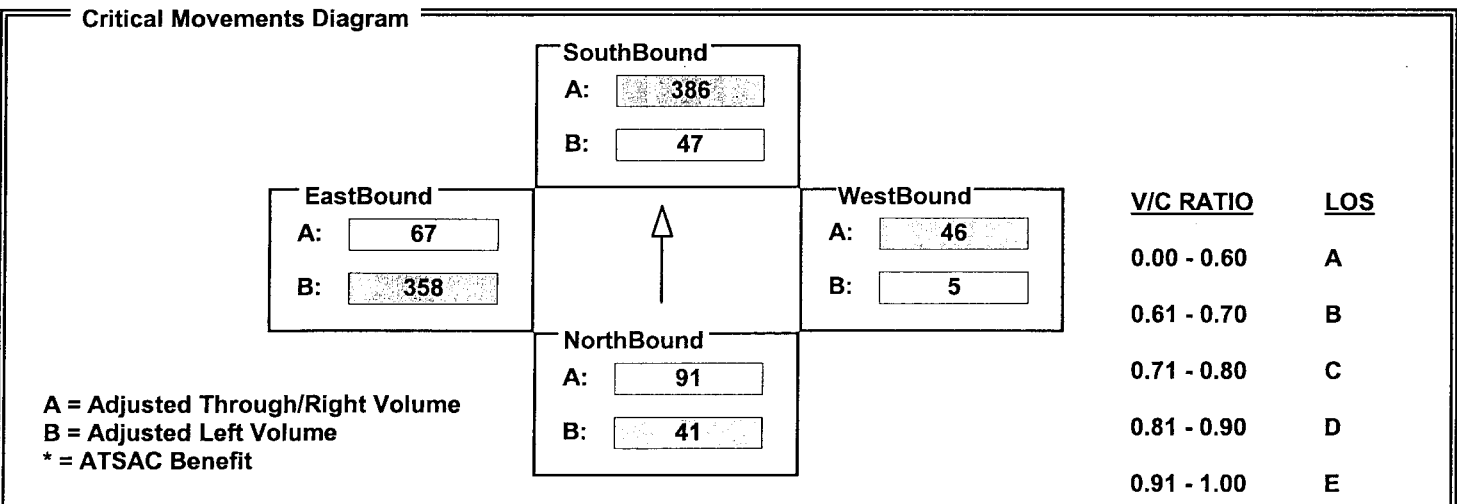
## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	41	93	7	47	92	386	5	66	25	358	101	32
AMBIENT												
RELATED												
PROJECT												
TOTAL	41	93	7	47	92	386	5	66	25	358	101	32
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Prot-Fix		Auto	Prot-Fix		Auto



### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)






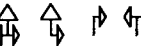
V/C =  $\frac{41 + 386 + 46 + 358}{1425} = 0.583$       LOS = A

## INTERSECTION DATA SUMMARY SHEET


N/S:  W/E:  I/S No:

AM/PM:  AM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	45	0	48	0	0	0	30	74	0	0	396	77
AMBIENT												
RELATED												
PROJECT												
TOTAL	45	0	48	0	0	0	30	74	0	0	396	77
LANE	 1			 1			 1	 2			 1	 1
SIGNAL	Phasing Perm	RTOR Auto		Phasing <none>	RTOR <none>		Phasing Perm	RTOR Auto		Phasing Prot-Fix	RTOR Auto	

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>SouthBound</b>            A: <input type="text" value="0"/>            B: <input type="text" value="0"/> </div>			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>EastBound</b>            A: <input type="text" value="237"/>            B: <input type="text" value="0"/> </div>	<div style="text-align: center; margin: 0 auto;">  </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>WestBound</b>            A: <input type="text" value="37"/>            B: <input type="text" value="30"/> </div>	<b>V/C RATIO</b> 0.00 - 0.60 0.61 - 0.70 0.71 - 0.80 0.81 - 0.90 0.91 - 1.00	<b>LOS</b> A B C D E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

---

### Results

North/South Critical Movements = A(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{31 + 0 + 30 + 237}{1425} = 0.209$ 
LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	94	0	60	0	0	0	33	300	0	0	177	75
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>94</b>	<b>0</b>	<b>60</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>33</b>	<b>300</b>	<b>0</b>	<b>0</b>	<b>177</b>	<b>75</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	<none>		<none>	Perm		Auto	Prot-Fix		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <b>SouthBound</b>                  A: <input type="text" value="0"/>                  B: <input type="text" value="0"/> </div> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>EastBound</b>                      A: <input type="text" value="126"/>                      B: <input type="text" value="0"/> </div> <div style="text-align: center;"> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>WestBound</b>                      A: <input type="text" value="150"/>                      B: <input type="text" value="33"/> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <b>NorthBound</b>                  A: <input type="text" value="51"/>                  B: <input type="text" value="51"/> </div>		
		<u>V/C RATIO</u>	<u>LOS</u>
		0.00 - 0.60	A
		0.61 - 0.70	B
		0.71 - 0.80	C
		0.81 - 0.90	D
		0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSC Benefit

---

**Results**

North/South Critical Movements = A(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{51 + 0 + 33 + 126}{1425} = 0.147$ 
LOS = A



## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	123	0	55	0	0	0	107	224	0	0	273	102
AMBIENT												
RELATED												
PROJECT												
TOTAL	123	0	55	0	0	0	107	224	0	0	273	102
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	<none>		<none>	Perm		Auto	Prot-Fix		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="0"/> B: <input type="text" value="0"/>														
<b>EastBound</b> A: <input type="text" value="188"/> B: <input type="text" value="0"/>		<b>WestBound</b> A: <input type="text" value="112"/> B: <input type="text" value="107"/>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>V/C RATIO</th> <th>LOS</th> </tr> </thead> <tbody> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </tbody> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
V/C RATIO	LOS														
0.00 - 0.60	A														
0.61 - 0.70	B														
0.71 - 0.80	C														
0.81 - 0.90	D														
0.91 - 1.00	E														
<b>NorthBound</b> A: <input type="text" value="55"/> B: <input type="text" value="68"/>															

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{68 + 0 + 107 + 188}{1425} = 0.255$       LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

Volume/Lane/Signal Configurations												
	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	9	5	40	13	5	5	52	99	17	6	435	12
AMBIENT												
RELATED												
PROJECT												
TOTAL	9	5	40	13	5	5	52	99	17	6	435	12
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<div style="border: 1px solid black; padding: 5px;"> <b>SouthBound</b>                  A: <input type="text" value="18"/>                  B: <input type="text" value="13"/> </div>			
<div style="border: 1px solid black; padding: 5px;"> <b>EastBound</b>                  A: <input type="text" value="227"/>                  B: <input type="text" value="6"/> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> </div>	<div style="border: 1px solid black; padding: 5px;"> <b>WestBound</b>                  A: <input type="text" value="110"/>                  B: <input type="text" value="52"/> </div>	<b>V/C RATIO</b>	<b>LOS</b>
			0.00 - 0.60	A
			0.61 - 0.70	B
			0.71 - 0.80	C
			0.81 - 0.90	D
			0.91 - 1.00	E
<p>A = Adjusted Through/Right Volume                  B = Adjusted Left Volume                  * = ATSAC Benefit</p>				
<b>Results</b>				
North/South Critical Movements = A(N/B) + B(S/B) West/East Critical Movements = B(W/B) + A(E/B)				
$V/C = \frac{40 + 13 + 52 + 227}{1500} = 0.221 \quad \text{LOS} = A$				

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  PM Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	19	10	86	27	10	10	90	354	30	10	257	20
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>19</b>	<b>10</b>	<b>86</b>	<b>27</b>	<b>10</b>	<b>10</b>	<b>90</b>	<b>354</b>	<b>30</b>	<b>10</b>	<b>257</b>	<b>20</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

SouthBound	
A:	37
B:	27

EastBound	
A:	149
B:	10

WestBound	
A:	237
B:	90

NorthBound	
A:	86
B:	19

	<u>V/C RATIO</u>	<u>LOS</u>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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#### Results

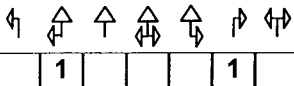
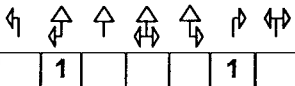
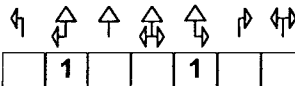
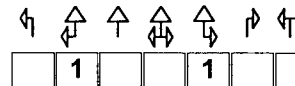
North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{86 + 27 + 237 + 10}{1500} = 0.240$


LOS = A

## INTERSECTION DATA SUMMARY SHEET

N/S:	<input type="text" value="Driveway"/>	W/E:	<input type="text" value="22nd St"/>	I/S No:	<input type="text"/>
AM/PM:	<input type="text" value="PM"/>	Comments:	<input type="text" value="Project Driveway Saturday"/>		
COUNT DATE:	<input type="text"/>	STUDY DATE:	<input type="text"/>	GROWTH FACTOR:	<input type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	40	10	180	60	10	20	164	321	55	18	315	36
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>40</b>	<b>10</b>	<b>180</b>	<b>60</b>	<b>10</b>	<b>20</b>	<b>164</b>	<b>321</b>	<b>55</b>	<b>18</b>	<b>315</b>	<b>36</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Perm		Auto	Perm		Auto	Perm		Auto	Perm		Auto

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="70"/> B: <input type="text" value="60"/>															
<b>EastBound</b> A: <input type="text" value="194"/> B: <input type="text" value="18"/>		<b>WestBound</b> A: <input type="text" value="352"/> B: <input type="text" value="164"/>	<b>NorthBound</b> A: <input type="text" value="180"/> B: <input type="text" value="40"/>													
				<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>V/C RATIO</th> <th>LOS</th> </tr> </thead> <tbody> <tr> <td>0.00 - 0.60</td> <td>A</td> </tr> <tr> <td>0.61 - 0.70</td> <td>B</td> </tr> <tr> <td>0.71 - 0.80</td> <td>C</td> </tr> <tr> <td>0.81 - 0.90</td> <td>D</td> </tr> <tr> <td>0.91 - 1.00</td> <td>E</td> </tr> </tbody> </table>	V/C RATIO	LOS	0.00 - 0.60	A	0.61 - 0.70	B	0.71 - 0.80	C	0.81 - 0.90	D	0.91 - 1.00	E
V/C RATIO	LOS															
0.00 - 0.60	A															
0.61 - 0.70	B															
0.71 - 0.80	C															
0.81 - 0.90	D															
0.91 - 1.00	E															

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = A(N/B) + B(S/B)  
 West/East Critical Movements = A(W/B) + B(E/B)

$V/C = \frac{180 + 60 + 352 + 18}{1500} = 0.407$ 
LOS = A

**CUMULATIVE PLUS PROJECT CONDITIONS WITH MITIGATION**

## INTERSECTION DATA SUMMARY SHEET

N/S:	<input type="text" value="Harbor BI"/>	W/E:	<input type="text" value="SR-47 &amp; Swinford St"/>	I/S No:	<input type="text" value="2"/>
AM/PM:	<input type="text" value="AM"/>	Comments:	<input type="text" value="Weekday AM Mitigation"/>		
COUNT DATE:	<input type="text"/>	STUDY DATE:	<input type="text"/>	GROWTH FACTOR:	<input type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	543	786	27	34	121	60	18	23	6	277	61	991
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>543</b>	<b>786</b>	<b>27</b>	<b>34</b>	<b>121</b>	<b>60</b>	<b>18</b>	<b>23</b>	<b>6</b>	<b>277</b>	<b>61</b>	<b>991</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

	SouthBound A: <input type="text" value="61"/> B: <input type="text" value="34"/>			
EastBound A: <input type="text" value="526"/> B: <input type="text" value="277"/>		WestBound A: <input type="text" value="29"/> B: <input type="text" value="18"/>	NorthBound A: <input type="text" value="271"/> B: <input type="text" value="299"/>	V/C RATIO      LOS 0.00 - 0.60      A 0.61 - 0.70      B 0.71 - 0.80      C 0.81 - 0.90      D 0.91 - 1.00      E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{299 + 61 + 18 + 526}{1375} = 0.657 \quad \text{LOS} = B$$

## INTERSECTION DATA SUMMARY SHEET

N/S:  W/E:  I/S No:

AM/PM:  Comments:

COUNT DATE:  STUDY DATE:  GROWTH FACTOR:

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	607	813	12	10	163	111	20	25	13	92	15	1742
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>607</b>	<b>813</b>	<b>12</b>	<b>10</b>	<b>163</b>	<b>111</b>	<b>20</b>	<b>25</b>	<b>13</b>	<b>92</b>	<b>15</b>	<b>1742</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

	<b>SouthBound</b> A: <input type="text" value="82"/> B: <input type="text" value="10"/>		
<b>EastBound</b> A: <input type="text" value="879"/> B: <input type="text" value="92"/>		<b>WestBound</b> A: <input type="text" value="38"/> B: <input type="text" value="20"/>	
	<b>NorthBound</b> A: <input type="text" value="275"/> B: <input type="text" value="334"/>		

	<u>V/C RATIO</u>	<u>LOS</u>
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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### Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

V/C =  $\frac{334 + 82 + 20 + 879}{1375} = 0.956$       LOS = E

## INTERSECTION DATA SUMMARY SHEET

N/S:	<input type="text" value="Harbor Bl"/>	W/E:	<input type="text" value="SR-47 &amp; Swinford St"/>	I/S No:	<input type="text" value="2"/>
AM/PM:	<input type="text" value="PM"/>	Comments:	<input type="text" value="Weekend Mid-day Mitigation"/>		
COUNT DATE:	<input type="text"/>	STUDY DATE:	<input type="text"/>	GROWTH FACTOR:	<input type="text"/>

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	702	997	70	32	158	73	75	45	124	154	89	1572
AMBIENT												
RELATED												
PROJECT												
<b>TOTAL</b>	<b>702</b>	<b>997</b>	<b>70</b>	<b>32</b>	<b>158</b>	<b>73</b>	<b>75</b>	<b>45</b>	<b>124</b>	<b>154</b>	<b>89</b>	<b>1572</b>
LANE												
SIGNAL	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR	Phasing		RTOR
	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		Auto	Prot-Fix		OLA

### Critical Movements Diagram

	<b>SouthBound</b>			
	A: <input type="text" value="79"/>			
	B: <input type="text" value="32"/>			
<b>EastBound</b>	↑	<b>WestBound</b>	<b>V/C RATIO</b>	<b>LOS</b>
A: <input type="text" value="831"/>		A: <input type="text" value="169"/>	0.00 - 0.60	A
B: <input type="text" value="154"/>		B: <input type="text" value="75"/>	0.61 - 0.70	B
	<b>NorthBound</b>		0.71 - 0.80	C
	A: <input type="text" value="356"/>		0.81 - 0.90	D
	B: <input type="text" value="386"/>		0.91 - 1.00	E

A = Adjusted Through/Right Volume  
 B = Adjusted Left Volume  
 \* = ATSAC Benefit

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**Results**

North/South Critical Movements = B(N/B) + A(S/B)  
 West/East Critical Movements = B(W/B) + A(E/B)

$V/C = \frac{386 + 79 + 75 + 831}{1375} = 0.997$

LOS = E