

FOCUSED SITE TRAFFIC IMPACT STUDY

Pomona Sports Club
2780 Reservoir Road, Pomona

Date: October 22, 2014

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Focused Traffic Impact Study for
Pomona Sports Club
2780 Reservoir Road, Pomona



Prepared under the supervision of

A handwritten signature in black ink, appearing to read "Kay Hsu", written over a horizontal line.

Jende Kay Hsu, T. E.

T2285

October 22, 2014

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EXECUTIVE SUMMARY

The proposed Sports Club plans to use the 50,000-sq.ft. building at 2780 Reservoir Road in the City of Pomona and add a 8,500-sq.ft. mezzanine to provide 18 badminton courts, 7 ping pong tables, locker rooms, restrooms, office spaces, retail spaces, kids care room, fitness and training gym, and dance classroom for members use of the Sports Club.

The project will replace the approved warehouse use with a proposed sports club. The project is expects to result in a reduction of 9 inbound trips and increase of 14 outbound trips in the AM peak hour, an increase of 51 inbound and 4 outbound trips in the PM peak hour.

At the study intersection of Reservoir Road and Walnut Avenue, the level of services in all study scenarios for both AM and PM peak hours maintain at LOS "A", well above the impact threshold of LOS "E". The project has no significant traffic impact to the intersections in the project vicinity. Mitigation measure is not required.

Parking ratio of the subject facility is not available for the City of Pomona. In order to observe actual parking ratios, parking surveys were conducted at the existing Pomona Badminton Club located at 3410 Pomona Boulevard in the City of Pomona. The study found that actual parking ratio is 2.62 spaces per 1,000 sq. ft. gross floor area. This study recommends using a conservative parking ratio of 3 spaces per 1,000 sq. ft. gross floor area. It is determined that the proposed sports facility of 58,500 sq. ft. should require 176 parking spaces.

This project site provides 201 parking spaces, exceeding the maximum parking demand of 176 parking spaces. This study therefore concludes that project parking is sufficient and no overflow to nearby roadways is expected.

The site has two existing driveways: a right-in-right-out driveway on Reservoir Road and a full access driveway on Walnut Avenue. Both driveways provide over 300 ft corner sight distances, meeting or exceeding the sight distance standards of adjacent streets at 40 mph speed limit. Site access from both driveways appear efficient and safe.

The site has two existing driveways: a right-in-right-out driveway on Reservoir Road and a full access driveway on Walnut Avenue. Both driveways provide over 300 ft corner sight distances, meeting or exceeding the sight distance standards of adjacent streets at 40 mph speed limit. However, it is important that such corner sight distance be maintained constantly in the landscape area free of any visual obstructions. Site access from both driveways appear efficient and safe.

INTRODUCTION

The purpose of this focused traffic impact study is to evaluate potential traffic impact and parking sufficiency of the proposed Pomona Sports Club located at 2780 Reservoir Road in the City of Pomona. Location map is shown in **Exhibit 1**.

The proposed Sports Club plans to use the 50,000-sq.ft. building at 2780 Reservoir Road in the City of Pomona and add a 8,500-sq.ft. mezzanine to provide 18 badminton courts, 7 ping pong tables, locker rooms, restrooms, office spaces, retail spaces, kids care room, fitness and training gym, and dance classroom for members use of the Sports Club. Site plan is shown in **Exhibit 2**.

STUDY SCENARIOS

In compliance with the “Traffic Impact Study Guidelines” of the City of Pomona, this analysis is performed using SYNCHRO software to examine the following scenarios:

- (a) Existing Conditions;
- (b) Existing Conditions with Proposed Project
- (c) Project Opening Year with Background Traffic
- (d) Project Opening Year with Background Traffic and Proposed Project

EXISTING CONDITIONS

The site is situated at the northeast corner of Reservoir Road and Walnut Avenue. Reservoir Road is a four-lane divided north-south arterial with left turn lanes in the project vicinity. The posted speed limit is 40 mph. Reservoir Road provides access to Pomona Freeway (California State Route 60). Walnut Avenue is a two-lane undivided east-west roadway in the project vicinity. The intersection of Reservoir Road and Walnut Avenue is controlled by stop signs on Walnut Avenue.

Turning movement counts at the intersection of Reservoir Road and Walnut Avenue were collected in August 21, 2014 (see **Attachment A**). Traffic data are illustrated in **Exhibit 3**.

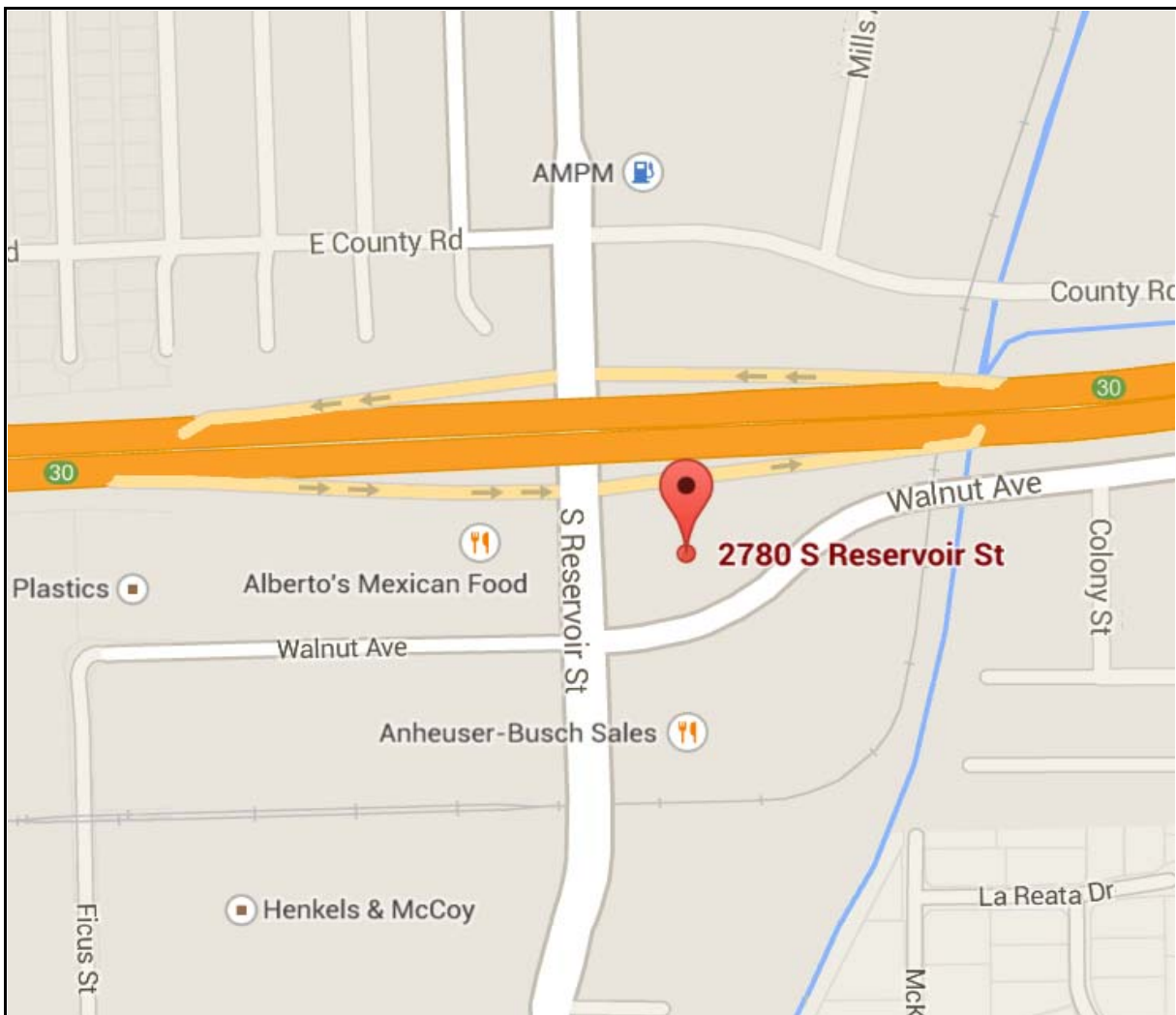


Exhibit 1. Location Map

No Scale

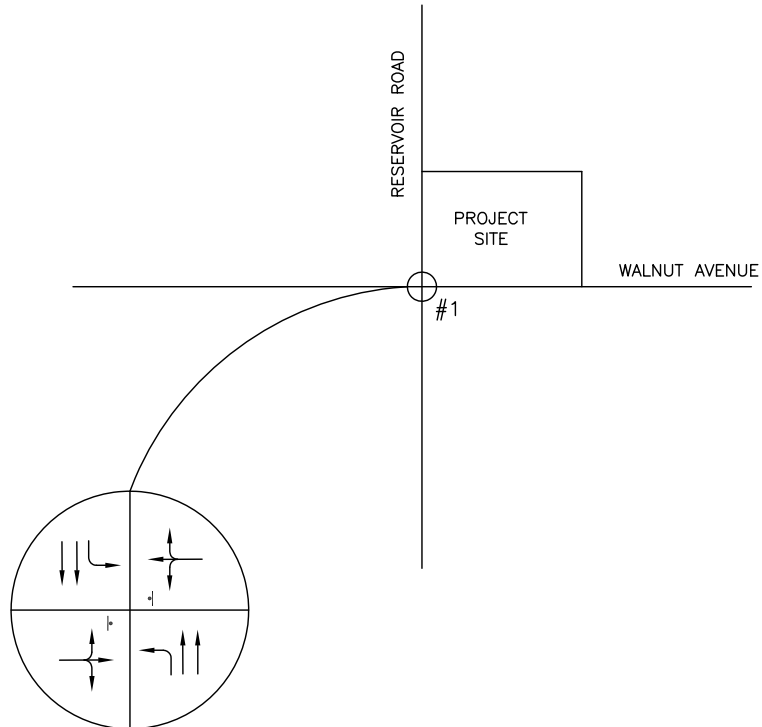


ALLSTAR

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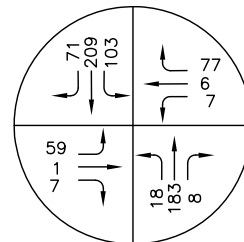
5731 STRADELLA ROAD YORBA LINDA, CA 92886
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www.allstareng.com



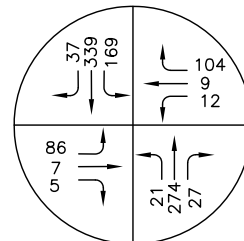
LEGEND:

⊥ STOP SIGN

AM PEAK HOUR



PM PEAK HOUR



EXISTING LANE CONFIGURATION
& TRAFFIC VOLUMES
EXHIBIT 3

Table 1 shows existing traffic conditions of studied intersections. The analysis worksheets can be found in **Attachment B**.

Table 1. Existing Traffic Conditions

Intersection	AM LOS	PM LOS
Reservoir Road and Walnut Avenue	A	A

TRIP GENERATION

Trip generation represents the amount of traffic attracted and produced by the project development. The project will replace the approved warehouse use with a proposed sports club. Based upon the recommendations from "*Trip Generation*" published by the Institute of Transportation Engineers (ITE), and the trip generation study of San Gabriel Valley Badminton Club conducted by Raju Associates in 2009, the trip generation rates are shown in **Table 2**.

Table 2. Trip Generation Rate

LAND USE	UNIT	Daily	AM Peak			PM Peak		
			Total	IN	OUT	Total	IN	OUT
SGV Badminton Club	1000 SF	14.03	0.39	21%	79%	1.25	76%	24%
Warehouse (150)	1000 SF	3.56	0.30	79%	21%	0.32	25%	75%

* Based on the trip generation studies of San Gabriel Valley Badminton Club and traffic impact study of Pomona Badminton Club conducted by Raju Associates in 2009.

** Source: Rates from ITE, Trip Generation, 9th Edition

The project is expects to result in a reduction of 9 inbound trips and increase of 14 outbound trips in the AM peak hour, an increase of 51 inbound and 4 outbound trips in

the PM peak hour. The projected trips associated with the project are provided in **Table 3**.

Table 3. Project Trip Generation

LAND USE	UNIT	Qty	AM PEAK HOUR			PM PEAK HOUR			Daily
			Total	IN	OUT	Total	IN	OUT	
Badminton Club	1000 SF	58.5	23	5	18	73	56	18	821
Warehouse	1000 SF	50	-18	-14	-4	-19	-5	-14	-178
Total Project Trip			5	-9	14	54	51	4	643

TRIP DISTRIBUTION

Trip distribution represents the directional orientation of traffic to and from the proposed project. Directional orientation is largely influenced by the geographical location of the site, among many other factors. The trip distribution pattern for the project is illustrated on **Exhibit 4**.

TRAFFIC ASSIGNMENT

The traffic assignment to and from the Site has been based upon the results of trip generation, trip distribution, and access layouts. **Exhibit 5 and 6** illustrate the traffic assignment of the proposed project in the AM and PM peak hours, respectively.

EXHIBIT 4. TRIP DISTRIBUTION

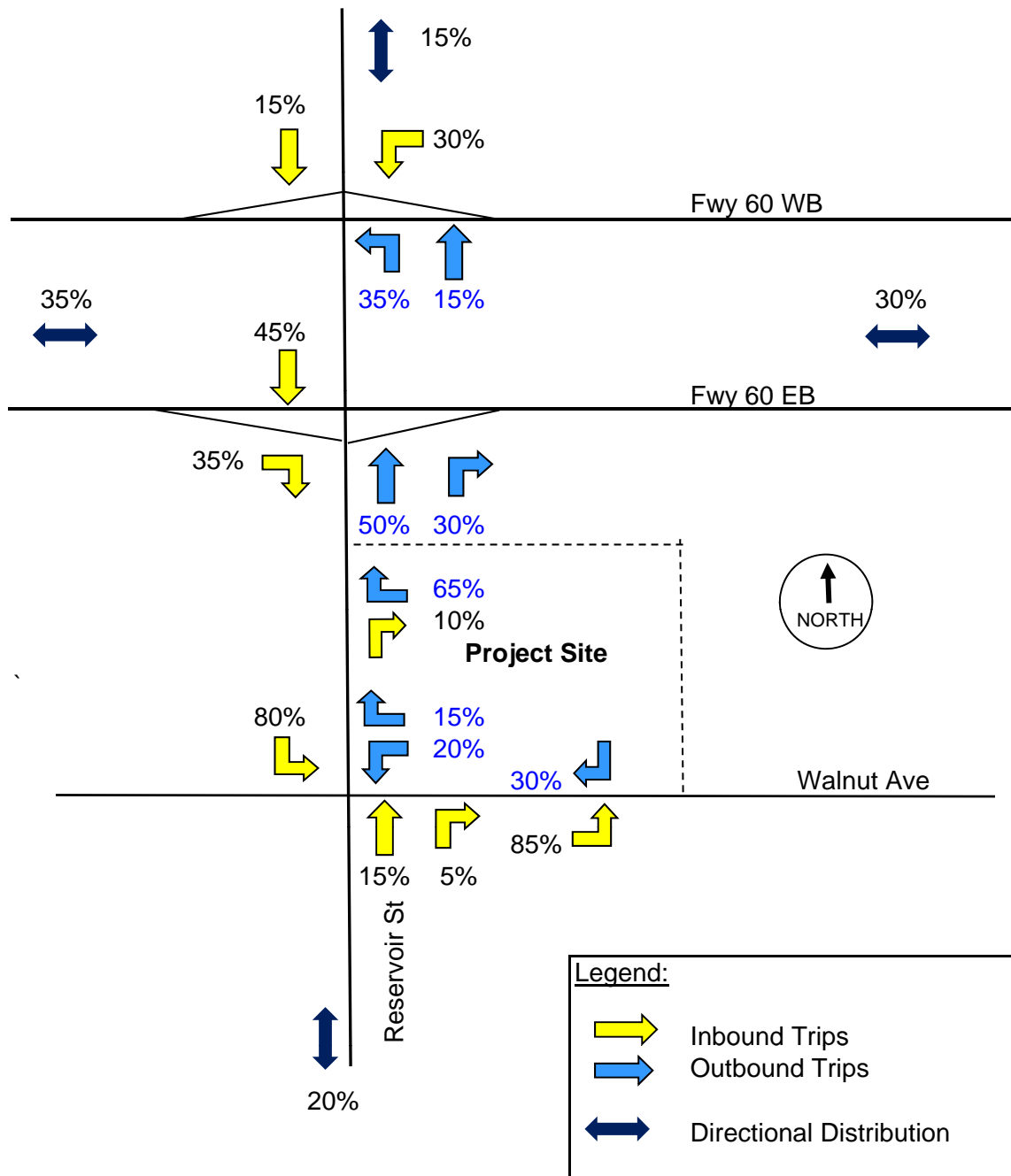


EXHIBIT 5. TRAFFIC ASSIGNMENT - AM PEAK

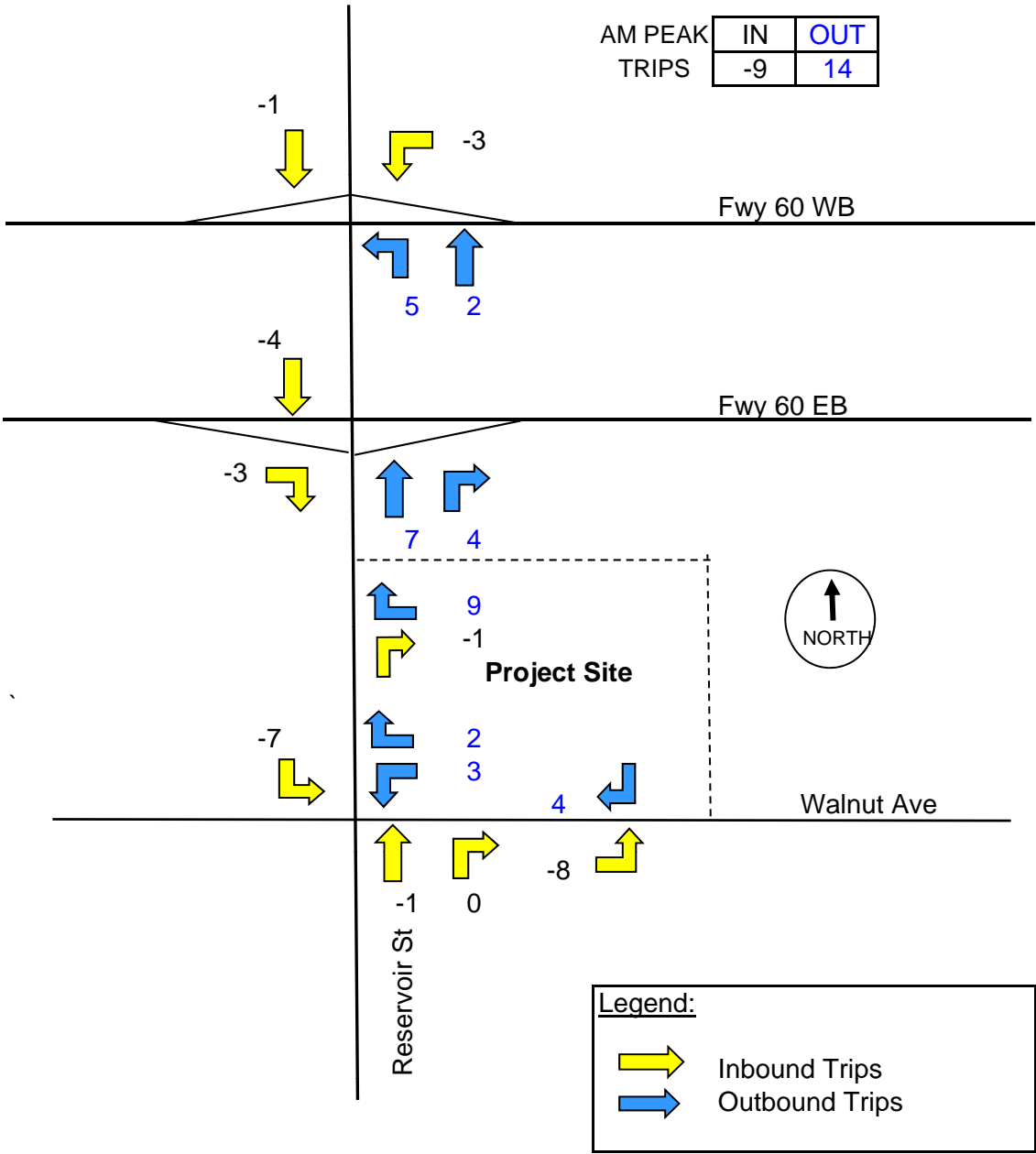
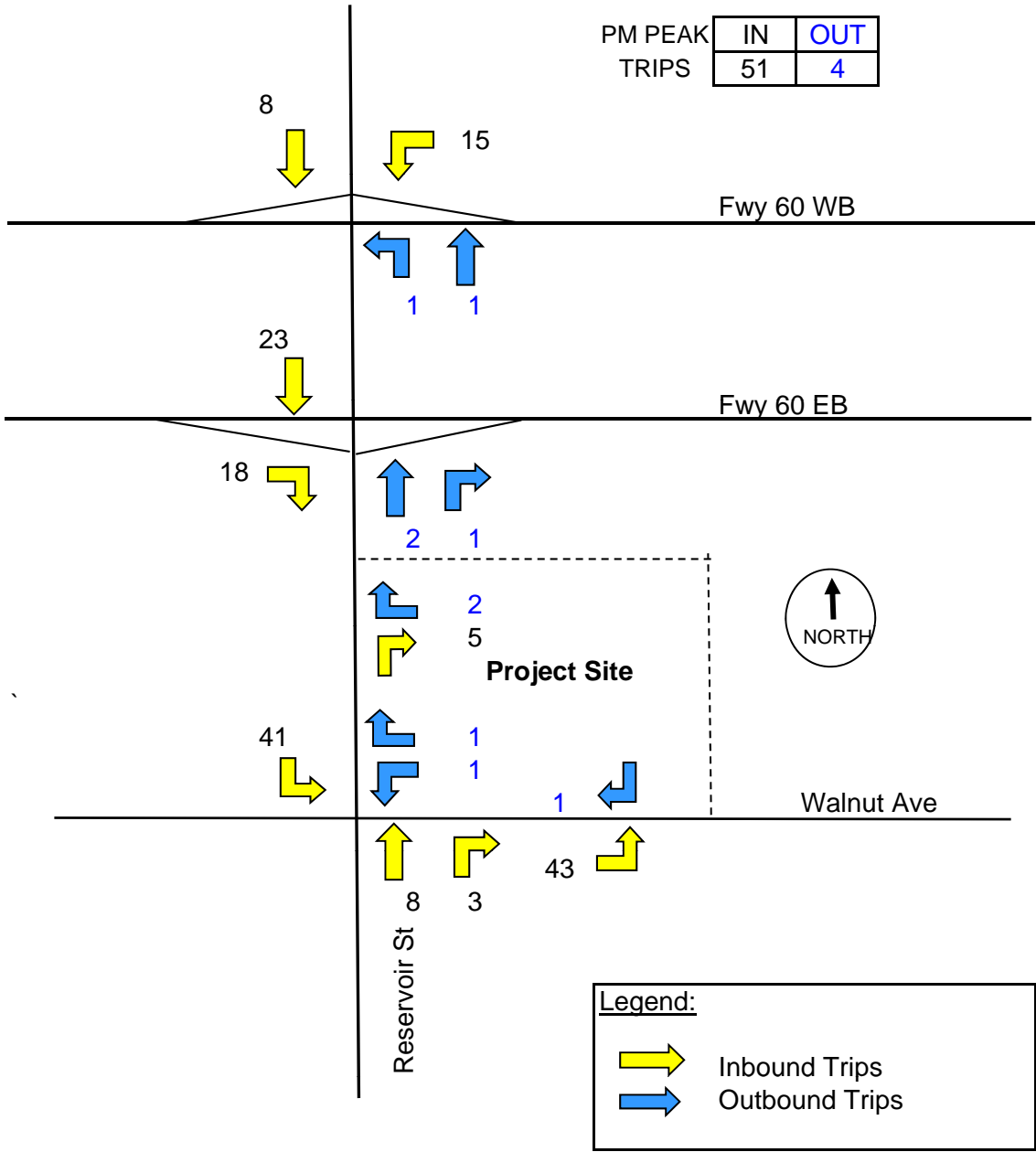


EXHIBIT 6. TRAFFIC ASSIGNMENT - PM PEAK



TRAFFIC IMPACT

The scenario of Existing Conditions has been discussed in previous chapters. For project opening year 2015, the ambient growth of 2 percent per year is used. This factor covers traffic increases resulting from regional development growth.

The study intersection is unsignalized and currently operating at LOS "A". According to the Traffic Impact Study Guidelines, an impact is considered significant if the addition of project related traffic causes the intersection to move from a LOS "D" or better to a LOS "E" or worse.

(a) Existing Conditions + Proposed Project

Table 4 shows the existing conditions plus the proposed project at studied intersection. The projected traffic and analysis worksheets are shown in **Attachment B**. Traffic volumes for this scenario are shown in **Exhibit 7**.

Table 4. Existing Conditions + Proposed Project

Intersection	AM LOS	PM LOS
Reservoir Road and Walnut Avenue	A	A

At the study intersection, the level of services at both AM and PM peak hours maintain at LOS "A", well above the impact threshold of LOS "E". The project has no significant traffic impact to the intersections under this scenario.

(b) Project Opening Year with Background Traffic

Table 5 shows the built-out year traffic conditions at studied intersections. The projected traffic and analysis worksheets are shown in **Attachment B**. Traffic volumes for this scenario are shown in **Exhibit 8**.

Table 5. Project Opening Year with Background Traffic

Intersection	AM LOS	PM LOS
Reservoir Road and Walnut Avenue	A	A

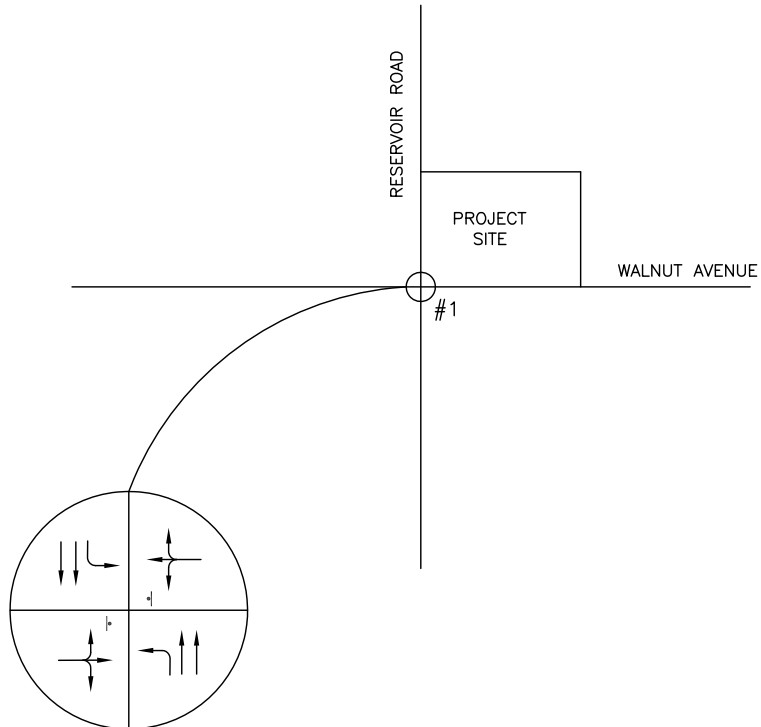
(c) Project Opening Year with Background Traffic + Proposed Project

Table 6 shows the built-out year traffic conditions plus the proposed project at studied intersections. The projected traffic and analysis worksheets are shown in **Attachment B**. Traffic volumes for this scenario are shown in **Exhibit 9**.

Table 6. Project Opening Year with Background Traffic + Proposed Project

Intersection	AM LOS	PM LOS
Reservoir Road and Walnut Avenue	A	A

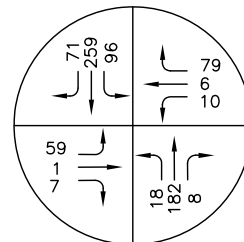
At the study intersection, the level of services at both AM and PM peak hours maintain at LOS "A", well above the impact threshold of LOS "E". This study therefore confirms that the project has no significant traffic impact to the study intersection. Mitigation measure is not required for the project.



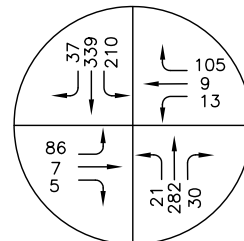
LEGEND:

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AM PEAK HOUR

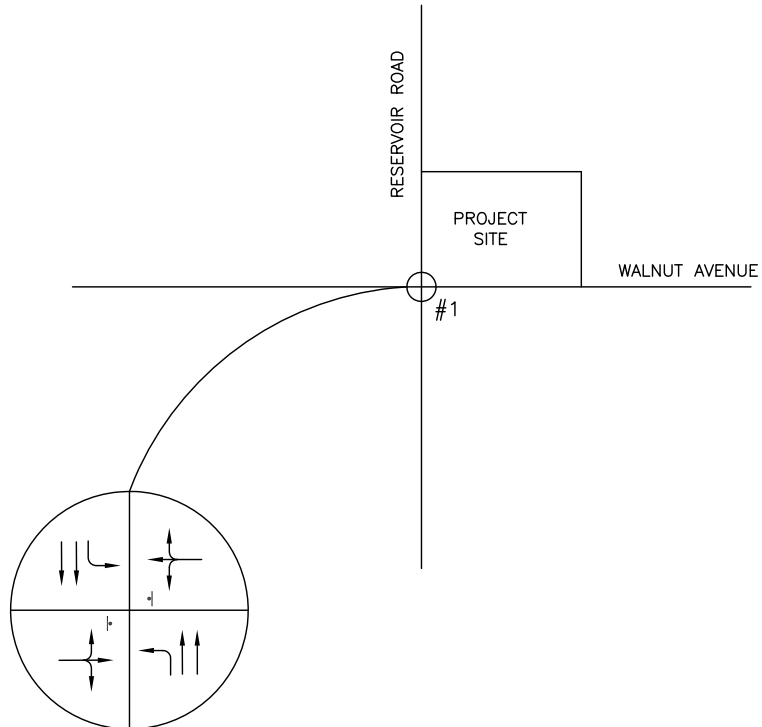


PM PEAK HOUR



EXISTING CONDITIONS + PROJECT
TRAFFIC VOLUME

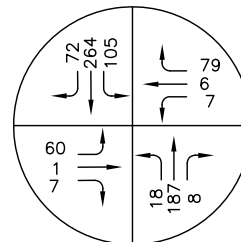
EXHIBIT 7



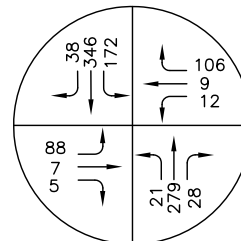
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AM PEAK HOUR

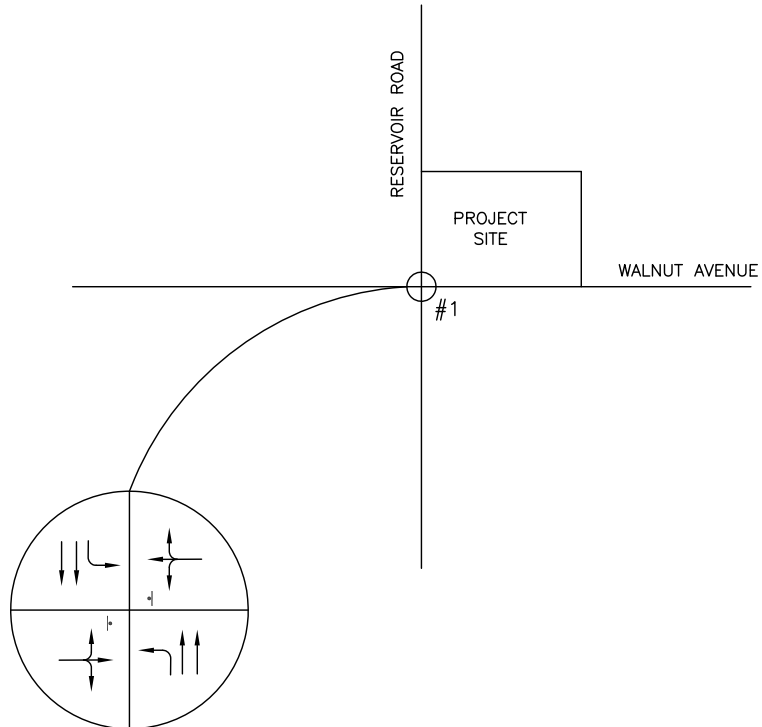


PM PEAK HOUR

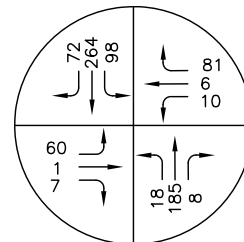


PROJECT OPENING YEAR
TRAFFIC VOLUME

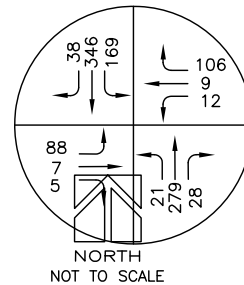
EXHIBIT 8



AM PEAK HOUR



PM PEAK HOUR



LEGEND:

STOP SIGN

PROJECT OPENING YEAR + PROJECT
TRAFFIC VOLUME

EXHIBIT 9

PARKING SURVEY

Parking ratio of the subject facility is not available for the City of Pomona. In order to observe actual parking ratios, parking surveys were conducted at the existing Pomona Badminton Club of 45,792 square feet located at 3410 Pomona Boulevard in the City of Pomona. This facility provides 20 badminton courts and 8 ping pong courts. The amenities include locker rooms, office spaces, storage spaces, a fitness room and a snack bar. Parked vehicles were counted in the parking lot every 30 minutes for two weekday evenings in July 2014 between 5 pm and 10 pm, and on a Saturday between 9 am to 4 pm.

Table 1. Parking Demand Survey

<i>Date</i>	<i>Day of Week</i>	<i>Peak Hour</i>	<i>Peak Parking</i>	<i>Parking Ratio (Sq.Ft./Space)</i>	<i>Number of Parking Space per 1,000 Sq.Ft.</i>
7/8/2014	Tue	9:30 pm	120	381.6	2.62
7/10/2014	Thu	10:00 pm	104	440.3	2.27
7/12/2014	Sat	10:30 am	67	683.4	1.46

The study found that the peak parking demand at this subject facility of 45,792 sq. ft. gross floor area occurred on a Tuesday evening when 120 parking spaces were occupied. Complete survey data are shown in **Appendix C**.

PARKING ANALYSIS

In general, the data indicate that weekday evenings have higher parking demand than weekends. Based on onsite observations, actual parking ratio is 2.62 spaces per 1,000 sq. ft. gross floor area (120 spaces per 45,792 sq. ft.). This study recommends using a conservative parking ratio of 3 spaces per 1,000 sq. ft. gross floor area. It is determined that the proposed sports facility of 58,500 sq. ft. should require 176 parking spaces.

According to the site plan, the project site provides 201 parking spaces, exceeding the maximum parking demand of 176 parking spaces. This study therefore concludes that project parking is sufficient and no overflow to nearby roadways is expected.

SITE ACCESS

The site has two existing driveways: a right-in-right-out driveway on Reservoir Road and a full access driveway on Walnut Avenue. Both driveways provide over 300 ft corner sight distances, meeting or exceeding the sight distance standards of adjacent streets at 40 mph speed limit. However, it is important that such corner sight distance be maintained constantly in the landscape area free of any visual obstructions. Site access from both driveways appear efficient and safe.

APPENDIX A
TURNING MOVEMENT COUNT DATA

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:
Tue, Aug 19, 14

LOCATION:
NORTH & SOUTH:
EAST & WEST:

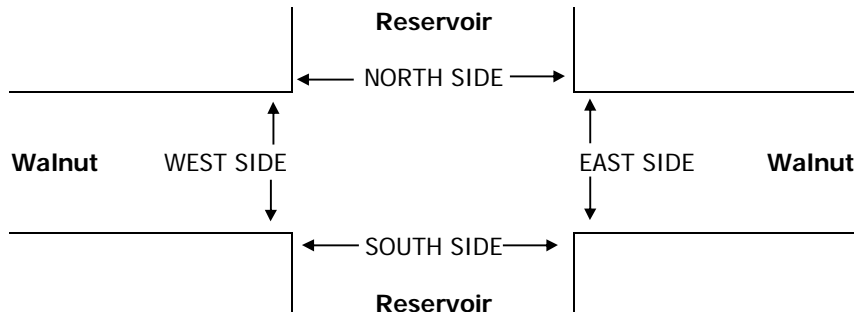
Pomona
Reservoir
Walnut

PROJECT #: SC0434
LOCATION #: 1
CONTROL: Stop 2 ways E/W

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Reservoir			Reservoir			Walnut			Walnut			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	2	0	0	1	0	0	1	0	

AM	7:00 AM	5	40	2	32	46	24	12	0	1	1	3	18	184
	7:15 AM	7	45	0	25	55	13	13	1	3	3	3	24	192
	7:30 AM	2	51	1	19	51	17	12	0	1	2	1	26	183
	7:45 AM	7	47	2	35	74	20	10	1	4	3	2	16	221
	8:00 AM	5	44	4	32	62	19	15	0	1	2	1	15	200
	8:15 AM	4	41	1	17	72	15	22	0	1	0	2	20	195
	8:30 AM	2	36	2	25	49	12	17	1	0	1	0	19	164
	8:45 AM	1	46	5	24	52	13	12	0	1	1	1	15	171
	VOLUMES	33	350	17	209	461	133	113	3	12	13	13	153	1,620
	APPROACH %	8%	88%	4%	26%	57%	17%	88%	2%	9%	7%	7%	85%	
	APP/DEPART	409	/	717	904	/	495	128	/	229	179	/	179	0
PM	BEGIN PEAK HR	7:30 AM												
	VOLUMES	18	183	8	103	259	71	59	1	7	7	6	77	799
	APPROACH %	9%	88%	4%	24%	60%	16%	88%	1%	10%	8%	7%	86%	
	PEAK HR FACTOR	0.933			0.839			0.728			0.776			0.904
	APP/DEPART	209	/	319	433	/	273	67	/	112	90	/	95	0
	4:00 PM	4	62	6	18	55	9	19	0	1	3	5	25	207
	4:15 PM	0	45	2	30	43	9	22	2	1	4	2	24	184
	4:30 PM	1	65	4	34	69	8	18	2	6	1	2	29	239
	4:45 PM	4	57	8	44	78	16	19	1	3	5	1	21	257
	5:00 PM	6	99	9	30	69	7	32	2	2	4	3	40	303
	5:15 PM	6	60	6	60	104	7	18	0	0	3	1	23	288
	5:30 PM	5	58	4	35	88	7	17	4	0	0	4	20	242
	5:45 PM	4	51	6	31	61	17	15	3	2	2	2	21	215
	VOLUMES	30	497	45	282	567	80	160	14	15	22	20	203	2,073
	APPROACH %	5%	87%	8%	30%	61%	9%	85%	7%	8%	9%	8%	83%	
	APP/DEPART	574	/	996	1,065	/	606	189	/	341	245	/	130	0
	BEGIN PEAK HR	4:45 PM												
	VOLUMES	21	274	27	169	339	37	86	7	5	12	9	104	1,090
	APPROACH %	7%	85%	8%	31%	62%	7%	88%	7%	5%	10%	7%	83%	
	PEAK HR FACTOR	0.706			0.797			0.681			0.665			0.899
	APP/DEPART	322	/	464	545	/	356	98	/	203	125	/	67	0






















APPENDIX B
LEVEL OF SERVICE ANALYSIS

HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St













Existing AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	59	1	7	7	6	77	18	183	8	103	259	71
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	66	1	8	8	7	86	20	203	9	114	288	79
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
vC, conflicting volume	787	808	183	629	843	106	367			212		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	100	99	98	98	91	98			92		
cM capacity (veh/h)	232	282	828	335	269	928	1188			1355		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	74	100	20	136	77	114	192	175				
Volume Left	66	8	20	0	0	114	0	0				
Volume Right	8	86	0	0	9	0	0	79				
cSH	252	713	1188	1700	1700	1355	1700	1700				
Volume to Capacity	0.30	0.14	0.02	0.08	0.05	0.08	0.11	0.10				
Queue Length (ft)	30	12	1	0	0	7	0	0				
Control Delay (s)	25.2	10.9	8.1	0.0	0.0	7.9	0.0	0.0				
Lane LOS	D	B	A			A						
Approach Delay (s)	25.2	10.9	0.7			1.9						
Approach LOS	D	B										
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization		35.5%			ICU Level of Service				A			

HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St













Existing + Proj AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↱	↕↕		↱	↕↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	59	1	7	10	6	79	18	182	8	96	259	71
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	66	1	8	11	7	88	20	202	9	107	288	79
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
vC, conflicting volume	773	792	183	612	827	106	367			211		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	100	99	97	98	91	98			92		
cM capacity (veh/h)	238	290	828	346	277	928	1188			1357		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	74	106	20	135	76	107	192	175				
Volume Left	66	11	20	0	0	107	0	0				
Volume Right	8	88	0	0	9	0	0	79				
cSH	258	700	1188	1700	1700	1357	1700	1700				
Volume to Capacity	0.29	0.15	0.02	0.08	0.04	0.08	0.11	0.10				
Queue Length (ft)	29	13	1	0	0	6	0	0				
Control Delay (s)	24.5	11.1	8.1	0.0	0.0	7.9	0.0	0.0				
Lane LOS	C	B	A			A						
Approach Delay (s)	24.5	11.1	0.7			1.8						
Approach LOS	C	B										
Intersection Summary												
Average Delay	4.5											
Intersection Capacity Utilization	35.5%			ICU Level of Service					A			

HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St



















Opening AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↱	↕↱		↱	↕↱	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	1	7	7	6	79	18	187	8	105	264	72
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	67	1	8	8	7	88	20	208	9	117	293	80
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
vC, conflicting volume	802	823	187	641	859	108	373	217				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1	4.1				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	70	100	99	98	97	91	98	91				
cM capacity (veh/h)	225	276	824	328	263	925	1182	1350				
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	76	102	20	139	78	117	196	178				
Volume Left	67	8	20	0	0	117	0	0				
Volume Right	8	88	0	0	9	0	0	80				
cSH	244	710	1182	1700	1700	1350	1700	1700				
Volume to Capacity	0.31	0.14	0.02	0.08	0.05	0.09	0.12	0.10				
Queue Length (ft)	32	13	1	0	0	7	0	0				
Control Delay (s)	26.2	10.9	8.1	0.0	0.0	7.9	0.0	0.0				
Lane LOS	D	B	A	A								
Approach Delay (s)	26.2	10.9	0.7	1.9								
Approach LOS	D	B										
Intersection Summary												
Average Delay	4.6											
Intersection Capacity Utilization	35.7%		ICU Level of Service					A				

HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St













Opening + Proj AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	1	7	10	6	81	18	185	8	98	264	72
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	67	1	8	11	7	90	20	206	9	109	293	80
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
vC, conflicting volume	787	806	187	623	841	107	373			214		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	100	99	97	98	90	98			92		
cM capacity (veh/h)	231	284	824	339	271	926	1182			1353		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	76	108	20	137	77	109	196	178				
Volume Left	67	11	20	0	0	109	0	0				
Volume Right	8	90	0	0	9	0	0	80				
cSH	251	697	1182	1700	1700	1353	1700	1700				
Volume to Capacity	0.30	0.15	0.02	0.08	0.05	0.08	0.12	0.10				
Queue Length (ft)	31	14	1	0	0	7	0	0				
Control Delay (s)	25.4	11.1	8.1	0.0	0.0	7.9	0.0	0.0				
Lane LOS	D	B	A			A						
Approach Delay (s)	25.4	11.1	0.7			1.8						
Approach LOS	D	B										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			35.7%		ICU Level of Service				A			

HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St




















Existing PM Peak

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations		↕			↕		↕	↕		↕	↕									
Sign Control		Stop			Stop			Free			Free									
Grade		0%			0%			0%			0%									
Volume (veh/h)	86	7	5	12	9	104	21	274	27	169	339	37								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
Hourly flow rate (veh/h)	96	8	6	13	10	116	23	304	30	188	377	41								
Pedestrians																				
Lane Width (ft)																				
Walking Speed (ft/s)																				
Percent Blockage																				
Right turn flare (veh)																				
Median type		None			None															
Median storage (veh)																				
vC, conflicting volume	1092	1154	209	939	1159	167	418			334										
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1										
tC, 2 stage (s)																				
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2										
p0 queue free %	21	95	99	93	94	86	98			85										
cM capacity (veh/h)	121	162	797	182	161	848	1138			1222										
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3												
Volume Total	109	139	23	203	131	188	251	167												
Volume Left	96	13	23	0	0	188	0	0												
Volume Right	6	116	0	0	30	0	0	41												
cSH	129	511	1138	1700	1700	1222	1700	1700												
Volume to Capacity	0.85	0.27	0.02	0.12	0.08	0.15	0.15	0.10												
Queue Length (ft)	132	27	2	0	0	14	0	0												
Control Delay (s)	107.0	14.7	8.2	0.0	0.0	8.5	0.0	0.0												
Lane LOS	F	B	A				A													
Approach Delay (s)	107.0	14.7	0.5				2.6													
Approach LOS	F	B																		
Intersection Summary																				
Average Delay	12.8																			
Intersection Capacity Utilization	50.1%			ICU Level of Service									A							

HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St













Existing + Proj PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	86	7	5	13	9	105	21	282	30	210	339	37
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	96	8	6	14	10	117	23	313	33	233	377	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
vC, conflicting volume	1189	1257	209	1041	1261	173	418			347		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	2	94	99	90	93	86	98			81		
cM capacity (veh/h)	98	134	797	147	133	840	1138			1209		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	109	141	23	209	138	233	251	167				
Volume Left	96	14	23	0	0	233	0	0				
Volume Right	6	117	0	0	33	0	0	41				
cSH	105	452	1138	1700	1700	1209	1700	1700				
Volume to Capacity	1.04	0.31	0.02	0.12	0.08	0.19	0.15	0.10				
Queue Length (ft)	167	33	2	0	0	18	0	0				
Control Delay (s)	176.1	16.5	8.2	0.0	0.0	8.7	0.0	0.0				
Lane LOS	F	C	A			A						
Approach Delay (s)	176.1	16.5	0.5			3.1						
Approach LOS	F	C										
Intersection Summary												
Average Delay			18.7									
Intersection Capacity Utilization			53.4%		ICU Level of Service					A		

HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St




















Opening PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	88	7	5	12	9	106	21	279	28	172	346	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	98	8	6	13	10	118	23	310	31	191	384	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
vC, conflicting volume	1112	1176	213	956	1181	171	427			341		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	16	95	99	92	94	86	98			84		
cM capacity (veh/h)	116	157	792	176	156	843	1129			1215		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	111	141	23	207	134	191	256	170				
Volume Left	98	13	23	0	0	191	0	0				
Volume Right	6	118	0	0	31	0	0	42				
cSH	123	505	1129	1700	1700	1215	1700	1700				
Volume to Capacity	0.90	0.28	0.02	0.12	0.08	0.16	0.15	0.10				
Queue Length (ft)	143	28	2	0	0	14	0	0				
Control Delay (s)	122.8	14.9	8.3	0.0	0.0	8.5	0.0	0.0				
Lane LOS	F	B	A				A					
Approach Delay (s)	122.8	14.9	0.5	2.6								
Approach LOS	F	B										
Intersection Summary												
Average Delay	14.2											
Intersection Capacity Utilization	50.8%			ICU Level of Service					A			

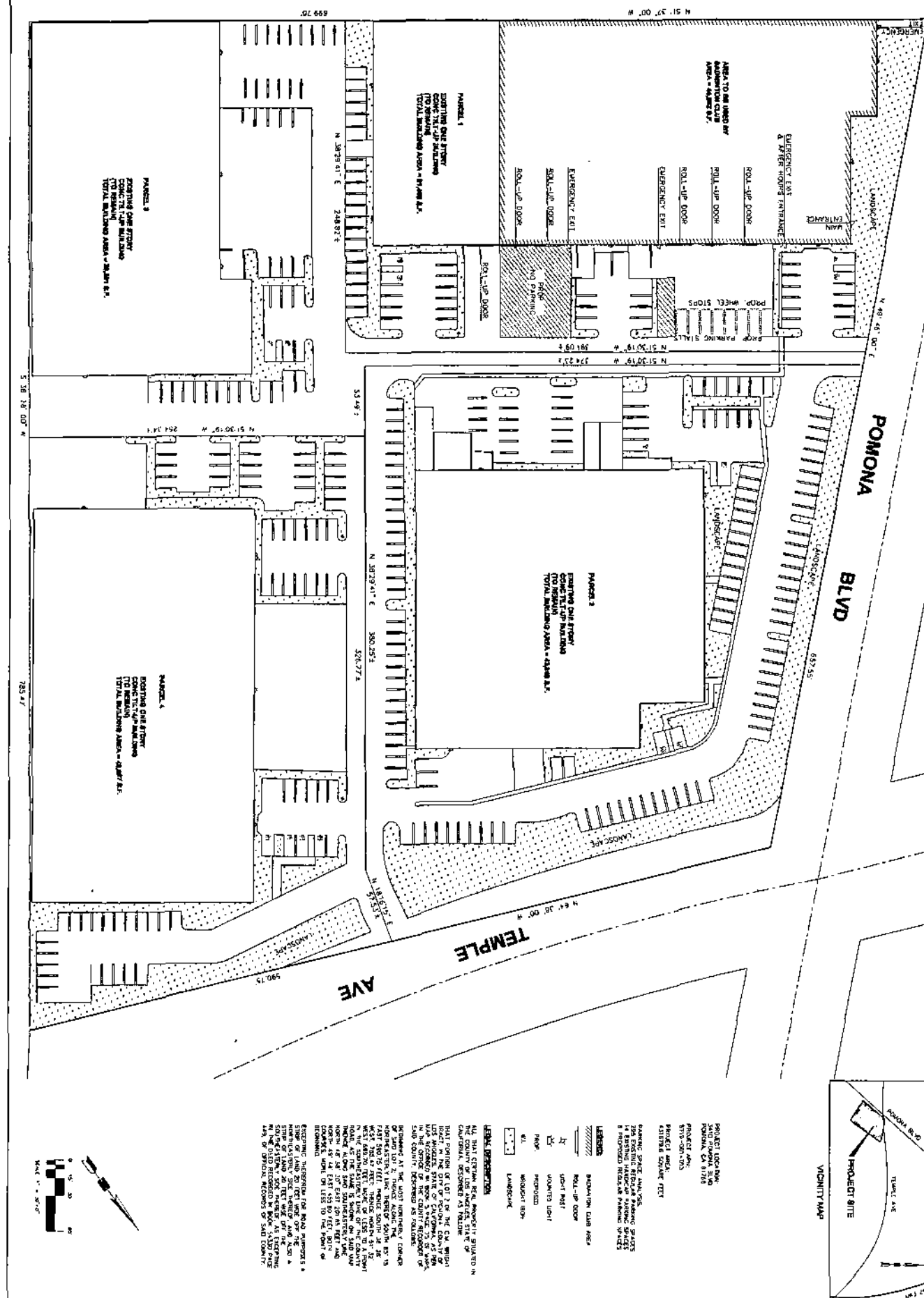
HCM Unsignalized Intersection Capacity Analysis

1: Walnut Ave & Reservoir St

Opening + Proj PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	88	7	5	13	9	107	21	287	30	213	346	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	98	8	6	14	10	119	23	319	33	237	384	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
vC, conflicting volume	1209	1278	213	1057	1282	176	427			352		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	94	99	90	92	86	98			80		
cM capacity (veh/h)	94	130	792	142	129	837	1129			1203		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	111	143	23	213	140	237	256	170				
Volume Left	98	14	23	0	0	237	0	0				
Volume Right	6	119	0	0	33	0	0	42				
cSH	100	446	1129	1700	1700	1203	1700	1700				
Volume to Capacity	1.11	0.32	0.02	0.13	0.08	0.20	0.15	0.10				
Queue Length (ft)	180	34	2	0	0	18	0	0				
Control Delay (s)	202.1	16.8	8.3	0.0	0.0	8.7	0.0	0.0				
Lane LOS	F	C	A			A						
Approach Delay (s)	202.1	16.8	0.5			3.1						
Approach LOS	F	C										
Intersection Summary												
Average Delay			21.0									
Intersection Capacity Utilization			54.1%		ICU Level of Service				A			

APPENDIX C
PARKING SURVEY DATA



BADMINTON CLUB
3410 POMONA BLVD
POMONA, CA 91768

PLANS PREPARED FOR:
ERIC McMULLIN
1441 HUNTINGTON DR, SUITE 2750
SOUTH PASADENA, CA 91030
TEL: (626) 674-8400

PLANS PREPARED BY:
NL ENGINEERING & SURVEYING, INC.
790 S. ATLANTIC BLVD., SUITE 108
MONTEREY PARK, CA 91754
TEL: (626) 291-2001 FAX: (626) 291-2006

REV	DATE	BY
1	01-07-10	00000
2	01-07-10	00000
3	01-07-10	00000
4	01-07-10	00000
5	01-07-10	00000
6	01-07-10	00000
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96	01-07-10	00000
97	01-07-10	00000
98	01-07-10	00000
99	01-07-10	00000
100	01-07-10	00000

APPENDIX A. PARKING SURVEY

P6143 - Pomona Badminton & Health Club Parking Study
3410 Pomona Blvd, Pomona

Date	7/8/2014
Day	Tuesday
By	William T.

Area	A	B	C	D	E	F		Total
CAPACITY	19	23	16	19	44	183		304
5:00 PM	18	5	0	5	2	0		30
5:30 PM	18	3	0	9	14	0		44
6:00 PM	18	7	0	13	14	0		52
6:30 PM	18	8	1	13	20	0		60
7:00 PM	19	9	2	13	24	0		67
7:30 PM	18	10	7	13	28	0		76
8:00 PM	18	13	14	13	37	0		95
8:30 PM	18	19	16	13	40	1		107
9:00 PM	18	21	17	13	44	2		115
9:30 PM	18	23	17	13	44	5		120 *
10:00 PM	18	18	14	13	41	5		109
Peak Usage	19	23	17	13	44	5		120

* Peak parking occurred at 9:30 pm when 120 spaces were occupied.

APPENDIX A. PARKING SURVEY

P6143 - Pomona Badminton & Health Club Parking Study
3410 Pomona Blvd, Pomona

Date	7/10/2014
Day	Thursday
By	William T.

Area	A	B	C	D	E	F		Total
CAPACITY	19	23	16	19	44	183		304
5:00 PM	15	1	0	2	4	0		22
5:30 PM	14	2	0	3	9	0		28
6:00 PM	16	3	0	8	12	0		39
6:30 PM	17	7	1	13	19	0		57
7:00 PM	17	10	4	17	21	0		69
7:30 PM	18	7	9	15	23	0		72
8:00 PM	19	12	11	17	33	0		92
8:30 PM	18	13	13	15	32	0		91
9:00 PM	18	15	13	16	30	0		92
9:30 PM	19	17	13	16	36	0		101
10:00 PM	18	17	17	16	36	0		104 *
Peak Usage	19	17	17	17	36	0		104

* Peak parking occurred at 10:00 pm when 104 spaces were occupied.

APPENDIX A. PARKING SURVEY

P6143 - Pomona Badminton & Health Club Parking Study
3410 Pomona Blvd, Pomona

Date	7/12/2014
Day	Saturday
By	William T.

Area	A	B	C	D	E	F		Total
CAPACITY	19	23	16	19	44	183		304
9:00 AM	17	2	0	5	3	0		27
9:30 AM	18	6	0	8	14	0		46
10:00 AM	18	10	5	10	19	0		62
10:30 AM	16	9	8	11	23	0		67 *
11:00 AM	14	9	7	13	23	0		66
11:30 AM	11	8	6	12	18	0		55
12:00 PM	15	6	4	8	13	0		46
12:30 PM	10	4	4	4	9	0		31
1:00 PM	7	4	3	4	4	0		22
1:30 PM	8	0	1	2	2	0		13
2:00 PM	8	0	0	2	3	0		13
2:30 PM	12	0	0	4	3	0		19
3:00 PM	14	0	1	5	4	0		24
3:30 PM	18	0	1	7	6	0		32
4:00 PM	14	0	1	7	5	0		27
Peak Usage	18	10	8	13	23	0		67

* Peak parking occurred at 10:30 am when 67 spaces were occupied.