

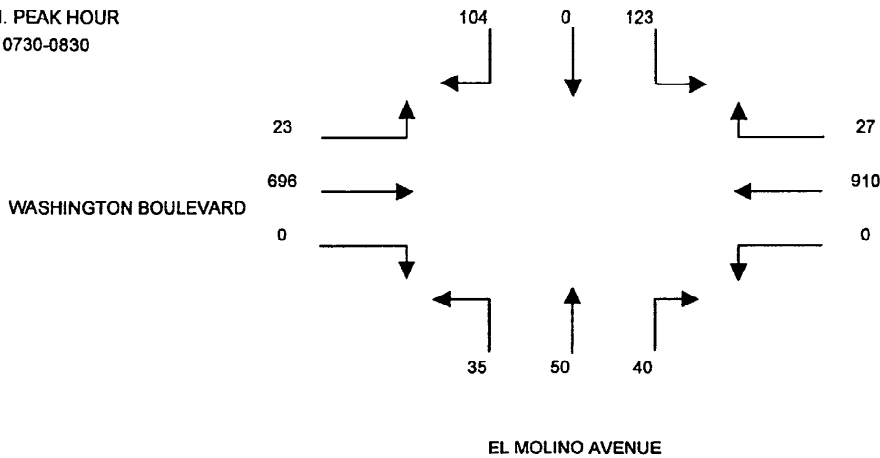
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 DATE: THURSDAY, DECEMBER 13, 2007
 PERIOD: 07:00 AM TO 09:00 AM
 INTERSECTION: N/S EL MOLINO AVENUE
 E/W WASHINGTON BOULEVARD
 FILE NUMBER: 6-AM

15 MINUTE TOTALS	1	2	3	4	5	6	7	8	9	10	11	12
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	10	0	14	4	98	0	7	6	3	0	123	5
715-730	18	0	20	5	146	0	9	10	5	0	198	6
730-745	29	0	34	5	207	0	10	15	9	0	216	6
745-800	32	0	24	11	252	0	10	12	9	0	156	7
800-815	23	0	26	7	251	0	13	12	7	0	165	7
815-830	20	0	39	4	200	0	7	11	10	0	159	3
830-845	15	0	21	4	155	0	8	15	6	0	167	5
845-900	12	0	16	6	151	0	7	13	8	0	141	4

1 HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	TOTALS
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	
700-800	89	0	92	25	703	0	36	43	26	0	693	24	1731
715-815	102	0	104	28	856	0	42	49	30	0	735	26	1972
730-830	104	0	123	27	910	0	40	50	35	0	696	23	2008
745-845	90	0	110	26	858	0	38	50	32	0	647	22	1873
800-900	70	0	102	21	757	0	35	51	31	0	632	19	1718

A.M. PEAK HOUR
0730-0830



PERIOD	NORTH		EAST		SOUTH		WEST	
	APPROACH	EXIT	APPROACH	EXIT	APPROACH	EXIT	APPROACH	EXIT
700-800	181	92	728	821	105	0	717	818
715-815	206	103	884	881	121	0	761	988
730-830	227	100	937	859	125	0	719	1049
745-845	200	98	884	795	120	0	669	980
800-900	172	91	778	769	117	0	651	858

THE TRAFFIC SOLUTION
 329 DIAMOND STREET
 ARCADIA, CALIFORNIA 91006
 626.446.7978

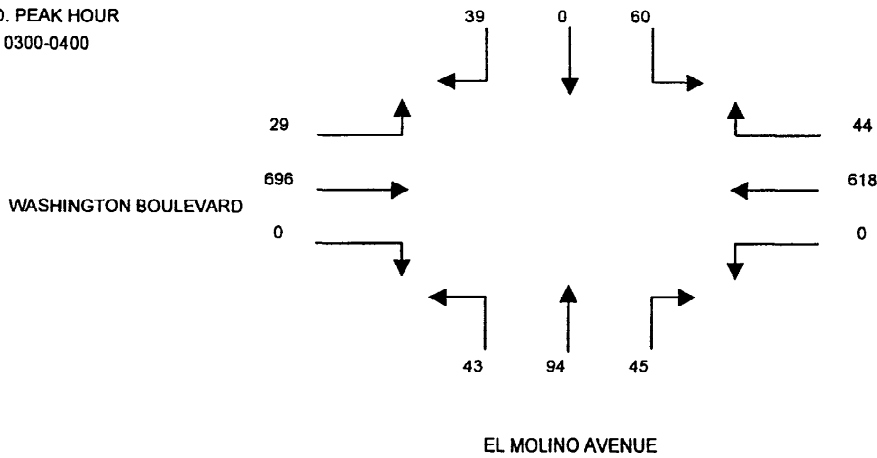
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 DATE: THURSDAY, DECEMBER 13, 2007
 PERIOD: 02:00 PM TO 04:00 PM
 INTERSECTION: N/S EL MOLINO AVENUE
 E/W WASHINGTON BOULEVARD
 FILE NUMBER: 6-MD

15 MINUTE TOTALS	1	2	3	4	5	6	7	8	9	10	11	12
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
200-215	4	0	10	5	103	0	19	16	9	0	139	4
215-230	7	0	14	4	140	0	11	17	6	0	147	6
230-245	11	0	16	6	156	0	10	16	9	0	140	7
245-300	11	0	17	10	161	0	9	21	12	0	182	7
300-315	10	0	19	13	140	0	10	19	10	0	178	8
315-330	10	0	16	12	143	0	12	20	10	0	158	8
330-345	8	0	15	8	166	0	12	27	12	0	172	6
345-400	11	0	10	11	169	0	11	28	11	0	188	7

1 HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	TOTALS
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	
200-300	33	0	57	25	560	0	49	70	36	0	608	24	1462
215-315	39	0	66	33	597	0	40	73	37	0	647	28	1560
230-330	42	0	68	41	600	0	41	76	41	0	658	30	1597
245-345	39	0	67	43	610	0	43	87	44	0	690	29	1652
300-400	39	0	60	44	618	0	45	94	43	0	696	29	1668

M.D. PEAK HOUR
0300-0400



PERIOD	NORTH		EAST		SOUTH		WEST	
	APPROACH	EXIT	APPROACH	EXIT	APPROACH	EXIT	APPROACH	EXIT
200-300	90	119	585	714	155	0	632	629
215-315	105	134	630	753	150	0	675	673
230-330	110	147	641	767	158	0	688	683
245-345	106	159	653	800	174	0	719	693
300-400	99	167	662	801	182	0	725	700

THE TRAFFIC SOLUTION
 329 DIAMOND STREET
 ARCADIA, CALIFORNIA 91006
 626.446.7978

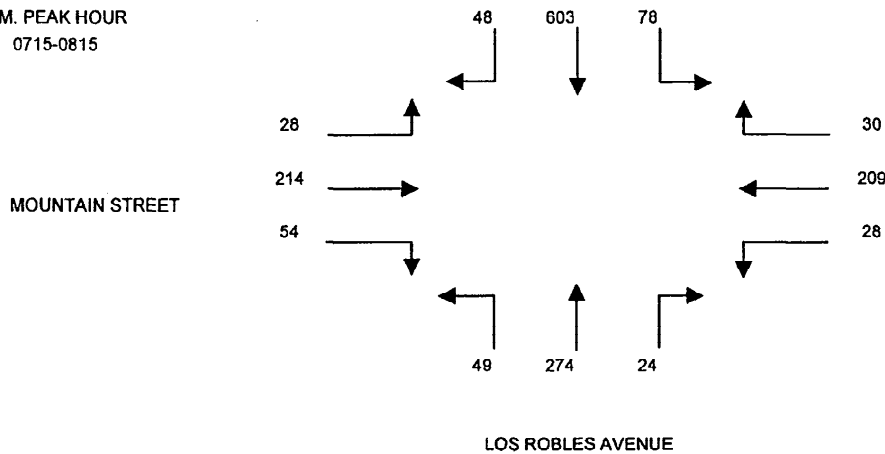
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 DATE: THURSDAY, DECEMBER 13, 2007
 PERIOD: 07:00 AM TO 09:00 AM
 INTERSECTION: N/S LOS ROBLES AVENUE
 E/W MOUNTAIN STREET
 FILE NUMBER: 7-AM-R

15 MINUTE TOTALS	1	2	3	4	5	6	7	8	9	10	11	12
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
700-715	10	110	18	5	49	6	4	45	3	12	50	9
715-730	14	146	26	8	54	7	8	55	6	16	65	9
730-745	15	143	22	9	69	11	7	65	11	12	44	5
745-800	11	158	16	6	47	6	4	79	18	16	54	9
800-815	8	156	14	7	39	4	5	75	14	10	51	5
815-830	11	167	15	5	29	5	5	50	12	8	39	7
830-845	6	148	14	4	35	7	7	66	14	5	37	3
845-900	5	139	9	3	29	6	8	50	11	5	32	5

1 HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	TOTALS
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	
700-800	50	557	82	28	219	30	23	244	38	56	213	32	1572
715-815	48	603	78	30	209	28	24	274	49	54	214	28	1639
730-830	45	624	67	27	184	26	21	269	55	46	188	26	1578
745-845	36	629	59	22	150	22	21	270	58	39	181	24	1511
800-900	30	610	52	19	132	22	25	241	51	28	159	20	1389

A.M. PEAK HOUR
0715-0815



PERIOD	NORTH		EAST		SOUTH		WEST	
	APPROACH	EXIT	APPROACH	EXIT	APPROACH	EXIT	APPROACH	EXIT
700-800	689	304	277	318	305	643	301	307
715-815	729	332	267	316	347	685	296	306
730-830	736	322	237	276	345	696	260	284
745-845	724	316	194	261	349	690	244	244
800-900	692	280	173	236	317	660	207	213

THE TRAFFIC SOLUTION
 329 DIAMOND STREET
 ARCADIA, CALIFORNIA 91006
 626.446.7978

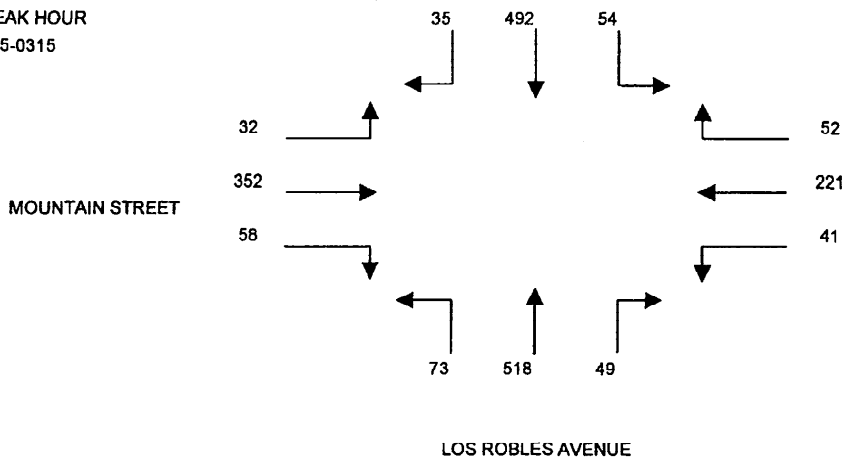
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 DATE: THURSDAY, DECEMBER 13, 2007
 PERIOD: 02:00 PM TO 04:00 PM
 INTERSECTION: N/S LOS ROBLES AVENUE
 E/W MOUNTAIN STREET
 FILE NUMBER: 7-MD

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
200-215	4	94	17	8	49	12	11	114	17	10	91	3
215-230	7	108	13	13	57	13	10	121	13	15	89	5
230-245	9	117	12	17	63	10	16	133	19	15	84	6
245-300	10	132	12	12	55	11	13	125	20	16	82	10
300-315	9	135	17	10	46	7	10	139	21	12	97	11
315-330	10	115	15	8	38	8	13	135	17	11	79	10
330-345	12	108	13	11	41	8	11	129	16	9	81	9
345-400	8	101	10	7	34	6	9	123	11	7	69	7

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	TOTALS
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	
200-300	30	451	54	50	224	46	50	493	69	56	346	24	1893
215-315	35	492	54	52	221	41	49	518	73	58	352	32	1977
230-330	38	499	56	47	202	36	52	532	77	54	342	37	1972
245-345	41	490	57	41	180	34	47	528	74	48	339	40	1919
300-400	39	459	55	36	159	29	43	526	85	39	326	37	1813

M.D. PEAK HOUR
0215-0315



NORTH	NORTH
APPROACH	EXIT

EAST	EAST
APPROACH	EXIT

SOUTH	SOUTH
APPROACH	EXIT

WEST	WEST
APPROACH	EXIT

PERIOD	NORTH APPROACH	NORTH EXIT	EAST APPROACH	EAST EXIT	SOUTH APPROACH	SOUTH EXIT	WEST APPROACH	WEST EXIT
200-300	535	567	320	450	612	553	426	323
215-315	581	602	314	455	640	591	442	329
230-330	593	616	285	450	661	589	433	317
245-345	588	609	255	443	649	572	427	295
300-400	553	599	224	424	634	527	402	263

THE TRAFFIC SOLUTION
 329 DIAMOND STREET
 ARCADIA, CALIFORNIA 91006
 626.446.7978

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 LOCATION: GARFIELD AVENUE BTWN HOWARD STREET & WASHINGTON BOULEVARD
 DATE: THURSDAY, DECEMBER 13, 2007
 FILE NO: A-1

DIRECTION:		NORTHBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	3	1	0	2	6	
01:00	0	1	1	2	4	
02:00	0	2	0	1	3	
03:00	1	0	2	0	3	
04:00	1	0	1	2	4	
05:00	1	0	1	1	3	
06:00	1	2	5	12	20	
07:00	11	6	13	23	53	
08:00	69	106	16	13	204	
09:00	8	9	11	9	37	
10:00	11	9	8	7	35	
11:00	8	13	6	7	34	
12:00	10	10	11	6	37	
13:00	11	7	12	12	42	
14:00	8	10	10	38	66	
15:00	25	42	22	16	105	
16:00	18	18	17	18	71	
17:00	30	20	21	22	93	
18:00	13	12	13	11	49	
19:00	9	17	11	10	47	
20:00	7	8	9	11	35	
21:00	5	4	13	9	31	
22:00	8	9	7	5	29	
23:00	3	7	6	2	18	
TOTAL					1029	
AM PEAK HOUR		08:00-09:00				
VOLUME		204				
PM PEAK HOUR		14:45-15:45				
VOLUME		127				

DIRECTION:		SOUTHBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	1	2	2	1	6	
01:00	0	1	1	2	4	
02:00	2	0	2	0	4	
03:00	0	0	2	0	2	
04:00	1	0	4	3	8	
05:00	2	3	4	7	16	
06:00	5	15	13	14	47	
07:00	23	10	28	17	78	
08:00	36	31	27	13	107	
09:00	13	14	8	8	43	
10:00	8	10	7	10	35	
11:00	7	9	6	6	28	
12:00	14	7	12	21	54	
13:00	8	13	7	21	49	
14:00	7	7	14	5	33	
15:00	37	19	14	10	80	
16:00	17	19	13	13	62	
17:00	16	18	13	19	66	
18:00	11	11	13	12	47	
19:00	8	10	7	4	29	
20:00	4	5	8	5	22	
21:00	8	9	3	5	25	
22:00	8	10	5	2	25	
23:00	2	4	2	3	11	
TOTAL					881	
AM PEAK HOUR		08:00-09:00				
VOLUME		107				
PM PEAK HOUR		15:00-16:00				
VOLUME		80				

TOTAL BI-DIRECTIONAL VOLUME	1910
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THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 LOCATION: WASHINGTON BOULEVARD BTWN GARFIELD & LOS ROBLES AVENUES
 DATE: THURSDAY, DECEMBER 13, 2007
 FILE NO: A-2

DIRECTION:		WESTBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	21	14	14	13	62	
01:00	12	8	5	4	29	
02:00	5	3	8	6	22	
03:00	6	7	4	5	22	
04:00	7	3	18	5	33	
05:00	24	15	24	36	99	
06:00	49	57	73	87	266	
07:00	99	147	232	255	733	
08:00	247	231	163	148	789	
09:00	136	111	98	100	445	
10:00	92	89	86	104	371	
11:00	109	120	99	99	427	
12:00	110	97	107	106	420	
13:00	113	116	106	130	465	
14:00	107	136	171	159	573	
15:00	169	183	170	160	682	
16:00	159	182	159	173	673	
17:00	190	162	157	153	662	
18:00	142	134	127	112	515	
19:00	121	102	85	96	404	
20:00	81	82	76	68	307	
21:00	82	75	75	51	283	
22:00	60	70	46	53	229	
23:00	55	35	28	17	135	
TOTAL				8646		
AM PEAK HOUR		07:30-08:30				
VOLUME		965				
PM PEAK HOUR		16:15-17:15				
VOLUME		704				

DIRECTION:		EASTBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	20	11	11	9	51	
01:00	7	5	6	6	24	
02:00	3	9	9	5	26	
03:00	5	4	6	7	22	
04:00	5	3	14	16	38	
05:00	15	17	28	38	98	
06:00	48	43	55	84	230	
07:00	126	195	203	153	677	
08:00	171	184	139	125	619	
09:00	119	94	107	118	438	
10:00	110	107	125	119	461	
11:00	116	105	124	116	461	
12:00	124	124	120	133	501	
13:00	122	143	140	121	526	
14:00	156	154	161	154	625	
15:00	193	183	216	199	791	
16:00	212	191	203	194	800	
17:00	226	246	233	207	912	
18:00	185	188	159	144	676	
19:00	140	141	104	81	466	
20:00	89	90	95	65	339	
21:00	79	74	69	60	282	
22:00	57	52	44	31	184	
23:00	57	37	27	32	153	
TOTAL				9400		
AM PEAK HOUR		07:15-08:15				
VOLUME		722				
PM PEAK HOUR		17:00-18:00				
VOLUME		912				

TOTAL BI-DIRECTIONAL VOLUME	18046
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THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 LOCATION: LOS ROBLES AVENUE BTWN HOWARD STREET & WASHINGTON BOULEVARD
 DATE: THURSDAY, DECEMBER 13, 2007
 FILE NO: A-3

DIRECTION:		NORTHBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	14	15	15	10	54	
01:00	6	5	3	4	18	
02:00	8	5	3	3	19	
03:00	4	3	3	3	13	
04:00	0	2	4	3	9	
05:00	6	10	14	15	45	
06:00	14	17	27	45	103	
07:00	65	79	86	103	333	
08:00	108	100	90	64	362	
09:00	61	52	57	78	248	
10:00	59	67	71	68	265	
11:00	49	65	74	81	269	
12:00	90	72	84	92	338	
13:00	86	81	91	95	353	
14:00	96	98	117	111	422	
15:00	131	139	127	145	542	
16:00	122	145	136	152	555	
17:00	150	151	165	164	630	
18:00	156	116	130	121	523	
19:00	113	112	97	95	417	
20:00	87	86	108	106	387	
21:00	79	78	61	70	288	
22:00	71	50	33	43	197	
23:00	38	35	32	21	126	
TOTAL					6516	
AM PEAK HOUR		07:45-08:45				
VOLUME		401				
PM PEAK HOUR		17:15-18:15				
VOLUME		636				

DIRECTION:		SOUTHBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	4	8	6	8	26	
01:00	10	4	2	2	18	
02:00	2	3	3	1	9	
03:00	2	3	3	5	13	
04:00	5	12	9	11	37	
05:00	11	13	20	41	85	
06:00	34	50	60	61	205	
07:00	84	119	134	136	473	
08:00	125	106	155	127	513	
09:00	101	87	84	75	347	
10:00	85	71	79	78	313	
11:00	76	76	86	70	308	
12:00	85	88	77	60	310	
13:00	80	79	70	90	319	
14:00	74	60	80	98	312	
15:00	138	129	95	98	460	
16:00	111	98	103	124	436	
17:00	113	119	111	122	465	
18:00	115	89	83	92	379	
19:00	86	69	68	56	279	
20:00	59	45	50	43	197	
21:00	45	33	30	25	133	
22:00	43	43	24	31	141	
23:00	22	16	17	8	63	
TOTAL					5841	
AM PEAK HOUR		07:45-08:45				
VOLUME		522				
PM PEAK HOUR		16:45-17:45				
VOLUME		467				

TOTAL BI-DIRECTIONAL VOLUME	12357
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THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: CRAIN & ASSOCIATES
 PROJECT: PASADENA CHRISTIAN SCHOOL
 LOCATION: HOWARD STREET BTWN GARFIELD & LOS ROBLES AVENUES
 DATE: THURSDAY, DECEMBER 13, 2007
 FILE NO: A-4

DIRECTION:		WESTBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	0	0	1	0	1	
01:00	1	0	0	1	2	
02:00	1	0	0	0	1	
03:00	0	0	0	0	0	
04:00	0	0	1	0	1	
05:00	1	0	0	1	2	
06:00	1	2	2	5	10	
07:00	6	12	12	18	48	
08:00	26	38	6	2	72	
09:00	5	5	2	1	13	
10:00	3	4	8	4	19	
11:00	4	1	8	8	21	
12:00	4	6	6	3	19	
13:00	4	6	2	8	20	
14:00	3	4	15	22	44	
15:00	16	20	10	11	57	
16:00	9	9	9	10	37	
17:00	12	8	10	12	42	
18:00	13	6	8	6	33	
19:00	2	6	0	1	9	
20:00	11	11	4	5	31	
21:00	3	4	6	9	22	
22:00	3	3	2	4	12	
23:00	2	4	2	1	9	
TOTAL					525	
AM PEAK HOUR		07:30-08:30				
VOLUME		94				
PM PEAK HOUR		14:30-15:30				
VOLUME		73				

DIRECTION:		EASTBOUND				HOUR TOTALS
TIME	00-15	15-30	30-45	45-60		
00:00	1	0	0	0	1	
01:00	1	0	0	0	1	
02:00	0	0	0	0	0	
03:00	0	0	0	0	0	
04:00	0	1	1	0	2	
05:00	0	2	0	1	3	
06:00	0	1	4	3	8	
07:00	6	3	16	9	34	
08:00	46	74	32	7	159	
09:00	4	4	6	7	21	
10:00	5	2	7	7	21	
11:00	3	8	7	2	20	
12:00	3	6	3	5	17	
13:00	7	4	2	10	23	
14:00	8	7	4	5	24	
15:00	57	48	28	9	142	
16:00	17	7	15	13	52	
17:00	25	13	9	14	61	
18:00	2	8	5	4	19	
19:00	4	3	3	3	13	
20:00	3	2	4	4	13	
21:00	3	2	3	2	10	
22:00	1	2	4	1	8	
23:00	1	0	1	2	4	
TOTAL					656	
AM PEAK HOUR		07:45-08:45				
VOLUME		161				
PM PEAK HOUR		15:00-16:00				
VOLUME		142				

TOTAL BI-DIRECTIONAL VOLUME	1181
-----------------------------	------

APPENDIX B

STUDY INTERSECTION LANE CONFIGURATIONS

		EXISTING (2008)	FUTURE (2022) WITHOUT AND WITH PROJECT CONDITION	FUTURE (2022) WITH PROJECT PLUS MITIGATION
LEGEND 0 Number of Signal Phases N-S OPP North-South Opposed Signal Phasing TMS Traffic Management System Stop Sign Controlled	1 HOWARD ST. & MARENGO AVE.		SAME AS EXISTING (2008)	NONE REQUIRED
	2 HOWARD ST. & GARFIELD AVE.		SAME AS EXISTING (2008)	NONE REQUIRED
	3 HOWARD ST. & LOS ROBLES AVE.		SAME AS EXISTING (2008)	NONE REQUIRED
	4 WASHINGTON BLVD & MARENGO AVE.		SAME AS EXISTING (2008)	NONE REQUIRED

APPENDIX B

2/8/2008

FN PASADENA CHRISTIAN SCHOOL LANE CONFIGS-1

<p>EXISTING AND FUTURE LANE CONFIGURATIONS</p>	<p>CA CRAIN ASSOCIATES Transportation Planning Traffic Engineering 2307 Sawdelle Boulevard Los Angeles California 90025 PH (310) 473 6508 F (310) 444 9771 www.crainandassociates.com</p>
--	--

		EXISTING (2008)	FUTURE (2022) WITHOUT AND WITH PROJECT CONDITION	FUTURE (2022) WITH PROJECT PLUS MITIGATION
LEGEND 0 Number of Signal Phases N-S OPP North-South Opposed Signal Phasing TMS Traffic Management System Stop Sign Controlled TRAFFIC MANAGEMENT SYSTEM	5 WASHINGTON BLVD. & GARFIELD AVE.		SAME AS EXISTING (2008)	
	6 WASHINGTON BLVD. & LOS ROBLES AVE.		SAME AS EXISTING (2008)	
	7 WASHINGTON BLVD. & EL MOLINO AVE.		SAME AS EXISTING (2008)	NONE REQUIRED
	8 MOUNTAIN ST. & LOS ROBLES AVE.		SAME AS EXISTING (2008)	NONE REQUIRED
	30		SAME AS EXISTING (2008)	NONE REQUIRED

APPENDIX B

2/8/2008

.FN PASADENA CHRISTIAN SCHOOL LANE-CONFIGS-2

EXISTING AND FUTURE LANE CONFIGURATIONS



Transportation Planning
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 2007 Sawdelle Boulevard
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APPENDIX C
PHOTOGRAPHS OF BUS STOP LOCATIONS



WEST SIDE OF LOS ROBLES AVE. SOUTH OF HOWARD ST.



EAST SIDE OF LOS ROBLES AVE. AT HOWARD ST.

APPENDIX C

2/18/2008

FN: PASADENA CHRISTIAN SCHOOL BUS STOP LOCATION

PHOTOGRAPHS OF BUS STOP LOCATIONS

CA CRAIN
ASSOCIATES

Transportation Planning
Traffic Engineering

2007 Sawtelle Boulevard
Los Angeles California 90025
PH (310) 473-6508 F (310) 444-9771

www.crahandassociates.com



EAST SIDE OF LOS ROBLES AVE. NORTH OF LADERA ST.

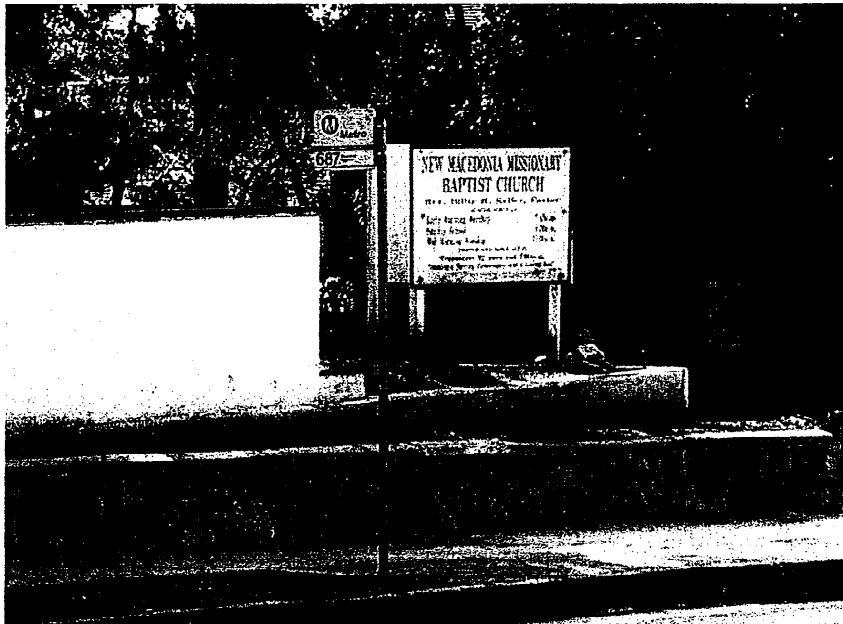
APPENDIX C

2/8/2008

FN: PASADENA CHRISTIAN SCHOOLBUS STOP LOCATION

PHOTOGRAPHS OF BUS STOP LOCATIONS

CA CRAIN Transportation Planning
Traffic Engineering
&
ASSOCIATES
2007 Sawdust Boulevard
Los Angeles, California 90025
PH (310) 473 6506 F (310) 444 9771
www.crainandassociates.com



EAST SIDE OF LOS ROBLES AVE. NORTH OF WASHINGTON BLVD.



WEST SIDE OF LOS ROBLES AVE. SOUTH OF WASHINGTON BLVD.

APPENDIX C

2/8/2008

FNE PASADENA CHRISTIAN SCHOOLBUS STOP LOCATION

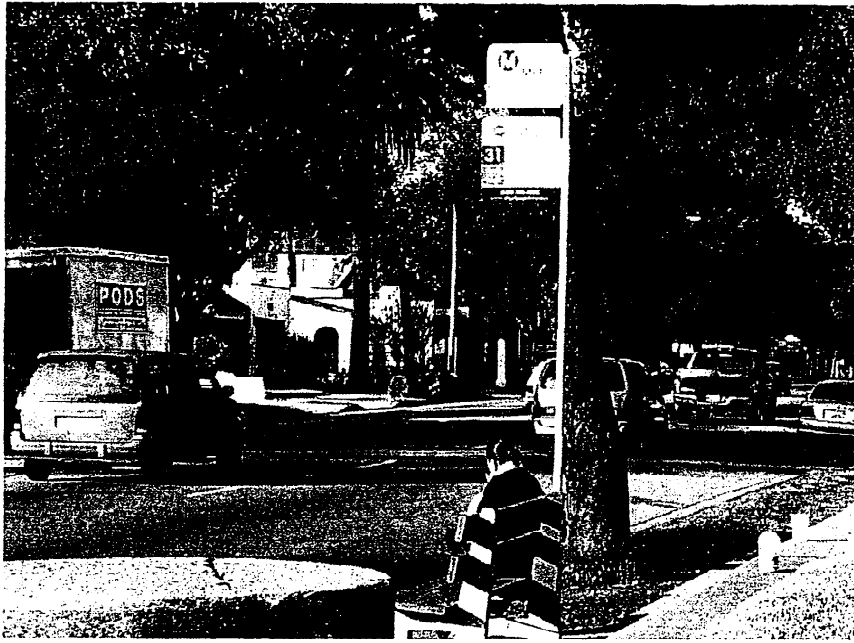
PHOTOGRAPHS OF BUS STOP LOCATIONS

CRAIN
ASSOCIATES

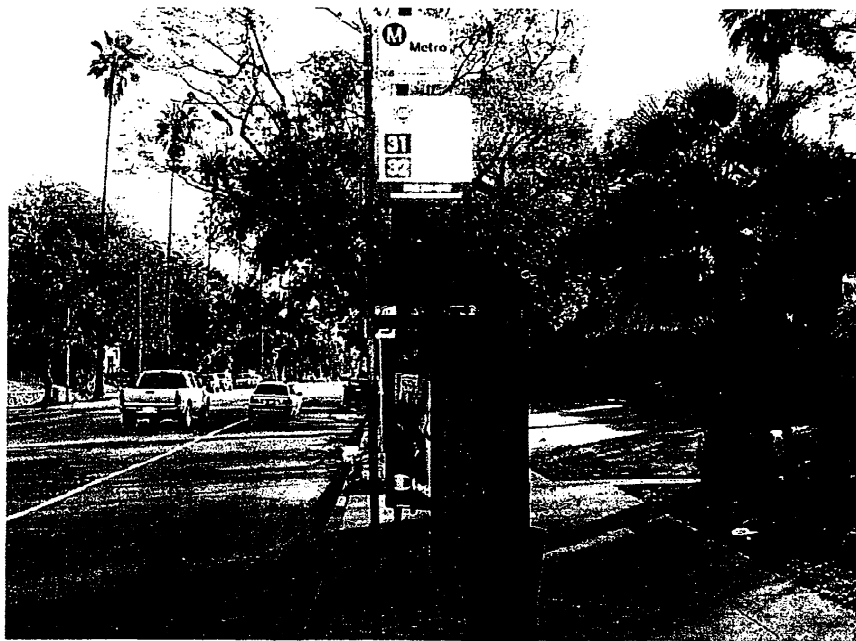
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Traffic Engineering

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Los Angeles California 90025
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NORTH SIDE OF WASHINGTON BLVD. WEST OF LOS ROBLES AVE.



SOUTH SIDE OF WASHINGTON BLVD. EAST OF LOS ROBLES AVE.

APPENDIX C

2/6/2008

FN: PASADENA CHRISTIAN SCHOOL BUS STOP LOCATION

PHOTOGRAPHS OF BUS STOP LOCATIONS

CA CRAIN
 &
ASSOCIATES

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 Traffic Engineering
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 Los Angeles California 90025
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NORTH SIDE OF WASHINGTON BLVD. WEST OF MARENGO AVE.



SOUTH SIDE OF WASHINGTON BLVD. EAST OF MARENGO AVE.

APPENDIX C

2/6/2008

FN: PASADENA CHRISTIAN SCHOOLBUS STOP LOCATION

PHOTOGRAPHS OF BUS STOP LOCATIONS

CA CRAIN Transportation Planning
Traffic Engineering
&
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APPENDIX D

VEHICLE QUEUING ANALYSIS ON GARFIELD AVENUE

**VEHICLE QUEUING ANALYSIS ON GARFIELD AVENUE
SOUTH OF GARFIELD PARKING LOT DRIVEWAY
January 15, 2008**

Time	Number of Vehicles Queued on Garfield Avenue (Northbound)	Time	Number of Vehicles Queued on Garfield Avenue (Northbound)
7:45 AM	1	2:45 PM	8
7:46 AM	1	2:46 PM	9
7:47 AM	1	2:42 PM	9
7:48 AM	2	2:48 PM	10
7:49 AM	2	2:49 PM	11
7:50 AM	2	2:50 PM	14
7:51 AM	2	2:51 PM	16
7:52 AM	2	2:52 PM	16
7:53 AM	2	2:53 PM	17
7:54 AM	3	2:54 PM	19
7:55 AM	4	2:55 PM	20
7:56 AM	4	2:56 PM	21
7:57 AM	4	2:52 PM	21
7:58 AM	5	2:58 PM	21
7:59 AM	8	2:59 PM	23 *
8:00 AM	0	3:00 PM	12
8:01 AM	0	3:01 PM	11
8:02 AM	0	3:02 PM	11
8:03 AM	0	3:03 PM	11
8:04 AM	0	3:04 PM	11
8:05 AM	0	3:05 PM	11
8:06 AM	0	3:06 PM	8
8:07 AM	3	3:07 PM	13
8:08 AM	0	3:03 PM	16
8:09 AM	0	3:09 PM	17
8:10 AM	0	3:10 PM	13
8:11 AM	0	3:11 PM	14
8:12 AM	3	3:12 PM	16
8:13 AM	0	3:13 PM	14
8:14 AM	0	3:14 PM	14
8:15 AM	0	3:15 PM	14
8:16 AM	3	3:16 PM	12
8:17 AM	8	3:17 PM	10
8:18 AM	8	3:13 PM	9
8:19 AM	4	3:19 PM	8
8:20 AM	8	3:20 PM	7
8:21 AM	10	3:21 PM	6
8:22 AM	8	3:22 PM	5
8:23 AM	12 *	3:23 PM	3
8:24 AM	10	3:24 PM	0
8:25 AM	8	3:25 PM	0
8:26 AM	2	3:26 PM	0
8:27 AM	1	3:27 PM	0
8:28 AM	0	3:23 PM	0
8:29 AM	0	3:29 PM	0
8:30 AM	0	3:30 PM	0

Note: Garfield lot gate opened at approximately 7:59 AM during the drop-off period and at approximately 2:59 PM during the pick-up period.

APPENDIX E
TRAFFIC SIGNAL WARRANT

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 1 of 4)

DIST _____ CO _____ RTE _____ KPM _____

CALC: Crain & Associates DATE 3/4/2008
 CHK _____ DATE _____

Major St: WASHINGTON BOULEVARD Critical Approach Speed 35 km/h
 Minor St: GARFIELD AVENUE Critical Approach Speed 25 km/h

Critical speed of major street traffic > 64 km/h (40 mph)..... }
 or } **RURAL (R)**
 In built up area of isolated community of < 10,000 population..... }
 URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume

Condition A - Minimum Vehicle Volume **100% SATISFIED YES NO**
80% SATISFIED YES NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												
	1		2 or More										
	U	R	U	R	7AM	8AM	9AM	12AM	1PM	3PM	4PM	5PM	Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	1410	1408	883	921	991	1473	1473	1574	
Highest Approaches Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	78	107	43	54	49	80	62	66	

Condition B - Interruption of Continuous Traffic **100% SATISFIED YES NO**
80% SATISFIED YES NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												
	1		2 or More										
	U	R	U	R	7AM	8AM	9AM	12AM	1PM	3PM	4PM	5PM	Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	1410	1408	883	921	991	1473	1473	1574	
Highest Approaches Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	78	107	43	54	49	80	62	66	

Combination of Conditions A & B **SATISFIED YES NO**

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

Note: Eight hour vehicular volume data at this intersection is not available. However, a review of the daily traffic counts on Garfield Avenue between Howard Street and Washington Boulevard and on Washington Boulevard between Garfield Avenue and Los Robles Avenue shows that the existing vehicular volumes are not expected to satisfy the eight hour vehicular volume warrant for a traffic signal.

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 2 of 4)

WARRANT 2 - Four Hour Vehicular Volume

SATISFIED* YES NO

Record hourly vehicular volumes for four hours.

APPROACH LANES	2 or		7AM	8AM	2PM	3PM	Hour
	One	More					
Both Approaches - Major Street		X	1501	1501	1222	1504	
Highest Approaches - Minor Street	X		65	85	56	72	

*All plotted points fall above the curves in MUTCD Figure 4C-1 or 4C-2.

Yes No

Note: Based on existing 2008 traffic count data.

WARRANT 3 - Peak Hour

PART A or **PART B** SATISFIED YES NO

PART A

SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied)

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

Yes No

Yes No

Yes No

PART B

SATISFIED YES NO

APPROACH LANES	2 or		AM	MIDDAY	Hour
	One	More			
Both Approaches - Major Street		X	2261	1942	
Highest Approaches - Minor Street	X		142	103	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume vehicle minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3 or 4C-4.

Note: Based on traffic volumes for future (2022) With Project condition.

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 3 of 4)

DIST _____	CO _____	RTE _____	KPM _____	CALC <u>Crain & Associates</u> DATE <u>3/4/2008</u>	CHK _____ DATE _____
Major St: <u>WASHINGTON BOULEVARD</u>				Critical Approach Speed <u>35</u> km/h	
Minor St: <u>GARFIELD AVENUE</u>				Critical Approach Speed <u>25</u> km/h	
Critical speed of major street > 64 km/h (40 mph)..... <input type="checkbox"/>				} RURAL (R)	
In built up area of isolated community of < 10,000 population..... <input type="checkbox"/>					

WARRANT 4 - Pedestrian Volume
(All Parts Must Be Satisfied)

100% SATISFIED YES NO

Hours --->						
Pedestrian Volume					Any hour > 190	Yes <input type="checkbox"/> No <input type="checkbox"/>
Adequate Crossing Gaps					OR 4 hours > 100	Yes <input type="checkbox"/> No <input type="checkbox"/>
					AND < 60 gap/hr	Yes <input type="checkbox"/> No <input type="checkbox"/>

AND. The distance to the nearest traffic signal along the major street is greater than 90m (300 ft) ----- Yes No

AND. The new traffic signal will not seriously disrupt progressive traffic flow in the major street. ----- Yes No

Note: Pedestrian volume data not available.

Based on observation, pedestrian volumes at this intersection is minimal and is not expected to satisfy this warrant.

WARRANT 5 - School Crossing
(All Parts Must Be Satisfied)

SATISFIED YES NO

Part A
Gap/Minutes and # of Children

Each of Two Hours --->						
Gaps vs Minutes	Minutes Children Using Crossing				Gaps < Minutes	SATISFIED YES <input type="checkbox"/> NO <input type="checkbox"/>
	Number of Adequate Gaps					
School Age Pedestrians Crossing Street					Children > 20/hr	SATISFIED YES <input type="checkbox"/> NO <input type="checkbox"/>

Part B
Distance to Nearest Controlled Crossing

Is Nearest Controlled Crossing More Than 180 m (600 ft) away? SATISFIED YES NO

Note: School crossing volume data not available.

May 20, 2004

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 4 of 4)

**WARRANT 6 - Coordinated Signal System
(All Parts Must Be Satisfied)**

SATISFIED YES NO

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	FULFILLED
> 300 m (1000 ft)	N <u>N/A</u> m, S <u>1200</u> m, E <u>200</u> m, W <u>200</u> m	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
On one way isolated streets or streets with one way traffic significance and adjacent signals are so far apart that necessary platooning and speed control would be lost.		
On 2-way streets where adjacent signals do not provide necessary platooning and speed control proposed signals could constitute a progressive signal system.		

**WARRANT 7 - Crash Warrant
(All Parts Must Be Satisfied)**

SATISFIED YES NO

REQUIREMENTS	WARRANT	✓	FULFILLED
One Warrant Satisfied 80%	Warrant 1 - Minimum Vehicular Volume		Yes <input type="checkbox"/> No <input type="checkbox"/>
	OR Warrant 2 - Interruption of Continuous Traffic		
Signal Will Not Seriously Disrupt Progressive Traffic Flow			<input type="checkbox"/> <input type="checkbox"/>
Adequate Trial of Less Restrictive Remedies Has Failed to Reduce Accident Frequency			<input type="checkbox"/> <input type="checkbox"/>
Acc. Within a 12 Month Period Susceptible for Corr. & Involving Injury or ≥ \$500 Damage			
MINIMUM REQUIREMENTS	NUMBER OF ACCIDENTS		
5 or More			<input type="checkbox"/> <input type="checkbox"/>

Note: Accident data not available.

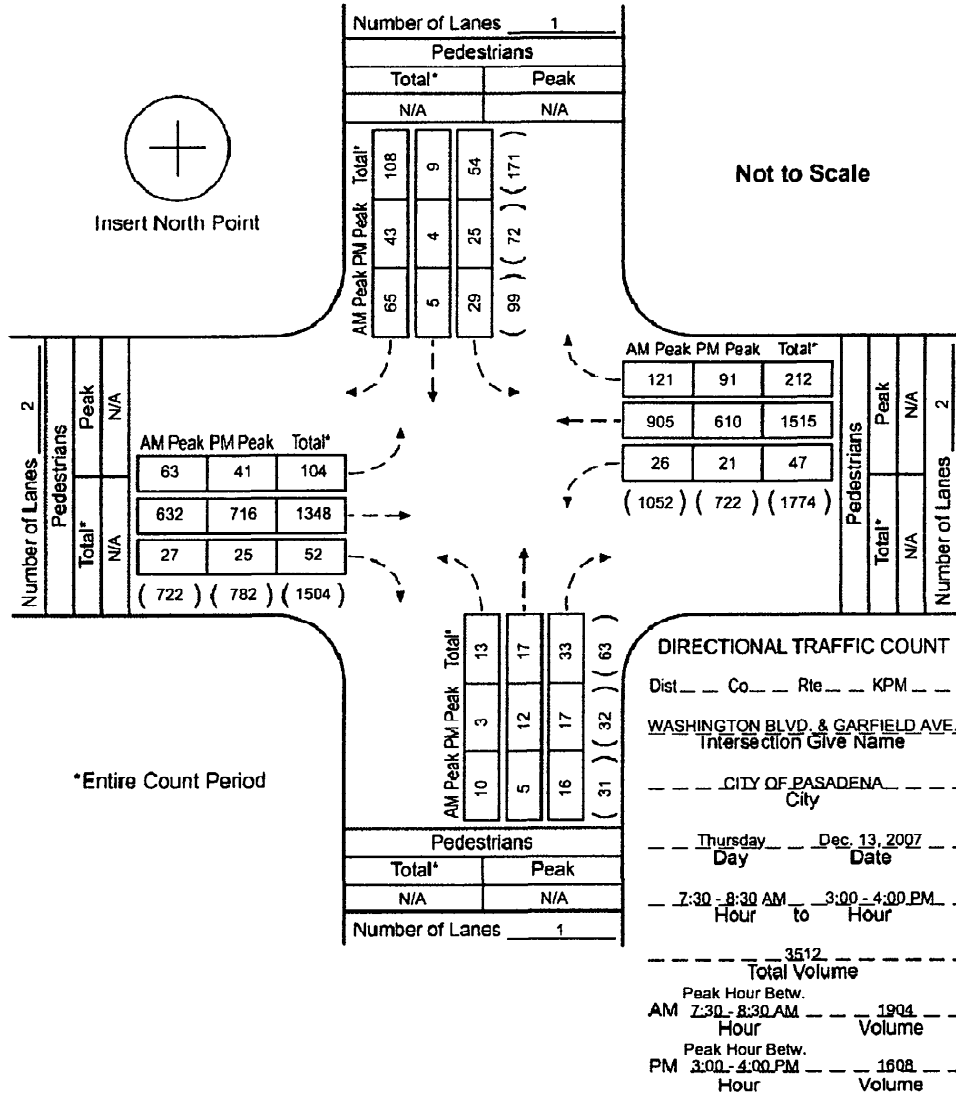
**WARRANT 8 - Roadway Network
(All Parts Must Be Satisfied)**

SATISFIED YES NO

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour <u>2442</u> Veh/Hr	✓	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	OR During Each of Any 5 Hrs. of a Sat. and/or Sun <u> </u> Veh/Hr		
CHARACTERISTICS OF MAJOR ROUTES		MAJOR ST.	MINOR ST.
Hwy. System Serving as Principal Network for Through Traffic		YES	NO
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan		NO	NO
Any Major Route Characteristics Met, Both Streets			<input checked="" type="checkbox"/> <input type="checkbox"/>

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.


Figure 4C-102. Traffic Count Worksheet



Note: Based on existing (2008) traffic count data.

May 20, 2004

Figure 4C-102. Traffic Count Worksheet



Insert North Point

Not to Scale

Number of Lanes				1			
Pedestrians							
Total*		Peak		Total*		Peak	
N/A		N/A		N/A		N/A	

AM Peak	PM Peak	Total*	
93	63	156	
6	5	11	
43	35	78	
(142)	(103)	(245)	

AM Peak	PM Peak	Total*
179	133	312
1134	777	1911
32	26	58
(1345)	(936)	(2281)

AM Peak	PM Peak	Total*
12	4	16
7	15	22
20	21	41
(39)	(40)	(79)

Pedestrians		
Total*	Peak	
N/A	N/A	
Number of Lanes		
1		

Pedestrians		
Total*	Peak	
N/A	N/A	
Number of Lanes		
2		

Pedestrians		
Total*	Peak	
N/A	N/A	
Number of Lanes		
2		

*Entire Count Period

DIRECTIONAL TRAFFIC COUNT

Dist. ___ Co. ___ Rte. ___ KPM. ___

WASHINGTON BLVD. & GARFIELD AVE.
Intersection Give Name

___ CITY OF PASADENA ___
City

___ Day ___ Date ___

___ Hour ___ to ___ Hour ___

___ 4527 ___
Total Volume

Peak Hour Betw. ___
AM 7:00 - 9:00 ___ 2442 ___
Hour Volume

Peak Hour Betw. ___
PM 2:00 - 4:00 ___ 2085 ___
Hour Volume

Note: Based on future (2022) With Project traffic volumes.

May 20, 2004

**Table 4C-101. Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)**

(Based on Estimated Average Daily Traffic - See Note)

URBAN..... RURAL.....		Minimum Requirements EADT			
1A - Minimum Vehicular Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied _____ Not Satisfied _____					
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1.....	1.....	8,000	5,600	2,400	1,680
2 or More.....	1.....	9,600	6,720	2,400	1,680
2 or More.....	2 or More.....	9,600	6,720	3,200	2,240
1.....	2 or More.....	8,000	5,600	3,200	2,240
1B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied _____ Not Satisfied _____					
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1.....	1.....	12,000	8,400	1,200	850
2 or More.....	1.....	14,400	10,080	1,200	850
2 or More.....	2 or More.....	14,400	10,080	1,600	1,120
1.....	2 or More.....	12,000	8,400	1,600	1,120
1A&B - Combinations		2 Warrants		2 Warrants	
Satisfied _____ Not Satisfied _____					
No one warrant satisfied, but following warrants fulfilled 80% or more..... <u>1</u> <u>2</u>					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.