

LA3-1989030000-B1

MARCH
1989

TRAFFIC STUDY FOR

MYRA L. FRANK & ASSOCIATES
483 WEST 50th STREET, SUITE 801
LOS ANGELES, CALIFORNIA 90014

NORWALK-EL SEGUNDO
RAIL TRANSIT PROJECT:

ROSECRANS/AVIATION
HOLIDAY CLOSURE

RECEIVED

MAR 23 1989

TECH.-SERVICES
TRANSCAL II

Prepared for:
TRANSCAL II

Prepared by:
KAKU ASSOCIATES

**TRAFFIC STUDY FOR
NORWALK-EL SEGUNDO RAIL TRANSIT PROJECT:
ROSECRANS/AVIATION HOLIDAY CLOSURE**

March, 1989

Prepared for:

TRANSCAL II

Prepared by:

KAKU ASSOCIATES
1427 Santa Monica Mall, Suite 201
Santa Monica, California 90401
(213) 458-9916

SUMMARY & RECOMMENDATIONS

Based on the preceding review and analysis of traffic-related issues, holiday closure of the Rosecrans Avenue/Aviation Boulevard intersection appears to be a viable alternative worth further discussion. Traffic volumes during this period show the most favorable conditions of the year, with daily and peak hour traffic volumes down approximately 25% below typical. Peak period Levels of Service are correspondingly better than typical.

Intersection closure during this period would be expected to create conditions which are similar to or slightly worse than typical (non-holiday) traffic operation. Due to the brief duration of this impact, physical mitigation is generally unwarranted; the primary focus of mitigation efforts would be in coordinating operational modifications during the period including traffic signal operation, transit service, limiting other construction projects and publicity for the event.

Other traffic-related issues must be considered, including the potential for residential traffic intrusion, traffic accidents and economic impact on the Manhattan Village shopping center. However, these issues appear to be manageable, and do not present fatal flaws which would make the approach infeasible.

This alternative should be further discussed with the parties which would be affected: the various cities (El Segundo, Hawthorne, Lawndale, Manhattan Beach, and Redondo Beach), Caltrans, Los Angeles County, transit operators, and Manhattan Village shopping center management.

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	EXISTING HOLIDAY-PERIOD TRAFFIC CONDITIONS.....	3
	HOLIDAY-PERIOD TRAFFIC VOLUMES.....	3
	EXISTING PEAK HOUR LEVEL OF SERVICE.....	5
III.	TRAFFIC CONDITIONS WITH INTERSECTION CLOSURE.....	10
	TRAFFIC VOLUMES WITH CLOSURE.....	10
	LEVEL OF SERVICE IMPACT.....	10
IV.	MITIGATION MEASURES.....	13
V.	OTHER TRAFFIC-RELATED ISSUES.....	16
	RESIDENTIAL INTRUSION.....	16
	POTENTIAL FOR TRAFFIC ACCIDENTS.....	17
	MAINTAINING MANHATTAN VILLAGE SHOPPING CENTER ACCESS.....	17

REFERENCES

APPENDIX A - MACHINE AND MANUAL TRAFFIC COUNTS

APPENDIX B - INTERSECTION CAPACITY CALCULATIONS

LIST OF TABLES

<u>NO.</u>		
1	LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS.....	8
2	PM PEAK HOUR INTERSECTION LEVELS OF SERVICE HOLIDAY VS. TYPICAL WEEKDAY.....	9
3	PM PEAK HOUR INTERSECTION LEVELS OF SERVICE WITH RESECRANS/AVIATION HOLIDAY CLOSURE.....	12

LIST OF FIGURES

<u>NO.</u>		
1	STUDY AREA.....	2
2	TYPICAL VS. HOLIDAY-PERIOD TRAFFIC VOLUMES ROSECRANS/AVIATION INTERSECTION.....	4
3	EXISTING PM PEAK HOUR TRAFFIC HOLIDAY-PERIOD WEEKDAY.....	6
4	EXISTING PM PEAK HOUR TRAFFIC TYPICAL (NON-HOLIDAY) WEEKDAY.....	7
5	PROJECT PM PEAK HOUR TRAFFIC WITH INTERSECTION CLOSURE.....	11
6	SCHEMATIC INFORMATIONAL SIGNING TO BE PLACED FOR ONE WEEK PRIOR TO CLOSURE.....	14
7	SCHEMATIC TRAFFIC CONTROL DURING CLOSURE.....	15

I. INTRODUCTION

This report documents an analysis of holiday-period closure of the Aviation Boulevard/Rosecrans Avenue intersection. Closure of this intersection, for a period of several days, may be necessary for construction of the Norwalk-El Segundo Rail Transit Project. This intersection is widely recognized as exhibiting among the highest traffic congestion in the Los Angeles region; as such, limiting vehicular access during any extended period could result in a significant impact in traffic circulation in the vicinity.

Aerospace industry corporations, the major source of employment in the area, customarily cease operation during the period between Christmas and New Year's Day. Closure of the intersection during this period was therefore investigated as a way to mitigate the potential traffic impact of closure. In order to evaluate the impact at this time of the year, traffic volumes and travel patterns in the vicinity were recorded during the 1988 holiday season. Figure 1 shows the study area, indicating the intersections analyzed.

This report is organized into six sections. The second evaluates traffic counts taken at the Rosecrans/Aviation intersection during the holiday period, comparing them to traffic volumes during typical (non-holiday) periods. The third section analyzes the impact of closure on traffic volumes and congestion in the surrounding area. The fourth discusses possible measures for mitigation of adverse traffic impacts. The fifth section addresses other traffic-related issues which must be considered in evaluating this closure option. The last section presents a summary and recommendations.

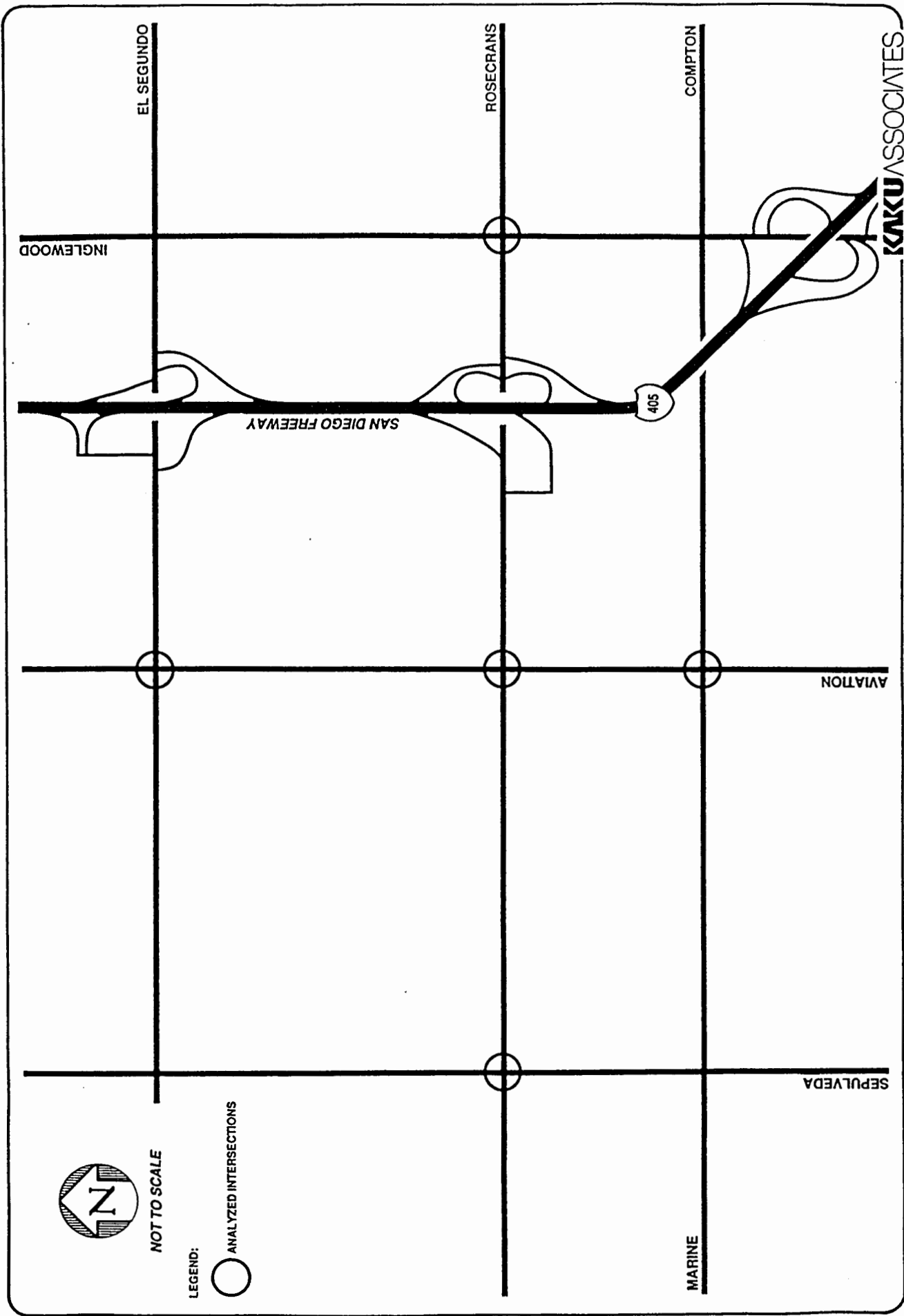


FIGURE 1
STUDY AREA

II. EXISTING HOLIDAY-PERIOD TRAFFIC CONDITIONS

Holiday-Period Traffic Volumes

Twenty-four hour approach traffic counts were taken at Aviation/Rosecrans on Wednesday, Thursday and Saturday, December 28, 29 and 31, 1988, and compared to weekday traffic volumes recorded in February 1988. Traffic volumes recorded on the two weekdays were found to be relatively consistent, with variation of less than 3% between counts on the two days. In order to present a conservative analysis of holiday vs. typical traffic conditions, the following is based on volume counts for the higher day.

Figure 2 summarizes the comparison of weekday volumes, with the detailed data provided in Appendix A. As shown, daily traffic on the higher weekday was found to be roughly 26% below normal weekday volumes, with peak hour traffic about 25% below normal. Furthermore, no morning peak in traffic volumes was observed, but rather a slow increase in traffic during the day which peaked at approximately 3:00-4:00 p.m.

Twenty-hour machine counts were also taken at each of the other intersections analyzed, with consistent results. Detailed data from these counts are also provided in Appendix A.

Saturday traffic volumes were significantly lower than the observed weekday volumes, with a 24-hour total approach volume of 41,287 vehicles, which is approximately 34% lower than on the weekdays. The peak hour for Saturday occurred between 2:00 and 3:00 p.m., with a total approach volume 37% lower than on weekdays. It would appear, therefore, that the greatest demand on the street system during the holiday period occurs during weekdays. This analysis is thus focused on assessing the impact of closure on weekday traffic conditions.

4

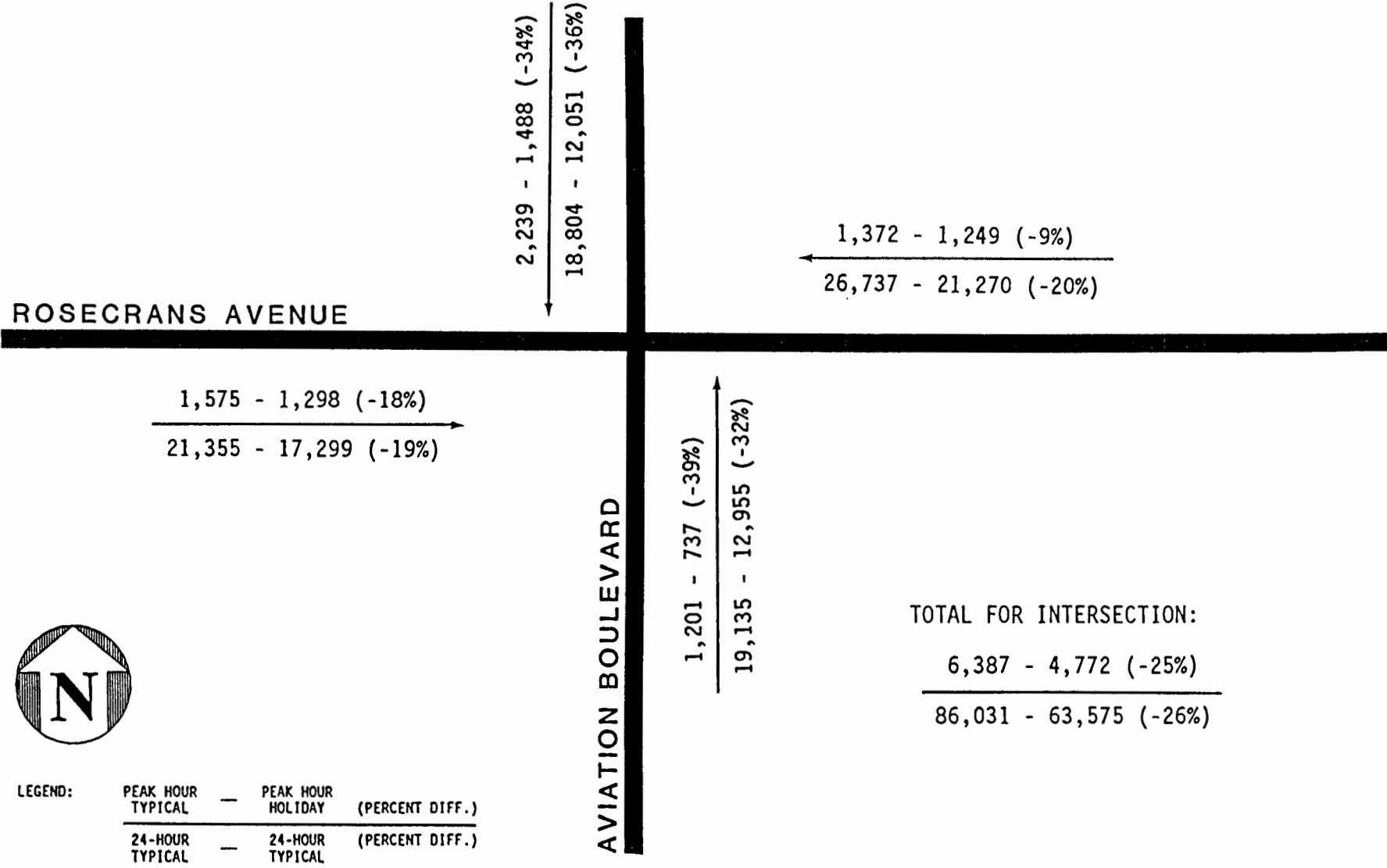


FIGURE 2
TYPICAL VS. HOLIDAY-PERIOD TRAFFIC VOLUMES
ROSECRANS/AVIATION INTERSECTION

Existing Peak Hour Level of Service

Manual counts of turning movements were also taken at each of the intersections during the peak period on Thursday, December 29th. Figure 3 shows the observed peak hour turning volumes at each location. For reference, Figure 4 summarizes traffic volume data previously recorded as part of other studies (References 1 & 2).

The Critical Movement Analysis (CMA) method was used to estimate the Volume to Capacity Ratio (V/C) and prevailing Level of Service (LOS) at each intersection. Table 1 summarizes the Level of Service concept, and the traffic conditions which LOS estimates represent.

Table 2 lists the LOS estimates based on existing traffic volumes and physical characteristics of the analyzed intersections; detailed calculations are included in Appendix B. The difference in operating LOS is shown to be significant, with holiday V/C ratios ranging from 0.13 to 0.51 below typical traffic conditions.

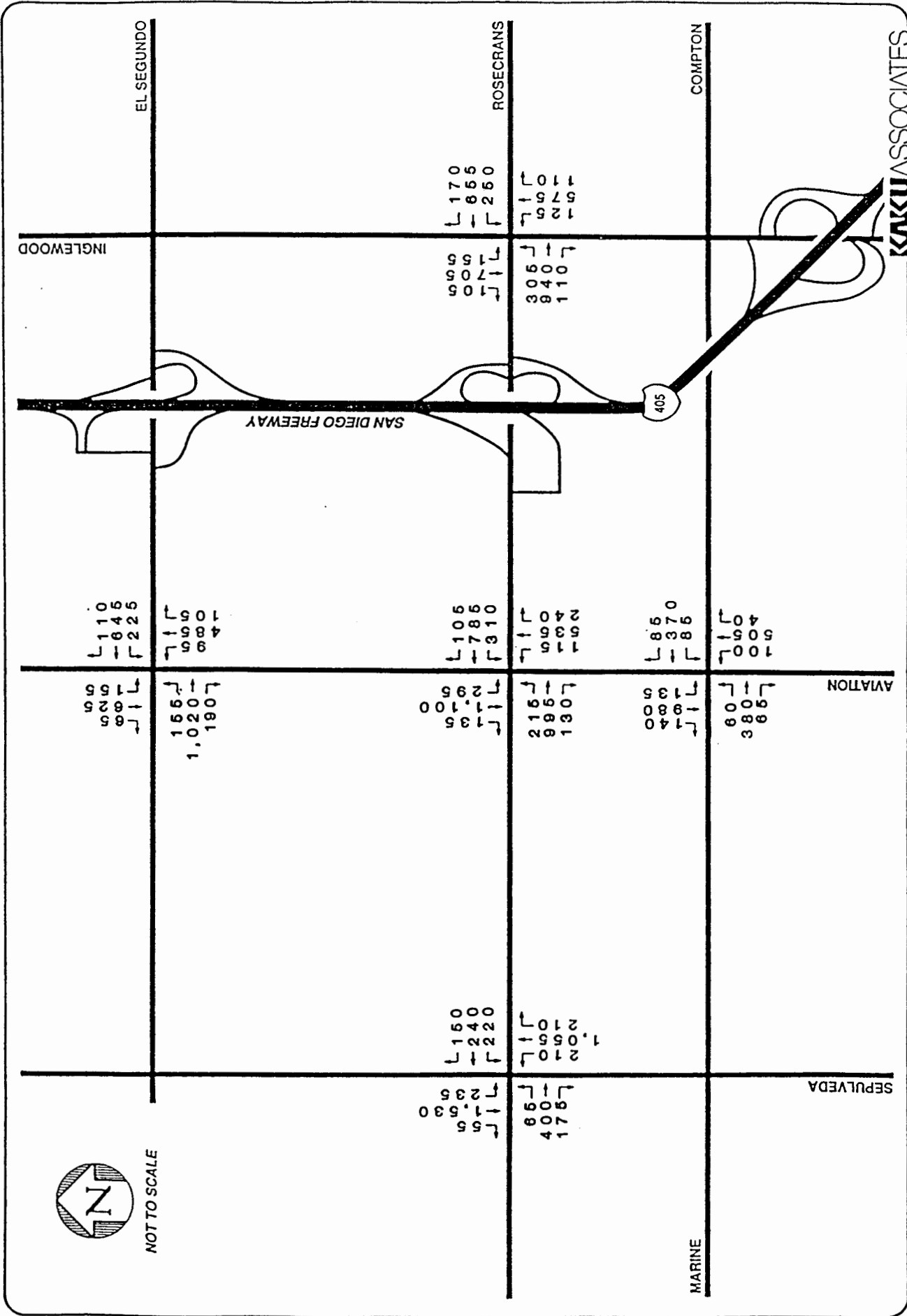


FIGURE 3
EXISTING PM PEAK HOUR TRAFFIC
HOLIDAY-PERIOD WEEKDAY

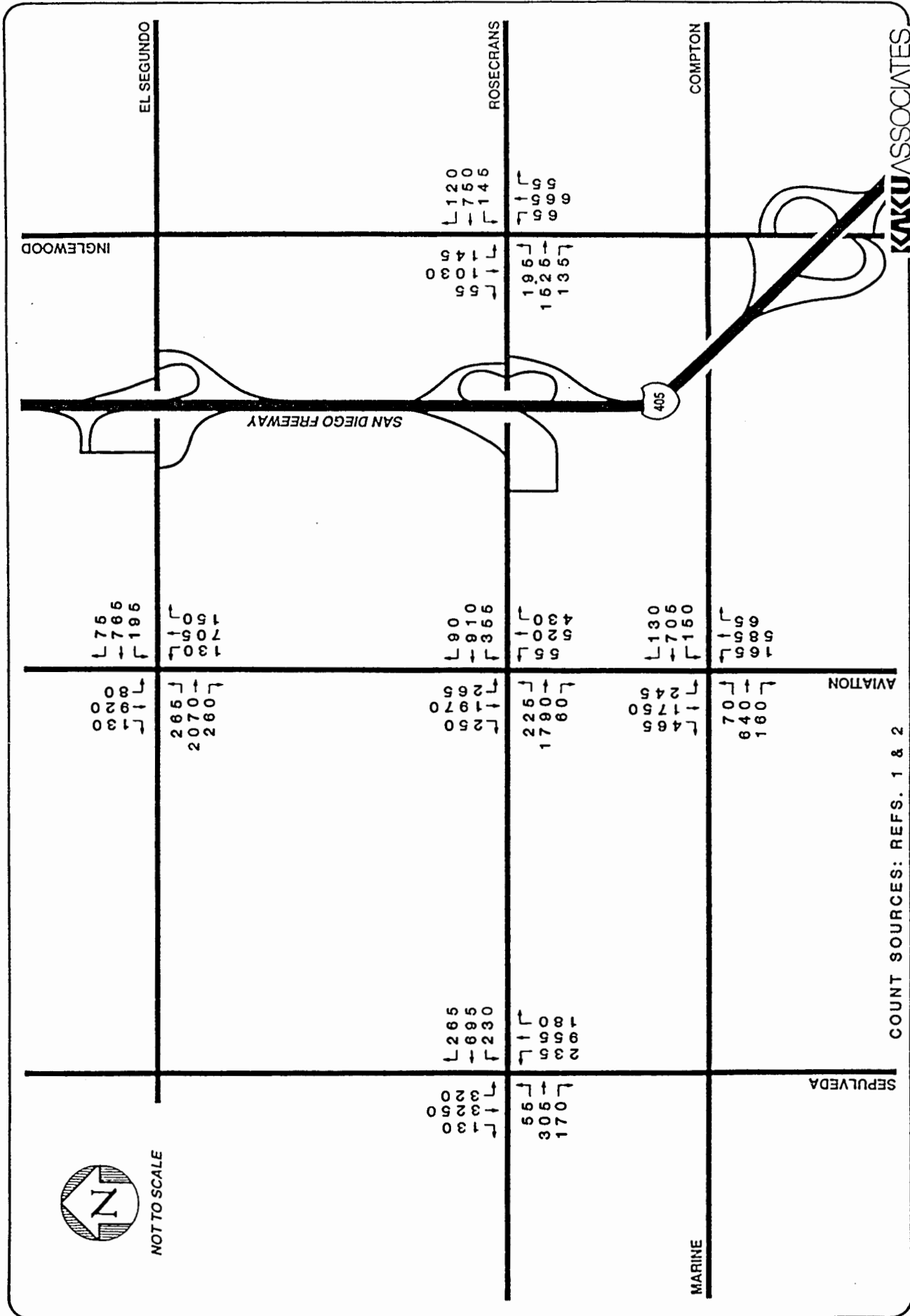


FIGURE 4
 EXISTING PM PEAK HOUR TRAFFIC
 TYPICAL (NON-HOLIDAY) WEEKDAY

TABLE 1
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

<u>Level of Service</u>	<u>Volume/Capacity Ratio</u>	<u>Definition</u>
A	0.00 - 0.60	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.61 - 0.70	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.71 - 0.80	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.81 - 0.90	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	0.91 - 1.00	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	Greater than 1.00	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

TABLE 2
PM PEAK HOUR INTERSECTION LEVELS OF SERVICE
HOLIDAY VS. TYPICAL WEEKDAY

<u>Intersection</u>	<u>Exist. Typical (Non-Holiday)</u>		<u>Existing Holiday Period</u>		<u>Holiday Differ.</u>
	<u>V/C Ratio</u>	<u>LOS</u>	<u>V/C Ratio</u>	<u>LOS</u>	
Sepulveda Bl & Rosecrans Av	1.27	F	0.84	D	-0.43
Aviation Bl & El Segundo Bl	1.07	F	0.74	C	-0.33
Aviation Bl & Rosecrans Av	1.16	F	0.79	C	-0.37
Aviation Bl & Compton Bl	1.16	F	0.65	B	-0.51
Inglewood Bl & Compton Bl	0.92	E	0.79	C	-0.13

III. TRAFFIC CONDITIONS WITH INTERSECTION CLOSURE

Traffic Volumes With Closure

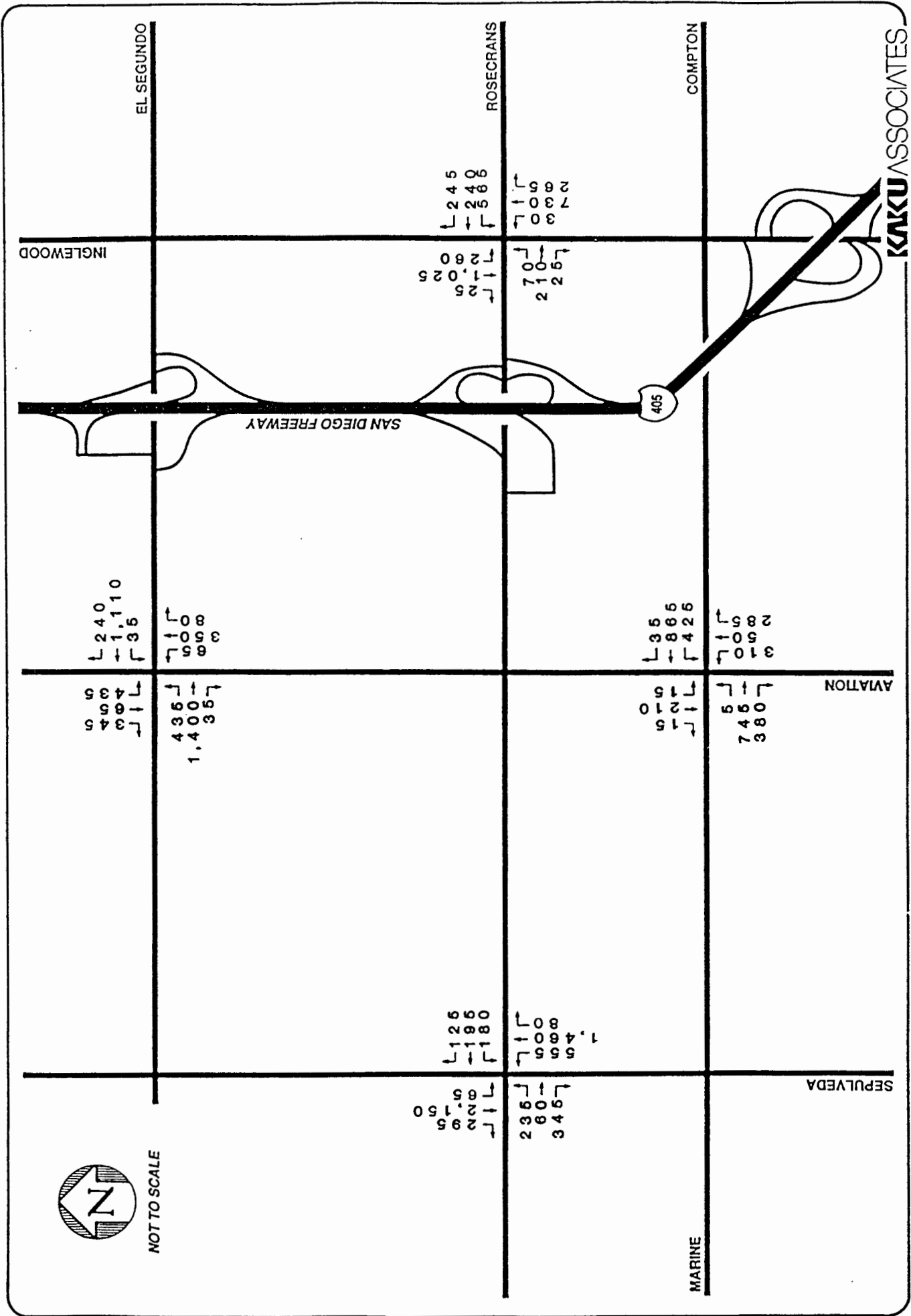
With the existing traffic volumes as a base, future peak hour traffic volumes were then projected for the scenario of a closed Aviation/Rosecrans intersection. The estimates of traffic diversion were prepared using a logical process of traffic reassignment, based on the observed major travel patterns, origins and destinations, in combination with the available alternative routes.

The reassigned peak hour traffic volumes are shown in Figure 5. Generally, through traffic volumes would be expected to decrease substantially on all approaches to the intersection, with an increase in turning volumes as traffic is diverted away from the construction site.

Level of Service Impact

Table 3 shows the expected weekday peak hour Levels of Service at each intersection during closure. The first two columns of V/C and LOS estimates are replicate Table 2, for comparison with the V/C and LOS projections in the third column. As Table 3 shows, intersection closure is expected to substantially increase V/C ratios above existing holiday-period levels. However, the anticipated deviation from existing non-holiday weekdays is mixed. Two intersections show increases of 0.05 to 0.07: Aviation/El Segundo and Inglewood/Compton. The other two intersections show decreases in V/C ratio of 0.03 and 0.14. Details on the LOS analysis are included in Appendix B.

It therefore appears that holiday-period closure of the intersection would result in traffic conditions at the surrounding intersections which are similar to or slightly worse than typical non-holiday conditions.



KAKU ASSOCIATES

FIGURE 5
 PROJECTED PM PEAK HOUR TRAFFIC
 WITH INTERSECTION CLOSURE

TABLE 3
PM PEAK HOUR INTERSECTION LEVELS OF SERVICE
WITH ROSECRANS/AVIATION HOLIDAY CLOSURE

<u>Intersection</u>	<u>Exist. Typical (Non-Holiday)</u>		<u>Existing Holiday Period</u>		<u>w/Intersection Closure</u>	
	<u>V/C Ratio</u>	<u>LOS</u>	<u>V/C Ratio</u>	<u>LOS</u>	<u>V/C Ratio</u>	<u>LOS</u>
Sepulveda Bl & Rosecrans Av	1.27	F	0.84	D	1.24	F
Aviation Bl & El Segundo Bl	1.07	F	0.74	C	1.12	F
Aviation Bl & Rosecrans Av		N/A		N/A		N/A
Aviation Bl & Compton Bl	1.16	F	0.65	B	1.02	F
Inglewood Bl & Compton Bl	0.92	E	0.79	C	0.98	E

IV. MITIGATION MEASURES

Due to the brief duration of the potential impact, physical mitigation of Level of Service impacts is generally unwarranted. Probably the most effective means of minimizing this impact would be coordination among the numerous agencies and organizations involved to minimize disruption. Such measures could include:

- o Each of the intersections analyzed currently provides protected left turns signal phasing on the critical approaches. Temporary signal timing modifications may be necessary to accommodate higher than normal turning volumes at these locations. Several jurisdictions would probably be involved, including the Cities of Hawthorne and El Segundo, as well as Los Angeles County and Caltrans.
- o Transit (bus) service must be temporarily rerouted around the intersection, including the Southern California Rapid Transit District (SCRTD) and Torrance Transit.
- o Other public and private construction projects in the vicinity should be limited during closure.
- o The construction closure should be publicized to inform motorists of the available travel options, including scheduling travel outside the peak period.

On-street informational signing prior to the closure, in combination with detour signing during the closure can also be very effective in routing traffic onto the adjacent arterial streets with greatest available capacity. Figures 6 and 7 present conceptual signing schemes for this purpose.

The measures discussed above would equally apply to closure of the intersection at any other time of the year.

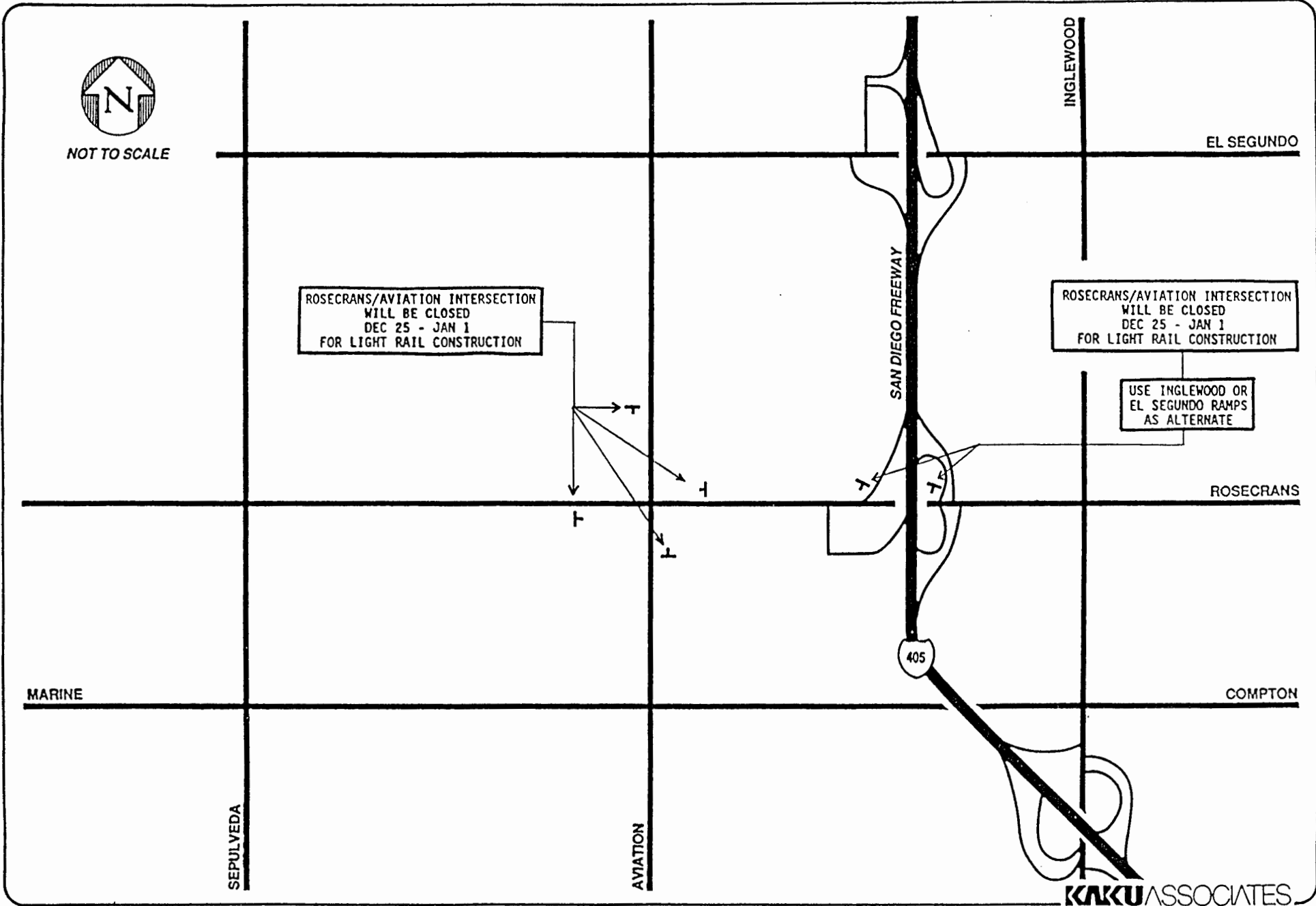


FIGURE 6
SCHEMATIC INFORMATIONAL SIGNING
TO BE PLACED FOR ONE WEEK PRIOR TO CLOSURE

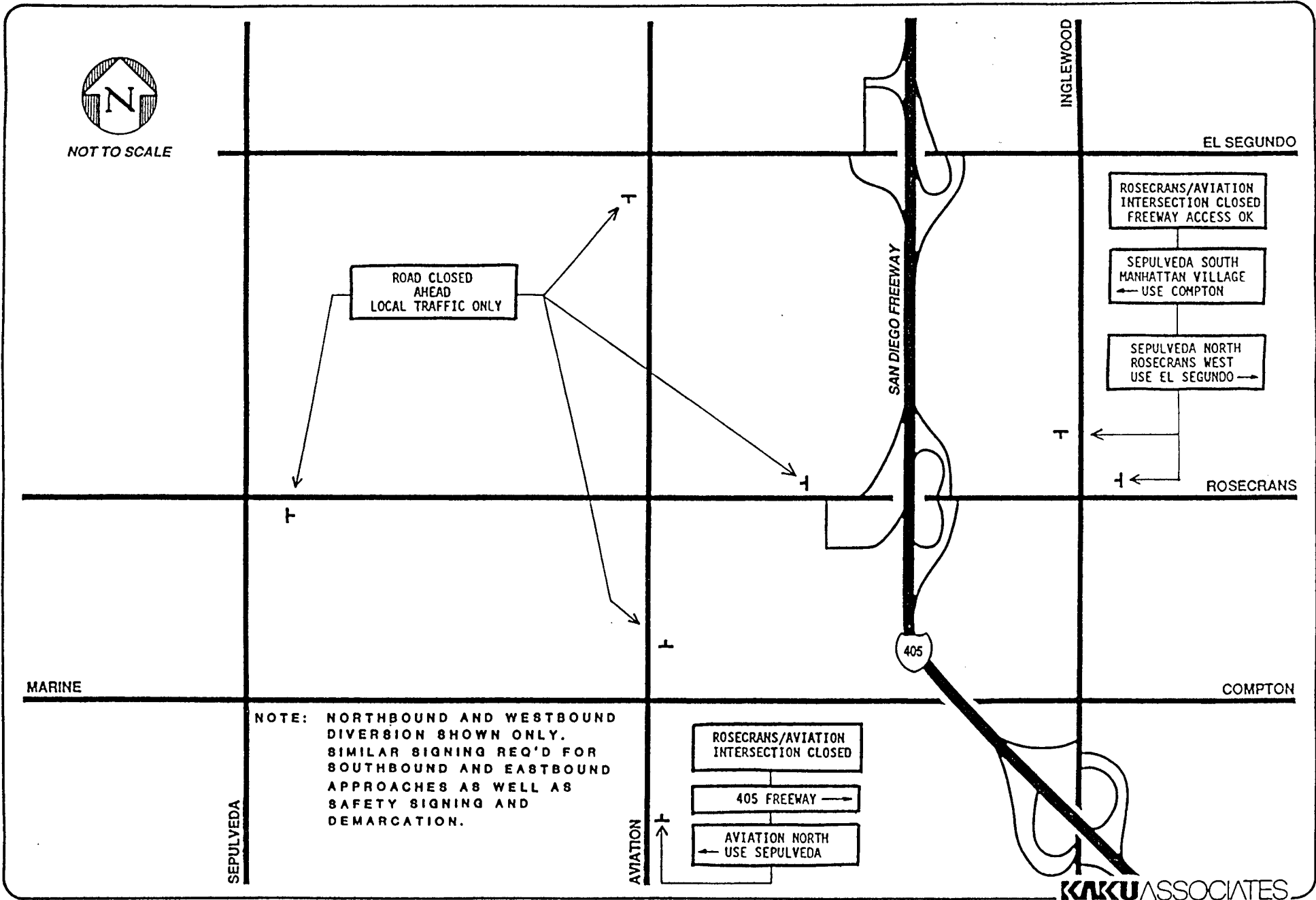


FIGURE 7
SCHEMATIC TRAFFIC CONTROL DURING CLOSURE

V. OTHER TRAFFIC-RELATED ISSUES

In addition to the issue of maintaining acceptable Levels of Service on the surrounding streets, a few other issues must be considered in deciding to pursue the holiday-closure alternative. Among them are potential residential intrusion, accident risk and maintaining access to the Manhattan Village Shopping Center.

Residential Intrusion

Diversion of through traffic into residential neighborhoods in the vicinity of Aviation/Rosecrans, particularly into the Holly Glen area northeast of the intersection, is a constant local concern. It is possible that closure of the intersection could increase traffic along Isis Avenue, 138th Street and 135th Street, since this route would present the closest diversion route between the north and east approaches.

This impact would be minimized through the use of informational signing in advance of closure and detour signing during closure which emphasize arterial streets as alternate routes, such as was shown in Figures 6 and 7. Furthermore, the problem of neighborhood traffic intrusion generally involves commuters, who are familiar with the normal level of congestion on particular routes and are willing to venture into residential areas in pursuit of travel time reduction. Intrusion during a holiday closure is unlikely to be significant since commuters in the area are predominantly away from work. Motorists who do use Rosecrans and Aviation during this period will be directed, in advance, to other major routes, with residential encroachment not offering a meaningful travel time reduction to most motorists.

Conversely, if the closure were to occur during a more typical time of the year, residential neighborhood intrusion can be expected to be a much more significant issue.

Potential for Traffic Accidents

Due to the nature of the holiday period, there is a possibility of increased risk of traffic accidents involving late-night and conceivably impaired motorists. In order to minimize the likelihood of such incidents, all construction furniture which could constitute a hazard to motorists should be highly visible at all times, preferably including constant lighting during the duration of construction in the public right-of-way.

Maintaining Manhattan Village Shopping Center Access

While the holiday period exhibits significantly reduced commute traffic in the vicinity, shopping-related traffic is at or near the highest levels of the year. Manhattan Village, located on the east side of Sepulveda Boulevard between Compton Boulevard and Rosecrans Avenue, is a retail, restaurant and entertainment center of a sub-regional scale. Closure of Aviation/Rosecrans would affect access to the center from the east-northeast, including freeway access.

Access can be preserved through use of alternate route signing similar to that shown in Figure 7, or possibly more elaborate, during closure. A variety of local media and on-site marketing strategies prior to closure might also be effective in publicizing access and continuing operations during the rail construction "event."

REFERENCES

1. De Leuw, Cather & Company, Concept, Benefits, and Costs of Railroad Grade Separation Improvements in the Aviation/Rosecrans Vicinity, El Segundo, Draft Report, March 1988.
2. Environmental Science Associates, Inc., Mattel Project Environmental Impact Report, December 1988. Traffic Analysis prepared by Justin F. Farmer Transportation Engineers, Inc.

APPENDIX A
MACHINE AND MANUAL TRAFFIC COUNTS

24 HOUR INTERSECTION VOLUME
 NEWPORT TRAFFIC STUDIES
 NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
 EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/28/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	129	103	495	314	1041
1:00	84	58	289	219	650
2:00	41	40	190	104	375
3:00	38	40	112	49	239
4:00	34	80	75	78	267
5:00	64	312	124	188	688
6:00	167	708	632	402	1909
7:00	364	1044	1128	641	3177
8:00	391	1058	1191	806	3446
9:00	420	808	1105	888	3221
10:00	656	703	1138	947	3444
11:00	1115	843	1081	1138	4177
12:00	1119	884	1010	1242	4255
1:00	970	807	1170	1350	4297
2:00	1057	776	1230	1370	4433
3:00	1305	781	1288	1285	4659
4:00	1345	671	1071	1201	4288
5:00	1164	643	1116	1131	4054
6:00	704	500	1194	902	3300
7:00	462	384	1059	856	2761
8:00	262	344	1016	613	2235
9:00	212	293	781	694	1980
10:00	286	276	652	576	1790
11:00	181	166	739	392	1478
12:00	12570	12322	19886	17386	62164

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/29/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	153	90	429	356	1028
1:00	90	62	245	235	632
2:00	65	47	174	98	384
3:00	26	33	101	48	208
4:00	45	86	81	85	297
5:00	57	317	181	185	740
6:00	170	662	850	401	2083
7:00	319	996	1147	610	3072
8:00	389	1059	1193	722	3363
9:00	471	860	1127	841	3299
10:00	562	897	1177	961	3597
11:00	1017	979	1269	1123	4388
12:00	878	905	1431	1175	4389
1:00	758	907	1498	1321	4484
2:00	1028	838	1440	1362	4668
3:00	1313	717	1333	1318	4681
4:00	1385	710	1067	1257	4419
5:00	1153	656	1152	1113	4074
6:00	750	555	1159	897	3361
7:00	467	445	1086	841	2839
8:00	250	353	963	676	2242
9:00	224	306	765	691	1986
10:00	286	283	712	543	1824
11:00	195	192	690	440	1517
12:00	12051	12955	21270	17299	63575

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/31/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	162	150	530	420	1262
1:00	116	111	365	453	1045
2:00	56	69	201	174	500
3:00	36	35	150	57	278
4:00	19	56	77	34	186
5:00	37	132	90	111	370
6:00	109	172	331	184	796
7:00	184	262	536	254	1236
8:00	207	671	671	420	1969
9:00	255	596	635	504	1990
10:00	313	478	706	648	2145
11:00	382	566	739	773	2460
12:00	364	578	798	831	2571
1:00	437	596	831	989	2853
2:00	463	584	930	944	2921
3:00	527	542	884	833	2786
4:00	415	547	1054	786	2802
5:00	329	485	935	707	2456
6:00	263	459	849	658	2229
7:00	232	413	902	495	2042
8:00	230	415	795	454	1894
9:00	202	299	775	501	1777
10:00	177	226	780	411	1594
11:00	134	148	546	297	1125
12:00	5649	8590	15110	11938	41287

24 HOUR INTERSECTION VOLUME
 NEWPORT TRAFFIC STUDIES
 NEWPORT BEACH, CA

NORTH-SOUTH LEGS: AVIATION BLVD.
 EAST-WEST LEGS: ROSECRANS AVE.

DATE: 02/23/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00					
1:00	275	210	239	319	1043
2:00	80	62	140	183	465
3:00	56	83	79	115	333
4:00	26	39	95	60	220
5:00	44	125	254	140	563
6:00	105	539	1279	286	2209
7:00	336	1454	2335	667	4792
8:00	759	1811	2241	1157	5968
9:00	839	1586	2303	1115	5843
10:00	642	1068	1534	937	4181
11:00	694	851	1251	1011	3807
12:00	1419	1233	1286	1395	5333
1:00	1070	1142	1580	1294	5086
2:00	965	1096	1644	1256	4961
3:00	1275	1071	1314	1387	5047
4:00	1872	1274	1144	1588	5878
5:00	2057	1263	1293	1713	6326
6:00	2239	1201	1372	1575	6387
7:00	1875	1042	1198	1503	5618
8:00	908	641	1140	1043	3732
9:00	385	392	919	823	2519
10:00	351	403	870	821	2445
11:00	291	307	761	546	1905
12:00	241	242	466	421	1370
	18804	19135	26737	21355	86031

24 HOUR INTERSECTION VOLUME
 NEWPORT TRAFFIC STUDIES
 NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -SEPULVEDA BLVD
 EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/28/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	412	287	59	132	890
1:00	275	180	36	82	573
2:00	160	84	28	39	311
3:00	69	62	27	29	187
4:00	44	131	150	54	379
5:00	135	552	424	173	1284
6:00	337	1098	243	280	1958
7:00	548	1423	264	480	2715
8:00	761	1507	413	562	3243
9:00	845	1354	553	642	3394
10:00	1060	1314	573	566	3513
11:00	1419	1380	697	625	4121
12:00	1605	1623	688	558	4474
1:00	1636	1644	771	649	4700
2:00	1547	1589	610	736	4482
3:00	1746	1457	643	626	4472
4:00	1726	1360	640	594	4320
5:00	1949	1317	660	514	4440
6:00	1485	1264	464	494	3707
7:00	1045	1126	324	454	2949
8:00	741	906	311	303	2261
9:00	796	875	296	335	2302
10:00	742	667	194	296	1899
11:00	573	398	106	179	1256
12:00	21656	23598	9174	9402	63830

24 HOUR INTERSECTION VOLUME
 NEWPORT TRAFFIC STUDIES
 NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -SEPULVEDA BLVD
 EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/29/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	371	278	77	117	843
1:00	274	215	55	74	618
2:00	135	71	19	47	272
3:00	74	53	42	19	188
4:00	56	134	149	41	380
5:00	129	573	471	184	1357
6:00	336	1194	331	314	2175
7:00	622	1635	367	491	3115
8:00	724	1665	362	589	3340
9:00	850	1354	495	605	3304
10:00	1056	1484	676	586	3802
11:00	1398	1687	789	581	4455
12:00	1470	1779	649	606	4504
1:00	1456	1704	709	655	4524
2:00	1492	1575	601	771	4439
3:00	1797	1472	625	675	4569
4:00	1797	1397	661	667	4522
5:00	1875	1389	598	477	4339
6:00	1500	1296	391	536	3723
7:00	1139	1057	326	456	2978
8:00	752	1005	252	348	2357
9:00	714	897	261	295	2167
10:00	724	671	151	293	1839
11:00	595	470	107	195	1367
12:00	21336	25055	9164	9622	65177

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -SEPULVEDA BLVD
EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/31/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	466	255	72	175	968
1:00	302	200	54	137	693
2:00	209	76	29	81	395
3:00	83	57	10	30	180
4:00	56	72	63	28	219
5:00	110	231	77	84	502
6:00	229	367	78	118	792
7:00	356	801	108	206	1471
8:00	532	1169	317	303	2321
9:00	742	1193	312	408	2655
10:00	957	1216	274	498	2945
11:00	1122	1195	298	560	3175
12:00	1207	1291	357	578	3433
1:00	1157	1225	365	585	3332
2:00	1151	1107	378	591	3227
3:00	1191	1236	387	517	3331
4:00	1048	1163	311	464	2986
5:00	923	1029	241	386	2579
6:00	807	842	226	423	2298
7:00	733	658	239	406	2036
8:00	678	610	220	372	1880
9:00	705	615	186	334	1840
10:00	590	494	133	247	1464
11:00	429	462	112	184	1187
12:00	15783	17564	4847	7715	45909

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: SEPULVEDA BLVD.
EAST-WEST LEGS: ROSECRANS AVE.

DATE: 03/03/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	410	232	223	109	974
1:00	162	159	136	48	505
2:00	104	98	66	39	307
3:00	50	70	68	23	211
4:00	69	175	69	49	362
5:00	204	801	567	215	1787
6:00	572	2738	961	606	4877
7:00	981	3539	708	974	6202
8:00	1071	2591	721	958	5341
9:00	1120	1531	718	606	3975
10:00	1369	1356	864	571	4160
11:00	2328	1551	1347	648	5874
12:00	2161	1982	1160	747	6050
1:00	1691	1932	1046	846	5515
2:00	1901	1545	939	731	5116
3:00	3007	1415	956	659	6037
4:00	3502	1312	1145	593	6552
5:00	3407	1469	1208	572	6656
6:00	2803	1349	1069	724	5945
7:00	1934	1121	927	579	4561
8:00	1161	1022	829	385	3397
9:00	947	971	823	354	3095
10:00	712	664	580	304	2260
11:00	637	396	345	192	1570
12:00	32303	30019	17475	11532	91329

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -EL SEGUNDO BLVD

DATE: 12/28/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	129	91	113	150	483
1:00	99	46	66	112	323
2:00	44	28	77	50	199
3:00	37	21	99	50	207
4:00	30	52	219	125	426
5:00	120	221	1177	379	1897
6:00	295	441	1473	608	2817
7:00	462	781	1484	650	3377
8:00	412	750	1366	705	3233
9:00	391	543	1092	699	2725
10:00	449	507	1113	834	2903
11:00	675	714	1302	1091	3782
12:00	861	744	1395	1061	4061
1:00	747	687	1411	1385	4230
2:00	759	727	1150	1534	4170
3:00	827	659	968	1403	3857
4:00	808	636	820	1208	3472
5:00	797	570	781	902	3050
6:00	568	390	558	543	2059
7:00	333	298	476	405	1512
8:00	229	261	393	335	1218
9:00	219	225	402	413	1259
10:00	269	199	390	368	1226
11:00	215	111	236	204	766
12:00	9775	9702	18561	15214	53252

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -EL SEGUNDO BLVD

DATE: 12/29/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	136	93	154	255	638
1:00	82	49	89	288	508
2:00	50	34	65	73	222
3:00	27	26	103	50	206
4:00	35	57	270	139	501
5:00	85	218	1159	377	1839
6:00	264	416	1332	529	2541
7:00	442	737	1343	576	3098
8:00	395	701	1201	695	2992
9:00	376	725	1131	798	3030
10:00	447	823	1069	1125	3464
11:00	598	950	1284	1086	3918
12:00	696	853	1357	1173	4079
1:00	613	805	1274	1466	4158
2:00	682	744	1227	1642	4295
3:00	806	724	1085	1386	4001
4:00	840	680	904	1181	3605
5:00	864	590	758	905	3117
6:00	603	428	595	562	2188
7:00	367	309	492	406	1574
8:00	254	266	419	400	1339
9:00	217	246	531	427	1421
10:00	240	229	471	421	1361
11:00	221	126	264	275	886
12:00	9340	10829	18577	16235	54981

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -EL SEGUNDO BLVD

DATE: 12/31/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00					
1:00	162	130	180	321	793
2:00	119	81	142	342	684
3:00	51	44	89	147	331
4:00	33	30	93	54	210
5:00	19	46	117	72	254
6:00	44	105	361	190	700
7:00	105	121	362	195	783
8:00	147	141	364	270	922
9:00	146	239	418	375	1178
10:00	187	263	560	442	1452
11:00	227	281	597	517	1622
12:00	270	337	581	557	1745
1:00	290	357	636	602	1885
2:00	348	415	755	686	2204
3:00	370	411	743	526	2050
4:00	413	512	946	488	2359
5:00	313	407	593	411	1724
6:00	254	321	445	340	1360
7:00	232	290	426	242	1190
8:00	221	199	415	250	1085
9:00	186	206	417	238	1047
10:00	208	183	482	295	1168
11:00	189	165	368	243	965
12:00	137	101	218	218	674
12:00	=====	=====	=====	=====	=====
	4671	5385	10308	8021	28385

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: AVIATION BLVD
EAST-WEST LEGS: EL SEGUNDO BLVD

DATE: 02/25/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00					
1:00	160	103	143	566	972
2:00	93	64	71	156	384
3:00	47	56	75	120	298
4:00	49	47	176	68	340
5:00	72	69	396	87	624
6:00	232	429	1561	266	2488
7:00	612	805	2334	608	4359
8:00	864	1242	2045	899	5050
9:00	634	1108	1504	883	4129
10:00	466	743	796	836	2841
11:00	542	647	430	1122	2741
12:00	767	974	608	1708	4057
1:00	806	959	624	1535	3924
2:00	779	879	456	1279	3393
3:00	1006	949	760	1627	4342
4:00	1021	1148	1084	2031	5284
5:00	1079	1112	1161	2157	5509
6:00	992	1156	1205	2112	5465
7:00	814	691	985	1480	3970
8:00	480	404	764	930	2578
9:00	364	297	512	633	1806
10:00	323	263	499	484	1569
11:00	251	234	432	401	1318
12:00	194	121	334	499	1148
	12647	14500	18955	22487	68589

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -COMPTON BLVD

DATE: 12/28/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	168	68	43	90	369
1:00	82	52	25	60	219
2:00	78	38	15	44	175
3:00	75	44	14	17	150
4:00	98	128	32	12	270
5:00	178	453	122	33	786
6:00	563	864	256	127	1810
7:00	744	1084	295	344	2467
8:00	771	956	347	515	2589
9:00	738	769	326	403	2236
10:00	665	799	415	473	2352
11:00	759	855	493	493	2600
12:00	1071	869	483	562	2985
1:00	1134	771	429	511	2845
2:00	1160	776	495	578	3009
3:00	1213	699	485	579	2976
4:00	1181	617	535	472	2805
5:00	1132	588	508	451	2679
6:00	690	495	404	402	1991
7:00	404	388	279	329	1400
8:00	382	326	203	222	1133
9:00	351	309	165	190	1015
10:00	262	206	140	138	746
11:00	164	126	75	111	476
12:00	14063	12280	6584	7156	40083

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -COMPTON BLVD

DATE: 12/29/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	109	77	46	55	287
1:00	46	54	29	49	178
2:00	57	30	21	18	126
3:00	39	48	10	11	108
4:00	80	124	36	14	254
5:00	352	462	137	63	1014
6:00	656	952	293	203	2104
7:00	853	1134	318	451	2756
8:00	711	934	341	445	2431
9:00	728	813	372	429	2342
10:00	693	977	416	471	2557
11:00	723	931	558	591	2803
12:00	1148	995	551	627	3321
1:00	1184	869	535	612	3200
2:00	1173	775	522	517	2987
3:00	1145	670	542	506	2863
4:00	1325	610	538	485	2958
5:00	1168	642	519	484	2813
6:00	777	530	379	382	2068
7:00	504	440	267	311	1522
8:00	258	326	213	222	1019
9:00	179	302	150	207	838
10:00	122	236	142	158	658
11:00	117	134	72	106	429
12:00	14147	13065	7007	7417	41636

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -AVIATION BLVD
EAST-WEST LEGS: -COMPTON BLVD

DATE: 12/31/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	58	120	56	90	324
1:00	70	102	33	60	265
2:00	21	47	24	44	136
3:00	13	36	17	17	83
4:00	17	83	17	12	129
5:00	76	166	59	33	334
6:00	222	239	170	127	758
7:00	464	360	270	209	1303
8:00	502	478	260	364	1604
9:00	468	481	243	354	1546
10:00	460	584	274	384	1702
11:00	495	661	313	436	1905
12:00	570	632	326	442	1970
1:00	588	693	405	471	2157
2:00	572	671	428	472	2143
3:00	548	639	379	373	1939
4:00	490	569	362	411	1832
5:00	461	510	270	309	1550
6:00	396	499	187	295	1377
7:00	312	407	153	202	1074
8:00	231	408	138	182	959
9:00	217	259	136	156	768
10:00	134	195	75	104	508
11:00	108	141	48	68	365
12:00	7493	8980	4643	5615	26731

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -INGLEWOOD AVE
EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/28/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	70	82	134	254	540
1:00	50	51	89	175	365
2:00	38	31	61	107	237
3:00	21	22	70	50	163
4:00	32	46	141	83	302
5:00	118	125	501	190	934
6:00	348	264	977	379	1968
7:00	499	455	1123	533	2610
8:00	508	529	1065	620	2722
9:00	557	503	948	779	2787
10:00	674	590	959	824	3047
11:00	913	712	1131	1024	3780
12:00	1011	692	1245	981	3929
1:00	961	808	1219	1015	4003
2:00	863	735	1129	1197	3924
3:00	908	777	1060	1354	4099
4:00	880	770	1037	1333	4020
5:00	854	753	1008	1201	3816
6:00	627	549	824	845	2845
7:00	486	403	700	751	2340
8:00	339	353	524	502	1718
9:00	268	271	413	511	1463
10:00	209	219	415	450	1293
11:00	122	125	214	302	763
12:00	11356	9865	16987	15460	53668

24 HOUR INTERSECTION VOLUME
 NEWPORT TRAFFIC STUDIES
 NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -INGLEWOOD AVE
 EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/29/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	84	93	137	244	558
1:00	56	59	85	177	377
2:00	43	43	83	87	256
3:00	20	22	75	43	160
4:00	29	44	142	82	297
5:00	121	109	462	219	911
6:00	305	203	862	392	1762
7:00	481	447	1055	529	2512
8:00	521	521	1048	624	2714
9:00	491	573	1036	801	2901
10:00	643	718	1164	958	3483
11:00	693	850	1339	1185	4067
12:00	712	828	1389	1137	4066
1:00	752	812	1254	1152	3970
2:00	768	841	1154	1206	3969
3:00	868	764	991	1395	4018
4:00	869	749	1039	1307	3964
5:00	774	734	1020	1111	3639
6:00	673	543	1029	852	3097
7:00	505	441	962	700	2608
8:00	365	326	711	544	1946
9:00	262	315	495	537	1609
10:00	187	236	428	404	1255
11:00	152	129	225	326	832
12:00	10374	10400	18185	16012	54971

24 HOUR INTERSECTION VOLUME
NEWPORT TRAFFIC STUDIES
NEWPORT BEACH, CA

NORTH-SOUTH LEGS: -INGLEWOOD AVE
EAST-WEST LEGS: -ROSECRANS AVE

DATE: 12/31/88

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG	TOTAL
12:00	106	134	204	306	750
1:00	97	89	160	295	641
2:00	74	75	101	133	383
3:00	33	48	103	65	249
4:00	37	32	97	59	225
5:00	55	68	204	135	462
6:00	104	95	291	199	689
7:00	212	169	417	269	1067
8:00	337	270	532	460	1599
9:00	483	388	694	605	2170
10:00	575	450	784	692	2501
11:00	670	556	871	815	2912
12:00	699	561	893	865	3018
1:00	681	667	908	916	3172
2:00	685	650	898	898	3131
3:00	527	731	886	908	3052
4:00	378	616	778	811	2583
5:00	319	565	725	683	2292
6:00	207	479	680	562	1928
7:00	33	341	550	457	1381
8:00	30	283	535	415	1263
9:00	49	230	491	398	1168
10:00	28	177	416	336	957
11:00	7	152	237	244	640
12:00	6426	7826	12455	11526	38233

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: ROSECRANS AVE

TIME: 3:00-4:00 P DATE: 12-29-88

151	904	279	Total
29	173	61	1st
38	217	85	2nd
41	271	73	3rd
43	243	60	4th
Rt.	V	Lt.	

Rt.	18	40	26	18	102
<---	243	202	209	229	883
Lt.	77	83	83	51	294
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
227	56	65	63	43	Lt.
998	258	199	283	258	--->
133	30	61	29	13	Rt.

	Lt.	V	Rt.
1st	24	66	18
2nd	33	82	80
3rd	45	130	63
4th	23	197	25
Total	125	475	186

INTERSECTION TURNING COUNT
NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: ROSECRANS AVE

TIME: 4:00-5:00 P DATE: 12-29-88

79	1129	232	Total
14	369	78	1st
23	276	62	2nd
27	249	50	3rd
15	235	42	4th
Rt.		Lt.	

Rt.	21	18	14	24	77
<---	143	147	170	156	616
Lt.	91	88	109	72	360
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
156	46	38	37	35	Lt.
1014	255	244	250	265	---->
102	26	23	30	23	Rt.

	Lt.		Rt.
1st	16	128	71
2nd	24	116	81
3rd	26	82	55
4th	32	112	38
Total	98	438	245

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: ROSECRANS AVE

TIME: 5:00-6:00 P DATE: 12-29-88

70	881	196	Total
21	260	67	1st
10	255	32	2nd
18	208	51	3rd
21	158	46	4th
Rt.	V	Lt.	

Rt.	21	17	12	16	66
<---	95	142	180	154	571
Lt.	132	116	111	138	497
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
208	53	60	54	41	Lt.
756	238	170	179	169	--->
112	36	30	18	28	Rt.

	Lt.	V	Rt.
1st	22	106	49
2nd	31	80	63
3rd	26	73	57
4th	27	77	51
Total	106	336	220

INTERSECTION TURNING COUNT
 NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: SEPULVEDA BLVD

EAST-WEST STREET: ROSECRANS AVE

TIME: 3:00-4:00 P DATE: 12-29-88

	53	1484	266	Total
=====	=====	=====	=====	
	9	371	78	1st
	11	391	55	2nd
	14	336	75	3rd
	19	386	58	4th
Rt.				Lt.
	V			

Rt.	48	43	32	20	143
<---	80	51	50	81	262
Lt.	57	52	47	58	214
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
68	20	22	13	13	Lt.
418	110	99	114	95	--->
173	45	45	46	37	Rt.

	Lt.		Rt.
1st	51	266	58
2nd	47	291	51
3rd	65	254	56
4th	48	268	55
Total	211	1079	220

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: SEPULVEDA BLVD

EAST-WEST STREET: ROSECRANS AVE

TIME: 4:00-5:00 P DATE: 12-29-88

55	1525	231	Total
13	417	46	1st
14	386	61	2nd
11	345	69	3rd
17	377	55	4th
Rt.	↓	Lt.	

Rt.	55	45	42	29	171
<---	57	69	51	71	248
Lt.	64	67	62	41	234
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
89	19	23	24	23	Lt.
371	91	94	105	81	--->
156	46	37	32	41	Rt.

	Lt.	↓	Rt.
1st	49	242	46
2nd	47	259	44
3rd	42	256	35
4th	52	267	43
Total	190	1024	168

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: SEPULVEDA BLVD

EAST-WEST STREET: ROSECRANS AVE

TIME: 5:00-6:00 P DATE: 12-29-88

44	1638	165	Total
6	402	39	1st
10	397	33	2nd
9	357	31	3rd
19	482	62	4th
Rt.	V	Lt.	

Rt.	25	27	18	10	80
<---	72	79	77	62	290
Lt.	50	43	54	36	183
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
54	16	13	15	10	Lt.
387	141	97	63	86	---->
156	43	33	31	49	Rt.

	Lt.	V	Rt.
1st	61	216	29
2nd	59	226	39
3rd	47	249	45
4th	67	260	58
Total	234	951	171

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: EL SEGUNDO BLVD

TIME: 3:00-4:00 P DATE: 12-29-88

57	547	149	Total
12	111	51	1st
10	169	27	2nd
20	99	29	3rd
15	168	42	4th
Rt.		Lt.	
	v		

Rt.	29	34	28	21	112
<---	223	165	148	163	699
Lt.	53	45	57	68	223
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
141	32	45	21	43	Lt.
1082	274	356	256	196	--->
157	36	32	43	46	Rt.

	Lt.		Rt.
1st	40	127	25
2nd	22	112	21
3rd	24	130	37
4th	18	115	26
Total	104	484	109

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: EL SEGUNDO BLVD

TIME: 4:00-5:00 P DATE: 12-29-88

46	610	153	Total
19	190	56	1st
10	130	33	2nd
9	153	30	3rd
8	137	34	4th
Rt.	V	Lt.	

Rt.	27	38	30	21	116
<---	170	138	169	144	621
Lt.	57	38	45	25	165
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
152	46	34	48	24	Lt.
904	212	281	218	193	--->
254	67	45	74	68	Rt.

	Lt.	V	Rt.
1st	29	127	22
2nd	20	130	15
3rd	16	122	27
4th	18	88	24
Total	83	467	88

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: EL SEGUNDO BLVD

TIME: 5:00-6:00 P DATE: 12-29-88

39	617	123	Total
16	203	39	1st
8	141	27	2nd
6	140	23	3rd
9	133	34	4th
Rt.		Lt.	
	v		

Rt.	21	21	23	24	89
<---	150	114	160	120	544
Lt.	28	30	24	22	104
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
81	32	12	20	17	Lt.
742	235	207	116	184	--->
160	34	20	36	70	Rt.

	Lt.		Rt.
1st	10	148	28
2nd	17	103	18
3rd	13	92	24
4th	9	85	27
Total	49	428	97

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: COMPTON BLVD

TIME: 3:00-4:00 P DATE: 12-29-88

129	891	123	Total
34	221	37	1st
27	214	24	2nd
29	222	33	3rd
39	234	29	4th
Rt.	V	Lt.	

Rt.	22	33	18	6	79
<---	96	86	88	101	371
Lt.	20	20	22	20	82
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
54	13	15	15	11	Lt.
373	94	102	87	90	--->
68	18	19	17	14	Rt.

	Lt.	V	Rt.
1st	17	132	17
2nd	31	126	11
3rd	18	122	15
4th	31	131	9
Total	97	511	52

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: COMPTON BLVD

TIME: 4:00-5:00 P DATE: 12-29-88

180	1039	131	Total
44	311	48	1st
40	258	31	2nd
49	254	22	3rd
47	216	30	4th
Rt.	V	Lt.	

Rt.	18	12	10	13	53
<---	75	119	109	100	403
Lt.	22	24	15	23	84
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
69	19	27	12	11	Lt.
360	111	84	80	85	---->
61	15	19	11	16	Rt.

	Lt.	V	Rt.
1st	21	125	6
2nd	15	118	14
3rd	9	121	6
4th	26	128	16
Total	71	492	42

INTERSECTION TURNING COUNT
NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: AVIATION BLVD

EAST-WEST STREET: COMPTON BLVD

TIME: 5:00-6:00 P DATE: 12-29-88

157	939	89	Total
47	252	19	1st
37	237	26	2nd
31	221	19	3rd
42	229	25	4th
Rt.	V	Lt.	

Rt.	18	9	15	18	60
<-->	87	114	101	89	391
Lt.	15	11	16	14	56
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
80	15	26	21	18	Lt.
337	87	80	89	81	---->
49	15	8	12	14	Rt.

	Lt.	V	Rt.
1st	19	140	7
2nd	15	97	24
3rd	18	157	21
4th	12	111	11
Total	64	505	63

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: INGLEWOOD AVE

EAST-WEST STREET: ROSECRANS AVE

TIME: 3:00-4:00 P DATE: 12-29-88

109	616	179	Total
24	126	59	1st
18	188	35	2nd
37	157	43	3rd
30	145	42	4th
Rt.		Lt.	
	V		

Rt.	37	31	40	35	143
<-->	149	174	152	186	661
Lt.	79	46	64	61	250
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
288	68	53	102	65	Lt.
942	260	200	277	205	--->
113	38	19	31	25	Rt.

	Lt.		Rt.
1st	49	124	22
2nd	32	155	16
3rd	30	139	41
4th	29	138	28
Total	140	556	107

INTERSECTION TURNING COUNT
 NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: INGLEWOOD AVE
 EAST-WEST STREET: ROSECRANS AVE
 TIME: 4:00-5:00 P DATE: 12-29-88

88	639	147	Total
22	217	37	1st
19	173	46	2nd
25	111	34	3rd
22	138	30	4th
Rt.	↓	Lt.	

Rt.	66	37	52	29	184
←	142	185	131	126	584
Lt.	79	55	70	73	277
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
238	87	64	41	46	Lt.
1045	256	239	293	257	---->
108	33	25	26	24	Rt.

	Lt.	↑	Rt.
1st	36	142	24
2nd	38	99	23
3rd	26	119	40
4th	27	127	21
Total	127	487	108

INTERSECTION TURNING COUNT

NEWPORT TRAFFIC STUDIES- NEWPORT BEACH, CA.

NORTH-SOUTH STREET: INGLEWOOD AVE

EAST-WEST STREET: ROSECRANS AVE

TIME: 5:00-6:00 P DATE: 12-29-88

66	577	148	Total
24	116	37	1st
15	154	45	2nd
16	157	30	3rd
11	150	36	4th
Rt.	V	Lt.	

Rt.	36	35	45	37	153
<---	172	139	141	156	608
Lt.	65	70	66	63	264
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
214	47	58	55	54	Lt.
811	177	254	200	180	--->
59	19	15	15	10	Rt.

	Lt.	V	Rt.
1st	34	147	26
2nd	30	167	16
3rd	24	156	14
4th	13	134	21
Total	101	604	77

APPENDIX B
INTERSECTION CAPACITY CALCULATIONS

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

NON-HOLIDAY WEEKDAY
PM PEAK HOUR

3/8/89

It No	Street Names	LOS	V/C	Note
1	SEPULVEDA & ROSECRANS	F	1.27	5
2	AVIATION & EL SEGUNDO	F	1.07	5
3	AVIATION & ROSECRANS	F	1.16	
4	AVIATION & COMPTON	F	1.16	
5	INGLEWOOD & ROSECRANS	E	0.92	

Note 5: Lane Designations Re-Assigned for Traffic Volumes Specified

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

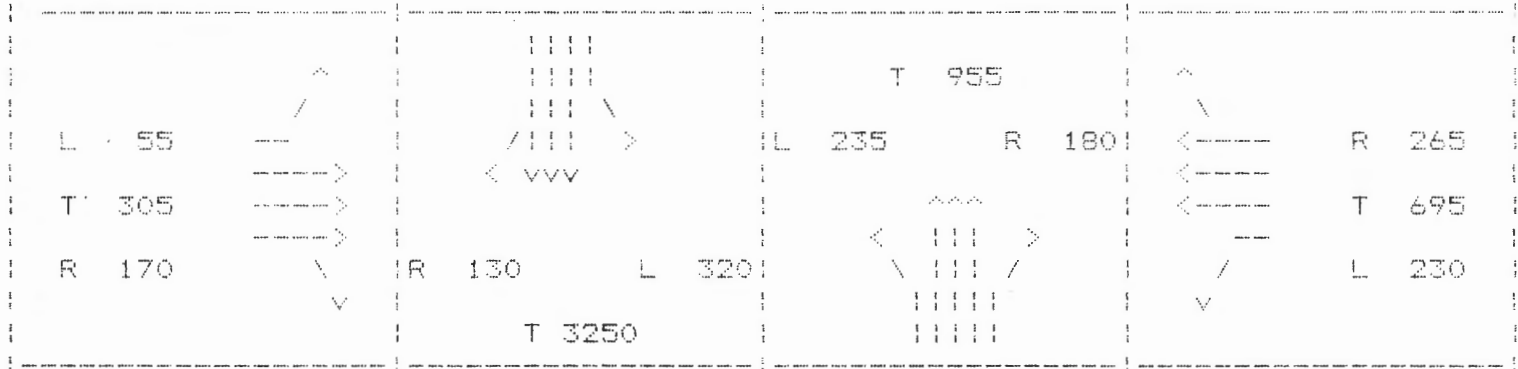
NON-HOLIDAY WEEKDAY

3/8/99

PM PEAK HOUR

Intersection: 1 SEPULVEDA & ROSECRANS

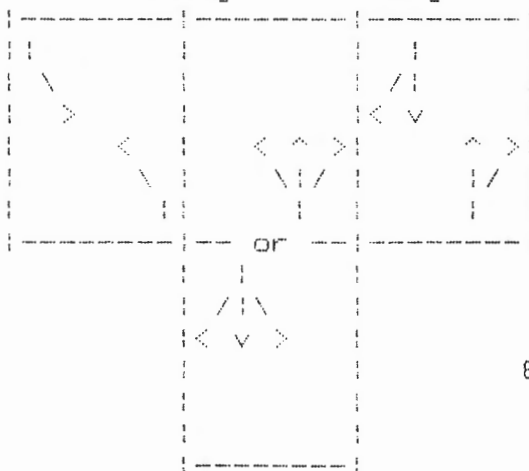
Line Configuration and Turn Volumes



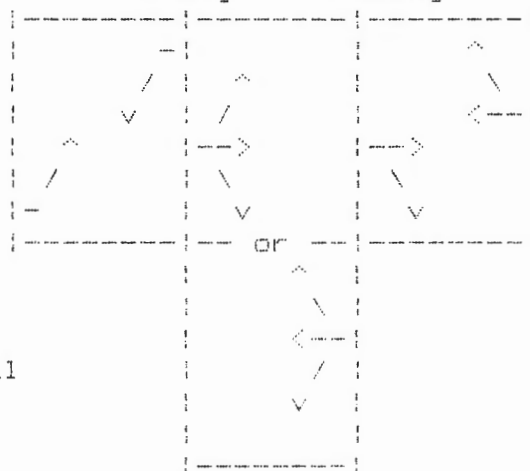
Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	235	235
	T	3	318	
	EXR	1	180	
SB	EXL	1	320	
	TR	3	1127	1127
EB	EXL	1	55	
	T	2	153	153
	R	1	170	
WB	EXL	1	230	230
	TR	3	320	
Total Critical Volume				1745

Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA
Critical Volume		= 1745	
No of Critical Phases		= 4	
Level of Service		= F	
Volume/Capacity		= 1.27	

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

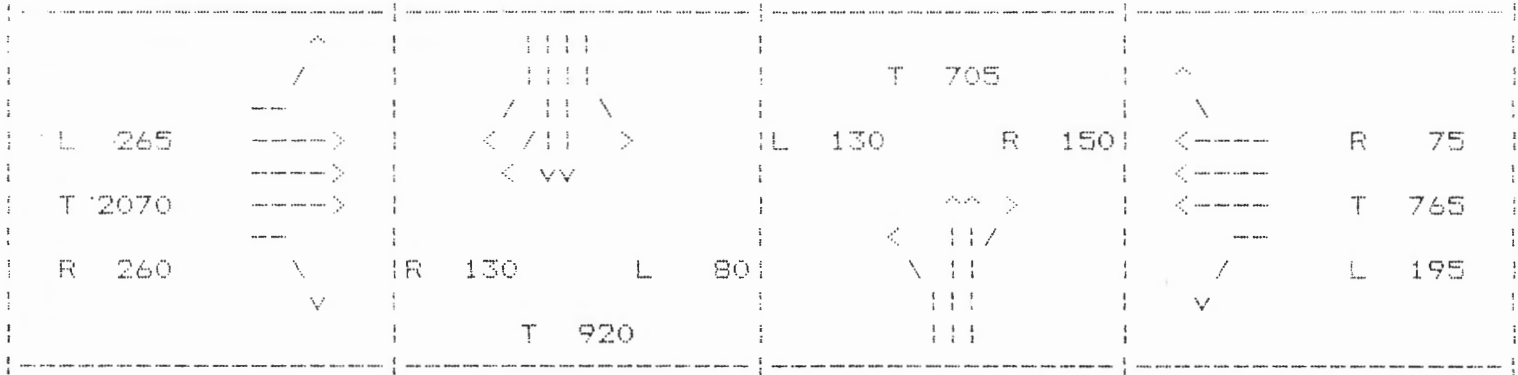
NON-HOLIDAY WEEKDAY

3/8/89

PM PEAK HOUR

Intersection: 2 AVIATION & EL SEGUNDO

Lane Configuration and Turn Volumes

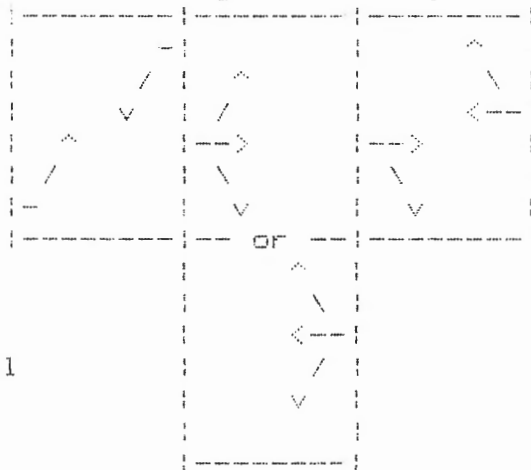
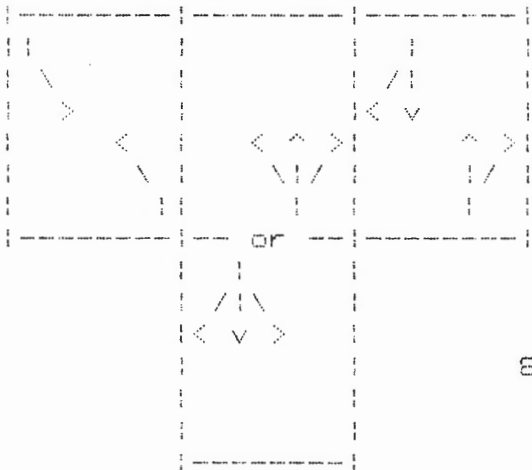


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	130	130
	TR	2	428	
SB	EXL	1	80	
	T	2	460	460
	EXR	1	130	
EB	EXL	1	265	
	T	3	690	690
	EXR	1	260	
WB	EXL	1	195	195
	TR	3	280	
Total Critical Volume				1475

Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA
Critical Volume		= 1475	
No of Critical Phases		= 4	
Level of Service		= F	
Volume/Capacity		= 1.07	

N/S Signal Phasing

E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

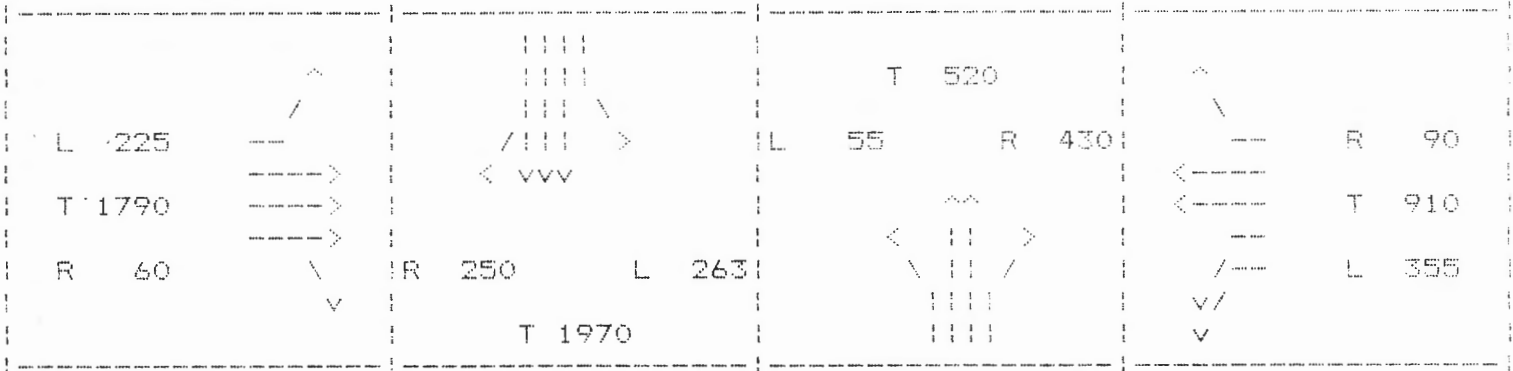
NON-HOLIDAY WEEKDAY

3/8/89

PM PEAK HOUR

Intersection: 3 AVIATION & ROSECRANS

Line Configuration and Turn Volumes

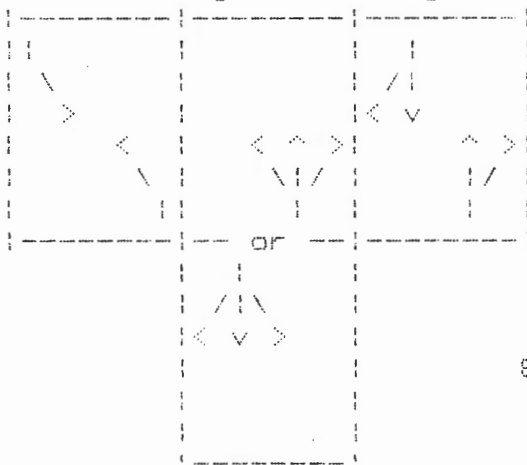


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	55	55
	T	2	260	
	EXR	1	430	
SB	EXL	1	263	
	TR	3	740	740
EB	EXL	1	225	
	TR	3	617	617
WB	EXL	2	178	178
	T	2	455	
	EXR	1	90	
Total Critical Volume				1590

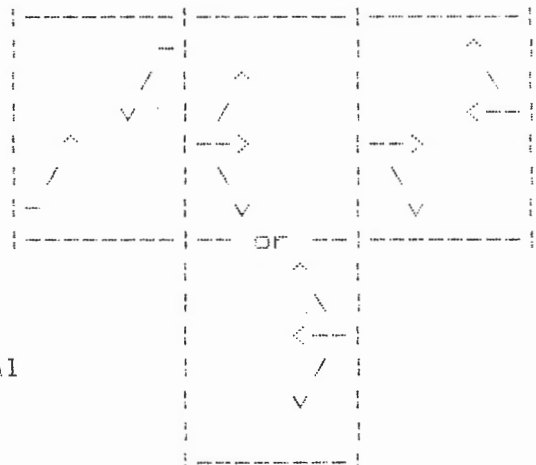
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1590
No of Critical Phases	= 4
Level of Service	= F
Volume/Capacity	= 1.16

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

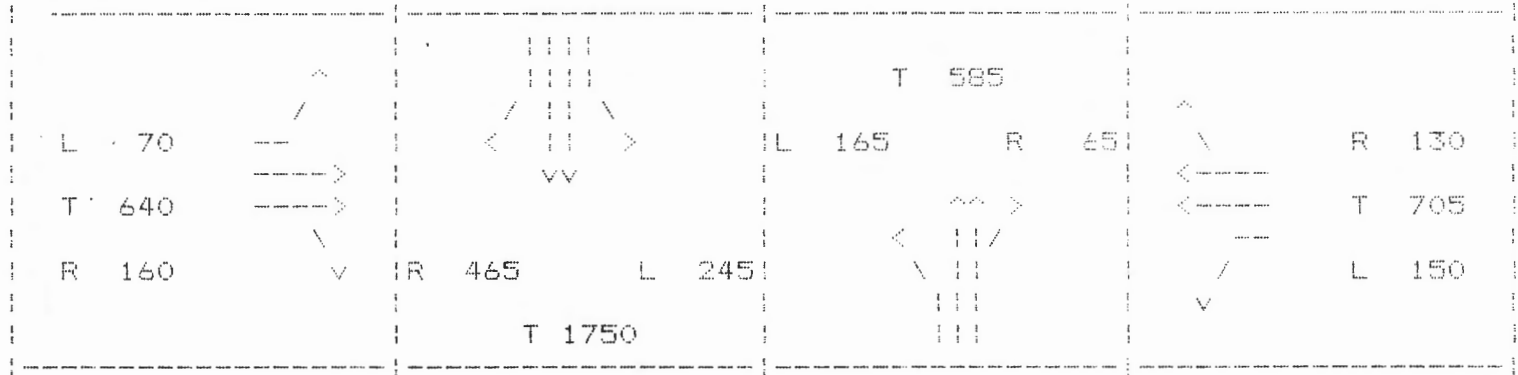
NON-HOLIDAY WEEKDAY

3/8/89

PM PEAK HOUR

Intersection: 4 AVIATION & COMPTON

Lane Configuration and Turn Volumes

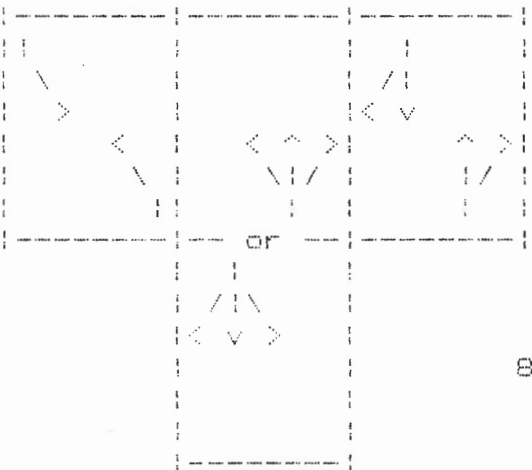


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	165	165
	TR	2	325	
SB	EXL	1	245	
	T	2	875	875
	EXR	1	465	
EB	EXL	1	70	
	TR	2	400	400
WB	EXL	1	150	150
	TR	2	418	
Total Critical Volume				1590

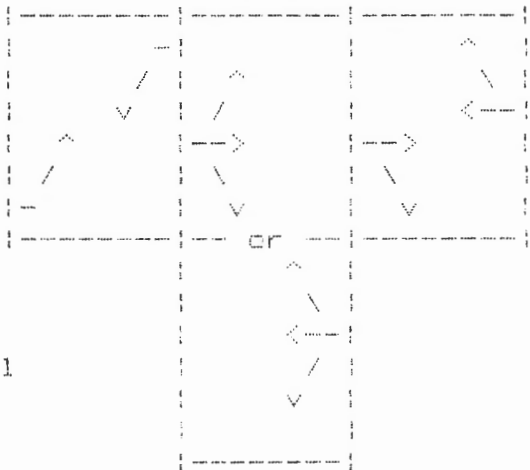
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1590
No of Critical Phases	= 4
Level of Service	= F
Volume/Capacity	= 1.16

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

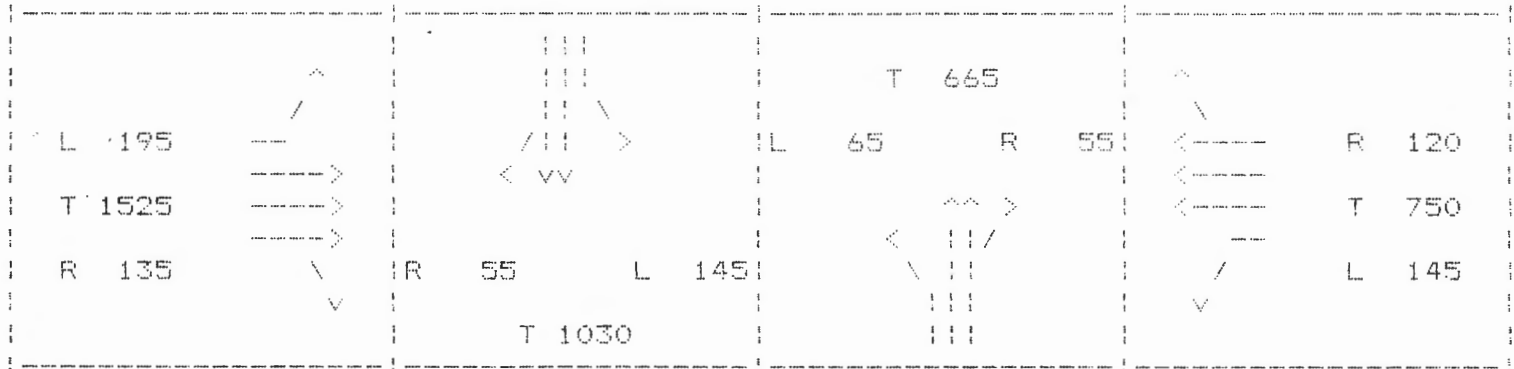
NON-HOLIDAY WEEKDAY

3/8/89

PM PEAK HOUR

Intersection: 5 INGLEWOOD & ROSECRANS

Line Configuration and Turn Volumes

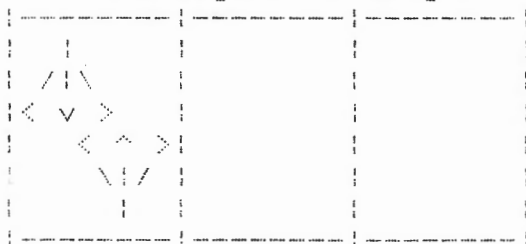


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	65	65
	TR	2	360	
SB	EXL	1	145	
	TR	2	543	543
EB	EXL	1	195	
	TR	3	553	553
WB	EXL	1	145	145
	TR	3	290	
Total Critical Volume				1306

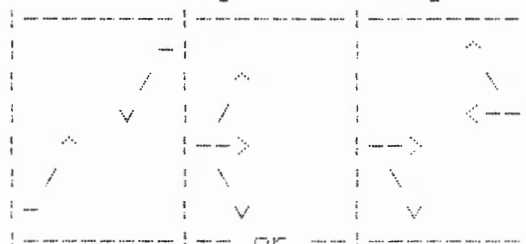
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1306
No of Critical Phases	= 3
Level of Service	= E
Volume/Capacity	= 0.92

N/S Signal Phasing



E/W Signal Phasing



5 Phase Signal



Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

EXISTING HOLIDAY WEEKDAY
PM PEAK HOUR

3/8/89

at No	Street Names	LDS	V/C	Note
1	SEFULVEDA & ROSECRANS	D	0.84	5
2	AVIATION & EL SEGUNDO	C	0.74	5
3	AVIATION & ROSECRANS	C	0.79	
4	AVIATION & COMPTON	B	0.65	
5	INGLEWOOD & ROSECRANS	C	0.79	

Note 5: Lane Designations Re-Assigned for Traffic Volumes Specified

Program Licensed To: Kaku Associates

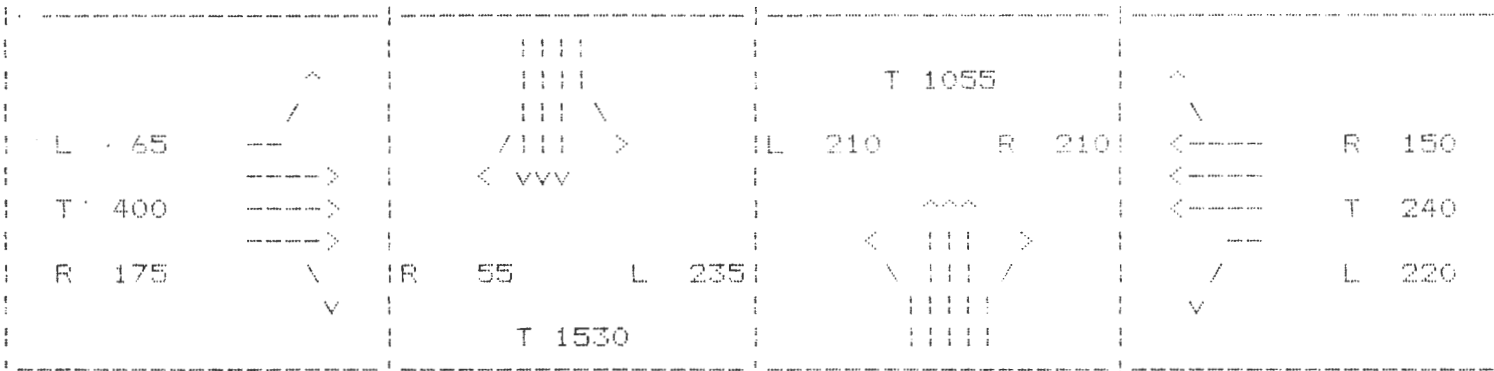
ROSECRANS/AVIATION

EXISTING HOLIDAY WEEKDAY
PM PEAK HOUR

3/8/89

Intersection: 1 SEPULVEDA & ROSECRANS

Line Configuration and Turn Volumes

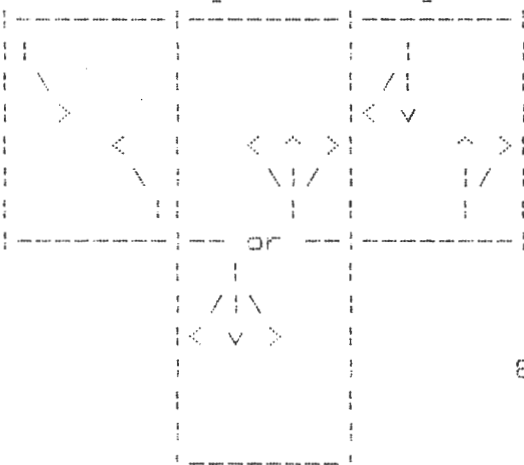


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	210	210
	T	3	352	
	EXR	1	210	
SB	EXL	1	235	528
	TR	3	528	
EB	EXL	1	65	192
	TR	3	192	
WB	EXL	1	220	220
	T	2	120	
	R	1	150	
Total Critical Volume				1150

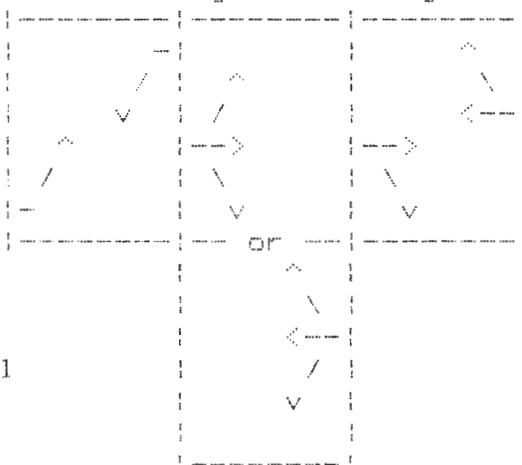
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume = 1150
 No of Critical Phases = 4
 Level of Service = D
 Volume/Capacity = 0.84

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

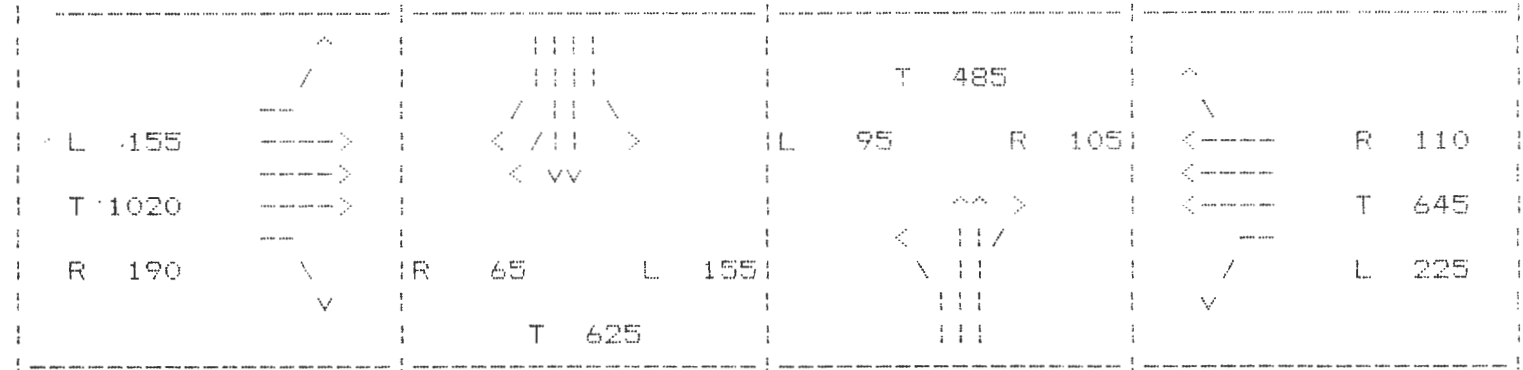
ROSECRANS/AVIATION

EXISTING HOLIDAY WEEKDAY
PM PEAK HOUR

3/8/89

Intersection: 2 AVIATION & EL SEGUNDO

Line Configuration and Turn Volumes

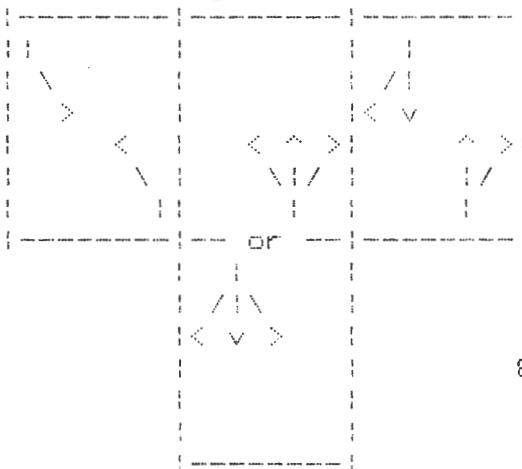


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	95	295
	TR	2	295	
SB	EXL	1	155	155
	T	2	313	
	EXR	1	65	
EB	EXL	1	155	340
	T	3	340	
	EXR	1	190	
WB	EXL	1	225	225
	TR	3	252	
Total Critical Volume				1015

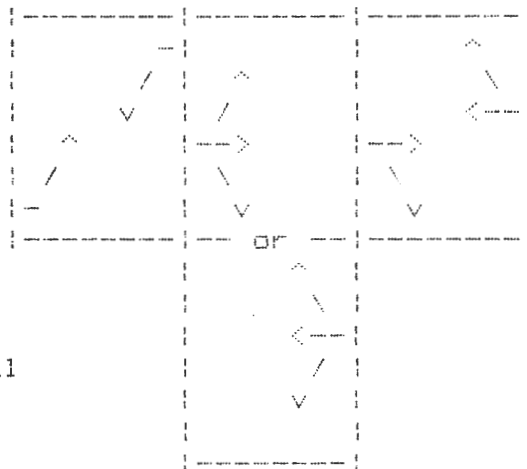
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1015
No of Critical Phases	= 4
Level of Service	= C
Volume/Capacity	= 0.74

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

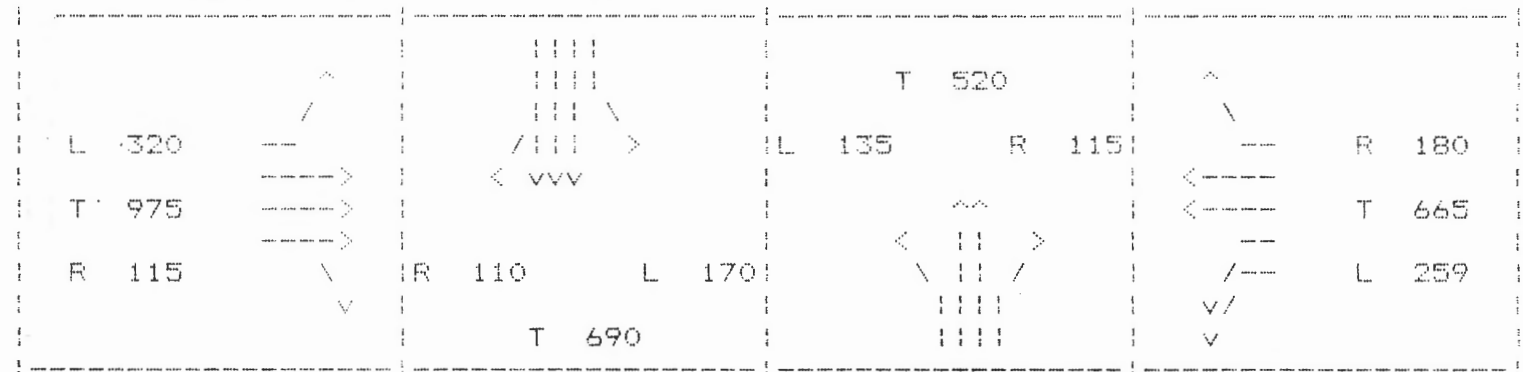
ROSECRANS/AVIATION

EXISTING HOLIDAY WEEKDAY
PM PEAK HOUR

3/8/89

Intersection: 3 AVIATION & ROSECRANS

Line Configuration and Turn Volumes

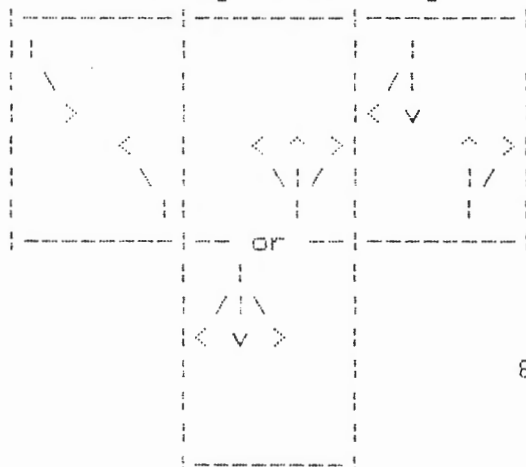


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	135	260
	T	2	260	
	EXR	1	115	
SB	EXL	1	170	170
	TR	3	267	
EB	EXL	1	320	320
	TR	3	363	
WB	EXL	2	130	333
	T	2	333	
	EXR	1	180	
Total Critical Volume				1083

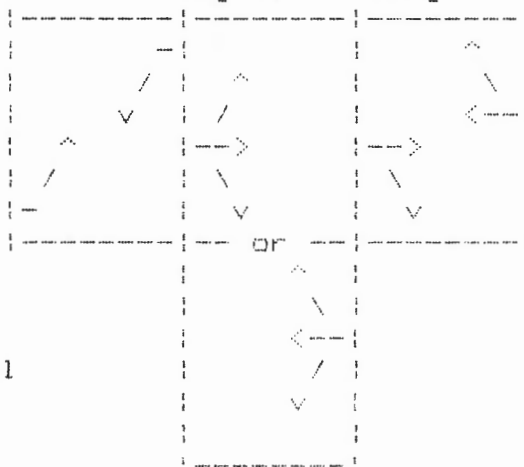
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1083
No of Critical Phases	= 4
Level of Service	= C
Volume/Capacity	= 0.79

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

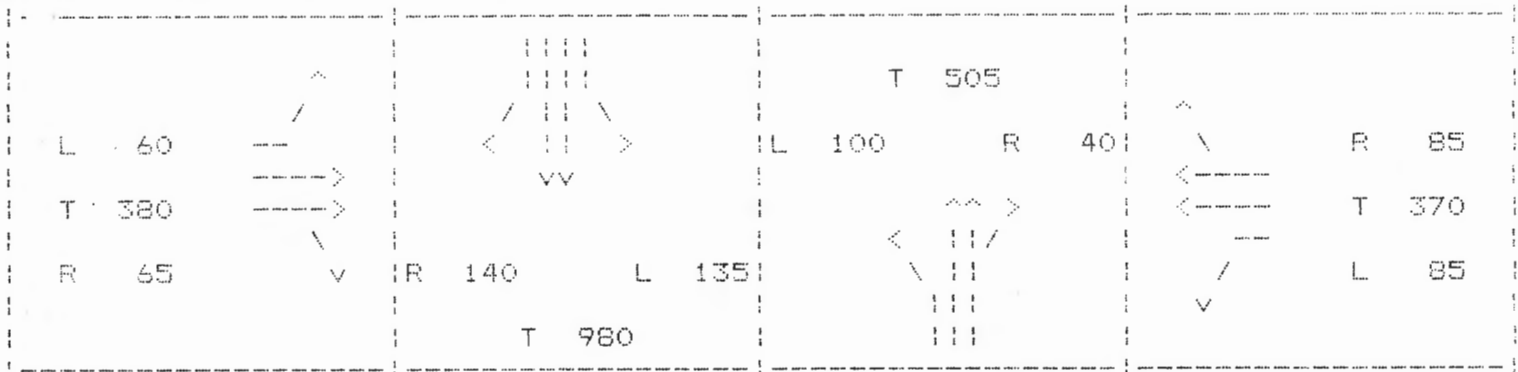
ROSECRANS/AVIATION

EXISTING HOLIDAY WEEKDAY
PM PEAK HOUR

3/8/89

Intersection: 4 AVIATION & COMPTON

Lane Configuration and Turn Volumes

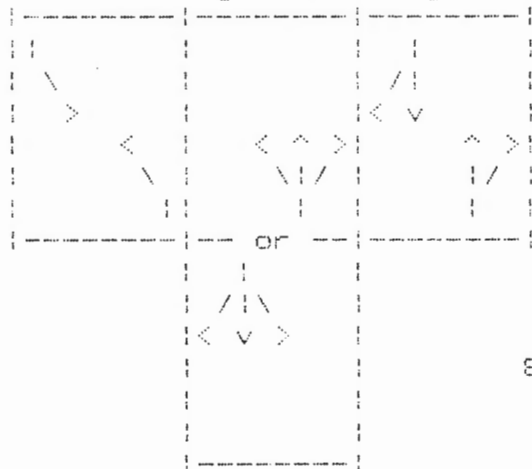


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	100	100
	TR	2	273	
SB	EXL	1	135	490
	T	2	490	
	EXR	1	140	
EB	EXL	1	60	223
	TR	2	223	
WB	EXL	1	85	85
	TR	2	228	
Total Critical Volume				898

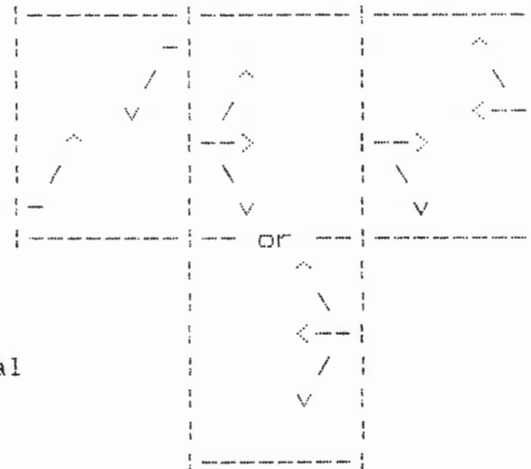
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 898
No of Critical Phases	= 4
Level of Service	= B
Volume/Capacity	= 0.65

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

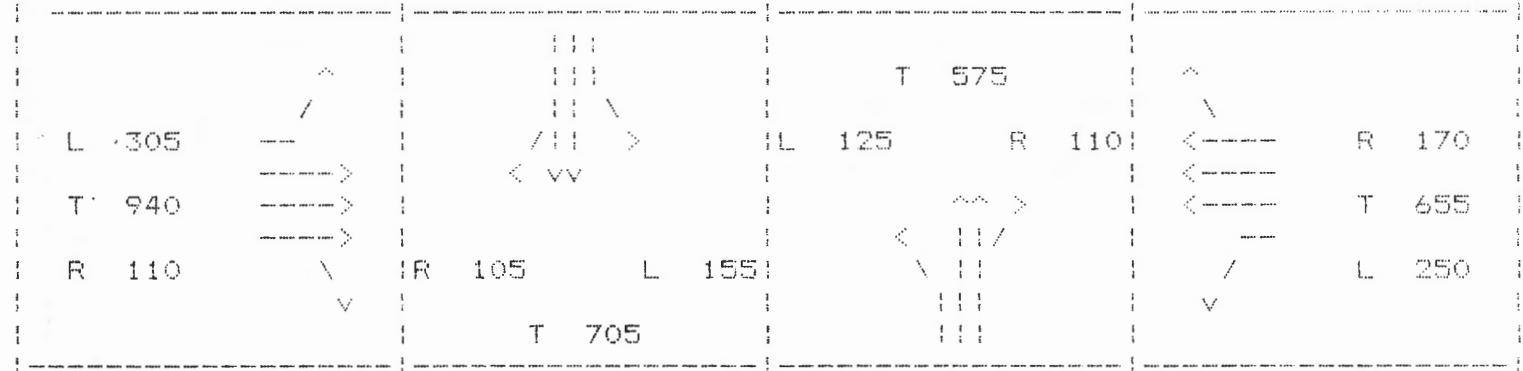
ROSECRANS/AVIATION

EXISTING HOLIDAY WEEKDAY
PM PEAK HOUR

3/8/89

Intersection: 5 INGLEWOOD & ROSECRANS

Line Configuration and Turn Volumes

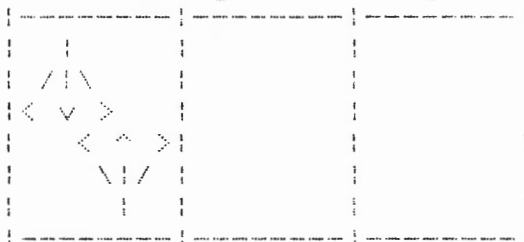


Approach	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	125	125
	TR	2	343	125
SB	EXL	1	155	405
	TR	2	405	405
EB	EXL	1	305	350
	TR	3	350	350
WB	EXL	1	250	250
	TR	3	275	250
Total Critical Volume				1130

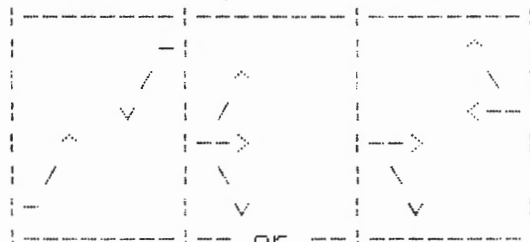
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume = 1130
 No of Critical Phases = 3
 Level of Service = C
 Volume/Capacity = 0.79

N/S Signal Phasing



E/W Signal Phasing



5 Phase Signal

or



Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

WITH CLOSURE
PM PEAK HOUR

3/9/89

Int. No.	Street Names	LOS	V/C	Note
1	SEPULVEDA & ROSECRANS	F	1.24	5
2	AVIATION & EL SEGUNDO	F	1.12	5
3	AVIATION & ROSECRANS	A	0.00	
4	AVIATION & COMPTON	F	1.02	5
5	INGLEWOOD & ROSECRANS	E	0.98	1,5

Note 1: Left Turn Check Failed for This Intersection

Note 5: Lane Designations Re-Assigned for Traffic Volumes Specified

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

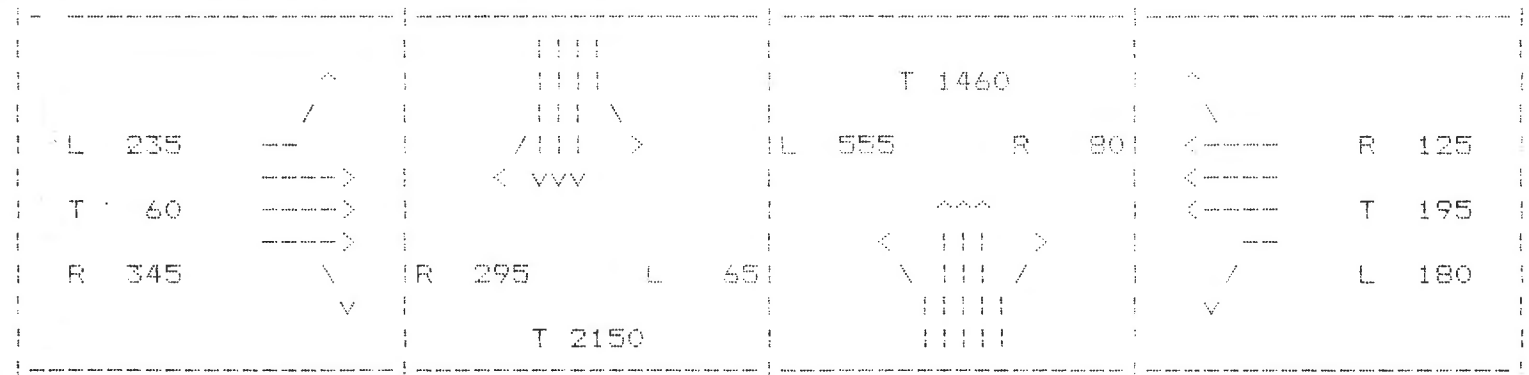
WITH CLOSURE

3/8/89

PM PEAK HOUR

Intersection: 1 SEPULVEDA & ROSECRANS

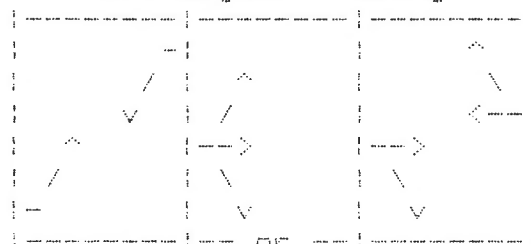
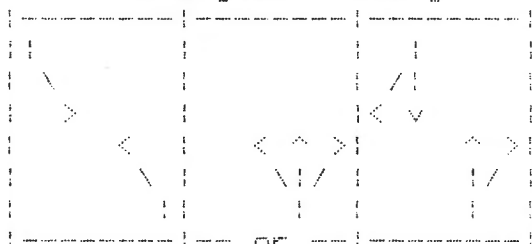
Lane Configuration and Turn Volumes



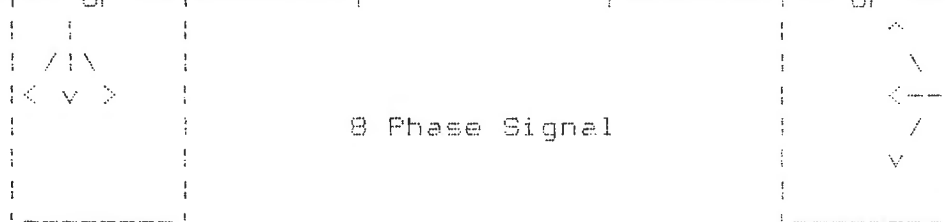
Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume	Maximum Total Critical Volumes							
					Level of Service	Two Phase	Three Phase	Four Phase				
NB	EXL	1	555	555	A	900	855	825				
	T	3	487									
	EXR	1	80									
SB	EXL	1	65	815					B	1050	1000	965
	TR	3	815						C	1200	1140	1100
EB	EXL	1	235	235					D	1350	1275	1225
	T	2	30		E	1500	1425	1375				
	R	1	345		F	NA	NA	NA				
WB	EXL	1	180	98	Critical Volume = 1703							
	T	2	98		No of Critical Phases = 4							
	R	1	125		Level of Service = F							
Total Critical Volume				1703	Volume/Capacity = 1.24							

N/S Signal Phasing

E/W Signal Phasing



8 Phase Signal



Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

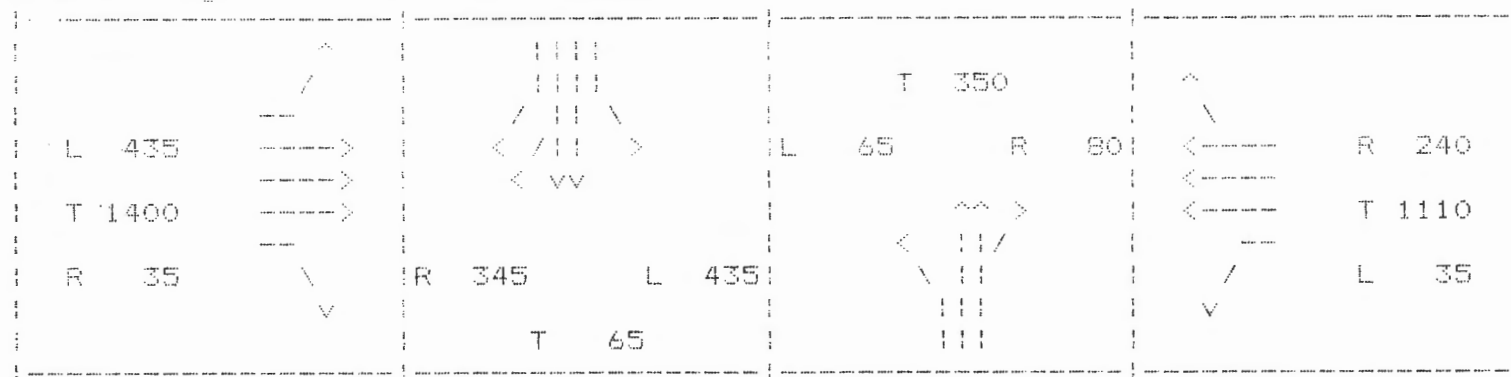
WITH CLOSURE

3/8/99

PM PEAK HOUR

Intersection: 2 AVIATION & EL SEGUNDO

Lane Configuration and Turn Volumes

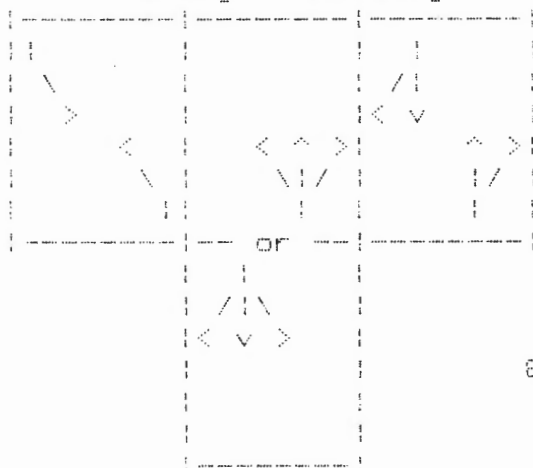


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	65	215
	TR	2	215	
SB	EXL	1	435	435
	T	1	65	
	EXR	2	173	
EB	EXL	1	435	435
	T	3	467	
	EXR	1	35	
WB	EXL	1	35	450
	TR	3	450	
Total Critical Volume				1535

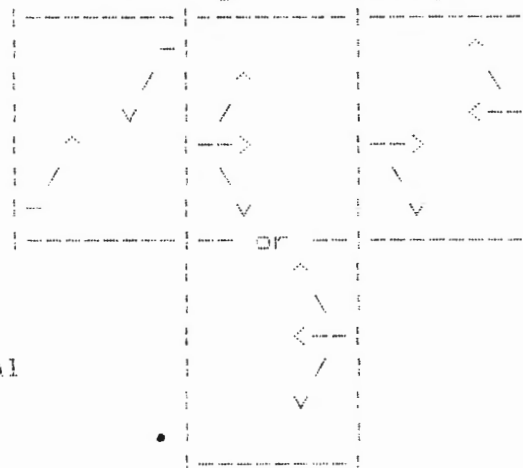
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1535
No of Critical Phases	= 4
Level of Service	= F
Volume/Capacity	= 1.12

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

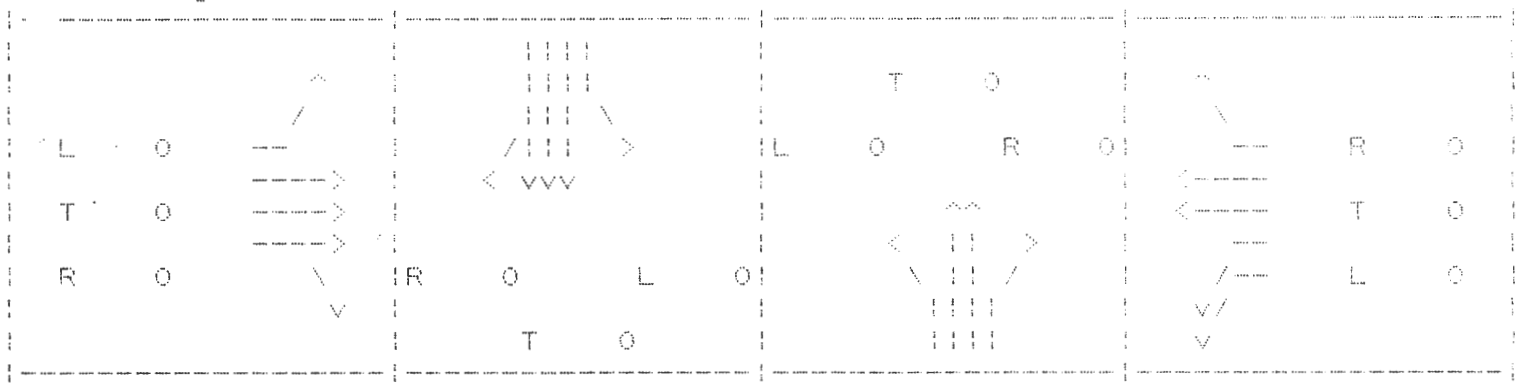
ROSECRANS/AVIATION

WITH CLOSURE
PM PEAK HOUR

3/8/89

Intersection: 3 AVIATION & ROSECRANS

Lane Configuration and Turn Volumes



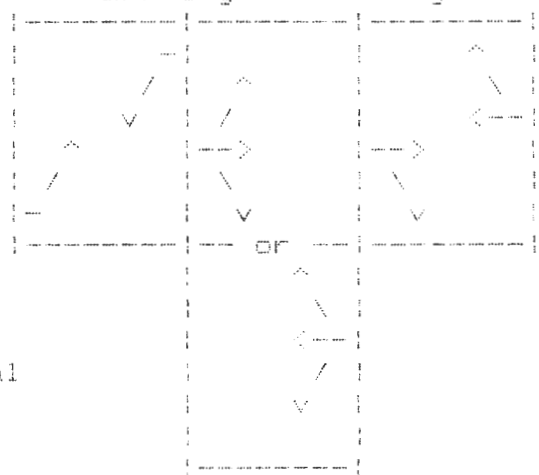
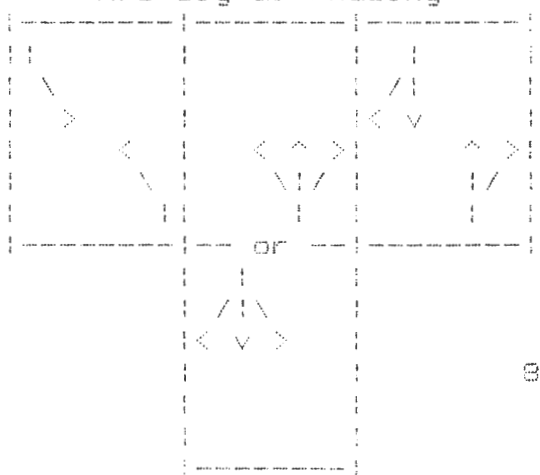
Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	0	
	T	2	0	0
	EXR	1	0	
SB	EXL	1	0	0
	TR	3	0	
EB	EXL	1	0	0
	TR	3	0	
WB	EXL	2	0	0
	T	2	0	
	EXR	1	0	
Total Critical Volume				0

Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	=	0
No of Critical Phases	=	4
Level of Service	=	A
Volume/Capacity	=	0.00

N/S Signal Phasing

E/W Signal Phasing



Program Licensed To: Kaku Associates

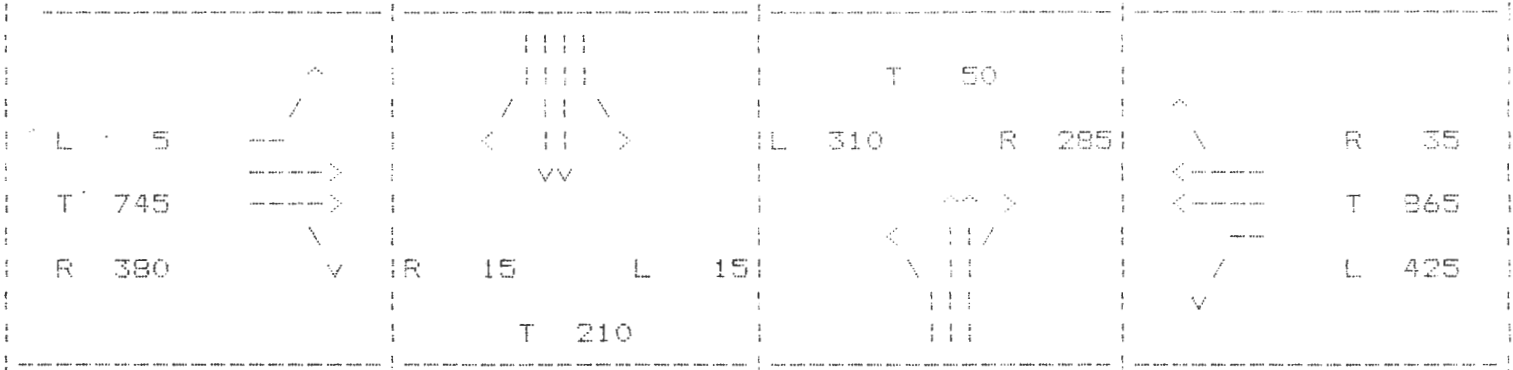
ROSECRANS/AVIATION

WITH CLOSURE
PM PEAK HOUR

3/8/89

Intersection: 4 AVIATION & COMPTON

Line Configuration and Turn Volumes

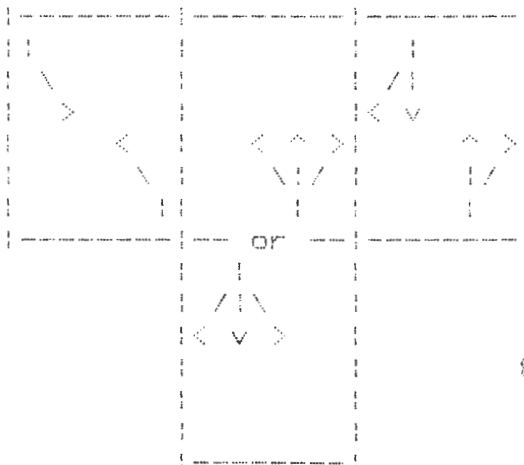


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	310	310
	T	1	50	
	R	1	285	
SB	EXL	1	15	105
	T	2	105	
	EXR	1	15	
EB	EXL	1	5	563
	TR	2	563	
WB	EXL	1	425	425
	TR	2	450	
Total Critical Volume				1403

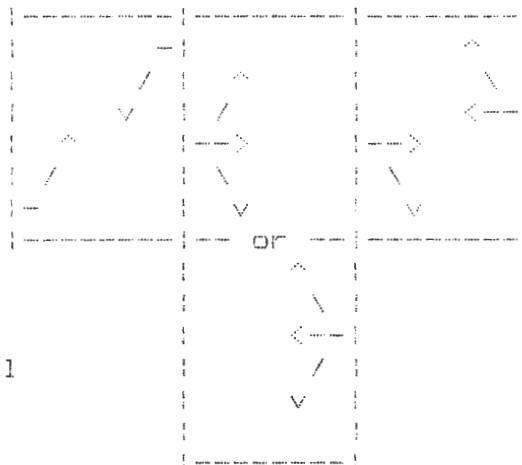
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1403
No of Critical Phases	= 4
Level of Service	= F
Volume/Capacity	= 1.02

N/S Signal Phasing



E/W Signal Phasing



8 Phase Signal

Program Licensed To: Kaku Associates

ROSECRANS/AVIATION

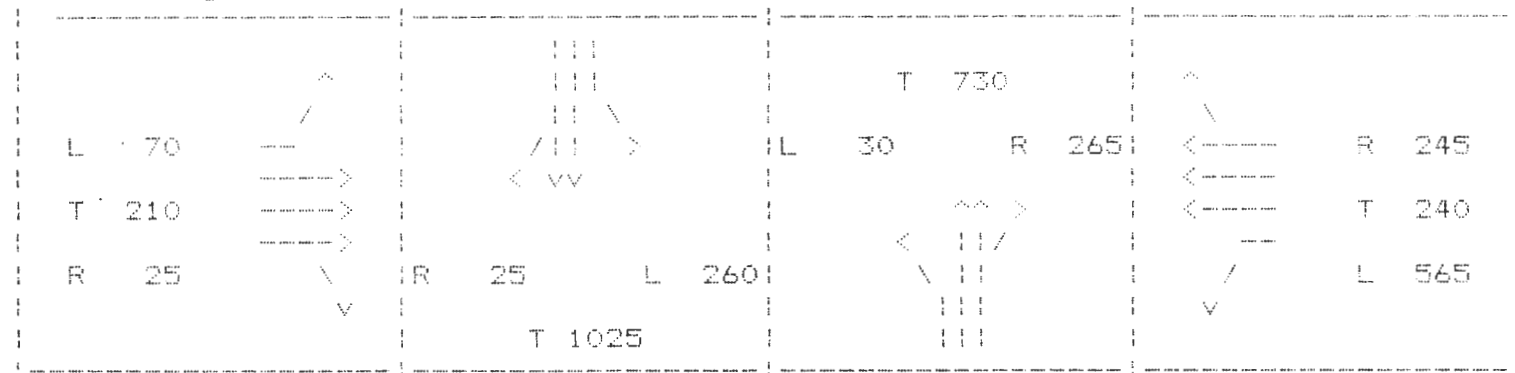
WITH CLOSURE

3/8/89

PM PEAK HOUR

Intersection: 5 INGLEWOOD & ROSECRANS

Line Configuration and Turn Volumes

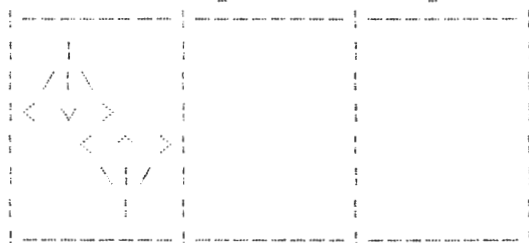


Appr	Lane Group	No of Lanes	Per Lane Volume	Critical Volume
NB	EXL	1	30	498
	TR	2	498	
SB	EXL	1	260	260
	TR	2	525	
EB	EXL	1	70	78
	TR	3	78	
WB	EXL	1	565	565
	T	2	120	
	R	1	245	
Total Critical Volume				1401

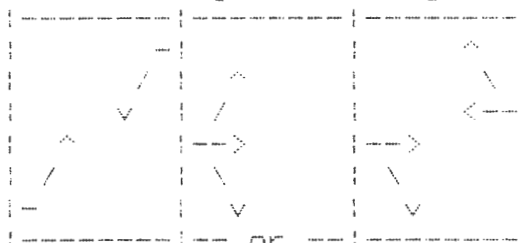
Maximum Total Critical Volumes			
Level of Service	Two Phase	Three Phase	Four Phase
A	900	855	825
B	1050	1000	965
C	1200	1140	1100
D	1350	1275	1225
E	1500	1425	1375
F	NA	NA	NA

Critical Volume	= 1401
No of Critical Phases	= 3
Level of Service	= E
Volume/Capacity	= 0.98

N/S Signal Phasing



E/W Signal Phasing



5 Phase Signal

or

