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Downtown Los Angeles

May 1972

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DEPARTMENT OF TRAFFIC
S. S. TAYLOR, City Traffic Engineer

CORDON

COUNTY

DOWNTOWN LOS ANGELES

MAY 1972

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DEPARTMENT OF TRAFFIC

S. S. TAYLOR, CITY TRAFFIC ENGINEER

ABSTRACT

Downtown Cordon Count Study

- The cordon count, as the name implies, is a study providing data on the volume of vehicles entering and leaving a cordoned area, in this instance the Downtown Business District of Los Angeles.
- For this cordon count, automatic machine counts supplemented by manual counts of vehicle type, occupancy and pedestrians provide the basic source of data. In addition, transit bus and passenger data are furnished by the Southern California Rapid Transit District.
- Summary data on the volume of vehicles and persons entering and leaving at each station on the perimeter of the cordon area and for the entire cordon area are derived through a computer program. This program also provides data on the number of vehicles and persons within the cordon area at half-hour intervals.
- Cordon counts of the Downtown area have been conducted annually since 1963. These historical cordon counts provide resource data for analysis of cordon area transportation trends.

Downtown Cordon Area Characteristics

- The area is slightly in excess of one square mile,
- Encompasses the most intensive and concentrated business district in Southern California and the major portion of the Civic Center,
- Is the regional focus for financial and governmental services for the metropolitan area of over 7,000,000 people, and
- Expands from a nighttime population of over 15,000 persons to a daytime population of nearly 150,000 people.

Summary Data - 1972 Cordon Count

- During the 16-hour study period, 6 AM to 10 PM, a total of 629,584 vehicles crossed the cordon boundaries at the 94 stations providing access for vehicles entering or leaving the cordon area. This represents an increase of 1,445 vehicles since the 1971 count.
- At the access stations, a total of 1,180,767 persons entered and left the cordon area during the 16-hour period. This represents an increase of 11,587 persons since the 1971 count.
- Of the total persons entering the cordon area, 65 per cent arrived in automobiles, 21 per cent in transit vehicles, 5 per cent in commercial vehicles (trucks) and the remainder, 9 per cent, entered on foot.

- At the peak accumulation period, 2 PM, there were approximately 59,000 vehicles and 140,000 persons within the cordon area.
- Approximately 30 per cent of the total vehicles crossing the cordon boundaries arrived or departed directly via the 3 freeways adjoining the cordon area.
- Existing volume demands during the afternoon peak hour on the total outbound stations along the north side of the cordon area are slightly in excess of the combined capacity for the roadway approaches involved.
- Along the west side of the cordon area, there is presently excess capacity on the outbound roadway stations during the afternoon peak hour to accommodate a future increased demand of 3,000 vehicle-trips.

Cordon Area Transportation Trends - 1963 to 1972

- Sixteen-hour volume of vehicles entering and leaving the cordon area increased at an average annual rate of 1.03 per cent, or an average increase of 6,000 vehicle-trips per year over the 9-year span.
- Volume of total persons crossing the cordon boundaries during the 16-hour study period declined at an average annual rate of 0.10 per cent, a decrease of approximately 10,000 person-trips in 1972 from 1963.
- Over the 9-year span, the number of vehicles accumulated within the cordon area increased at an average annual rate of 2.07 per cent, representing an average annual increase at the peak accumulation of 1,000 vehicles.
- Accumulation of persons within the cordon area at the peak period declined at an average annual rate of 0.97 per cent, a reduction of 14,000 persons in 1972 from 1963 at the peak accumulation period.

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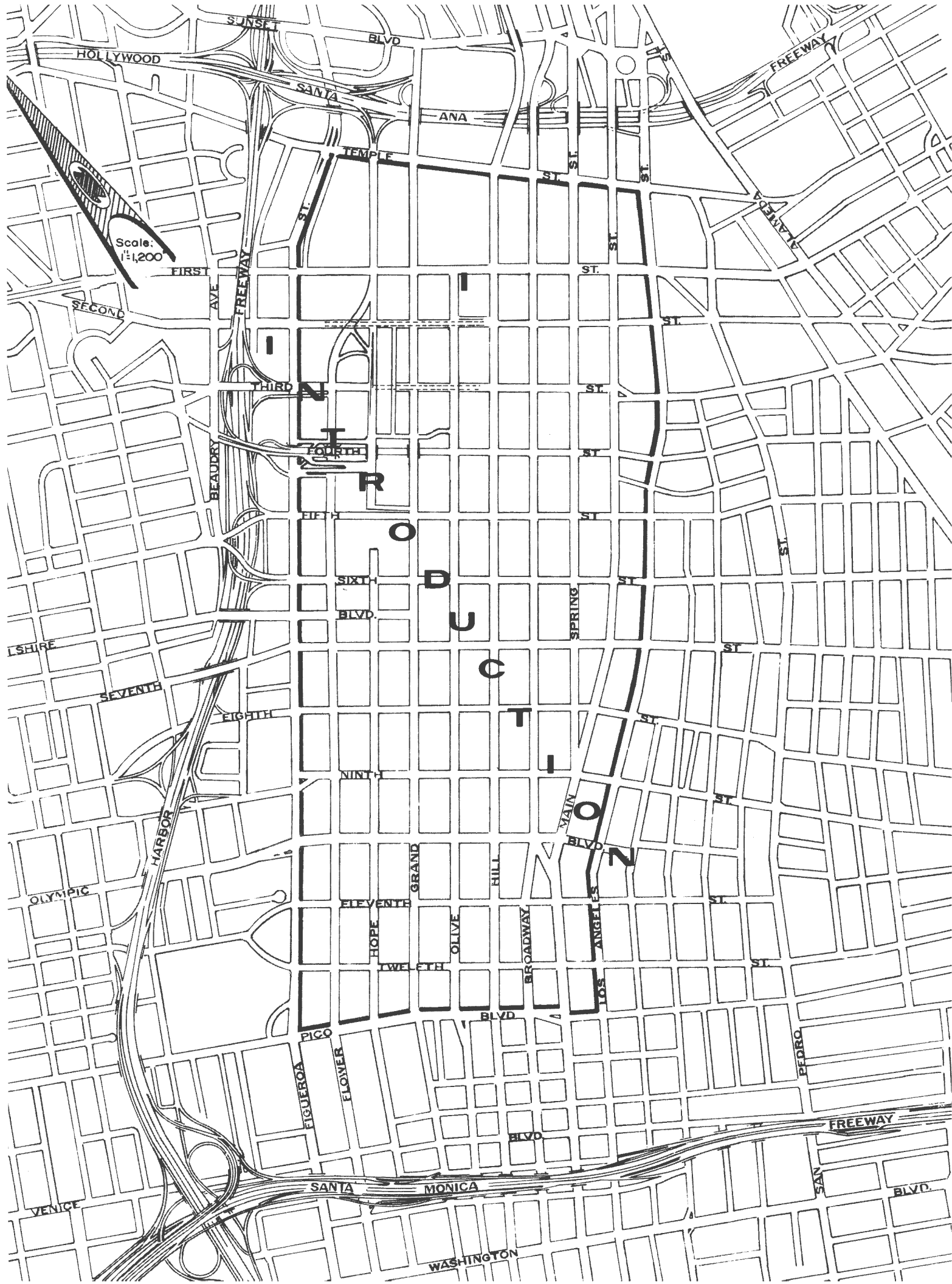
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Purpose of Study

The Department of Traffic conducts annual cordon counts of Downtown Los Angeles in order to provide data for traffic planning purposes.

This report represents the 1972 Cordon Count of Downtown Los Angeles for a typical 16-hour Wednesday in May, from 6 AM to 10 PM.

The cordon count study method provides statistical data on the magnitude of the daily influx of vehicles and persons into the Downtown area and of the concentration of each within the area.

Since 1963, the boundaries of the cordon area have been Temple Street, Los Angeles Street, Pico Boulevard and Figueroa Street. This cordon area, which encompasses the Central Business District, is slightly in excess of one square mile.

At the convergence of numerous intraregional transportation routes, for both private and public modes of travel, Downtown Los Angeles is readily accessible from all sections of the metropolitan region. The regional transportation routes traversing the cordon area serve trips with a destination beyond Downtown as well as trips destined for the Downtown area.

Changes in the intensity or type of land use development within the Downtown area or development of alternate routes have varying degrees of effect on the magnitude of cordon area vehicular- and person-trip volumes. Analysis of the historical cordon count data provides an indication of the relative effect of these conditions.

The historical cordon count data also provide a valuable resource for analysis in projections on future travel demand for the Downtown area.

Cordon Count Procedure

In 1963, a method of using automatic counters for cordon count data was developed and has been used in succeeding years. Machine counts are supplemented by manual sampling counts of vehicle type, occupancy, and pedestrians. Transit bus and passenger data are furnished by the Southern California Rapid Transit District.

Basic data on vehicle- and person-trips are processed by location and by half-hour periods. These data provide the primary source for the preparation of most of the tables and plates included and for comparison with previous cordon count studies.

The counts were made on successive Wednesdays in May. Counts at selected stations were also made to provide day-of-week volume comparisons.

Reference to the term "accumulation of vehicles (or persons) crossing cordon boundaries" refers to the number accumulated during the hours of the study, i.e., excludes initial vehicle or person accumulation prior to 6 AM. The term "accumulation" is the total number within the cordon area at any specific time. This total includes vehicles or persons within the area at the beginning of the study.

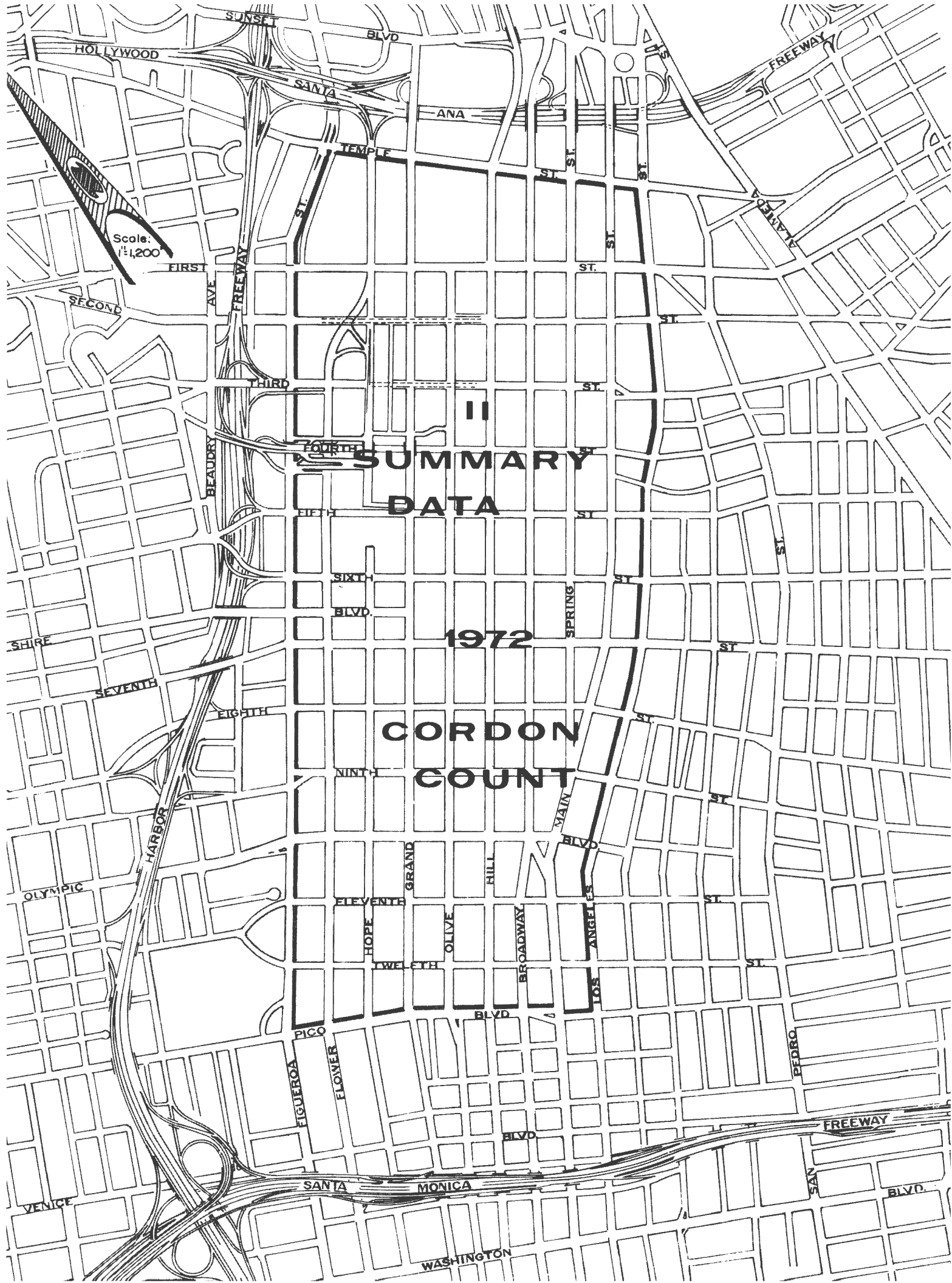
In 1955 and 1957, the cordon area included the area northerly and westerly to the Santa Ana and Harbor Freeways, respectively. The count in 1941 included only the additional area northerly to Sunset Boulevard.

Temporary closure of Temple Street between Los Angeles Street and Main Street for construction of the East Mall affected the volume demand on this station along the east boundary.

Affecting a change in travel characteristics in the cordon area for the initial cordon count in 1972 was the implementation of the mini-bus service by the Southern California Rapid Transit District (SCRTD). A fleet of 19 mini-buses began operation on October 18, 1971, serving the Civic Center and core areas during the off-peak traffic hours between 9 AM and 4 PM. This route required counts of mini-bus patrons entering and leaving the cordon area on Temple Street and First Street, respectively, at the east boundary.

The Convention Center was also completed and in operation prior to this cordon count. This primarily affected cordon volumes through the "Park and Ride" program instituted by the SCRTD in conjunction with the use of the parking facilities at the Convention Center.

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II SUMMARY DATA

1972

CORDON COUNT

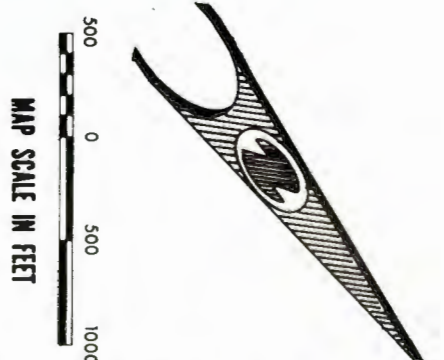
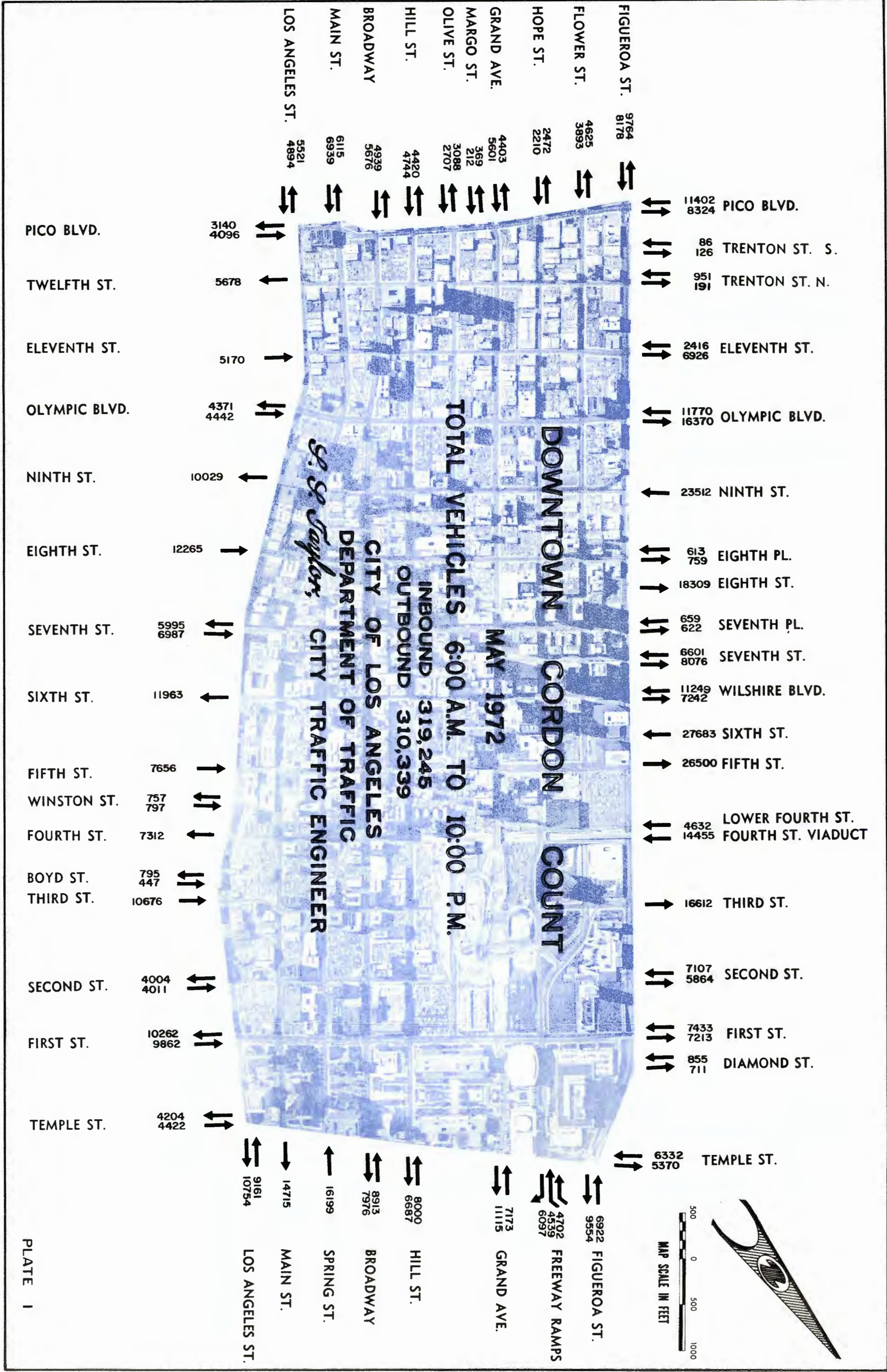


Table 1

Sixteen-Hour Summary

1972 Cordon Count Data

May, Wednesday

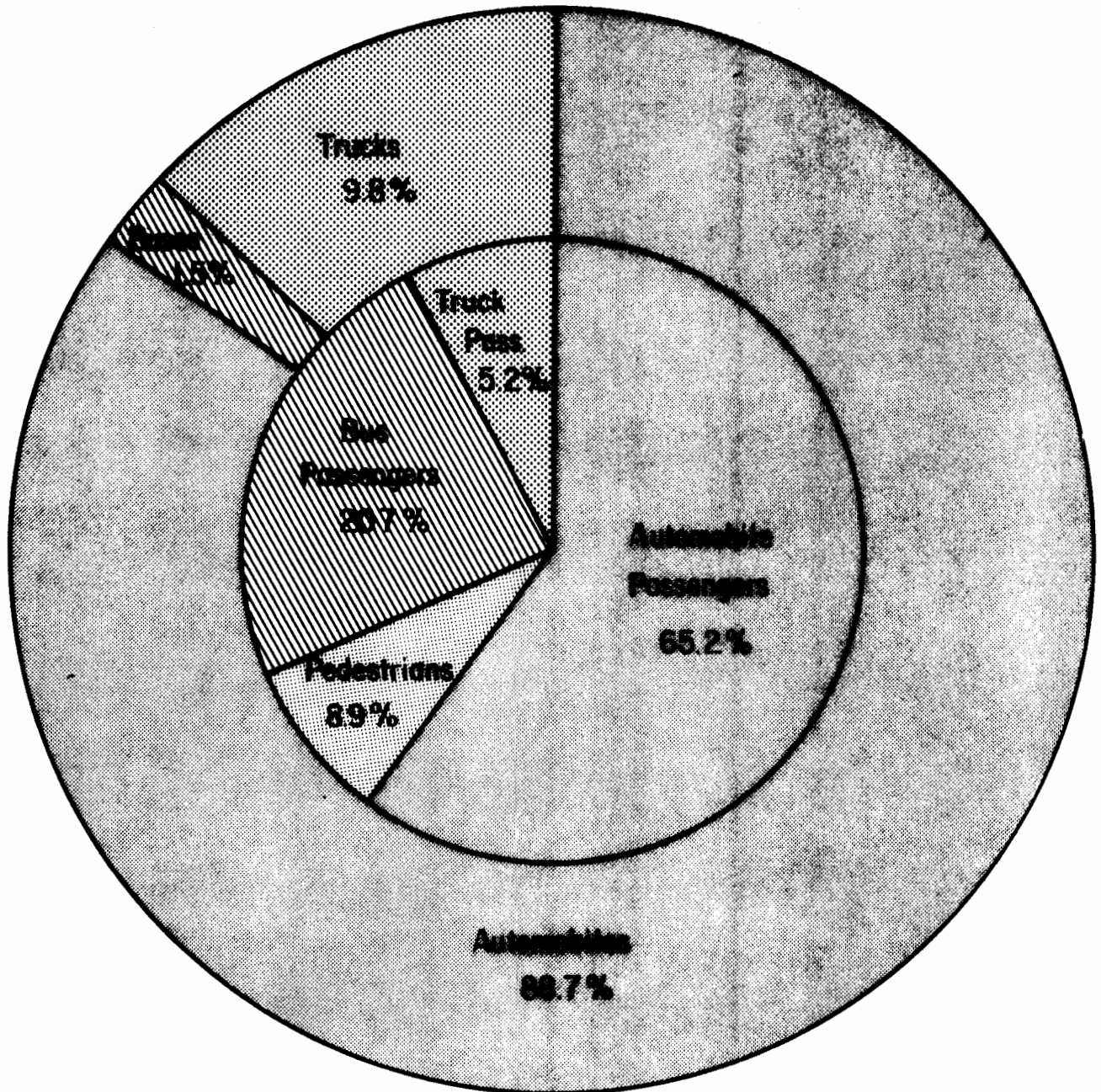
	<u>In</u>	<u>Out</u>
Passenger Cars	283,229	277,039
Trucks and Other Vehicles	31,354	28,669
Buses	<u>4,662</u>	<u>4,631</u>
Grand Total - Vehicles	319,245	310,339
Auto Passengers	389,768	377,295
Other Vehicle Passengers	31,354	28,669
Bus Passengers	124,226	125,801
Pedestrians	<u>53,325</u>	<u>50,329</u>
Grand Total - Persons	598,673	582,094

Day of Week Vehicle Factor

Monday	0.99
Tuesday	0.99
Wednesday*	1.00
Thursday	1.01
Friday	1.08
Saturday	0.64
Sunday	0.43

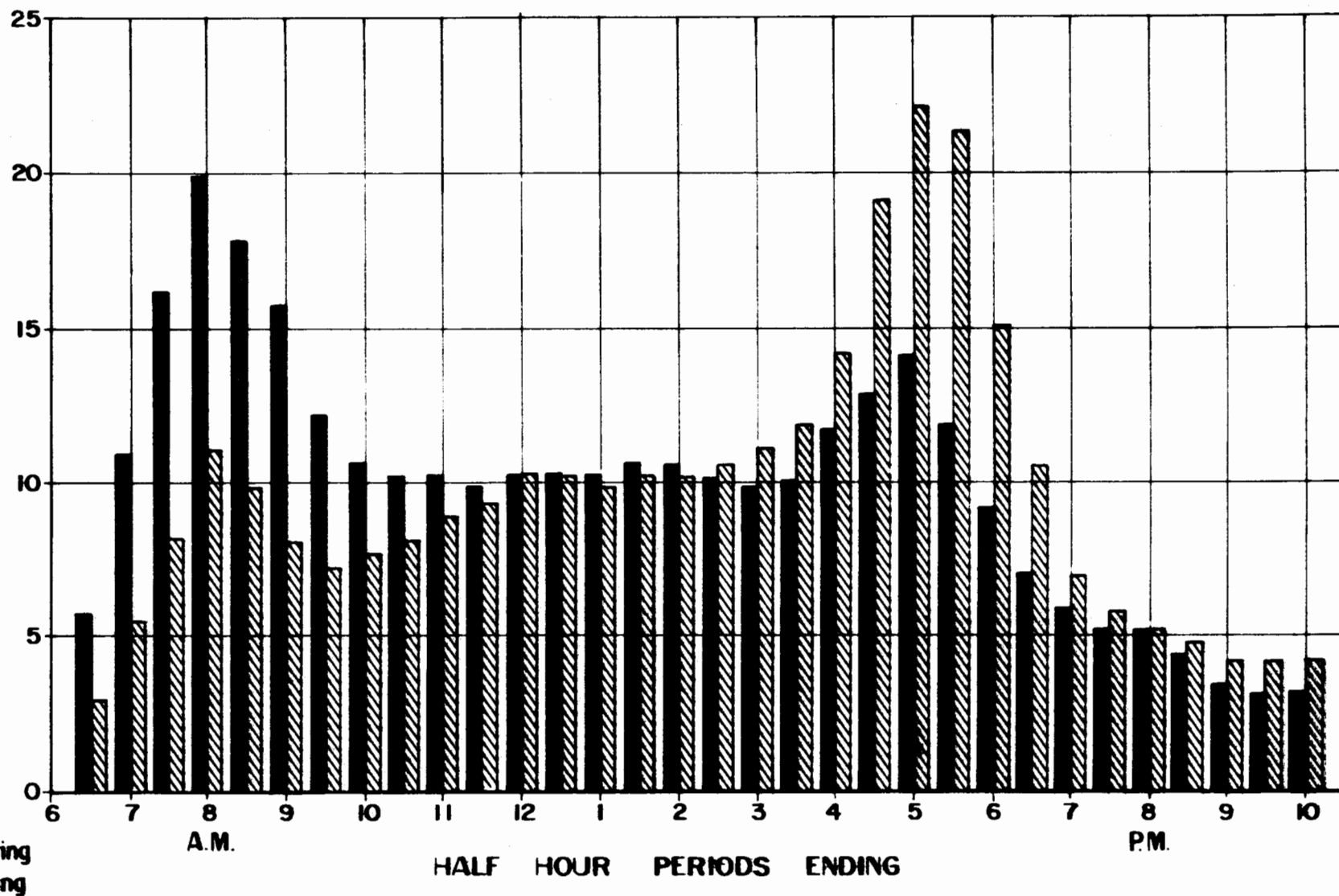
*Base

CLASSIFICATION OF VEHICLES AND MODE OF TRANSPORTATION ENTERING CORDON AREA



MAY 1972

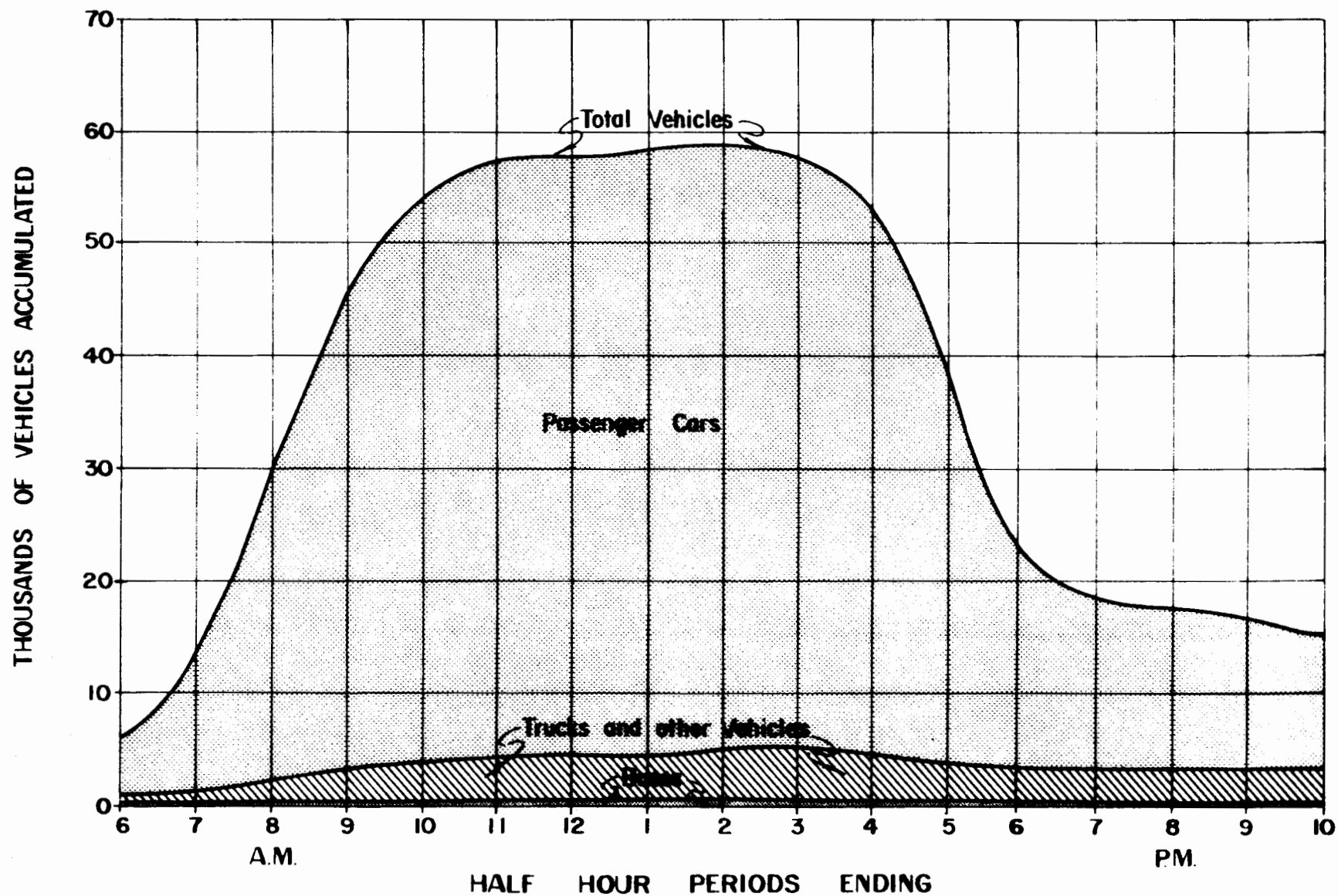
THOUSANDS OF VEHICLES ENTERING AND LEAVING



VEHICLES ENTERING AND LEAVING CORDON AREA, MAY 1972

City of Los Angeles
 DEPARTMENT OF TRAFFIC
 S. S. Taylor, City Traffic Eng.

PLATE
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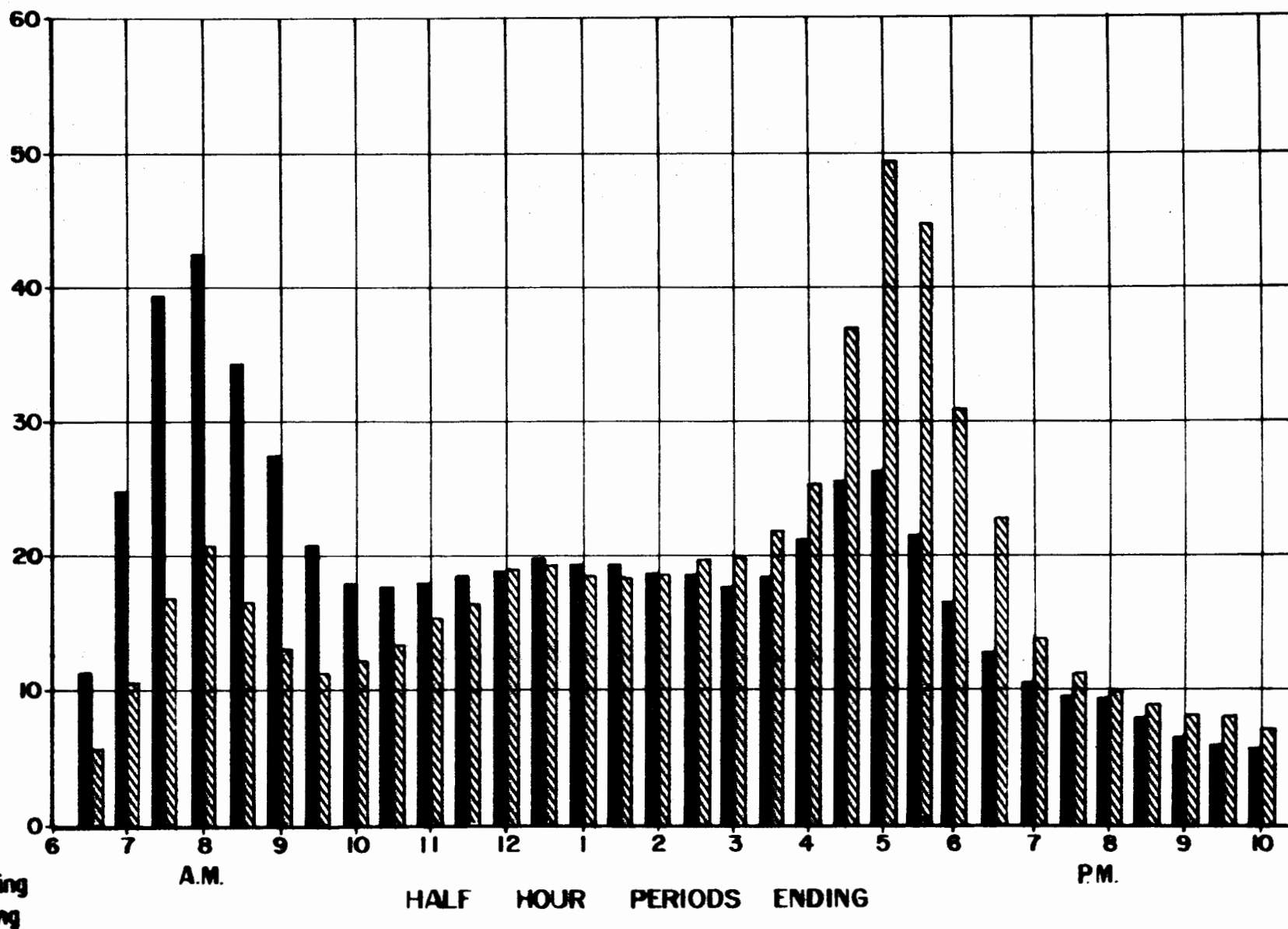


VEHICLES ACCUMULATED IN CORDON AREA, MAY 1972

City of Los Angeles
 DEPARTMENT OF TRAFFIC
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PLATE
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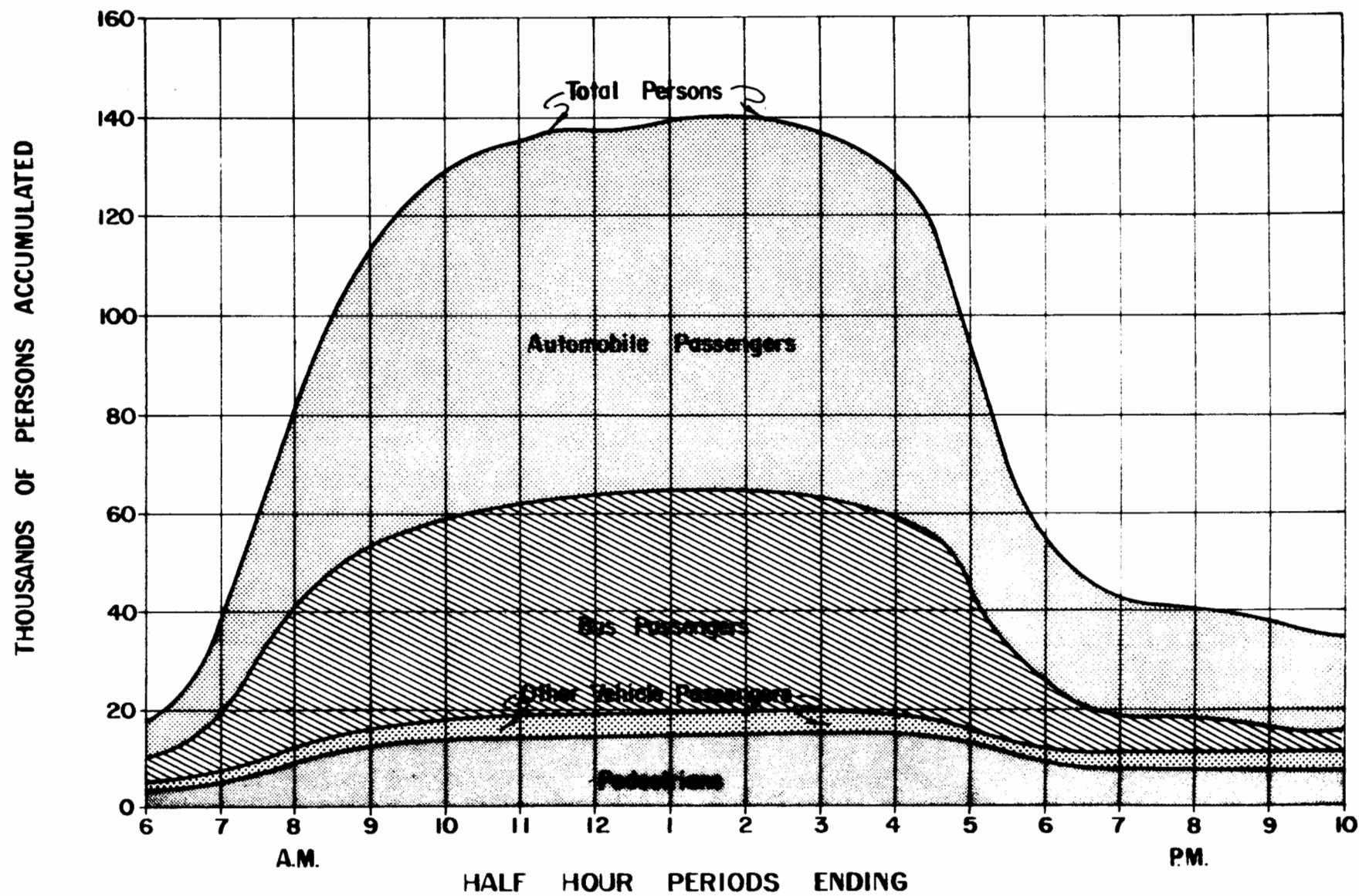
THOUSANDS OF PERSONS ENTERING AND LEAVING



PERSONS ENTERING AND LEAVING CORDON AREA, MAY 1972

City of Los Angeles
DEPARTMENT OF TRAFFIC
S. S. Taylor, City Traffic Engr

PLATE
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PERSONS ACCUMULATED IN CORDON AREA, MAY 1972

City of Los Angeles
DEPARTMENT OF TRAFFIC
S. S. Taylor, City Traffic Engr.

PLATE
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TABLE 2

SUMMARY OF VEHICLES BY LOCATION
DOWNTOWN LOS ANGELES, MAY 1972, 6AM - 10PM

	PASSENGER CARS		TRUCKS AND OTHER VEHICLES		BUSES		TOTAL VEHICLES	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
EAST BOUNDARY								
EAST OF LOS ANGELES ST. ON								
TEMPLE ST.	3649	3967	464	237	109	0	4422	4204
1ST ST.	8792	9160	805	725	265	377	9862	10262
2ND ST.	3668	3628	343	376	0	0	4011	4004
3RD ST.	9241	0	1364	0	71	0	10676	0
BOYD ST.	447	795	0	0	0	0	447	795
4TH ST.	0	6354	0	882	0	76	0	7312
WINSTON ST.	792	757	0	0	0	0	792	757
5TH ST.	6439	0	1040	0	177	0	7656	0
6TH ST.	0	10513	0	1120	0	330	0	11963
7TH ST.	5850	4953	783	792	354	250	6987	5995
8TH ST.	10810	0	1206	0	249	0	12265	0
9TH ST.	0	8351	0	1496	0	182	0	10029
OLYMPIC BLVD.	3960	4006	482	365	0	0	4442	4371
11TH ST.	4208	0	885	0	77	0	5170	0
12TH ST.	0	4799	0	814	0	65	0	5678
PICO BLVD.	3614	2615	482	525	0	0	4096	3140
SUB TOTAL	61670	59898	7854	7332	1302	1280	70826	68510
SOUTH BOUNDARY								
SOUTH OF PICO BLVD. ON								
LOS ANGELES ST.	4209	4756	685	765	0	0	4894	5521
MAIN ST.	5708	4978	1030	945	201	192	6939	6115
BROADWAY	5065	4216	408	534	203	189	5676	4939
HILL ST.	4288	3919	347	399	109	102	4744	4420
OLIVE ST.	2340	2714	333	340	34	34	2707	3088
MARGO ST.	212	369	0	0	0	0	212	369
GRAND AVE.	5042	3859	471	457	88	87	5601	4403
HOPE ST.	1961	2104	349	368	0	0	2210	2472
FLOWER ST.	3026	3708	742	775	125	142	3893	4625
FIGUEROA ST.	7413	8887	699	812	66	65	8178	9764
SUB TOTAL	39164	39510	5064	5395	826	811	45054	45716
WEST BOUNDARY								
WEST OF FIGUEROA ST. ON								
PICO BLVD.	9751	7382	1453	772	201	170	11402	8324
TRENTON ST. SOUTH	86	126	0	0	0	0	86	126
TRENTON ST. NORTH	951	191	0	0	0	0	951	191
11TH ST.	1706	6208	710	704	0	14	2416	6926
OLYMPIC BLVD.	10855	15130	786	1101	129	139	11770	16370
9TH ST.	21538	0	1929	0	45	0	23512	0
8TH PLACE	613	759	0	0	0	0	613	759
8TH ST.	0	17191	0	1074	0	44	0	18309
7TH PLACE	659	622	0	0	0	0	659	622
7TH ST.	5973	7341	459	560	169	175	6601	8076
WILSHIRE BLVD.	9856	6355	1227	714	166	173	11249	7242
HARBOR FWY OFF RAMP	18452	0	1078	0	0	0	19530	0
6TH ST.	7054	0	843	0	256	0	8153	0
5TH ST.	0	24272	0	1998	0	230	0	26500
LOWER 4TH ST.	4139	0	493	0	0	0	4632	0
4TH ST. VIADUCT	13257	0	1198	0	0	0	14455	0
3RD ST.	0	15172	0	1440	0	0	0	16612
2ND ST.	6472	5502	635	362	0	0	7107	5864
1ST ST.	6814	6607	499	494	120	112	7433	7213
DIAMOND ST.	855	711	0	0	0	0	855	711
TEMPLE ST.	5130	4394	993	771	209	205	6332	5370
SUB TOTAL	124161	117963	12300	9990	1295	1262	137756	129215
NORTH BOUNDARY								
NORTH OF TEMPLE ST. ON								
FIGUEROA ST.	6531	8966	356	551	35	37	6922	9554
HARBOR FWY OFF RAMP	4313	0	389	0	0	0	4702	0
HOLLYWOOD FWY RAMPS	3832	0	587	0	120	0	4539	0
HOLLYWOOD FWY RAMPS	0	5469	0	528	0	0	0	6097
GRAND AVE.	6300	10219	677	564	196	332	7173	11115
HILL ST.	7502	6398	488	278	10	11	8000	6687
BROADWAY	7103	6026	1476	1613	334	337	8913	7976
SPRING ST.	14372	0	1283	0	544	0	16199	0
MAIN ST.	0	12888	0	1266	0	561	0	14715
LOS ANGELES ST.	8281	9702	880	1052	0	0	9161	10754
SUB TOTAL	58234	59668	6136	5952	1239	1278	65609	66898
GRAND TOTAL	283229	277039	31354	28669	4662	4631	319245	310339

TABLE 3

SUMMARY OF PERSONS BY LOCATION
DOWNTOWN LOS ANGELES, MAY 1972, 6AM - 10PM

		AUTO PASSENGERS		PASSENGERS IN OTHER VEHICLES		BUS PASSENGERS		PEDESTRIANS		TOTAL PERSONS	
		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
EAST BOUNDARY											
EAST OF LOS ANGELES ST. ON											
TEMPLE ST.		5526	5481	464	237	317	0	1769	1650	8076	7368
1ST ST.		12774	12815	805	725	5657	6009	3402	3537	22638	23086
2ND ST.		5345	5008	343	376	0	0	1084	1069	6772	6453
3RD ST.		13191	0	1364	0	1242	0	542	584	16339	584
BOYD ST.		620	1046	0	0	0	0	695	640	1315	1686
4TH ST.		0	8643	0	882	0	1081	862	916	862	11522
WINSTON ST.		1126	1093	0	0	0	0	1290	1566	2416	2659
5TH ST.		9389	0	1040	0	4295	0	2550	2390	17274	2390
6TH ST.		0	15804	0	1120	0	7604	3947	4184	3947	28712
7TH ST.		8433	7362	783	792	10146	8240	2112	2432	21474	18826
8TH ST.		15569	0	1206	0	5391	0	2507	2042	24673	2042
9TH ST.		0	12284	0	1496	0	5469	3189	3209	3189	22458
OLYMPIC BLVD.		5267	5347	482	365	0	0	437	481	6186	6193
11TH ST.		5569	0	885	0	1640	0	491	541	8585	541
12TH ST.		0	6522	0	814	0	1572	498	717	498	9625
PICO BLVD.		4784	3494	482	525	0	0	370	388	5636	4407
SUB TOTAL		87593	84899	7854	7332	28688	29975	25745	26346	149880	148552
SOUTH BOUNDARY											
SOUTH OF PICO BLVD. ON											
LOS ANGELES ST.		5736	6194	685	765	0	0	302	284	6723	7243
MAIN ST.		7774	6468	1030	945	5397	5321	472	428	14673	13162
BROADWAY		6985	5576	408	534	6493	6872	1128	849	15014	13831
HILL ST.		5690	5592	347	399	3051	2908	1005	898	10093	9797
OLIVE ST.		3068	4026	333	340	464	517	257	238	4122	5121
MARGO ST.		278	468	0	0	0	0	0	0	278	468
GRAND AVE.		6935	5156	471	457	2030	2064	324	311	9760	7988
HOPE ST.		2593	2776	349	368	0	0	760	731	3702	3875
FLOWER ST.		4123	4891	742	775	3878	3692	506	456	9249	9814
FIGUEROA ST.		10314	11838	699	812	1682	1838	302	347	12997	14835
SUB TOTAL		53496	52985	5064	5395	22995	23212	5056	4542	86611	86134
WEST BOUNDARY											
WEST OF FIGUEROA ST. ON											
PICO BLVD.		13087	9445	1450	772	6745	6315	626	680	21908	17212
TRENTON ST. SOUTH		109	152	0	0	0	0	32	51	141	203
TRENTON ST. NORTH		1240	228	0	0	0	0	319	408	1559	636
11TH ST.		2273	7872	710	704	0	291	109	143	3092	9010
OLYMPIC BLVD.		14356	19278	786	1101	3538	3518	494	484	19174	24381
9TH ST.		28492	0	1929	0	624	0	785	697	31830	697
8TH PLACE		796	914	0	0	0	0	242	287	1038	1201
8TH ST.		0	21893	0	1074	0	681	791	883	791	24531
7TH PLACE		924	879	0	0	0	0	612	504	1536	1383
7TH ST.		8555	10782	459	560	5939	6216	3483	2188	18436	19746
WILSHIRE BLVD.		14157	9208	1227	714	4709	5650	2842	2329	22935	17901
HARBOR FWY OFF RAMP		26236	0	1078	0	0	0	0	0	27314	0
6TH ST.		10158	0	843	0	7876	0	883	865	19760	865
5TH ST.		0	35884	0	1998	0	8041	630	634	630	46557
LOWER 4TH ST.		5785	0	493	0	0	0	93	64	6371	64
4TH ST. VIADUCT		18527	0	1198	0	0	0	6	7	19731	7
3RD ST.		0	20831	0	1440	0	0	36	67	36	22338
2ND ST.		9170	7531	635	362	0	0	98	140	9903	8033
1ST ST.		9617	9142	499	494	3687	3504	391	404	14194	13544
DIAMOND ST.		1185	988	0	0	0	0	0	0	1185	988
TEMPLE ST.		7165	6003	993	771	5496	5622	400	309	14054	12705
SUB TOTAL		171832	161030	12300	9990	38614	39838	12872	11144	235618	222002
NORTH BOUNDARY											
NORTH OF TEMPLE ST. ON											
FIGUEROA ST.		8640	11677	356	551	804	865	109	90	9909	13183
HARBOR FWY OFF RAMP		5710	0	389	0	0	0	0	0	6099	0
HOLLYWOOD FWY RAMPS		5059	0	587	0	3477	0	0	0	9123	0
HOLLYWOOD FWY RAMPS		0	7055	0	628	0	0	0	0	0	7683
GRAND AVE.		8333	13203	677	564	5923	9447	382	415	15315	23629
HILL ST.		9656	7870	488	278	293	308	989	795	11426	9251
BROADWAY		9210	7575	1476	1513	9527	8981	825	1023	21038	19192
SPRING ST.		19267	0	1283	0	13905	0	2082	1829	36537	1829
MAIN ST.		0	17642	0	1266	0	13175	1121	1065	1121	33148
LOS ANGELES ST.		10972	13359	880	1052	0	0	4144	3080	15996	17491
SUB TOTAL		76847	78381	6136	5952	33929	32776	9652	8297	126564	125406
GRAND TOTAL		389768	377295	31354	28669	124226	125801	53325	50329	598673	582094

TABLE 4
SUMMARY OF VEHICLES BY HALF HOUR PERIODS
DOWNTOWN LOS ANGELES, MAY 1972
6AM - 10PM

TIME PERIOD ENDING	PASSENGER CARS			TRUCKS OTHER VEHICLES			BUSES			TOTAL VEHICLES		
	IN	OUT	ACCUM	IN	OUT	ACCUM	IN	OUT	ACCUM	IN	OUT	ACCUM
			5400			500			100			6000
630	4894	2483	7811	658	354	804	113	106	107	5665	2943	8722
700	9729	4782	12757	1005	593	1216	191	142	156	10924	5517	14129
730	14725	7918	19564	1168	737	1647	288	181	263	16181	8836	21474
800	18554	10180	27938	1100	746	2001	273	224	312	19927	11150	30251
830	16524	8910	35552	1188	859	2330	233	190	355	17945	9959	38237
900	14213	6969	42796	1352	955	2727	180	156	379	15745	8080	45902
930	10764	6123	47437	1380	1067	3040	147	151	375	12291	7341	50852
1000	9151	6490	50098	1381	1085	3336	126	125	376	10658	7700	53810
1030	8747	6965	51980	1379	1063	3652	128	140	364	10254	8168	55896
1100	8676	7547	53009	1446	1251	3847	129	122	371	10251	8920	57227
1130	8415	8102	53322	1362	1145	4064	132	137	366	9909	9384	57752
1200	8865	9081	53106	1317	1180	4201	127	133	360	10309	10394	57667
1230	9096	9951	53241	1152	1163	4190	128	134	354	10366	10248	57785
1300	9034	8792	53483	1216	1038	4368	130	131	353	10380	9961	58204
1330	9093	8348	53628	1383	1160	4591	129	137	345	10605	10245	58564
1400	9080	9067	53641	1306	1097	4800	127	124	348	10513	10288	58789
1430	8773	9259	53155	1338	1255	4883	149	139	358	10260	10653	58396
1500	8528	9532	52151	1272	1472	4683	151	138	371	9951	11142	57205
1530	8622	10060	50713	1283	1591	4375	170	161	380	10075	11812	55468
1600	10318	12365	48666	1200	1677	3898	191	159	412	11709	14201	52976
1630	11583	17485	42764	1187	1462	3623	208	208	412	12978	19155	46799
1700	12735	20575	34924	1124	1306	3441	210	301	321	14069	22182	38686
1730	10799	20063	25659	911	1036	3316	193	285	229	11902	21384	29204
1800	8442	14247	19854	618	719	3215	165	225	169	9225	15191	23238
SUB TOTAL	249348	234894		28726	26011		4018	3949		282092	264854	
1830	6123	9865	16112	561	561	3215	128	173	124	6812	10599	19451
1900	5284	6461	14935	465	414	3266	113	112	125	5862	6987	18326
1930	4659	5252	14342	360	353	3273	84	96	113	5103	5701	17728
2000	4795	4760	14377	329	284	3318	69	61	121	5193	5105	17816
2030	4068	4351	14094	253	290	3281	82	75	128	4403	4716	17503
2100	3096	3791	13399	254	263	3272	63	62	129	3413	4116	16800
2130	2975	3861	12513	181	252	3201	55	54	130	3211	4167	15844
2200	2881	3804	11590	225	241	3185	50	49	131	3156	4094	14906
SUB TOTAL	33881	42145		2628	2658		644	682		37153	45485	
GRAND TOTAL	283229	277039		31354	28669		4662	4631		319245	310339	

TABLE 5

SUMMARY OF PERSONS BY HALF HOUR PERIODS

DOWNTOWN LOS ANGELES, MAY 1972

6AM - 10PM

TIME PERIOD ENDING	AUTO PASSENGERS			PASSENGERS IN OTHER VEHICLES			BUS PASSENGERS			PEDESTRIANS			TOTAL PERSONS		
	IN	OUT	ACCUM	IN	OUT	ACCUM	IN	OUT	ACCUM	IN	OUT	ACCUM	IN	OUT	ACCUM
			7000			500			5500			4000			17000
630	6469	3066	10403	658	354	804	3838	1728	7610	583	302	4281	11548	5450	23098
700	13287	5720	17970	1005	593	1216	8615	3503	12725	1741	706	5316	24648	10519	37227
730	20296	10171	28095	1168	737	1647	13894	4441	22178	3926	1558	7684	39284	16907	59604
800	25053	12425	40723	1100	746	2001	12369	5664	28883	3911	2046	9549	42433	20881	81156
830	21059	10882	50900	1188	859	2330	8769	3278	34374	3176	1393	11332	34192	16412	98936
900	18130	8671	60359	1352	955	2727	5612	2331	37655	2158	1145	12345	27252	13102	113086
930	13679	7403	66635	1380	1067	3040	4084	1705	40033	1716	1278	12783	20859	11454	122491
1000	11667	8265	70037	1381	1085	3336	3141	1625	41549	1676	1277	13182	17865	12252	128104
1030	11338	9318	72057	1379	1063	3652	3313	1775	43087	1645	1314	13513	17675	13470	132309
1100	11206	10225	73038	1446	1251	3847	3338	2035	44390	1826	1529	13810	17816	15040	135085
1130	11859	11013	73884	1362	1145	4064	3297	2437	45250	1772	1530	14052	18290	16125	137250
1200	11958	13024	72818	1317	1180	4201	3047	2535	45762	2262	2228	14086	18584	18967	136867
1230	12666	12329	73155	1152	1163	4190	2953	2800	45915	2858	2718	14226	19629	19010	137486
1300	12938	12032	74061	1216	1038	4368	2880	2910	45885	2441	2356	14311	19475	18336	138625
1330	13046	12227	74880	1383	1160	4591	2899	2958	45826	2081	2074	14318	19409	18419	139615
1400	12861	12517	75224	1306	1097	4800	2713	3167	45372	1789	1774	14333	18669	18555	139729
1430	12516	13413	74327	1338	1255	4883	3189	3602	44959	1519	1516	14336	18562	19786	138505
1500	11736	12803	73260	1272	1472	4683	3141	4095	44005	1423	1494	14265	17572	19864	136213
1530	11744	13968	71036	1283	1591	4375	3812	4657	43160	1427	1744	13948	18266	21960	132519
1600	13834	15936	68934	1200	1677	3898	4455	5772	41843	1709	1905	13752	21198	25290	128427
1630	16125	23418	61641	1187	1462	3623	5520	8549	38814	2547	3374	12925	25379	36803	117003
1700	17068	28611	50098	1124	1306	3441	5050	14503	29361	2614	4778	10761	25856	49198	93661
1730	14856	27067	37887	911	1036	3316	4079	13182	20258	1604	3412	8953	21450	44697	70414
1800	11900	19323	30464	618	719	3215	2723	9115	13865	1049	1804	8198	16290	30962	55742
SUB TOTAL	337291	313827		28726	26011		116731	108366		49453	45255		532201	493459	
1830	9330	14105	25689	561	561	3215	2135	6717	9283	719	1307	7610	12745	22690	45797
1900	7548	9097	24140	465	414	3266	1731	3200	7814	617	843	7384	10361	13554	42604
1930	7526	7965	23701	360	353	3273	899	2269	6444	545	643	7286	9330	11230	40704
2000	7842	7657	23886	329	284	3318	665	1372	5737	482	515	7253	9318	9828	40194
2030	6409	6676	23619	253	290	3281	622	1134	5225	505	543	7215	7789	8643	39340
2100	4866	6085	22400	254	263	3272	513	1054	4684	390	516	7089	6023	7918	37445
2130	4511	6217	20694	181	252	3201	547	1002	4229	311	382	7018	5550	7853	35142
2200	4445	5666	19473	225	241	3185	383	687	3925	303	325	6996	5356	6919	33579
SUB TOTAL	52477	63468		2628	2658		7495	17435		3872	5074		66472	88635	
GRAND TOTAL	389768	377295		31354	28669		124226	125801		53325	50329		598673	582094	

Table 6

Comparison of Total Vehicle and Passenger Car
Statistics, Downtown Los Angeles, Selected Years

CORDON COUNT

		<u>1941</u>	<u>1957</u>	<u>1963</u>	<u>1967</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
16-Hour	Total	-	327,046	291,506	289,882	316,139	320,437	319,245
Total In	Pass. Cars	288,000	283,097	253,731	253,203	282,136	283,688	283,229
16-Hour	Total	-	323,624	285,970	276,164	306,626	307,702	310,339
Total Out	Pass. Cars	-	278,224	247,836	242,649	274,857	273,955	277,039
High	Total	18,500	22,077	19,267	20,345	21,164	20,378	19,927
1/2-Hour In	Pass. Cars	-	20,402	16,870	18,891	19,892	19,035	18,554
Same	Total	12,000	12,689	10,912	9,735	10,286	10,663	11,150
1/2-Hour Out	Pass. Cars	-	11,202	9,349	8,782	9,395	9,633	10,180
High	Total	20,500	22,760	19,730	20,488	21,724	22,191	22,182
1/2-Hour Out	Pass. Cars	-	20,884	17,176	18,959	20,431	20,730	20,575
Same	Total	13,500	15,602	12,898	12,099	13,611	13,833	14,069
1/2-Hour In	Pass. Cars	-	13,876	11,131	10,758	12,289	12,408	12,735
Highest Veh.	Total	49,000	48,306	-	62,100	61,251	61,047	58,789
Accum. Incl.	Pass. Cars	-	46,007	-	57,470	57,651	56,793	53,641
Initial								

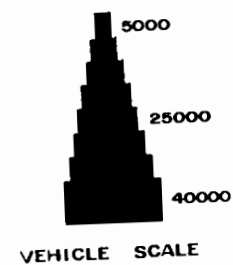
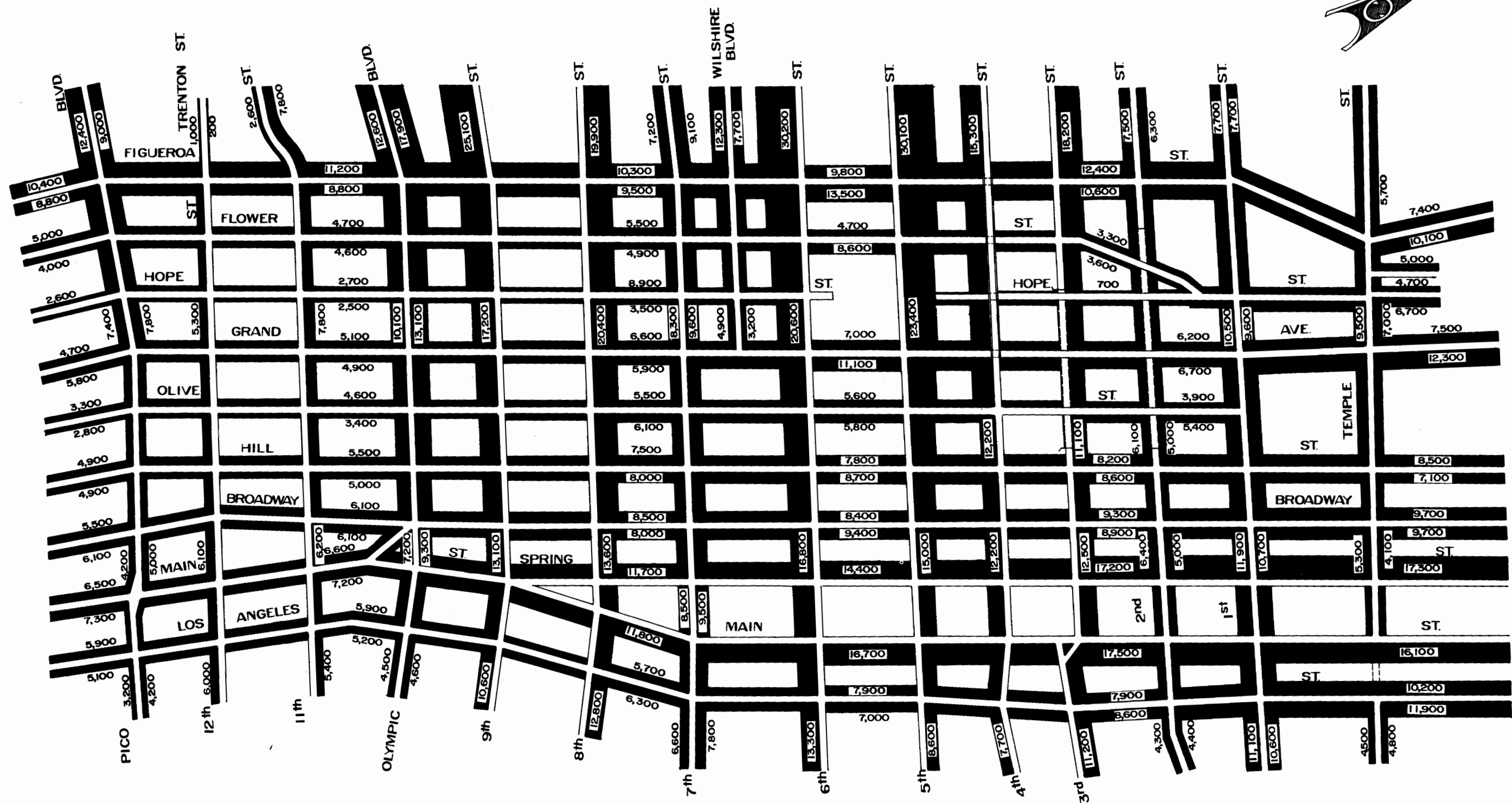
Table 7

Comparison of Total Person and Auto Passenger
Statistics, Downtown Los Angeles, Selected Years

CORDON COUNT

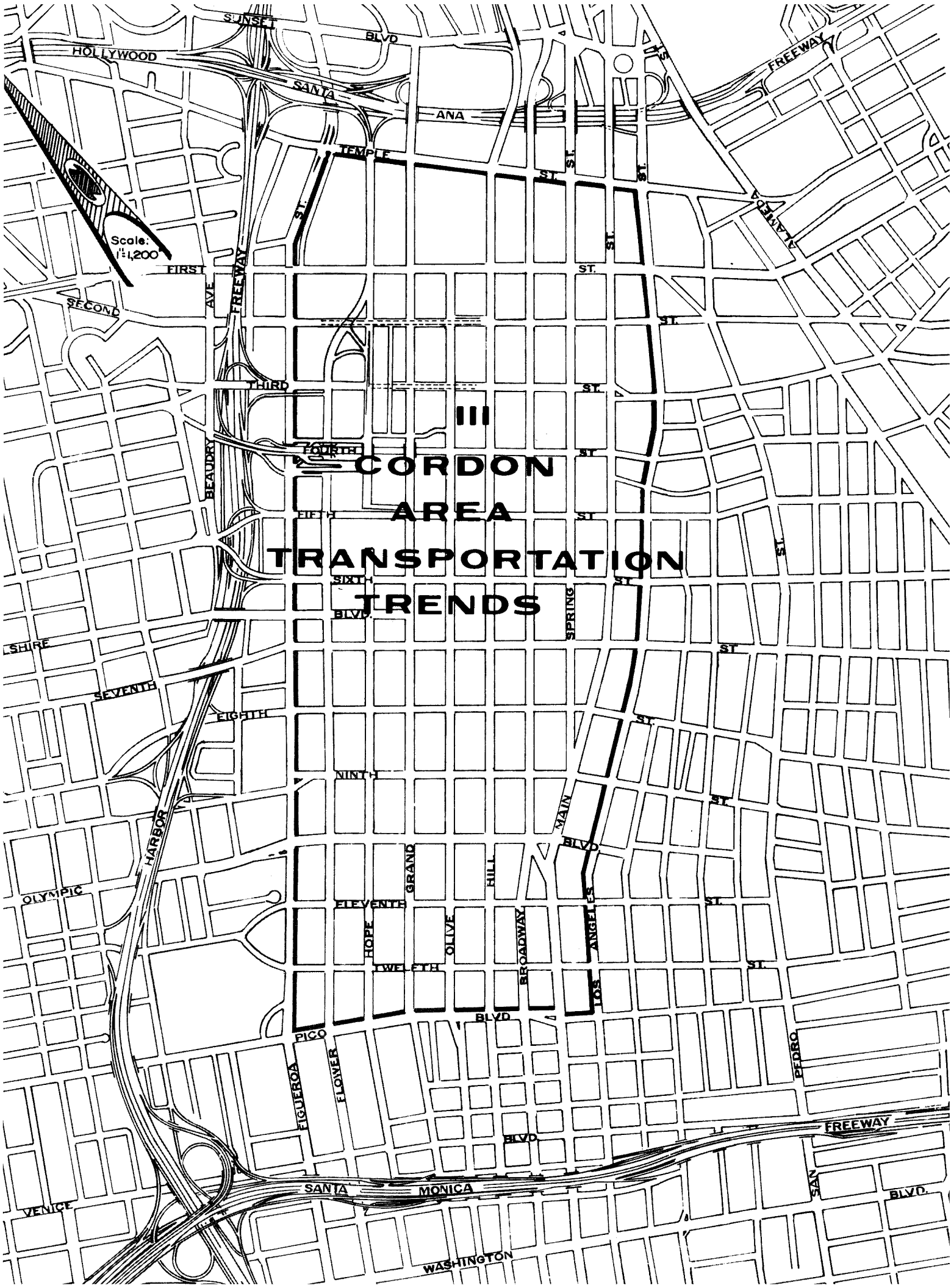
		<u>1941</u>	<u>1957</u>	<u>1963</u>	<u>1967</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
16-Hour	Persons	757,120	687,906	605,730	570,928	617,742	590,983	598,673
Total In	Auto Pass.	441,647	403,015	368,844	350,323	391,902	375,526	389,768
	% Auto Passengers	58	59	61	61	63	63	65
16-Hour	Persons	723,191	692,195	589,964	459,977	601,558	578,197	582,094
Total Out	Auto Pass.	415,403	402,399	355,152	337,627	377,143	362,299	377,295
	% Auto Passengers	57	58	60	61	63	63	65
High	Persons	50,161	59,411	50,922	50,673	46,235	42,622	42,433
1/2-Hour In	Auto Pass.	25,982	31,247	27,505	28,630	27,244	24,464	25,053
	% Auto Passengers	52	53	54	57	59	58	59
Same	Persons	26,298	28,010	20,825	18,914	20,137	19,242	20,881
1/2-Hour Out	Auto Pass.	14,499	17,100	11,608	11,003	11,327	11,176	12,425
	% Auto Passengers	55	61	56	58	56	58	59
High	Persons	61,710	61,592	47,588	48,994	50,414	49,271	49,198
1/2-Hour Out	Auto Pass.	31,558	31,362	27,167	28,506	29,015	28,551	28,611
	% Auto Passengers	51	51	57	58	58	58	58
Same	Persons	29,629	29,888	26,519	19,253	26,481	25,889	25,856
1/2-Hour In	Auto Pass.	18,160	19,201	15,973	12,180	16,610	16,338	17,068
	% Auto Passengers	61	64	60	63	63	63	66
High	Persons	174,758	132,618	-	136,194	130,289	123,853	122,729
Accum.*	Auto Pass.	67,593	57,128	-	74,162	76,375	69,383	68,224
	% Auto Passengers	39	43	-	54	59	56	55

*Persons Crossing Cordon



LOS ANGELES
DOWNTOWN BUSINESS AREA
TRAFFIC FLOW MAP
 MAY 1972 WEEKDAY 24 HOUR COUNT
 CITY OF LOS ANGELES
 DEPARTMENT of TRAFFIC
 S. S. TAYLOR.....CITY TRAFFIC ENGINEER
 PLATE 7

III
**CORDON
AREA
TRANSPORTATION
TRENDS**



Cordon Area Transportation Trends

Analysis of Cordon Area Trends - 1963 to 1972

The Department has conducted annual cordon counts of the Downtown area since 1963. Analysis of these counts thus provides an indication of the trend relative to vehicular and person-trip volumes for the cordon area over a nine-year span.

For the purpose of this analysis, the linear trends were determined mathematically by the least squares method. This method determines the most accurate location of a linear trend line for the total analysis period.

For the analysis of vehicle- and person-trips crossing the cordon boundaries, the trend lines were determined for the overall 9-year span and also for the 5-year period between 1967 and 1972. Review of the historical count data has revealed that the volume of vehicles entering and leaving the cordon area has increased steadily since 1967.

The calculated linear trend lines for person and vehicle volumes crossing the cordon boundaries and accumulated within the cordon area at the peak period are shown on Plate 8. It should be noted that all of the charts have a value other than zero at the base line. These charts were plotted in this manner so that the minor degrees of changes in inclining or declining trends would be more readily discernible.

As noted on Plate 8, total 16-hour vehicular volumes crossing the cordon boundaries increased at an average annual rate of 1.03 per cent between 1963 and 1972. During this same period, cordon person-trip volumes declined slightly at an average annual rate of 0.10 per cent.

For the period between 1967 and 1972, cordon person-trip volumes have been on an inclining trend, and the annual rate of increase in vehicular volumes for this 5-year period was more than double the rate for the 9-year span, 2.20 per cent versus 1.03 per cent.

The extension of the Santa Monica Freeway westerly from Vermont Avenue to its present terminus in the City of Santa Monica in the early part of 1965 was the most significant development generally affecting the magnitude of cordon trips between 1964 and 1972. Initially, between 1964 and 1967, this resulted in diversion of through trips from cordon area surface streets. Subsequent to 1967, cordon surface streets were utilized by increasingly greater volumes of through or non-Downtown-oriented trips.

Peak accumulation of vehicles and persons is not generally affected by the diversion or the magnitude of through travel. The linear trend lines for these have been plotted on Plate 8 only for the overall period between 1963 and 1972.

Review of the linear trend analysis on the historical peak accumulation data, however, reveals significant differences in the rate of change between the first four years compared to the most recent five-year span as indicated by the following:

	<u>Annual Rate of Change</u>	
	<u>Peak Vehicle Accumulation</u>	<u>Peak Person Accumulation</u>
1963 to 1967 (4 years)	+7.25%	+0.85%
1967 to 1972 (5 years)	-0.13%	-1.72%
1963 to 1972 (9 years)	+2.07%	-0.97%

Since peak accumulation data provide a relative indication of the activities occurring within the cordon area, the preceding table indicates generally that the level of activity in new building construction and other factors affecting an increase in vehicle- and person-trips was considerably more intensive during the years between 1963 and 1967 than in the following 5-year span between 1967 and 1972.

Closely related to vehicle accumulation is the supply of off-street parking spaces. Comparative data on the supply of off-street parking spaces also provide an indication of the level of new construction since off-street parking spaces are required for all new developments, and generally provided as an integrated portion of the building complex. Comparative data on the number of off-street parking spaces within the cordon area for 1956, 1966 and 1971 are shown on Table 8. The off-street parking inventory in 1971 revealed that there was a total of 44,763 off-street parking spaces within the core area, defined for this study as the portion of the cordon area between First Street and Olympic Boulevard. This supply was an increase of approximately 4,000 spaces, or 10 per cent, over the supply in the core area in 1966. As noted previously on Plate 8, the number of vehicles accumulated within the cordon area at the peak period increased at an average annual rate of 2.07 per cent between 1963 and 1972. For the 5-year period between 1966 and 1971, this would thus represent an overall increase of slightly over 10 per cent.

All of the trend lines on Plate 8 have been projected on a straight line, termed extrapolation, to the year 1975. These projected lines provide an indication of the future cordon area travel demands based on the rate of change noted for each of the trend lines.

Analysis of Trend in Cordon Person-Trips Versus Distribution by Mode

The magnitude of persons entering and leaving the cordon area in relation to the mode of transportation used also provides a greater insight into the travel characteristics of the Downtown area.

Persons entering or leaving the cordon area are recorded as passengers in a transit vehicle or in other motor vehicles or as pedestrians.

The volume of cordon person-trips and the distribution by the 3 modes for each of the annual cordon count studies between 1963 and 1972 is shown on Plate 9.

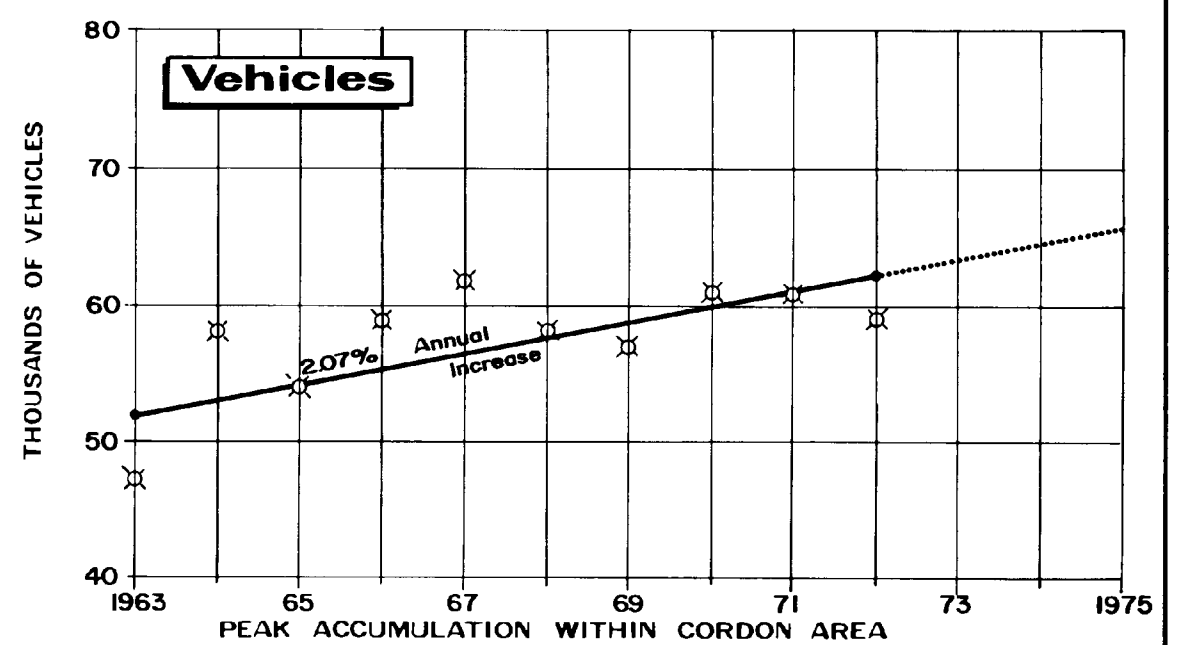
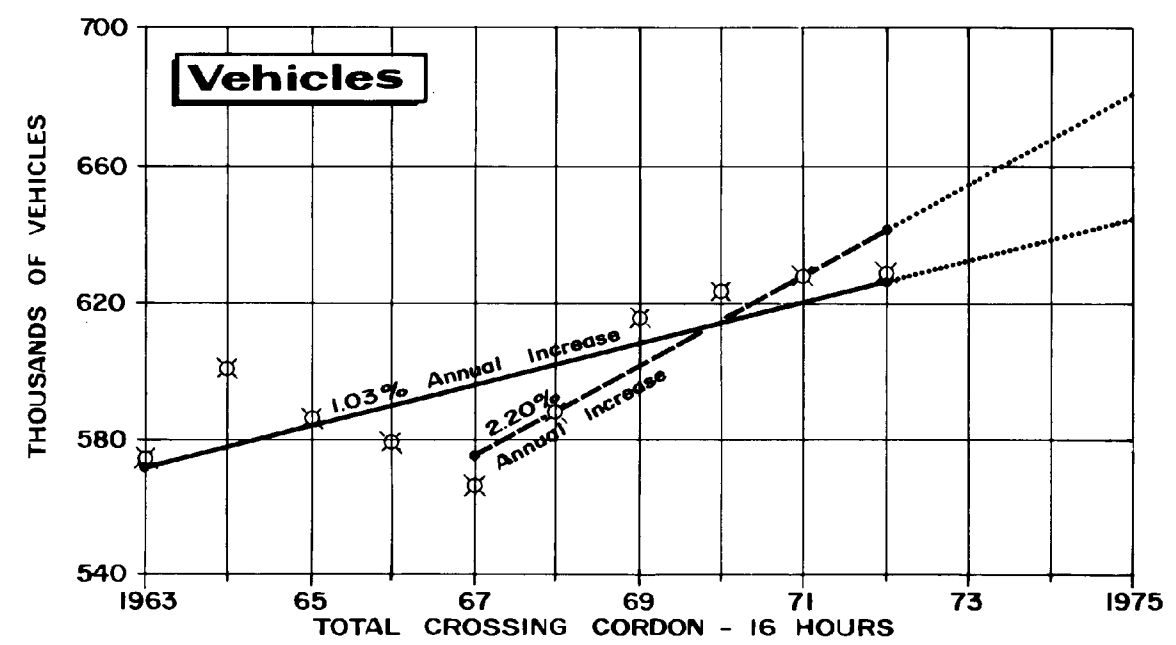
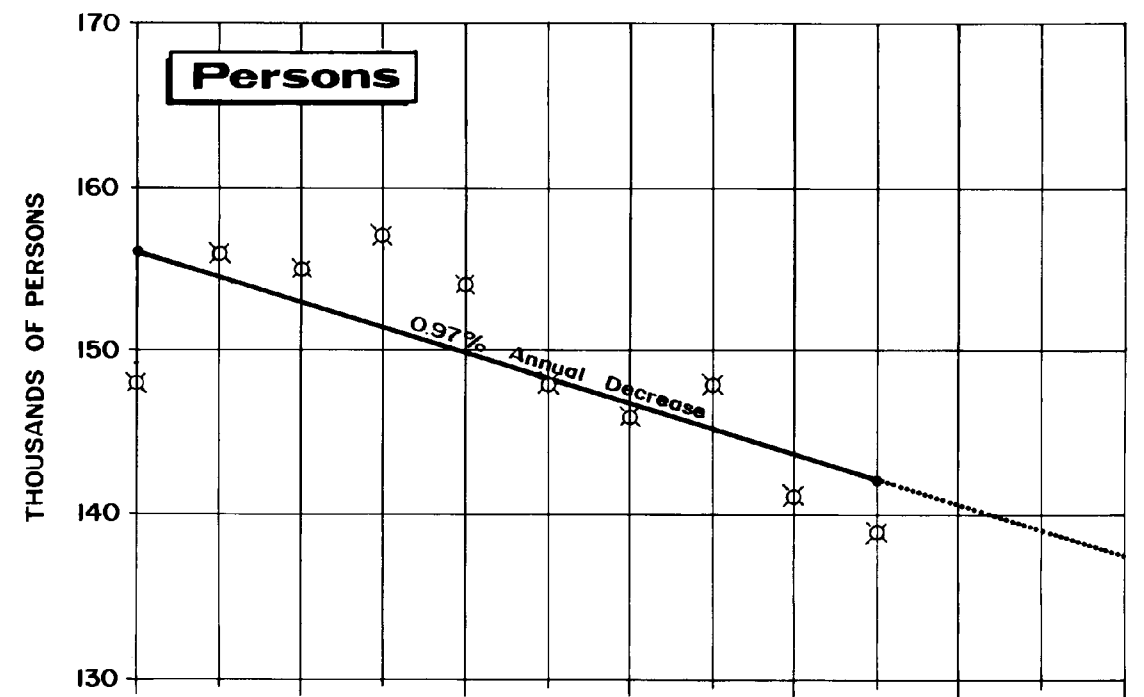
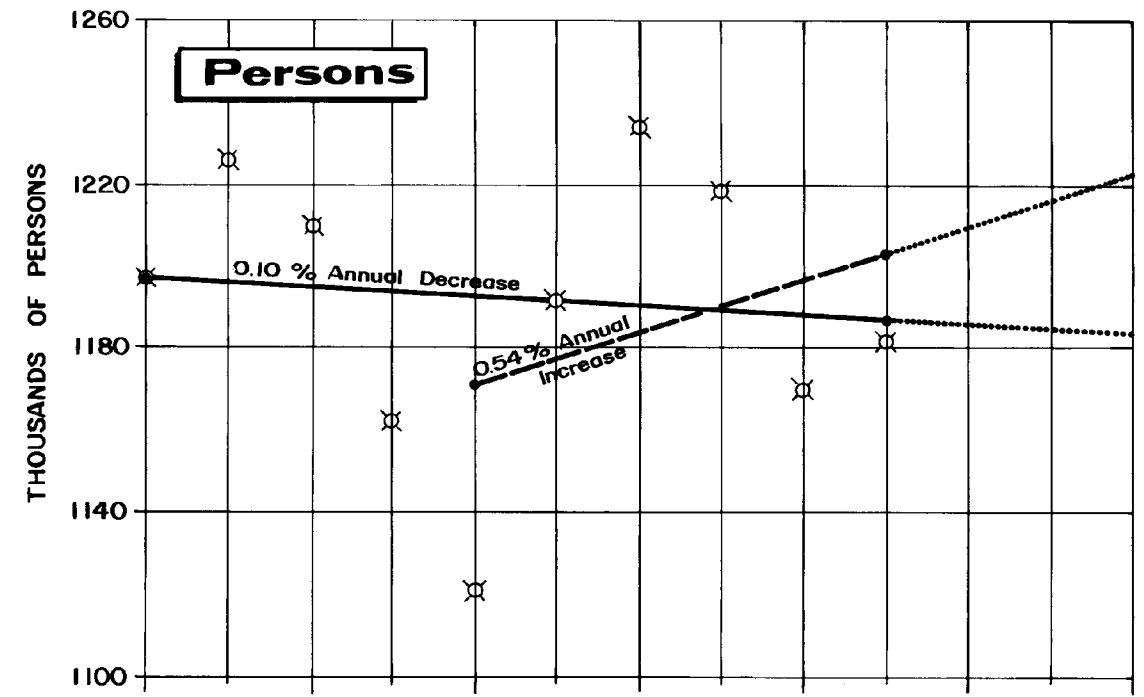
As can be observed from this plate, the magnitude of persons crossing the cordon boundaries by each mode has generally paralleled the trend of total person-trips.

The distribution by each mode, however, reveals opposing trends. Overall between 1963 and 1972, transit passengers and pedestrians have each represented an increasingly smaller proportion of the total cordon person-trips. Passengers in motor vehicles, as a proportion of total cordon person-trips, increased overall from 65 per cent in 1963 to 70 per cent in 1972.

The total 16-hour passenger volume in 1972 represented an increase of approximately 5,000 passenger-trips over 1963, 1,077,113 versus 1,072,446. In 1972, the volume of passengers entering and leaving the cordon area during the business activity period from 9 AM to 3 PM represented an increase of 17,000 passenger-trips over the volume recorded during this period in 1963. Passenger-trips for the commuter activity period (6-9 AM and 3-6 PM) and for the social activity period (6 PM - 10 PM) in 1972 were each approximately 6,000 less than in 1963.

Historical data on Downtown cordon area passenger mode trends is shown on Table 9.

Plate 10 depicts the long-term trend in modal distribution for persons entering the cordon area.



—LEGEND—

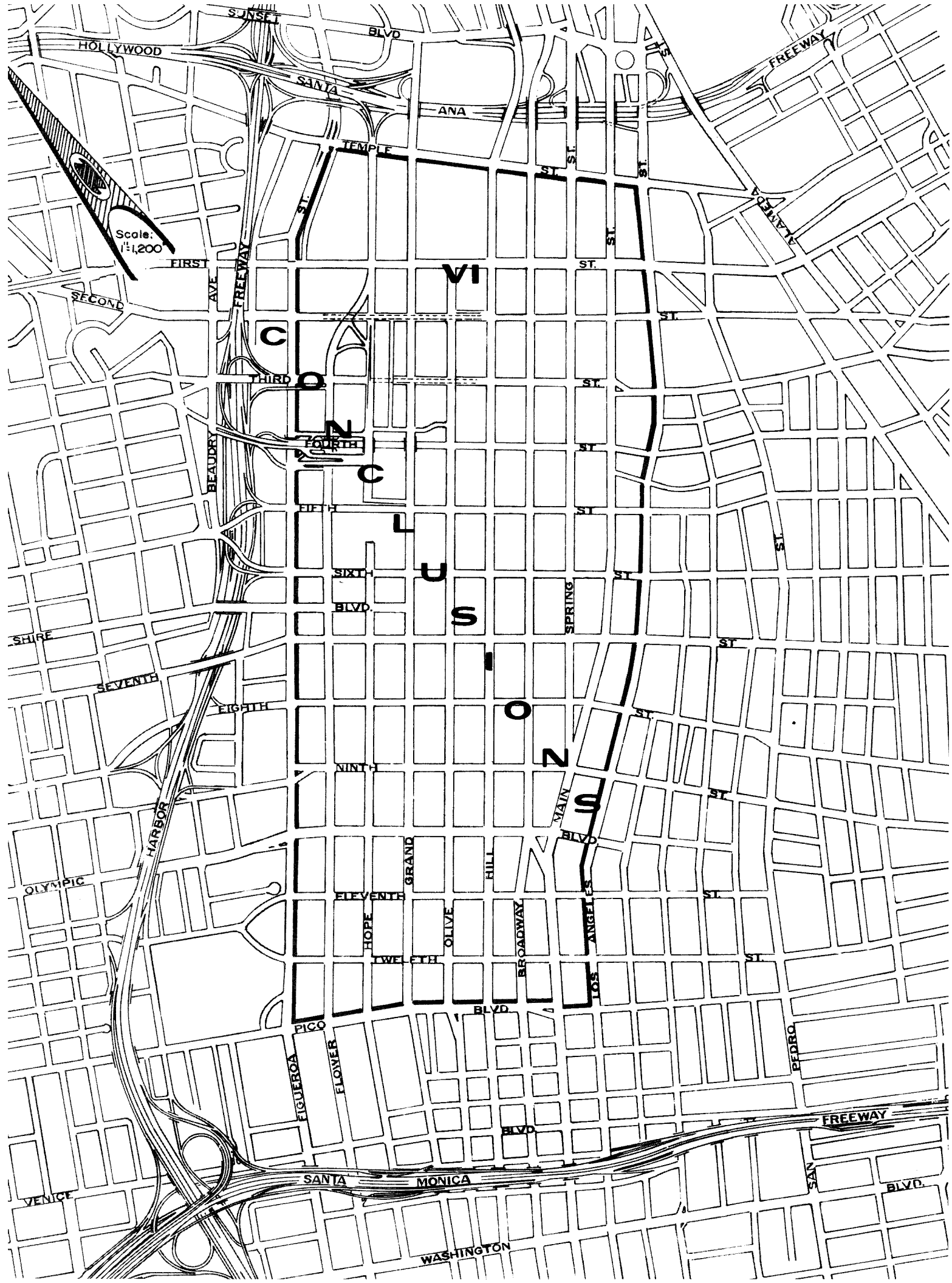
———— 1963 to 1972 trend

----- 1967 to 1972 trend

..... Extrapolated line

⊗ Observed volumes

NOTE: All charts have a value other than zero at the baseline.



Conclusions

Review and analysis of the data from the cordon count studies conducted annually since 1963 reveals that there were opposing and parallel trends (for different time sequences) on the volume of vehicle-trips crossing the cordon boundaries compared to the peak vehicle accumulation within the cordon area. For the time sequence between 1963 and 1967, cordon vehicle-trips were on a decline whereas peak vehicle accumulation increased overall. During the period between 1967 and 1972, there were also opposing trends, in reverse order however, from the preceding 4-year period. For the overall nine-year span, there were parallel, inclining, trends for the volume of cordon vehicle-trips and peak vehicle accumulation.

There are numerous factors, not necessarily interrelated, which have an effect on the volume of cordon vehicle- and person-trips. In light of existing conditions and development patterns, it would appear that, for prediction purposes, projections of the overall nine-year (1963 to 1972) trend lines will provide the most reasonable prediction of future cordon travel demands.

Based on the projected 9-year trend lines, cordon travel demands in 1975 will be as follows:

- Volume of vehicle-trips entering and leaving the cordon area during the 16-hour study period will equal the peak volume recorded for any count (650,000) subsequent to World War II (in 1957).
- Cordon person-trip volumes for the 16-hour period will remain relatively stable or generally comparable to current trip volumes (1,180,000).
- Peak accumulation of vehicles within the cordon area will increase by approximately 7,000 vehicles over the existing peak accumulation (59,000).
- Volume of persons accumulated within the cordon area at the peak period will decrease slightly (less than 3,000 persons) from the volume recorded in 1972 (140,000).

DEPARTMENT OF TRAFFIC

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Table 8

**Inventory of Off-Street Parking Spaces
Within Downtown Cordon Area
1956 - 1966 - 1971**

Cordon Area Excluding Civic Center Portion

<u>No. of Spaces in</u>	<u>1956¹</u>	<u>1966²</u>	<u>% Increase</u>
Surface Street Lots	19,875	31,295	58%
Garages	<u>13,255</u>	<u>16,139</u>	<u>22%</u>
Total	33,130	47,434	43%

Core Area

<u>No. of Spaces in</u>	<u>1956¹</u>	<u>1966²</u>	<u>1971³</u>
Surface Street Lots	16,672	25,261	21,974
Garages	<u>13,788</u>	<u>15,360</u>	<u>22,789</u>
Total	30,460	40,721	44,763

Core Area

<u>Per Cent Increase or Decrease</u>	<u>1956-66</u>	<u>1966-71</u>
Surface Street Lots	+52%	-13%
Garages	<u>+11%</u>	<u>+48%</u>
Total	+34%	+10%

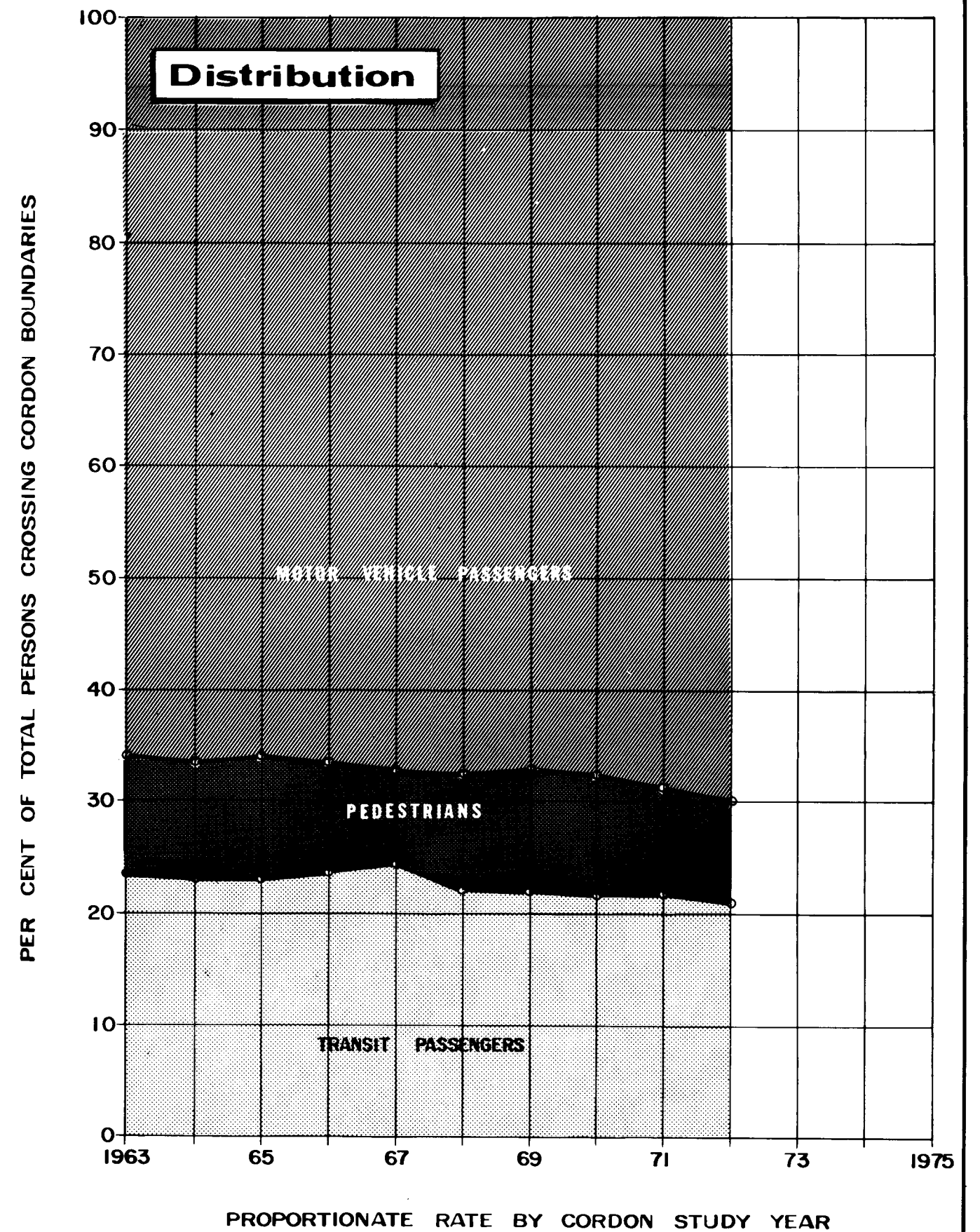
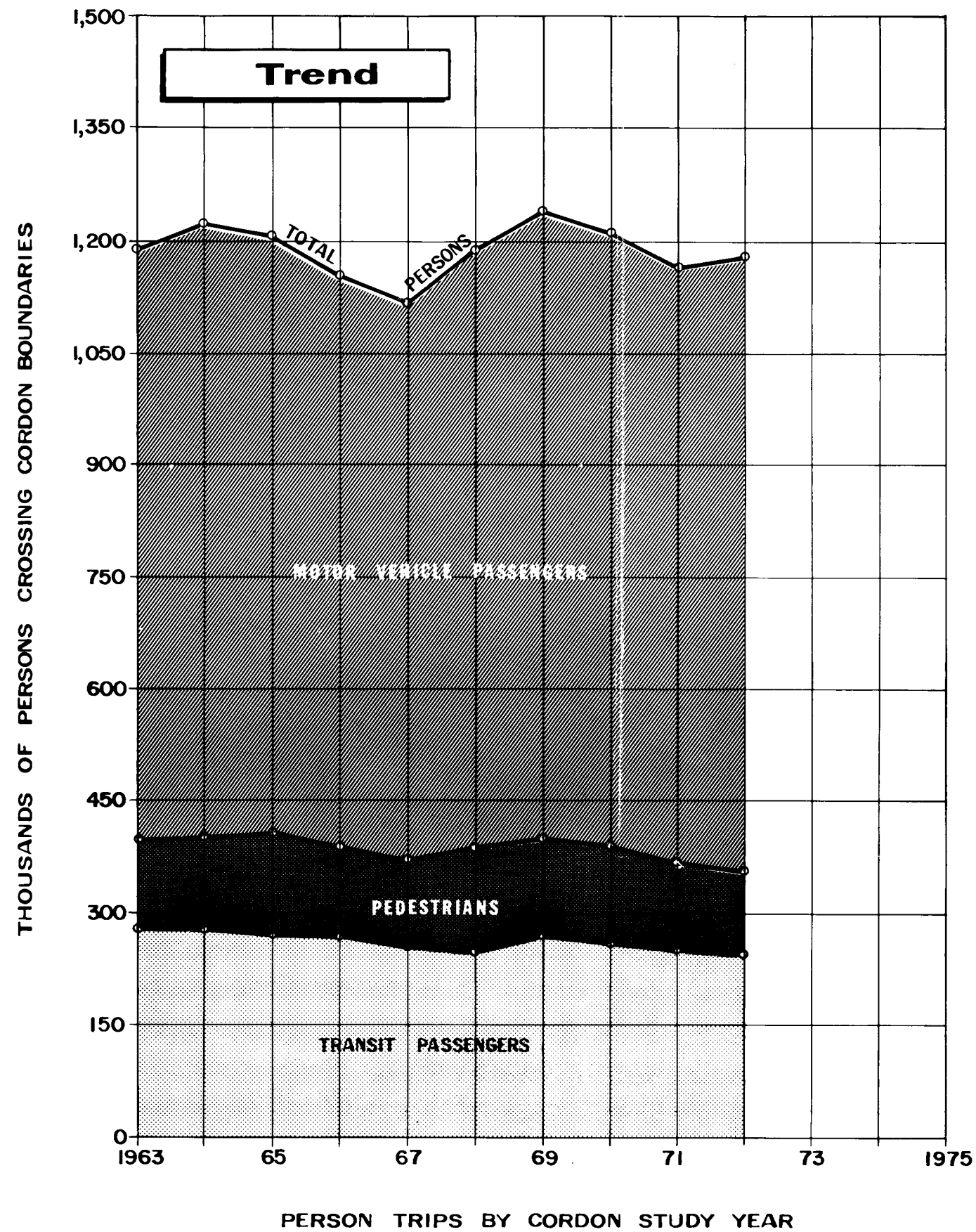
Total Spaces in Cordon Area in 1956 - 36,295.

Sources:

¹Inventory of Off-Street Parking - Downtown Los Angeles, City of Los Angeles, Department of Traffic.

²Los Angeles Central Business District Parking Study, Wilbur Smith and Associates.

³A Peripheral Parking Program, Central City - Los Angeles, Wilbur Smith and Associates.



CORDON AREA PERSON TRIP TREND AND DISTRIBUTION

Table 9

Downtown Cordon Area Passenger Mode Trends

Passenger Volumes Crossing Cordon Boundaries ¹				
Year	Auto Passengers	Comm. Veh. Passengers	Transit Passengers	Total Passengers
1924 ²	393,322	74,252	741,124	1,208,698
1941 ³	715,057	74,724	501,503	1,291,284
1957 ⁴	717,591	70,650	394,171	1,182,412
1963 ⁴	648,414	60,416	267,033	975,863
1967 ⁴	615,304	58,318	248,759	922,381
1972 ⁴	691,198	56,738	238,880	986,816

Proportional Rates by Passenger Mode				
Year	Auto Passengers	Comm. Veh. Passengers	Transit Passengers	Total Passengers
1924	32.5%	6.2%	61.3%	100%
1941	55.4%	5.8%	38.8%	100%
1957	60.7%	6.0%	33.3%	100%
1963	66.4%	6.2%	27.4%	100%
1967	66.7%	6.3%	27.0%	100%
1972	70.7%	5.8%	24.2%	100%

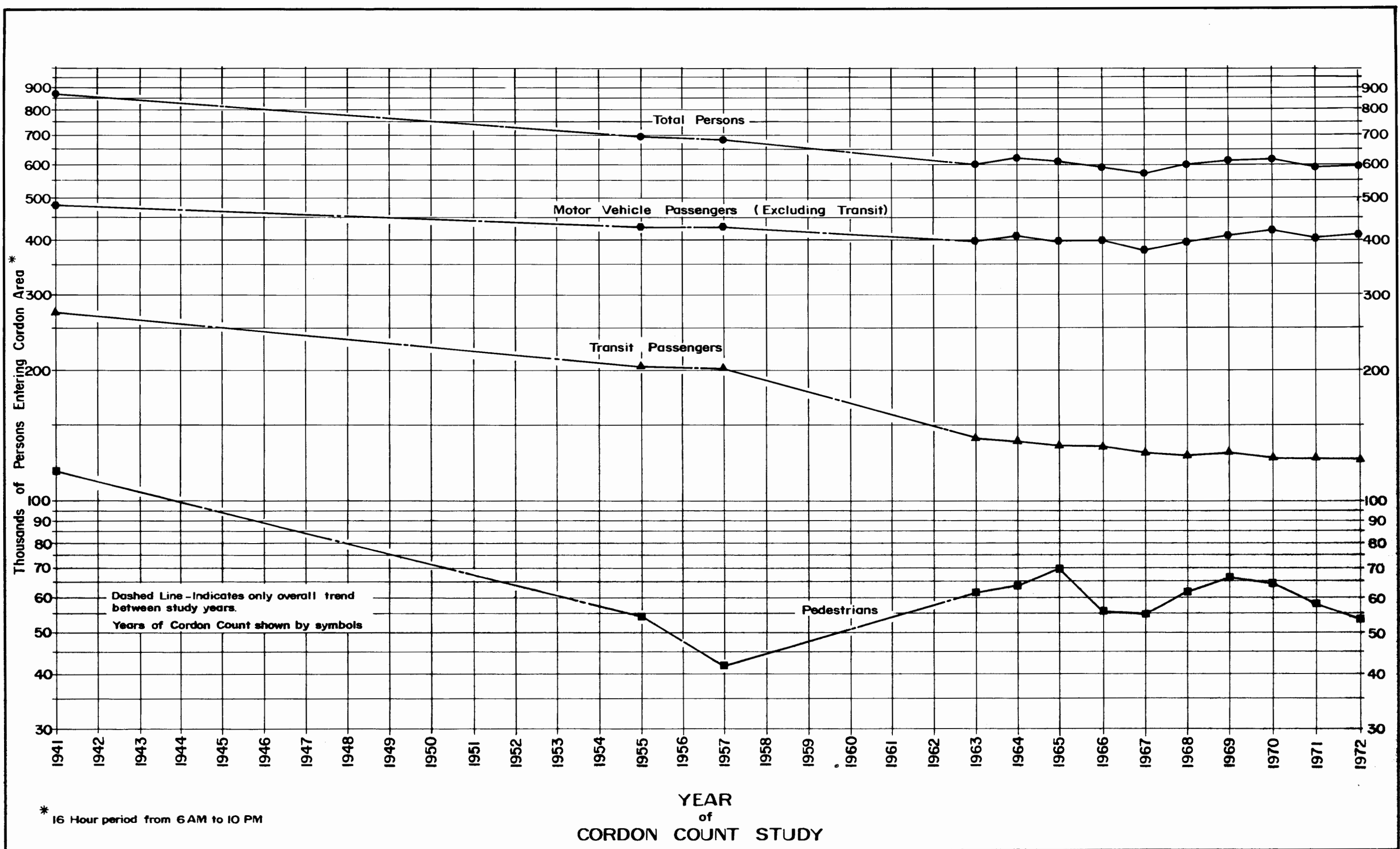
¹ 13 Hours - 6 AM to 7 PM.

Sources:

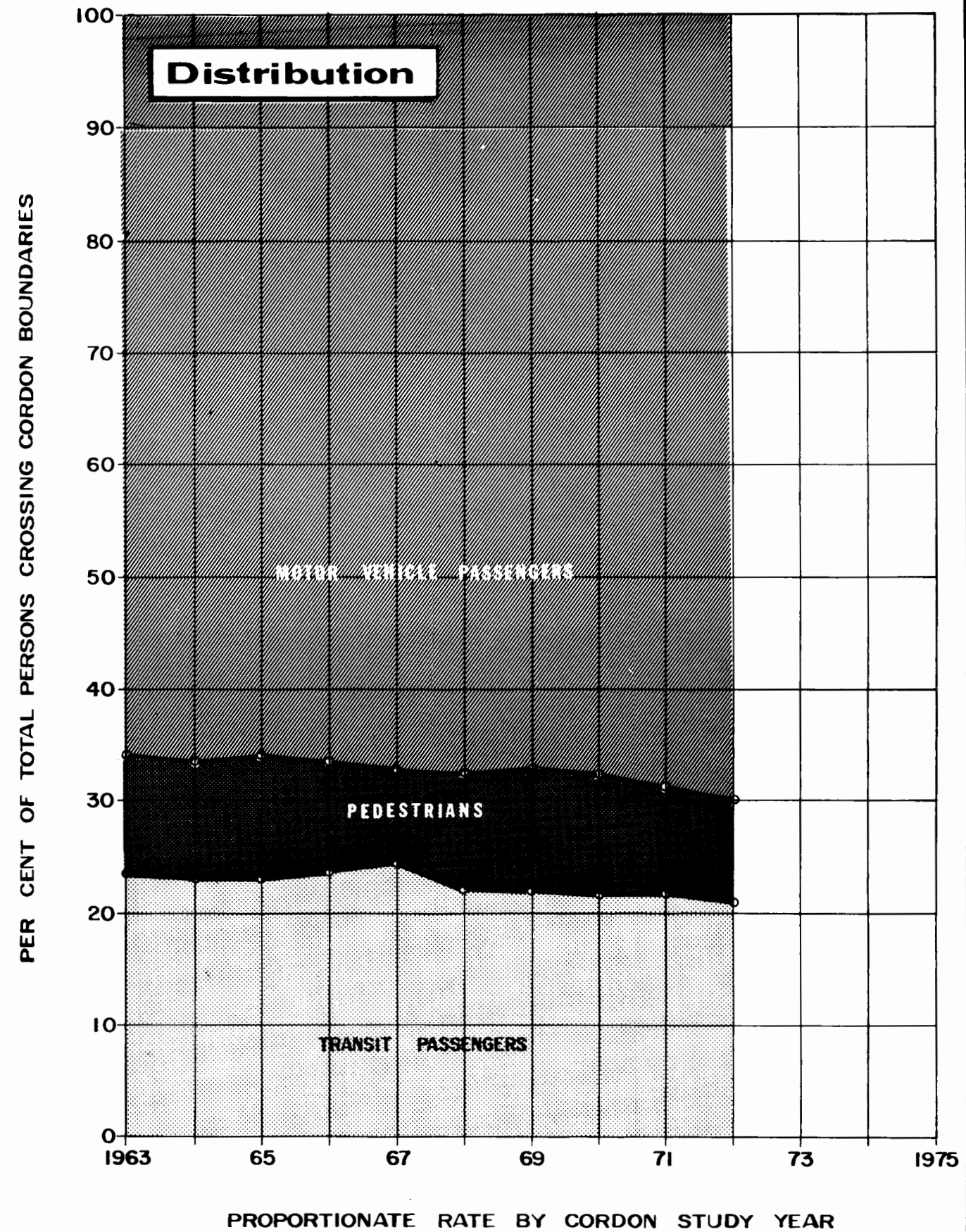
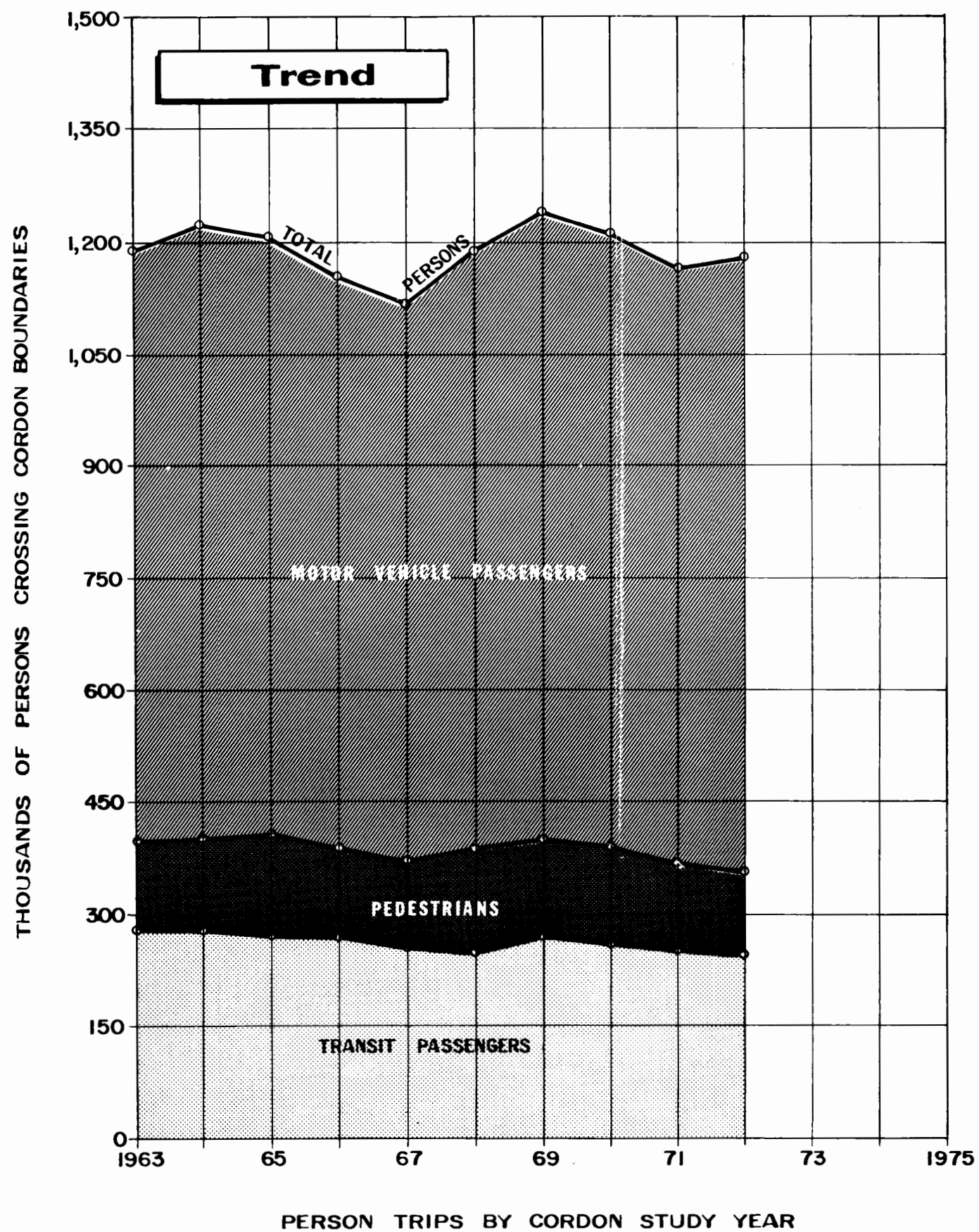
² Report on a Comprehensive Rapid Transit Plan for the City and County of Los Angeles, Kelker, De Leuw & Company, 1925.

³ Los Angeles County Regional Planning Commission.

⁴ Los Angeles City, Department of Traffic.



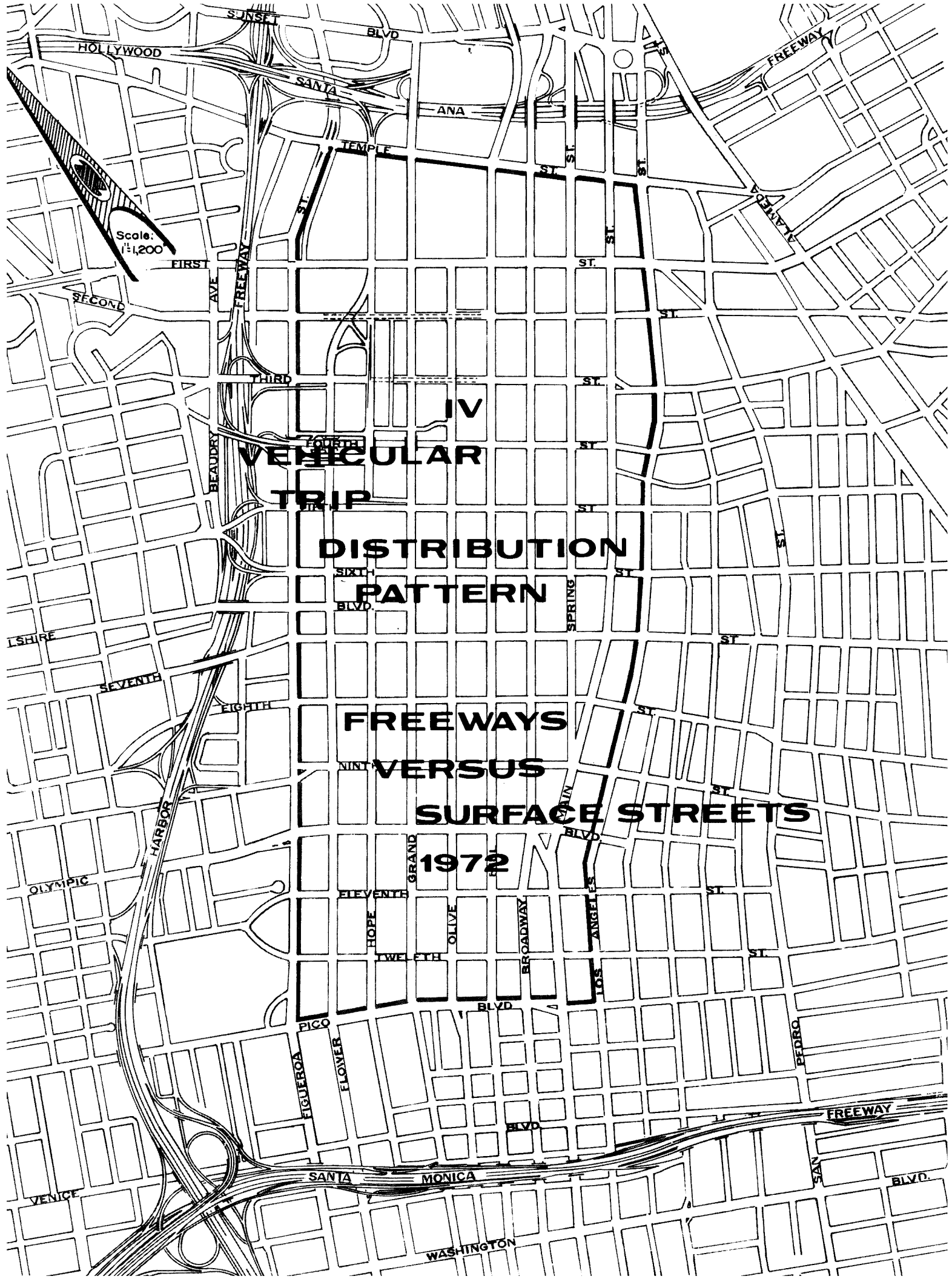
* 16 Hour period from 6 AM to 10 PM



CORDON AREA PERSON TRIP TREND AND DISTRIBUTION

Scale:
1/2"=1,200'

**IV
VEHICULAR
TRIP
DISTRIBUTION
PATTERN
FREEWAYS
VERSUS
SURFACE STREETS
1972**



Vehicular Trip Distribution Pattern -
Freeways Versus Surface Streets - 1972

The Central City area is enclosed by a freeway loop commonly referred to as the "Downtown Freeway Loop." Portions of this loop border the cordon area on three of the cardinal boundaries; namely, the Santa Monica Freeway on the south, the Harbor Freeway on the west and the Hollywood-Santa Ana Freeway route on the north.

A detailed study was conducted to determine the volume and proportion of cordon trips using either freeways or surface streets in their arrival or departure route to and from the cordon area. For this study, current freeway ramp volume counts were obtained from the State Division of Highways. Automatic counts were conducted by this Department at those ramp locations where no current count data were available. Additionally, manual counts were made at required ramp or surface street locations to determine the volume of freeway ramp traffic directly entering or leaving the cordon area. The study included only those ramps which are served directly from one of the cordon surface streets.

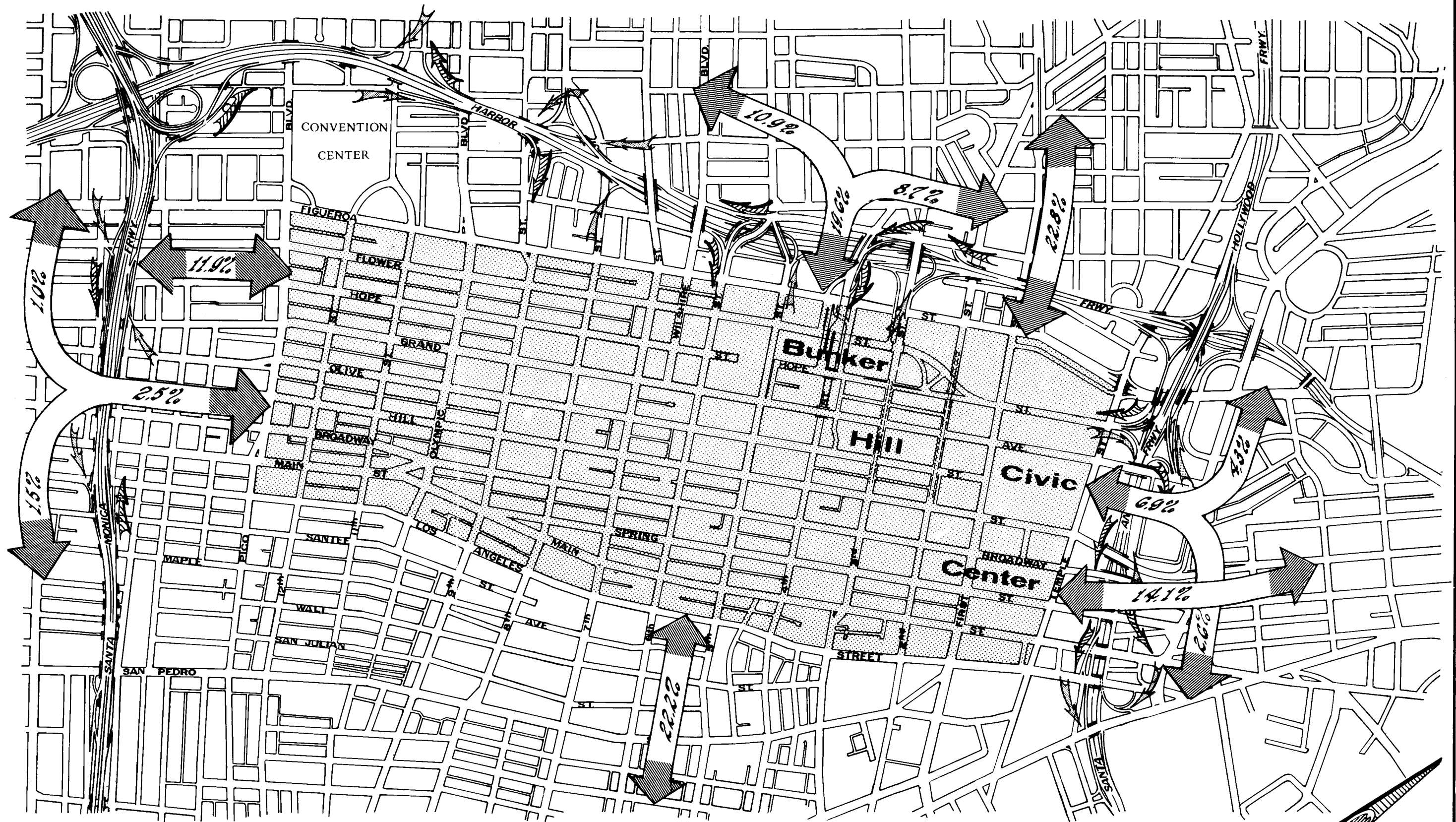
Compilation of the data from the 35 freeway ramps, 19 on- and 16 off-ramps, showed a total of 182,807 vehicles entered or left the cordon area on these ramps. Of the total vehicle-trips crossing the cordon boundaries during the 16-hour study period, 629,584, 29 per cent utilized freeways and 71 per cent utilized surface streets in their access route to or from the cordon area. It is not known how many additional trips utilize the freeway network via ramps which are outside the study area.

The distribution pattern for cordon area vehicle-trips by freeway or surface street at the 4 cardinal boundaries is shown on Plate 11. This plate also depicts the freeway and ramps involved in relation to the cordon area.

Comparison of hourly vehicular volumes entering and leaving the cordon area on freeways versus surface streets is shown on Table 10. The proportion of the hourly directional volume via freeways is also shown on this table. This data indicates that of the total vehicle-trips entering the cordon area, approximately 31 per cent utilized freeways, whereas only 27 per cent of the outbound vehicle-trips used freeways in their departure route from the cordon area.

The cordon count study in May, 1955 also included data on the distribution of cordon vehicle-trips via freeways or surface streets. Comparative data on the distribution of trips for 1955 versus 1972 is shown on Table 11. The data reveals that the volume of cordon trips for these two study years was nearly equal. Further analysis indicates that the proportion of cordon vehicle-trips using freeways, as opposed to surface streets, in their access route to or from the cordon area in 1972 was approximately 8 per cent higher than the proportion of cordon trips utilizing freeways in 1955.

Historical data on vehicular trend by cordon boundaries is shown on Table 12.



Legend

-  Cordon Area
-  On Ramp
-  Off Ramp

 Per Cent of Total
Cordon Trips

16-Hour Cordon Vehicle Trips

Surface Streets - 446,775 - 71.0%
Freeways - 182,809 - 29.0%
Total - 629,584 - 100%

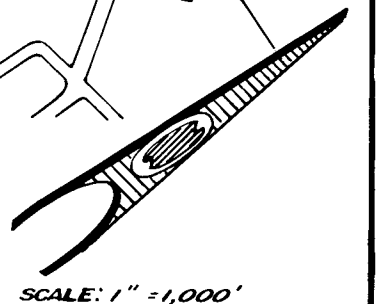


Table 10

Comparison of Hourly Vehicular Volumes
Entering and Leaving Downtown Cordon Area
Freeways Versus Surface Streets
6 AM to 10 PM - May, 1972

Hourly Period	Volume of Entering Vehicles				Volume of Leaving Vehicles ¹			
	Freeways	Surface Sts.	Total	Frwy. Vol. % of Tot.	Freeways	Surface Sts.	Total	Frwy. Vol. % of Tot.
6-7 AM	7,172	9,417	16,589	43.23	2,281	6,179	8,460	26.96
7-8 AM	11,488	24,620	36,108	31.82	4,056	15,930	19,986	20.29
8-9 AM	11,350	22,340	33,690	33.67	3,557	14,482	18,039	19.71
9-10 AM	9,654	13,295	22,949	42.07	3,511	11,530	15,041	23.34
10-11AM	7,156	13,349	20,505	34.90	4,526	12,562	17,088	26.49
11-12N.	6,689	13,529	20,218	33.08	5,812	13,966	19,778	29.39
12-1 PM	6,422	14,324	20,746	30.96	5,592	14,617	20,209	27.67
1-2 PM	6,268	14,850	21,118	29.68	5,924	14,609	20,533	28.85
2-3 PM	5,867	14,344	20,211	29.03	7,104	14,691	21,795	32.59
3-4 PM	5,213	16,571	21,784	23.93	8,344	17,669	26,013	32.08
4-5 PM	4,948	22,099	27,047	18.29	9,518	31,819	41,337	23.03
5-6 PM	4,395	16,732	21,127	20.80	7,977	28,598	36,575	21.81
6-7 PM	3,626	9,048	12,674	28.61	5,902	11,684	17,586	33.56
7-8 PM	3,651	6,645	10,296	35.48	3,996	6,810	10,806	36.98
8-9 PM	2,513	5,303	7,816	32.15	3,215	5,617	8,832	36.40
9-10 PM	1,626	4,741	6,367	25.54	3,454	4,807	8,261	41.81
Total	98,038	221,207	319,245	30.71	84,769	225,570	310,339	27.31

¹Includes Third Street ramps to Harbor Freeway - closed to vehicular traffic during latter part of May.

Table 11

**Comparison of Freeway and Surface Street
Volumes Crossing Downtown Cordon Boundaries
May, 1955 Versus May, 1972**

16-Hour Volume 6 AM to 10 PM	May - 1955		May - 1972	
	Volume of Vehicles	Per Cent of Total	Volume of Vehicles	Per Cent of Total
<u>Freeways</u>				
Harbor	76,327	12.2%	123,390	19.6%
Santa Ana	57,708	9.2%	43,632	6.9%
Santa Monica	<u>(Not Open)</u>	<u>--</u>	<u>15,785</u>	<u>2.5%</u>
Total	134,035	21.4%	182,807	29.0%
<u>Surface Streets</u>				
Total	<u>492,111</u>	<u>78.6%</u>	<u>446,777</u>	<u>71.0%</u>
Grand Total	626,146	100.0%	629,584	100.0%

Table 12

Vehicular Trend by Cordon Boundaries

Cordon Count Vehicular Volumes¹

<u>Cordon Boundary</u>	<u>1924²</u>	<u>1929³</u>	<u>1936³</u>	<u>1941⁴</u>	<u>1957⁵</u>	<u>1963</u>	<u>1967⁵</u>	<u>1972⁵</u>
East	92,426	153,377	158,305	163,551	168,913	134,107	130,523	139,336
South	77,731	92,013	105,246	123,775	82,734	82,312	84,721	90,770
West	110,759	209,498	227,886	238,874	279,842	243,921	226,362	266,971
North	<u>52,970</u>	<u>76,586</u>	<u>81,571</u>	<u>99,236</u>	<u>119,184</u>	<u>117,136</u>	<u>124,440</u>	<u>132,507</u>
Total	333,913	531,474	573,008	625,436	650,673	577,476	566,046	629,584

Percentage of Total Vehicles by Cordon Boundaries

<u>Cordon Boundary</u>	<u>1924</u>	<u>1929</u>	<u>1936</u>	<u>1941</u>	<u>1957</u>	<u>1963</u>	<u>1967</u>	<u>1972</u>
East	28	29	28	26	26	24	23	22
South	23	17	18	20	13	14	15	15
West	33	39	40	38	43	42	40	42
North	16	15	14	16	18	20	22	21

¹16-Hour vehicular volumes, 6 AM to 10 PM, except 1924, 13 hours, 6 AM to 7 PM.

Sources:

²"Report on a Comprehensive Rapid Transit Plan for the City and County of Los Angeles," Kelker, De Leuw & Co., 1925.

³"Traffic Survey - Los Angeles Metropolitan Area, 1937," Automobile Club of Southern California.

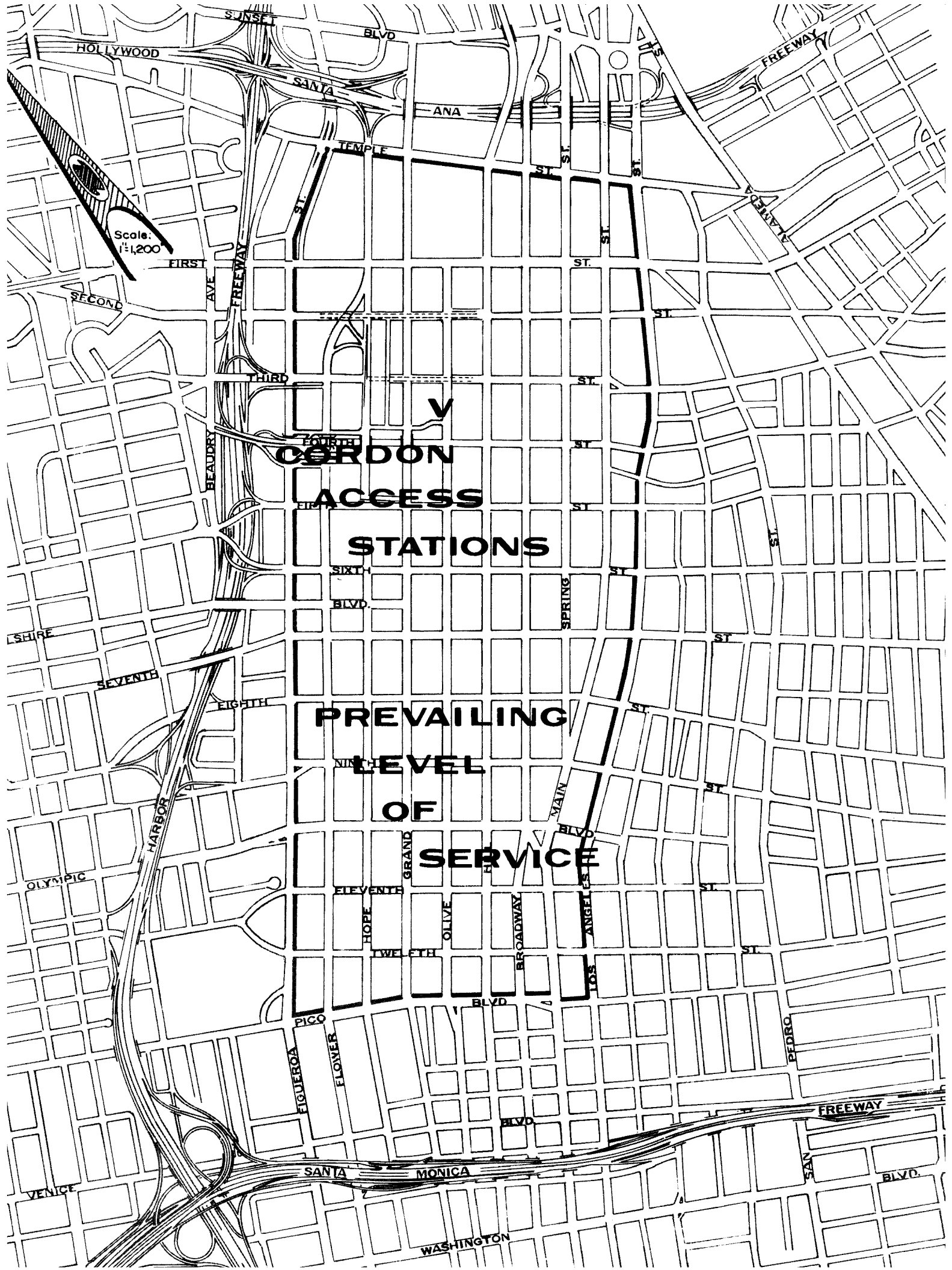
⁴Los Angeles County Regional Planning Commission.

⁵Los Angeles City, Department of Traffic.

Scale:
1"=1,200'

**V
CORDON
ACCESS
STATIONS**

**PREVAILING
LEVEL
OF
SERVICE**



Cordon Access Stations - Prevailing Level of Service

In order to evaluate current access conditions for the cordon area, a study has been made to determine the level of service being provided under prevailing conditions. This study involved separate analyses for all inbound approaches to the cordon area for the morning peak hour and for all outbound approaches in the afternoon peak hour.

For this capacity study, the procedures outlined in the Highway Capacity Manual¹ were utilized to determine the level of service on the cordon area access stations. Level of service is a term which denotes the different operating conditions that occur on a given lane or roadway when accommodating various traffic volumes.

Capacity, as herein used, is for the Level of Service D (SV_D) as defined in the Capacity Manual. For Level of Service D, delays to approaching vehicles may be substantial during short peaks within the peak period. Generally, however, enough cycles with lower demand occur at Service Level D to permit periodic clearance of developing queues.

Existing volumes and calculated capacities for the inbound intersection approaches to the cordon area in the morning peak hour and for the outbound approaches in the afternoon peak hour are shown on Plates 12 and 13, respectively. The volumes shown are from the volume counts made during May, 1972. The capacities were calculated for conditions as they existed on November 1, 1972, to reflect the most current conditions for this report.

The summary tables on Plates 12 and 13 indicate that volume demands in relation to capacity are most critical in the afternoon peak traffic hour. During this hour, existing volume demands for the total outbound approaches along the north side of the cordon area are slightly in excess of the combined capacity for the respective approaches involved. The outbound approaches along the west boundary, during this hour, are presently accommodating volume demands at 85 per cent of the combined capacity for the respective roadway approaches. In terms of absolute numbers, along the west cordon there is excess capacity available only for a future demand to the west not exceeding 3,000 outbound vehicle-trips during the afternoon peak hour.

For the morning peak hour, there is presently excess capacity available for an increase of approximately 5,000 inbound vehicle-trips on the combined approaches along the north and west boundaries of the cordon area.

As noted above, the capacity analysis involved only conditions prevailing on the intersection approaches under study and should not be construed as an indication of operating conditions for the segments of the routes further removed from the approaches involved.

¹Highway Research Board, 1965.

