downtown Los Angeles CORDON COUNT

October 1987

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CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
S.E. ROWE, General Manager

DOWNTOWN LOS ANGELES
CORDON COUNT

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City of Los Angeles
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ABSTRACT

Downtown Cordon Count Study

- The cordon count study provides data on the volume of vehicles and persons entering and leaving the Downtown Business District of Los Angeles. The area is bounded by Temple Street, Los Angeles Street, Pico Boulevard, and Figueroa Street. This report presents the summary results of the 1987 Cordon Count of Downtown Los Angeles for a typical midweek day (Tu/Wed/Thur) in October, from 6 AM to 10 PM.

Summary Data - 1987 Cordon Count

- During the 16-hour study period, a total of 831,600 vehicular-trips crossed the cordon boundaries at the 87 stations providing access for vehicles entering or leaving the cordon area. This represents an increase of 154,400 trips or 22.8% since the 1980 cordon count.

- During the morning peak hour, 8:00 to 9:00 AM, 70,600 vehicular trips crossed the cordon boundaries. This represents an increase of 11,500 trips or 19.4% since the 1980 cordon count, when the morning peak hour occurred half an hour earlier.

- During the afternoon peak hour, 4:30 to 5:30 PM, 77,600 vehicular trips crossed the cordon boundaries. This represents an increase of 10,800 trips or 16.1% since the 1980 cordon count.

- A total of 1,480,200 person-trips crossed the cordon area at the access stations during the 16-hour period. This represents an increase of 44,700 person-trips or 3.1% since the 1984 count.

- Break-down by travel mode of persons entering the cordon area is as follows: 65.7% arrived in automobiles, 20.9% in transit vehicles, 5.9% in commercial vehicles (trucks), and the remaining 7.5% entered on foot.

- At the peak vehicle accumulation time, 1:30 PM, 87,100 vehicles were within the cordon area. Peak accumulation of persons occurred at 2:00 PM at which time 160,500 persons were within the cordon area.

- Average passenger car occupancy dropped to 1.33 persons per vehicle over the 16-hour study period, decreasing from 1.36 persons per vehicle in 1984, and the maximum 1.42 in 1980.

- Bus passengers entering the cordon area decreased to 157,200, a 15.2% reduction from 185,300 passengers in 1980 and an 18.7% reduction from 193,400 passengers in 1984, reversing a trend of increasing transit patronage.

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INTRODUCTION

Cordon counts of vehicular and pedestrian traffic entering and leaving Downtown Los Angeles have been performed periodically since 1924. These studies yield statistical data for transportation planning purposes concerning the daily flow of vehicles and persons into and out of the downtown area during the times of day of heaviest traffic concentrations. In addition, these data indicate trends in the mode of travel. The last cordon count was conducted in October 1984.

Since 1963 the boundaries of the cordon area have been the 1.1 square mile area bounded by Temple Street, Los Angeles Street, Pico Boulevard, and Figueroa Street.

Downtown Los Angeles has traditionally been a major activity center for the Los Angeles metropolitan area. Centrally located at the crossroads of several radial freeway routes, it is accessible by both public and private transportation services from virtually all sections of the County on the 490-mile freeway system. In terms of public transportation, nine DOT commuter bus routes, 62 regularly scheduled local and 60 express bus routes of the SCRTD, along with five routes run by municipal operators, crossed the cordon boundaries in October 1987.

This report presents the 1987 Cordon Count of Downtown Los Angeles for a composite 16-hour midweek day in October, from 6AM to 10PM.

Cordon Count Procedure

Comprehensive traffic counts were taken on midweek days (Tuesday, Wednesday, and Thursday) for four weeks, beginning on September 29, 30, and October 1. on virtually all streets crossing the streets bounding the cordon area.

Counting began at streets crossing the northern portion of the cordon perimeter, then proceeded in a clockwise direction around the boundary during subsequent weeks. Sixteen-hour (6 AM to 10 PM) vehicular counts were taken at all stations by automatic machine counters. Sixteen-hour (6 AM to 10 PM) manual counts of trucks, passenger vehicle occupancy, and pedestrians were taken at pre-selected locations, representing approximately half of the total stations. Thirteen and one half hour (6 AM to 7:30 PM) truck and pedestrian counts were made at the remaining stations. The manual counts were performed on the two-way streets by counting alternate directions of traffic during successive 15-minute intervals, i.e., northbound traffic from 6:00 to 6:15 AM, southbound traffic from 6:15 to 6:30 AM, northbound traffic from 6:30 to 6:45 AM, etc. On one-way streets the counting was continuous.

Transit bus and passenger data were furnished by the Southern California Rapid Transit District (SCRTD).

The basic data on vehicle- and person-trips were processed by location and by half-hour periods. These data are the primary source for most of the tables and plates included in this report.

The term "accumulation of vehicles (or persons) crossing cordon boundaries" refers to the number accumulated during the hours of the study. The "accumulation" is the total number within the cordon area at any specific time. This total includes an estimate of the number of vehicles and persons in the area at the beginning of the study.

Special Conditions

New automatic traffic counting equipment was used. It is perceived to be more sensitive, and to have affected somewhat the increase in vehicular traffic counted crossing cordon boundaries.

Traffic was affected along the western boundary by Metro Rail construction in Figueroa Street at Seventh Street and at Wilshire Boulevard. Along the southern boundary the Grand Av. - Olive St. one-way couplet was not totally established; Grand Av was operating one-way southbound, but Olive St had not been converted to one-way northbound operation.

The Whittier earthquake occurred on October 1st, the third scheduled counting day; these counts were rescheduled for a later date. Moreover, as in prior years, pick-up trucks and vans which are used commercially were included in the truck count.

1987 CORDON COUNT DATA

The data gathered during the October 1987 cordon count have been compiled into a number of tables and depicted graphically to facilitate review and analysis.

An overview of the cordon area and vehicular volumes entering and leaving the cordon area during the study are provided in Plate 1. A summary of vehicle and person trips, by travel mode, is shown in Table 1.

Comprehensive, detailed data gathered during the cordon count are tabulated and produced in Tables 2 through 5.

Vehicle volumes entering and leaving the cordon area by half hour intervals are depicted in Plate 2; the accompanying accumulation of vehicles, by type, is plotted in Plate 3. Persons entering and leaving the area, and their accumulation, by travel mode, are shown in Plates 4 and 5, respectively.

PLATE I

DOWNTOWN CORDON COUNT

OCTOBER 1987

TOTAL VEHICLES 6AM TO 10PM
INBOUND 426,020
OUTBOUND 429,742

Table 1
Sixteen-Hour Summary
1987 Cordon Count Data
October, Midweek Day

	In	Out
Passenger cars	372,397	356,908
Trucks and Other Vehicles	44,603	39,914
Buses	8,994	8,772
Grand Total - Vehicles	425,994	405,594

Persons		
Auto Passengers	493,783	475,966
Other Vehicle Passengers	44,603	39,914
Bus Passengers	157,203	154,584
Pedestrians	56,626	57,492
Grand Total - Persons	752,215	727,956

TABLE 2

SUMMARY OF VEHICLES BY LOCATION
DOWNTOWN LOS ANGELES, OCT 1987, 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.	7895	8236	704	725	101	105	8700	9066
1ST ST.	10825	10175	1510	1468	353	350	12688	11993
2ND ST.	4876	5426	917	947	0	0	5793	6373
3RD ST.	11794	0	2066	0	171	0	14031	0
BOYD ST.	735	687	46	73	0	0	781	760
4TH ST.	0	10378	0	2184	0	170	0	12732
WINSTON ST.	699	1095	85	92	0	0	784	1187
5TH ST.	12911	0	1574	0	442	0	14927	0
6TH ST.	0	10003	0	1919	0	452	0	12374
7TH ST.	11419	8023	805	917	596	646	12820	9586
8TH ST.	11828	0	1919	0	263	0	14010	0
9TH ST.	0	6617	0	1274	0	219	0	8110
OLYMPIC BLVD.	6487	8842	1420	1547	15	9	7922	10398
11TH ST.	4590	0	1202	0	44	0	5836	0
12TH ST.	0	6447	0	1551	0	44	0	8042
PICO BLVD.	4262	3516	908	701	0	0	5170	4217
SUB TOTAL	88321	79445	13156	13398	1985	1995	103462	94838
SOUTH BOUNDARY								
SOUTH OF PICO BLVD. ON								
LOS ANGELES ST.	5638	6541	884	988	0	0	6522	7529
MAIN ST.	7811	8898	1776	1413	536	545	10123	10856
BROADWAY	1997	4947	912	784	913	377	3822	6108
HILL ST.	3111	5660	248	424	0	580	3359	6664
OLIVE ST.	5933	2941	1146	391	733	0	7812	3332
MARGO ST.	263	65	117	20	0	0	380	85
GRAND AVE.	0	6045	0	474	0	696	0	7215
HOPE ST.	3040	2171	614	349	0	0	3654	2520
FLOWER ST.	0	8545	0	679	0	0	0	9224
FIGUEROA ST.	13766	6559	2104	1102	174	173	16044	7834
SUB TOTAL	41559	52372	7801	6624	2356	2371	51716	61367
WEST BOUNDARY								
WEST OF FIGUEROA ST. ON								
PICO BLVD.	8430	6899	1872	1544	293	161	10595	8604
11TH ST.	3394	7115	678	811	0	334	4072	8260
OLYMPIC BLVD.	15992	16009	1845	1868	373	163	18210	18040
9TH ST.	21481	0	2311	0	91	0	23883	0
8TH PLACE	587	872	81	211	0	0	668	1083
8TH ST.	0	22111	0	1126	0	241	0	23478
7TH ST.	5993	6174	502	666	0	0	6495	6840
WILSHIRE BLVD.	10659	9442	574	357	553	416	11786	10215
HARBOR FWY OFF RAMP	20555	0	1865	0	0	0	22420	0
6TH ST.	15147	0	1664	0	277	0	17088	0
5TH ST.	0	27774	0	2134	0	468	0	30376
LOWER 4TH ST.	9795	0	907	0	209	0	10911	0
4TH ST. VIADUCT	21423	0	1389	0	0	0	22812	0
HARBOR FWY OFF RAMP	2414	0	203	0	0	0	2617	0
3RD ST.	0	29421	0	3222	0	13	0	32656
2ND ST.	7805	7757	1531	1052	0	0	9336	8809
1ST ST.	12204	13114	440	439	107	102	12751	13655
TEMPLE ST.	8982	6889	583	345	177	174	9742	7408
SUB TOTAL	164861	153577	16445	13775	2080	2072	183386	169424
NORTH BOUNDARY								
NORTH OF TEMPLE ST. ON								
FIGUEROA ST.	7357	13835	438	626	39	43	7834	14504
HARBOR FWY OFF RAMP	4845	0	253	0	250	0	5348	0
HOLLYWOOD FWY RAMPS	6442	7796	481	489	250	0	7173	8285
GRAND AVE.	10820	13136	639	643	0	241	11459	14020
HILL ST.	10143	4105	1302	379	326	0	11771	4484
BROADWAY	9050	8650	1180	1004	198	539	10428	10193
SPRING ST.	14256	-1191	1466	0	1405	1191	17127	0
MAIN ST.	0	12196	0	2038	0	218	0	14452
LOS ANGELES ST.	14743	12987	1442	938	105	102	16290	14027
SUB TOTAL	77656	71514	7201	6117	2573	2334	87430	79965
GRAND TOTAL	372397	356908	44603	39914	8994	8772	425994	405594

TABLE 3

SUMMARY OF PERSONS BY LOCATION
DOWNTOWN LOS ANGELES, OCT 1987, 6AM - 10PM

	AUTO PASSENGERS		PASSENGERS IN OTHER VEHICLES		BUS PASSENGERS		PEDESTRIANS		TOTAL PERSONS	
EAST BOUNDARY	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
EAST OF LOS ANGELES ST.ON										
TEMPLE ST.	10421	10750	704	725	1456	1449	1862	1241	14443	14165
1ST ST.	15615	15410	1510	1468	6154	5522	2508	2917	25787	25317
2ND ST.	6479	7268	917	947	0	0	874	984	8270	9199
3RD ST.	16389	0	2066	0	1215	0	645	590	20315	590
BOYD ST.	964	882	46	73	0	0	615	669	1625	1624
4TH ST.	0	13785	0	2184	0	1446	254	363	254	17778
WINSTON ST.	904	1448	85	92	0	0	1238	1381	2227	2921
5TH ST.	17768	0	1574	0	10511	0	3537	3601	33390	3601
6TH ST.	0	13376	0	1919	0	12264	3551	3537	3551	31096
7TH ST.	15768	10727	805	917	9244	9744	1839	1619	27656	23007
8TH ST.	16141	0	1919	0	3718	0	2572	2809	24350	2809
9TH ST.	0	9558	0	1274	0	3947	3361	3442	3361	18221
OLYMPIC BLVD.	8592	12733	1420	1547	38	13	889	901	10939	15194
11TH ST.	6720	0	1202	0	1029	0	2830	2631	11781	2631
12TH ST.	0	9271	0	1551	0	1363	1536	1566	1536	13751
PICO BLVD.	6221	5039	908	701	0	0	1462	1275	8591	7015
SUB TOTAL	121982	110247	13156	13398	33365	35748	29573	29526	198076	188919
SOUTH BOUNDARY										
SOUTH OF PICO BLVD. ON										
LOS ANGELES ST.	7596	9107	884	988	0	0	736	934	9216	11029
MAIN ST.	10563	12325	1776	1413	5186	6001	694	637	18219	20376
BROADWAY	2671	6906	912	784	12236	11385	598	369	16417	19444
HILL ST.	3975	7121	248	424	0	1076	638	587	4861	9208
OLIVE ST.	7492	3692	1146	391	7886	0	229	280	16753	4363
MARGO ST.	325	71	117	20	0	0	151	254	593	345
GRAND AVE.	0	7870	0	474	0	5834	236	294	236	14472
HOPE ST.	3936	2789	614	349	0	0	344	262	4894	3400
FLOWER ST.	0	11088	0	679	0	0	319	335	319	12102
FIGUEROA ST.	17894	8414	2104	1102	3381	3599	419	521	23798	13636
SUB TOTAL	54452	69383	7801	6624	28689	27895	4364	4473	95306	108375
WEST BOUNDARY										
WEST OF FIGUEROA ST. ON										
PICO BLVD.	12105	10157	1872	1544	5733	4952	494	492	20204	17145
11TH ST.	4835	10655	678	811	0	588	396	478	5909	12532
OLYMPIC BLVD.	20356	21220	1845	1868	4488	5276	1503	1510	28192	29874
9TH ST.	27518	0	2311	0	2803	0	882	762	33514	762
8TH PLACE	736	1063	81	211	0	0	733	744	1550	2018
8TH ST.	0	28054	0	1126	0	5981	1868	1947	1868	37108
7TH ST.	7899	7741	502	666	0	0	4245	4041	12646	12448
WILSHIRE BLVD.	14091	11910	574	357	10368	8352	2001	1973	27034	22592
HARBOR FWY OFF RAMP	25124	0	1865	0	0	0	0	0	26989	0
6TH ST.	19953	0	1664	0	8705	0	527	591	30849	591
5TH ST.	0	35193	0	2134	0	8636	617	625	617	46588
LOWER 4TH ST.	12911	0	907	0	342	0	316	693	14476	693
4TH ST. VIADUCT	28214	0	1389	0	0	0	3	3	29606	3
HARBOR FWY OFF RAMP	2892	0	203	0	0	0	0	0	3095	0
3RD ST.	0	37519	0	3222	0	444	194	182	194	41367
2ND ST.	10646	10365	1531	1052	0	0	327	387	12504	11804
1ST ST.	15504	18024	440	439	3291	3268	179	192	19414	21923
TEMPLE ST.	11570	9330	583	345	5391	5044	316	244	17860	14963
SUB TOTAL	214354	201231	16445	13775	41121	42541	14601	14864	286521	272411
NORTH BOUNDARY										
NORTH OF TEMPLE ST. ON										
FIGUEROA ST.	9446	18189	438	626	949	1096	342	390	11175	20301
HARBOR FWY OFF RAMP	5901	0	253	0	5655	0	0	0	11809	0
HOLLYWOOD FWY RAMPS	7761	10130	481	489	5655	0	0	0	13897	10619
GRAND AVE.	13231	16375	639	643	0	4698	455	335	14325	22051
HILL ST.	13584	5290	1302	379	9784	0	515	589	25185	6258
BROADWAY	12402	11121	1180	1004	3981	12656	1366	1737	18929	26518
SPRING ST.	21148	0	1466	0	27537	29190	1936	1750	52087	30940
MAIN ST.	0	16418	0	2038	0	360	1727	1722	1727	20538
LOS ANGELES ST.	19522	17582	1442	938	467	400	1747	2106	23178	21026
SUB TOTAL	102995	95105	7201	6117	54028	48400	8088	8629	172312	158251
GRAND TOTAL	493783	475966	44603	39914	157203	154584	56626	57492	752215	727956

TABLE 4

SUMMARY OF VEHICLES BY HALF HOUR PERIODS

DOWNTOWN LOS ANGELES, OCT 1987

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
			6300			500			300			7100
630	7045	3759	9586	1001	595	906	330	283	347	8376	4637	10839
700	13113	6335	16364	1388	864	1430	418	364	401	14919	7563	18195
730	17602	8307	25659	1540	992	1978	425	405	421	19567	9704	28058
800	20910	9802	36767	1613	1082	2509	400	382	439	22923	11266	39715
830	22237	10081	48923	1792	1186	3115	398	351	486	24427	11618	52524
900	21691	9156	61458	1723	1324	3514	356	326	516	23770	10806	65488
930	17719	9179	69998	1907	1413	4008	298	277	537	19924	10869	74543
1000	14596	9255	75339	1875	1624	4259	260	266	531	16731	11145	80129
1030	13118	9812	78645	1865	1676	4448	244	245	530	15227	11733	83623
1100	11648	10500	79793	1849	1602	4695	240	254	516	13737	12356	85004
1130	11846	11028	80611	1874	1755	4814	247	254	509	13967	13037	85934
1200	11911	11950	80572	1738	1732	4820	263	250	522	13912	13932	85914
1230	11928	12239	80261	1713	1641	4892	249	238	533	13890	14118	85686
1300	11886	11521	80626	1799	1649	5042	250	264	519	13935	13434	86187
1330	12117	11308	81435	1724	1661	5105	261	243	537	14102	13212	87077
1400	11740	11999	81176	1688	1600	5193	263	246	554	13691	13845	86923
1430	10616	12115	79677	1791	1638	5346	255	250	559	12662	14003	85582
1500	10706	12235	78148	1793	1588	5551	278	276	561	12777	14099	84260
1530	10528	13544	75132	1874	1838	5587	314	291	584	12716	15673	81303
1600	11624	15172	71584	1734	1687	5634	361	342	603	13719	17201	77821
1630	12706	18296	65994	1617	1613	5638	421	413	611	14744	20322	72243
1700	13363	20288	59069	1476	1546	5568	401	430	582	15240	22264	65219
1730	13443	22946	49566	1388	1611	5345	363	379	566	15194	24936	55477
1800	12300	20091	41775	1230	1417	5158	357	386	537	13887	21894	47470
SUB TOTAL	326393	290918		39992	35334		7652	7415		374037	333667	
1830	10074	16908	34941	1191	1279	5070	292	303	526	11557	18490	40537
1900	8168	12718	30391	918	892	5096	263	263	526	9349	13873	36013
1930	6955	9719	27627	729	619	5206	191	208	509	7875	10546	33342
2000	5533	6870	26290	506	487	5225	169	163	515	6208	7520	32030
2030	4169	5470	24989	378	395	5208	116	126	505	4663	5991	30702
2100	3634	4682	23941	329	341	5196	114	104	515	4077	5127	29652
2130	3963	4898	23006	324	319	5201	107	103	519	4394	5320	28726
2200	3508	4725	21789	236	248	5189	90	87	522	3834	5060	27500
SUB TOTAL	46004	65990		4611	4580		1342	1357		51957	71927	
GRAND TOTAL	372397	356908		44603	39914		8994	8772		425994	405594	

TABLE 5

SUMMARY OF PERSONS BY HALF HOUR PERIODS

DOWNTOWN LOS ANGELES, OCT 1987

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
			8500			500			7300			4000			20300
630	8836	4603	12733	1001	595	906	6690	4311	9679	970	624	4346	17497	10133	27664
700	17114	7956	21891	1388	864	1430	10762	5805	14636	1947	1277	5016	31211	15902	42973
730	23827	10342	35376	1540	992	1978	11975	6948	19663	2316	2130	5202	39658	20412	62219
800	26295	12040	49631	1613	1082	2509	11960	6058	25565	2174	2319	5057	42042	21499	82762
830	26950	12265	64316	1792	1186	3115	10581	4089	32057	2283	2073	5267	41606	19613	104755
900	26210	11222	79304	1723	1324	3514	7747	3199	36605	2315	1893	5689	37995	17638	125112
930	22067	11699	89672	1907	1413	4008	5367	2745	39227	1687	1415	5961	31028	17272	138868
1000	18177	11985	95864	1875	1624	4259	4544	2966	40805	1668	1542	6087	26264	18117	147015
1030	17191	12606	100449	1865	1676	4448	4050	3040	41815	1768	1653	6202	24874	18975	152914
1100	15039	13819	101669	1849	1602	4695	3803	3262	42356	1980	1716	6466	22671	20399	155186
1130	15424	15459	101634	1874	1755	4814	4102	3514	42944	1928	2006	6388	23328	22734	155780
1200	15982	16762	100854	1738	1732	4820	3907	3692	43159	2439	2433	6394	24066	24619	155227
1230	18586	17244	102196	1713	1641	4892	3936	3376	43719	2964	2756	6602	27199	25017	157409
1300	16040	15774	102462	1799	1649	5042	3859	3499	44079	2808	2747	6663	24506	23669	158246
1330	17174	15947	103689	1724	1661	5105	3874	3547	44406	2976	2842	6797	25748	23997	159997
1400	16140	16135	103694	1688	1600	5193	3748	3461	44693	2447	2343	6901	24023	23539	160481
1430	14179	15823	102050	1791	1638	5346	3482	4095	44080	2040	2086	6855	21492	23642	158331
1500	13890	16790	99150	1793	1588	5551	3815	4573	43322	1864	2285	6434	21362	25236	154457
1530	14082	18227	95005	1874	1838	5587	4478	5384	42416	1940	2277	6097	22374	27726	149105
1600	15653	20432	90226	1734	1687	5634	5472	6744	41144	2040	2300	5837	24899	31163	142841
1630	17178	24235	83169	1617	1613	5638	6800	10335	37609	2399	2473	5763	27994	38656	132179
1700	17642	26898	73913	1476	1546	5568	6381	12301	31689	2307	2681	5389	27806	43426	116559
1730	17912	30653	61172	1388	1611	5345	5836	11818	25707	2524	2882	5031	27660	46964	97255
1800	16365	26381	51156	1230	1417	5158	5673	11159	20221	1937	2542	4426	25205	41499	80961
SUB TOTAL	427953	385297		39992	35334		142842	129921		51721	51295		662508	601847	
1830	13640	23281	41515	1191	1279	5070	3926	8491	15656	1450	1856	4020	20207	34907	66261
1900	11240	17134	35621	918	892	5096	3524	5653	13527	988	1331	3677	16670	25010	57921
1930	9911	13381	32151	729	619	5206	1913	3476	11964	686	895	3468	13239	18371	52789
2000	8163	9367	30947	506	487	5225	1590	2241	11313	545	503	3510	10804	12598	50995
2030	6188	7679	29456	378	395	5208	861	1654	10520	369	479	3400	7796	10207	48584
2100	5294	6577	28173	329	341	5196	916	1046	10390	330	425	3305	6869	8389	47064
2130	6190	6701	27662	324	319	5201	897	1130	10157	296	390	3211	7707	8540	46231
2200	5204	6549	26317	236	248	5189	734	972	9919	241	318	3134	6415	8087	44559
SUB TOTAL	65830	90669		4611	4580		14361	24663		4905	6197		89707	126109	
GRAND TOTAL	493783	475966		44603	39914		157203	154584		56626	57492		752215	727956	

VEHICLES ENTERING & LEAVING AREA
OCTOBER 1987
Vehicles Entering and Leaving (Thousands)
0
5
10
15
20
25
30
7
8
9
10
11
noon
1
2
3
4
5
6
7
8
9
10
Half Hour Periods Ending
entering
leaving

Plate 2

VEHICLES ACCUMULATED IN AREA

OCTOBER 1984, OCTOBER 1987

Plate 3

PERSONS ENTERING & LEAVING AREA
OCTOBER 1987
Persons Entering and Leaving (Thousands)
0
5
10
15
20
25
30
35
40
45
50
7
8
9
10
11
noon
1
2
3
4
5
6
7
8
9
10
Half Hour Periods Ending
entering
leaving

Plate 4

PERSONS ACCUMULATED IN AREA

OCTOBER 1984, OCTOBER 1987

Plate 5

CORDON AREA TRENDS AND ANALYSES

Long Term Historical Cordon Travel Trends

The earliest recorded data on Downtown cordon area travel activity, taken in 1924, included only passenger volume data, no pedestrian trips, and encompassed only the 13 hours from 6 AM to 7 PM. That study disclosed that over 1.2 million passengers crossed the cordon boundaries during the 13-hour study period. Of that total, 61% were passengers in public transportation facilities and the remaining 39% were passengers in private transportation vehicles, either automobiles or commercial vehicles. The boundaries of this and other early cordon counts are described in Appendix A.

The next recorded study including data on person trips was conducted in 1941. For the 13-hour period of that study, a total of nearly 1.3 million passengers entered and left the cordon area. That study disclosed a reversal in travel mode from the 1924 study, i.e., public transportation passengers represented 39% of the total passengers crossing the cordon boundaries and the remaining 61% were occupants in private vehicles.

In 1987, with 1.25 million passengers entering and leaving the cordon area during the 13-hour period, transit patronage had further declined to 24% of the total passengers, with 76% in private vehicles.

Comparable 13-hour passenger volume data for the 1987 study and for selected other cordon studies are shown in Appendix B.

Comparisons of the entire 16-hour vehicle and person trip statistics are made in Tables 6, 7 and 8.

The trend in regard to inbound cordon person trips for the entire 16-hour period, from 6 AM to 10 PM, by the various modes from 1963 to date, is depicted on Plate 6.

TABLE 6

Downtown Cordon Area Passenger* Mode Trends
16 Hours - 6 AM to 10 PM

Passenger Volumes Crossing Cordon Boundaries					Proportional Rates By Passenger Mode				
Year	Auto. Pass.	Comm. Veh Pass.	Transit Pass.	Total Pass.	Year	Auto. Pass.	Comm. Veh Pass.	Transit Pass.	Total Pass.
1963	723,996	66,043	282,407	1,072,446	1963	67.5	6.2	26.3	100.0
1967	687,950	61,413	261,127	1,010,490	1967	68.1	6.1	25.8	100.0
1968	747,718	56,886	260,790	1,065,394	1968	70.2	5.3	24.5	100.0
1972	767,063	60,023	250,027	1,077,113	1972	71.2	5.6	23.2	100.0
1974	725,428	56,898	303,876	1,086,202	1974	66.8	5.2	28.0	100.0
1976	791,564	51,602	324,113	1,167,279	1976	67.8	4.4	27.8	100.0
1978	840,952	64,678	327,291	1,232,921	1978	68.2	5.2	26.6	100.0
1980	860,787	51,050	372,347	1,284,184	1980	67.0	4.0	29.0	100.0
1984	889,792	52,839	390,341	1,332,972	1984	66.7	4.0	29.3	100.0
1987	969,749	84,517	311,787	1,366,053	1987	71.0	6.2	22.8	100.0

* Note that pedestrians entering and leaving the cordon area are not included in these data.

Table 7

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

CORDON COUNT

		1941	1957	1963	1972	1974	1976	1978	1980	1984	1987
16-Hour	Total	--	327,046	291,506	319,245	306,663	324,970	351,105	343,800	369,112	425,994
Total In	Pass. Cars	288,000	283,097	253,731	283,229	271,899	291,060	312,100	311,326	334,014	372,397
16-Hour	Total	--	323,624	285,970	310,339	296,228	308,445	332,602	333,347	353,597	405,594
Total Out	Pass. Cars	--	278,224	247,836	277,039	263,671	278,699	295,848	303,349	320,463	356,908
High	Total	18,500	22,077	19,267	19,927	18,350	19,104	20,647	19,811	20,467	24,427
1/2-Hour In	Pass Cars	--	20,402	16,870	18,554	16,912	17,653	18,991	18,437	18,856	22,237
Same	Total	12,000	12,689	10,912	11,150	9,895	9,944	10,919	10,396	10,518	11,618
1/2-Hour Out	Pass. Cars	--	11,202	9,349	10,180	8,875	8,983	9,817	9,512	9,291	10,081
High	Total	20,500	22,760	19,730	22,182	19,550	20,023	21,092	21,078	21,860	24,936
1/2-Hour Out	Pass. Cars	--	20,884	17,176	20,575	17,881	18,515	19,669	19,935	20,702	22,946
Same	Total	13,500	15,602	12,893	14,069	13,115	13,513	12,725	12,306	13,827	15,194
1/2-Hour In	Pass. Cars	--	13,876	11,131	12,735	11,902	12,246	11,523	11,346	12,740	13,443
Highest Veh.	Total	49,000	48,306	--	58,789	58,576	65,215	68,088	67,083	73,808	87,077
Accum. Inc.	Pass. Cars	--	46,007	--	53,641	54,094	59,730	64,130	629,938	70,269	81,435
Initial											

Table 8

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

CORDON COUNT

		1941	1957	1963	1972	1974	1976	1978	1980	1984	1987
16-Hour	Persons	757,120	687,906	605,730	598,673	605,029	628,515	677,365	692,338	727,469	752,215
Total In	Auto Pass.	441,647	403,015	368,844	389,768	372,979	403,821	432,517	435,982	455,344	493,783
%Auto Passengers		58	59	61	65	62	64	64	63	63	66
16-Hour	Persons	723,191	692,195	589,964	582,094	578,002	607,334	646,885	677,629	708,031	727,956
Total Out	Auto Pass.	415,403	402,399	355,152	377,295	352,449	387,743	408,435	424,805	434,448	475,966
%Auto Passengers		57	58	60	65	61	64	63	63	61	65
High	Persons	50,161	59,411	50,922	42,433	43,524	43,438	43,149	45,355	41,243	42,042
1/2-Hour In	Auto Pass.	25,982	31,247	27,505	25,053	23,071	24,009	24,805	25,010	21,271	26,295
%Auto Passengers		52	53	54	59	53	55	57	55	52	63
Same	Persons	26,298	28,010	20,852	20,881	19,331	19,650	21,171	21,032	20,237	21,499
1/2-Hour Out	Auto Pass.	14,499	17,100	11,608	12,425	10,899	11,304	12,125	11,715	9,925	12,040
%Auto Passengers		55	61	56	59	56	58	57	56	47	56
High	Persons	61,710	61,592	47,588	49,198	48,232	48,886	47,318	49.705	47,319	46,964
1/2-Hour Out	Auto Pass.	31,558	31,362	27,167	28,611	24,264	26,076	26,013	28,721	27,929	30,653
%Auto Passengers		51	51	57	58	50	53	55	58	59	65
Same	Persons	29,629	29,888	26,519	25,856	25,045	26,450	28,941	24,697	27,855	27,660
1/2-Hour In	Auto Pass.	18,160	19,201	15,973	17,068	15,571	16,709	18,369	15,938	17,282	17,912
%Auto Passengers		61	64	60	66	62	63	63	65	62	65
High	Persons	174,758	132,618	--	122,729	135,071	135,061	131,362	139,456	143,754	160,481
Accum*	Auto Pass.	67,593	57,128	--	68,224	68,450	75,739	75,188	78,090	88,238	103,694
%Auto Passengers		39	43	--	55	51	56	57	56	61	65

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*Persons Crossing Cordon

TRENDS IN MODAL DISTRIBUTION

PERSONS ENTERING CORDON AREA

Plate 6

Summary Data on Person (including pedestrians)and Vehicle Trips for 1987

A total of 831,600 vehicles crossed the cordon boundaries during the 16-hour study period from 6 AM to 10 PM. Entering traffic was comprised of 87.4% passenger cars, 10.5% trucks and other vehicles, and 2.1% buses.

Of the total persons entering the cordon area, 65.7% arrived in automobiles, 20.9% in transit vehicles, 5.9% in commercial vehicles (trucks), and the remainder, 7.5% entered on foot.

The peak arrival period for bus passengers was between 6:30 AM and 8:30 AM, when 154,500 persons entered the cordon area. Of these persons, 61.0% came by automobile, 29.3% by bus, 4.1% in commercial vehicles, and 5.7% on foot.

The auto passenger peak arrival period began one-half hour after the bus peak period, at 7:00 AM and lasted until 9:30 AM. Of the 192,300 persons entering the cordon area, 65.1% traveled by automobile, 24.8% by bus, 4.5 in commercial vehicles, and 5.6% on foot.

The peak departure period from the cordon area was from 3:30 P.M to 6:30 P.M. Of the 236,600 departing passengers, 64.2% were automobile passengers, 25.7% bus passengers, 3.9% traveled by commercial vehicle, and 6.2% were pedestrians.

The peak person accumulation was at 2:00 PM, when a total of 160,500 persons were within the cordon area. Peak accumulation of vehicles occurred at 1:30 PM, when a total of 87,100 vehicles were within the cordon area.

20-Year Cordon Trend Analyses

Comparison of 13-hour and 16-hour passenger trips crossing cordon boundaries shows greater increases in the 16-hour volumes, indicating that downtown is becoming relatively busier between 7:00 PM and 10:00 PM:

Passenger volumes crossing cordon boundaries

	1967	1984	Increase	1987	Increase over 1984
6:00 AM - 7:00 PM	922,381	1,226,112	26.4%	1,252,508	2.2%
6:00 AM - 10:00 PM	1,010,490	1,332,972	35.2%	1,366,053	2.5%

As is evident from Plate 6, generally increasing volumes of person trips have been crossing the cordon boundaries since 1967, after a slump in the early 1970's. During these years, travel mode patterns also changed. To provide some insight in regard to these changes in travel patterns and modes, analyses have been made of the cordon data from the studies conducted in 1967, 1984 and in 1987.

Peak Period Person-Trip Volume Trend:

Comparison of bus and automobile person trip volumes during the inbound transit and automobile peak periods shows a considerable decrease in mode split to transit since 1984, to a lower level than in 1967, and a sizeable increase in automobile trips, to higher than 1967 levels.

Inbound Person Trips

Time	Year	Auto Pass. Volume % Total Persons	Bus Pass. Volume % Total Persons	Total Persons
6:30-8:30 AM	1987	94,186 61.0%	45,278 29.3%	154,517
(Peak arrival period - bus pass.)	1984	85,400 55.1%	57,732 37.3%	154,969
	1967	81,270 55.6%	48,361 33.1%	146,122
7:00-9:30 AM	1987	125,349 65.2%	47,630 24.8%	192,329
(Peak arrival period - auto pass.) 1987	1984	110,186 59.8%	59,176 32.1%	184,311
	1967	100,246 58.2%	50,535 29.3%	172,352

As can be seen in Plate 5, comparison of 1987 and 1984 cordon data for inbound person trips shows that the total half-hour arrival volumes have decreased between 6:00 AM and 7:00 AM; decreases in transit usage have not been offset by increases in automobile passengers. Between 7:00 AM and 9:30 AM, however, the half-hour arrival volumes have increased due to auto passenger increases greater than transit decreases. Total person accumulation accordingly increases at a slower rate - 1987 volumes are lower than 1984 volumes until 9:30 AM, when the accumulation begins to surpass 1984 values.

Analyses of Person-Destination Trends:

Travel data on inbound trips at the cordon boundaries include trips by public transit, automobile, truck, and on foot which merely pass through the cordon area, as well as trips which have a destination within the area. To provide insight on the latter, an analysis has been made of cordon accumulation data, which reflect a great majority of person trips having a destination within the cordon area.

A twenty year comparison, 1967 to 1987, is made of accumulation by transportation mode during the period of maximum total accumulation. Initial accumulation is not included.

Peak Accumulation by Travel Mode

Year	Time Period	Auto Pass.	Comm. Veh. Pass.	Transit Pass.	Pedestrians
1987	1:30-2 PM	67.9%	3.3%	26.7%	2.1%
1984	1-1:30 PM	61.4%	1.5%	34.4%	2.7%
1967	1:30-2 PM	54.5%	2.7%	35.5%	7.3%

Vehicle Accumulation Patterns:

The accumulation of vehicles by half hour periods in the cordon area in 1987 is compared with 1984 values in Plate 3. The shape of the "total vehicles" curve is similar to the 1984 curve, although the maximum accumulation was at 2:30 PM, rather than 2:00 PM, and was 18.0% higher, with 87,100 vehicles. Vehicular accumulation stayed at approximately 90% of this maximum value from 9:30 AM to 4 PM.

Comparison of data for 1987 with 1984 data discloses increased vehicle accumulation throughout the day. Bus accumulation was lower throughout the study period; bus volumes entering and leaving the cordon area were, however, higher during almost every half-hour period.

Automobile Occupancy:

The 1987 automobile occupancy rate, calculated by dividing the 16-hour total number of auto passengers by the corresponding number of passenger vehicles, was determined to be 1.33 for both inbound and outbound automobiles.

A similar calculation for the 13-hour period between 6 AM and 7 PM (which encompassed 93% of the total inbound passenger vehicles and 92% of the total inbound auto passengers, and 90% of the outbound vehicles and 89% of the total outbound auto passengers) revealed occupancy rates of 1.31 and 1.33 for inbound and outbound traffic respectively.

The comparable passenger car occupancy rates for 1967, 1984 and 1987 are summarized here:

Time Period	1967	1984	1987
16-hr. inbound	1.38	1.36	1.33
16-hr. outbound	1.39	1.36	1.33
(6 AM to 10 PM)			
13-hr. inbound	1.35	1.35	1.31
13-hr. outbound	1.36	1.33	1.33
(6 AM to 7 PM)			
2 1/2hr. inbound peak auto passenger & peak total vehicle	1.35	1.28	1.25
(7:00 AM to 9:30 AM)			
2 1/2 hr. outbound peak auto passenger & peak total vehicle			
(3:30 PM to 6:00 PM - 1967, 1984)	1.44	1.35	
(4:00 PM to 6:30 PM - 1987)			1.33

APPENDIX A
(Excerpt from the 1963 Downtown Los Angeles Cordon Count report)

INTRODUCTION

Counts of the traffic in the downtown Los Angeles area have been made for many years, dating back to 1924. The data obtained from these counts is made available to interested agencies for use in certain aspects of civic and commercial planning. Information is obtained on all traffic entering and leaving the downtown area during a typical 16-hour period from 6 a.m. to 10 p.m.

The earliest counts were made with boundaries set at Sunset Boulevard, Figueroa Street, Washington Boulevard and either Main Street, Los Angeles Street or San Pedro Street.

In the late thirties, the boundaries of Sunset Boulevard, Figueroa Street, Pico Boulevard and Los Angeles Street were established. Boundaries were later expanded to include the freeways encircling the downtown area.

Previous counts were made by using a large group of people who manually counted vehicles and pedestrians at points where all streets crossed the cordon boundaries.

Prior to the 1963 count, it was decided that the purposes of the study could be accomplished by making use of automatic traffic volume counts supplemented with manual sampling counts of pedestrians and vehicle occupancy. This resulted in greatly reduced costs for the study. To facilitate this new technique, the cordon boundaries were re-established at Figueroa Street, Pico Boulevard, Los Angeles Street and Temple Street.

APPENDIX B

Downtown Cordon Area Passenger Mode Trends
13 Hours - 6 AM to 7 PM

Passenger Volumes Crossing Cordon Boundaries

Year	Auto. Pass.	Comm. Veh Pass.	Transit Pass.	Total Pass.
1924 (1)	393,322	74,252	741,124	1,208,698
1941 (2)	715,057	72,724	501,503	1,291,284
1957 (3)	717,591	70,650	394,171	1,182,412
1963 (3)	648,414	60,416	267,033	975,863
1967 (3)	615,304	58,318	248,759	922,381
1968 (3)	672,310	54,140	247,840	974,290
1972 (3)	691,198	56,738	238,880	986,816
1974 (3)	657,874	53,994	290,010	1,001,878
1976 (3)	710,960	49,187	308,730	1,068,877
1978 (3)	749,841	61,545	311,589	1,122,975
1980 (3)	775,405	48,413	355,136	1,178,954
1984 (3)	806,201	49,759	370,152	1,226,112
1987 (3)	878,545	79,606	294,357	1,252,508

Proportional Rates By Passenger Mode

Year	Auto. Pass.	Comm. Veh Pass.	Transit Pass.	Total Pass.
1924	32.5	6.2	61.3	100.0
1941	55.4	5.8	38.8	100.0
1957	60.7	6.0	33.3	100.0
1963	66.4	6.2	27.4	100.0
1967	66.7	6.3	27.0	100.0
1968	69.0	5.6	25.4	100.0
1972	70.0	5.8	24.2	100.0
1974	65.7	5.4	28.9	100.0
1976	66.5	4.6	28.9	100.0
1978	66.8	5.5	27.7	100.0
1980	65.8	4.1	30.1	100.0
1984	65.7	4.1	30.2	100.0
1987	70.1	6.4	23.5	100.0

(1) Report on a Comprehensive Rapid Transit Plan for City and County of Los Angeles, Kelker, DeLeuw and Company, 1925
(2) Los Angeles County Regional Planning Commission
(3) Los Angeles City, Department of Transportation