MASS TRANSIT FACILITIES

AND

THE MASTER PLAN OF PARKWAYS

1942

CITY PLANNING COMMISSION

CITY PLANNING COMMISSION

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1942

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ACKNOWLEDGMENT

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The department wishes to acknowledge the splendid assistance it received from Mr. Fred L. Mowder, Executive Secretary of the Central Business District Association, who so generously made available the services of Mr. Stuart M. Bate, Transportation Consultant.

The department is also indebted to Mr. Lloyd Aldrich, City Engineer, who authorized Mr. Hugo H. Winter, Engineer, Rapid Transit Division of the Bureau of Engineering, to assist the department in the preparation of the report.

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COORDINATION OF EXISTING MASS TRANSIT FACILITIES WITH THE MASTER PLAN OF PARKWAYS—A PROGRESS REPORT

INTRODUCTION

The first step in the adoption of a comprehensive transportation plan was taken when the City Planning Commission, on June 23, 1941, approved and adopted the Master Plan of Parkways. This system of grade-separated highways, designed for the safe and rapid movement of motor vehicles, was developed and planned by the Transportation Engineering Board. The proposals of that Board were carefully studied and analyzed by the City Planning Department to determine whether or not they met all the requirements of a well coordinated highway plan. In the process of making these analyses, all available data which were collected and which had been used by the Transportation Engineering Board in formulating the plan were studied. After subjecting the plan to every known test, it was the opinion of the department that, modified by the addition of the Whitnall Parkway, it met all the requirements of a well balanced parkway plan.

The final form or design of the parkway system was influenced largely by the topography and physical characteristics of Los Angeles. The city and metropolitan area are unique in many respects; its transportation problems cannot be solved by formulae and processes which are commonly applied to other cities. The parkway plan which was developed for the city and metropolitan area will most adequately serve its transit requirements. The plan has several outstanding features which are of special significance to the city.

1. The system of parkways included in the plan will greatly improve traffic circulation throughout the city and region. By the very nature of the design all delays and inconveniences of the present street system are eliminated. Traffic safety is assured by removing all points of friction and collision by separating the grades of all crossings and by dividing roadways.

2. The construction of a system of parkways will relieve the pressure on existing streets. Through and long haul traffic will be attracted to the parkways leaving the surface streets to serve local traffic for which they were designed and for which they are adequate.

3. The value of property abutting heavy traffic thoroughfares will be stabilized by removing the objectionable features of the street, namely, the large volumes of through and long haul traffic.

4. The City Planning Commission can proceed with the intelligent planning of other elements of the comprehensive city plan.

5. Los Angeles is one of the first cities to plan a comprehensive system of parkways for rapid transit. New York and Chicago have been building parkways serving certain sections of the metropolitan area. Detroit has recently produced a parkway plan similar to the Los Angeles plan in its scope. The experience in New York and Chicago has been most satisfactory. Traffic moves rapidly and in large volumes. Of interest also is the effect of the construction of parkways upon adjacent properties in the New York region. In all cases there has been a marked appreciation in property values.

6. Parkways, of the type discussed in this report, will stand the test of time. After a sufficiently wide right-of-way has been acquired, the roadways have been constructed, the street grade separations and parkway intersections built and the bordering strips properly landscaped, the improvement is completed for all time except for such repairs and maintenance that may be necessary. The plan is adequate at the present time under present conditions and for the future insofar as the techniques and science of city planning and sound engineering could determine.

The Transportation Engineering Board recognized that, in addition to the problem of providing an adequate facility for the handling of the rapidly increasing motor vehicular traffic loads, there was also the almost equally serious problem of solving the mass transportation problem. The Board made the following recommendations in pointing the way toward the solution of that problem:

"The Board therefore recommends, as in the public interest, the controlled use of express highways by rapid transit buses under conditions insuring (A) vehicles specially designed for the service to preclude inappropriate speed, braking or similar characteristics, (B) restricted number as occasion may require, (C) bus stops entirely out of the traffic lanes on the main highway, and (D) arrangements designed to liquidate any excess cost of highways due to buses by rental charges to be paid out of revenues of the transportation system."

And further:

"The Board recommends thorough coordination of the surface and rapid transit facilities; that stop locations for rapid transit buses on express highways be arranged to facilitate passenger interchange at points of intersection with all important surface rail and bus lines; and that certain rapid transit lines be arranged to provide for through service, without transfer, by running rapid transit buses for part of their route on the surface streets to pick up the passengers conveniently, then on the express highway for high speed over the long haul and then back on the streets again for distribution of their load at the usual street stops."

This report is concerned with the coordination of existing transit facilities with the entire parkway system, but most specifically with those units of the system which have been completed, are under construction, and for which right-of-way is being acquired. In the process of appraising the possibilities of coordination, the present transit system as shown in Figure 1 was studied and the following investigations were made:

1. Total inbound and outbound movements on each of the existing transit lines;
2. The major streets intersecting the lines and the number of persons boarding and alighting at each;
3. The 24-hour totals of persons boarding and alighting at all stops;
4. The total number of car or bus stops in each direction, inbound and outbound;
5. The transfer points with other lines for each line;
6. The names of all stops at street intersections or other points;
7. The number of motor vehicles compared with streetcar and bus passengers;
8. Relation of streetcar or bus lines to parkway routes;
9. Design and capacity of ingress and egress connections to parkways;
10. Tentative express routes on the parkways;
11. Tentative rerouting of surface car and bus lines.

CONCLUSIONS AND RECOMMENDATIONS

The city and the metropolitan area of Los Angeles differ from other large metropolitan cities in many respects. In point of area alone, Los Angeles is larger than any other American city. The entire area is broken up by mountains, hills, and rivers and washes. These topographical features have produced large uninhabited or sparsely inhabited areas through which transit lines have been extended in joining the developed portions of the city together. There exists a relatively dense population only in the central part of the city and the densities there are low when compared with other large cities. Los Angeles is a city of homes. There are few areas with large apartments. This trend toward dispersion of the population is clearly illustrated by Figure 2 which shows the percent change in population between 1930-1940. This wide distribution of the population necessitates long hauls for the mass transportation system, and has made it physically and economically impossible to provide anything like comprehensive coverage for the metropolitan area.

The pattern of the distribution of registered motor vehicles is similar to that of populations. Figure 3 shows the distribution pattern. As a medium of transportation, the private automobile has been responsible to a large extent, for the growth of the metropolitan area and the communities in it; and for the process of decentralization of industry and business.

The transportation characteristics of Los Angeles are unique in many respects.

1. The traffic checks made by the Transportation Engineering Board in August and September, 1938, show for the 12-hour period from 7 A.M. to 7 P.M. a total of 624,288 persons entering the Central Business District; 384,778 or 61.7% were passengers of mass transit facilities.

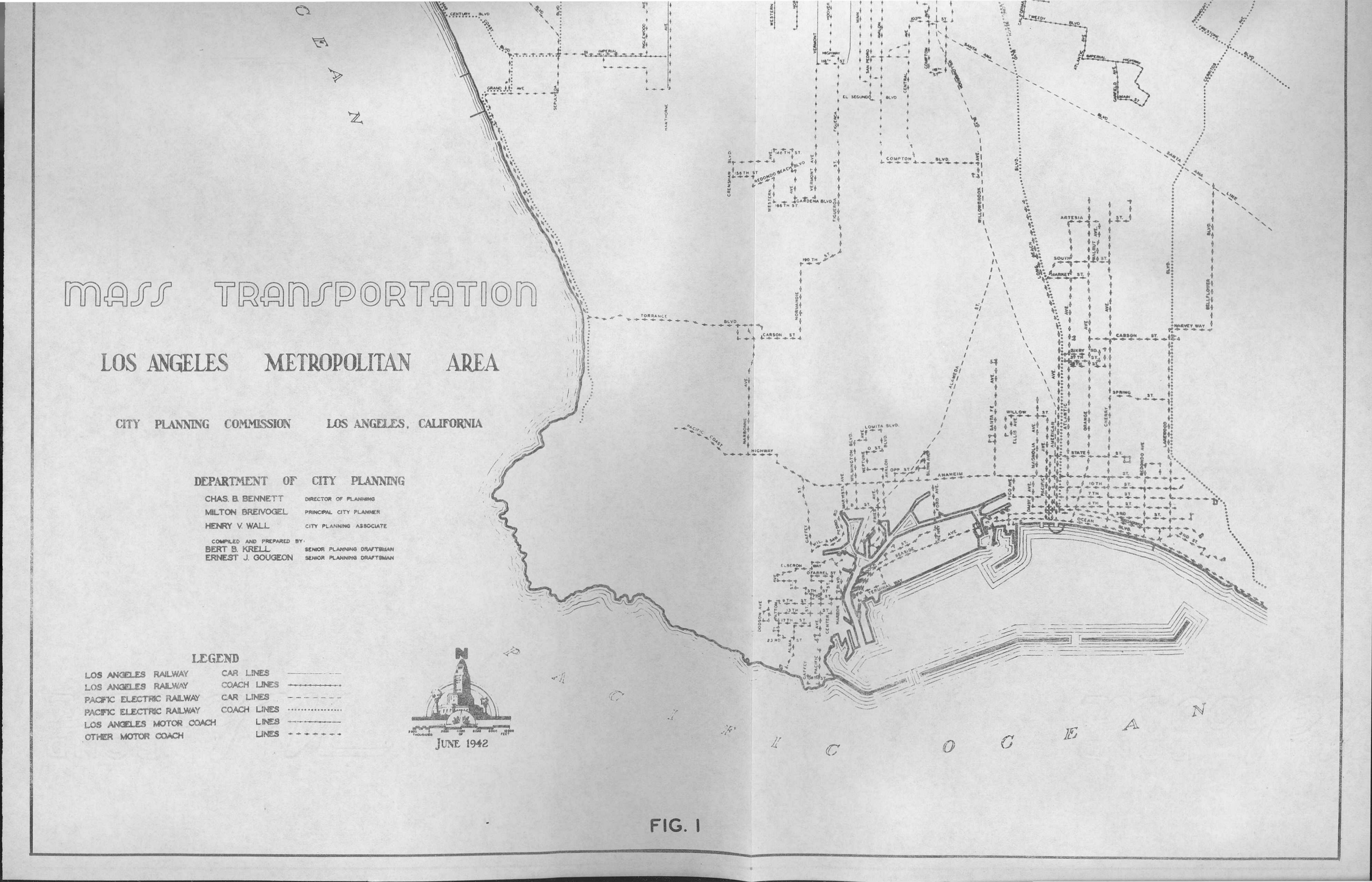
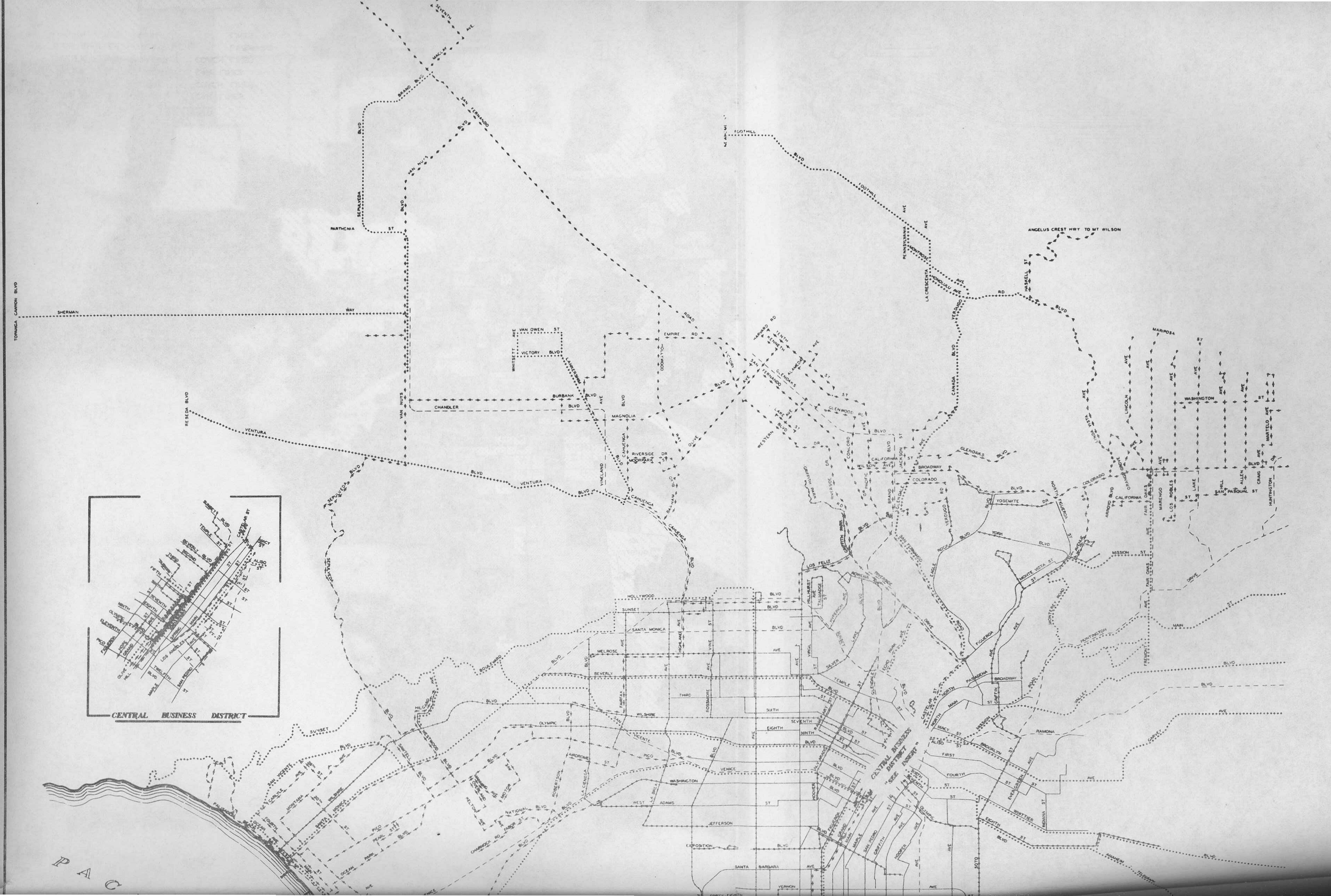

MASS TRANSPORTATION
LOS ANGELES METROPOLITAN AREA
CITY PLANNING COMMISSION LOS ANGELES, CALIFORNIA
DEPARTMENT OF CITY PLANNING
CHAS. B. BENNETT DIRECTOR OF PLANNING
MILTON BREIVOGEL PRINCIPAL CITY PLANNER
HENRY V. WALL CITY PLANNING ASSOCIATE
COMPILED AND PREPARED BY:
BERT B. KRELL SENIOR PLANNING DRAFTSMAN
ERNEST J. GOUGEON SENIOR PLANNING DRAFTSMAN
LEGEND
LOS ANGELES RAILWAY CAR LINES
LOS ANGELES RAILWAY COACH LINES
PACIFIC ELECTRIC RAILWAY CAR LINES
PACIFIC ELECTRIC RAILWAY COACH LINES
LOS ANGELES MOTOR COACH LINES
OTHER MOTOR COACH LINES
JUNE 1942
PACIFIC OCEAN

FIG. 1



ANGELUS CREST HWY TO MT WILSON
TOPANGA CANYON BLVD
SHERMAN
WAY
PARTHENIA
ST
SEPULVEDA
BLVD
VAN NUYS
SAN FERNANDO
ROAD
FOOTHILL
BLVD
VAN OWEN ST
VICTORY BLVD
WHITSETT AVE
EMPIRE RD
BURBANK
CHANDLER
MAGNOLIA
RESEDA BLVD
VENTURA
BLVD
VINELAND
CAHUENGA
RIVERSIDE DR
GLENOAKS
GLENWOOD
BROADWAY
COLORADO
YOSEMITE DR
YORK
BLVD
MISSION ST
MARIPOSA
WASHINGTON
SAN PASQUAL ST
CALIFORNIA
LOS FELIZ
HOLLYWOOD
SUNSET
SANTA MONICA
MELROSE
BEVERLY
THIRD
WILSHIRE
SIXTH
SEVENTH
EIGHTH
NINTH
OLYMPIC
PICO
VENICE
WASHINGTON
WEST ADAMS
ST
JEFFERSON
EXPOSITION
SANTA BARBARA
VERNON
TEMPLE
FIRST
FOURTH
MAIN
HUNTINGTON
RAMONA
BROOKLYN
WHITTIER
CENTRAL BUSINESS DISTRICT "SEE INSERT"
CENTRAL BUSINESS DISTRICT
P A C

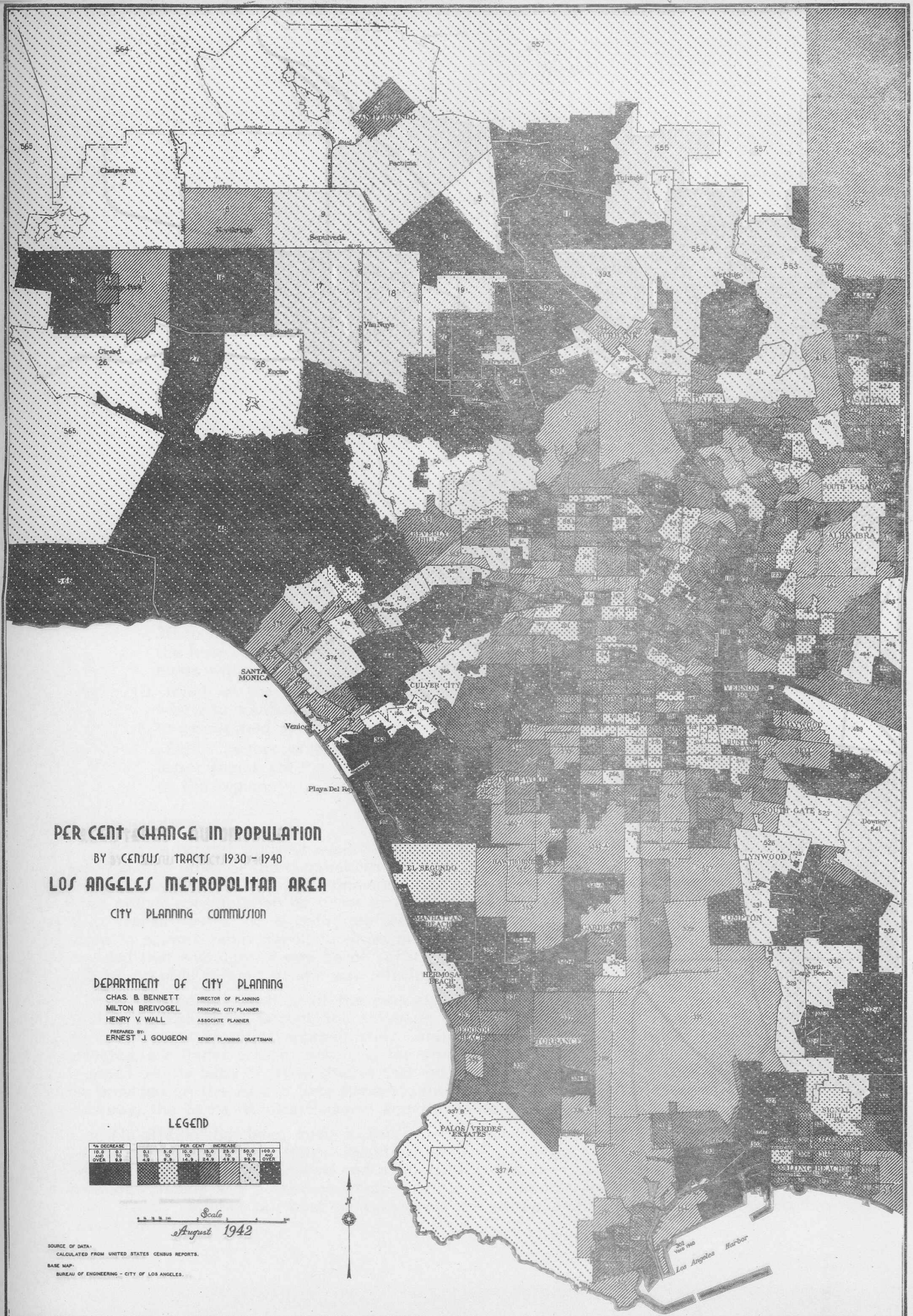

PER CENT CHANGE IN POPULATION
BY CENSUS TRACTS 1930 - 1940
LOS ANGELES METROPOLITAN AREA
CITY PLANNING COMMISSION
DEPARTMENT OF CITY PLANNING
CHAS. B. BENNETT DIRECTOR OF PLANNING
MILTON BREIVOGEL PRINCIPAL CITY PLANNER
HENRY V. WALL ASSOCIATE PLANNER
PREPARED BY:
ERNEST J. GOUGEON SENIOR PLANNING DRAFTSMAN
LEGEND
% DECREASE
10.0 AND OVER
0.1 TO 9.9
PER CENT INCREASE
0.1 TO 4.9
5.0 TO 9.9
10.0 TO 14.9
15.0 TO 24.9
25.0 TO 49.9
50.0 TO 99.9
100.0 AND OVER
Scale
August 1942
SOURCE OF DATA:
CALCULATED FROM UNITED STATES CENSUS REPORTS.
BASE MAP:
BUREAU OF ENGINEERING - CITY OF LOS ANGELES.
Los Angeles Harbor

FIG. 2

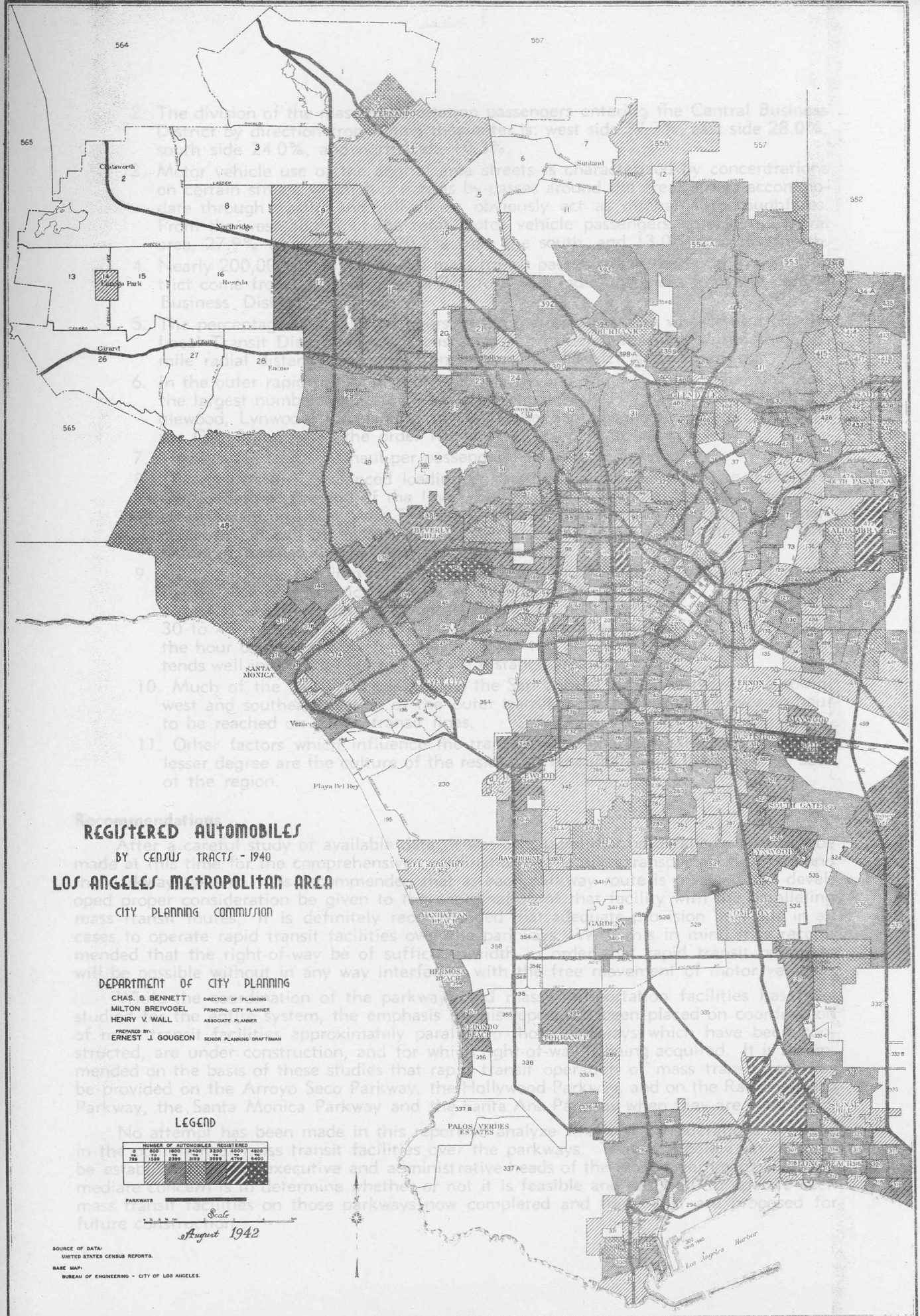

REGISTERED AUTOMOBILES
BY CENSUS TRACTS - 1940
LOS ANGELES METROPOLITAN AREA
CITY PLANNING COMMISSION
DEPARTMENT OF CITY PLANNING
CHAS. B. BENNETT DIRECTOR OF PLANNING
MILTON BREIVOGEL PRINCIPAL CITY PLANNER
HENRY V. WALL ASSOCIATE PLANNER
PREPARED BY:
ERNEST J. GOUGEON SENIOR PLANNING DRAFTSMAN
LEGEND
NUMBER OF AUTOMOBILES REGISTERED
0 to 799
800 to 1599
1600 to 2399
2400 to 3199
3200 to 3999
4000 to 4799
4800 to 5400
PARKWAYS
Scale
August 1942
SOURCE OF DATA:
UNITED STATES CENSUS REPORTS.
BASE MAP:
BUREAU OF ENGINEERING - CITY OF LOS ANGELES.
Chatsworth
Northridge
Reseda
Encino
Sunland
Tujunga
SAN FERNANDO
BURBANK
GLENDALE
SOUTH PASADENA
ALHAMBRA
BEVERLY HILLS
SANTA MONICA
Venice
Playa Del Rey
CULVER CITY
INGLEWOOD
EL SEGUNDO
HAWTHORNE
LENNOX
WILLOWBROOK
WATTS
SOUTH GATE
LYNWOOD
COMPTON
GARDENA
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
PALOS VERDES ESTATES
LONG BEACH
Los Angeles Harbor

FIG. 3

2. The division of the mass transportation passengers entering the Central Business District by direction from which they enter is: west side 37.7%, east side 28.0%, south side 24.0%, and north side 10.3%.
3. Motor vehicle use of the central area streets is characterized by concentrations on certain streets which function as by-passes around the area, others accommodate through traffic, and still others obviously act as discharge thoroughfares. From the west 38.9% of the total motor vehicle passengers enter the Central area, 27.9% from the east, 20.2% from the south, and 13.0% from the north.
4. Nearly 200,000 or 43.5% of the mass transit passengers in the Local Transit District come from areas within the 2½ to 5-mile radial distances from the Central Business District.
5. The percentage of total passengers in the metropolitan area who come from the Local Transit District which is customarily considered the area within the 7½-mile radial distance from the Central Business District is 87.5 per cent.
6. In the outer rapid transit district which is beyond the 7½-mile radial distance, the largest number of passengers come from Beverly Hills and vicinity with Inglewood, Lynwood, Pasadena, South Pasadena, Santa Monica, Compton, and Culver City following in the order named.
7. The average length of haul per passenger has been increasing.
8. There exists an unbalanced loading of cars during rush hours due to the excessive loading at the end of the lines. See Figure 4, Diagram Showing Long Distance Travel on Local Mass Transportation Rail Lines, which illustrates this characteristic. It will be noted that on many of the lines the car is half loaded long before it reaches the half-way point on the line.
9. Studies of time required to reach various parts of the metropolitan area from the Central Business District show that a very large proportion of the 2½- to 5-mile distance zone in which the greatest number of people dwell can be reached in 30 to 40 minutes, and part of it in 20 to 30 minutes by car line or bus during the hour of peak travel. In some instances the 30- to 40-minute time zone extends well into the 5-mile to 7½-mile distance area.
10. Much of the San Fernando Valley, the San Gabriel Valley eastward, the southwest and southeast section of the outer transit district now require over an hour to be reached on public transit lines.
11. Other factors which influence the transportation characteristics to a greater or lesser degree are the culture of the residents, the climate, and the economic base of the region.

Recommendations

After a careful study of available data, it was concluded that no detailed plan could be made at this time for the comprehensive coordination of the mass transportation system and the parkway system. It is recommended that as each parkway route is precised and developed proper consideration be given to the coordination of that facility with the paralleling mass transit routes. It is definitely recommended that adequate provision be made in all cases to operate rapid transit facilities over the parkways. With this in mind it is recommended that the right-of-way be of sufficient width in order that rapid transit operation will be possible without in any way interfering with the free movement of motor vehicles.

While the coordination of the parkways and mass transportation facilities has been studied for the entire system, the emphasis in this report has been placed on coordination of mass transit facilities approximately parallel to those parkways which have been constructed, are under construction, and for which right-of-way is being acquired. It is recommended on the basis of these studies that rapid transit operation of mass transit facilities be provided on the Arroyo Seco Parkway, the Hollywood Parkway, and on the Ramona-Aliso Parkway, the Santa Monica Parkway and the Santa Ana Parkway when they are completed.

No attempt has been made in this report to analyze financial considerations involved in the operation of mass transit facilities over the parkways. That is a policy which must be established by the executive and administrative heads of the local government. Our immediate concern is to determine whether or not it is feasible and desirable to operate such mass transit facilities on those parkways now completed and those that are proposed for future construction.

OPERATION OF EXISTING MASS TRANSIT FACILITIES

Los Angeles Railway Company—Rail Lines

The rail lines of the Los Angeles Railway Company provide practically all of the local service within the local transit district. The volume and characteristics of this service are shown in Tables 1, 2, and 3. In Table 1 is tabulated the car and bus routes, the general direction the route takes, the total number of inbound passengers boarding in twenty-four hours, the total number of outbound passengers alighting in twenty-four hours, the number entering the Central Business District, the total number leaving the Central Business District, and the number boarding cars in the Central Business District. A significant point to be noted from these data is the large proportion of those passengers who board the inbound cars to those who enter the Central Business District, and the large proportion of those who alight from outbound cars to those who leave the District.

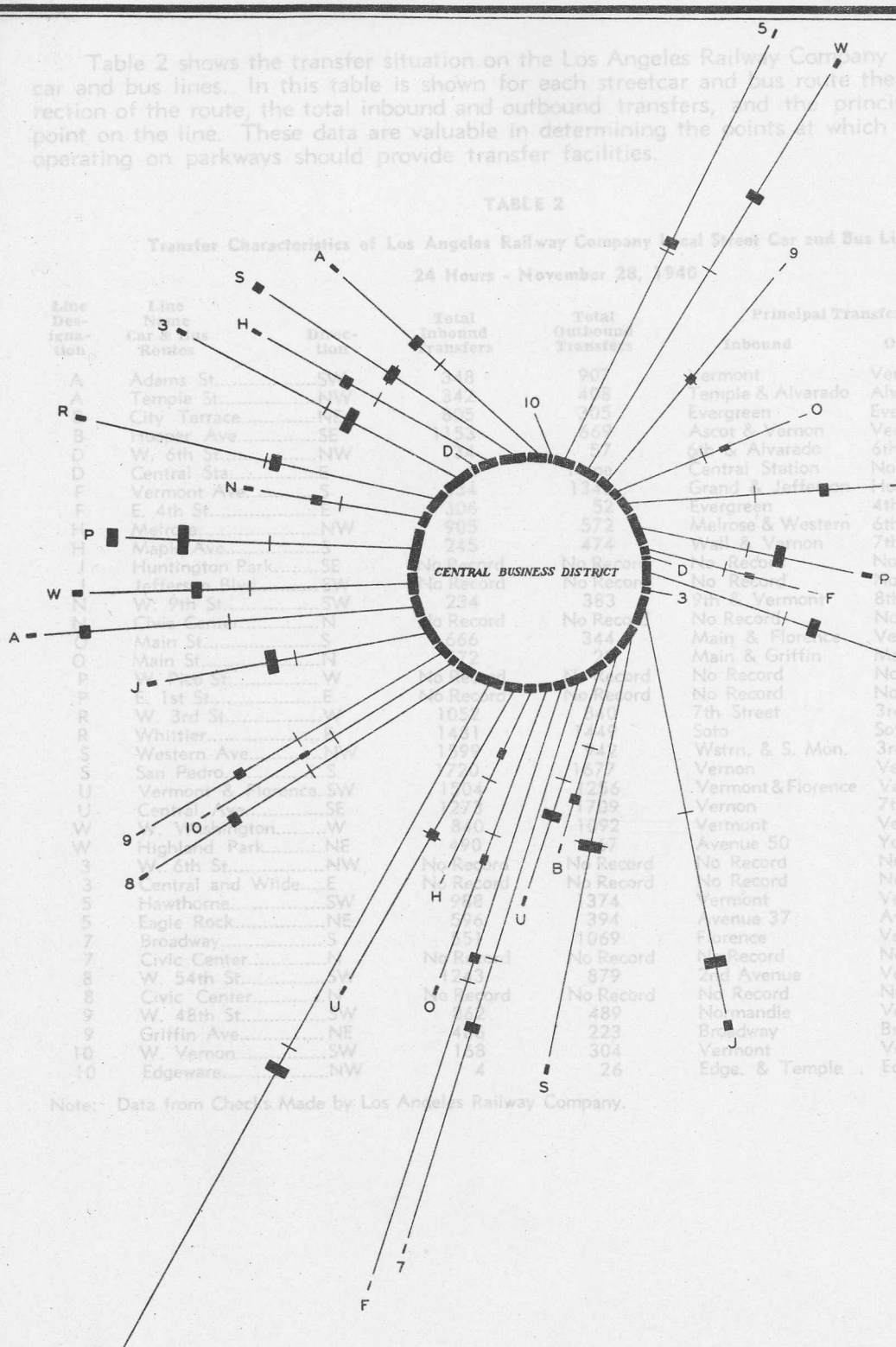
TABLE 1

Riding Characteristics of Los Angeles Railway Company Local Street Car and Bus Lines

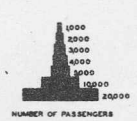
24 Hours - November 28, 1940

Line Designation	Line Name Car & Bus Routes	Direction	Total Inbound Boarding In 24 Hrs.	Total Outbound Alighting In 24 Hrs	Entering Central Business District	Leaving Central Business District	Boarding In Central Business District
A	Adams St.	SW	8435	8380	5937	5876	9202
A	Temple St.	NW	7324	7450	5979	5974	9671
B	City Terrace	NE	6412	6773	5127	5510	7639
B	Hooper Ave.	SE	6738	6925	4815	4839	6585
D	W. 6th St.	NW	1684	1948	1502	1694	2260
D	Central Sta.	E	367	327	356	324	609
F	Vermont Ave.	S	6367	6484	3351	3276	3332
F	E. 4th St.	E	3030	3249	2490	2688	3059
H	Melrose	NW	7530	6954	5515	4820	5950
H	Maple Ave.	S	4307	4545	2999	3267	4701
J	Huntington Park	SE	13587	14112	9197	9581	9379
J	Jefferson Blvd.	SW	12102	11632	8214	7860	8259
N	W. 9th St.	W	5746	5600	4699	4505	6600
O	So. Main St.	S	3800	3794	2737	2579	3972
O	No. Main St.	NE	3236	3488	2921	3176	4630
P	W. Pico St.	W	17604	17429	12728	12273	14927
P	E. 1st St.	E	13537	13008	10895	10521	14819
R	W. 3rd St.	W	9398	8553	7041	6072	7171
R	Whittier	E	10770	10460	7449	7141	7627
S	Western Ave.	NW	10827	10823	7976	7738	8175
S	San Pedro	S	12196	12592	7584	8002	7825
U	Vernon and Florence	SW	7994	7691	4647	4583	7546
U	Central Ave.	SE	11477	12217	5471	6276	9150
W	W. Washington	W	9226	9304	6258	6301	10103
W	Highland Park	NE	9241	10008	7214	7681	11545
3	W. 6th St.	NW	12989	12711	9241	9016	6695
5	Hawthorne	SW	12926	13254	7953	7538	10465
5	Eagle Rock	NE	7855	8133	5566	6429	9810
7	So. Broadway	S	9066	9219	5811	5604	7943
8	W. 54th St.	SW	7907	7793	5032	4659	6840
9	W. 48th St.	SW	5744	6042	4236	4468	5762
10	W. Vernon	SW	2481	2494	1729	1705	2561

Note: From Checks Made by Los Angeles Railway Company.



LEGEND



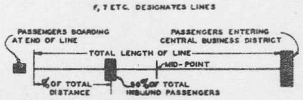


DIAGRAM SHOWING LONG DISTANCE TRAVEL ON LOCAL MASS TRANSPORTATION RAIL LINES

CITY PLANNING COMMISSION LOS ANGELES, CALIFORNIA

DEPARTMENT OF CITY PLANNING

DIRECTOR OF PLANNING
CHAS. B. BENNETT
PRINCIPAL CITY PLANNER
MILTON BREIVOGEL
DELINEATOR
LEWIS P. KIPKE

AUGUST 1942.

FIG. 4

Table 2 shows the transfer situation on the Los Angeles Railway Company local streetcar and bus lines. In this table is shown for each streetcar and bus route the general direction of the route, the total inbound and outbound transfers, and the principal transfer point on the line. These data are valuable in determining the points at which transit lines operating on parkways should provide transfer facilities.

TABLE 2

Transfer Characteristics of Los Angeles Railway Company Local Street Car and Bus Lines

24 Hours - November 28, 1940

Line Designation	Line Name Car & Bus Routes	Direction	Total Inbound Transfers	Total Outbound Transfers	Principal Transfer Points	
					Inbound	Outbound
A	Adams St.	SW	348	907	Vermont	Vermont
A	Temple St.	NW	342	408	Temple & Alvarado	Alvarado
B	City Terrace	NE	805	305	Evergreen	Evergreen
B	Hooper Ave.	SE	1153	669	Ascot & Vernon	Vernon
D	W. 6th St.	NW	34	57	6th & Alvarado	6th & Alvarado
D	Central Sta.	E	6	None	Central Station	None
F	Vermont Ave.	S	234	1343	Grand & Jefferson	Hoover & Vernon
F	E. 4th St.	E	306	52	Evergreen	4th & Soto St.
H	Melrose	NW	905	572	Melrose & Western	6th Street
H	Maple Ave.	S	245	474	Wall & Vernon	7th & Maple
J	Huntington Park	SE	No Record	No Record	No Record	No Record
J	Jefferson Blvd.	SW	No Record	No Record	No Record	No Record
N	W. 9th St.	SW	234	383	9th & Vermont	8th & Vermont
N	Civic Center	N	No Record	No Record	No Record	No Record
O	Main St.	S	666	344	Main & Florence	Vernon
O	Main St.	N	572	29	Main & Griffin	Main & Griffin
P	W. Pico St.	W	No Record	No Record	No Record	No Record
P	E. 1st St.	E	No Record	No Record	No Record	No Record
R	W. 3rd St.	W	1052	840	7th Street	3rd Street
R	Whittier	E	1481	1449	Soto	Soto
S	Western Ave.	NW	1599	942	Wstrn. & S. Mon.	3rd Street
S	San Pedro	S	1720	1677	Vernon	Vernon
U	Vermont & Florence	SW	1504	1256	Vermont & Florence	Vernon
U	Central Ave.	SE	1273	1709	Vernon	7th Street
W	W. Washington	W	840	1092	Vermont	Vermont
W	Highland Park	NE	490	667	Avenue 50	York Jct.
3	W. 6th St.	NW	No Record	No Record	No Record	No Record
3	Central and Wilde	E	No Record	No Record	No Record	No Record
5	Hawthorne	SW	988	1374	Vermont	Vermont
5	Eagle Rock	NE	596	394	Avenue 37	Avenue 28
7	Broadway	S	551	1069	Florence	Vernon
7	Civic Center	N	No Record	No Record	No Record	No Record
8	W. 54th St.	SW	1243	879	2nd Avenue	Vernon
8	Civic Center	N	No Record	No Record	No Record	No Record
9	W. 48th St.	SW	862	489	Normandie	Vernon
9	Griffin Ave.	NE	486	223	Broadway	Br. Jct.
10	W. Vernon	SW	168	304	Vermont	Vermont
10	Edgeware	NW	4	26	Edge. & Temple	Edge. & Temple

Note: Data from Checks Made by Los Angeles Railway Company.

In Table 3 are tabulated the total inbound passengers boarding in twenty-four hours, 50% of this total, the number of passengers that have accumulated at approximately the 50% distance point on the line, and the name of the street at that 50% point for each route. It will be noted that for the big majority of the lines the accumulated load at the half-way point in the route exceeds the 50% inbound boarding, indicating that more than half of those boarding inbound cars are long haul.

TABLE 3

Fifty Per Cent of Inbound Boarding and the Accumulated Total at the Approximate Half-Way Point on the Line Los Angeles Railway Company Local Street Car and Bus Lines 24-Hour - November 28, 1940

Line Designation	Line Name Rail Routes	Direction	Total Inbound Boarding In 24 Hrs.	50% of Total Inbound Boarding	Inbound Cumulative To Approx. 50% Point	Name of Street Approx. 50% Point
A	Adams St.	SW	8435	4217	3768	Crenshaw Blvd.
A	Temple St.	NW	7324	3662	3754	Temple & Hoover
B	City Terrace	NE	6412	3206	3764	Brooklyn
B	Hooper Ave.	SE	6738	3369	3066	Adams
D	W. 6th St.	NW	1684	842	852	Bonnie Brae
D	Central Sta.	E	367	183	277	San Pedro
F	Vermont Ave.	S	6367	3183	3262	80th Street
F	E. 4th St.	E	3030	1515	1464	Soto Street
H	Melrose	NW	7530	3765	3746	First Street
H	Maple Ave.	S	4307	2153	2250	Adams Blvd.
J	Huntington Park	SE	13587	6793	6619	Pacific Blvd.
J	Jefferson Blvd.	SW	12102	6051	7461	Vermont Ave.
N	W. 9th St.	W	5746	2873	2853	Catalina
O	So. Main St.	S	3800	1900	2005	Slauson Ave.
O	No. Main St.	NE	3236	1618	1722	Workman
P	W. Pico St.	W	17604	8802	8798	Arlington
P	E. 1st St.	E	13537	6768	6623	Mott
R	W. 3rd St.	W	9398	4699	4744	3rd and Vermont
R	Whittier	E	10770	5380	5300	Euclid
S	Western Ave.	NW	10827	5413	5359	Normandie
S	San Pedro	S	12195	6097	7052	Vernon Ave.
U	Vermont & Florence	SW	6737	3369	3373	39th Street
U	Central Ave.	SE	11477	5738	5799	41st St.
W	W. Washington	W	9226	4613	4620	Cimarron
W	Highland Park	NE	9241	4620	4494	Avenue 56
3	W. 6th St.	NW	12989	6494	7897	Vermont
5	Hawthorne	SW	12926	6463	6557	48th Street
5	Eagle Rock	NE	7855	3927	3985	Moss
7	So. Broadway	S	9066	4533	4510	77th Street
8	W. 54th St.	SW	7907	3953	3799	Denker
9	W. 48th St.	SW	5744	2872	2926	Normandie
10	W. Vernon	SW	2481	1240	1300	Santa Barbara

Note: Data from Checks Made by Los Angeles Railway Company.

The data in Tables 1, 2, and 3 were charted as shown on Figures 7, 8, and 9. The mass transportation system is shown on Figure 1. Rail and bus facilities of the two major transit companies and all local and feeder bus systems are mapped.

Pacific Electric Railway Company Rail Lines

The rail lines of the Pacific Electric Railway Company provide interurban service within the metropolitan area of Los Angeles. While the system does provide some local service, by far the largest part of the passengers carried are long haul passengers. Table 4 shows the various lines of the system, the peak load points, the number of inbound trips, and the number of passengers inbound on July 24, 1941.

TABLE 4

Riding Characteristics of Pacific Electric Rail Lines—July 24, 1941*

LINE	Peak Load Point	INBOUND Trips	INBOUND Passengers
Glendale-Burbank Line	Whitmore Avenue	105	5,410
Venice Short Line	Vineyard and Pico and Hill Sts.	54	2,544
San Fernando Valley Line	Cahuenga Pass	53	2,529
Pasadena Short Line	Valley Junction	50	1,453
Pasadena via Oak Knoll Line	Valley Junction	50	1,689
Sierra Madre Line	Valley Junction	8	274
Monrovia-Glendora Line	Valley Junction	23	879
Alhambra-San Gabrial-Temple City Line	Valley Junction	39	1,258
Covina-Pomona-San Bernardino	Valley Junction	30	1,340
Los Angeles-Santa Ana Line	Bellflower	17	557
Los Angeles-Long Beach Line	Compton	51	2,970
San Pedro via Dominguez	Compton	42	1,658
		522	22,561

* Data from checks by Pacific Electric Railway Co.

The number of passengers carried on the rail lines of the Pacific Electric Railway Company during the month of June, 1941, are shown for each line in Table 5. It will be noted that the Venice Short Line-Hollywood Boulevard Line carries by far the largest number of passengers. This line handles a substantial volume of local traffic.

TABLE 5

Number of Passengers Carried by Each Line of the Pacific Electric Railway Company During Month of June, 1941*

LINE	Passengers Carried
Glendale-Burbank	455,265
Venice Short Line-Hollywood Boulevard	1,198,494
San Fernando Valley-Subway-Santa Monica Boulevard	630,724
Pasadena Short Line	119,059
Pasadena via Oak Knoll	132,183
Sierra Madre	28,699
Monrovia-Glendora	77,145
Alhambra-San Gabriel	107,871
L. A.-Pomona-San Bernardino	89,738
Santa Ana	37,415
Long Beach	172,788
San Pedro via Dominguez	128,820

* Data from checks by Pacific Electric Railway Co.

The transit characteristics of both the Los Angeles Railway Company and the Pacific Electric Railway Company rail lines have been invaluable in arriving at suggestions as to the ultimate use of the parkways by rapid transit motor coaches, and the manner of such coordination.

Los Angeles Railway Coach Lines

The Los Angeles Railway Coach Lines are operated by the Los Angeles Railway Company. The following lines are presently in operation:

No. 2 Belmont Avenue
No. 44 Beverly Boulevard
No. 47 East 9th-Whittier Boulevard
No. 49 Figueroa Street

No traffic data are available for any of these lines. Before definite plans are made for their coordination with the parkways, a survey of the traffic should be made. The Figueroa Street line is the only one which will be affected by parkway construction in the near future.

Los Angeles Motor Coach Lines

The Los Angeles Motor Coach Lines are operated jointly by the two major transit companies—The Los Angeles Railway Company and the Pacific Electric Railway Company. Three lines are presently in operation—Numbers 82, 83 and 90. The only line which is affected by parkway construction in the near future is Number 83. Like the Los Angeles Railway Coach Lines, no traffic data are available for these motor coach lines.

Pacific Electric Railway Coach Lines

The Pacific Electric Railway Company operates a system of motor coach lines which supplements its rail system. The coach lines provide mainly local service, although several lines are express over a considerable portion of the route. In Table 6 are shown the various lines, the peak load point of each line, the number of trips surveyed, and the passengers carried. These data were collected on July 24, 1941.

TABLE 6

Riding Characteristics of the Pacific Electric Railway Coach Lines—July 24, 1941 *

LINE	Peak Load Point	Trips	Passengers
Santa Monica via Beverly Hills	Fairfax Avenue	74	2,127
Redondo via Del Rey	No definite point	26	653
Redondo via El Segundo	No definite point	19	474
Beverly-Sunset Boulevard	La Cienega Boulevard	10	136
L. A.-Newport-Balboa	No definite point	9	271
L. A.-San Bernardino	Valley Junction	8	142
Valley Blvd.-Riverside-Redlands	No definite point	55	1,461
Garvey Avenue	No definite point	39	783
L. A.-Sunland	No definite point	34	782
L. A.-Santa Ana	No definite point	49	1,033

* Data from checks by Pacific Electric Railway Co.

The volume of traffic for the month of June, 1941, on these lines is shown in Table 7.

TABLE 7

Number of Passengers Carried by Each Line of the Pacific Electric Railway Coach Lines—June, 1941 *

LINE	Passengers Carried
Santa Monica via Beverly Hills	154,748
Redondo Beach	73,208
Beverly-Sunset Boulevard	10,577
Huntington Beach-Balboa	12,356
L. A.-San Bernardino	12,531
L. A.-El Monte-Redlands	185,597
L. A.-Sunland	68,031
L. A.-Whittier-Santa Ana	92,778

* Data from checks by Pacific Electric Railway Co.


OF
VELOPMENT
R 1942
Y RIGHTS OF WAY
NG ACQUIRED
YS UNDER CONSTRUCTION
YS COMPLETED
CALE - MILES
CENTRAL SECTION
PLAN OF PARKWAYS
CITY OF LOS ANGELES
AND THE
METROPOLITAN AREA
DEPARTMENT OF CITY PLANNING
PARKWAY
RIVERSIDE
COLORADO
SAN FERNANDO PARKWAY
WHITNALL
HOLLYWOOD
VENTURA
BLVD.
LAUREL
CANYON
LOS FELIZ
SUNSET
HOLLYWOOD
SANTA MONICA
BEVERLY
WILSHIRE
SEPULVEDA
SANTA MONICA
OLYMPIC
VENICE
OCEAN PARKWAY
PICO
ADAMS
VERNON
SLAUSON
FLORENCE
MANCHESTER
INGLEWOOD
CULVER
JEFFERSON
CRENSHAW
NORMANDIE
WESTERN
VERMONT
MAIN
CENTRAL
ALAMEDA
LONG BEACH
SOTO
FIRESTONE
GLENDALE
ALLESANDRO
ARROYO SECO
HUNTINGTON
FAIRMOUNT
BROADWAY
TEMPLE
NORTH MAIN
MISSION RD.
VALLEY
YORK
FAIROAKS
ROSEMEAD
RAMONA
WHITTIER
LOS ANGELES CITY BOUNDARY
WEST BY-PASS
EAST BY-PASS
BROADWAY BY-PASS
LONG BEACH PARKWAY EXTENSION
ATLANTIC
SANTA ANA
2

STATUS OF PARKWAY DEVELOPMENT OCTOBER 1942

- PARKWAY RIGHTS OF WAY BEING ACQUIRED
- PARKWAYS UNDER CONSTRUCTION
- PARKWAYS COMPLETED

SCALE - MILES

LEGEND

- WIDE PARKWAY
- NARROW MOTORWAY
- RAIL RAPID TRANSIT
- PLANNING DEPARTMENTS
- ADDITION TO PLAN

RIVERSIDE PARKWAY
VENTURA BLVD.
LAUREL CANYON BLVD.
HOLLYWOOD PARKWAY
HOLLYWOOD BLVD.
LOS FELIZ BLVD.
SUNSET BLVD.
SANTA MONICA BLVD.
BEVERLY BLVD.
WILSHIRE BLVD.
OLYMPIC BLVD.
PICO BLVD.
ADAMS BLVD.
VENICE BLVD.
CULVER BLVD.
JEFFERSON BLVD.
MANCHESTER AVE.
FLORENCE AVE.
SLAUSON AVE.
VERNON AVE.
COLORADO BLVD.
YORK BLVD.
ARROYO SECO PARKWAY
ALLESANDRO ROAD
GLENDALE AVE.
RIVERSIDE DRIVE
SEPULVEDA PARKWAY
OCEAN PARKWAY
CRENSHAW BLVD.
LA BREA AVE.
VINE ST.
FAIRFAX AVE.
SANTA MONICA FREEWAY
HOLLYWOOD FREEWAY
PASADENA FREEWAY
HARBOR FREEWAY
LONG BEACH FREEWAY
SAN BERNARDINO FREEWAY
ATLANTIC BLVD.
WEST BY-PASS
EAST BY-PASS
TEMPLE ST.
BROADWAY
MISSION RD.
VALLEY BLVD.
HUNTINGTON DRIVE
FAIROAKS AVE.
SOTO ST.
ALAMEDA ST.
MAIN ST.
CENTRAL AVE.
WESTERN AVE.
VERMONT AVE.
NORMANDIE AVE.
VINE AVE.
SUNSET BLVD.
WHITTIER BLVD.
FIRESTONE BLVD.
PACIFIC OCEAN
INGLEWOOD

PARKWAY PLAN
AND
MASS TRANSPORTATION

LOS ANGELES METROPOLITAN AREA

CITY PLANNING COMMISSION LOS ANGELES, CALIFORNIA

DEPARTMENT OF CITY PLANNING

CHAS. B. BENNETT — DIRECTOR OF PLANNING
MILTON BREIVOGEL — PRINCIPAL CITY PLANNER
HENRY V. WALL — CITY PLANNING ASSOCIATE

COMPILED AND PREPARED BY:
BERT B. KRELL — SENIOR PLANNING DRAFTSMAN
ERNEST J. GOUGEON — SENIOR PLANNING DRAFTSMAN
LEWIS P. KIPKE — SENIOR PLANNING DRAFTSMAN

NOTE:
PARKWAY PLAN DRAWN BY RAPID TRANSIT DIVISION
BUREAU OF ENGINEERING

LEGEND

LOS ANGELES RAILWAY	CAR LINES	———
LOS ANGELES RAILWAY	COACH LINES	- - - - -
PACIFIC ELECTRIC RAILWAY	CAR LINES	- - - - -
PACIFIC ELECTRIC RAILWAY	COACH LINES	·····
LOS ANGELES MOTOR COACH	LINES	———
OTHER MOTOR COACH	LINES	———
PARKWAYS		———

NOTE:
PARKWAY PLAN AS SHOWN IS "MASTER PLAN OF PARKWAYS" AS APPROVED BY THE LOS ANGELES PLANNING COMMISSION

JUNE 1942


CENTRAL BUSINESS DISTRICT
P A C I F
ANGELUS CREST HWY TO MT WILSON
SHERMAN WAY
VENTURA BLVD
PARKWAY
HOLLYWOOD
SUNSET
SANTA MONICA
WILSHIRE
OLYMPIC
PICO
WASHINGTON
JEFFERSON
EXPOSITION
SANTA BARBARA
FORTY-EIGHTH
FIFTY-FOURTH

These data constitute the latest information available. While they are not as complete as they should be, by an analysis of the surveys it has been possible to draw general conclusions and make broad recommendations. As each parkway route is constructed, the paralleling transit lines will be studied to determine the feasibility of coordinating all or part of those facilities with the parkway. This process will be demonstrated in following sections of this report.

There are several transit companies which are now providing motor coach service in certain communities and areas in the metropolitan area. For example, local service is provided in Glendale, Pasadena, Long Beach, and other cities. Other local transit companies provide feeder service to rail lines. Practically all of this service is purely local, serving a relatively small area, and is not considered in this study.

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COORDINATION OF PARKWAYS AND MASS TRANSIT FACILITIES

The Master Plan of Parkways

The Master Plan of Parkways has been described in detail in previous reports. There can be no object in repeating what has been said in the report of the Transportation Engineering Board, "A Transit Program for the Los Angeles Metropolitan Area," of December 7, 1939, and the report of the City Planning Department, "Master Plan of Parkways," May, 1941. While progress in the construction of the parkways recommended in these reports is necessarily slow, some progress has been made in the execution of the plan.

Parkways completed or under construction include a section of the Cahuenga Parkway through Cahuenga Pass and linking Hollywood with the San Fernando Valley, and the Arroyo Seco Parkway connecting the central part of the city with South Pasadena and Pasadena. A short extension northward from the present terminus of the Cahuenga Parkway and an extension of the Arroyo Seco Parkway southward over the Figueroa Tunnels is under construction.

The Aliso Parkway which makes connections between the proposed Santa Monica Parkway and the Ramona and Santa Ana Parkways is nearing completion. This parkway will form a much needed outlet from the civic center eastward.

Progress has also been made in the purchase of right-of-way for following parkways:

Ramona Parkway-Santa Ana Parkway to Pomona
Santa Ana Parkway-Ramona Parkway to Santa Ana
Santa Monica Parkway-Aliso Street to Vermont Avenue
Sepulveda Parkway-Pico Blvd. to Sunset Boulevard.

This report is concerned primarily with the parkways listed above which are completed, which are under construction, and for which right-of-way is presently being acquired. Studies were made to determine the feasibility of coordinating mass transit facilities and these parkways by the routing of rapid transit motor coaches over all or a portion of the parkway.

Other parkways of the system were also studied, but since they will not be constructed in the near future the studies were merely objective. More detailed survey data as to the riding habits of passengers and the transit characteristics of lines approximately paralleling the parkways are necessary before final coordination can be determined. These proposed parkways include the following:

Hollywood Parkway.
Sepulveda Parkway.
Venice Parkway.
Inglewood Parkway.
Olympic Parkway.
Riverside Parkway.
Colorado Parkway.
Glendale Parkway.
Allesandro Parkway.
Slauson Parkway.
Crenshaw Parkway.
Normandie Parkway.
Whitnall Parkway.
Harbor Parkway.
Long Beach Parkway.
Atlantic Parkway.
San Fernando Parkway.
Santa Ana Parkway.

The progress that has been made in the construction of the parkway system is shown on Figure 5.

Integration of the Parkway Plan and the Mass Transportation System

Along each parkway there is one or more rail or bus line which approximately parallels the parkway. Figure 6 shows the mass transportation system of the Los Angeles metropolitan area with the Master Plan of Parkways superimposed over it. An inspection of the map will show the nature and extent of these parallel facilities.

While many of the rail transit lines closely parallel individual parkways, it may not always be feasible to reroute the line over the parkway. Riding habits and transportation characteristics will determine to a large degree which lines can be routed to the parkway and the portion of the line that can be so routed. In some instances the entire transit line is local in character, while in others a substantial part of the passengers are long distance riders whose destination is some central point, and who would save time if a considerable

portion of the route over which they travel could be express. To determine the feasibility of accomplishing this by using the parkways, each parkway was studied in relation to the various paralleling rail transit routes. The process of analysis and study is described in the following paragraphs.

Parkways Completed, Under Construction, and for Which Right-of-Way is Being Acquired

Arroyo Seco Parkway

Line "W"—Highland Park

This line provides service along Broadway, Pasadena Avenue, San Fernando Road, Figueroa Place, Figueroa Street, Marmion Way, Monte Vista Street, Avenue 61, Piedmont Avenue, and North Figueroa Street to Buena Vista Terrace.

Passengers carried in and out combined numbered 19,249 during a normal business day in November, 1940. Approximately 50% of passengers originated between the end of the line and the intersection of Avenue 56 and Figueroa Street. Principal transfer point is the intersection of Monte Vista and Avenue 50. Passengers from end of the line were 4.8 per cent of total inbound.

This line will probably become a bus line. Operation via Arroyo Seco Parkway from about Avenue 50 would benefit about 62% of the inbound passengers who come from the outer section of the line.

Line "9"—North Broadway and Griffin Avenue

This line provides service along North Broadway to Lincoln Park Avenue, and to Mission Road—a branch along Griffin Avenue extends along North Broadway to Pasadena Avenue, thence via Avenue 26 and Griffin Avenue to Montecito Drive.

Passengers carried in and out combined numbered 10,459 during a normal business day in November, 1940. Approximately 50% of the passengers originated between the end of the Griffin Avenue branch and the intersection of Daly Street and North Broadway. Principal transfer point is on the Lincoln Park branch at Lincoln Park Avenue and Broadway. Passengers from end of line were 5% of total inbound.

While some consideration will no doubt ultimately be given to routing some of the future bus service, which may replace this line via the Parkway, it appears likely that the present route will be required for local service.

Pasadena Short Line

Pasadena Oak Knoll Line

Rerouting of both these lines via the Arroyo Seco Parkway by bus service has been the subject of applications before the State Railroad Commission. This is considered desirable under the coordination plan and is here recommended.

Cahuenga Parkway

San Fernando Valley Line

This line is discussed below in connection with Hollywood Parkway, Crenshaw Parkway, and Normandie Parkway.

Routing of the line over any part of the parkway system is dependent upon many factors which cannot as yet be given consideration. It is generally assumed that there will be express bus service from Hollywood and beyond, and in that event the existing passenger service on the rail line would, no doubt, terminate.

Ramona Parkway

Line "B"—Brooklyn Avenue

The Brooklyn Avenue end of this line provides service along Main Street to Macy, Brooklyn Avenue to Evergreen and Brooklyn. An extension reaches City Terrace Drive and Miller Street.

Normal passenger travel amounted to 13,185 in both directions for a 24-hour average business day in November, 1940. Approximately 50% of the patrons originated northeast of Soto Street and Brooklyn Avenue. Passengers to and from the end of the line amounted to 303, or 4.7 per cent of the inbound total.

The line is apparently fed to a considerable extent by passengers of the Evergreen cross town line. Inbound transfer passengers numbered 430, or 18.4 per cent of an accumulated total of 2338 inbound to this point.

The indications are that this line might be shortened about 2 miles, or beyond Evergreen and Brooklyn—passengers beyond that point would use the Ramona Parkway bus line.

Sierra Vista Rail Line

This line provides service along Main Street, First Street, Los Angeles Street, Aliso Street, to Mission Road, private right-of-way to Huntington Drive, then private right-of-way to Sierra Vista Station.

Normal passenger travel is indicated by the total number carried during the month of June, 1941, which amounted to 485,988, or averaged 16,200 per day. The total included both ends of the line which operates southward from Los Angeles Sixth and Main Street Station to Watts as well as northeastward to Sierra Vista.

The line is one of several operating through Valley Junction—approximately Ramona Boulevard and Marengo Street. This point is the maximum load point for six of the lines.

It appears likely that when the Sierra Vista line is converted to a coach line the buses should operate over the Ramona Parkway from Valley Junction into the Los Angeles Sixth and Main Street Station, some three miles via present routes.

Los Angeles-Covina Rail Line

This line provides service along San Pedro Street, Aliso to Mission Road, private right-of-way, to Valley Junction, then private right-of-way through South Alhambra, Wilmar, El Monte and Baldwin Park to Badillo Street, and Covina.

While specific data are not as yet available as to passengers carried on this line, it seems feasible to replace this line entirely by a bus line operating on the Ramona Parkway.

Covina-Pomona-San Bernardino Line

No suggestions are made regarding this line at this time.

Sierra Madre Line

No suggestions are made regarding this line at this time.

Santa Monica Parkway—Aliso to Vermont

Line "A"—West Temple Street

The Temple Street end of this line provides service along Temple Street, Hoover, Clinton, Virgil, and Fountain to Vermont Avenue.

Passengers carried numbered 14,775 in both directions for a 24-hour average business day in November, 1940. Approximately 50% of the passengers originated northwest of the intersection of Temple and Hoover Streets. Passengers to and from the end of the line were 8.0 per cent of the total inbound. The line is fed to a considerable extent by transfer passengers at Temple and Alvarado Streets who numbered 207, or 3.7 per cent of an accumulated total of 5588 to this point.

Since the route closely follows the Santa Monica Parkway between the half-way point at Temple and Hoover, and Temple and Hill Streets, one-half of the inbound passengers would be able to reduce their travel time inbound by operation over the Parkway between these points, a distance of approximately three miles, when the rail line is changed to bus operation.

Line "H"—Melrose Avenue

This line provides service along Seventh Street, Alvarado, Sixth, Rampart, Second Street, private right-of-way, Bimini Place, First Street, Vermont Avenue, Beverly Boulevard, Heliotrope, to Western Avenue.

Passengers carried numbered 14,484 in both directions during an average business day in November, 1940. Approximately 50% of the passengers originated between the outer end of the line at Melrose and Western Avenue and the intersection of First and Vermont. Inbound passengers from the end of the line were 13.6 per cent of the inbound total.

The principal transfer point is the outer end of the line. There, 541, or 7.2 per cent of the inbound total passengers, transferred from other lines.

It appears likely that passengers from beyond First and Vermont would use Parkway buses inbound on either the Santa Monica or Hollywood Parkways. The line when changed to bus would continue to serve local passengers originating in the area between the Hollywood and Olympic Parkways from Vermont Avenue to Figueroa Street.

Line "D"—West Sixth Street

This line provides service along Fifth Street, Sixth, Alvarado, Third, and Bonnie Brae to Beverly Boulevard.

Passengers carried numbered 3632 in both directions during an average business day in November, 1940. Approximately 50% of the passengers originated between the outer end of the line and the intersection of Sixth and Bonnie Brae. Inbound passengers from the end of the line were 42.1 per cent of the inbound total. The principal transfer point is at Sixth and Alvarado.

This line is less than two miles long between Figueroa and Fifth Street and its outer end. Further study may establish the desirability of entrance facilities to the Hollywood Parkway at Alvarado Street, in which event some adjustment of the route may be desired.

Line "S"—Western Avenue

This line provides service along Seventh Street, Vermont Avenue, Third Street, and Western Avenue, to Santa Monica Boulevard.

Passengers carried numbered 21,652 in both directions during an average business day in November, 1940. Approximately 50% of the passengers originated between the outer end of the line and the intersection of Third Street and Normandie Avenue. The principal transfer point is the end of the line at Western Avenue and Santa Monica Boulevard. Inbound passengers from the end of the line were 23.1 per cent of the inbound total.

The indications are that this line will be retained as a bus line to serve the local area between the Hollywood and Olympic Parkways. Some passengers from its outer end will be served to a better advantage by Hollywood or Santa Monica Parkway express buses. Entering facilities for these parkways would be provided at their intersections with Western Avenue.

Santa Ana Parkway—Ramona to East City Limit

Line "R"—Whittier Boulevard

This line provides service along Seventh Street, Boyle Avenue, and Whittier Boulevard, to Brannick Street.

Passengers carried numbered 21,230 in both directions during an average business day in November, 1940. Approximately 50% of the passengers originated between the outer end of the line and Euclid Avenue, about two miles. Principal transfer point is Soto and Whittier. Inbound transfer passengers here were 5.1 per cent of the inbound total. Passengers from end of line are 15.6 per cent of inbound total.

A routing that would operate express buses inbound from Euclid Avenue via Santa Ana and Olympic Parkways would reduce the travel time for approximately 50% of the passengers now using the line.

Access facilities to the Santa Ana Parkway at Euclid are indicated.

Sepulveda Parkway—Pico to Sunset

No rail lines will be affected by this section of this parkway.

Parkways Proposed in the Master Plan

Each parkway which is proposed in the Master Plan was studied as a separate unit to determine the possibilities of coordinating mass transit facilities with the parkway. The technique which was employed can be illustrated by describing the analysis to which three of the routes were subjected.

Colorado Parkway

Line "5"—Eagle Rock

This line provides service along North Broadway, Pasadena Avenue, San Fernando Road, Figueroa Place, Figueroa Street, Avenue 28, Cypress Avenue, to Verdugo Road and Macon, then private right-of-way to Eagle Rock Boulevard, to Colorado Boulevard and Townsend Avenue in Eagle Rock district.

Passengers carried numbered 15,988, in and out combined, during an average business day in November, 1940. Approximately 50% of passengers originated between the end of the line and Moss Avenue. Principal transfer point is Avenue 37. Passengers boarding at the end of the line were 4.7 per cent of the total inbound.

When this line is converted to bus transit this route could be operated advantageously over the Colorado and Allesandro Parkways from Townsend to Verdugo Road, since 34.9 per cent of inbound passengers originate northeast of that point.

Los Angeles-Monrovia-Glendora Line

This line provides service along San Pedro, Aliso, Mission Road, private right-of-way, Huntington Drive, private right-of-way, and through South Pasadena, Arcadia, Monrovia, and Azusa to Glendora.

Passengers carried average 1,286 in one direction during a normal business day. The maximum load point for the line is Valley Junction. Check on July 24, 1941, shows 879 for 23 trips, or 38.2 passengers per trip.

Between Glendora and Arcadia this line follows the route of the Colorado Parkway. When bus operation replaces rail, it will be feasible for this part of the line at least to operate over the parkway. It would also be desirable to operate the bus line over the Colorado, Atlantic, and Arroyo Seco Parkways when such a routing becomes feasible.

Figure 7 illustrates graphically the analysis to which each transit line is subjected in studying the feasibility of parkway-transit line coordination. In the small key sketch is shown the route the transit line takes and all the parkways over which the route might be routed. Also shown on the same figure are all the traffic data for the line; the loading and unloading data; the transfer points and volume of transfer passengers; all the stops; and the major streets that are crossed. Each rail line, thirty-four in all, was subjected to this kind of analysis.

Harbor Parkway

Line "7"—South Broadway

This line provides service along Spring, Main, Broadway Place, and South Broadway, to Athens Way and 116th Street.

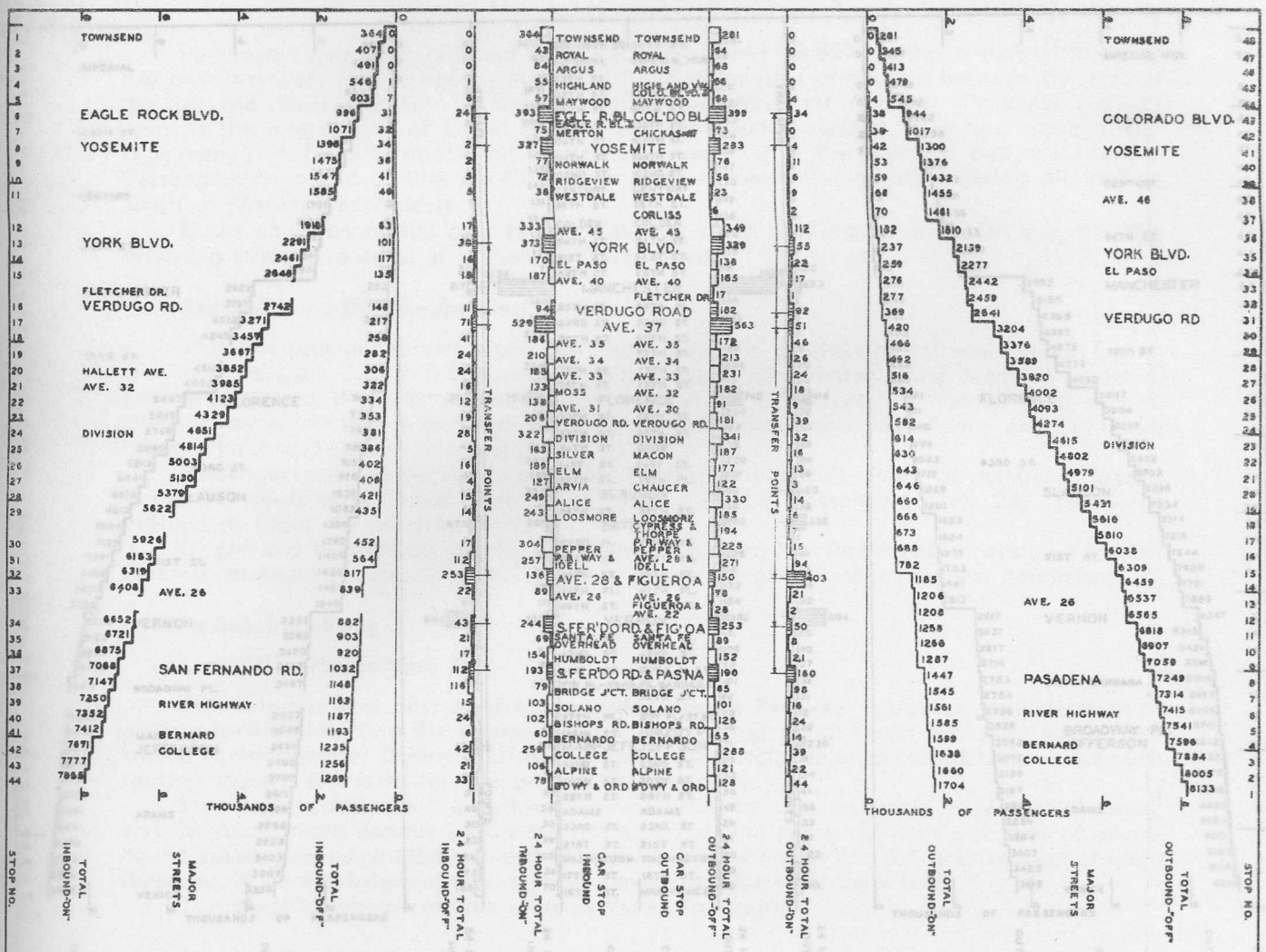
Passengers carried, in and out combined, numbered 18,285 during a normal business day in November, 1940. Approximately 50% of passengers originated between the end of the line and the intersection of Seventy-seventh Street and South Broadway. Principal transfer point is Florence Avenue and South Broadway. Passengers from end of line were 3.9 per cent of total inbound.

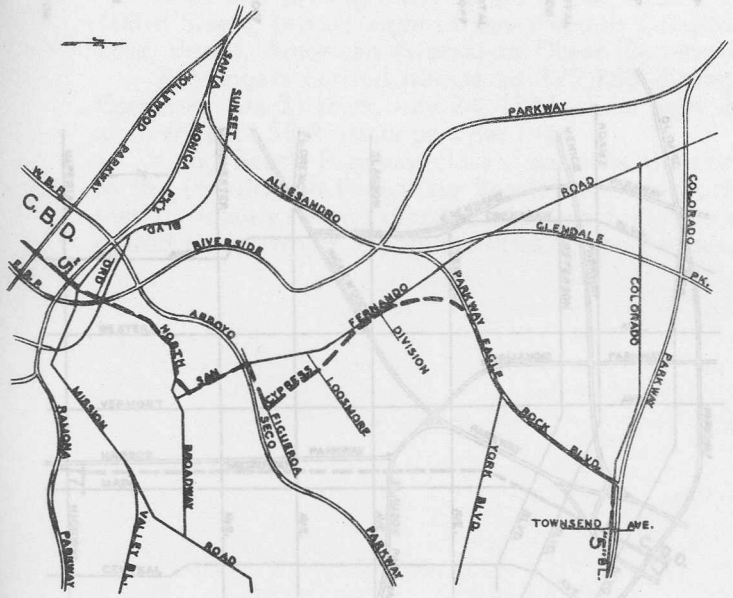
Access facilities to Harbor Parkway at Florence Avenue are suggested—the buses from end of line to provide local service to Florence Avenue and then express between Florence Avenue and downtown Los Angeles and present route between Florence Avenue and downtown to be retained to provide local service.

The graphic analysis of this route is shown on Figure 8.

Line "F"—East Fourth and Hoover Streets

This line provides service along Main Street, Jefferson Boulevard, Grand Avenue, Santa Barbara, Hoover, private right-of-way, and Vermont Avenue, to 116th Street.





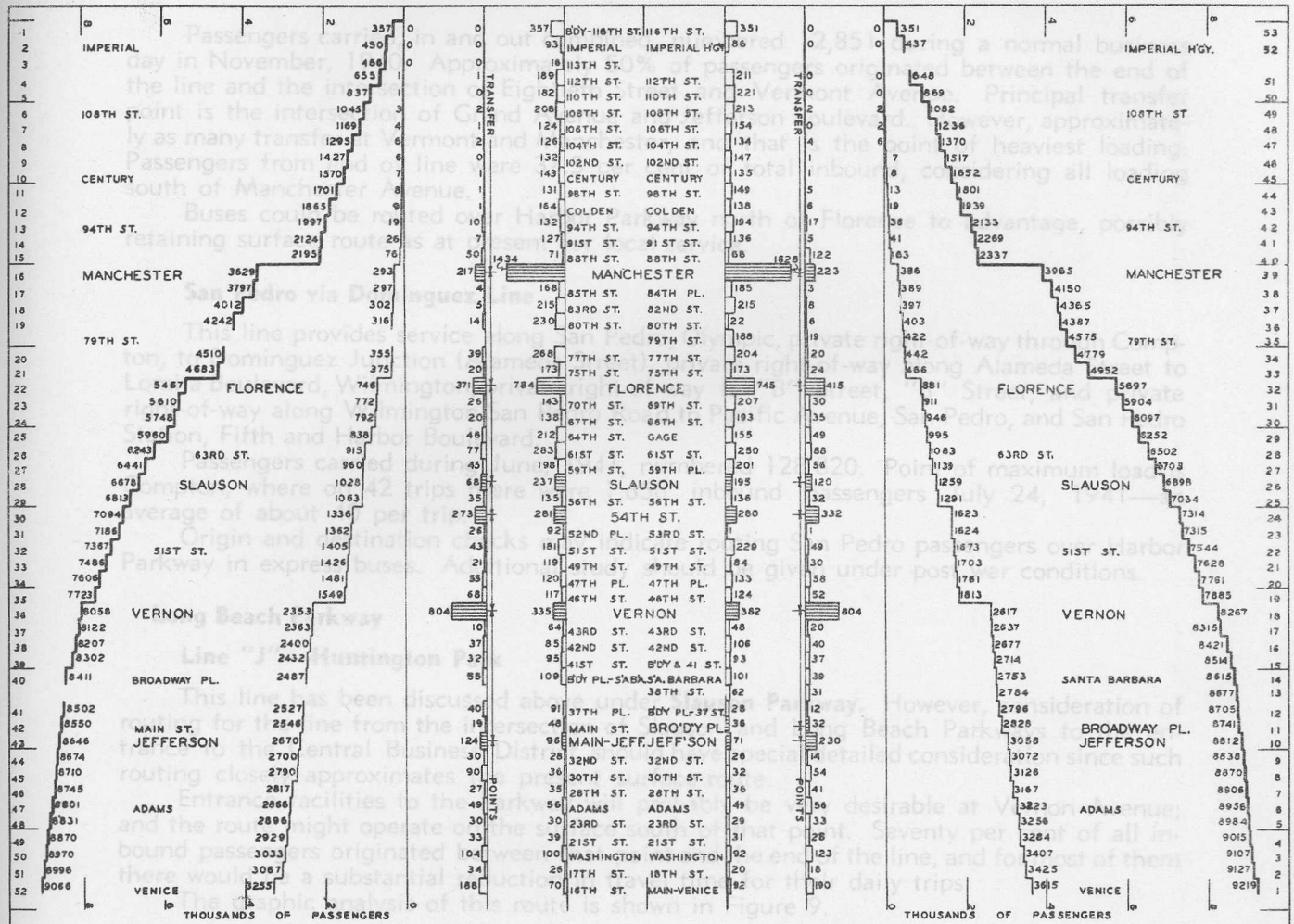
GENERAL NOTES.

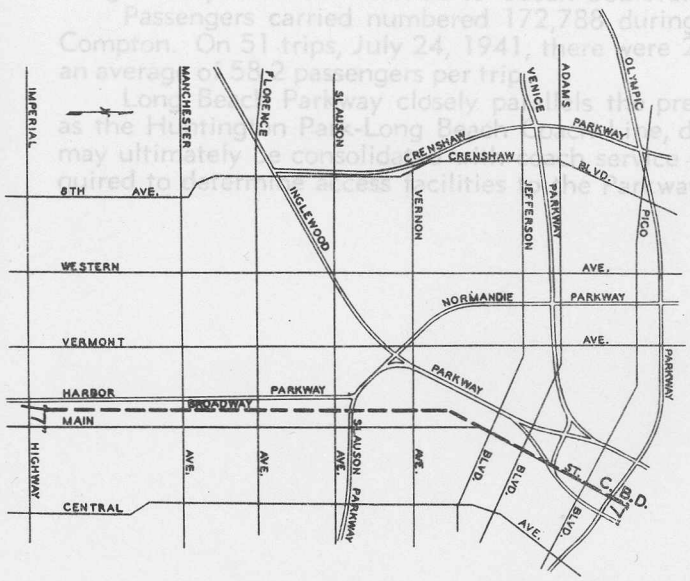
"5"-LINE

EAGLE ROCK BRANCH

	TOTALS OFF	TOTALS ON	ENT. C.B.D.	LVG. C.B.D.
INBOUND FROM EAGLE ROCK	1289	7853	8566	
OUTBOUND TO EAGLE ROCK	8133	1704		6429
MOTOR VEHICLE PASS. ENT. ON N. B'DWAY			8264	8055
ST. CAR PASS. ON N. B'DWAY ENT. C.B.D.				
"5" LINE FROM EAGLE ROCK	6566			
"8" LINE FROM NORTHERN TERM.	4421			
"W" LINE FROM HIGHLAND PARK	7214		18201	24 HRS. 1940.
38-39 SURVEY			19108	16 HRS. 1936.
ST. CAR PASS. FROM & TO END OF LINE	364		INBOUND-"ON"	
" " " " " " " " "	281		OUTBOUND-"OFF"	
PER CENT " " " " " " " "	47%		INBOUND	
" " " " " " " " "	33%		OUTBOUND	

FIG. 7





GENERAL NOTES.

"7" LINE

SOUTH BROADWAY BRANCH

	TOTALS OFF	TOTALS ON	ENT. C.B.D.	LVG. C.B.D.
INBOUND FROM 116TH ST.	3255	9066	5811	
OUTBOUND TO 116TH ST.	9219	3615		5604
MOTOR VEHICLE PASS. ENT. ON MAIN ST. CAR PASS. ON MAIN ST. ENT. C.B.D.			9568	9570
"J" LINE FROM HAWTHORNE	7953			
"7" " " 116TH ST.	5811			
"8" " " 54TH & CRENSHAW	5032			
"F" " " 116TH ST.	3351			
"O" " " FLORENCE & MAIN	2737		24884 24 HRS. 1940	
38-39 SURVEY			25465 16 HRS. 1938	

ST. CAR PASS. FROM & TO END OF LINE
357 INBOUND-ON.
351 OUTBOUND-OFF.

PER CENT " " " " " " "
3.9% INBOUND.
3.8% OUTBOUND.

" " " " " MANCHESTER "ON" 15.8% INBOUND
" " " TO " "OFF" 17.7% OUTBOUND

FIG. 8

Passengers carried, in and out combined, numbered 12,851 during a normal business day in November, 1940. Approximately 50% of passengers originated between the end of the line and the intersection of Eightieth Street and Vermont Avenue. Principal transfer point is the intersection of Grand Avenue and Jefferson Boulevard. However, approximately as many transfer at Vermont and Manchester, and that is the point of heaviest loading. Passengers from end of line were 37.5 per cent of total inbound, considering all loading south of Manchester Avenue.

Buses could be routed over Harbor Parkway north of Florence to advantage, possibly retaining surface route as at present for local service.

San Pedro via Dominguez Line

This line provides service along San Pedro, Olympic, private right-of-way through Compton, to Dominguez Junction (Alameda Street), private right-of-way along Alameda Street to Lomita Boulevard, Wilmington, private right-of-way to "B" Street, "B" Street, and private right-of-way along Wilmington-San Pedro Road to Pacific Avenue, San Pedro, and San Pedro Station, Fifth and Harbor Boulevard.

Passengers carried during June, 1941, numbered 128,820. Point of maximum load is Compton, where on 42 trips there were 1,658 inbound passengers July 24, 1941—an average of about 40 per trip.

Origin and destination checks may indicate routing San Pedro passengers over Harbor Parkway in express buses. Additional study should be given under post war conditions.

Long Beach Parkway

Line "J"—Huntington Park

This line has been discussed above under **Slauson Parkway.** However, consideration of routing for the line from the intersection of Slauson and Long Beach Parkways to the entrance to the Central Business District should have special detailed consideration since such routing closely approximates the present surface route.

Entrance facilities to the Parkway will probably be very desirable at Vernon Avenue, and the route might operate on the surface south of that point. Seventy per cent of all inbound passengers originated between that point and the end of the line, and for most of them there would be a substantial reduction in travel time for their daily trips.

The graphic analysis of this route is shown in Figure 9.

Los Angeles-Long Beach Line

This line provides service along San Pedro, Olympic, private right-of-way to Watts, 103rd Street, private right-of-way through Compton to American Avenue and Willow Street, Long Beach, American Avenue to Ocean Boulevard and eastward to Morgan Avenue Yards.

Passengers carried numbered 172,788 during June, 1941. Maximum load point is Compton. On 51 trips, July 24, 1941, there were 2,970 passengers inbound at that point—an average of 58.2 passengers per trip.

Long Beach Parkway closely parallels the present route of this line. This line, as well as the Huntington Park-Long Beach Coach Line, discussed elsewhere in this progress report, may ultimately be consolidated with coach service on the Parkway. Further data will be required to determine access facilities to the Parkway at various points.

Other parkways which were studied, and the transit lines which will be affected by such parkway construction, are as follows:

Hollywood Parkway—Vermont to Cahuenga
Rail transit lines affected:
Subway—San Fernando Valley Rail Line.

Hollywood Parkway—West By-Pass to Vermont
Rail transit lines affected:
None.

Sepulveda Parkway—Pico to Inglewood
Rail transit lines affected:
None.

Venice Parkway
Rail transit lines affected:
Line "A"—West Adams Boulevard.
Line "J"—West Jefferson Boulevard.
Venice Short Line.

Inglewood Parkway
Rail transit lines affected:
Line "5"—Hawthorne.
Line "9"—West Forty-eighth Street.
Line "10"—West Vernon Avenue.
Line "U"—Vermont and Florence.

Olympic Parkway
Rail transit lines affected:
Line "N"—West Ninth Street.
Line "P"—West Pico Boulevard.
Line "R"—West Third Street.
San Vicente Boulevard Line.

Riverside Parkway
Rail transit lines affected:
None.

Glendale Parkway
Rail transit lines affected:
None.

Allesandro Parkway
Rail transit lines affected:
Line "5"—Eagle Rock.

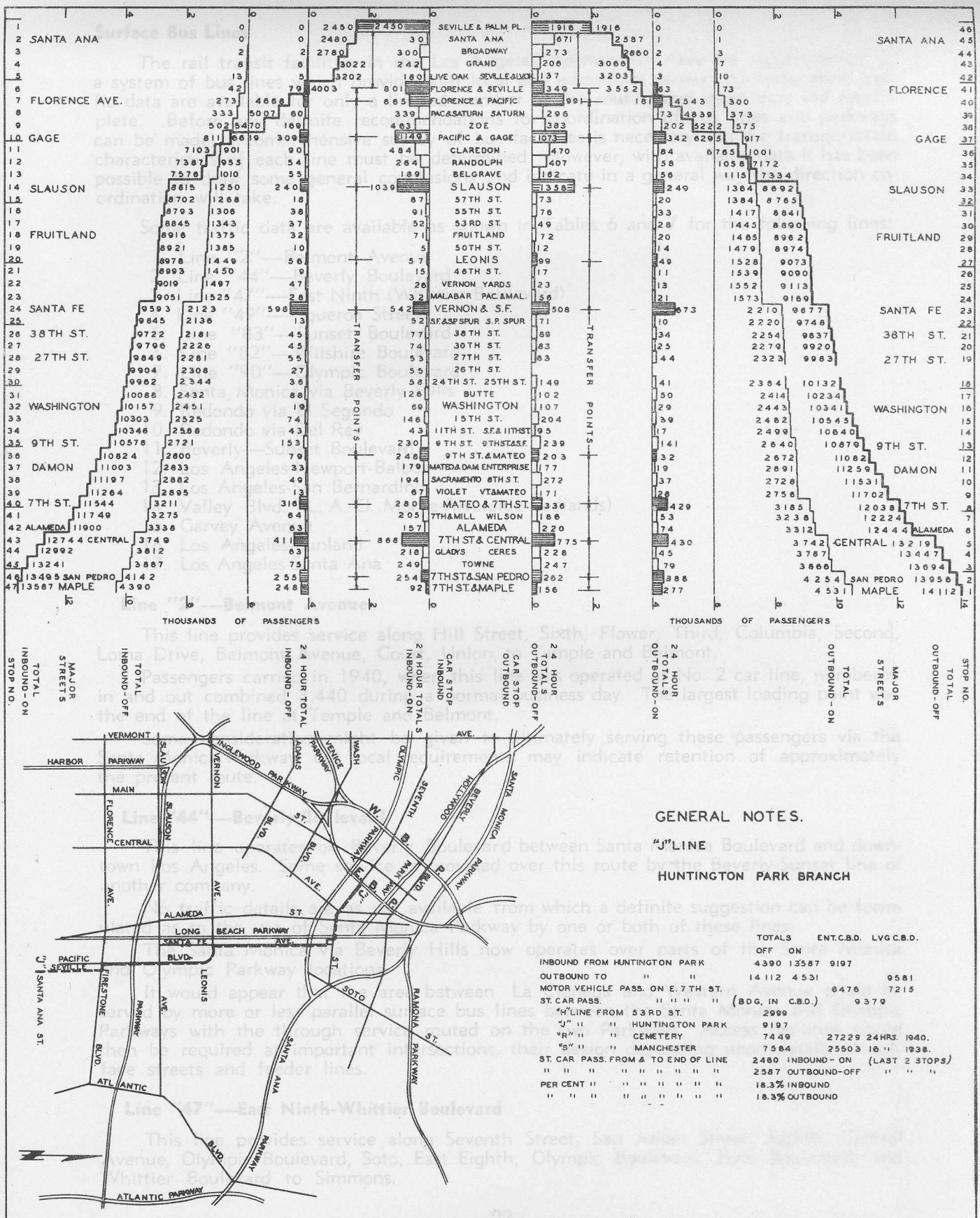
Slauson Parkway
Rail transit lines affected:
Line "J"—Huntington Park.
Line "S"—San Pedro.
Line "O"—South Main Street.
Santa Fe Springs Freight Line.

Crenshaw Parkway
Rail transit lines affected:
Line "5"—Hawthorne.
San Fernando Valley Rail Line.

Normandie Parkway
Rail transit lines affected:
Line "V"—Vermont Avenue.
San Fernando Valley Rail Lines.

Whitnall Parkway
Rail transit lines affected:
San Fernando Valley Line.

San Fernando Parkway
Rail transit lines affected:
Los Angeles-Glendale-Burbank Line.



GENERAL NOTES.

"J" LINE

HUNTINGTON PARK BRANCH

	TOTALS OFF	ON	ENT. C.B.D.	LVG C.B.D.
INBOUND FROM HUNTINGTON PARK	4390	13587	9197	
OUTBOUND TO " "	14112	4531		9581
MOTOR VEHICLE PASS. ON E. 7TH ST.			8476	7215
ST. CAR PASS. " " " " (BDG. IN C.B.D.)			9379	
"H" LINE FROM 53RD ST.			2999	
"J" " " HUNTINGTON PARK			9197	
"R" " " CEMETERY			7449	27229 24 HRS. 1940.
"S" " " MANCHESTER			7584	25503 16 " 1938.
ST. CAR PASS. FROM & TO END OF LINE			2480 INBOUND-ON	(LAST 2 STOPS)
" " " " " " " " "			2587 OUTBOUND-OFF	" " "
PER CENT " " " " " " " "			18.3% INBOUND	
" " " " " " " " "			18.3% OUTBOUND	

FIG. 9

Surface Bus Lines

The rail transit facilities in the Los Angeles Metropolitan Area are supplemented by a system of bus lines which provide both local and interurban service. Unfortunately traffic data are available for only a limited number of the routes, and those data are incomplete. Before any definite recommendations for coordination of bus lines and parkways can be made, a comprehensive survey of bus facilities is necessary and the transportation characteristics of each line must be determined. However, with available data it has been possible to draw some general conclusions and indicate in a general way the direction coordination will take.

Some traffic data are available as shown in Tables 6 and 7 for the following lines:

1. Line "2"—Belmont Avenue
2. Line "44"—Beverly Boulevard
3. Line "47"—East Ninth (Whittier Boulevard)
4. Line "49"—Figueroa Street
5. Line "83"—Sunset Boulevard
6. Line "82"—Wilshire Boulevard
7. Line "90"—Olympic Boulevard
8. Santa Monica via Beverly Hills
9. Redondo via El Segundo
10. Redondo via Del Rey
11. Beverly—Sunset Boulevard
12. Los Angeles-Newport-Balboa
13. Los Angeles-San Bernardino
14. Valley Blvd. (L. A.-El Monte-Riverside-Redlands)
15. Garvey Avenue
16. Los Angeles-Sunland
17. Los Angeles-Santa Ana

Line "2"—Belmont Avenue

This line provides service along Hill Street, Sixth, Flower, Third, Columbia, Second, Loma Drive, Belmont Avenue, Court, Union, to Temple and Belmont.

Passengers carried in 1940, when this line was operated as No. 2 car line, numbered in and out combined 3,440 during a normal business day. The largest loading point was the end of the line at Temple and Belmont.

Some consideration might be given to ultimately serving these passengers via the Santa Monica Parkway, but local requirements may indicate retention of approximately the present route.

Line "44"—Beverly Boulevard

This line operates on Beverly Boulevard between Santa Monica Boulevard and downtown Los Angeles. Some service is provided over this route by the Beverly-Sunset line of another company.

No traffic details are as yet available from which a definite suggestion can be formulated as to the use of Santa Monica Parkway by one or both of these lines.

The Santa Monica via Beverly Hills now operates over parts of the Santa Monica and Olympic Parkway locations.

It would appear that the area between La Cienega and Western Avenue could be served by more or less parallel surface bus lines between the Santa Monica and Olympic Parkways with the through service routed on the two Parkways. Access facilities would then be required at important intersections, their design depending upon details of surface streets and feeder lines.

Line "47"—East Ninth-Whittier Boulevard

This line provides service along Seventh Street, San Julian Street, Eighth, Central Avenue, Olympic Boulevard, Soto, East Eighth, Olympic Boulevard, Ford Boulevard, and Whittier Boulevard to Simmons.

No traffic details are as yet available from which a definite suggestion can be formulated as to the use of the Olympic and Santa Ana Parkways, which the present route closely parallels.

It would appear that access facilities should be provided at some point on one or the other of these parkways and that the section of the line outward from downtown Los Angeles to a point midway between there and the end of the line should operate over the ultimate parkway as an express route.

Line "49"—Figueroa Street

This line is routed over Hill Street, Washington, Figueroa, to Manchester Avenue.

Passengers carried, in and out combined, numbered 4,044 during a normal business day in November, 1940. Approximately 50% of passengers originated between the end of the line and the intersection of Figueroa Street and Sixtieth Street. Passengers from the end of the line were 12.6 per cent of total inbound.

The present route closely approximates the Harbor and Inglewood Parkways. It is likely that access facilities should be provided at Slauson Avenue and the line routed over the parkway between there and downtown Los Angeles. About 55% of present passengers would have their travel time reduced under this arrangement.

Line "83"—Sunset Boulevard

This line is routed over Hill Street, Eighth, Rampart, Third, Vermont Avenue, and Sunset Boulevard to Laurel Canyon.

Passengers carried, in and out combined, numbered 14,826 during a normal business day in November, 1940. Approximately 50% of passengers originated between the end of the line and the intersection of Sunset Boulevard and Vine Street. The latter point is also the point of heaviest loading. Passengers from end of line were 3.2 per cent of total inbound.

If the line were to be operated over the Hollywood Parkway between Western Avenue and downtown Los Angeles, 83% of the passengers would have their travel time reduced to a considerable extent. On this basis access facilities would have to be provided in the vicinity of the intersection of Sunset and Western Avenue.

Line "82"—Wilshire Boulevard

This line provides service along Hill Street, Eighth, Union Avenue, and Wilshire Boulevard.

No traffic details are as yet available from which a definite suggestion can be formulated as to the use of parkway routes by this line.

The line will intersect the Santa Monica Parkway in Beverly Hills. Passengers from the western section of the line could have their travel time substantially reduced by routing the line over the parkway to downtown Los Angeles. If this should be found to be desirable, access facilities would be provided in the vicinity of the intersection of Wilshire Boulevard and Santa Monica Boulevard.

Line "90"—Olympic Boulevard

This line is routed via Hill Street and Olympic Boulevard to Spaulding Drive, Beverly Hills.

No traffic details are as yet available from which a definite suggestion can be formulated as to the use of parkway routes by this line.

The present route closely approximates the location of the Olympic Parkway from a point about midway between Crenshaw Boulevard and Western Avenue. Passengers from the western section of the line beyond that point could have their travel time substantially reduced between there and downtown Los Angeles by routing the line on the parkway. If this should be found to be desirable, access facilities would be provided in that vicinity.

Santa Monica via Beverly Hills Line

This line is routed via Olive Street, Olympic Boulevard, San Vicente Boulevard, Burton Way, Canon Drive, Beverly Hills Station, Beverly Drive, Santa Monica Boulevard, Ocean Avenue, Pico Boulevard, Main Street, Marine Street, to Ocean Park Station.

Passengers carried, in and out combined, numbered 154,748 during the month of June, 1941. Point of maximum load is the intersection of Olympic and Fairfax Avenue. For 74 trips inbound on July 24, 1941, passengers numbered 2,127 at that point, an average of 29.3 passengers per trip.

The line now operates with only inbound alighting stops between Fairfax and downtown Los Angeles. Suggestions for readjustment have been made above under Line "44" —Beverly Boulevard. Should the present route be retained, however, it might be routed over the Olympic Parkway from a point midway between Crenshaw Boulevard and Western to downtown Los Angeles.

Redondo via Del Rey Line

This line is routed via Olive Street, Venice Boulevard, Culver Boulevard, Vista Del Mar Lane, Century Boulevard, Coast Boulevard, Highland Avenue, Center Street, Manhattan Avenue, Manhattan Court, Hermosa Avenue, Pacific Avenue, and California Avenue to Avenue "I".

Redondo via El Segundo Line

This line is routed via Olive Street, Twenty-third, Flower, Figueroa, Slauson Avenue, La Tijera Boulevard, Sepulveda Boulevard, Imperial Boulevard, Main Street, Grand Avenue, Coast Boulevard, Highland Avenue, Center Street, Manhattan Avenue, Manhattan Court, Hermosa Avenue, Pacific Avenue, and Catalina Avenue to "I" Street.

Passengers carried on these lines numbered 73,208 during June, 1941. Point of maximum load is not definite. However, on 26 inbound trips, on the Del Rey branch, July 24, 1941, there were 653 passengers, or 25.1 passengers per trip, and the same average for the El Segundo branch.

It might ultimately be desirable to route the El Segundo branch via Inglewood Parkway from Slauson and Western to downtown Los Angeles. The Del Rey branch could use the Olympic Parkway inbound from Robertson Boulevard. Additional data are, however, necessary before definite suggestion can be made.

Beverly-Sunset Boulevard Line

This line is routed via Hill, Sixth, Olive, Fifth, Fremont Avenue, Second, Beverly Boulevard, Santa Monica Boulevard, Beverly Drive, Canon Drive, to and west on Sunset Boulevard, Roosevelt Highway, to Castellamare Beach.

Passengers carried during June, 1941, numbered 10,577. Point of maximum load is La Cienega Boulevard and Beverly Boulevard. Line carried about 14 passengers per trip.

Since the line is 24 miles long from the Hill Street terminal, and maximum load point is 8.5 miles out, it is interurban in operation and time required to make the trip can be reduced by operation via Santa Monica Parkway between downtown Los Angeles and Beverly Hills.

Los Angeles-Newport-Balboa Line

This line operates via Fifth Street, Maple Avenue, Sixth, Boyle Avenue, Eighth, Olympic, Telegraph Road, Lakewood Boulevard, Highway 101, to Newport Junction, then Coast Boulevard, Central Avenue, Ocean and "I" Street to Central Avenue.

Passengers carried during June, 1941, numbered 12,356. No definite maximum load point has been determined but inbound checks show an average of 30.0 passengers per trip.

The present route closely approximates the Santa Ana Parkway from a point between Downey Road and Eastern Avenue southeastward. Since the line is some 45 miles long,

it is interurban in character. While it may be desirable to retain the present route from the above point to downtown Los Angeles for local service, through passengers would be best served by utilizing the Santa Ana Parkway throughout its length.

Los Angeles-Garvey Avenue-San Bernardino Line

This route extends from Fifth and Los Angeles Streets via Los Angeles to Aliso, Ramona Boulevard, Garvey Avenue, Highways 99 and 70, Fifth Street, Gordon, Third, Garvey Avenue, Cucamonga Avenue, Alexander, private right-of-way, First Street, Mills Avenue, Arrow Highway, San Bernardino Road, Foothill Boulevard, Mount Vernon Avenue, Third Street, to San Bernardino.

Passengers carried during June, 1941, were included with the Valley Boulevard line and totaled 185,597. There was an average of 20.1 passengers per trip inbound on this line, and 26.5 per trip on the Valley Line, July 24, 1941.

Los Angeles-Valley Boulevard-Redlands

This route operates over Los Angeles Street, Aliso, Lyon, Macy, Mission Road, and Valley Boulevard through Alhambra, San Gabriel, El Monte, Bassett, Puente, to Pomona, and on to Redlands.

Both these lines may need to be retained along present routes. Through passengers will, no doubt, be handled on the Ramona Parkway. Further traffic data will be required to make possible definite plans.

Los Angeles-Sunland Line

This line provides service along Los Angeles Street, Sunset Boulevard, Castelar, North Figueroa, Avenue 26, San Fernando Road, Glendale Avenue, Verdugo Road, Canada Boulevard, Verdugo Road, Montrose Avenue, Honolulu Street, La Crescenta Avenue, Pennsylvania Avenue, Foothill Boulevard, to Russett Avenue and Sunland.

Passengers carried during June, 1941, numbered 68,031. No definite maximum load point was established, but inbound checks of 34 trips July 24, 1941, show an average of 23 passengers per trip.

Present route of this line closely approximates the proposed Glendale Parkway. Future routing might possibly be desirable via Glendale, Allesandro, and Riverside Parkways. Definite plans must await more traffic data and further study of the route.

Los Angeles-Santa Ana Line

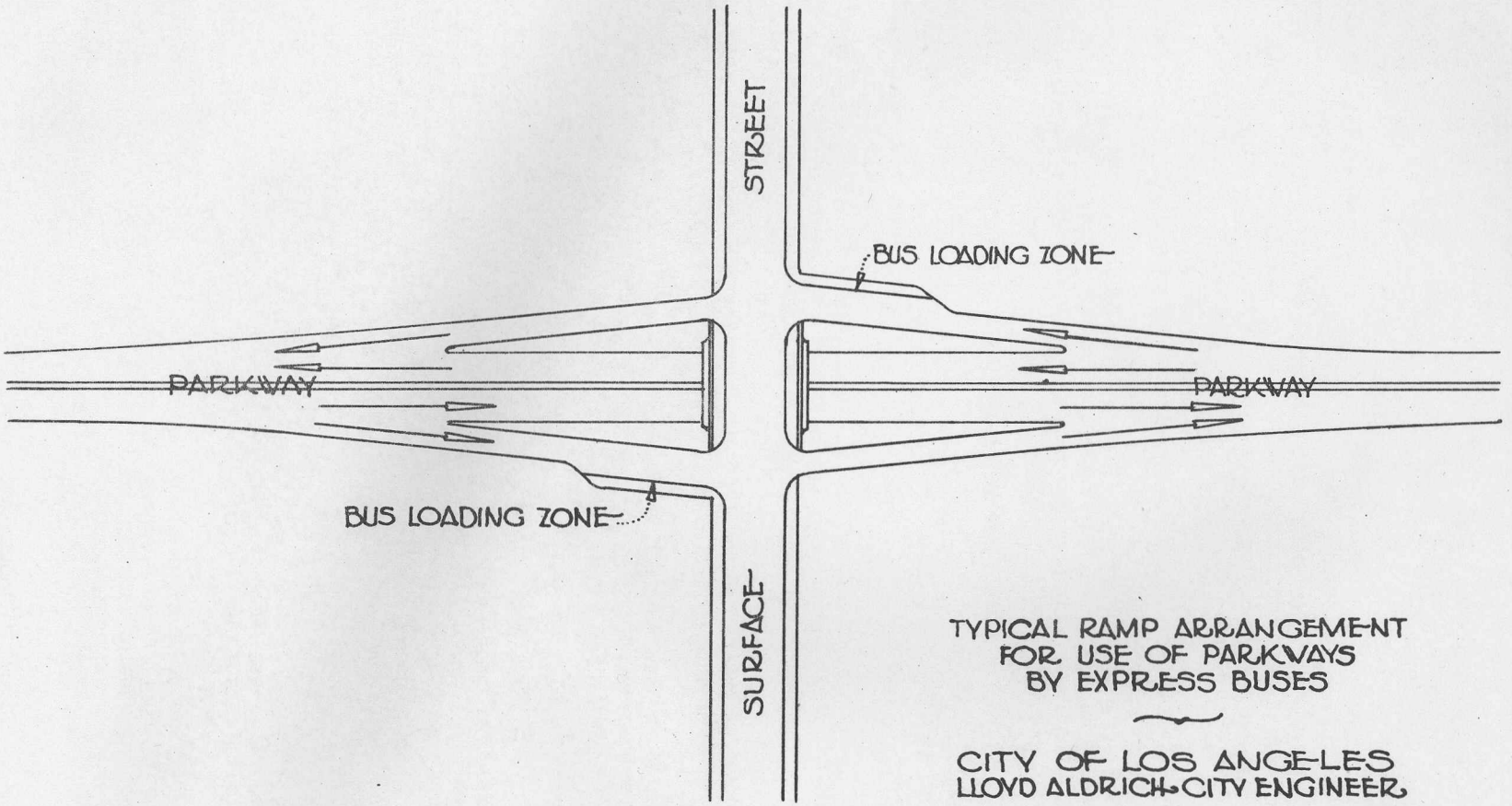
This line not considered at this time.

PROBLEMS NEEDING FURTHER STUDY

This report should be considered only as a progress report. Because of the limited transit data which were available or which could be obtained, only general conclusions could be drawn. The manner in which coordination can be accomplished is indicated in the foregoing discussion. The degree of coordination must still be determined. A comprehensive scheme of coordination of mass transportation facilities and parkways can be drawn only after a thorough survey of the present transportation characteristics, the riding habits of the people of Los Angeles, and the facilities available.

Other matters that need further study are the type of conveyance that will be used on the parkways for the mass transportation of people, the points of ingress and egress, the manner of loading and unloading at transfer points—whether this be done at the parkway level or at the surface street level. The Rapid Transit Design Division of the Bureau of Engineering has given considerable study to the matter of ingress and egress facilities. A typical suggestion is shown on Figure 10.

Because it is unlikely that parkway construction will take place on a wholesale scale, and because each parkway has characteristics that are peculiar to itself, each route should be studied individually at the time it is being constructed, and the feasibility of coordinating the transit lines, both bus and rail, with the parkway determined at that time.



TYPICAL RAMP ARRANGEMENT
FOR USE OF PARKWAYS
BY EXPRESS BUSES

CITY OF LOS ANGELES
LLOYD ALDRICH - CITY ENGINEER

Rapid Transit Design Division

FIG. 10