PUBLIC UTILITIES COMMISSION
STATE OF CALIFORNIA
Transportation Department
Engineering Division

Case No. 4843

REPORT ON
ENGINEERING SURVEY
OF
OPERATIONS AND FACILITIES
OF
LOS ANGELES TRANSIT LINES

Los Angeles, California
November 17, 1947

Arthur F. Ager
Senior Engineer

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CHAPTER I

GENERAL STATEMENT

Application 27487, filed by the Los Angeles Transit Lines, seeks the Commission's authority to make certain adjustments in its passenger fares. Case 4843, instituted by the Commission on its own motion, contemplates a general investigation of this carrier, as well as Pacific Electric Railway Company and Los Angeles Motor Coach Lines, into all phases of the operations including service, operations, fares, etc. Exhibit No. 32, offered in evidence at the hearing on these matters and Application 27466 on October 2, covered the service and related matters on Pacific Electric Railway. Because of major changes which became effective on August 3, 1947, as to routings, type of equipment, schedules, etc., it was impossible for the Commission's staff to have any suitable service study available for presentation at that time. No traffic checks which would be representative and present a true picture of the operations could be made until after the commencement of the fall school term on or about September 15. Making these checks is not an instantaneous process, but requires considerable time, and to be authentic must be made by experienced people.

As of September 28, 1947, Los Angeles Transit Lines had in service 13 rail lines on which there were 601 scheduled cars, 83 spares and 9 unassigned but serviceable units of equipment, making a total available rail cars of 693. As of this same date Los Angeles Transit Lines had in operation 36 motor coach and trolley coach lines on which there were scheduled 472 coaches and 55 spares, or a total of 527 units, 40 of which were trolley coaches.

A detailed description of the various types of rail equipment used by the Transit Lines is contained in the Commission's report dated October 17, 1940, on Case No. 4461, and should require no elaboration here. It might be well, however, to state that since the Transit Lines have taken over the operation from

the former owners, Los Angeles Railway Corporation, the standards of maintenance have been substantially improved both as to operations and outward appearances. Although many of the rail cars now in use are of ancient vintage, due to the maintenance program just referred to they perform a relatively satisfactory service.

Coach equipment is of various makes, sizes and types. For the most part it is relatively new and well-maintained, and due to the preventive maintenance program, road failures are fewer than might normally be expected on a property of this size.

CHAPTER II

LOAD CHECKS AND LOADING STANDARDS

Load checks were made on all of the streetcar, motor coach and trolley coach lines. These checks were tabulated by 20-minute periods and carefully analyzed to determine where additional service was needed. The load checks for the more important routes were plotted as well and are shown on Plates I, II and III.

The additional trips needed and vehicles required to operate these trips are shown in Table No. 1. Attention is invited to the fact that the recommendations for additional service are made on the basis of the conditions prevailing at the time the load checks were made. Since that time schedules have been revised, but there is no recent data by which we can determine the present adequacy of service.

Service was found to be adequate on those lines not listed.

Loading Standards

In making the analysis of additional service, certain loading standards were used, as follows:

Off-peak periods

A seat per passenger at the maximum load point for all types of equipment.

Peak periods

Streetcars

Type	Seats	Load Std.
H-4	48	85
H-3	52	75
PCC	61	85

Type	Seats	Load Std.
B-1	44	75
B-2	44	75
B	48	75
F	56	75

Motor Coach

Seats	Load Std.
40	52
44	60
45	60

Trolley Coach

Seats	Load Std.
44	68

Coming

The loading standards were determined after personal observation was made of all types of cars in peak-hour service. The standard was set at that capacity beyond which standing passengers interfered with the operators' vision and duties and passengers were unable to board and alight freely. Engineers of the Commission's staff spent considerable time riding the cars in crowded conditions to set these values. The usual procedure was to board an inbound car at a point on the line where no more than a seated load was observed. A running tally of the number of passengers on board was kept as the load increased and that point noted at which the car seemed to "freeze up" (i.e. passengers were unable to board and alight freely). It was found that this "freezing" point was very consistent for any given type of car. It always occurred within 2 or 3 passengers of the same value.

In considering loading standards for transit vehicles it should be borne in mind that the standard is only an average over a given period of time (20 minutes in this case). The loads on individual cars will fluctuate considerably and many cars will be loaded to the point where no more passengers are able to get on. A special study was made of this fluctuation on the cars operated on the "P" and "J" Lines and the table below shows the number of cars that are above and below the average for various loading standards.

20-Min. Average	No. of Observ.	Percent Exactly Average	Percent Below Average	Percent that Exceeded Average by 1 or More Passengers	11 or More Passengers	21 or More Passengers
80 Pass.	72	1%	46%	53%	26%	3%
85	53	2	45	53	25	6
90	57	7	37	56	21	4
95	46	4	37	59	24	4
100	27	-	33	67	-	-
105	20	-	30	70	10	-

TABLE NO. 1
LOS ANGELES TRANSIT LINES
ESTIMATE OF ADDITIONAL TRIPS AND EQUIPMENT REQUIRED

Line No. (1)	Route (2)	Date of Check (3)	Add'l. One-way Trips Required (4)	Add'l. Units Required (5)
Rail Lines				
B	Brooklyn & Hooper Ave.	10-7-47 29	17	4
F	So. Vermont & North Main Street	10-8-47 42	6	-
J	W. Jefferson & Huntington Park	10-16-47 53	7	2
N	W. Ninth St. & Civic Center	10-9-47 28	5	2
P	W. Pico & E. First Street	10-16-47 70	28	7
R	Whittier Blvd. & W. Seventh St.	8-28-47 40	15	-
S	San Pedro St. & W. Third St.	8-28-47 61	4	-
V	Vernon & Vermont Ave.	10-2-47 42	25	6
W	W. Washington & Highland Park	10-17-47 57	3	-
5	Eagle Rock & Hawthorne	10-16-47 78	33	7
7	So. Broadway & Civic Center	10-3-47 40	10	1
9	W. 48th St.-Lincoln Park & Griffin	8-29-47 32	11	-
	Total Rail		164	29
Trolley Coach				
3	W. Sixth & Central Avenue	9-26-47	26	1
Motor Coach				
4	Maple & Melrose Avenue	9-25-47	13	3
11	W. Adams & Temple Street	8-26-47	26	4
44	Beverly Boulevard	9-30-47	25	4
47	Whittier Blvd. & E. Fourth Street	9-4-47	17	3
49	Figueroa Street	10-17-47	2	1
50	Florence-Soto	9-22-47	18	1
	Total Motor Coach		101	16

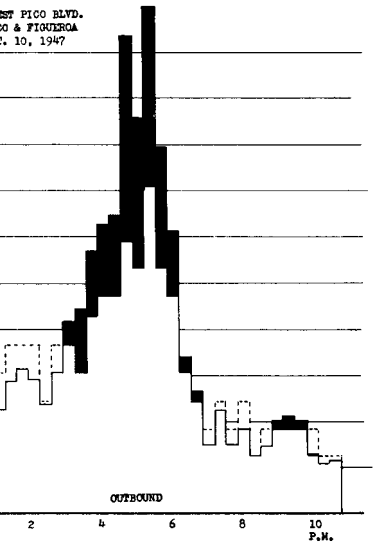
STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION
TRANSPORTATION DEPARTMENT

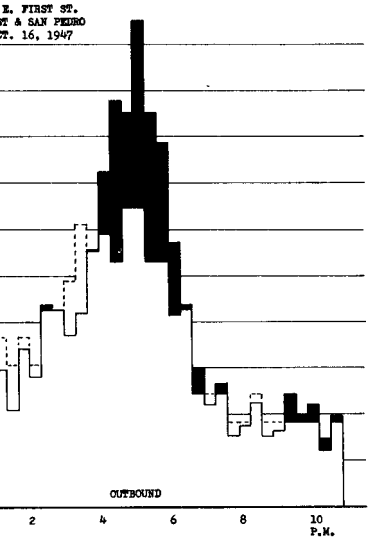
Sheet 1 of 2 sheet

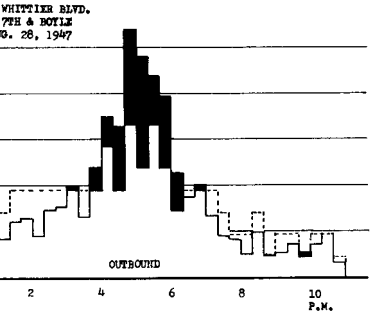
LOS ANGELES TRANSIT LINES

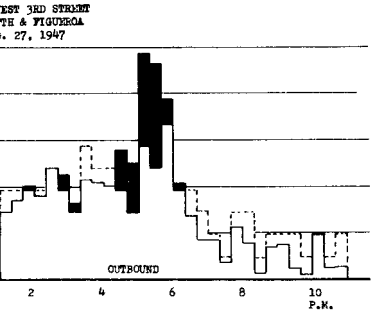
RAIL LINES

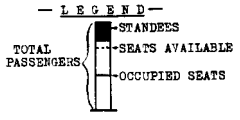
LOADING AT MAXIMUM LOAD POINTS

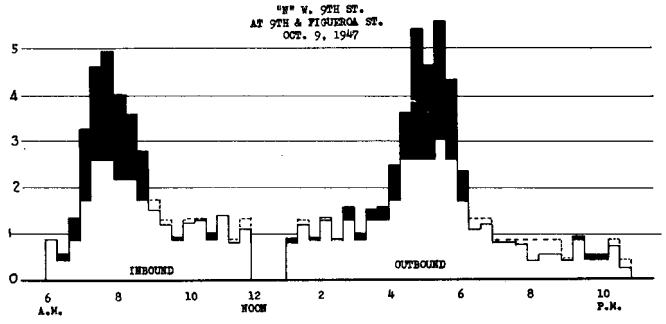


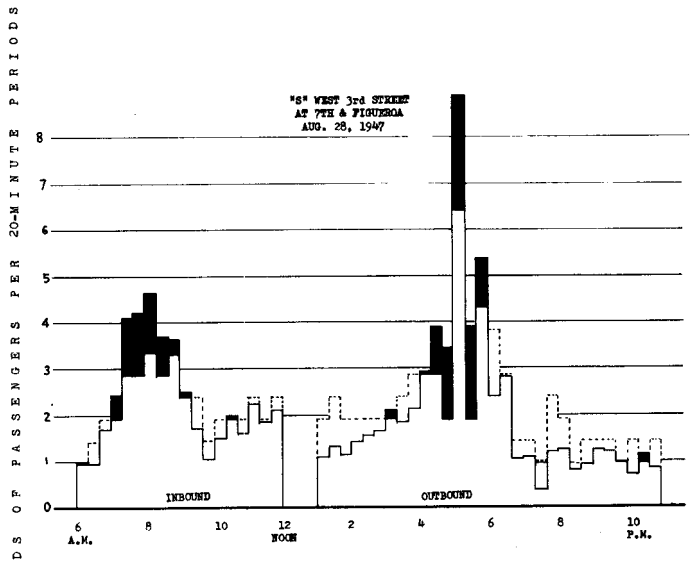


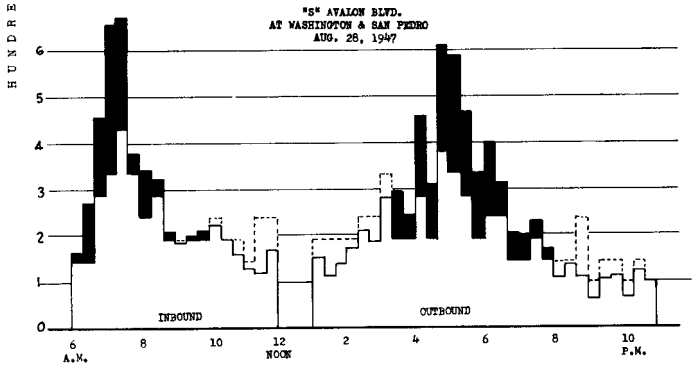




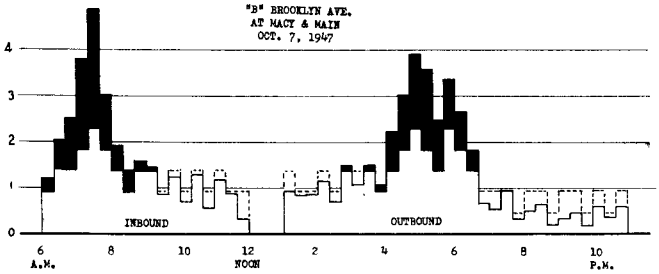




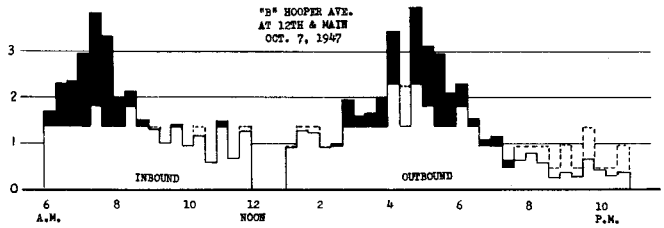




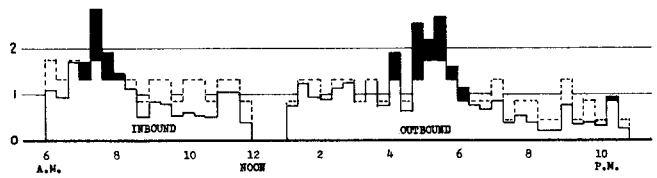
"B" BROOKLYN AVE.
AT MACY & MAIN
OCT. 7, 1947



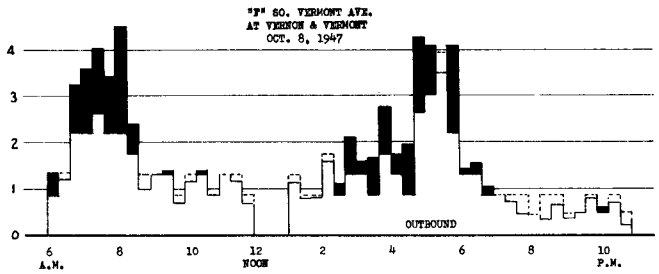
"B" HOOPER AVE.
AT 12TH & MAIN
OCT. 7, 1947



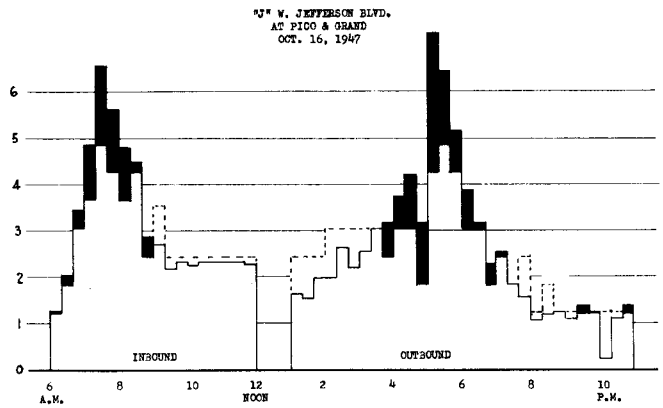
"F" NO. MAIN ST.
AT MACY & MAIN
OCT. 8, 1947



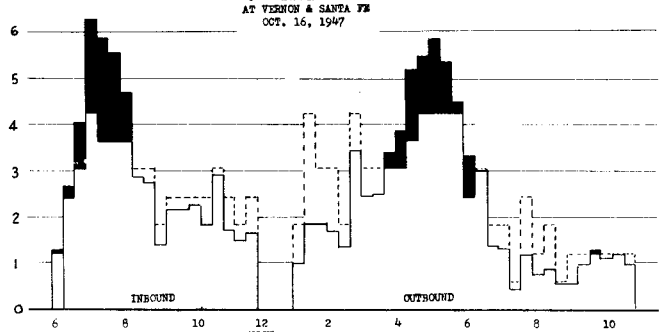
"F" SO. VERMONT AVE.
AT VERNON & VERMONT
OCT. 8, 1947



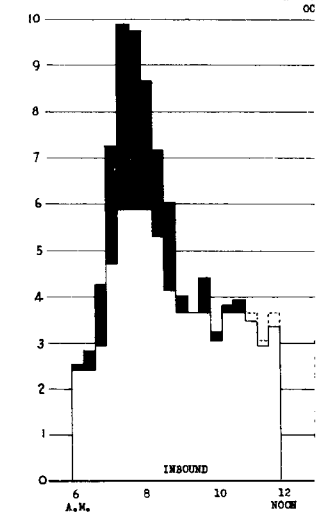
"J" W. JEFFERSON BLVD.
AT PICO & GRAND
OCT. 16, 1947

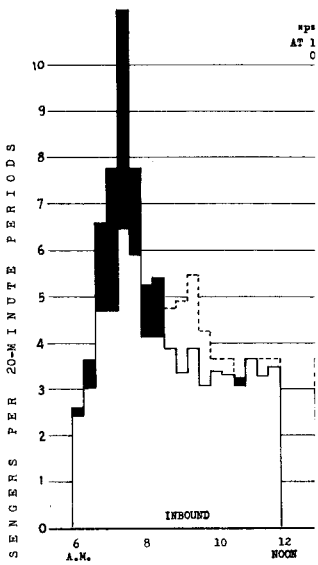


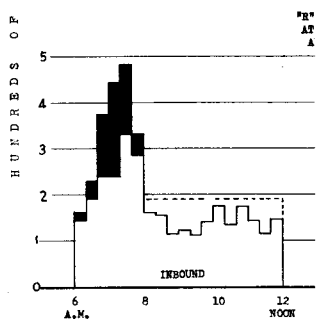
"J" - HUNTINGTON PARK
AT VERNON & SANTA FE
OCT. 16, 1947

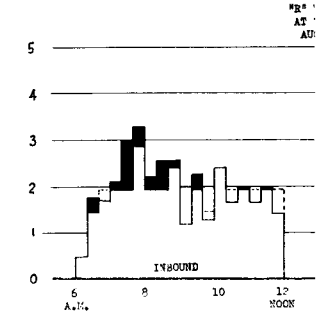


HUNDREDS OF PASSENGERS PER 20-MINUTE PERIODS









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STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION
TRANSPORTATION DEPARTMENT

LOS ANGELES TRANSIT LINES

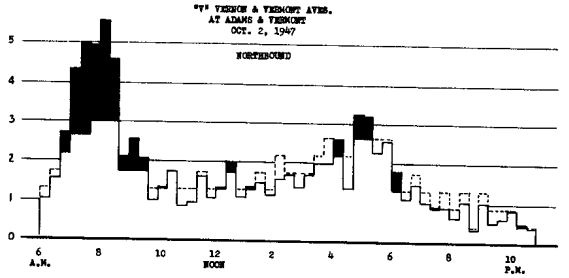
RAIL LINES

LOADING AT MAXIMUM LOAD POINTS

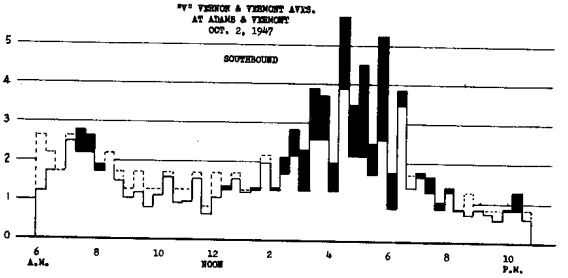
— LEGEND —
TOTAL PASSENGERS
STANDEES
SEATS AVAILABLE
OCCUPIED SEATS

HUNDREDS OF PASSENGERS PER 20-MINUTE PERIODS

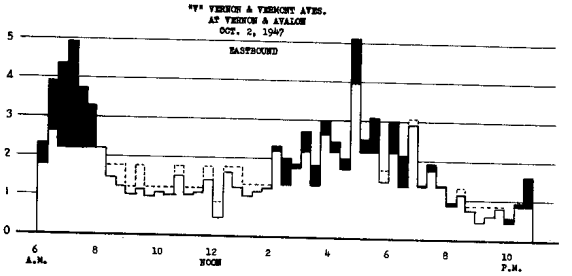
"V" VERNON & VERMONT AVES.
AT ADAMS & VERMONT
OCT. 2, 1947
NORTHBOUND



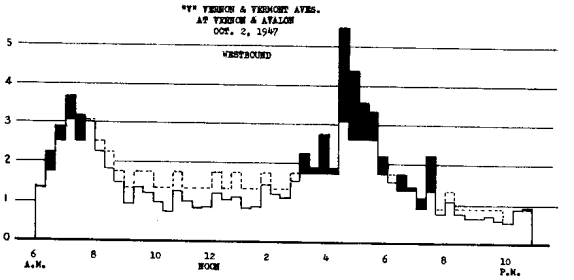
"V" VERNON & VERMONT AVES.
AT ADAMS & VERMONT
OCT. 2, 1947
SOUTHBOUND



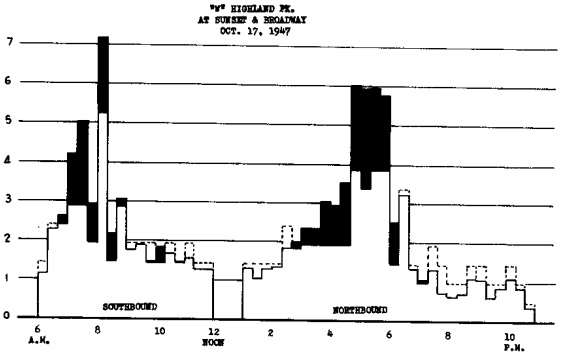
"V" VERNON & VERMONT AVES.
AT VERNON & AVALON
OCT. 2, 1947
EASTBOUND



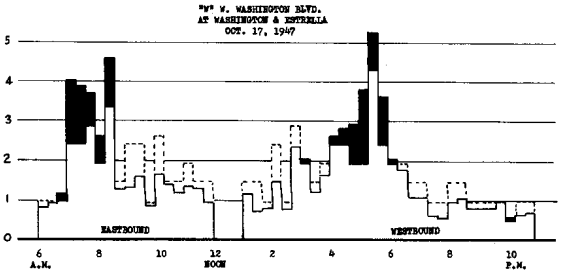
"V" VERNON & VERMONT AVES.
AT VERNON & AVALON
OCT. 2, 1947
WESTBOUND



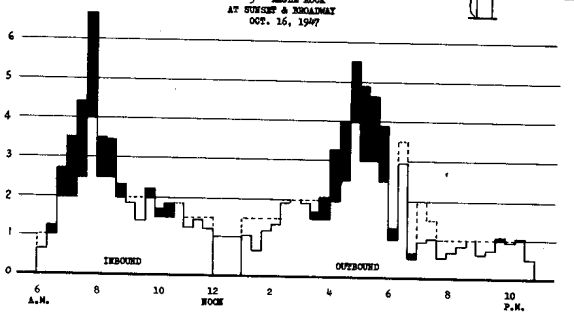
"W" HIGHLAND PK.
AT SUNSET & BROADWAY
OCT. 17, 1947
SOUTHBOUND
NORTHBOUND



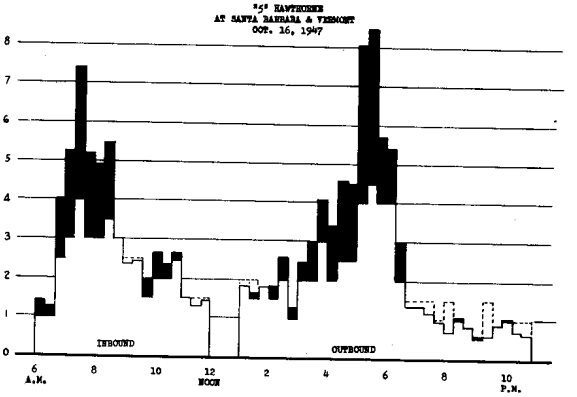
"W" W. WASHINGTON BLVD.
AT WASHINGTON & ESTRELLA
OCT. 17, 1947
EASTBOUND
WESTBOUND



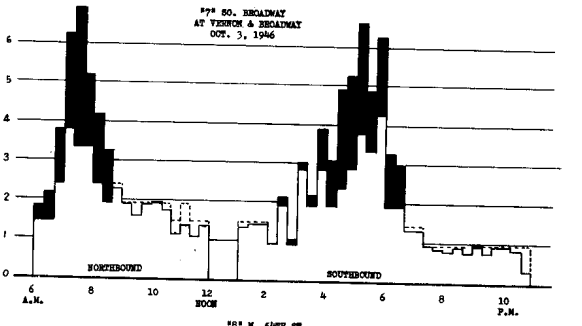
"S" EAGLE ROCK
AT SUNSET & BROADWAY
OCT. 16, 1947
INBOUND
OUTBOUND



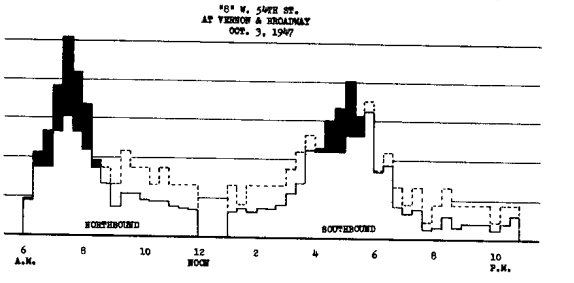
"S" HAWTHORNE
AT SANTA BARBARA & VERMONT
OCT. 16, 1947
INBOUND
OUTBOUND



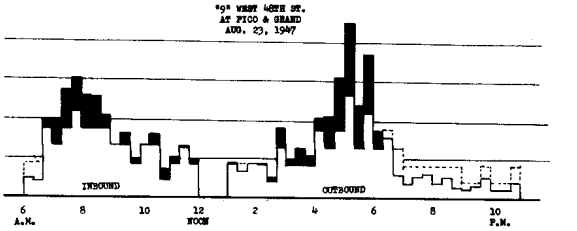
"W" SO. BROADWAY
AT VERNON & BROADWAY
OCT. 3, 1946
NORTHBOUND
SOUTHBOUND



"S" W. 54TH ST.
AT VERNON & BROADWAY
OCT. 3, 1947
NORTHBOUND
SOUTHBOUND



"S" WEST 48TH ST.
AT PICO & GRAND
AUG. 23, 1947
INBOUND
OUTBOUND

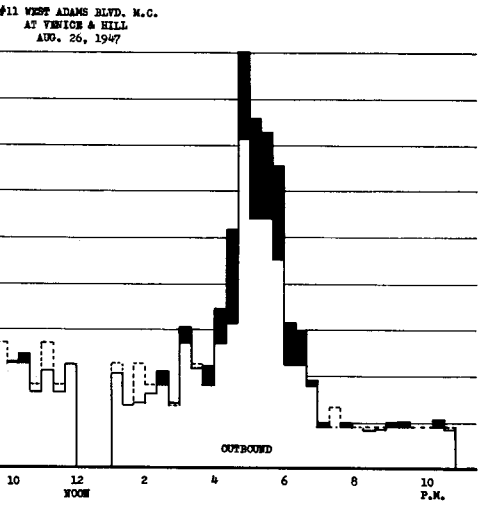


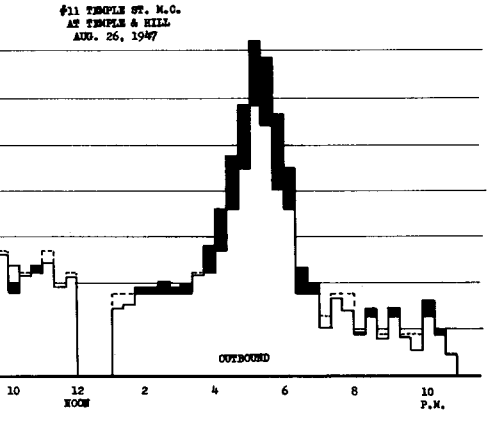
STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION
TRANSPORTATION DEPARTMENT

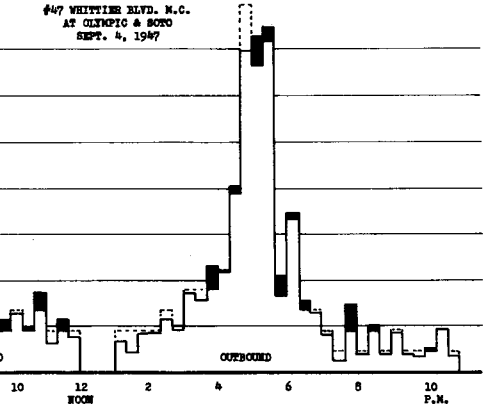
LOS ANGELES TRANSIT LINES

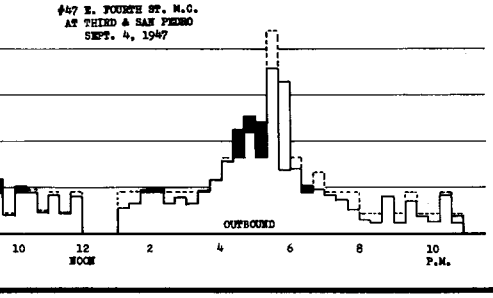
COACHES

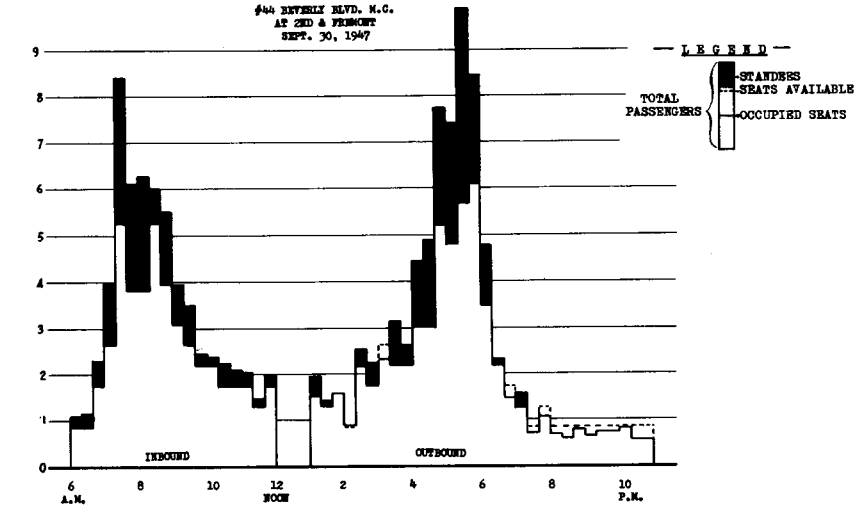
LOADING AT MAXIMUM LOAD POINTS

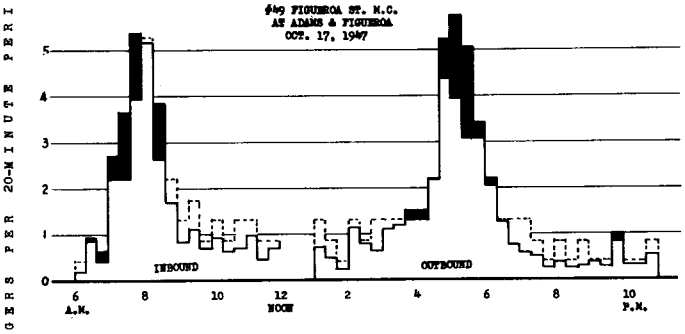




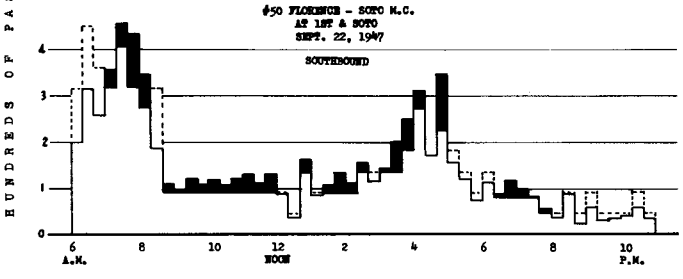


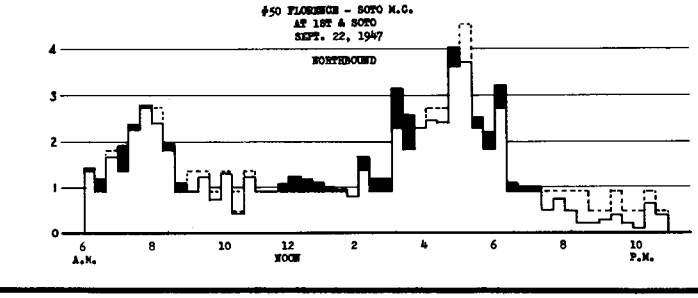




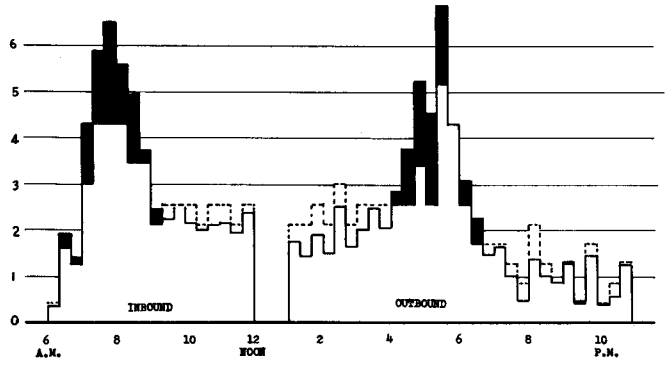


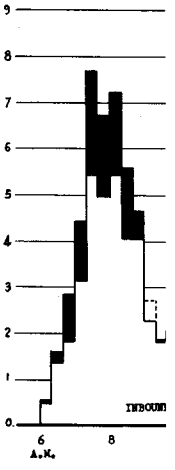
HUNDREDS OF PASSENGERS PER 20-MINUTE PERIODS





#3 WEST 6TH ST. TROLLEY COACH
AT 6TH & BIXEL
SEPT. 26, 1947





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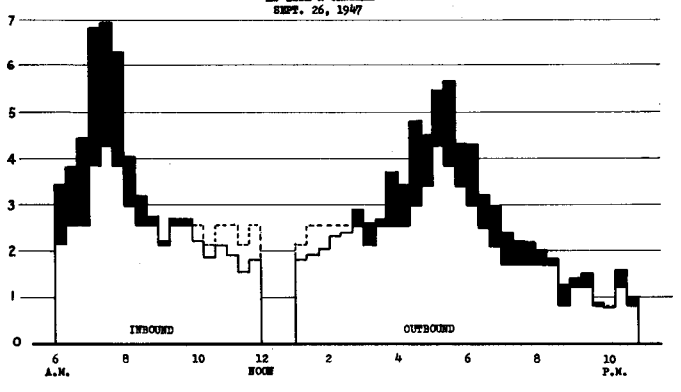
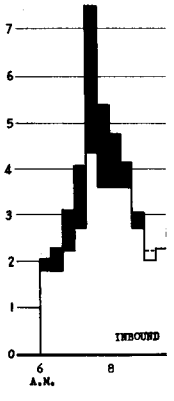
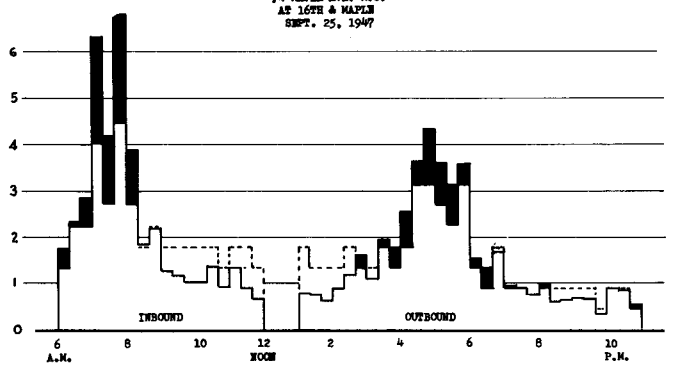
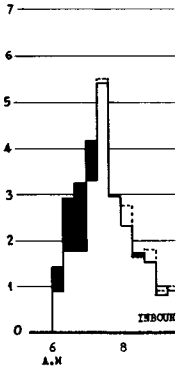
AT 12TH & CENTRAL
SEPT. 26, 1947





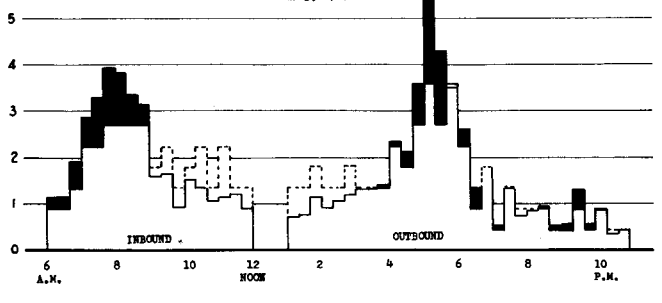
#4 MAPLE AVE. M.C.
AT 16TH & MAPLE
SEPT. 25, 1947

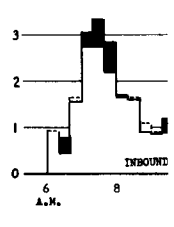




HUNDREDS OF PASSENGERS PER 20-MINUTE PERIODS

#4 MELROSE AVE. M.C.
AT 5TH & FLOWER
SEPT. 25, 1947





CHAPTER III

RECENT REROUTINGS AND ABANDONMENTS

Effective August 3, 1947, a rerouting plan was placed in effect on the Los Angeles Transit Lines that affected, to some degree at least, a very large number of patrons. This rerouting included substitution of trolley coaches or motor buses for streetcars on several lines and was necessitated to some extent by the Fifth and Sixth Street one-way plan. The changes were authorized by the Commission in Decision No. 39917, dated January 28, 1947, in Application No. 27975. In addition, certain changes were made on the routes of the Los Angeles Motor Coach Lines, effective October 5, 1947.

These changes have caused considerable comment in the public press and elsewhere and it might be well to review them at this time. Application 27975 contained maps and complete descriptions of all route changes and only the more important details are mentioned here. The following lines were involved:

Car Lines - D, F, H, O, R, S, U, 3

Bus Lines - 2, 41, 49, 56

Complaints concerning this rerouting have been registered, one of which is that service has been removed from certain streets, thus necessitating a longer walk for some patrons. A study has been made of all such service abandonments and it has been found that no area is more than one-fourth mile away from some transit service. The details of all these abandonments, together with a discussion of alternate means of transportation for the patrons in the affected area, are listed at the end of this chapter.

One item that has changed travel habits for certain patrons is the fact that the downtown portions of certain of the lines have been rerouted. For instance, the No. 4 bus line now operates eastbound on Sixth Street and westbound on Fifth Street in the downtown area instead of across Seventh Street as did the

former "H" car line. The "F" car line which formerly ran on Spring Street now operates along Main Street due to the connecting of this line with the North Main Street car line.

Another source of complaint arises from the fact that several of the abandoned car lines were relatively short and patrons who lived near the ends of these lines were usually able to obtain seats on the cars, even during peak hours. Today these same areas are served by the inner portions of much longer bus lines, and the buses usually carry seated loads when they arrive in the area in question. Thus, these passengers who formerly always obtained seats now frequently have to stand up. It is believed that considerable dissatisfaction with the rerouting program stems from this condition. The situation can be corrected by the operation of additional service, as previously recommended, and by the inauguration of short line or turn back service to serve these areas where justified.

To offset these disadvantages the rerouting plan has many advantages. The route layout has been simplified and many areas are now served with more direct routes. Turning movements of streetcars have been eliminated in many cases. Inspection of the old "U" line will show that formerly there were eight turns in a distance of less than two miles. Similarly, the "H" line had nine turns in a distance of about two miles. As a result of the reroutings, it was possible to eliminate all of the streetcar turning movements on to or off Alvarado Street, thereby expediting vehicular traffic on that important cross-town artery. The rerouting plan eliminated some duplicate and parallel service in areas that were overserved. The patrons on Melrose Avenue now have through service to the downtown area and the plan conforms with the Fifth and Sixth Street one-way plan. And finally, it should be borne in mind that in any major rerouting plan such as this, many persons will be affected. Those who consider the plan to their disadvantage will protest, but the many people benefited will usually remain silent.

It is reasonable to assume that if the lines were to be restored to their old routes today, there would be just as many if not more protests from those patrons who find the present route layout more convenient.

In conclusion, it may be said that in our opinion the benefits arising from the rerouting and abandonment plan outweigh the disadvantages.

Details of Abandonments and Reroutings

As a result of the changes effective August 3, 1947, service was eliminated on portions of certain routes. These portions are listed herein, together with a discussion of alternate means of transportation for the patrons in the affected area:

D - Bonnie Brae Car Line

Service was abandoned on Alvarado from Sixth to Third, on Third Street from Alvarado to Bonnie Brae, and on Bonnie Brae from Third to Beverly. These patrons are presently served on Alvarado by the No. 41 bus and on Third Street by the new No. 4 bus. No service is now operated along Bonnie Brae, but this three block ($\frac{1}{4}$ mile) area is served at one end by the No. 4 bus and on the other end by the No. 44 bus.

F - Hoover Street Car Line

Service was abandoned on Hoover Street from 48th to right of way near Manchester Avenue, a distance of 1-3/4 miles. This area is now served by the rerouted "F" car on Vermont Avenue, $\frac{1}{4}$ mile to the west, and by the No. 49 bus on Figueroa Street, $\frac{1}{4}$ mile to the east. In addition, Hoover Street is crossed by the No. 9 car on 54th Street and served by the No. 8 car north of 48th Street.

H - Maple Avenue Car Line

Service was abandoned on Wall Street between Santa Barbara and 53rd Street and on

53rd Street between Wall and San Pedro. This area is now served by the No. 4 bus line on Woodlawn between Santa Barbara and Vernon, one short block (less than 1/8 mile) away from Wall Street, and on South Main Street from 46th to 53rd, one block (1/8 mile) from Wall Street. The end of the old car line at 53rd and San Pedro is ¼ mile from service on South Main Street and ¼ mile from service on Avalon Boulevard. In addition, this area is crossed by the "V" car line on Vernon Avenue.

H - Melrose Avenue Car Line

Service was abandoned on Rampart Boulevard from Sixth to Second, on Second from Rampart to private right of way, on private right of way from Second Street to Bimini, on Bimini from private right of way to First Street, on First Street from Bimini to Vermont, on Vermont from First to Beverly, on Beverly from Vermont to Heliotrope, on Heliotrope from Beverly to Melrose, and on Melrose from Heliotrope to Western. This area is not served at present along Rampart Boulevard; however, service is provided at Sixth and Rampart by the No. 3 trolley coach and at Third and Rampart, approximately 3/10 of a mile distant, by the No. 4 bus. No service is provided at present along Second Street, private right of way, Bimini Place or First Street, but the area is adequately served by the No. 44 bus or the No. 4 bus, which lines at no point are as much as ¼ mile away. Service along Vermont Avenue is provided by the "V" car; along Beverly Boulevard by the No. 44 bus. The service along Heliotrope is no longer provided, but the area is served by the No. 44 bus at one end, the No. 4 bus at the other, and the No. 83 bus along Vermont Avenue. At no point is the alternate service more than ¼ mile away. From Heliotrope west to Western along Melrose, service is now provided by the No. 4 bus.

O - South Main Street Car Line

Service was abandoned on South Main Street between 36th Place and 46th Street.

This area is now served by the No. 4 bus along Woodlawn Avenue, less than 1/8 mile to the east.

S - Santa Monica and Western Car Line

Service was abandoned on Western Avenue between Third and Santa Monica. This area is now served by the No. 84 Western Avenue line. The No. 84 line, however, does not operate into the downtown business district. Persons along this portion of the old "S" line who wish to travel directly to the downtown area must use either the Santa Monica Boulevard line of the Pacific Electric Railway, the No. 4 bus on Melrose Avenue, the No. 44 bus on Beverly Boulevard, or the "R" or "S" cars on Third Street. These downtown lines cross Western Avenue at spacings of ½ mile, thus the walk along Western Avenue for any passenger to the nearest downtown line is no more than ¼ mile.

U - University Car Line

Service was abandoned on this route beginning at Washington and Estrella along Estrella, 23rd Street, Union Avenue, Hoover, 32nd Street, McClintock Avenue to Vermont. Service is rendered to this area at present along Hoover Street by an extension of the No. 41 bus. In addition, the area is served by the "W" car, No. 11 bus, "J" car, No. 18 bus, and the "V" car. No point in the affected area is at present more than ¼ mile from some transit line.

3 - West Sixth Street Car Line

Service was abandoned on private right of way between Third and Fifth. This area is now served by the No. 3 trolley coach line at private right of way and Fifth and by the "S" or "R" cars on Third Street, ¼ mile away.

2 - Belmont Bus Line

Service was abandoned on this line along Third, Columbia, Second, Loma, Belmont to

a loop around Clinton, Bonnie Brae and Bellevue. The old No. 2 bus line formerly served this area in a north and south direction. The area is now served by the No. 4 bus, No. 44 bus and No. 11 bus, which traverse the area in an east and west direction. At no point is this area more than ¼ mile from these bus lines. In addition the area near the loop at the end of the line is served by the Pacific Electric cars along Glendale Boulevard. However, it is necessary to use a flight of stairs to reach Glendale Boulevard.

56 - Melrose Avenue Bus Line

This line, extending from Western Avenue to La Cienega, was completely abandoned and through service to the downtown area provided over the same street by the No. 4 bus.

At the same time, the following important route changes or extensions were made:

4 - Maple and Melrose Bus Line

This line operates from Florence and South Main via Main, Maple, ~~Fifth~~ Flower, Figueroa, Third, Virgil and Melrose to La Cienega.

3 - Central and West Sixth Trolley Coach

This line operates from 58th and Central via Central, Fifth and West Sixth to Wilton Place.

F - Vermont Avenue Car Line

This line now operates along Vermont Avenue between Santa Barbara and Florence instead of along Hoover Street. It has been extended north along North Main Street to serve the area formerly served by the "O" car line.

49 - Figueroa Street Bus Line

The line was extended south from Manchester Avenue to Century Boulevard.

41 - Alvarado Street Bus Line

This line was extended from Adams Boulevard along Hoover to Exposition Boulevard.

CHAPTER IV

NEED FOR EXTENSIONS TO NEW AREAS

On July 26, 1946, the Commission received a resolution adopted July 16, 1946, at a meeting sponsored by the City Terrace Citizens' Committee in which the Los Angeles Transit Lines was petitioned to extend their service on City Terrace Drive easterly to North Eastern Avenue, a distance of four-tenths of a mile. Immediately following receipt of the resolution, Commission engineers made a survey of the matter and found that the extension of the Evergreen Motor Coach Line to the intersection of City Terrace Drive and Eastern Avenue would be feasible and should be recommended. The matter was also investigated by the company and as early as a year ago it stated in a reply to the Commission that extension of the bus line as suggested could be justified. Also in a letter dated March 31, 1947, the company stated that it was considering preparation of an application which would provide for the extension of service.

In view of the fact that conditions prompting this extension of service have not changed, it is considered proper in this report to recommend that the City Terrace extension be made at the earliest possible date.

CHAPTER V

STREET TRAFFIC CONGESTION

Increased operation of motor coaches along Hill Street in the central business district has created a traffic problem that will require solution before a material improvement in the standard of motor coach service can be accomplished.

With consolidation of the Olympic and Sunset Boulevard Lines of the Los Angeles Motor Coach Lines and the rerouting of these lines to Hill Street, there was added to the bus and rail operations already conducted along this street approximately 80 scheduled trips between the hours of 4:00 P.M. and 6:00 P.M. This was an increase of approximately 27% and brought the total scheduled trips between these hours to a present figure of approximately 380. Of this number approximately 110, or 29%, are operated in both directions past one point during the heaviest 30-minute period. As the cycle of operation of traffic signals permits operation north and south along Hill Street for only 13.5 minutes during each 30-minute period, the average frequency rate at a typical intersection is approximately one unit every 7.4 seconds.

On November 5, 1947, a traffic flow check was made at the intersection of Sixth and Hill Streets during the period 4:00 P.M. to 6:00 P.M. The check consisted of tabulating the number of buses and streetcars moving in each direction along Hill Street during each cycle of north and south traffic flow. As a result of the check it was found that during the peak period the average number of units per cycle that moved in one direction through the intersection was 1.9 units and the maximum was 3 units. As there are 30 cycles during a 30-minute period, it must be concluded that the present peak operation of between 55 and 60 units during the peak one-half hour period is approaching the absolute maximum that can be operated under present conditions. The fact that the most recent

CHAPTER VI

EQUIPMENT

Streetcars

As of September 28, 1947, the Los Angeles Transit Lines owned a total of 693 streetcars. The distribution of these cars is as follows:

Scheduled	601
Spares	83
Unassigned	9
Total	693

Table No. 1 recommends the addition of 29 streetcars to the service. Since September 28, 1947, the company has added a net of 11 cars, including a decrease of four cars on the No. 8 line. This cut in service on the No. 8 line seems to be justified, which means that the net additional number of cars needed is 29 less 4, or 25. Sufficient cars are owned to operate this additional service.

Trolley Coaches

The company owns 40 trolley coaches, 36 of which are scheduled on the No. 3 line, and 4 held for spares.

Motor Coaches

As of November 10, 1947, the company owned and operated a total of 577 motor coaches. The distribution of these coaches is as follows:

Scheduled	458	
Spares	55	
Unassigned	42	
To be retired	22	(1700 and 2700 Class)
Total	577	

Table No. 1 recommends the addition of 17 buses over the number operated on the days the load checks were made. However, since that time the company has added 22 buses to the service and these 22 buses are included in the 458 shown above. Assuming that the 22 additional buses now provide adequate service, the

number that will be required in the future will be as follows:

Scheduled	458
10% Spares	~46
Total	504

CHAPTER VII

EQUIPMENT MAINTENANCE AND STORAGE FACILITIES

In 1945 the only facility available for inspection and maintenance of motor coaches was the "coach division" located at 16th and San Pedro Streets. Since that date in order to secure more efficiency and economy in operation, additional coach facilities have been provided at other points in the city.

In 1945 facilities at Division 3, in the northeast section of the city, were rearranged to accommodate motor coaches, as well as streetcars. A modern service station was installed, including an automatic bus washer and facilities for inspection of buses, motor tune ups and minor repairs.

Also, in 1945 the coach division at 16th and San Pedro Streets was modernized to increase the efficiency of servicing, inspection and maintenance. Facilities were rearranged to speed up operations and modern servicing and maintenance equipment was installed. During the same year the company's major repair shop at 55th Street and Avalon Boulevard was completely redesigned and consolidated in order to effect a more efficient procedure for overhaul of both motor coaches and streetcars.

In 1946 complete facilities for servicing, washing and inspection of motor coaches were installed at Division 5 in the southwest part of the city. Also, the car house facilities at this point were reorganized for maximum efficiency. During 1946 the old car house at Division 1 was removed and replaced by a modern building, designed and completely equipped for servicing and maintenance of trolley coaches. Also, at this point the streetcar inspection, servicing and storage facilities were rehabilitated.

All stock rooms at the main shops and at the divisions have been reorganized and perpetual inventory records maintained by Kardex and Remington Rand systems to provide constant control of stock. These new and improved facilities

make it no longer necessary to send equipment to the main shops for running repairs, as most repairs, other than general overhaul, can now be done at the Divisions. This arrangement not only effects economies through savings in daily mileage, but also substantially increases the availability of equipment.

CHAPTER VIII

TRACK AND ROADWAY

As a part of the investigation a survey was made of the company's track and roadway and it was found that in general the track structure has been fairly well maintained. The section of track that appears to be in most need of early attention is along Main Street between Sunset Boulevard and Temple Street.

In a statement prepared by the company setting forth the proposed track rehabilitation program for twelve months beginning September 1, 1947, an amount of $44,892 has been allocated for installation of ties and ballast and repaving of this section of track on Main Street. The statement also includes items of track rehabilitation or reconstruction at eleven other locations and the total estimated cost of all work including that on Main Street is $788,495.

CHAPTER IX

ONE-MAN CAR OPERATION

Since the Los Angeles one-man car ordinance (No. 81319) was declared unconstitutional on December 23, 1940, there has been a progressive conversion of the local transit rail lines to one-man operation. As of the present date only the "B" - Brooklyn and Hooper Avenues, "V" - Vernon and Vermont Avenues, and the "5" - Eagle Rock and Hawthorne Lines are operated with two-man cars and it is reasonable to expect that these lines will be converted to one-man operation at the earliest practical date.

As the 141 rail cars assigned to these three lines represent approximately 23% of the total number of cars scheduled in all operations and the daily weekday miles operated are approximately 27% of the total miles operated on all rail lines, a substantial saving in operating expense would be realized at such time as the conversion to one-man operation was effected.

It is not possible to estimate the annual savings in expense at this time, as the manner in which the conversion might be made is not known by the Commission's engineers.

CHAPTER X

COMPLAINTS RECEIVED BY COMMISSION

In making this study of service rendered by the Los Angeles Transit Lines the Commission engineers were guided, to some extent, by letters of complaint addressed to the Commission. Forty specific complaints have been made in letters recently received. These complaints may be tabulated as follows:

Overcrowding of vehicles	-	16
Discourteous operators	-	6
Reroutings and abandonments	-	5
Substitution of buses for rail	-	3
Unsafe conditions	-	2
Miscellaneous (1 complaint each)	-	8
Total	-	40

Overcrowding of Vehicles

As a result of the preponderance of complaints concerning overcrowded vehicles, this problem was given first consideration and has been previously discussed under the chapter entitled "Load Checks and Loading Standards".

Discourteous Operators

The letters to the Commission concerning discourtesy on the part of operators usually referred to specific instances. The management of the Transit Lines was advised of these occurrences and, when the letter contained information sufficient to identify the operator, disciplinary action was taken.

Reroutings and Abandonments

These complaints had reference to the major rerouting plans of August 3, 1947, and have been discussed previously.

Substitution of Buses for Rail

Complaints concerning substitution of buses for rail are very often received after such substitutions have been made. One cause of such complaints

arises from the higher rates of acceleration and deceleration maintained by the buses, thereby causing more jostling of the passengers, particularly if the street surfaces are not absolutely smooth. Elderly persons very often have more difficulty in keeping their footing in a bus than on a streetcar operating on a smooth steel rail. This is particularly true in Los Angeles where, in years past, the streetcar tracks have been maintained at a high level.

Unsafe Conditions

These complaints had reference to the obstruction of the drivers' vision by passengers who crowded the front door-well. This condition was further discussed under "Load Checks and Loading Standards".