# 1957 Supplemental Study of MASS TRANSPORTATION

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## **EXPRESS BUSES ON ELEVATED ROADWAYS** LOS ANGELES METROPOLITAN TRAFFIC ASSOCIATION

#### 1957 SUPPLEMENTAL STUDY OF MASS TRANSPORTATION

#### EXPRESS BUSES ON ELEVATED ROADWAYS

### Submitted to: EXECUTIVE COMMITTEE BOARD OF DIRECTORS MEMBERS LOS ANGELES METROPOLITAN TRAFFIC ASSOCIATION

By: Stuart M. Bate Walter R. Lindersmith Tenya Smalley Chief Engineer Secretary-Manager Assistant Secretary

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May 15, 1957

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Pursuant to authority granted by our Executive Committee March 14, 1956, we herewith submit the following report entitled "1957 SUPPLEMENTAL STUDY OF MASS TRANSPORTATION -EXPRESS BUSES ON ELEVATED ROADWAYS" in line with the comprehensive series issued in past years.

Objective is to present possibilities inherent in the existing, and proposed, freeway system for the Los Angeles Metropolitan Area and the feasibility of utilizing the design and construction of such freeway system for a plan of rapid transit by means of elevated roadways for buses.

- It is suggested that this plan of rapid transit would:
- a) provide definite improvement in service and speed
- b) provide substantial beginning for several important portions of the local area and potentialities for a system for the whole metropolitan area
- c) bring cost of such a system within community's ability to pay as compared to monorail, subway, or other rapid transit facilities.

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FOR OVER THIRTY YEARS DEVOTED TO IMPROVEMENT OF TRAFFIC FACILITIES ORGANIZED 1922

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- FIRST -- we plan the streets -- LOS ANGELES MAJOR STREET PLAN -evolved by this Association in 1925. In the 15 year period following many of our present important surface streets were completed.
- NEXT -- we assist (1939) in the formation of the Citizens Transportation Survey Committee - Transportation Engineering Board - which developed A COMPREHENSIVE PLAN OF FREEWAYS FOR THE LOS ANGELES METROPOLITAN AREA.
- THEN -- we sponsor (1950-51) the Metropolitan Transportation Engineering Board, voluntary group of engineering, administrative and planning officials of state, county and forty some cities within Los Angeles County to ACCELERATE THE FREEWAY CONSTRUCTION PROGRAM.

In the meantime, population in Los Angeles County has grown from 1,572,473 in 1925 to the tremendous figure of 5,451,297 as of April 1957, with proportionate growth of 530,000 automobiles in 1925 to the astounding figure of 2,888,510 as of December 31, 1956 -- 1.9 persons per auto -- creating confusion, congestion and problems, many of them in traffic, transit and mass transportation.

With the trend, we passed from rail to bus mass transportation with the firm conviction that this method of transit would most economically serve the greater number of people within reasonable time. It is generally agreed that the present rail lines cannot be converted into satisfactory rapid transit without unwarranted expenditure for grade separation.

YET, satisfactory mass transportation must be worked out before a super-saturation of private automobiles makes it a stern necessity. It is our belief that it is in the public interest to encourage privately operated transit systems as a general aid to the economy of the area. We believe they should be accorded a tax structure that will permit them to earn a reasonable rate of return for capital invested. Tacit agreement that steps recommended in this supplemental study be given the most earnest consideration is indicated in the acknowledgments.

At all times it has been our endeavor to work closely with the State Division of Highways, State Highway Commission, regularly constituted county and city governmental agencies, as well as civic groups and agencies dedicated to improving highway, street, traffic and transit problems. Regular highways, freeways and expressways in the State Highway System as shown on Illustration 1-a total 877 miles. A total of 363 miles have been approved by the California Highway Commission as freeway routes. Freeways and expressways, including federal interstate highways, total 530 miles with 153 miles completed, 42 miles under construction and budgeted (1957-58) leaving 335 miles uncompleted.

The proposed ELEVATED BUS ROADWAYS - would include:

<u>On the State System</u>	Hollywood Freeway Glendale " Pasadena " Harbor "	- estimated " "	cost \$	20,000,000 16,000,000 18,000,000 24,000,000
On the Federal System -	San Bernardino Fwy Olympic or Santa M		cost	22,000,000 18,000,000
On Approved Master Plan Port	- Century Freeway tion of Long Beach	- estimated	cost	14,000,000 4,000,000

TOTAL ESTIMATED COST - \$158,000,000

Proposed <u>PRESENT TERMINALS</u> for elevated bus roadways are also indicated on Illustration 1-a.



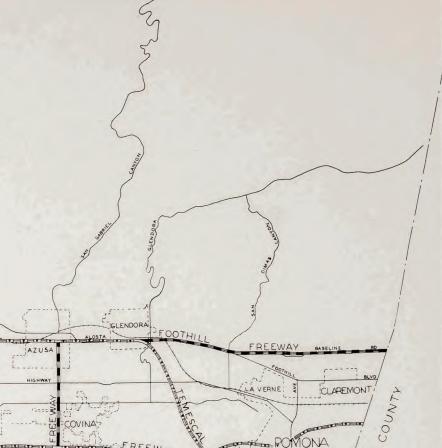
LOS ANGELES METROPOLITAN TRAFFIC ASSOCIATION

1956 SCALE IN MILES

FREEWAY SYSTEM FOR THE LOS ANGELES METROPOLITAN AREA

PROPOSED

West covina West covina Nuewre State Covina Buewre State Covina C



#### ELEVATED BUS FACILITY ON CUT SLOPE adjacent to Freeway

The Illustration on Page 2-a shows clearly the method of construction of the recommended rapid transit bus facility on a cut slope adjacent to the freeway.

While no landscaping has been sketched in the Illustration, it is the intention to screen the higher portions of the elevated roadways in such manner as to afford protection for adjoining development along the freeway against any unsightly appearance and possible exhaust noises occasioned by bus operation thereon.

Note - again - front cover illustration. It shows the elevated roadway for bus operation in more detail.



TRAVEL CHECK -- Coach Line 93

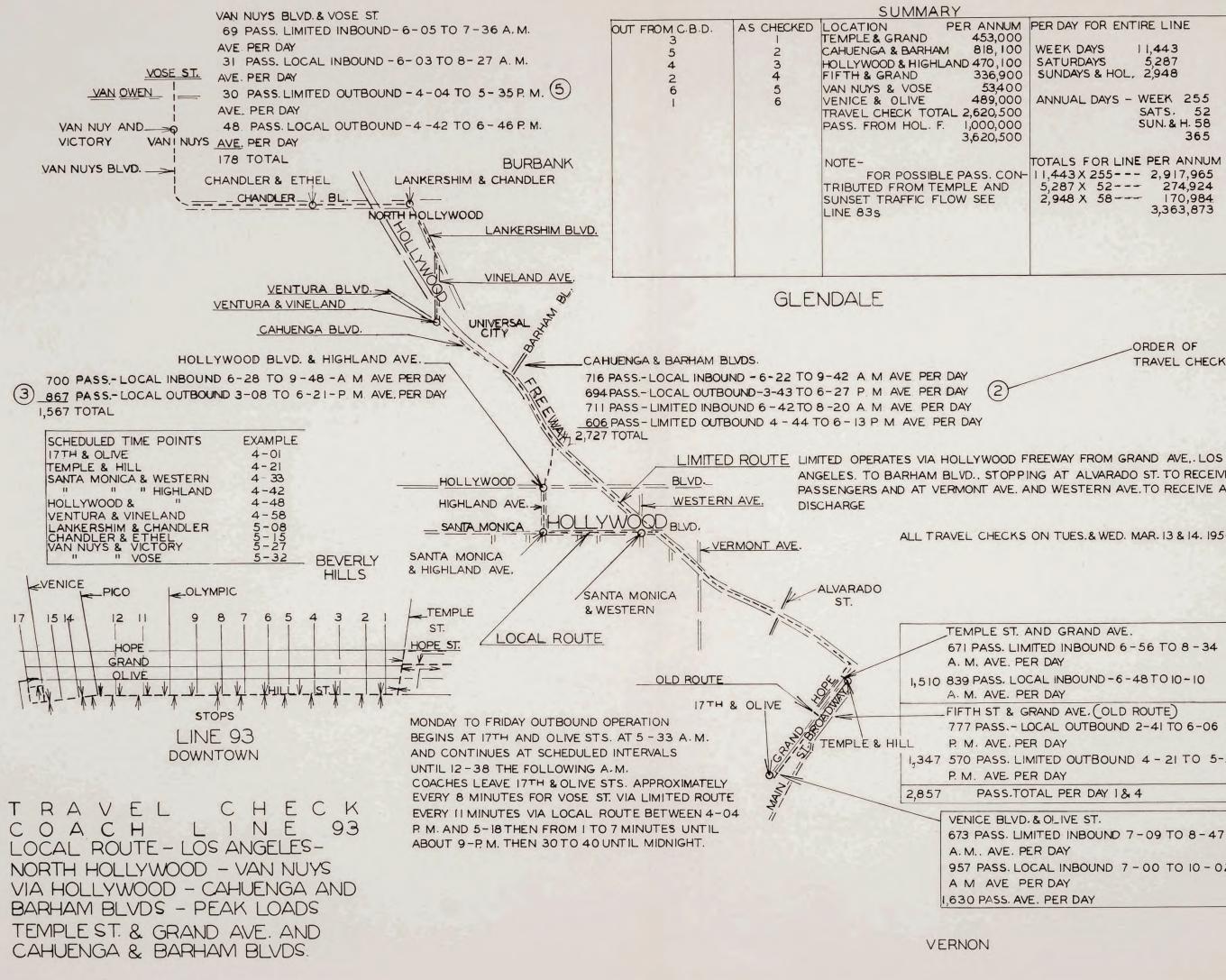
Illustration on Page 3-a shows tw important considerations -- patronage and schedules -which affect use of the elevated plan.

<u>Patronage</u> -- or <u>TRAVEL CHECKS</u> (indicated by figures 1-6 in circles) were made in both A.M. and P.M. so-called "rush" periods. Periods selected for the checks were roughly from 6 to 10 o'clock A.M. and 4 to 7 o'clock P.M.

<u>Schedules</u> -- show governing <u>time points</u> during this period along the route of Coach Line 93. Downtown stops along Hill Street are shown between Venice Boulevard and Temple Street.

> Total passengers for the Line are shown per day and per annua.

This is one of the important Lines which would use the suggested facility along Hollywood Freeway.



MUM 000	PER DAY FOR ENTIRE LINE
100	WEEK DAYS 11,443
100	SATURDAYS 5,287 SUNDAYS & HOL, 2,948
900	SUNDAYS & HOL, 2,948
400	
000	ANNUAL DAYS - WEEK 255 SATS, 52
500 000	SUN. & H. 58
500	365
CON-	TOTALS FOR LINE PER ANNUM 11,443X 255 2,917,965 5,287 X 52 274,924 2,948 X 58 170,984 3,363,873

ORDER OF TRAVEL CHECK

ANGELES. TO BARHAM BLVD., STOPPING AT ALVARADO ST. TO RECEIVE PASSENGERS AND AT VERMONT AVE. AND WESTERN AVE. TO RECEIVE AND

ALL TRAVEL CHECKS ON TUES & WED. MAR. 13 & 14. 1956

TEMPLE ST. AND GRAND AVE. 671 PASS. LIMITED INBOUND 6-56 TO 8-34 (1 1,510 839 PASS, LOCAL INBOUND - 6 - 48 TO 10 - 10 FIFTH ST & GRAND AVE, (OLD ROUTE) 777 PASS .- LOCAL OUTBOUND 2-41 TO 6-06 (4 1.347 570 PASS. LIMITED OUTBOUND 4 - 21 TO 5-50 PASS.TOTAL PER DAY 1&4 VENICE BLVD. & OLIVE ST. 673 PASS. LIMITED INBOUND 7-09 TO 8-47 A. M., AVE. PER DAY (6)957 PASS. LOCAL INBOUND 7 - 00 TO 10 - 02 A M AVE PER DAY 1,630 PASS. AVE. PER DAY

TRAVEL CHECKS -- Coach Lines F - 91 - 94

The Lines shown on Illustration o Page 4-a are among those which would contribute substantial numbers of passengers to the suggested elevated facilities.

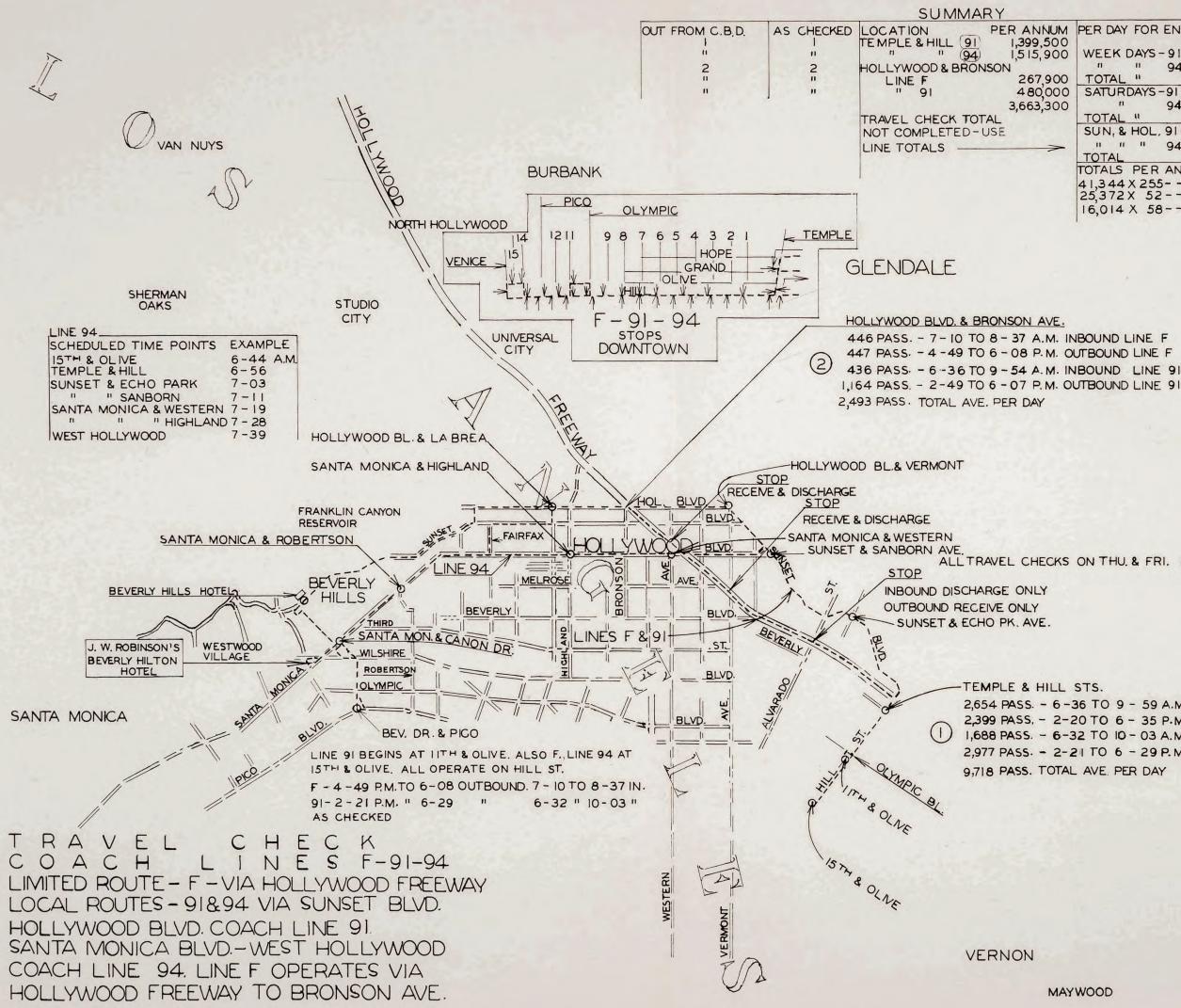
TRAVEL CHECKS show numbers of passengers passing

- (1) Temple and Hill Streets
- (2) Hollywood Boulevard and Bronson Avenue on week days, Saturdays, and Sundays per day and also per annum.

Scheduled time points are tabulated for seven places along the Lines.

Lines F and 91 begin at 11th and Olive Line 94 at 15th and Olive Terminate in West Hollywood. Carry 12,790,876 passengers per annum. Serve Beverly Hills Hotel

> J. W. Robinson's Beverly Hilton Hotel



PER DAY FOR ENTIRE LINE
WEEK DAYS-91& F - 24,560
" " 94 - 16,784
TOTAL " 41,344
SATURDAYS-91 & F - 18,450
" 94 6.922
TOTAL " 25,372 SUN, & HOL, 91 & F 12,118
SUN, & HOL, 91 & F 12,118
" " " 94 3,596
TOTAL 16,014
TOTALS PER ANNUM
41,344 X 255 10,542,720 25,372 X 52 1,319,344
25,372X 52 1,319,344
16,014 X 58 928,812
12,790,876

ALL TRAVEL CHECKS ON THU. & FRI. MAR. 29 & 30 1956

2,654 PASS. - 6-36 TO 9 - 59 A.M. INBOUND LINE 94 2,399 PASS. - 2-20 TO 6 - 35 P.M. OUTBOUND LINE 94 1,688 PASS. - 6-32 TO 10 - 03 A.M. INBOUND LINE 91 2,977 PASS. - 2-21 TO 6 - 29 P.M. OUTBOUNDLINE 91

#### TRAVEL CHECK - Coach Line 83s

The various points as shown on Illustration on Page 5-a where travel checks were made on this Line include:

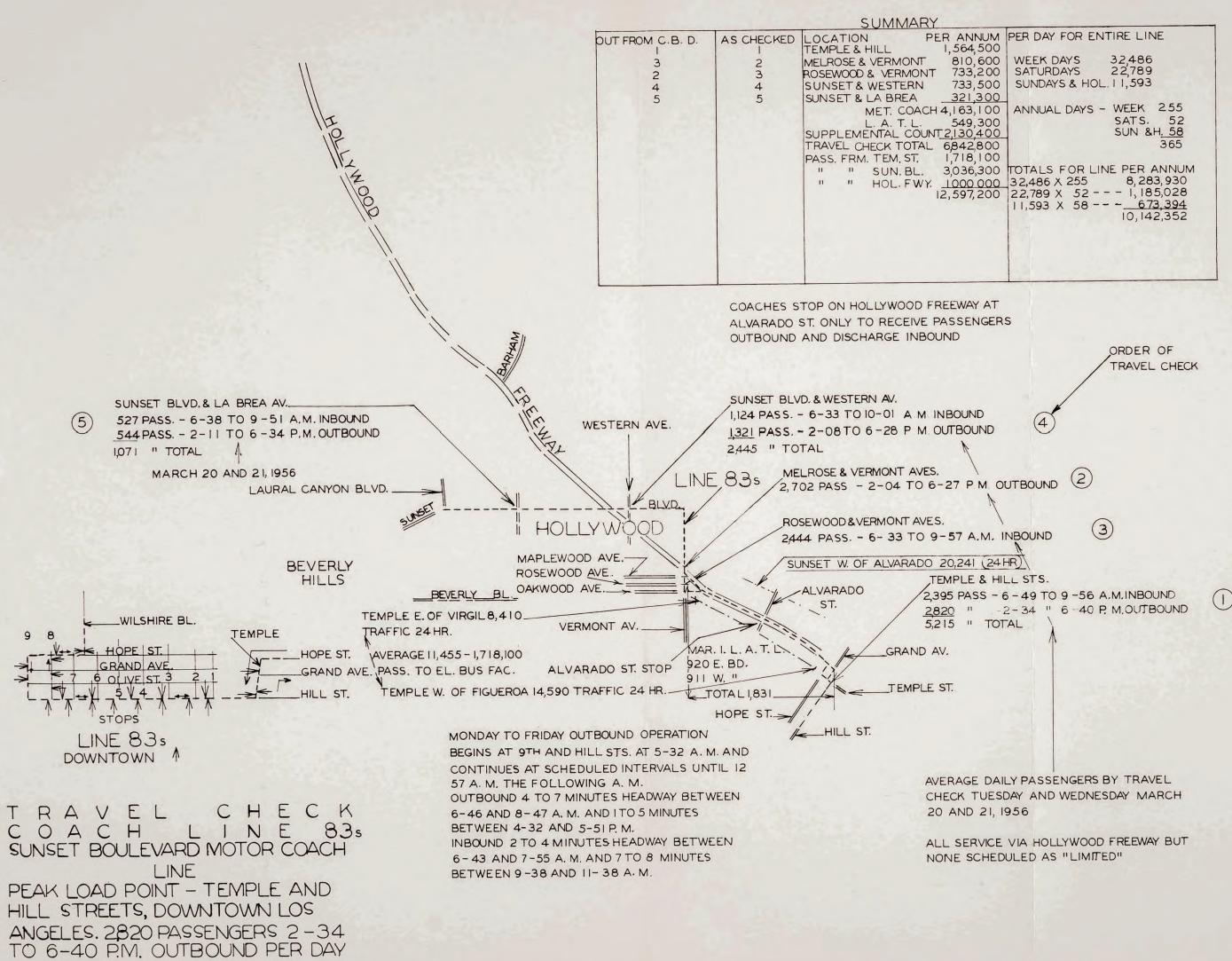
- (1) Temple and Hill Streets
- (2) Melrose and Vermont Avenues
- (3) Rosewood and Vermont Avenues
- (4) Sunset Boulevard and Western Avenue
- (5) Sunset Boulevard and La Brea Avenue

Data include per annum totals for the points checked and the per annum total for entire Line.

Operation begins at 9th and Hill Streets at 5:32 A.M. and continues until 12:57 A.M. the following day.

Time between buses varies from 5 to 7 minutes except during rush periods when average time is 3 minutes.

All present service via Hollywood Freeway but none scheduled as "limited".



#### TRAVEL CHECK - Coach Line 44

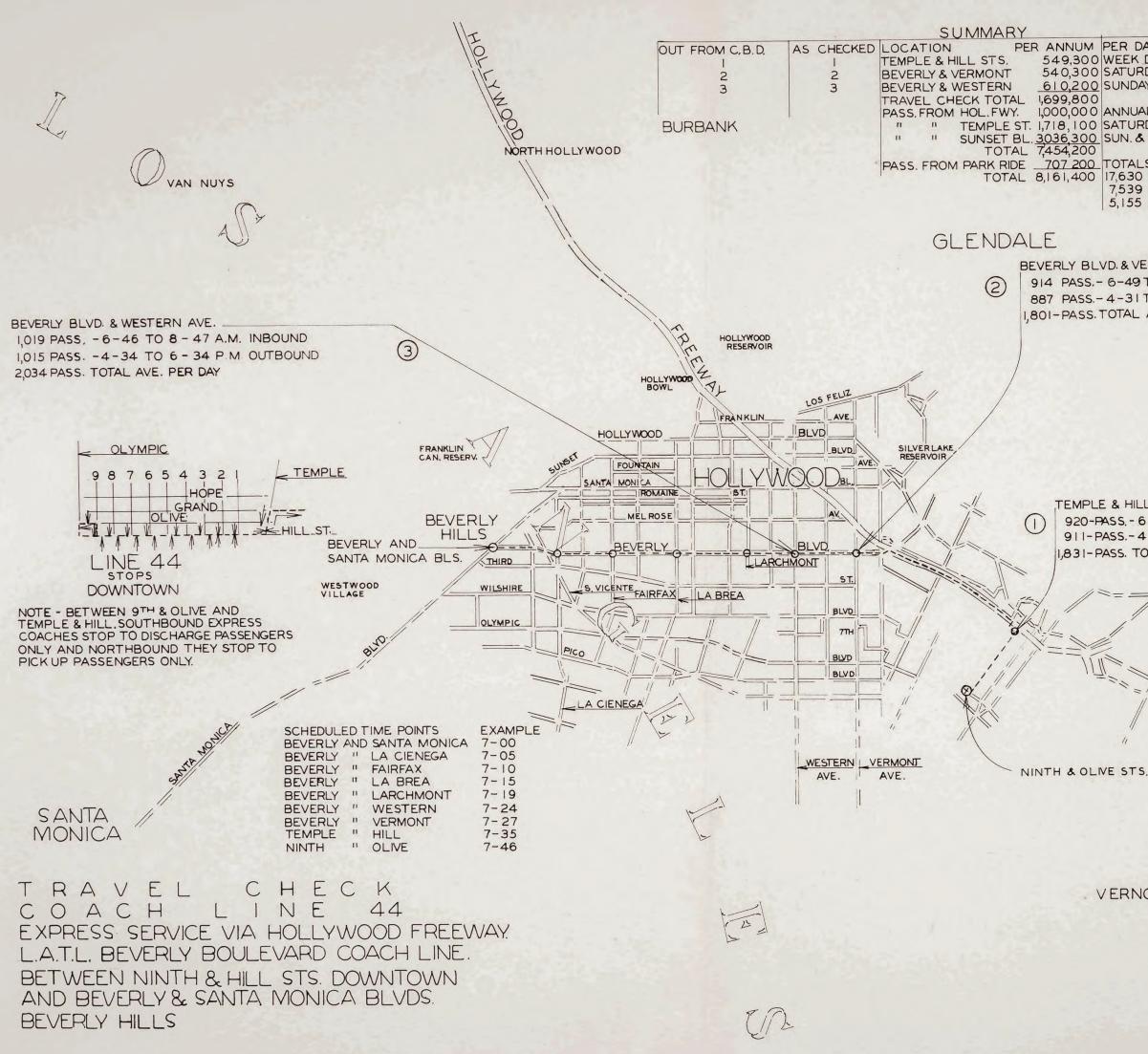
There were three points on this Line where travel checks were made during morning and afternoon rush periods. As shown on Illustration on Page 6-a they include:

- (1) Temple and Hill
- (2) Beverly Boulevard and Vermont Avenue
- (3) Beverly Boulevard and Western Avenue

Data include per annum totals for the points checked as well as for the entire Line.

Trip time points are tabulated for trip inbound leaving Beverly and Santa Monica Boulevards at 7:00 A.M. and arriving at 9th and Olive Streets at 7:46 A.M.

Line 44 stops downtown are diagramed on Hill Street between Olympic and Temple.



C	PER DAY FOR ENTIRE LIN WEEK DAYS SATURDAYS SUNDAYS & HOL.	E 17,630 7,539 <u>5,155</u>
)	ANNUAL DAYS-WEEK SATURDAYS SUN. & HOL.	255 52 58
	7,539 X 52 5,155 X 58	NNUM 4,495,650 392,028 <u>298,990</u> 5,186,668

BEVERLY BLVD. & VERMONT AVE. 914 PASS. - 6-49 TO 8-50 A.M. INBOUND 887 PASS - 4-31 TO 6-31 P.M. OUTBOUND 1,801-PASS. TOTAL AVE. PER DAY

> SOUTH PASADENA

TEMPLE & HILL STS. 920-PASS. - 6 - 56 TO 8 - 58 A.M. INBOUND 911-PASS.- 4-23 TO 6-23 P.M. OUTBOUND 1,831-PASS. TOTAL AVE. PER DAY

VERNON

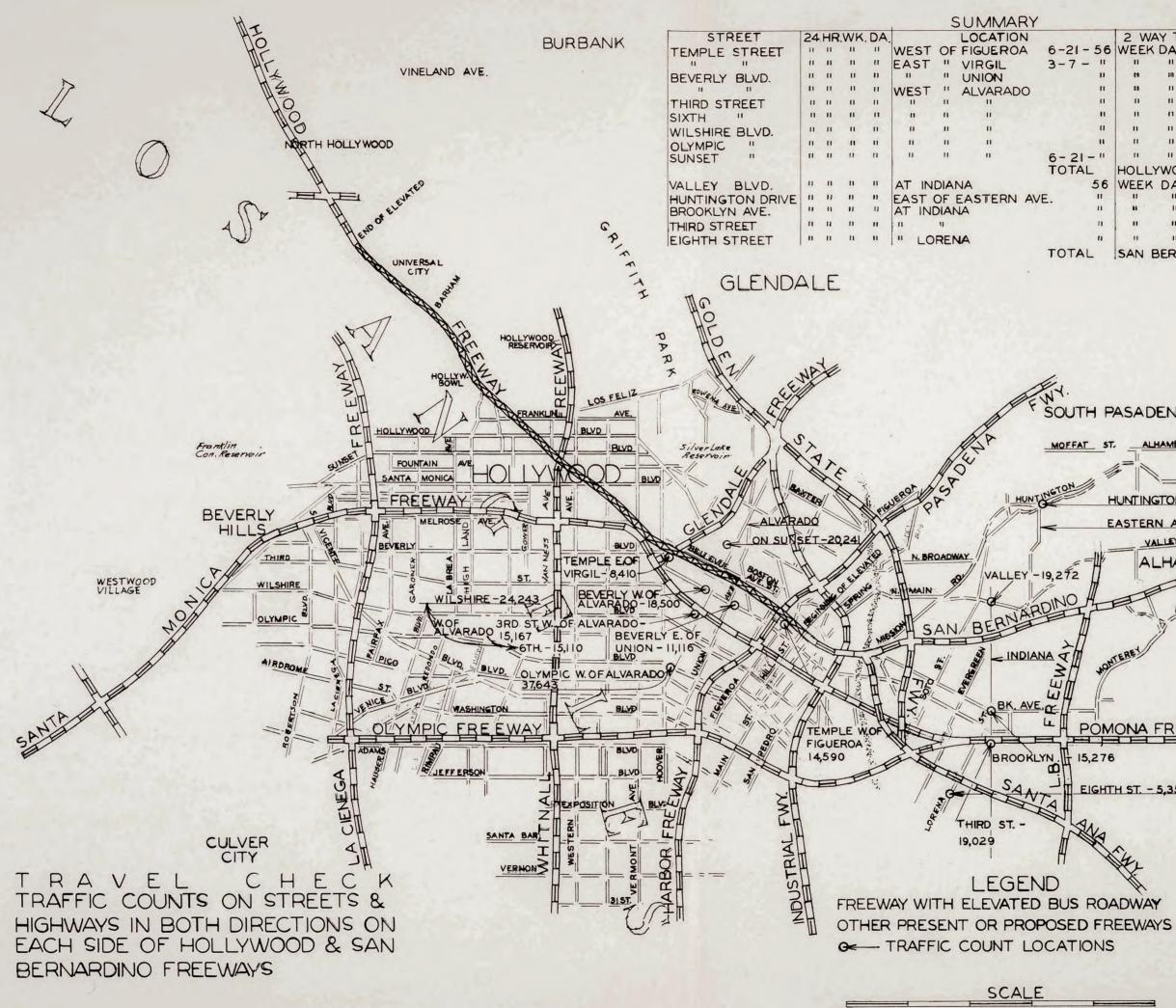
#### TRAVEL CHECK

Illustration on Page 7-a shows TRAFFIC COUNTS on streets and highways in both directions on each side of Hollywood and San Bernardino Freeways.

Traffic counts were taken week days 6-21-56 and 3-7-56.

Points checked included Temple and Figueroa, Beverly Boulevard east of Union, and numerous others as listed in the summary.

Indirect use of the proposed facilities is indicated by tabulated traffic counts -- noted on individual Line checks discussed on previous pages.



0

	AY TRAFFIC COUN	Т
WEEK		14,590
	" - WED.	8,410
ti	ph.	11,116
10	п	13,500
n	п	15,167
п	n	15,110
.0	n	24,243
0	0	37,643
п	" - THU.	20,241
HOLL	YWOOD FWY.	165,020
WEEK	DAY	19,272
п	н	21,500
11	н	15,276
п	п	19,029
н	п	5.355
SAN	BERNARDINO FWY.	80,432
	WEEH HOLL HOLL WEEK HOLL	WEEK DAY - THU, """-WED. """ """ """ """ """ """ HOLLYWOOD FWY. WEEK DAY """ """"

SAN MARINO

SOUTH PASADENA ST. HUNTINGTON - 21,500 EASTERN AVE. BLVD. VALLEY FWY. ALHAMBRA FF MONTEREY PARK POMONA FREEWAY

EIGHTH ST. - 5,355

20000 25000 FEET MONTEBELLO

HHHHH

#### LOS ANGELES COUNTY CITIES

The name

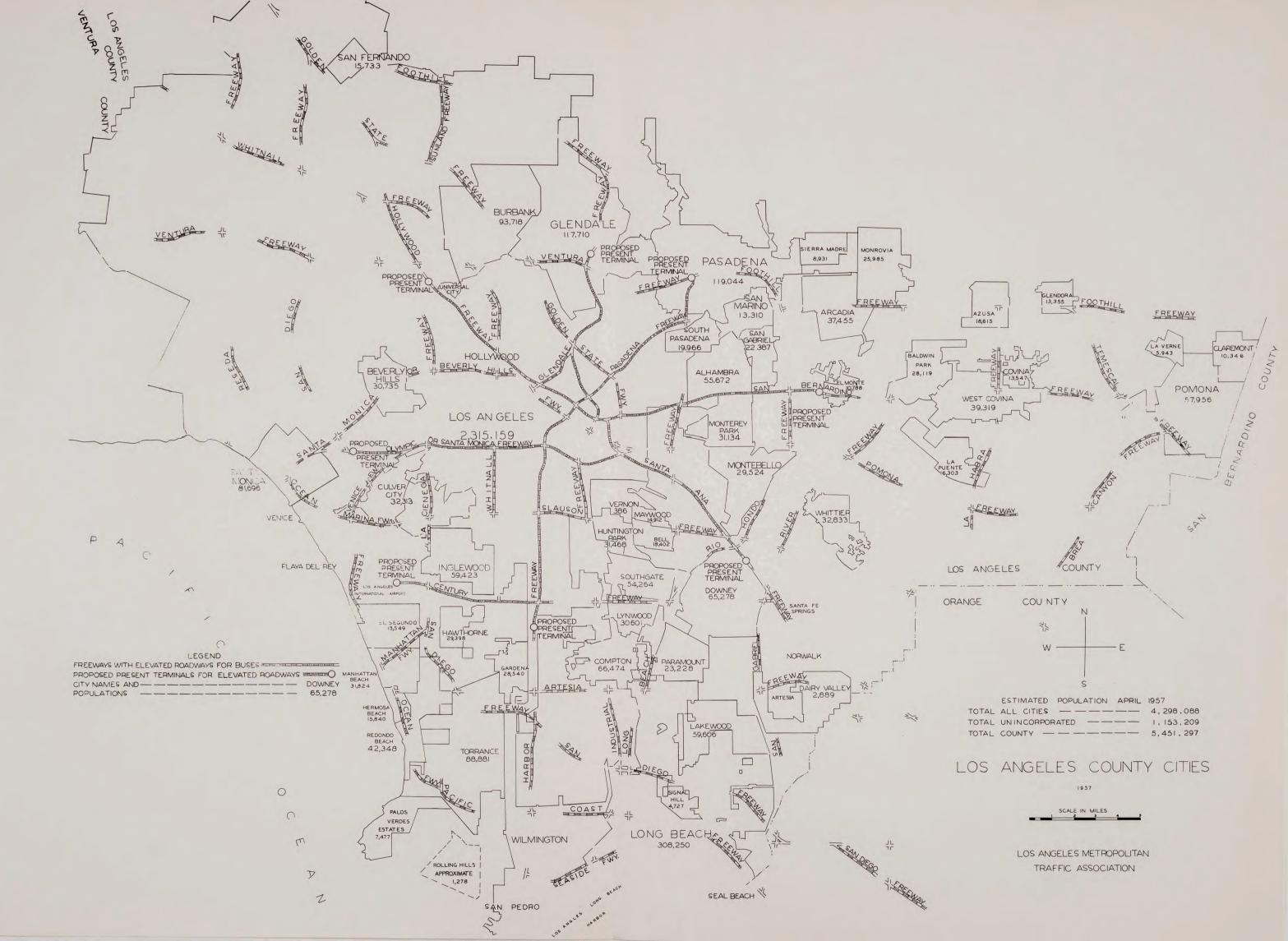
boundary, and

population -- are shown for <u>every city</u> in <u>Los Angeles County</u> in the Illustration on Page 8-a.

Also indicated, so that it may be intelligently related to the various city areas, is the system of proposed elevated bus roadways. It will be noted that the outer ends of the elevated system are marked "PROPOSED PRESENT TERMINALS".

In this respect, the possibility as to how further extension of the elevated system in the future may be easily accomplished becomes evident.

The temporary or present terminal would be designed with a ramp to the surface and a circular turn around provided.



Proposed elevated bus system is shown on Illustration on Page 9-a.

Indicated by Line numbers enclosed in circles are the principal existing surface feeder Lines which would contribute to passenger volume on the elevated system.

Designated symbols are employed to indicate:

- a) freeways with elevated roadways
- b) proposed or existing freeways
- c) proposed elevated present terminals
- d) existing surface feeder lines
- e) proposed additional feeder lines

The principal contributing feeder lines which would benefit by the proposal in the case of the San Bernardino Freeway, for example, would be Metropolitan Coach Lines 60, 63 and 69.



#### LOCATION STUDY

Location line west of Glendale Boulevard is shown on Illustration on Page 10-a. Accompanying profile is also shown.

Also shown is a possible branch line utilizing the existing tunnel which is indicated by location line between the Hollywood Freeway and the outer end of the Subway Terminal Tunnel.

Grades on the elevated structure would not exceed 8 percent -- most of them being substantially less than 8 percent.

The existing freeway grade line is shown as well as the elevated structure grade line. For example: the freeway grade line west of

> Alvarado Street is 2.7% while the proposed elevated grade line would be about 5.5% -- not exceeding 8% in any case.

> > -10-



#### ESTIMATED PASSENGER TRAVEL

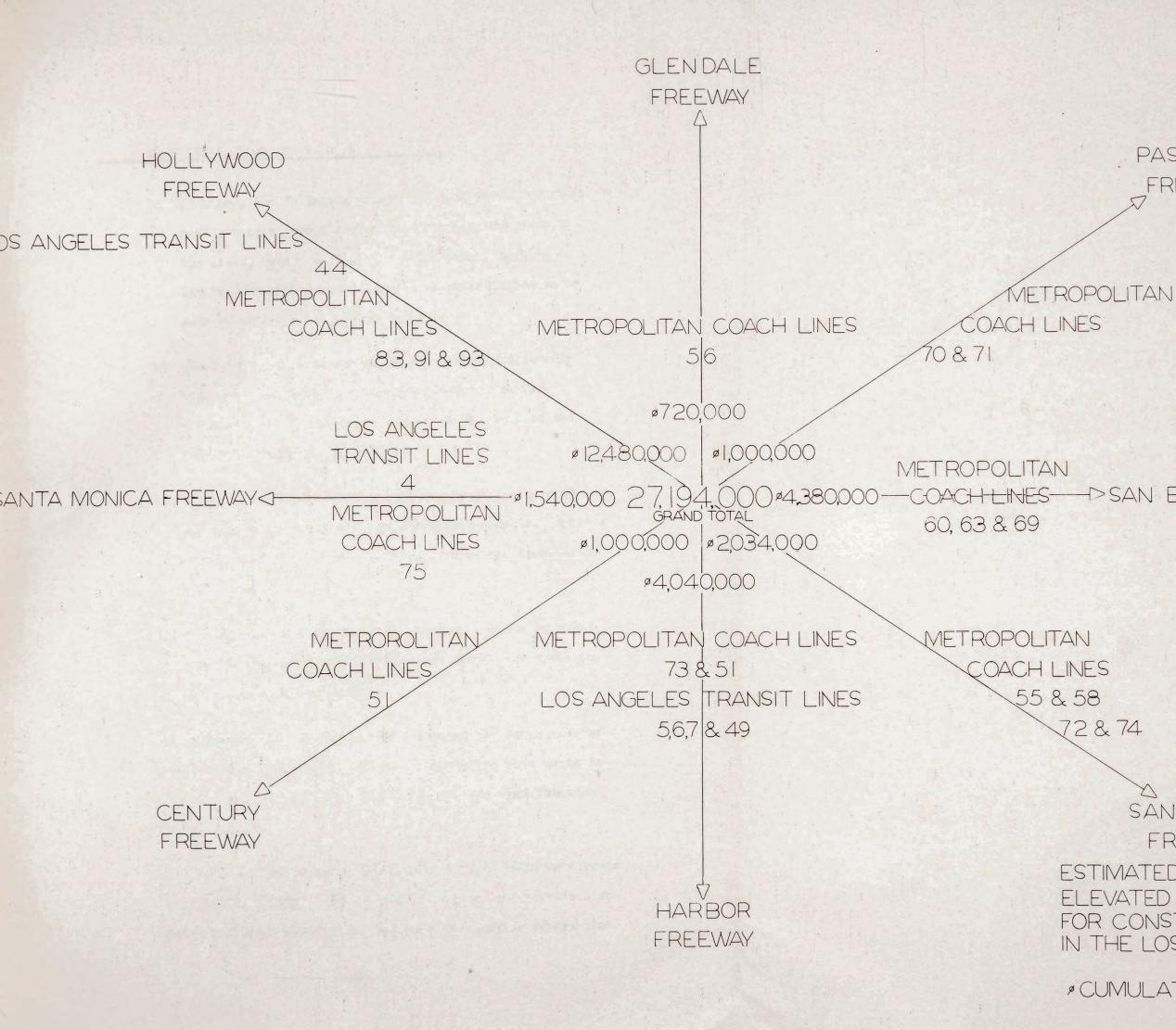
ON ELEVATED BUS ROADWAYS

Illustration on Page ll-a shows the estimated annual contribution to passenger totals which would be made by each of the coach lines using the various elevated branches in all directions.

Coach Line numbers are shown adjacent to the diagramtic representation of the various freeways comprising the proposed system.

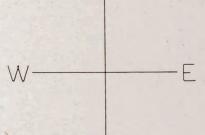
The order of importance and corresponding passenger figures would be: Hollywood Freeway with 12,480,000 passengers, down to Glendale " " 720,000 "

Grand total of all lines is shown to be 27,194,000 passengers per annum.



FREEWAY ESTIMATED PASSENGER TRAVEL ON ELEVATED BUS ROADWAYS PROPOSED FOR CONSTRUCTION ALONG FREEWAYS IN THE LOS ANGELES METROPOLITAN AREA & CUMULATIVE PASSENGER TOTALS ANNUALLY

SANTA ANA



S

N

COACH-LINES----->SAN BERNARDINO FREEWAY

PASADENA

FREEWAY

At all times, the following points should be borne in mind:

- a) moving people involves streets, freeways, expressways bus lines, taxis, terminals automobiles, parking and traffic engineering, as well as contribution to be
  made by railroads and rapid transit.
- b) the increasing private automobile supply consistently active in progress, and the great need for public transportation innovations - for example, such as the suggested elevated bus roadways.
- c) the pattern of urban living will continue to increase the number of automobiles in operation -- public carriers will continue to be an essential part of the transportation system.

NOW is the time to look earnestly ahead at transit to maintain public transportation where it can fulfil the tasks it is most capable of performing.

The principal role of transit is to absorb the daily task of travel peaks. Obviously, the speed of the bus line units is an important item in their ability to perform this function satisfactorily.

It should be kept in mind the capacity of the downtown streets is extremely limited. More extensive use of the private automobile would be impractical Improved bus service offers the

-12-

greatest potential for public transportation, both from an operation and economic standpoint, dependent upon utilizing full roadway capacity, as in this present proposal where the right-of-way is already provided and it serves the present established pattern of development.

Rail commuter service and other methods of rapid transit are the most limited facilities now in use. A most impressive feature of this proposed plan is its flexibility and freedom from confinement to hard and fast locations since it may leave the structure at any point to traverse the area of supply which it must serve.

It is suggested the following code of performance be posted in the daily reminder of all interested persons:

- areas tributary to all Lines are preserved as now established
  time is substantially reduced between origin and destination
  proposed plan represents the greatest possible rapid transit achievement for the least expense
- 4- it maintains the most economical operating cost of all know transportation possibilities
- 5- it increases the smooth riding characteristic of rapid movement over a solid roadway
- 6- safety factors are increased many times, being operated by trained professional drivers, as opposed to individually operated private automobiles.

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