A TRANSIT PROGRAM FOR THE LOS ANGELES METROPOLITAN AREA

TRANSPORTATION ENGINEERING BOARD
CITY OF LOS ANGELES

A TRANSIT PROGRAM FOR THE LOS ANGELES METROPOLITAN AREA

Presenting Recommendations for Development of Facilities for Private and Mass Transit and a Plan for Coordination of Mass Transportation Operations

TRANSPORTATION ENGINEERING BOARD

CITY OF LOS ANGELES

CITY OF LOS ANGELES

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20 EXCHANGE PLACE, NEW YORK

December 7, 1939

Honorable Fletcher Bowron, Mayor
Honorable Council, City of Los Angeles

Gentlemen:

The Transportation Engineering Board takes pleasure in submitting to you its report with respect to the transportation needs of the Los Angeles Metropolitan Area. For the past year and one-half this Board has been engaged in making a factual survey and in the preparation of a program which is intended to serve as a general guide toward the development of adequate transit facilities for this region.

The factual survey was financed by funds allocated by the Works Progress Administration and by contributions made through the Citizens Transportation Survey Committee. The latter Committee also provided funds for the employment of such consulting and professional assistance as was necessary to supplement the work of regular City employees in the analysis of the results of the factual survey and the preparation of plans for future improvements. Results of the factual survey are covered in a separate report.

Comparison of local figures on area and population with similar data on other cities shows at once the relatively low population density in both the City and the Metropolitan Area. The dispersed character of the development tends to abnormally long haul for both private automobile and public carrier passengers and makes the local problem a distinctive one. The Metropolitan Area possesses an extensive network of surface streets, those in the city portion having been developed in accordance with the accepted Major Traffic Street Plan. Existing transportation facilities, consisting of surface rail and motor coach lines, provide adequate coverage for most of the area in which development has reached a stage justifying the maintenance of public transportation. These facilities now carry about 1,000,000 revenue passengers per day, or 500,000 in each direction. Neglecting pedestrians, during a 12-hour period about 630,000 persons enter the Central Business District of Los Angeles, 245,000 by public transportation facilities and 385,000 by private automobile. Most of these surface streets and transportation facilities serve, and will of necessity continue to serve, definite public needs, for they are required both for short haul travel in all parts of the district and as collection and distribution facilities for long distance rides. Further improvement in surface transportation is possible and practicable. Certain changes are attainable in the relatively near future and new equipment, reroutings, suitably located and arranged off-street terminals, and traffic signal synchronization give promise of raising the quality and efficiency of service which may be rendered on the surface. Suggestions for such improvements are made in the report covering the Factual Survey.

In built up areas, surface streets and transportation facilities thereon do not permit of satisfactory speed between points many miles

apart. Reasonably rapid transit over substantial distances can be attained only by vehicles operated on routes free from the interference of cross-traffic and the resulting delays of traffic signal control. The Board has given much consideration to the problem of expediting long distance travel for the user of the private automobile and for the patron of the mass transportation facilities and concludes that in many portions of the district the express highway offers the most attractive possibilities as a solution. As far as mass transportation is concerned, the ultimate solution of the rapid transit problem in a large and densely populated area can be found only in rail rapid transit, and there is no doubt but that such a solution will eventually be necessary in portions of the Los Angeles Metropolitan Area. In the intermediate stage, while population densities are still moderate and financing of rail rapid transit facilities difficult, a satisfactory alternative is available, for the provision of express highways and the operation of suitable buses thereon makes it possible to provide the desired rapid transit simultaneously for both private and public types of transportation. The Board has therefore prepared a plan for such special stop-free highways and presents a pattern arrangement toward which it believes development should be directed. A first unit is recommended for immediate construction with a financing plan believed to provide for liquidation of costs without material burden on the taxpayer.

In order to furnish the most satisfactory transportation service rapid transit facilities should be thoroughly coordinated with the surface facilities which, beside their local uses, serve to collect and distribute the patrons of the rapid transit lines. The Board has therefore suggested a plan for securing coordination of management and operation of all major surface lines with the rapid transit facilities recommended for present and future construction.

The suggested plan of express highways and parkways is to be regarded only as a general pattern and guide to future development. Variations in both detail and general location of some of these facilities may be found desirable due to unpredictable development prior to actual construction, but it is believed that, with minor variations, the suggested plan should provide satisfactory coverage for the major part of the Los Angeles Metropolitan Area and that the construction of such highways should adequately meet the rapid transit needs of this territory until the time when rail rapid transit becomes a necessity. Suggestions are made in this report for the location of certain rail rapid transit lines and for the acquiring of rights-of-way where that can most economically be done in conjunction with the securing of rights-of-way for the special highways.

By appropriate landscaping an express highway may become an arterial parkway, and a utilitarian non-stop roadway thus transformed from a mere traffic lane to a pleasant thoroughfare. It is therefore recommended that ample rights-of-way be provided to permit moderate slopes and parkway treatment for the entire express highway system, excepting only those sections where extremely high property values are encountered.

It is the opinion of the Board that tangible progress toward the curing of the transportation ills of the district will best be signalized not so much by the adoption of a master plan as by the breaking of ground for the first construction project under the plan. For immediate construction, the Board recommends a unit which in its opinion would afford great benefit, would be least likely to be affected by changed conditions, would not interfere with any foreseeable changes in a master plan, would offer the greatest certainty of being a self-liquidating unit, would be justified by present conditions alone and would in no way be dependent on the carrying out of any other unit of the plan. It recommends the construction of an express highway of the parkway type from the Central Business District through Hollywood to Cahuenga Pass at an estimated cost at current prices of about $20,000,000.

Insofar as transportation planning and regulation are likewise functions of existing instru-

mentalities of the state, county, and incorporated cities in the Metropolitan Area, it is the Board's hope that its work may be of assistance to them in their respective jurisdictions. The Board has studiously avoided effort to control the development of the City and its environs according to any preconceived idea or objective and has continuously contemplated providing in its comprehensive plan for the orderly, efficient and free flow of people and goods no matter what regional objectives and arrangements might be adopted or carried out. It has striven to avoid uni-directional viewpoints and has aimed to provide fluidity rather than to encourage or to discourage decentralizing trends. The Board trusts that this report may result in definite progress toward the objective of safer, speedier, and more satisfactory transportation throughout the district.

For recommendations covering immediate service changes, you are referred to the report of the Factual Survey. For further details of the Board's comprehensive plan, immediate construction program, unification arrangements, and suggested procedure, you are referred to the following pages of this report.

Respectfully,

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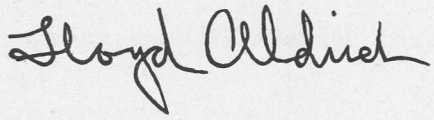

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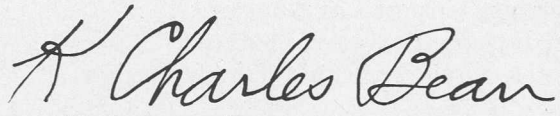

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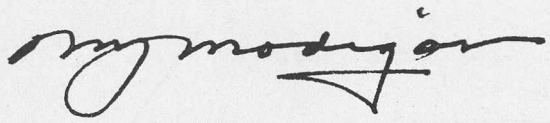

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the much more rapid progress which could have been made if no stops had been necessary, and there had been no delays due to cross traffic and curb parking, as would have been the case on an express highway, later described. The summary of comparative results shown on Figure 1 indicates that under the conditions illustrated nearly double the present overall speed could have been attained and discloses the reason for the increase.

Mass transportation vehicles operating on the surface are confronted with the same difficulties as the private automobile, aggravated by the necessity of taking on and discharging passengers. However, if certain of these vehicles were operated on an express schedule on an available express highway, as later proposed herein, their performance would approximate that of a private motor vehicle on such a facility, thus enhancing materially the attractiveness, efficiency and utility of the service. While the local rapid transit buses which would make each stop on the express highway could not match that performance, the stops would on the average be one-half mile apart, permitting substantial improvement over speed of travel entirely on the surface streets.

The Board recognizes the importance of certain economic factors such as the cost of automobile operation and the value of time

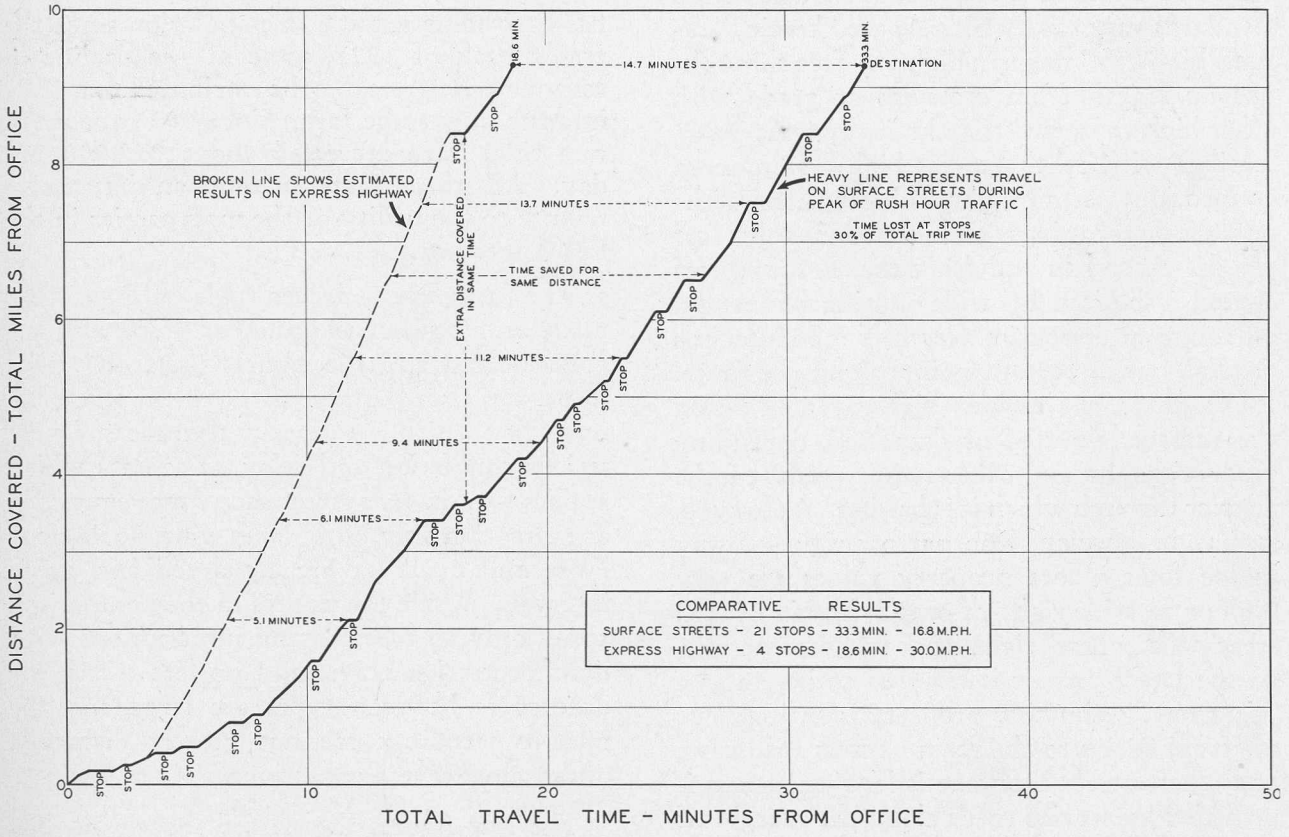


FIGURE 1—EFFECT OF STOPS AND SLOW-DOWNS ON OVERALL TRAVEL TIME

Comparing a rush hour automobile trip on surface streets with one on a stop-free express highway. On latter, speed illustrated varies from 30 miles per hour in densest traffic to 43 miles in remote section.

saved, but does not present figures purporting to reappraise their values which have been estimated and tabulated by several authorities. Psychological and safety factors are believed to be equally if not more important to the prospective user and facilities proposed as a measure contributing to the solution of the traffic and transportation problem should appropriately provide for all essential requirements including low operating costs, saving in time, increased safety and reduced driving strain.

The Express Highway

The terms "express highway," "motorway," "freeway," and "limited way" are interchangeably used by various authorities though design standards vary somewhat. As used herein, "express highway" means a highway free throughout its length from crossings at grade with other highways, streets and railways. At intersections with other express highways, curved connections permit right and left turns without grade crossings and at reasonably fast speeds. Access to and from the surface street system is limited by wide spacing of on and off ramps at approximately half mile intervals generally at important points along the route. As to grade, the express highway may be on the surface, elevated or depressed, depending on topography and other requirements of the district through which it is passing. As to type, it may be developed on narrow right-of-way in locations where property values are very high or on wide right-of-way with landscaped treatment where right-of-way costs permit. In the latter case, it is referred to herein as a "parkway." Abutting property is entirely cut off from access to the main express roadways, but where street frontage is lacking, access is provided by service roads along the margin of the right-of-way.

The express highway provides the necessary elements for continuous flow of traffic, uninterrupted by signal lights or cross traffic and hence makes possible sustained speed with safety and high capacity with minimum driving strain.

Mass Transportation and Street Capacity

So long as the number of automobiles is only about half the number of adult persons in the district, the use of the family automobile by any one of the family leaves the remaining members without transportation. For this and other reasons, mass transportation systems are vital to the existence of large communities and have survived the spectacular automotive development in the United States. In ordinary commercial operations an increase in the number of competitors tends to further subdivide the total available business. Each mass transportation vehicle operating in the Los Angeles district divides the business with about 500 competitors yet the local systems retain about 80% of their former patronage. While there has been some growth in population since the traffic peak of 1927, some of the decline in revenue passengers may be attributed to a 20% increase in average fare. Since 1933 the revenue rides have increased about 250,000 per day. All these facts present an impressive tribute to the utility of the mass carrier in the Los Angeles district.

The comparisons in the table on Page 5 are made on a basis of the number of persons accommodated and the figures presented refer to persons transportable through the street intersection which is ordinarily the point of most serious congestion and delay. The data which applies to a six-lane street shows movements in one direction only, three lanes wide, during one 60-second cycle having equal red and green intervals. While the figures in the comparison apply only to free moving intersections with light pedestrian travel and no left turns, the differences between types are large and the relative standings are not greatly disturbed under more severe conditions.

The low figures shown for the automobile are not a fair representation of its carrying capacity but they reflect the price, in excessive street space, which the public is willing to pay for personalized transportation. The Factual Survey shows that practically two out of every three automobiles entering the Central Business District have only one passenger and that

APPROXIMATE CROSSING CAPACITIES

AUTOMOBILES—NO CARS OR BUSES	NUMBER OF PERSONS 60-SECOND CYCLE	RELATIVE CROSSING CAPACITY
Parking permitted near intersection so as to result in only two moving lanes of automobiles—present rush hour loading	40	1
No parking—three moving lanes	60	1.5
STREET CARS AND AUTOMOBILES		
Loading platform in street resulting in only one moving lane of automobiles	200	5
Same in combination with two-track subway	800	20

during the hour having the heaviest vehicle loadings the average is only about 1.67 passengers per automobile. The average for the entire day is about 1.5 persons. This partial use of automobile capacity also affects the lane capacity of express highways to which reference is later made. The low passenger capacity of streets when automobiles only are used shows why principal dependence on rail facilities must be resorted to in the densest metropolitan centers. If buses were substituted for street cars and the sidewalk used as the loading platform instead of the platform or safety zone in the street, two lanes of automobiles might be accommodated, but the total capacity of the street would not be increased because the bus is of smaller carrying capacity than the street car. The following figures, derived in part from the Factual Survey, illustrate the favorable effect of large capacity vehicles on street capacity as measured by persons accommodated:

PASSENGERS DURING PEAK HOUR

LOCATION	WIDTH OF PAVING	IN STREET CAR OR BUS	IN AUTOMOBILES	TOTAL FOR STREET
Broadway between 6th and 7th	56 feet	10,200	1,500	11,700
Wilshire Boulevard between Rampart and Vermont	70 feet	1,200	6,000	7,200

THE BASIC PROGRAM

Plans Considered

The Board has endeavored to cover fully the field of possible types and solutions applicable to the most pressing transit and transportation problems of the district. It believes it has given due consideration to all meritorious proposals coming to its notice and to all arrangements which its engineering staff and consultants could devise having any reasonable probability of satisfying the major requirements of the problem. It has been sympathetic to the possibilities of novel arrangements but has been governed in certain instances by compelling reasons which sometimes automatically have indicated the disposition of proposals even though in successful operation elsewhere. Elevated arrangements such as railways, suspended cars with flexible and rigid suspensions, moving sidewalks for interior distribution service in the Central Business District, non-intersecting streets and off-surface sidewalks were studied or reviewed as the case warranted.

The Board considered the probable results of city wide substitution of buses for remaining rail lines but, in view of the urgency of providing economical as well as convenient transportation service, it does not think it appropriate to utilize small capacity vehicles, such as buses, on heavy lines where streamlined cars clearly could furnish the best of service at the lowest cost. For many lines and services buses would be most effective and the Board has been guided in its analysis of surface operations by the principle that the car and the bus should each be used in its most appropriate field, considering all factors of the problem, including resulting speeds and costs, rider preference, street capacities and conditions, and the rights of the private automobile. The economic phase of the problem is highly important and, in the Board's opinion, the substitution of buses for cars should be worked out progressively with due regard for proposals herein covering coordination of transportation services. Ordinarily, no significant change in speed may be expected from the substitution. Some suggestions reflecting the extent to which it is believed advisable to go in the near future in the direction of removal of car tracks in the downtown area are presented in the discussion of the problems of the Central Business District.

In general, motorway buildings and parking projects were considered to be more properly ventures for private enterprise but their availability might have a material influence on the capacity and operation of certain express highways, making it necessary to pay due regard to their inter-relation. Substitute and compromise arrangements to avoid the heavy expense of off-surface express highways are considered pertinent and might be used in some cases as preliminary stages in the effectuation of the Board's Plan. They include "Steady Flow" highways in which travel across the main highway can only be accomplished by the use of relatively safe mergings and emergings with the main traffic between which long "weaving distances" are provided to allow safe movement from the right hand to the left hand lanes and vice versa. Several arrangements of progressive signaling are properly applicable under certain conditions.

Specific Recommendations

In considering recommendations for immediate action it is necessary to have in mind the system pattern to which it is planned to build. Depending on the rates of construction and technical progress and of civic change, the plan may in the future be expected to undergo modifications required by the then current and then pending developments. As an indicator of the direction in which progress should now be made, the Board presents below its basic program, the special requirements being set forth in italics and the related specific recommendations being printed in bold face type:

1. Non-stop arteries are required with relatively direct routes to permit adequate overall speed for private and public passenger vehicles over long haul and inter-district trips.

For such purpose, the Board recommends a system of express highways and

arterial parkways as the framework for a comprehensive transit and transportation system and presents a definite primary express route pattern designed to provide simultaneously for radial and inter-district travel with by-pass and distributing features.

Figure 2 on the following page provides a key map of the Metropolitan Area and shows how the express highway system would interconnect the various communities. Figure 3 provides greater detail by showing the central section of the district at an enlarged scale and also indicates temporary names for the various parkways so that they may be readily referred to.

2. *The substantial investment incurred in providing grade separated traffic arteries requires intensive use to justify actual construction.*

If only 5 out of every 100 vehicles on an express highway are buses, the effect of their greater capacity and more practical loading is to more than double the passenger carrying service performed by the highway, at the same time greatly reducing the travel time of the substantial number of persons benefited by the rapid transit bus service.

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 costs of highways due to buses by rental charges to be paid out of revenues of the transportation system.

Figure 4 presents a bird's-eye view of an intersection of an express highway with a surface street on which a car line is shown. By using the diamond arrangement of access ramps or roads, rapid transit buses would leave the express highway and make stops at specially provided berths, convenient for transfer to existing surface transit lines and with practically no interference with the traffic on the express highway itself.

3. *To insure maximum utility and benefits from non-stop arteries, rapid transit buses operating thereon and surface transit facilities should be well coordinated.*

A present difficulty is that a wide flung system adapted by type to distributing service is inadequately supplemented by or provided with high speed elements tending to make it unnecessary to ride long distances at slow speed. On the other hand, an express highway transportation system would be incomplete without adequate distributing arrangements.

The Board recommends thorough coordination of 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.

4. *Public convenience, efficiency and simplicity of control require that all transit operations be under a common management in which the public is continuously represented by an active trustee or transit commissioner.*

The Board recommends a general policy of unification of management and coordination of all transit operations and the actual carrying out of such policy to the extent which negotiations indicate to be in the public interest.

It submits a plan, later more fully discussed, involving an operating contract with a coordinated system whereunder service would be made more responsive to public wishes and requirements, the credit of the transportation system would be improved to accelerate provision of new facilities, travel times would be greatly reduced on long rides, and lowest costs

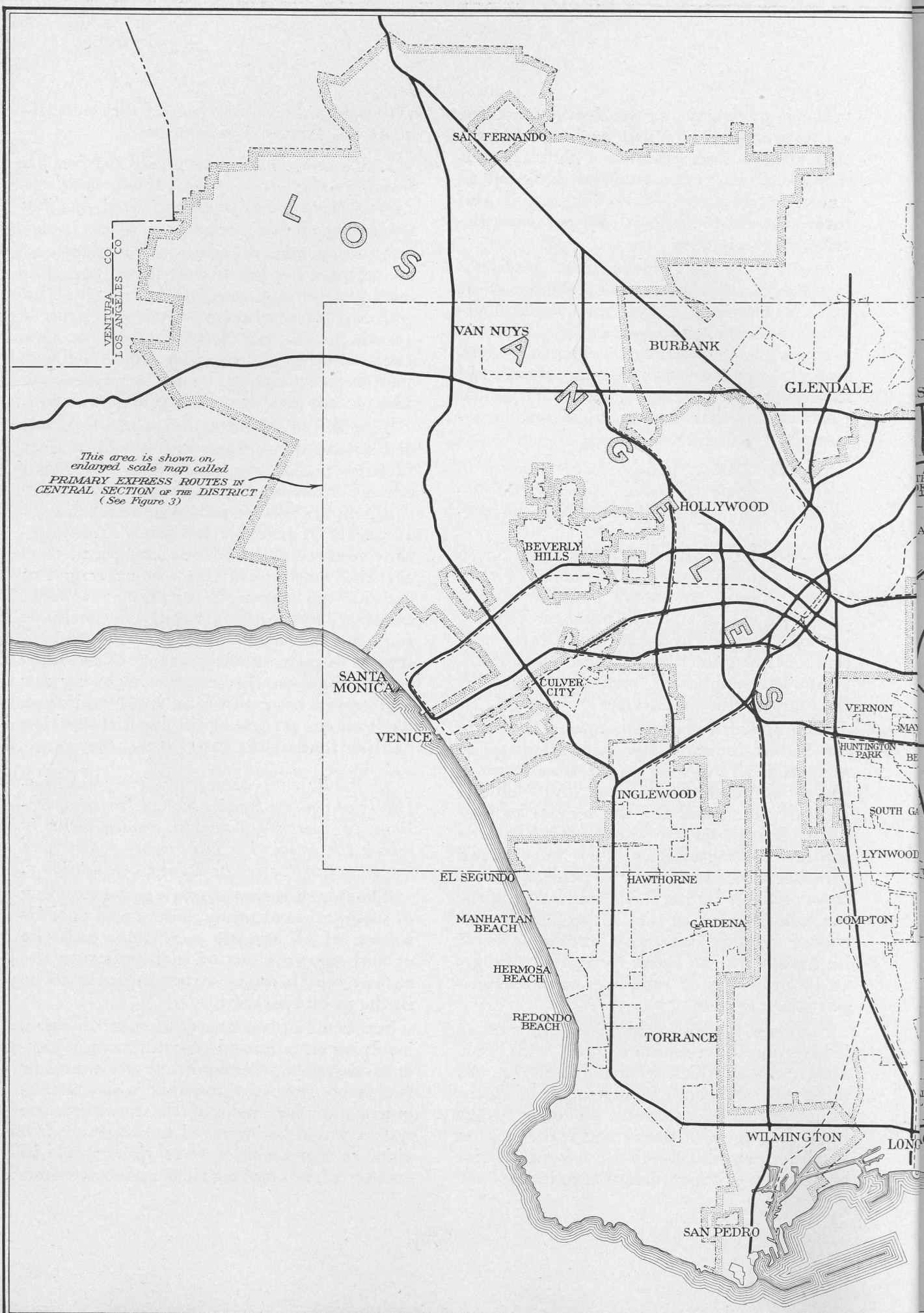
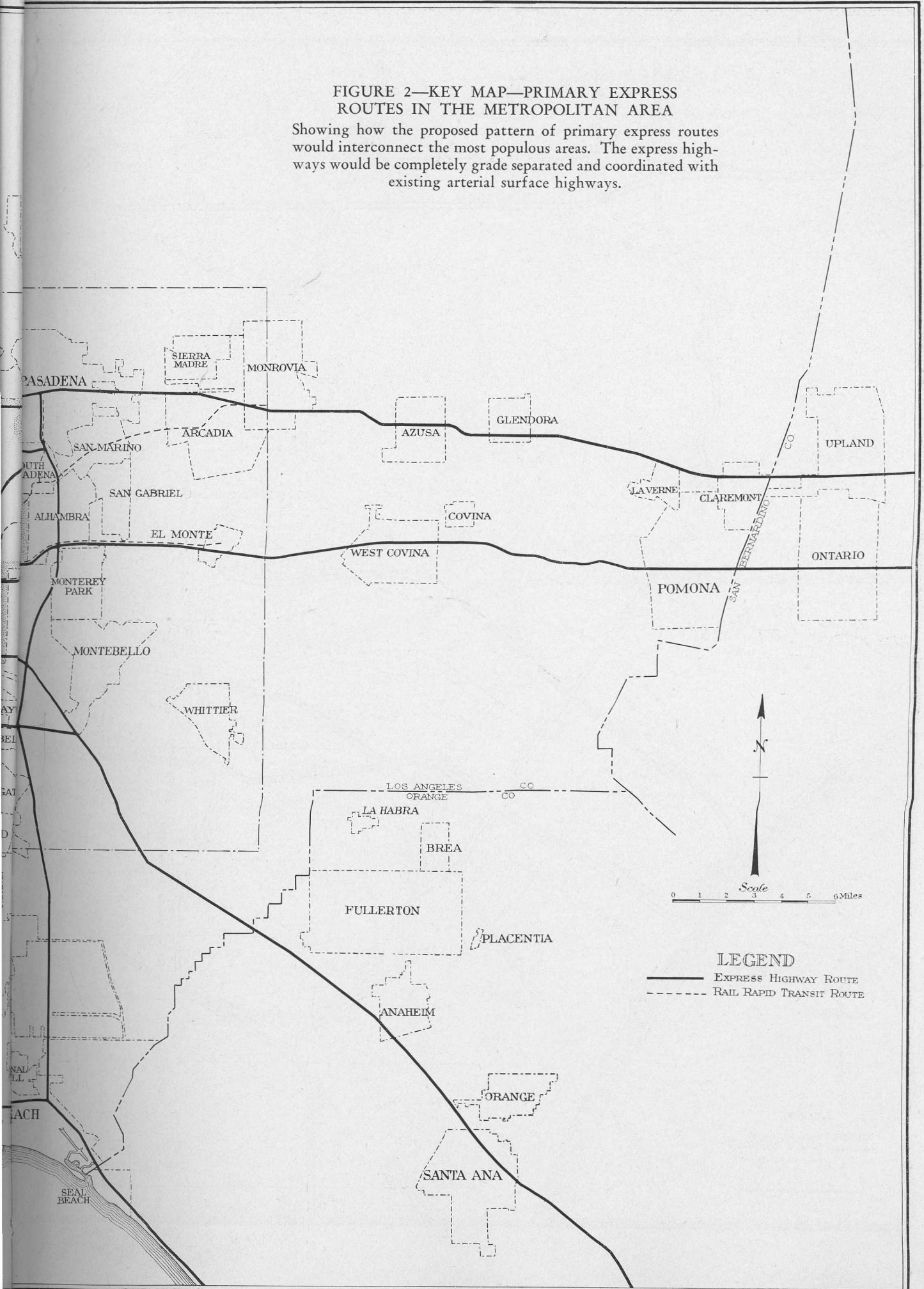
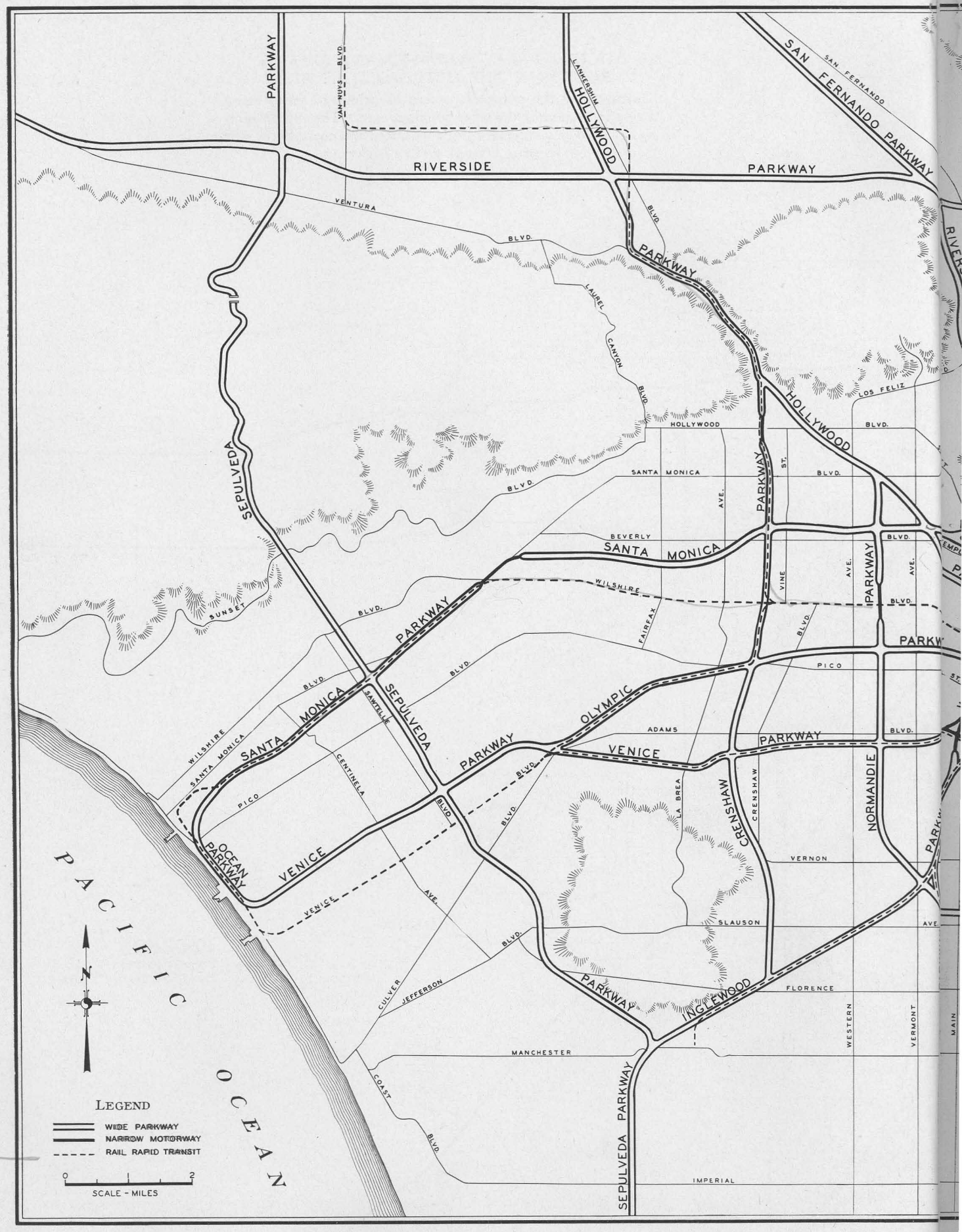

SAN FERNANDO
LOS ANGELES
VENTURA CO.
LOS ANGELES CO.
VAN NUYS
BURBANK
GLENDALE
This area is shown on enlarged scale map called PRIMARY EXPRESS ROUTES IN CENTRAL SECTION OF THE DISTRICT (See Figure 3)
HOLLYWOOD
BEVERLY HILLS
SANTA MONICA
CULVER CITY
VERNON
VENICE
HUNTINGTON PARK
INGLEWOOD
SOUTH GA
LYNWOOD
EL SEGUNDO
HAWTHORNE
MANHATTAN BEACH
GARDENA
COMPTON
HERMOSA BEACH
REDONDO BEACH
TORRANCE
WILMINGTON
SAN PEDRO

FIGURE 2—KEY MAP—PRIMARY EXPRESS ROUTES IN THE METROPOLITAN AREA

Showing how the proposed pattern of primary express routes would interconnect the most populous areas. The express highways would be completely grade separated and coordinated with existing arterial surface highways.




PARKWAY
VAN NUYS BLVD.
LANKERSHIM
HOLLYWOOD
SAN FERNANDO PARKWAY
RIVERSIDE
PARKWAY
VENTURA
BLVD.
PARKWAY
LAUREL
CANYON
BLVD.
SEPULVEDA
LOS FELIZ
HOLLYWOOD
BLVD.
HOLLYWOOD
BLVD.
SANTA MONICA
BLVD.
AVE.
PARKWAY
ST.
BEVERLY
SANTA MONICA
BLVD.
WILSHIRE
BLVD.
SUNSET
BLVD.
PARKWAY
FAIRFAX
VINE
AVE.
PARKWAY
AVE.
BLVD.
PARKW
PICO
BLVD.
SEPULVEDA
PARKWAY
OLYMPIC
ADAMS
PARKWAY
BLVD.
WILSHIRE
SANTA MONICA
SANTA MONICA
SAMTELLA
CENTINELA
VENICE
PARKWAY
BLVD.
PICO
BLVD.
BLVD.
LA BREA
CRENSHAW
CRENSHAW
NORMANDIE
OCEAN
PARKWAY
VENICE
VENICE
AVE.
VERNON
SLAUSON
AVE.
BLVD.
CULVER
JEFFERSON
PARKWAY
INGLEWOOD
FLORENCE
WESTERN
VERMONT
MANCHESTER
COAST
BLVD.
SEPULVEDA PARKWAY
IMPERIAL
PACIFIC OCEAN
N
LEGEND
WIDE PARKWAY
NARROW MOTORWAY
RAIL RAPID TRANSIT
0
2
SCALE - MILES

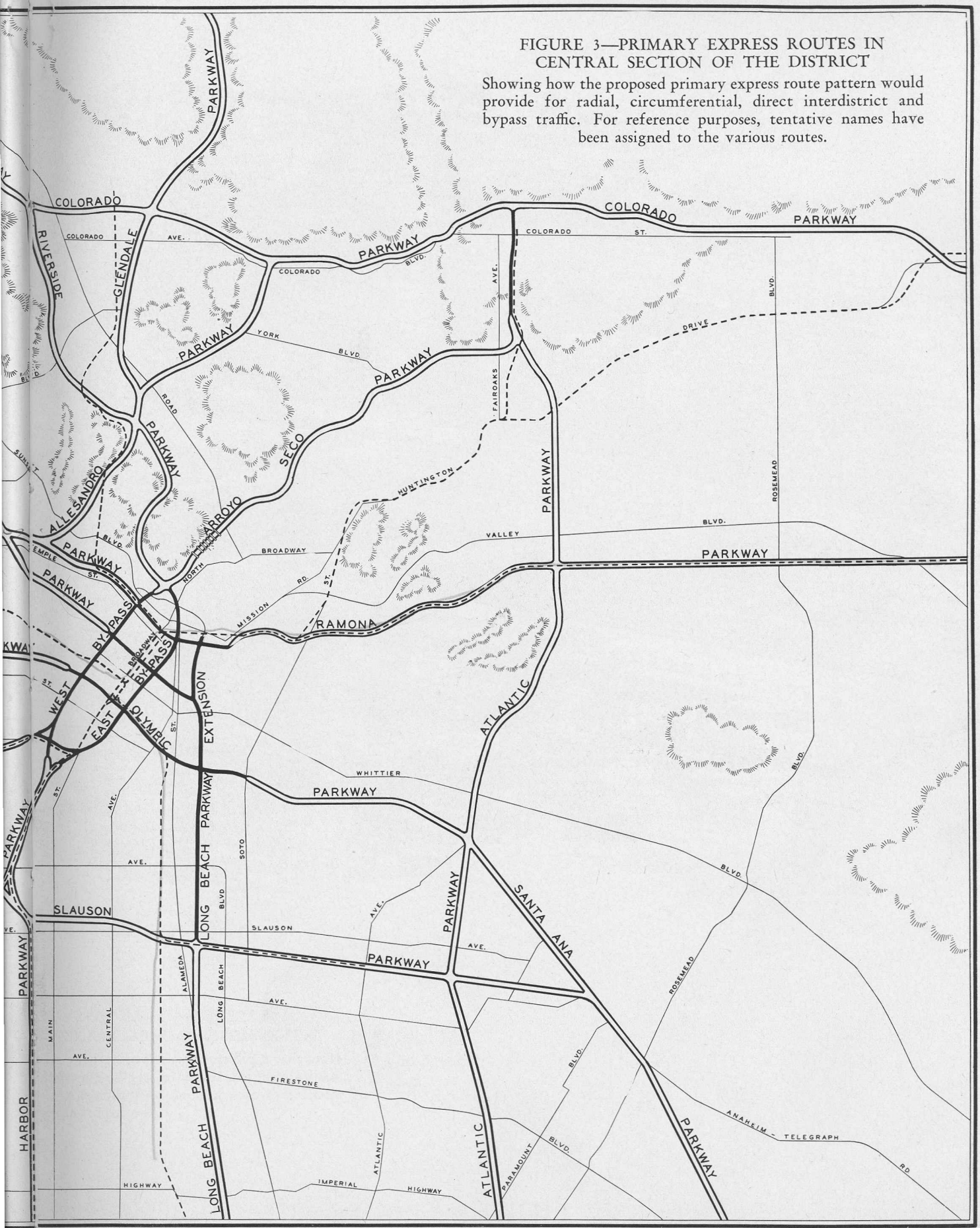


FIGURE 3—PRIMARY EXPRESS ROUTES IN CENTRAL SECTION OF THE DISTRICT

Showing how the proposed primary express route pattern would provide for radial, circumferential, direct interdistrict and bypass traffic. For reference purposes, tentative names have been assigned to the various routes.

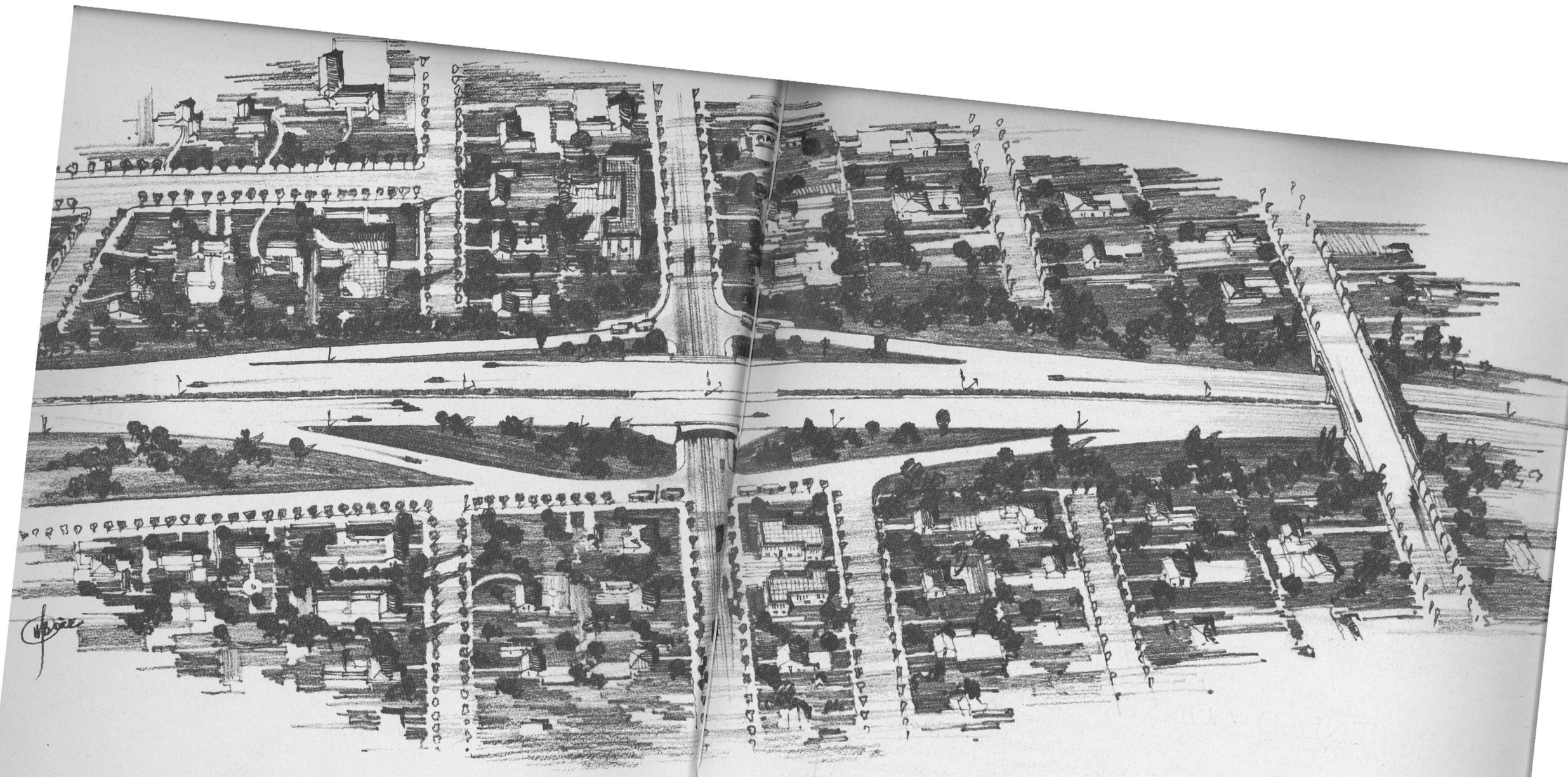


FIGURE 4—TRANSFER AND BUS STOP ARRANGEMENT
INTERSECTING SURFACE AND EXPRESS HIGHWAY TRANSIT LINES

Note that rapid transit buses operating on express highway do not stop on the main express roadways but proceed on the slanting ramps to street level at points convenient for transfer to cars or buses on the cross street thus avoiding the stair climbing usual with elevated or subway rapid transit lines.

Madigan-Hyland
Consulting Engineers

would be obtained; all under arrangements making it unnecessary for the public to embark in a generally unprofitable public enterprise and also unnecessary to make public commitments applicable to possible liquidation or purchase of existing transit facilities.

5. *Prospective city growth requires that arrangements, provided in the present, contemplate development into a much higher capacity system appropriate to the future conditions.*

Heavy electric traction is universally used in handling the concentrated passenger movements incidental to life and commerce in dense metropolitan areas. Prognostications of population and urban trends are at best hazardous but it may be accepted with confidence if not certainty that, when the local population reaches the impressive totals currently accepted as probable, rail rapid transit will be a necessity for the heaviest lines of travel. This eventuality must therefore be kept in mind in considering development of new transportation arrangements and also disposition of present ones.

The high cost of the most approved rail arrangements tends to defer into the indefinite future the time when they can be financed.

The Board therefore does not consider it an appropriate time for recommendations covering immediate construction of substantial elements of a rail rapid transit system. It presents below specific suggestions covering a rapid transit route pattern and also arrangements in the Central Business District with certain indications to serve as a guide as to when the various measures would be appropriate.

The rail rapid transit routes which it considers would be most effective in serving the district on the basis of present trends are shown in Figures 2, 3 and 8 (pages 22 to 24), and several significant differences with previous recommendations are believed to be important. First, a single axial route to the west is selected along Wilshire Boulevard instead of three westward lines radiating from the Central Business District. Second, San Fernando Valley rapid transit traffic from west of Burbank is routed to and through Hollywood instead of via Edendale. Third, Hollywood and Venice service would be run westward over the Wilshire route to minimize headways thereon and to provide a direct connection between Hollywood and developments on western Wilshire Boulevard.

RECOMMENDED CONSTRUCTION PROGRAM

General Considerations

It should be understood that the Board's recommendations for construction do not apply to the entire basic program, the development of which may be expected to extend over a period of years. Although the parkway has proven very popular wherever tried, nevertheless decision on a vast program in Los Angeles may appropriately follow local acceptance of the essential factors which, in turn, may best be developed through public use of the facilities proposed. Development should not be at a burdensome rate and the Board would therefore urge caution on projects of grand and expensive proportions and all reasonable speed in making available the initial route or routes for public use.

As preliminary to initial construction, the Board recommends (A) tentative acceptance by the City of a city-wide pattern for primary express routes to be used as a guide for its further action whether independently or in conjunction with a transportation district; (B) agreement with state, county, and all affected jurisdictional entities respecting the particular construction under consideration especially as to continuity of route, time factors, and financial arrangements; (C) coordination of design and construction features with adjoining routes built or to be built by others; (D) generous right-of-way width; (E) definite commitment to protect the expensive construction against commercial exploitation and deterioration by display advertising or inappropriate building

construction; (F) decision to provide for and maintain attractive landscaping adequate to the cultural objectives of the district.

The Hollywood Parkway

The Board has selected the Hollywood Parkway from the West Bypass to Cahuenga Pass (see Figure 3) for the initial route to be constructed because, in its opinion, there would be combined the greatest number of advantages from the standpoint of the public. This route would connect two of the district's most important centers of trade and population and would be exclusively a City of Los Angeles project thereby making for speed of decision, construction and use. Its transportation features would benefit a great number to a high degree and construction work now in progress through Cahuenga Pass would serve, on completion, as an extension of its length. Affecting automobile traffic, as well as mass transportation, this grade separated highway would cross diagonally a large number of heavily travelled streets providing excellent distribution at convenient branch-off angles both northward and westward. The Board favors such a route as offering the greatest probability of financial success under the self-liquidating plan which it proposes.

A key map showing the limits of the four sections of the Hollywood Parkway is provided by Figure 10 (pages 27 and 28). The detailed arrangements are shown to a greatly enlarged scale on strip map renderings called "Development Plans." Three of the strips, covering the sections from Lucas to Holly Drive, are presented on one double folded sheet as Figures 11, 12 and 13, while the section just south of Cahuenga Pass is covered by Figure 14. Two bird's-eye views of intersections are provided by renderings on aerial photographs, Figure 16 (pages 42 and 43) covering the Hollywood Parkway and Santa Monica Parkway arrangements and Figure 37 (pages 68 and 69), the junction of Cahuenga and Highland at the Hollywood Bowl. Three perspective drawings are also included, Figure 9 (pages 25 and 26) illustrating a street passing over a parkway; Figure 17 (pages 44 and 45), a parkway over a street; and Figure 18 (pages 46 and 47), a footbridge over a parkway.

The estimated cost, including interest during construction, covering the Hollywood Parkway from the West Bypass to the junction at the Hollywood Bowl, and including the initial intersection arrangements at both ends, may be taken at $6,500,000 for construction and $9,500,000 for acquisition of land and property damage. Arrangements for toll operation would increase the initial cost about $150,000. A close-up view of typical toll facilities is provided by Figure 25 (page 50).

An important problem relates to the distribution of cars from the express highway to city streets, parking lots and possibly to motorway buildings or other special facilities in the Central Business District. The Board recommends that construction of a section of the West Bypass southward from its intersection with the Hollywood Parkway to Eighth Street be considered a necessity to provide adequate access ramps and outlets. On Figure 8 (pages 22 to 24) this section is outlined by extra heavy black edging to indicate the portions considered as initial construction and it is estimated to cost about $1,350,000 for construction and $2,500,000 for land and property damage. While this estimate includes widening of the south side of Sixth Street between Figueroa and Fremont, experience with the new type of operation may develop the desirability of further adjustments not estimated at this time. Excluding the latter, there results a total estimated cost of $20,000,000 for the Hollywood Parkway, arranged for toll operation and including initial landscaping and ramps at Boylston, Flower, Sixth and Eighth Streets. The alignment of the Hollywood Parkway eastward from Third and Boylston Streets conforms to the lines of the proposed street improvement known as "California Boulevard" which might be constructed through Bunker Hill in open cut instead of tunnel as shown on Figure 8.

Financing Plan

The Board has considered numerous methods of financing the initial construction. It believes that the persons most entitled to decide the worth of such proposals are those who individually would have to pay the bills and further that it would be better if those who do not care to use the facility should not be required to contribute to its construction. It suggests the propriety of avoiding any method tending to add to the burden of property owners and taxpayers generally. The Board therefore proposes revenue bonds as an appropriate means of financing the recommended initial construction of the Hollywood Parkway and temporary collection of tolls charged private automobiles and rapid transit buses as a means of placing the cost almost exclusively on those using the new facilities. The toll method is hardly practicable for an interconnected or network system but it should provide an excellent method of initiating the project which, it is believed, would be self-liquidating as long as such basis was continued. It later recommends a special investigation to develop the amount of coverage of debt service and operating charges expected from toll collections.

Arroyo Seco Parkway and Santa Monica Parkway

It may be presumed that the State will complete Arroyo Seco Parkway and conceivably may undertake certain adjustments which may be necessary at its south end to distribute the expected traffic smoothly. As the Board's plan contemplates making the West Bypass ultimately continuous with the Arroyo Seco Parkway, it offers some suggestions for initial construction along such alignment shown by the heavy black edging in Figure 8 (pages 22 to 24), though further consideration should be given to diverting, initially, southbound Arroyo Seco traffic toward the East Bypass rather than toward the West Bypass.

The Board considered recommending for initial construction a connection between the Arroyo Seco Parkway and the Hollywood Parkway via the West Bypass, but analysis showed that the connection should be deferred until the Arroyo Seco route has another outlet to the east of the Civic Center. If prematurely joined, the load of the two parkways might seriously crowd the streets and access ramps along the West Bypass between Fourth and Eighth Streets. However, if joined, there would result a continuous grade-separated express highway of the parkway type about 18 miles long and the closure should be made as soon as the proper terminal and distributing arrangements can be worked out.

The Board believes that the Arroyo Seco Parkway extension and ramps south of the Figueroa tunnels, or their equivalent, should be scheduled for immediate construction but, because this is along a State highway, no allowance is included in the Board's estimates of cost herein. Attention should also be given to changes, believed to be of relatively moderate cost, tending to increase the operating capacity of the Figueroa tunnels. One advantage of an express highway route through Chavez Ravine (shown on Figure 3) is that much traffic from Riverside Drive would be diverted through the Ravine instead of burdening the heavily loaded tunnels.

Development plans covering the Santa Monica Parkway east of Beverly Hills are included as of general interest even though not recommended as initial construction. Key maps are provided by Figures 26 (pages 51 and 52) and 30 (pages 59 and 60) while the detailed arrangements are shown in Figures 27, 28, 31 and 32. These detailed drawings cover only as far west as La Cienega Boulevard but, in combination with the Ramona Parkway and an extension of the route westward to the sea, there would be provided a continuous east-west artery through the Civic Center connecting with important State highway routes at either end.

ENGINEERING AND RIGHT-OF-WAY

Types of Construction

The Board's recommendation for construction should not be taken to apply to any type incompatible with the highest ideals of civic development. Economic pressure may force some compromises and in certain sections special types of construction may be appropriate. In general, however, its recommendations apply only to construction of the parkway type and it would prefer to have its highway plan referred to as an "Arterial Parkway System." The Board, while welcoming fullest discussion and criticism, does not view sympathetically efforts which may attempt to provide merely the speed features on narrow rights-of-way or in any other manner prejudicial to the attractiveness of the district. It has considered the possibilities of economies in arrangement, construction, and landscaping and is convinced that parkway treatment of express highway routes should be adopted as the general guiding policy.

The express highways would take advantage of existing features of the terrain to minimize cost of the parkway and of grade separations. Speaking generally, parkway in cut would be favored over elevated construction as the sloping landscaped banks of the cut should present an attractive outlook for the user and a maximum of acoustical absorption and screening for the nearby residents. To illustrate alternative arrangements, largely depending on the terrain, a number of typical cross-sections are shown in Figures 19 to 23 (pages 48 and 49). The relative widths of rights-of-way, main and service roads, and of landscaping are also shown. Illustrations are included picturing local and other parkway and express highway arrangements. Figure 35 (page 66) illustrates a section involving sidehill construction, the outside two roads for land and building service being designated as service roads while the center two roadways are for high speed nonstop operation. The entrance points to the central parkway roads illustrated in Figure 29 (pages 57 and 58) are spaced as far apart as practicable, thus affording the maximum lengths of roadway without traffic interference. The complete separation of cross traffic is clearly shown by Figure 38 (page 70). The necessity for restrictions as to signs and abutting buildings is apparent from Figures 5 and 6 on the next two pages, the former being taken on a heavily travelled route in this City essential as an element of an express highway system for the district. Figures 24, 25, 34 and 36 show other construction features of general interest.

Design Standards

The following data are indicative of the design features contemplated by the Board's recommendations:

1. Parkway grades, preferably not over 4%.
2. Access drives, preferably not over 5%.
3. Parkway curvature, preferably not less than 2,000 foot radius.
4. Access and slow moving roads, preferably not less than 200 foot radius.
5. Sight distance over bridges, 400 to 500 feet.
6. Parkway exits as unrestricted as possible. Entrances restricted at junction point to limit entering vehicles to single line.
7. Nominal width of right-of-way for parkway type, 250 feet.

Capacity, Speed and Safety

Under certain special circumstances more than three lanes may be appropriate for a roadway but, in general, three is considered the most satisfactory number of lanes for each direction. The capacity of such a six-lane express highway should approximate 75,000 cars passing a given point in both directions in 24 hours. While the design of the express highways outside of intersections would allow of reasonable safety for a single car at 60 miles per hour, high speeds greatly cut down the capacity of the highway as well as its safety. Figure 7 shows

that at 60 miles the capacity in cars per hour is reduced 40% below the maximum which occurs at about 33 miles per hour.

It will probably be found advisable to keep the maximum lane speed within a limit of 45 miles per hour and under heavy traffic the average speed of cars on the express highway may be expected to approximate 35 miles per hour. A road speed of 60 miles per hour would, in the Board's opinion, be an inefficient and unsafe use of an expensive highway. It is hoped that the proposed express highway system may be controlled in a manner to assist to the fullest extent in improving highway safety, for the time may well come when the City will not be satisfied with its standing in traffic accidents.

FIGURE 5—INADEQUATE RESTRICTIONS ON ARTERIAL ROUTE
Showing present roadside enterprises on an arterial highway which should more properly have parkway treatment.

Center Reservation

At the time of acquiring right-of-way and final designing of structures and arrangements, consideration should be given to the advisability of providing extra width in the center reservation or planted area between the main parkway roads. Several possible uses are in prospect for an extra width of about 35 feet or approximately 15% of the total right-of-way, and initial provision of such width offers possibilities of attractive future economies at the expense of moderately increased initial cost.

The extra width would provide room for expansion to three main roadways instead of the conventional two which with largely unbalanced traffic would be equivalent to doubling the capacity of the route. In such case, the traffic on the center roadway would be alternated in direction morning and evening so that on the three roadways there would be six lanes in the heavy direction and three in the light instead of three each. The center roadway would not need the usual number of access ramps as it would be designed for express or non-stop operation over great distances and at the maximum speeds permitted on the parkway. Being relatively free of ramps, it should be both safe and fast. Other uses for the center roadway are in prospect such as an exclusive roadway for buses, or in certain localities for trucks and commercial vehicles.

A most important function is apparent from inspection of Figure 3 where the broken lines in the centers of certain double lined parkway routes represent a most intensive and effective use of the investment by providing simultaneously on the same right-of-way for automobile traffic of relatively light passenger capacity and for rail rapid transit trains of radically greater

passenger carrying capacity. In persons accommodated, the increase by adding a two-track rail line to a six-lane express highway would probably be several hundred percent though adding only about 15% to the right-of-way width.

The extra width should at least be considered for those express highway routes where, as shown in Figure 3, future rail rapid transit is expected and where land, property damage and structures are relatively inexpensive. With a grade-separated right-of-way already provided by the extra width of the express highway, the ready-made roadbed allows of future installation of rail facilities at a saving so large as to compare in magnitude with the entire cost of the initial express highway and its extra width of land and length of bridge structures. Bus rapid transit has definite limitations as to ultimate capacity and, if growths are rapid, it might not be long until the extra center width would be pressed into service. Visual and acoustical screening of the roadbed are possible and one of the most successful and attractive realty developments in the country has rail rapid transit coordinated with it in a somewhat similar manner. Future rapid transit riders would not only ride in the open but would share with others the attractiveness of the parkway ride.

Right-of-Way and Property Damage

Growth and building have been so rapid in this district that materially increasing costs of and damage to property may be expected and it may well be said that, if the express highway network is to be constructed at all, decision and action on the initial section must be prompt, and for the future reasonably continuous in order to avoid prohibitive costs. On the other hand, route alignments are still flexible enough to make realty speculation unduly hazardous. For instance, most of the radial routes have been studied along about four alignments and these have been separated by as much as a half-mile. Each alignment offered its individual composite sum of advantages and disadvantages and the Board's studies indicate that, in general, there is substantial opportunity to shift alignments to avoid adverse effects due to unwholesome speculation. Final alignments should, of course, be kept confidential and not announced until after adequate data have been assembled to meet the needs of possible condemnation proceedings. Organization for

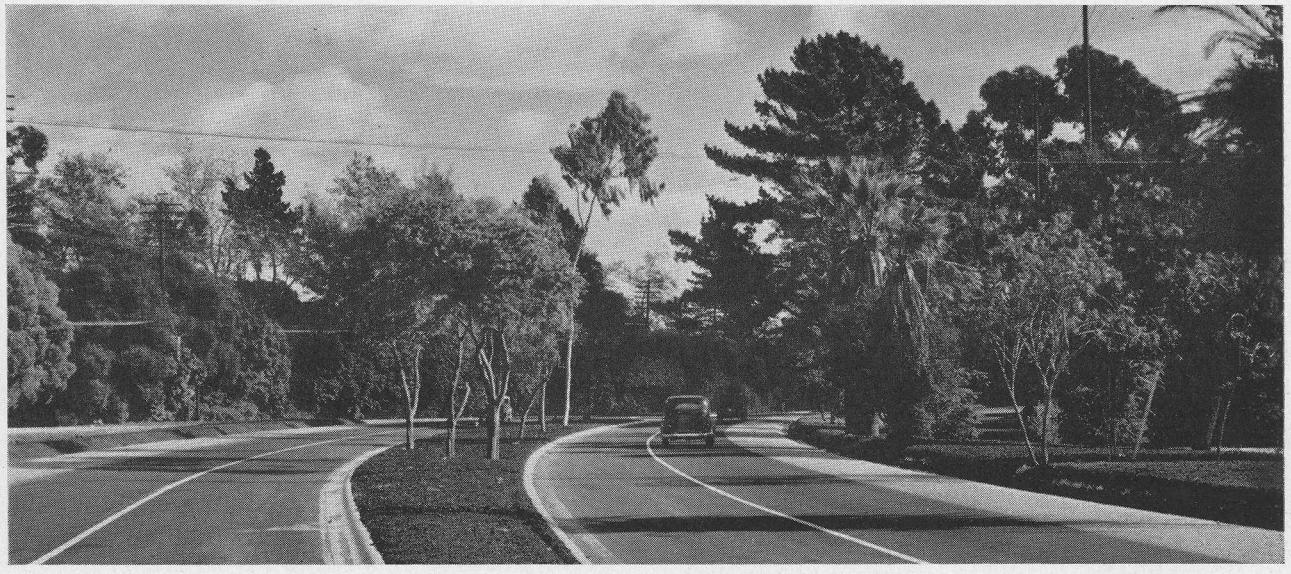


FIGURE 6—A CALIFORNIA PARKWAY

Compare with Figure 5 for difference between controlled parkway and thoroughfare without adequate restrictions.

the prospective work should be with special regard to keeping confidential matters properly safeguarded but the fact that the Board has drawn its plans along a definite alignment should not be erroneously interpreted as representing a necessity for or certainty of construction along any particular route shown.

Prospective Effects

Experience has demonstrated that improved transportation enhances property values and it may be expected that, despite property removed from the tax rolls in the strip taken over for parkways, the overall effect will be to enlarge the tax base or values supporting public costs including those related to the new facilities. Furthermore, the new construction for a long time after completion should tend strongly to stimulate growth in population and values, so that the new tax sources may be expected to provide amply for the possible increases in public expenses such as lighting, traffic control and landscaping maintenance on the parkway system. Repair and structural maintenance would be added to public costs but the permanent character and high class of the contemplated construction tend to keep the annual operating and maintenance charges at a minimum. The annual charges relating to investment, such as interest and sinking fund, far outweigh other considerations and it should be remembered that more than half of the total investment cost is in non-depreciating items such as land, property damage, grading, foundations, and mass concrete. It may be contended that the overall total costs to the public would be less than are now incurred. The Board is willing to go so far as to register its opinion that progressive construction of arterial parkways would be found to be good business for the community as a whole.

As time is a cardinal factor in the determination of economic results, the effect of using the express highways instead of surface streets requires illustration. It will be obvious that the wide spacing of the parkways tends to make them of little use for short trips because so much distance and time is liable to be lost in going out of one's way to get to the parkway and to get back again to the desired surface street that the gain while on the parkway is

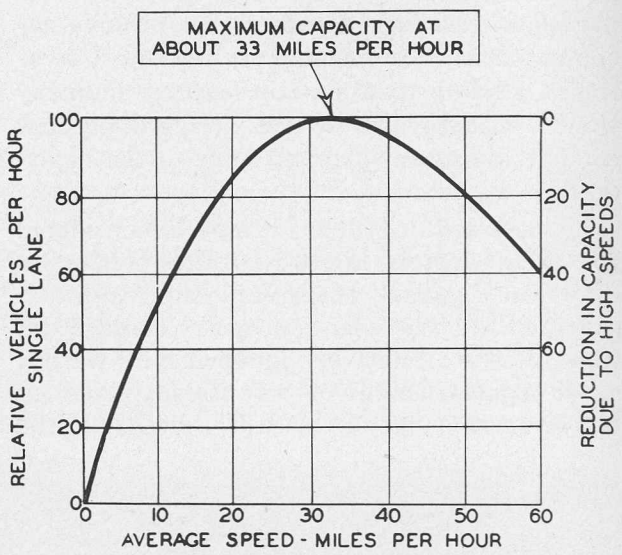


FIGURE 7—EFFECT OF SPEED ON HIGHWAY CAPACITY

Note that at 60 miles per hour the capacity is reduced 40% below the maximum.

practically offset and nullified. The greatest gain of course occurs when origin and destination are close to access ramps on the parkway, for then practically the entire distance may be covered at express speed. Thus, the benefits and time savings may be expected to vary from zero to a substantial amount making it of questionable value to tabulate them in detail. The following illustration is intended to furnish an example covering a route involving a substantial volume of mass carrier and automobile passengers, the effective increase in speed reflecting the combined result of shortening the driving distance and increasing the driving speed. All values should be considered approximate.

The proposed express highway network not only provides safer operation with minimum overall travel time but in effect does away with certain limitations of distance because, in most cases, distance is measured by the time required to cover it. The radically increased fluidity of travel and the greater facility of reaching important districts safely and expeditiously permits of two opposing trends. It makes possible increased decentralization by widening the time horizons or points reachable in a given time and at the same time makes travel to established centers more convenient and expeditious even from decentralized areas.

TIME SAVINGS USING EXPRESS HIGHWAY

6TH AND HILL TO HOLLYWOOD AND VINE	MINUTES TOTAL	MINUTES SAVING	DECREASE IN TOTAL TIME	EFFECTIVE INCREASE IN SPEED
Via Automobile				
Present	25			
Proposed	12	13	52%	108%
Via Mass Carrier				
Present Rail from Subway Terminal	31			
Proposed Rapid Transit Buses				
Limiteds (No stops on parkway)	16	15	48%	94%
Locals (Two stops per mile on parkway)	24	7	23%	29%

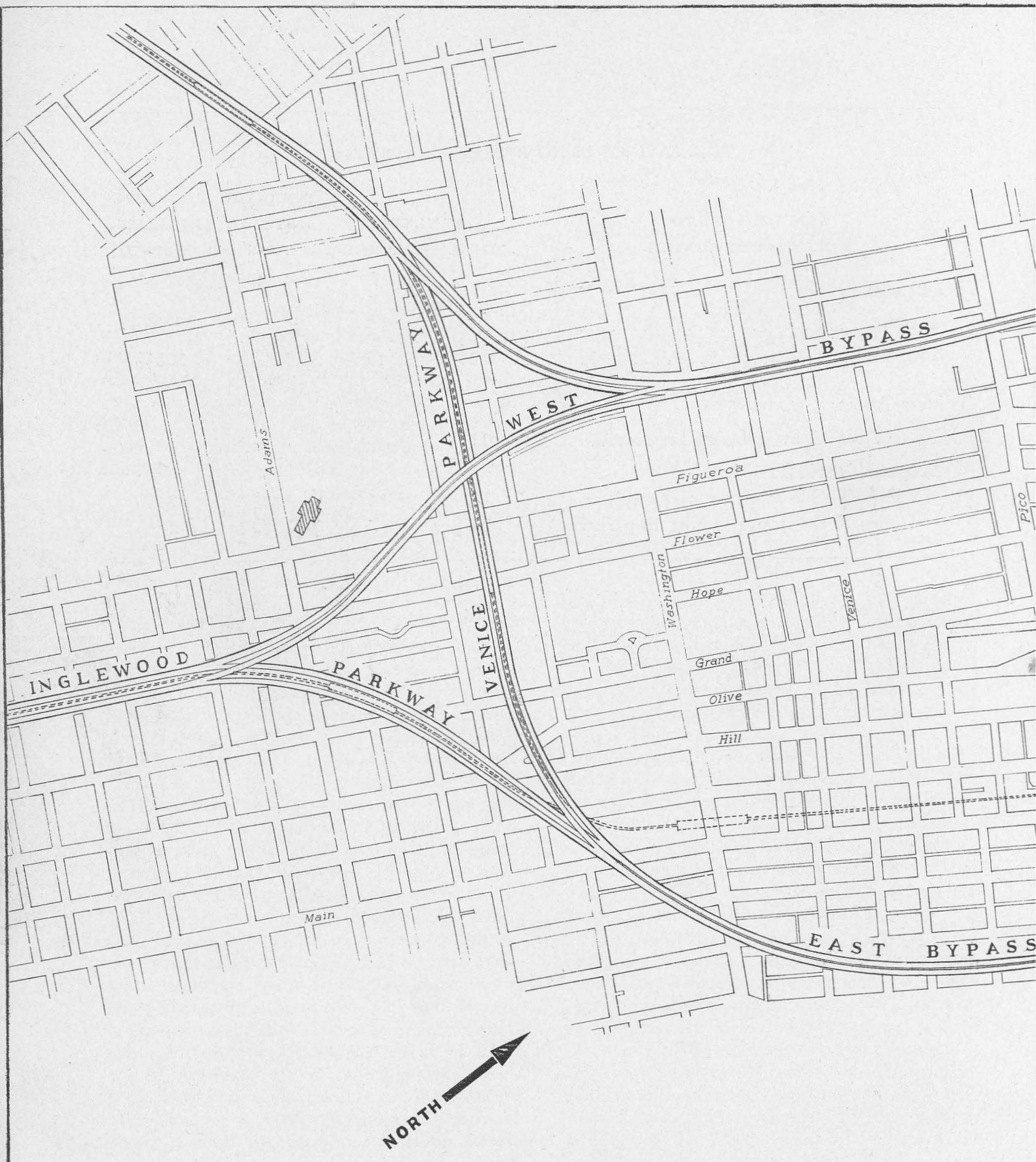
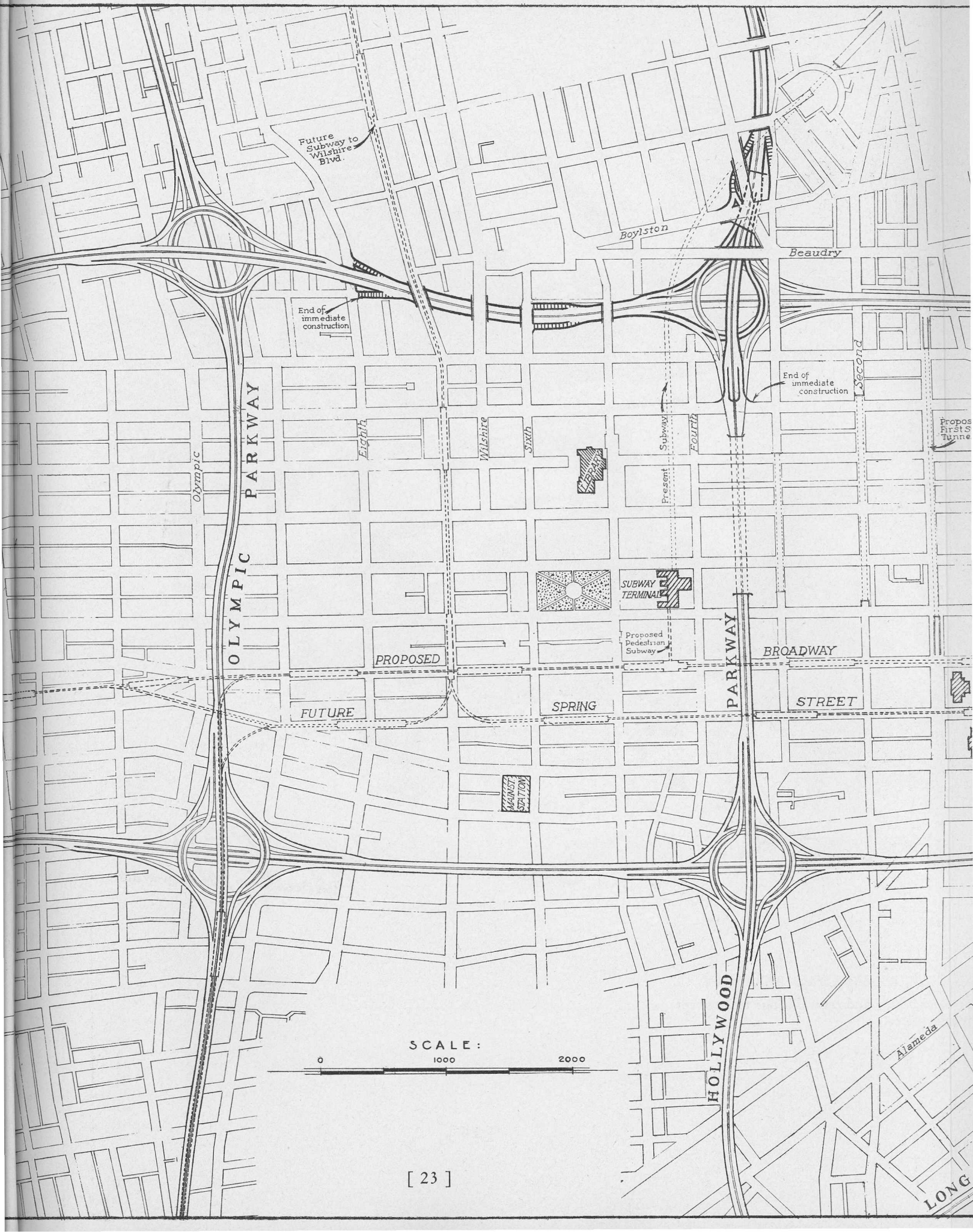


FIGURE 8—OFF-SURFACE TRANSIT ARRANGEMENTS
CENTRAL BUSINESS DISTRICT

Express highways recommended for immediate construction are shown edged with heavy lines. Remainder of express highway cordon shows suggested arrangements exclusive of on and off ramps. Further study may alter types of construction shown on this drawing.


Future Subway to Wilshire Blvd.
Boylston
Beaudry
End of immediate construction
End of immediate construction
Second
Eighth
Wilshire
Sixth
Subway
Fourth
Present
OLYMPIC PARKWAY
Olympic
SUBWAY TERMINAL
Proposed Pedestrian Subway
PROPOSED
FUTURE
SPRING
BROADWAY
STREET
PARKWAY
HOLLYWOOD
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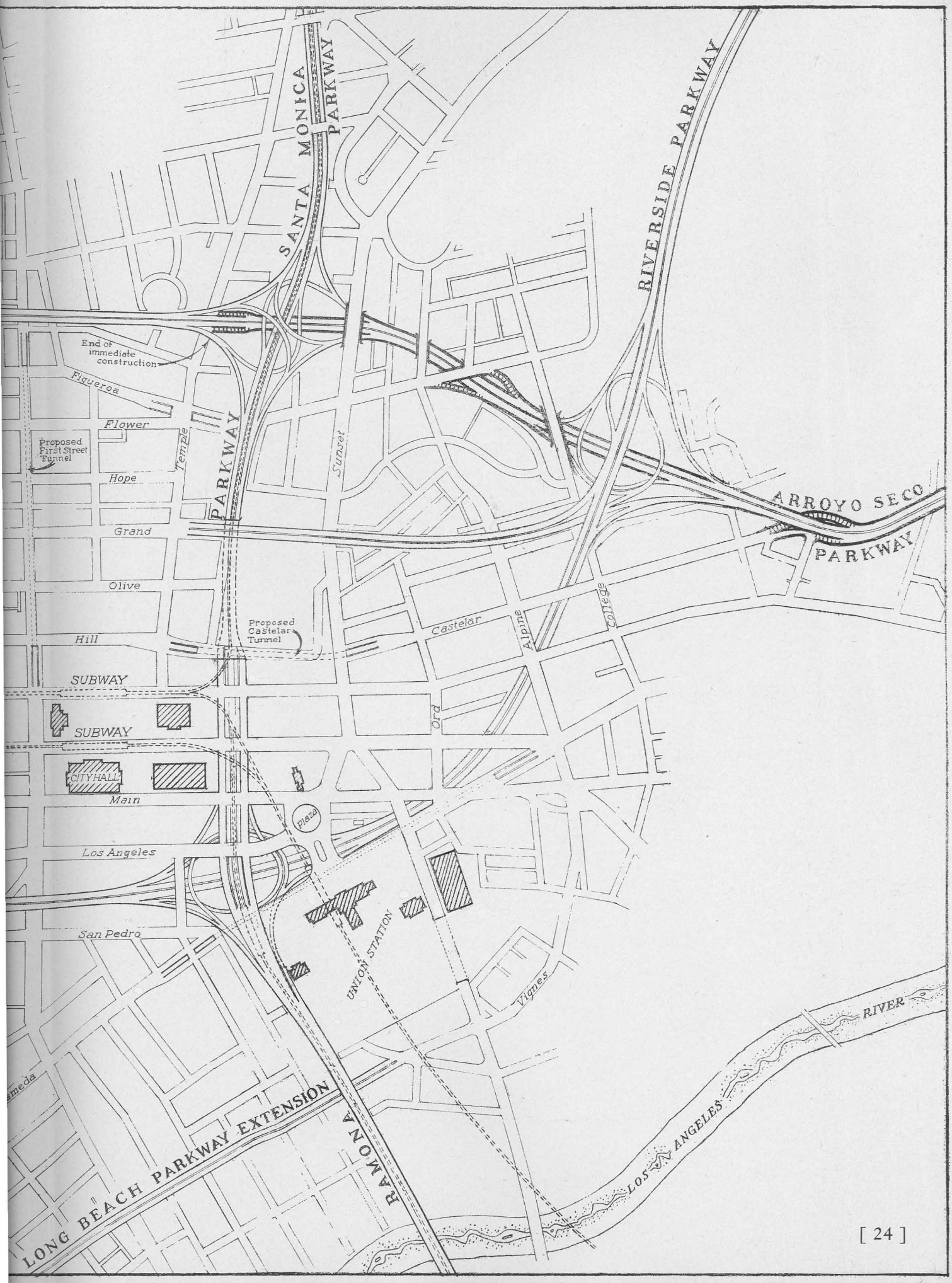

SANTA MONICA PARKWAY
RIVERSIDE PARKWAY
End of immediate construction
Figueroa
Flower
Proposed First Street Tunnel
Temple
PARKWAY
Sunset
Hope
Grand
Olive
ARROYO SECO
PARKWAY
College
Alpine
Castelar
Proposed Castelar Tunnel
Hill
SUBWAY
SUBWAY
Ord
CITY HALL
Main
Plaza
Los Angeles
San Pedro
UNION STATION
Vignes
RIVER
LOS ANGELES
RAMONA
LONG BEACH PARKWAY EXTENSION

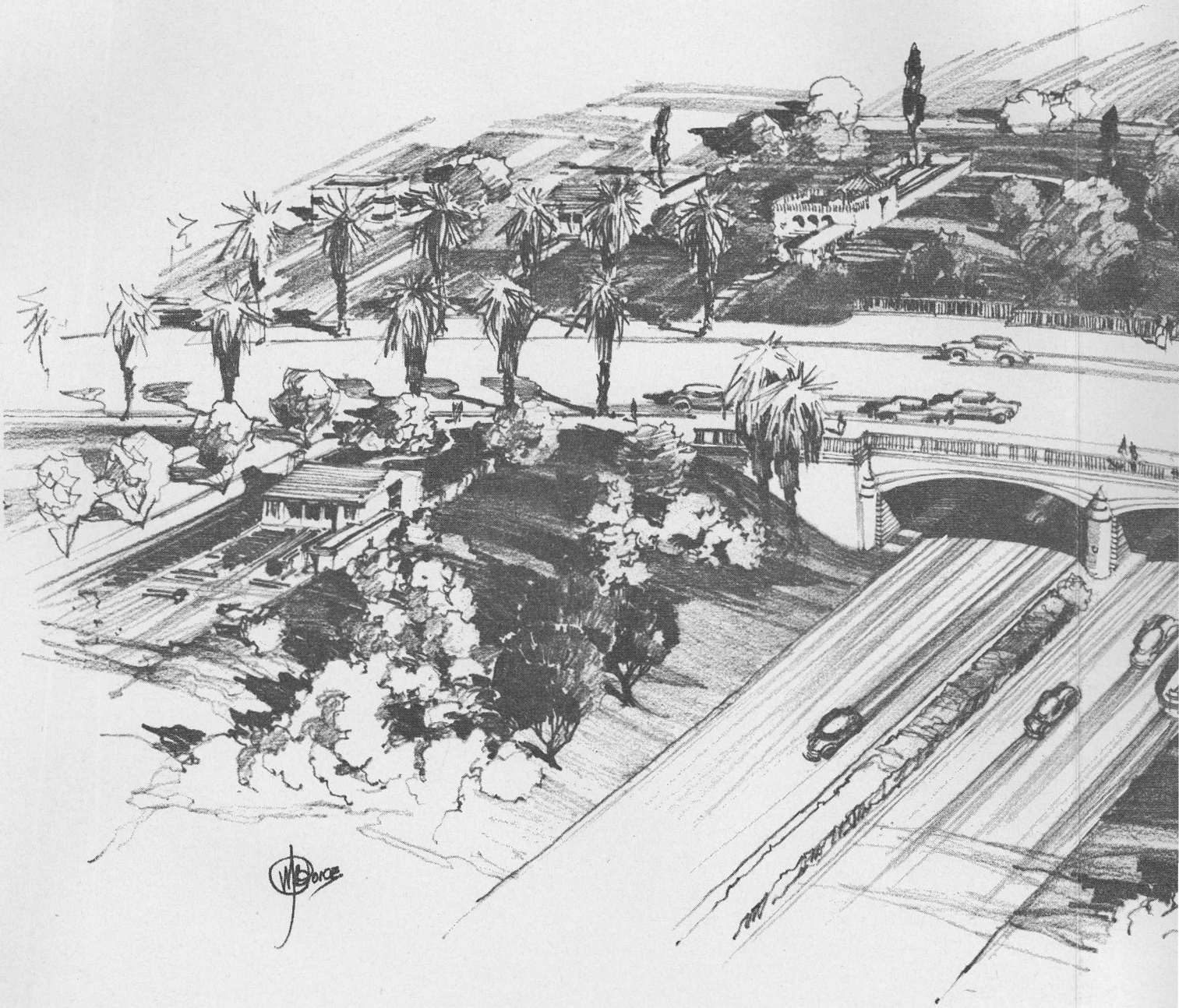
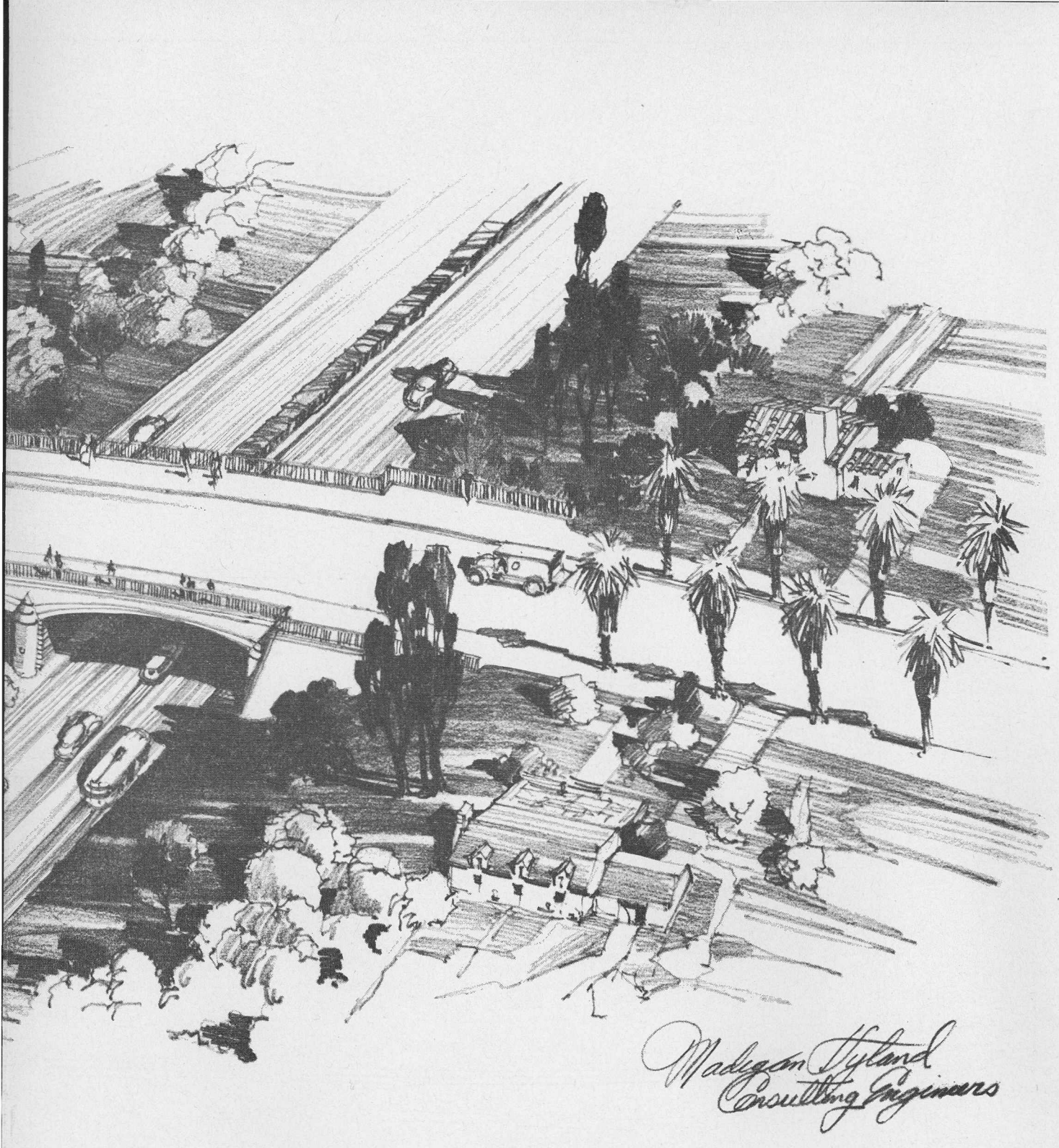


FIGURE 9—STREET CROSSING OVER I

Note gently sloping banks to facilitate landscaping
headlight glare.



G OVER DEPRESSED PARKWAY
landscaping and central hedge to intercept
ght glare.

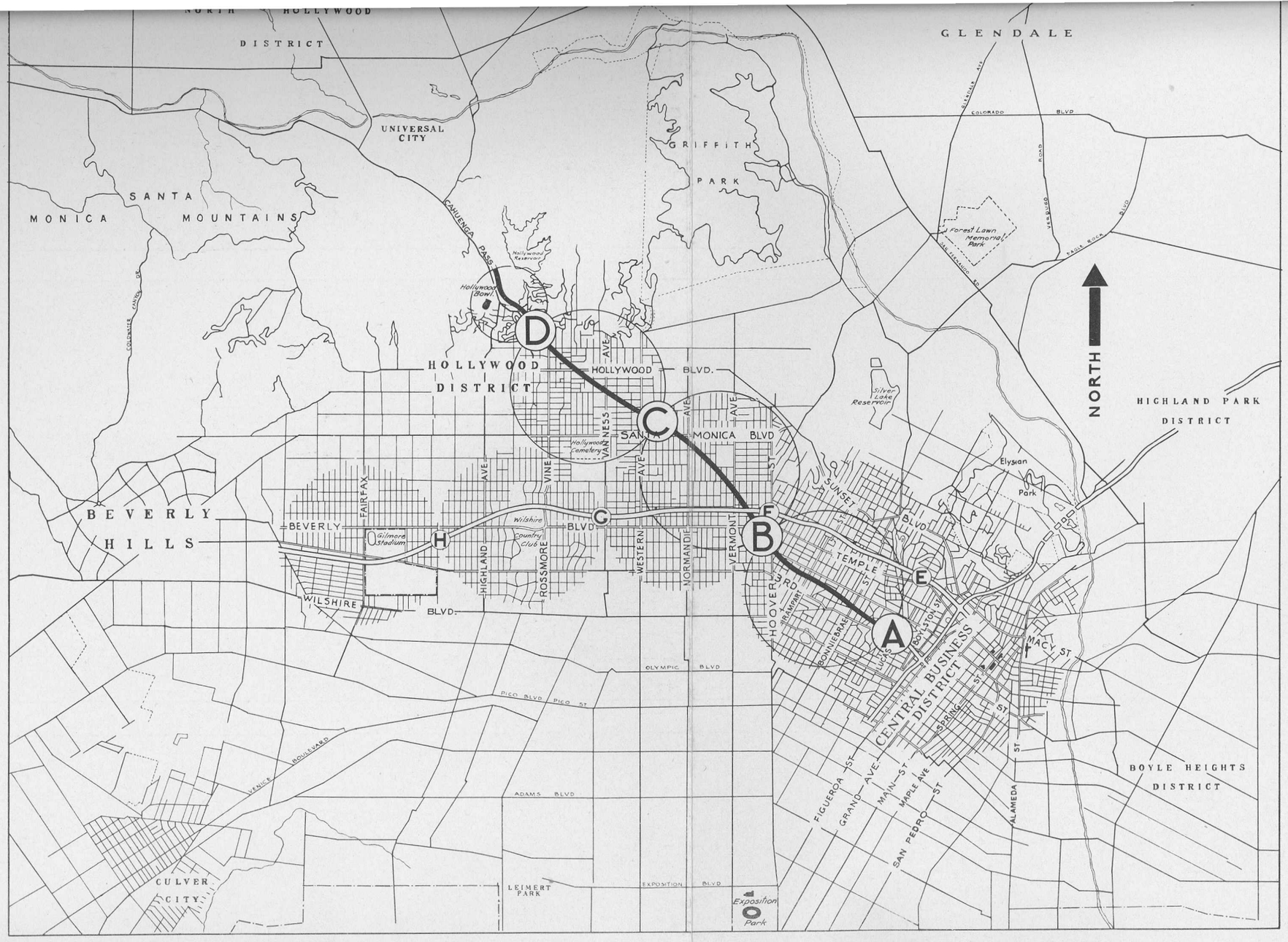
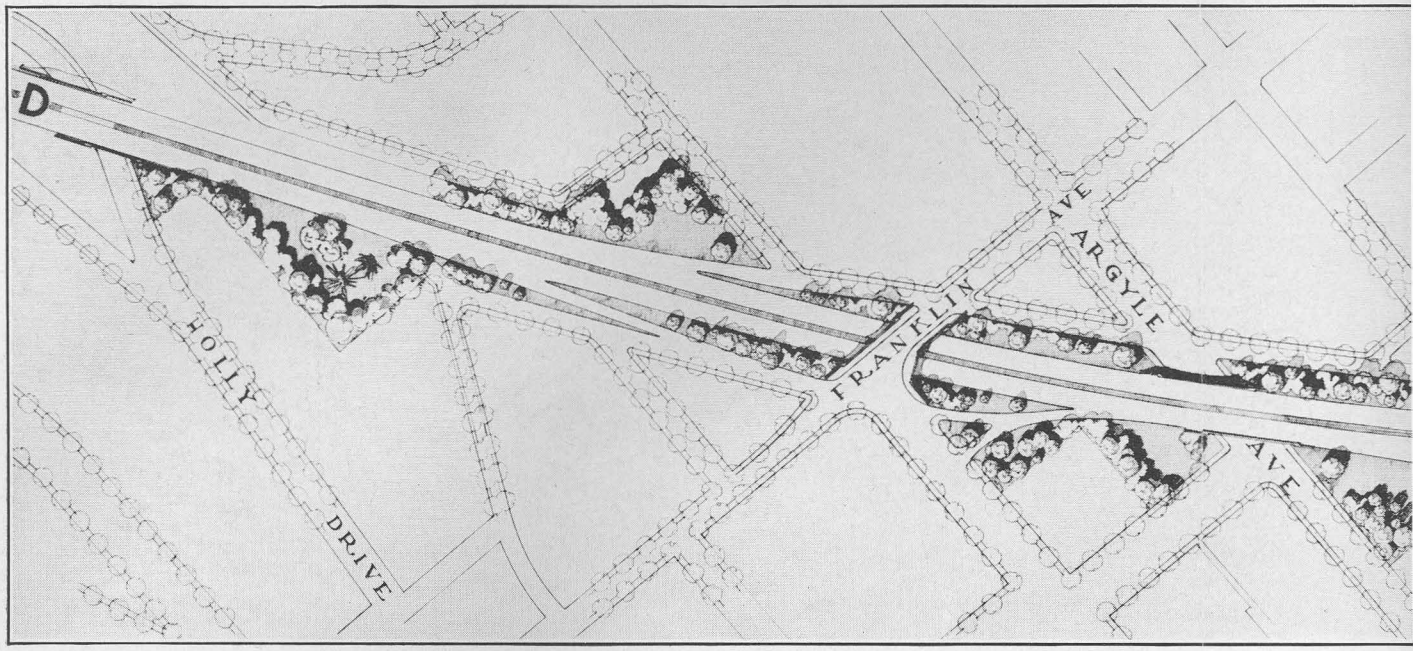


FIGURE 10—KEY MAP—HOLLYWOOD PARKWAY

For sections between A and D, see Figures 11, 12 and 13. For details east of A, see Figure 8. For details north of D, see Figure 14. Distance Flower Street to Hollywood Bowl along parkway—6.5 miles; extension southward to Eighth Street—0.6 miles.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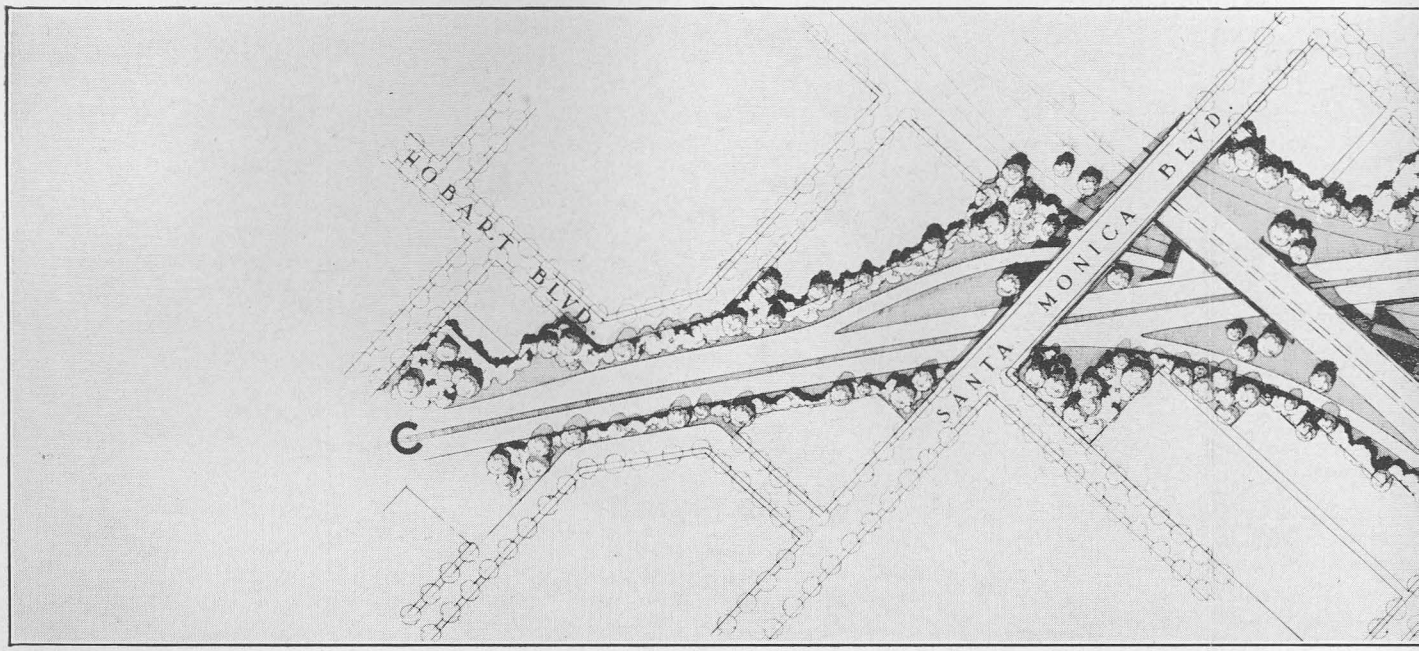
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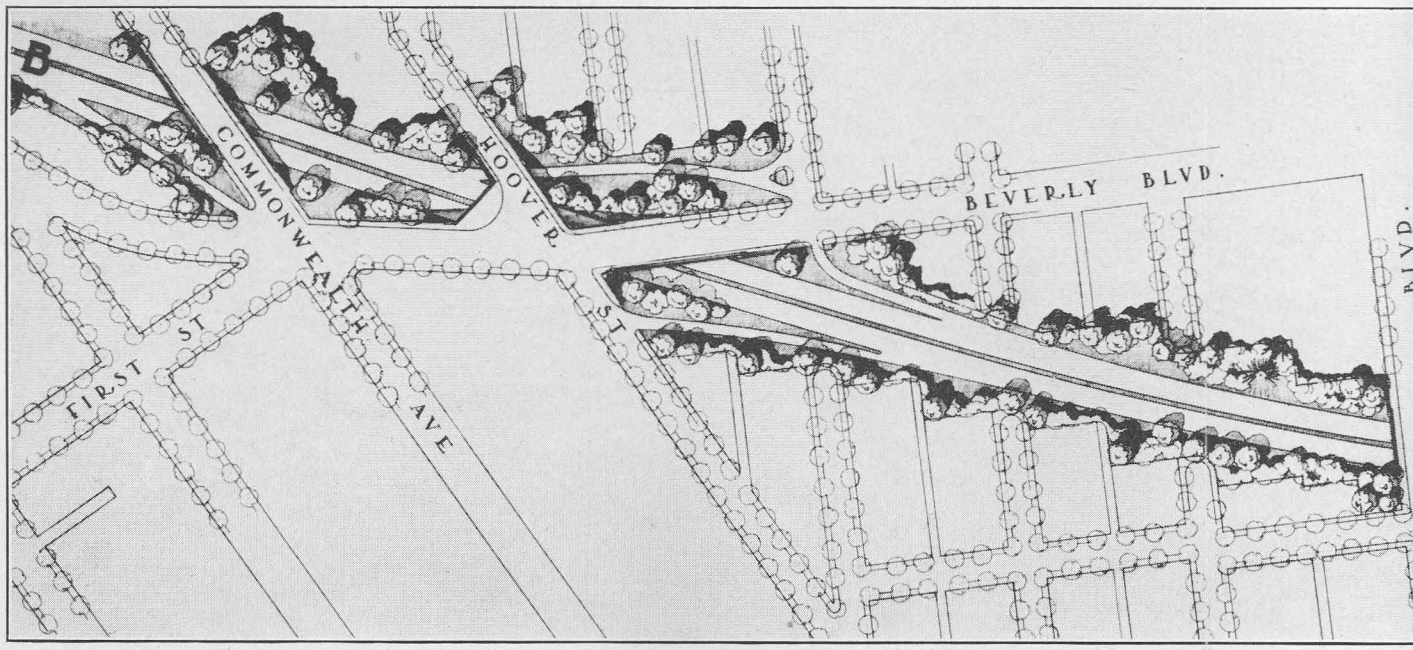
C
SANTA MONICA BLVD.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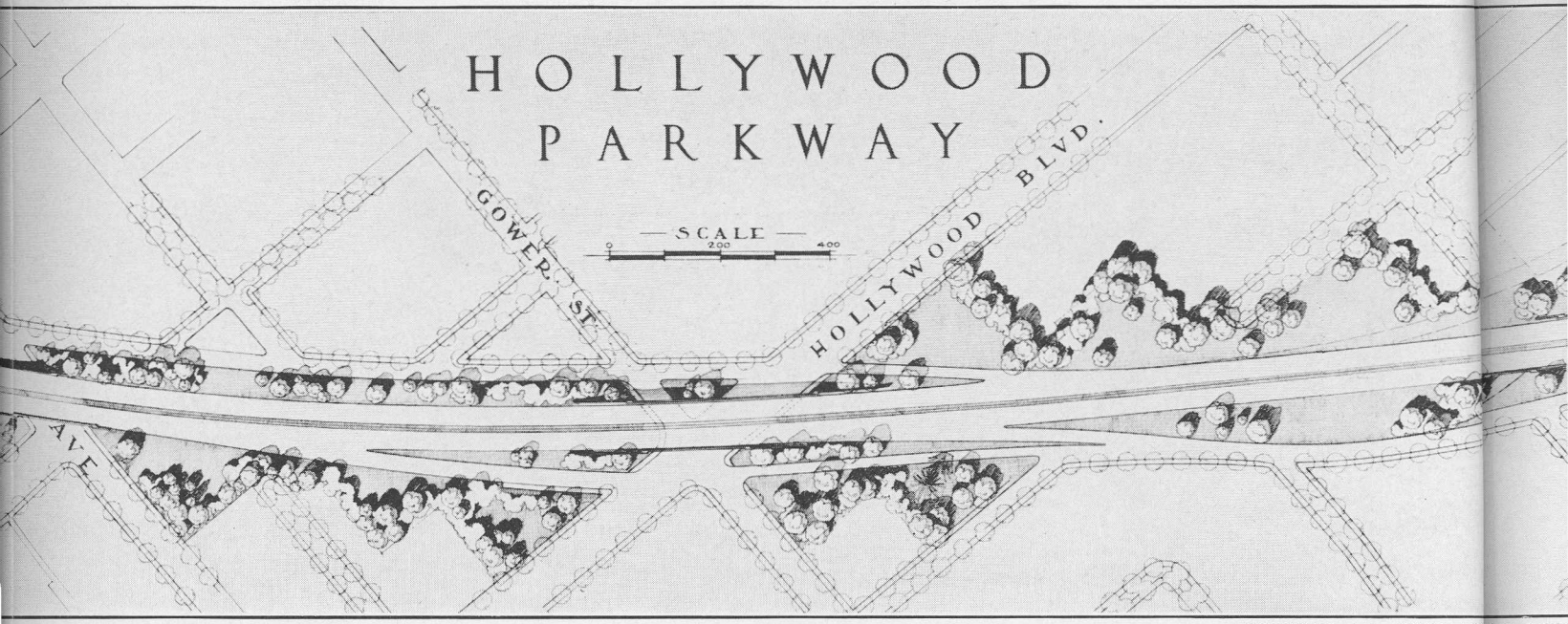


FIGURE 13—HOBART TO HO

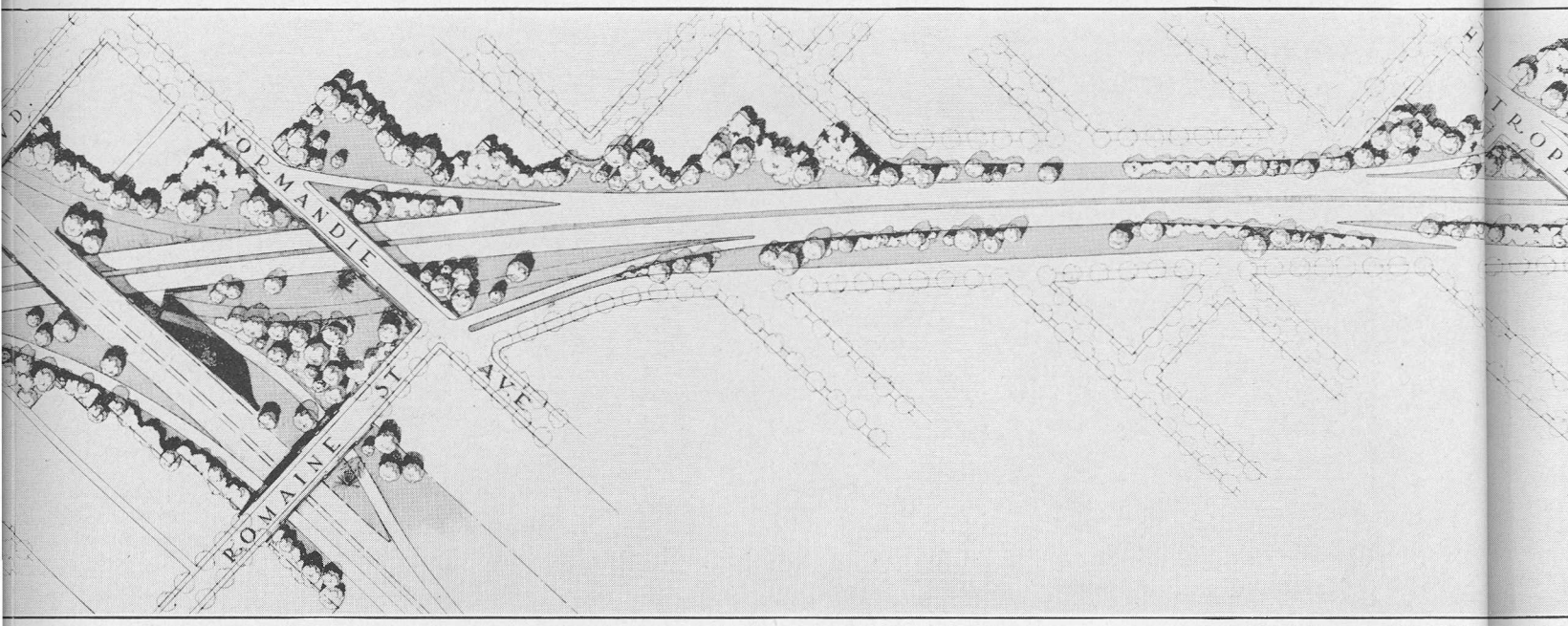


FIGURE 12—COMMONWEALT

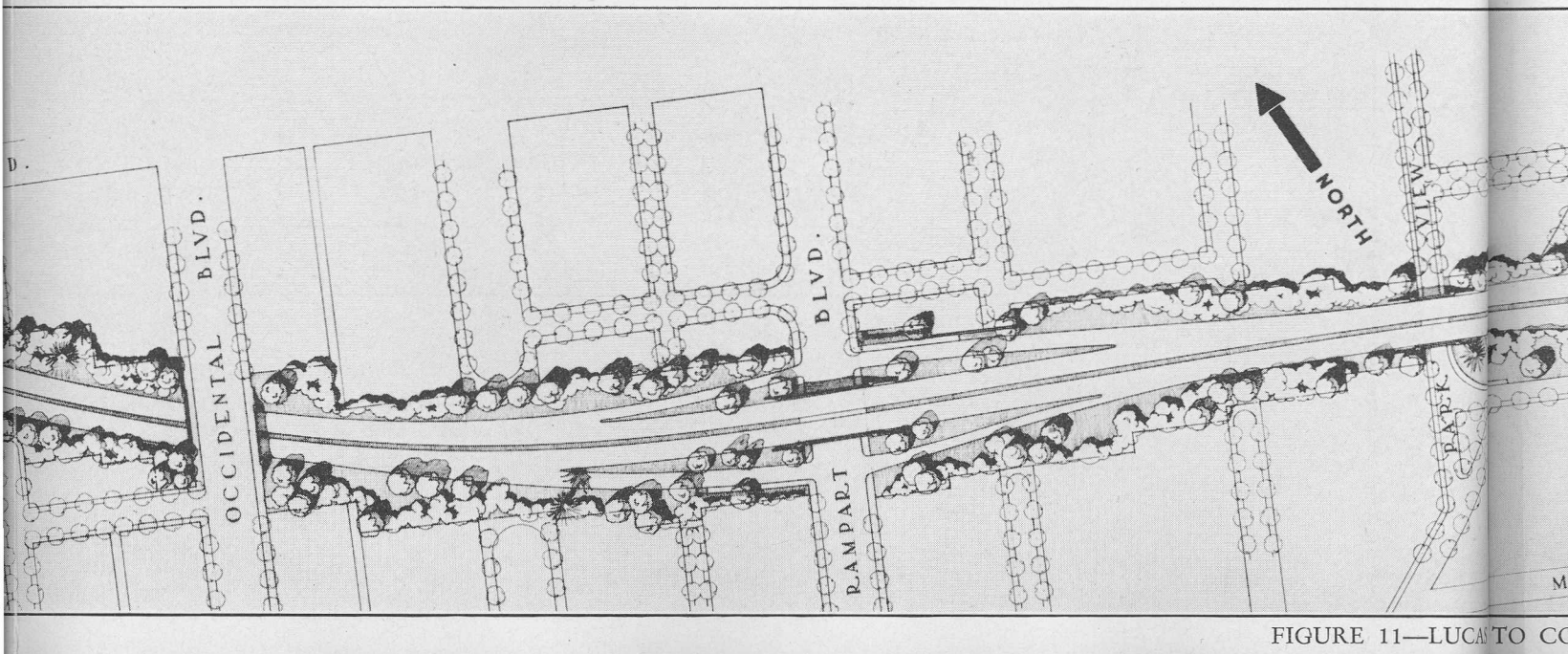
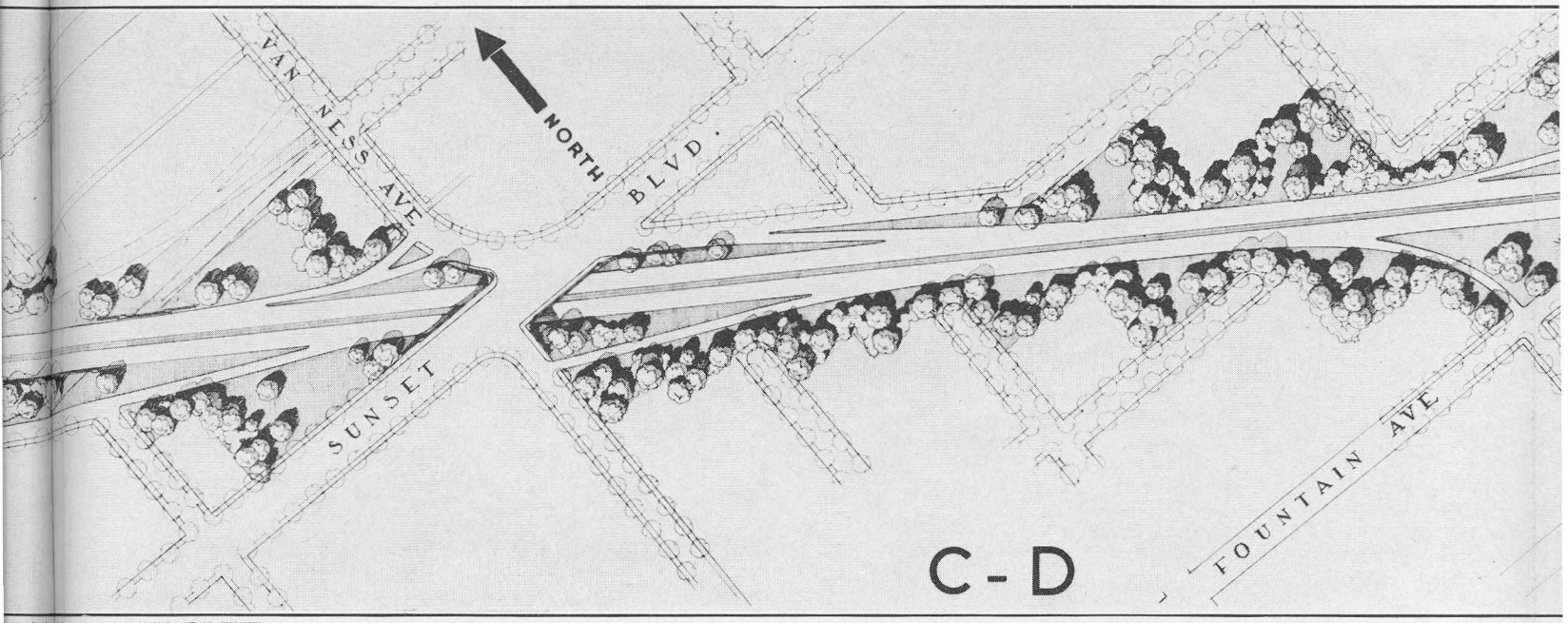
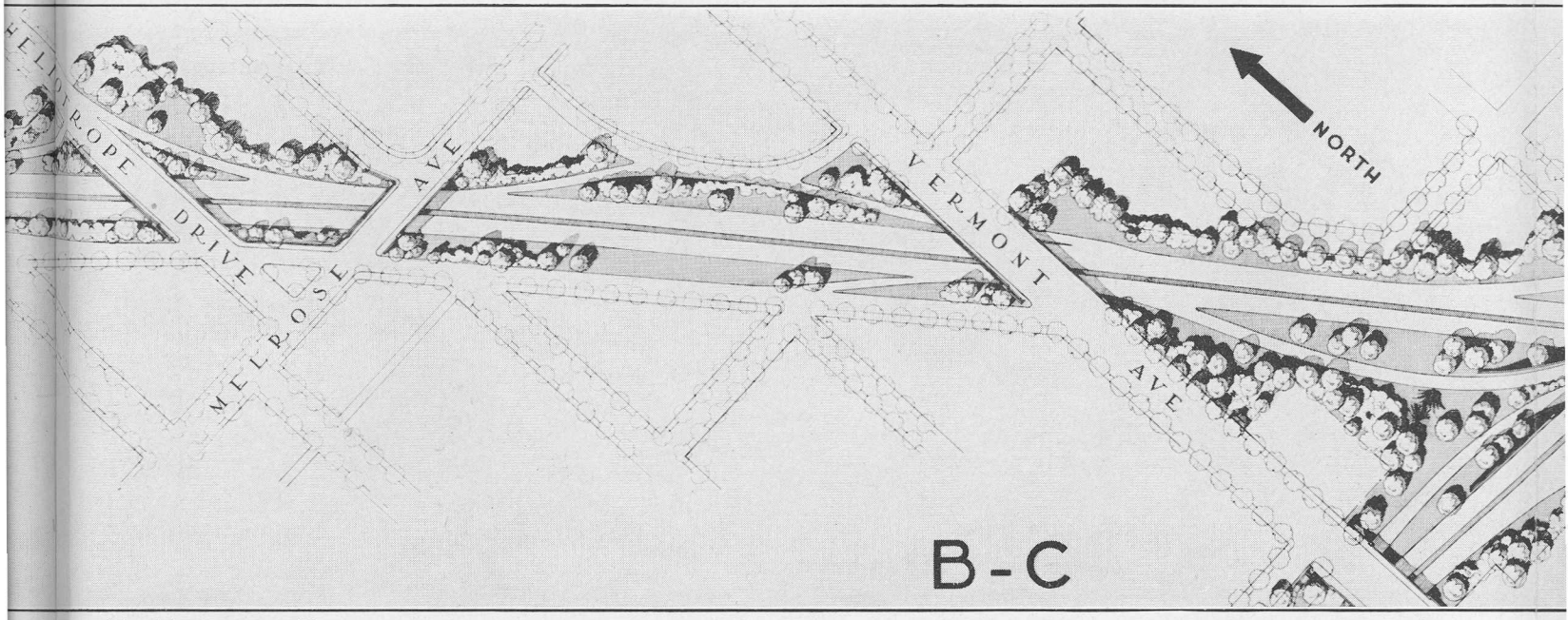


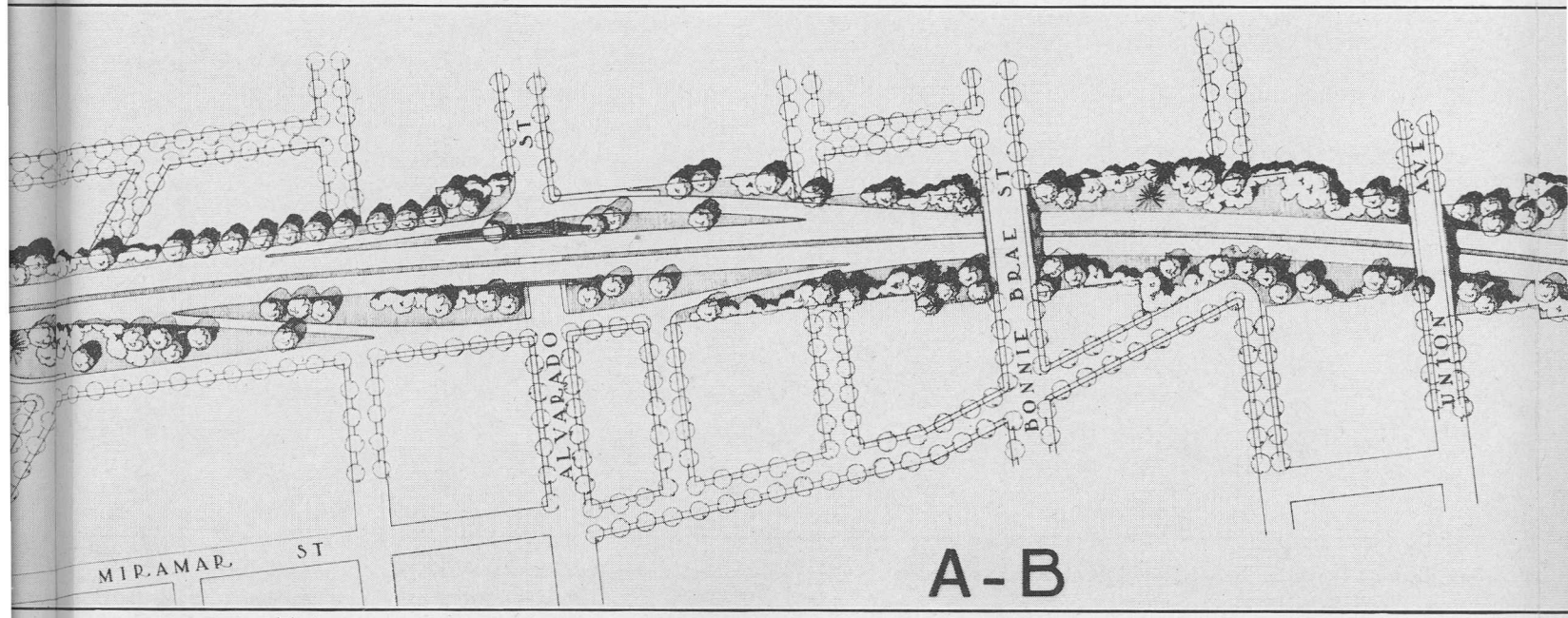
FIGURE 11—LUCAS TO CO



ART TO HOLLY DRIVE

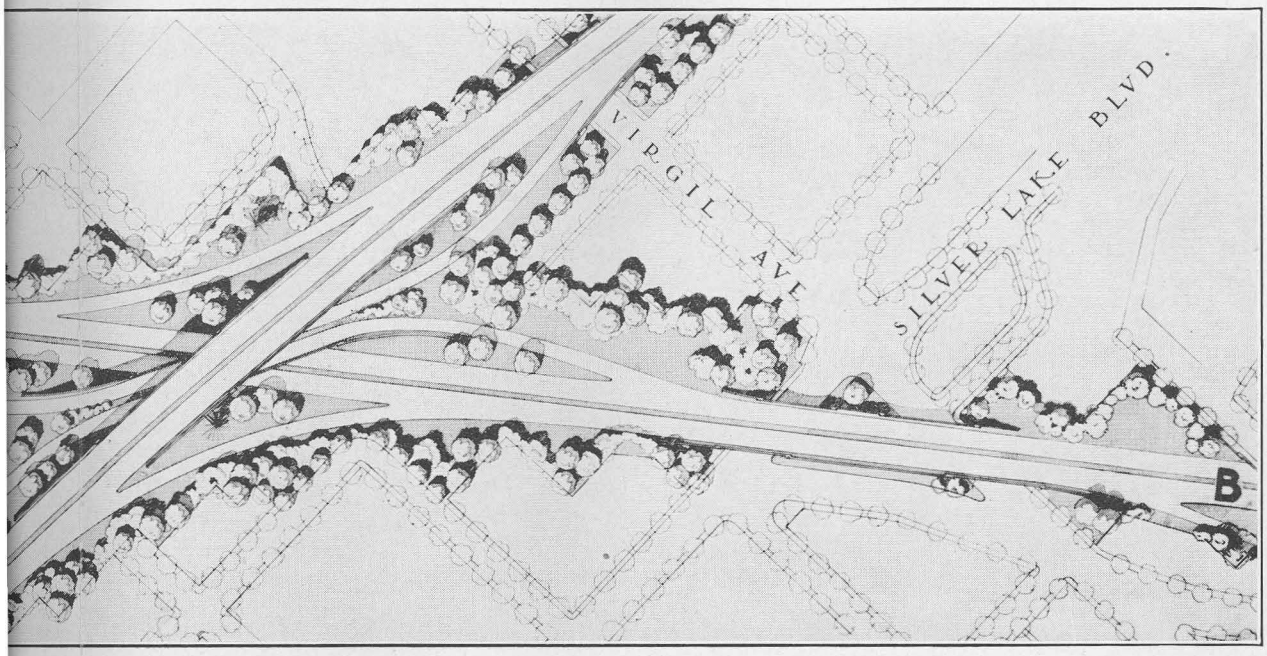


ON WEALTH TO HOBART



AS TO COMMONWEALTH


WESTERN
AVE
C
VIRGINIA
AVE
SANTA MONICA


VIRGIL AVE
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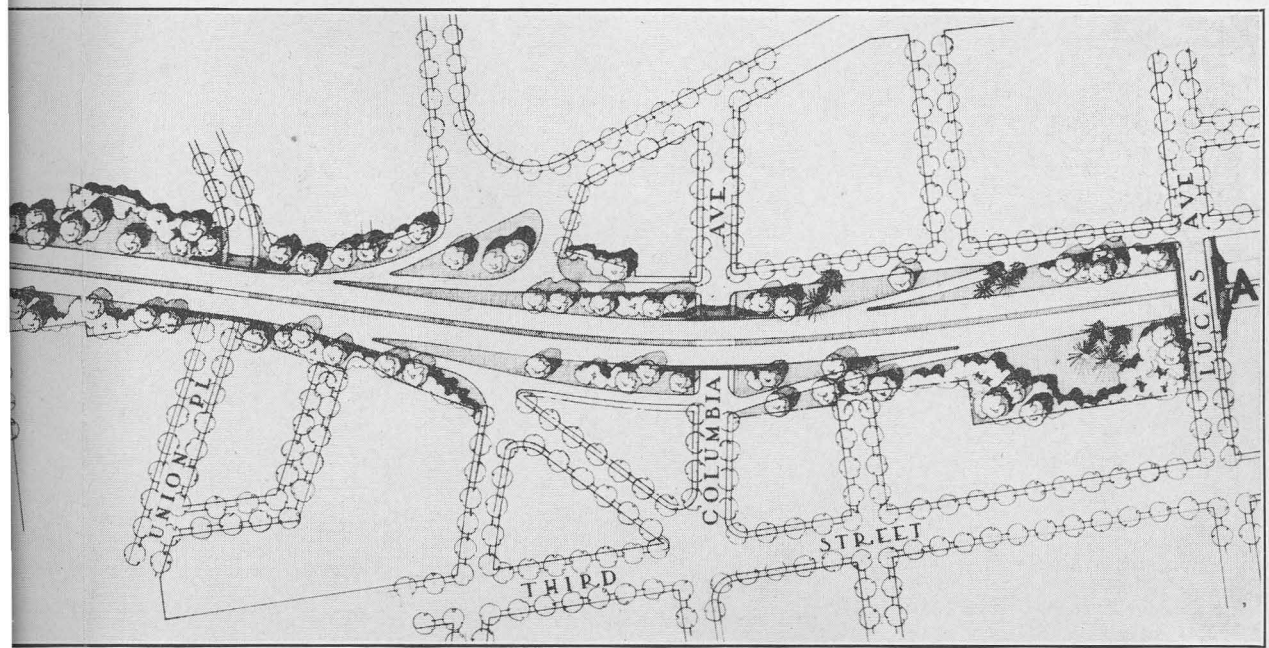
UNION PL
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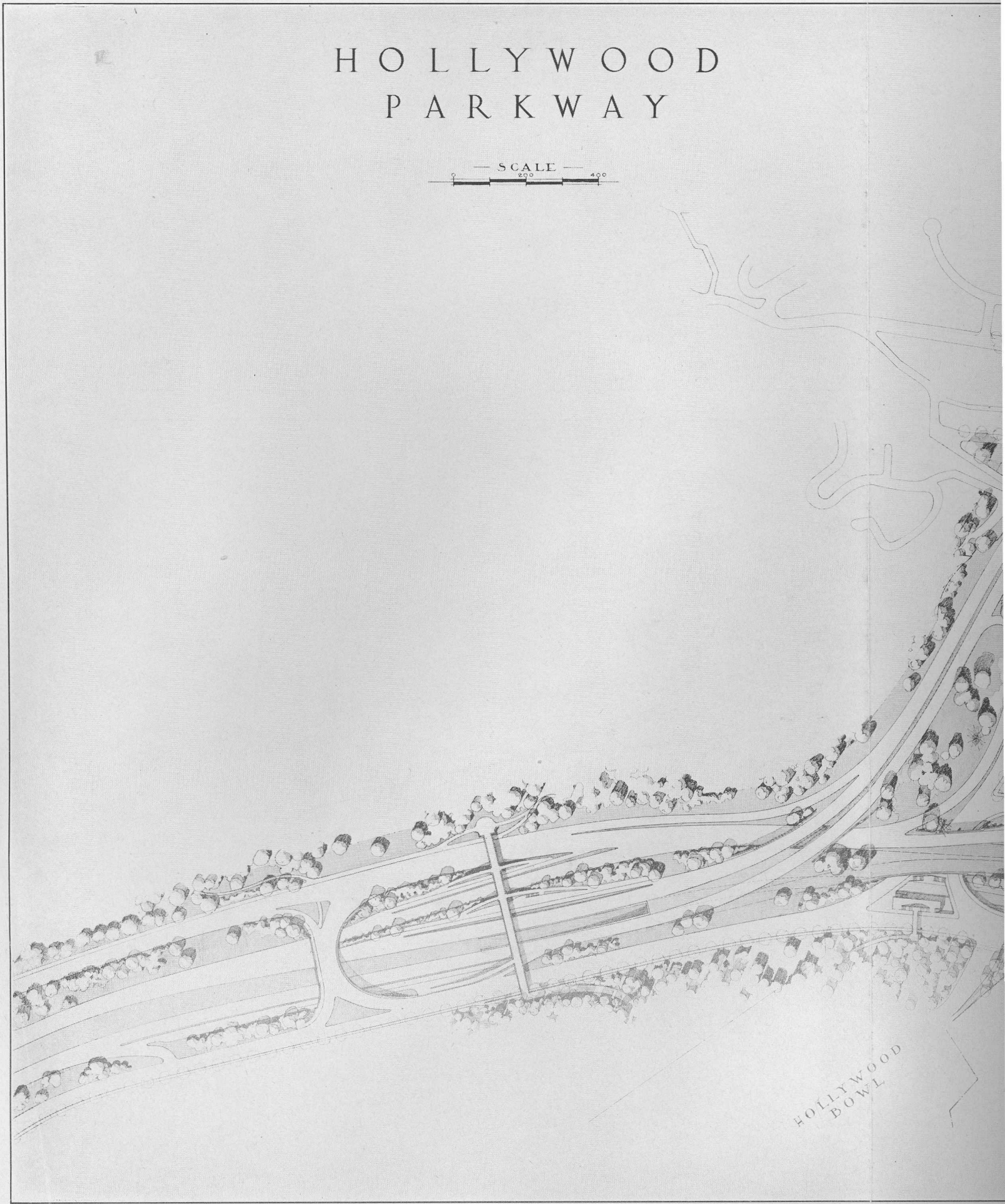
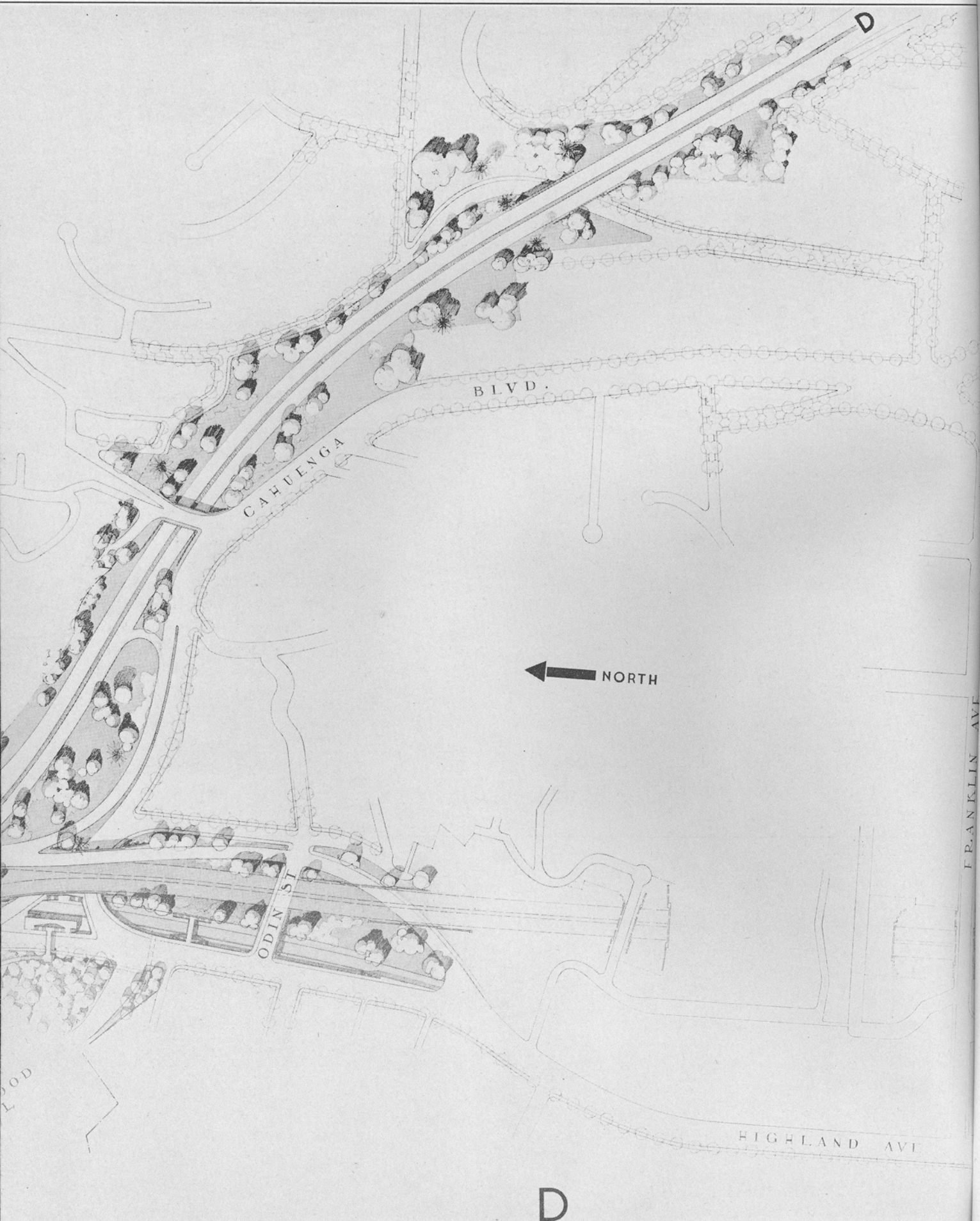


FIGURE 14—DEVELOPMENT PLAN—HOLLY D
Showing a preliminary design of intersection



PLAN—HOLLY DRIVE TO CAHUENGA PASS
design of intersection at Hollywood Bowl.

CENTRAL BUSINESS DISTRICT

Problems of the Central District

Probably 500,000 different persons daily have business or other reasons for their presence in the Central Business District including the Civic Center. It is the destination of about 44% of all mass transportation riders. Figure 33 (page 64) provides an aerial view clearly showing the impressive development arising from and supporting its important commercial and other activities. As previously stated, the Board does not discuss certain pressing problems of the area, several of which it considers properly outside its purview. It desires also to forestall unwarranted roseate expectations relating to relief of traffic congestion which might be inconsistent with the operation of immutable laws. As high prices tend to limit the number of purchases of goods, so obstructions to traffic movement adversely affect traffic volume and vice versa. The apparent effect of improvement in traffic arrangements may sometimes be quite temporary, for additional traffic volume may be induced or released by the removal of impediments, and conditions would then tend to approach the original balance or level. However, if a real improvement has actually been provided, an increased number will be accommodated though the apparent change in congestion may not be particularly noteworthy.

The Board's objectives with respect to the Central Business District are (A) to separate the through vehicular traffic from the local circulatory movements possibly adding 30% to the capacity of certain important streets; (B) to provide rapid transportation to the district for wage earners, shoppers and others who would rather leave the family car for those at home, thereby releasing valuable highway and parking space for others who feel they must ride in their own cars; (C) to eliminate rail vehicles from one or two north and south streets to increase their motor vehicle capacity and simultaneously to improve the appearance of the street; (D) to improve distribution of incoming passengers on suburban lines by providing extensive longitudinal service instead of concentrated or limited distribution resulting from the use of unfavorably located terminals; (E) to provide adequate distribution and transfer arrangements for proposed rapid transit bus lines; (F) to suggest future rail rapid transit lines so as to provide a maximum coverage of the area with minimum resort to transferring, as far as possible assuring convenient traverse of the main axis of the business district including therewith the Civic Center and the Union Station on a common route.

The Board considered the wisdom of adopting as an objective the removal of all tracks in the downtown area. Accomplishing this by means of complete conversion to buses has been referred to previously herein and accomplishing it by providing off-surface structures for the local lines was not adopted because, in the Board's opinion, it was impossible to finance and probably would not be favorably received by the riding public. The added investment costs to be supported by car fares would be unacceptable and the stair climbing and more widely spaced stops incidental to such an arrangement would outweigh the probable advantages from the viewpoint of the local rider. Suggestions for off-surface rapid transit facilities in the downtown area are shown by Figure 8.

Transition Steps

The arrangements illustrated may be more readily comprehended by considering the successive steps by which the result might be attained. During development, it is assumed that continual pressure may be expected requiring minimizing of investment in new facilities, land acquisition and property damage and, while actual sequence cannot be accurately predicted, the following hypothetical order of events should suffice to illustrate the transition and to bring out the problems involved:

UPON CONSTRUCTION OF HOLLYWOOD PARKWAY

Reroute Edendale line cars so that they would go via present tunnel to Subway Terminal. Route rapid transit buses from Hollywood and beyond eastward along 6th Street from the West Bypass to an off-street loop at or near the Pacific Electric Main Street Station, thereby affording transfer to north and south surface lines at points of reduced load and also to suburban rail lines. When growth of traffic on 6th Street reaches practical limits, terminal capacity for additional rapid transit buses from the northwest may, if necessary, be provided by using other streets such as 8th with any necessary loops off-street. Estimated cost of terminal arrangements, $200,000.

WHEN NORTH AND SOUTH STREETS APPROACH CAPACITY FOR SURFACE TRAFFIC

Hill and Spring Streets may then be cleared of surface rail cars by (A) construction of a two-track subway under Broadway from the Civic Center to 10th Street for Pacific Electric interurban cars and for Los Angeles Railway cars on the principal long distance lines from the southern and southwestern sections of the City, and (B) rerouting Sunset Boulevard-Hill Street cars to the Subway Terminal, and the remaining Los Angeles Railway cars now using Spring and Hill Streets to Broadway and Main Street. Tracks at north end of subway may connect with surface tracks of Pacific Electric on Aliso Street and, at south end, with surface tracks on Hill Street and Broadway, and depressed tracks along Olympic Parkway to a connection with the Pacific Electric Long Beach line. Other methods of rendering rail rapid transit service to the east and south portions of the district have been proposed and should be given careful consideration before final decision is made. The hourly train capacity of the Subway Terminal would be enlarged by the construction of a loop track on the lower level. A pedestrian passageway would probably be built between the terminal and the Broadway subway to provide convenient transfer with minimum stair climbing. The present Main Street Station might then be utilized for bus terminal purposes. Estimated cost of Broadway subway and connections, including track and electrical equipment—$13,000,000. Estimated cost of terminal rearrangements and pedestrian subway—$300,000.

UPON CONSTRUCTION OF HARBOR AND INGLEWOOD PARKWAYS

Rapid transit buses from south, southwest and west of the Coliseum to be routed northward on Hill and Spring Streets using through runs if possible to the north and east to minimize turns and congestion. If excessive crowding of downtown streets was expected to result from additional bus traffic from the southwest quadrant, congestion could be minimized by routing some of the rapid transit buses into the Main Street Station or by providing rail instead of bus rapid transit service. The Broadway subway route could be extended southward about one mile to meet the Inglewood and Venice Parkways, and the rail lines continued along the center dividing strip, taking the place of present long distance Los Angeles Railway lines for through passengers, and of the present Pacific Electric route to Culver City and Venice. Estimated cost of extending the Broadway sub-

way in open cut—$4,000,000. An additional 35-foot width of right-of-way and longer bridge spans for parkways in the southwest section of the city would increase the estimated initial cost about 20%.

WHEN SURFACE OPERATION OF RAPID TRANSIT BUSES ON 6TH AND 8TH STREETS IS OBJECTIONABLY SLOW OR CONGESTING

Operation of "express" and "limited" rapid transit buses could be transferred to the present Hollywood subway avoiding the delays of surface operation with congested traffic and signal lights. This would require rerouting of cars then using Subway Terminal, which could be simply done on right-of-way originally to be provided, by making dividing strip on the section of the Santa Monica Parkway east of Glendale Boulevard, 45 feet instead of 10 feet wide, and routing such cars down the Broadway subway. Present Hollywood subway would be paved and equipped with forced ventilation. The original costs probably would be increased about $1,000,000 to permit these arrangements which would thereafter cost about $1,000,000 more to complete.

UPON CONSTRUCTION OF INITIAL HEAVY DUTY SUBWAY

This probably would be constructed on an axial route to the west, possibly under Wilshire Boulevard, should that street continue its rapid commercial and tributary development. On a basis of present trends, it would be routed within the central district east possibly on 7th Street and north on Spring Street, paralleling both axes of the district and threading the commercial section, Civic Center and Union Station on a common route. Additional downtown capacity for the rapid transit lines to the south and southwest might also be provided by construction of a small section of connecting subway from 7th Street southerly along Spring Street. At that time, it would probably be desirable to remove the rails from Aliso Street and trains on both Broadway and Spring Street subways thereafter would be routed to the northeast and east over a new roadbed passing directly under the Union Station with a more direct alignment to Valley Junction. The new subways would be constructed for heavy rapid transit equipment with wide cars and flush platforms suitable for high capacity loads in long trains, and would make possible through service from the outlying sections of the city to both the uptown and downtown business districts without transfer. A cost estimate covering only the downtown section of a heavy duty subway might be misleading and is therefore not included here.

Express Highway Cordon

The construction of consecutive units of the express highway system results in ultimately tying into a continuous cordon or loop surrounding the Central Business District, the four crosstown routes which, in effect, would also act as north, south, east and west bypasses. While carrying heavy through traffic, its local purpose would be largely to distribute traffic from the radial parkways to the downtown surface streets and parking facilities with a minimum of confusion. No complete solution is offered governing this important problem of coordination which, it is believed, must be progressively developed. Figure 8 shows the large amount of space required by intersections and indicates the necessity of considering fully this fact when developing plans for the Central Business District.

UNIFICATION OF TRANSIT OPERATIONS

Public Operation

The public will be best served if its utilities are efficient and prosperous. This implies a minimum of duplication of investment and service and a maximum of coordination and interchangeability. Transportation is not generally considered profitable, except by those without experience with it. Undertakings in transit operations by American cities have usually been with unhappy financial results, but there remain those persistent proponents who harass officials with pressure for municipal operation despite the uniformly unfortunate experience in large cities which have tried it. On one municipally operated rapid transit system in this country, the carrying and sinking fund charges on the investment, disregarding operating costs, are about ten cents per ride for which only five cents is charged. Judging by years of experience therewith, public operation has little if anything to offer justifying large cities in becoming involved in the difficulties of operation and financing of a transportation system.

Public Control of Coordinated Operations

The most successful arrangement, in the Board's opinion, is that in which the public has a full time representative continuously and intimately in touch with all sides of the current problems and with adequate authority to get for the public the kind, character and amount of service it wants, provided only that it pays for it on a reasonable basis. Furthermore, an efficient service is not likely to be rendered by return to the conditions of the 90's when numerous disconnected operations were given franchises, for all indications point to the wisdom of providing a thoroughly coordinated system with efficient management under adequate public control.

It may be accepted as axiomatic that the public in this district, for the time being at least, will not be led into the purchase of struggling transportation companies involving some obsolescent elements and it should be equally obvious that certain existing facilities are rendering an essential service in an economic way. The total investment in facilities of the two major companies for urban service alone is about $60,000,000. In the opinion of the Board, the problem involves providing for the continued use by the public of the efficient elements of existing facilities at rates equitable alike to the public and the owners, under an arrangement which will insure adequate and continuous modernization and adequate control of service and costs. The Board therefore proposes and recommends a unification plan wherein, as far as existing investments are concerned, the public undertakes no purchase obligations, but becomes a working and dominating partner in the control of operations and facilities by a trustee representation not requiring purchase or difficult corporate and fiscal readjustments.

Corporate Set-up

The unification, coordination and personalized control of service and costs would be effected through the agency of a non-profit association with a name such as "Coordinated Transit." This would be incorporated under state laws and function as the core of the arrangement, being bound by an "Operating Contract" with the City of Los Angeles, or with a group of cities desiring to enter into the cooperative agreement, to provide the adequate transportation service desired by the public and utilizing new facilities and arrangements as well as such existing equipment as may be found to be suitable for the public service.

Through the operation of dual agency contracts between the existing traction companies and Coordinated Transit, the companies would pool their equipment, and operations thereafter would be consolidated in a Unified Transit Service in charge of a Director of Transit Operations, employed by Coordinated Transit. The future use and disposition of the properties would be guided by the three trustees con-

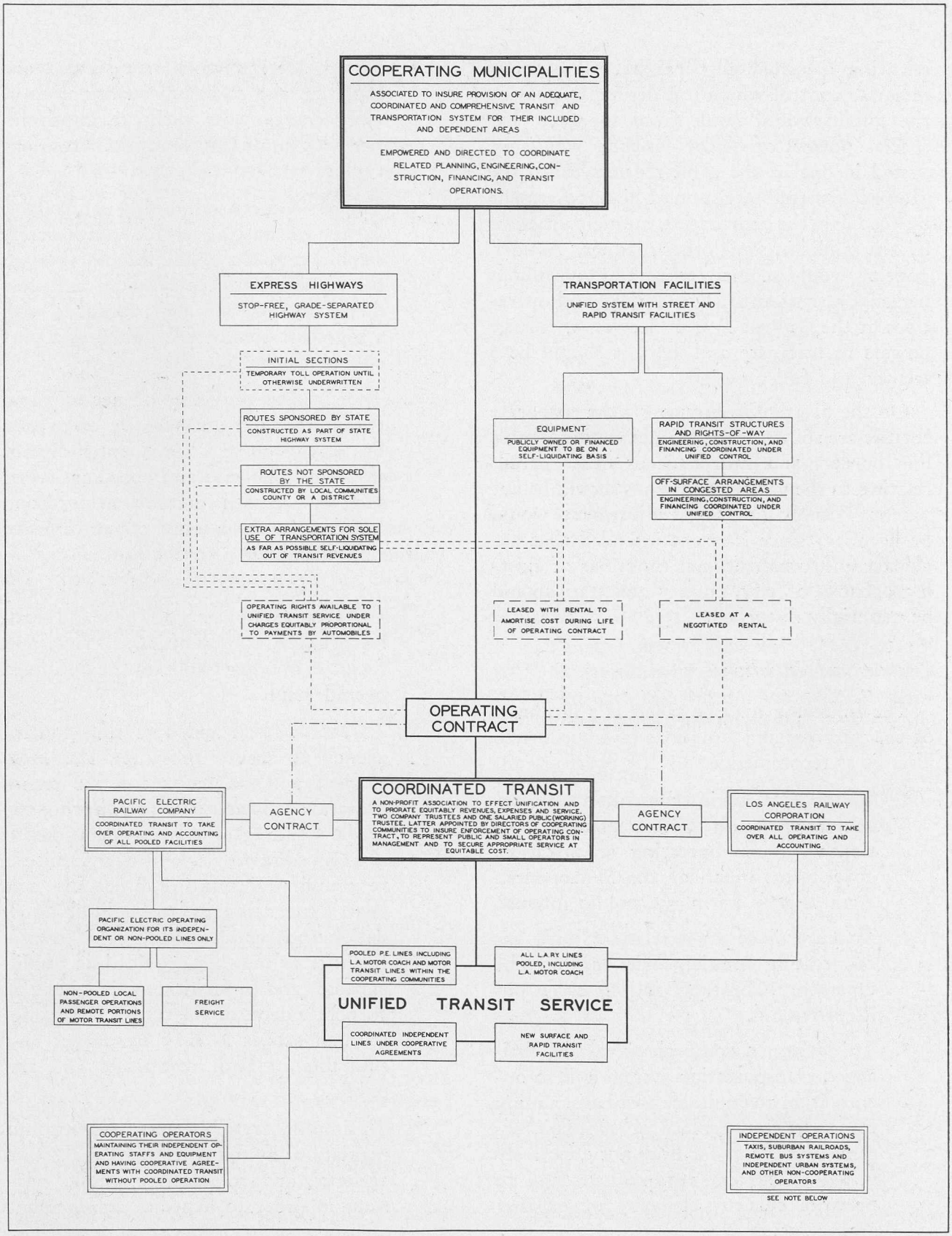


FIGURE 15—COORDINATION DIAGRAM—UNIFIED TRANSIT SERVICE

Corporate entities represented by double lined rectangles. Basic arrangement to be developed to supplement rather than to supersede charter or constitutional functions of existing regulatory bodies.

NOTE.—Independent operations would not be a part of Unified Transit Service. Such coordination as may be essential to secure proper coverage and satisfactory service to be exercised through the California Railroad Commission and existing municipal regulatory bodies.

stituting Coordinated Transit. The more intimate control which it is desired to provide the public would result from the fact that special powers of wider latitude would be vested in one of the three trustees called the "Public Trustee" by reason of his appointment by the City, the cooperating municipalities, or by the public in some other manner. As such position would require closest and continuous personal attention to all functions and operations of the Unified Transit Service with large powers to originate and veto, it should be a salaried and full time job.

On the diagram in Figure 15, the corporate entities are shown in rectangles having double line borders and miscellaneous other details relating to the various functions should be apparent. Possibly some slight adjustments would be necessary since it is not intended that the charter and constitutional functions of existing agencies of city, county and state should be materially disturbed.

Purpose and Functions

The following may be taken as a summary of the purposes and functions of Coordinated Transit as recommended by the Board:

1. To provide an instrumentality to coordinate and unify present transit facilities, with one operating organization, covering as much of the Metropolitan Area as may be in the public interest.
2. To enter into an agreement with the cooperating municipalities, called the Operating Contract, and to carry out its provisions.
3. To develop a comprehensive, well balanced transportation system and to operate it on an equitable cost basis, aiming to modernize, replace or supplant arrangements and facilities not effectively suited to current requirements and to preserve efficient elements of existing arrangements.
4. To provide extensions, new services and facilities, and to insure coordination of new arrangements with existing facilities with an orderly transition from one type of service to another.
5. To provide a central, readily controllable agency for making service appropriately responsive to the public interest through the provision of the simplest and most direct organization and procedure with a representative of the public as a part of such central agency.
6. To expedite provision of actual rapid transit through undertaking of express bus service on high speed, inter-district stop-free highways and coordination of such service with surface transportation facilities in the interest of convenience and economy.
7. To facilitate impartial control of fares and allocation of expenditures and service between communities, districts and facilities in order to obtain the optimum overall result.
8. To act as fiscal and operating control agency to insure providing the most efficient and satisfactory public transportation at lowest costs; to improve the credit standing of transit operations so as to expedite provision of new facilities; to simplify accounting procedure and contractual relations; to facilitate liquidation and rental of such rapid transit facilities as may be provided at public expense; and to facilitate adjustment of corporate debts of the transit companies to such extent as may be proper and equitable to both companies and the public.
9. To simplify franchise arrangements and regulation by city, county and state agencies, and to simplify public relations in order to expedite achievement of progressive transportation objectives.

RECOMMENDED PROCEDURE

This report of the Board is made to the City Government but its findings apply to the Metropolitan Area. The Board therefore recommends:

1. That the City proceed under authority of its charter and of Assembly Bill 2141, Chapter 359, Statutes of 1939, to construct the Hollywood Parkway, financing the work independently and utilizing its existing agencies in such work and that the City provide for the cost of such engineering services as may be considered advisable to expedite design and construction;

2. That the City simultaneously take the lead by inviting neighboring municipalities to conferences with a view to developing what, if any, joint or independent action should be taken respecting express highways in the Metropolitan Area;

3. That the City invite its neighbor cities to join in informal discussions of transit policy, independent of express highway developments, with a view to advancing consideration of the unification and coordination problem throughout the Metropolitan Area, and that the transit companies and the Railroad Commission be asked to present their preliminary views to such conferences at the earliest appropriate date;

4. That thereafter the City, with such other municipalities as care to join with it, proceed promptly to organize a negotiating committee to commence work on details with the transit companies;

5. That the City expedite its decision on acceptance of the unification principle and the coordinated transit plan so as to accelerate definite action and progress by the transit companies toward modernization of equipment and adoption of other concrete measures recommended herein;

6. That the City initiate action looking to the provision of a central impartial coordinating agency with a view to general efficiency and progress and to avoiding ineffectual and uncoordinated efforts of individual communities; and that funds be made available for all purposes related to such coordinating agency;

7. That, in any centralization of organization, the central agency utilize as far as possible the services of existing city, county, state and federal agencies so that all efforts may be fully cooperative, coordinated and well directed, without unnecessary diversion of work to new or other organizations;

8. That a special economic study of toll collections and expenses be authorized by the City and funds made available therefor in order that the probable percentage of coverage of debt service and special operating charges may be determined promptly and unnecessary delay in financing thereby avoided;

9. That a separate study be inaugurated and appropriate action taken with a view to determining the conditions necessary to minimize realty speculation, property damage, and acquisition costs falling on the city or project by reason of the proposed construction, and also the related zoning requirements and for the achievement of the cultural objectives of the plan;

10. That, concurrently with the above, changes in existing transit arrangements indicated by the Factual Survey to be in the public interest and which do not conflict with the unification proposals made herein, be effected through the usual channels as soon as possible.

FIGURE 16—INTERSECTION OF HOLLYWOOD AND SANTA MONICA PARKWAYS

Looking northeast from the vicinity of Vermont Avenue and Beverly Boulevard.

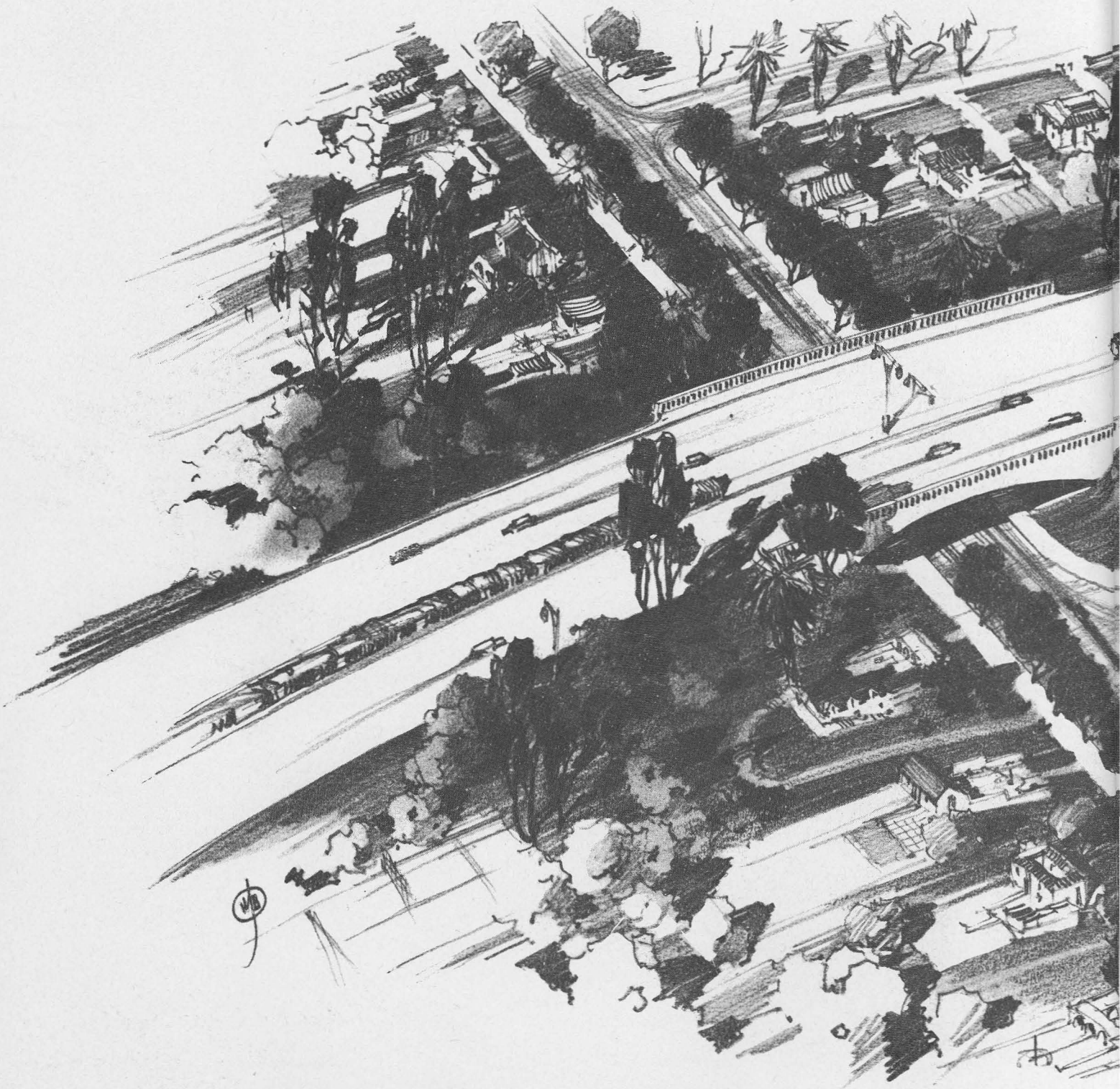


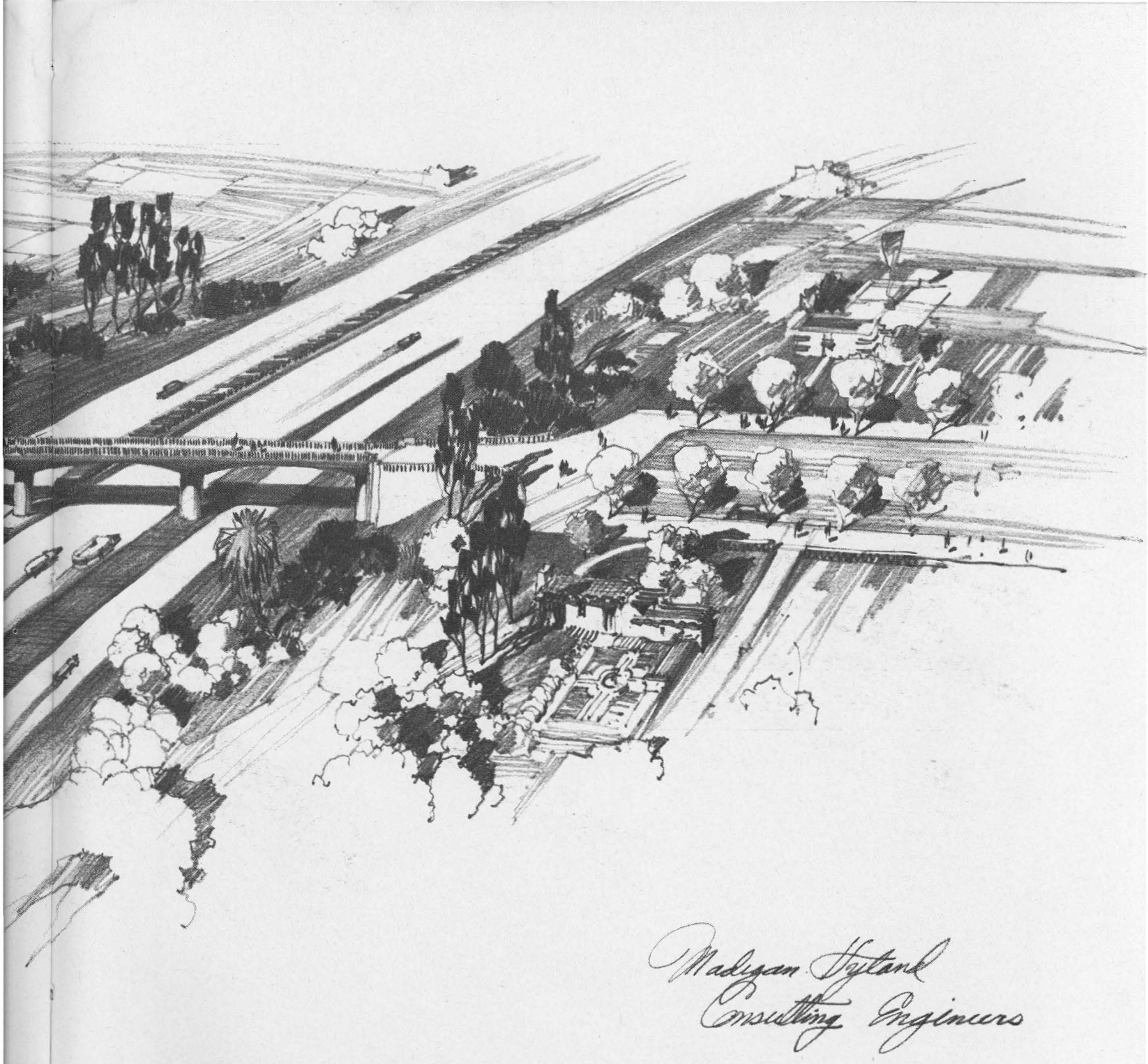
FIGURE 17—PARKWAY ON FILL CROSSING OVER STREET

All important cross streets to be carried through, crossing either over or under parkway according to local conditions. Access to express highway to be provided only at intervals of about one-half mile.


Madigan Hyland
Consulting Engineers

FIGURE 18—FOOTBRIDGE CROSSING PARKWAY

When through cross streets are too widely spaced, a footbridge for pedestrians may be necessary.



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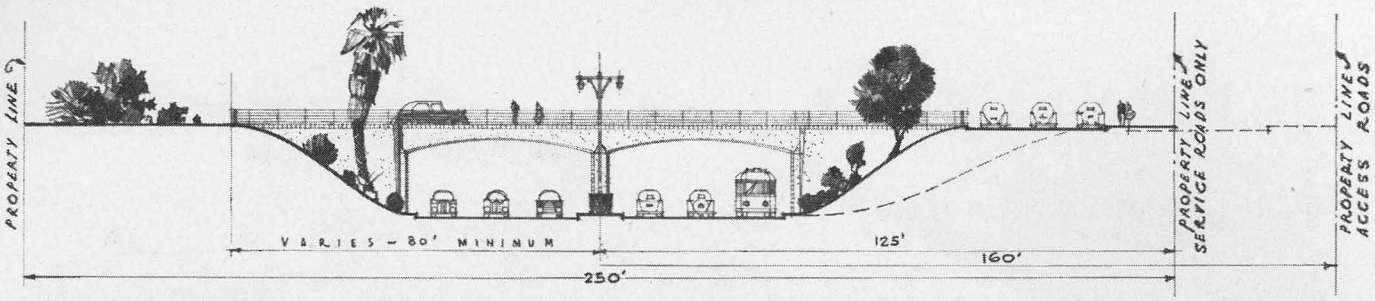
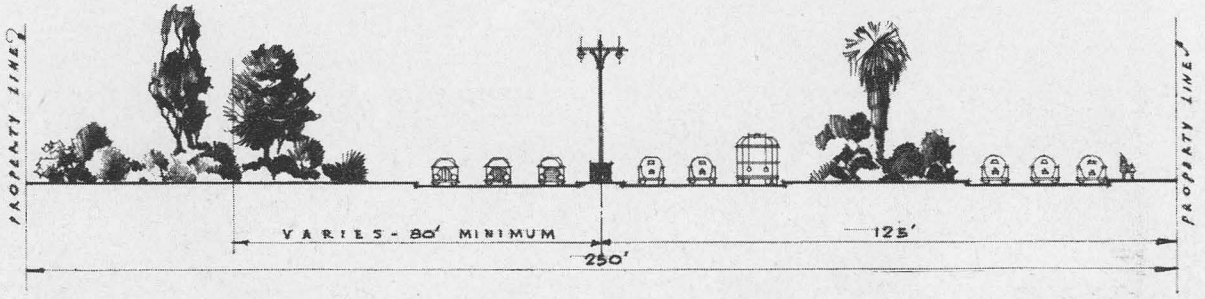
Consulting Engineers



HALF SECTION WITHOUT SERVICE ROADS ⟷ HALF SECTION WITH SERVICE ROADS ~ ACCESSES

NORMAL DEPRESSED PARKWAY

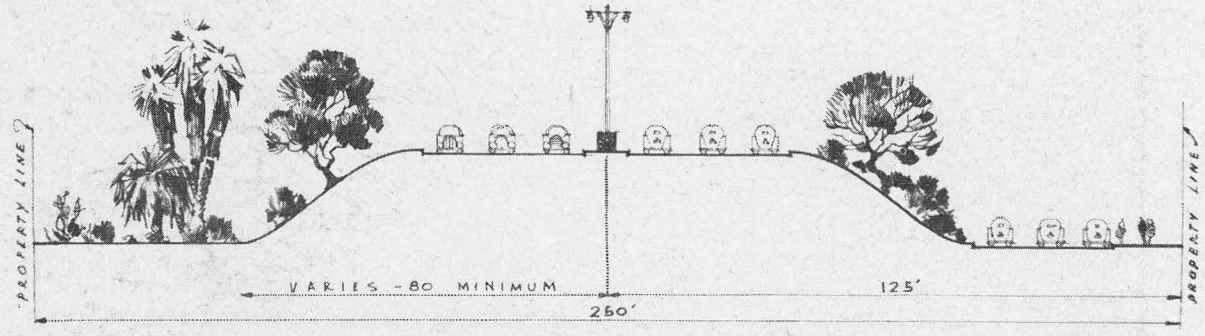
FIGURE 19



HALF SECTION WITHOUT SERVICE ROADS ⟷ HALF SECTION WITH SERVICE ROADS

NORMAL PARKWAY LEVEL

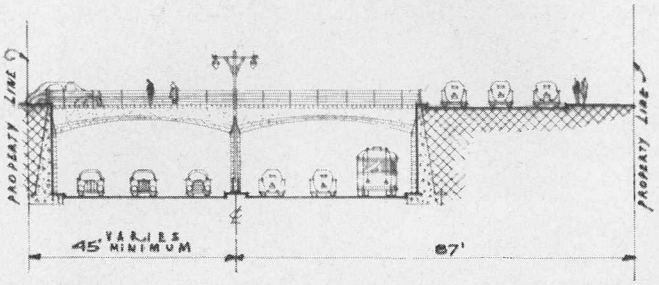
FIGURE 20



HALF SECTION WITHOUT SERVICE ROADS ⟷ HALF SECTION WITH SERVICE ROADS

NORMAL PARKWAY ON FILL

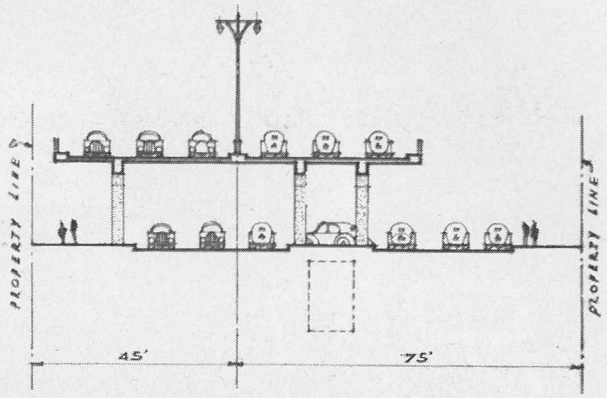
FIGURE 21



HALF SECTION WITHOUT SERVICE ROADS — HALF SECTION WITH SERVICE ROADS

EXPRESS HIGHWAY

FIGURE 22



HALF SECTION IN LIMITED RIGHT OF WAY — HALF SECTION ON SURFACE STREETS

ELEVATED HIGHWAY

FIGURE 23

FIGURE 24—ARROYO SECO PARKWAY BEFORE LANDSCAPING

FIGURE 25—TOLL ARRANGEMENTS

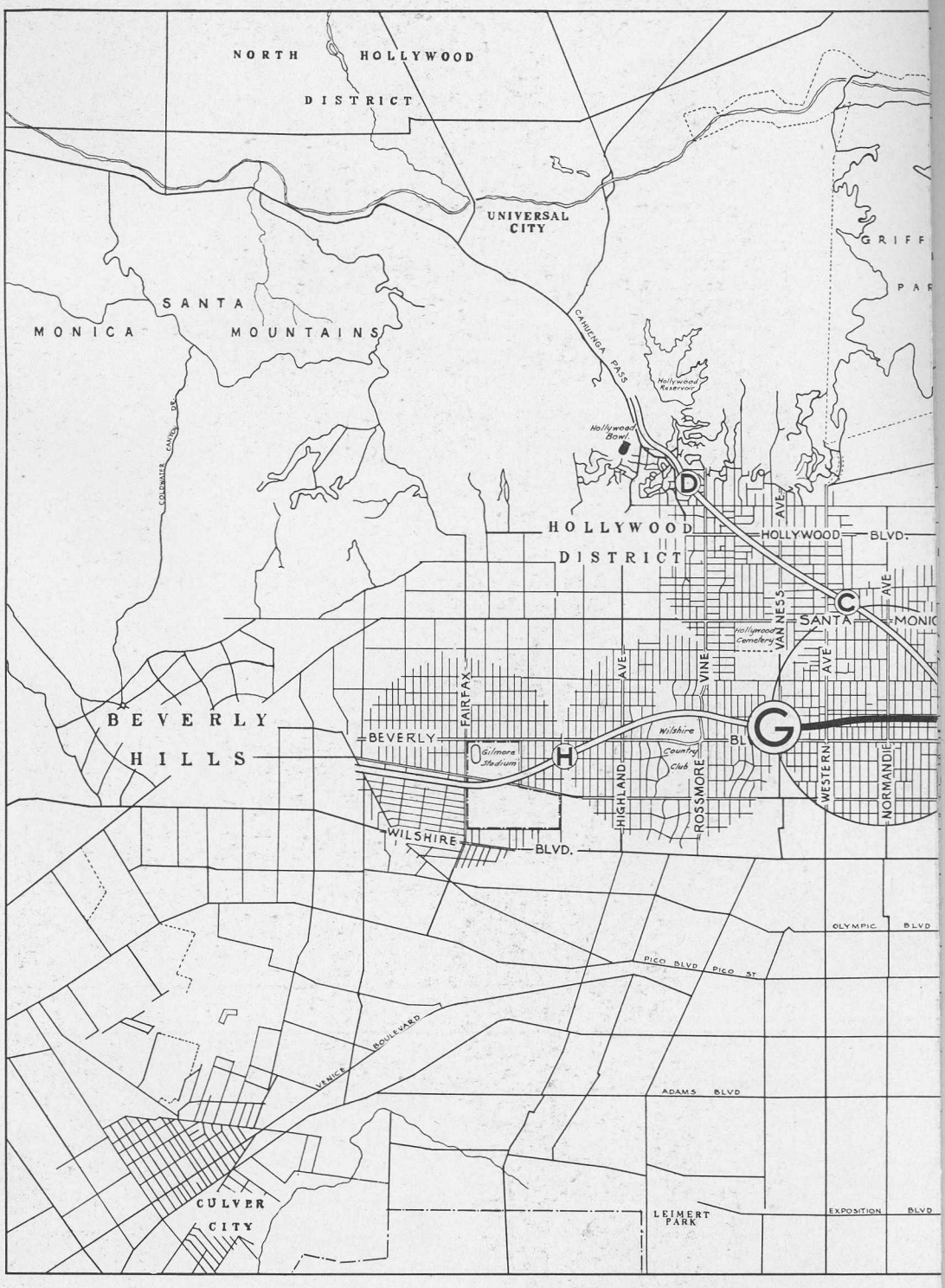


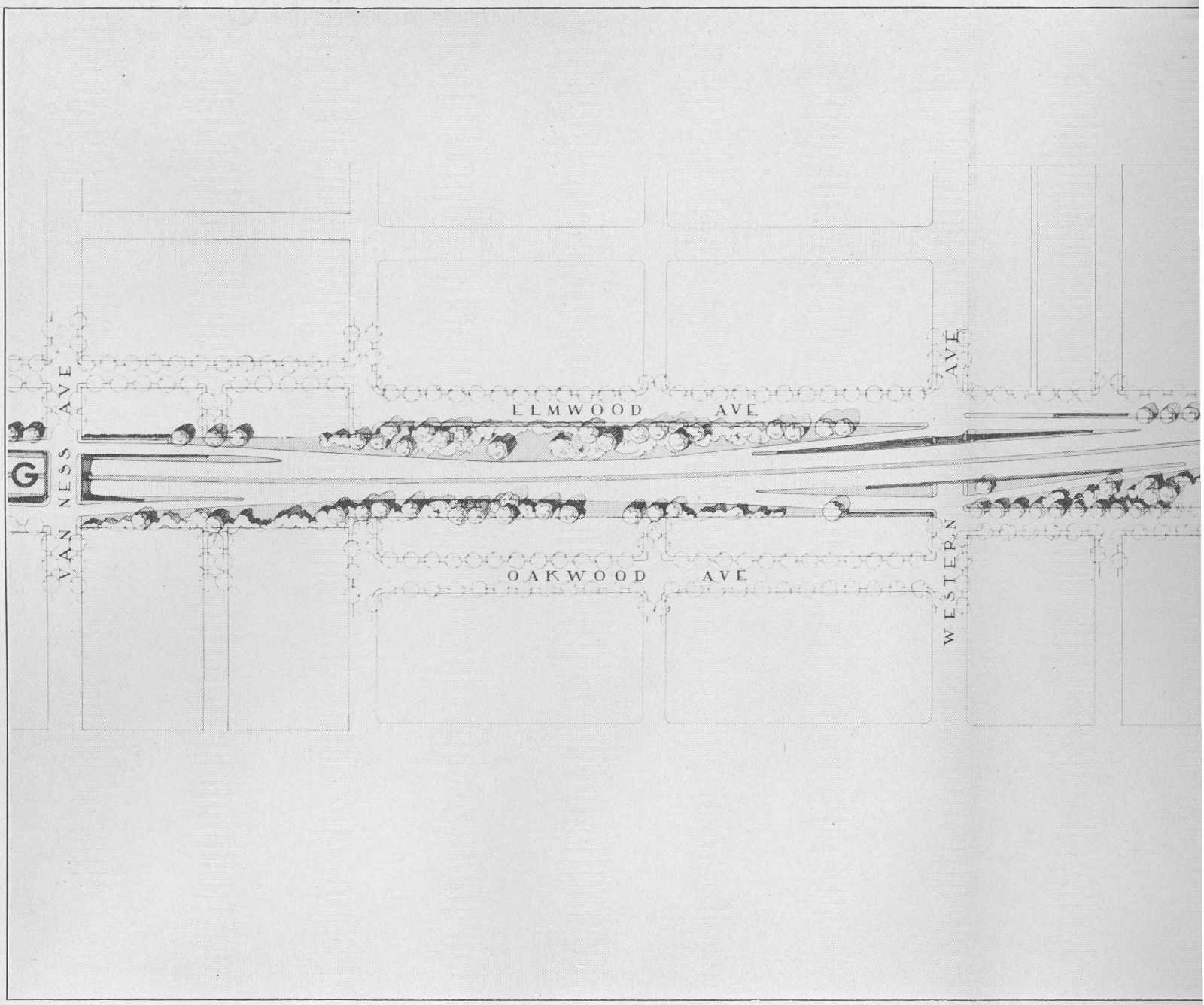
FIGURE 26—KEY MAP—SANTA MO
SECTIONS EAST OF VAN NES

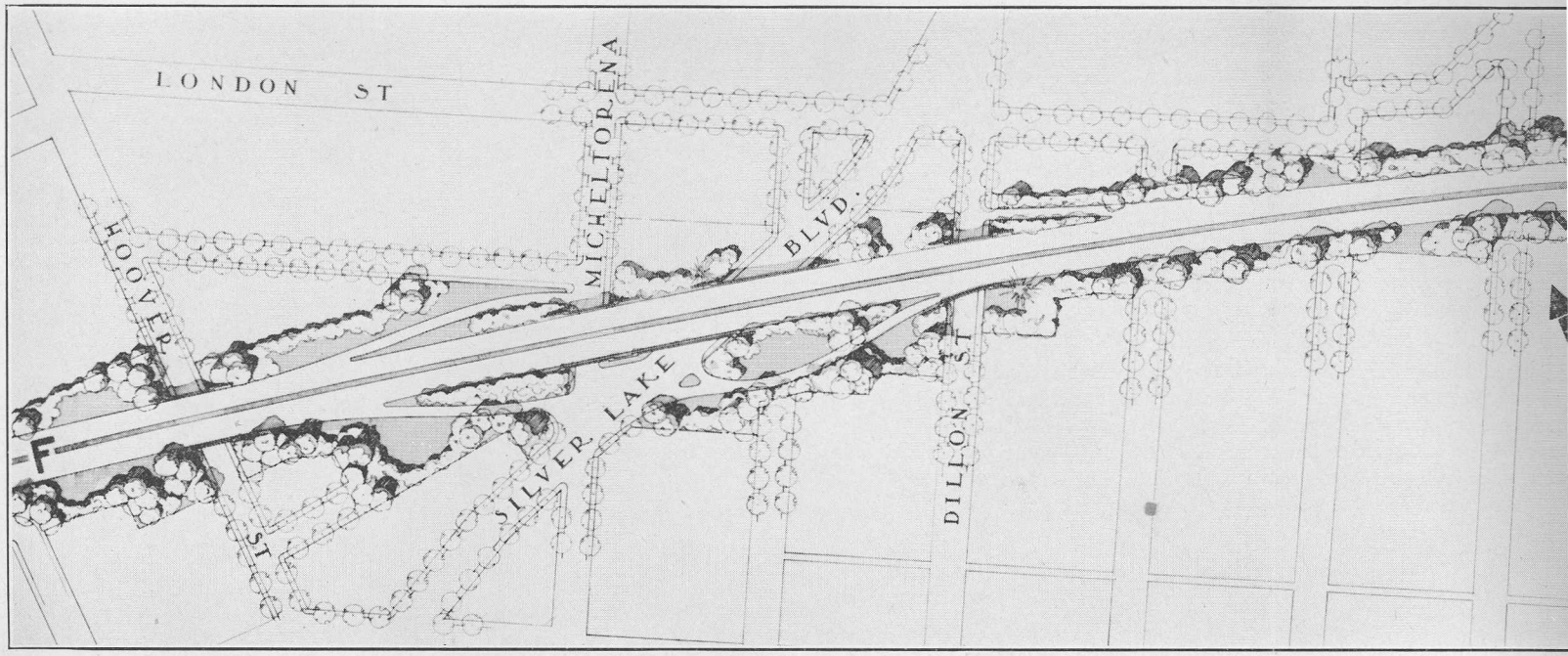
The Santa Monica Parkway is not included in recomme
tion. For details east of Hoover Street, see Figure 27.
Ness Avenue, see Figure 28. For Key Map and sectio
Figures 30, 31 and 32. Distance Figueroa Street to inte
—2.7 miles. Distance west from intersection to
Burton Way—5.1 mile

WAY

mendations for immediate construc-
or reservation:
ns West Avenue, see
Hollywood Parkway
oulevard and

Street to Van
Ness Avenue, see
Hollywood Parkway
Cienega Boulevard and


VAN NESS AVE
ELMWOOD AVE
OAKWOOD AVE
WESTERN AVE
G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HOOVER
MICHELTORENA
BLVD.
SILVER LAKE
DILLON ST
ST
F

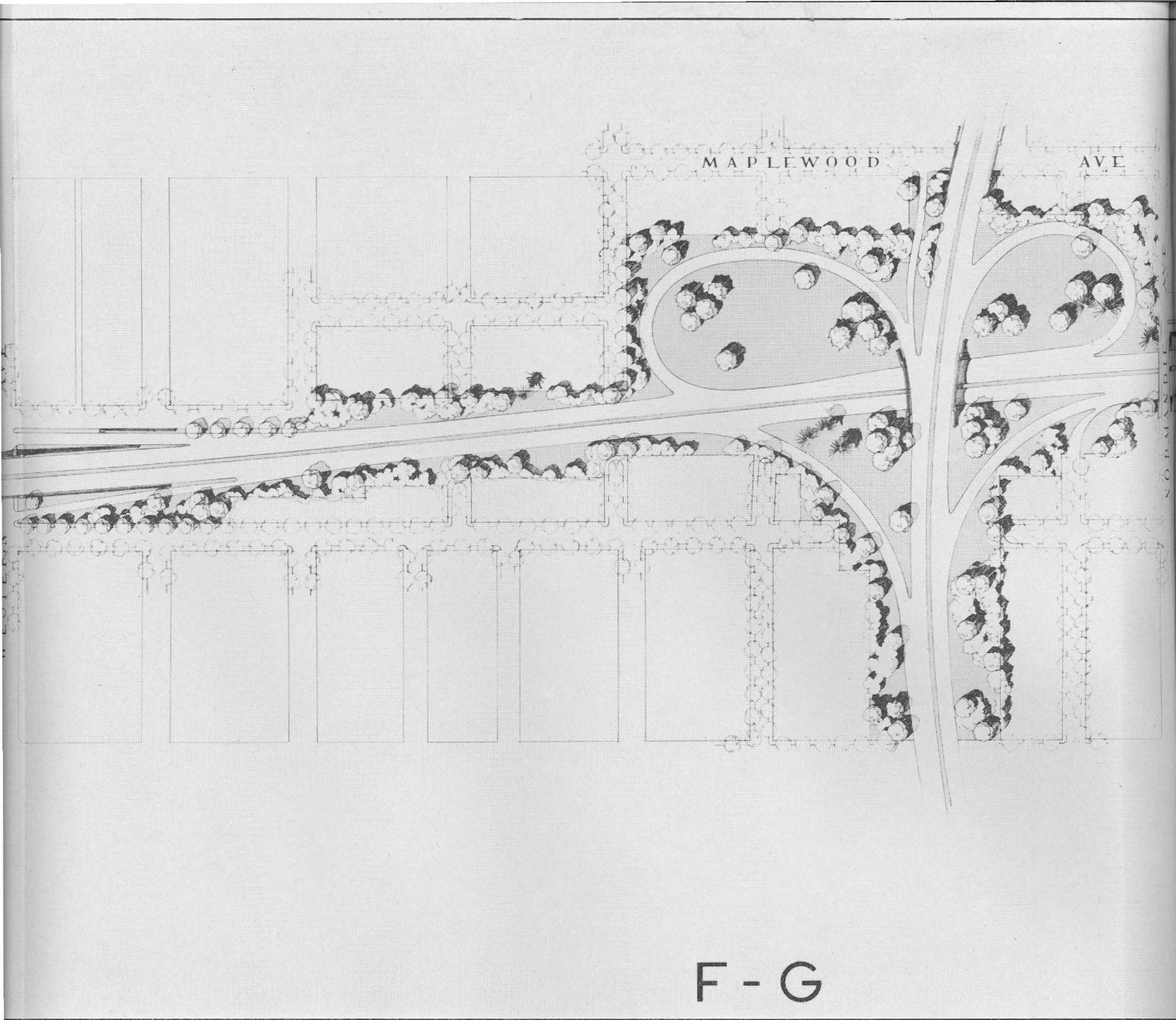


FIGURE 28—HOOVETO VA

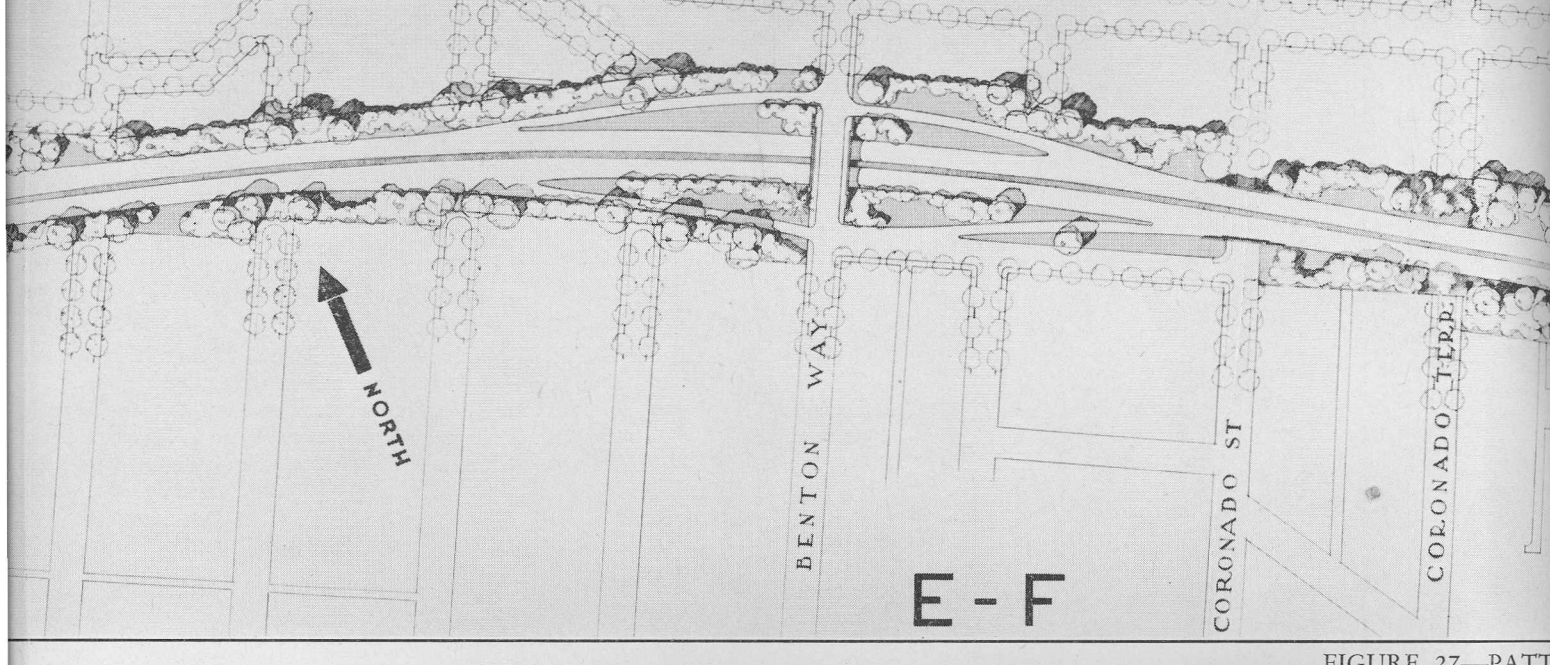
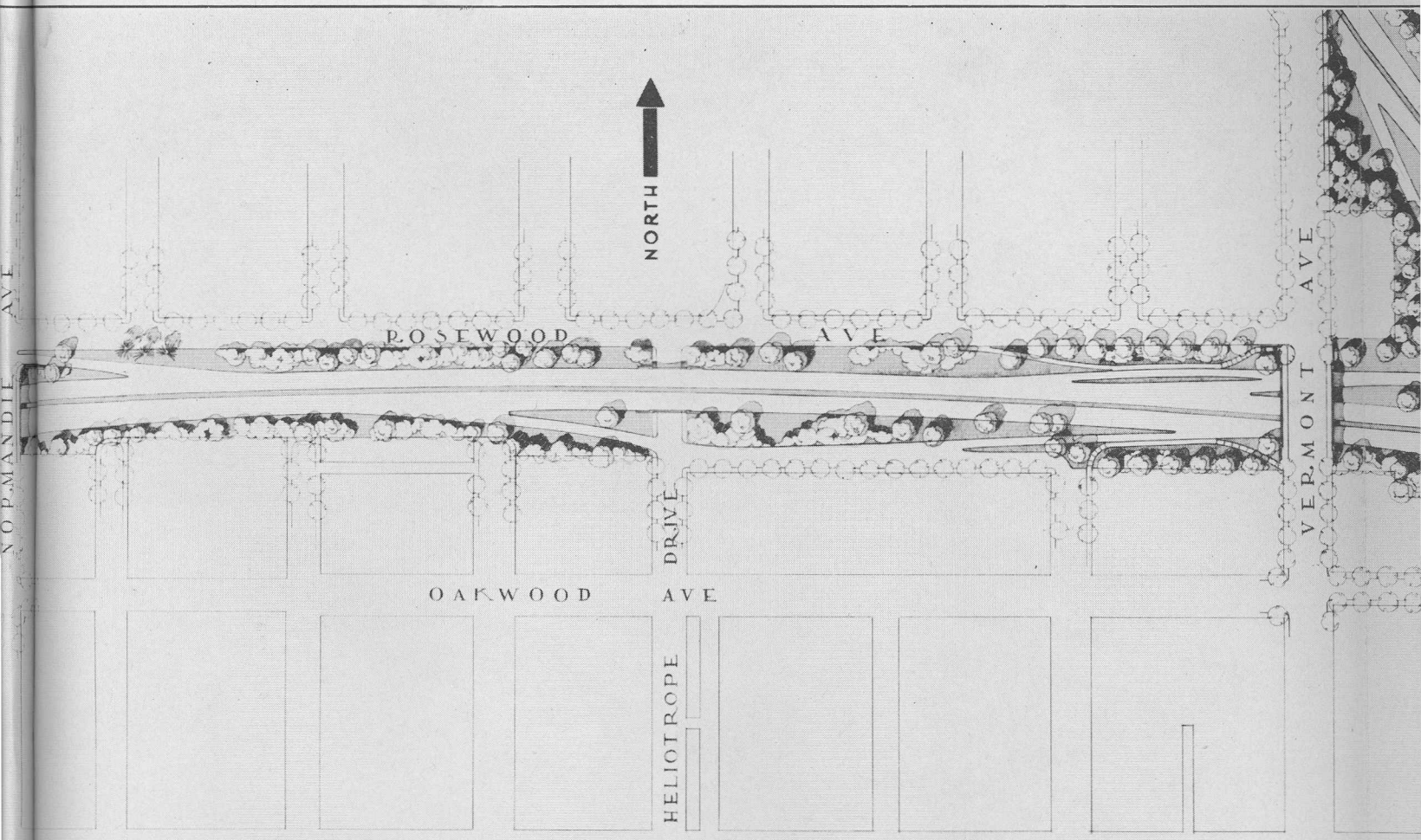
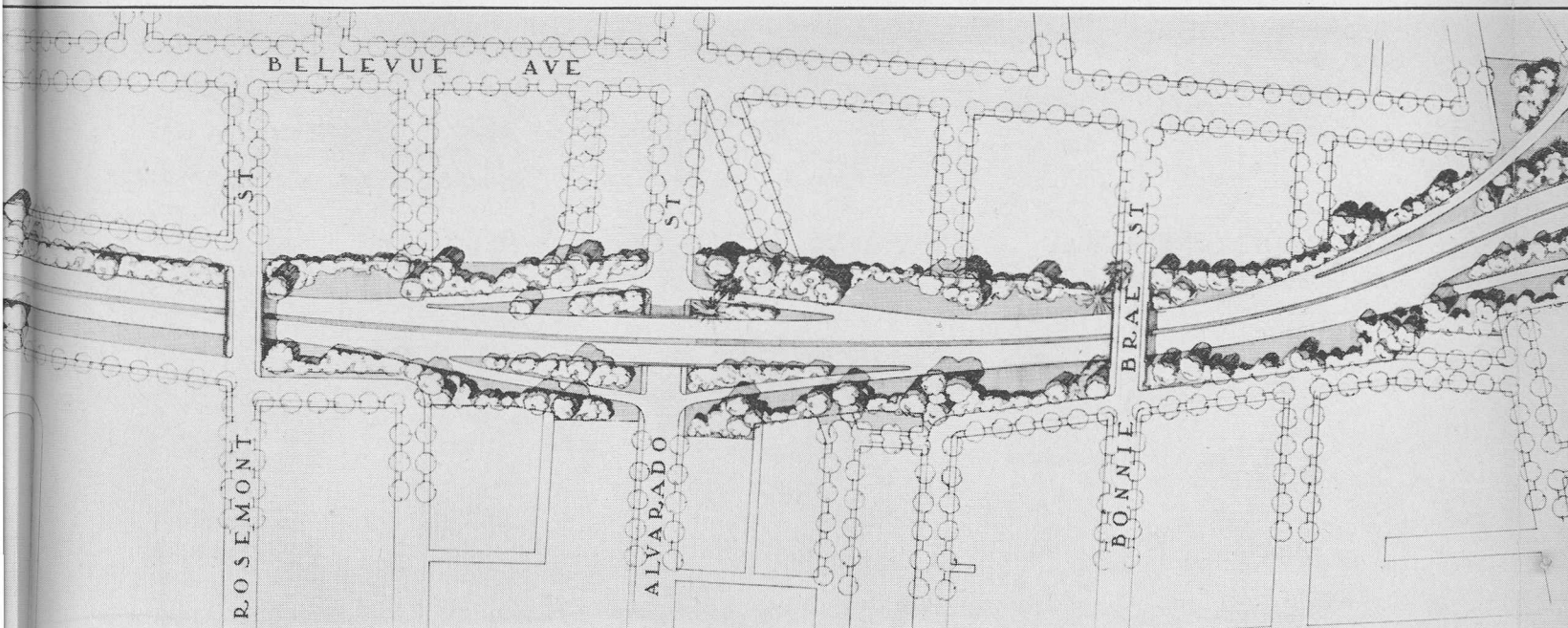


FIGURE 27—PATTOTO H

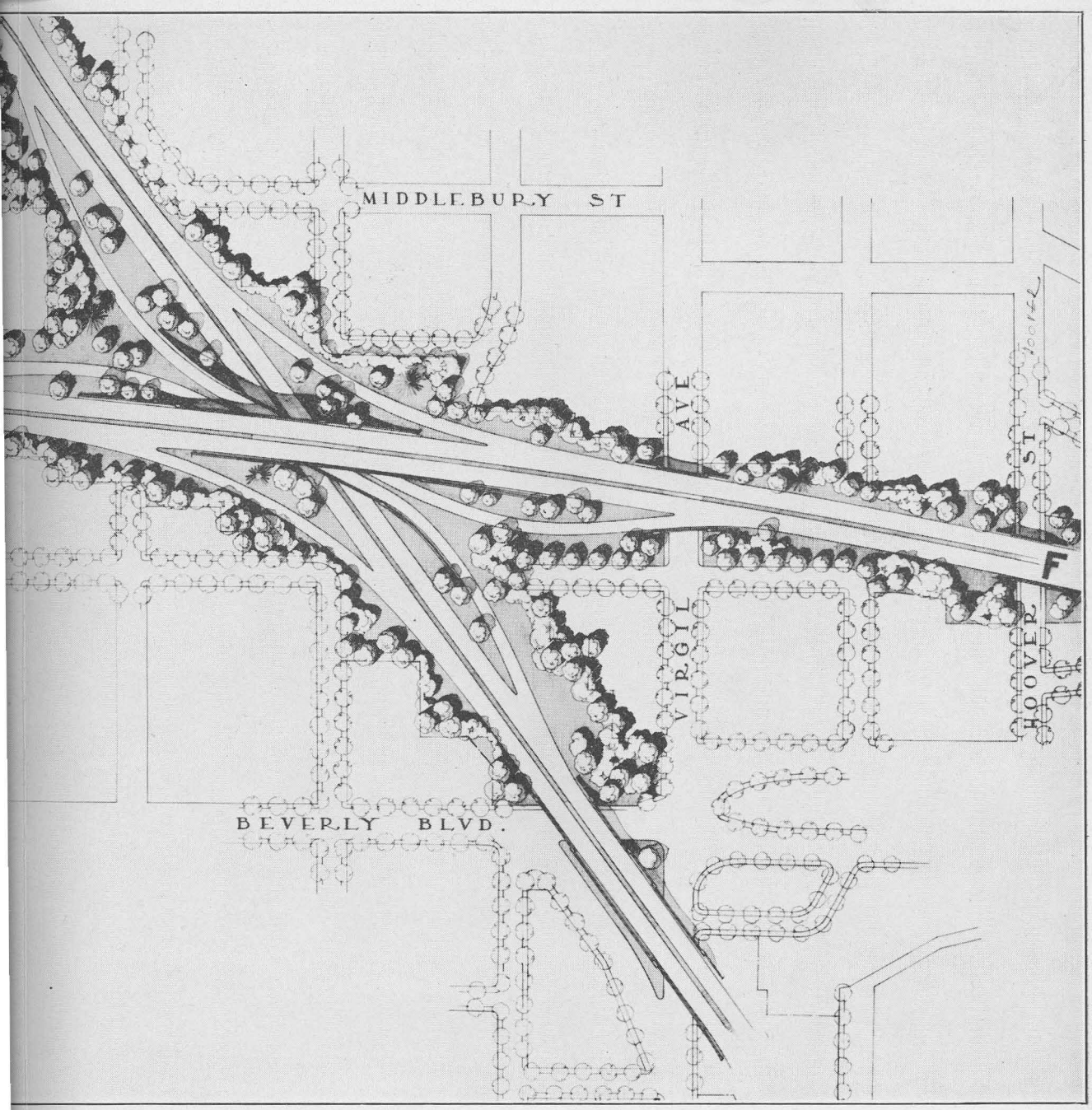


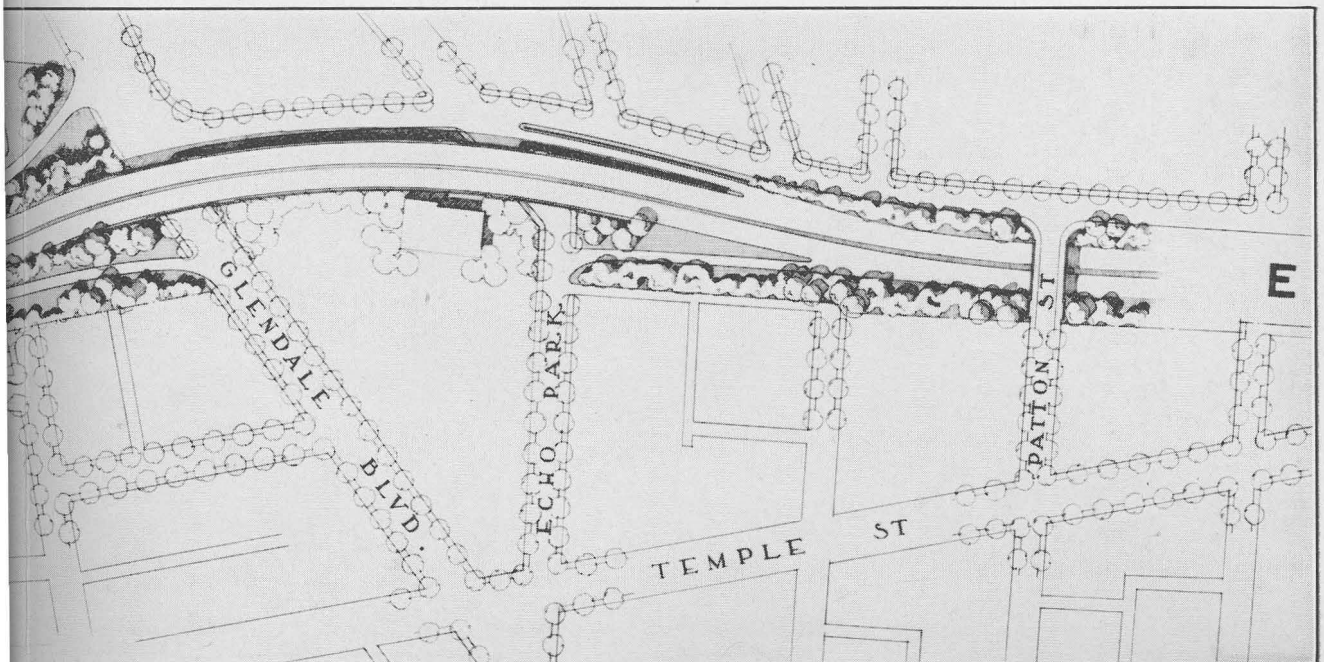
SANTA MONICA PARKWAY

VER TO VAN NESS



ON TO HOOVER


MIDDLEBURY ST
VIRGIL AVE
HOOVER ST
F
BEVERLY BLVD.


GLENDALE BLVD.
ECHO PARK
TEMPLE ST
PATTON ST
E

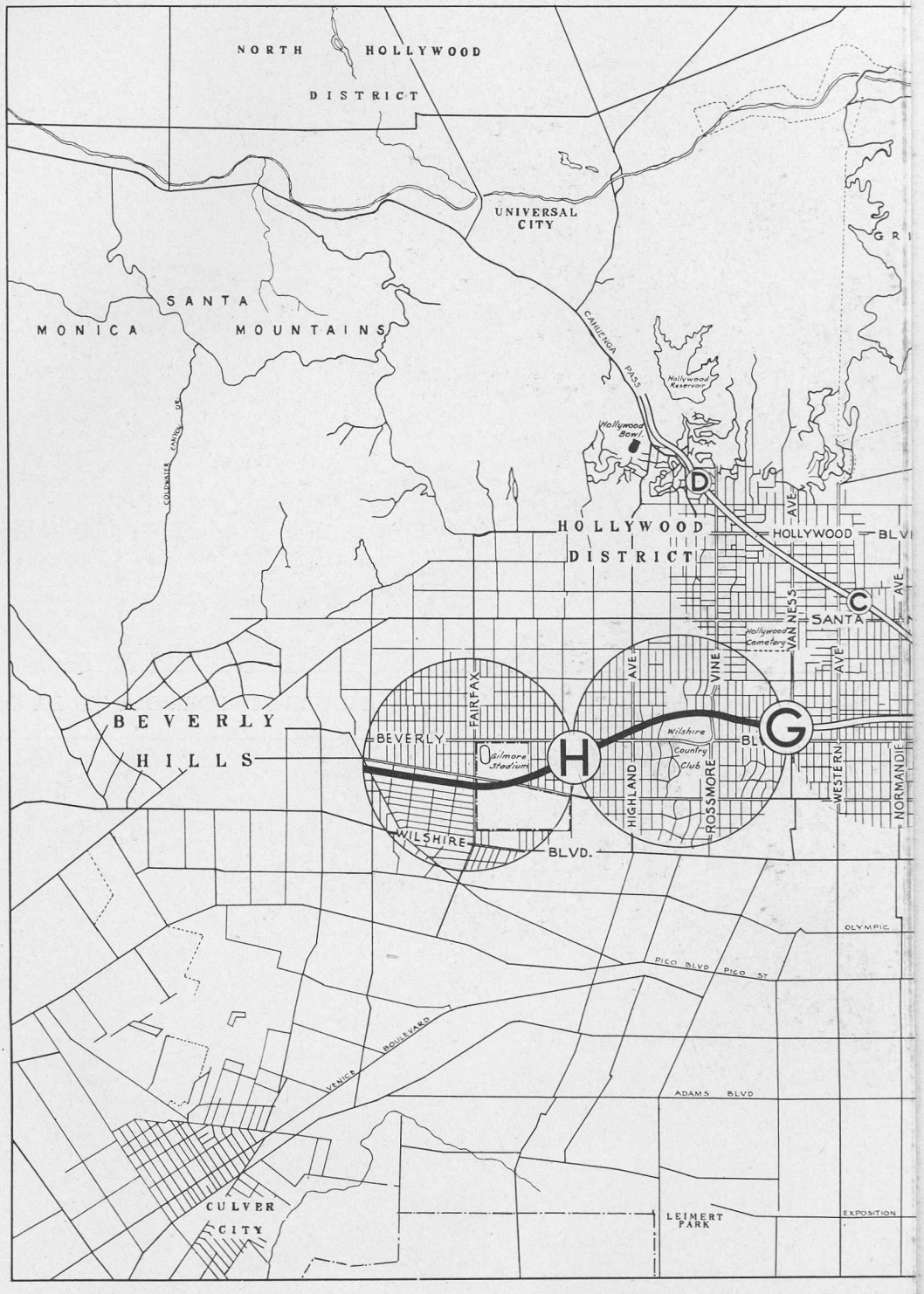
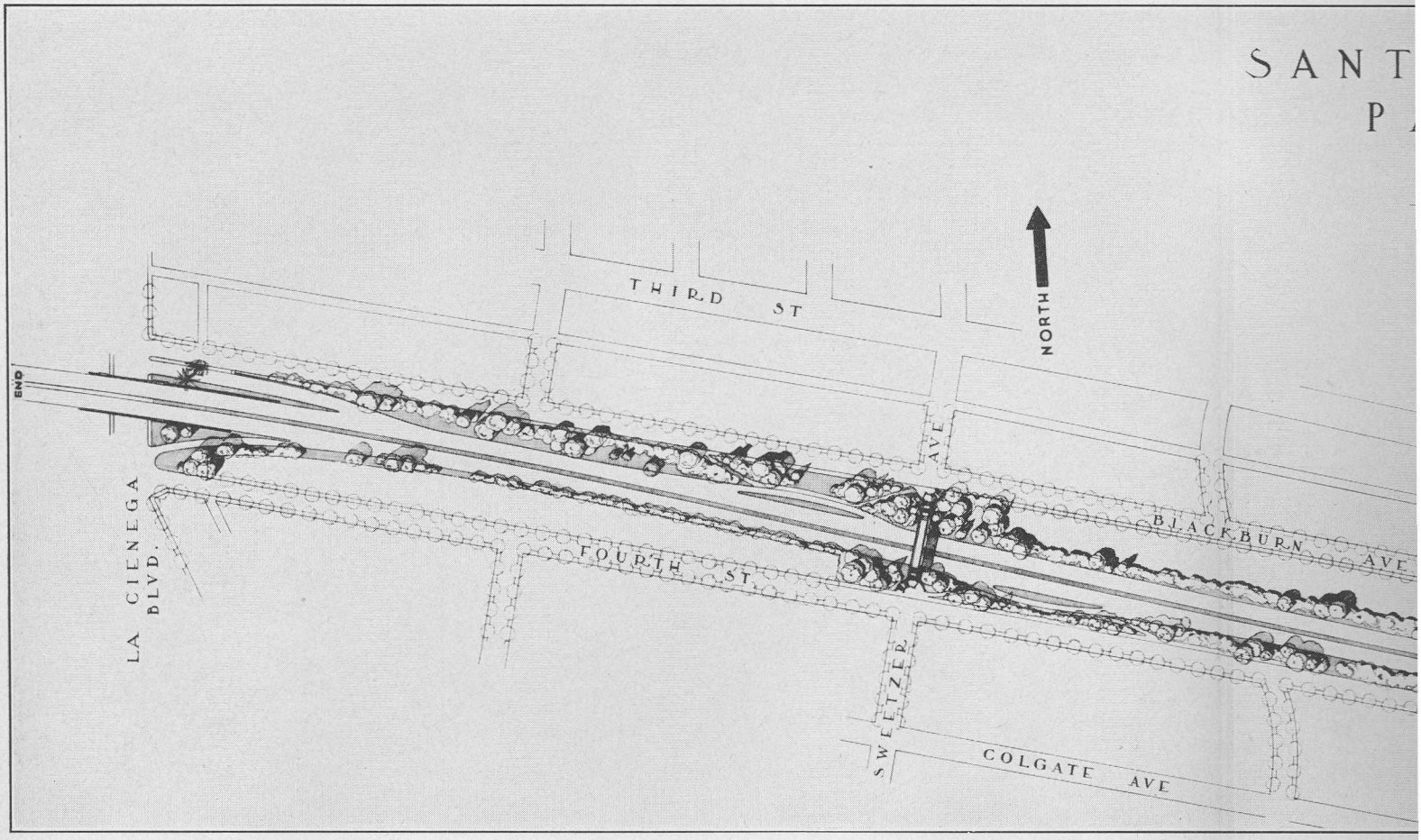


FIGURE 30—KEY MAP—SANTA
SECTIONS WEST OF VAN

The Santa Monica Parkway is not included in recon
tion. For details of section from Van Ness Avenue t
for section from Formosa Avenue to La Cienega Bou
sections east of Van Ness Avenue, see Figures 26, 27
with Hollywood Parkway to La Cieneg

MONICA PARKWAY
NESS AVENUE

mendations for immediate construc-
Formosa Avenue, see Figure 31 and
levard, Figure 32. For Key Map and
and 28. Distance from intersection
Boulevard—5.1 miles.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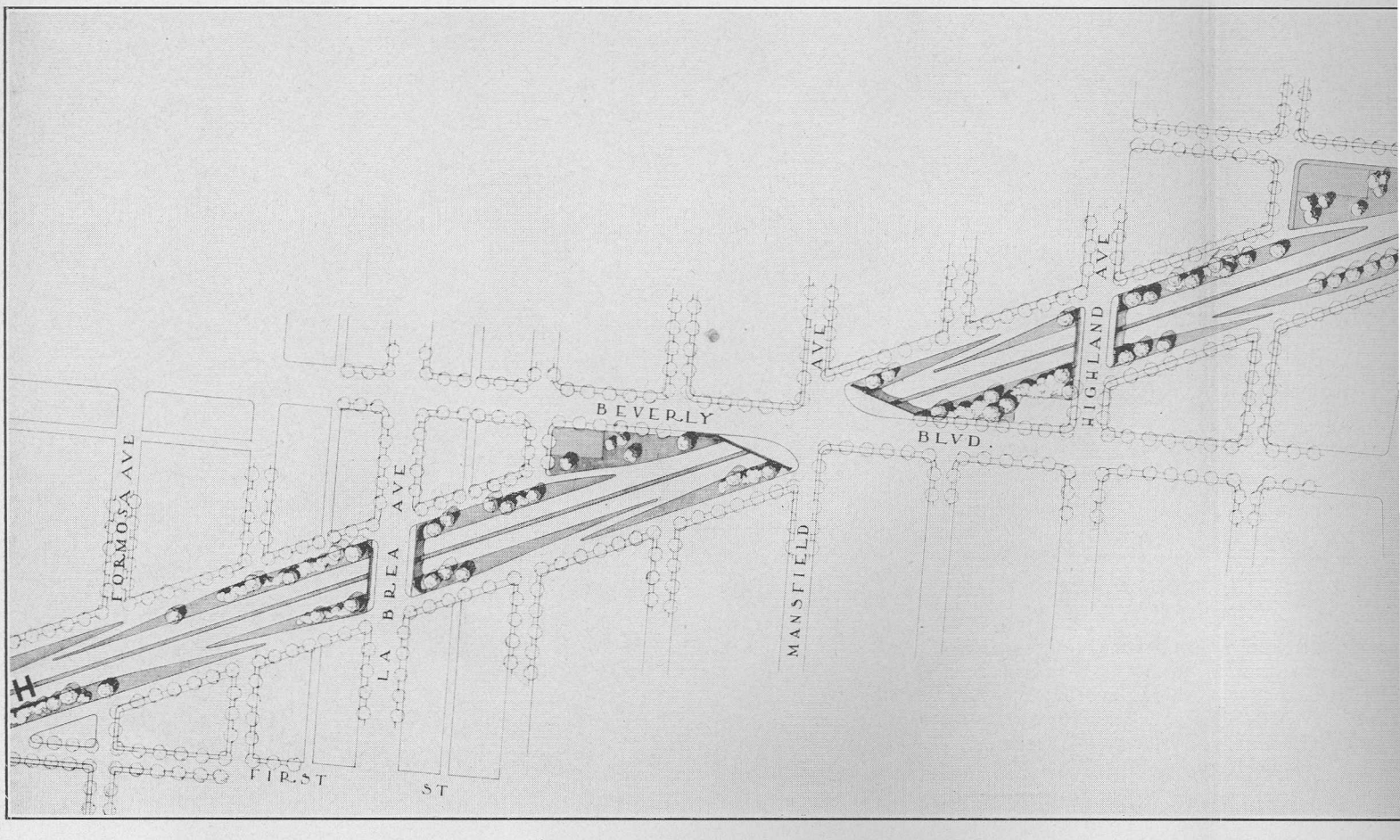
LA CIENEGA BLVD.
FOURTH ST
AVE
BLACKBURN AVE
SWEETZER
COLGATE AVE


BEVERLY
BLVD.
AVE
HIGHLAND AVE
FORMOSA AVE
LA BREA AVE
MANSFIELD
FIR ST
ST

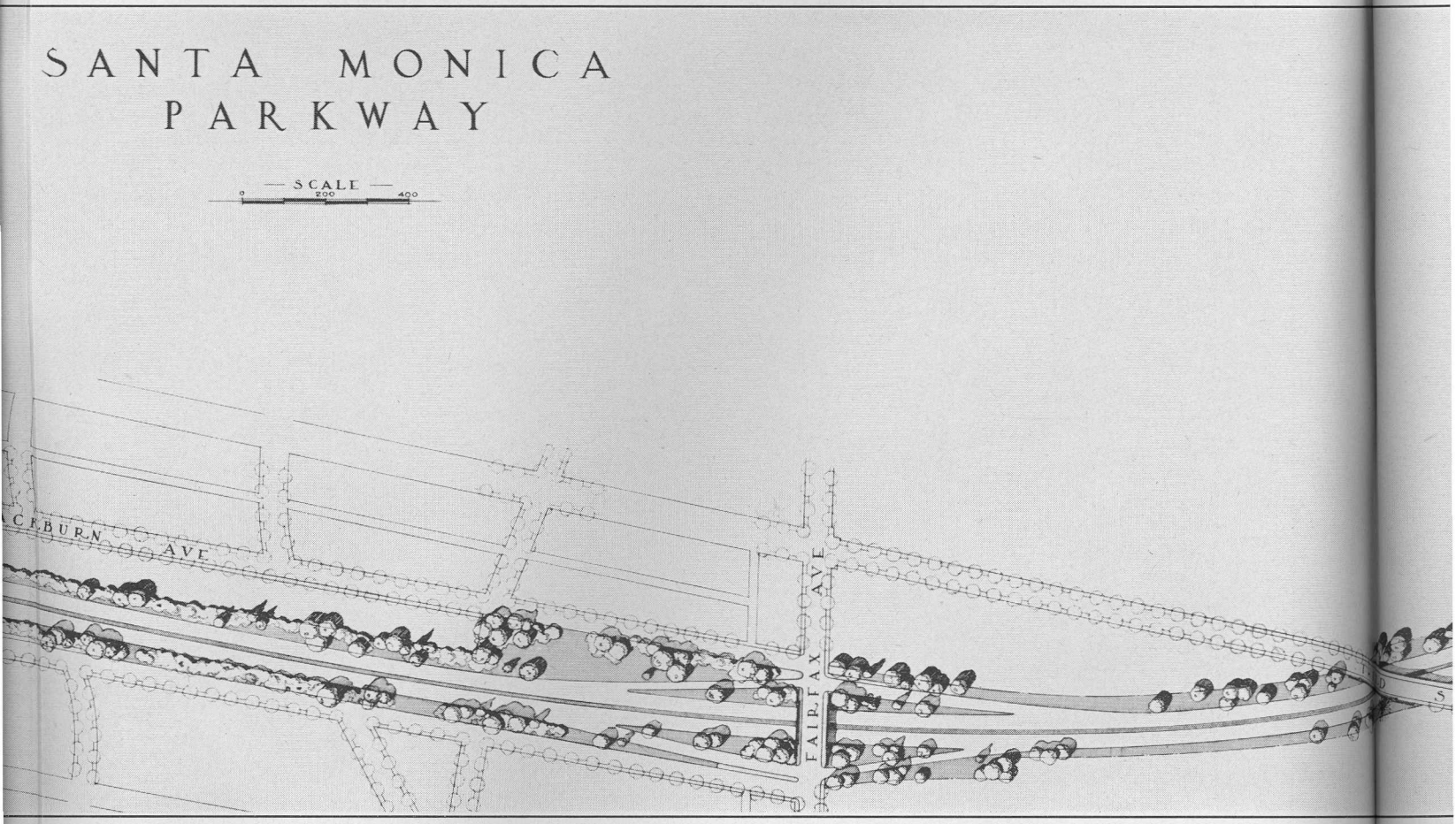


FIGURE 32—FORMOSA TO LA CIENEGA

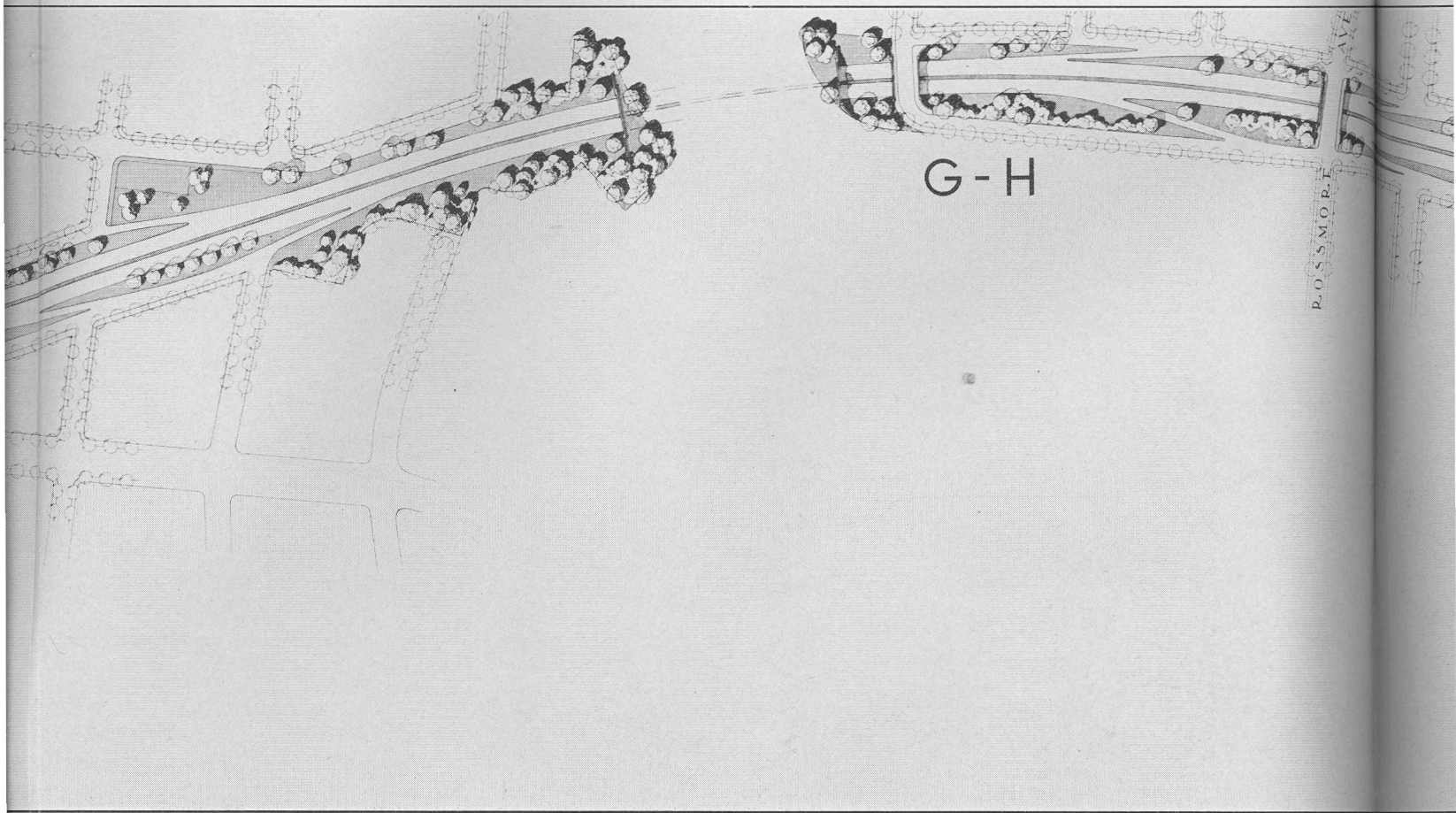
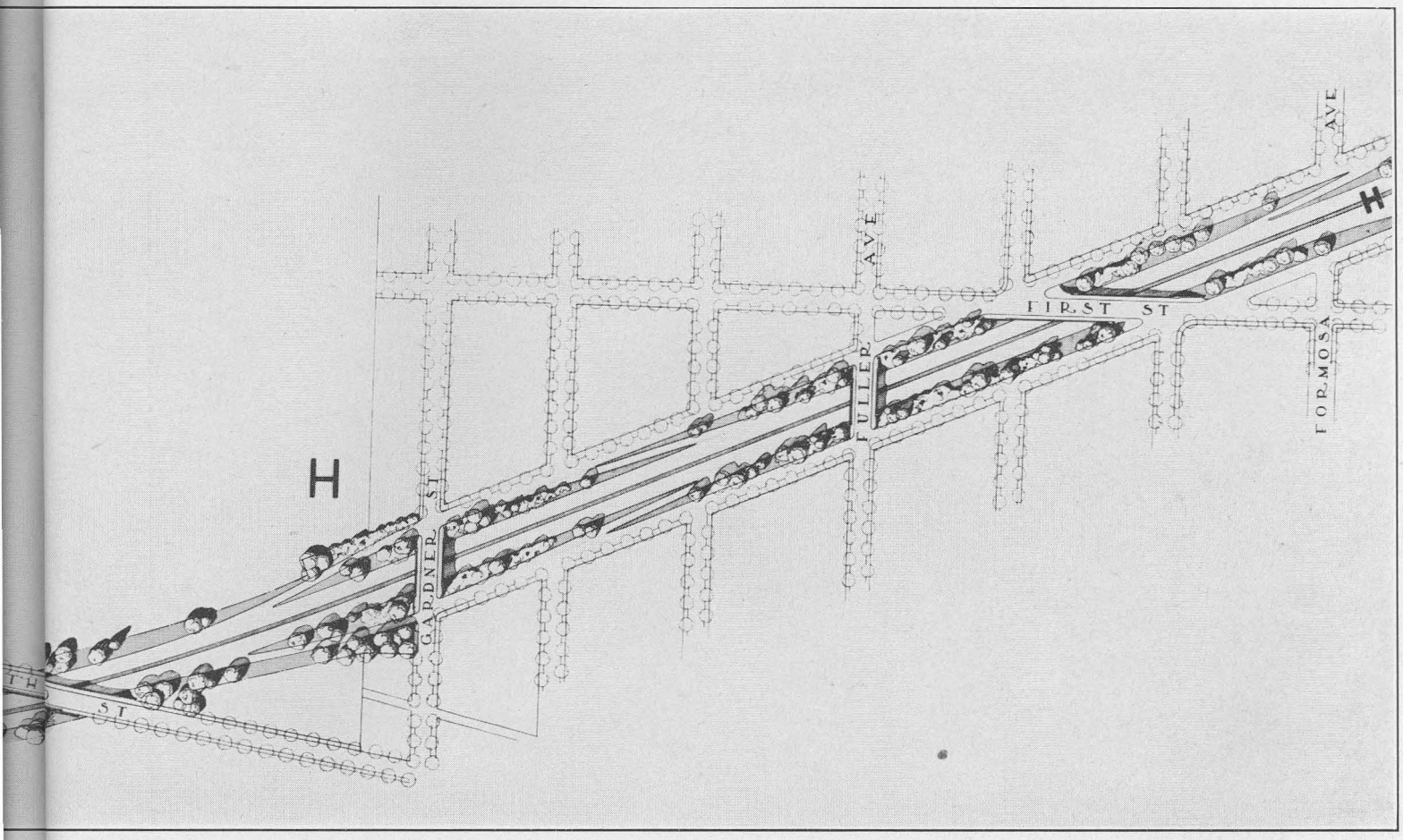


FIGURE 31—VAN NESS TO FORMOSA


H
GARDNER ST
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H
ST

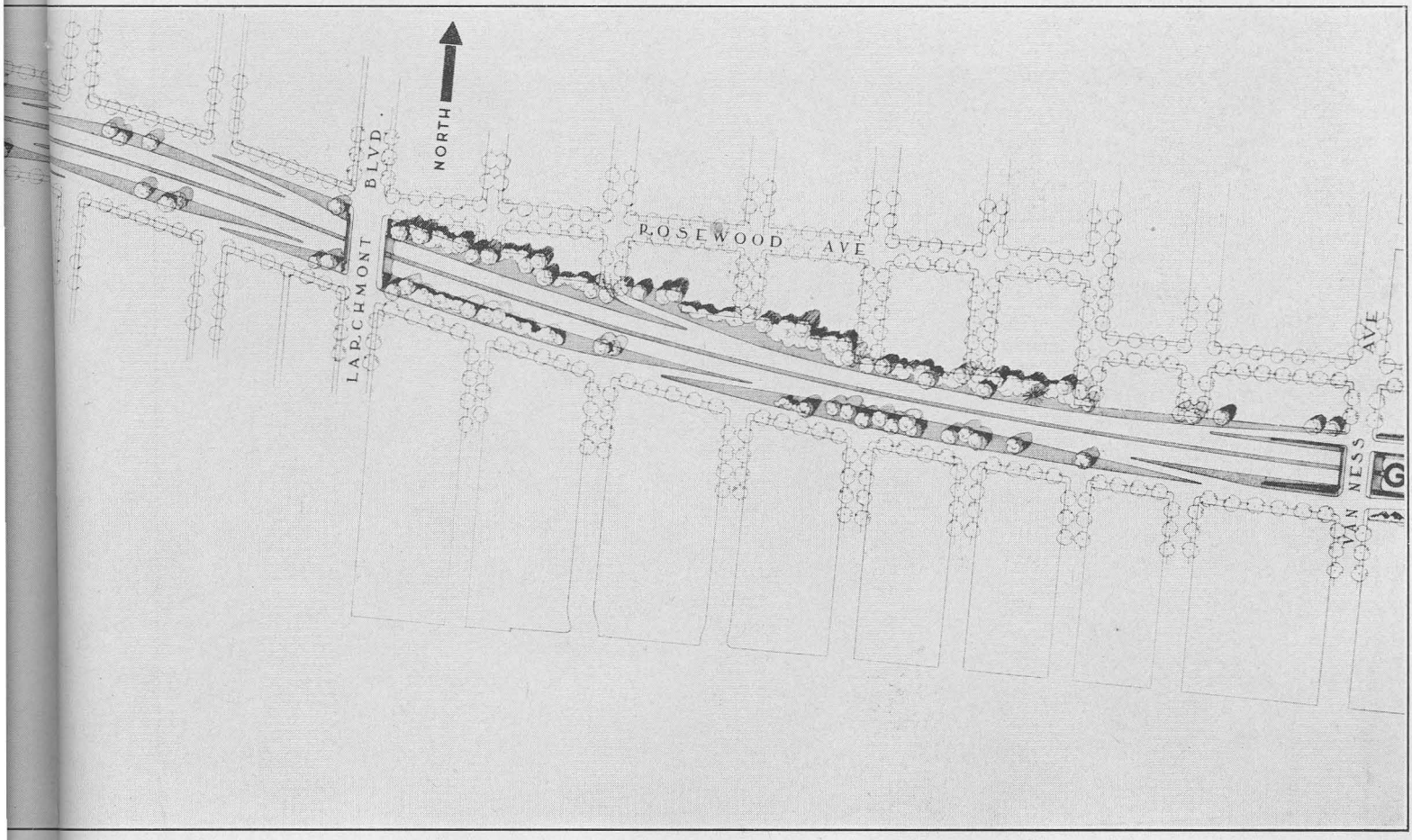
NORTH
LAP. CHMONT
BLVD.
ROSEWOOD
AVE
VAN NESS
AVE

FIGURE 33—THE CENTRAL BUSINESS DISTRICT

Business activities centering in this large number of height-limit buildings produce the mass flow of passengers constituting the largest single element in the local transit problem.

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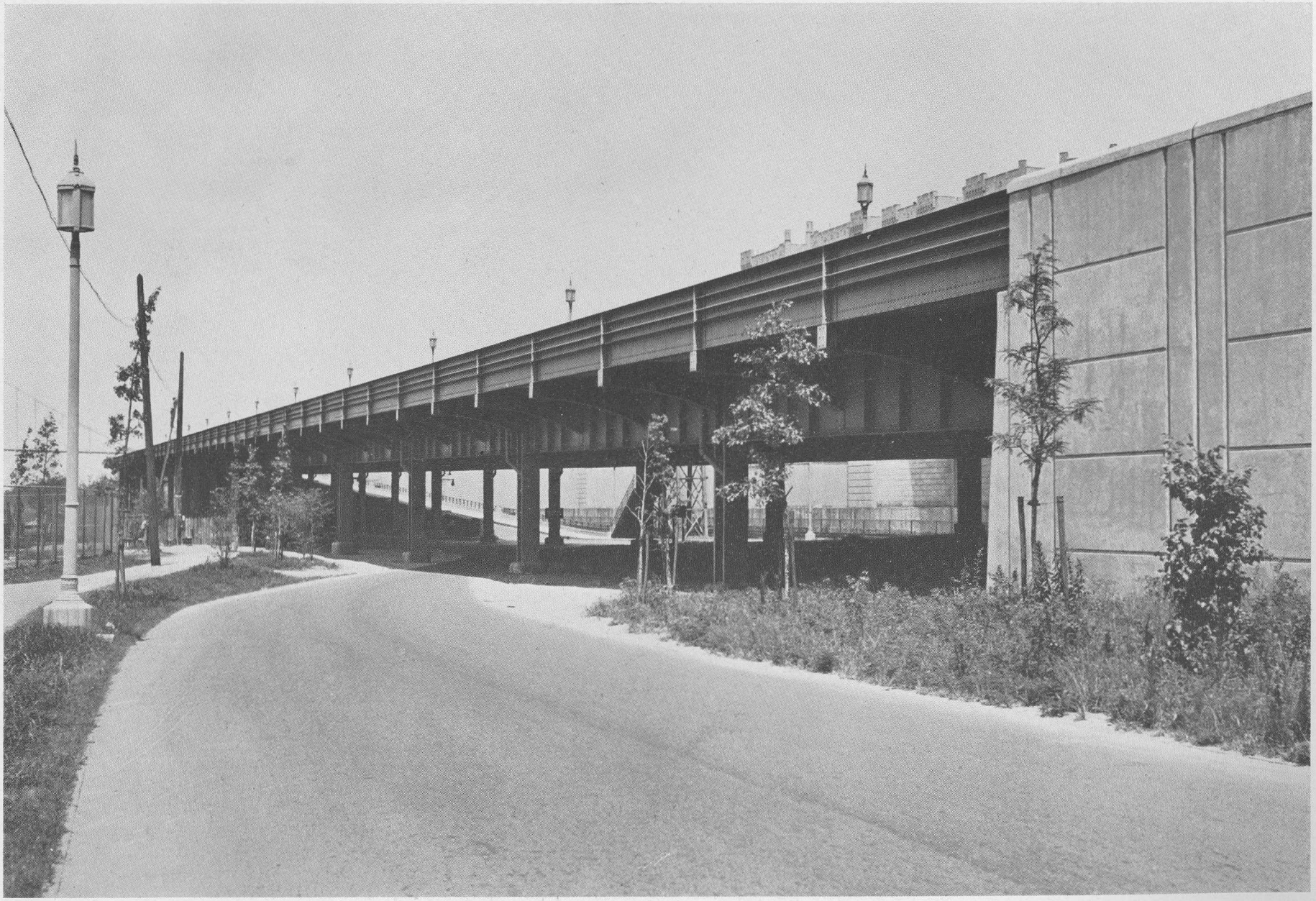

FIGURE 34—ELEVATED EXPRESS HIGHWAY

Elevated construction of either steel or concrete would be used only in special locations. Land beneath such structures could be utilized for parking or other purposes appropriate to each location.

FIGURE 35—PARKWAY PARTLY ON SIDE HILL

The service roads at the sides of the parkway are built at convenient levels determined by the local terrain.

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FIGURE 36—PARKWAY THROUGH RESIDENCE SECTION
Landscape treatment preserves the attractiveness of residential areas traversed by the parkway

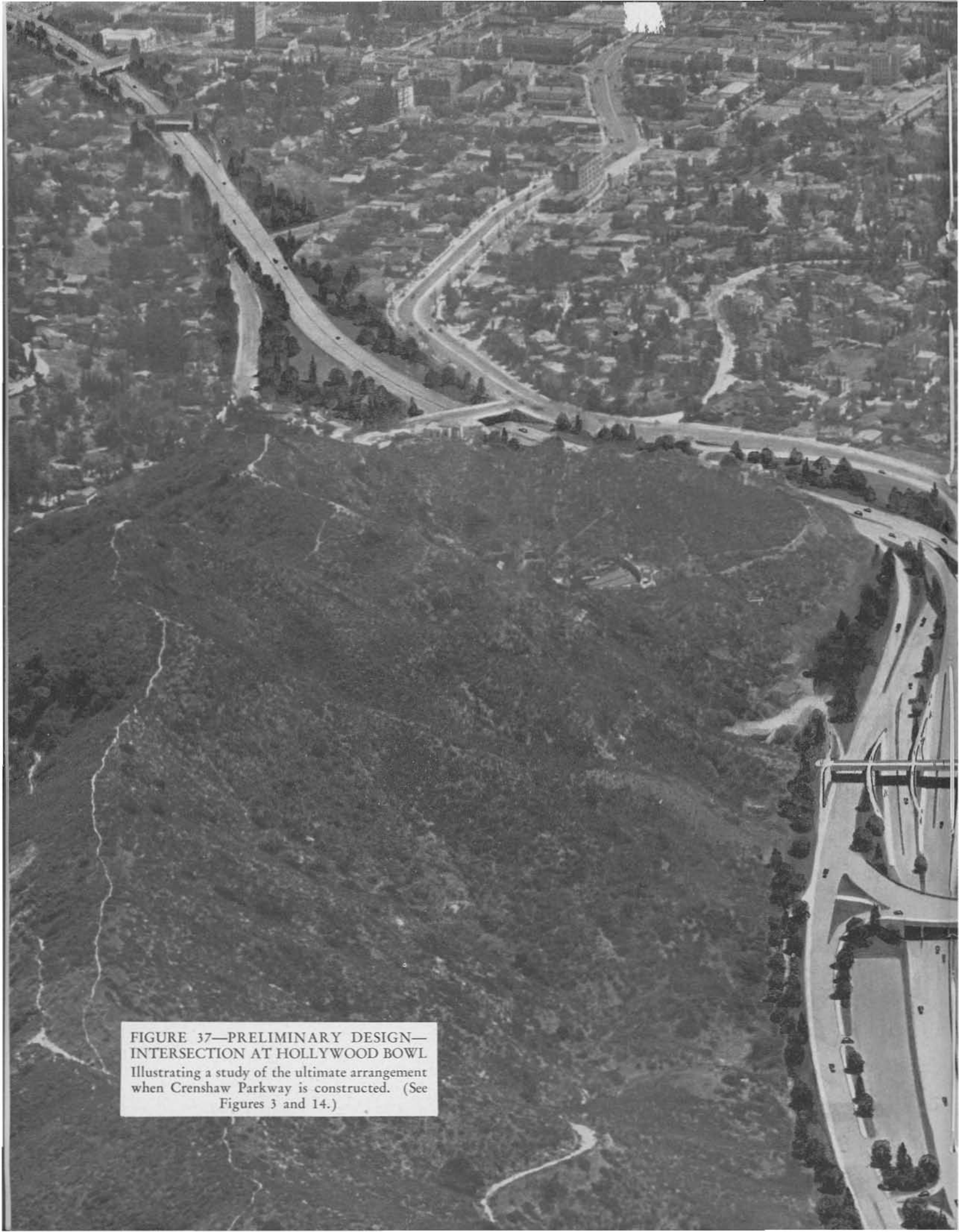
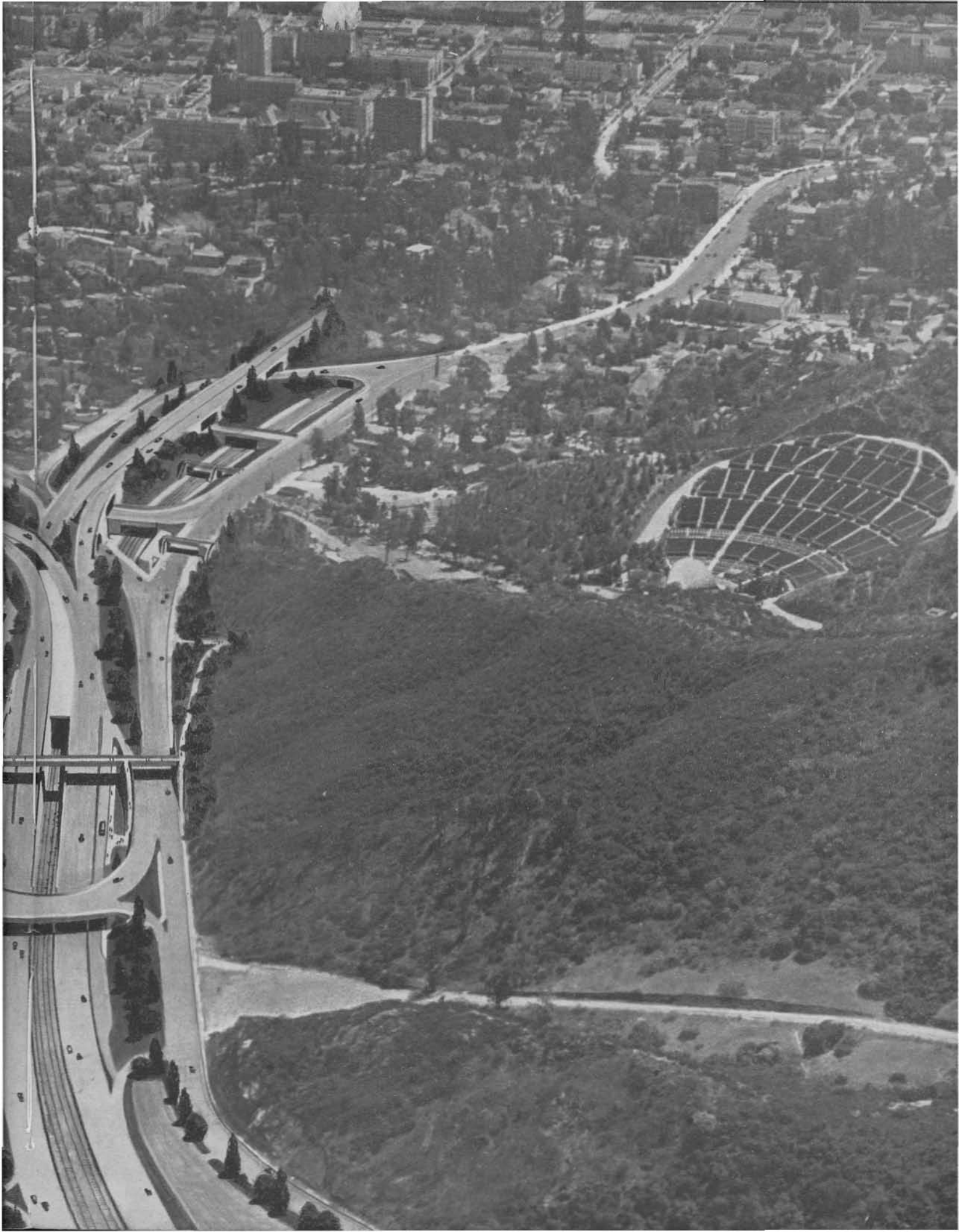


FIGURE 37—PRELIMINARY DESIGN—INTERSECTION AT HOLLYWOOD BOWL
Illustrating a study of the ultimate arrangement when Crenshaw Parkway is constructed. (See Figures 3 and 14.)



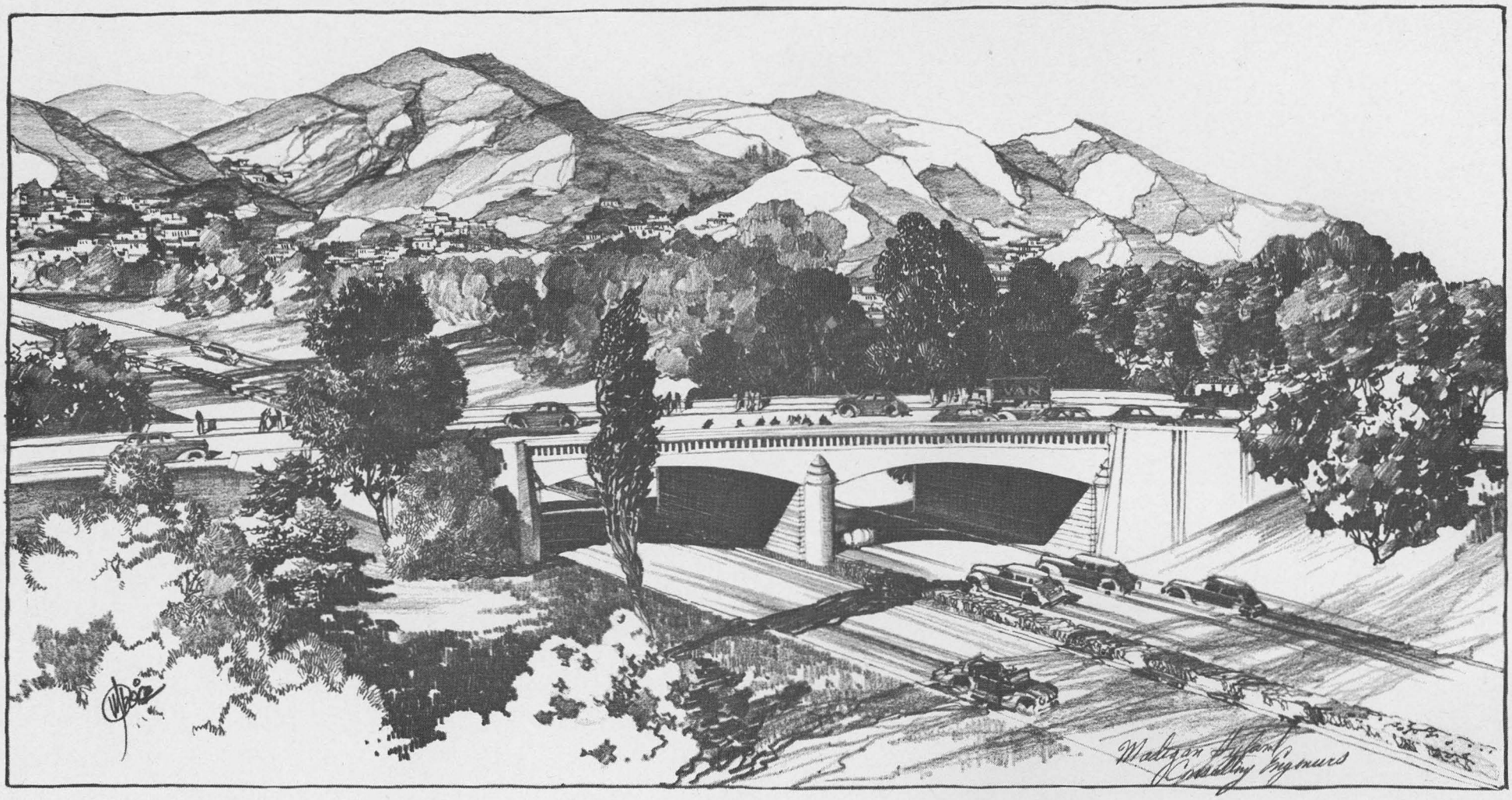


FIGURE 38—GRADE SEPARATION ON PARKWAY

Showing the complete separation of cross traffic and the possibilities of harmonizing the appearance of the parkway and its surroundings.