

SUNSET, LTD.*



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BAXTER WARD
SUNSET LIMITED 200
04/12/78

* A limited start-up of the Sunset Coast Line, and the expanded, Multi-purpose Bus System to serve it.

Presented to the Los Angeles County Transportation Commission, the Los Angeles County Board of Supervisors, and the Board of Directors of the Southern California Rapid Transit District on April 12, 1978, by Los Angeles County Supervisor Baxter Ward.

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***Will Los Angeles County ride or walk into the 21st Century?**



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Each member, Los Angeles County Transportation Commission:

In this booklet we have broadened the proposal first submitted to members of the Transit Committee on February 21.

The proposal recognizes that almost anything will be helpful in transit -- all-rail, all-peoplemover, all-bus, bus on freeway, tunnels under the whole city, light rail, heavy rail, personal rapid transit, etc.

However, some of these mechanisms do less than others, and none will work entirely alone.

If we are serious about moving large volumes of people rapidly, that is best done by rail. Getting people to and from the rails is best done in volume by buses. Local circulation activities and neighborhood services are best done by minibus or van pool.

We have tried to combine these elements into a start-up situation that the community can afford -- and for which it must pay.

All of the route (segment and line) proposals in this report are the subject of earlier studies completed during the last ten years.

An attempt has been made to deal with both the subtleties and the bold realities of the politics that affect us. For example, we have heard Secretary Brock Adams express a position on the Wilshire Subway -- that it must be a part of something larger. Congressional and State leaders also express grave reservations about Wilshire as the sole subject for funding.

State Senator James Mills repeatedly has called for the conversion of the El Monte Busway to rail. He is correct -- the busway was constructed with rail conversion as its goal. However, it is difficult to convert only that line to rail, as it leaves passengers nowhere to go at the western end. At present, their El Monte buses can take them throughout the downtown Los Angeles area, out on Wilshire, or down the Harbor Freeway. Thus, even the highly simplified conversion of the El Monte Busway will require concurrent augmentation

elsewhere to make sense. Therefore, even Wilshire Subway opponents must relent somewhat, if they are to admit to the need for a line that will provide service, as well as just operate.

A four-part Regional Transportation Development Program has been shaped in the last year and a half by various transportation staffs for consideration by key Los Angeles area interests. While this could be helpful, it also carries its own built-in traps.

For example, it proposes only the Wilshire Subway for rail. That might be good staff work, but it is not either an acceptable political reality or a reasonable transportation effort.

The study also urges the Downtown People Mover (Union Station to the Convention Center). There has been heavy public criticism of the proposal, its cost is remarkably high, and it might be in competition for dollars that could provide better service elsewhere.

The Caltrans bus on freeway is a fine idea, provided it will offer the construction of El Monte-type busways and stations. That kind of built-in transit exclusivity and security can provide for speed and volume, as well as an ultimate conversion to rail, over logical, public-owned rights of way.

Such a program could well extend the basic transit service deeper into suburban areas to await simplified conversion to rail as volume and needs build up. However, inasmuch as the cost of building an El Monte-type busway is almost as great as that of a rail system, bus service need not always precede rail service on the same route.

A basic rail program should be introduced first, to be built as quickly as possible with available funding.

Los Angeles now finds itself in an odd circumstance -- the El Monte Busway awaiting conversion, the Wilshire Subway needing to be built, pre-planning on the Century Freeway for access to the airport, and unfulfilled transit promises galore.

The proposal will attempt to capitalize on this circumstance, rather than be crushed by it.

Sincerely,

Baxter Ward

INTRODUCTION

On the June, 1976, ballot in Los Angeles County, voters were asked to determine if they would authorize a one-cent sales tax increase to build 232 miles of rapid transit, as shown in this map, which also appeared on the ballot.

The measure (Propositions R and T) was defeated.

Although a number of arguments were raised against the proposal, the principal objection appeared to be that the public simply did not want to assume the added cost.

This reluctance on the part of the voters to care for their own future travel needs within the county suggests that either they will face the future unafraid, or that they expect outside aid to build the entire system.

QUESTION: Will outside assistance be available to build this system?

ANSWER:

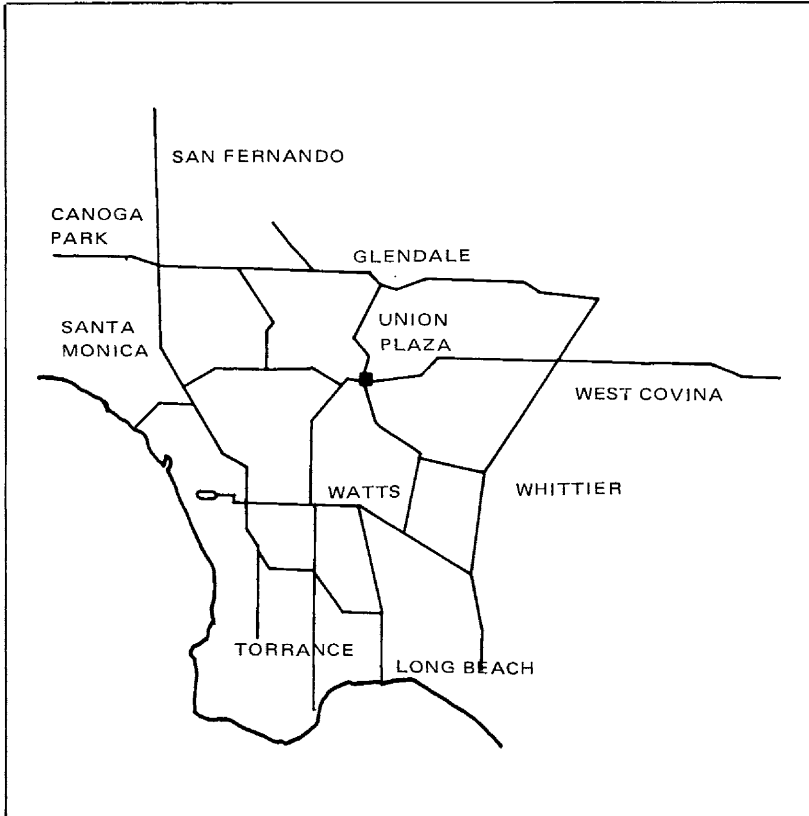
Except for a modest matching fund from the Federal government for a small starter segment, there will be no outside help at all.

The movement of people in Los Angeles County in the year 2001 is up to the people of Los Angeles County – and it is up to local government to provide proposals for such movement, about which the people then can decide.

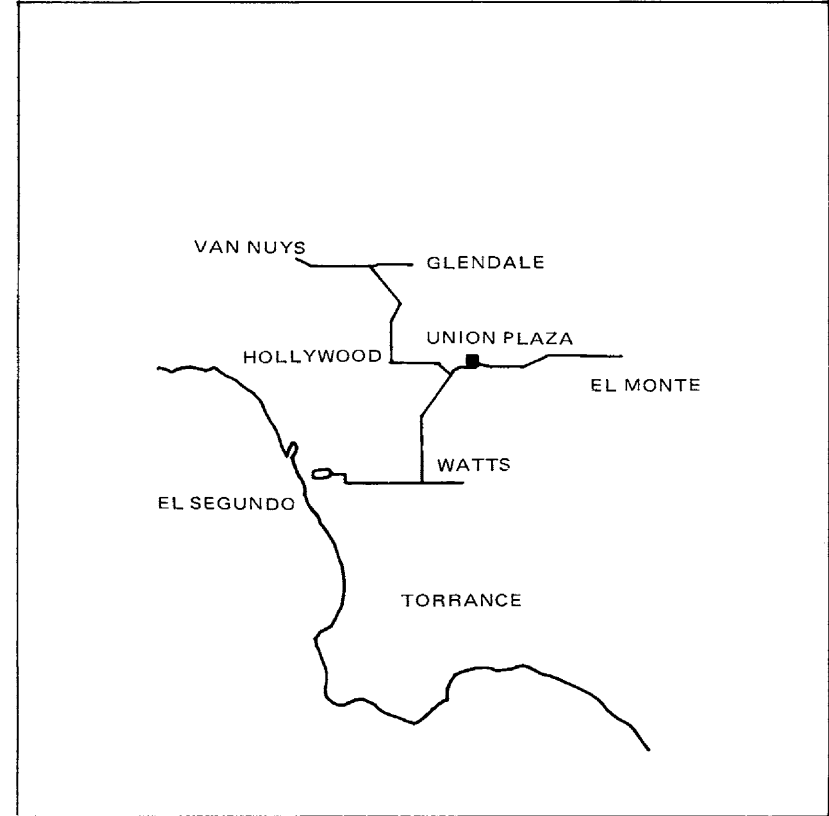
That is the purpose of this report.

THE SUNSET (Ltd.)*

... a starting size of the Sunset Coast Line **



1976 Proposal



1978 Proposal

**Construction of the whole 232 miles of the Sunset Coast Line would have required between 20 to 25 years to build. That is already more than the time available between now and the year 2001. The Sunset, Ltd., would begin construction in 1980, with limited starting service in 1984.

*A limited construction program, based on a limited amount of dollars.

THE TWO MOST PROMINENT ISSUES ABOUT LOS ANGELES TRANSIT:

QUESTION 1. How will we get people to give up their cars and take a train instead?

ANSWER: If there is no gasoline, it will be quite easy.

QUESTION 2. Can we afford to build the transit line?

ANSWER: Can we afford not to?

Annual Expenditure and Quantity of Gasoline Consumed in Los Angeles County, 1973-1977					
<u>Year</u>	<u>Gasoline Expenditures</u>	<u>% Change Over Previous Year</u>	<u>Gallons</u>	<u>% Change Over Previous Year</u>	<u>Average Price Per Gallon, in Cents (Approximate Figures)</u>
1973	\$1,636,000,000	19.8	3,553,000,000	9.7	42.5
1974	2,195,000,000	34.2	3,521,000,000	0.8	54.3
1975	2,076,000,000	-5.4	3,310,000,000	6.0	58.5
1976	2,384,000,000	14.8	3,476,000,000	5.0	60.4
1977*	3,052,000,000	28.0	3,875,000,000	11.5	63.5

*Expenditure and gallon figures for 1977 are estimates derived by doubling figures available for the first half of the year.

The table shows two years that were nearly identical in terms of gallons purchased — 1973 and 1976. The 1976 figure was 77,000,000 gallons less than the 1973 consumption — however, the cost for the 1976 gasoline was \$748,000,000 more, for fewer gallons, than in 1973.

The 232 mile Sunset Coast Line system was to have had an annual construction cost of \$232,000,000 — approximately 37% of the increased cost of gasoline in Los Angeles County between the years 1973 and 1976.

QUESTION 3 SHOULD BE: If Los Angeles County lacks gasoline and is immobilized by the year 2001, what effect would this have on industry?

ANSWER: When workers cannot report to job sites in Los Angeles County, their employers necessarily would consider the advisability of leaving the County for an area that has prepared for public transportation.

Some additional issues for Los Angeles County:

- QUESTION 4. Will there be gasoline here in 20 years?
- QUESTION 5. If there is, will only the rich be able to drive?
- QUESTION 6. If there is to be gasoline rationing, will authorities give extra gasoline for commuting, or will everyone get the same amount?
- QUESTION 7. If we should need a full County-wide rail transit system standing by for the year 2001, how long can we wait before we finally start building?
- QUESTION 8. Would start-up of a rail transit system provide more jobs here than any other use of Federal and Local funds?
- QUESTION 9. Is the public becoming dissatisfied with officials and planners who do no more than study?

WHAT IS THE MONEY SITUATION?

ANSWER:

The full 232 mile system no longer can be built in the foreseeable future — even with voter approval — because the 1976 legislature reduced the size of the sales tax increase that can be submitted to a public vote.

Up until 1976, three individual one-half cents were available for voter consideration. Each half-cent was to serve a special purpose (rail construction, bus operation, etc.). In 1968 voters were asked to approve a single half-cent issue for the so-called Backbone Routes.

The measure failed.

In 1974 the voters were asked to approve a project in the cost range of \$8-10 billion, to be financed over a lengthy period by the use of two individual half-cents, which were, with legislative approval, joined together as Proposition A in November of that year.

This measure also failed.

In 1976 the Sunset Coast Line proposal avoided any use of the one-half cent earmarked for bus operations, and instead utilized the two half-cents that could be proposed for rail construction and operation only. The legislature refused to consolidate these two half-cents into a single ballot measure, and they appeared as individual one-half cent tax increase measures designated as Propositions R and T.

These measures also failed in the June election of that year.

Now available is only a single one-half cent, which the legislature has designated as capable of use for either bus or rail operations, or both. If approved by the voters, even when coupled with potential Federal assistance from the Urban Mass Transportation Administration (UMTA), this money will build only a fifth of the full Sunset Coast Line, and, because of inflation, only about one-half of the Backbone Route proposal of 1968.

However, the half-cent funding will provide a good start.

Once people see the system in motion, and ride its trains, it is likely they will wish to see the lines expanded to a full system — particularly as our supplies of gasoline dwindle away.

HOW MUCH CAN BE BUILT NOW?

San Fernando Valley Line

This line runs along the Ventura Freeway on an aerial structure supported over the median from the Golden State Freeway, on the east, to Sepulveda Boulevard, on the west.

Hollywood Line

This route extends the Wilshire Line through Hollywood in a tunnel emerging at the Hollywood Bowl onto a structure along the Hollywood Freeway. The line ties into a junction with the San Fernando Valley Line at the Hollywood and Ventura Freeways.

Wilshire Line

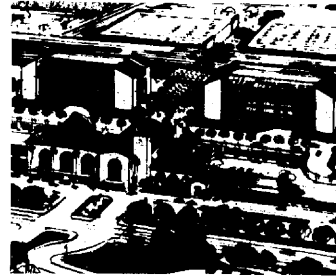
This line begins at the two-level transfer station with the Central Line at 5th and Flower Streets in downtown Los Angeles. In the future, this line would extend to the east and provide a direct connection to Union Station. The line runs to the west in a tunnel configuration to an alignment along Highland, La Brea, or possibly Fairfax.

Union Plaza

This is the present site of Union Station, with additional space for RTD and other bus transfers, tracks provided for the Downtown People Mover and six Amtrak platforms. The site will house the control and operations center for the Sunset Line.

San Gabriel Valley Line

This line operates from Union Station to the present El Monte Terminal. The busway would be converted to a rail transit operation by laying tracks directly onto the busway. This line would connect directly into the Central Line South through Union Station.



Central Line South

This line is an extension of the San Gabriel Valley Line through Union Station, which portals into a tunnel south of Union Station and the Santa Ana Freeway. The line remains in a tunnel until it portals near 22nd Street and the Harbor Freeway. The line operates on the aerial structure along the western embankment of the freeway to junction with the Airport Line in the median of the proposed Century Freeway.

Airport Line

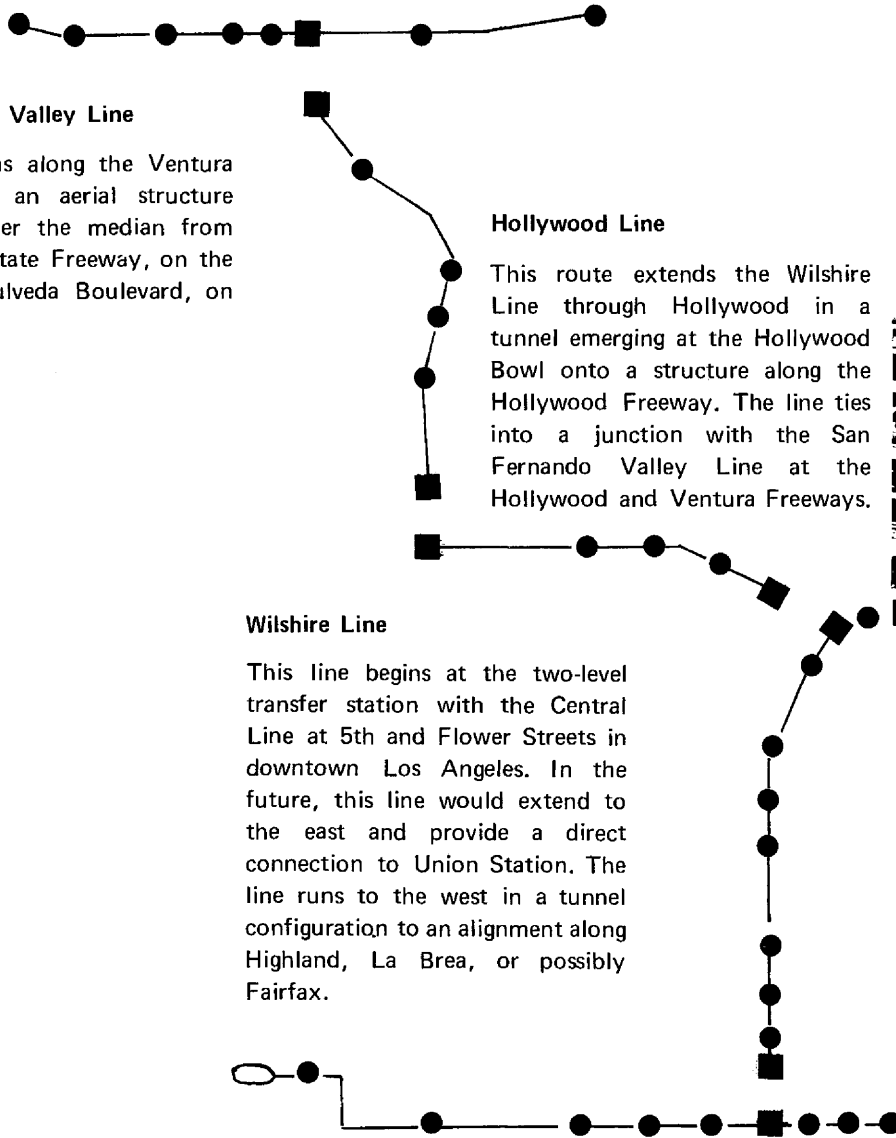
This line has as a temporary eastern terminus a location in the median of the proposed Century Freeway at Wilmington Boulevard. The location would provide a direct inter-line connection to the proposed Long Beach/Union Station Start-up Line being considered on existing rail trackage. The line operates at grade in the median of the freeway to approximately Aviation Boulevard, where it follows a railroad right of way to the north on an aerial structure; to the west on a structure over the median of Century Boulevard; and, on a one way, or single loop, structure around World Way Drive at Los Angeles International Airport.

Route of the Sunset Ltd.

Each line is shown separately

- Line Interchange
- Rapid Transit Station

The Sunset, Ltd., as shown here, is approximately 57 miles in length.



PURPOSE:

If President Carter and other energy experts are correct, our supply of gasoline in Los Angeles County will either dry up or be too costly to use, beginning about the year 2001. By then our national petroleum supply from OPEC is figured to take up to 20 percent of this country's Gross National Product.

If we wish to remain mobile thereafter, we must have completed an extensive and high-speed transit system by that time.

Assuming that the transit system one day must be built, it is likely that the routes projected two years ago in the 1976 Sunset Coast Line proposal will prove to be the most easy to build. The reason is very simple — cost. The Sunset utilized what already was in place — the freeways, the flood control embankments, and rights of way of existing rail lines. It did not pioneer any new routes that would require costly condemnation, lengthy environmental impact problems, or massive inconveniences.

Its only deviation from established routings occurred in three tunnel segments:

1. Union Plaza to 22nd (the South Central Line);
2. The Wilshire Subway, from 5th and Flower (an interchange station with the South Central Line) westward to Century City and north to the Hollywood Bowl.
3. The Taylor Yard bypass under the Los Angeles River.

(Additional tunnel work includes excavations for purposes of reduced grade only under Kellogg Hill on the San Gabriel Valley Line and under the Santa Monica Mountains on the San Diego Freeway line.)

Thus, planners seeking the most convenient and most inexpensive system in the County probably will be guided ultimately to the basic routes of the Sunset Coast Line.

To illustrate its simple expandability, the Sunset's ultimate freeway usage should include the Santa Ana Freeway to the Orange County Line, the Simi Valley Freeway to Chatsworth and the San Bernardino Freeway to Pomona.

HISTORY:

The Sunset Coast Line was organized into a proposal in late 1975 as a means of breaking the transit deadlock in Los Angeles County. It called for use of the rail-only sales tax components (for a total of one cent) then available for submission to the voters by the RTD. It further contemplated that, with local funding thus assured, the Federal Government (through the Urban Mass Transportation Administration) would provide matching funds up to \$800 million.

The Sunset system originally consisted of 232 miles of highspeed Main Line, with a supplemental monorail or other light rail service of an additional 50 miles. The cost originally was figured at \$4,706,670,000 in 1976 dollars. The proposal was submitted to the RTD on January 28, 1976. That agency then commissioned an exhaustive technical review of the proposal, hiring a number of major consulting firms to examine it from the standpoints of construction costs, financial feasibility, etc.

The initial reports of the consultants, coupled with criticism from the office of the Legislative Analyst, A. Alan Post, in Sacramento, and suggestions from various departments of the City of Los Angeles, indicated that a number of modifications were required before the RTD either could accept the proposal or place it on the June 6, 1976 ballot.

Originally, it was felt that the Sunset system would be most acceptable to the voting public if it could be built within a period of approximately 12 years. That construction time was feasible, and the one cent sales tax adequately would have supported the bonds that would have been required for that development. However, financial studies determined that such a massive bond usage by a single agency (the Rapid Transit District) could seriously cripple the remainder of the California agencies desiring access to the bond market during that same 12-year period.

Accordingly, the financial element was readjusted into a primarily Pay-As-You-Go plan, to which the financial review consultant, Stanford Research, gave its approval.

The engineering consultant, De Leuw, Cather and Company, insisted that original cost projections should be adjusted upward. The proposal then was reworked to accept the De Leuw, Cather cost analysis, which raised the total 1976 price to \$5.6 billion. This resulted also in a reduction of construction capacity — the County-wide Main Line (232 miles) remained intact, but the financial compromise made it necessary to eliminate all of the monorail and light rail feeder systems that earlier had been proposed throughout the County.

The new, overall construction schedule, because of Pay-As-You-Go, would have been considerably longer, but the initial construction progress would have been exactly the same for the first six years.

THE BENEFIT:

The Sunset will reproduce many of the beginning operational elements of the full Sunset Coast Line originally planned to start in the year 1983.

We will have lost two years of design and construction time since June of 1976, and they never can be recovered. Additionally, the sales tax capacity has been severely reduced by one half through Assembly Bill 1246, which limits to only one-half cent any transportation proposal to be submitted to Los Angeles County voters.

Beyond this, present reality requires an immediate and expanding support for both the existing bus system of the RTD and a developing number of new community service center or neighborhood lines.

But despite those problems, the Sunset still would give us a basic transit line that can accomplish extensive, important, and needed passenger movement.

THE MEANS:

The Sunset Coast Line anticipated 1979 one percent sales tax income at \$329 million for Los Angeles County. If the voters were to approve the one-half cent that now is available, that income would be reduced to approximately \$160 million for 1979.

Therefore, all calculations must start on the basis of \$160 million as the total local income that could be made available in the first year.

Even that figure, however, must be further reduced, because of the necessity to support the growing dependence of the bus system and the need to modernize and expand its fleet. This plan proposes to divide permanently the available one-half cent sales tax income on the following basis:

Rail construction and operation:	\$100 million
Bus operation and expansion:	\$ 60 million

The ratio is ten to six.

Each of these figures will grow at the rate of approximately 6½ percent per year.

The bus funding now can comfortably cover existing subsidies to the RTD and municipal operators, provide for expansion of service and modernization of equipment.

The bus funding also can extend to the development of crucially needed community level transit service, which, ideally, will be described by the communities themselves.

The funding for the Sunset will be assigned exclusively to transit construction, purchase of vehicles, and all operational costs. This proposal deals only with the rail construction and operational aspects.

Income for the rail half of the project can be increased by other means:

A. Federal matching funds;

B. Usage of limited bond financing.

In this proposal we will show approximately what can be built with a combination of these funds, with construction to start in 1980.

THE METHOD:

This proposal is drawn to meet the financing and time limitations that obviously beset us. It does this by breaking down the system into several construction components. These are:

1. The complete Airport Terminal System, with stub connections to the ultimate San Diego Freeway line, and Main Line service extending eastward along the Century Freeway route, with stub connections at the Harbor Freeway to Long Beach, and proceeding northward into the tunnel at 23rd and ending at a temporary transfer point at the Convention Center Station.
2. Construction of the Union Plaza to its total rail capacity, with temporary provisions for additional RTD bus transfer services.
3. Conversion of the El Monte Busway westward from El Monte, past its present terminus, through a trestle extension to Union Plaza.
4. Beginning an extension southward to Long Beach from the Century/Harbor Junction.
5. Beginning construction of the northern approach to the Valley, northward from Union Plaza.

ORANGE COUNTY:

The Orange County Transit District submitted a plan to the voters in November of 1974 for a 115.6 mile transit system. The measure was defeated 38% to 62%. Since then, the OCTD has proceeded with its transit plans in accordance with available financing.

The ultimate rail network envisioned for Orange County is pictured in the next column. The trackage would be standard and thus could interconnect with the lines serving Los Angeles County.

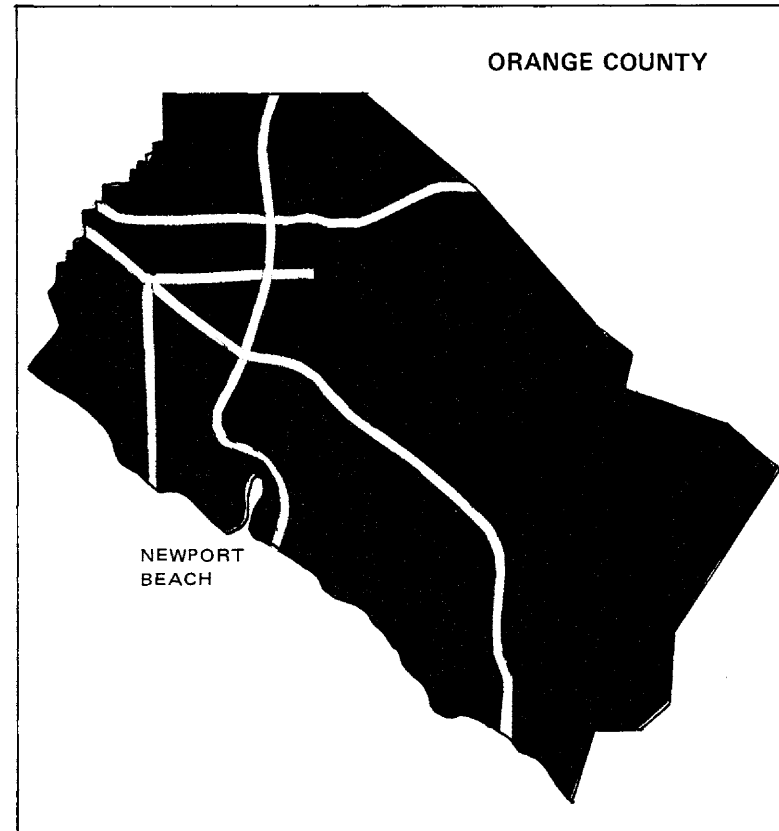
Of particular interest to OCTD officials is one important remnant of the old Pacific Electric system. It is a 100-foot wide right of way extending from Watts Junction to a station terminal at Riatt and 5th Streets in Santa Ana. Just west of the station is a modest curve, after which the track runs straight the entire distance of approximately 10.8 miles.

Presumably, service from Los Angeles County intended for transfer or interconnection with Orange County could follow the northwestward extension of this line back to Watts Junction. Los Angeles County at present has no plans to purchase or lease the right of way, but should remain alert to the possibility of Southern Pacific offering the route for sale, or using it for other purposes. The distance from the Orange County line to Watts is 11.7 miles.

Orange County sees this route as a means of providing ultimate access primarily to Los Angeles International Airport, and incidentally to Downtown Los Angeles and the rest of the region.

Service between the two counties could be conducted by a transfer from one train to another at the county line, although it would be preferable if each county could be allowed free access to the transit lines of the adjoining county, with neither a transfer nor increase in fare being required. This would result in an Orange County resident being

able to board in Santa Ana, for example, and ride direct to LAX without a transfer or extra fare. Similarly, Los Angeles County residents could board anywhere within the Sunset system, and travel direct to Disneyland or other Orange County points without being required to change trains or pay for an additional ticket.



EXISTING RAIL LINES:**Heavy Rail**

The so-called Los Angeles County Train, the El Camino, began a six month experimental service between San Diego and Los Angeles on February 14. Its purchase and operational costs were funded by the Board of Supervisors in June of 1974, as part of an experiment to determine if motorists in Southern California would abandon their autos in favor of rail service at travel times that were convenient.

The equipment consists of eight refurbished rail cars, whose purchase and repair costs were \$2,010,521.

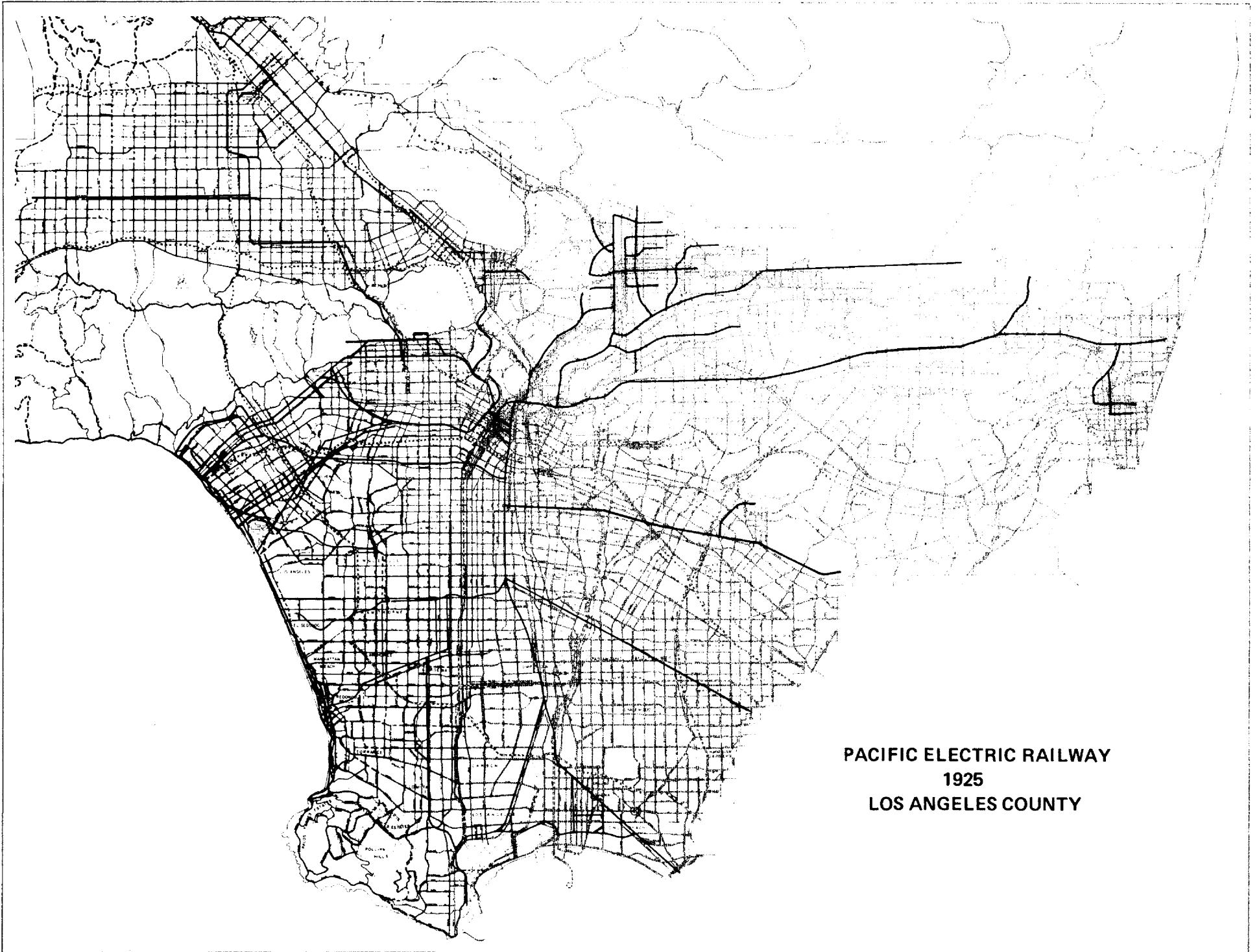
If, instead of using this equipment, the County had purchased new rolling stock (such as the new Amfleet cars purchased by Amtrak from the Budd Company of Philadelphia for its own runs on the San Diego to Los Angeles Corridor) the cost would have been approximately \$537,000 per car or \$4,296,000 for an equivalent eight car train set.

The El Camino train is operating on an existing rail line.

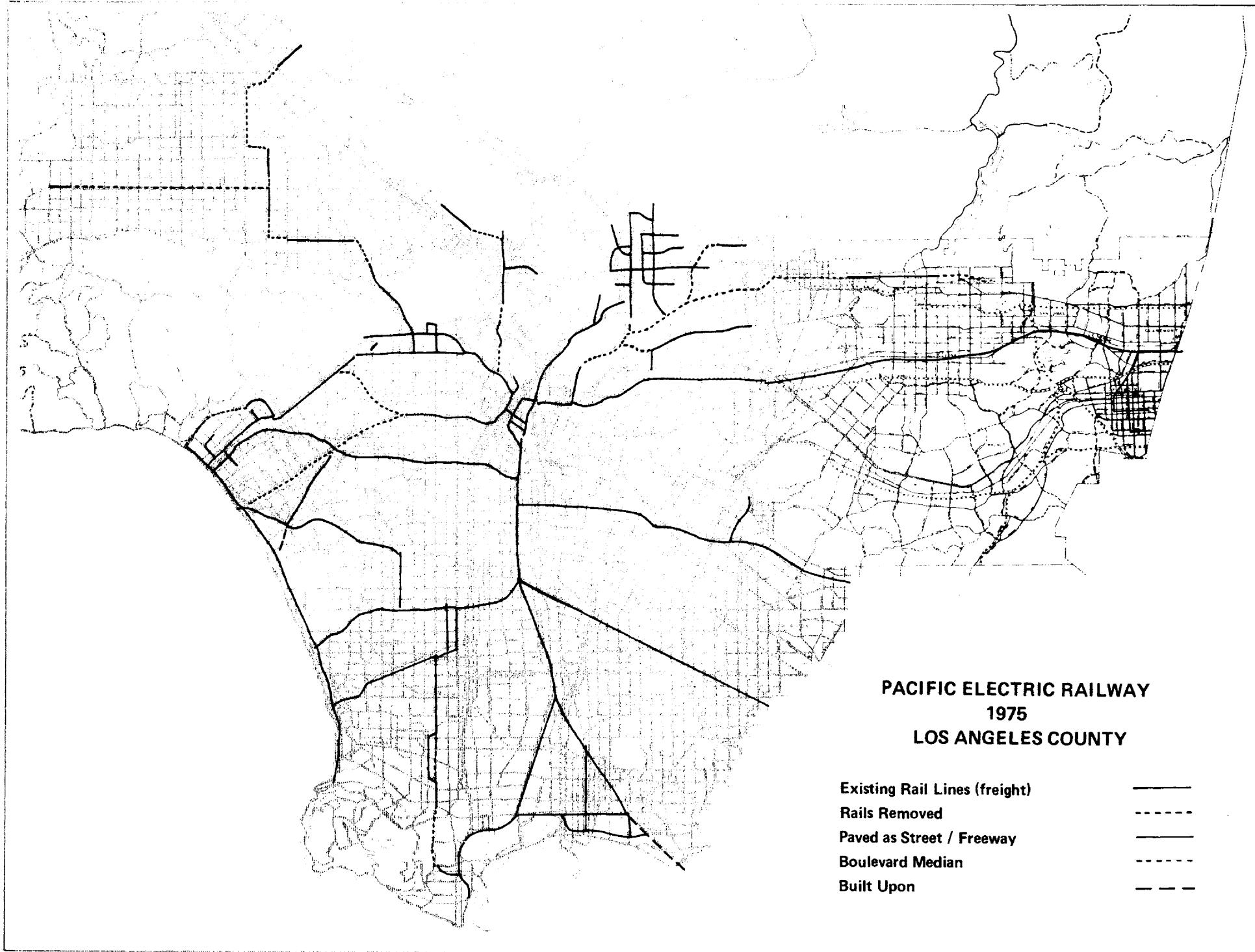
Light Rail

In 1975, considering other existing lines, the Board of Supervisors endorsed a Starter Line concept from Canoga Park to Long Beach that would have utilized abandoned or existing rights of way of what formerly were elements of the old Pacific Electric system. On the following page are two maps of that system. One shows the routes as they existed a half century ago when they and their Red Cars were in 1100 mile service in Southern California. A second map shows the condition of the rights of way as they appeared in 1975. Abandonments and track removals are indicated by the dotted lines.

Although the Starter Line concept did not gain support outside of the Board of Supervisors, the rights of way still remain. Supervisor Kenneth Hahn has called for a study that would determine the feasibility of developing and operating a service between Union Station and Long Beach. Such a service presumably would originate at Union Station on tracks just north of the Station, occupying the center of Alameda Street. The rail line remains in Alameda Street as the line progresses southward past 8th Street, where it swings southwestward to join Long Beach Boulevard. The route works southward to Watts Junction at which point the old Pacific Electric tracks aimed east, south, and west in various direct or combination routings. There are several routes from Watts Junction south to Long Beach, and the one chosen for study terminates at Anaheim Street and Redondo Boulevard in that city.



**PACIFIC ELECTRIC RAILWAY
1925
LOS ANGELES COUNTY**



At this stage, only a preliminary estimate of cost has been made as shown in the following table:

CAPITAL COST			
(Order of Magnitude Estimates)			
<u>Component</u>	<u>Unit Cost</u>	<u>Quantity</u>	<u>1978 Cost</u>
At Grade, RR right of way	1,870,000	18.2 miles	34,030,000
Arterial Median (barriers)	1,440,000	1.6 "	480,000
Trackwork, Arterial median	1,060,000	1.6 "	-----
Trackwork, RR right of way	1,060,000	18.2 "	19,290,000
Controls/Communications	250,000	19.8 "	4,950,000
Stations	50,000	17	850,000
Light Rail Vehicles	750,000	50	37,500,000
Overpasses	1,870,000	5	9,350,000
Maintenance/Storage (car)	120,000	50	16,000,000
			<hr style="width: 100%; border: 0.5px solid black;"/>
			122,450,000

The accompanying map shows each of the existing grade crossings and the type of protection which these sites presently have. In the process of upgrading this existing line to accommodate a form of light rail transit service, it would be necessary to provide grade crossings at certain key intersections.

In response to Mr. Hahn's questions, the following basic information has been developed.

The Southern Pacific presently operates a freight service over part of this line as part of a switching district over tracks in the median of Long Beach Boulevard between Watts Junction and a point near downtown Los Angeles.

Most of the right of way that is proposed here is privately owned. Beginning at the southern terminus of the Pacific Electric right of way at the Pacific Coast Highway, the line is partially grade separated and runs in a private right of way along a section of track that seemingly has been abandoned by the Southern Pacific.

On the north side of the Los Angeles River, these tracks are in active use, but still operate along a private right of way. North of the Watts Junction, while the right of way remains private, there is a fair amount of freight service as part of an existing switching district for the Southern Pacific.

North of Washington Boulevard, the tracks run through a warehousing district and ultimately into the median of Alameda Street. The line terminates in the vicinity of Union Station after slightly more than one mile of a street running operation along Alameda.

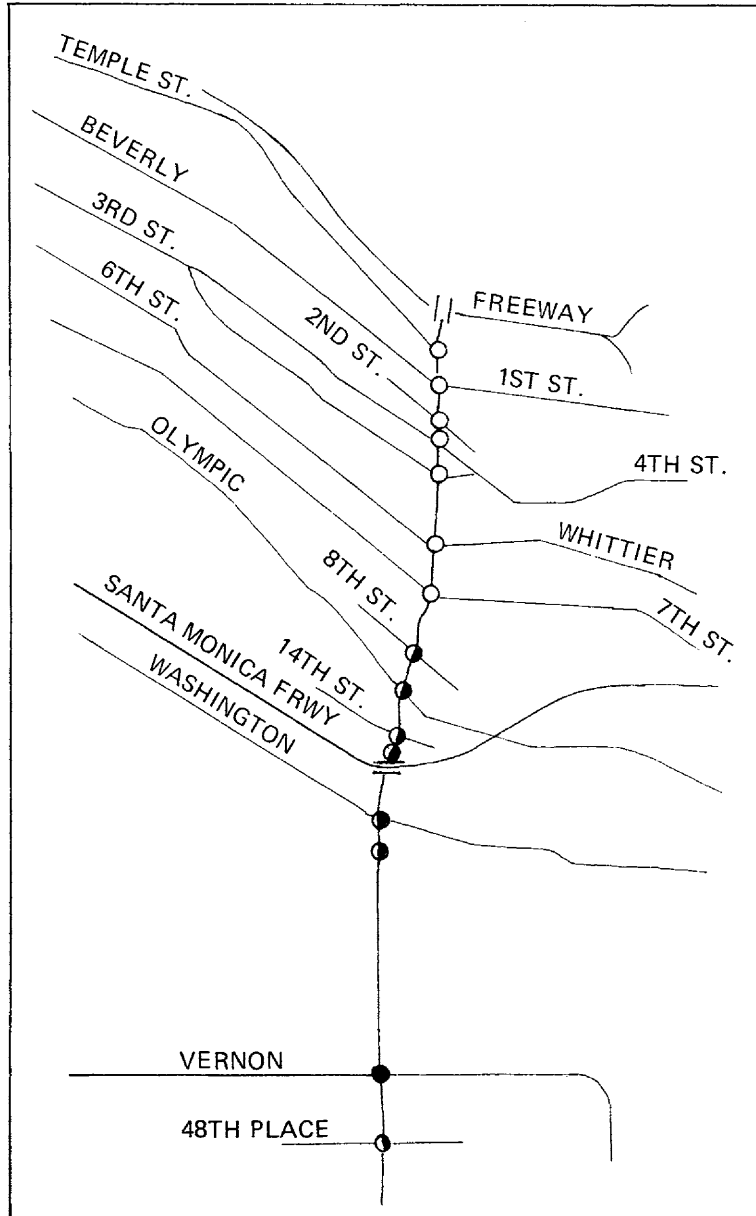
To implement this service, a minimum amount of construction would be required. To the southeast of the Los Angeles River, the line would need grading and the laying of two ballasted tracks.

Between Watts Junction in the Los Angeles River, essentially the same kind of site preparation would be required. However, here the right of way is in better condition and would require less grading and conditioning. The existing Southern Pacific trackage would have to be shifted slightly to one side to accommodate two additional transit tracks. Between Watts Junction and Washington Boulevard, it would be necessary to shift the freight trackage to one side or the other, and lay two transit tracks.

Along Alameda Street, it would be necessary to construct the New Jersey-type freeway barriers along the existing single track in the center of the street. This would serve to segregate automobile traffic from the single rail line in the middle of the street. Through the use of onboard signal pre-emption equipment for the rail cars, it would be possible for the operator to change the traffic signals along Alameda Street ahead of himself. This would permit a smooth and orderly flow for the train operation without a great deal of time lost for starting and stopping at traffic lights.

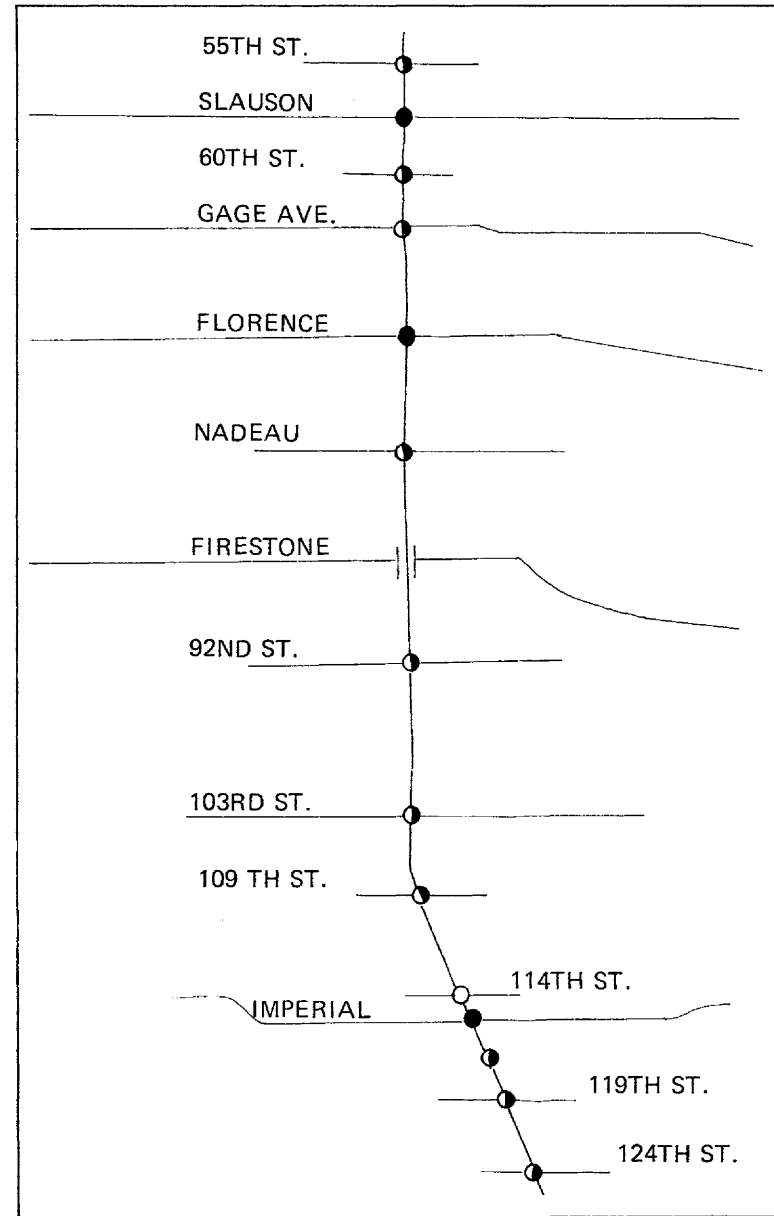
System controls would be required throughout the route. Because of the simplicity of the operation, and the lack of highspeed runs, it is proposed that the controls be of the standard railroad design.

A

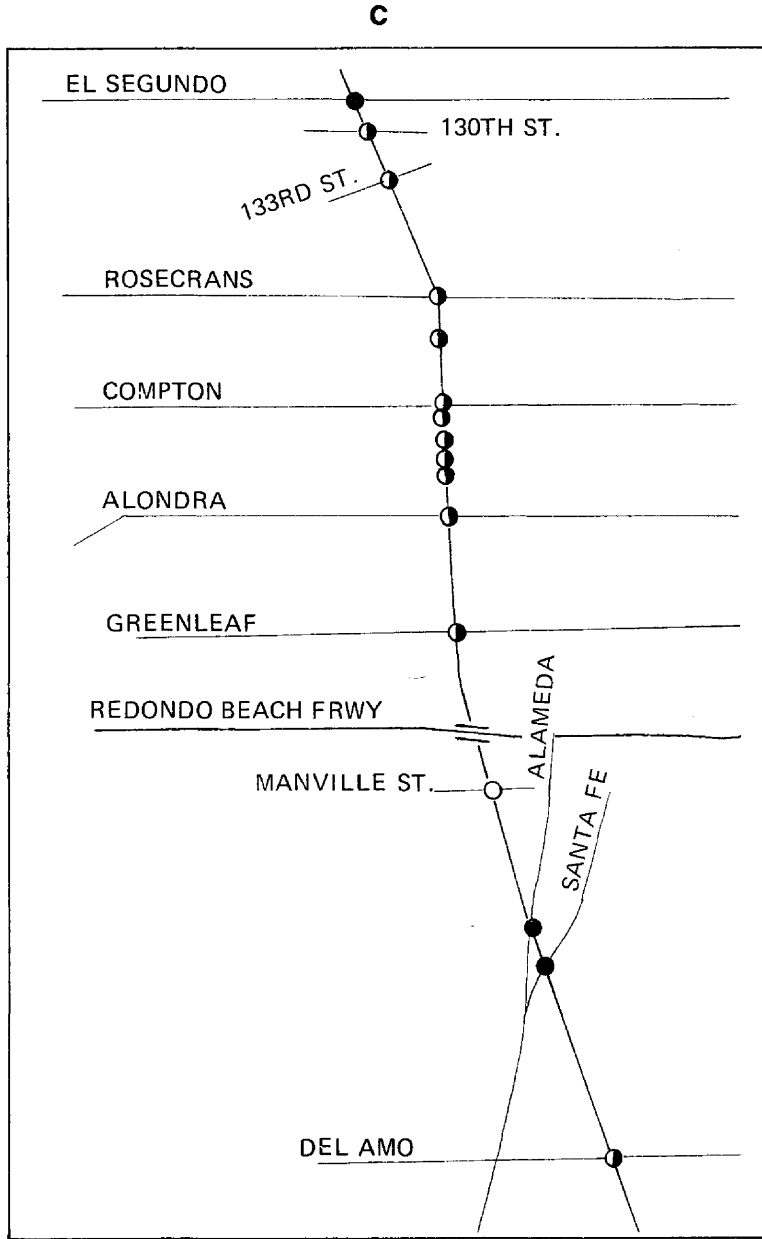


See map (B) **B**

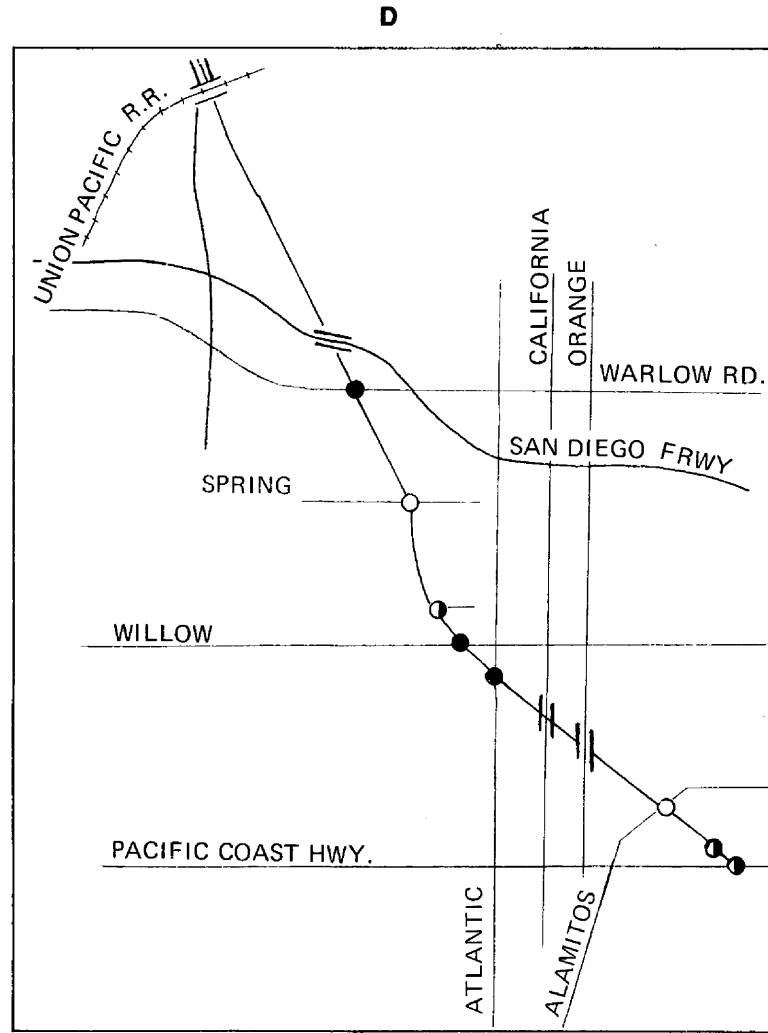
B



See map (C) **C**



See map (D) **D**



GRADE CROSSING PROTECTION

- || OVERPASS
- DROP GATE
- ◐ FLASHING LIGHTS
- NO PROTECTION



In addition to the preliminary estimate of capital cost for this initial line, it is estimated that the cost to provide this operation would be approximately \$11 million per year.

To minimize costs, this light rail plan has eliminated electrification entirely. This has saved approximately \$35 million in beginning construction costs. Self-propelled vehicles can be used in any rail project, and would be ideal in this introductory system. The self-propelled vehicles can be converted later to either overhead or third rail operation.

An illustration of such equipment is the SPV-2000 vehicle, a diesel engine rail car now being introduced by the Budd Company of Philadelphia, Pennsylvania. These vehicles are capable of being operated as single cars, or joined into sets of two or more cars. Their 1978 price is \$750,000.

To make possible the start up of this light rail line from Union Station to Long Beach, it will be necessary to determine from the State Public Utilities Commission what precise operating conditions must be followed to permit the kind of operation that is proposed. Additionally, an understanding with the Southern Pacific Transportation Company would be necessary. The railroad could require that the improvements proposed through the transit line passenger operation would benefit the Southern Pacific freight operation.

The last step would be to file an application with the Urban Mass Transportation Administration to obtain a grant for 80 percent of the funding of this program.

It cannot be known at this time whether such a leg, developed as light rail along an existing rail line, ultimately would be absorbed into the Sunset system. Because it is standard rail with diesel equipment, the lines can interconnect, and the equipment can be utilized anywhere in the system.

Ideally, however, the diesel cars should not be used in any of the major tunnels, but rather should be reserved for aerial or at grade running on such routes as Long Beach to LAX, for example.

If this separate route were to become upgraded or absorbed into the main system, it necessarily would require electrification and total grade separation. The grade separation might become difficult as the line approaches Union Station from the south, particularly on Alameda Street.

Therefore, it is likely that the later high-speed Long Beach service would be carried to Watts and then diverted onto the Sunset Main Line, with Union Station becoming reachable via the Central Line South, which utilizes primarily the Harbor Freeway. In the event the Watts/Long Beach Line is electrified, it would be advantageous to convert the diesel equipment to full electrical power. However, the vehicles also could continue operation as full diesel equipment on certain selected lines, perhaps including those into Orange County, as discussed earlier in the Orange County section.

THE DOLLARS

THE DOLLARS

The financing analysis presented in this report was based on a 57-mile, six corridor system with a total project cost of \$3,857,000,000. The financing plan contemplates authorization and issuance of \$2,054,000,000 of District-wide general obligation bonds for a portion of the system and utilizing UMTA funds for the remainder of the system.

Costs and Schedules of Expenditures

The recommended six corridor system is estimated to cost a total of \$3,857,000,000. It is estimated that construction will cost a total of \$3,492,000,000. Shops and yards have an estimated total cost of \$41,000,000 and rail cars a total cost of \$324,000,000.

A portion of the system will be financed through the sale of District-wide bonds for a total of \$2,054,000,000. It is estimated that this portion will have a construction cost of \$1,828,000,000, and that rail cars will cost \$226,000,000. The cost of the shops/yards will not be financed from the bonds.

The cost estimates take into account specific route alignment, type of construction, and special problems of grade separation. The estimates are for a completely operable system, including rolling equipment, with a substantial allowance for price inflation, incidentals, and contingencies.

The schedule of annual cash requirements for the project financed from the bonds is shown at the right. The construction program has been developed to coordinate various elements of the project in order to bring operable sections of the system into service as soon as possible. Right of way acquisition procedure could commence as soon as bonds were authorized. Time is provided in the schedule to permit final design and preparation of detailed plans and specifications. It is assumed that detailed design will begin in 1980. Construction would then begin in 1981. The first trains would be in service by 1984 and the entire six-corridor system would be complete and in operation in 1989.

TABLE I
Cash Required for Projects
Financed Through ½ cent Sales Tax

Year	Amount
1979	45,000,000
1980	137,000,000
1981	507,000,000
1982	636,000,000
1983	408,000,000
1984	216,000,000
1985	78,000,000
1986	27,000,000
TOTAL	\$2,054,000,000

TABLE II
Limits of Bonding Capacity

Year	Limit* of Allowable Sales per Year (1% of Total New Bonds)	Limit* of Total Outstanding Bonds (½% of Total Bonds)
1979	390,000,000	1,400,000,000
1980	420,000,000	1,500,000,000
1981	460,000,000	1,640,000,000
1982	500,000,000	1,780,000,000
1983	540,000,000	1,920,000,000
1984	580,000,000	2,060,000,000
1985	620,000,000	2,200,000,000
1986	660,000,000	2,340,000,000

*From Stanford Research Institute Study
of the Sunset Coast Line

The Bonds

General obligation bonds represent the least costly means by which the District can borrow the substantial sums needed to finance the proposed project, and, in addition, offer the greatest flexibility in meeting debt service costs through various sources of revenue other than the property tax. The bonds are proposed to be sold in series over a period of years as construction funds are required. The bonds would mature in specified amounts in specified years. Bonds would be sold by competitive bidding and the actual interest rates established at the competitive sales. A study by the Stanford Research Institute estimates the bonding capacity of the District and is shown in Table II.

The financing methods considered in this report are based upon the following assumptions regarding the bonds to be issued:

1. The interest rate will be 6½% per annum.
2. Interest during construction is not to be capitalized.
3. Principal payments are to begin one year after the issuance of each series of bonds.
4. Each series of bonds is to mature over a period of approximately 30 years.
5. The first series of bonds is to be issued in 1979 and additional series are to be issued at the beginning of each fiscal year thereafter in the net amount required for the project in that fiscal year.

The last two assumptions are made for analytical convenience. Thirty years is the best period over which the bonds could be amortized. Each series of bonds would in practice be tailored to market conditions, which might well favor a shorter or longer term for the bonds. The timing of bond sales too may be adjusted to the extent permitted by the construction program, conditions in the municipal bond market, or other factors. The financing program is based upon existing financial conditions and other information available, but the final financing provision will be determined and set forth in the ordinance calling any bond election or at the time of issuance and sale of any bonds.

The interest rate on the bonds is to be set by competitive bidding over the next eight years or more, and the effective average rate may prove to be more or less than the 6½% which is assumed here.

TABLE III

System Operating Costs for Projects
Financed by the ½ cent Sales Tax

Year	Operating* Cost per Mile		Miles of System In Operation	Annual Operating Cost
1979	600,000	Not Applicable	0	0
1980	640,000	"	0	0
1981	690,000	"	0	0
1982	740,000	"	0	0
1983	790,000	"	0	0
1984	840,000	Service Begins	30	25,200,000
1985	900,000		30	27,000,000
1986	960,000		36	34,560,000
1987	1,030,000		38	39,140,000
1988	1,100,000		38	41,800,000
1989	1,180,000		42	49,560,000
1990	1,260,000		42	52,920,000

- * Assuming:
1. \$1 million per mile operating cost in 1979 with inflation at 7% per year.
 2. Fare income will offset 40% of the annual operating cost.

TABLE IV

Bond Sales for Projects Financed by the ½ cent Sales Tax

Year	New Bonds		Total Bonds		Annual Funds Required	
	Sold	Annual* Retirement Required	Total Sold	Total Outstanding	Bond Retirement	Bond Interest
1979	90,000,000	3,000,000	90,000,000	90,000,000	0	0
1980	300,000,000	10,000,000	390,000,000	387,000,000	3,000,000	5,850,000
1981	460,000,000	15,330,000	850,000,000	834,000,000	13,000,000	25,160,000
1982	500,000,000	16,670,000	1,350,000,000	1,305,670,000	28,330,000	54,210,000
1983	400,000,000	13,330,000	1,750,000,000	1,660,670,000	45,000,000	87,750,000
1984	210,000,000	7,000,000	1,960,000,000	1,812,340,000	58,330,000	113,750,000
1985	80,000,000	2,670,000	2,040,000,000	1,827,010,000	65,330,000	117,800,000
1986	14,000,000	460,000	2,054,000,000	1,773,010,000	68,000,000	118,760,000
1987	0	0	0	1,704,550,000	68,460,000	115,250,000
1988	0	0	0	1,636,090,000	68,460,000	110,800,000
TOTAL:	2,054,000,000	68,460,000				

* Assuming 30 year bonds.

Under the assumptions made, in each fiscal year shown, total funds available cover total funds required, and that sales tax proceeds exceed bond service requirements and maintenance costs. Table V shows the estimated annual bond service requirements maintenance costs and $\frac{1}{2}\%$ sales tax income to final maturity of the bonds in 2016, 30 years after the scheduled date of sale of the last series of bonds. Annual sales tax proceeds of 1999 would be sufficient to meet all later bond service requirements.

The conclusions reached depend, of course, upon the assumptions made. Given the schedule of project cash requirements, the critical assumptions concern the interest rate of the bonds and the rate of growth of taxable sales.

The bonds would be general obligations, expected to be fully self-supported by the general sales tax. They would be sold over an 8-year period, allowing ample time for correction of abnormally high interest rates. Under these conditions, an effective overall interest rate of $6\frac{1}{2}\%$ for the bonds would seem to be a conservative expectation.

	Year	Bonds Outstanding	Bond Retirement	Bond Interest	Total Bond Service
		1979	90,000,000	0	0
	1980	387,000,000	3,000,000	5,850,000	8,850,000
	1981	834,000,000	13,000,000	25,160,000	38,160,000
	1982	1,305,670,000	28,330,000	54,210,000	82,540,000
	1983	1,660,670,000	45,000,000	87,750,000	132,750,000
	1984	1,812,340,000	58,330,000	113,750,000	172,080,000
	1985	1,827,010,000	65,330,000	117,800,000	183,130,000
	1986	1,773,010,000	68,000,000	118,760,000	186,760,000
	1987	1,704,550,000	68,460,000	115,250,000	183,710,000
	1988	1,636,090,000	68,460,000	110,800,000	179,260,000
	1989	1,567,630,000	68,460,000	106,350,000	174,810,000
	1990	1,499,170,000	68,460,000	101,900,000	170,360,000
	1991	1,430,710,000	68,460,000	97,450,000	165,910,000
	1992	1,362,250,000	68,460,000	93,000,000	161,460,000
	1993	1,293,790,000	68,460,000	88,550,000	157,010,000
	1994	1,225,330,000	68,460,000	84,100,000	152,560,000
	1995	1,156,870,000	68,460,000	79,650,000	148,110,000
	1996	1,088,400,000	68,460,000	75,200,000	143,660,000
	1997	1,019,930,000	68,460,000	70,750,000	139,210,000
	1998	951,470,000	68,460,000	66,300,000	134,760,000
	1999	883,000,000	68,460,000	61,850,000	130,310,000
	2000	814,530,000	68,460,000	57,400,000	125,860,000
	2001	746,070,000	68,460,000	52,940,000	121,400,000
	2002	677,600,000	68,460,000	48,490,000	116,950,000
	2003	609,130,000	68,460,000	44,040,000	112,500,000
	2004	540,670,000	68,460,000	39,590,000	108,050,000
	2005	472,190,000	68,460,000	35,140,000	103,600,000
	2006	403,710,000	68,460,000	30,690,000	99,150,000
	2007	335,230,000	68,460,000	26,240,000	94,700,000
	2008	266,750,000	68,460,000	21,790,000	90,250,000
	2009	198,270,000	68,460,000	17,340,000	85,800,000
	2010	132,800,000	65,460,000	12,890,000	78,350,000
	2011	77,340,000	55,460,000	8,630,000	64,090,000
	2012	37,200,000	40,130,000	5,030,000	45,160,000
	2013	13,730,000	23,460,000	2,420,000	25,880,000
	2014	3,590,000	10,130,000	890,000	11,020,000
	2015	460,000	3,130,000	230,000	3,360,000
	2016	0	460,000	30,000	490,000

TABLE V

Estimated Bond Service
Requirements
For Projects Financed by
the ½ cent Sales Tax

THE ROUTES

UNION PLAZA

41

Union Plaza, the focal point of the Sunset Line, will be located in the vicinity of the existing Union Station.

It will not only serve as a main loading and interchange point but will also provide the operational controls for all lines.

In addition to passenger service, the facilities will provide various shop and yard facilities for storage and servicing of rail cars. It will also offer multi-level parking structures, and other passenger and commercial facilities.

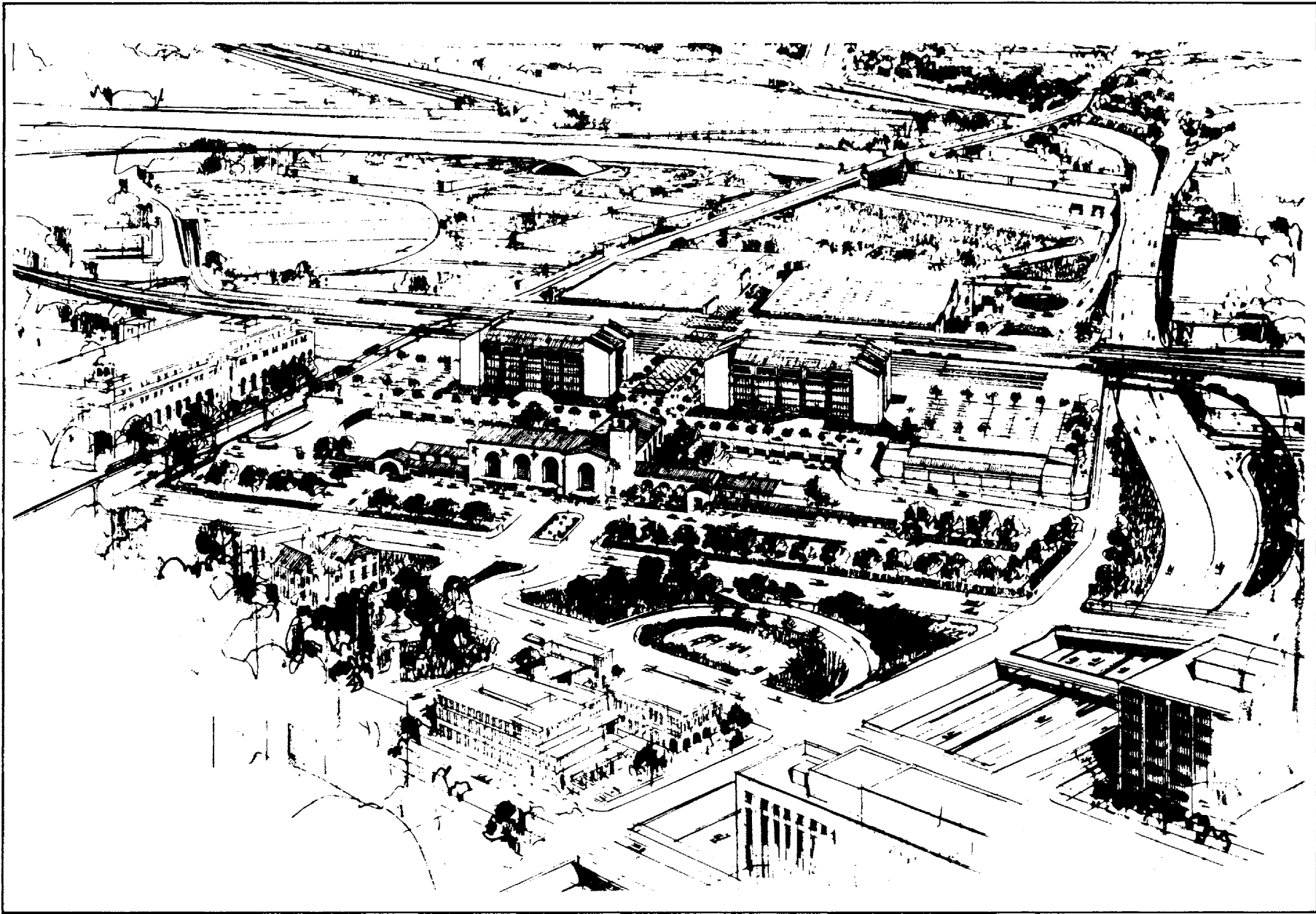


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SUNSET, LTD.

UNION STATION . . . 1978



UNION STATION . . . 1985

SUNSET, LTD.



44 Map Reference, page 45

The key to the development and operation of the Sunset system will be the Union Plaza. The facility will serve as the terminal for some of the Sunset trains and will be an interchange for connecting lines.

The new facilities will be constructed directly east of the existing stations. Besides its service for the Sunset system it will also provide direct connections with all Amtrak trains, located just a few feet away. Amtrak will retain the present six westerly tracks, with three platforms approximately 1,200 feet long.

Map Reference, page 47

At this upper terrace, before arriving at the tracks at the platform level, we will construct two nearly identical mission-style structures, separated by a mall of 150 feet in length. These structures will provide a total of 250,000 square feet of working space. One will be located over a 40,000 square foot operations and control center for the Sunset system on the concourse level. The other will be placed directly over an operations center for the CRA downtown peplemover system.

The Sunset system change and ticket vending machines will be located at the east end of the concourse level. In addition to providing access to the external concourse, this area will also include admission and exit gates on three sides, three station agent booths, restroom facilities, two escalators, a specially designed elevator for handicapped persons, and a staircase to each of the platforms.

Map Reference, page 48

Immediately behind the existing depot structure will be a colonnade interior of approximately 80 x 1,000 feet. Originally designed for

luggage handling and loading, this area could be converted to commercial use. We propose removing the buildings no longer in use for freight and mail transport, and converting the general area into brick paved walkways and a limited access driveway.

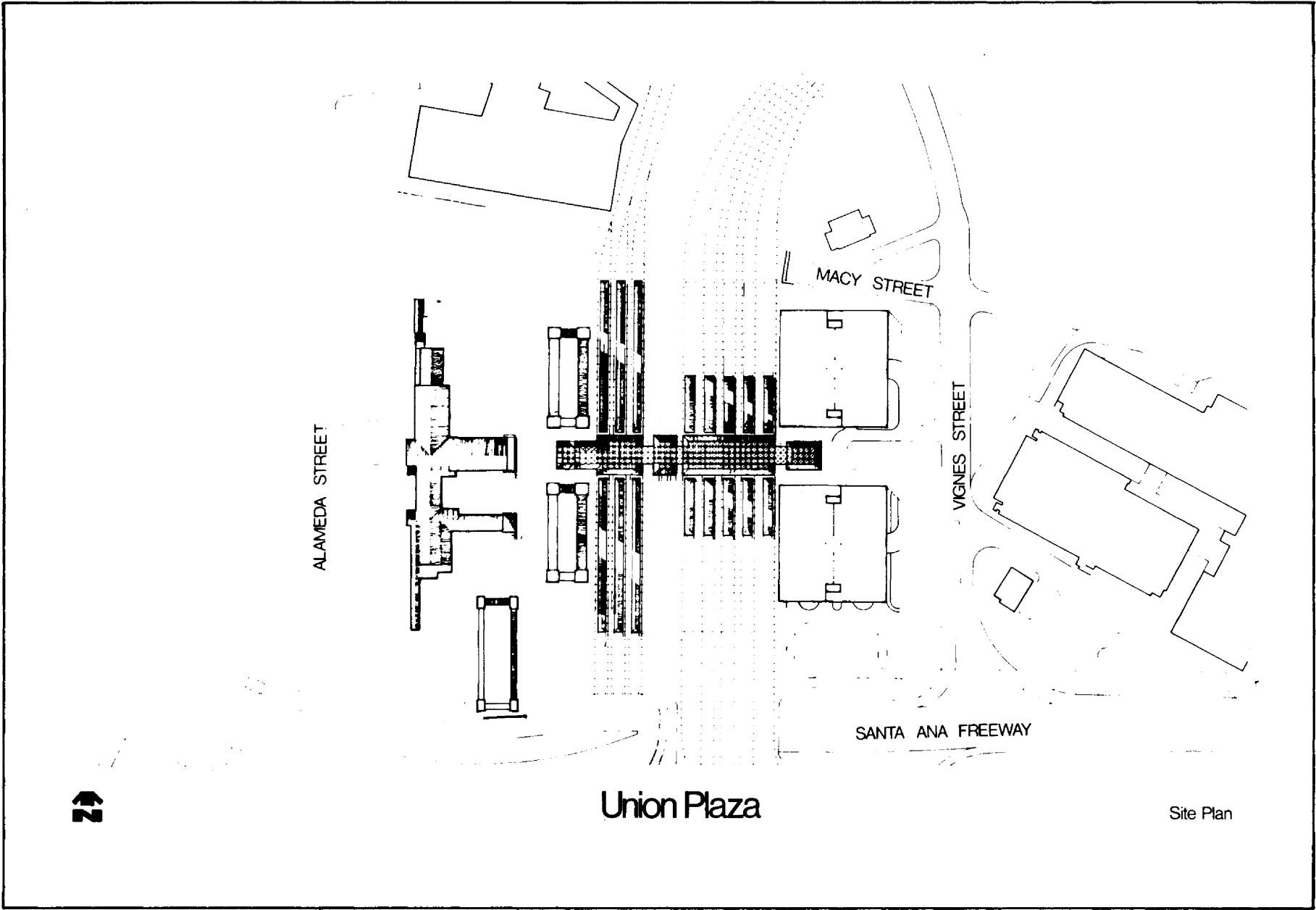
Map Reference, page 46

Shops will be located outside of each concourse, providing 70,000 square feet of usable area in the north mall and 90,000 square feet in the south mall.

A multi-deck parking garage will be built within the Plaza with storage for 2,000 cars. The north portion of the garage could include passenger service facilities, such as; service station, carwash and auto rental. At ground level, plans call for a depot adequate to accept over 20 RTD and commercial buses at a time, with elevated approach lines which will not interfere with auto traffic.



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ALAMEDA STREET

MACY STREET

VIGNES STREET

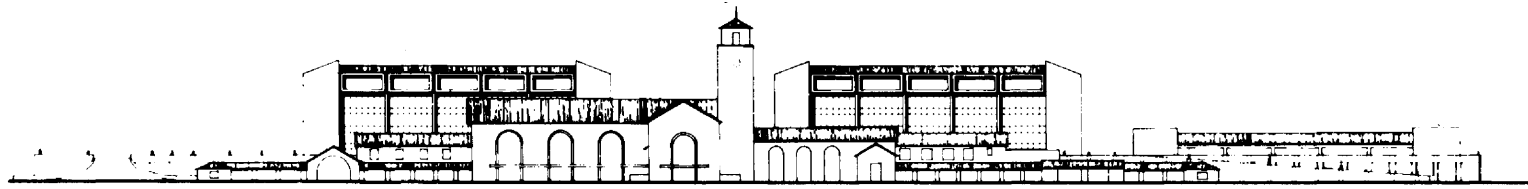
SANTA ANA FREEWAY

Union Plaza

Site Plan



SUNSET, LTD.



Alameda Street Elevation



Macy Street Elevation



Freeway Elevation

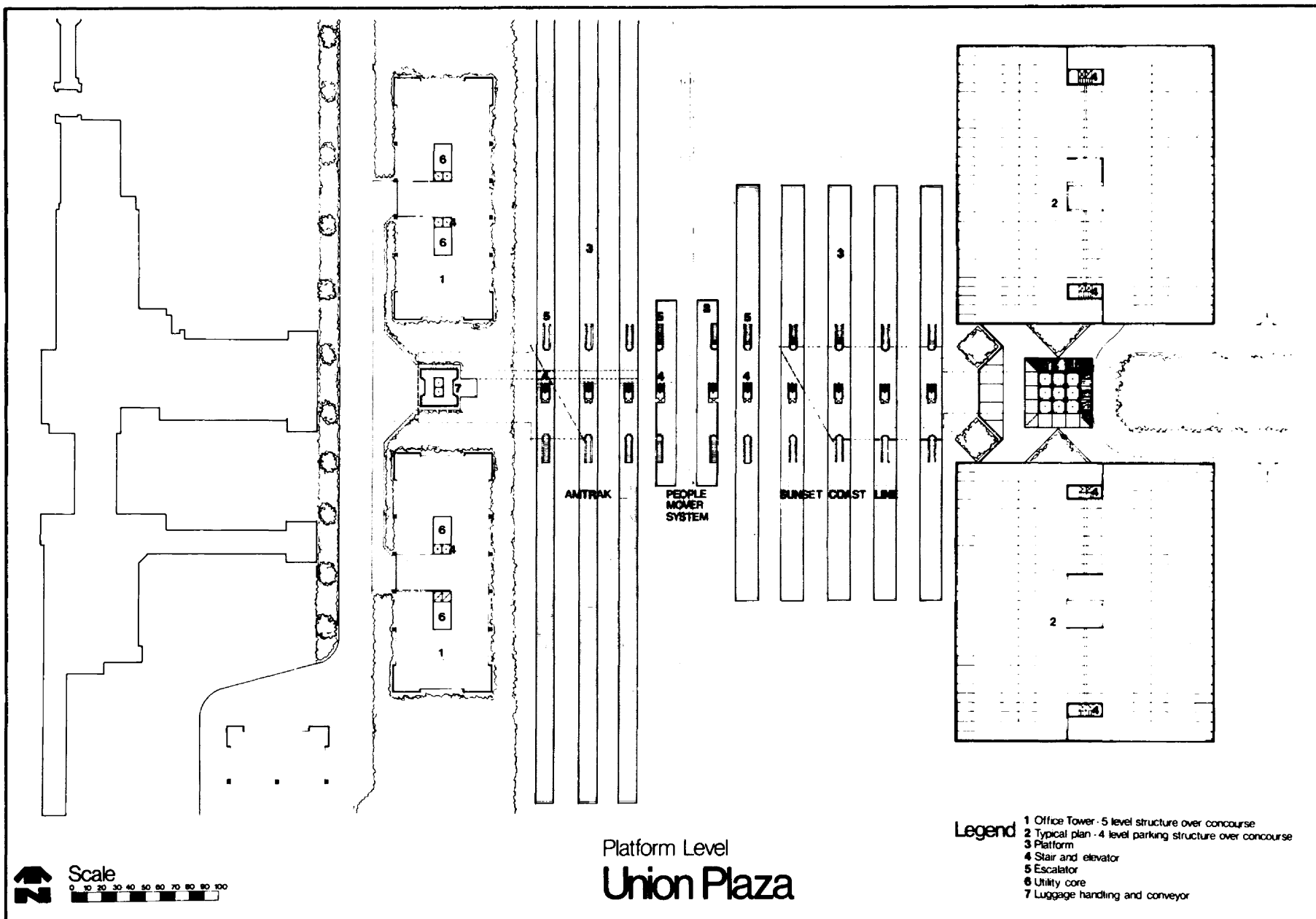


Longitudinal Section

Union Plaza

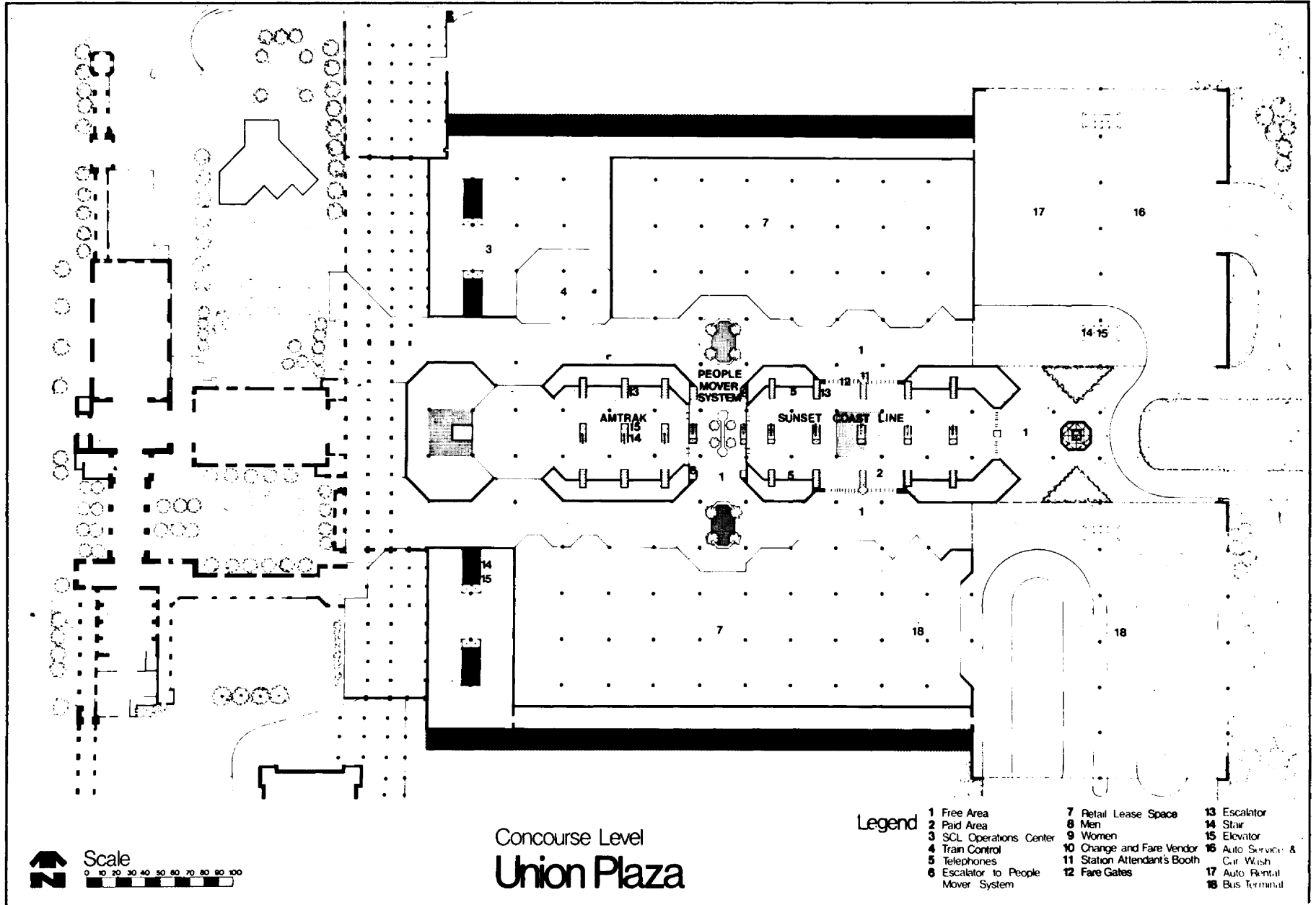


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Concourse Level
Union Plaza

Legend

- | | | |
|------------------------------------|------------------------------|----------------------------|
| 1 Free Area | 7 Retail Lease Space | 13 Escalator |
| 2 Paid Area | 8 Men | 14 Star |
| 3 SCL Operations Center | 9 Women | 15 Elevator |
| 4 Train Control | 10 Change and Fare Vendor | 16 Auto Service & Car Wash |
| 5 Telephones | 11 Station Attendant's Booth | 17 Auto Rental |
| 6 Escalator to People Mover System | 12 Fare Gates | 18 Bus Terminal |



The photographs and renderings that describe the CENTRAL LINE-SOUTH are illustrative for this line as a whole. Only a sampling of these route diagrams and station illustrations are provided here to give a flavor of the line as a whole.

In the Initial Study of the Sunset Coast Line, this line was entitled the Starter Line.



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Map Reference, page 53

Beginning at Union Station, this line stretches southwest to the Coliseum, following generally an alignment from First Street west to Flower, then south past the Convention Center to the Coliseum.

The line begins in the highly industrialized area adjacent to Union Station. It proceeds through the Civic Center complex of Federal, State, County and City governmental offices, past the Music Center, through the Bunker Hill Development area and the CBD to the Los Angeles Convention Center. The segment studied extends to the University of Southern California, the Sports Arena, the Coliseum and Exposition Park.

The Central Line leaves Union Station in an aerial structure, crossing south over the Hollywood Freeway through the Brew 102 property, returning to grade in the Department of Water and Power (DWP) maintenance yard, south of Ducommun Street and east of Alameda Street. It immediately portals into a curving tunnel, 1,000 feet in radius, in the DWP maintenance yard, straightening out along and under First Street in a westerly direction. Because of the shallow depth of this first curved section of the tunnel, a boring machine cannot be utilized here. Cut and cover construction will be necessary for approximately the first 1,000 feet of tunnel.

Map Reference, page 54

This section of the Line passes through the heart of the Los Angeles Central Business District (CBD). It is an area of dense employment and the major banking, financial and retail sales center for the Los Angeles area.

The first station (subway) will be located at Broadway and First Street. This station will serve the Civic Center including Los Angeles City and County government buildings, plus State and Federal offices. The second station is just south of the Music Center. We propose that above ground this station incorporate the relocation of Angel's Flight. From here, the tunnel swings southwest on a 1,250 foot radius curve, ending

at Third and Flower Streets. It continues southwest under the Flower Street alignment, with a subway station at Fifth Street. Here, connection with the Wilshire Line will be provided.

Map Reference, page 55

The balance of the tunnel will become sufficiently deep throughout the CBD to allow utilization of boring machines. However, there are major buildings along the route with deep foundations which may influence the design of the tunnel. Special reinforcement or construction techniques may be necessary in the vicinity of these buildings. Some building foundations are identified on the plan and profile sheets. The possibility of a more shallow profile should be investigated during the preliminary engineering phase to determine the most economically feasible depth, and to consider other factors, such as station construction.

Map Reference, page 59

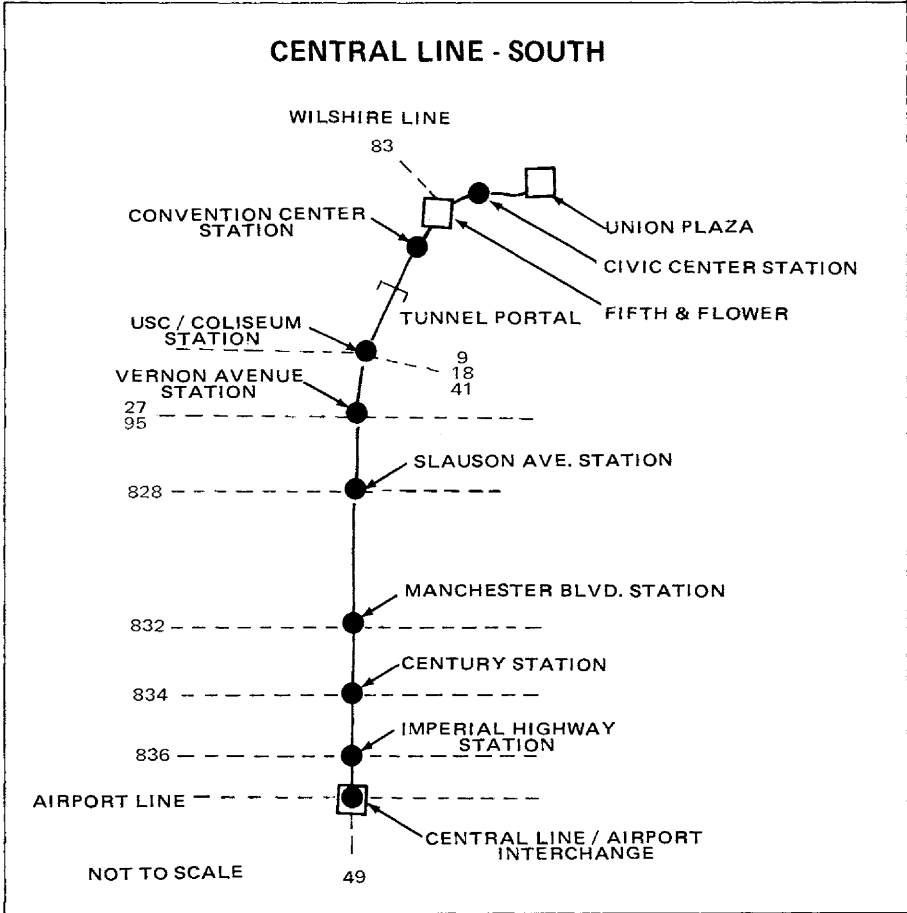
Just north of Olympic Boulevard, the tunnel swings west and then continues southwest under Figueroa Street, with a subway station at the Convention Center. The tunnel portals out between 22nd and 23rd Streets along the east side of Figueroa Street. Again, as the subway approaches its portal, cut and cover construction will be necessary in the last 1,000 feet.

Map Reference, page 61

The Line immediately rises into aerial structure, crossing over to the west side of the Harbor Freeway. It remains in aerial configuration along the west side of the freeway embankment to the Exposition Boulevard Station, located just south of Exposition Boulevard, servicing the University and Coliseum. Although this aerial station constitutes the southern limit of our study of the Coliseum Link, the Line will continue south to its junction with the Airport Line at the Century Freeway.



**SUNSET,
LTD.**



LINE COSTS

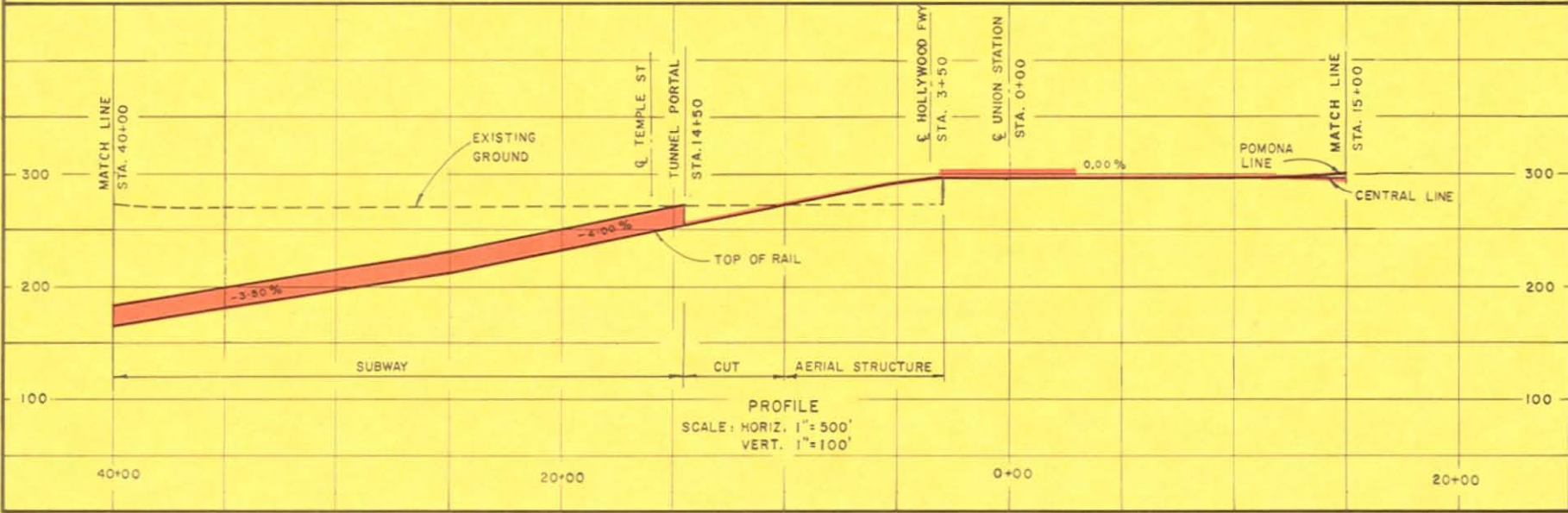
Construction	Components	Unit Cost (\$ mil)	Length (miles)	Cost (\$ mil.)
Tunnel:	Boring	\$ 28.95	3.01	\$ 87.13
	Trackwork	1.39	3.01	4.18
	Electrification	2.30	3.01	6.92
	Controls	1.41	3.01	4.24
	Stations (2)	11.77		23.54
Sub Total:		\$ 45.82	3.01	\$126.03
Aerial:	Structure	\$ 13.52	7.27	\$ 98.29
	Trackwork	1.39	7.27	10.10
	Electrification	2.3	7.27	16.72
	Utility Relocation	4.7	7.27	34.16
	Controls	3.05	7.27	22.17
	Stations (6)	3.52		21.12
Sub Total:		\$ 28.48	7.27	\$202.57
Total:			10.28	\$328.60

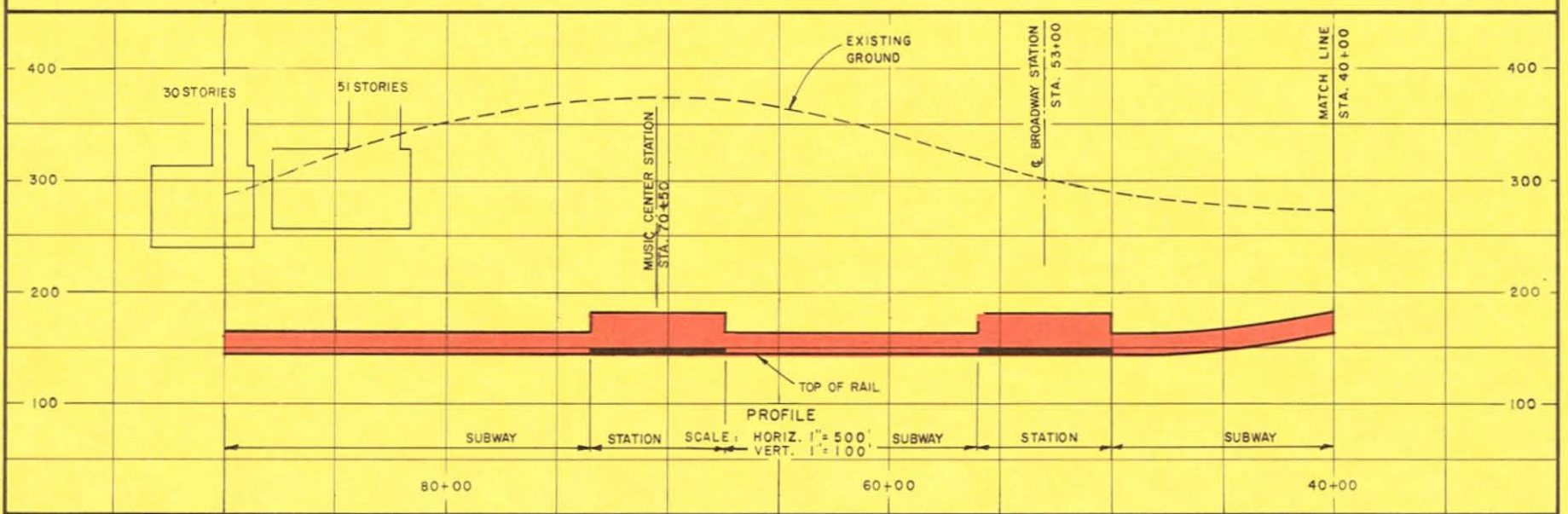
ACCESS

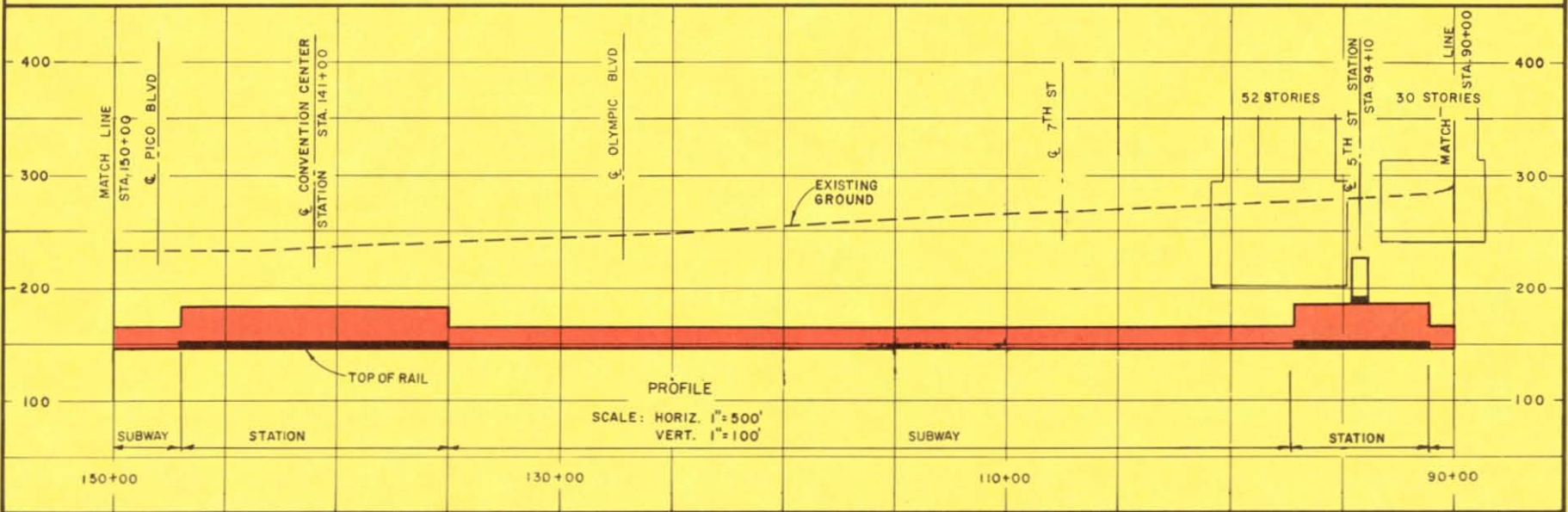
STATIONS	BUS	K&R	PARK	STATION TYPE
Fifth/Flower	X			Subway
Civic Center	X			Subway
Convention Center	X	X		Subway
USC/Coliseum	X	X		Aerial
Vernon Ave.	X	X		Aerial
Slauson Ave.	X	X		Aerial
Manchester Blvd.	X			Aerial
Century	X	X	X	Aerial
Imperial Hwy.	X	X	X	Aerial



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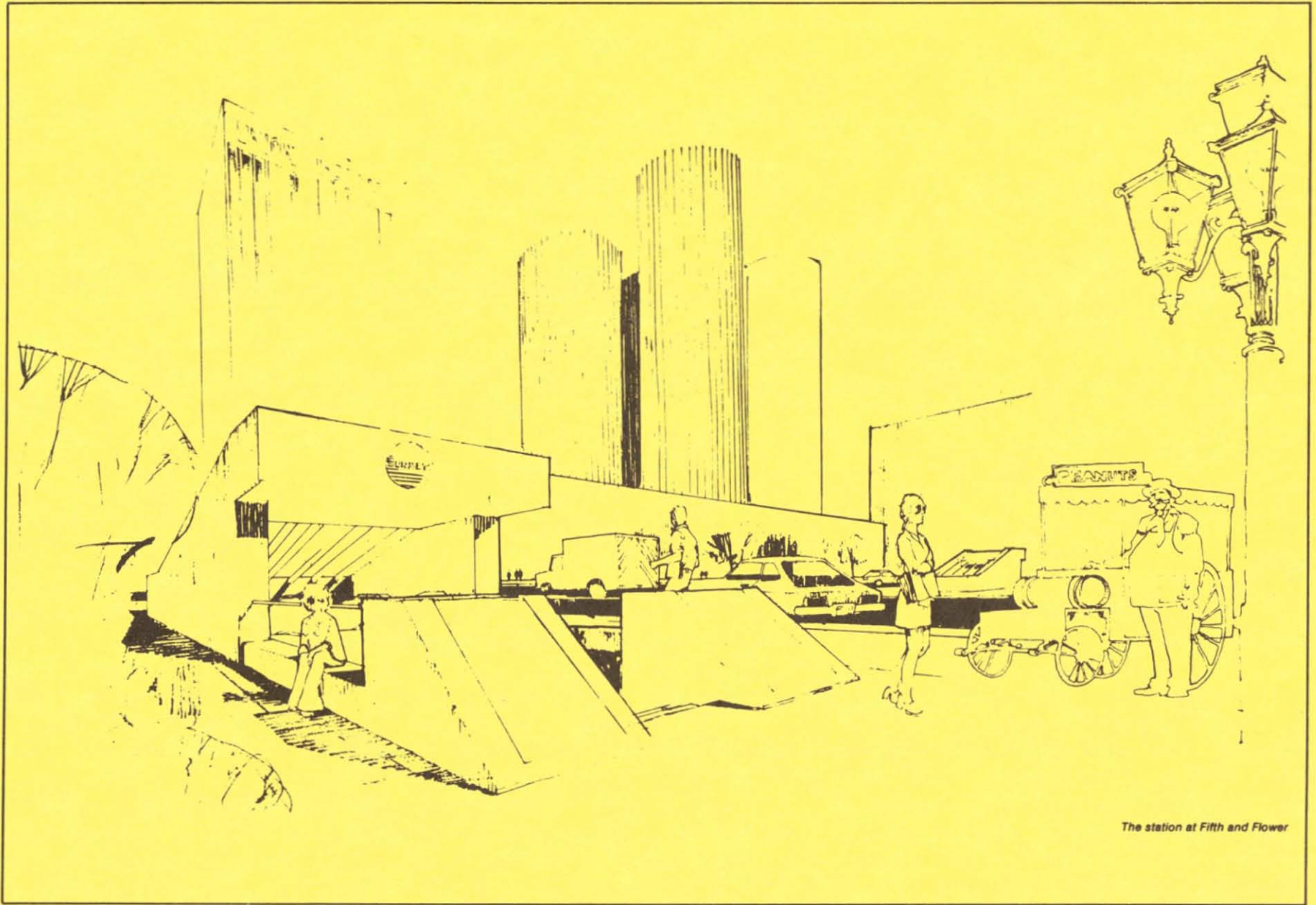


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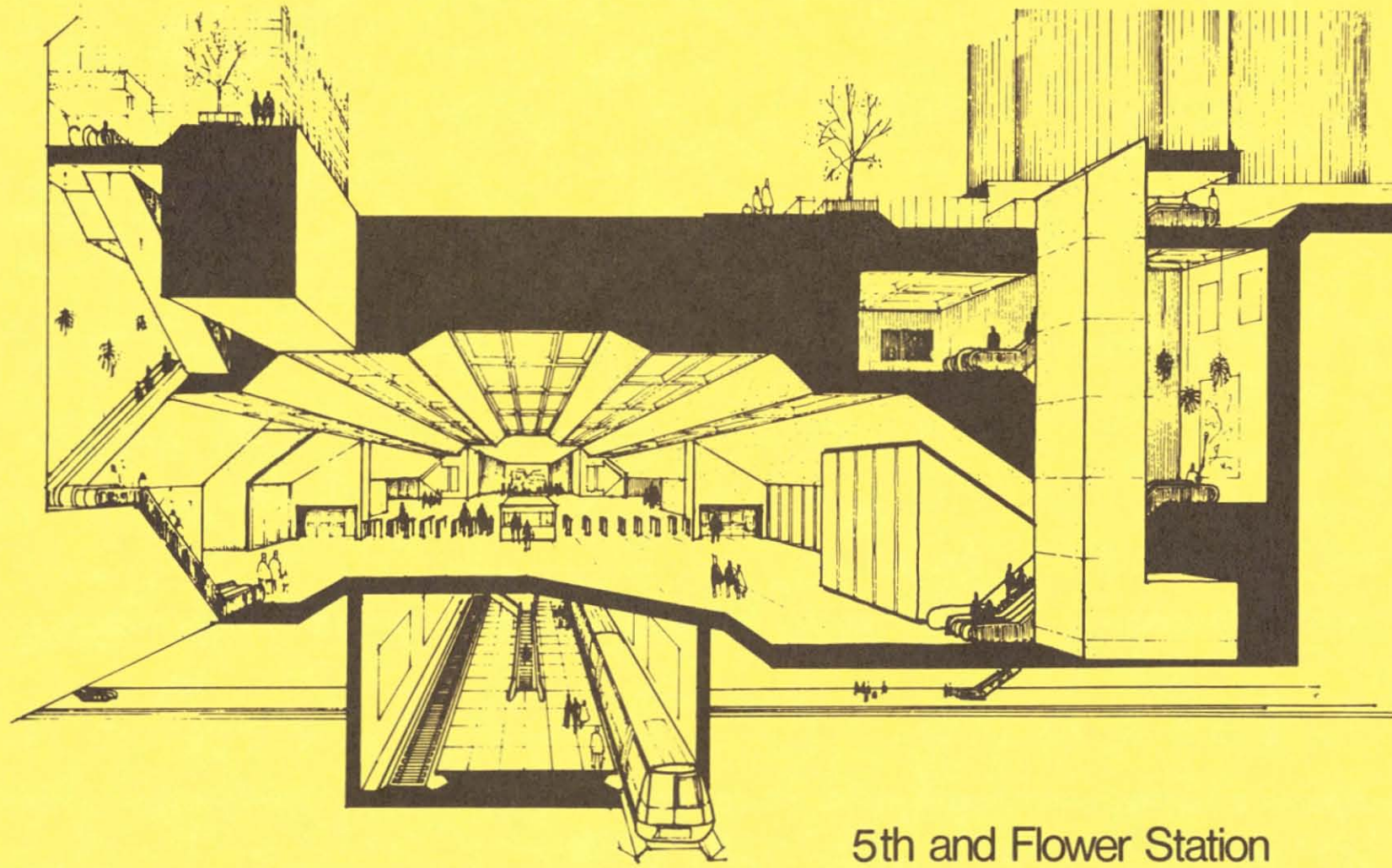




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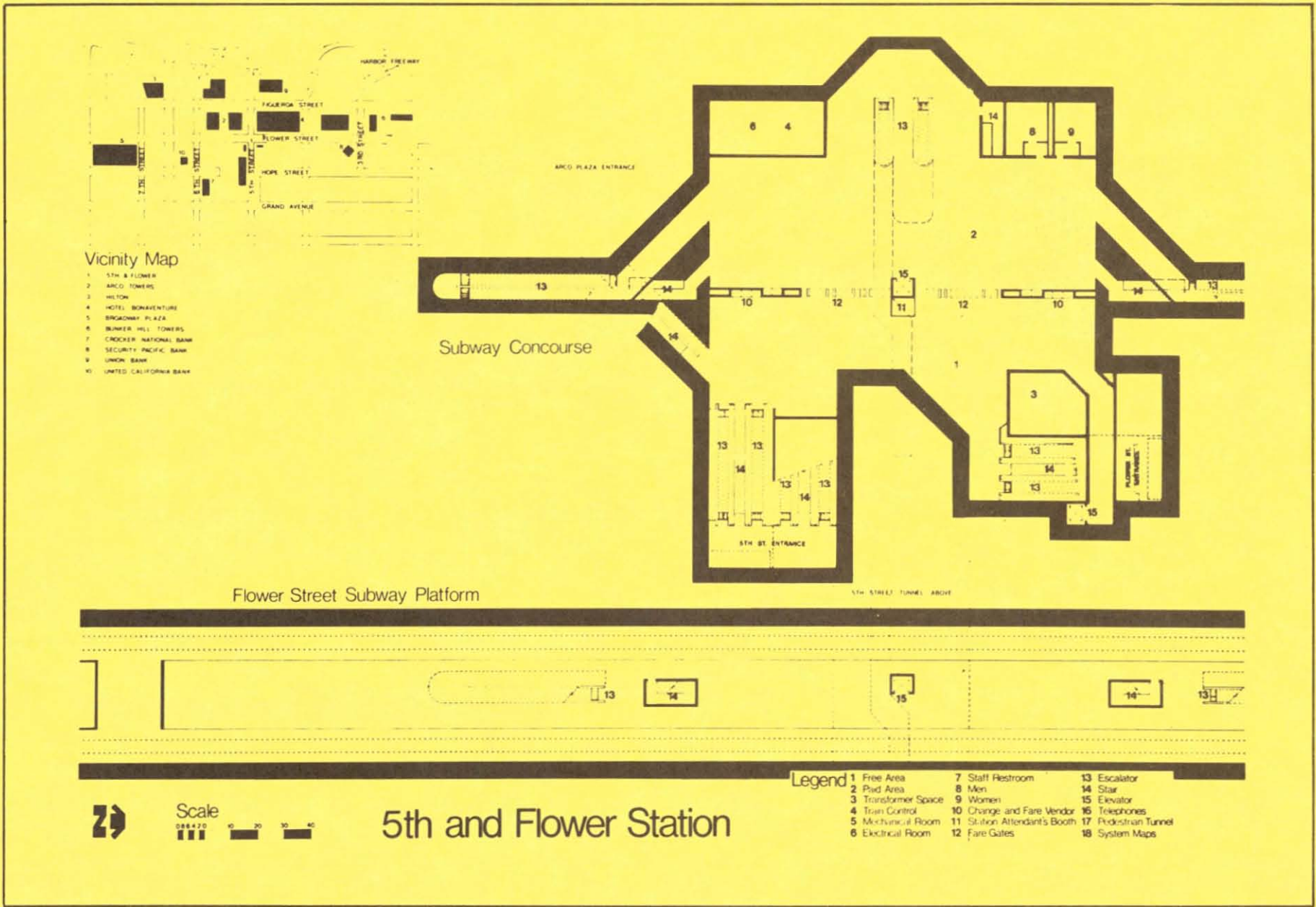
The station at Fifth and Flower



5th and Flower Station

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- Vicinity Map
- 1 5TH & FLOWER
 - 2 ARCO TOWERS
 - 3 HOTEL
 - 4 HOTEL BONAVENTURE
 - 5 BROADWAY PLAZA
 - 6 BUNKER HILL TOWERS
 - 7 CROCKER NATIONAL BANK
 - 8 SECURITY PACIFIC BANK
 - 9 UNION BANK
 - 10 UNITED CALIFORNIA BANK

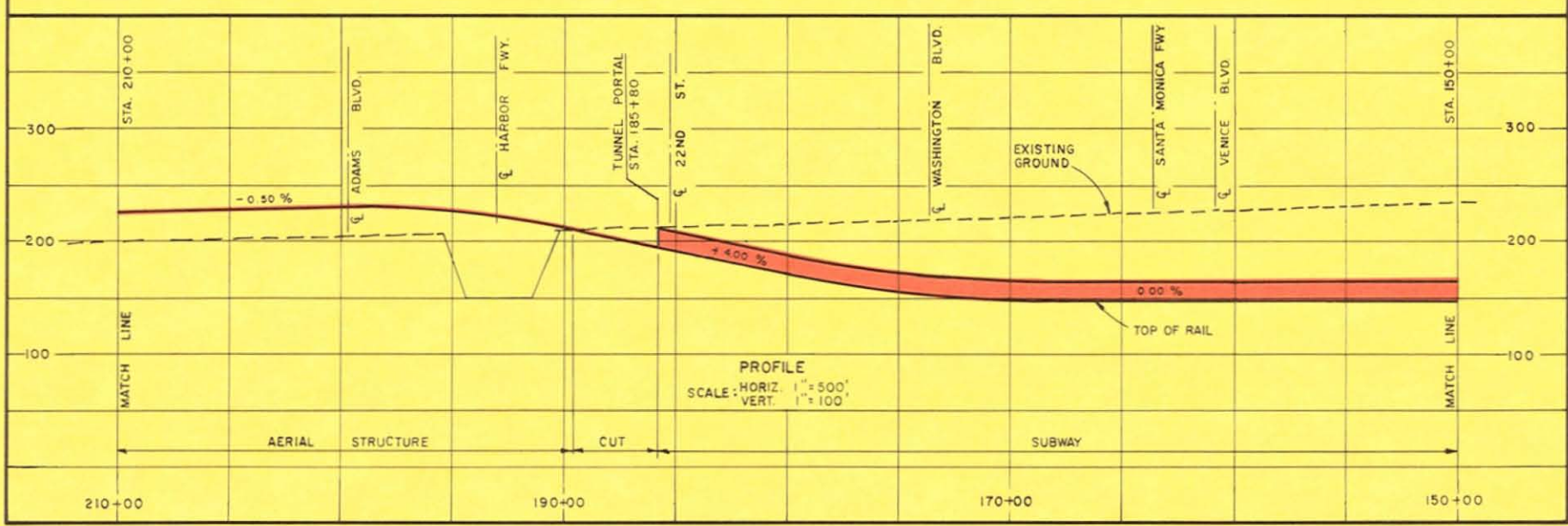
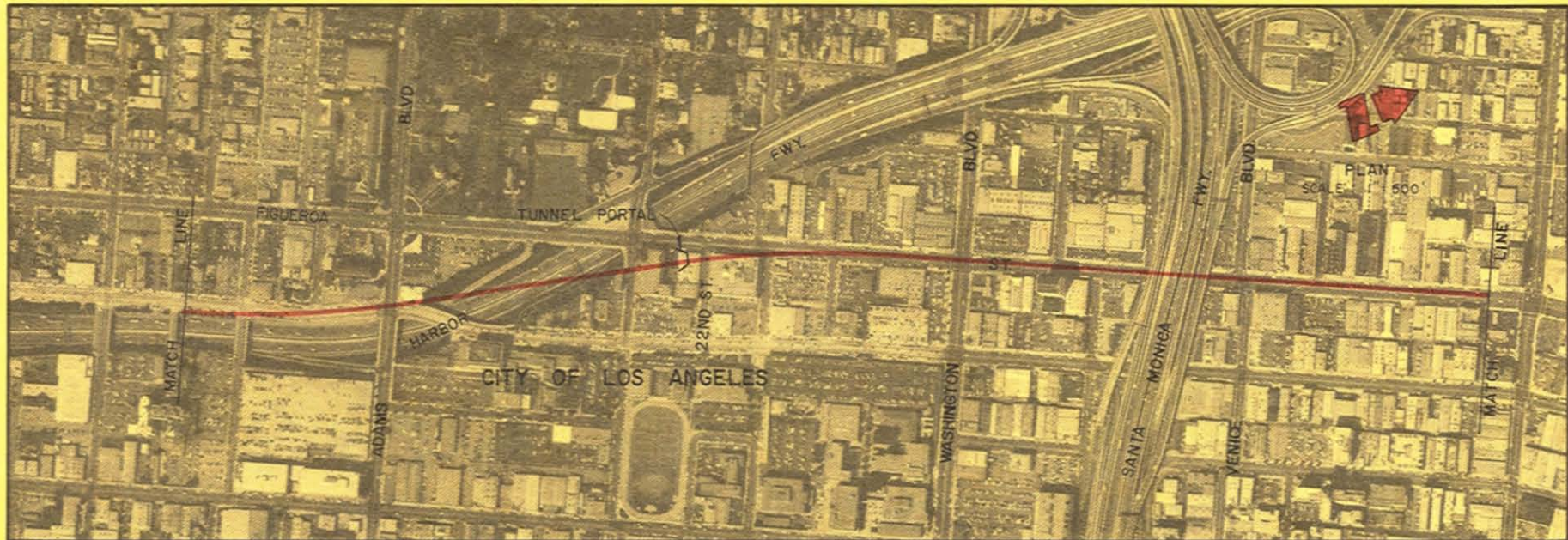
- Legend
- 1 Free Area
 - 2 Paid Area
 - 3 Transformer Space
 - 4 Train Control
 - 5 Mechanical Room
 - 6 Electrical Room
 - 7 Staff Restroom
 - 8 Men
 - 9 Women
 - 10 Change and Fare Vendor
 - 11 Station Attendant's Booth
 - 12 Fare Gates
 - 13 Escalator
 - 14 Stair
 - 15 Elevator
 - 16 Telephones
 - 17 Pedestrian Tunnel
 - 18 System Maps

Scale
0 10 20 30 40

5th and Flower Station



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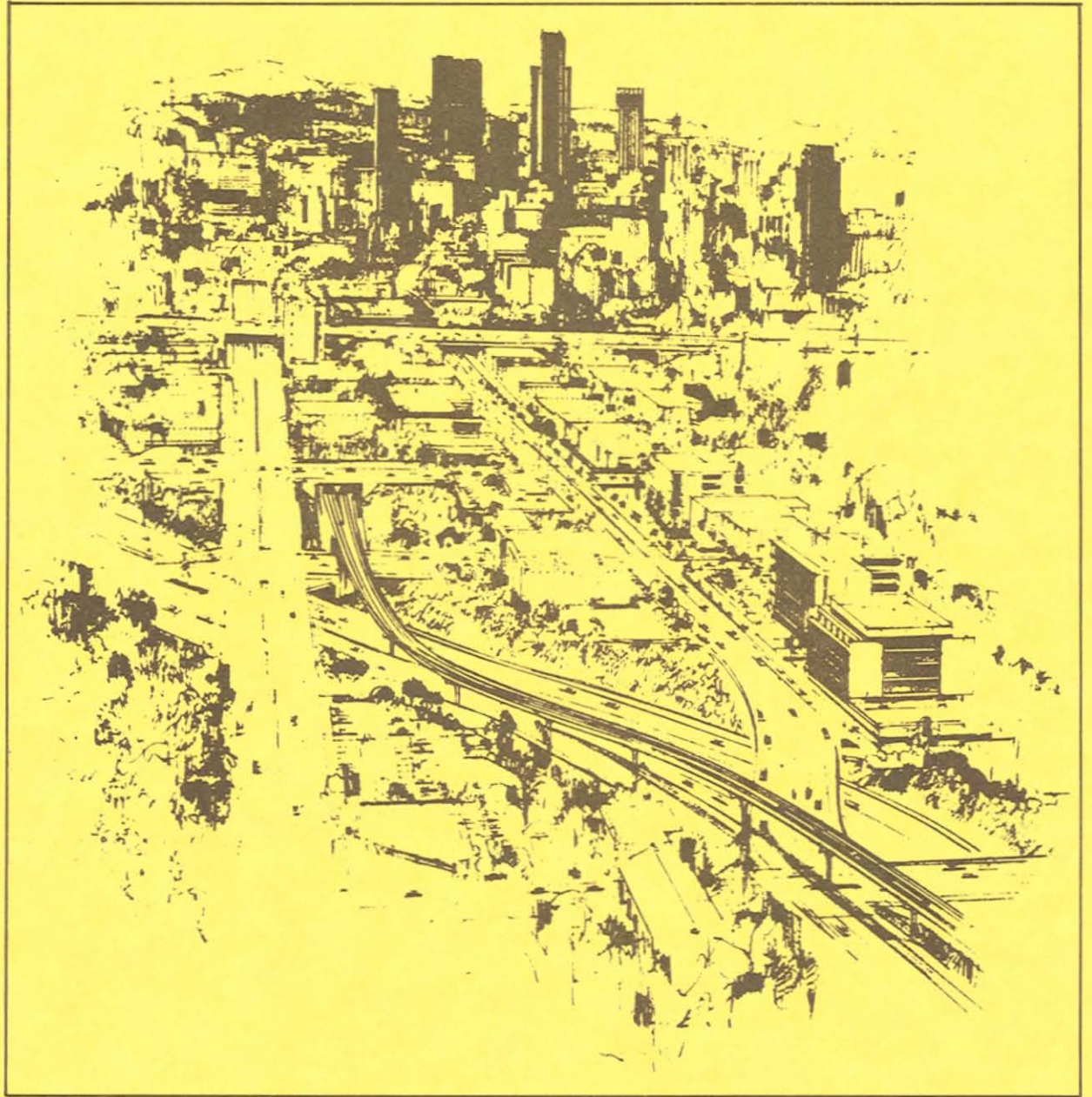


SUNSET, LTD.





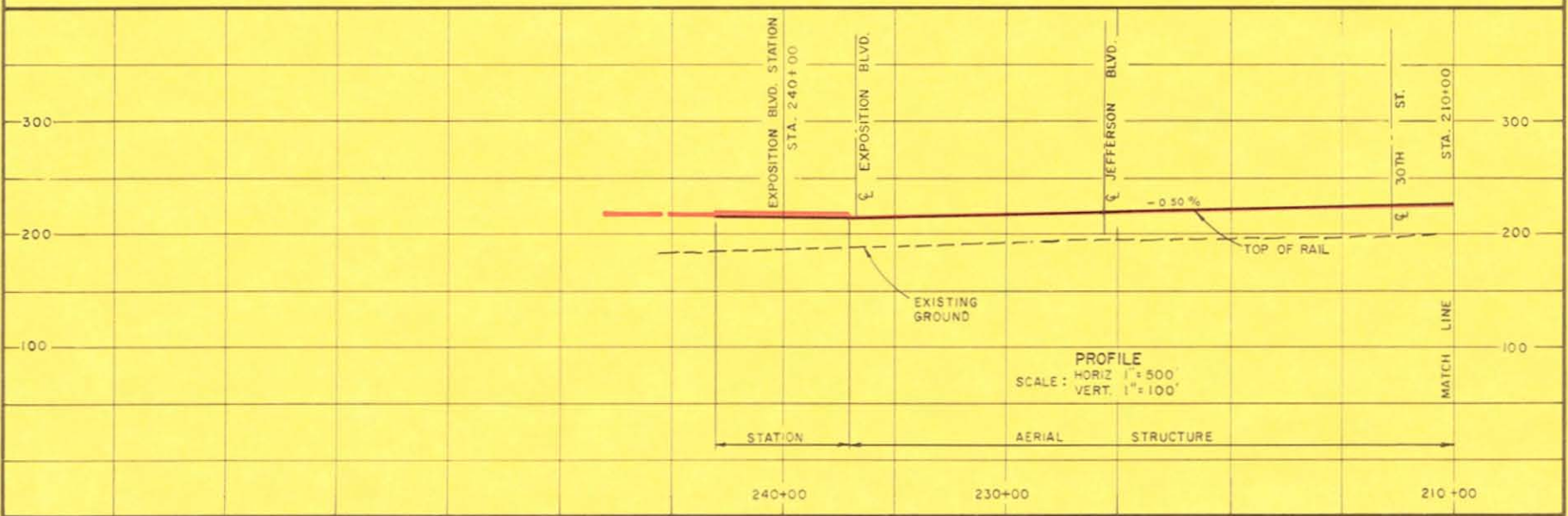
HARBOR FREEWAY AT 22ND STREET TODAY



HARBOR FREEWAY AT 22ND STREET, 1985

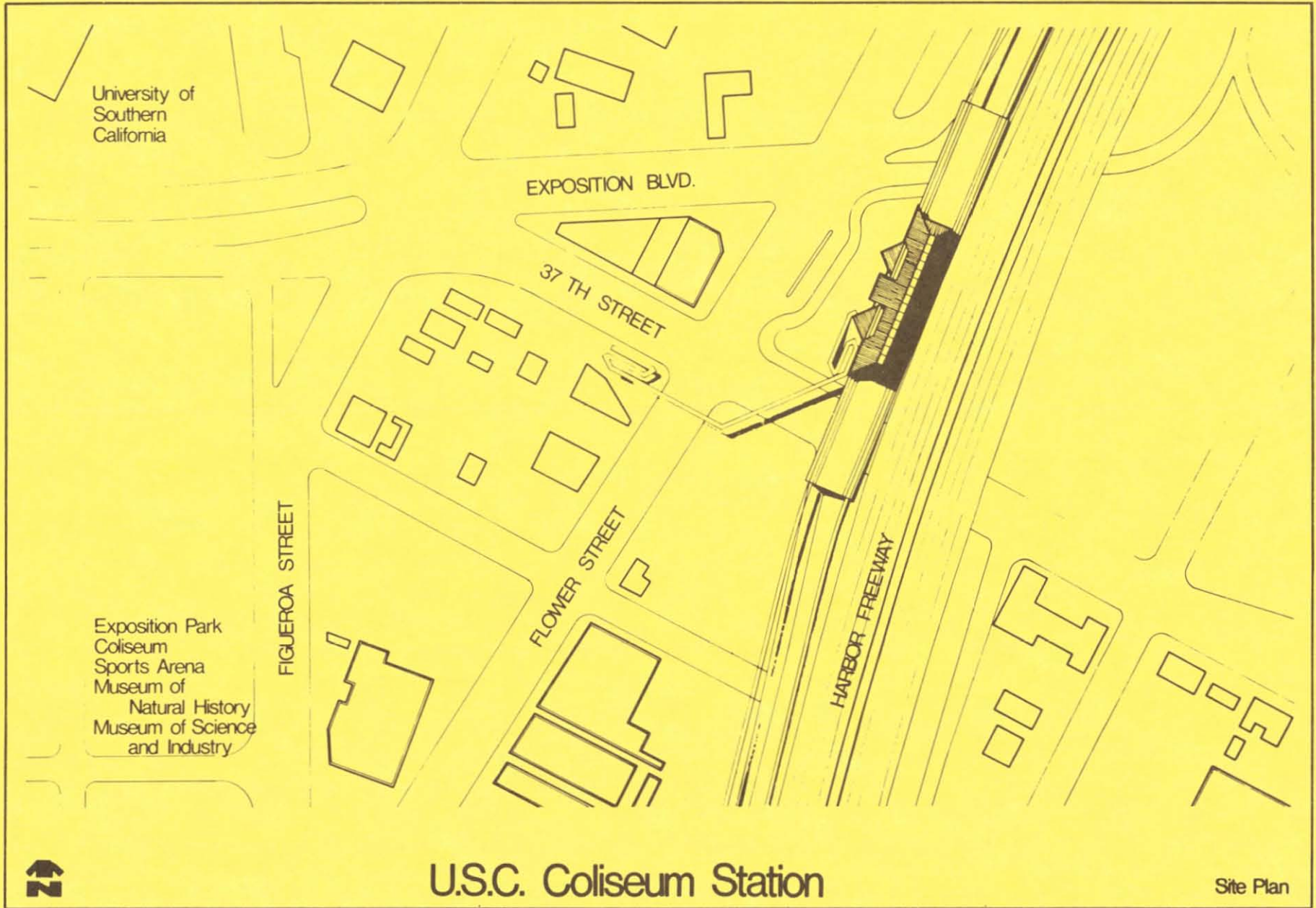


SUNSET, LTD.





SUNSET, LTD.

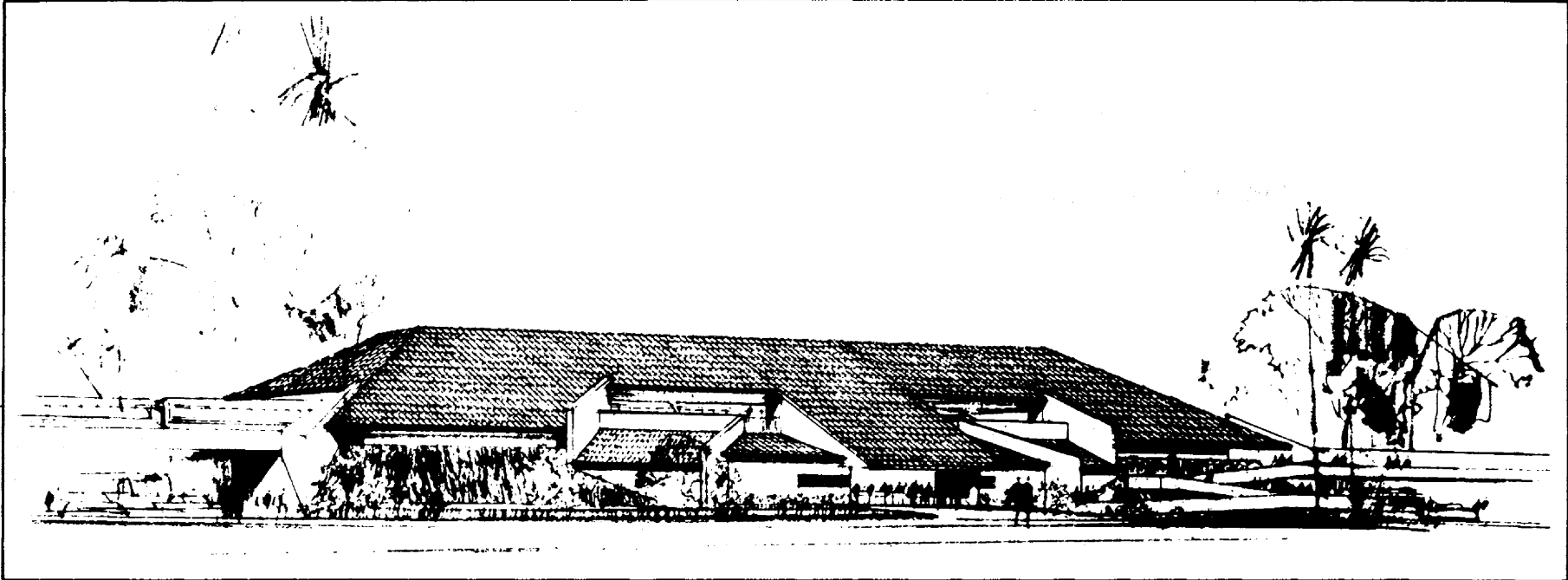


U.S.C. Coliseum Station

Site Plan

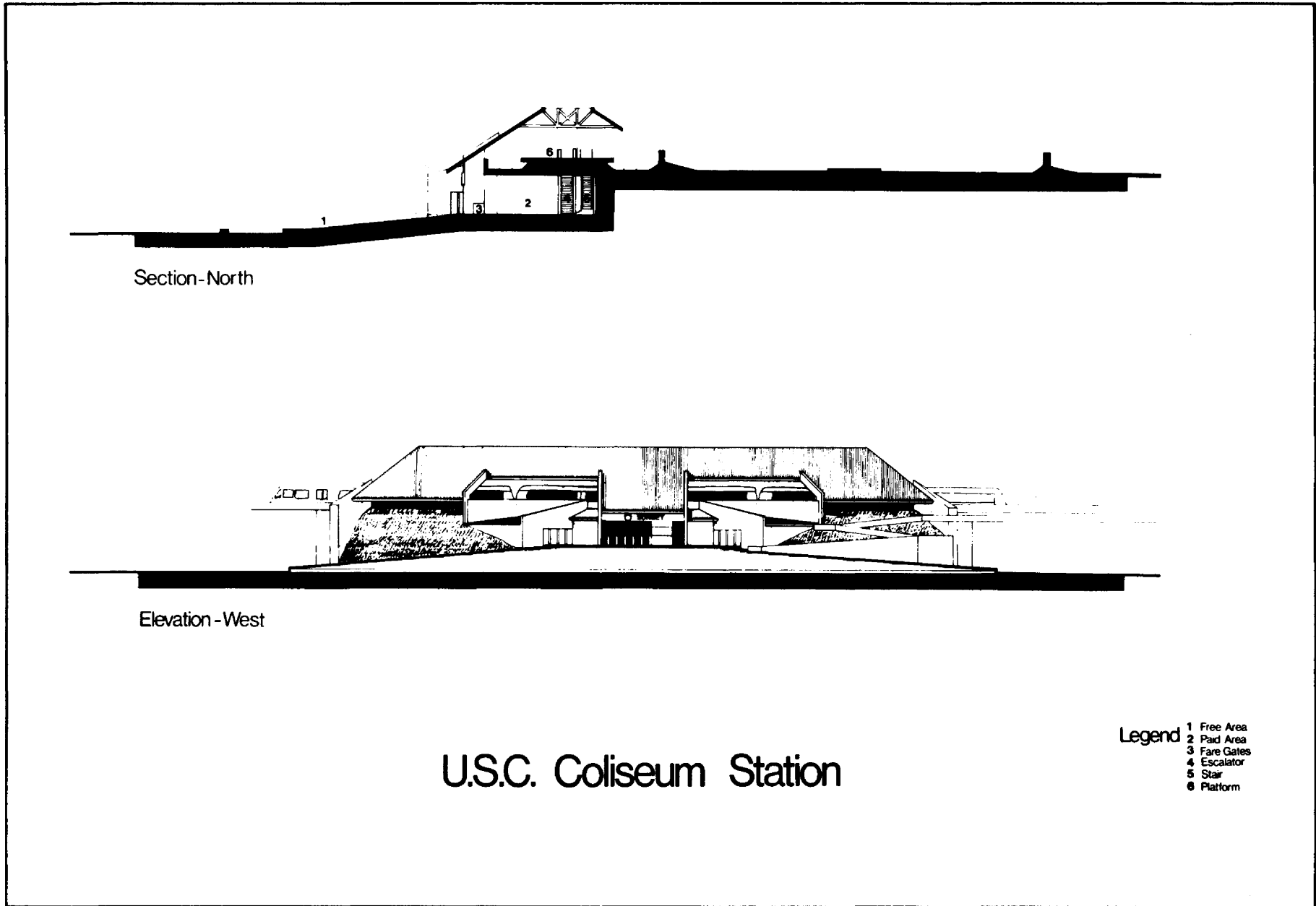


A MAJOR STATION FOR THE COLUSEUM, USC, AND EXPOSITION PARK





SUNSET, LTD.

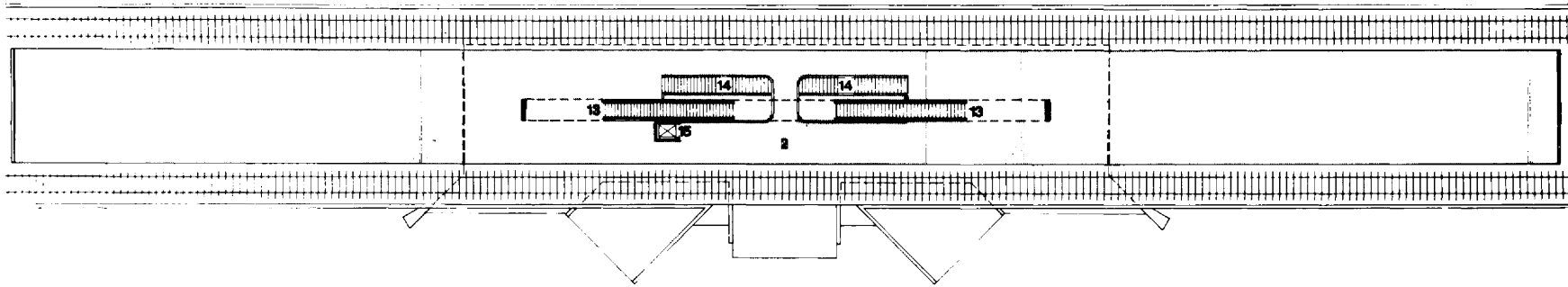


Section - North

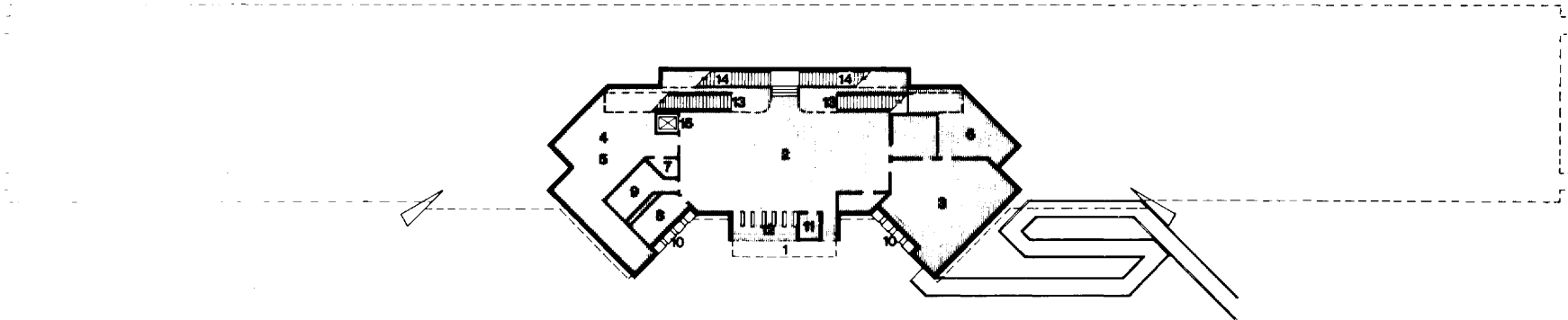
Elevation - West

U.S.C. Coliseum Station

- Legend
- 1 Free Area
 - 2 Paid Area
 - 3 Fare Gates
 - 4 Escalator
 - 5 Stair
 - 6 Platform



Aerial Platform Plan



Grade Level Concourse



U.S.C. Coliseum Station

- Legend
- | | | |
|---------------------|------------------------------|----------------------|
| 1 Free Area | 7 Staff Restroom | 13 Escalator |
| 2 Paid Area | 8 Men | 14 Stair |
| 3 Transformer Space | 9 Women | 15 Elevator |
| 4 Train Control | 10 Change and Fare Vendor | 16 Telephones |
| 5 Mechanical Room | 11 Station Attendant's Booth | 17 Pedestrian Tunnel |
| 6 Electrical Room | 12 Fare Gates | 18 System Maps |



The portion of the SAN GABRIEL VALLEY LINE intended for operation by mid-1984 contemplates primarily the conversion to rail of the El Monte Busway. The separate Busway construction principle can be applied elsewhere in the freeway system, for later conversion to rail.



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Leaving Union Plaza, the San Gabriel Valley Line travels northeast along the south side of Bauchet Street in aerial structure;

Swinging east, on a large radius curve, the aerial structure crosses the Los Angeles River, coming down to grade along the south side of the existing rails in the Southern Pacific Transportation Center;

Proceeding through a widened underpass at Mission Road, it enters the San Bernardino Freeway Express Busway west of the Golden State Freeway;

At the Cal State Station, the existing busway lanes reverse sides and are contraflow between this point and Mission Road, which places the westbound lane on the left, or south side. To accomplish this, the westbound bus lane approaching the Cal State Station is at a 5% grade to fly over the existing Southern Pacific railroad line which runs between the bus lanes from Cal State to El Monte. From Cal State to Mission Road the existing Southern Pacific rail line runs along the north side of the busway.

The existing structure at Cal State will be rebuilt to eliminate this reversing movement, which will allow utilization of left-side door access to the transit vehicles for island (center loading) stations. In doing this, the 5% grade can be reduced somewhat. Although this is the proposal identified on the plan, additional studies are warranted for this area. For example, utilization of the existing railroad line (Southern Pacific) as the northern (westbound) transit line in this area and building a new rail line north of the existing line, either to the east or west of Cal State, are possibilities that need further study in the preliminary engineering stages. These latter concepts may have cost saving advantages in the resulting station design and overall construction, besides eliminating a grade problem.

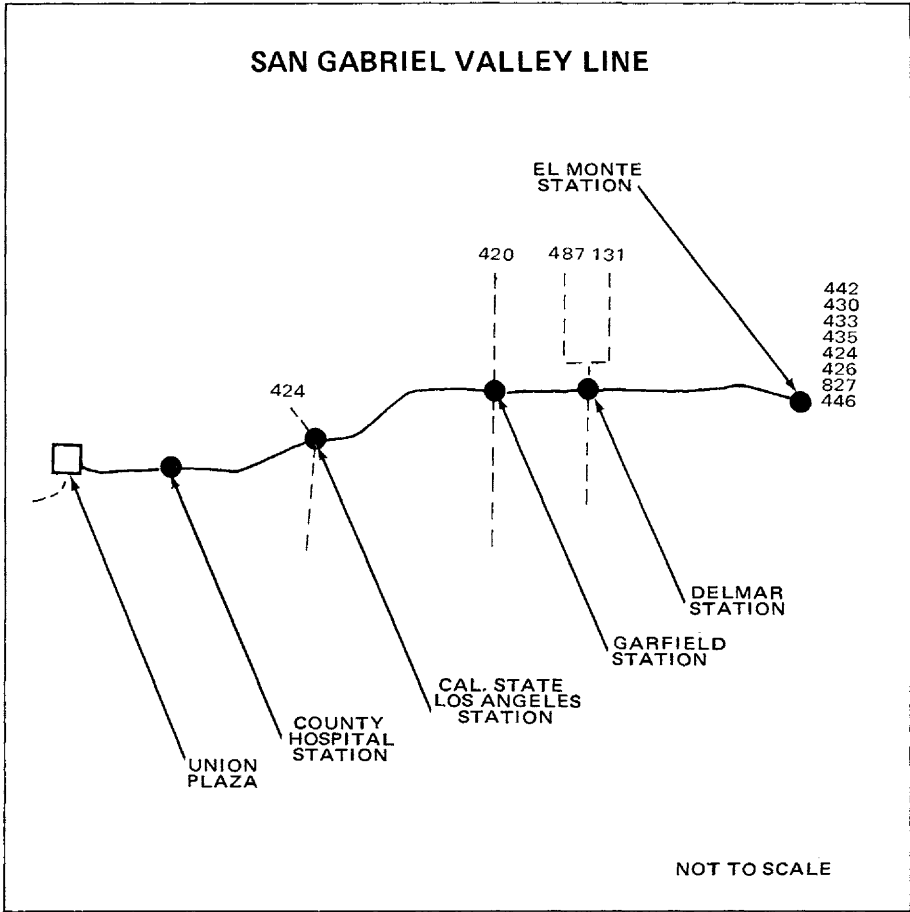
The line proceeds at grade in the busway to the El Monte Station, with stations located along the busway at the County General Hospital, California State University at Los Angeles at Garfield Avenue, and east Del Mar Avenue.

The Garfield Avenue and Del Mar Avenue Stations will be of the same basic design. Each station will consist of two at-grade, center loading, passenger platforms straddling the Southern Pacific Railroad track. Pedestrian access will be provided from both sides of the freeway to each platform.

The aerial photography and drawings for the San Gabriel Valley Line are shown as far east as the El Monte Station. It is envisioned that ultimately this line will continue on to Pomona and possibly a connection into San Bernardino County.

In El Monte at Baldwin Avenue, the alignment passes under the westbound lanes of the San Bernardino Freeway in the existing structures and through the southwest portion of the El Monte Bus Station parking lot in aerial structure. A new elevated rail station will be built here.





LINE COSTS

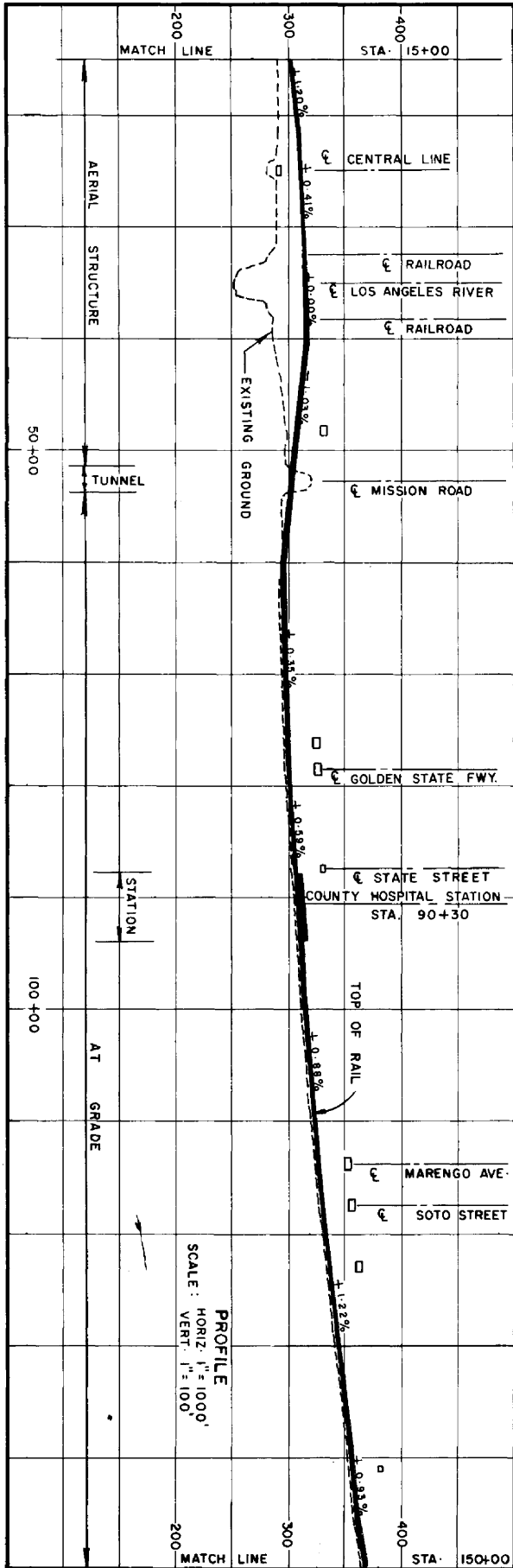
Construction	Components	Unit Cost (\$ mil)	Length (miles)	Cost (\$ mil)
Grade/Freeway:	Trackwork	\$ 2.35	8.1	\$ 19.30
	Electrification	2.30	8.1	18.63
	Controls	1.41	8.1	11.42
	Stations (7)	5.00		35.00
Sub Total:		\$11.06	8.1	\$ 84.08
Aerial: (Double)	Structure	\$13.52	2.0	\$ 27.04
	Trackwork	1.39	2.0	2.78
	Electrification	2.30	2.0	4.60
	Utility Relocation	4.70	2.0	9.40
	Controls	3.05	2.0	6.10
	Stations (1)	3.52		3.52
Sub Total:		\$28.48	2.0	\$ 53.44
Aerial: (Single)	Structure	\$ 9.00	1.52	\$13.68
	Trackwork	1.17	1.52	1.77
	Electrification	2.40	1.52	3.64
	Utility Relocation	2.04	1.52	3.10
	Controls	1.44	1.52	2.18
	Stations (6)	3.52		21.12
Sub Total:		\$19.57	1.52	\$ 45.49
Total:			11.62	\$183.01

ACCESS

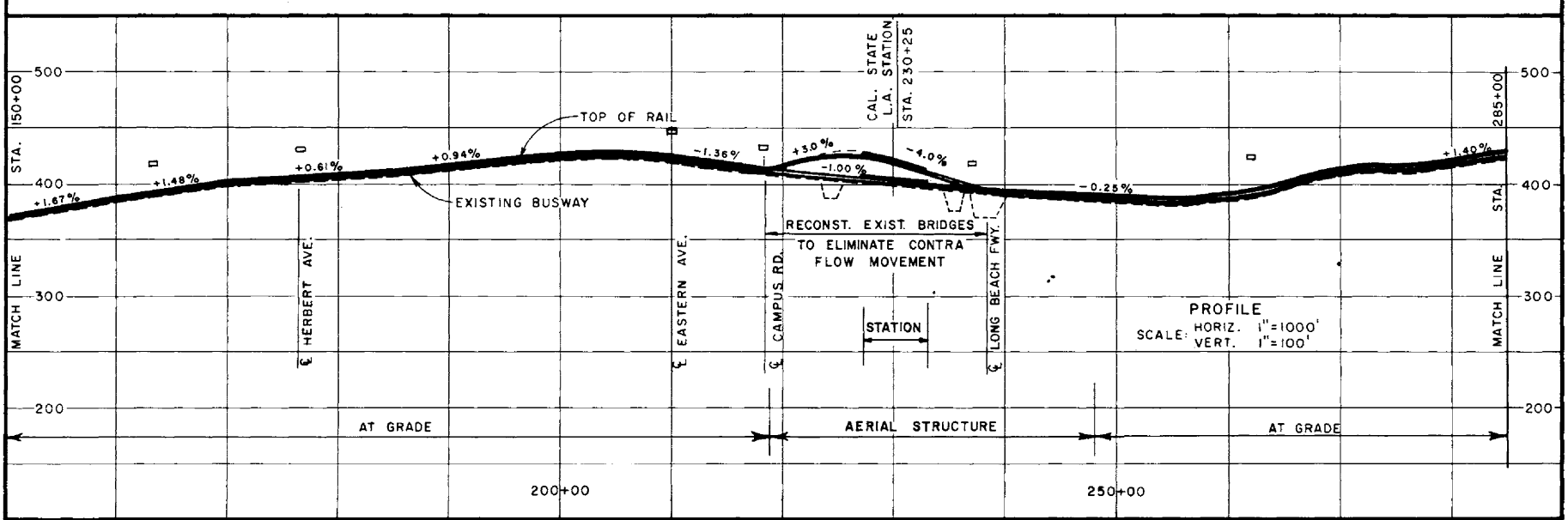
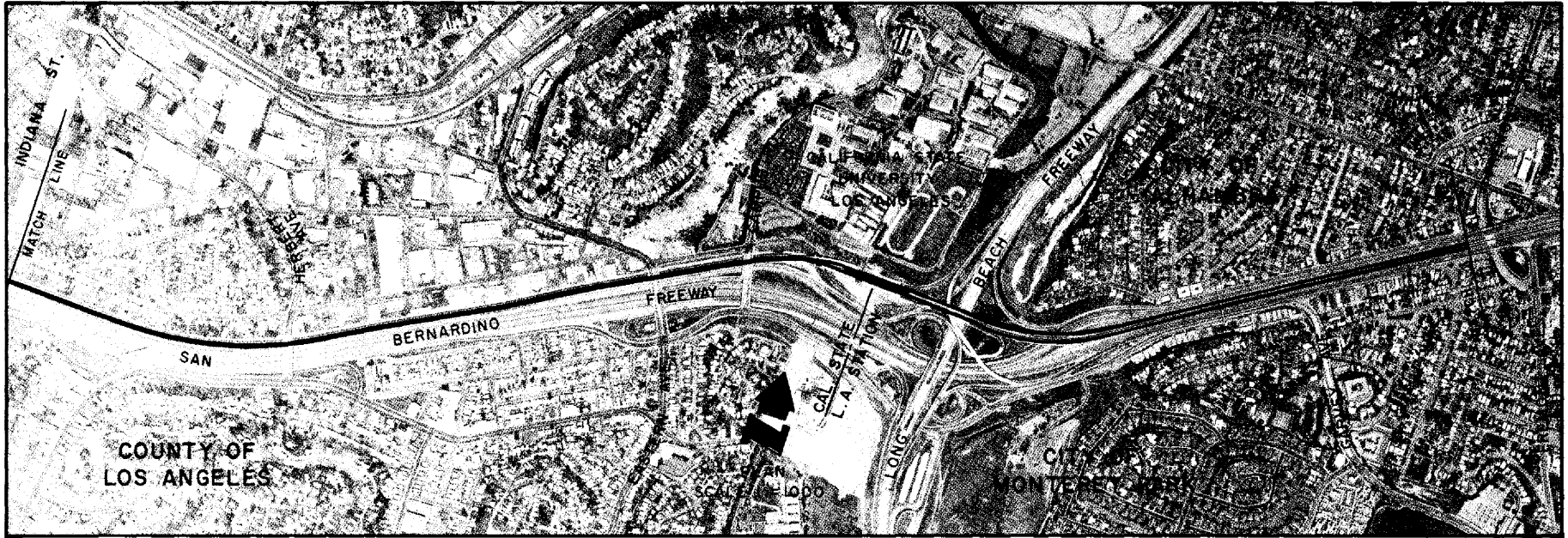
STATIONS	BUS	K&R	PARK	STATION TYPE
Willowbrook	X	X	X	Freeway
Central	X	X	X	Freeway
San Pedro	X	X	X	Freeway
Vermont Ave.	X	X	X	Freeway
Western Ave.	X	X	X	Freeway
Crenshaw Blvd.	X	X	X	Freeway
Hawthorn Blvd.	X	X	X	Freeway
Century Blvd.	X	X	X	Aerial
LAX	X	X	X	Multi-Termini



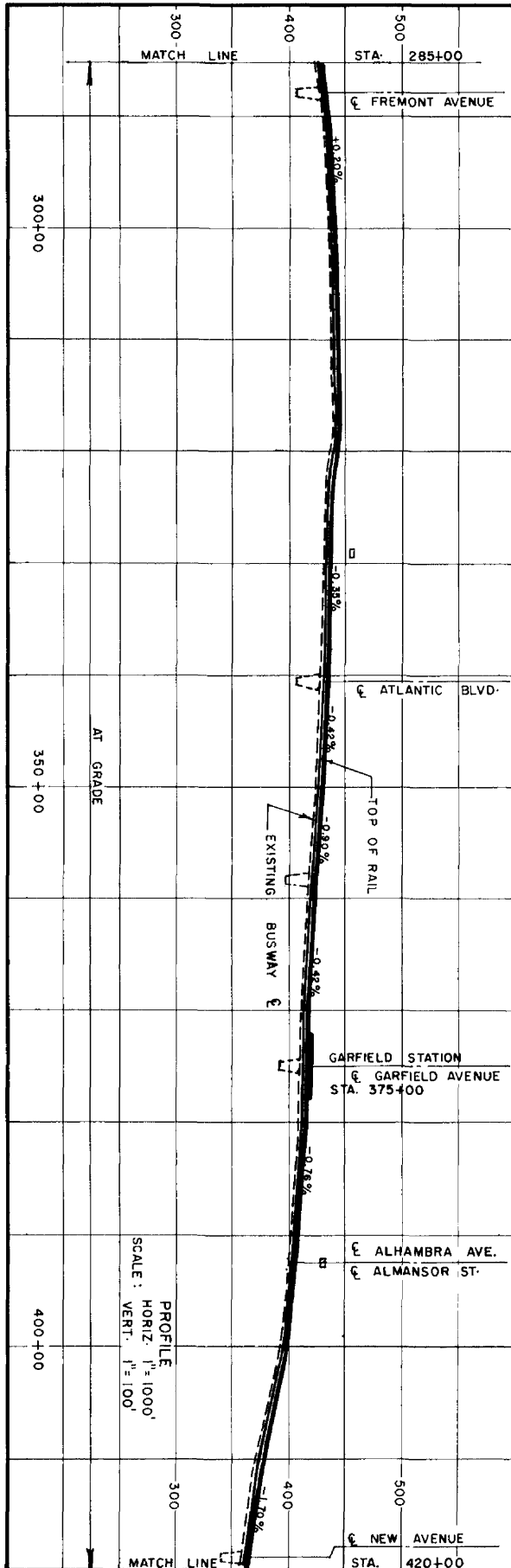
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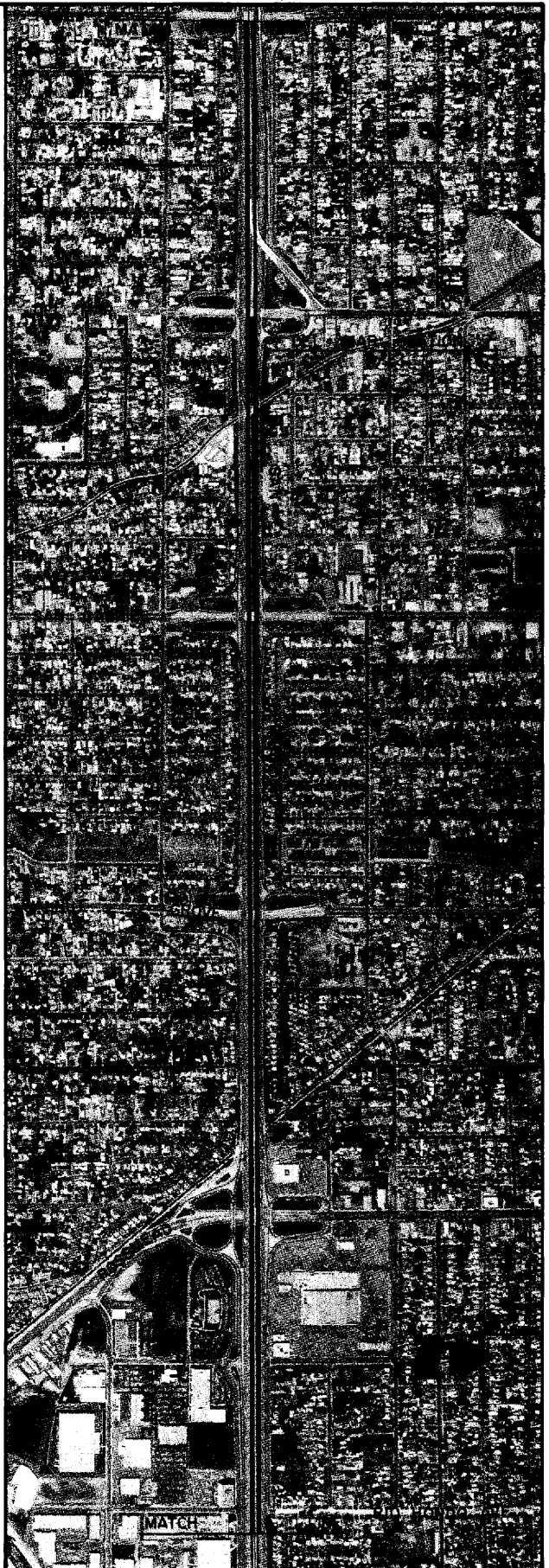
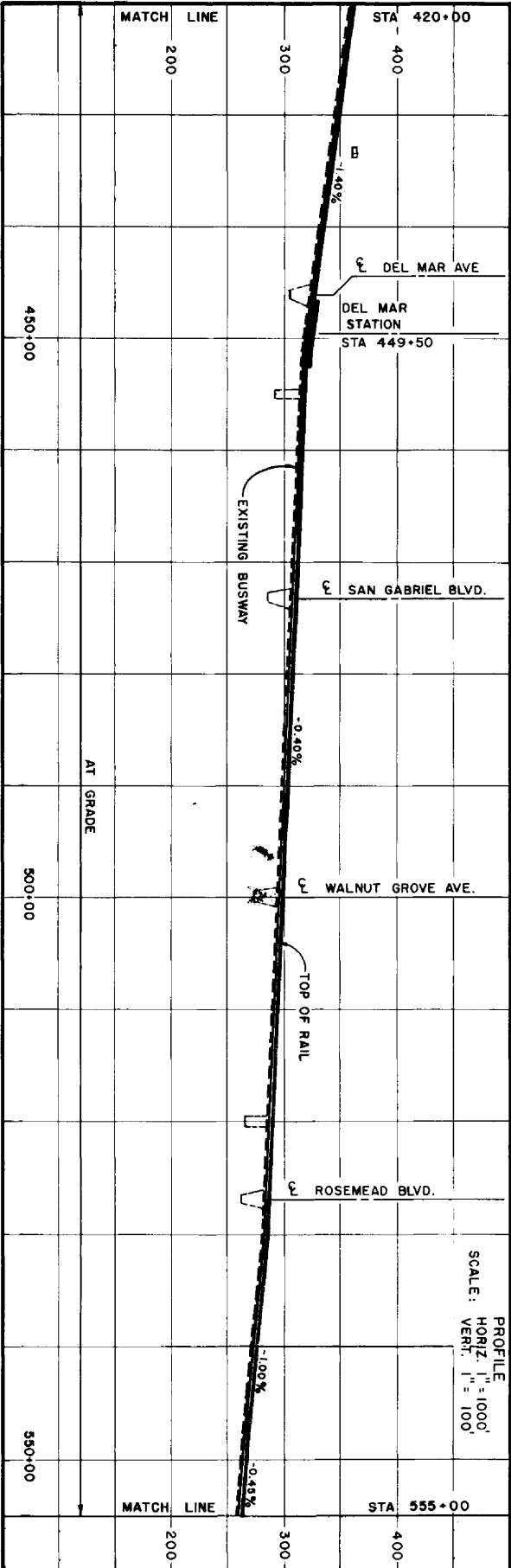
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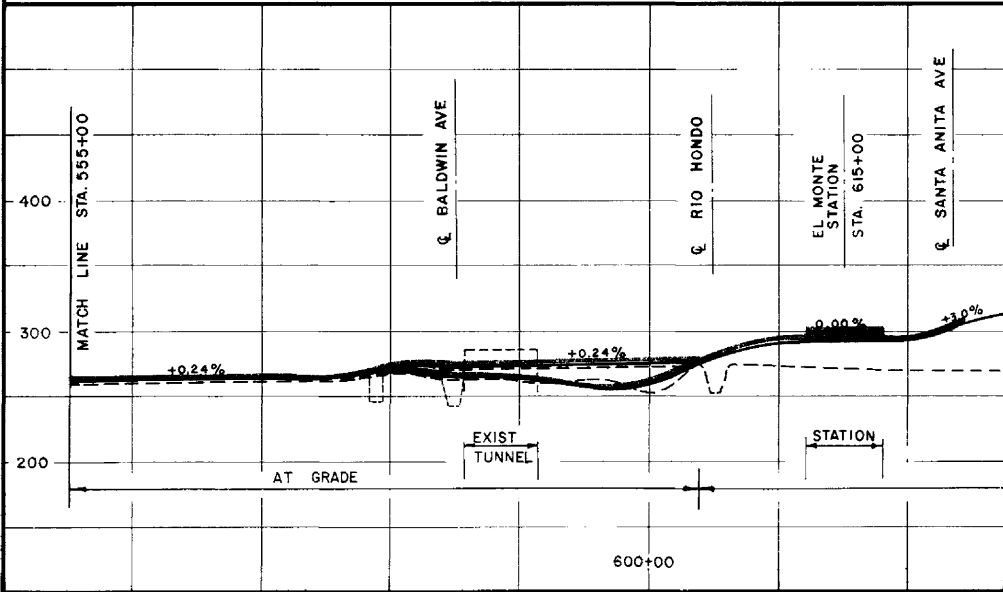


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PROFILE
 HORIZ. 1" = 1000'
 VERT. 1" = 100'

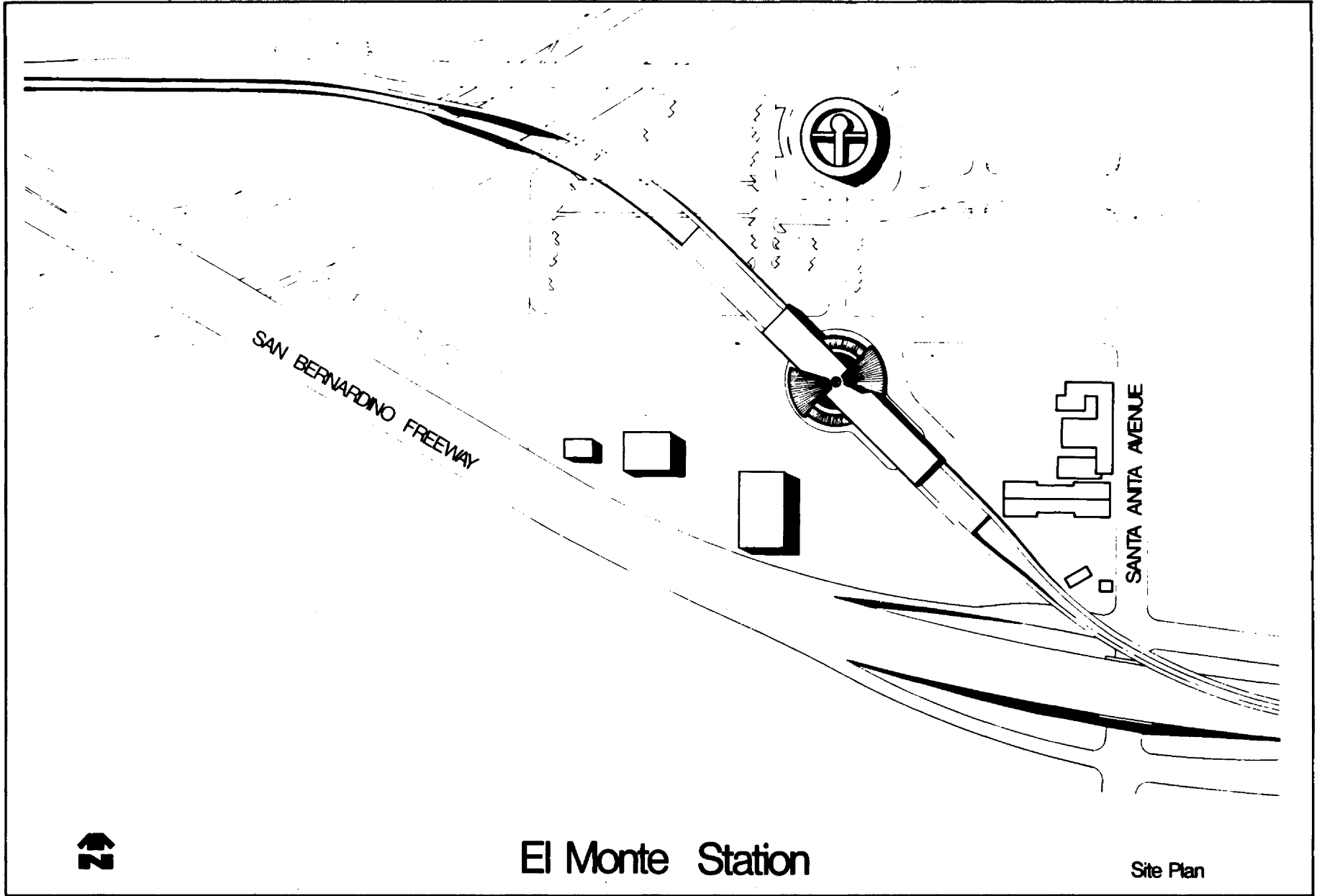
SCALE:



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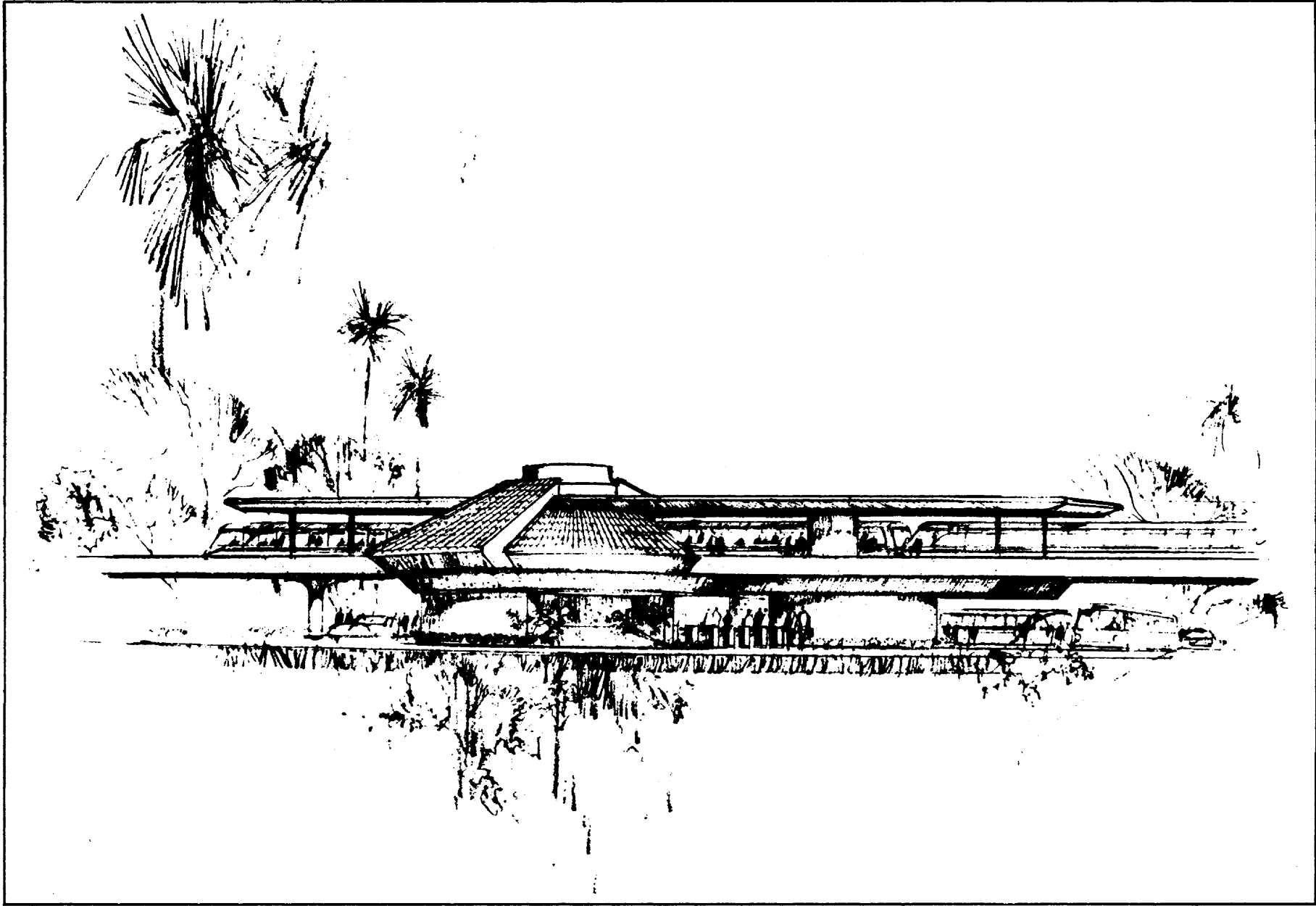


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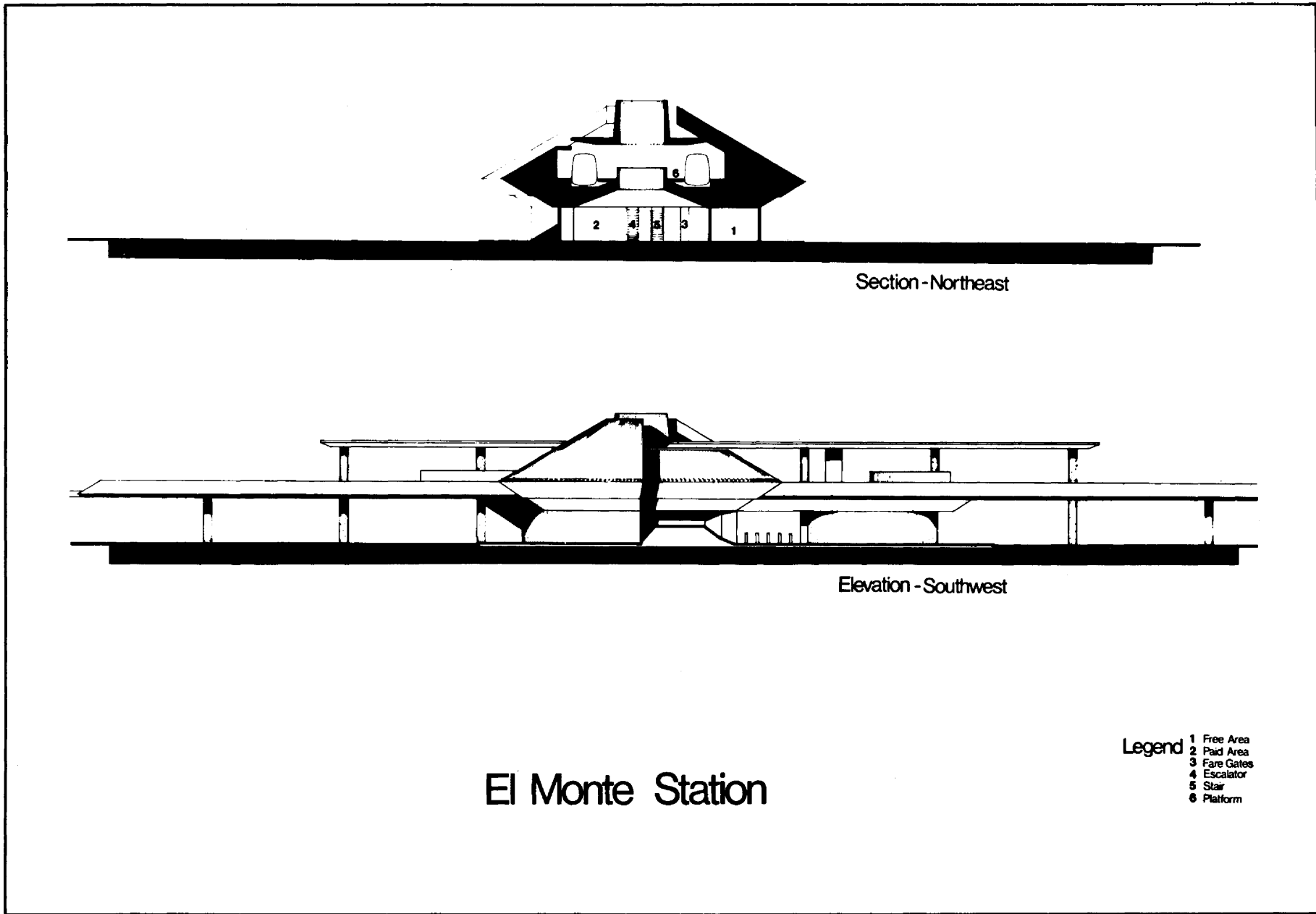


El Monte Station

Site Plan



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Section - Northeast

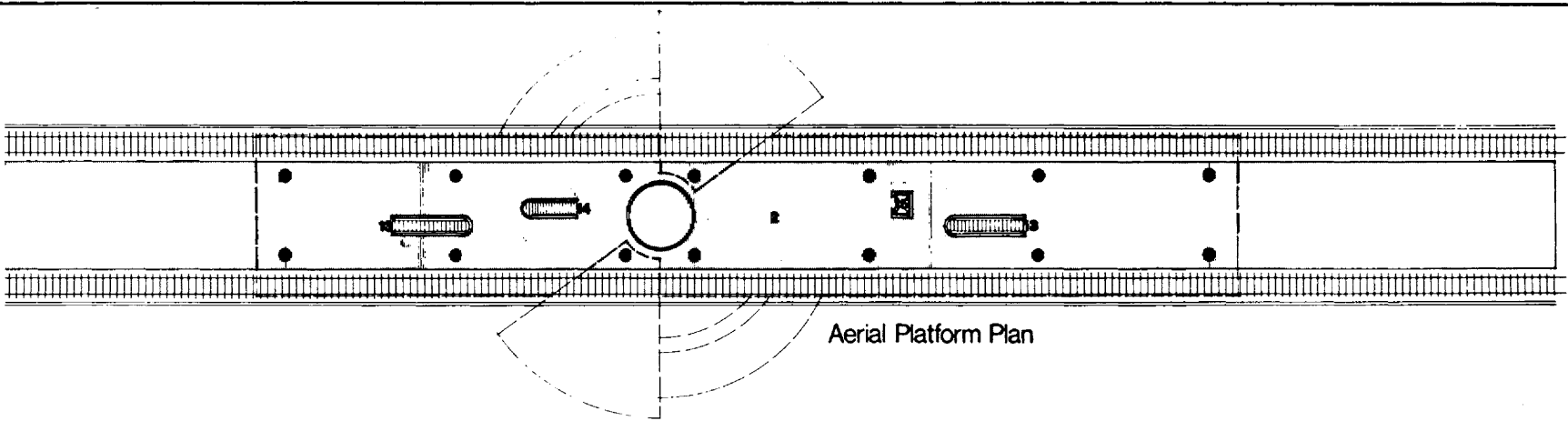
Elevation - Southwest

El Monte Station

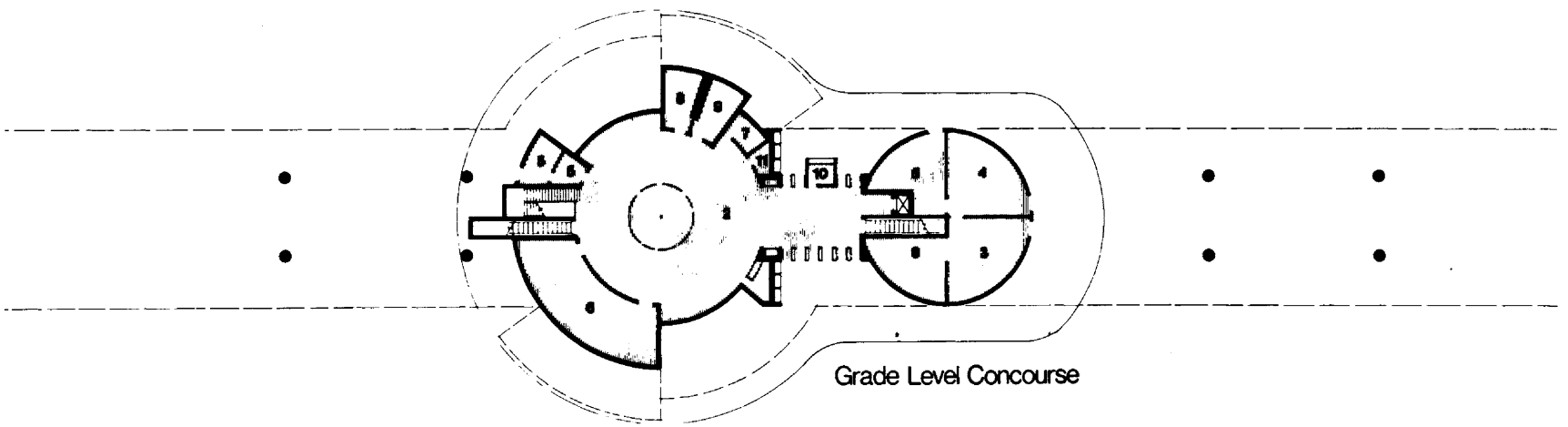
- Legend
- 1 Free Area
 - 2 Paid Area
 - 3 Fare Gates
 - 4 Escalator
 - 5 Stair
 - 6 Platform



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Aerial Platform Plan



Grade Level Concourse



El Monte Station

- Legend
- | | | |
|---------------------|------------------------------|----------------------|
| 1 Free Area | 7 Staff Restroom | 13 Escalator |
| 2 Paid Area | 8 Men | 14 Stair |
| 3 Transformer Space | 9 Women | 15 Elevator |
| 4 Train Control | 10 Change and Fare Vendor | 16 Telephones |
| 5 Mechanical Room | 11 Station Attendant's Booth | 17 Pedestrian Tunnel |
| 6 Electrical Room | 12 Fare Gates | 18 System Maps |

The drawings and maps depicting the WILSHIRE LINE are excerpted from the Initial Study of the Sunset Coast Line. In the Initial Study, the WILSHIRE LINE was shown running from Union Station through downtown Los Angeles westward to Century City.

In the Sunset, Ltd., the WILSHIRE LINE runs from a junction with the CENTRAL LINE-SOUTH in the vicinity of 5th and Flower Streets to the HOLLYWOOD LINE. The following drawings illustrate that line segment.



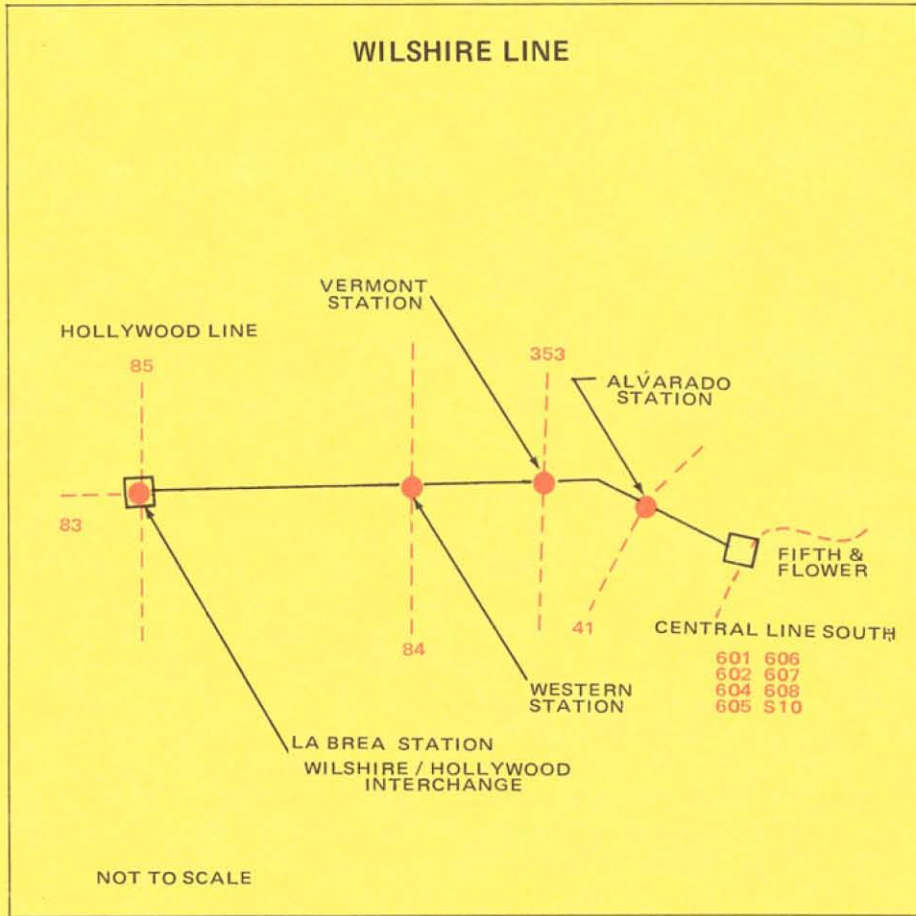
The Wilshire Line leaves a junction with the Central Line at 5th and Flower Streets. The route runs west under the Harbor Freeway in a subsurface easement, to the intersection of Witmer Street and Wilshire Boulevard, where it angles into a two-level underground junction located at Highland Avenue. There it connects with the southern terminus of the Hollywood Line.

An Alvarado Street station will serve the high density residential area in the MacArthur and Westlake Park Districts. Many major stores and office buildings on Wilshire Boulevard lie between Hoover Street and the eastern city limits of Beverly Hills. Stations located at key intersections will provide access to major destination areas throughout this section of the Wilshire District.

Only a portion of the aerial photograph for the Wilshire Line is shown here as the proposal indicates that this line would continue north through Hollywood into the San Fernando Valley. Actually, the Wilshire Line may continue on Highland Avenue to possibly La Brea or Fairfax before turning northward. Additionally, it is felt that ultimately the Wilshire Line will continue westward in a tunnel configuration beyond this location to serve Century City and the Westwood area.



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LINE COSTS

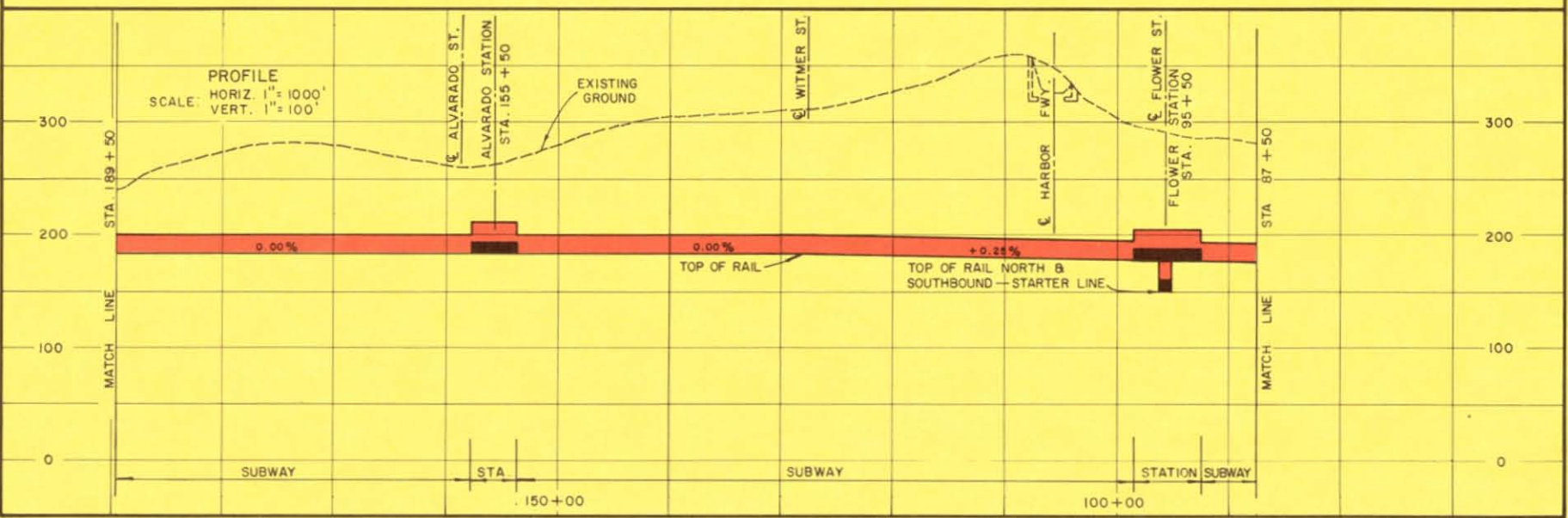
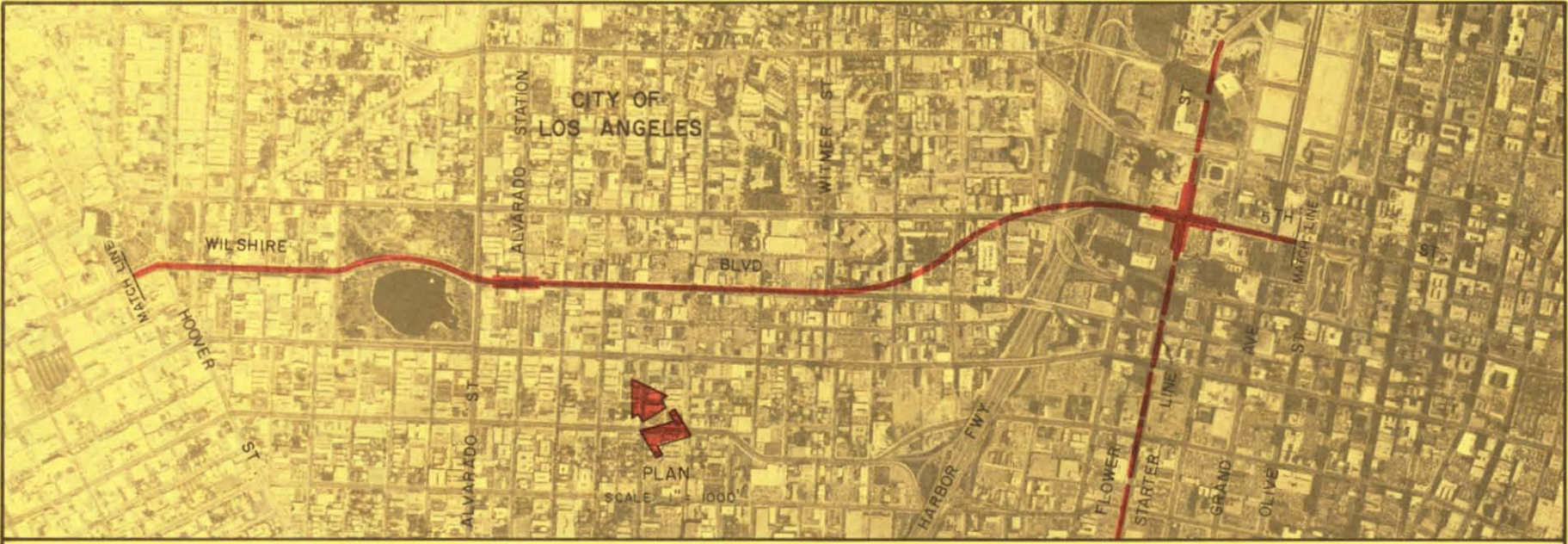
Construction	Components	Unit Cost (\$ mil)	Length (miles)	Cost (\$ mil)
Tunnel:	Boring	\$ 28.95	5.65	\$ 163.56
	Trackwork	1.39	5.65	7.85
	Electrification	2.30	5.65	12.99
	Controls	1.41	5.65	7.96
	Stations (5)	11.77		58.85
Sub Total:		\$ 45.82	5.65	\$ 251.23
Total:			5.65	\$ 251.23

ACCESS

STATIONS	BUS K&R	PARK	STATION TYPE
Alvarado	X		Subway
Vermont	X		Subway
Western	X		Subway



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ENGINEERING CONSIDERATIONS FOR WILSHIRE SUBWAY CONSTRUCTION

The design and construction of a subway system is a complex engineering and construction task. Effort must be taken to research the underground improvements and the geology of the area. Preliminary investigation was made of existing storm drains, sewers and other underground utilities such as water, gas, power and telephone lines.

The depth of the subway is to be at least 60 feet, and deeper where required, reducing interference with the utilities along the route to a minimum, except at station locations where major relocations will be necessary.

Buildings along Wilshire Boulevard vary from single story to high-rise. An investigation of the footing designs of selected major buildings along Wilshire Boulevard reveals the following:

The Medical Building Center at 6300 Wilshire Boulevard has two-foot diameter footing piles ranging to a depth of 68 feet below ground surface.

The Tishman Realty and Construction Company, Inc. at 3500 Wilshire Boulevard has reinforced concrete footing walls to a depth of 25 + feet.

The 21-story buildings at 3250 Wilshire Boulevard has reinforced concrete footing walls to a depth of 24 + feet.

The Statler-Hilton Hotel at 930 Wilshire Boulevard has reinforced concrete footing walls to a depth of 25 + feet.

While extensive study of the soils geology and engineering problems will be required before final plans can be prepared, our preliminary studies show that subways are feasible and can be constructed with today's engineering technology. However, there are alternative configurations of tunnels which must be decided upon before final plans can be developed. The bores can be stacked or side by side. The following illustrations indicate how the twin tunnels could appear.

GEOLOGIC CONSIDERATIONS FOR SUBWAY CONSTRUCTION ALONG WILSHIRE AND HOLLYWOOD LINES

Geologic problems in subway construction were examined by the County Engineer's Chief Engineering Geologist.

The geology of the proposed transit lines is generally favorable for both conventional and machine tunneling methods. Proposed tunnel grades will generally be in uncemented Quaternary formations, below the base of the unconsolidated recent alluvium.

Existing foundation reports for major structures along the routes should be obtained and analyzed. Additional research and direct geologic subsurface exploration should be performed to provide specific geologic design recommendations.

The routes traverse the Salt Lake, Los Angeles City and the Los Angeles downtown oil fields. Portions of the routes traversing oil fields will encounter problems such as gas, oil, and tar seeps, oil wells and utilities which may hinder the rate of advance and increase costs.

The northern one-half mile of the Hollywood Line will be excavated through competent conglomerate, sandstone and shale, which will probably require tunneling by the conventional drilling and blasting techniques.

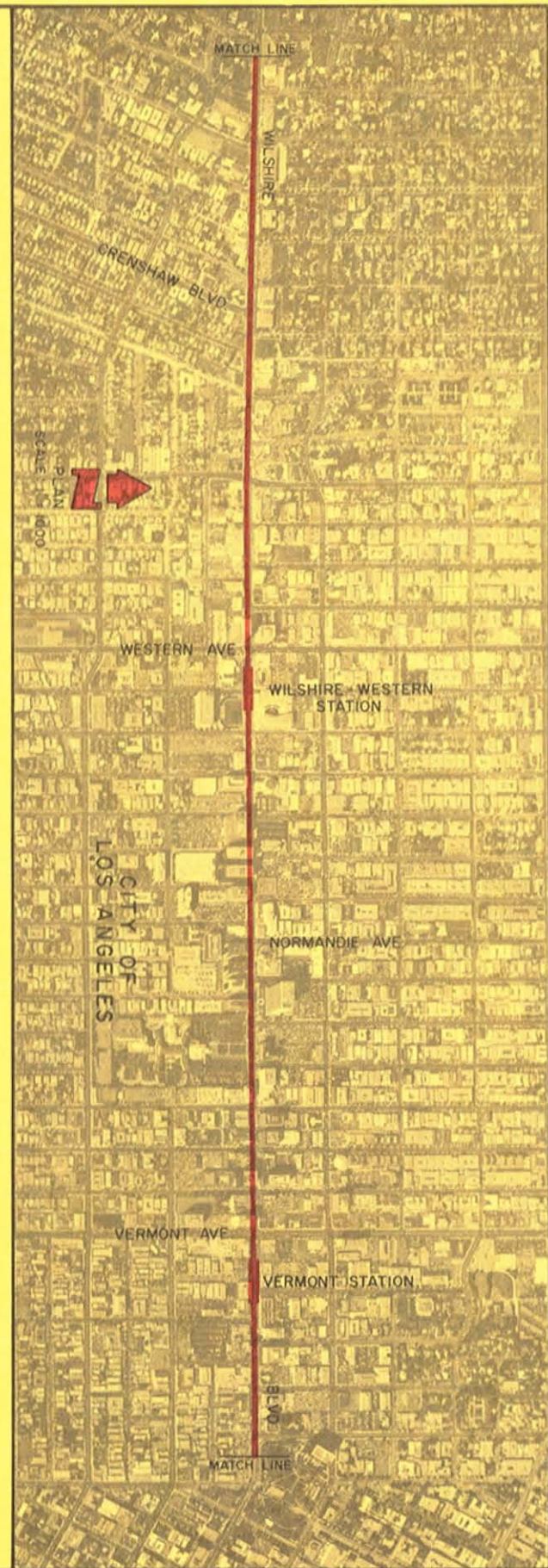
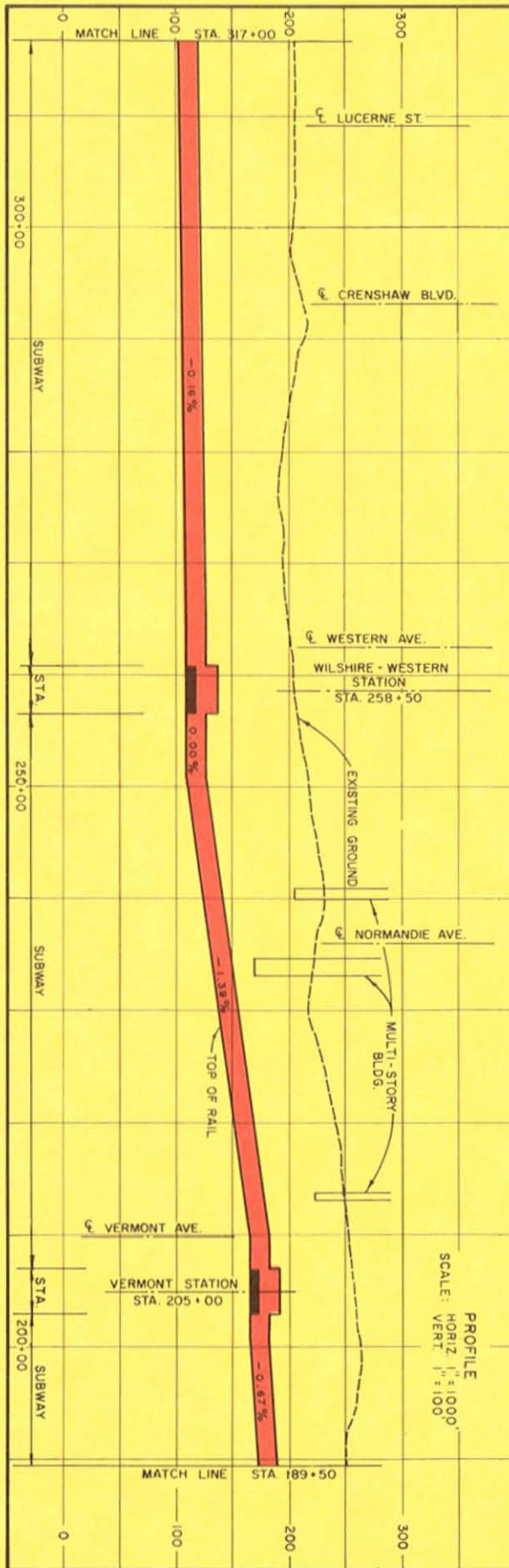
The Wilshire Line may cross the northward extension of the Inglewood Fault and the southern branch of the Santa Monica Fault. Detailed geologic exploration will be required in the suspected fault areas. The Central Line-South will not cross any known active or potentially active faults.

Shallow groundwater will be encountered along all the subways. Additional studies have to be made to determine the best ways to control groundwater problems in the uncemented Quaternary aquifers.

The concept of the proposed subways should be geologically feasible. The potential geologic problems described above should be overcome by modern tunneling technology.



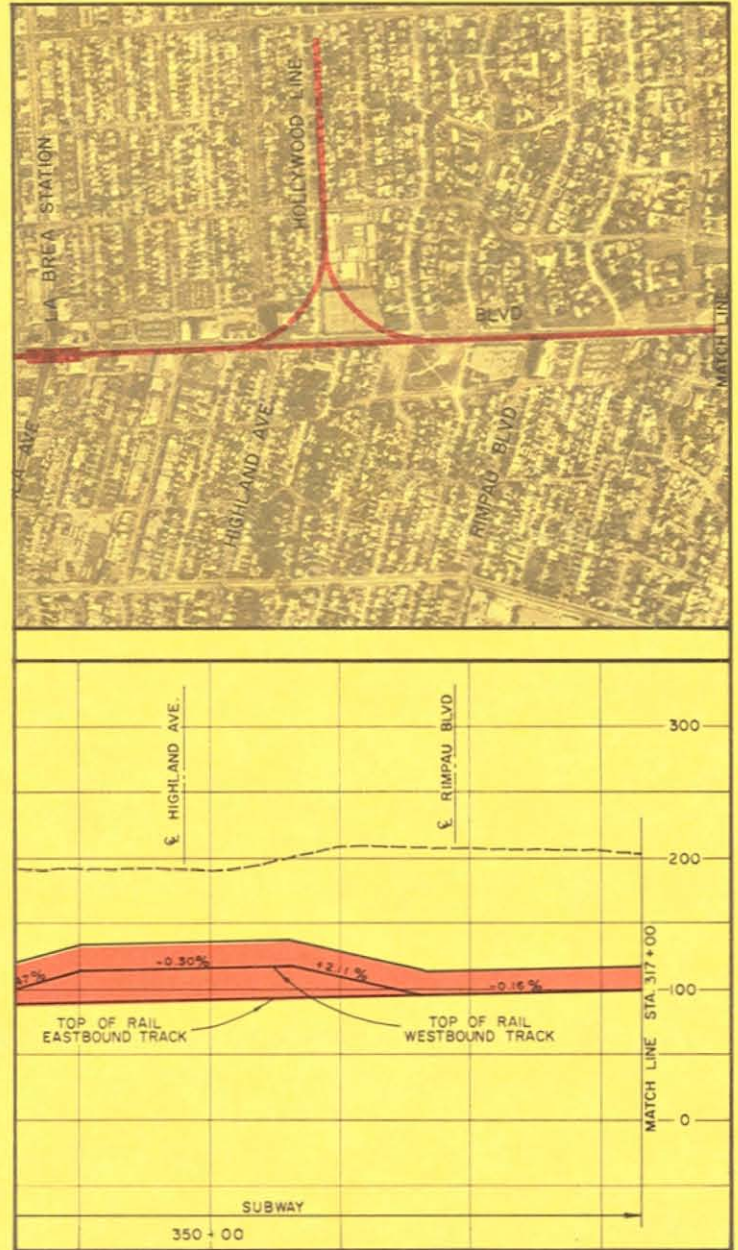
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The maps and drawings which follow describing the HOLLYWOOD LINE show a portion of that line to give an indication as to its construction and location. The entire line is not shown, however.



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The section of the Hollywood Line studied is a subway configuration 3.4 miles in length. The line begins at the intersection of Wilshire Boulevard and Highland Avenue, with a grade separated interchange connecting to the eastbound and westbound Wilshire Line route.

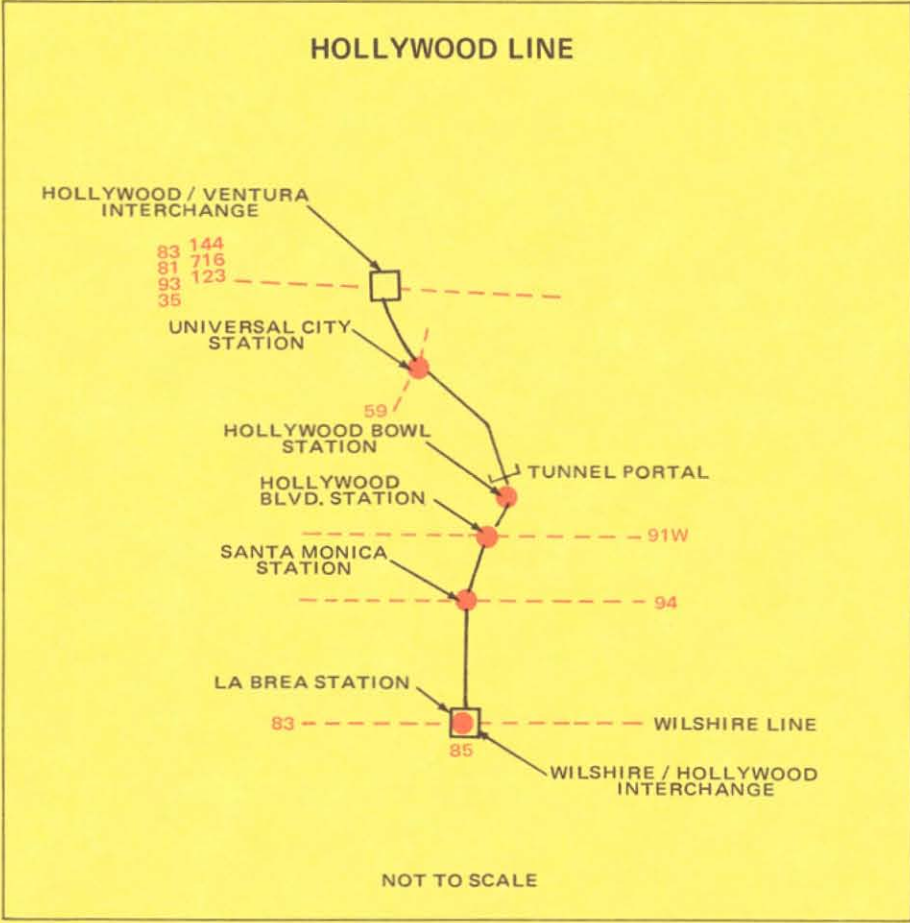
The Hollywood Line proceeds north under Highland Avenue to the intersection of Franklin Avenue, where it angles northeast. It continues approximately 2600 feet to a one-level underground station situated at the Hollywood Bowl. At this point it connects to the San Fernando Valley Line which has come in an aerial configuration through the Cahuenga Pass from North Hollywood.

In addition to the stations at Wilshire Boulevard and the Hollywood Bowl, the route will also include single-level underground stations along Highland Avenue at Santa Monica Boulevard and Hollywood Boulevard.

The Hollywood Line generally serves that area surrounding Highland Avenue north of Wilshire Boulevard, the Hollywood Central Business District and the Hollywood Bowl. The entire length is in the City of Los Angeles.

The Santa Monica Boulevard and Hollywood Boulevard stations along Highland Avenue will provide access to the major destination areas in Hollywood. In addition they give good service to walk-in patronage from the medium-to-high density housing both east and west of Highland Avenue. The Hollywood Bowl station at the northerly terminus of the route will serve the Bowl and Pilgrimage Theatre.





LINE COSTS

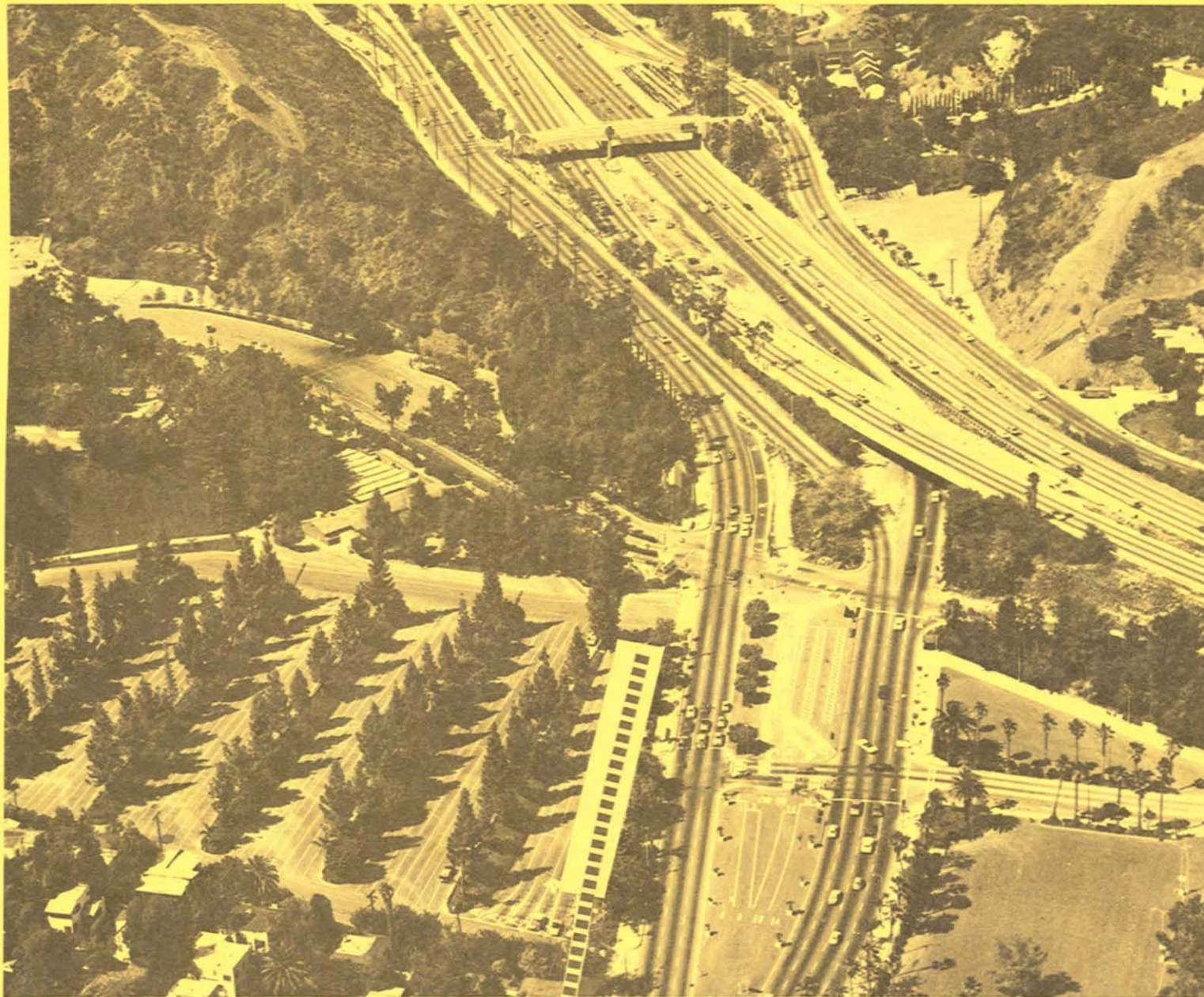
Construction	Components	Unit Cost (\$ mil)	Length (miles)	Cost (\$ mil)
Tunnel:				
	Boring	\$ 28.95	3.57	\$ 103.35
	Trackwork	1.39	3.57	4.96
	Electrification	2.30	3.57	8.21
	Controls	1.41	3.57	5.03
	Stations (3)	11.77		35.31
Sub Total:		\$ 45.82	3.57	\$ 156.86
Aerial:				
	Structure	\$ 13.52	3.76	\$ 50.83
	Trackwork	1.39	3.76	5.22
	Electrification	2.30	3.76	8.64
	Utility Relocation	4.70	3.76	17.67
	Controls	3.05	3.76	11.46
	Stations (1)	3.52		3.52
Sub Total:		\$ 28.48	3.76	\$ 97.34
Total:			7.33	\$ 254.20

ACCESS

STATIONS	BUS	K&R	PARK	STATION TYPE
La Brea	X			Subway
Santa Monica	X			Subway
Hollywood	X			Subway
Hollywood Bowl	X			Subway
Universal City	X			Aerial



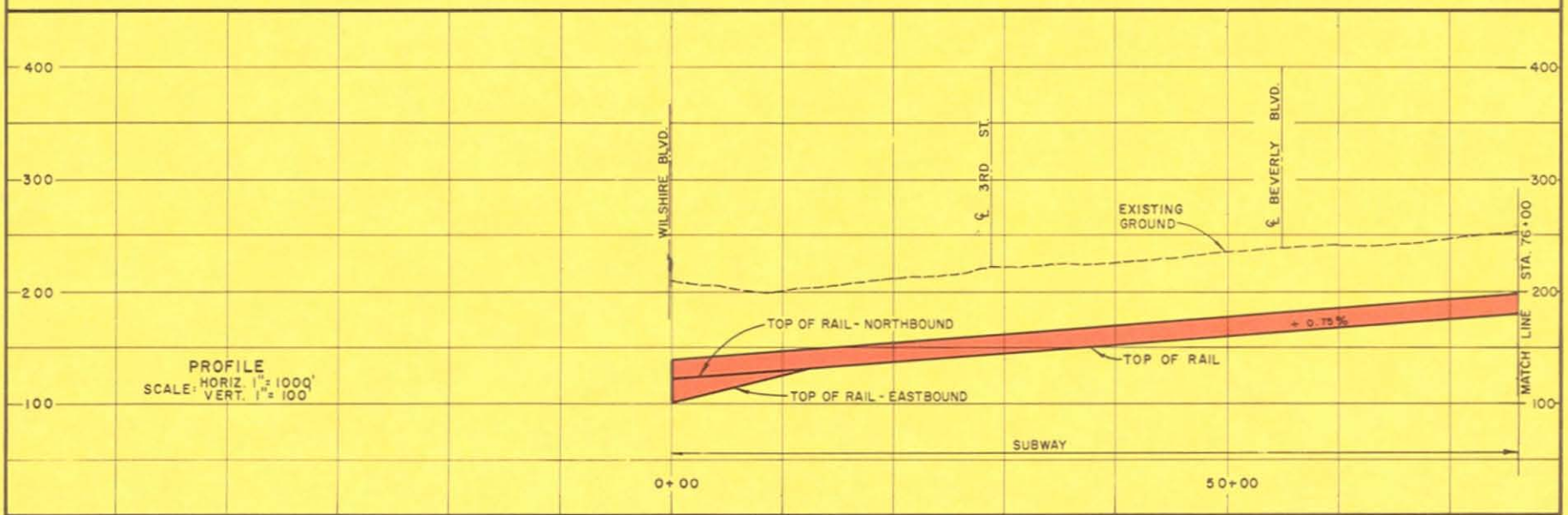
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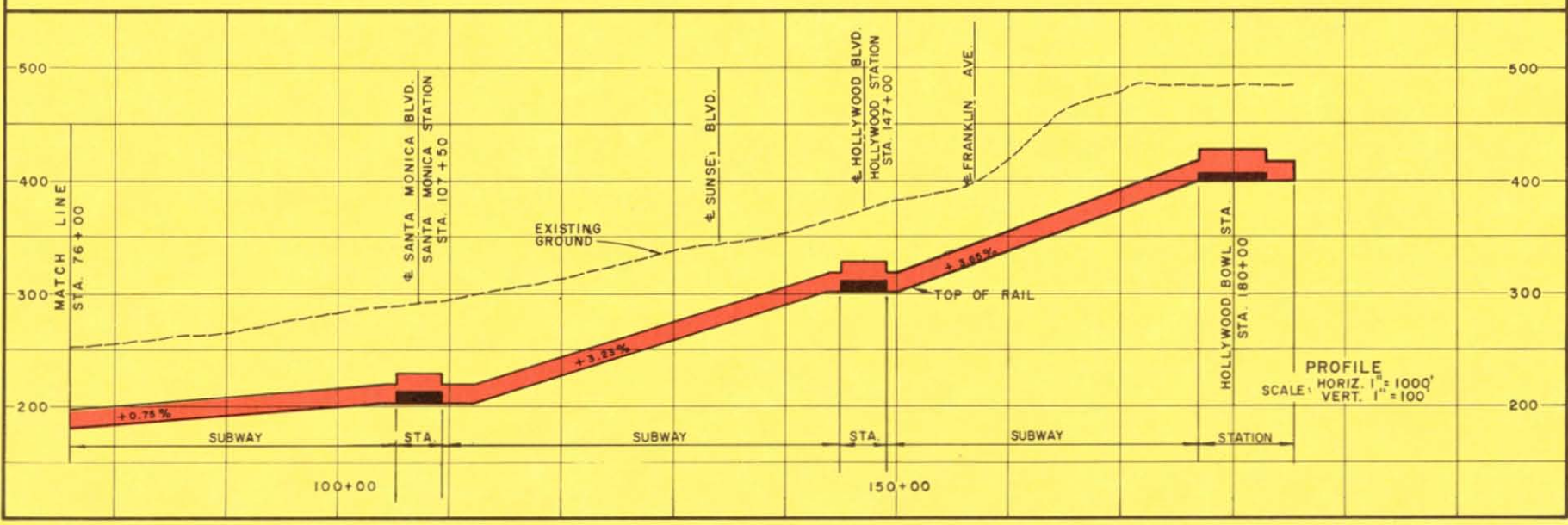
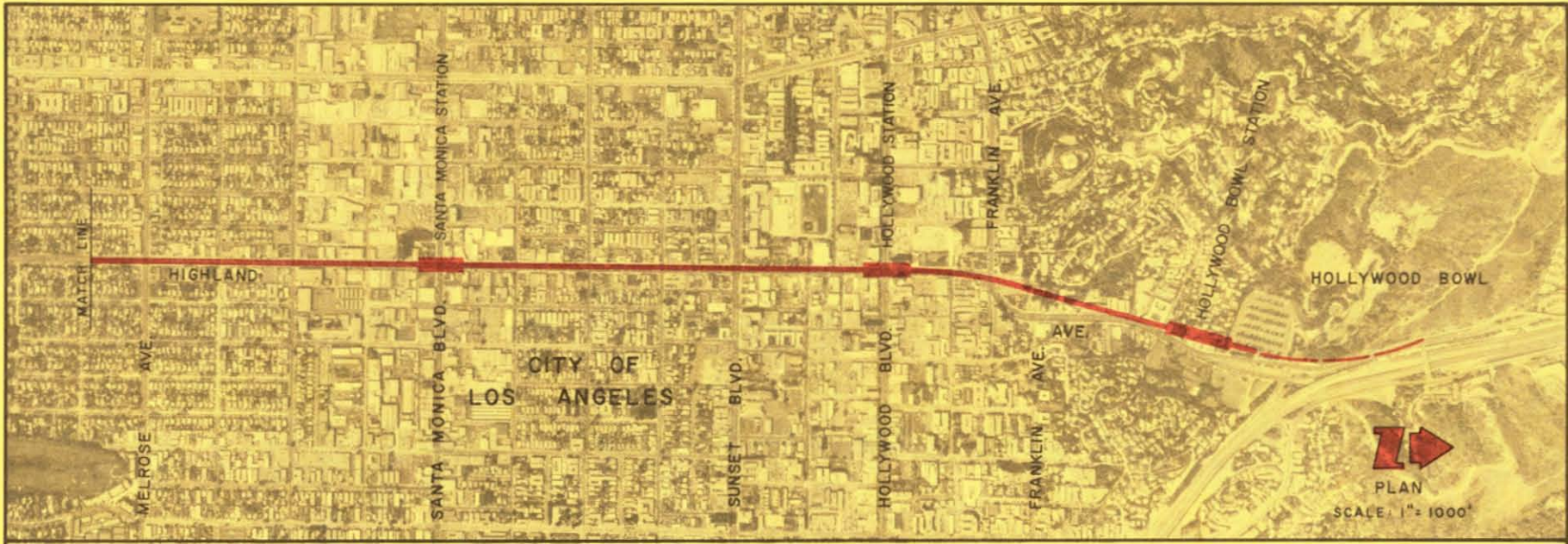
Destined to become familiar
to visitors from afar—
the station at the Hollywood Bowl

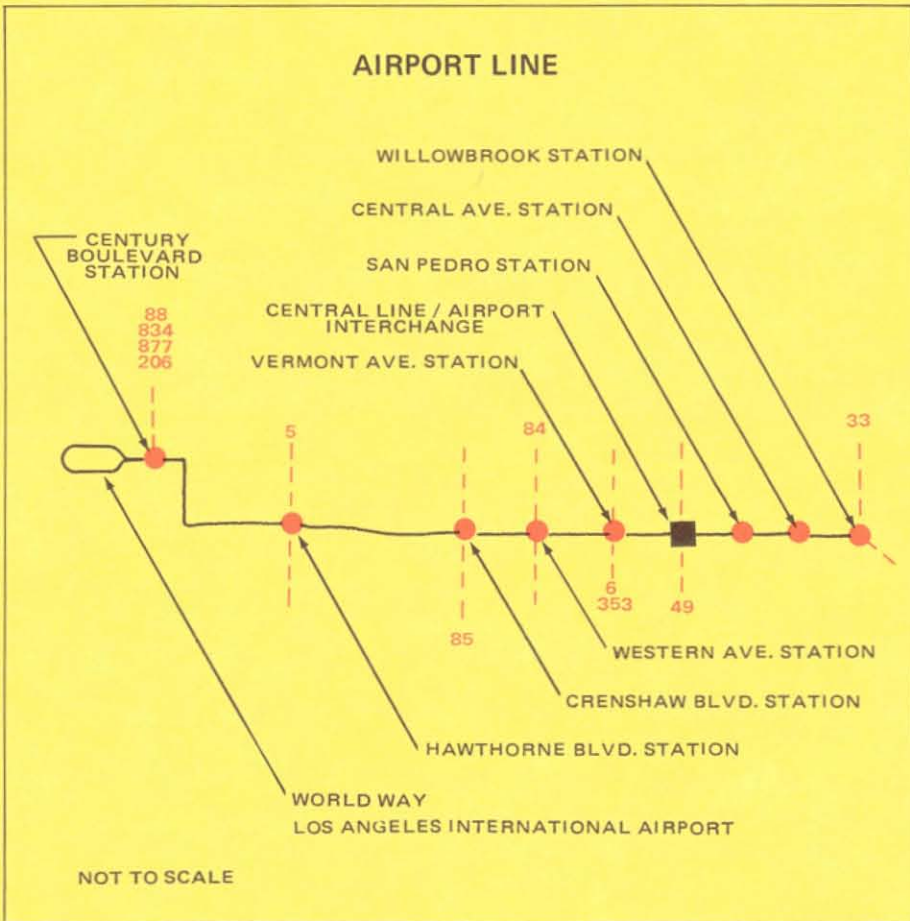


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SUNSET, LTD.





LINE COSTS

Construction	Components	Unit Cost (\$1 mil)	Length (miles)	Cost (\$ mil.)
Grade/Freeway:	Trackwork	\$ 1.20	10.64	\$ 12.76
	Fencing	.48	10.64	5.10
	Concrete Severence	.07	10.64	.74
	Electrification	4.08	10.64	43.41
	Controls	2.88	10.64	30.64
	Stations (5)	5.00		25.00
	Sub Total:		\$ 13.71	10.64
Aerial:	Structures	13.52	1.0	13.52
	Trackwork	1.39	1.0	1.39
	Electrification	2.30	1.0	2.30
	Utility Relocation	4.70	1.0	4.70
	Controls	3.05	1.0	3.05
Sub Total:		\$ 24.96	1.0	\$ 24.96
Total:			11.64	\$142.61

ACCESS

STATIONS	BUS	K&R	PARK	STATION TYPE
Union Plaza	X		X	Multi-Level
County Hospital	X		X	Freeway
Cal State L.A.	X		X	Freeway
Garfield	X	X	X	Freeway
Del Mar	X	X	X	Freeway
El Monte	X	X	X	Aerial



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AIRPORT LINE

98 - A

The drawings and maps depicting the AIRPORT LINE are excerpted from the Initial Study of the Sunset Coast Line. These provide a description for part of the line but depict the nature of the line as a whole.

The Airport Line begins at Century Boulevard at its intersection with Sepulveda Boulevard. It travels west in an aerial configuration and enters the Los Angeles International Airport complex at World Way Drive. Here the Airport Line and the Intra-Airport Transportation System (proposed by the Department of Airports) join on adjacent, one-way single tracks. Both systems then circulate through the entire World Way Drive loop. All trains will stop at the third level of each of the major terminals. Passengers will disembark on a common landing between the two tracks. Escalators will take passengers to the second level and into the airport terminals.

Train length within the Central Terminal Area will be restricted to two cars each to avoid congestion. Traffic control will also limit the number of trains moving through the Central Terminal Area. Maintenance of operating schedules will be particularly important because of airline connections for out-bound passengers.

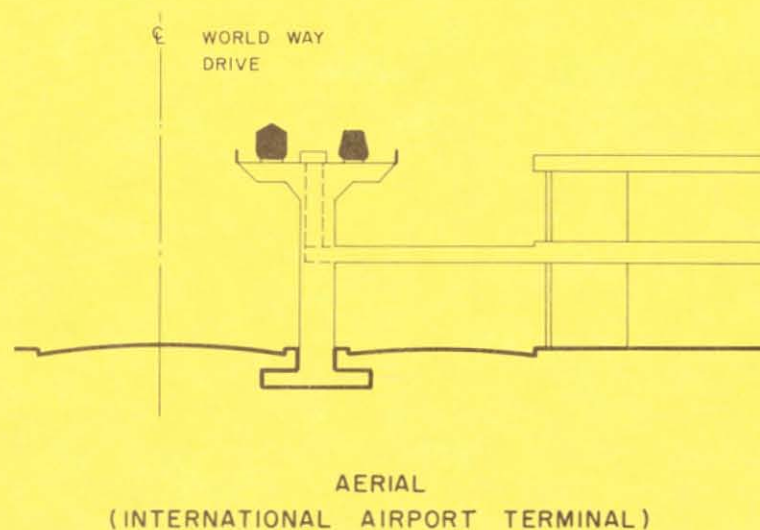
Trains will stop for 90 seconds at each terminal to discharge and accept passengers. This is approximately 70 seconds longer than a regular station stop, but will be necessary because of baggage handling. Including all stops, trains will require approximately fifteen minutes to make the Airport loop.

After completing this loop, both the Sunset and Intra-Airport lines leave the airport and return to the joint-use tracks in the vicinity of Sepulveda Boulevard.

From Sepulveda Boulevard east, both systems continue in an aerial structure down Century Boulevard to Aviation Boulevard, where they turn south and run along the west side of the Santa Fe Railroad tracks. The aerial structure transitions to an at-grade configuration as it crosses in front of the two south runways.

Once past the runways, the two lines return to an aerial structure and continue to 111th Street where the Intra-Airport Transportation System turns easterly to serve airport parking lots. The Sunset Line continues south and turns in a southeasterly direction, crossing over the railroad tracks. Aviation Boulevard, Imperial Highway, and La Cienega Boulevard.

The line continues to curve in an easterly direction into the median of the proposed Century Freeway to where it joins the Central Line South in the vicinity of the Harbor Freeway. From there it continues east from the Central Line to the Willowbrook branch of the Southern Pacific Railroad. This is a temporary terminus for the Airport Line.



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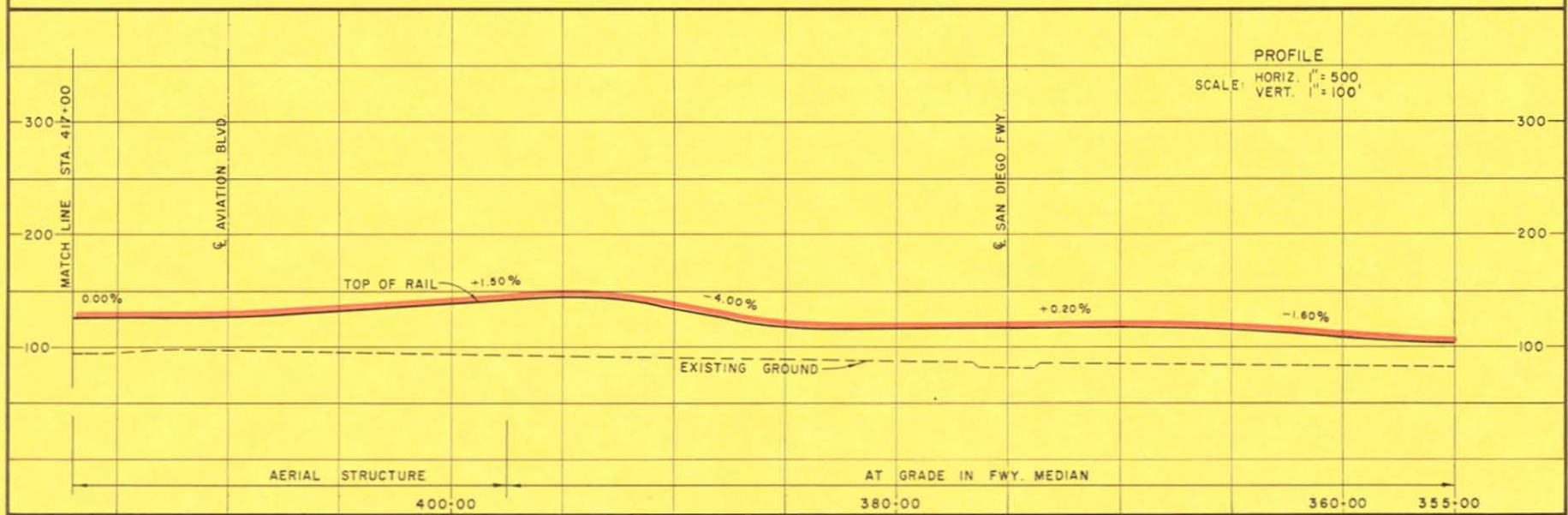


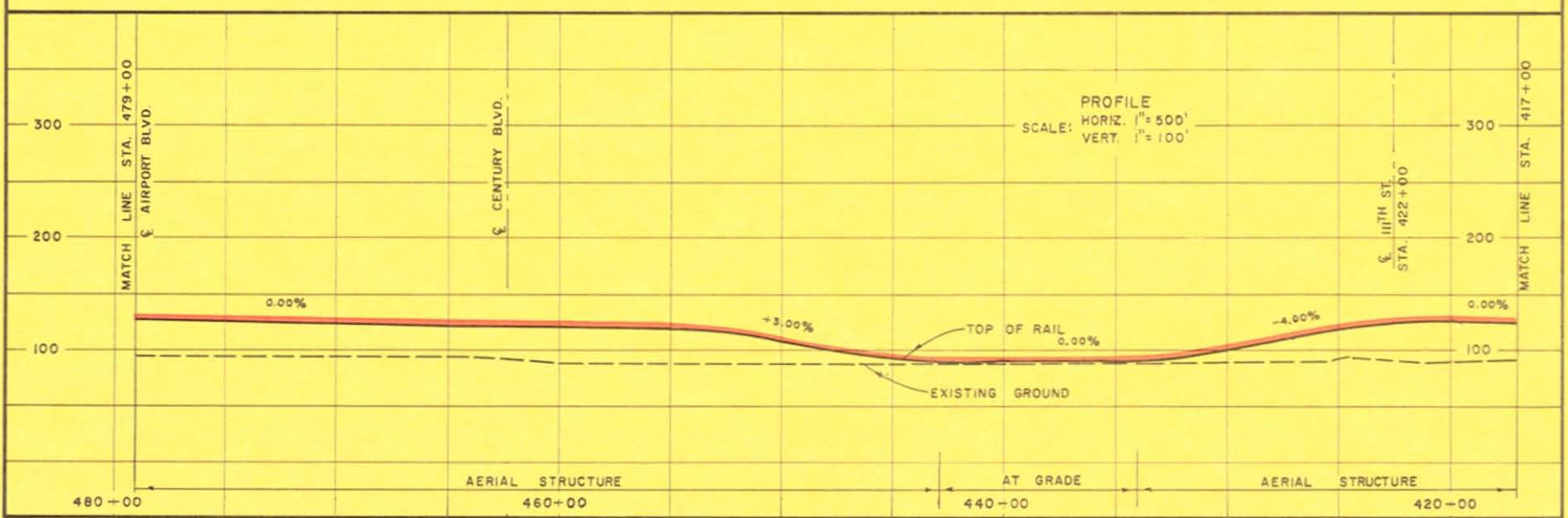
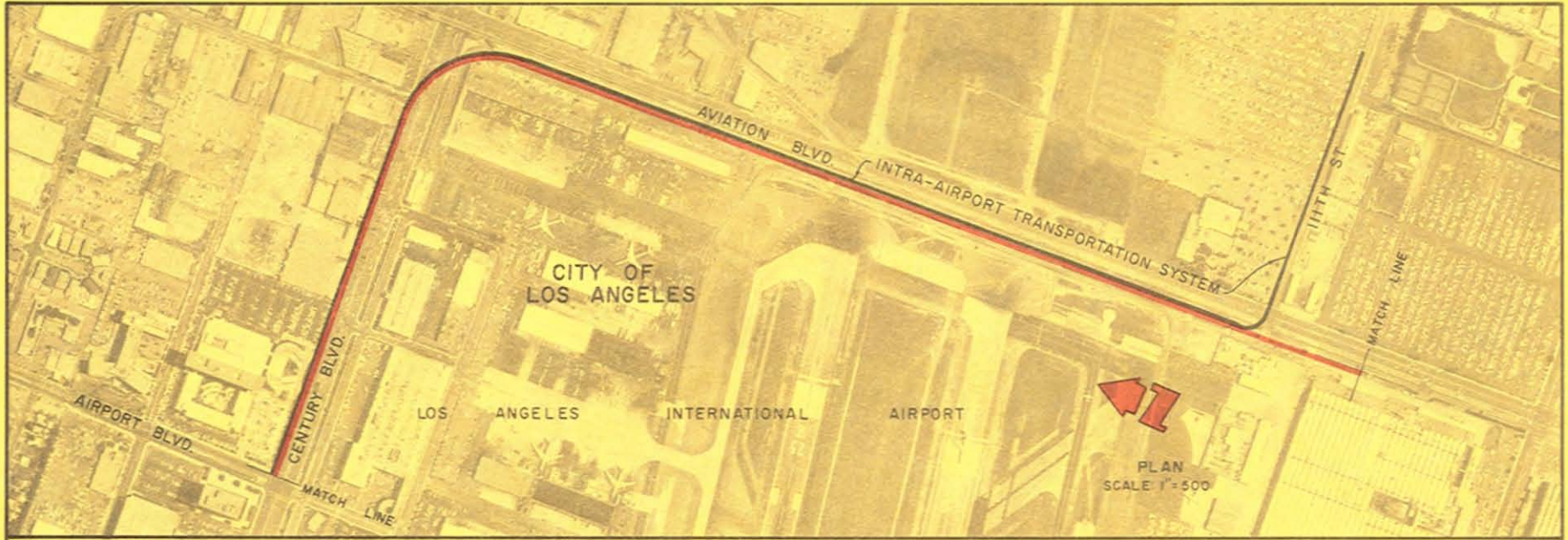


The Department of Airports' intra - airport - transportation - system is built to accommodate the Sunset, Ltd. on the same structure

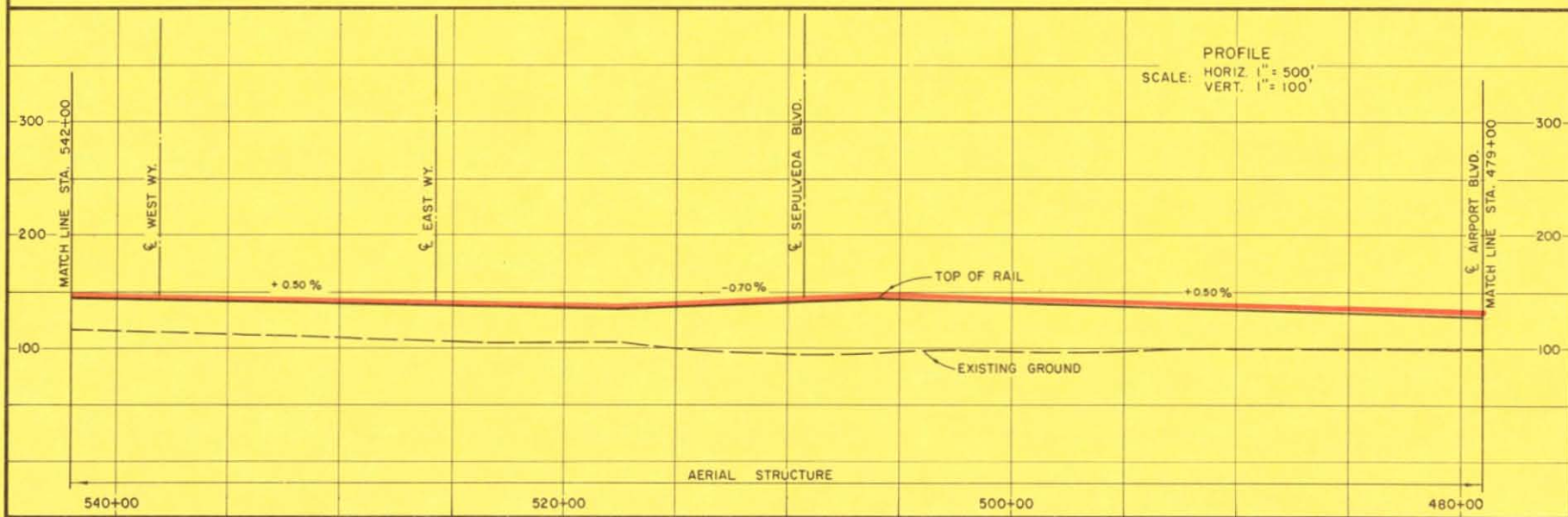


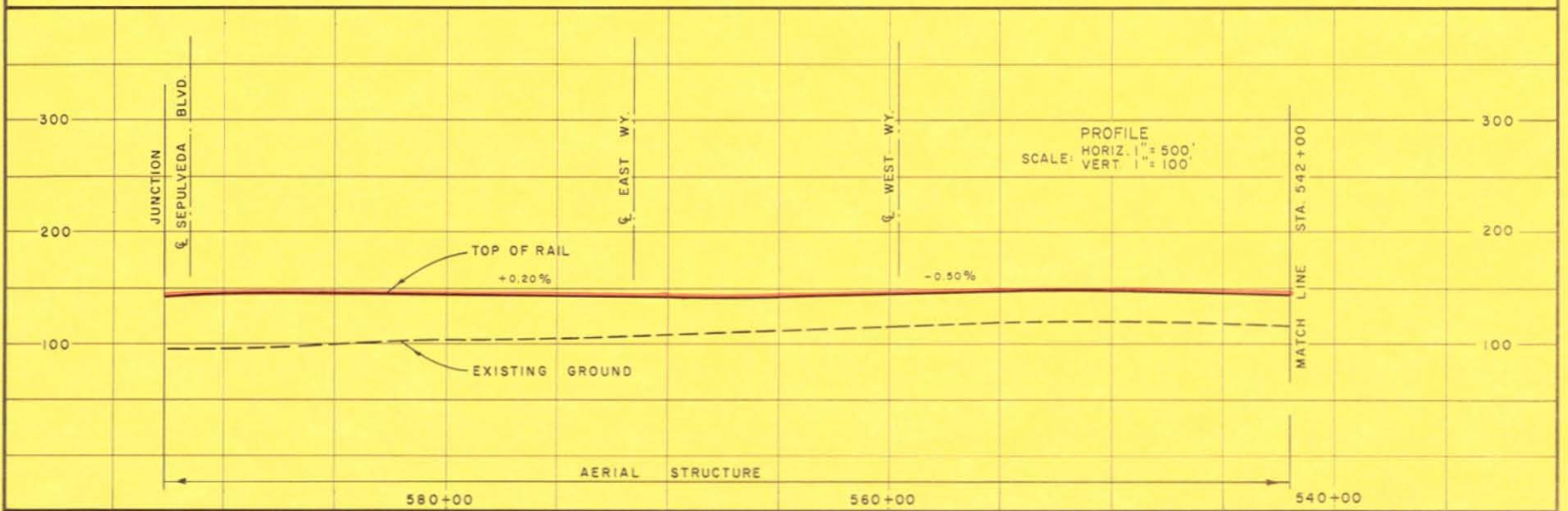
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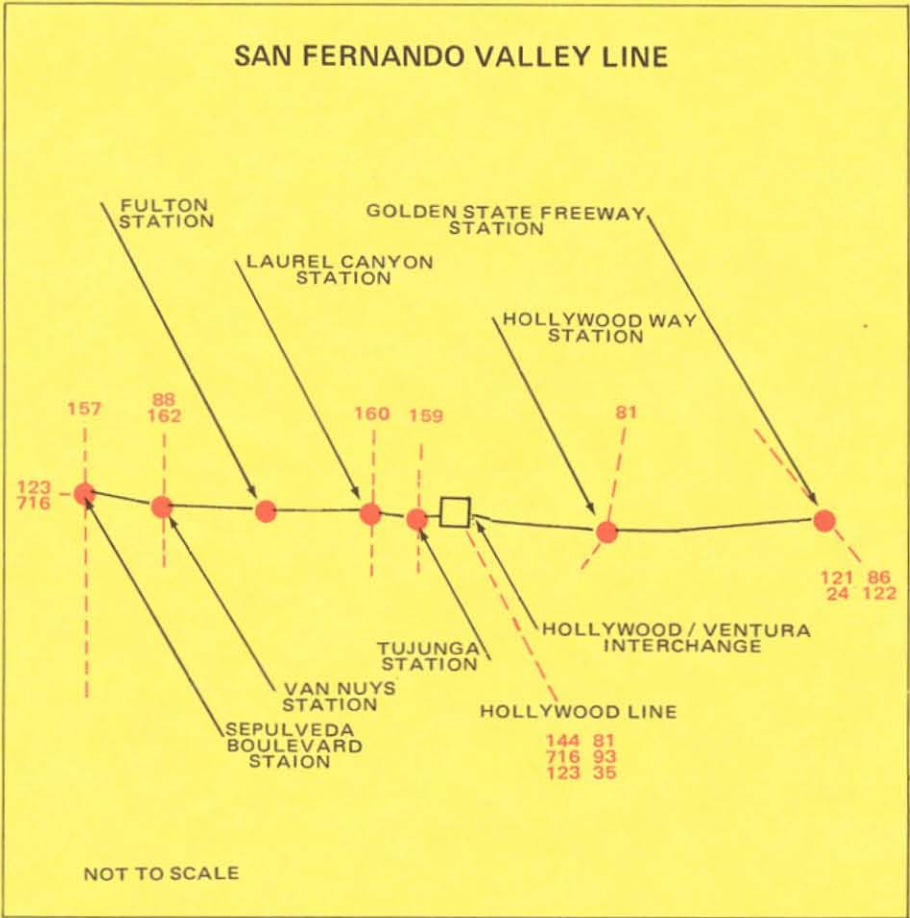


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LINE COSTS

Construction	Components	Unit Cost (\$ mil)	Length (miles)	Cost (\$ mil)
Aerial:	Structure	\$ 13.52	10.39	\$ 140.47
	Trackwork	1.39	10.39	14.44
	Electrification	2.30	10.39	23.89
	Utility Relocation	4.70	10.39	48.83
	Controls	3.05	10.39	31.68
	Stations (7)	3.52		24.64
Sub Total:		\$ 28.48	10.39	\$ 283.95
Total:			10.39	\$ 283.95

ACCESS

STATIONS	BUS	K&R	PARK	STATION TYPE
Golden State Frwy.	X	X	X	Freeway
Hollywood Way	X	X		Freeway
Tujunga	X	X		Freeway
Laurel Canyon	X	X		Freeway
Fulton	X	X		Freeway
Van Nuys	X	X		Freeway
Sepulveda	X	X	X	Freeway



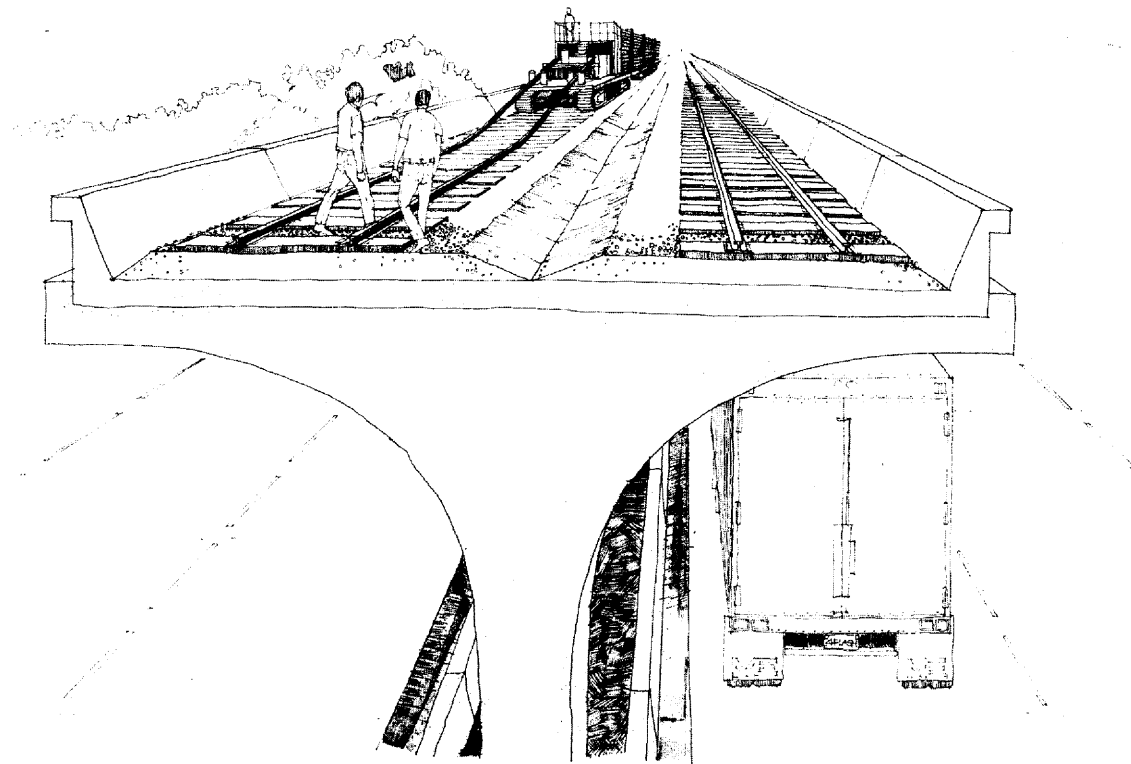
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THE BUILDING PLAN

The three key elements in construction of any transit plan are costs, dollar availability, and time.

The relationship of these factors in the construction of a Sunset Start-up System is discussed in the following section.

This section represents a serious attempt to project the costs for all of the beginning system. It analyzes the construction progress in sequences that adhere to the limitations of both time and money.



THE BUILDING PLAN

There are two reasons that rapid execution of the electorate's mandate for rail transit is essential. First, so the public can begin using the system as soon as possible, and second, so that inflation does not escalate costs excessively. For timely construction of the Sunset, Ltd., effective design and construction management are necessary.

Within the next four years, the construction program must grow to a level of approximately 25 contracts underway at one time. It will be the ability to maintain control over numerous separate projects that will be the key to successful implementation of the Sunset, Ltd.

The nature of this section is the evaluation of the design and construction scheduling necessary so that operation of the Sunset, Ltd. may begin.

There are key elements of the program management system that are necessary in order to have successful multiple project management. These include such functions as: scheduling, financial management, resource management, management information, and community relations.

It is also important that program management focus its attention on two important areas: those of system planning and project planning. System planning involves system geometry, performance standards, architectural standards, structural standards, and the system environmental impact report. At the same time, project planning must begin on those projects which offer opportunities for early construction starts. Parallel activities ("fast track" scheduling) will assure that these projects get underway with a minimum of time lapse after completion of system planning.

The Design and Construction Team

There will be no delay in commencing design work on the Sunset, Ltd. because the available engineering resources in the field will be utilized. The basic scheduling assumptions include design of structures within freeway corridors by Cal-Trans and design of structures in other

corridors by private consulting firms. System standards and equipment specifications will be developed by specialized consultants. The construction of system facilities and the manufacturing of equipment will be accomplished through competitive bidding by private contractors.

Schedule Development

Detailed schedules have not been prepared in this study to show the research, development, and other activities necessary for procurement of the transit vehicles and the operation system. By relying on proven designs for these aspects of the system, it is expected that these elements can be available to begin testing in 1983.

General Assumptions

- Cal-Trans designs all structures within freeway right of way.
- Architect/Engineers and specialized consultants are retained for the bulk of the design work.
- Cal-Trans and Architect/Engineers can schedule project design starts by the middle of 1979.
- Construction contracts awarded after competitive bidding.
- Development of criteria and standards be started immediately following election.
- System EIR and initial Project EIR's are prepared in parallel.
- Criteria development, design, and EIR preparation overlapped when possible to proceed on a "fast track" basis to get construction contracts out as soon as possible.
- General utilization of current "state of the art" design standards for initial contracts.
- Freeway system can be disrupted by multiple contracts along a given corridor.
- Construction industry can absorb the work.
- Approvals by SCRTD, local agencies, and other jurisdictions are expedited.

Timing Assumptions

- System EIR will take one year.



- Project EIR's will require one to three years for preparation and approvals depending upon nature of transit corridor.
- Project design and specifications will require one to three years depending upon project complexity.
- Right of way acquisition, utilities, and approvals will require six months to three years but can be accomplished partially in parallel with design activities.
- Construction contracts will be about two years duration.

- Contracts for transit roadways, electrification/controls, and track construction can be awarded on a "fast track" basis with overlapping durations.

The projected schedule for implementation of the Sunset, Ltd. and for the overall system planning and development is as shown later in this section.

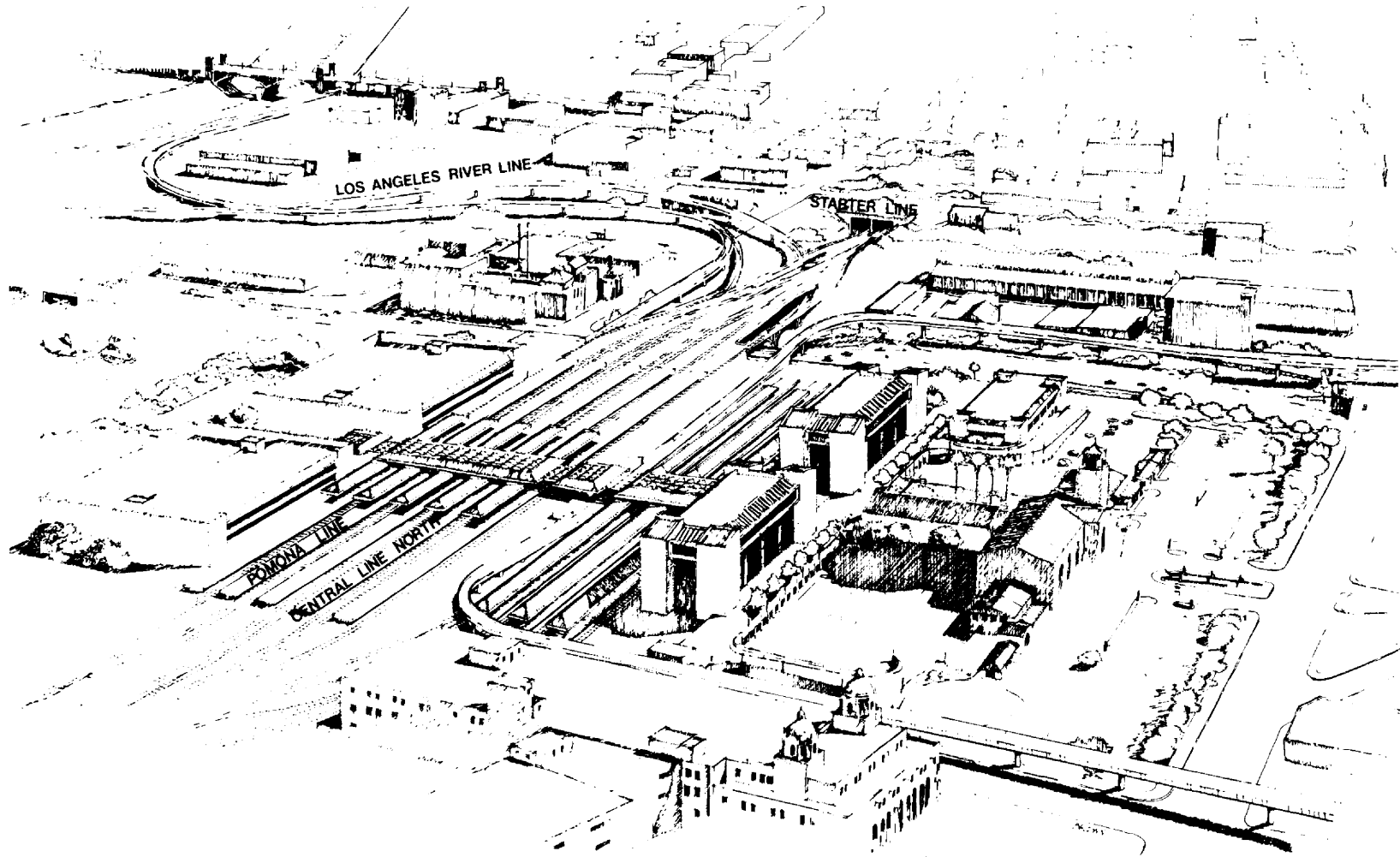
SCHEDULE FOR IMPLEMENTATION OF THE SUNSET, LTD. PROGRAM													
Implementation Requirements	YEAR												
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	
Program Management	Department Organization	■											
	Operating Policies	■											
	Staffing	■											
	Budget	■											
	Scheduling System		■										
	Financial Management System		■										
	Resource Management System		■										
	Management Information System		■										
	Community Relations		■	■									
System Planning and Development	System Geometry		■	■	■								
	Performance Standards		■	■	■								
	System EIR		■	■	■								
	Architectural Standards		■	■	■								
	Structural Standards		■	■	■								

BUILDING PLAN:**Union Plaza**

Union Plaza, the focal point of the Sunset, Ltd., will be located in the vicinity of the existing Union Station.

It will not only serve as a main loading and interchange point but will also provide the operational controls for all lines.

In addition to passenger service, the facilities will provide various shop and yard facilities for storage and servicing of rail cars. It will also provide multi-level parking structures, and other related facilities.

**SUNSET, LTD.**

Union Plaza

Years: 1979-80

By January 1979, planning for the Union Plaza will get underway. Preparation of the EIR and acquisition of a site will be of the highest priority.

By late 1979, specific design activity will begin in parallel with activities already underway. Approval of the EIR and acquisition of the site will be completed by the end of 1980.

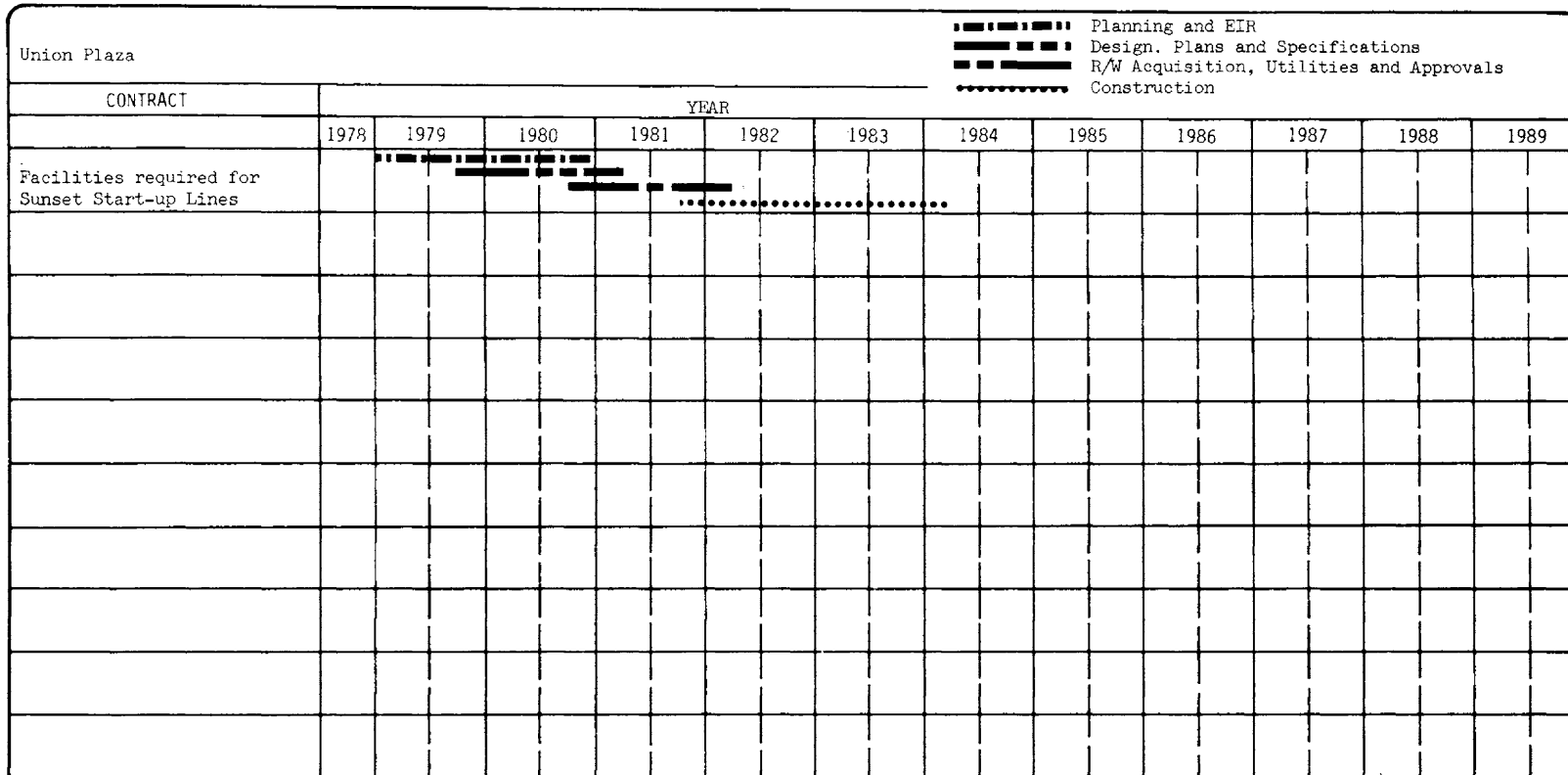
Years: 1981-82

Design work and preparation of plans and specifications will continue

on an accelerated basis through the first half of the year. At mid-year 1981, a construction contract will be awarded for the minimum facilities required at this site for system operation. Construction will begin late in 1981 and continue on an accelerated basis.

Years: 1983-84

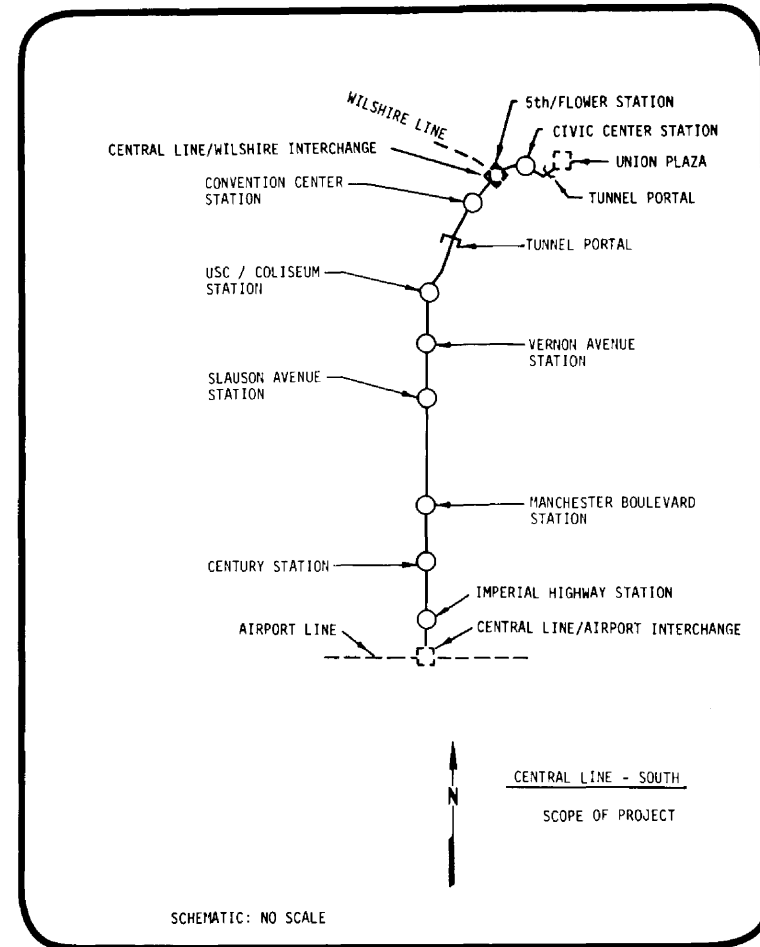
By late 1983 the Union Plaza construction will be completed sufficiently to allow testing of the initial lines. These lines will be put into service about mid-year, 1984, with operations emanating from Union Plaza. At that time Union Plaza will be completed sufficiently to allow operation of the Sunset Start-up Lines.



BUILDING PLAN:

Central Line South

- The line begins at Union Plaza and runs south on an aerial structure for about 1,000 feet to grade;
- The line then portals into a curving tunnel straightening out under First Street;
- The tunnel runs under First Street then curves to run under Flower Street continuing in this alignment approximately to Olympic Boulevard;
- The tunnel then curves to run under Figueroa Street in the vicinity of the Convention Center, continuing on this alignment until it portals in the vicinity of 22nd Street;
- The line then runs south onto a structure supported over the shoulder of the Harbor Freeway, continuing on that alignment to the Central Line/Airport Interchange. This is the terminus of the line.



SUNSET, LTD.



Central Line – South: Project Scope and Scheduling

Project Scope and Contracts

The project consists of about 10 miles of railway and 8 stations. The railway construction will be divided into 8 contracts and the stations divided between 2 contracts.

Overall Schedule

Construction of the Central Line – South will be phased so that it is placed in operation in two segments. A major portion of the line from the Convention Center Station to the Central Line/Airport Interchange will be operational by 1984. The remaining portion of the line from the Convention Center Station to Union Plaza will be operational in 1987.

Much of the line will be constructed within existing freeway rights of way and may cause significant disruption to traffic during early phases of construction.

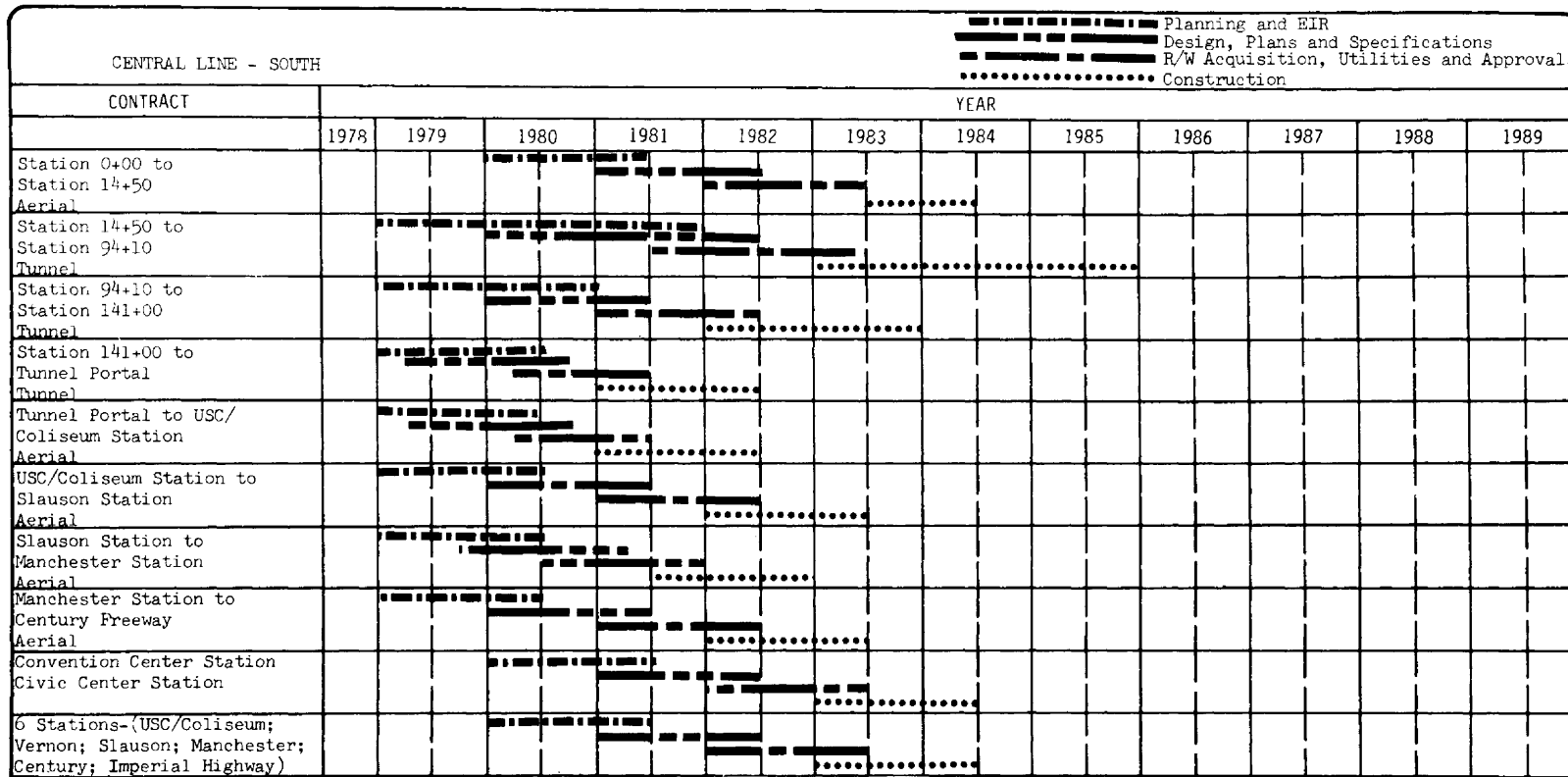
Schedule of Design

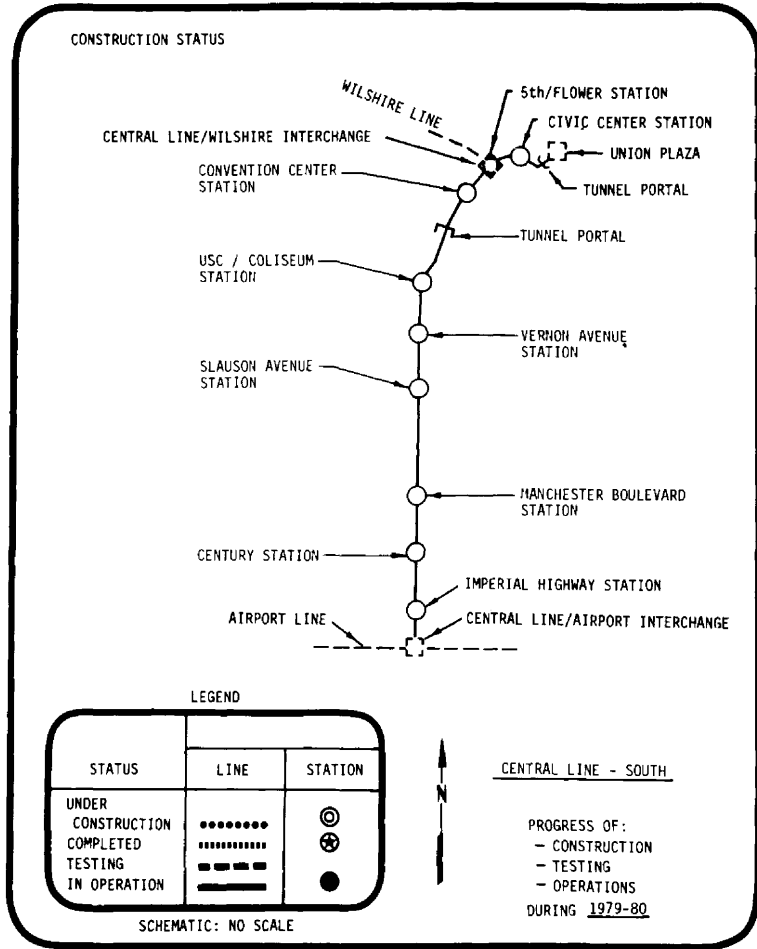
The planning and design of this line will begin in 1979 and be completed by 1982.

Specific design schedules for various construction contracts are shown later in this section.

Schedule of Construction/Testing/Operation

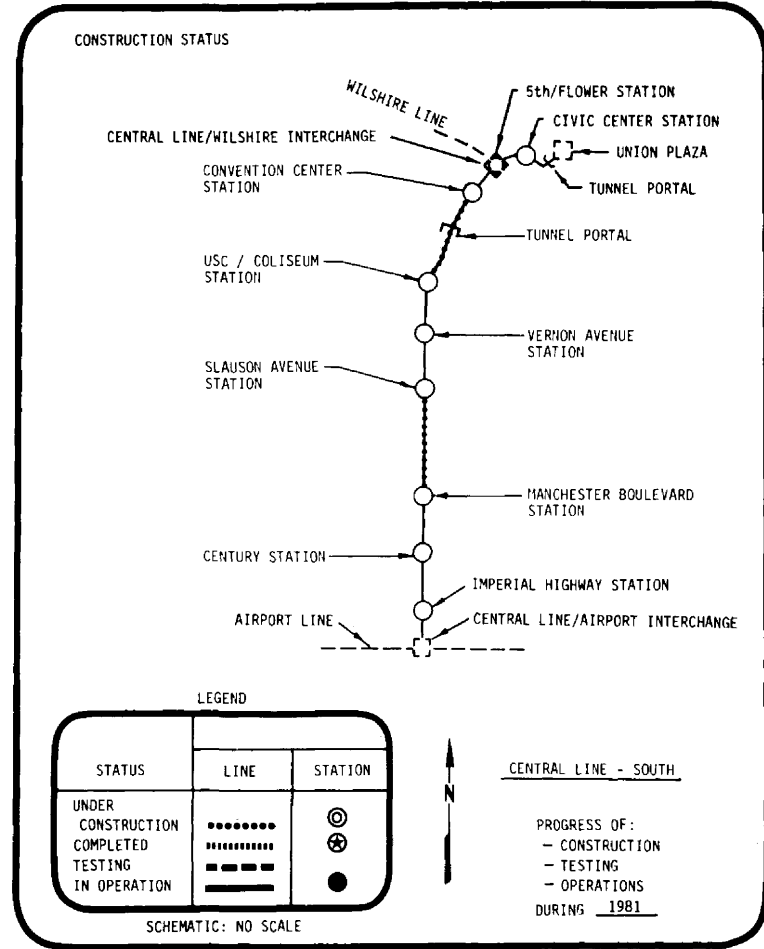
Schedules for the construction, testing, and operation of various contracts are shown later in this section.





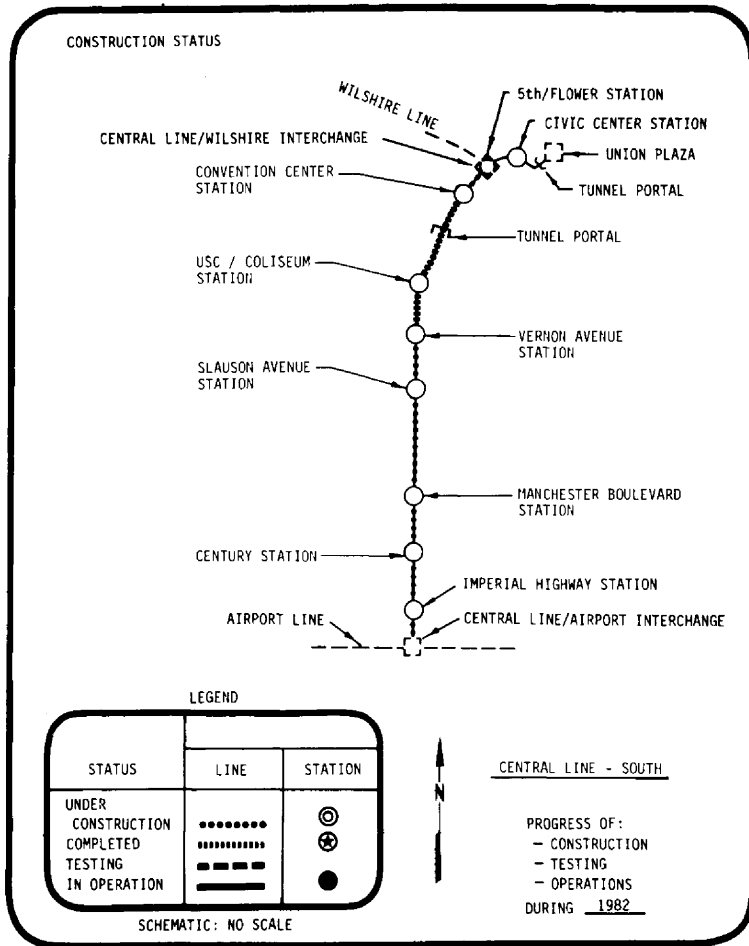
Schedule of Construction/Testing/Operation
 Years: 1979-80

Design of the Central Line – South will be started early in 1979 and proceed in parallel with the preparation of the project and system EIR's.



Schedule of Construction/Testing/Operation
 Year: 1981

A contract will be awarded early in the year to begin construction of the tunnel portion between the Convention Center Station and the tunnel portal. Two additional contracts will be awarded for construction of aerial structures aligned along the freeway.

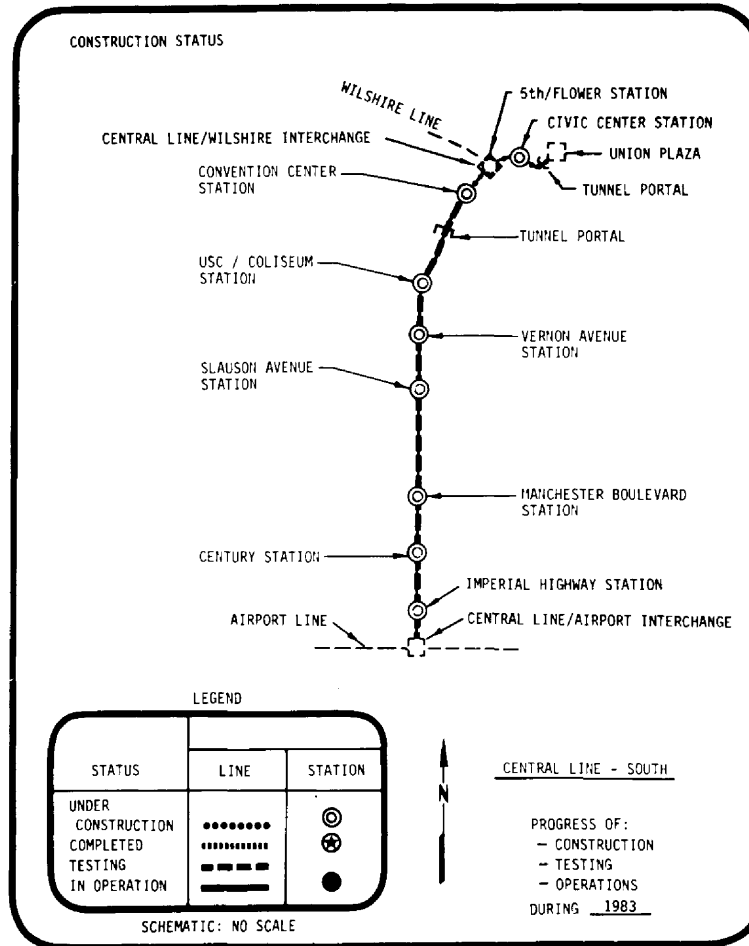


Schedule of Construction/Testing/Operation

Year: 1982

Construction will be completed on the tunnel section started in the previous year and a contract will be awarded for construction of the portion of tunnel between the Convention Center Station and the 5th/Flower Station.

Construction will also be completed on one of the aerial structure portions started in the previous year with construction continuing on the other. Construction will begin on the remaining aerial structure sections.



Schedule of Construction/Testing/Operation

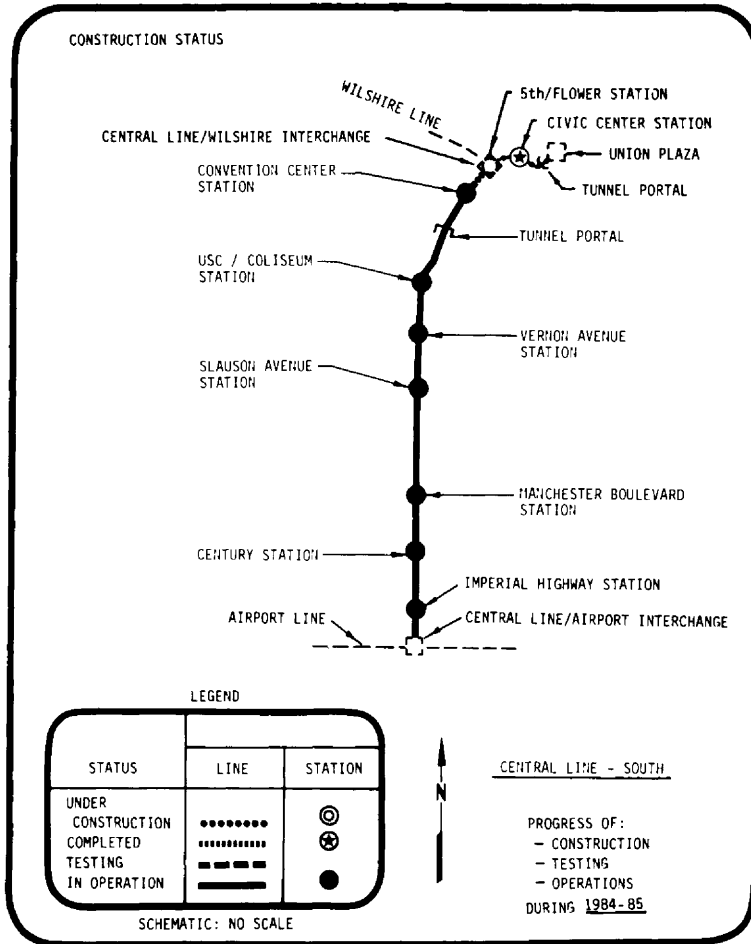
Year: 1983

Construction will continue on the tunnel section started in the previous year and contracts for the remaining tunnel portion and aerial structure will be awarded.

Work on freeway stations will continue and will progress to the point that testing of the line can begin.

Construction of all sections of aerial structure aligned in the freeway will be completed. Testing of the entire portion from the Convention Center Station to the terminus of the line at the Central Line/Airport Interchange will begin.



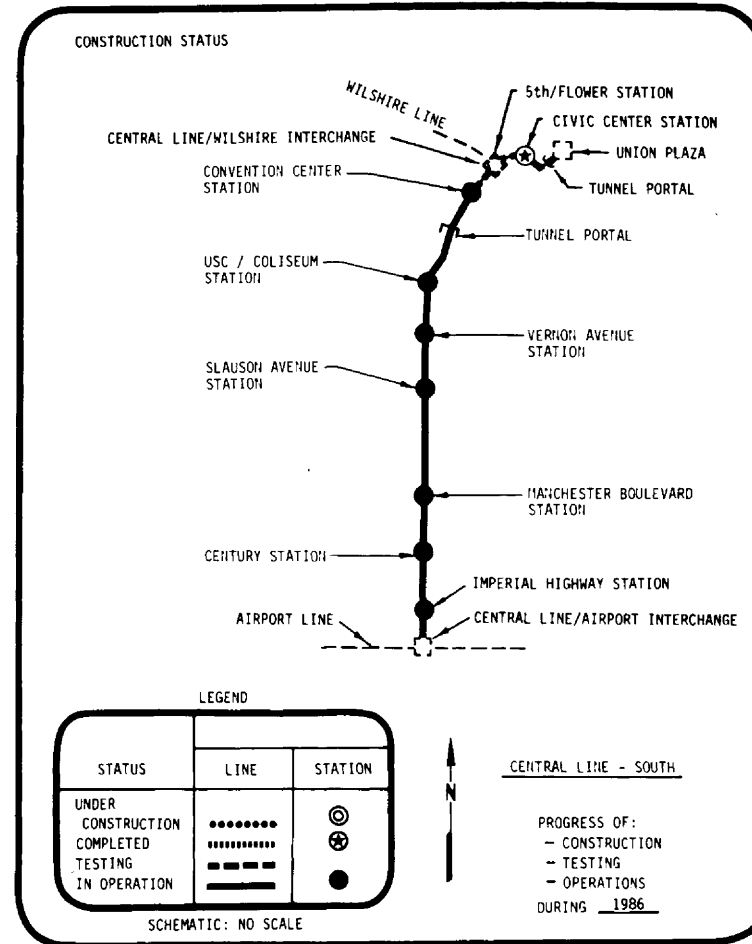


Schedule of Construction/Testing/Operation

Years: 1984-85

By mid-year 1984, the line from the Convention Center Station to Imperial Highway will be placed in operation. Construction will be completed on another portion of the tunnel, but it will not be tested or put into operation until construction progresses further on the remaining portions of the tunnel.

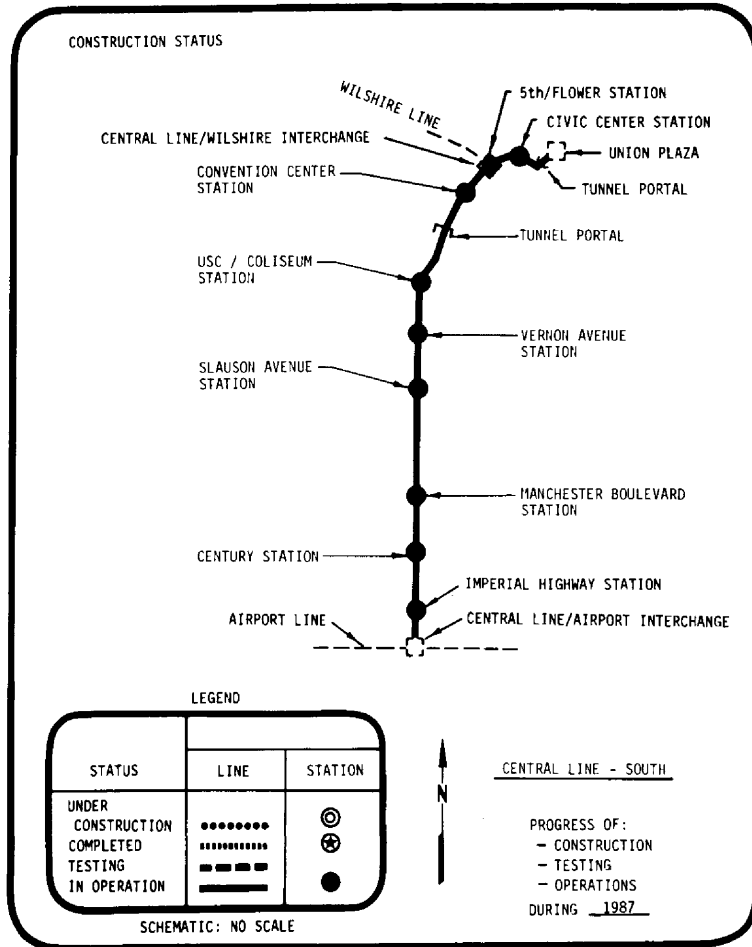
The aerial line leaving Union Plaza is similarly completed in 1985, but awaits the start of testing.



Schedule of Construction/Testing/Operation

Year: 1986

Testing begins on the remaining portion of the line connecting the Convention Center Station to Union Plaza. The remainder of the line continues in operation.



Schedule of Construction/Testing/Operation

Year: 1987

Testing is completed on the final section of the line, and the entire line is put into operation.

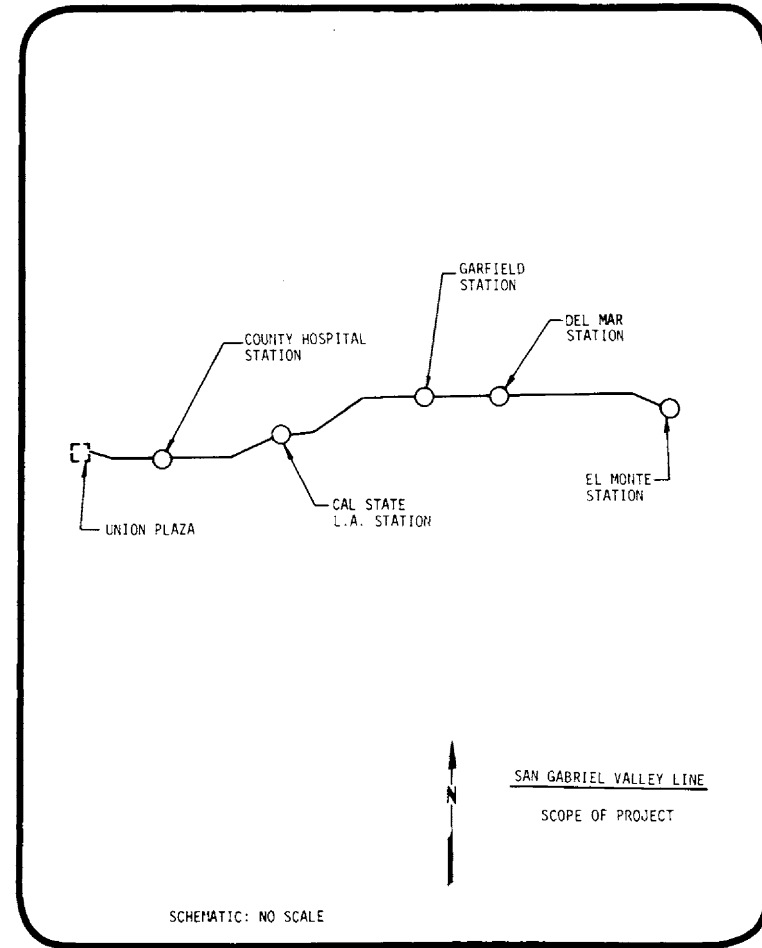


BUILDING PLAN:

San Gabriel Valley Line

Route Description

- Leaving Union Plaza, the line travels northeast along a curved aerial structure;
- Continuing on a curve to a southeastward direction, the line comes down to grade in the vicinity of Mission Road and thereafter enters the San Bernardino Freeway Express Busway;
- The line proceeds at grade in the busway to the El Monte Station with stations located along the busway at various locations;
- The El Monte Station is the terminus of the San Gabriel Valley Line.



San Gabriel Valley Line: Project Scope and Scheduling

Project Scope and Contracts

This line will consist of approximately 12 miles of railway and 5 stations. The railway will be constructed in 3 contracts and the stations in 1 contract. In addition, there will be a contract for construction of a busway barrier.

Overall Schedule

The San Gabriel Valley Line will utilize the existing busway and will be constructed in two phases to permit partial operation of the busway during construction of the railway.

Only a single line of the railway will be constructed initially, allowing operation of the busway in the other lane. During the railway construction, buses will be used in the busway in the direction of peak hour flow and will use the freeway in the off-peak direction for the return trip. The direction of the one lane busway will be reversed in midday.

During 1984, a single railway line will be placed in operation that will be used in the direction of peak hour flow, then reversed in midday. At this time, the Sunset, Ltd. line will support the commuter traffic so that bus operation can terminate allowing the construction of the other railway line in the remaining busway lane. Two-way operation of the railway will begin in 1986.

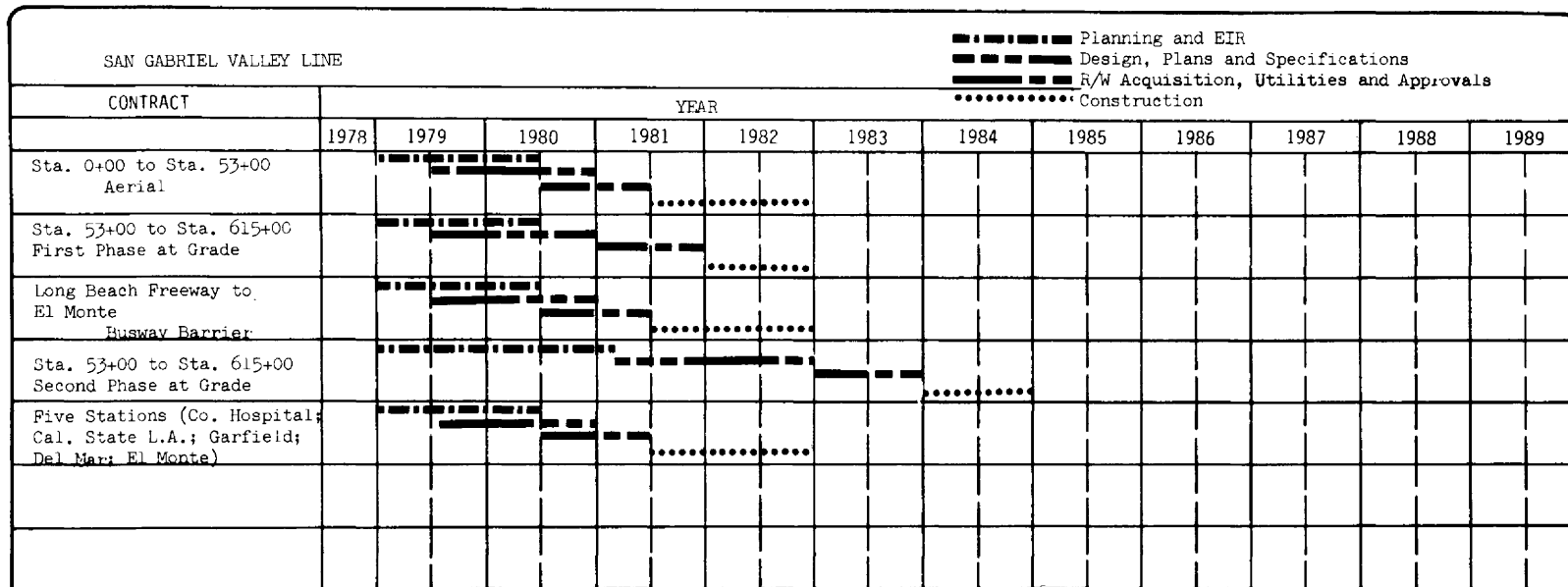
Schedule of Design

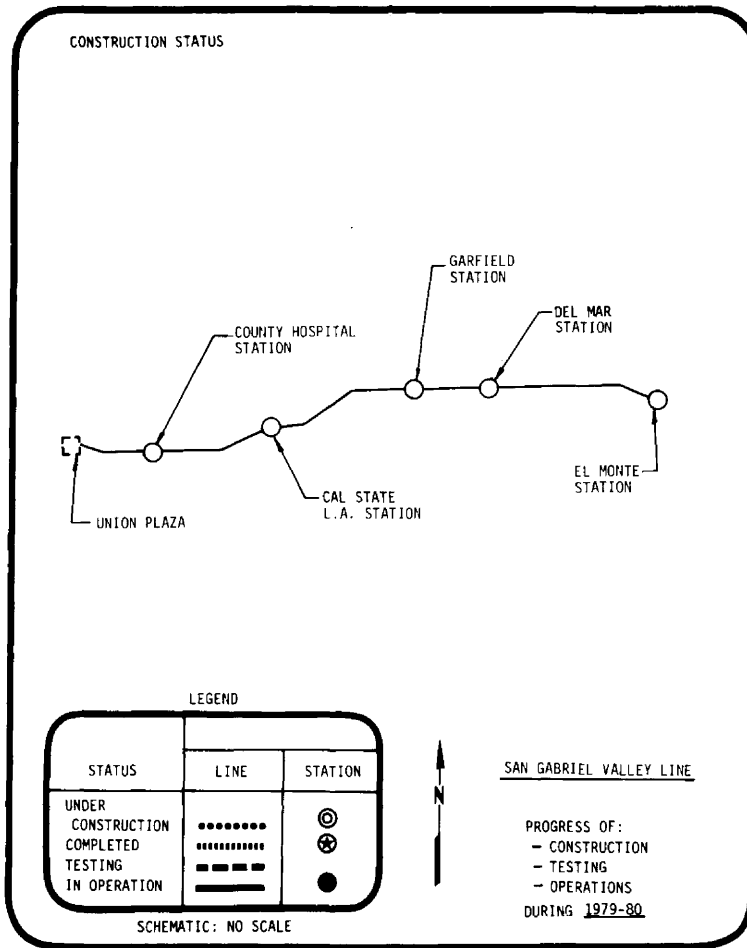
Planning and preparation of the project EIR will be done in parallel with the preparation of the system EIR. Design of the first phase will be completed by late 1981. Second phase design will be completed by the end of 1983.

Specific design schedules for various construction contracts are shown elsewhere in this section.

Schedule of Construction/Testing/Operation

Schedules for the construction, testing, and operation of various contracts are shown elsewhere in this section.

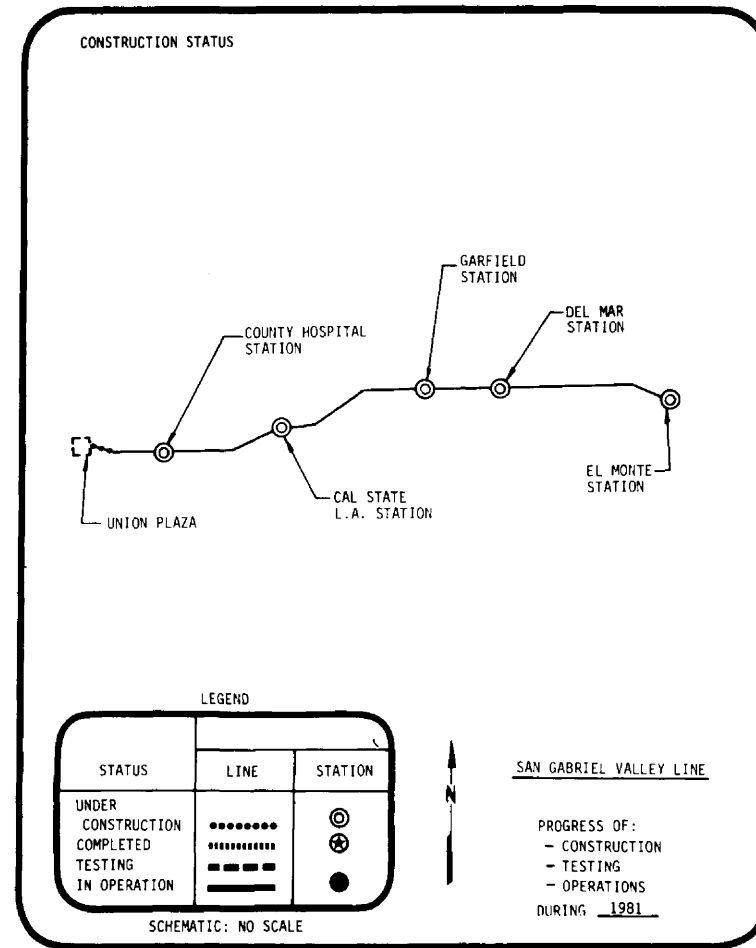




Schedule of Construction/Testing/Operation

Years: 1979-80

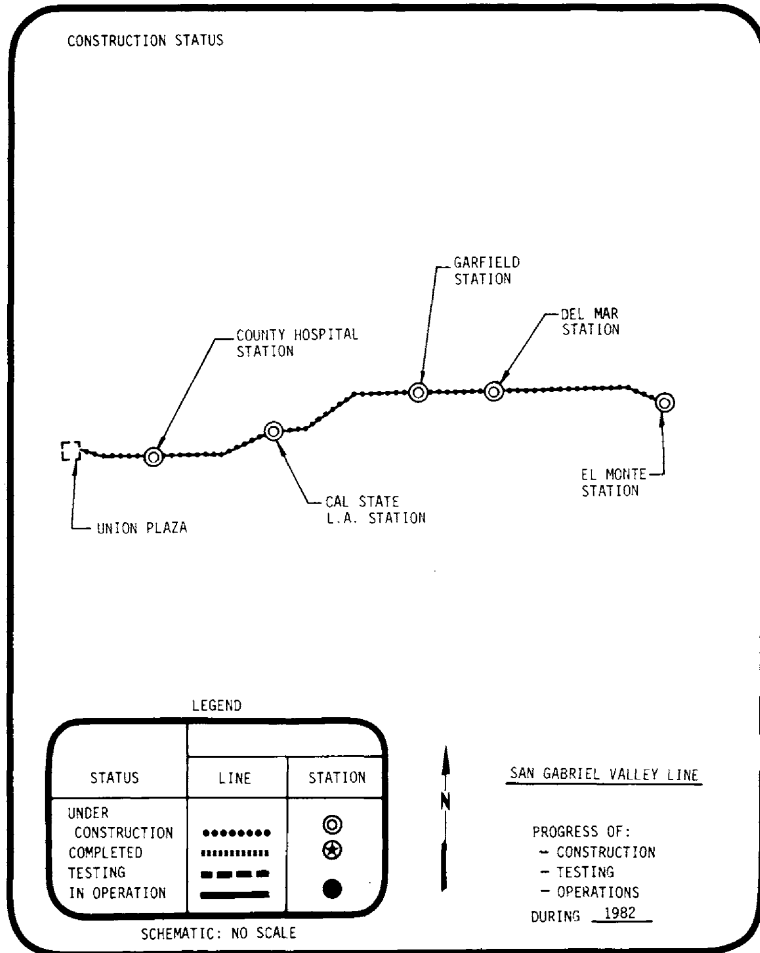
Detailed planning for the San Gabriel Valley Line between Union Plaza and the El Monte Station will be started early in 1979. The System EIR and the San Gabriel Valley Line Project EIR should be completed by early 1980. Design and plan preparation for the initial construction contracts will be completed in 1980. During the year, utility relocations will be initiated. Approval will be necessary from State and Federal transportation agencies for conversion of the busway to a rail system.



Schedule of Construction/Testing/Operation

Year: 1981

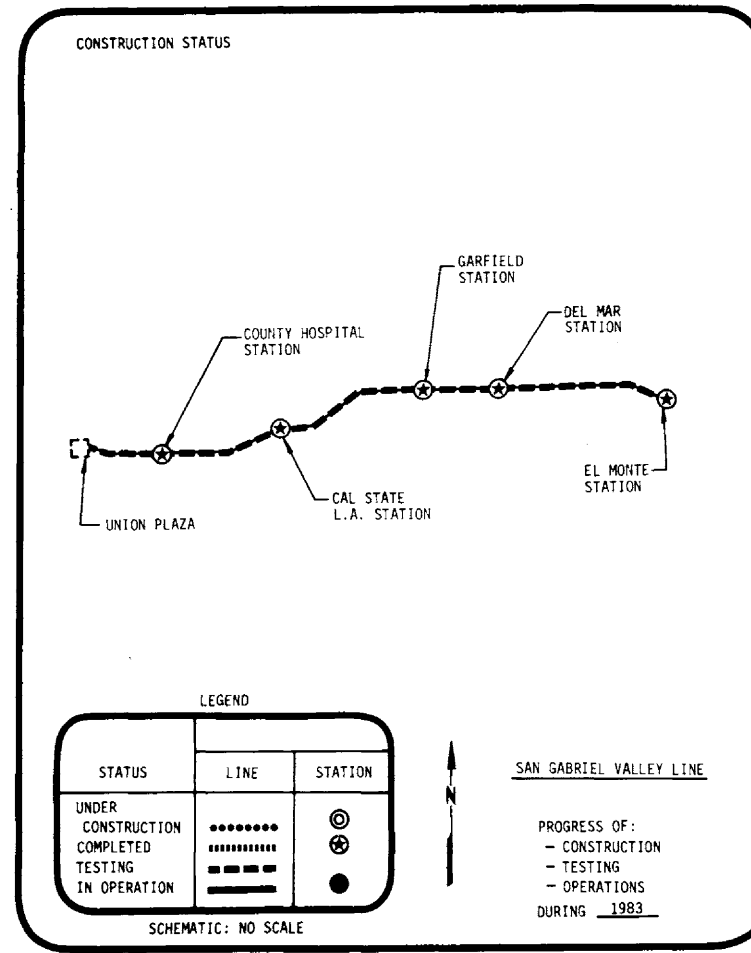
Design for the five stations on the San Gabriel Valley Line will be completed this year and contracts will be awarded for their construction. By the middle of the year, contracts will be awarded for construction of the short aerial portion leaving the Union Plaza and for the construction of a rigid barrier separating the busway lanes from the adjacent freeway lanes eastward from the Long Beach Freeway.



Schedule of Construction/Testing/Operation

Year: 1982

Construction of the stations at the County Hospital, Cal State Los Angeles, Garfield Avenue, and Del Mar Avenue will be completed at mid-year. Construction of the station at the El Monte Bus Depot will be completed by year's end. Construction will continue on the contracts awarded the previous year. Contracts will be awarded for construction of the portion of the line located within the freeway. First phase construction of the transit line in the busway will be started this year. The first phase will be limited to one lane of the two-lane busway. The other lane will be kept open for one-way bus traffic during construction. Buses will use the open lane in the direction of peak flow. The freeway will be used for return trips by buses in the off-peak direction. Traffic flow in the busway will be reversed midday.

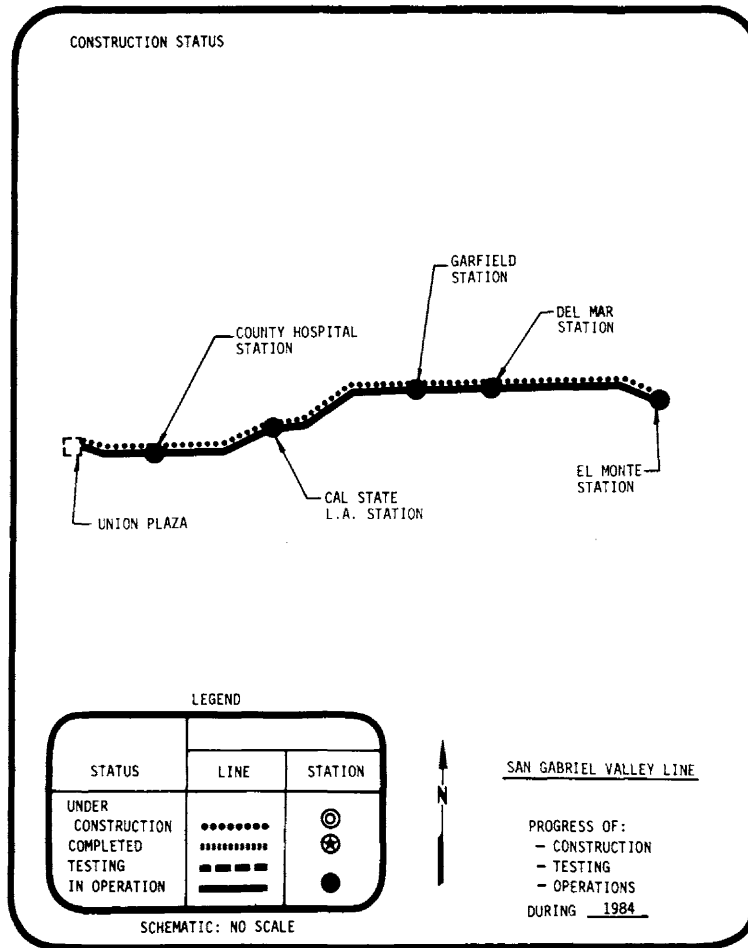


Schedule of Construction/Testing/Operation

Year: 1983

First phase construction of the transit line in the busway will be completed early this year allowing testing on this portion of the track. Final design will be completed on the second phase construction in the busway.

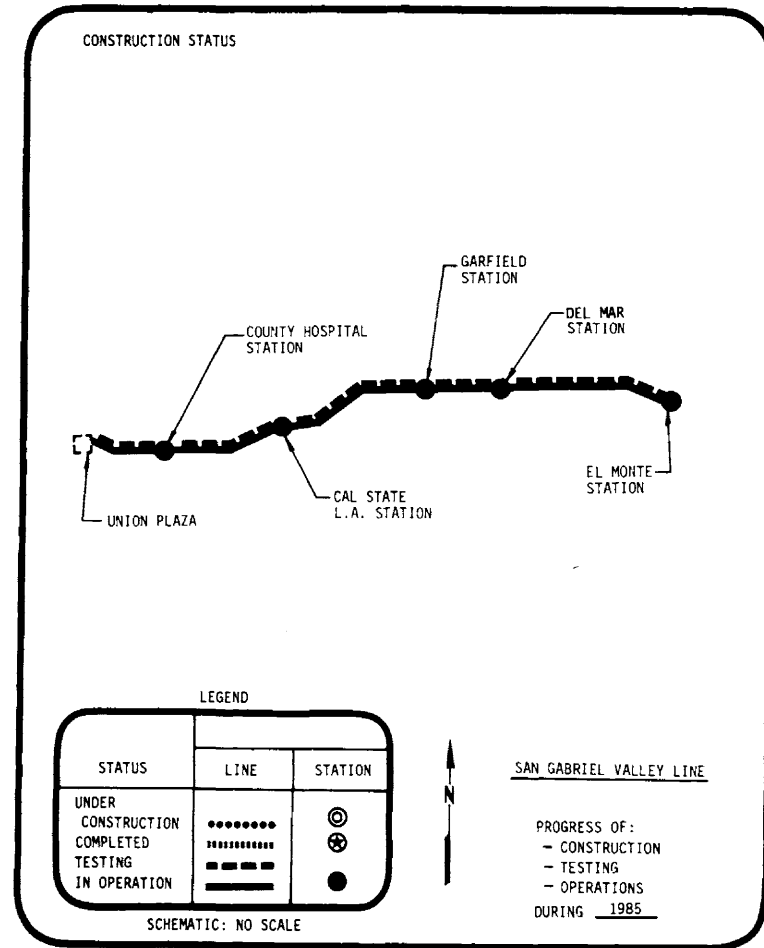




Schedule of Construction/Testing/Operation

Year: 1984

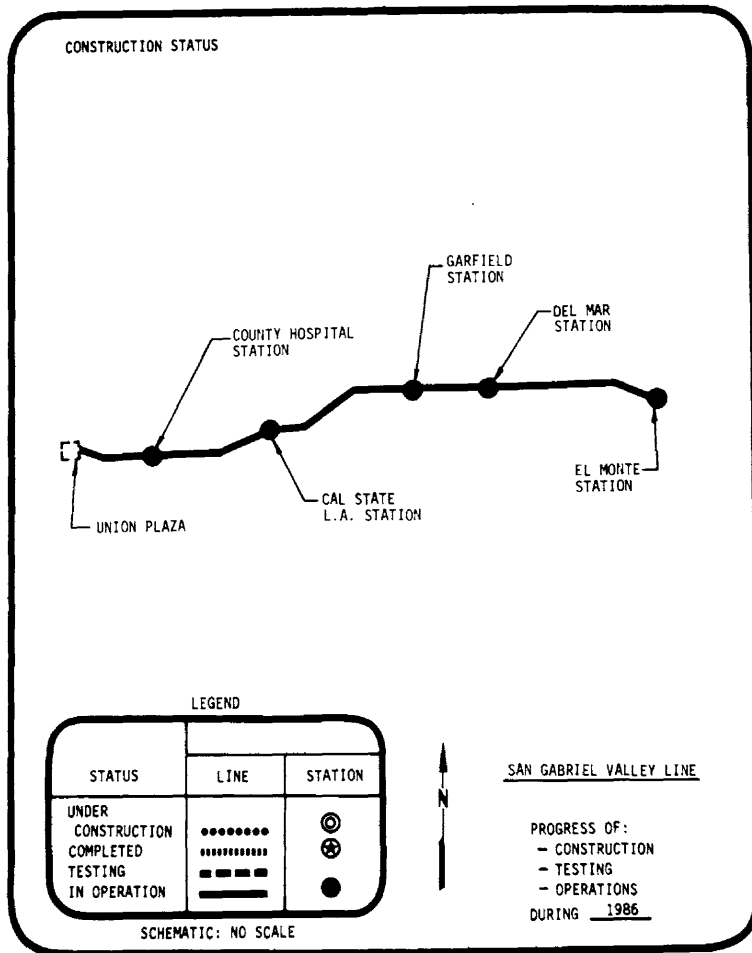
Testing will be completed early this year on the first phase construction. The line will be put into peak hour service as an unidirectional line reversed midday to accommodate the peak-hour flow direction. This interim operating procedure will allow shutdown of the other bus lane so that contracts can be awarded for the construction of the second phase of the transit line in the busway.



Schedule of Construction/Testing/Operation

Year: 1985

Limited operation in the peak hour flow direction will continue during 1985 while construction of the second phase within the busway is completed. Testing of the second phase transit line will start during 1985.



Schedule of Construction/Testing/Operation

Year: 1986

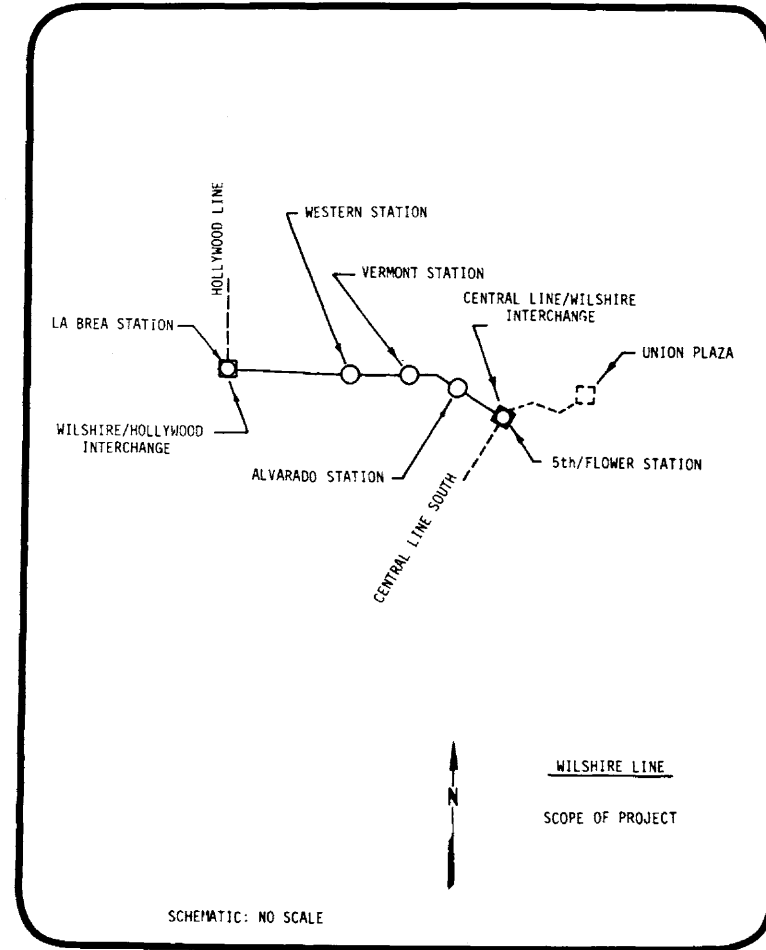
The San Gabriel Valley Line between Union Plaza and the El Monte Station is put into full operation during this year.



BUILDING PLAN:

Wilshire Line

- The line begins at the Central Line/Wilshire Interchange and proceeds westward as a tunnel under 5th Street;
- The line curves southward until it reaches Wilshire Boulevard at Witmer Street;
- The line continues west in a tunnel aligned under Wilshire Boulevard;
- The line terminates at the La Brea Station.



Wilshire Line: Project Scope and Scheduling

Project Scope and Contracts

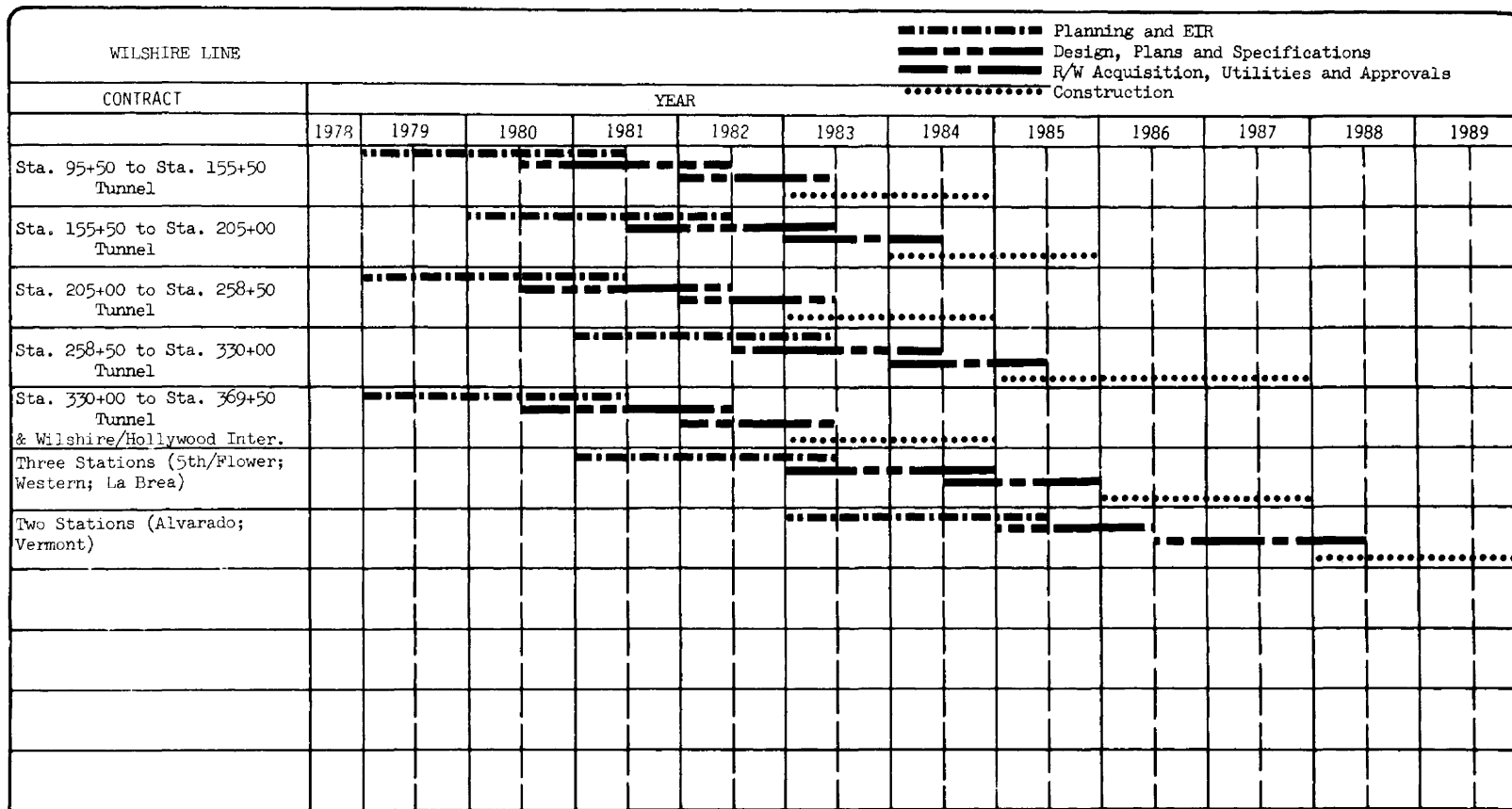
The project consists of about 5 miles of rail lines with five stations and two interchanges. The rail lines are divided into 5 construction contracts.

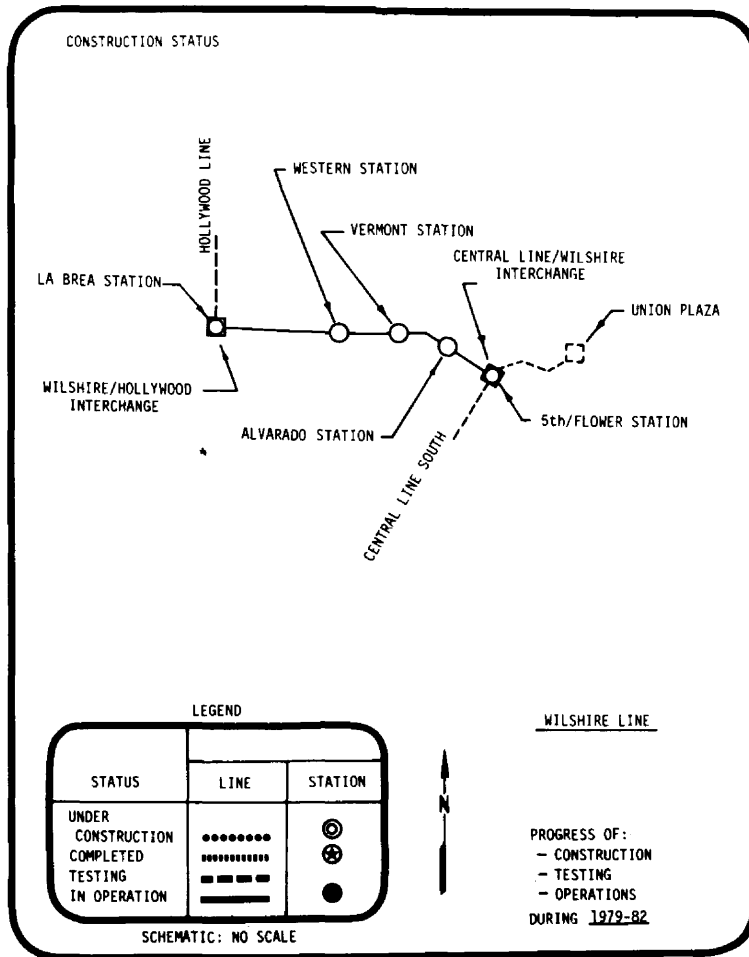
Overall Schedule

The Wilshire Line will serve a very dense transit corridor. This line also represents some of the severest challenges from a construction,

engineering, and environmental standpoint. The scheduling assumes a rather involved environmental assessment to account for the special paleontologic considerations along this corridor.

The subway construction for the Wilshire Line must be coordinated with the construction of the Central Line – South and the Hollywood Line. Operation of the Wilshire Line will start concurrently with the final segment of the Hollywood Line. In 1989, the Wilshire Line will be put into full operation and, operating with other lines, will connect the San Fernando Valley to Union Plaza.

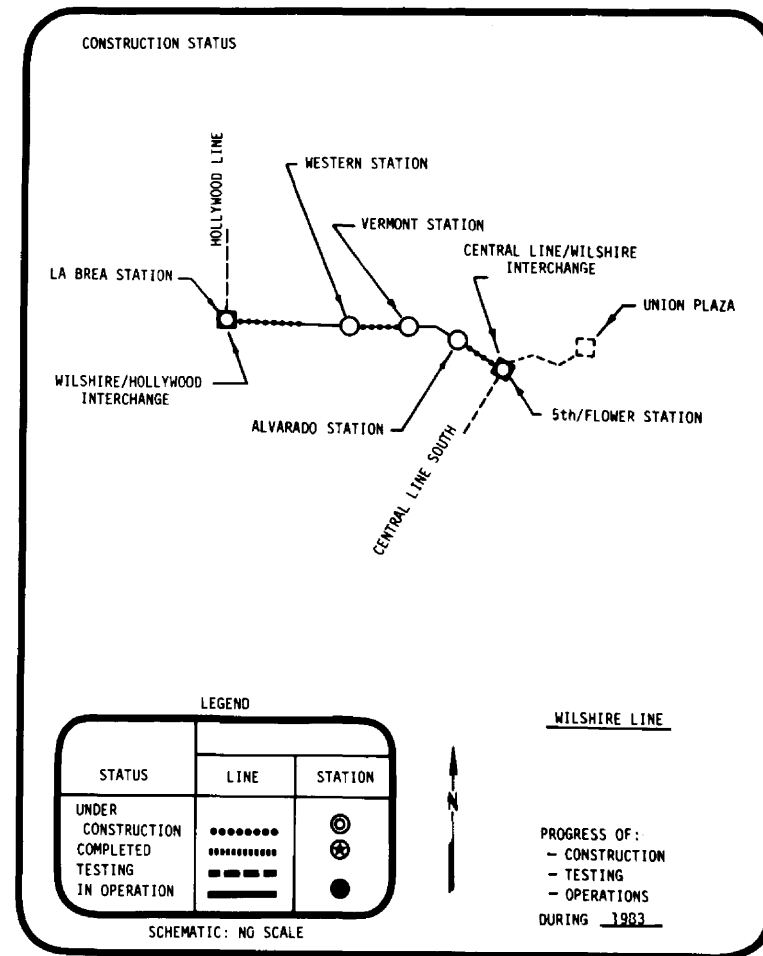




Schedule of Construction/Testing/Operation

Years: 1979-82

Environmental studies begin early in 1979 with the final Environmental Impact Report approval at the end of 1981. Limited design begins in 1980 with detailed design of some tunnel contracts completed by 1982.

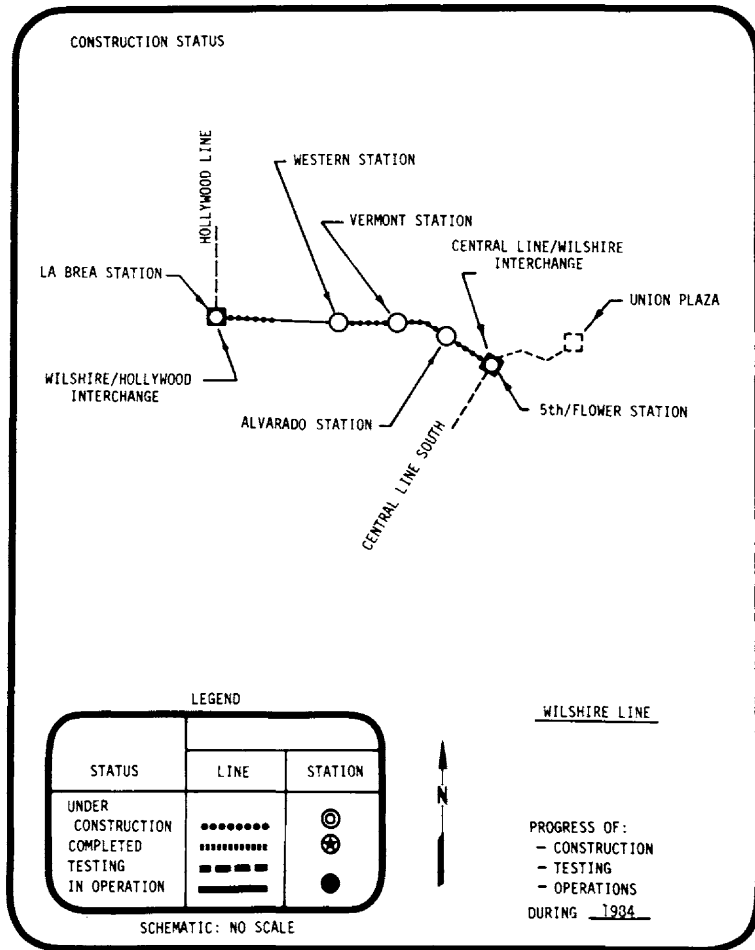


Schedule of Construction/Testing/Operation

Year: 1983

Construction begins on multiple reaches of the tunnel making use of several portals. This will expedite the ultimate completion of the tunnel.

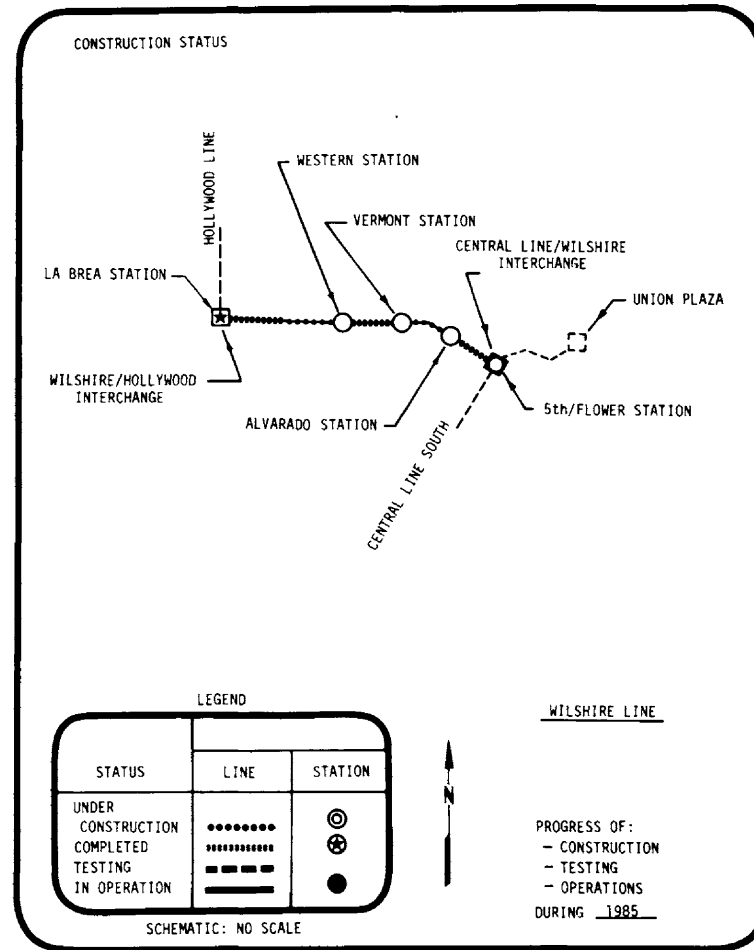
Design work continues on the remaining sections of the tunnel.



Schedule of Construction/Testing/Operation

Year: 1984

Construction continues on contracts awarded in the previous year. Additional contracts are awarded for one additional portion of the tunnel.

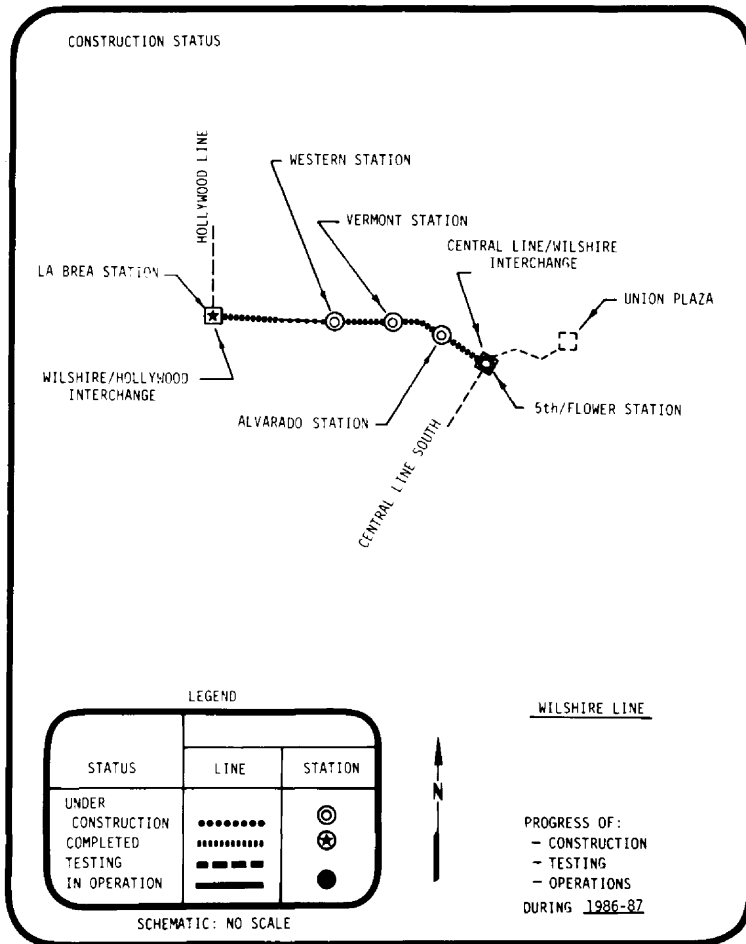


Schedule of Construction/Testing/Operation

Year: 1985

Construction of three tunnel contracts are completed. Construction continues on the contracts awarded in the previous year. A contract is awarded for the construction of remaining section of the tunnel.



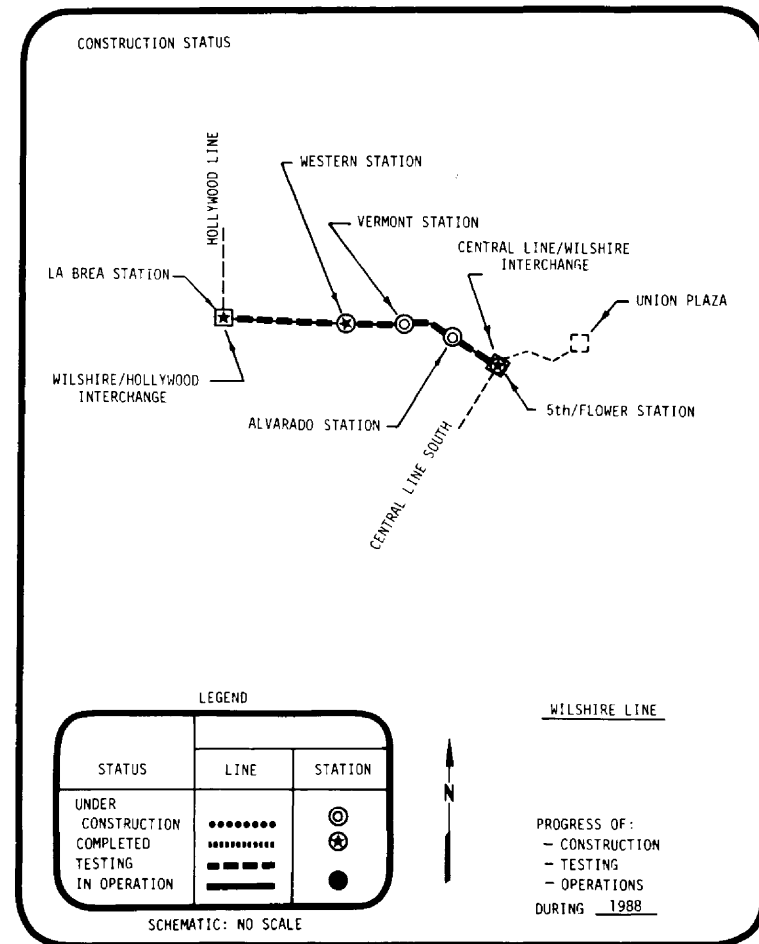


Schedule of Construction/Testing/Operation

Year: 1986-87

Construction of three subway stations begin. Construction on various portions of the tunnel are completed. Construction continues on the remaining portion of the tunnel.

In mid-year 1987, construction begins on the remaining two stations.

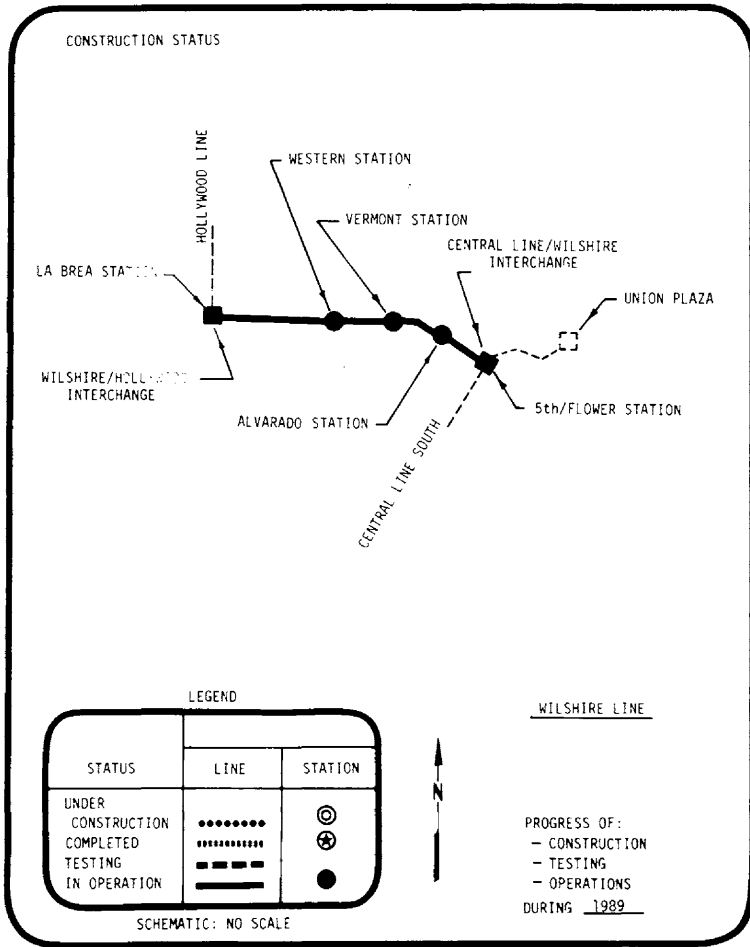


Schedule of Construction/Testing/Operation

Year: 1988

The construction of all portions of the tunnel are completed allowing testing to begin.

By the end of the year, construction is completed on the final two stations.



Schedule of Construction/Testing/Operation

Year: 1989

The line is now operational and connects the San Fernando Valley Line to downtown.

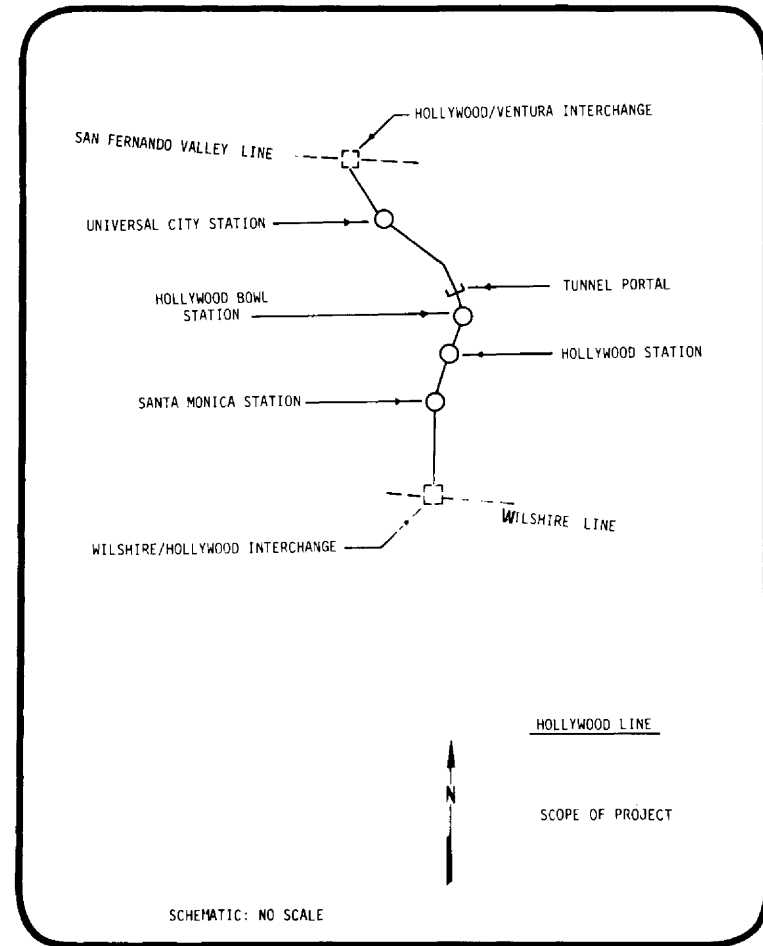


BUILDING PLAN:

Hollywood Line

Route Description

- The line begins at the Wilshire/Hollywood Interchange, located in the vicinity of Wilshire Boulevard and La Brea Avenue;
- The line runs north in a tunnel aligned under La Brea Avenue until it portals just north of the Hollywood Bowl;
- The line then runs north onto an aerial structure along the Hollywood Freeway, continuing on this alignment to the Ventura Freeway;
- The line terminates at the Hollywood/Ventura Interchange.



Hollywood Line: Project Scope and Schedule

Project Scope

The project consists of about 7 miles of rail lines with four stations. The lines are divided into six contracts and the stations are divided into 2 contracts.

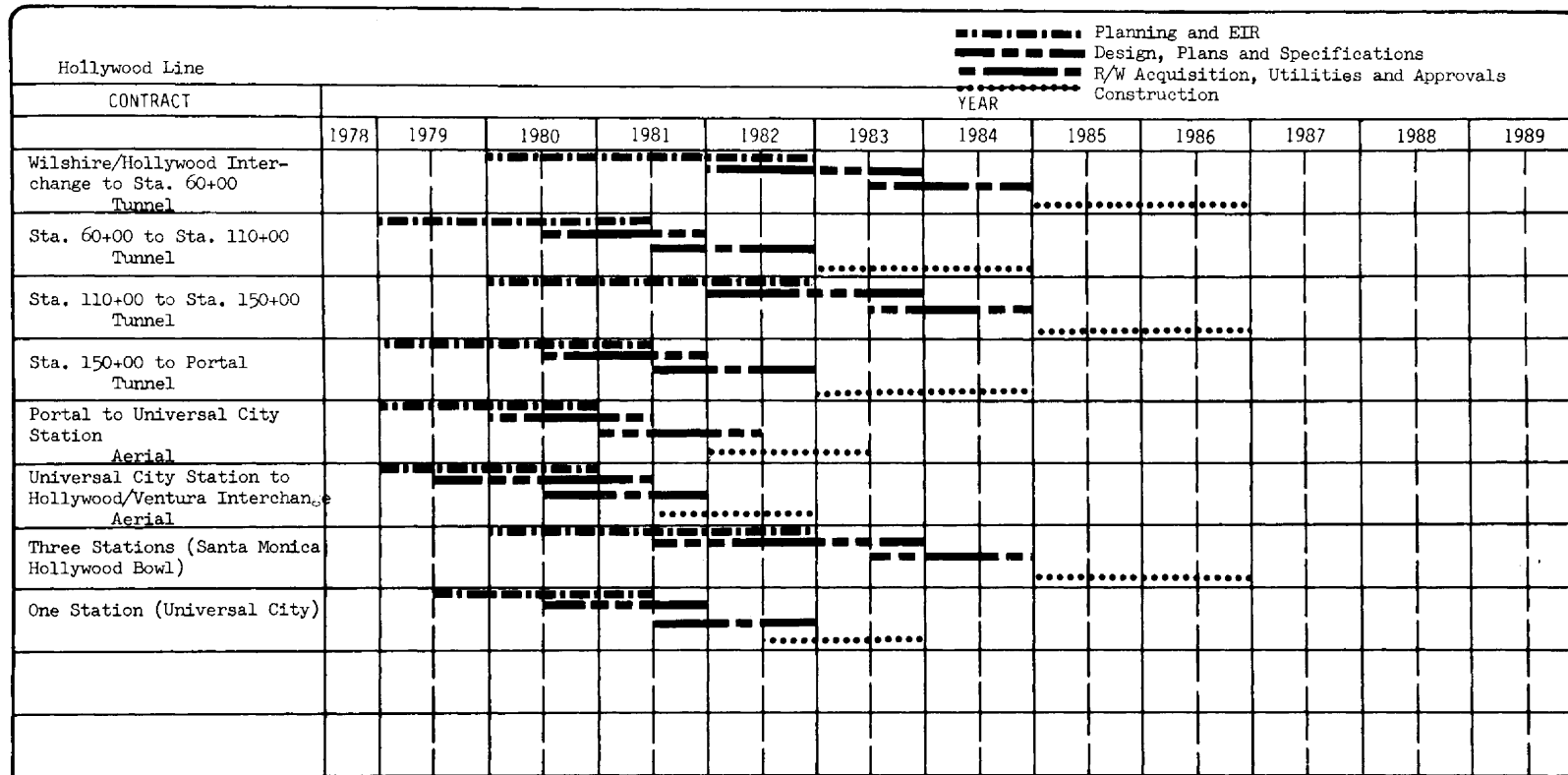
Overall Schedule

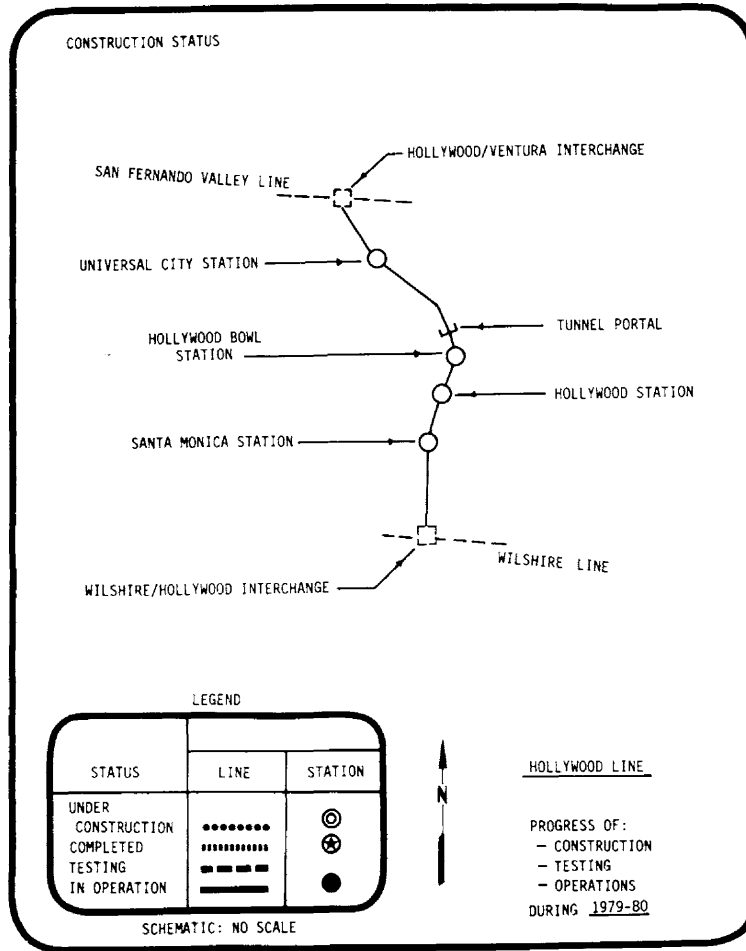
This line is comprised of both a tunnel section and an aerial structure section.

The aerial structure will be aligned completely within existing freeway

rights of way. This construction will cause traffic conflicts during the early phases of construction. During the later phases, the construction will be mostly above grade and will cause less traffic conflicts. The aerial portion between the Universal City Station and the Hollywood/Ventura Interchange will be operational by 1984.

The construction of the tunnel portion will require more time. The construction will be completed in 1987. Testing of this section will be done in 1988 concurrently with testing of the adjoining Wilshire Line. In 1989, the entire Hollywood Line will be operational. This line together with completed reaches of the Wilshire Line and Central Line-South, will extend service downtown to the Union Plaza.



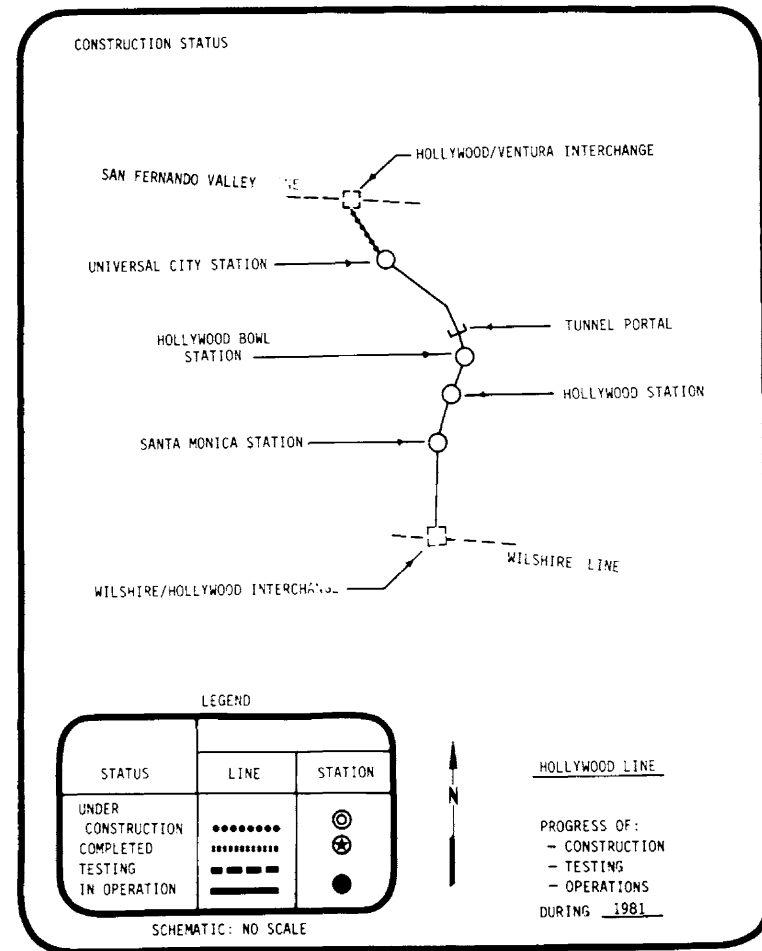


Schedule of Construction/Testing/Operation

Years: 1979-80

Project planning and preparation of the Environmental Impact Report will begin during 1979 for most reaches of the line. Detailed design will begin at mid-year 1979 for various aerial structure portions.

By 1980, detailed design will begin on a portion of the tunnel and will be underway on the entire aerial structure.

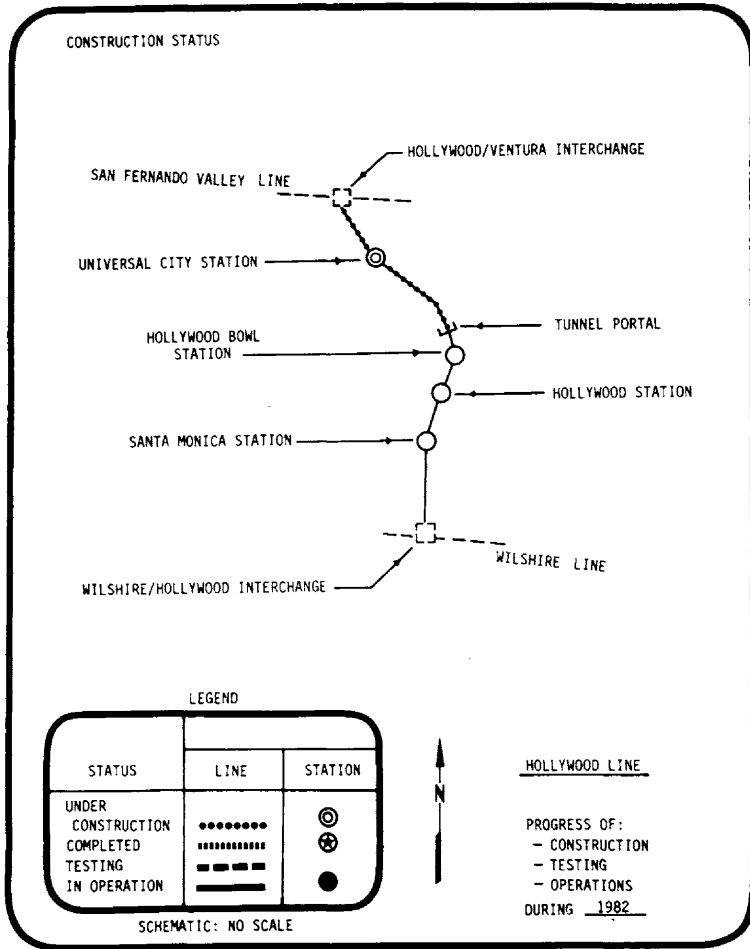


Schedule of Construction/Testing/Operation

Year: 1981

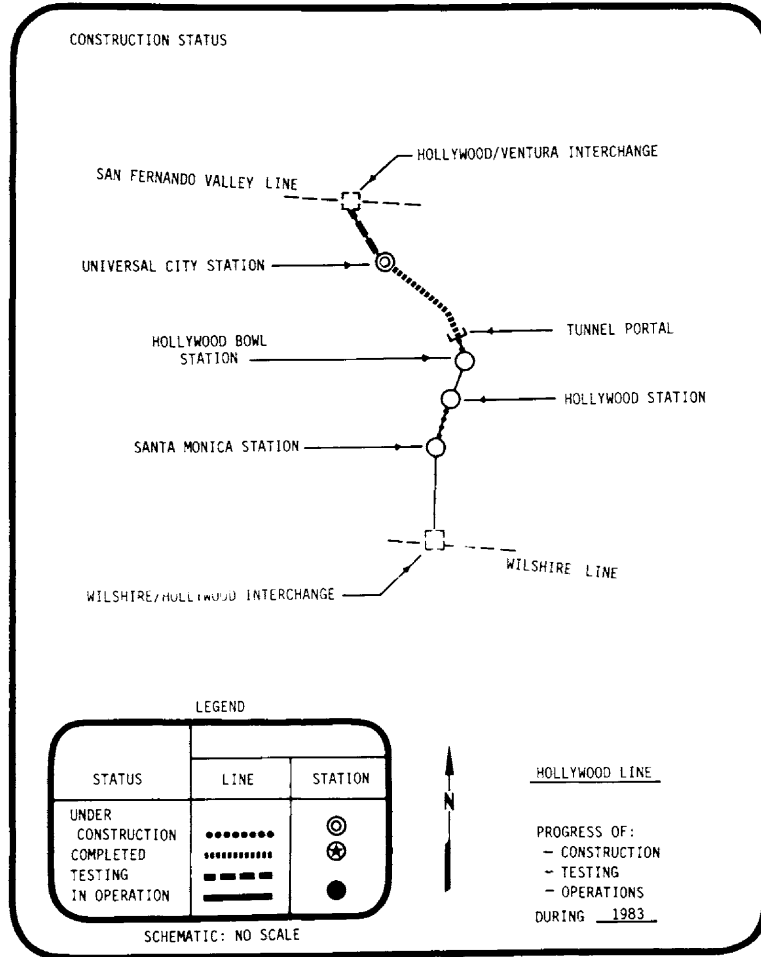
Construction contracts will be awarded for one reach of the aerial structure portion of the line.

Design work continues on the tunnel section, the remainder of the aerial structure section, and the stations.



Schedule of Construction/Testing/Operation
Year: 1982

Construction continues on the contract awarded in the previous year. A contract for construction of the remaining portion of the aerial structure is awarded. A contract is also awarded for construction of the Universal City Station.

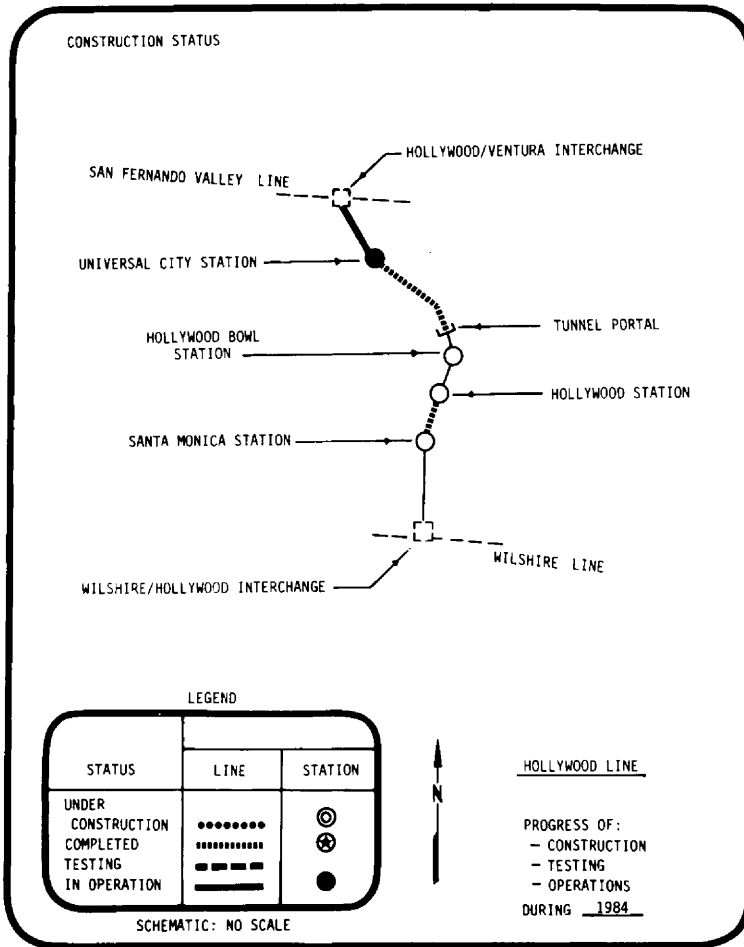


Schedule of Construction/Testing/Operation
Year: 1983

Construction is completed by mid-year on all aerial structures and testing begins on the portion north of the Universal City Station. Testing of the remaining section of aerial railway will be phased with the completion of the tunnel portion of the line and the completion of the Wilshire Line.

Construction begins on two portions of the tunnel.



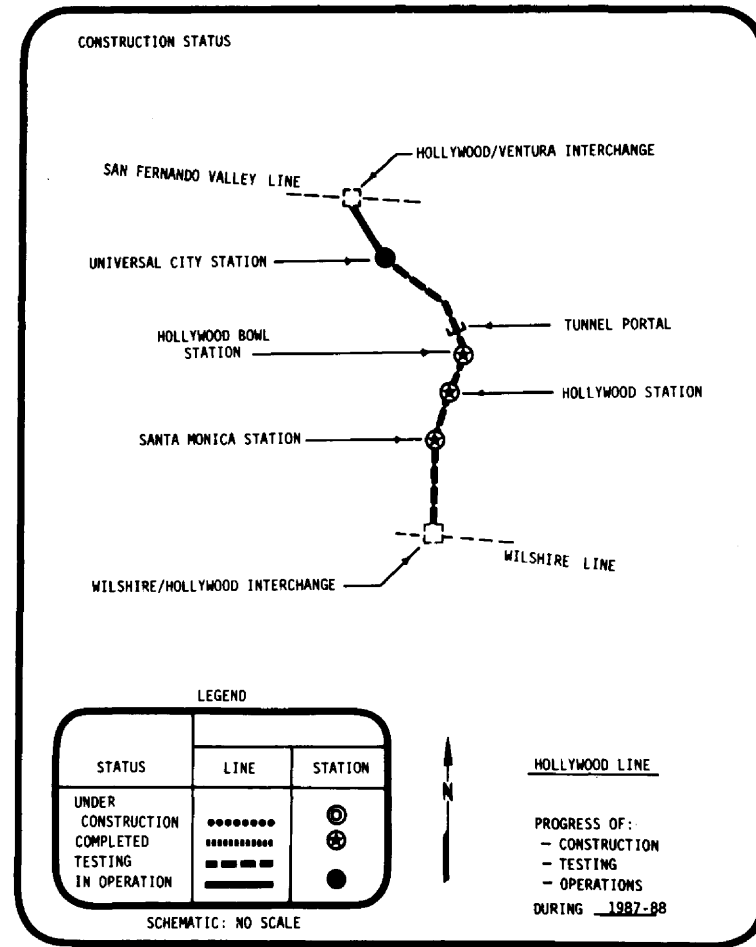


Schedule of Construction/Testing/Operation:

Year: 1984

The line is put into partial operation from the Universal City Station connecting to the San Fernando Valley Line.

Construction is completed on the portions of the tunnel awarded during the previous year.



Schedule of Construction/Testing/Operation:

Years: 1987-88

Construction of the tunnel and the three subway stations is completed early in 1987.

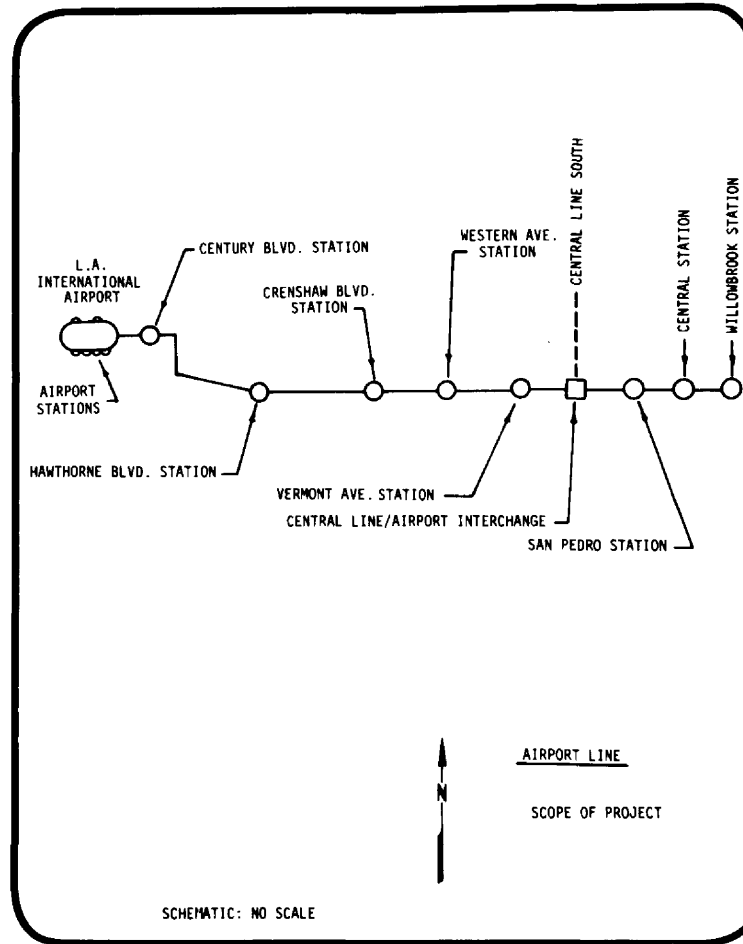
Testing of the line from the Universal City Station to the Wilshire/Hollywood Interchange will take place during 1988 concurrently with the testing of the Wilshire Line.

BUILDING PLAN:

Airport Line

Route Description

- The line begins at the Willowbrook Station and extends west, running at grade in the median of the Century Freeway to Aviation Boulevard;
- The line turns northward and extends on an aerial structure to Century Boulevard;
- The line extends west on an aerial structure to Sepulveda Boulevard;
- The line enters the Los Angeles International Airport complex at World Way Drive;
- The line circulates through the entire World Way Drive loop on a one-way aerial structure;
- The line leaves the airport and returns to Sepulveda Boulevard where it joins the two-way aerial structure. This is the terminus of the line.



Airport Line: Project Scope and Schedule

Project Scope and Contracts

The project consists of about 12 miles of rail lines with 14 stations and one interchange. Railway lines and the interchange will be broken up into six construction contracts and the stations would be grouped into three construction contracts.

Overall Schedule

The Airport Line is scheduled to be fully tested and in operation by the end of 1984.

The scheduling of this line is in conjunction with the scheduled construction of the Century Freeway. The Century Freeway will include a central corridor for a mass transit line. The Sunset Ltd., would be built in this corridor concurrently with freeway construction.

Schedule for Century Freeway

The Century Freeway is presently halted by litigation over the

adequacy of its Environmental Impact Statement. At present, Caltrans is enjoined from performing much of the work associated with preparation of plans and specifications.

Upon resolution of the litigation, the injunction will be lifted, and preparation of plans will proceed on an accelerated basis during 1978.

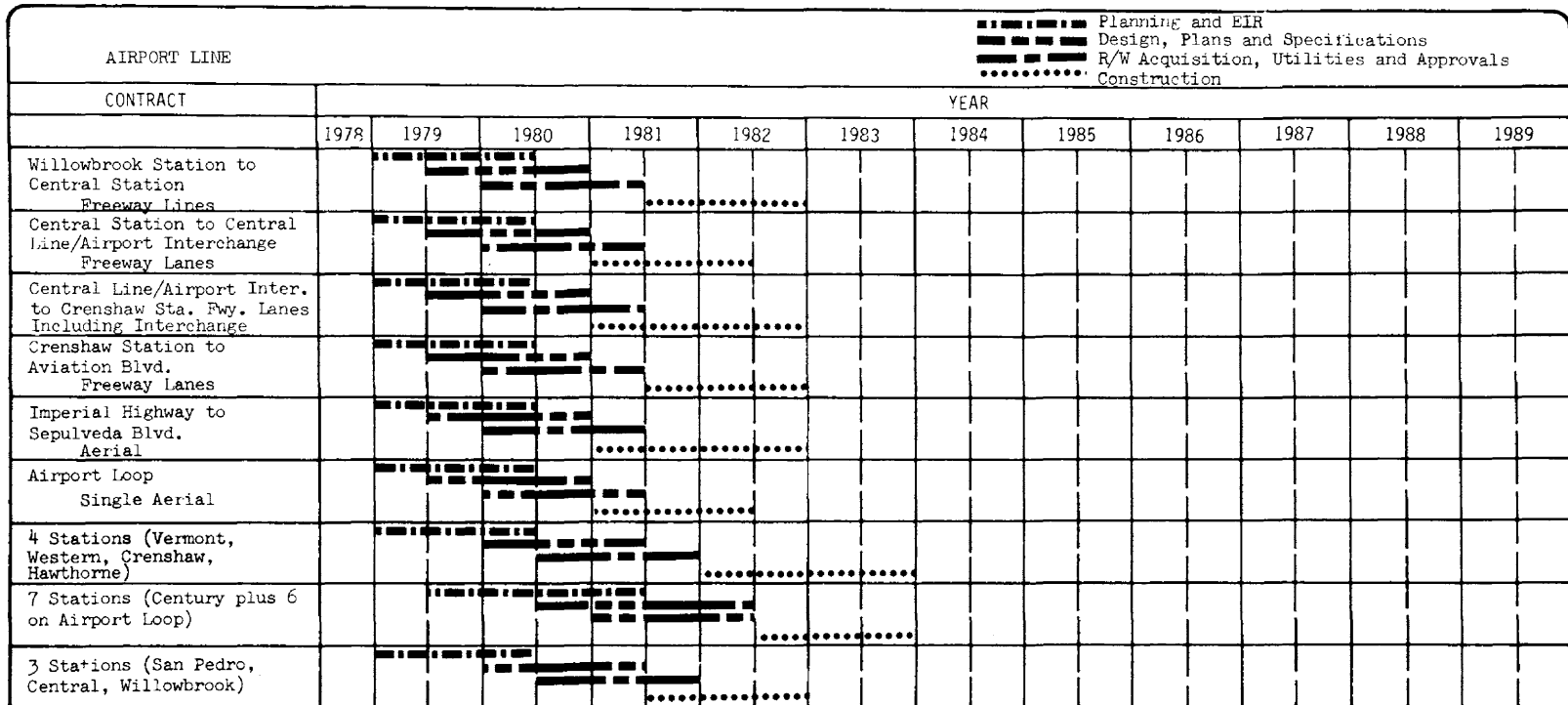
Schedule Design

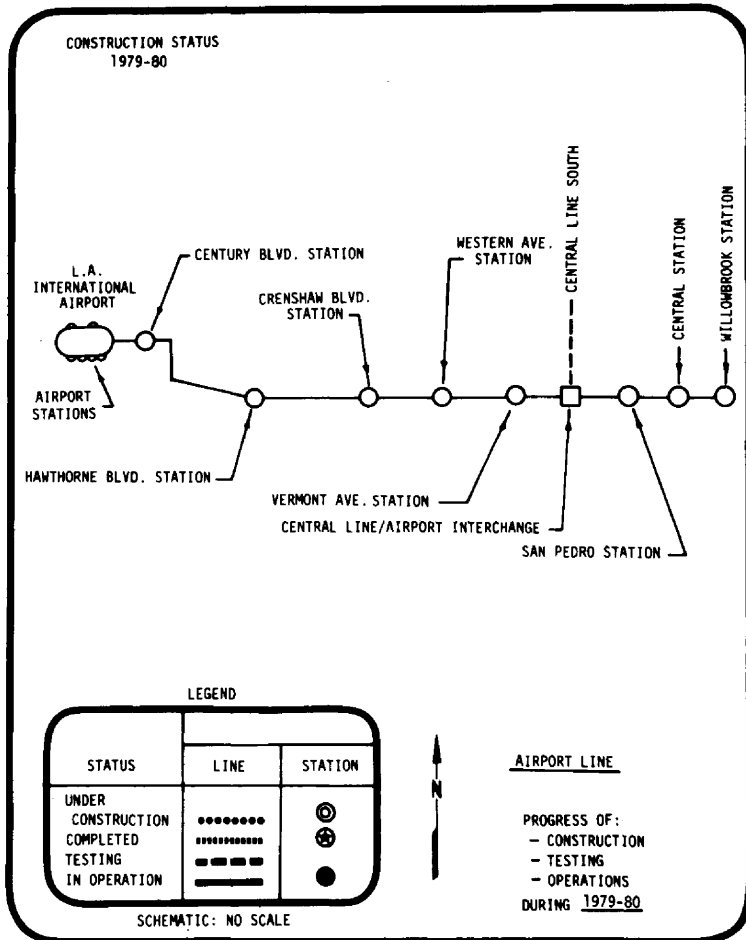
Following general planning for the entire system, the planning and design of this line would be done from early 1979 through late 1981. This design would include preparation of EIR, preparation of plans and specifications, and acquisition of rights of way.

Specific design schedules for various construction contracts are shown later in this report.

Schedule of Construction/Testing/Operation

Schedules for the construction, testing, and operation of various contracts are shown later in this section.





Schedule of Construction/Testing/Operations

Years: 1979-80

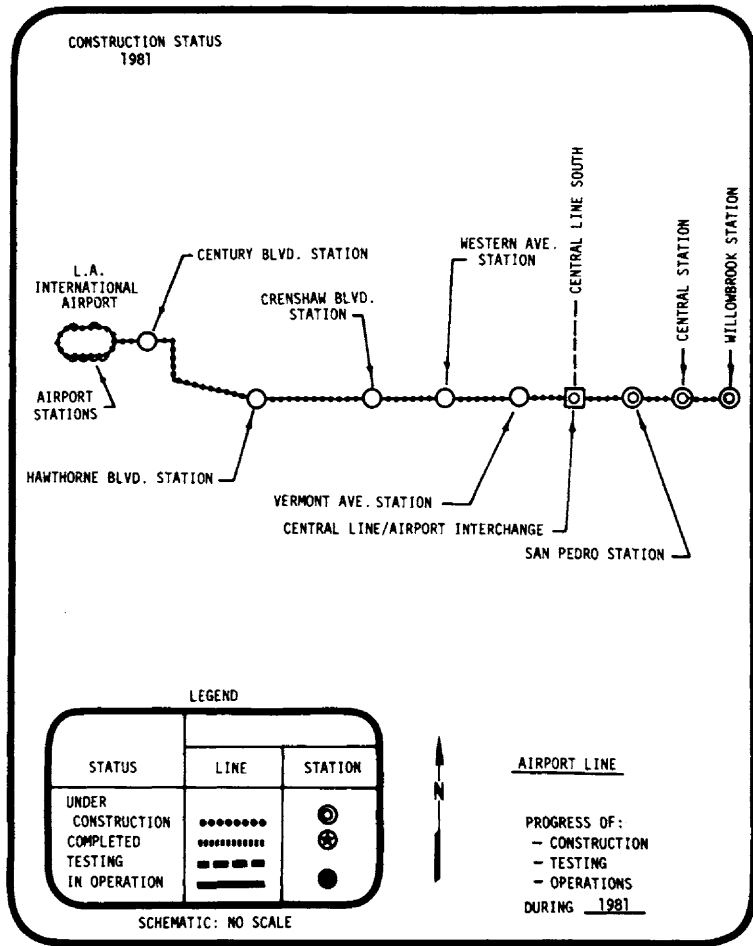
Much of the line will be in the stage of specific planning and preparation of Environmental Impact Reports following implementation of Program Management and general system development early in 1979.

Projected termination of the litigation over the Century Freeway in late 1978 will allow detailed design of the joint freeway/transit corridor to begin at mid-year and proceed at a rapid pace.

Contracts for various reaches of the aerial structure in the vicinity of the airport will proceed into specific planning late in 1979, as will the contracts for all stations and railway along the route between the Airport and the Central Line/Airport Interchange.

By early 1980, all other portions of the project are undergoing specific design and preparation of plans and specifications.

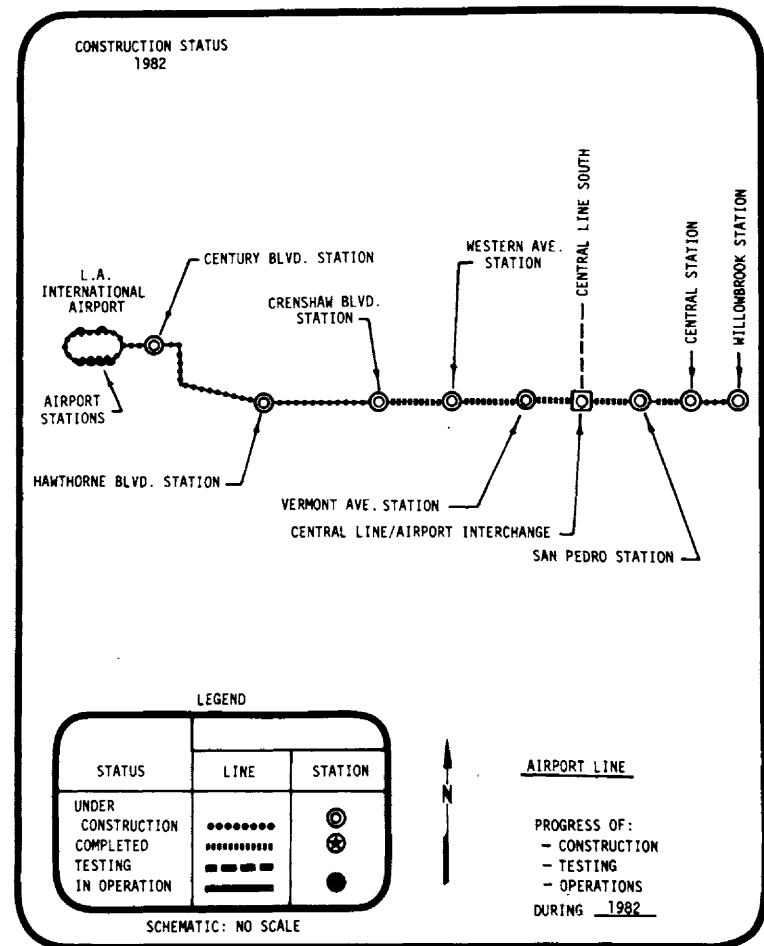
Specific planning and preparation of EIR's is completed late in 1980.



Schedule of Construction/Testing/Operations

Year: 1981

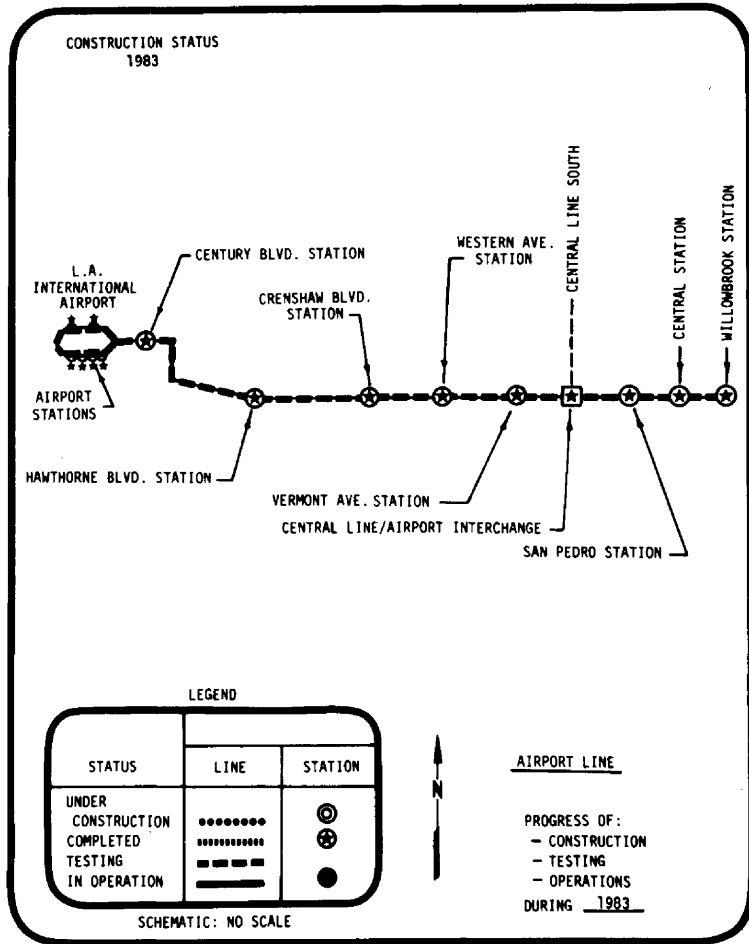
At the beginning of the year, construction of various portions of the line will begin. By the end of the year, construction on all sections of the line will be in progress. In addition, construction will begin on the three stations at the east end of the line.



Schedule of Construction/Testing/Operations

Year: 1982

Construction is completed on some contracts awarded early in the previous year. Construction continues on other contracts and begins on the remaining stations.

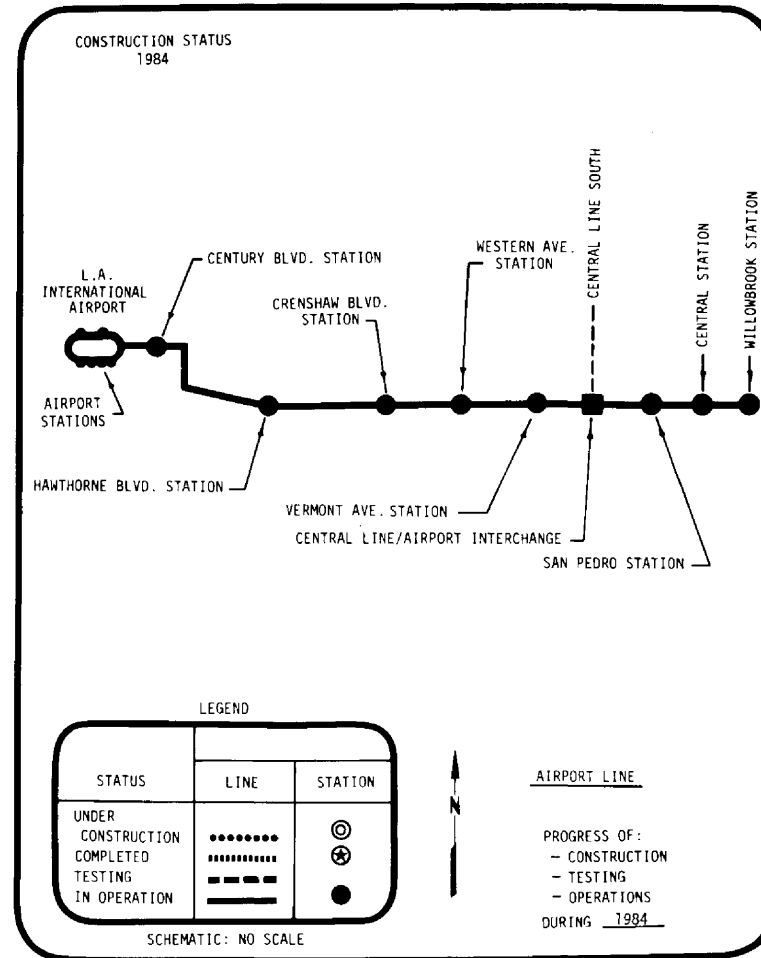


Schedule of Construction/Testing/Operations

Year: 1983

All construction contracts are now completed on the railway contracts and are in various stages of testing.

By the end of the year, the construction on all stations is completed.



Schedule of Construction/Testing/Operations

Year: 1984

By mid-year, virtually all components of the Airport Line will be fully tested and will be put into operation.

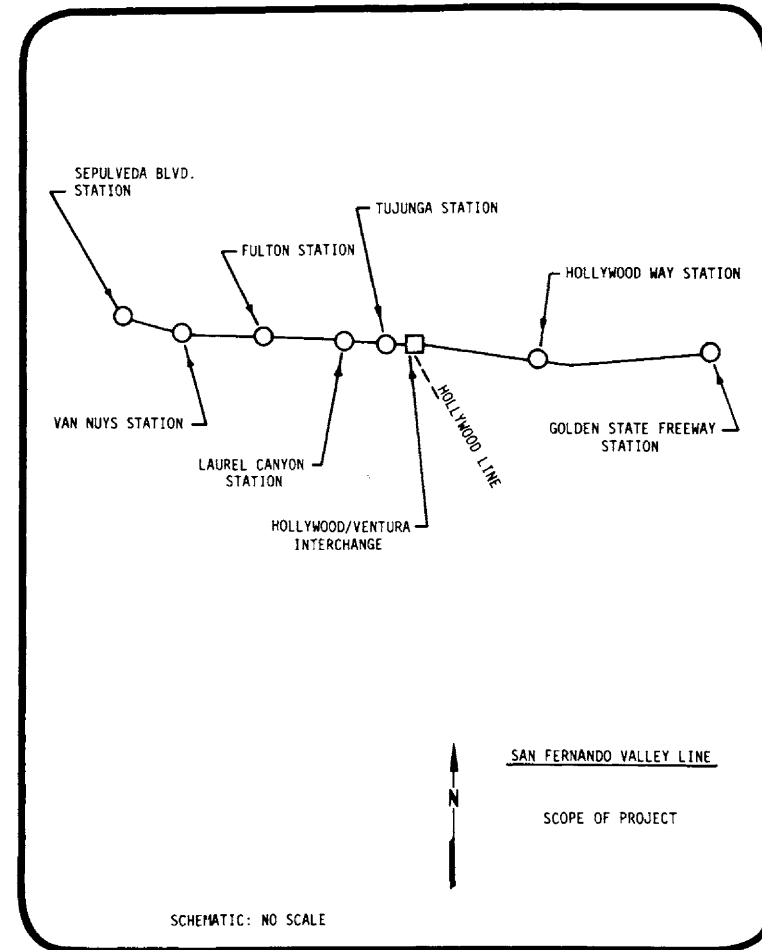


BUILDING PLAN:

San Fernando Valley Line

Route Description

- This line begins on an aerial structure over the median of the Ventura Freeway at the junction with the San Diego Freeway;
- The line runs to the east on an aerial structure along the Ventura Freeway to the Golden State Freeway;
- This is the terminus of the San Fernando Valley Line.



San Fernando Valley Line: Project Scope and Schedule

Project Scope

The project consists of about 10 miles of rail lines with seven stations and one interchange. The lines and interchange are divided into seven contracts; the stations are included in one contract.

Overall Schedule

This line is comprised entirely of aerial structures located in the median of the Ventura Freeway.

This construction will cause traffic conflicts during the early phases of construction. During the later phases, the construction will be mostly above grade and will cause less traffic conflicts. The line will be

partially operational between the Sepulveda Boulevard Station and the Hollywood/Ventura Interchange by 1984 and will be fully operational by 1986.

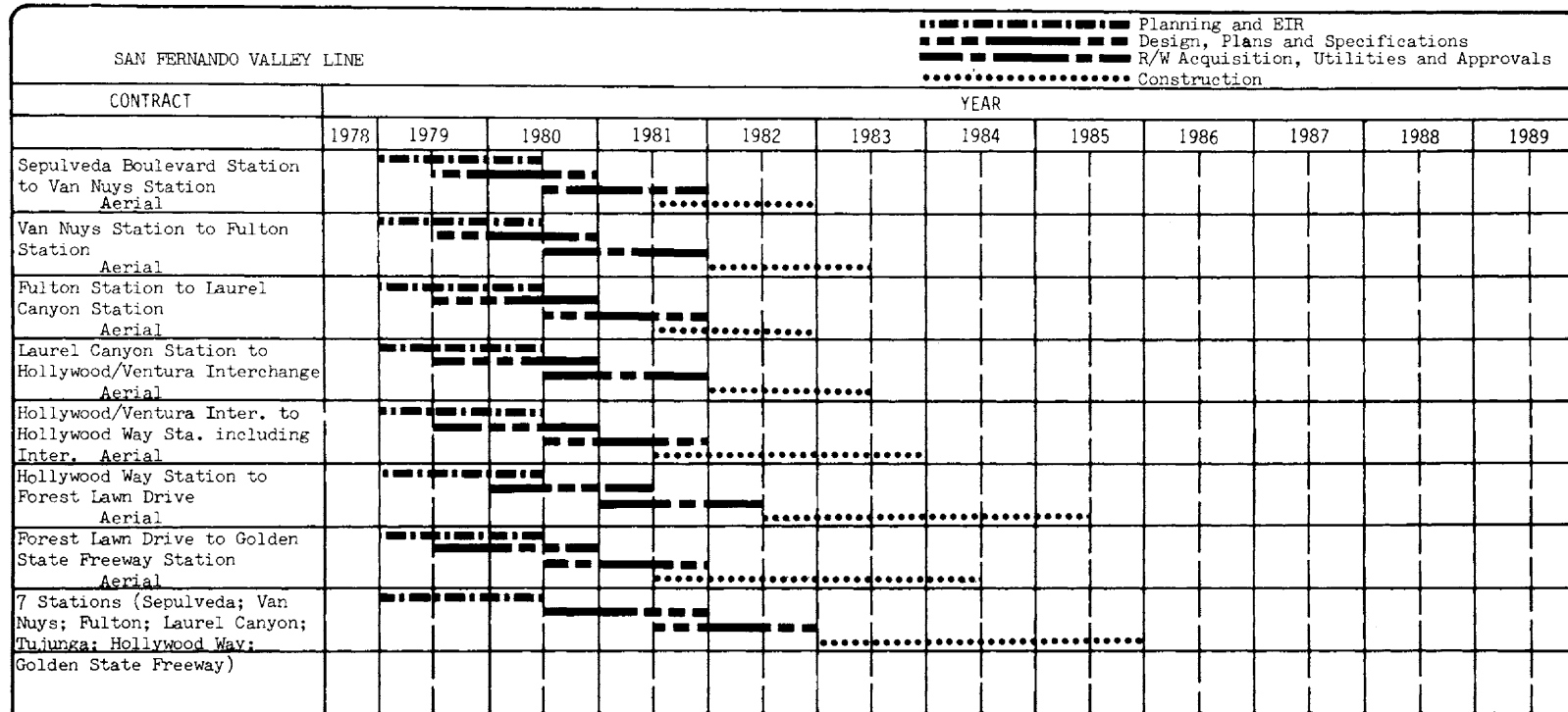
Schedule of Design

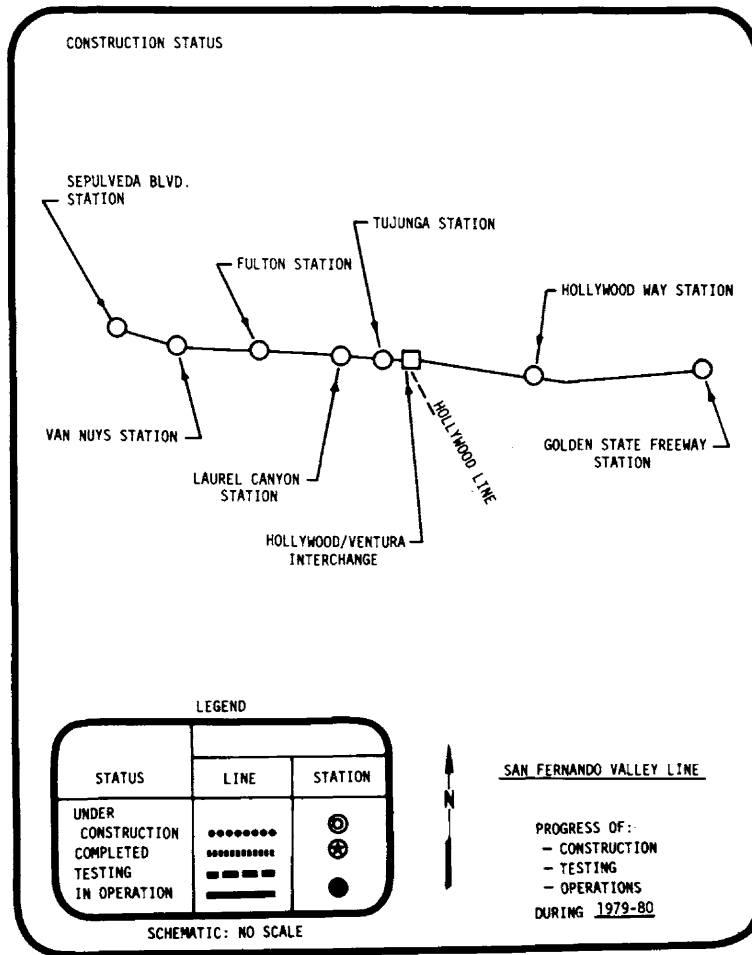
The planning and design of the line will begin early in 1979. For the aerial structure, the planning and design will be completed in mid-year 1982.

Specific design schedules for various construction contracts are shown later in this section.

Schedule of Construction/Testing/Operation

Schedules of the construction, testing, and operation of various contracts are shown later in this section.



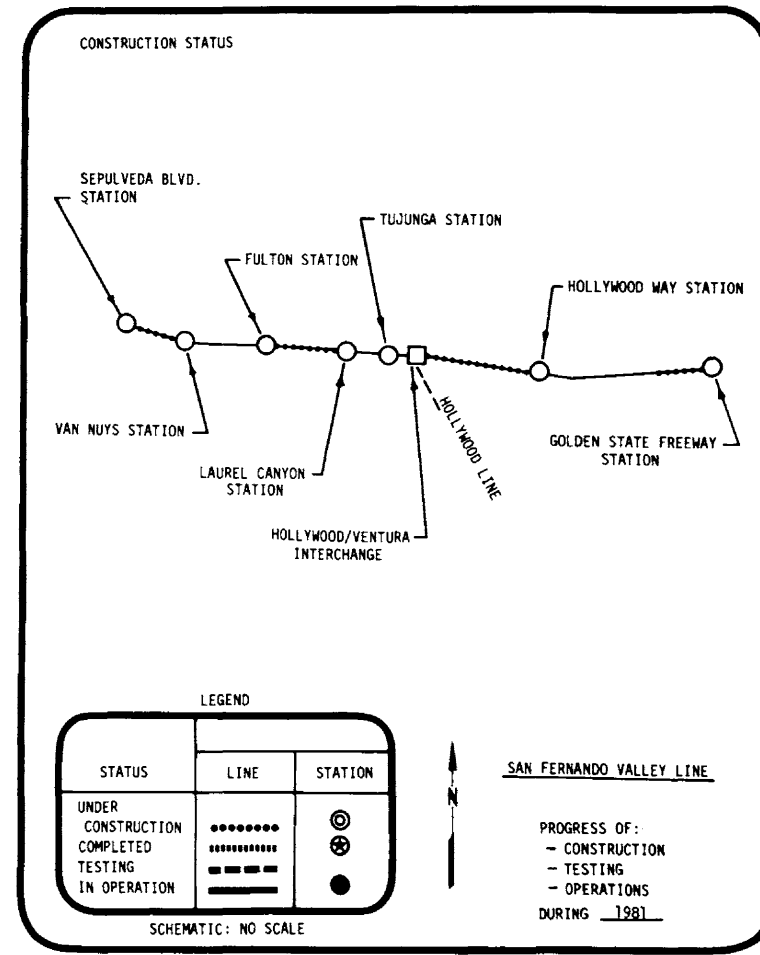


Schedule of Construction/Testing/Operation

Years: 1979-80

Project planning and preparation of the Environmental Impact Report will begin during 1979 for most reaches of the line. Detailed design will begin at mid-year 1979 for various aerial structure portions.

By 1980, detailed design will begin on a portion of the tunnel and will be underway on the entire aerial structure section.

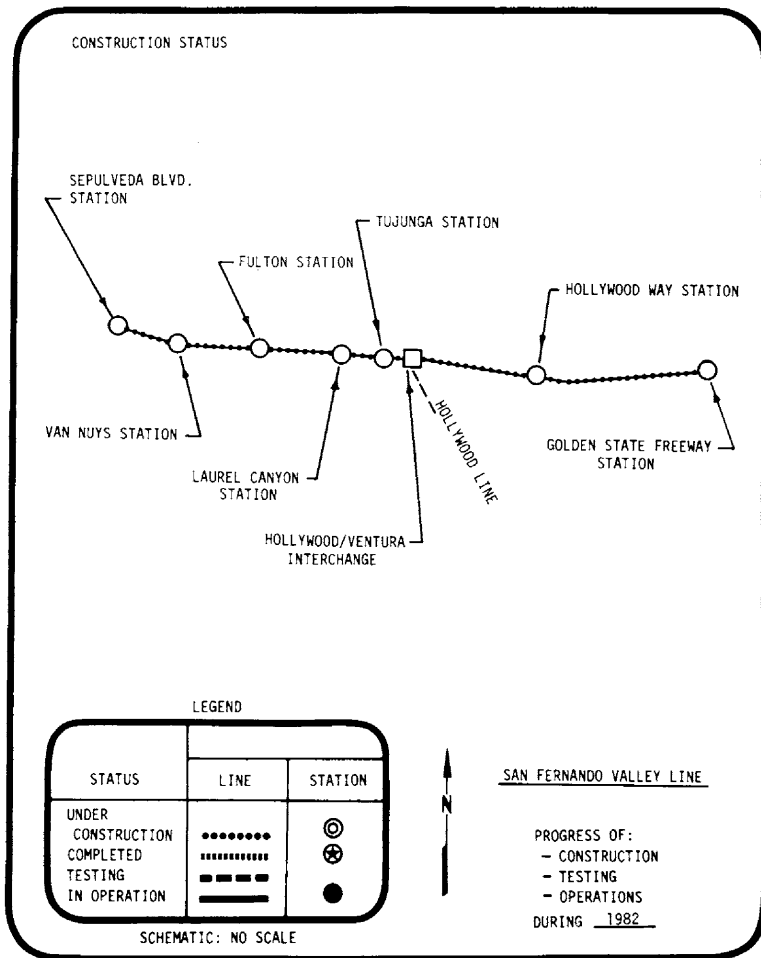


Schedule of Construction/Testing/Operation

Year: 1981

Construction contracts will be awarded for several reaches of the aerial structure portion of the line.

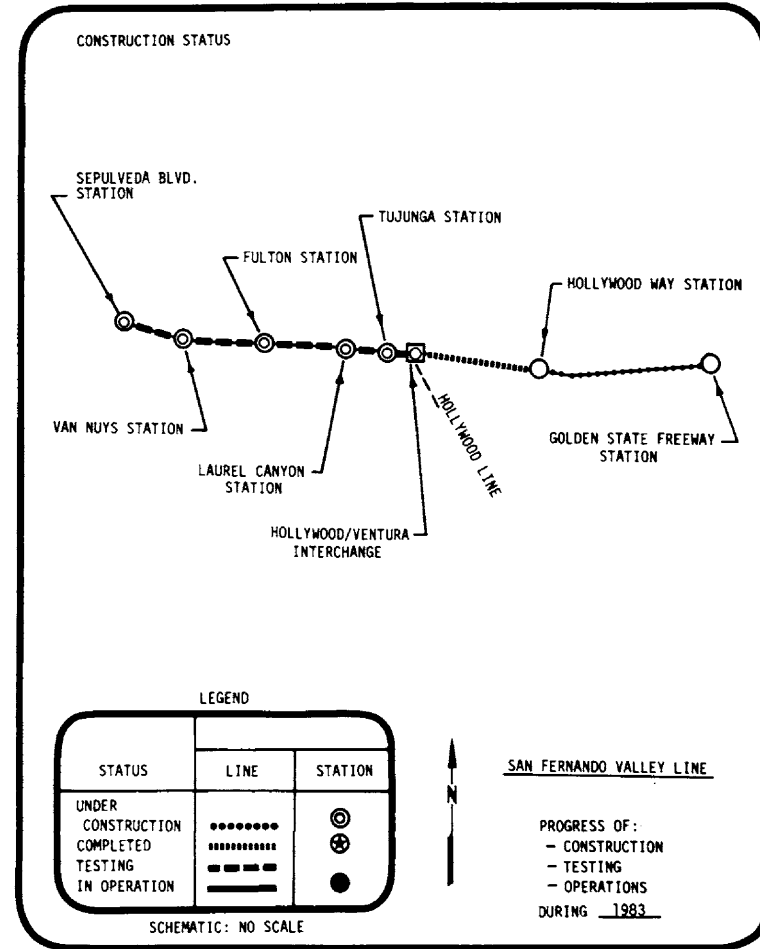
Design work continues on the remainder of the aerial structure section and stations.



Schedule of Construction/Testing/Operation

Year: 1982

Construction continues on contracts awarded in the previous year with some being completed by the end of the year. Contracts for construction of the remaining portions of the aerial structure section are awarded.



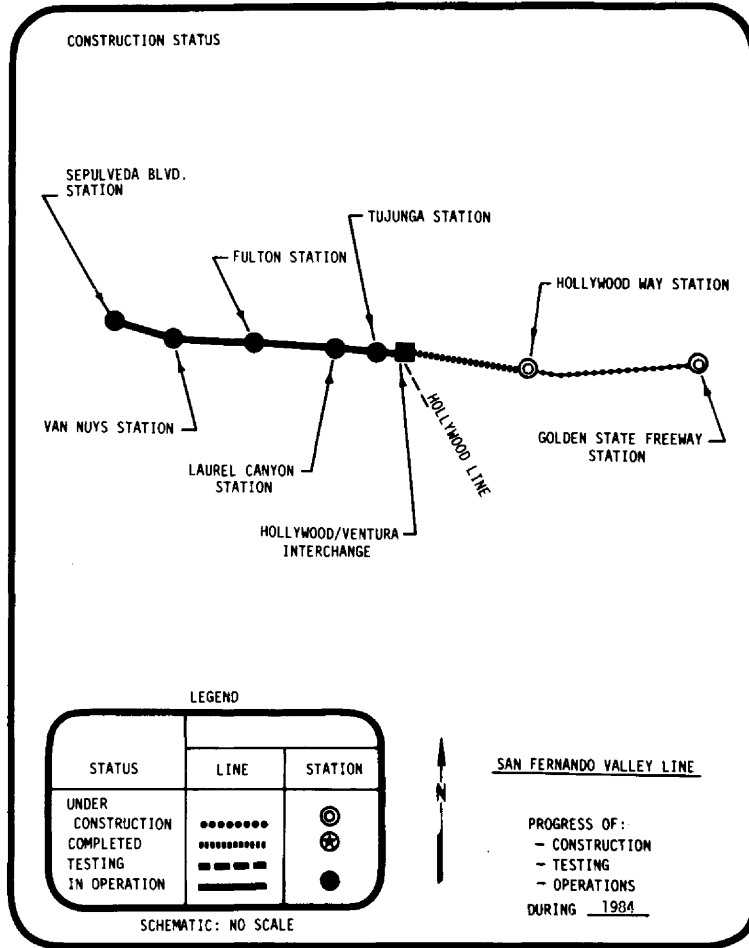
Schedule of Construction/Testing/Operation

Year: 1983

Construction is completed on all aerial structures west of the Hollywood/Ventura Interchange. Construction begins on the four stations in this section. Late in the year, testing of this reach can begin.

Construction on other contracts on the line continues through the year.



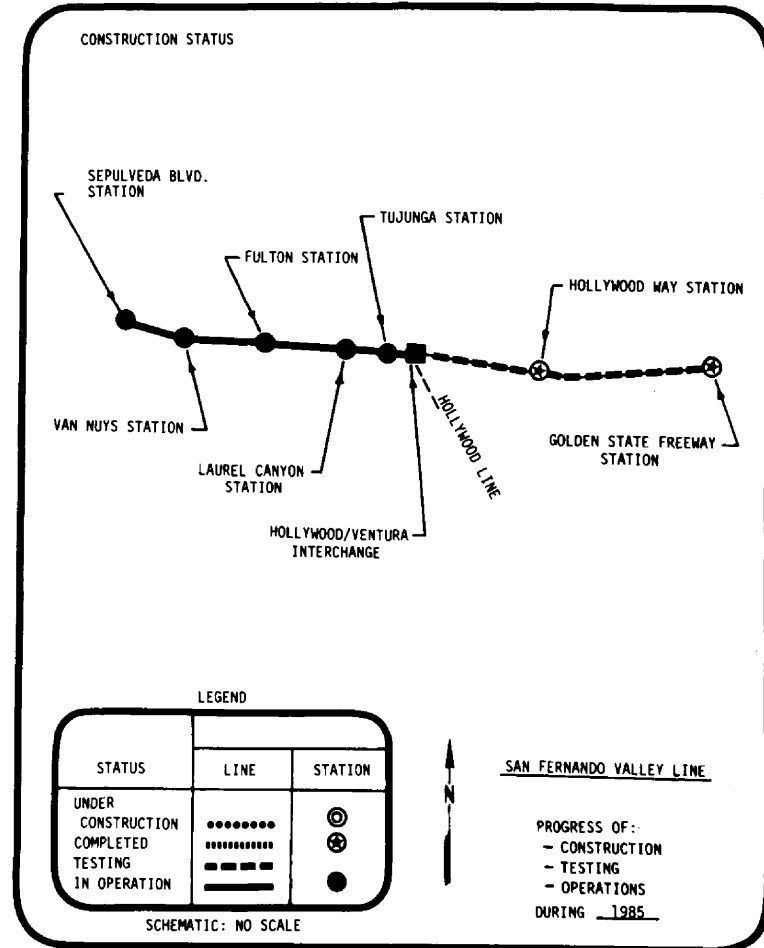


Schedule of Construction/Testing/Operation

Year: 1984

Testing of the lines west of the Hollywood/Ventura Interchange is completed at mid-year allowing operation to begin.

Construction continues on the remaining portions of the line and begins on the remaining two stations.

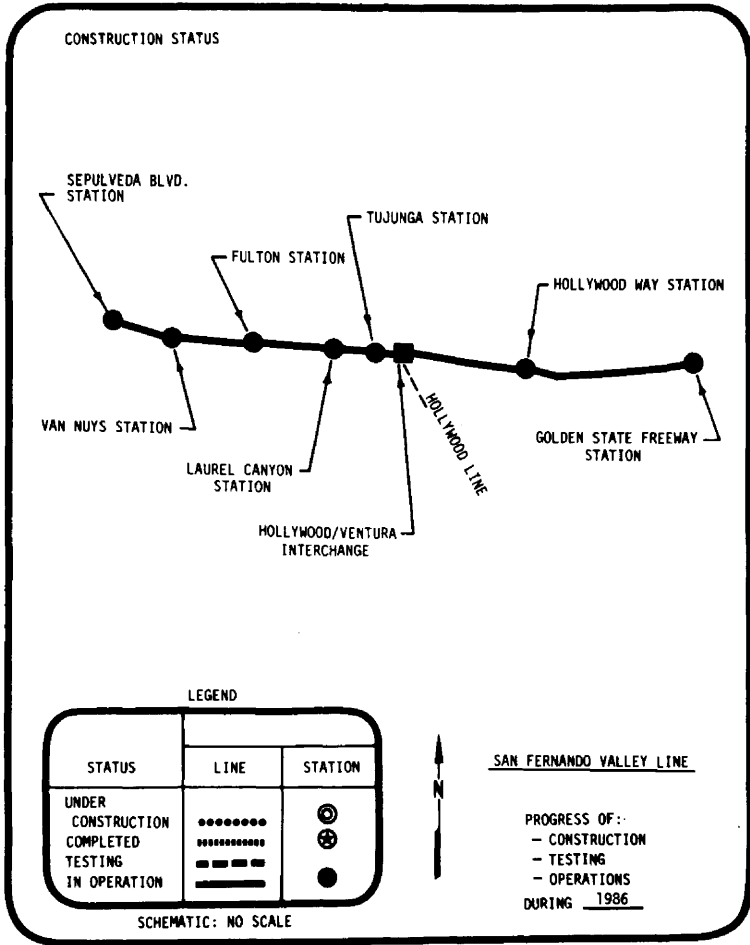


Schedule of Construction/Testing/Operation

Year: 1985

The line continues in partial operation from the Sepulveda Station to the Hollywood/Ventura Interchange.

Construction is completed on all remaining contracts with testing beginning.



Schedule of Construction/Testing/Operation

Year: 1986

Testing is completed this year allowing the entire line to be placed in operation.



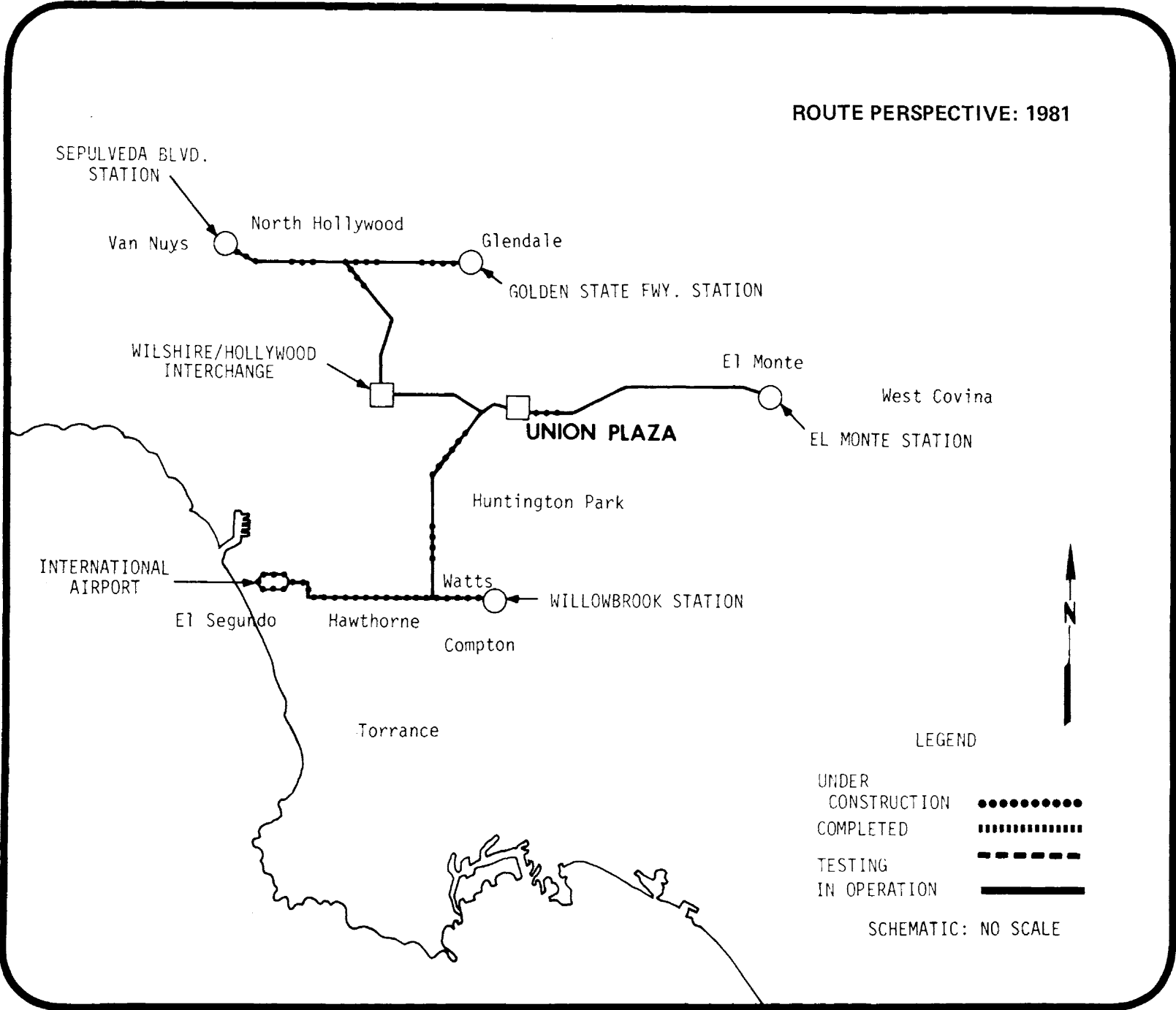
During the period 1979 and 1980, the principal work on the system will be in the design stage, together with the work required for environmental reports and subsequent technical detailing.

The actual construction is scheduled to begin in 1981.

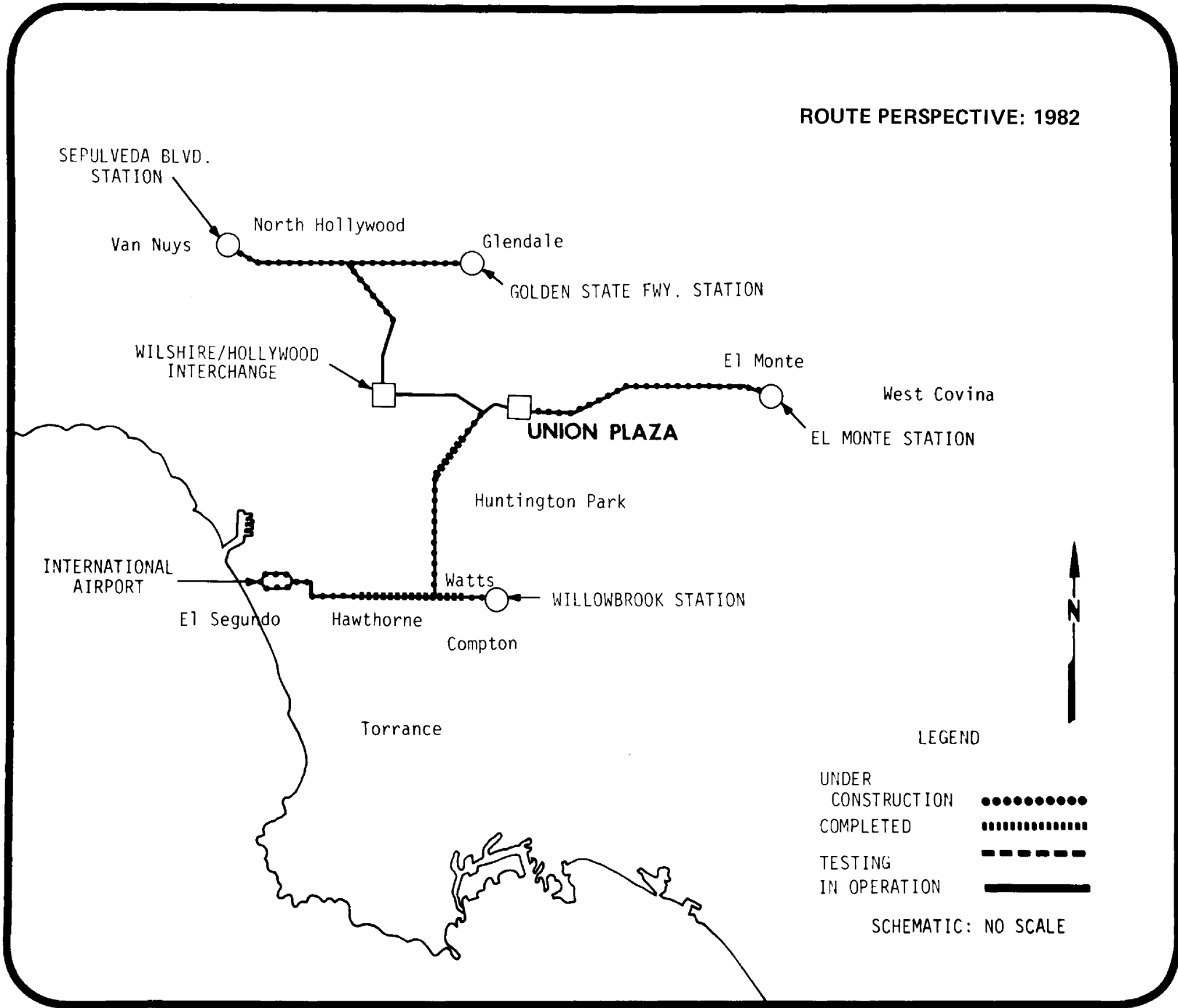


SUNSET, LTD.

ROUTE PERSPECTIVE: 1981

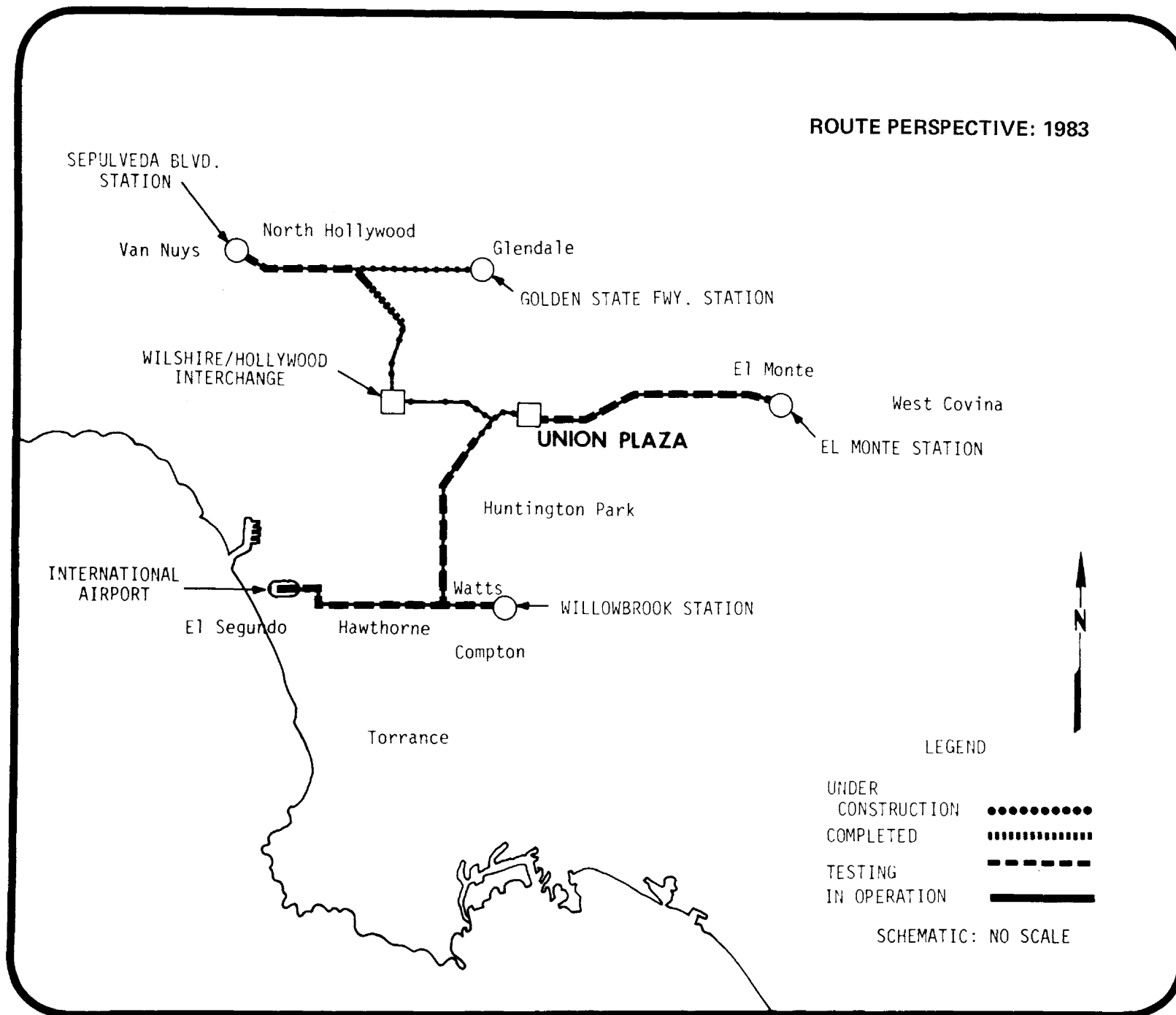


ROUTE PERSPECTIVE: 1982



SUNSET, LTD.

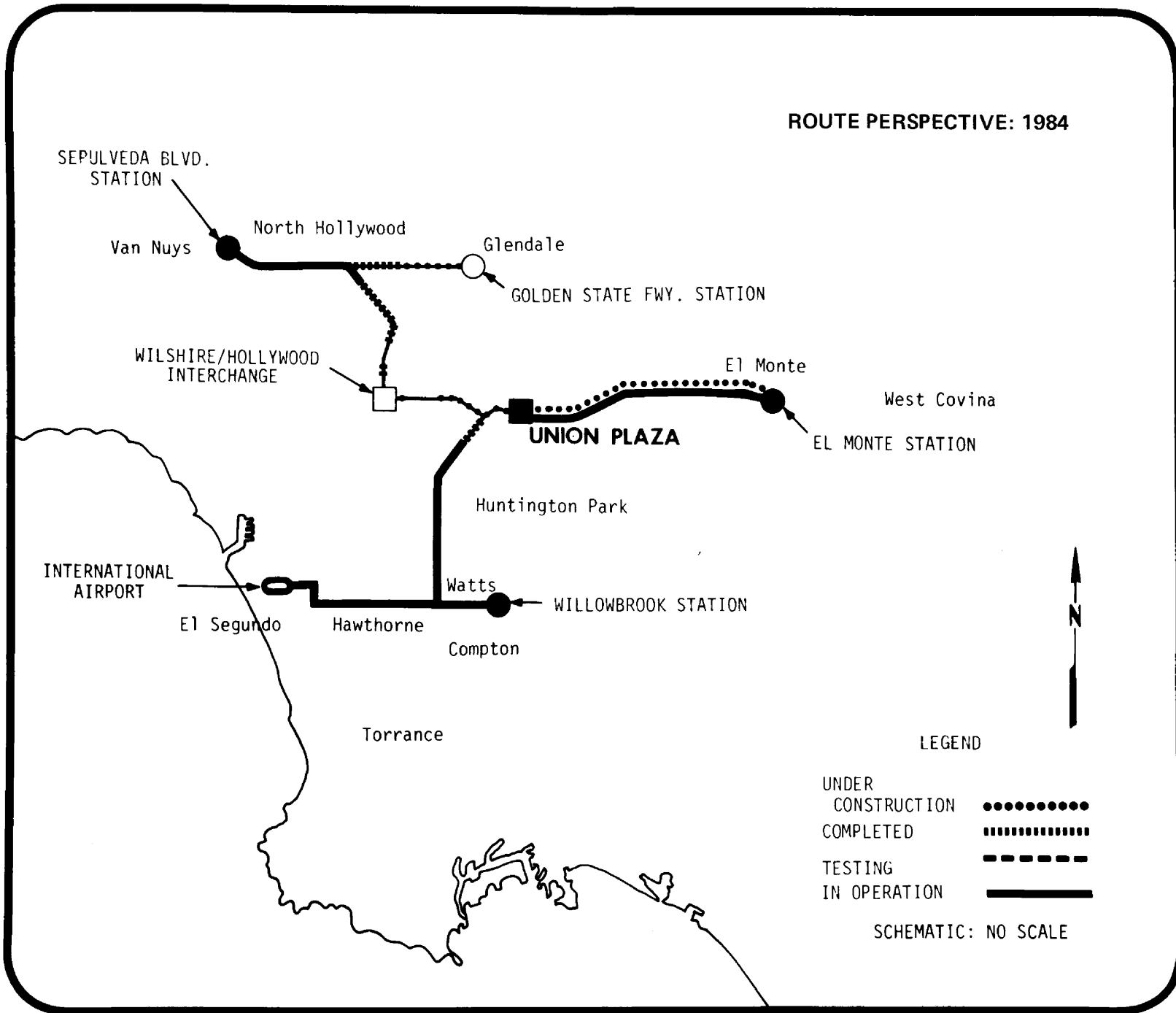








SUNSET, LTD.



ROUTE PERSPECTIVE: 1984



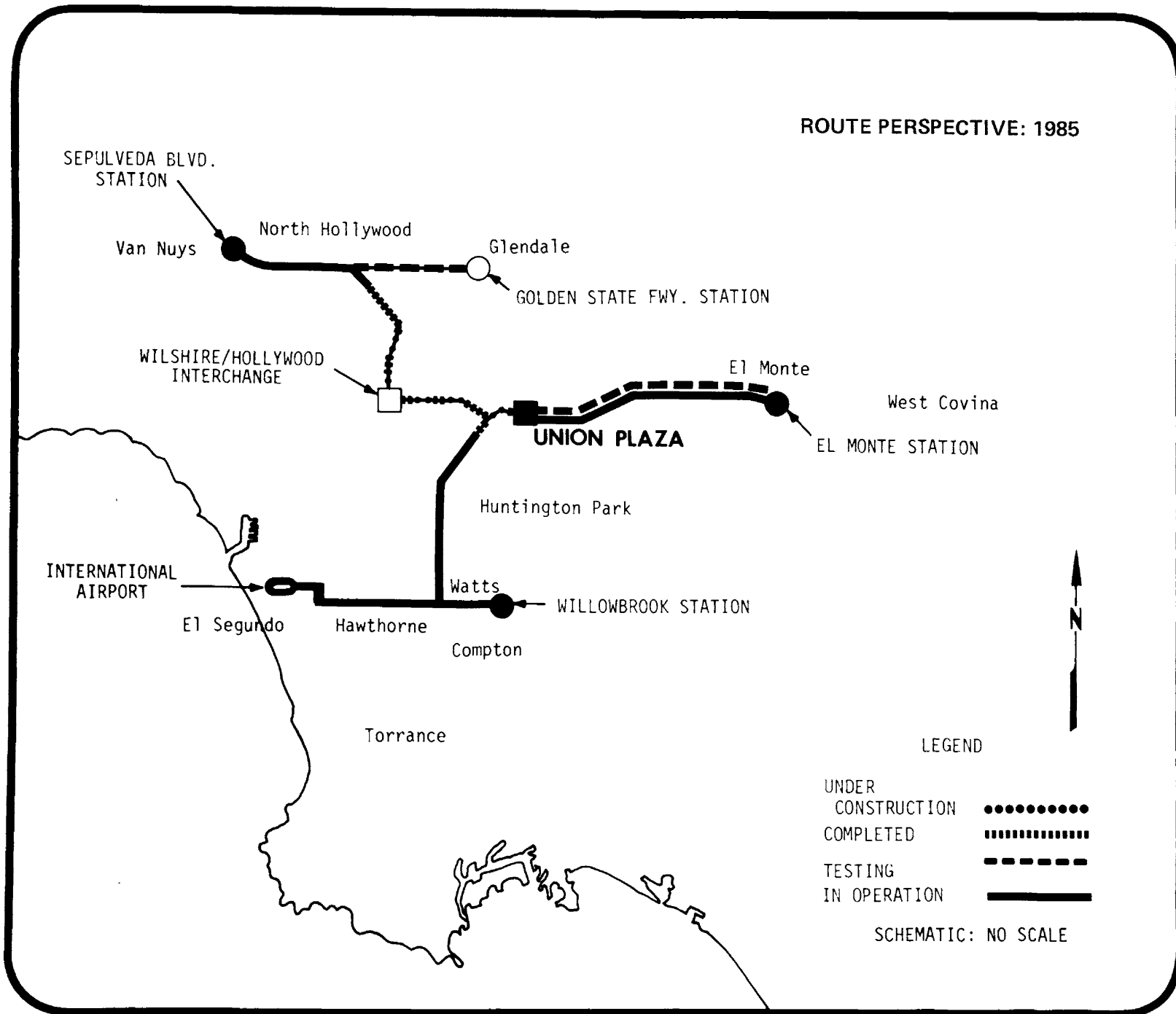
LEGEND

- UNDER CONSTRUCTION 
- COMPLETED 
- TESTING 
- IN OPERATION 

SCHEMATIC: NO SCALE

SUNSET, LTD.





ROUTE PERSPECTIVE: 1985

SEPULVEDA BLVD. STATION

Van Nuys North Hollywood

Glendale

GOLDEN STATE FWY. STATION

WILSHIRE/HOLLYWOOD INTERCHANGE

El Monte

West Covina

UNION PLAZA

EL MONTE STATION

Huntington Park

INTERNATIONAL AIRPORT

El Segundo

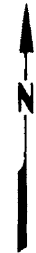
Hawthorne

Compton

Watts

WILLOWBROOK STATION

Torrance



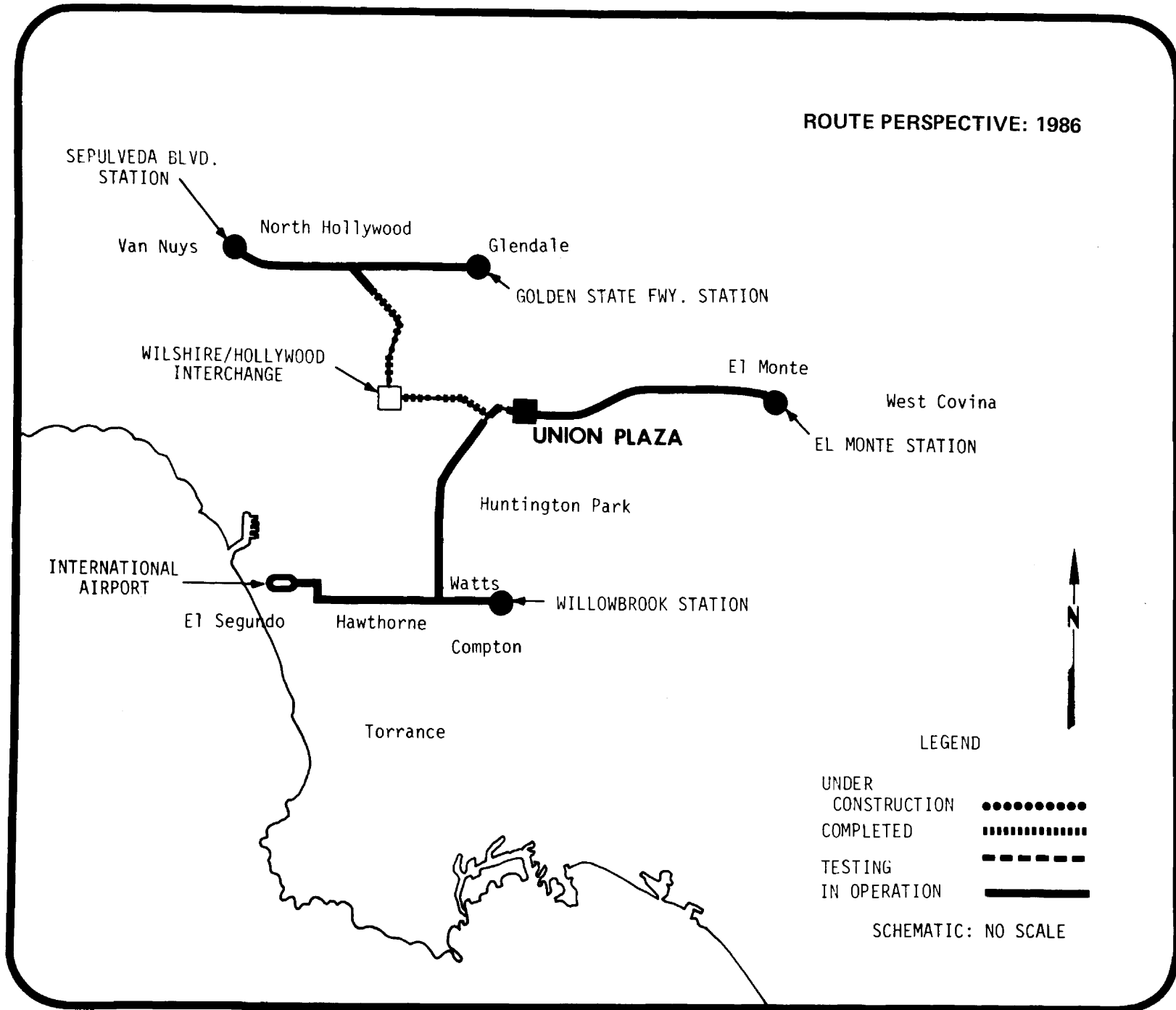
LEGEND

- UNDER CONSTRUCTION ●●●●●●●●
- COMPLETED ■■■■■■■■
- TESTING - - - - -
- IN OPERATION —————

SCHEMATIC: NO SCALE



ROUTE PERSPECTIVE: 1986



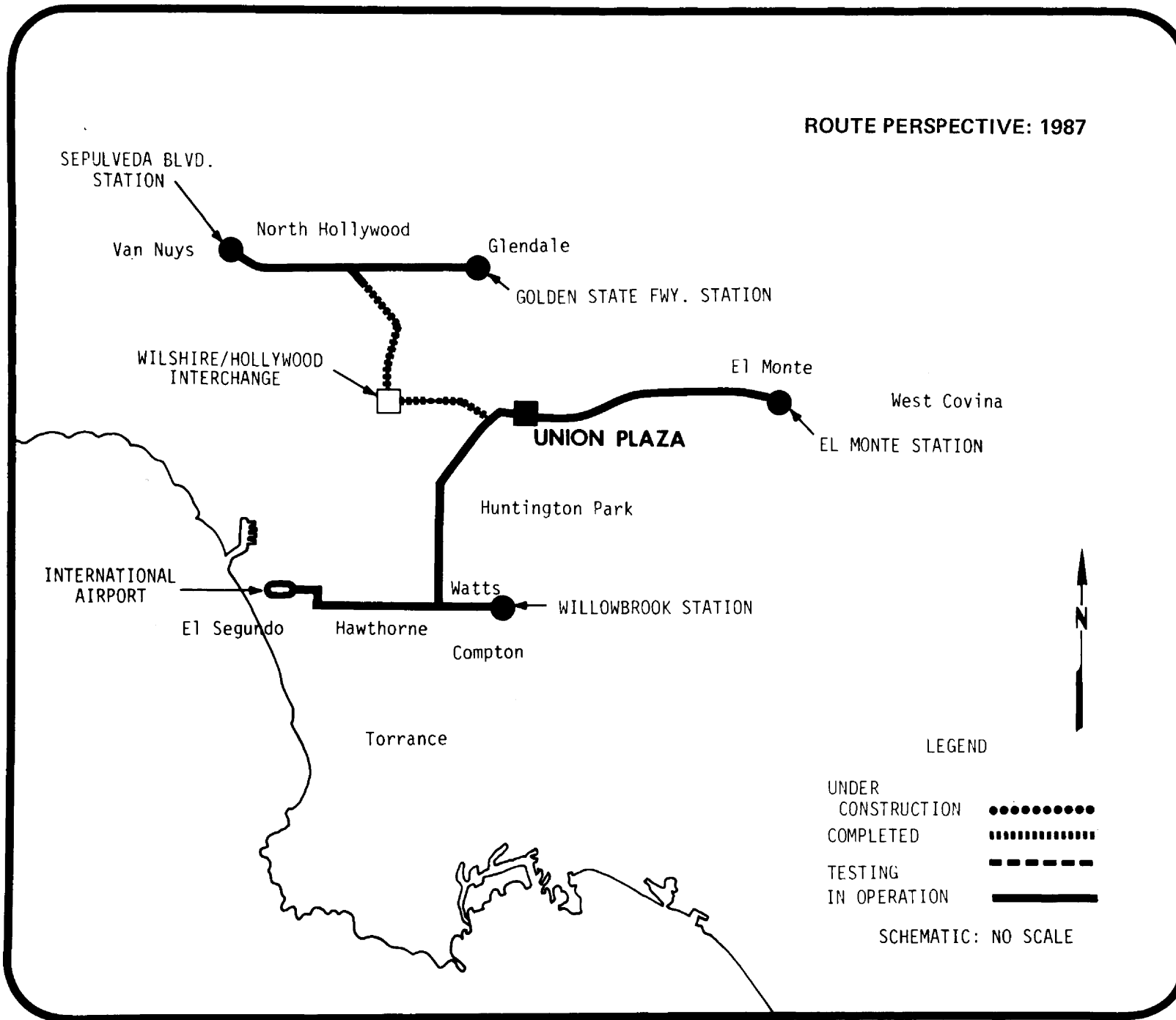
LEGEND

- UNDER CONSTRUCTION (dotted line with a central dot)
- COMPLETED (dotted line)
- TESTING - - - - - (dashed line)
- IN OPERATION _____ (solid line)

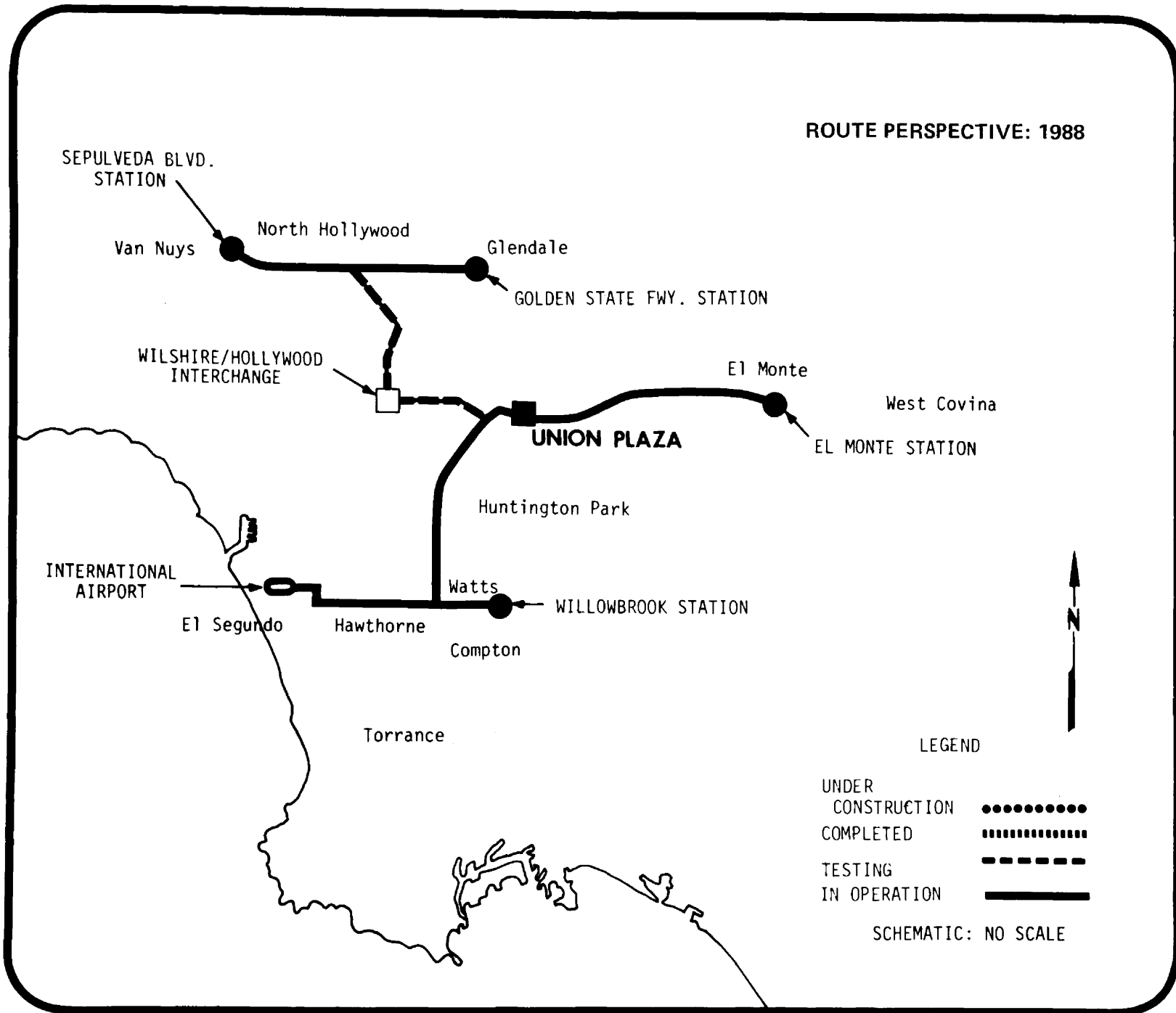
SCHEMATIC: NO SCALE

SUNSET, LTD.





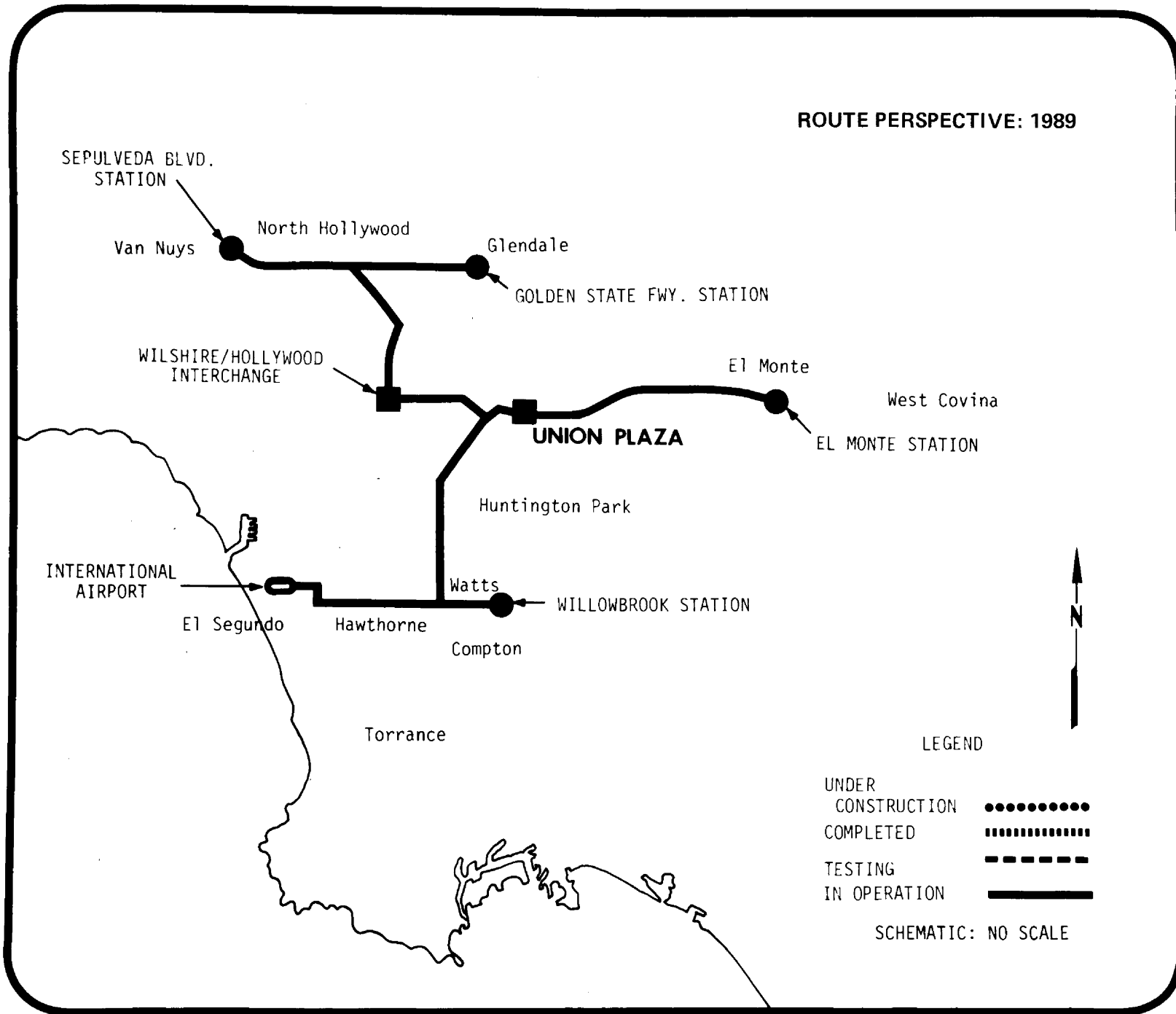
ROUTE PERSPECTIVE: 1988



SUNSET, LTD.



ROUTE PERSPECTIVE: 1989



SUNSET, LTD.



OPERATIONS

OPERATIONS:

155

Although the Sunset Coast Line submitted to the voters in 1976 called for 232 miles in an overall, County-wide high-speed system, it, too, required a beginning. Based on engineering and traffic requirements, that beginning was projected for 1983 in the section, Operations, of the Initial Study – and it is somewhat the same as that used here in the Sunset, Ltd., proposal.

In April of 1976, the County of Los Angeles contracted with a Philadelphia based firm, Louis T. Klauder and Associates, to prepare detailed operational and vehicle information in accordance with expected requirements of the system in both its ultimate development, and for its beginning layout.

Because of the technical information it contains, we are including in this presentation a copy of the Klauder letter of transmittal of May 10, 1976. Even though that study applied to the ultimate system, the discussion of it was applicable to any operating segment, including the initial operational plan for the year 1983.

LOUIS T. KLAUDER AND ASSOCIATES
CONSULTING ENGINEERS
PHILADELPHIA NATIONAL BANK BUILDING
PHILADELPHIA, PA. 19107

LOUIS T. KLAUDER
PAUL O. DONAN
JOHN R. VOLLMAR
J. RICHARD TOMLINSON
DAVID H. CUSHWA
LOUIS T. KLAUDER, JR.
GEORGE R. BEETLE
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ROBERT H. PRICE
HENRY T. RAUDENBUSH
RUSH D. TOUTON, JR.
ROBERT B. WATSON
JOHN J. WILKINS

May 10, 1976

The Honorable Members of the Board of Supervisors
County of Los Angeles
Hall of Administration
Los Angeles, California 90012

Gentlemen:

In accordance with the assignment to our firm, we have completed a preliminary operational feasibility study of the Sunset Coast Line. This proposal is set forth in Propositions R and T before the voters of the County of Los Angeles for their approval at the referendum to be held on Tuesday, June 8, 1976.

We find that the Sunset Coast Line, as advanced to the public for its consideration by the Southern California Rapid Transit District, is operationally feasible. We have no reservations whatsoever concerning this finding.

This conclusion is based on our intensive and detailed examination of the proposal and various background materials supplied to us by the County, upon the analytical work we have performed on your behalf, and upon the design criteria specified below and in the appendices to this letter.

It is our professional judgment that the Sunset Coast Line is capable of being implemented in a timely fashion and in a manner that will assure that the people of Los Angeles County receive safe, reliable, frequent, speedy, comfortable and convenient county-wide rail rapid transit service.

In addition to our basic finding of its technical and operational feasibility, our other principal findings concerning the Sunset Coast Line are:

1) Service policies incorporating nearly 40 distinct, individual services, to be operated by local, interurban and airporter trains, are practical and operationally feasible for a modern urban-suburban rail rapid transit system to be built with the design criteria and characteristics of the Sunset Coast Line.

The Honorable Members of the Board of Supervisors

Page 2

May 10, 1976

2) The Sunset Coast Line consists of both radial segments, i.e. lines radiating from Los Angeles Union Station and the Central Business District, and belt or connector segments, i.e. non-radial lines, which do not enter the core area. It is feasible to plan, design, build and operate a rail rapid transit system incorporating the design criteria and characteristics of the Sunset Coast Line that will implement service policies calling for at least 22 radial services and at least 16 non-radial services, including a mixture of local, interurban and airporter trains.

3) Various operating plans reflecting the service policies described above, including complete train and employee schedules and rolling stock assignments, can be prepared in detail for the Sunset Coast Line. These operating plans would include interfacing with all appropriate environmental, human and institutional factors and with rolling stock and fixed facility characteristics.

4) An acceptable operating plan satisfying the service policy requirements of the Sunset Coast Line will require between approximately 860 and 960 rail rapid transit cars, the precise number depending upon a policy decision with respect to desired train lengths and civil engineering characteristics of certain portions of the system not yet in final detail.

5) An acceptable operating plan for the Sunset Coast Line can provide seats, on a system-wide basis, for approximately 92,000 passengers per hour. This same operating plan will provide seats for Los Angeles Central Business District-oriented riders at the rate of approximately 44,000 passengers per hour and to and from Los Angeles International Airport, using special airporter trains, at the rate of approximately 3,800 seats per hour.

6) We estimated that approximately 4,000 employees will be required to operate the Sunset Coast Line when full system operations are achieved.

These findings are based on the following assumptions as to design criteria and operating practice:

1. All lines of the Sunset Coast Line will be signalled for forty (40) trains per hour capacity, i.e. 90 - second intervals, in each direction and will permit trains to achieve full track speed of eighty-five miles per hour (85 mph) wherever physically obtainable;
2. All signal and associated train control, junction and switch interlocking, wayside and train-borne speed directing equipment will be similar to the successful installation of Automatic Train Control, using cab signalling with full speed capabilities under

The Honorable Members of the Board of Supervisors
Page 3
May 10, 1976

manual control and fail-safe characteristics, presently in place on the Port Authority Transit Corporation's (PATCO) high-speed suburban rail rapid transit line between Philadelphia, Pennsylvania and Lindenwold, New Jersey;

3. Operating plans and train schedules will be developed in a manner that does not create a track occupancy requirement in excess of thirty (30) trains per hour on any individual track;
4. All trains will be operated by a motorman/train attendant under Automatic Train Control or manually when required by unusual circumstances under the supervision and direction of an Operations Control Center. Full track speed capability shall be provided throughout the Sunset Coast Line system whether operating under automatic or manual control, in the manner of the PATCO system referred to in design criteria assumption (2) above;
5. All track switches will be interlocked by the signal system to ensure the safety of the public, system employees and capital facilities;
6. All junctions between two or more lines and all switches between non-adjacent passenger-carrying tracks will be grade separated, as well as interlocked for safety, to ensure maximum system capacity and reliability;
7. Los Angeles Union Station will have at least eight through passenger-carrying tracks and five loading/unloading platforms to provide adequate capacity for both train movements and passenger flows; and
8. Loop tracks to both the north and south of Union Station to accommodate trains terminating and originating their runs at Union Station and to add to the flexibility and reliability of the Sunset Coast Line operations, both in the immediate area and the hub station and elsewhere on the system.

With the design criteria assumed in our work, the Sunset Coast Line proposal represents an operationally feasible project. In brief, it can be operated as intended.

The Honorable Members of the Board of Supervisors
Page 4
May 10, 1976

The appendices attached to this letter explain our conclusions in substantial detail and the manner in which they were reached. In addition, we are providing the County with copies of our working papers, including system logic charts for the initial, partial and full system operational phases, computer print-outs describing train performance, etc. If after reviewing this report and its supporting documentation, you wish any further clarification concerning our findings, please contact us at your convenience.

In closing, we would like to express our thanks for the cooperation and courtesy which we have received from the County's officials and staff. This has been a challenging and exciting assignment and an opportunity to contribute to your work which we deeply appreciated.

Sincerely,

Philip G. Craig
Philip G. Craig
Senior System Analyst
Project Manager

William G. Stead
William G. Stead
Project Engineer
Assistant Project Manager

From pages 112 and 113 of the Initial Study, we are extracting additional comment from the Klauder firm, which would be applicable to any part, or all, of the system.

System seated rider capacity per hour in one direction is based on the following assumptions:

1. Airport trains consist of two cars with a seated capacity of 68 passengers.
2. Local trains consist of five cars with a seating capacity of 367 passengers.
3. Interurban trains consist of four cars with a seating capacity of 291 passengers.
4. All seats are used by only one passenger during the trip. There are no standees.
5. The calculation is for the Base Service Level:

System car requirements are based on the following assumptions:

1. Airport trains consist of two cars.
2. Local trains consist of five cars: one cab-dome car, three motorized coaches, and one cab car.
3. Interurban trains consist of four cars: two cab cars, one motorized coach and one motorized dome coach.
4. A 10% spare factor will be added to allow for the maintenance and spare requirement.
5. The car fleet is sized to meet the maximum operating requirement that will occur during the Base Service Level.

Should actual passenger usage exceed the seating capacity provided in the Operating Plan developed herein, three alternatives exist whereby the capacity of the Sunset Coast Line can be augmented.

These alternatives are:

1. Increase train lengths to a maximum of ten cars;
2. Increase the frequency of service, after system reliability has been proven with actual, extended operational experience, to the signal system design limitation of 40 trains per hour per track; and/or
3. Adopt a policy of carrying standees under certain conditions, such as for short distances during peak traffic periods.

In order to keep open the first of these options, that of operating longer trains, for future consideration, it would appear desirable, as detailed civil engineering proceeds, to design all train-related fixed facilities, including station platforms, reversing and layup tracks, and yard and shop facilities in a manner that presents no impediment to ultimately expanding the passenger-carrying capacity of the Sunset Coast Line by operating trains of up to ten cars in length.

Civil works should be designed to minimize, if not eliminate, demolition and modifications built in the initial construction phase.

Civil design considerations for eventual system expansion that can be envisioned and defined for the initial civil design stage should be considered.

VEHICLES

VEHICLES:

161

In May of 1976, the County of Los Angeles was provided the guidelines for preliminary vehicle specifications by Louis T. Klauder and Associates, Consulting Engineers, and Sundberg, Ferar, Industrial Designers, who provided the renderings and floor plans of the Rapid Transit cars.

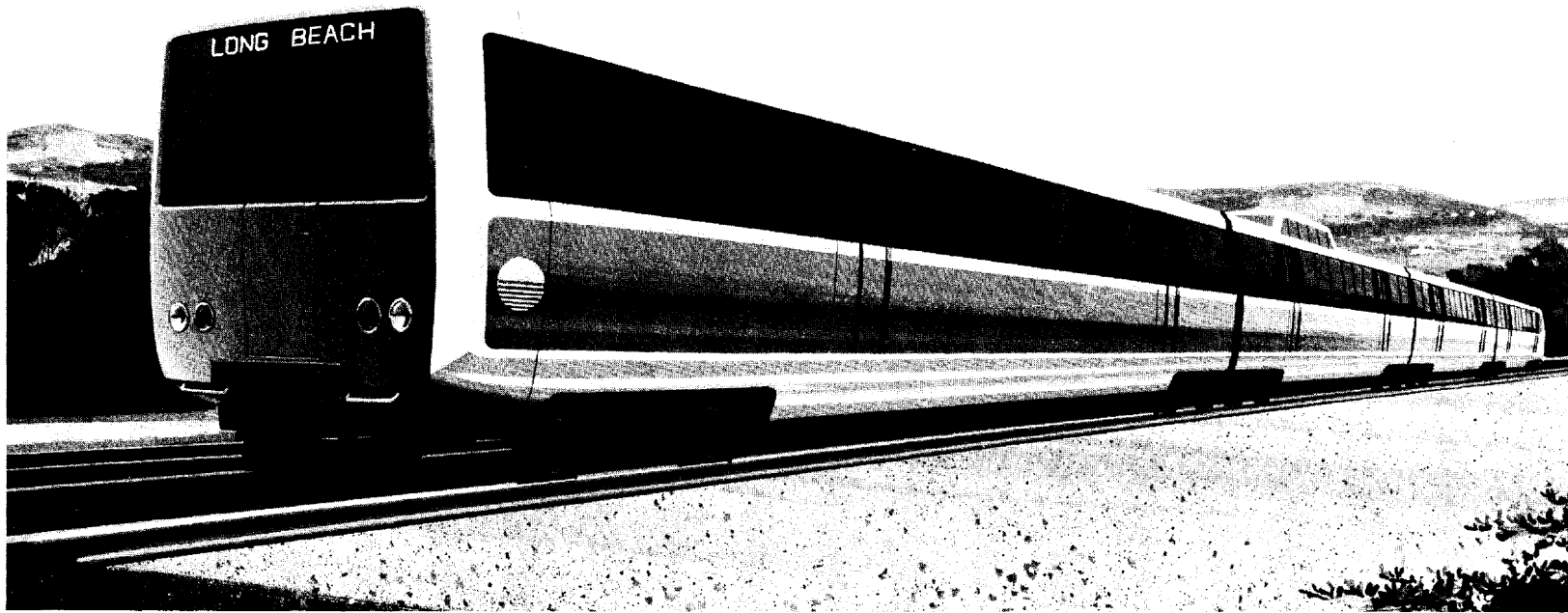
The purpose of the renderings primarily is to show seating, luggage, refreshment, and other accommodations. The external vehicle styles were based loosely on transit equipment now operating on certain eastern transit lines, as well as on the concept for the ACT I (Advanced Concept Train) car, commissioned for construction by the Federal government through the Boeing Company and the Garrett Corporation. The ACT I car was featured in the cover drawing of the original Sunset Coast Line book, dated January 28, 1976.

The car shown on the cover design of this book is based on the SPV 2000 series, recently built and now in testing by the Budd Company of Philadelphia.

Presumably, Garrett, Budd, Pullman, and other companies will bid on any vehicle orders, whose specifications would include interior and exterior designs.

Research of the Klauder Company has confirmed that the 85-foot car is a more suitable length for transit purposes than the shorter cars recently put into service in San Francisco and Washington, D.C. The 85-foot car provides greater seating capacity, at no additional labor expense, for motormen or other train personnel.

Consequently, all station design work (Union Plaza, Coliseum, Airport, El Monte, etc.) shown in this book is based on cars of 85-foot length, five cars per train.

LOCALS (BLUE)**Local Trains**

Carbody structure similar to 1,200 high-speed, high performance suburban cars purchased by the Metropolitan Transportation Authority and the Connecticut Department of Transportation for use on electrified suburban railroad lines operating in the New York Metropolitan Region. Performance characteristics at least equal to 75 high speed, high performance suburban rapid transit cars used on Port Authority Transit Corporation's (PATCO) line between Philadelphia, Pennsylvania and Lindenwold, New Jersey.

TYPE OF CONSTRUCTION:

Resistance Welded stainless steel.
Buffing stress (safety factor) 800,000 lbs.

EMPTY WEIGHT:

Approximately 95,000 lbs. for Cab cars or motorized coaches
Approximately 110,000 lbs. for dome car.

PERFORMANCE:

Acceleration Rate: 3.0 mphps
Max. Speed: 90 mph on level tangent track
Deceleration Rate: 3.0 mph per second
Emergency Rate: 3.2 mph per second

CAR DIMENSIONS:

85 feet long, 10 feet six inches wide, 12 feet 10 inches high

FLOOR LEVEL:

50 inches from top of rail to floor

METHOD OF LOADING:

4 quarter point bi-parting doors (2 per side)

SEATING:

Non-reclining, cantilevered, 22-inch high back suburban seats set on 40-inch centers, with fold down trays where appropriate in dome cars.

SEATING CAPACITY:

72 in cab cars

76 in motorized trailers

67 in dome cars (including 20 seats in a dome) 8 to 10 additional seating spaces will be provided in lounge section

PROVISIONS FOR THE HANDICAPPED:

Two wheelchair spaces with lock down devices.

aisle width:

36 inches

side windows:

60 inches long, 36 inches high

WINDOW GLASS:

Tinted doubled glazed acoustic and non-reflective treatments

interior furnishings:

Floor, walls up to window sill, ceilings (except on domes) down to top of windows and end walls shall be carpeted throughout for sound deadening purposes and passenger comfort.

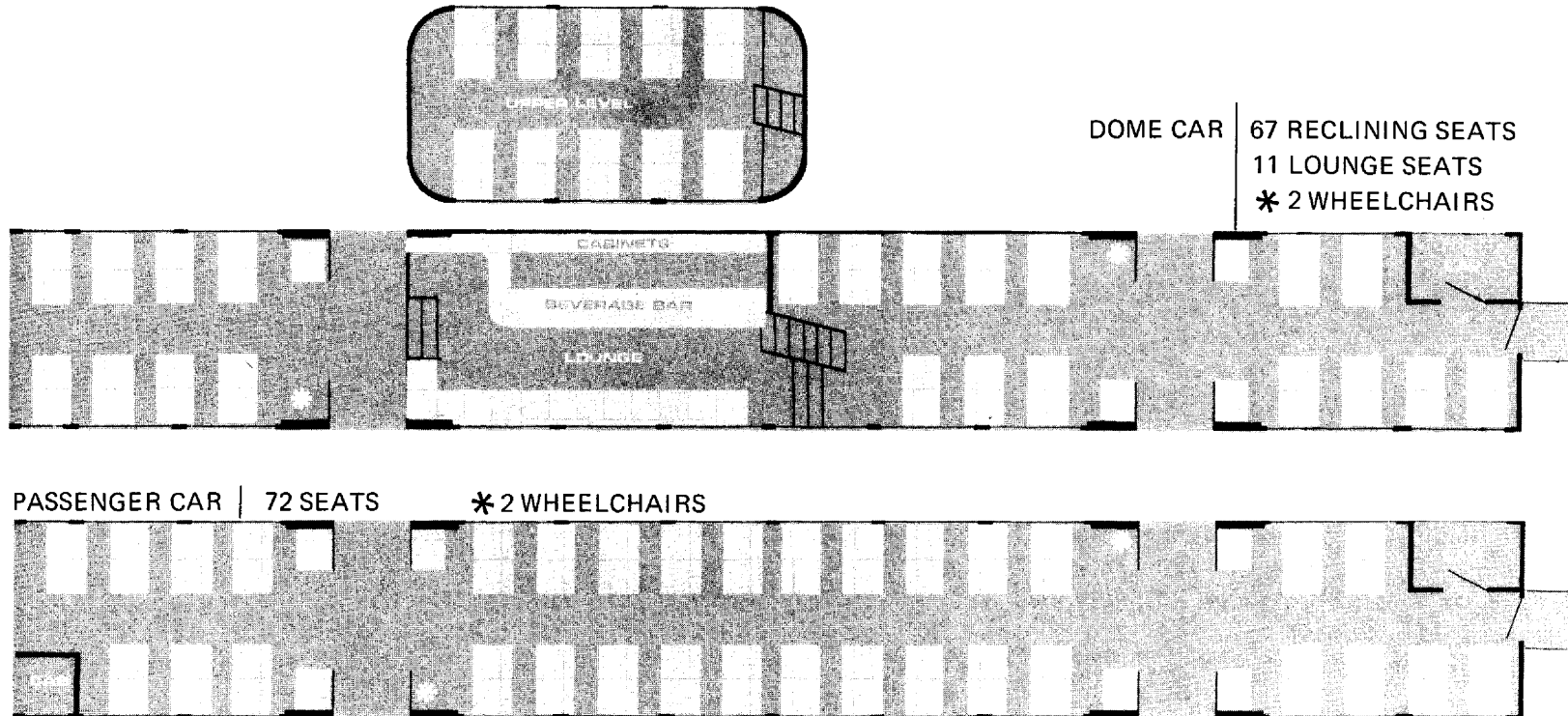
NOISE LEVELS:

Interior of empty car at 85-mph—70dB(A)

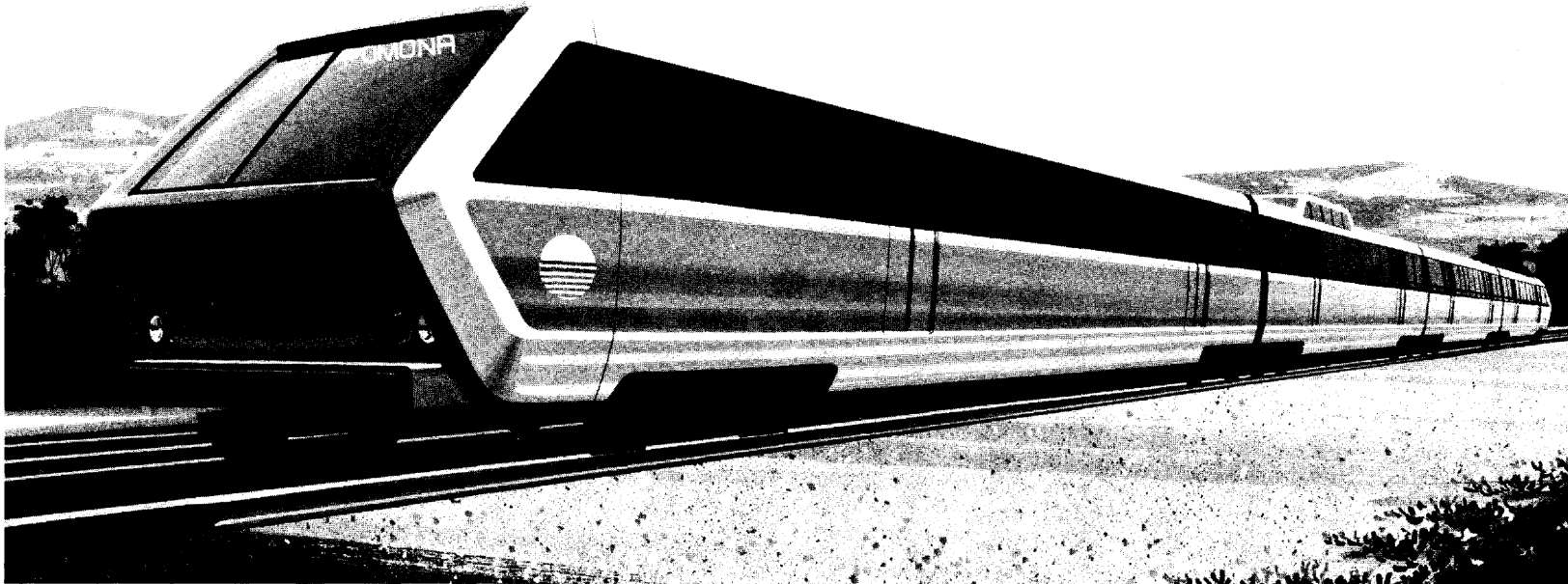
Exterior at 85 mph on ballast track—80dB(A) at a distance of 50 feet

RUNNING GEAR:

Four wheel inside frame trucks with air suspension, rubber chevrons and resilient wheels



INTERURBANS (THE NEW RED CARS)



Interurban Trains

Based mechanically and electrically on the same design as the local cars, modified to provide distinctive aesthetics and increased passenger comfort and amenities for longer rides.

TYPE OF CONSTRUCTION:

Resistance welded stainless steel.
Buffing stress (safety factor) 800,000 lbs.

EMPTY WEIGHT:

Approximately 95,000 lbs for Cab cars or motorized coaches.
Approximately 110,000 lbs., for dome car.

PERFORMANCE:

Acceleration Rate: 3.0 mphps
Max. Speed: 90 mph on level tangent track
Deceleration Rate: 3 mph per second
Emergency Rate: 3.2 mph per second

CAR DIMENSIONS:

85 feet long, 10 feet 6 inches wide, 12 feet 10 inches high

FLOOR LEVEL:

50 inches from top of rail to floor

METHOD OF LOADING:

4 quarter point bi-parting doors (2 per side)

SEATING CAPACITY:

72 in cab cars
76 in motorized trailers
67 in dome cars (including 20 seats in a dome) 8 to 10 additional longitudinal seating spaces will be provided in lounge section.

SEATS:

Reclining 22-inch wide, with fold down trays where appropriate in dome cars. Seat on 40-inch centers. Longitudinal seats are similar but non-reclining.

HANDICAPPED PROVISIONS:

Two wheelchair spaces with lock down devices.

LUGGAGE SPACE:

Overhead sized for 4-suiter luggage cases and with carpeted on underside for sound deadening and cushioning.

AISLE WIDTH:

36 inches

LAVORATORIES:

Including chemical toilet, wash basin with hot and cold water, and tissue, soap and towel dispensers.

SIDE WINDOWS:

60 inches long by 36 inches high

WINDOW GLASS:

Tinted doubled glazed with acoustic control and non-reflective treatments.

INTERIOR FURNISHINGS:

Floors, walls up to window sill, ceilings (except on domes) down to top of windows, and end walls shall be carpeted throughout for sound deadening purposes and passenger comfort.

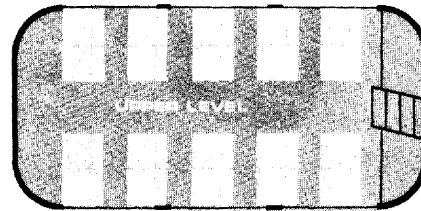
NOISE LEVELS:

Interior of empty car at 85 mph—70dB(A)

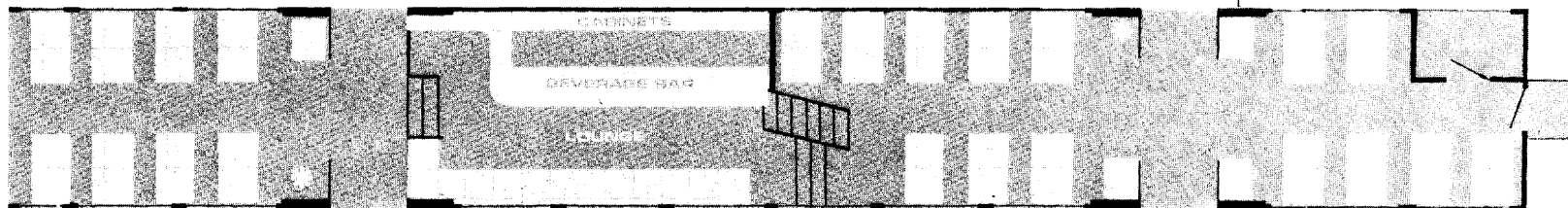
Exterior at 85 on ballast track—80dB(A) at a distance of 50 feet.

TRUCKS:

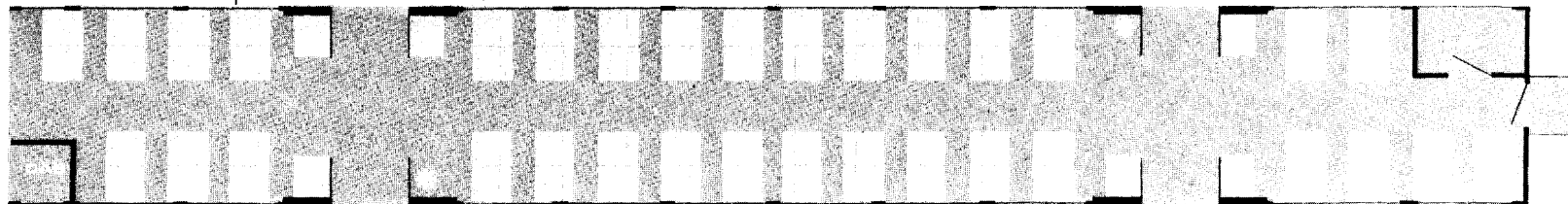
Inside frame with air suspension, rubber chevrons and resilient wheels.

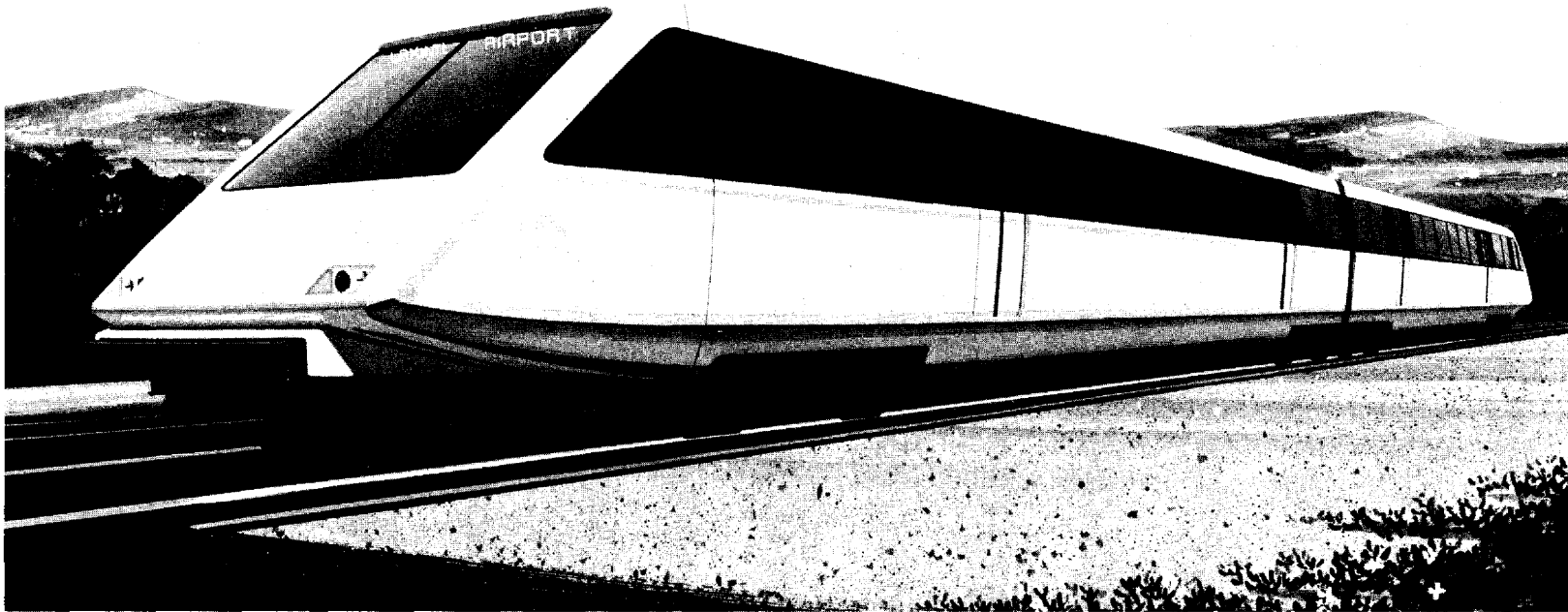


DOME CAR | 67 RECLINING SEATS
 11 LOUNGE SEATS
 * 2 WHEELCHAIRS



PASSENGER CAR | 72 SEATS * 2 WHEELCHAIRS



AIRPORTERS (SILVER)**Airporter Trains**

Based mechanically and electrically on the same design as local cars, modified to provide distinctive aesthetics and luxury level passenger comfort and amenities required for premium fare service.

TYPE OF CONSTRUCTION:

Resistance welded stainless steel.
Buffing stress (safety factor) 800,000 lbs.

EMPTY WEIGHT:

Approximately 95,000 lbs. for cab cars or motorized coaches

PERFORMANCE:

Acceleration Rate: 3.0 mphps
Max. Speed: 90 mph on level tangent track
Deceleration Rate: 3.0 mph per second
Emergency Rate: 3.2 mph per second

CAR DIMENSIONS:

85 feet long, 10 feet six inches wide, 12 feet 10 inches high

FLOOR LEVEL:

50 inches from top of rail to floor

METHOD OF LOADING:

4 quarter point bi-parting doors (2 per side)

SEATING CAPACITY:

34 per car

SEATING:

Reclining pedestal-mounted swivel chairs set on 40 inch centers

HANDICAPPED PROVISIONS:

Two wheelchair spaces with lock down devices

LUGGAGE SPACE:

Double height racks provided opposite lavatory area in place of seating

AISLE WIDTH:

36 inches

LAVATORIES:

Including chemical toilet, wash basin with hot and cold water, and tissue, soap and towel dispensers

SIDE WINDOWS:

60 inches long by 36 inches high

WINDOW GLASS:

Tinted doubled glazed with acoustic and non-reflective treatments

INTERIOR FURNISHINGS:

Floor, walls up to window sill, ceilings (except on domes) down to top of windows and end walls shall be carpeted throughout for sound deadening purposes and passenger comfort.

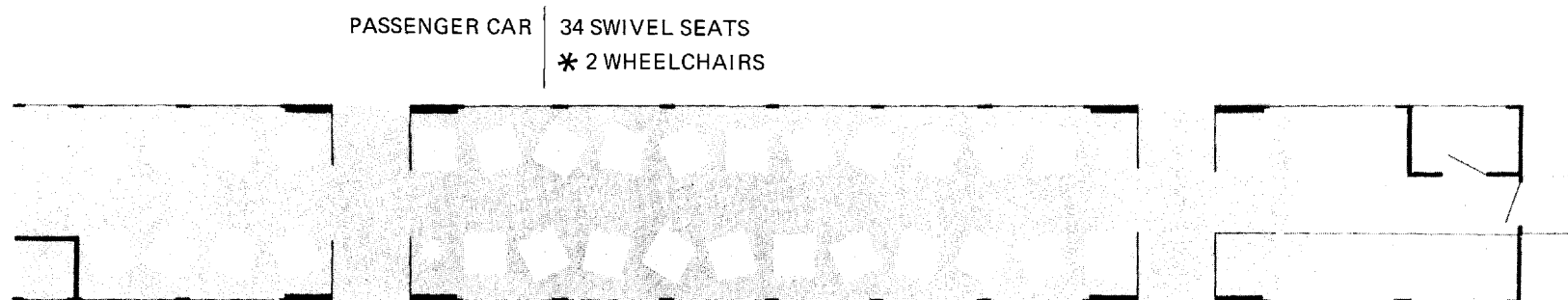
NOISE LEVELS:

Interior of empty car at 85 mph—70 dB(A)

Exterior at 85 mph on ballast track—80 dB(A) at a distance of 50 feet

TRUCKS:

Inside frame with air suspension, rubber chevrons and resilient wheels.



THE BUSES

THE BUSES

The provision of an expanded and more efficient bus system is an integral part of the Regional Transportation Development Program and specifically the rail element.

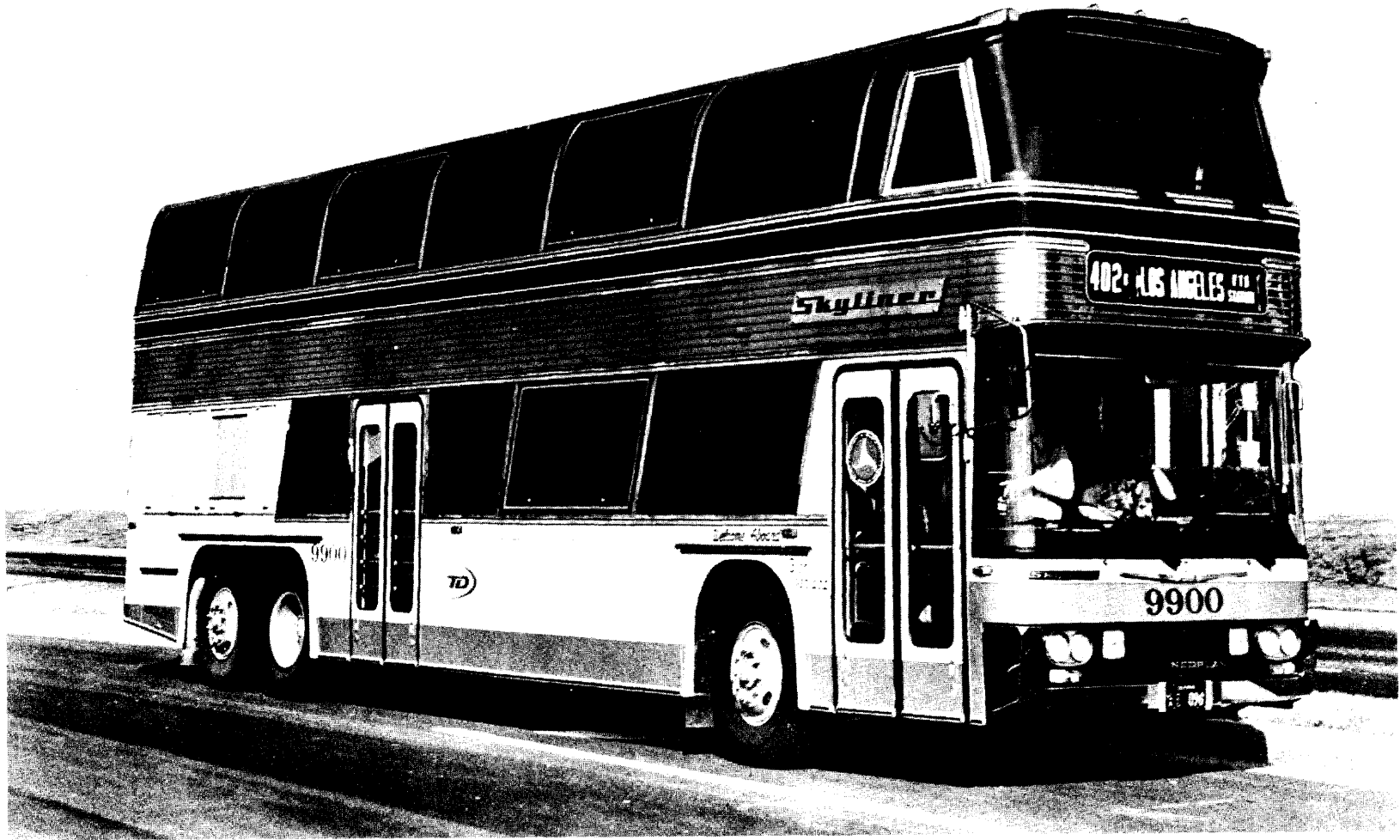
The efficient operation of the rail system can best be accomplished, and the general mobility of the public greatly increased, if several substantial improvements are made to the bus service in the region. The grid systems can be improved by replacing standard buses on certain high density lines with either double-deck or articulated high-capacity buses. Additionally, the grid systems should be modified so as to focus their lines at the rail transit stations, to provide the maximum degree of interchange between the two modes.

Another means by which the general level of transit service to the public can be maximized is through the incorporation of community level transit services. These lines, to be developed by the public in conjunction with the overall planning process, will provide a high degree of circulation potential at the local level. This might occur in the commercial areas of the communities in the County, and as service for the major public attractions such as college campuses, major sport facilities or tourist locations. These services can also be integrated with the rail system through increased access to the stations by connecting to outlying parking facilities.



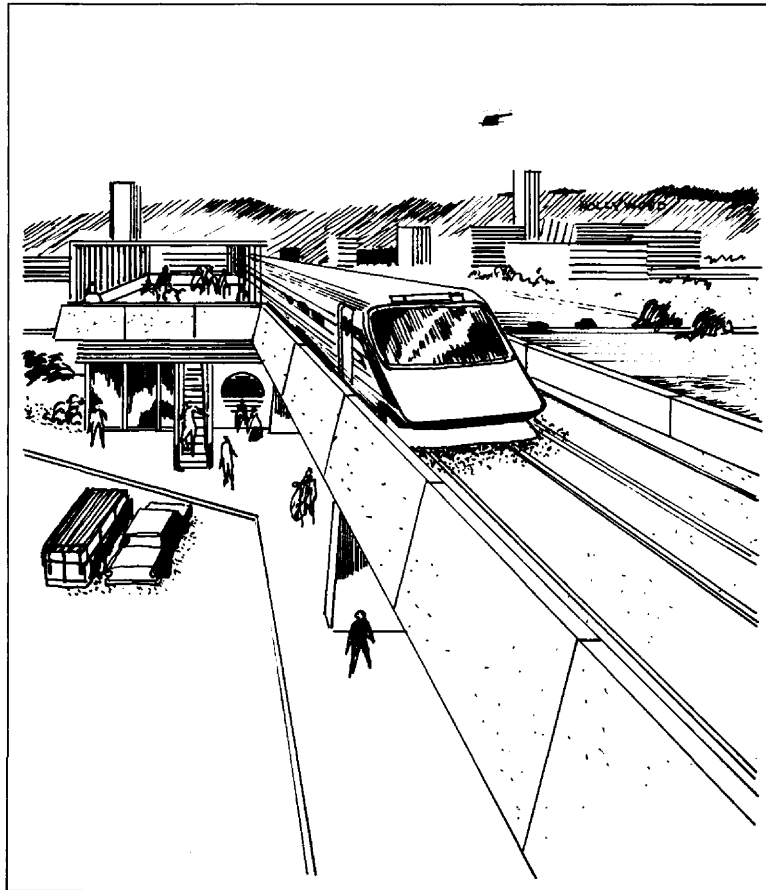


SUNSET, LTD.

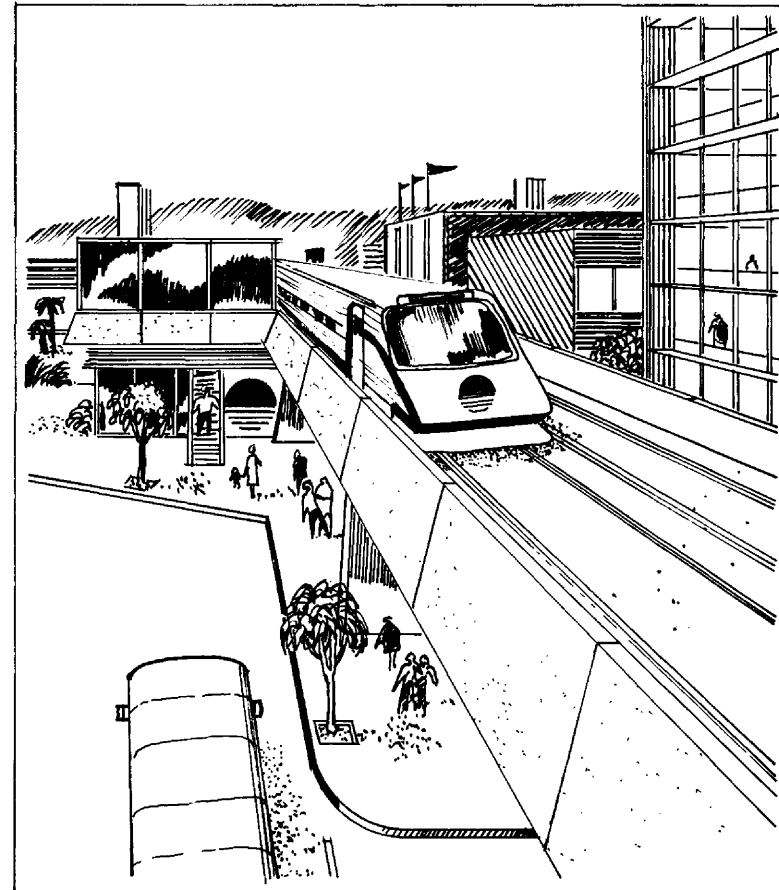


ECONOMIC DEVELOPMENT

This discussion of transit, as it relates to economic development, has been drawn from the position of the Urban Mass Transportation Administration (UMTA), which for several years has encouraged American cities seeking Federal aid to join with the private sector in the design of commercial functions adjacent to transit situations.



STATION STOP WITHOUT JOINT DEVELOPMENT



SAME STATION STOP WITH JOINT DEVELOPMENT

Transit projects will be among the most expensive capital improvements which will be constructed in Los Angeles County in the foreseeable future. This raises an important challenge: How can we assure ourselves that we obtain the maximum possible benefits from this significant investment?

To meet this challenge, a transit system in Los Angeles County must be viewed as more than simply an efficient mover of people. Transit investment must serve multiple public policies. It must be planned within the context of overall community economic development strategies and promote a broader range of objectives, such as reversing community blight and decay, encouraging orderly suburban and downtown development, and increasing municipal revenues.

Joint development is the mechanism through which transit investment can serve these broader public purposes for Los Angeles County residents. Joint development refers to the multiple use of transportation corridors and stops so as to maximize the economic return on public investment and to achieve an improved environmental relationship between transportation and adjacent land uses. Since transportation is generally a public sector responsibility and land development primarily a private function, joint development requires a successful partnership between both sectors to effect a proper interrelationship between transportation and land use.

Joint development can act as a catalyst for community economic development by simultaneously serving a number of purposes:

Increased convenience and amenity for transit users through better design. Transit stations and related development will be designed to create an attractive environment for users and to facilitate movement among different transportation modes and between the station facility and surrounding uses. While good design is always an objective of transit construction, joint development increases the possibility for its successful execution in several ways:

A higher level of investment may be available for these improvements because of the potential for value capture, which will be discussed in detail later.

Joint development seeks to maximize the level of activity and pedestrian movement, to provide a greater range of personal services and other conveniences.

Direct connections to other transportation modes and surrounding buildings are more likely where these have been jointly planned and developed.

Increased transit ridership and benefits for adjacent residents, businesses and workers. Areas immediately adjacent to transit stations should contain or be developed with uses that both benefit from and support transit usage. In most cases, this condition implies the location of transit stops in moderate to high density activity settings, whether the station be downtown Los Angeles or in suburban areas. Stations should also intercept other types of travel to maximize activity levels and transit usage.

The joint development of horizontal movement systems has sometimes been compared with the most common vertical movement system—the elevator. No builder would construct an elevator shaft standing in isolation of any structure around it. The elevator and the building are designed and constructed simultaneously, each integrally relating to the other. Ideally speaking, the joint development of transit stations also requires simultaneous design and development.

Value capture. Transit development, by improving the accessibility of some parcels of land relative to others, sometimes produces measurable increases in the value of land surrounding a station. These increments may be realized immediately or they may take years to develop. Traditionally, such value increases have been “windfalls” for private landowners who benefit economically from publicly financed improvements.

Joint development may include mechanisms to recapture for public use these transit-induced values. The recaptured portion may then be applied to financing either part of the transit system itself or transit-related improvements, if not directly returned to the municipal

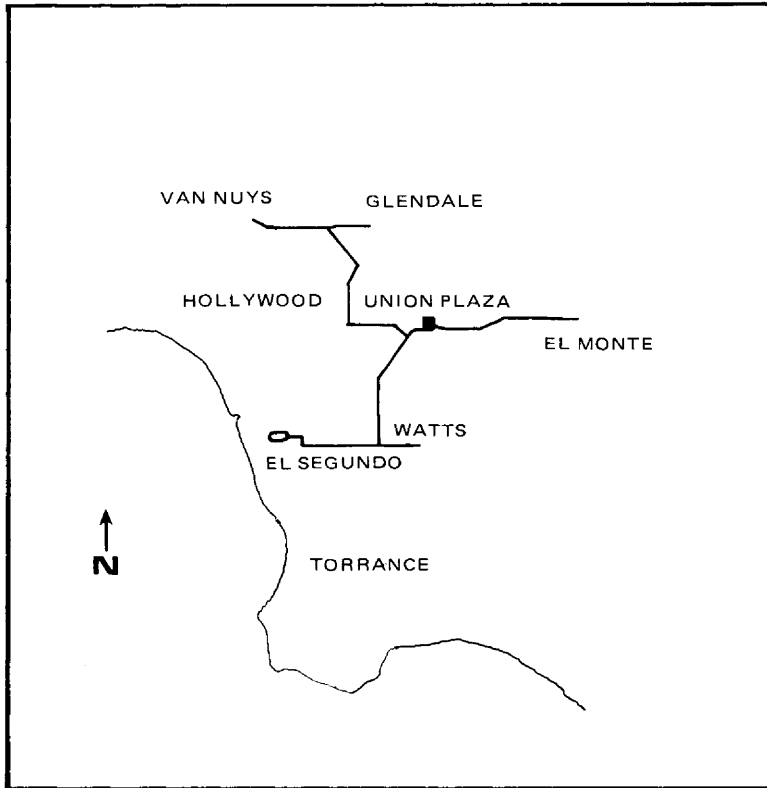
treasury. Through value capture techniques, the public is able to maximize the use of its limited transit dollars.

Maximize private investment. If the public benefits of joint development seem substantial, they are equally great for the private developer and investor. An analysis of historical examples of joint development demonstrates that the private sector understood the benefits and techniques of such projects long before joint development became a focus for public policy.

In recent years, private sector interest has also been stimulated by the opportunity for sharing the risks of development with public agencies. Joint development of transit sites provides a major opportunity for the renewal of decaying areas in Los Angeles County, such as the Watts-Willowbrook neighborhood and, with proper public inducements, private capital can be successfully attracted.

For Los Angeles County to use its transit dollars most productively, these expenditures should be integrated with other federally funded programs, such as housing and job development programs. Next, these various sources of public investment should be allocated so as to maximize their impact in stimulating much greater amounts of private investment, particularly in older urban areas suffering from blight and deterioration and in major activity centers where people can live, work, shop and enjoy themselves in an attractive, energy-efficient environment.

THE FINAL QUESTION



LOS ANGELES COUNTY TRANSPORTATION COMMISSION – RAPID TRANSIT – Shall the voters of the County approve an ordinance authorizing a ½ percent sales tax for funding and setting the following policies in providing a mass transit system?

- that a rapid transit system approximately 57 miles long be built, substantially in conformity with the map at left;
- that the system use primarily existing surface rights of way, such as freeways;
- that the system be built primarily on or above the surface of the ground;
- that the funding be divided on a ten to six ratio between rail and bus transportation;
- that the greater percentage of the funding be allocated to the rapid transit system annually until its construction is completed;
- that the remainder of the available revenue be used to acquire buses as necessary and provide operational support.

YES	➔	<input checked="" type="radio"/>
NO	➔	<input type="radio"/>