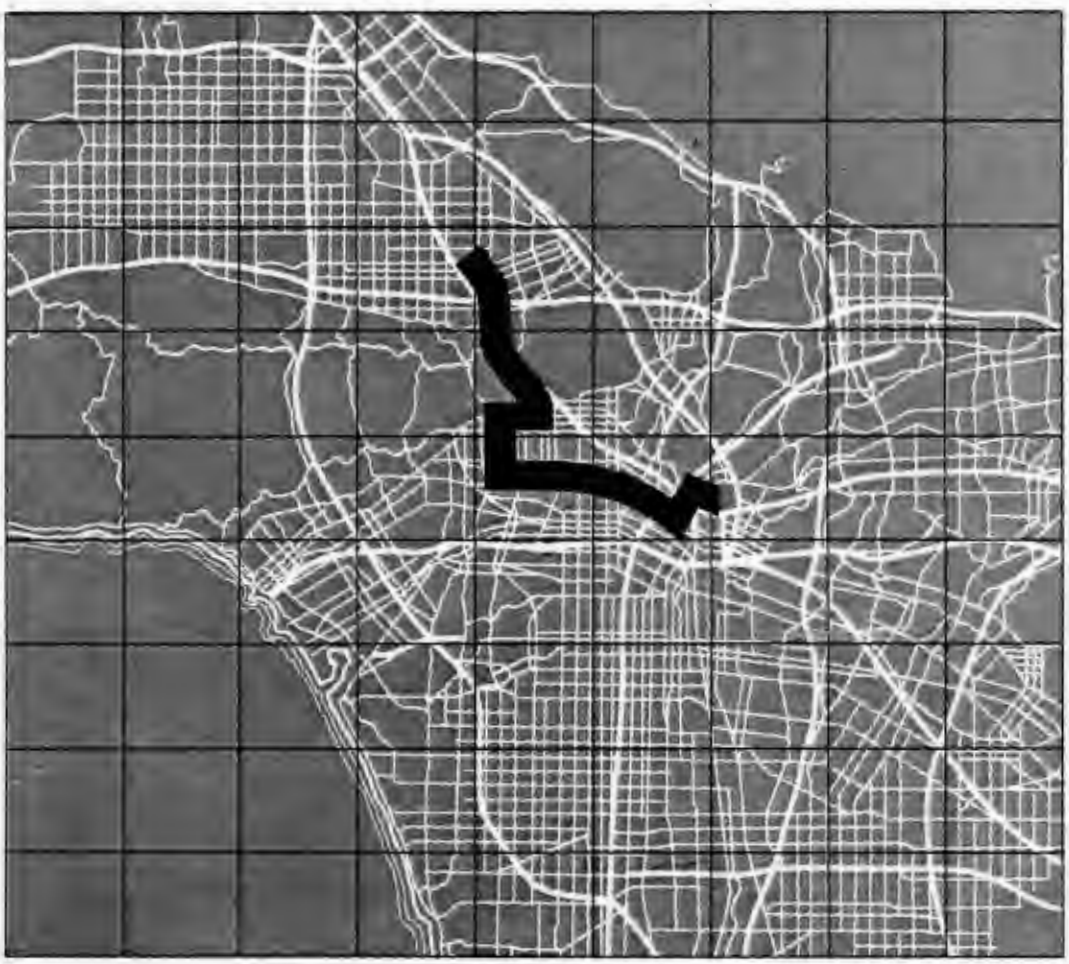
FINAL

ENVIRONMENTAL IMPACT REPORT



Los Angeles Rail Rapid Transit Project
Metro Rail

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
NOVEMBER 1983

RTD

FINAL

ENVIRONMENTAL IMPACT REPORT

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
LOS ANGELES RAIL RAPID TRANSIT PROJECT
"METRO RAIL PROJECT"
LOS ANGELES, CALIFORNIA

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FINAL ENVIRONMENTAL IMPACT REPORT

Pursuant to California Environmental Quality Act, State Public Resources Code, Division 13, Section 21000 et. seq.

RESPONSIBLE AGENCY

Southern California Rapid Transit District

TITLE OF PROPOSED ACTION

Los Angeles Rail Rapid Transit Project ("Metro Rail Project")

ABSTRACT

The proposed rail rapid transit project is an 18.6 mile subway including 18 stations. Known locally as the Metro Rail Project, it would run from Union Station through downtown, west along the Wilshire Corridor, and then north through the Fairfax community and West Hollywood. The line would proceed eastward to serve Hollywood and continue through the Cahuenga Pass to the San Fernando Valley, where station locations are proposed at Universal City and North Hollywood. A No Project Alternative, an 8.8 mile "Minimum Operable Segment," and the proposed subway with a 2.6 mile aerial segment in the San Fernando Valley have also been defined and evaluated. The project traverses the Los Angeles Regional Core, the densest area of the Southern California metropolitan region. The project would provide much needed transit capacity and substantially reduce travel times through and within the Regional Core. The primary impact areas identified in this Final EIR include transportation, land use, socio-economic, and historic resource preservation. Other impact areas include air quality, noise and vibration, energy, and construction activity impacts.

This Final EIR includes a revised version of the Draft EIR; a summary of the comments and recommendations received on the Draft EIR; a list of persons, organizations, and public agencies commenting on the Draft EIR, and responses of the lead agency to significant environmental points raised in the review and consultation process. All references in this Final EIR to "EIS/EIR" should be read as EIR. Changes to the text of the Draft EIR are indicated in this Final EIR by a dashed vertical line in the margin.

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SUMMARY

PROJECT PURPOSE

The proposed project, known locally as the Metro Rail Project, is an 18.6 mile rail rapid transit line designed and located to serve the core of the Southern California region. The urbanized area of this region is the second most densely populated in the country, behind only the urbanized area of New York. By the year 2000, the most intensely developed section, known as the Regional Core, will house approximately one million persons, an increase of nearly 25 percent from 1980. The implications of this level of development for travel are significant. Already congested roadways will have to accommodate a projected travel demand increase in the Regional Core of 25 percent by the year 2000, while bus service, already strained to capacity along certain corridors, is not expected to improve significantly. Thus, a continued reliance on current modes of transportation would diminish the mobility of Regional Core residents and employees.

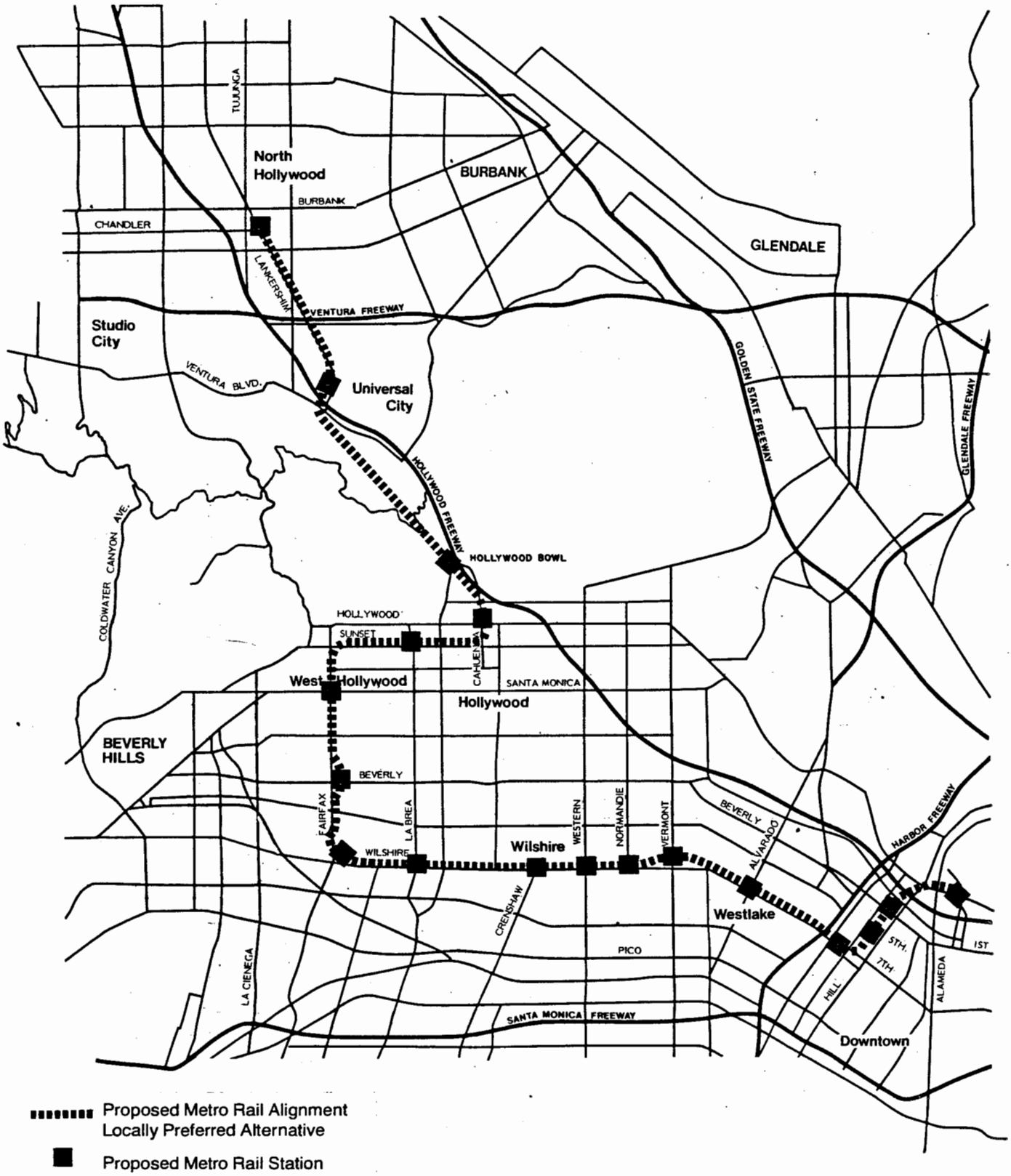
To foster the goals of improving mobility and achieving efficient land use and urban form in the Regional Core, the Southern California Rapid Transit District (SCRTD) is designing a rail rapid transit system. The system extends from the high-rises of the Los Angeles Central Business District (CBD) west along the intensely-developed Wilshire Corridor, and through Hollywood and the Cahuenga Pass to the San Fernando Valley. The rail project would help achieve regional and local goals relating to air quality, energy conservation, transportation, and land use.

The proposed rail rapid transit evolved from earlier work performed by SCRTD. The previous analysis considered eleven alternatives that included various combinations of bus and rail projects and a "do nothing" alternative, and was presented in SCRTD's Alternative Analysis/Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) completed in April 1980, the document provided the justification for more detailed engineering on the identified preferred alternative.

Further work on the system began in 1981 as SCRTD entered the Preliminary Engineering phase of design. A description of the refined rapid transit system and an assessment of its environmental impacts were presented in a Draft EIS/EIR, released in June 1983. During the public review of the Draft EIS/EIR, numerous written comments and oral testimony were received. This report, the Final EIS/EIR, revises the Draft EIS/EIR and contains changes to the project description, as well as responses to the comments received during the public review and comment period.

DESCRIPTION OF ALTERNATIVES

Several alternatives have been considered during the Preliminary Engineering phase for improving travel conditions in the Regional Core. These alternatives include a Locally Preferred Alternative, a Locally Preferred Alternative with an Aerial Option, and a Minimum Operable Segment. The latter two alternatives have been developed with cost reductions as a major consideration. To describe the situation in the year 2000 if no major transit improvements are made, a No Project Alternative



Proposed Metro Rail Alignment
Locally Preferred Alternative

Proposed Metro Rail Station

Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

Figure S-1
Proposed Metro Rail Project and Station Locations

SEDWAY/COOKE
Urban and Environmental Planners and Designers

has also been examined. The following discussion identifies the routes, alignments, station locations, and operating characteristics of each alternative.

LOCALLY PREFERRED ALTERNATIVE

This alternative represents a refinement of the Locally Preferred Alternative adopted in the 1980 Alternatives Analysis/Final EIS/EIR. It evolved as a result of further engineering and environmental analysis and extensive community meetings. The proposed route, all in subway and including 18 stations, is shown in Figure S-1. It begins at Union Station, where it turns southwest and runs through the CBD with stations at First and at Fifth Streets along Hill Street. The route turns west under Seventh Street, with a station at Flower Street. The route then passes the Harbor Freeway, and parallels Wilshire Boulevard to a station at Alvarado Avenue between Wilshire Boulevard and Seventh Street. Proceeding along Wilshire Boulevard, the route serves the Mid-Wilshire and Miracle Mile districts with stations at Vermont (half a block north of the intersection with Wilshire), Normandie, Western, Crenshaw, La Brea, and Fairfax Avenues. Figure S-2 is an artist's concept of the proposed rail system, in subway, under an intensively developed portion of the alignment, such as the Mid-Wilshire area.

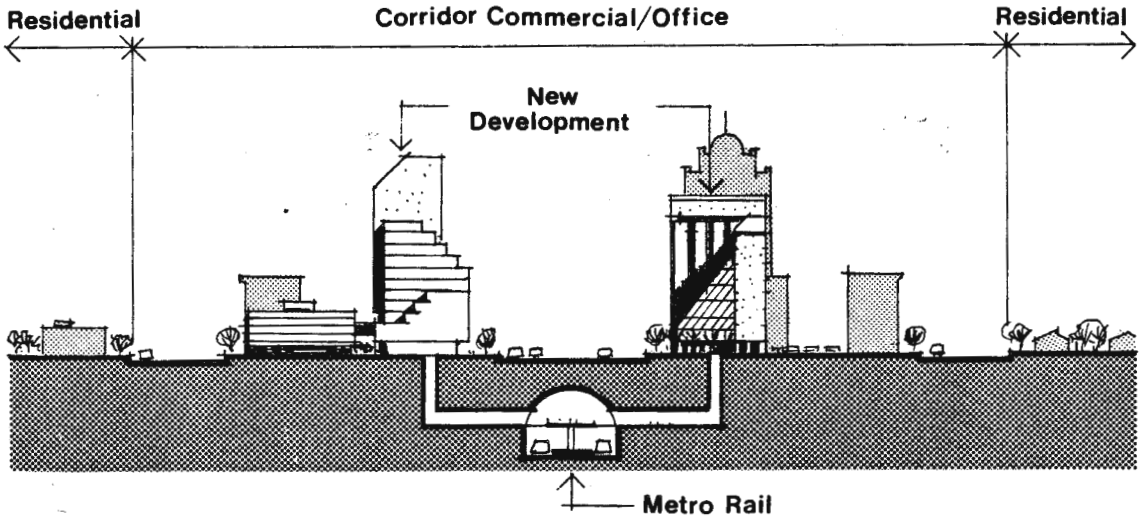


Figure S-2 Prototypical Subway Configuration Under High Density Commercial/Office Corridor

Turning north under Fairfax Avenue, the route serves the Fairfax and West Hollywood communities with stations at Beverly and Santa Monica Boulevards. The alignment turns east under Sunset Boulevard for approximately two miles, north again at Cahuenga Boulevard, and then northwesterly underneath the Hollywood Freeway. Hollywood is served by a station at Sunset Boulevard and La Brea Avenue, one at Cahuenga and Hollywood Boulevards, and a third station at the Hollywood Bowl at Odin and Highland Avenues. The tunnels of the subway system pass deep under the Santa Monica Mountains just west of the Cahuenga Pass, jog northeast to a station across Lankershim Boulevard from Universal Studios, and continue under Lankershim Boulevard to a North Hollywood terminal station. Figure S-3 depicts the

subway passing under a commercial strip surrounded by single family residential areas, as might be found in North Hollywood.

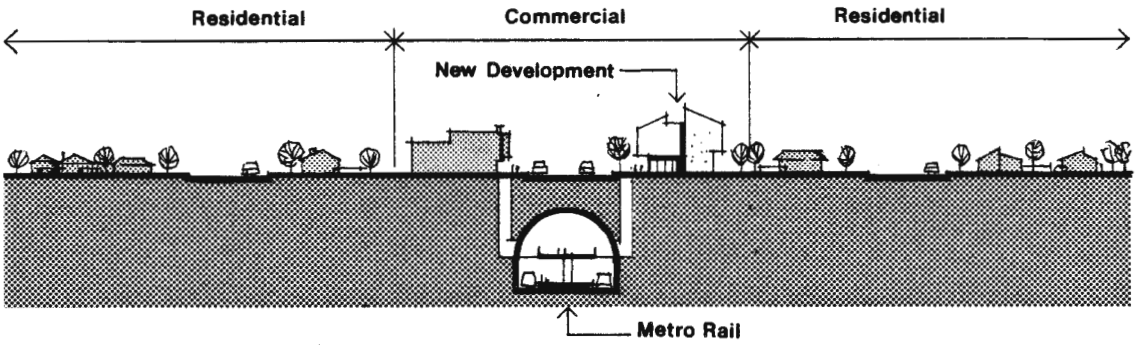


Figure S-3 Prototypical Subway Configuration Under Commercial Strip

The system's main storage yard and maintenance facility are at ground level along the west bank of the Los Angeles River just south of Union Station. The north end of the line will be extended 500 feet in subway for operating storage of up to three 6-car trains so that the system can start in the morning from both ends. Primary access to the rail line will be by bus. Considerable attention during the Preliminary Engineering phase has been devoted to revising the existing bus service to offer more convenient bus-rail connections. Peak service requirements would be 1,969 buses. Bus terminals will be provided at nine stations, and on-street bus turnouts at 10 stations. Provisions for auto access include park and ride facilities at five stations, and passenger drop-off (kiss and ride) areas at five stations. The park and ride facilities are planned to be surface lots initially, with parking structures constructed later at these same locations when alternative funding sources are identified.

LOCALLY PREFERRED ALTERNATIVE WITH AERIAL OPTION

Although subways minimize environmental impacts and avoid business and pedestrian disruption in dense urban areas, the costs of subways are high. Outside the densest areas, construction above ground or at the surface would result in lower capital costs. The Aerial Option has the same alignment and stations all in subway from Union Station to the San Fernando Valley. In the San Fernando Valley, however, the alignment would be on an aerial structure, emerging from the north slope of the Santa Monica Mountains and proceeding to an aerial station at Universal City. Leaving Universal City, the trains would travel on the elevated structure along Lankershim Boulevard to

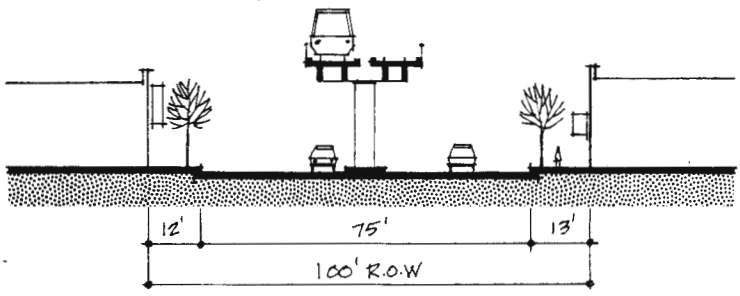


Figure S-4 Prototypical Aerial Configuration

the terminal station at Lankershim and Chandler Boulevards. Figure S-4 illustrates the rail system operating in an aerial guideway. The complementary bus network and parking facilities are the same as for the Locally Preferred Alternative.

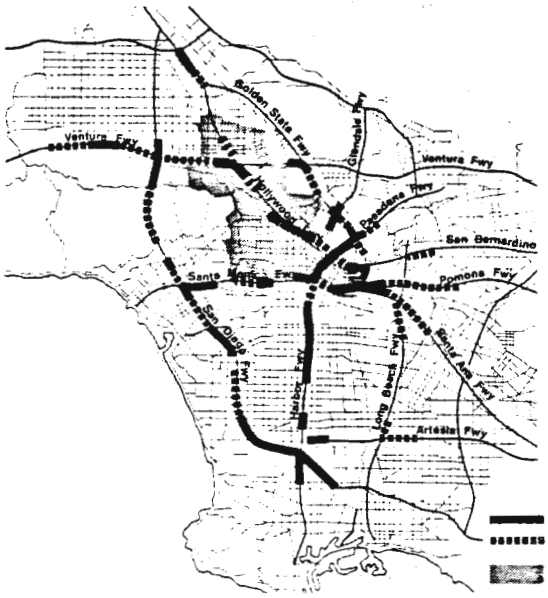
MINIMUM OPERABLE SEGMENT

Where federally assisted rail lines are planned, federal policy requires that the system be built in stages. This incremental approach to constructing urban rail transit is aimed at ensuring that high priority corridors receive attention and that appropriate balance is maintained between the transportation requirements of the entire region and those of local communities within the region, and between long range and short range needs for transportation improvements. Accordingly, a Minimum Operable Segment has been defined. This alternative is identical to the Locally Preferred Alternative from the main yard in the CBD to the Fairfax/Beverly Station. Over the 8.8-mile route, the system would stop at 12 stations. It would have a supporting bus network of 2,197 peak hour buses. Five stations would have bus terminals and eight would have on-street bus turnouts. Park and ride facilities would be provided at three stations, and a passenger drop-off area at four.

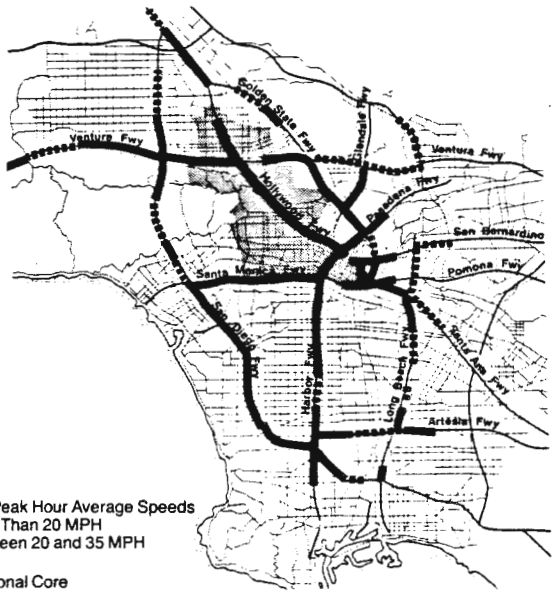
NO PROJECT ALTERNATIVE

Without a rail rapid transit system, travel in the Regional Core would continue to be served by the existing street network and bus system. Peak hour traffic demand volumes on freeways in the vicinity of the Regional Core will substantially exceed capacity over nearly all segments, resulting in a worsening of freeway congestion as seen in the illustration below.

Freeway Congestion, 1981



Estimated Freeway Congestion, 2000



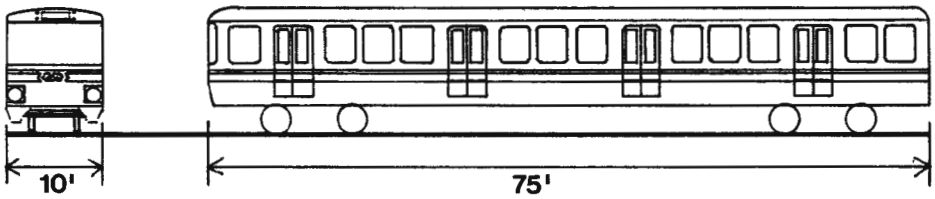
The arterial street system, which currently handles the majority of travel in the Regional Core, is expected to carry an even greater share of the traffic in the year 2000. The bus system will be expanded by about five percent above current peak hour requirements, and will include the present-day bus service plus the remaining projects contained in the Sector Improvement Plan. This plan is SCRTD's adopted program for bus service improvements and contains projects such as:

- Creating a simpler grid system from bus lines that had their origin in the first streetcar systems established in Los Angeles.
- For that grid system, establishing continuous bus lines on major streets such as Sunset Boulevard, Santa Monica Boulevard, and Third Street.
- Adding bus service on north-south "crosstown" streets, previously unserved.
- Revising the system of bus line numbers.
- Peak hour bus operations of 2,209 buses.

KEY SYSTEM CHARACTERISTICS

RAIL PROJECT ALTERNATIVES

The proposed rail line will use proven two-track, steel wheel, and steel rail components. The vehicles, approximately 75 feet long and 10 feet wide, are designed to comfortably accommodate 170 passengers, but they can hold 231 passengers during heavy peak periods. Six vehicles will be linked to form a train. Each train would have an approximate passenger capacity between 1,000 and 1,400.



Average daily rail transit ridership in the year 2000 is forecast to be 364,000 boardings with the Locally Preferred Alternative (aerial or subway) and 261,000 with the Minimum Operable Segment. A ride from North Hollywood to Union Station on the full-length rail project will take about 35 minutes, including station stops. Additional data on the rail alternatives are shown in Table S-1.

All but a few portions of the subway will be tunneled, thus involving little or no surface disruption. Station structures (and, in some locations, adjacent crossovers, pocket tracks, vent shafts, or ancillary structures) will need to be constructed by cut and cover methods involving excavation. A temporary decking will be erected in place of the street's pavement. Excavation and station construction will then continue underneath this decking while limited street service is resumed above. Regular service can be provided on cross streets, while streets under which the

TABLE S-1

COMPARISON OF PROJECT ALTERNATIVES

System Characteristics	No Project Alternative	Locally Preferred Alternative	Locally Preferred Alternative with Aerial Option	Minimum Operable Segment
RAIL				
System Length	N.A.	18.6 miles	18.6 miles	8.8 miles
Alignment	N.A.	all underground	86% underground 14% aerial	all underground
Number of Stations	N.A.	18	18	12
Daily Boardings[1]	N.A.	364,000	364,000	262,000
Daily Passenger Miles	N.A.	1,580,000	1,580,000	704,000
Round Trip Train Time (in minutes)	N.A.	70	70	43
Total Capital Costs (in 1983 dollars)	N.A.	$2,468,600,000	$2,411,415,000	$1,543,900,000
Total Capital Costs Escalated at 7% to midpoint of design/ construction packages[2]	N.A.	$3,384,000,000	$3,299,700,000	$2,133,500,000
Annual Operating and Maintenance Costs (in 1983 dollars)	N.A.	$48,500,000	$48,500,000	$31,900,000
BUS				
Buses Required for Peak Hour Service	2,209	1,969	1,969	2,197
Daily Boardings	1,967,000	2,065,000	2,065,000	2,169,000
Daily Passenger Miles	6,965,000	6,711,000	6,711,000	7,441,000
Total Capital Costs[3] (in 1983 dollars)	$331,400,000	$295,400,000	$295,400,400	$329,600,000
Annual Operating and Maintenance Costs (in 1983 dollars)	$526,100,000	$447,300,000	$447,300,000	$488,300,000
TOTAL				
Daily Transit Boardings	1,967,000	2,429,000	2,429,000	2,431,000
Daily Passenger Miles	6,965,000	8,291,000	8,291,000	8,145,000

Source: SCRTD Planning and Metro Rail Departments.

N.A. - Not applicable.

[1]Patronage estimates for bus and rail are contained in Milestone 9 Report: Supporting Services Plan (SCRTD, 1983). See Chapter 2, section 3.9.3, for a discussion of the cost effectiveness of the alternatives and the sensitivity to patronage estimates.

[2]See Chapter 2, Section 2.2.6, for the impact of a delay in construction schedule on the total capital costs.

[3]These costs only reflect the initial investment for one fleet of buses (for service plus 10 percent spares) with a projected economic life of about 12 years. Two replacement fleets would be required over the Metro Rail Project life. The bus fleet costs are shown for information and analysis only.

runs will have limited service. The excavation will then be backfilled and the street surface replaced after the station structure has been completed.

For all Project alternatives storage, maintenance, and repair will be performed at a main yard and shop on a site east of the CBD, between the Santa Fe Railway and Santa Fe Avenue. Rail tracks will be provided at the other end of the system for operating storage only.

Estimated cost of construction for the Locally Preferred Alternative would be $2.47 billion (in constant 1983 dollars). The costs for the Locally Preferred Alternative with the Aerial Option would be $2.41 billion and for the Minimum Operable Segment, $1.54 billion. Of these totals, approximately 62 percent is proposed for federal funding. The balance would be locally funded, using primarily state Proposition 5, SB 620, and county Proposition A funds.

NO PROJECT ALTERNATIVE

Congestion in the Regional Core will increase substantially as total vehicle miles traveled in the Regional Core are projected to grow from 14.2 to 17.8 million daily by the year 2000, an increase of 25 percent over existing conditions. Twice as many of the Regional Core's intersections will have deteriorated to unsatisfactory levels of service compared to 1980. The 1983 peak hour service requirement of 2,100 buses would be expanded only marginally (just over 100 buses) due to financial limitations. Estimated capital costs for the bus fleet total $331.4 million. As a result, ridership on the bus system would increase to 2.0 million daily boardings (an increase of about one third) by the year 2000. These additional buses would not likely improve the level of transportation service in the Regional Core since they will also have to travel on the extremely congested street system.

EVALUATION OF ALTERNATIVES

Total transit ridership (rail and bus) would be virtually the same under the rail alternatives, but rail boardings would make up a greater share of total transit boardings under the Locally Preferred Alternative than under the Minimum Operable Segment (15 percent compared to 11 percent). In each case total transit boardings would be nearly 25 percent higher than the No Project Alternative. Under the Locally Preferred Alternative and Aerial Option, 364,000 passengers would board Metro Rail daily (107.4 million annually). Under the Minimum Operable Segment, about 261,000 daily boardings (77.0 million annually) are projected. As a result, under the Locally Preferred Alternative and the Aerial Option, 1.12 million auto vehicle miles traveled per day would be diverted to transit. Some of this diversion would be to the improved bus network which results from the reallocation of buses made possible by the rail project. Under the Minimum Operable Segment, 1.06 million auto vehicle miles traveled per day would be diverted. These changes in travel patterns and mode choice have direct, long term impacts upon land use efficiency, transportation system viability, and the economic and fiscal attributes of the Regional Core. To a lesser extent, energy efficiency and air pollution abatement would also be affected by changes in travel patterns and mode choice. For the

Project alternatives, these impacts are all, on balance, positive in comparison with the No Project Alternative.

The Aerial Option could represent a savings in capital costs relative to the Locally Preferred Alternative, but it results in considerably greater residential displacement, noise, and visual disruption of the communities in the San Fernando Valley. The Minimum Operable Segment costs less than two-thirds as much to construct as the Locally Preferred Alternative, but it does not provide the stimulus for economic revitalization in Hollywood and North Hollywood, nor the much needed additional transportation capacity through the Cahuenga Pass. The Project alternatives also have short term construction impacts, some of which are significant or potentially significant. Some, such as construction employment and its related effects, are substantial positive impacts. Others, such as station area excavation, are adverse, and depending upon the success and speed of decking techniques used, could be significant. The No Project Alternative would cause none of these effects. Both long term and short term effects are summarized below.

LOCALLY PREFERRED ALTERNATIVE

LONG TERM BENEFICIAL EFFECTS

Transportation and Traffic. The rail system will attract 364,000 daily boardings. Along with the supporting bus network, this would result in a substantial increase in transit travel and a rise in transit's share of total trips from 3.3 percent to 3.8 percent. Total transit operating costs per passenger would decrease from 87 cents to 67 cents and revenues per passenger would increase from 41 cents to 46 cents, resulting in a reduced net operating subsidy of 21 cents per passenger.

Mobility in the Regional Core community, availability of commercial services, and accessibility to both commercial and public facilities would all be improved as a result of the Locally Preferred Alternative. Traffic conditions are projected to improve at over half of the Regional Core's key street intersections. A reduction of 1,119,000 automobile vehicle miles traveled (VMT) per day is expected.

Land Use and Development. The land use and environmental policies of local and regional plans would be supported by the Locally Preferred Alternative. It serves 12 of the designated centers within the Regional Core, where Southern California Association of Governments, the county and the city in their land use plans call for increased residential and commercial development and density. This alternative, compared to the No Project Alternative, could help accommodate an additional 26.7 million square feet of commercial development and an additional 99,200 employees in the Regional Core by the year 2000.

An additional $8.1 million in property tax revenues and $.5 million in sales tax revenues will accrue to the City of Los Angeles in the year 2000 as a result of new development in conjunction with this alternative. The county will also realize benefits from increased property and sales tax revenues from growth in the unincorporated areas. These figures do not take into account the loss of property tax revenues from parcels acquired by SCRTD for the project. However, estimates of this loss are negligible (less than 5 percent) relative to increases in property tax revenues from the new development. With development incentives to encourage

joint development on SCRTD property around stations, property tax revenues could increase to $14.1 million and sales tax revenues to $1.2 million.

An intensive effort by SCRTD and local jurisdictions to encourage development of parcels that had been acquired for construction of Metro Rail facilities could generate an annual lease income to SCRTD of about $6.7 million, assuming a simple ground lease rate of 9 percent. Recently enacted legislation, enabling the formation of benefit assessment districts around Metro Rail stations, could generate between $26.3 and $52.6 million for SCRTD in the year 2000.

Physical Environment. Under the Locally Preferred Alternative, a reduction of almost 7.9 tons a day in the Los Angeles region of vehicular emissions of carbon monoxide and lesser reductions in reactive hydrocarbons, oxides of nitrogen, sulfur dioxide, and suspended particulates would be realized. While this is a positive benefit of the project, these reductions only represent minor improvements in overall regional air quality.

The Locally Preferred Alternative would save an estimated 2,326 billion British thermal units (BTUs) per year in transportation energy demand. This demand includes both construction and operation energy over the life of this project; although, when compared to total energy use in the region, this savings is relatively minor.

LONG TERM POTENTIAL ADVERSE EFFECTS

Transportation and Traffic. Additional traffic is projected on local collector streets near Metro Rail stations. Metro Rail patrons looking for parking may intrude into adjacent residential areas or use parking normally available for customers or employees immediately adjacent to stations.

Land Use and Development. Metro Rail construction for the Locally Preferred Alternative would directly displace an estimated 201 residential units, 197 businesses, and 5 nonprofit organizations. Intensification of land uses around particular station locations could also adversely affect established residential and commercial patterns.

Land speculation could occur in some CBD station areas, as well as the Wilshire/Fairfax area, where there is limited supply of land relative to demand. Reinvestment in commercial and residential improvements will escalate rents around station sites at a more rapid rate with the Locally Preferred Alternative than would otherwise occur. This, in turn, could result in some lower income renters and some marginal business operations having to relocate further away from the station site.

Physical Environment. With the Locally Preferred Alternative, carbon monoxide concentrations are expected to increase at the local level, particularly at station locations where parking structures are proposed. Up to eight sites might also experience ground-borne noise impacts unless special mitigation measures can be implemented.

Cultural Resources. The Locally Preferred Alternative will adversely affect one property on the National Register of Historic Places (Union Station) and three properties eligible for inclusion (Title Guarantee Building, Pershing Square Building, and Hancock Park/La Brea Tar Pits). Known archaeological resources at Union

Station may be encountered during construction of the crossover tracks north of the Metro Rail station. Initial studies by SCRTD indicate the Wilshire/Fairfax Station is sited near an area of extremely high paleontological sensitivity, the La Brea Tar Pits.

The rail project would require the use of parklands, as defined by Section 4(f) of the Department of Transportation Act of 1966, at the Court of Flags, Pershing Square, and Hollywood Bowl. Construction of station facilities at Universal City, while not using Campo de Cahuenga parklands, may also adversely affect the site.

SHORT TERM CONSTRUCTION IMPACTS

Transportation and Traffic. Increased traffic congestion in the vicinity of station construction sites is expected, and station environs may be affected by parking related to construction activity where off-street equipment yards are not established.

Land Use and Development. Between 3,000 and 5,000 jobs would be generated per year during the construction period of the Locally Preferred Alternative. During this construction period, approximately 6,500 feet of commercial frontage will be disrupted by cut and cover construction activity. Substantial disruption, prior to the installation of the street decking and during its removal, will occur over a priod of months. Commercial establishments fronting on streets under which the subway runs will also experience disruptions to parking and deliveries during construction.

Physical Environment. Dust, noise, and vibration impacts will occur adjacent to cut and cover construction sites, such as stations and ancillary facilities. These impacts will also occur along routes used for muck removal. Construction of the Locally Preferred Alternative will generate about 6.55 cubic million yards of excavated tunnel and station materials, a portion of which will need to be retrieved for backfilling after the completion of line and station construction. Temporary increases in air pollution from construction equipment are also expected.

LOCALLY PREFERRED ALTERNATIVE WITH AERIAL OPTION

LONG TERM BENEFICIAL EFFECTS

Long term beneficial effects are approximately the same as those of the Locally Preferred Alternative. The differences include 62 billion BTUs in additional annual energy savings, $57.2 million savings in capital costs, and 14 fewer businesses and two fewer nonprofit organizations displaced.

LONG TERM POTENTIAL ADVERSE EFFECTS

Long term potential adverse effects are similar to those of the Locally Preferred Alternative. Additional impacts of the Aerial Option are summarized below.

Land Use and Development. Under this alternative, an additional two dwelling units would be directly displaced. The elevated structure would be incompatible in scale with structures along the entire Aerial Corridor, would be close enough so that

building inhabitants would feel their privacy violated, and would hamper circulation along Lankershim Boulevard. To mitigate these impacts would require substantially more land acquisition along the Aerial Corridor, which would result in a significant reduction in the cost savings attributed to this alternative.

Physical Environment. Noise levels would exceed adopted criteria at an additional 30 single family homes and 10 apartment buildings.

Cultural Resources. The Aerial Option would affect the same historic, archaeological and paleontological resources as the Locally Preferred Alternative, plus an additional 10 potentially historic structures along the aerial segment.

SHORT TERM CONSTRUCTION IMPACTS

Short term construction impacts of the Aerial Option are similar to those of the Locally Preferred Alternative, with the following differences:

Transportation and Traffic. Traffic will be disrupted along the entire Aerial Corridor rather than at just the station locations.

Land Use and Development. Construction of the aerial segment, more than 2-1/2 miles long, would disrupt commercial properties along the entire length of Lankershim Boulevard.

Physical Environment. Construction will generate approximately 20 percent less excavated tunnel and station materials.

MINIMUM OPERABLE SEGMENT

LONG TERM BENEFICIAL EFFECTS

Transportation and Traffic. The rail system will carry 261,000 daily boardings. This ridership, along with that of the supporting bus system, would increase total transit travel more than 20 percent and result in an increase in transit's share of total trips from 3.3 percent to 3.8 percent. Total transit operating costs per passenger would decrease to 70 cents, and revenues per passenger would increase to 43 cents, resulting in a reduced net operating subsidy of 27 cents per passenger.

Mobility in the CBD and along Wilshire Corridor will be improved, as would accessibility to commercial and public facilities in these areas. The Minimum Operable Segment Alternative would realize a reduction of 1,059,000 automobile vehicle miles traveled per day. An estimated annual savings of 2,295 billion BTUs per year in regional transportation energy demand can be achieved under this alternative. This includes the construction and operating energy required by the project.

Land Use and Development. The Minimum Operable Segment directly serves eight of the Regional Core's 13 designated centers and would better accommodate the planned increase in Regional Core housing supply that is desired by SCAG, the county, and the city. Compared to the No Project Alternative, an additional 18.9

million square feet of commercial development and an additional 96,800 employees could be accommodated in the Regional Core by the year 2000.

Development in conjunction with this alternative could result in increases of $6.6 million in property tax revenues and $.4 million in sales tax revenues for the City of Los Angeles. These estimates increase modestly when revenues accruing to the county are added. These figures do not account for the loss of tax revenues that results when SCRTD acquires land for the project. However, the estimated losses are negligible compared to the increased revenues from the new development. With development incentives to encourage joint development on SCRTD property around stations, property tax revenues could increase to $12.6 million and sales tax revenues to $.8 million in the year 2000.

SCRTD through joint use of its properties by developers after Metro Rail facilities have been constructed could realize about $1.9 million annually, assuming ground leases at 9 percent. In addition, the formation of benefit assessment districts could enable SCRTD to realize between $25.7 and $51.4 million in benefit fees in the year 2000.

Physical Environment. With this alternative a reduction of 7.5 tons a day in the Los Angeles region of vehicular emissions of carbon monoxide and lesser reductions in reactive hydrocarbons, oxides of nitrogen, and suspended particulates would be realized. On a regional basis, these reductions offer only modest benefits in air quality.

LONG TERM POTENTIAL ADVERSE EFFECTS

Transportation and Traffic. The Minimum Operable Segment would fail to provide the much-needed increase in capacity between the San Fernando Valley and the downtown and the Wilshire areas.

Land Use and Development. By terminating in the Beverly/Fairfax community, this alternative would not serve the revitalization efforts of the Hollywood and North Hollywood commercial cores. An estimated 24 dwelling units and 77 commercial establishments would be directly displaced, and some land speculation would occur in the CBD and in the Wilshire/Fairfax area.

Physical Environment. Under the Minimum Operable Segment, carbon monoxide levels are projected to increase where traffic congestion is expected to worsen, particularly around stations with proposed parking structures. Two theaters would occasionally experience ground-borne noise levels above the noise criteria for such uses, unless special mitigation measures can be implemented.

Cultural Resources. The same four historic properties adversely affected by the Locally Preferred Alternative would be affected by the Minimum Operable Segment. Similarly, there exists a high potential for encountering archaeological resources at Union Station and paleontological resources near the Wilshire/Fairfax Station. Use of the same parklands as identified for the Locally Preferred Alternative would occur, except at Hollywood Bowl and Campo de Cahuenga, which would not be affected.

SHORT TERM CONSTRUCTION IMPACTS

Transportation and Traffic. Traffic will be congested, and pedestrians and motorists will be inconvenienced around station construction sites.

Land Use and Development. Approximately 5,000 feet of commercial frontage will be disrupted by cut and cover construction.

Physical Environment. Disposal of materials excavated during tunnel and station construction will cause noise and traffic impacts. Dust, noise, and vibration impacts between Union Station and the Fairfax/Beverly Station are similar to the Locally Preferred Alternative.

NO PROJECT ALTERNATIVE

LONG TERM BENEFICIAL EFFECTS

Land Use and Development. No direct displacement of business or dwellings in station areas would occur, and stable residential areas would not be threatened by the growth accommodated by Metro Rail.

Cultural Resources. Historic or potentially historic properties would not be adversely affected.

LONG TERM ADVERSE EFFECTS

Transportation and Traffic. With the No Project Alternative, the Regional Core would experience increased auto use, decreased arterial street efficiency, and increased travel times. Operating energy per person mile traveled and per vehicle mile traveled in the Regional Core would increase, with likely increases also in energy consumption per capita and per dollar of gross regional product.

Transit service would be severely compromised as buses are limited to street speeds. Operating costs per transit passenger mile traveled in the Regional Core would be approximately 20 percent higher by the year 2000 as compared with the Locally Preferred Alternative.

Land Use and Development. Under the No Project Alternative, the rapid, high capacity transportation system needed to support adopted land use policies and plans of the city, county, Commnity Redevelopment Agency, and Southern California Association of Governments would not exist.

Commercial housing investment commensurate with the needs of the Regional Core's current population and its over-aged stock of available housing would not likely occur under the No Project Alternative. In addition, a development potential of about 26.7 million square feet of commercial space that could be accommodated in the Regional Core with a rail rapid transit system would be foregone as new investment located in areas with greater accessibility.

Physical Environment. An additional 7.9 tons of carbon monoxide, .6 tons of reactive hydrocarbons, 1.0 ton of oxides of nitrogen, .1 tons of sulfur dioxide, and .3 tons of

suspended particulates would be generated daily in the Los Angeles region over what would occur with the Locally Preferred Alternative in the year 2000.

SHORT TERM CONSTRUCTION IMPACTS

The No Project Alternative would not result in any construction impacts.

AREAS OF CONTROVERSY

- The appropriateness of Metro Rail stations at Crenshaw Avenue and the Hollywood Bowl continues to be debated by the community.

- The Aerial Option has been rejected by the Los Angeles community including many San Fernando Valley residents, because of its visual intrusion, disruption to business, and greater noise impacts. It, however, would provide a level of service equal to the Locally Preferred Alternative, while saving approximately $57.2 million from the Locally Preferred Alternative's $2.47 billion capital costs. Both the cost savings and the impacts on the community continue to be areas of controversy.

- The Minimum Operable Segment is controversial particularly in the Hollywood and North Hollywood communities; both groups would see adoption of the Minimum Operable Segment as detrimental to their efforts at revitalization. The Fairfax community is concerned about the Minimum Operable Segment insofar as a Beverly/Fairfax terminal station might attract additional vehicles through the residential streets north of the station, instead of just from the west along Beverly. On the other hand, this alternative improves travel along the congested Wilshire Corridor and accommodates a large portion of the development projected in conjunction with the Locally Preferred Alternative, at a substantially lower capital cost.

- Traffic and parking impacts around stations, especially those next to residential areas, are a major concern. Disruption of small businesses and shops facing onto cut and cover construction sites is also certain to be a major concern.

ISSUES TO BE RESOLVED

- The Locally Preferred Alternative is estimated to require $2.47 billion in capital costs, escalated to $3.38 billion at the midpoint of the construction packages (at seven percent inflation). SCRTD alone cannot finance such a substantial capital expenditure and will, therefore, require both federal and local funding support. Funding at the federal level is uncertain, depending on budget appropriations, project priorities, and the share local sources are willing to carry. Accordingly, the level of funding is a crucial issue to be resolved at all levels of government.

- Related to the funding issue is the type of transit system SCRTD can build. If the rail project is implemented, which of the alternatives will be selected? Although the alternative preferred by the Urban Mass Transportation Administration (UMTA) of the United States Department of Transportation, SCRTD, and the public calls for an 18.6 mile subway system, the level of federal support may necessitate a less expensive alternative such as the Aerial Option or the Minimum Operable Segment.

MAJOR CHANGES BETWEEN THE DRAFT EIS/EIR AND THE FINAL EIS/EIR

- Inclusion of the Wilshire Crenshaw and Hollywood Bowl Stations as part of the Locally Preferred Alternative and the Locally Preferred with Aerial Option.
- Inclusion of the Wilshire/Crenshaw Station as part of the Minimum Operable Segment.
- Moving the Fairfax/Wilshire Station away from the paleontologically sensitive site in front of the Page Museum to a location behind the May Company Building.
- Deletion of the optional design at Union Station which required a bus turn-around facility between the Union Station building and the railroad tracks.
- Refinement of patronage estimates for all alternatives as well as station access and bus requirements.
- Inclusion of substantive public comments and responses resulting from the distribution of the Draft EIS/EIR and the public hearings.
- Enactment of enabling legislation (Senate Bill 1238) to permit the establishment of Benefit Assessment Districts, which lie in the vicinity of stations.

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CHAPTER 1

PURPOSE OF AND NEED FOR PROJECT

CHAPTER 1

PURPOSE OF AND NEED FOR PROJECT

1. PROJECT LOCATION AND REGIONAL SETTING

The Southern California region, generally defined by the six counties in the Southern California Association of Governments (SCAG)--Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial--covers over 38,500 square miles. Most of the region's population lives in less than one-tenth of the land area, in the Los Angeles Basin between the San Gabriel Mountains and the Pacific Ocean (Figure 1-1). The basin is divided in an east-west direction by the Santa Monica Mountains, which separate the San Fernando Valley from the rest of Los Angeles. Only a few mountain

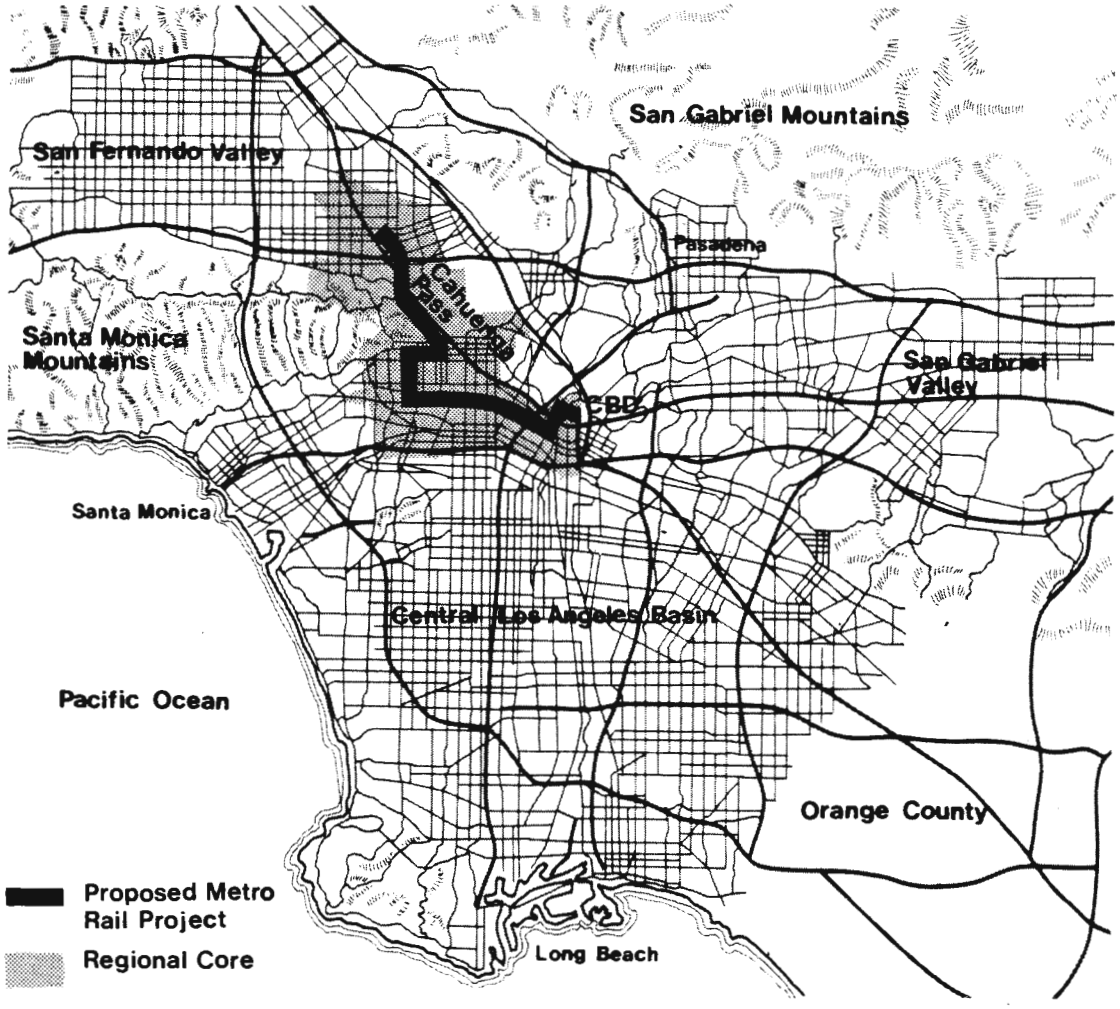

Figure 1-1 Regional Setting

passes, like the Cahuenga Pass, connect the two parts of the city. The remaining nine-tenths of the region is dominated by mountains (the Transverse and Peninsular Ranges) and deserts (Mojave and Colorado).

The Southern California region has grown from a community of 3.3 million people in 1940 to one of the largest metropolises in the world. In January 1980 the six-county SCAG region had an estimated population of 11,535,800--nearly one out of every two Californians--and employment of 5,605,900. SCAG projects that the region will grow to about 14.75 million by the year 2000, a 28 percent increase. The greatest increase will occur in Los Angeles County. Within the county, the greatest growth is projected for areas where population density is already high, particularly the Regional Core.

2. REGIONAL CORE

The Regional Core is the financial, retail, cultural, and entertainment center of Southern California. Two out of every ten Los Angelenos live and four out of every ten work in the 75-square-mile Regional Core.*

2.1 POPULATION AND EMPLOYMENT

Population in the Regional Core was 832,960 in 1980, a 17 percent increase over 1970. Hollywood, Westlake, and portions of the Central Business District (CBD) were the fastest growing communities, accounting for over three-fourths of the population growth. Much of this increase is directly attributable to the tremendous number of immigrants from Latin America and the Pacific Rim countries of Southeast Asia. The continued arrival of immigrants and economic growth of the region will cause the Regional Core population to reach 1.02 million within 20 years. The increase in population will tax an already overburdened infrastructure, including the transportation system.

Employment in the Regional Core was 811,600 in 1980. Nearly 80 percent of the Regional Core's jobs are in the major employment centers of the CBD, Wilshire, and Hollywood. Employment will climb to nearly one million by the year 2000. In the future, jobs will continue to be concentrated in the CBD, Wilshire, and Hollywood. This concentration of jobs in a relatively small geographic area results in high traffic volumes, congestion, and low travel speeds on the major freeways and arterials in the Regional Core.

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* The Regional Core defined in this EIS/EIR is slightly larger than the 55-square mile Regional Core of the SCRTD 1980 Alternative Analysis/Environmental Impact Statement/Environment Impact Report. The boundaries have been expanded in this analysis to better account for potential impacts from operation of the Metro Rail Project.

2.2 LAND USE

The Regional Core contains a high density business sector stretching from the CBD westward to include Mid-Wilshire and Miracle Mile. Another commercial concentration is found in Hollywood north of Sunset Boulevard. The high-rise skyline that has developed in the CBD indicates its role as the heart of Southern California. High density development is also characteristic of portions of Wilshire, Hollywood, and Westlake. Outside of these areas, the land uses in the Regional Core are devoted predominantly to low and moderate density residential and commercial establishments.

SCAG projections show that density will continue to increase everywhere in the Regional Core (Table I-1). Significant increases in the "clustering" of people are projected for the CBD; Westlake, Wilshire, and Hollywood will experience substantial growth of population; and population changes will be minor in Universal City and North Hollywood. Employment density will increase most significantly in the CBD, Wilshire, and Universal City/North Hollywood. The greatest population density changes projected are a 72 percent increase in the CBD and a 37 percent increase in Westlake. In absolute terms, the highest population density in the year 2000 will be in Westlake, with 35,870 persons per square mile. The greatest employment density will be in the CBD, with over 55,000 jobs per square mile.

TABLE I-1
PROJECTED CHANGE IN REGIONAL CORE DENSITY

	POPULATION (persons per sq. mile)			EMPLOYMENT (jobs per sq. mile)[1]		
Planning Area	1980[2]	2000[3]	Percent Increase	1980	2000	Percent Increase
CBD	6,367	10,936	72%	42,855	55,192	29%
Westlake	26,190	35,870	37%	23,654	25,892	9%
Wilshire	15,372	19,129	24%	11,322	13,776	22%
Hollywood	10,208	12,178	19%	6,426	6,836	6%
Universal City/ North Hollywood	6,923	7,186	4%	3,010	3,960	32%
Regional Core	**10,888**	**13,355**	**23%**	**10,609**	**12,869**	**21%**

Sources: [1]SCAG, Draft SCAG-82 Growth Forecast Policy, 1982. SCAG-82B was used with minor adjustment by Sedway/Cooke.

[2]U.S. Bureau of the Census.

[3]SCAG, Draft SCAG-82 Growth Forecast Policy, 1982. SCAG-82B (representing high growth projections) was used, except in Universal City and North Hollywood, where population projections are derived by doubling the projected change between SCAG's low growth forecast (SCAG-82A) and 1980.

2.3 TRAFFIC

The freeways that skirt the Regional Core are loaded to capacity and are severely congested during peak commuter periods. In spite of present congested conditions, by year 2000 the demand for daily travel on freeways in the Regional Core is expected to increase nearly 1.5 million vehicle miles, a 24.2 percent increase over 1980 estimates. Existing and projected peak traffic volumes at selected points along the freeways within the Regional Core are compared against the capacity of the freeway in Table 1-2. Without major transit improvement, traffic congestion will worsen on all freeways in the area. Two proposed freeways which would have provided direct regional access to the Regional Core were canceled because of public oppositon and potential disruption to the community.

TABLE 1-2

COMPARISON OF ESTIMATED PEAK HOUR TRAFFIC VOLUMES AND FREEWAY CAPACITY IN THE REGIONAL CORE

Freeway	Estimated Peak Hour Capacity[1]	1980 Peak Hour Volume (am/pm)	2000 Peak Hour Volume[2]
Harbor/Pasadena Freeway			
north of First Street	9,000	9,200 (am)	9,200
north of Wilshire Boulevard	9,000	8,900 (pm)	10,100
south of Santa Monica Freeway	7,200	7,800 (pm)	11,500
Hollywood Freeway			
north of Burbank Boulevard	7,200	7,100 (pm)	8,400
north of Barham Boulevard	9,000	8,800 (am)	11,700
north of Franklin Avenue	9,000	8,600 (am)	12,100
west of Western Avenue	9,000	6,400 (am/pm)	9,700
west of Harbor Freeway	9,000	7,800 (am/pm)	13,500
Santa Monica Freeway			
west of La Cienega Avenue	7,200	7,500 (am)	15,100
west of Western Avenue	9,000	7,300 (am)	14,200
west of Harbor Freeway	7,200	7,000 (am)	13,700

Source: Los Angeles City Department of Transportation, 1980 and Year 2000 Base Condition, Traffic Volume Flow Maps; Caltrans

[1] Assumes 1,800 vehicles per hour, corresponding to Level of Service E, multiplied by the number of lanes in the direction of the peak hour flow.

[2] Peak hour volume is derived by multiplying average daily traffic volumes by a peak hour factor and by a factor for the direction of the peak hour flow.

Of particular note is the effect the Santa Monica Mountains have on travel between the San Fernando Valley and the CBD, Hollywood, and Wilshire areas. Traffic movement across the mountains is funneled through a few passes. The Hollywood Freeway, which carries over 78 percent of the traffic through the Cahuenga Pass, already operates at capacity during peak hours. In 1980, the average daily traffic through this pass was approximately 271,000 trips. By the year 2000, demand will increase over 25 percent to 342,000 trips. That demand cannot be accommodated.

Given the absence of convenient freeways and capacity constraints on existing ones, the majority of the traffic moving between major destinations within the Regional Core travels on arterial streets. The projected growth in residential and job development will further burden a circulation system ill-equipped to handle even current demand. By the year 2000, there will be an increased demand on the Regional Core's arterial system of nearly two million more vehicle miles daily, a demand that will result in severe delays. Table I-3 shows the projected growth in travel in the Regional Core.

TABLE I-3

TOTAL DAILY VEHICLE MILES TRAVELED IN THE REGIONAL CORE, BY ROADWAY TYPE
(in thousands)

Roadway	1980	2000	Percent Increase
Freeway	6,092	7,566	24.2
Arterial	7,384	9,369	26.9
Local	709	891	25.7
Total	14,185	17,826	25.7

Source: Los Angeles City Department of Transportation, Working Paper--2000 With Project Traffic Volumes, April 1983.

A measure of how well the arterial system is functioning is the level of congestion at key intersections during peak hours. In 1980, 46 of the Regional Core's key intersections were considered very near or over capacity (Level of Service E or F). When an intersection is at or over capacity, traffic is backed up, motorists may have to wait through several changes of the signal light before crossing, and movement slows down to far below the permissible speed limit. By the year 2000, assuming no major transportation improvements and only currently planned intersection and roadway improvements, it is projected that the number of severely congested key intersections will be more than three times greater than in 1980.

With the projected travel demand resulting from the increased densities in the year 2000, the present Regional Core's freeway and arterial street system simply will not function efficiently.

2.4 TRANSIT

SCRTD provides an extensive and well-utilized bus system within the Southern California region. During an average weekday in 1980, SCRTD operated 1,860 peak hour buses which traveled 334,000 miles and carried 1,386,349 passengers. More than 120 separate bus routes offer service to, from, and within the Regional Core. The most heavily patronized corridor is along Wilshire Boulevard. Within a one-half mile band along either side of Wilshire Boulevard (six streets including Wilshire), local bus lines carry about 177,000 daily boardings.

Patronage is expected to continue to increase because of the reduced bus fares made possible through the passage of a 1/2 cent sales tax for transit funding. Though ridership is increasing, limits to effective bus service are being approached.

- Bus operating speeds are hampered by street congestion. Local buses in the CBD travel about 6-8 miles per hour and only slightly higher speeds are attained on Wilshire and on Hollywood streets.

- Buses operating on several heavily used lines are already over capacity. Adding more buses will not fully alleviate the problem. For example, Wilshire Boulevard carries more than 40 buses past a given point in the peak hour. Buses are often bumper-to-bumper. Even with additional buses, riders would still be traveling on congested streets, so service would not improve. Moreover, additional buses require the hiring and training of new operators and, significantly, labor accounts for 80 percent of transit operating costs. As a result, the cost of adding buses would be high, but the improvements in terms of carrying greater numbers of people at faster speeds would be minimal.

- More than 20 million square feet of office, retail, commercial, and other space is being constructed currently or is in final planning stages in the CBD. If transit is to maintain its modal share for peak trips, some 500 to 700 additional peak hour buses will need to be added to the current total. Due to current and projected congestion levels, the street system cannot accommodate the additional buses needed to meet future travel demand. A high volume rail rapid transit system is a logical solution to relieve overloaded streets and freeways and to add needed capacity to the transit system.

3. NEED FOR PROJECT

A rail transit project is needed for several crucial reasons: to improve accessibility and mobility in the Regional Core, to further the attainment of land use and development goals, and to carry out the public mandate for rail transit. Each of these reasons is discussed below.

3.1 IMPROVE ACCESSIBILITY AND MOBILITY

The Regional Core is the most densely populated portion of the Los Angeles Urbanized Area. In some areas of the Regional Core, population densities exceed 26,000 people per square mile. Employment in the CBD is nearly 43,000 jobs per square mile. Projections indicate the Regional Core will continue to grow substantially between now and the year 2000. Yet this level of development cannot be accommodated without severely overtaxing an already constrained transportation system, as described earlier in this chapter. The inability of the road network and the bus system to adequately serve the Regional Core will also act as a major deterrent to the development of the area. To accommodate and foster the growth projected and desired for the Regional Core, an efficient, fast means of traveling must be available.

Based upon the analysis performed in the Alternatives Analysis/Environmental Impact Statement/Environmental Impact Report (1980), known as the First Tier EIS/EIR, an 18.6 mile rail rapid transit line serving the Regional Core emerged as the best way of relieving some of the burden on the region's transportation system. That determination was based, in part, on the project's ability to satisfy the following goals for mobility and cost effectiveness, defined by SCRTD and the public:

- Provide a necessary improvement in the level of mobility in the Los Angeles CBD-Wilshire-Hollywood-North Hollywood Regional Core area.
- Integrate the corridor transit system with the other three elements of RTDP (Regional Transit Development Plan) to provide convenient regional access for all corridor residents.
- Maintain and improve transportation system safety and dependability for both users and nonusers.
- Maximize system capital and operational cost effectiveness in the Regional Core in terms of passengers and passenger miles, over a foreseeable range of passenger volumes.

The rail transit system with supporting bus services was ranked superior to ten other alternatives. Its advantages included the highest transit ridership, highest operating efficiency, greatest reduction in vehicular traffic and auto dependency, greatest travel time savings, most economic benefits, greatest accessibility, maximum air quality improvements, and largest energy savings.

3.2 SUPPORT LAND USE AND DEVELOPMENT GOALS

An effective transportation system is necessary to support regional and local goals relating to land use and urban form. Such goals include:

- Complement regional and local land development goals including the Centers Concept, which calls for concentrating development in high activity areas while preserving the surrounding lower density residential and recreational areas.

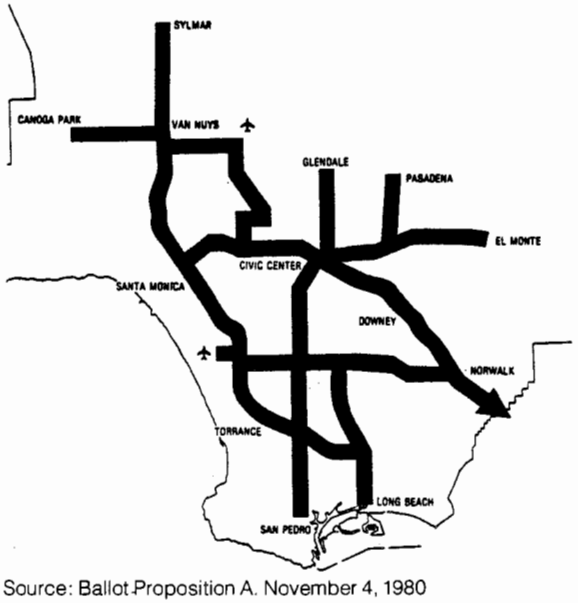
- Support city and county plans for land development along Wilshire Boulevard and for the revitalization of Downtown Hollywood and North Hollywood.

A rail rapid transit system appears best able to realize many adopted local and regional land use and environmental policies. Locally, the Concept of the Los Angeles General Plan and the Urban Form Policy of the county General Plan call for the creation of high density, multiuse centers. Earlier discussion demonstrated that the inability of the roadways and buses to provide sufficient capacity could frustrate the desired concentration of development. A high volume transit system would increase capacity and have the catalytic effect of fostering the Centers Concept. Similarly, the regional growth policy, adopted by SCAG, encourages development within a core area (of which the Regional Core is the most highly urbanized section) and the provision of transportation systems to support and connect a series of growth centers within the region. The proposed rail rapid transit system has been recognized by SCAG as an important ingredient in achieving its development and urban form objectives and has, accordingly, been made an integral part of the Regional Transportation Plan.

3.3 CARRY OUT PUBLIC MANDATE

Work on the Metro Rail Project began in earnest after Los Angeles County voters passed State Proposition 5 in 1975. Proposition 5 provided local gasoline tax funds for a rail rapid transit "starter line" for Los Angeles. Los Angeles County voters passed (by a 54.2 percent majority) an even more significant referendum, Proposition A, in November 1980. Proposition A added a half-percent to the county sales tax to provide the local financing for a complete regional rail rapid transit system.

This demonstration of growing voter commitment to rail rapid transit and its funding has come at a time when taxpayers have otherwise been extremely reluctant to sanction continued public spending. The Metro Rail Project is at the heart of the system that appeared on the Proposition A ballot and was subsequently determined by the Los Angeles County Transportation Commission to be the region's first priority rail rapid transit project. The Metro Rail Project would be an initial step toward responding to the mandate of the voters.



Source: Ballot Proposition A. November 4, 1980

Figure 1-2 Regional Rail Rapid Transit System

CHAPTER 2
ALTERNATIVES

CHAPTER 2
ALTERNATIVES

This chapter discusses the planning history and means of selecting the alternatives being evaluated in this EIS/EIR, identifies other alternatives which were considered but are no longer appropriate, and compares the advantages and disadvantages of the alternatives. The comparison serves only to highlight differences among the alternatives. A detailed assessment of each alternative is presented in Chapters 3 and 4.

1. PLANNING HISTORY

1.1 REGIONAL TRANSIT DEVELOPMENT PROGRAM

In 1975, in response to its legislative mandate to construct and operate a rapid transit system in its service area, the Southern California Rapid Transit District (SCRTD) Board of Directors established a Rapid Transit Advisory Committee to evaluate a series of regional transit corridors. The Rapid Transit Starter Line Corridor, from Long Beach in the south through the San Fernando Valley to Canoga Park in the north, was selected for further study. All-bus, bus/rail, and heavy rail alternatives were evaluated in a four-volume study that addressed cost effectiveness and environmental impacts as well as technical feasibility. After the study was published in 1976, local and state officials adopted a Regional Transit Development Program with four elements:

I. Transportation Systems Management: low cost improvements to the existing regional bus system

II. Freeway Transit: new guideways and high occupancy vehicle lanes

III. Downtown People Mover: a means of providing circulation in the Central Business District of Los Angeles

IV. Regional Core Rapid Transit System: an initial segment of rail rapid transit in the Los Angeles Regional Core

A fifth element was added in 1981:

V. Commuter Rail: new or improved commuter rail service in three corridors.

The first three elements were approved for preliminary engineering by the U.S. Secretary of Transportation, while only more basic "initial" engineering and environmental documentation for the Regional Core Rapid Transit System were approved.

Transportation Systems Management has become an ongoing SCRTD program. Freeway Transit now includes the existing El Monte bus/high occupancy vehicle facility on the San Bernardino Freeway and plans for similar facilities on the Santa Ana and Harbor Freeways and the planned Century Freeway. The Downtown People Mover, after completion of an EIR/EIS and preliminary engineering, is no longer being considered for federal funding.

1.2 REGIONAL CORE RAPID TRANSIT SYSTEM

As part of Element IV, two projects are in various stages of implementation. The Los Angeles County Transportation Commission is conducting environmental analysis and initial engineering for a light rail line to serve the corridor from Long Beach to downtown Los Angeles. SCRTD has been evaluating a high capacity rail system to serve the Regional Core from the Central Business District (CBD) north to North Hollywood. Beginning in 1977, SCRTD began an exhaustive study of a number of different routes and modes to provide high capacity service within the Regional Core. Eleven alternatives with different combinations of bus and rail projects were identified and analyzed.

The study concluded that the all-bus alternatives provided some improvement but would not satisfy the projected travel needs, improve congestion, or be capable of handling increases in travel during energy shortages. An aerial busway was considered but presented the most severe environmental and operational problems. The rail/bus alternatives, while the most capital intensive, offered the greatest reduction in net operating subsidies and the largest increase in ridership and were, therefore, the most cost-effective. The rail/bus alternatives also yielded the highest ridership and the greatest reduction in auto trips and vehicle miles traveled. As a result, these alternatives most improved traffic congestion, air quality, and energy use.

In September 1979, the SCRTD Board of Directors approved an all-subway rail rapid transit system to serve the Regional Core. This system was called the Locally Preferred Alternative, and its selection was documented in an Alternative Analysis/ Environmental Impact Statement/Environmental Impact Report. This document, completed and approved by the federal Urban Mass Transportation Administration (UMTA) and SCRTD in April 1980, fulfilled federal and state requirements for initial environmental documentation and assessment of alternative alignments and modes of transportation. The recommended route connected the CBD, the Wilshire Corridor, the Fairfax community, Hollywood, Studio City, and North Hollywood.

1.2.1 PRELIMINARY ENGINEERING

In 1981 SCRTD began the Preliminary Engineering phase. During this phase, which continues until mid-1983, the conceptual system adopted earlier by the Board is being refined and subjected to further environmental analysis. A final system plan is being devised as the basis for detailed design and construction. This 2-1/2 year effort is organized around 12 project milestones representing different aspects of design, engineering, and environmental analysis (Table 2-1). A Community Participation Program enables SCRTD to obtain public review and comments at each milestone (see Chapter 5).

TABLE 2-I

SCRTD PRELIMINARY ENGINEERING MILESTONES

Milestone 1	Preliminary System Definition and Operating Plan (description of system)
Milestone 2	System Design Criteria (guidelines for system design and operating equipment)
Milestone 3	Route Alignment
Milestone 4	Station Locations
Milestone 5	Right-of-Way Acquisition and Relocation Policies (guidelines for acquiring necessary real estate for transit construction)
Milestone 6	Development and Land Use Policies (strategies for joint development and value capture around stations)
Milestone 7	Safety, Fire/Life Safety, Security and System Assurance Policies (criteria to assure safe, secure, and reliable transit service)
Milestone 8	System and Subsystems (criteria for hours of operation, fare collection methods, and operating equipment)
Milestone 9	Supporting Services Plan (strategies for assuring adequate bus, auto, and pedestrian access)
Milestone 10	Fixed Facilities Plan (station designs and location of parking structures and other facilities)
Milestone 11	Cost Estimate
Milestone 12	System Plan

Milestones 3 and 4. Because of their importance to the Preliminary Engineering phase, system alignment and station locations were considered early in the Milestone Process as Milestones 3 and 4, respectively. There were two screenings of alternative routes and station locations. During the first screening, two alternatives to the Broadway Street route through the CBD were considered (Figure 2-1). The proposed shift to either Hill or Flower Streets was primarily a response to the postponement of the Downtown People Mover and the resultant need to better serve the entire CBD. Three alternative routes were considered in Hollywood (Figure 2-2). One alternative shifted the Locally Preferred Alternative east-west route from Fountain Avenue onto Sunset Boulevard to better serve the commercial core of Hollywood and went north through the Cahuenga Pass. A second alternative maintained the east-west route along Fountain Avenue but turned northward along La Brea Avenue. As part of this alternative, an auxiliary transit system was proposed to provide east-west service to the commercial core of Hollywood. In the third alternative the route ran north along Fairfax Avenue to North Hollywood, with east-west service through Hollywood supplied by an auxiliary transit system, operating either at street level or in an aerial structure. This proposal offered faster service between the San Fernando Valley and major destinations along the Wilshire Corridor and in the CBD, and a more extensive distribution service in Hollywood. In North Hollywood, aerial versions of the subway alignment were also evaluated.

As part of Milestone 4, optional stations were considered at Wilshire/Witmer, Wilshire/Crenshaw, and La Brea/Sunset. Additionally, several stations were evaluated for their feasibility in "off-street" locations. These stations, located outside the street right-of-way, offered better opportunities for SCRTD and private interests to participate jointly in development projects, and less disruptive and expensive station construction.

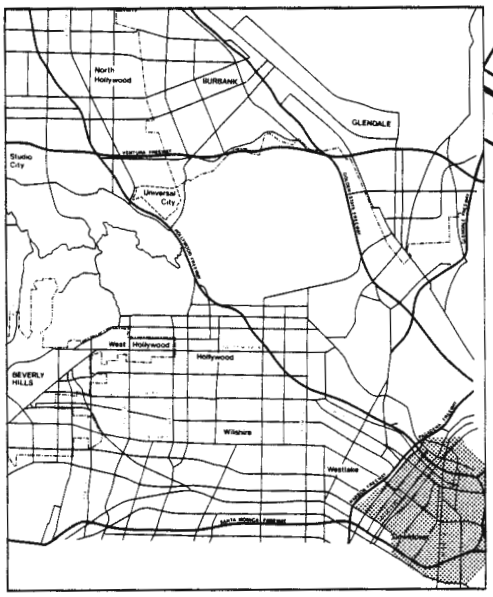
After substantial public input, the SCRTD Board of Directors adopted on August 26, 1982 the following community recommendations:

- The Hill Street alignment through the downtown area.
- Off-street station locations for the Union Station, Wilshire/Alvarado, Wilshire/Vermont, Fairfax/Beverly, Hollywood/Cahuenga, and Universal City Stations.
- No further consideration of the optional stations at Hollywood Bowl, Wilshire/Witmer, and Wilshire/Crenshaw. Since that time the Board has reopened consideration of the Hollywood Bowl and Wilshire/Crenshaw Stations.
- Further consideration of the La Brea/Sunset Station, along with alternative Hollywood and North Hollywood alignments.

Special Alternatives Analysis. The additional analysis in the Hollywood and North Hollywood areas was prompted by unresolved issues at the SCRTD Board meeting in August 1982. These issues were the focus of a special study, called the Special Alternatives Analysis. The analysis and subsequent interaction among SCRTD staff, its consultants, and the public provided the second screening of alignments and station locations.

Five alignment alternatives were presented to the Hollywood community as part of the Special Alternatives Analysis (Figure 2-2). A Hollywood community committee evaluated each alternative, using measures representing the community's goals and objectives, with each measure weighted to reflect its importance. The Cahuenga

KEY



Alternative "A" (Locally Preferred Alternative)

Alternative "B"

Former Locally Preferred Alternative

Proposed Station Locations

Main Yard and Shops

Source: SCRTD Milestone 3 Report

Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 500 1000 feet

Figure 2-1
Central Business District Alternative Alignments

SEDWAY/COOKE

Urban and Environmental Planners and Designers

Source: SCRTD Milestone 3 Report

Southern California Rapid Transit District

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0 2000 4000 feet

Figure 2-2
Hollywood Alternative Alignments

SEDWAY/COOKE
Urban and Environmental Planners and Designers

Bend all-subway alignment, emerged as the clear preference, scoring highest in virtually every category. The analysis and recommendations are presented in the Preliminary Draft Report for Special Alternatives Analysis, Hollywood Area, and its accompanying appendix (SCRTD, 1982).

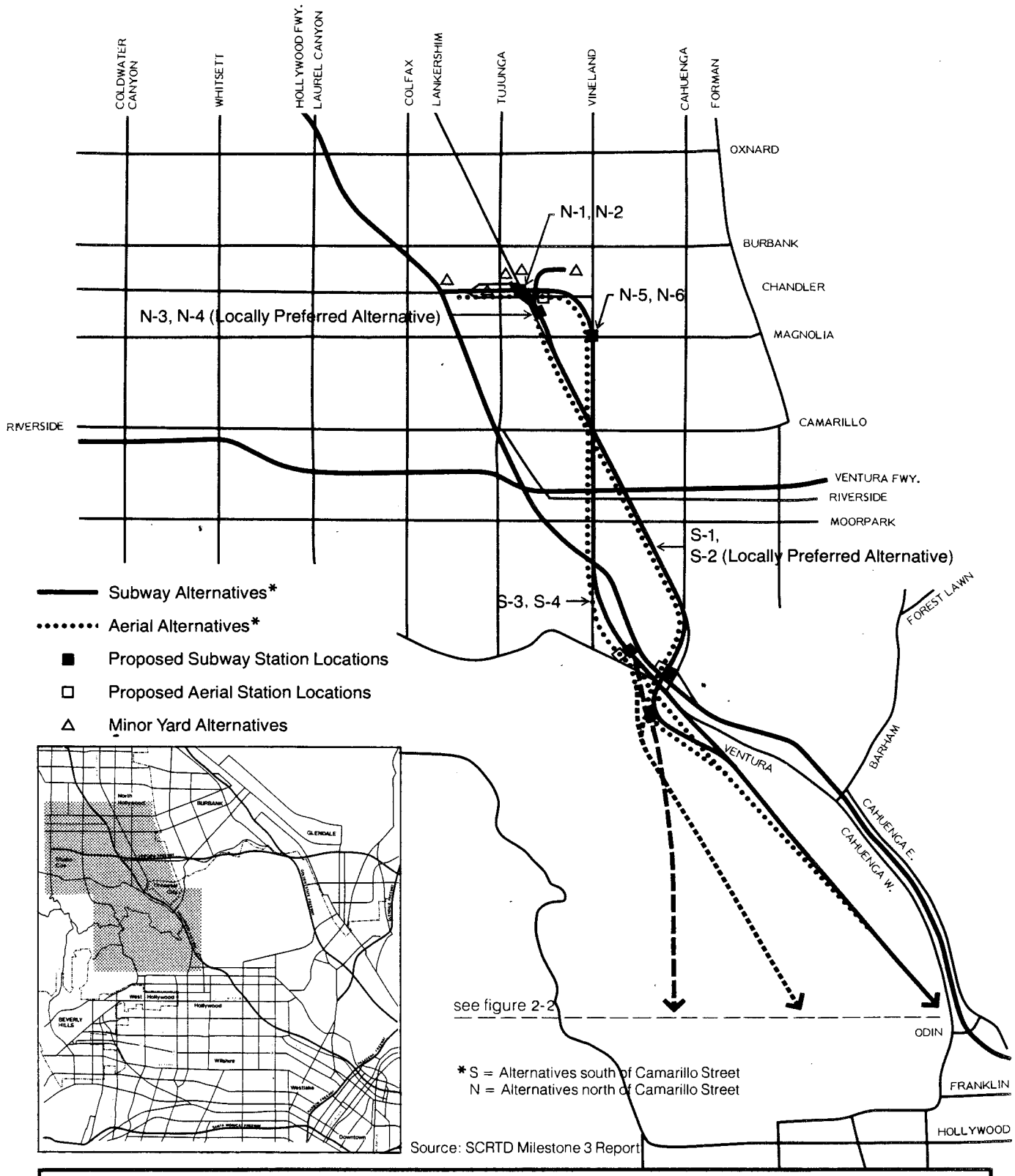
In North Hollywood, after a review of preliminary alignments, SCRTD and the community organized the alternatives into four southern and six northern segments (Figure 2-3). Each of the northern and southern segments was evaluated using measures directly related to the goals and objectives formulated by the North Hollywood community. The primary concerns were the impacts of an aerial configuration, the choice of a station location at Universal City or Studio City, and the route and station location in North Hollywood. The analysis and recommendations are presented in the Final Draft Report for Special Alternatives Analysis, North Hollywood Area (SCRTD, 1982).

Aerial alignments were generally $20-30 million per mile less expensive to build than subways, although the annual operating and maintenance costs were comparable. In spite of the significantly lower capital costs, aerial alignments required greater land acquisition, caused more conflicts with existing land uses, exceeded noise criteria at more locations, and, during construction, caused more temporary disruption to businesses and traffic. For these and other reasons, the North Hollywood community rejected an aerial configuration.

The analysis of a station location at Universal City versus Studio City highlighted the particular advantages of the Universal City Station. This station was found to be much more compatible with existing and planned land uses, less disruptive during construction, better located to stimulate commercial development, and slightly less costly to build. In addition, the Universal City Station was expected to attract more riders. The specific measures for which a Studio City Station was rated more desirable were the avoidance of land acquisition and the higher projected population within 1/4 mile of the station.

The choice of a station location in North Hollywood influenced the choice of alignment. In effect, a north-south station orientation required a route along Lankershim Boulevard; an east-west orientation along Chandler Boulevard would require a route along Vineland Avenue and then a westward bend into Chandler Boulevard. A third alternative station location at Magnolia and Vineland Avenues also dictated an alignment along Vineland Avenue. The Lankershim alignment with a station location near Chandler received the highest rating on each of the goals established by the citizen's committee.

As a result of the evaluation, the Hollywood and North Hollywood communities recommended the elimination of many of the options suggested by staff and the public earlier in the Special Alternatives Analysis, including the proposal to construct an auxiliary line in Hollywood, further consideration of a Studio City Station, and proposals for an aerial configuration in North Hollywood. The community recommendations were submitted to and approved by the SCRTD Board of Directors in December 1982. Their recommendations are reflected in the Locally Preferred Alternative.



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0 2000 4000 feet

Figure 2-3
San Fernando Valley Alternative Alignments

SEDWAY/COOKE
Urban and Environmental Planners and Designers

2. DESCRIPTION OF ALTERNATIVES

This section discusses the alternatives presently under consideration. In addition to the No Project Alternative, several alternatives have been formulated to offer improved travel conditions in the Regional Core. These alternatives include a new Locally Preferred Alternative based on community input during Preliminary Engineering, a Locally Preferred Alternative with an aerial option, and a Minimum Operable Segment. The following discussion describes the routes, alignments, station design, station locations, maintenance facilities, subsystems, operating characteristics, and costs for each alternative.

2.1 NO PROJECT ALTERNATIVE

After the Draft EIS/EIR was prepared certain changes were made due to continuing engineering analysis, agency and public input, as well as staff reevaluations. Changes affecting the No Project Alternative included:

- New patronage estimates were made, as the models were revised and better data became available.
- The combination of modified bus routes and revised patronage estimates resulted in the number of buses during peak hours increasing from 1,963 to 2,209.
- There was a small increase in capital costs.

In accordance with requirements for the preparation of EISs and EIRs, a No Project Alternative has been evaluated. Under this alternative, travel in the Regional Core would continue to be served by the existing road network and SCRTD bus system. The present transit system will be improved in accordance with SCRTD's 1980 Sector Improvement Plan (SIP), which calls for an expanded and revised network of local and express services. Many of the plan's recommendations have already been implemented. This alternative would require 2,209 buses operating in the peak periods and is essentially a "do nothing" alternative, formulated to examine conditions in the year 2000 without significant transit improvements. The No Project Alternative does not assume growth in transit service commensurate with population and employment increase in the region. With this alternative transit would serve an ever decreasing share of regional trips. While this alternative is included as a basis for comparison of conditions under a rail rapid transit project, it does not imply that significant capital improvements will not be considered if the proposed rail project is not constructed.

Systemwide transit ridership with this alternative totals 2.0 million boardings daily. The annual operating and maintenance cost for this all-bus system would be $526.1 million. The estimated capital cost of the No Project Alternative is $331.4 million and only includes additions to and periodic replacement of the existing bus fleet. Assuming a ten percent discount rate, the annualized cost would be $48.3 million per year. Thus, total annual costs (annualized capital costs plus annual operating and maintenance costs) for the No Project Alternative approximate $574.4 million in 1983 dollars.

2.2 LOCALLY PREFERRED ALTERNATIVE

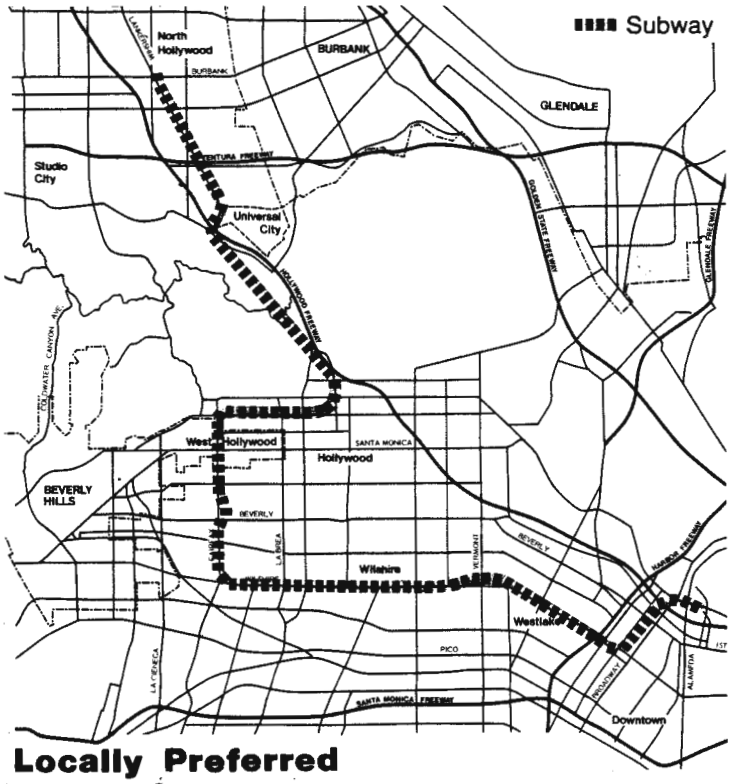
Changes made to the Locally Preferred Alternative between the Draft EIS/EIR and this Final EIS/EIR are identified below.

- Patronage revisions indicate a small decrease in rail boardings but an increase in total transit boardings.
- Buses operating in the peak hour increased from 1,845 to 1,969.
- The Draft EIS/EIR considered the Wilshire/Crenshaw and the Hollywood Bowl Station as optional stations. Both stations have since been officially adopted.
- Capital costs increased from $2.35 billion to $2.47 billion, mostly because of the additional Hollywood Bowl and Wilshire/Crenshaw Stations and additional buses.
- The amount of daily vehicle miles diverted to transit decreased which resulted in less energy savings as well as less of a reduction in air pollutant emissions.
- The operating deficit and average cost per passenger and per passenger mile increased.
- The Wilshire/Fairfax Station has been relocated from the Tar Pits to a site behind the May Company at the intersection of Wilshire Boulevard and Fairfax Avenue.

2.2.1 ROUTE DESCRIPTION AND ALIGNMENT

The proposed route includes 18 stations, with an alternate location for the Wilshire/Fairfax Station just north of the May Company. The bus system, which would be slightly modified from the SIP being implemented under the No Project Alternative to offer more convenient bus-rail connections, would contain 1,969 buses and is described in SCRTD's Milestone 9 Report: Supporting Services Plan. The rail rapid transit route begins at Union Station, where it turns southwest and runs through the CBD along Hill Street. Turning on Seventh Street, the route heads towards the west side of downtown, past the Harbor Freeway, and continues along Wilshire Boulevard past MacArthur Park in the Westlake area. Proceeding along Wilshire Boulevard, the route serves the Mid-Wilshire and Miracle Mile business centers. At Fairfax, the Locally Preferred Alternative turns north to serve the Fairfax and West Hollywood communities and then turns eastward along Sunset Boulevard. The line continues for approximately two miles through Hollywood before it veers northwest at Cahuenga Boulevard. The route proceeds under the Santa Monica Mountains through the Cahuenga Pass and enters the San Fernando Valley near Universal City. It continues in a northwest direction along Lankershim Boulevard to its final stop at the North Hollywood Commercial Core.

The Locally Preferred Alternative is proposed as a subway system, with virtually all line segments tunneled by proven tunnel boring machines, and stations excavated from street level by cut and cover construction techniques. Both tunneling and cut and cover construction methods are briefly described in the Construction section of Chapter 3. Preliminary drawings have been prepared to show the alignment and the location where different construction techniques will be used, where special tracks will be installed, where stations will be built, and where the tunnel configuration will change (Figures 2-4.1 through 2-4.20).

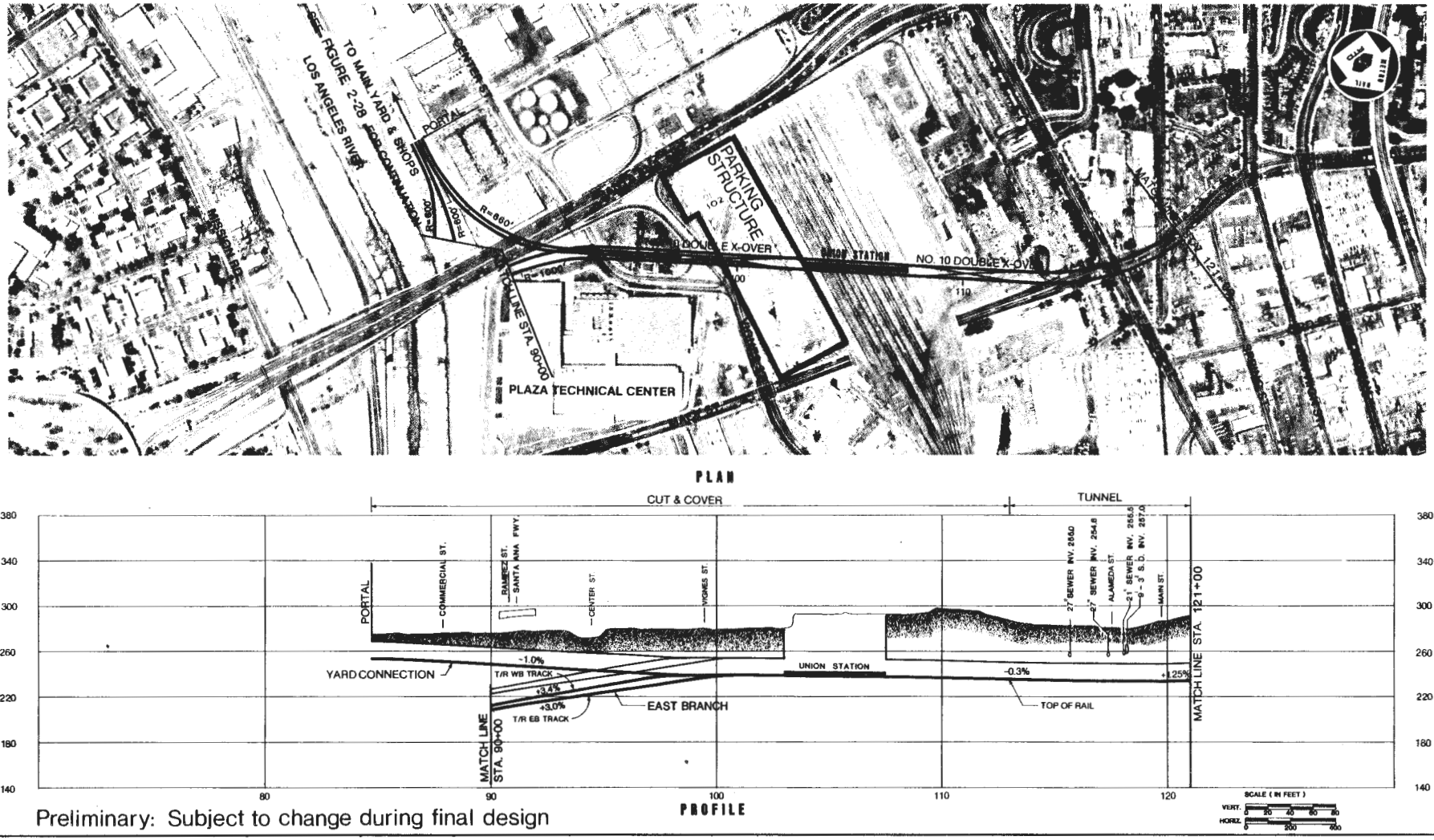


2.2.2 STATION DESIGN FEATURES

The following discussion describes some of the components and features of station design. A detailed presentation can be found in SCRTD's Milestone 10 Report: Fixed Facilities.

Platform. Metro Rail station loading platforms would be approximately 450 feet long to accommodate trains consisting of six 75-foot-long cars. The platform size is based on the ultimate system design capacity (generally thought of as being reached about 20 years after system opening) and provides for the safe and efficient circulation of passengers. As a cost reduction measure, center support columns are proposed in the platform area. Platforms may be "center" type, with a single platform flanked by the two tracks, or "side" type, with the tracks between two platforms. The center platform design is planned for most of the stations because it makes it easier for patrons to decide which train to take while they are on the platform, and because station costs are typically lower.

Entrance. Plaza entrances and entrances within existing or planned developments are favored. Where such off-street entrances are not possible, on-street entrances leading directly from the sidewalk to the fare collection area are proposed. Patronage levels are high enough to support entrances at each end of a station only in the CBD and at Wilshire/Fairfax. Particular site considerations also led to a "double-ended" station at North Hollywood.



Preliminary: Subject to change during final design

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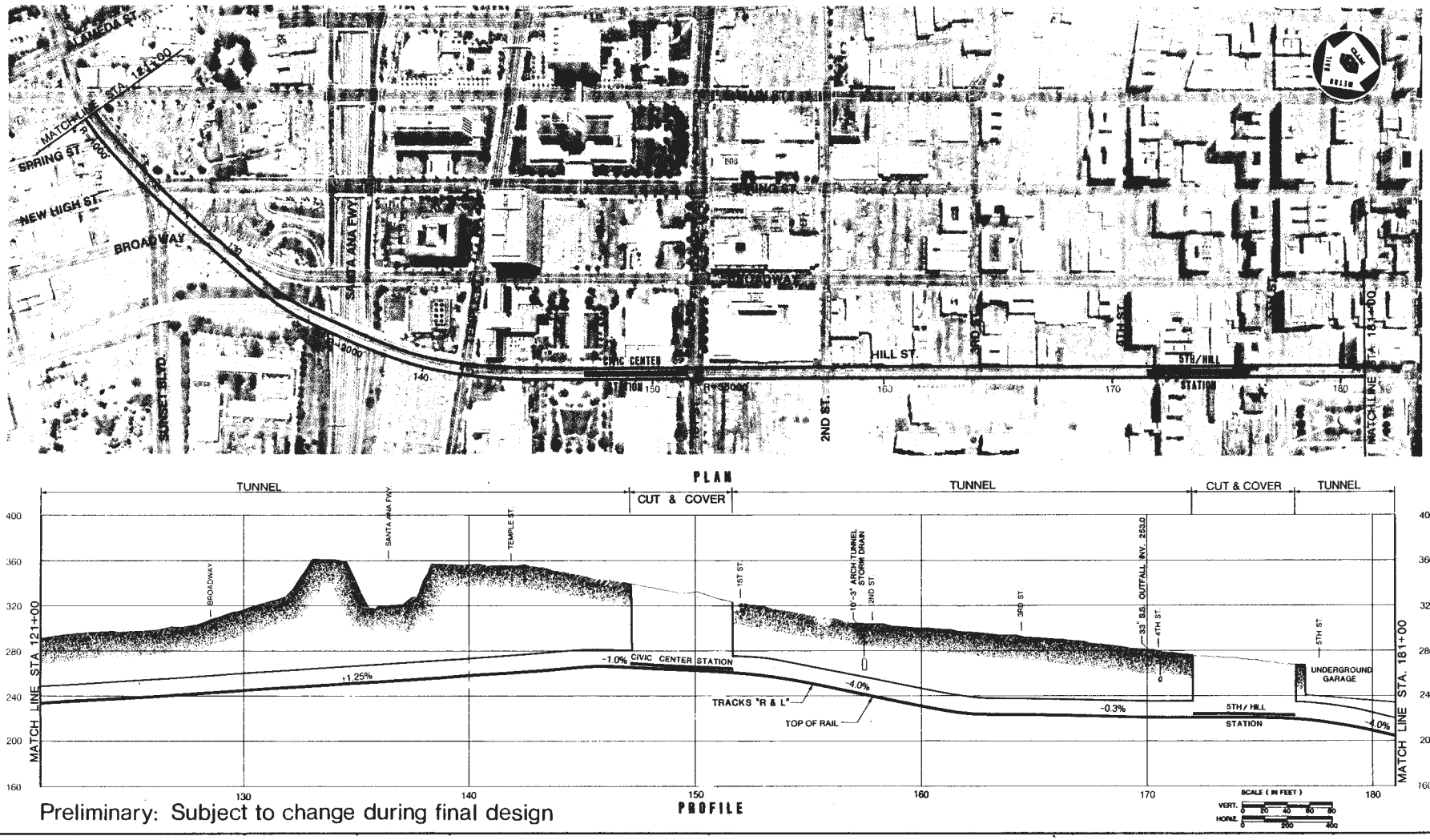
Figure 2-4.1 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



Preliminary: Subject to change during final design

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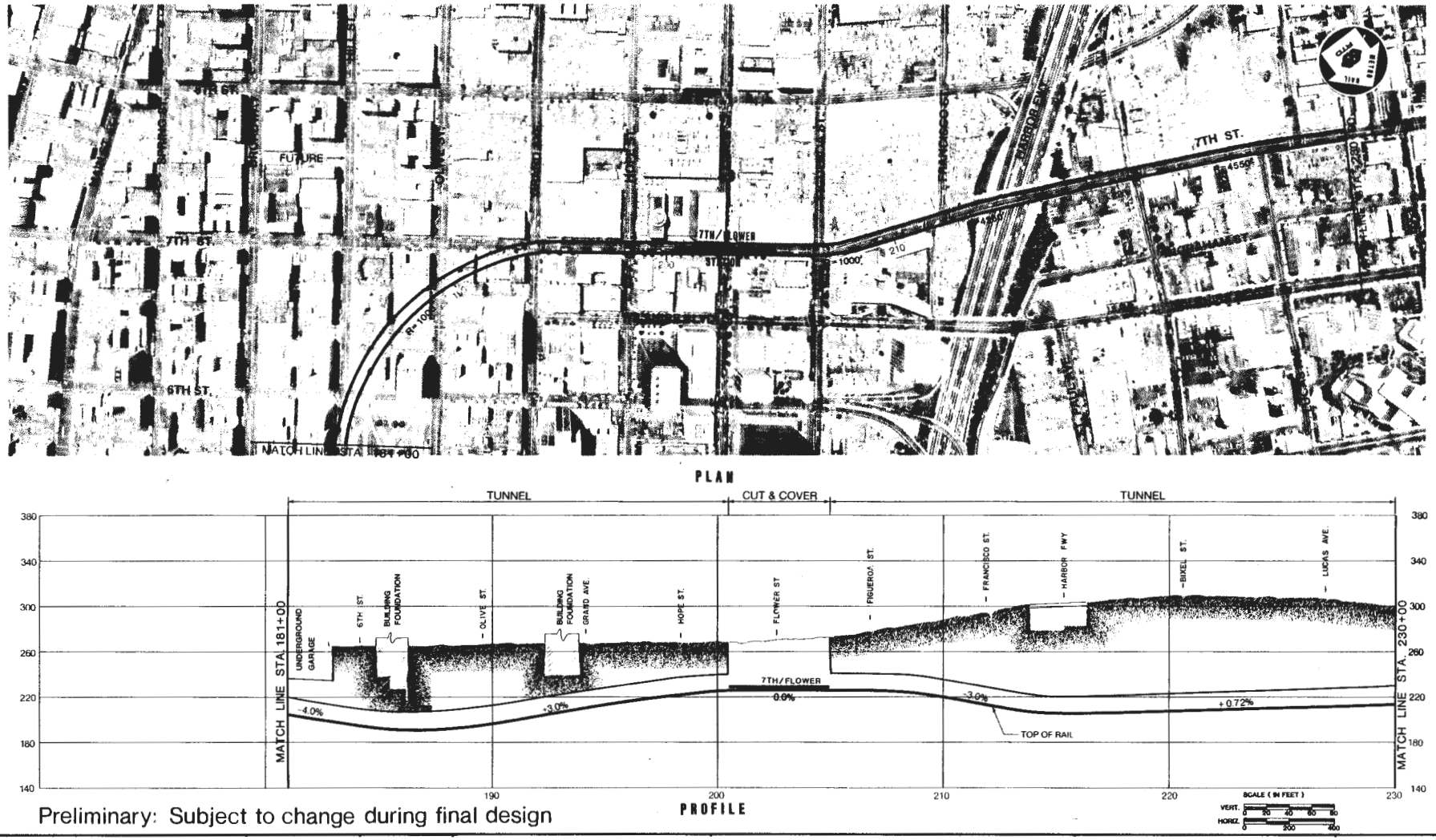
Figure 2-4.2 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



Preliminary: Subject to change during final design

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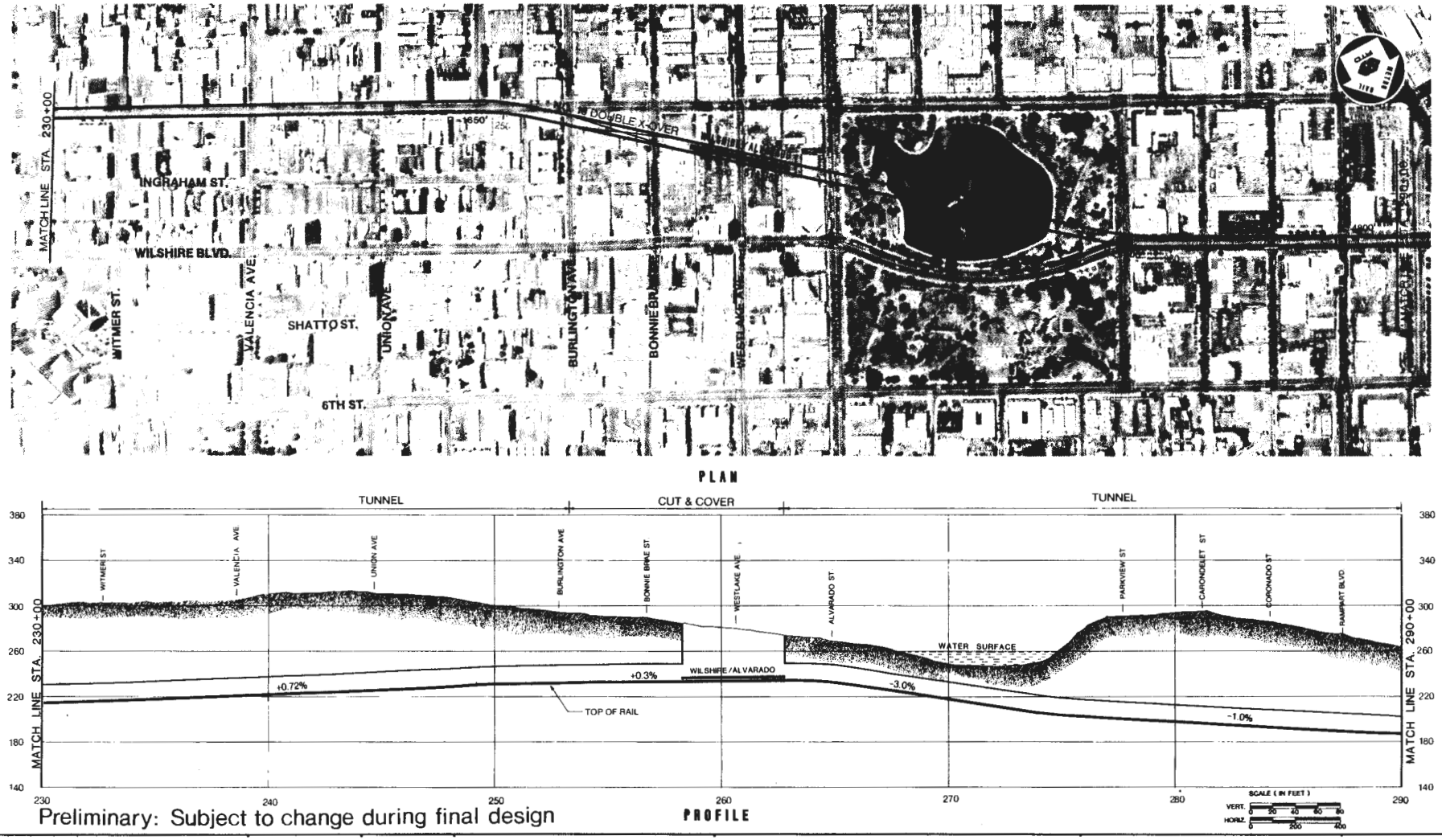
Figure 2-4.3 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



Preliminary: Subject to change during final design

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PRELIMINARY ENGINEERING PROGRAM

Figure 2-4.4 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

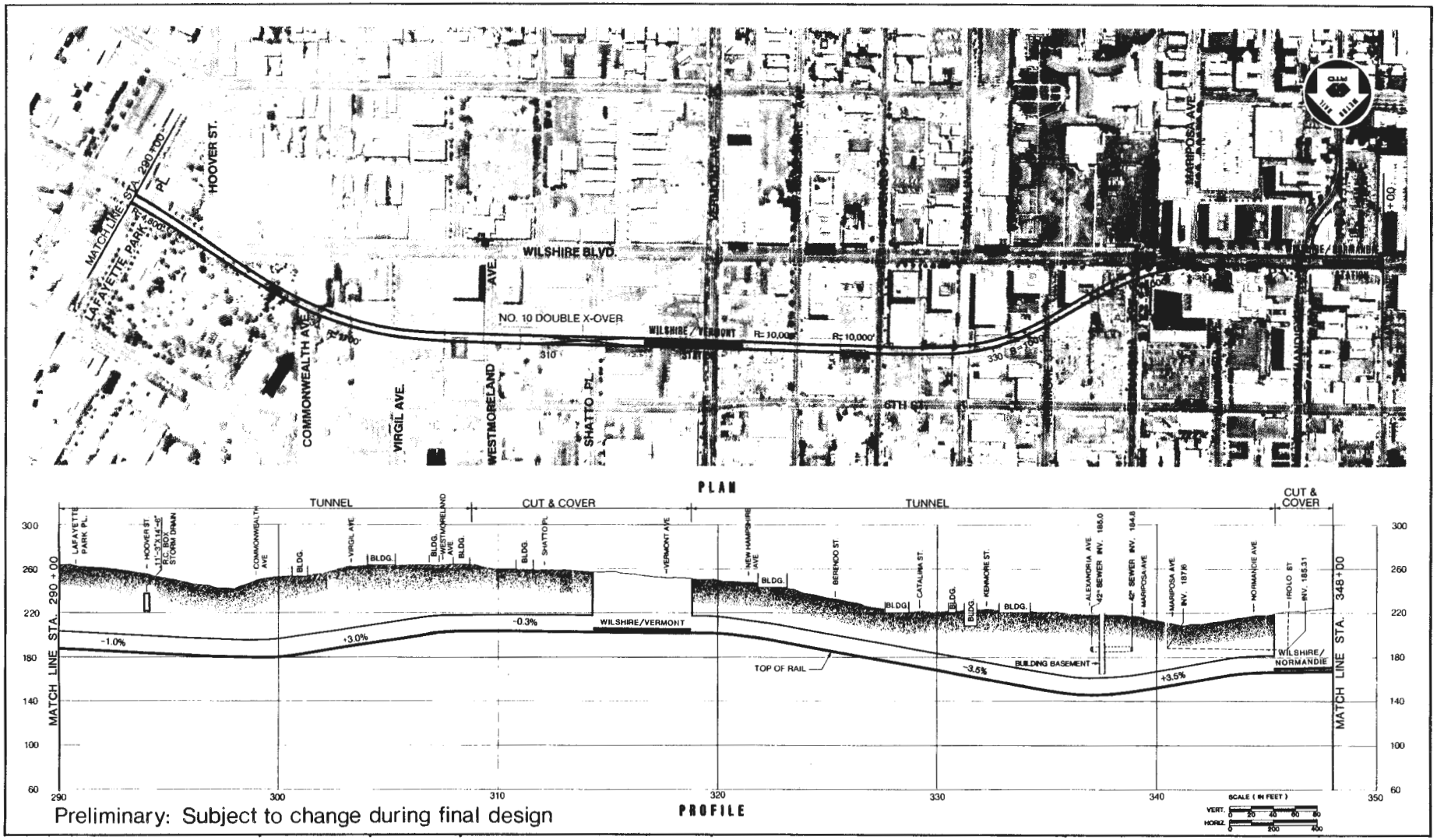

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Figure 2-4.5 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

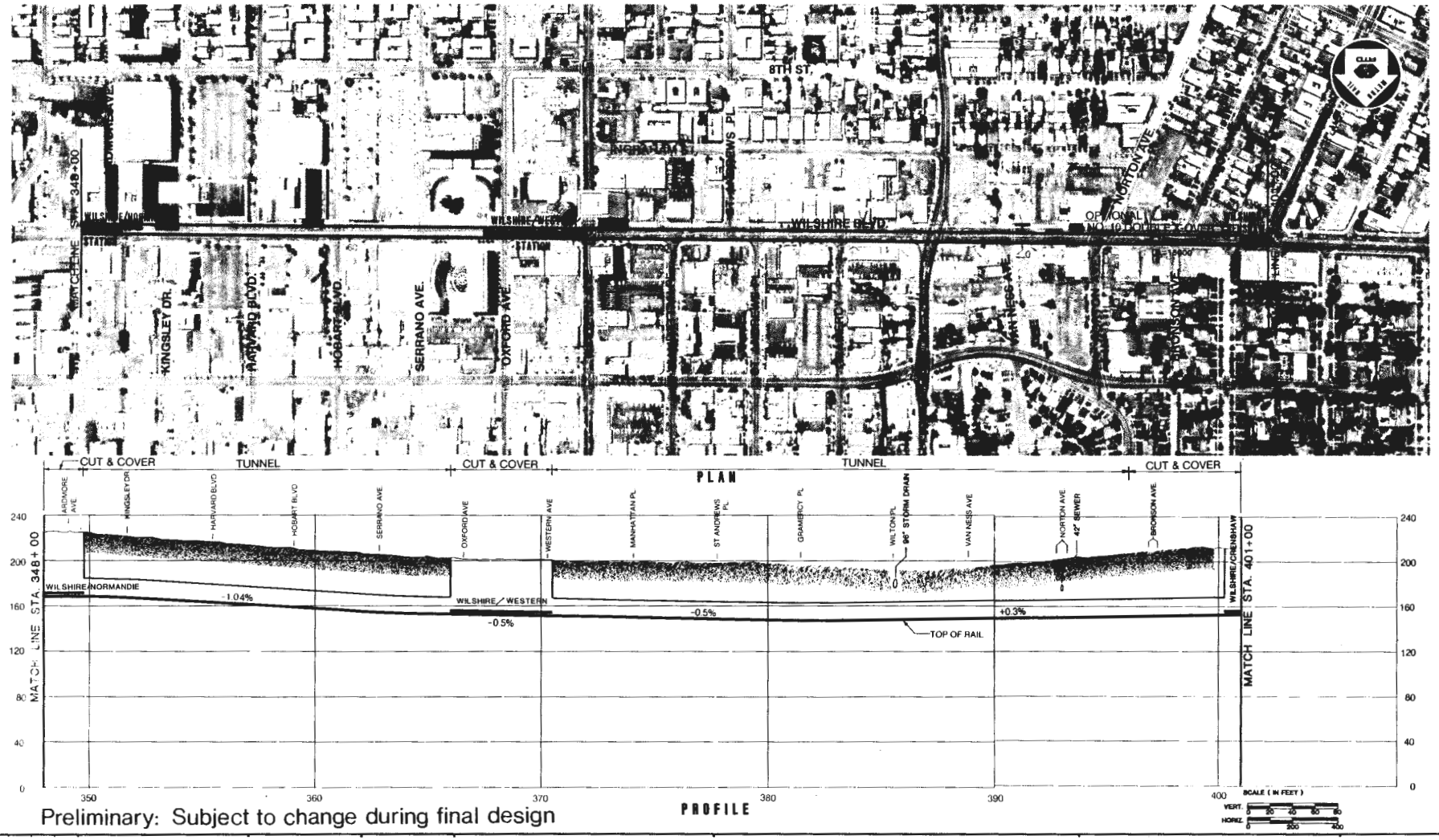

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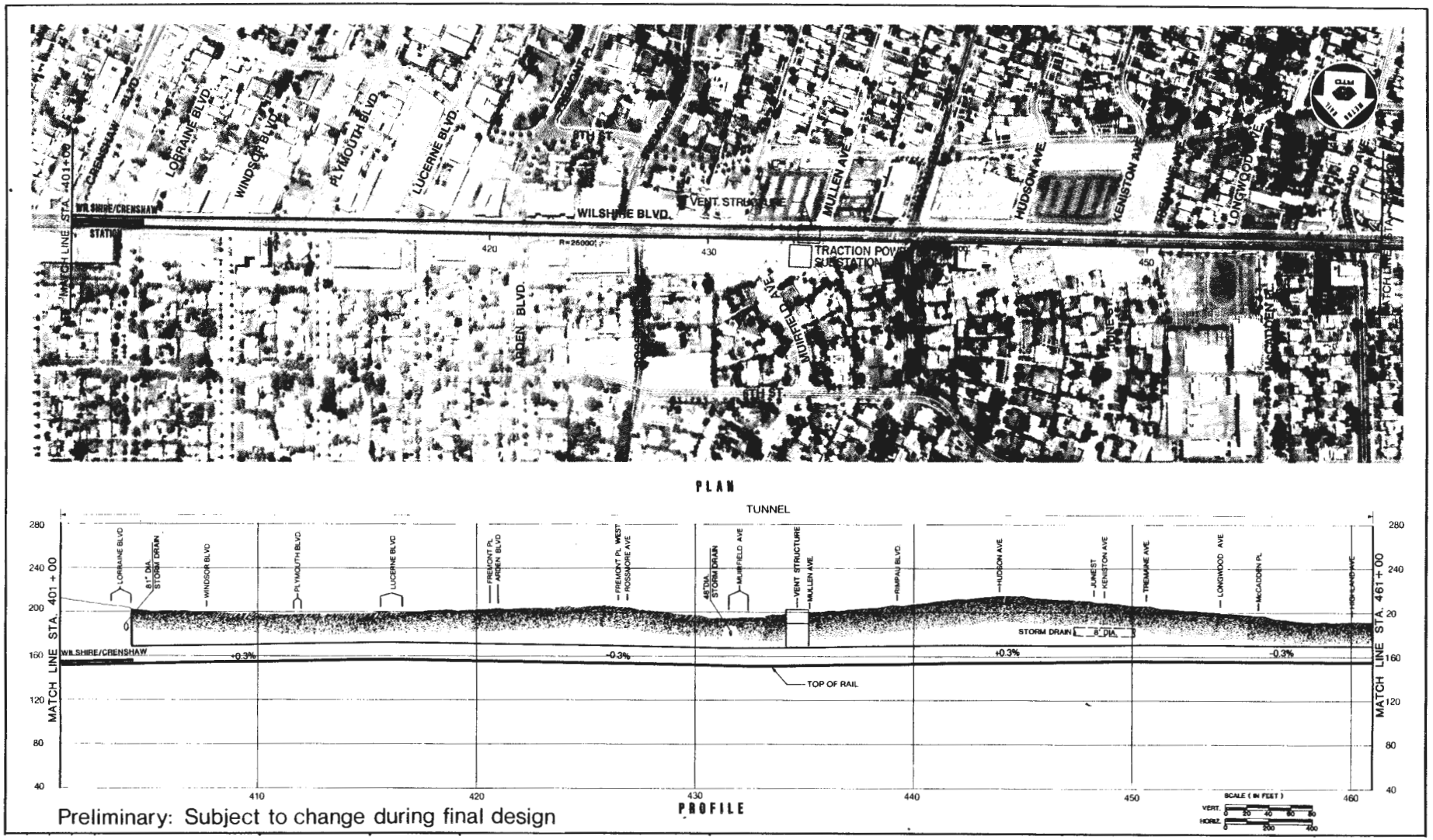
Figure 2-4.6 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



Preliminary: Subject to change during final design

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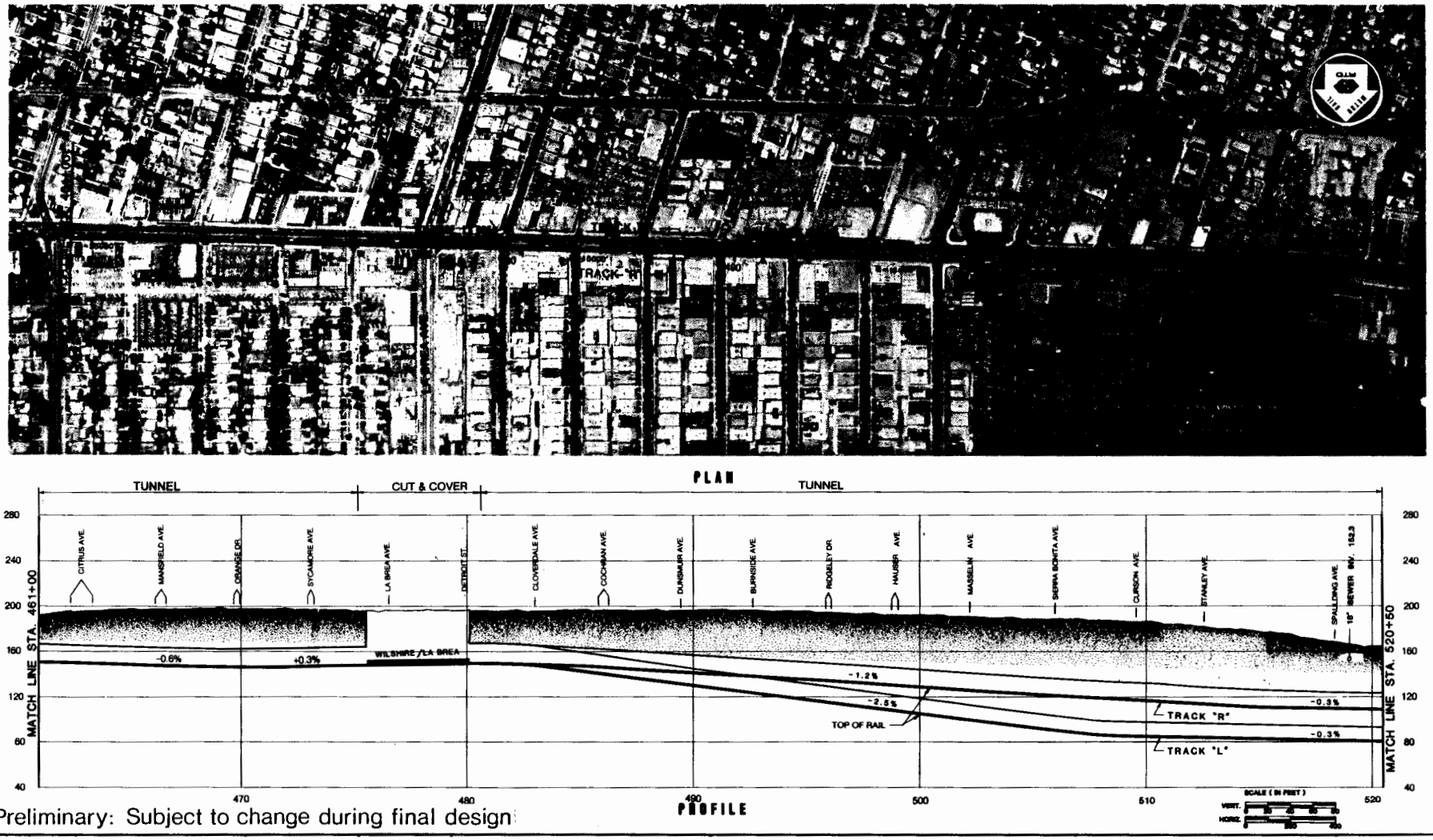
Figure 2-4.7 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



Preliminary: Subject to change during final design

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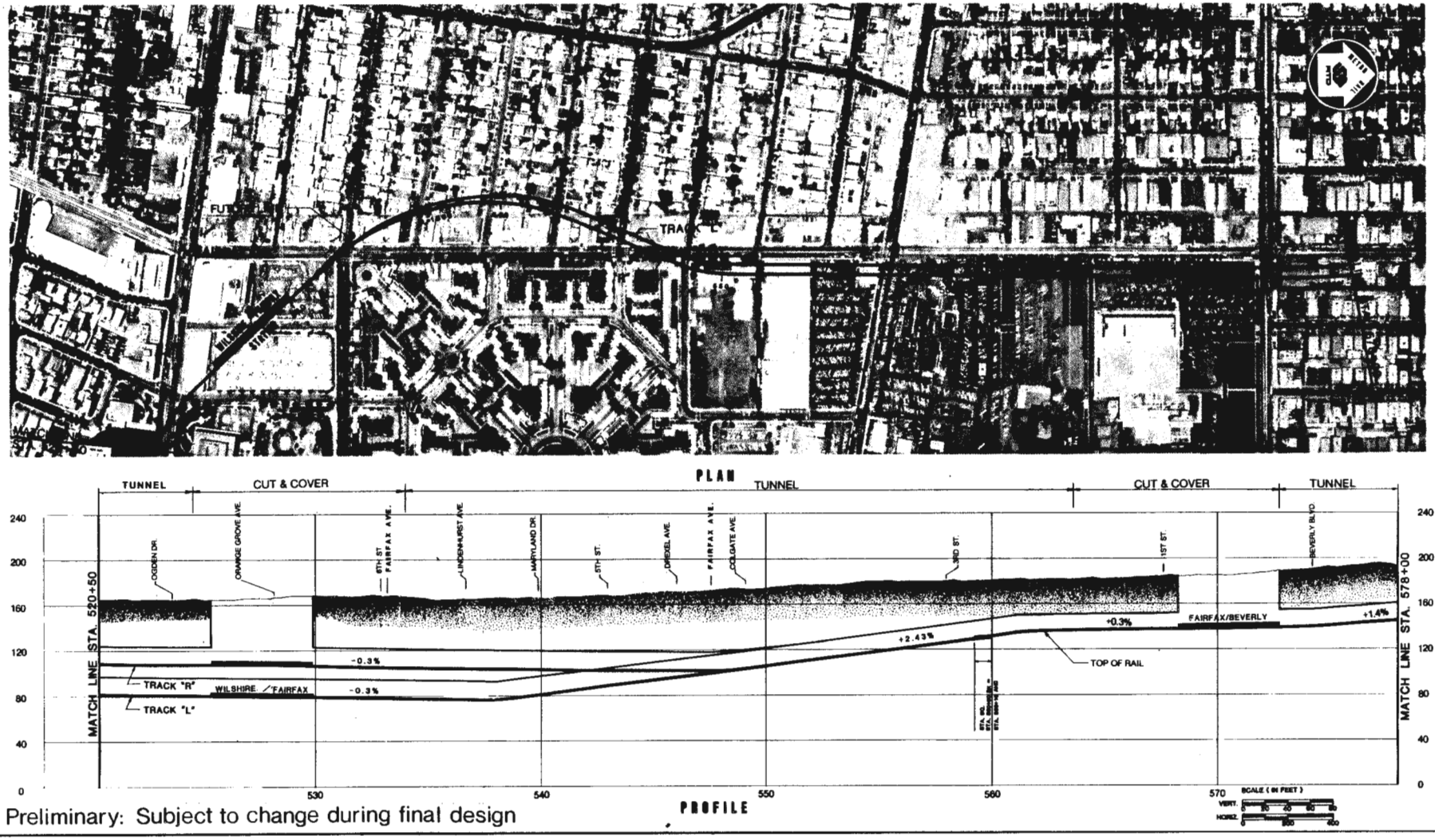
Figure 2-4.8 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



Preliminary: Subject to change during final design

Figure 2-4.9 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

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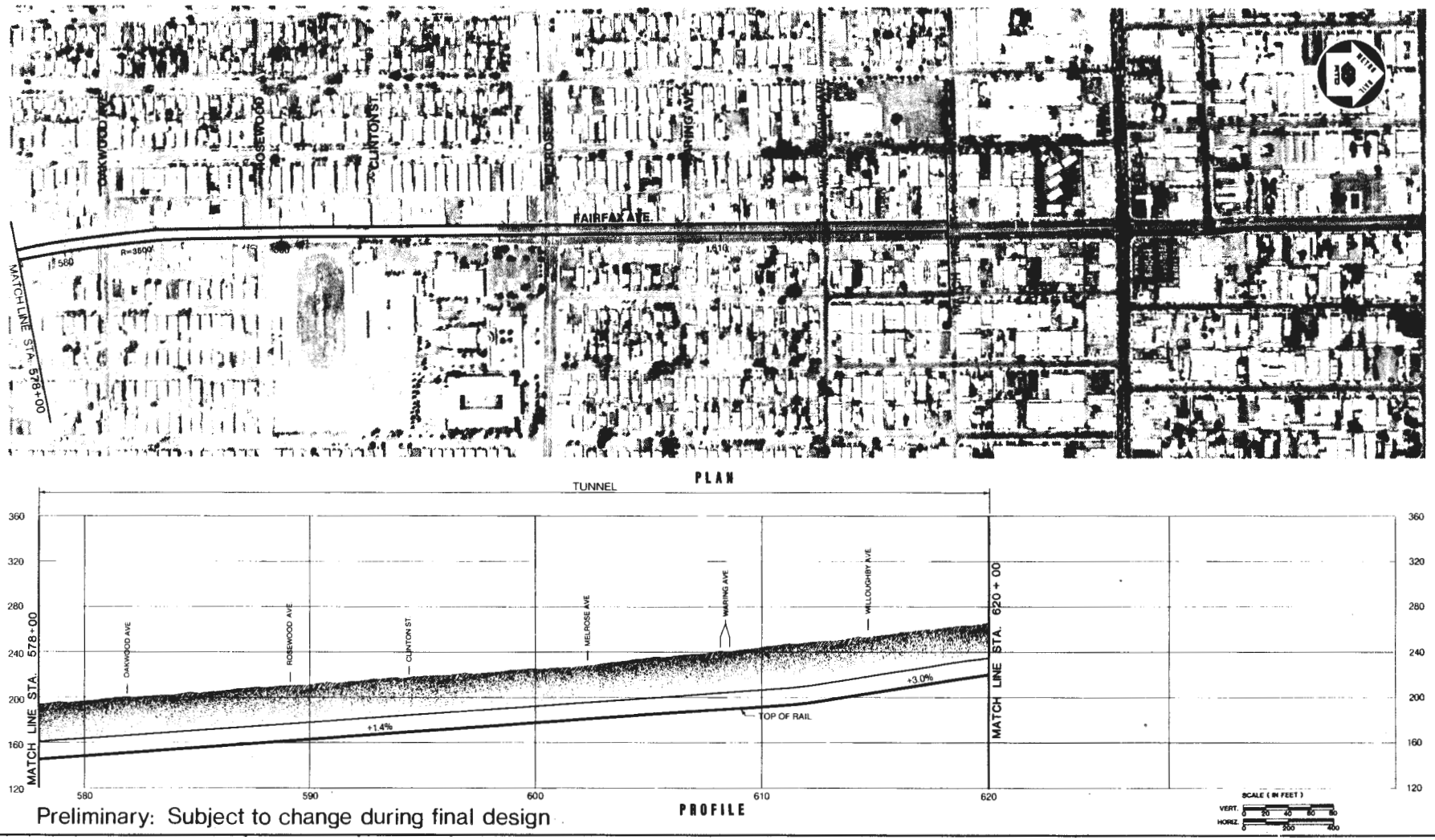

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Figure 2-4.10 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

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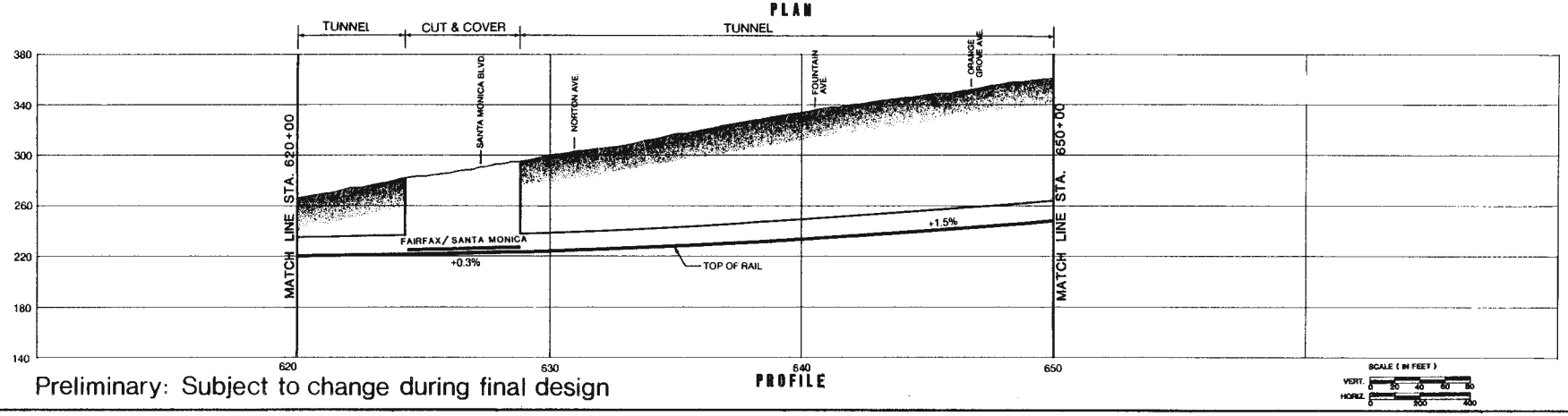

PROFILE

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Southern California Rapid Transit District
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Figure 2-4.11 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

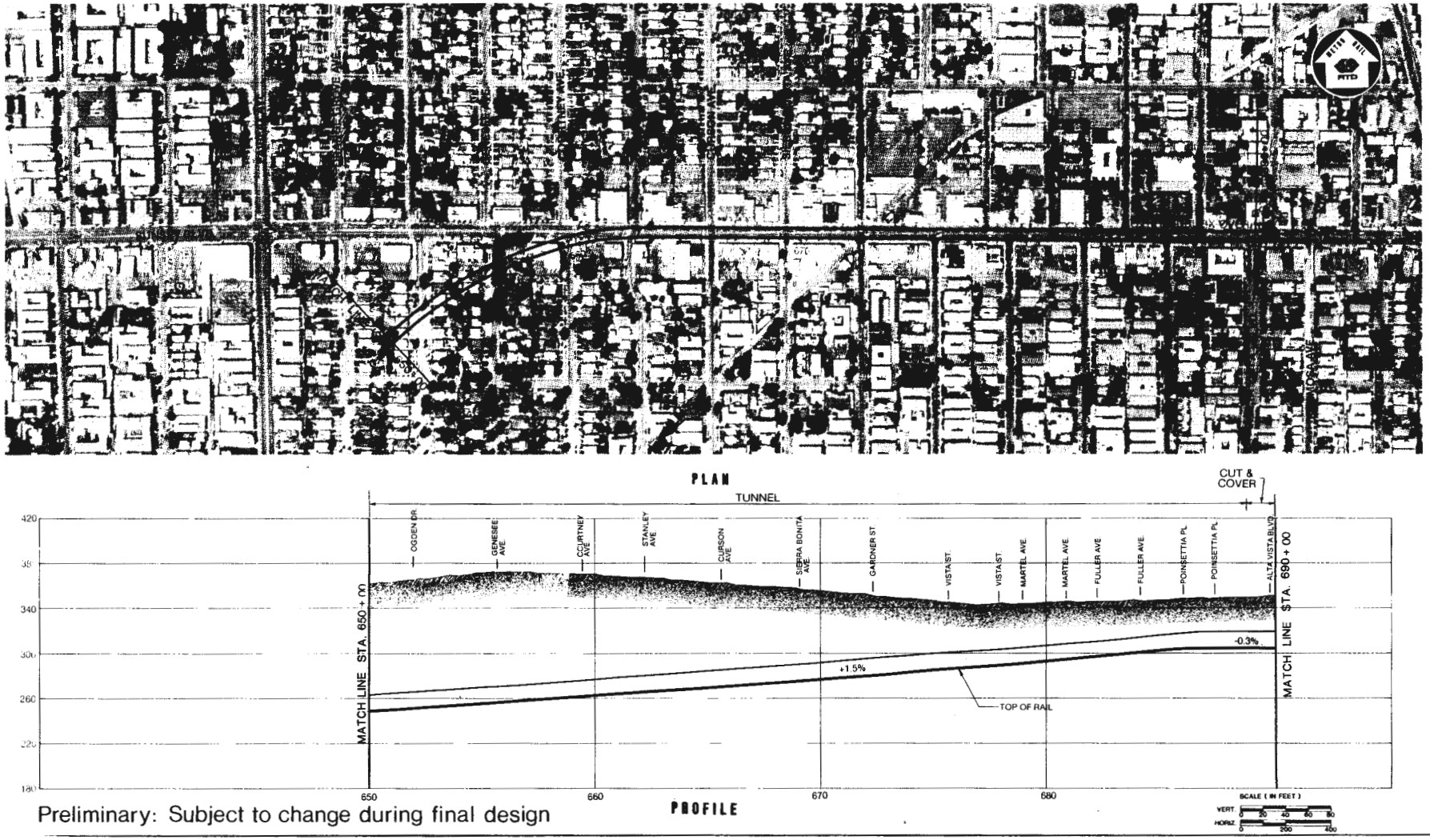

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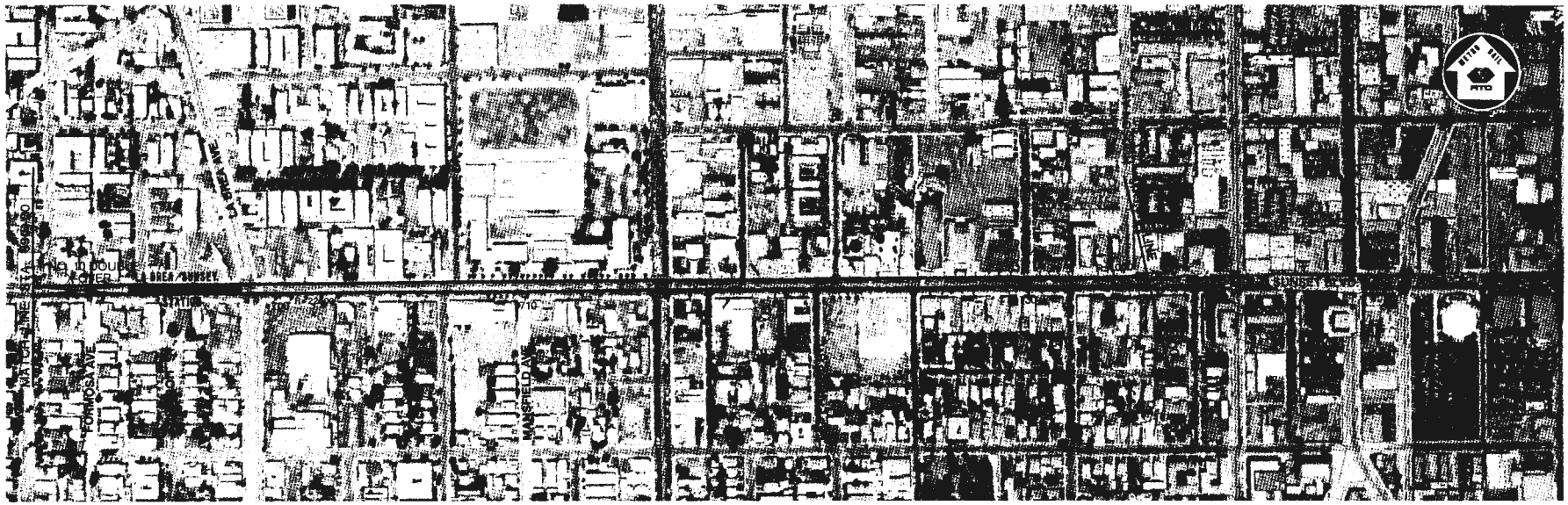
Figure 2-4.12 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



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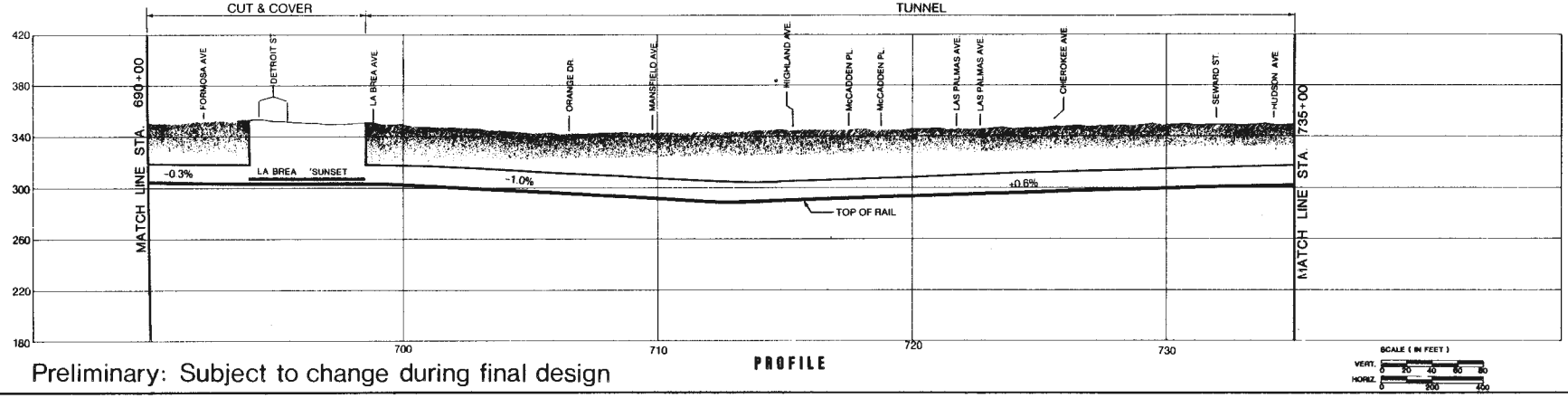

PROFILE

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Figure 2-4.13 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

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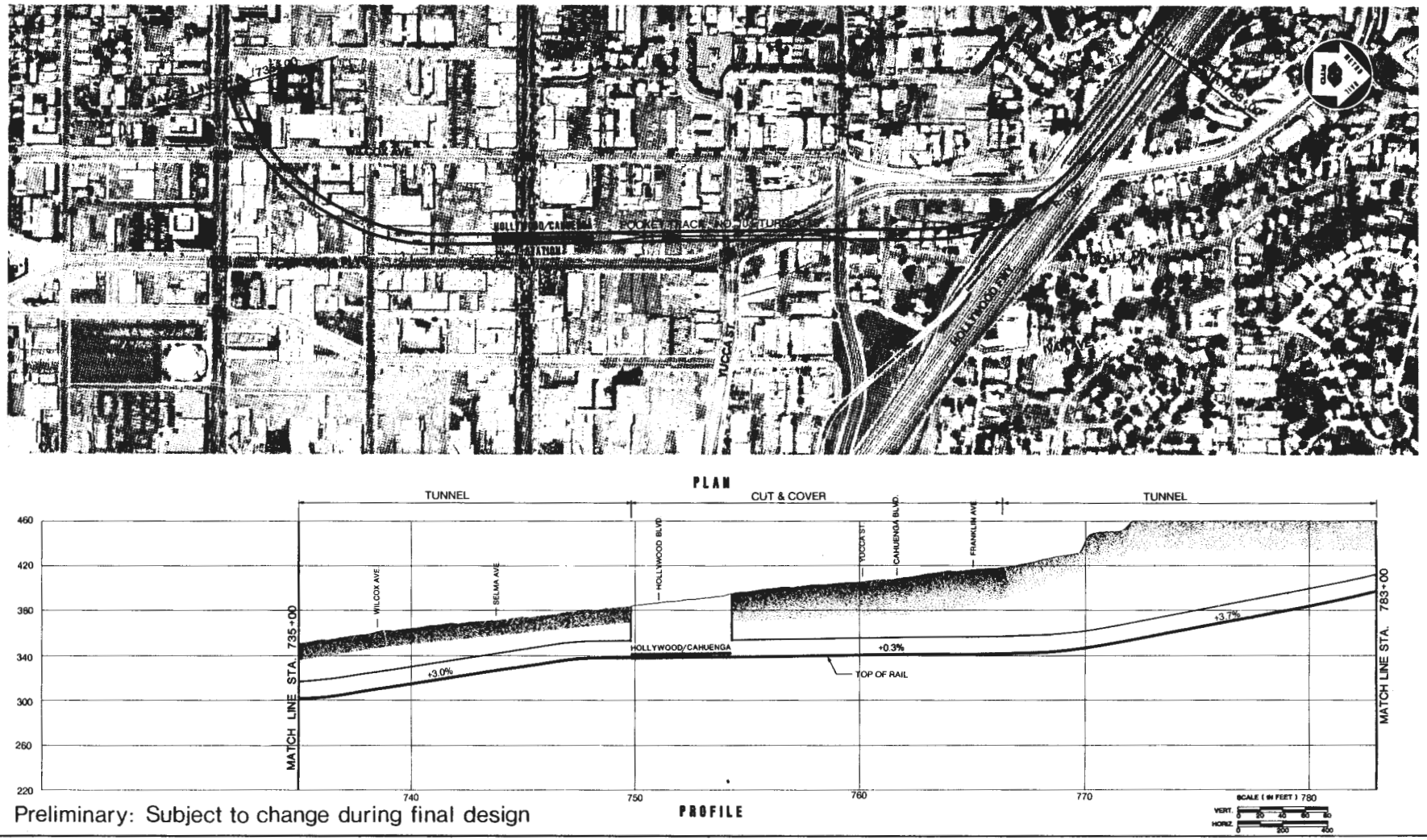

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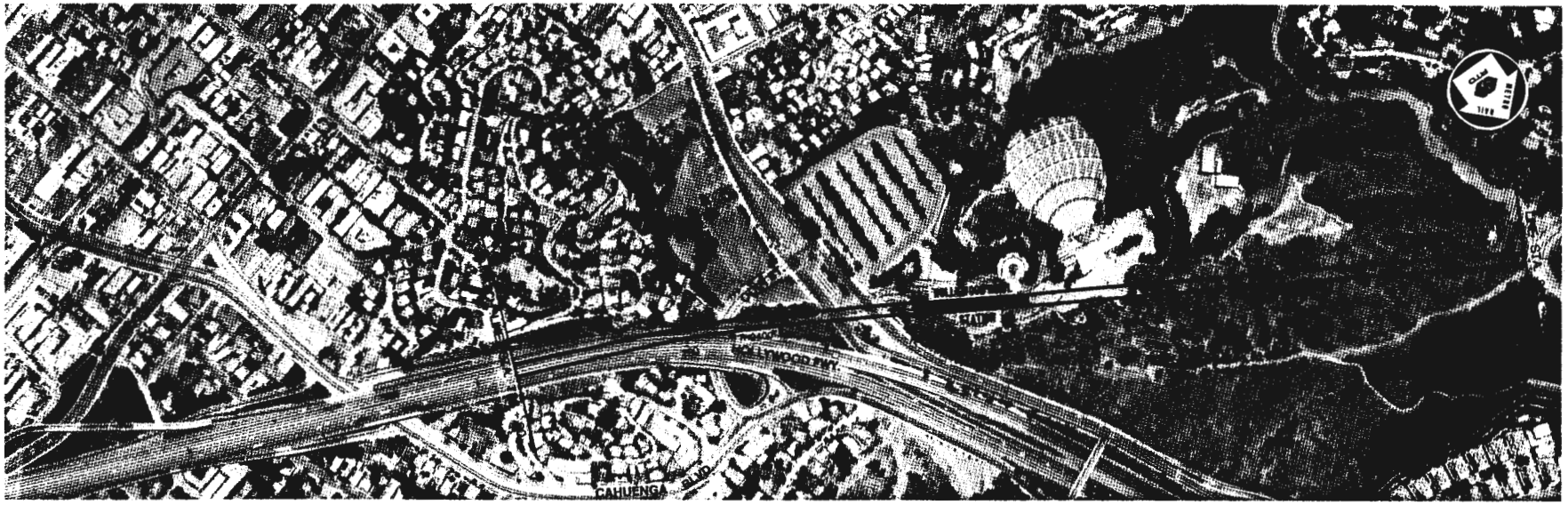
Figure 2-4.14 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



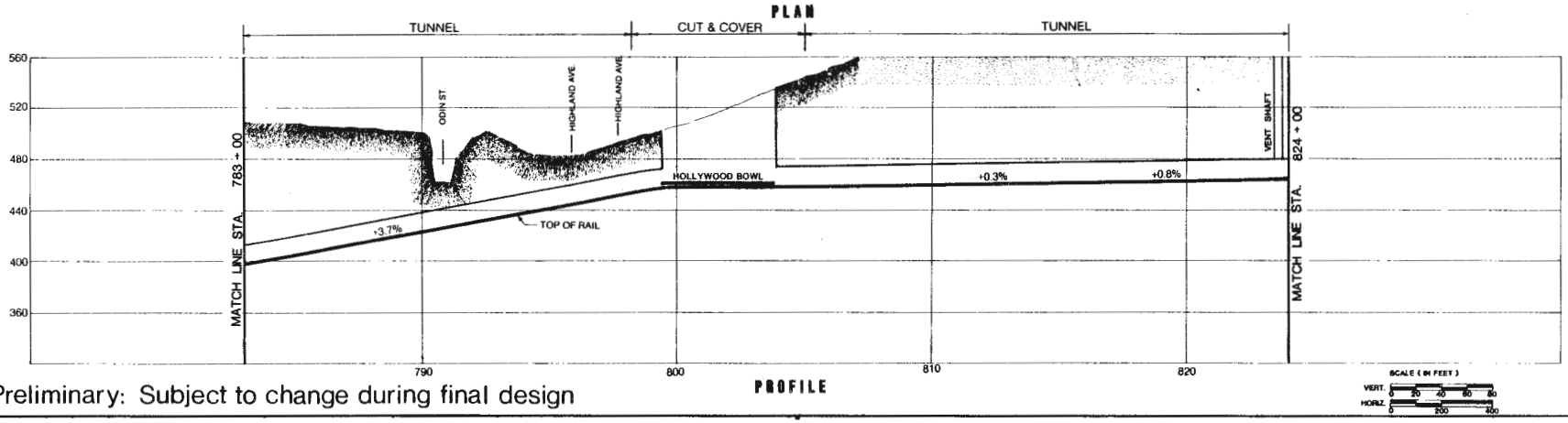


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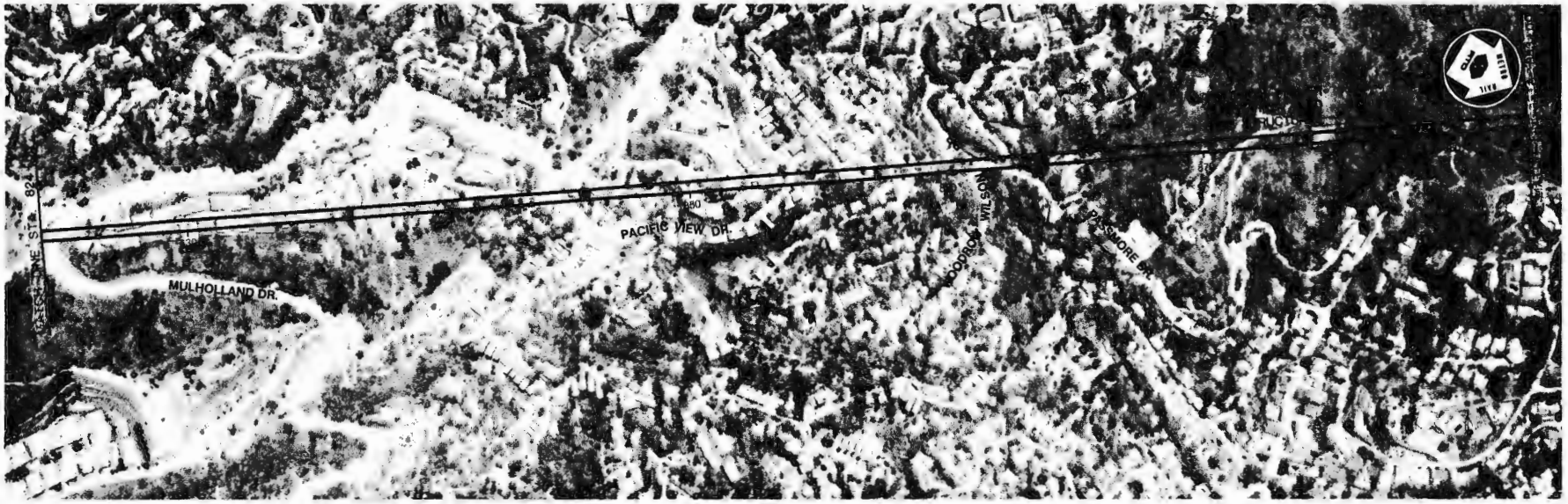
Figure 2-4.15 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



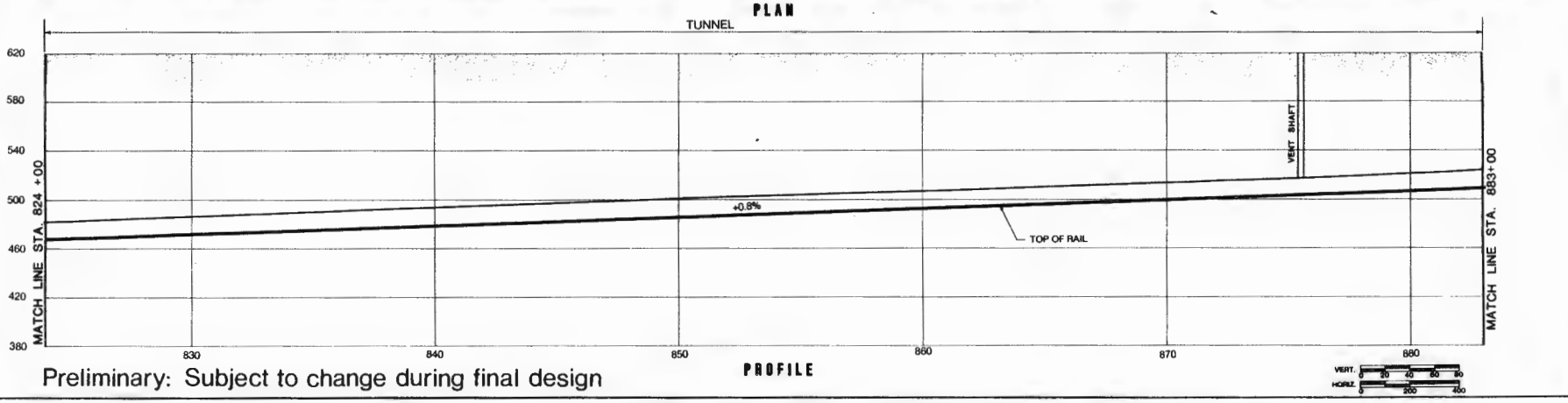


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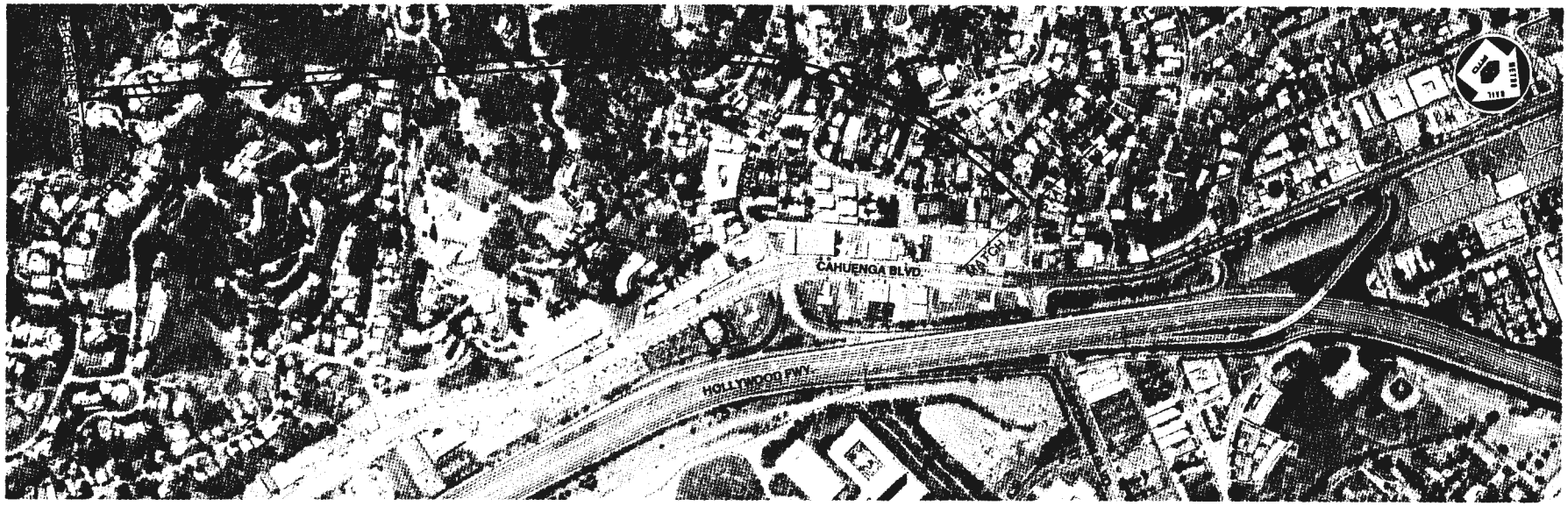
Figure 2-4.16 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



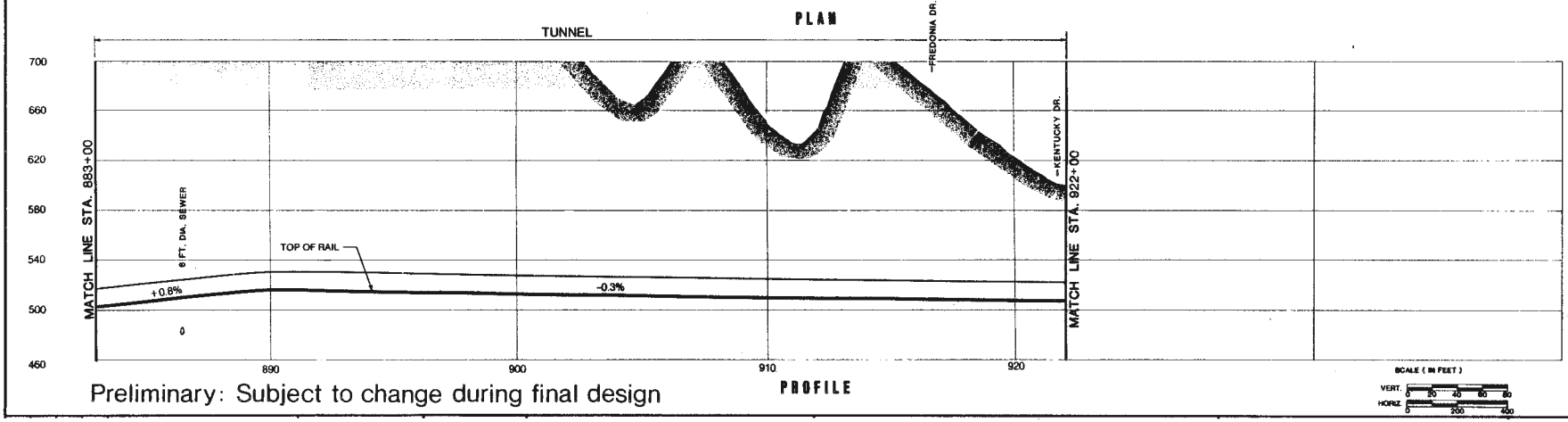


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Figure 2-4.17 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

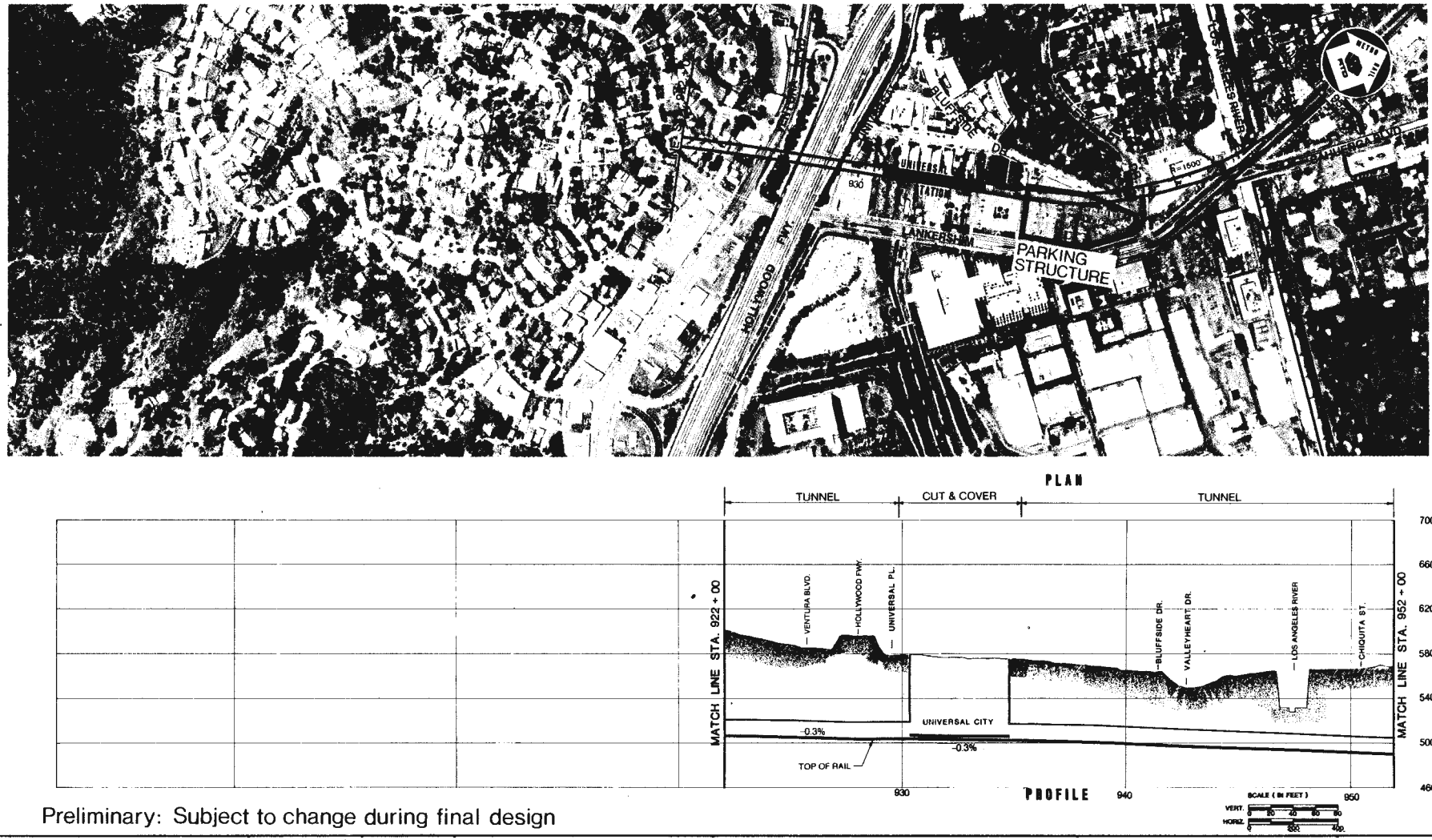

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Figure 2-4.18 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

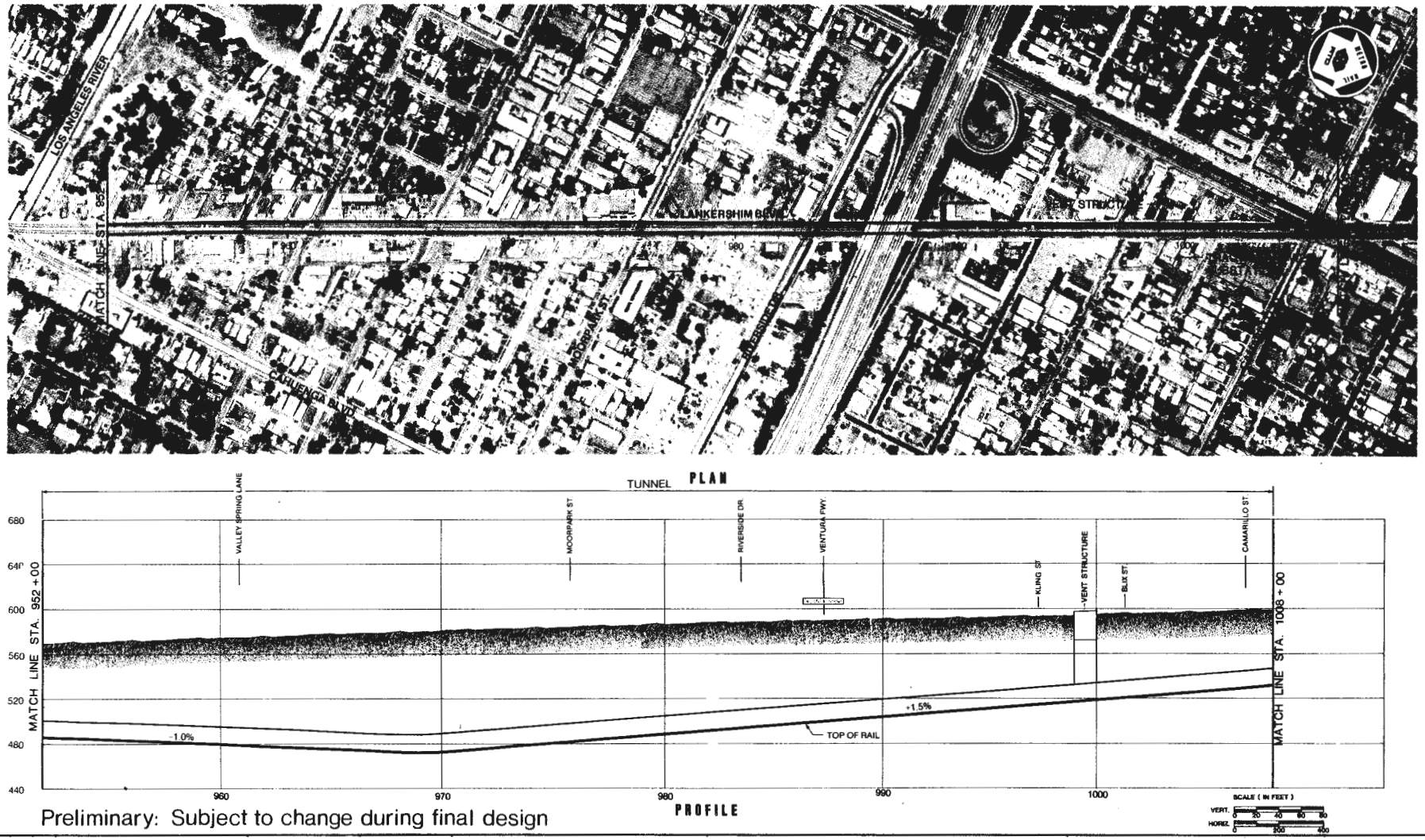

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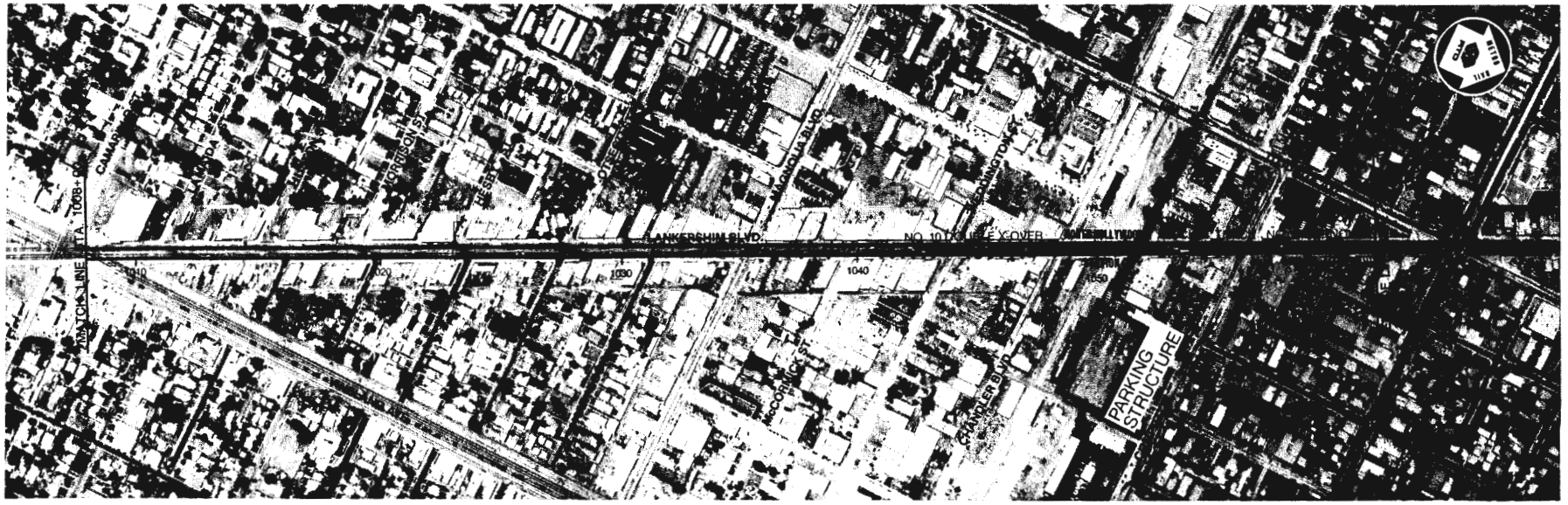
Figure 2-4.19 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD



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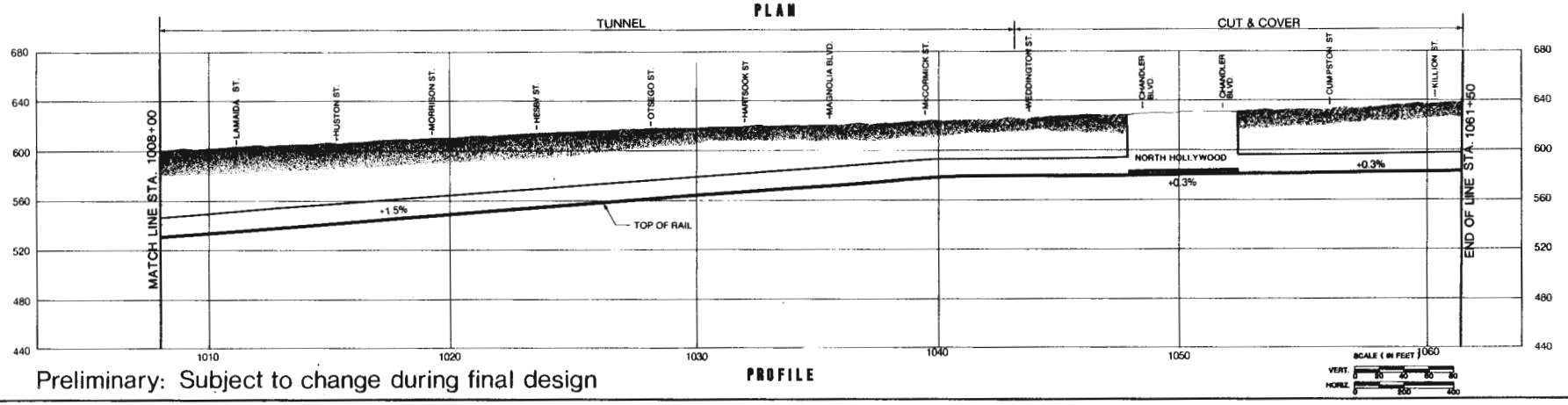

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Figure 2-4.20 Alignment for Locally Preferred Alternative

Source: DMJM/PBQD

is an above ground or subway station, this area may be between the street surface and the platform(s), where it is called a mezzanine, or at street level, where it is called a concourse. The mezzanine/concourse provides space for various functions and typically includes the entire fare collection process, directional and information signs, and amenities for patrons' needs and comfort. The space that patrons enter before ticketing is designated a "free" area, and the space after ticketing is designated a "paid" area. As a cost reduction measure, center support columns are proposed in the mezzanine area.

Architectural Design. Certain station elements will be standardized for economy and ease of use and to establish an identity for the system as a whole. Escalators, stairs, and elevators connect access points to fare collection areas and train platforms, and all stations will have appropriate lighting and ventilation.

Fare Collection. This subsystem deals with the collection of fares from passengers as well as the provision of change and tickets. Locations and types of fare collection areas vary at individual stations. Individual station equipment will vary according to patronage projections for that station, and arrangements may vary as a function of site specific mezzanine and station entrance configurations. Both barrier and barrier-free ticketing systems are being considered for the rail transit project.

Parking. At rail transit stations, two types of parking can be provided:

- Drop-off and pick-up of patrons by auto (termed "kiss and ride") requires only a small amount of space for temporary parking.

- "Park and ride" locations provide long term parking where a significant number of patrons are expected to drive themselves to the station. This will consist of surface parking lots initially except for 175 spaces in the May Company structure. Parking structures will be built later to provide planned parking capacity.

Kiss and ride spaces are proposed at seven stations: Wilshire/Alvarado, Wilshire/Vermont, Wilshire/Fairfax, Fairfax/Beverly, Hollywood/Cahuenga, Universal City, and North Hollywood. The projected demand for kiss and ride at other stations is generally smaller and will be accommodated on streets near the station entrances. Park and ride facilities are proposed at Union Station, Wilshire/Fairfax, Fairfax/Beverly, Universal City, and North Hollywood. In order to reduce the initial cost of the system, construction of parking structures at these locations is planned, but they will be deferred until alternative funding sources have been identified. The total number of park and ride spaces planned is 2,905 surface and 175 in structure initially and 8,675, all in structure, ultimately. Amounts at each station are shown in Table 2-2. The structures at Universal City and North Hollywood would about be five levels, while those at the other three stations would be four levels. (An alternative at Universal City would provide two structures of three levels each.)

Bus Access. An important criterion in the location of stations is their proximity to major bus routes that provide feeder service. Bus access is provided either as off-street terminals or on-street bus bays. Off-street terminals are planned for eight stations. These will include separate areas for passenger boarding/alighting and bus layover and will be used in most cases by buses terminating at the stations. On-street bus bays, or turnouts, will be provided adjacent to ten stations and will generally be used by buses not terminating at the stations. Bus terminal sizes and turnout locations for each station are also shown in Table 2-2.

TABLE 2-2

SUMMARY OF STATION ACCESS FEATURES

Station	Right-of-Way Location	Bus Facilities (spaces)		Auto Facilities (spaces)	
		Terminal[1]	Turnout	Park & Ride[2]	Passenger Drop-off/Pick-up[3]
Union Station	off-street	27 + 20	—	300/2,500	—
Civic Center	Hill	—	Hill	—	—
Fifth/Hill	Hill	—	—	—	—
Seventh/Flower	Seventh	—	—	—	—
Wilshire/Alvarado	off-street	—	Alvarado	—	26
Wilshire/Vermont	off-street	3 + 3	Vermont, Sixth	—	20
Wilshire/Normandie	Wilshire	—	Normandie	—	—
Wilshire/Western	Wilshire	0 + 5	Western	—	—
Wilshire/Crenshaw	Wilshire	4 + 3	—	—	—
Wilshire/La Brea	Wilshire	—	La Brea	—	—
Wilshire/Fairfax	off-street	12 + 10	Wilshire, Fairfax, Ogden	175	In Park & Ride lot
Fairfax/Beverly	off-street	—	Beverly	250/1,000	In Park & Ride lot
Fairfax/Santa Monica	Fairfax	—	Santa Monica	—	—
La Brea/Sunset	Sunset	—	—	—	—
Hollywood Cahuenga	off-street	3 + 6	—	—	99
Universal City	off-street	8 + 10	—	1,175/2,500	40
North Hollywood	Lankershim	6 + 6	Chandler	1,180/2,500	65

Source: SCRTD, Milestone 10 Report: Fixed Facilities, 1983.

Note: Bicycle racks or lockers will be provided at all but the three CBD stations and Wilshire/Normandie.

[1]Bus capacities shown are (de) boarding and layover locations, respectively.

[2]Park and ride capacities shown are surface-only and with-structures, respectively.

[3]Also referred to as kiss and ride.

Bicycle Access. Bicycle racks or lockers for bicycles are provided at all but the three CBD and Wilshire/Normandie Stations.

Equipment Spaces. These facilities house the equipment required to operate and maintain the station. The facilities include electrical distribution rooms, fan rooms, and traction power substations that supply power to propel the passenger trains, as well as rooms for more general purpose functions such as trash collection, etc. Equipment spaces would generally be located at the track level beyond the platforms and at mezzanine levels beyond tse public areas.

Station Locations. Station locations and design characteristics for the rail transit stations of the Locally Preferred Alternative with selected renderings are shown in Figures 2-5 through 2-26. Like the plans and profiles, these station plans are subject to change during Final Design.

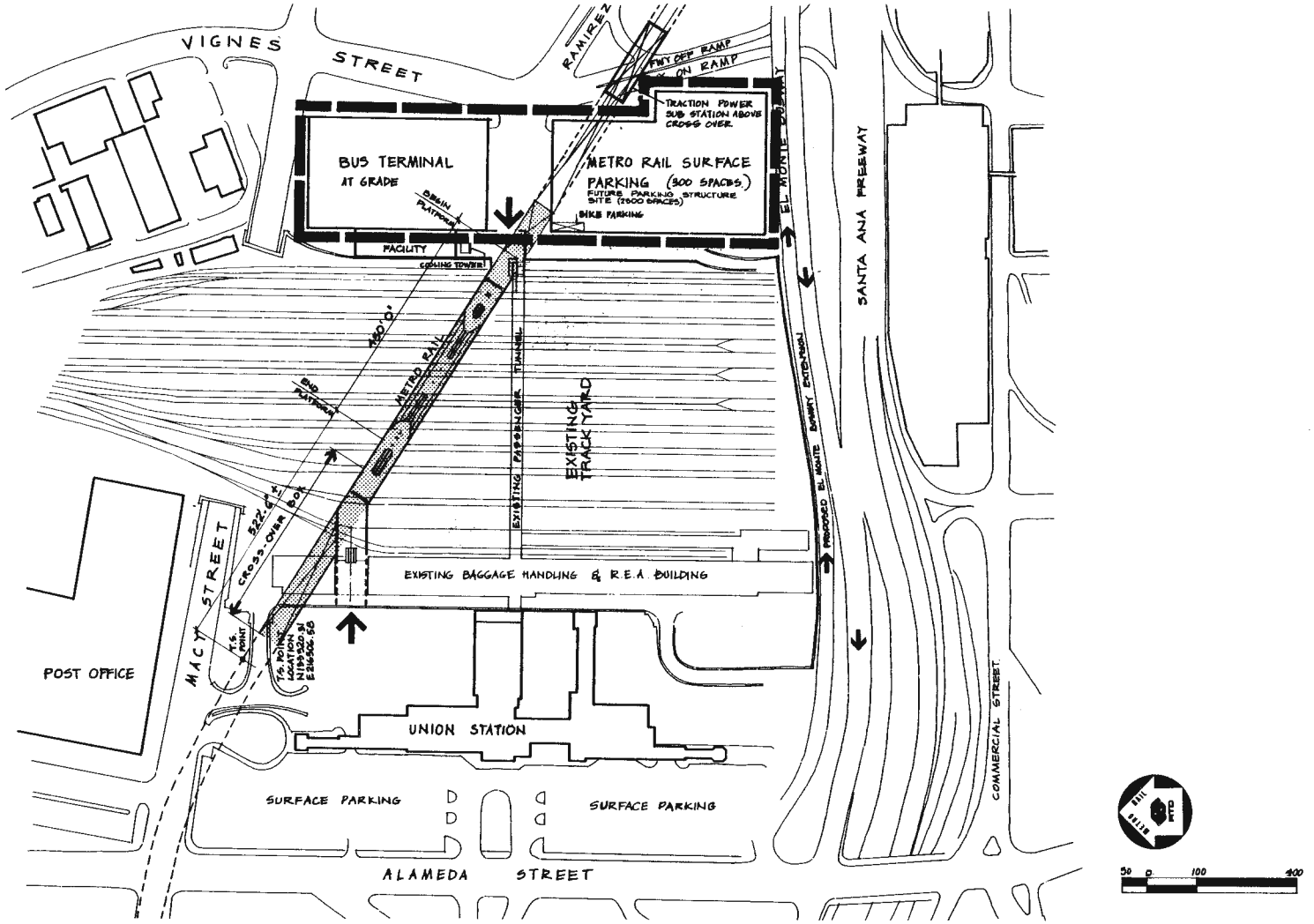
2.2.3 YARDS AND SHOPS

Common to all Project alternatives is a 45-acre major repair shop and storage yard, proposed in the downtown industrial area (Figure 2-27). The yards and shops provide space for the following functions: storage of trains when not in mainline service; dispatch, receipt, and change in trains for mainline service; interior and exterior cleaning of trains; preventive and corrective maintenance of cars; and testing of cars before revenue service and after major repairs. In addition to the main yard and shop, a minor maintenance or storage facility is proposed for each alternative. Under the Locally Preferred Alternative, operating storage will be provided by two stub-ended tail tracks, 500 feet long, north of the terminal station at Lankershim/ Chandler.

2.2.4 SUBSYSTEMS

Subsystems, the operating equipment portions of the rail transit project, include passenger vehicles, train control, communications, traction power, and fare collection. The following discussion covers train control, communication, and traction power only, since the other subsystems have already been described elsewhere.

Train Control. Metro Rail trains would be controlled automatically and manually. A central control facility would be located in a separate operations control center in the downtown area near Union Station. The facility would house the necessary displays, control consoles, communication apparatus, and operating personnel responsible for the overall safety and security of passengers, and for the daily operation of trains, stations, and all supporting wayside apparatus. Central Control would serve as the focal point from which all Metro Rail operations would be supervised. Automated train controls would be installed to ensure train protection.



Preliminary: Subject to change during final design

Southern California Rapid Transit District

Metro Rail Project

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Figure 2-5

Union Station - Station Location for Locally Preferred Alternative

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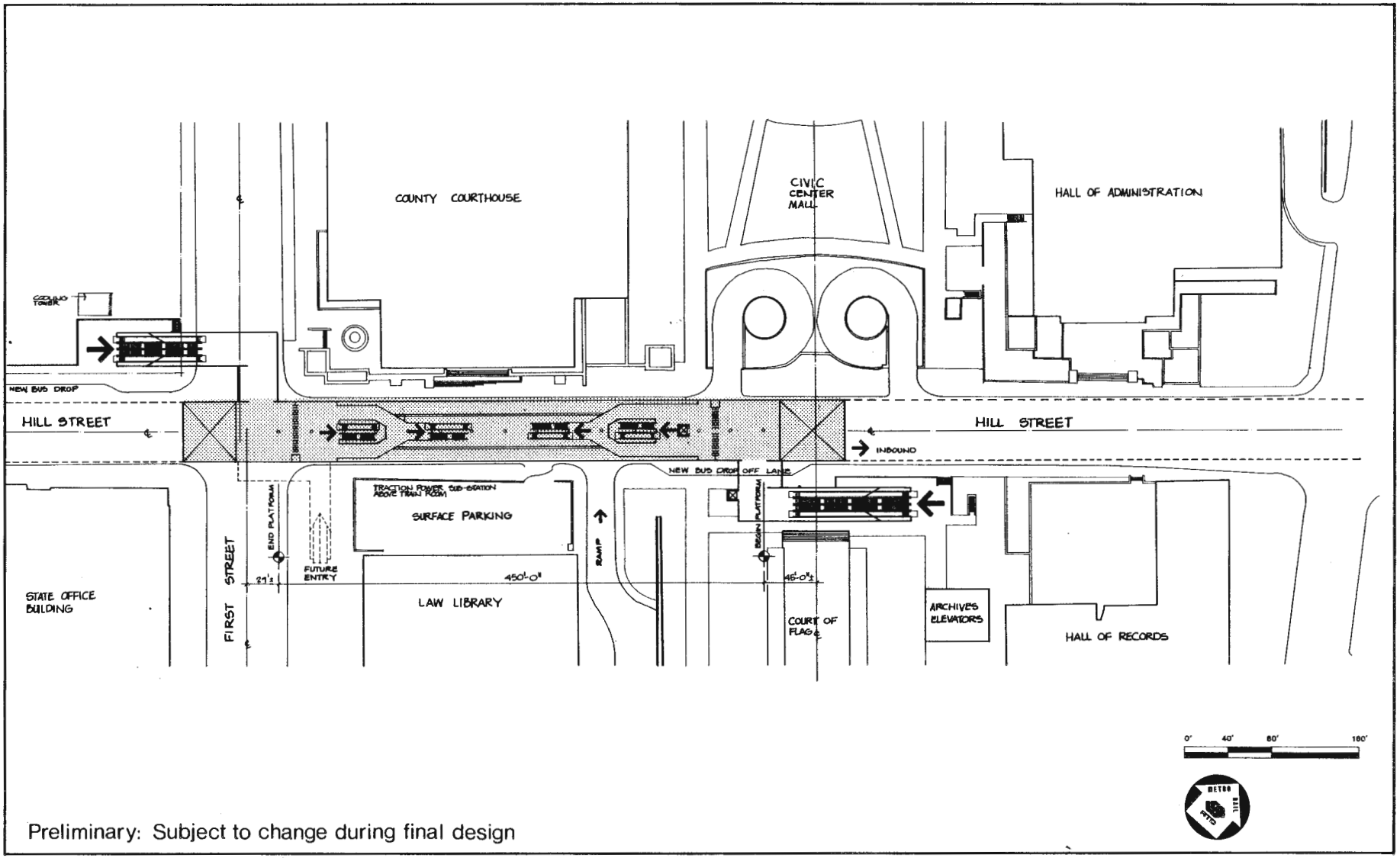

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Figure 2-6

Civic Center Station Location for Locally Preferred Alternative
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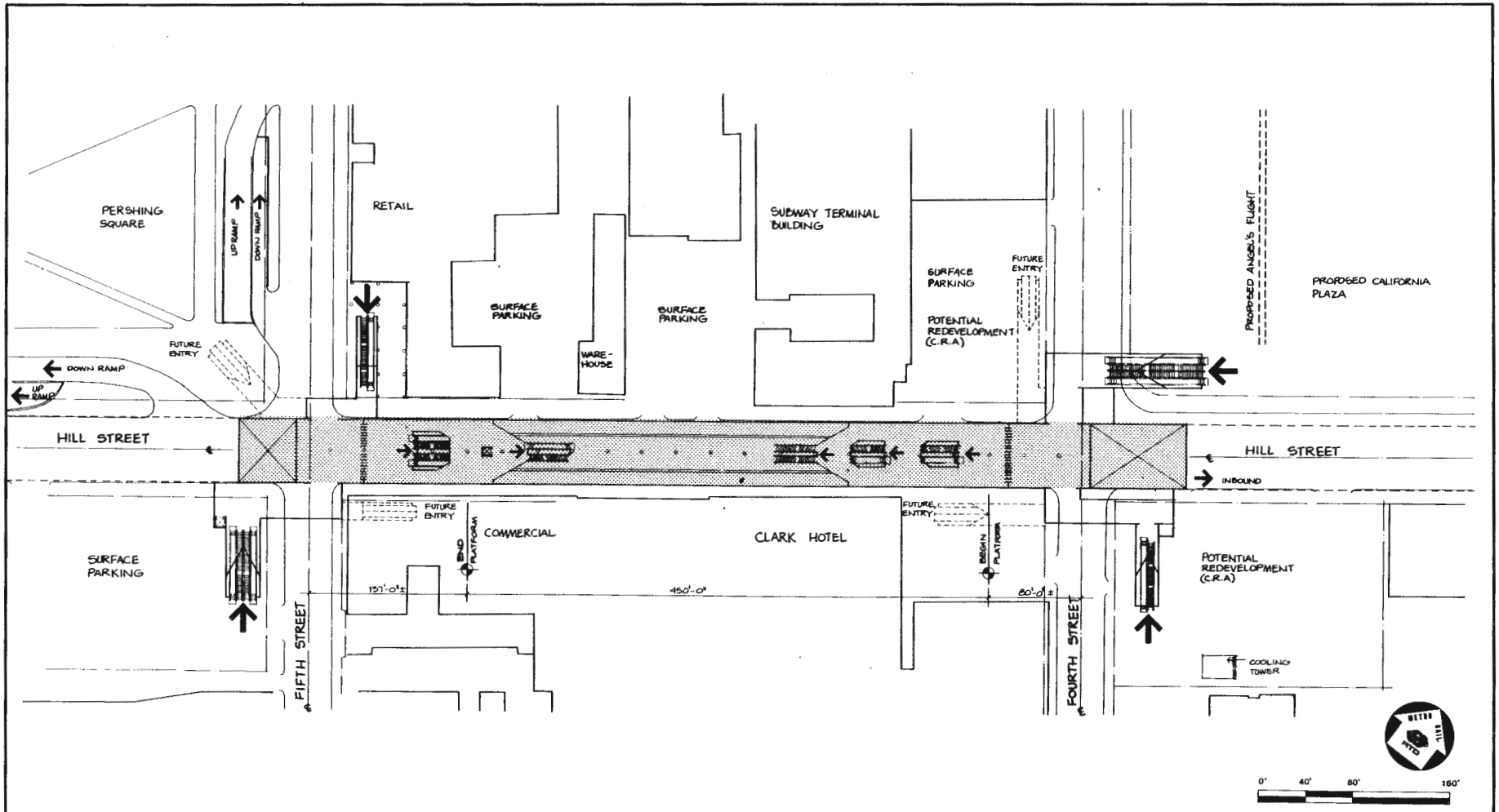

Preliminary: Subject to change during final design

Southern California Rapid Transit District

Metro Rail Project

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Figure 2-7

Fifth/Hill Station Location for Locally Preferred Alternative

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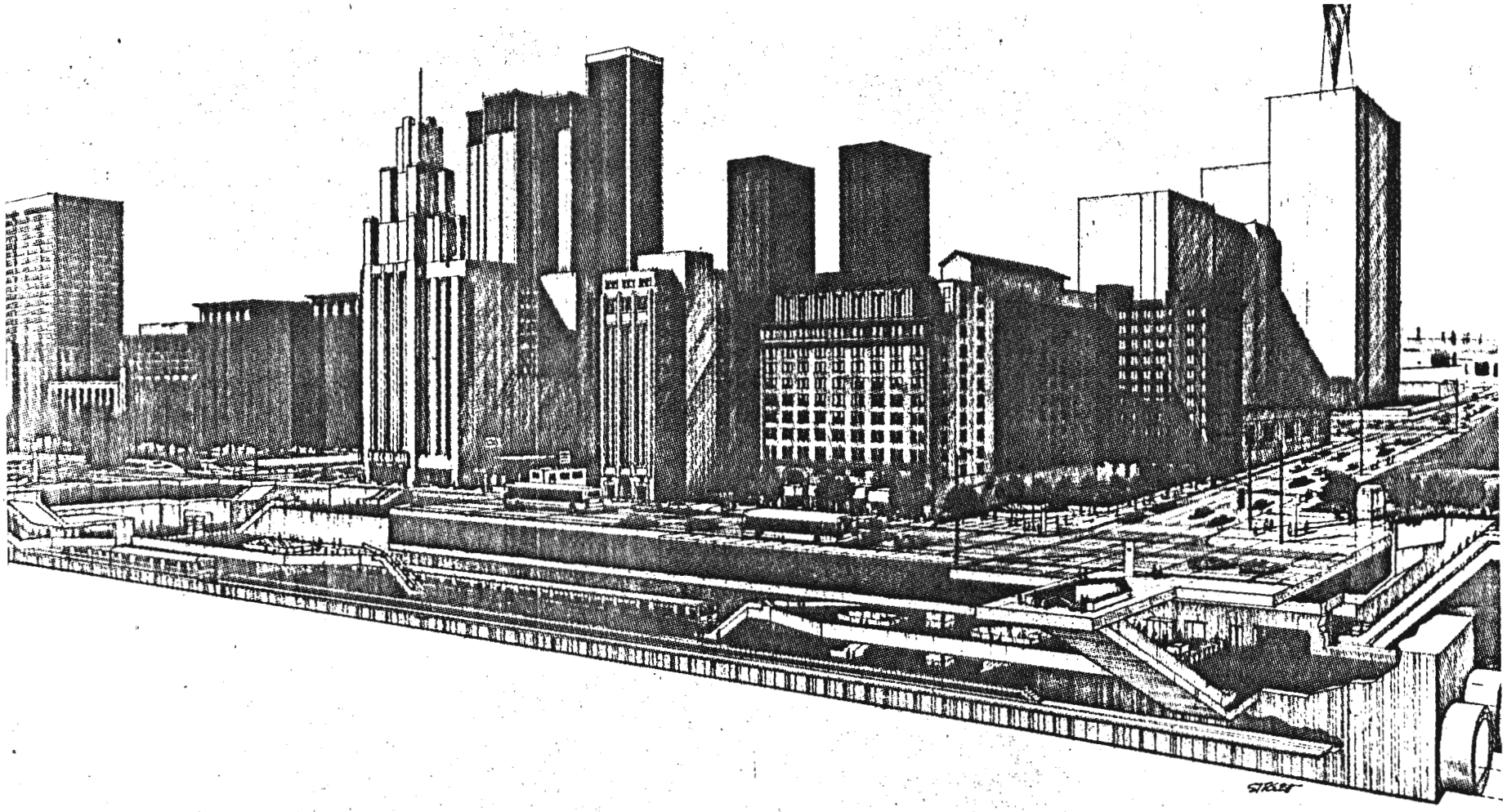

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Figure 2-8

Fifth / Hill Station
Cutaway Looking West

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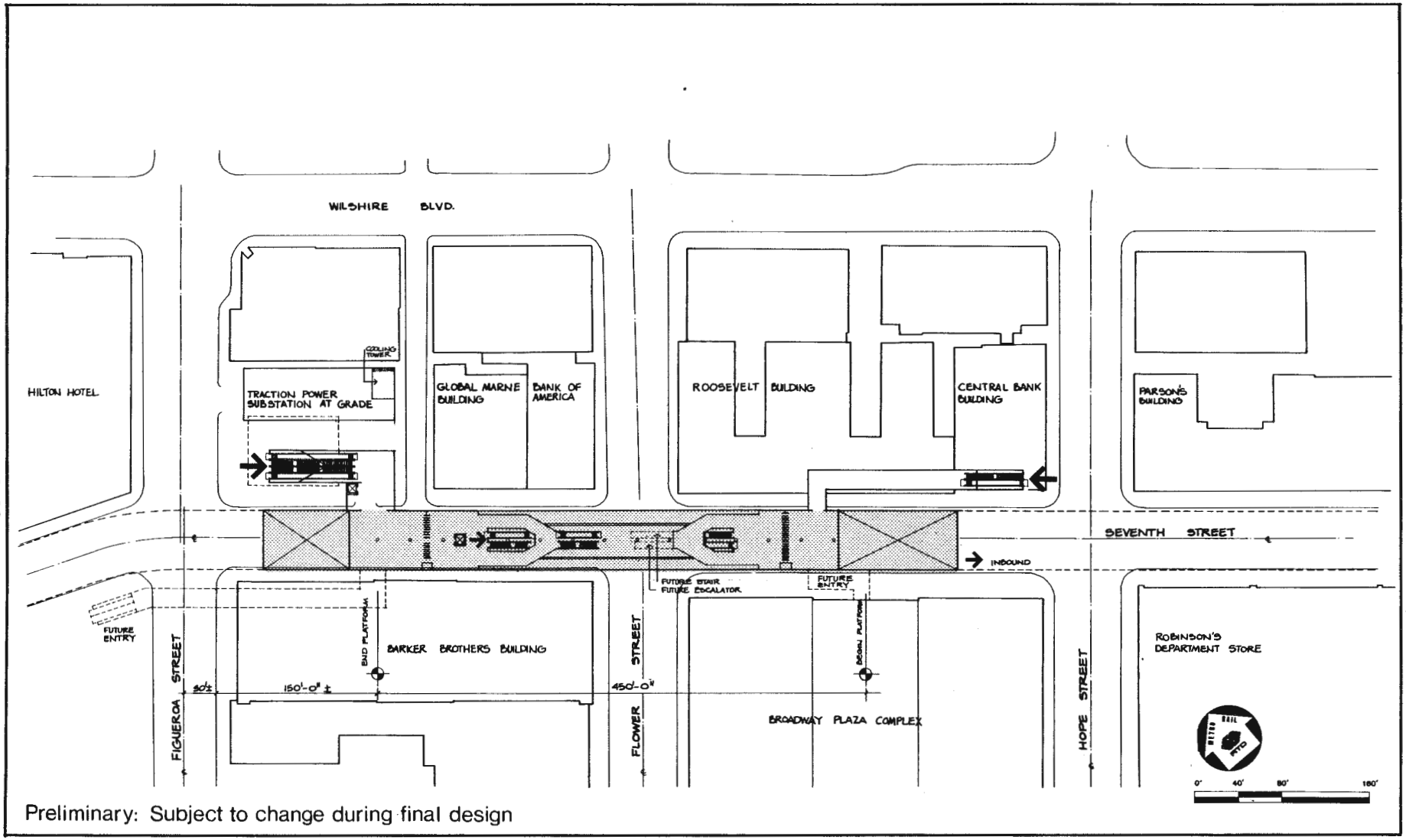

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Southern California Rapid Transit District

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Figure 2-9

Seventh/Flower Station Location for Locally Preferred Alternative

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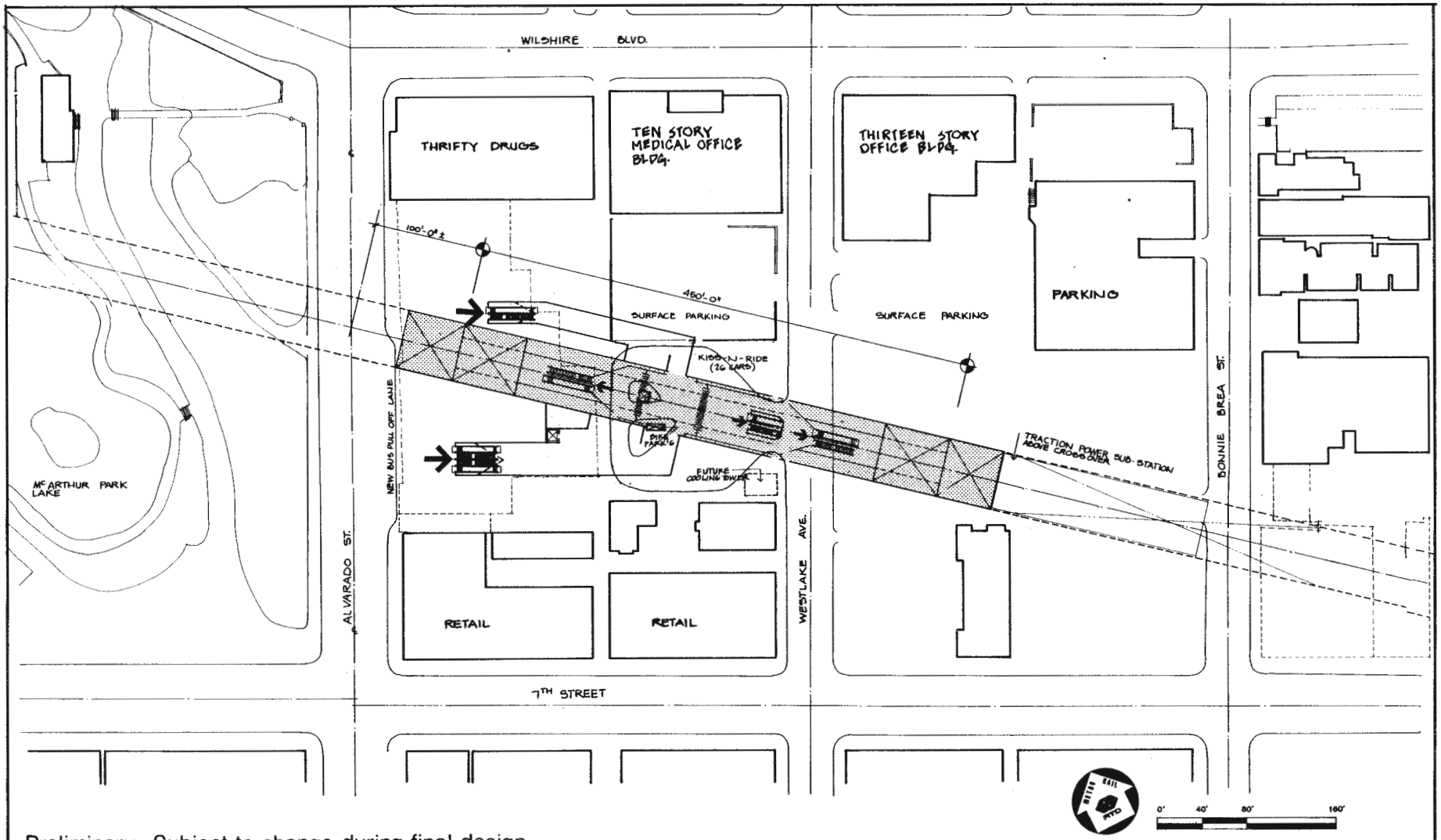

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Figure 2-10

Wilshire/Alvarado Station Location for Locally Preferred Alternative

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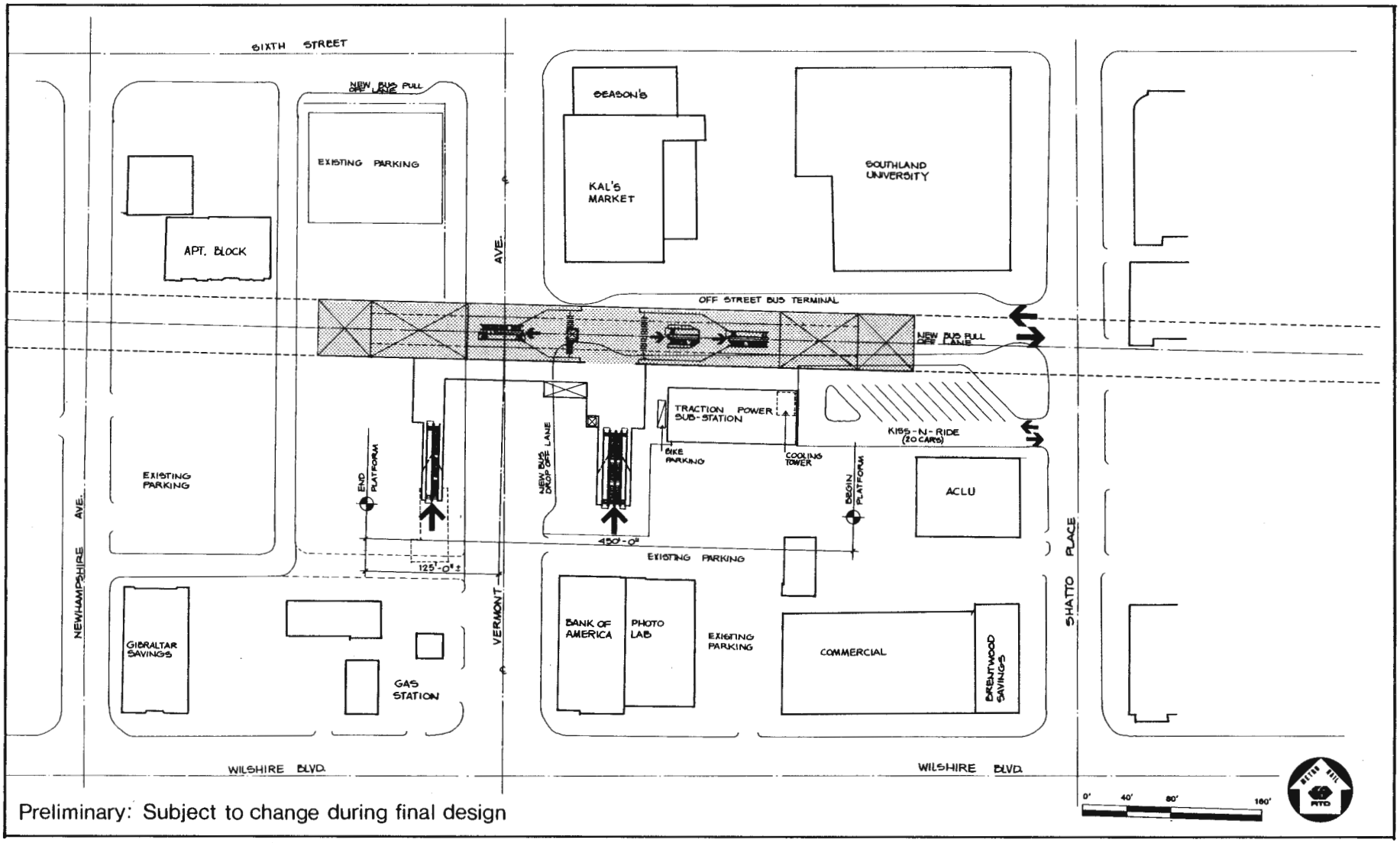

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Figure 2-11

Wilshire/Vermont Station Location for Locally Preferred Alternative

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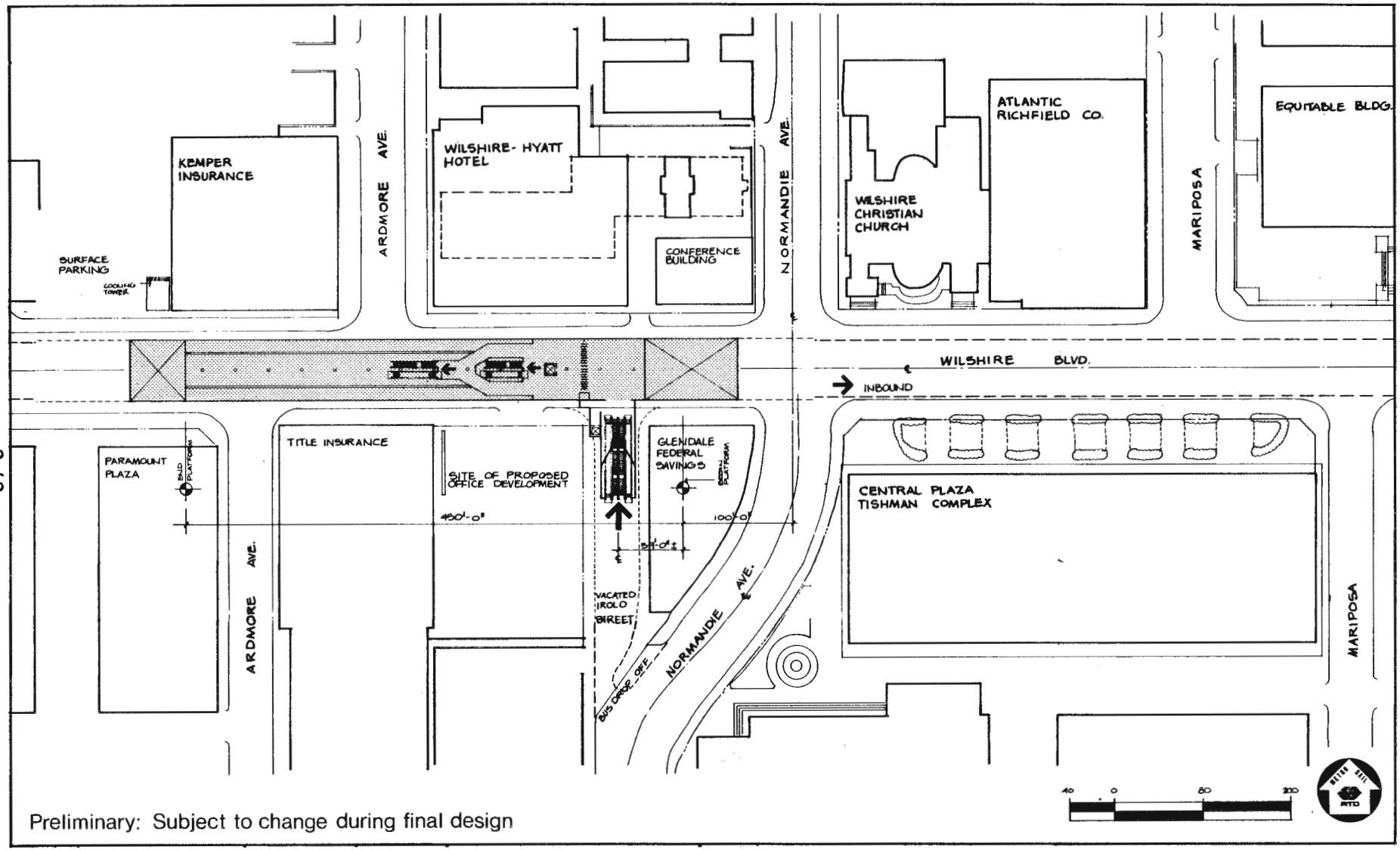

Preliminary: Subject to change during final design

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Figure 2-12

Wilshire/Normandie Station Location for Locally Preferred Alternative

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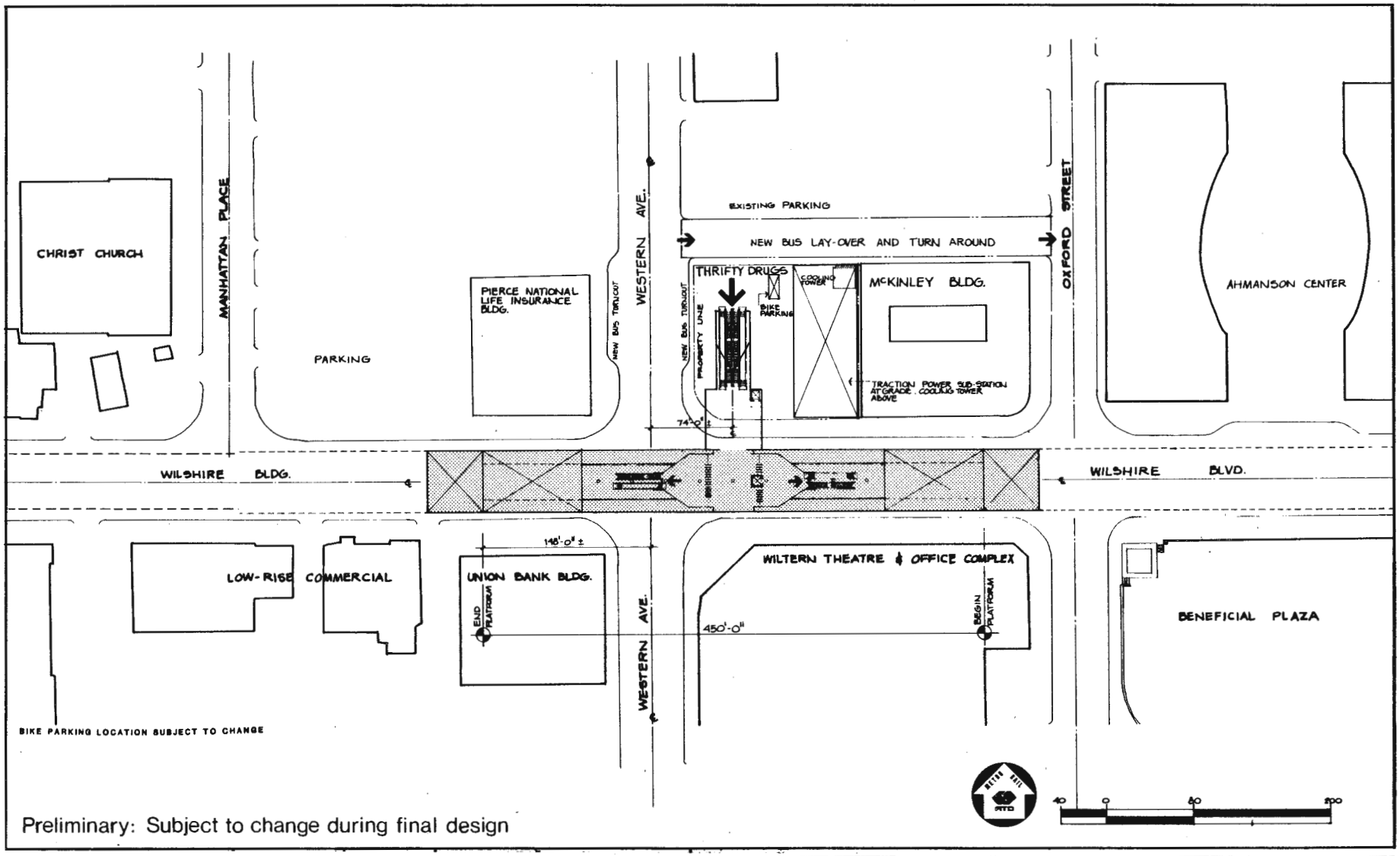

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Metro Rail Project
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Figure 2-13

Wilshire/Western Station Location for Locally Preferred Alternative
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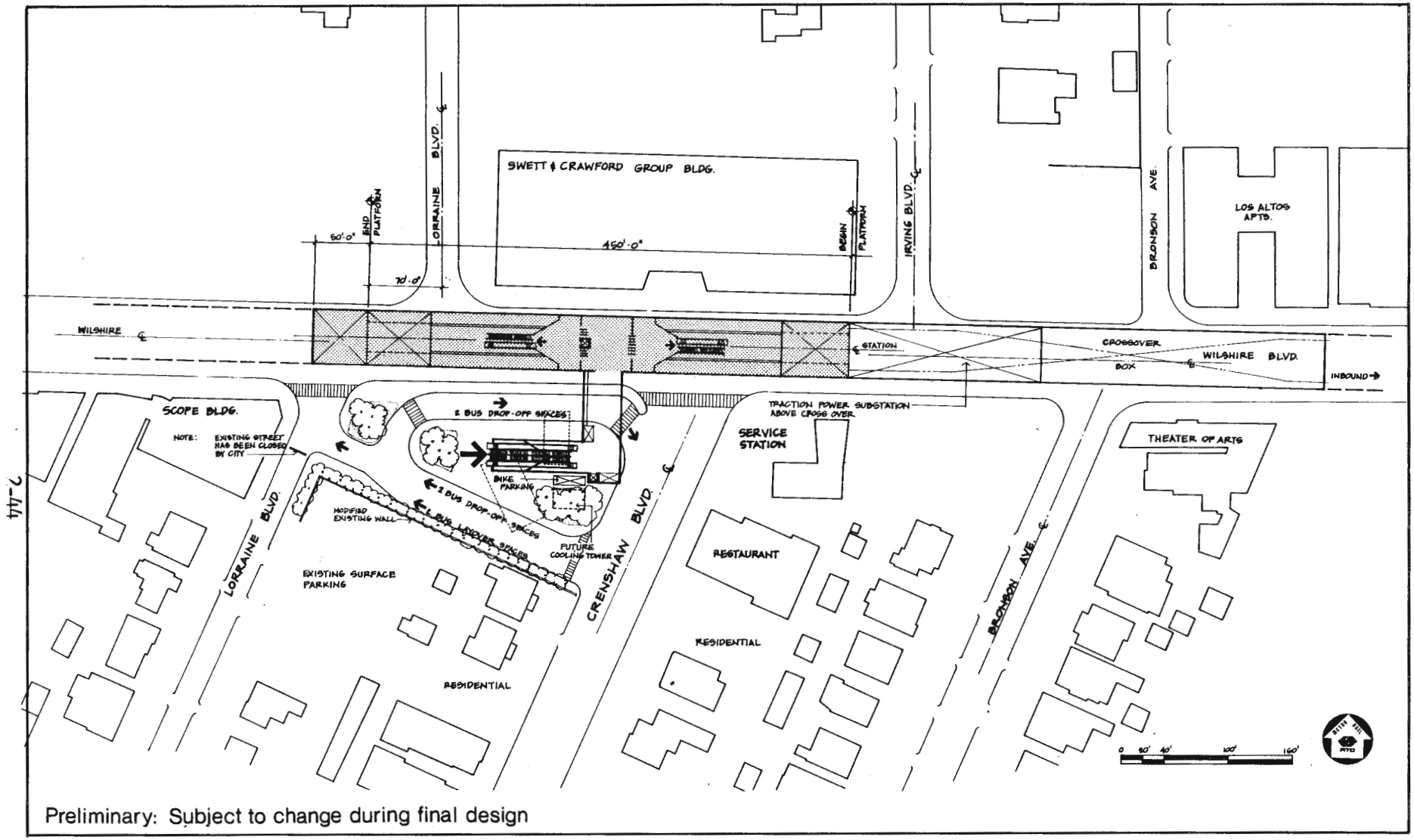

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Metro Rail Project

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Figure 2-14

Wilshire/Crenshaw Station Location for Locally Preferred Alternative

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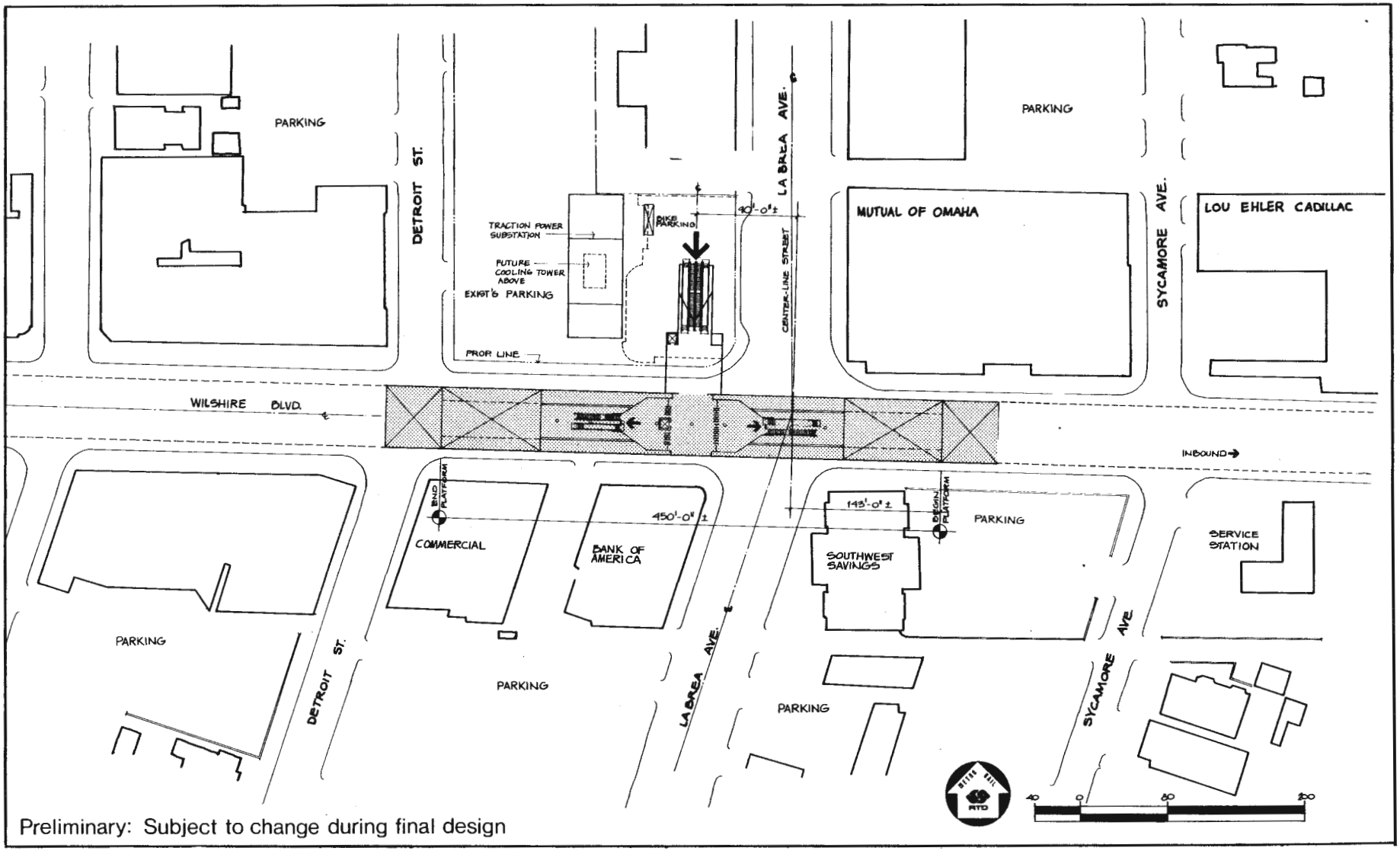

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Figure 2-15

Wilshire/La Brea Station Location for Locally Preferred Alternative

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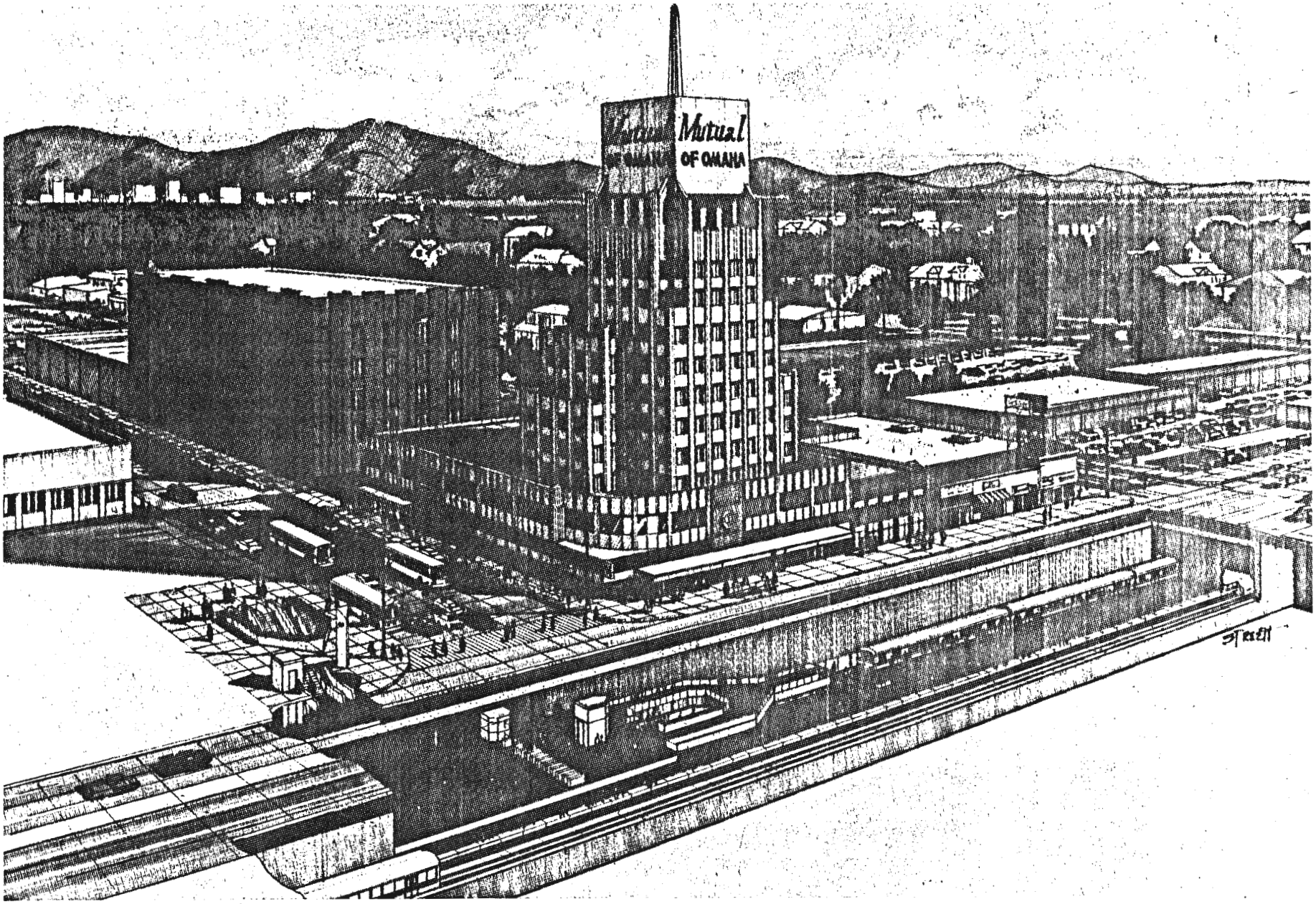

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Figure 2-16

Wilshire / La Brea Station

Cutaway Looking North

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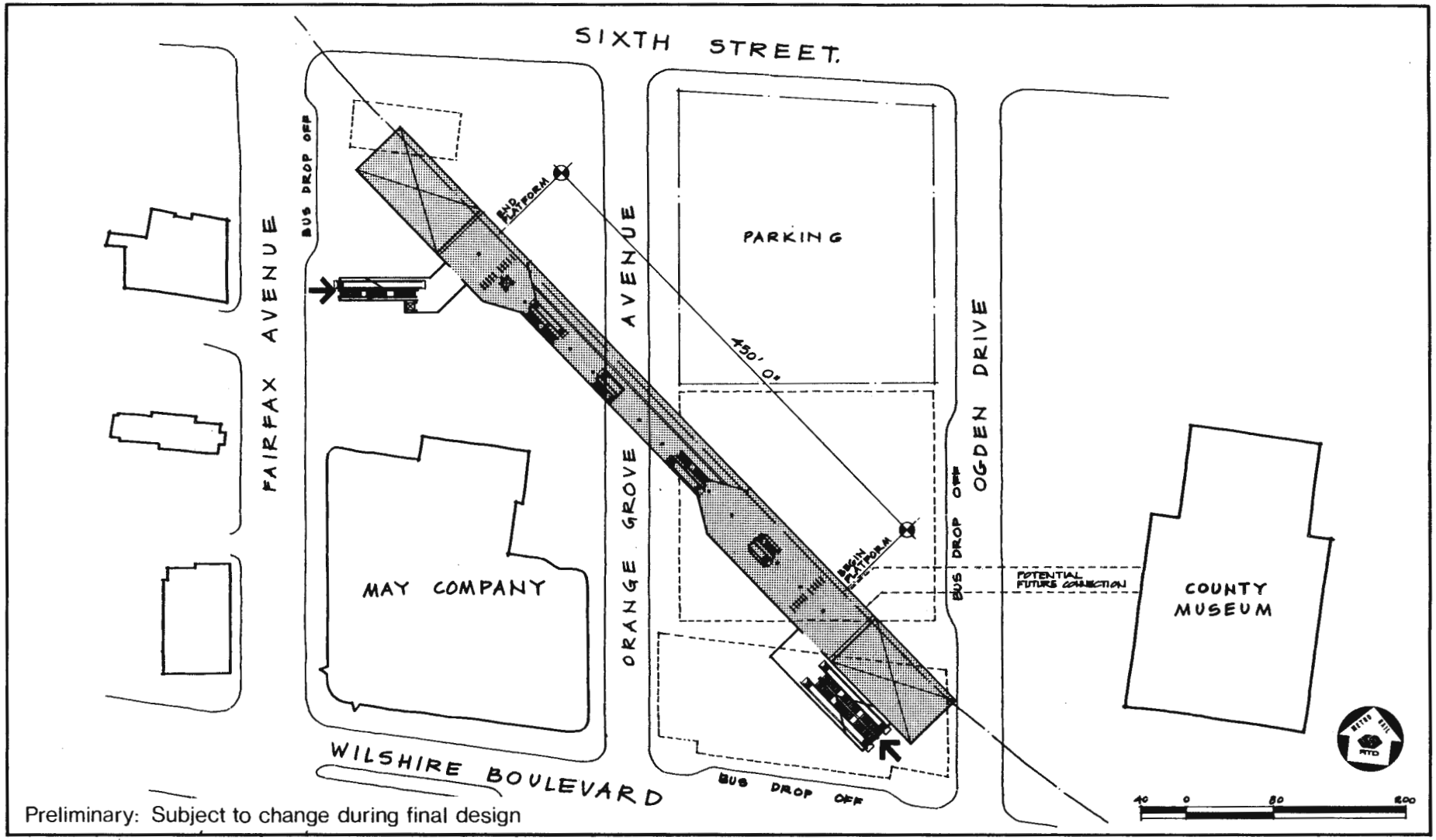

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Metro Rail Project

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Figure 2-17

Wilshire/Fairfax Station Location for Locally Preferred Alternative

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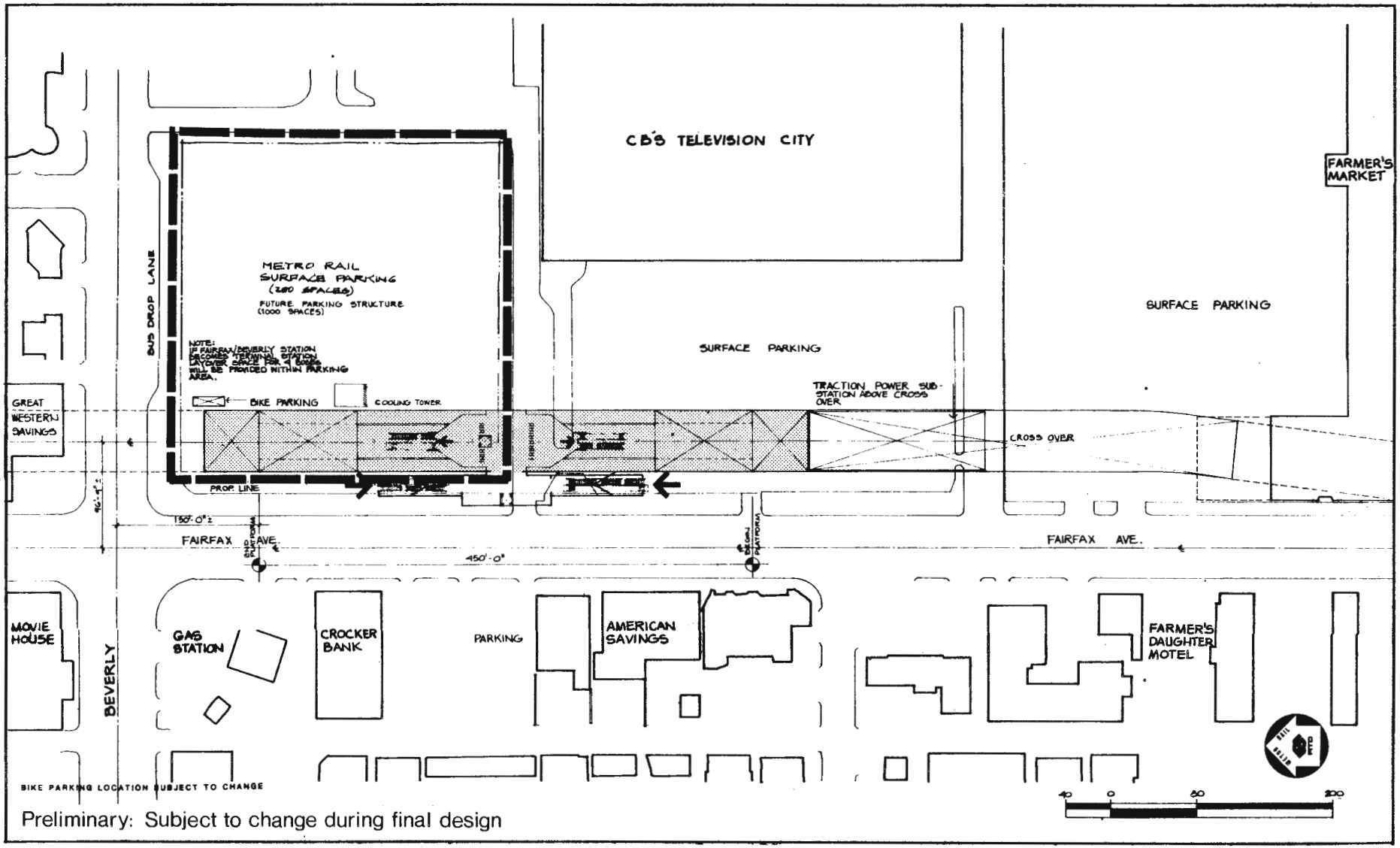

Preliminary: Subject to change during final design

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Figure 2-18

Fairfax/Beverly Station Location for Locally Preferred Alternative

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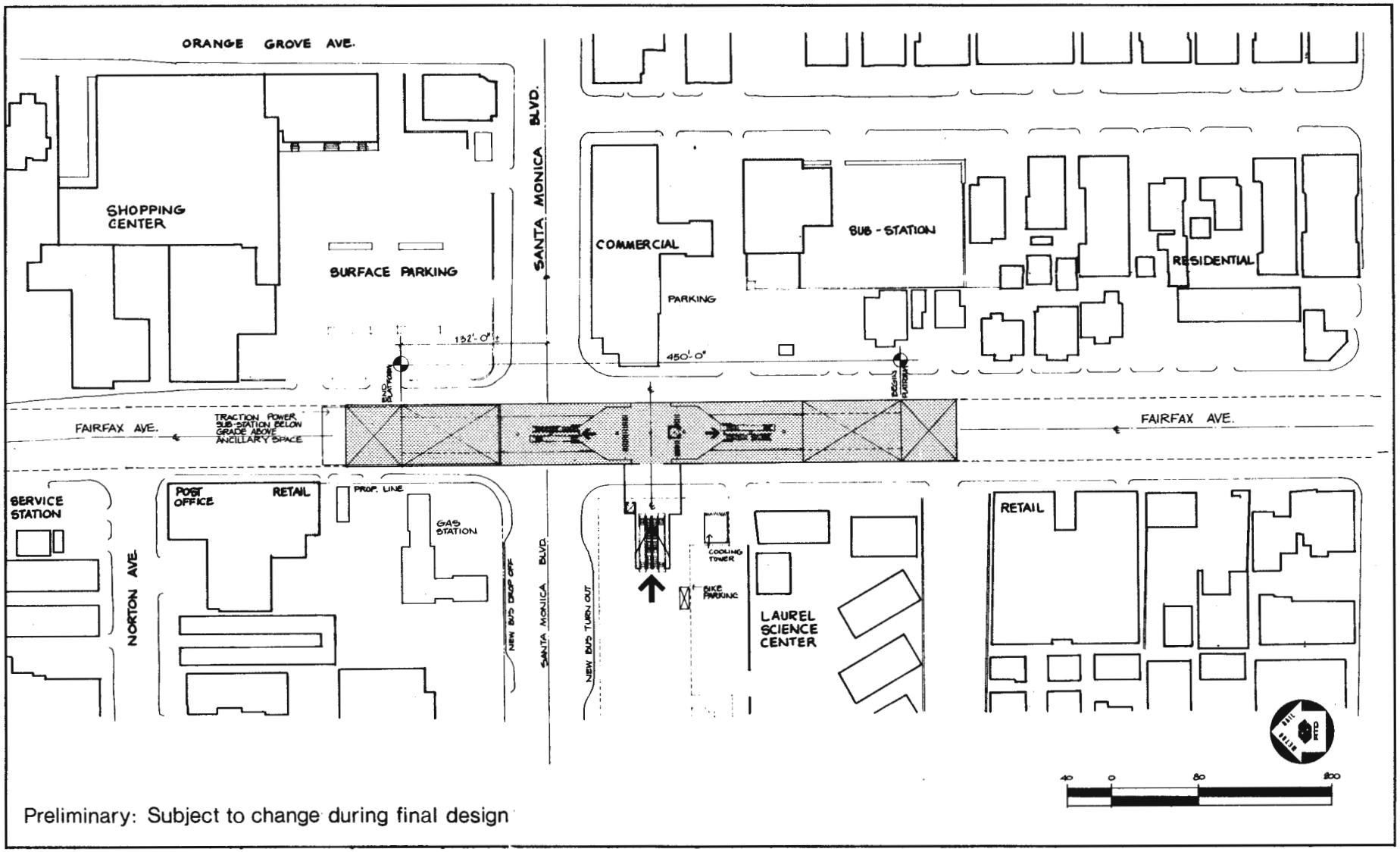

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Figure 2-19 **Fairfax/Santa Monica Station Location for Locally Preferred Alternative**

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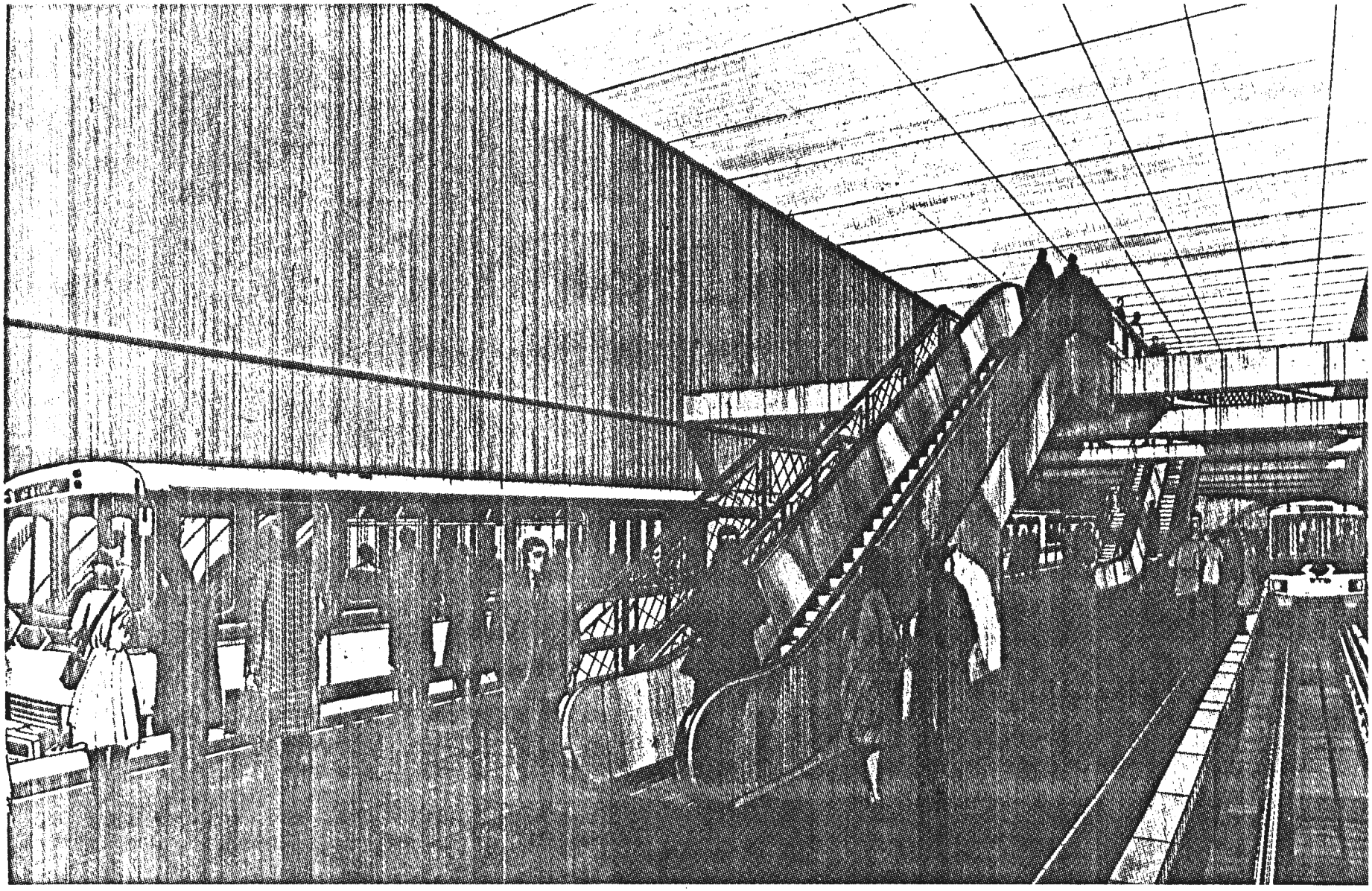

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Figure 2-20 **Illustrative Example of Station Interior**
Clearspan End Mezzanine
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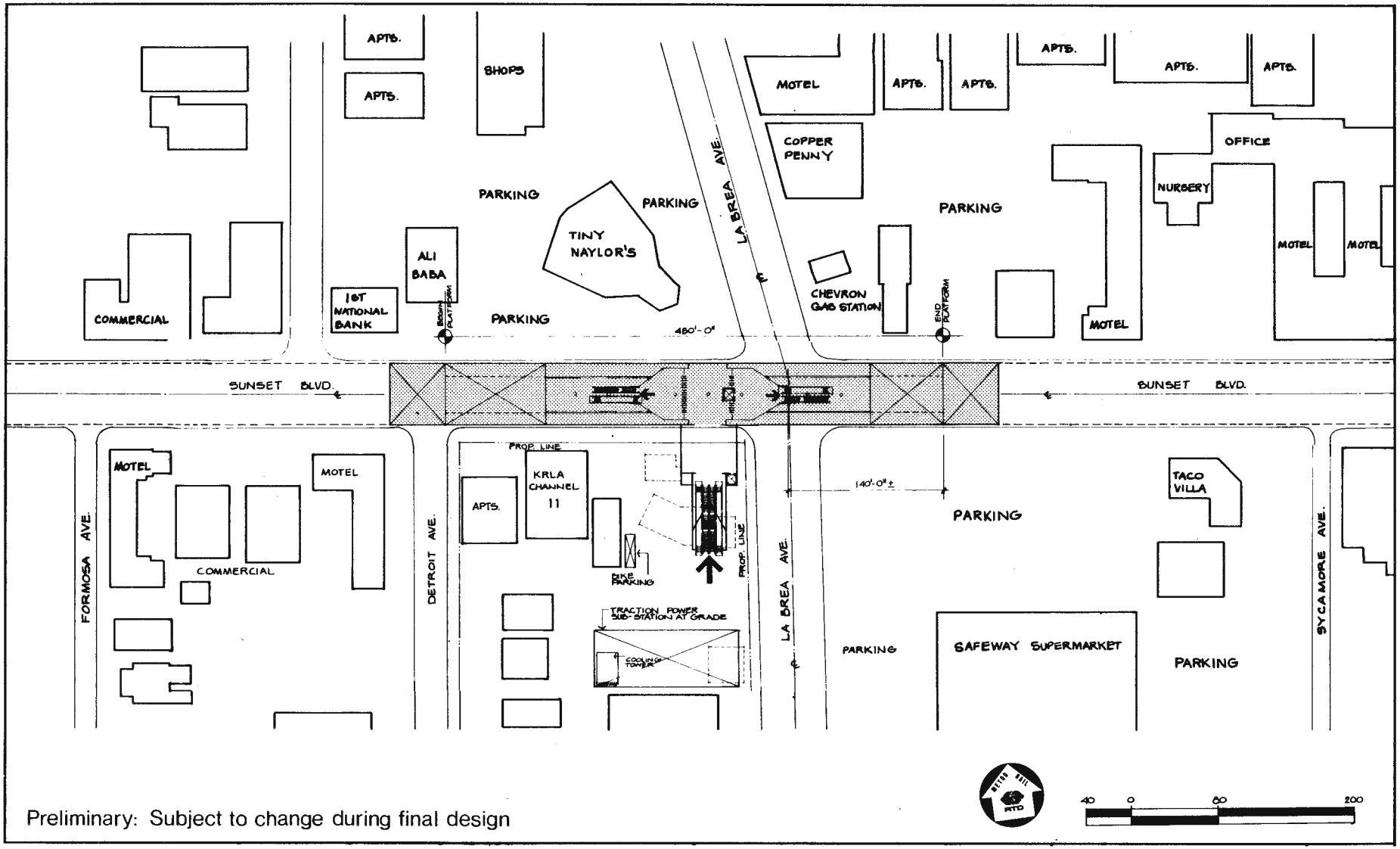

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Figure 2-21

La Brea/Sunset Station Location for Locally Preferred Alternative
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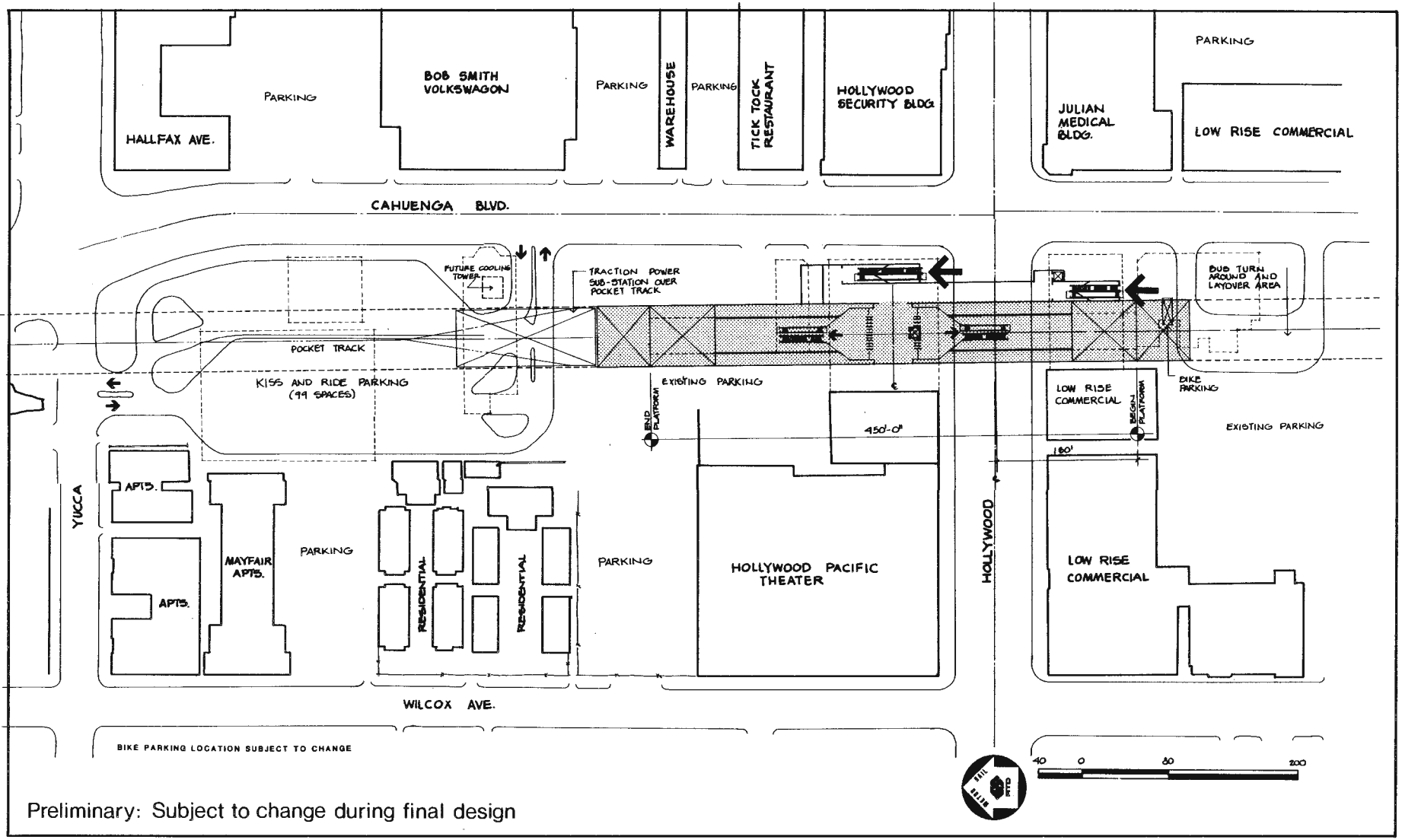

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Figure 2-22 **Hollywood/Cahuenga Station Location for Locally Preferred Alternative**

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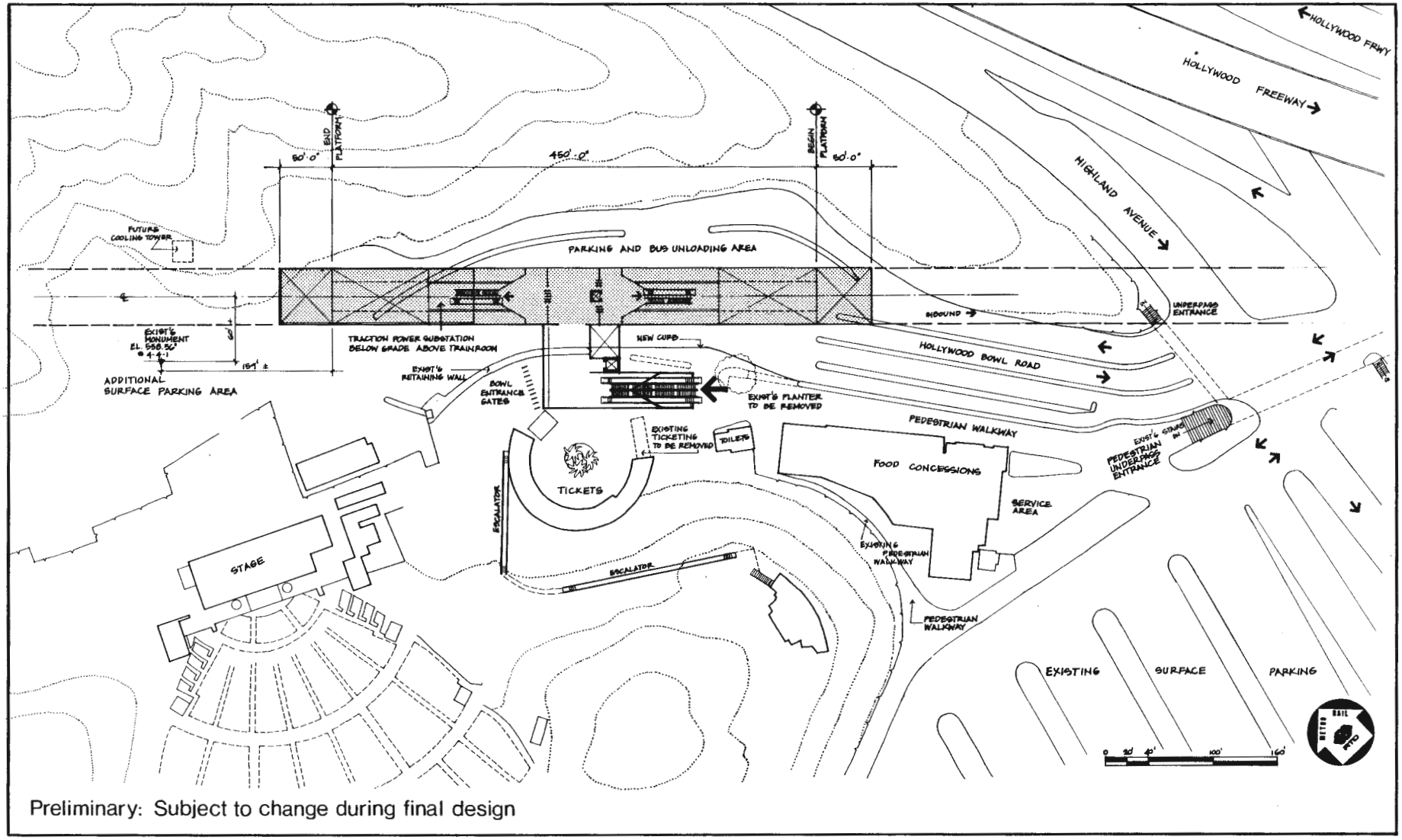

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Figure 2-23

Hollywood Bowl Station Location for Locally Preferred Alternative
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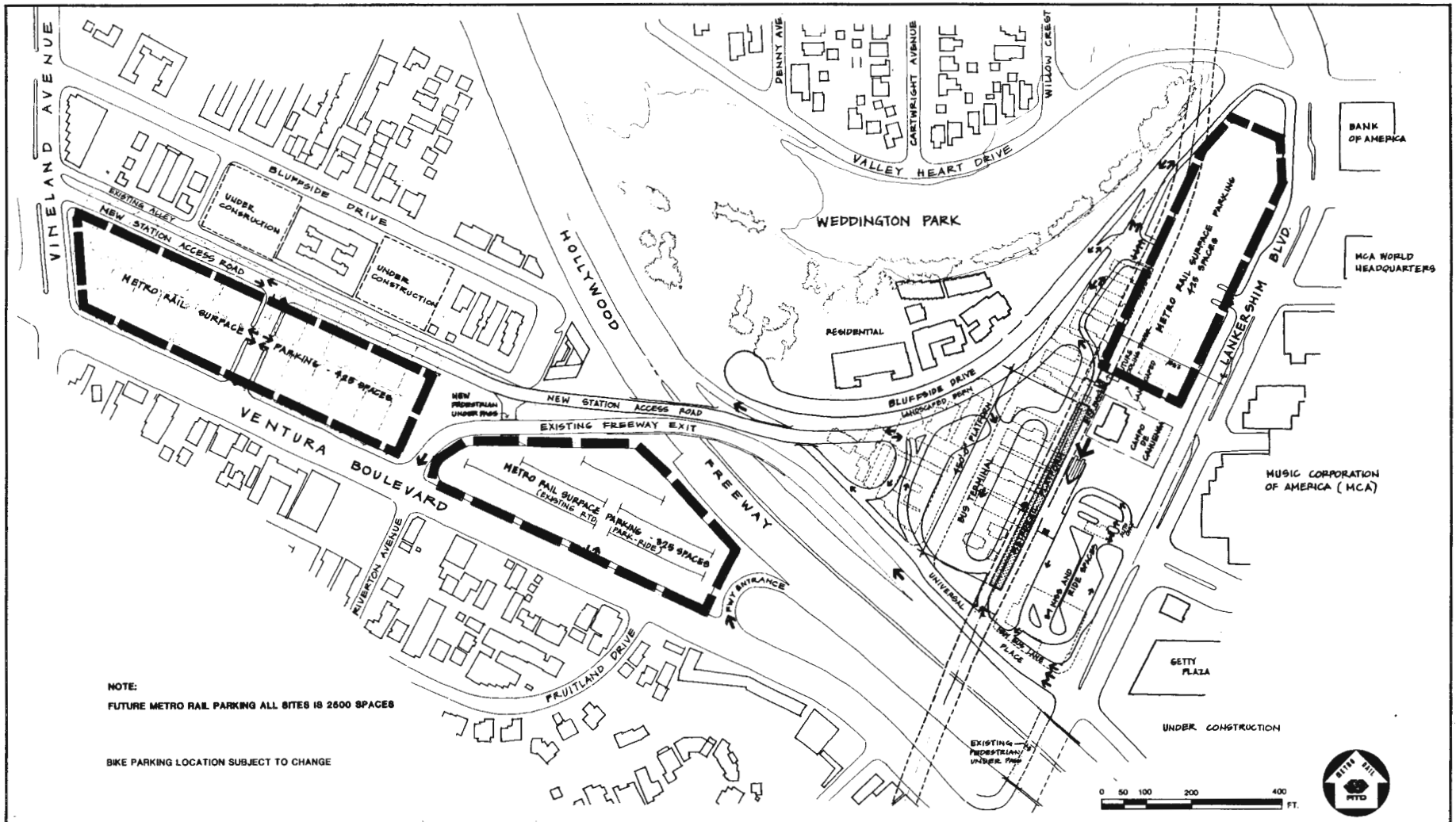

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Figure 2-24.1

Universal City Station Area

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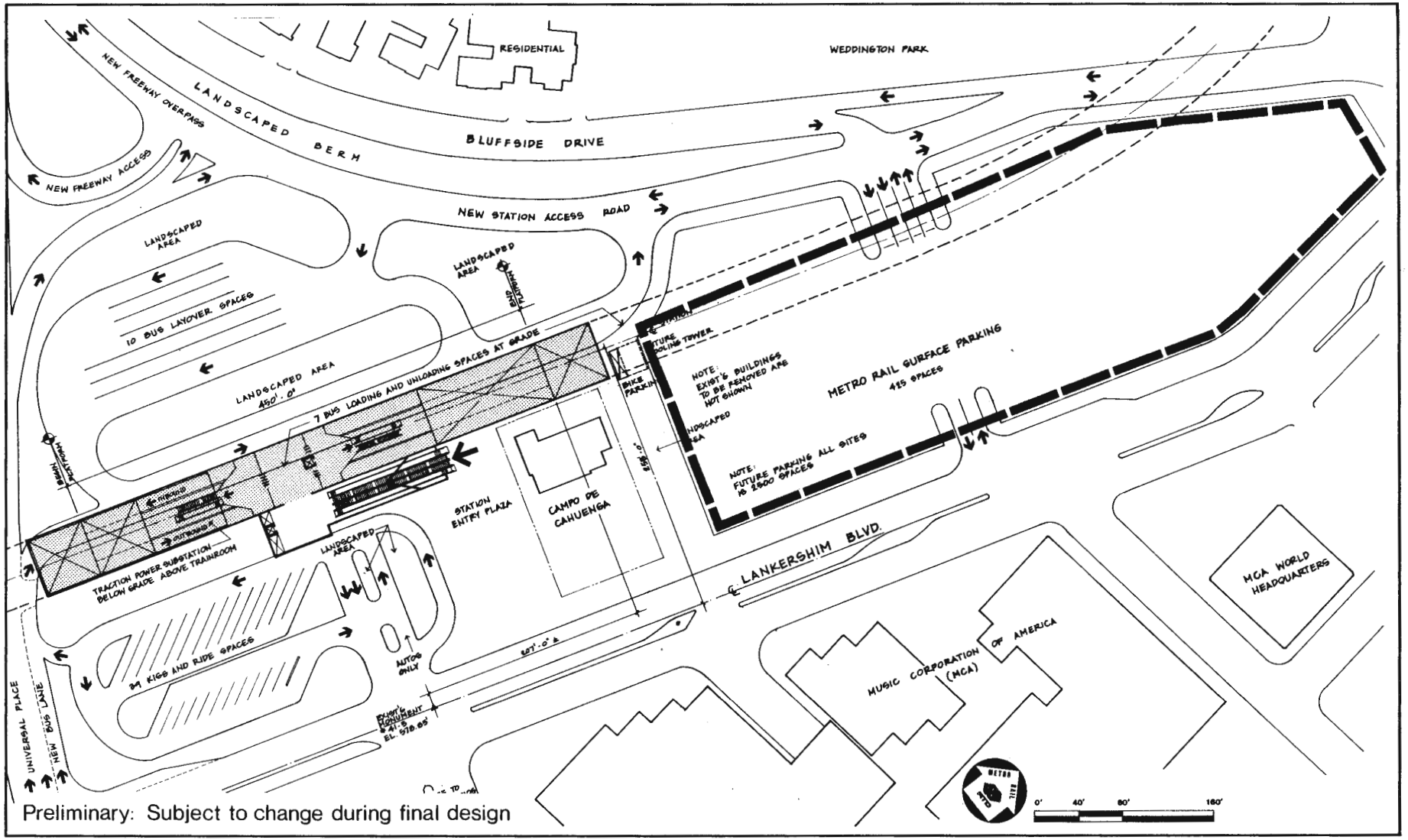

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Figure 2-24.2

Universal City Station Location for Locally Preferred Alternative

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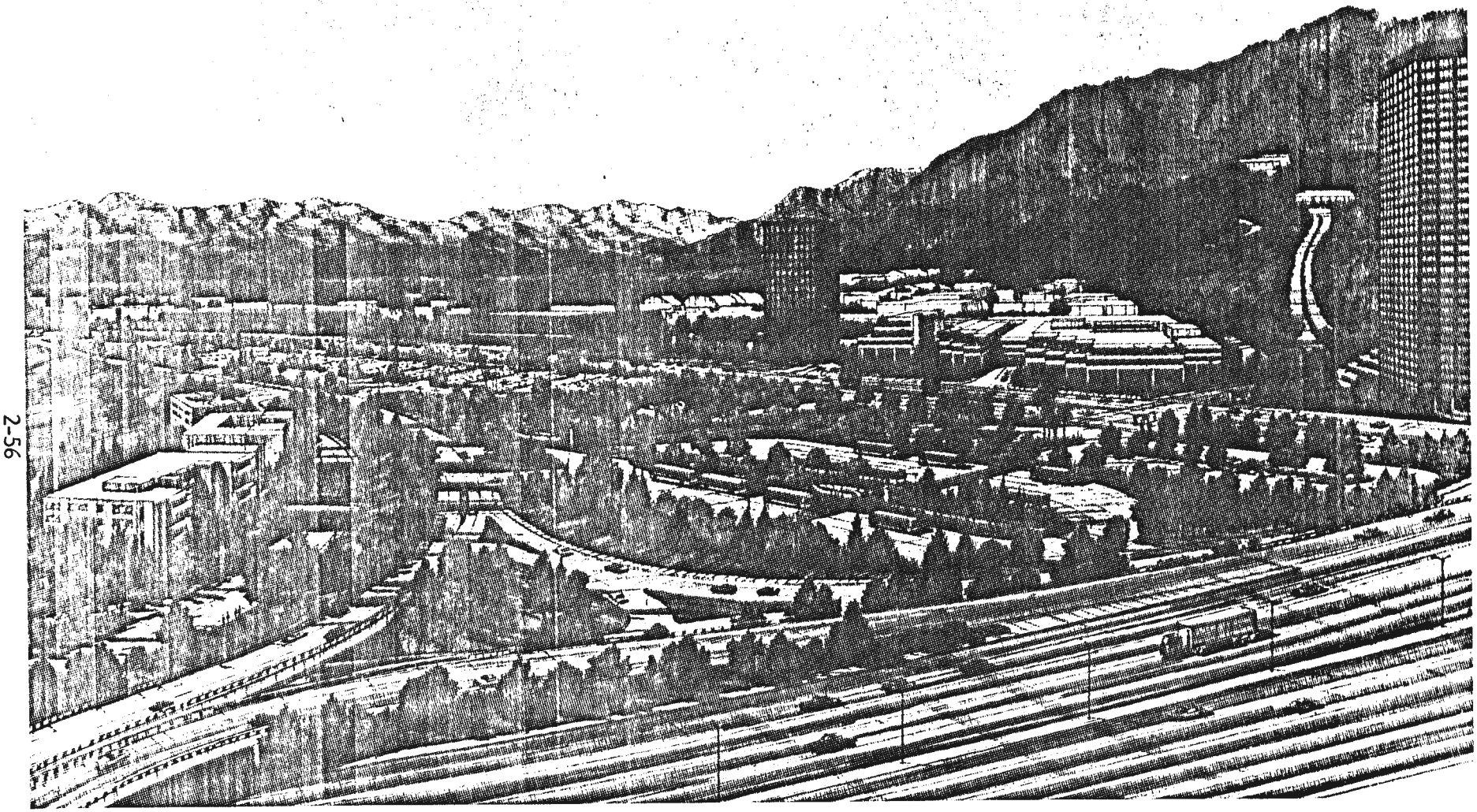

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Figure 2-25 **Universal City Station**
Hollywood Freeway, Lankershim Blvd & Proposed New Access Road
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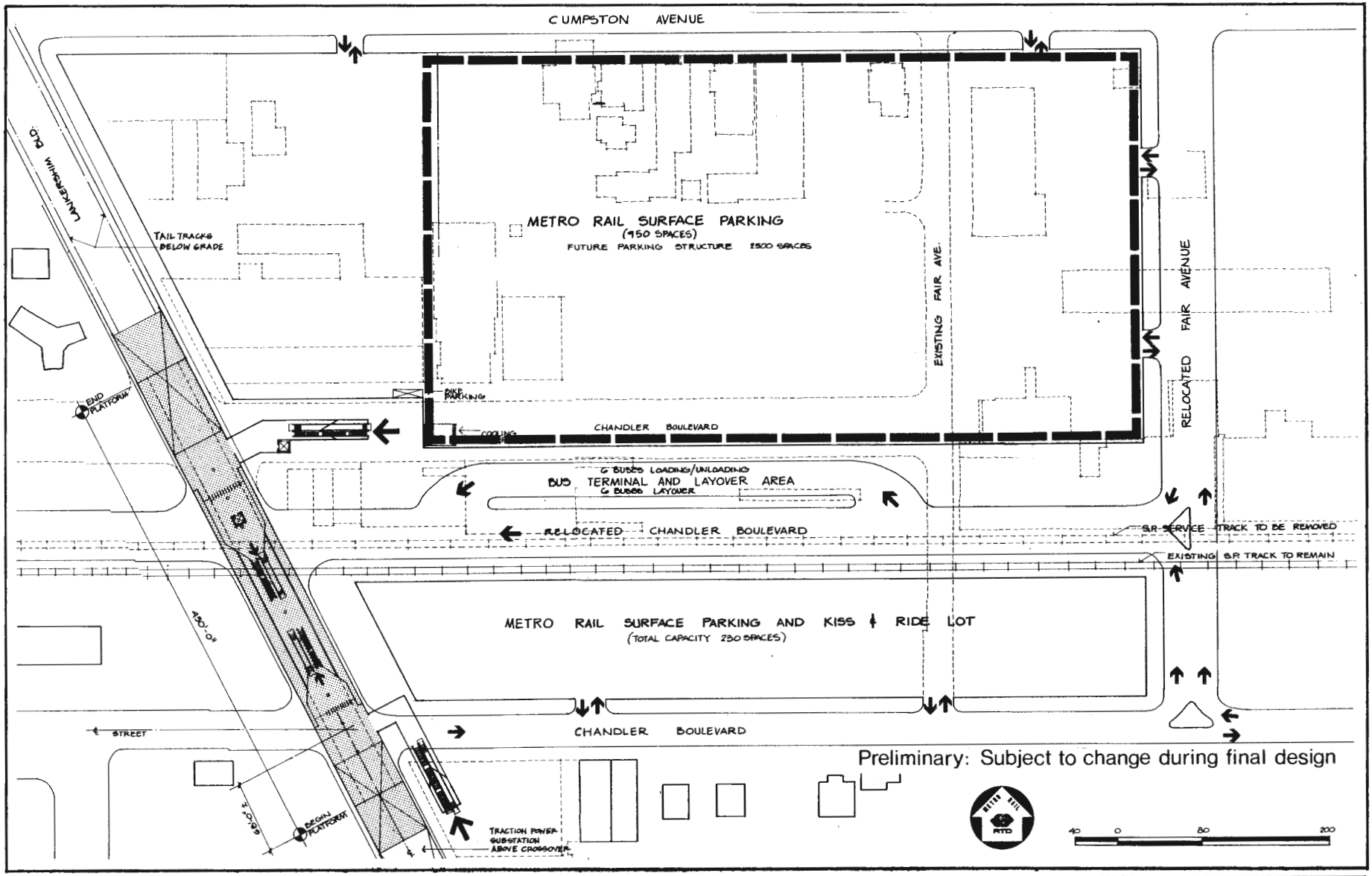

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Figure 2-26

North Hollywood Station Location for Locally Preferred Alternative

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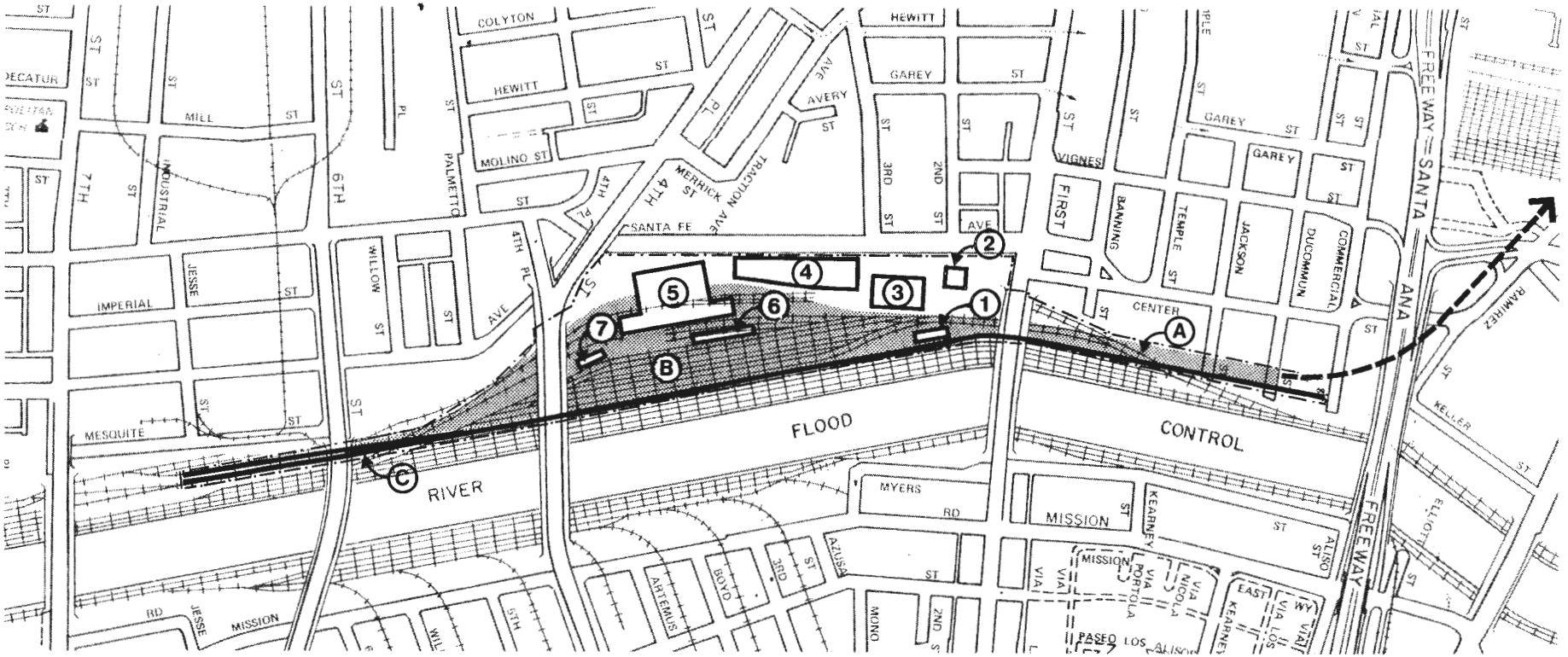

Proposed Locations for Buildings and Parking

1. Test Building
2. Transportation Building
3. Maintenance of Way Shop
4. Parking
5. Main Shop Building
6. Car Washing Facility
7. Car Cleaner's Building

Proposed Locations for Tracks

- A Transfer Zone
- B Storage Yard
- C Tail Track and Test Track

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Figure 2-27

Source: DMJM/PBQD

Main Yard and Shops

Communications. The communications subsystems would convey information among management, operations, maintenance, and security personnel, and to transit patrons. The communications subsystems include the following services:

- Radio service between various areas for operations and maintenance, security purposes, and emergency needs
- Telephone services, including direct line emergency, administrative, maintenance, and public telephone service
- Public address and intercommunication systems services within the passenger stations
- Closed circuit television surveillance at passenger stations
- Transmission via wire and cable to carry communications between the stations and Central Control

Traction Power. The traction power subsystem provides power to the passenger vehicles. Substations along the route would convert the higher commercial AC voltage to the lower DC voltage (600-750 volts) used by the trains. From the substations, the energy would be transferred to the third rail that supplies power to the train. Components of the traction power subsystem include transformers, rectifiers, switches, and circuit breakers.

2.2.5 OPERATING CHARACTERISTICS

The rail transit system will use proven two-track, steel wheel, steel rail components. The system's operating characteristics are based on an analysis of hours of operation, train size, vehicle loading, the duration of each station stop (dwell time), and average operating speed. Further information is contained in the Milestone I Report: Preliminary System Definition and Operating Plan.

Patronage. Under the Locally Preferred Alternative, it is estimated that more than 364,000 passengers will board the rail system daily in the year 2000. Total transit boardings are nearly 2,429,000, of which about 2,065,000 would be on the bus network. Daily rail transit boardings by mode of access for the Locally Preferred Alternative are shown in Table 2-3. The greatest number of rail boardings arrive by feeder buses. This mode of access accounts for 54 percent of the total rail boardings. Figure 2-28 shows total daily boardings at stations as well as patronage along the various segments of the Locally Preferred Alternative. The highest total is between the Seventh/Flower Station and the Wilshire/Alvarado Station where about 88,400 patrons are accommodated daily in each direction.

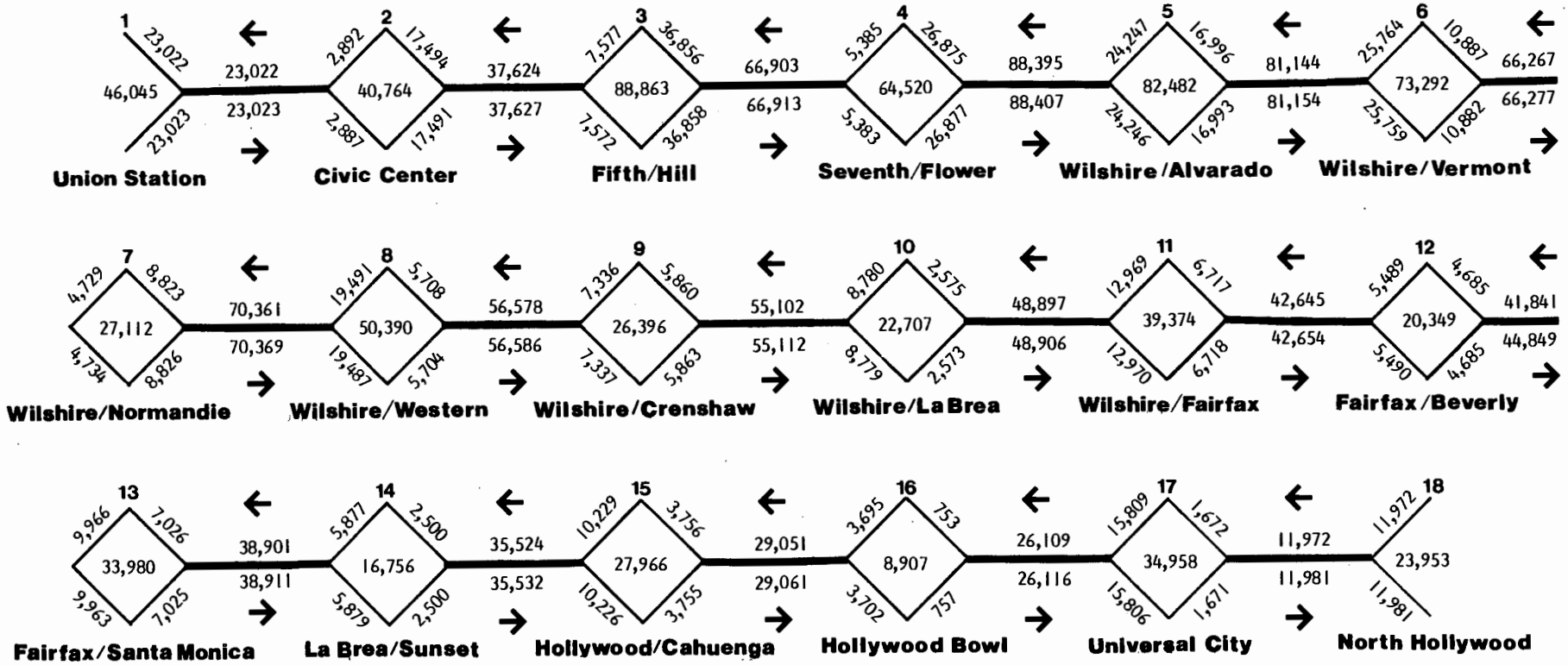
Hours of Operation. Hours of operation for other rail rapid transit systems vary from 14 hours to 24 hours per day. The operating characteristics described here assume a 20-hour day for purposes of estimating fleet size, operating costs, and other system information. The 20-hour day allows a regular period for maintaining the tracks and other parts of the system. Table 2-4 shows the proposed hours of operation during the week and the frequency of service.

TABLE 2-3

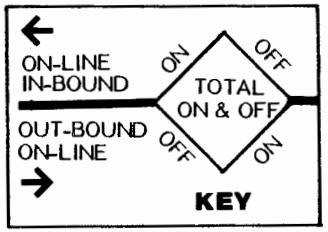
DAILY RAIL TRANSIT BOARDINGS BY MODE OF ACCESS
LOCALLY PREFERRED ALTERNATIVE

Station	Walk	Park & Ride	Kiss & Ride	Bus	Total
Union Station	2,591	4,112	2,239	14,011	22,953
Civic Center	11,660	0	0	8,692	20,352
Fifth/Hill	23,305	0	0	21,051	44,356
Seventh/Flower	8,729	0	0	23,526	32,254
Wilshire/Alvarado	20,047	0	3,721	17,577	41,345
Wilshire/Vermont	15,445	0	3,504	17,661	36,610
Wilshire/Normandie	4,828	0	2,539	6,244	13,611
Wilshire/Western	9,057	0	2,592	13,460	25,109
Wilshire/Crenshaw	3,536	0	2,570	7,063	13,169
Wilshire/La Brea	3,721	0	1,083	6,523	11,327
Wilshire/Fairfax	4,626	450	1,222	13,464	19,762
Fairfax/Beverly	3,860	1,339	355	4,586	10,140
Fairfax/Santa Monica	3,106	0	622	13,192	16,920
La Brea/Sunset	4,602	0	436	3,350	8,388
Hollywood/Cahuenga	8,047	0	894	5,061	14,002
Hollywood Bowl	1,464	0	792	2,184	4,440
Universal City	2,164	3,655	1,412	10,232	17,463
North Hollywood	566	2,796	497	8,077	11,936
Total	131,353	12,352	24,478	195,954	364,137

Source: Schimpeler-Corradino Associates, Transportation Planning and Modeling Services, Final Report, August 1983 (in print).



Note: Boardings on this figure do not match exactly to boardings on Table 2-3 because of differences in computer rounding.



Source: Schimpeler-Corradino Associates, Transportation Planning and Modeling Services, Final Report, August 1983 (in print).

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Figure 2-28 Locally Preferred Alternative Boarding, Alighting and Link Volumes by Direction Year 2000 Average Daily Volumes

Estimated Travel Time. For the Locally Preferred Alternative a one-way trip from North Hollywood to Union Station would take about 35 minutes. A round trip requiring two turn-arounds could be made in less than 75 minutes. Addition of either of the optional stations would add about one minute in each direction.

Train Size and Fleet. The proposed maximum train size is six cars, with each car approximately 75 feet long by 10 feet wide. This train size will provide the required peak capacity to carry projected passenger demand with about 3.5 minutes between trains. A six-car train requires a 450-foot station platform to provide for the convenient loading and unloading of passengers.

TABLE 2-4

SERVICE FREQUENCY

	Period	Maximum Schedule Headway (Minutes)	Cars
Weekdays			
Early Morning	5:30 a.m. - 6:00 a.m.	15	6
	6:00 a.m. - 6:30 a.m.	3.5	6
Peak Periods	6:30 a.m. - 9:00 a.m.	3 - 6	6
	3:30 p.m. - 6:30 p.m.	3 - 6	6
Midday	9:00 a.m. - 3:30 p.m.	7.5	6
Evening	6:30 p.m. - 7:30 p.m.	7.5	6
Night	7:30 p.m. - 1:30 a.m.	15	4
Saturdays			
Morning	5:30 a.m. - 7:30 a.m.	15	4
Day	7:30 a.m. - 7:30 p.m.	10	6
Night	7:30 p.m. - 1:30 a.m.	15	4
Sundays and Holidays			
All Day	5:30 a.m. - 1:30 a.m.	15	4

Source: SCRTD, Milestone I Report: Preliminary System Definition and Operating Plan, August 1982.

A fleet of 140 cars will be required initially, although the ultimate operating capacity of six car trains operating at two minute headways would require a fleet of 214 cars. The fleet size includes vehicles needed for revenue service plus those vehicles required for standby, maintenance, etc.

Vehicle Loading. The peak passenger load planned per car over the heaviest link during the peak hour is 170 passengers. This loading standard is based on a capacity of 76 seated passengers plus a 3.3 square foot area for each standing passenger, permitting reasonable standing comfort and movement within the car. For off-peak

service, loads will not exceed 91 passengers per car. With the high rate of passenger turnover expected at stations near the heaviest link, few passengers would have to stand for more than one station stop during off peak hours.

System Capacity. The ultimate capacity shown in Table 2-5 is the maximum number of passengers that could be carried given various schedule headways and passenger loads per car.

TABLE 2-5

MAXIMUM PASSENGERS PER HOUR

Maximum Passengers Per Car	6-Car Trains 2 Minute Headways	6-Car Trains 2.5 Minute Headways
170	30,600	24,480
200	36,000	28,800
231	41,580	33,264

Source: SCRTD, Milestone I Report: Preliminary System Definition and Operating Plan, August 1982.

A system using six-car trains would have an hourly maximum capacity of 30,600 passengers with two-minute headways. Higher passenger loadings per car (up to a packed condition with 231 patrons) provide flexibility for unplanned circumstances. These capabilities are adequate to meet expected growth during the first 15 to 20 years of rapid transit system operation.

2.2.6 COSTS

Capital and operating costs are presented in this section. The most general cost estimate is the concept level, which uses basic unit costs for typical sections. This was the level of detail presented in the First Tier EIS/EIR. Those estimates have been refined during Preliminary Engineering. These estimates are presented here for the Locally Preferred Alternative and include a 15 percent design contingency for facilities, a 10 percent contingency for systems, and an allowance for uncertainties during subsequent engineering design work. The need for this factor diminishes as design progresses to the final stages. Cost estimates for the bus support system are also included.

Capital costs are presented in 1983 and in escalated dollars (considering inflation). The escalated capital costs of the project are determined by escalating each design construction contract to its midpoint. This procedure is used to address the effects of inflation over the duration of the contract. Because cost estimates are sensitive to the choice of discount rates, three different rates have been used. At this time the 10 percent discount rate appears to be most appropriate. However, discount rates of four percent and seven percent have been included to assess the system's costs and cost effectiveness under other assumptions regarding future economic conditions. Annual operating and maintenance costs are in 1983 dollars.

Capital Cost Items. Capital costs are investments for the design and construction of permanent facilities and procurement of equipment required for the operation and maintenance of the rail rapid transit system. Each major cost item is presented in Table 2-6 and is described below. The estimated total cost for the rail portion of the Locally Preferred Alternative is $2.47 billion; in escalated dollars it is anticipated to be $3.38 billion. Total capital costs for the increased bus fleet are $295.4 million*. More information on cost estimates is contained in the SCRTD Milestone II Report: Cost Estimate.

Guideways and Stations. Includes the basic heavy construction for the transit line and station facilities, and all structures necessary to support the transit vehicle, such as line structures, station shells, yards, and shop buildings.

Utilities. Accounts for utilities within construction sites that must be temporarily or permanently relocated, or supported in place and maintained. The estimate includes work on storm and sanitary sewers; water, gas, and steam lines; electric duct lines for power, telephone, telegraph, traffic lights, police, and fire; manholes; catch basins and storm drains; and overhead power and utility lines.

Parking. Covers various SCRTD-provided parking facilities, including bus terminals, park and ride lots, and kiss and ride areas.

Central Control Facility and Main Yard. Includes the facilities necessary for the storage and dispatch of rail vehicles and the control tower, from which all movement within the yard would be directed.

North Hollywood Tail Track. Includes the cost of storage tracks at the northern end of the rail rapid transit system.

Trackwork. Includes procurement and installation of the running rails and turnouts, crossovers, track fasteners, ties, and ballast. These are the facilities required for the vehicles to respond to the command-and-control system and to follow the guideway.

Train Control. Includes the cost of systems for train protection, train operation, and train supervision. Specific facilities include track circuits, switch and lock movements, and signals; yard control power; control consoles and supervisory computers; and automatic train operation and protection.

Communications. Covers the communication system between central control, auxiliary and supervisory personnel, rapid transit vehicles, and stations. Also included are the public address systems and a closed circuit television for security.

Traction Power. Covers the cost of furnishing and installing equipment to provide power for vehicle propulsion and system operation, including all equipment for power transmission, conversion, and distribution.

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* This is the estimated capital cost for one bus fleet including 10 percent spares. Over the time period used for the financial analysis two replacement fleets would be required.

TABLE 2-6

CAPITAL COSTS OF LOCALLY PREFERRED ALTERNATIVE
(in 1983 dollars)

Item	Cost
Guideways	$523,800,000
Stations	708,500,000
Utilities	26,300,000
Parking	9,600,000
Central Control Facility	1,500,000
Main Yard	40,000,000
Trackwork	79,100,000
Train Control	57,200,000
Communications	22,600,000
Traction Power	38,100,000
Fare Collection	19,400,000
Vehicle-Passenger	130,000,000
Vehicle-Auxiliary	1,300,000
Capital Cost Subtotal	$1,657,400,000
Design Contingency 15% - Facilities 10% - Systems	235,200,000
Right-of-Way	176,000,000
Design and Construction Management 13% - Facilities 10% - System	237,200,000
Agency Cost	82,800,000
Insurance	80,000,000
TOTAL COST* (in constant 1983 dollars)	$2,468,600,000
ESCALATED COST (at 7% to midpoint of construction design/ construction contracts)	$3,384,000,000

Source: SCRTD, Milestone II Report: Cost Estimate, 1983.

*An additional $295.40 million would be needed for the complementary bus system, but these costs would not be part of this project.

Fare Collection. Includes facilities like ticket vending machines, bill changers, entry and exit consoles, and handicapped/emergency gates.

Passenger Vehicles. Includes vehicles for rail passengers.

Auxiliary Vehicles. Includes vehicles for servicing the system like locomotives, self-propelled cranes, and flat cars.

Other Construction Related Cost Items. These items include the aspects of construction not related to facilities and structures.

Right-of-Way. Reflects the cost of obtaining easements, the permanent taking of real property required for the construction and operation of the system, and the cost of relocating the displaced residents and businesses.

Engineering Design and Construction Management. Includes indirect costs for project design and for procurement and construction management during construction of the system, and is estimated as a percentage of the total facilities cost.

Agency Cost. Accounts for indirect costs incurred by SCRTD for administration of the project. Included are costs for construction inspection; staff support on design matters, cost estimating, and cost control; special consultants; operational planning; and pre-operating and start up costs.

Insurance Costs. Includes insurance for facilities and contractors during construction.

Effect of Project Delay on Construction Capital Costs. The present cost estimates are based on a six-year construction schedule beginning in 1984. These costs would escalate were the project to be delayed. To illustrate the impact of a delay on the project, cost estimates for a one-year and a two-year delay in issuing construction contracts at a seven percent inflation rate have been prepared. With a one-year delay, capital costs of the Locally Preferred Alternative would increase by over $237 million to over $3.62 billion. With a two-year delay, costs would increase by about $491 million to $3.88 billion. Increases of this magnitude would affect SCRTD's projected cash flow and financing plans. Thus, the importance of achieving the projected schedule is apparent.

Annual Operating and Maintenance (O & M) Cost Items. Operating and maintenance costs are annual recurring costs necessary for safe and dependable rail rapid transit service. Over the life of the system, they represent a major portion of the total investment for the project. Projections for year 2000 annual O & M costs, including labor costs, are based on the experience of comparable rail rapid transit systems, including BART (San Francisco), MARTA (Atlanta), NYCTA (New York), and CTA (Chicago). Unit costs were developed for each of the following major categories: maintenance of ways and structures, maintenance of vehicles, electrical power, and transportation.

General Administration. Includes the added SCRTD administration expense required as a result of rail operation. It includes the labor cost associated with the incremental labor required for general management, planning and marketing, operations training and safety, customer relations, administrative management, and finance function.

Maintenance of Ways and Structures. Includes the expenses of maintaining fixed facilities such as subways, aerial structures, tracks, stations, electrical and control equipment, power systems, fare collection equipment, escalators, landscaping, fencing, and parking lots.

Maintenance of Vehicles. Covers the cost of maintaining, inspecting, repairing, and cleaning vehicles.

Electrical Power. Includes the cost of providing traction power for propulsion of the vehicles; auxiliary power for lighting stations, yards, and shops; and operation of system machinery and equipment.

Operations. Provides for all management, train operations, control center, stations and security functions including all labor, materials and other miscellaneous expenditures necessary to operate the transit system.

Subsystem Operations and Maintenance. Includes management, personnel, materials, parts, and equipment to maintain the various subsystems and also includes all electrical power to run the transit vehicles. Subsystems covered by this element are traction power, train control, fare collection and communications.

Liability. Includes expense to estimate the costs of personal injury, property damage, other liability expenses and/or insurance coverage.

Unit Costs. The unit costs for estimating the rail rapid transit system's annual O & M costs were developed from cost accounts and operating statistics provided by each transit system in its Section 15 reports to UMTA and were then applied to the operating statistics projected for the system in year 2000. The Locally Preferred Alternative has annual rail O & M costs of $48.5 million. The O & M costs for the background bus system is $447.3 million. The total transit O & M costs for the Locally Preferred Alternative are $495.8 million (Table 2-7).

TABLE 2-7

ANNUAL OPERATING AND MAINTENANCE COSTS
LOCALLY PREFERRED ALTERNATIVE
(in millions of 1983 dollars)

Item	Cost
General Administration	$ 3.96
Maintenance of Ways and Structures	5.07
Maintenance of Vehicles	8.31
Electrical Power	9.88
Operations	9.74
Subsystems	9.66
Liability	1.90
Total Rail Costs[1]	$ 48.52
Total Bus Costs[2]	$447.30

Source: [1]SCRTD, Milestone II Report: Cost Estimate, 1983
[2]SCRTD Planning and Metro Rail Departments.

Annualized Costs. In addition to annual O & M costs, the "annualized" capital cost of the project can be determined. This figure represents the cost of each capital item during a "typical" year over its economic life. The annualized cost is derived based on assumptions about the economic life of the capital item, the salvage value, if any, and the discount rate. Combined with the annual O & M, the annualized capital costs give an idea of how much the system costs each year.

Table 2-8 shows the annualized capital, O & M, and total annual costs for the Locally Preferred Alternative. At ten percent, the rail rapid transit system's annualized capital costs total about $253.9 million per year. For the Locally Preferred Alternative, total annual rail costs amount to $302.4 million and total annual transit costs amount to $793.7 million (at ten percent).

Financing. SCRTD is currently securing funds for the construction and operation of the Metro Rail Project. Because the exact source and amounts are uncertain, this discussion focuses on the prime sources of funding potentially available for the rail project. All of the following sources are assumed to be available, but future changes in federal and state policy could affect their availability to SCRTD. Prime sources of funding are divided into federal and nonfederal categories. An illustrative cash flow is presented in Table 2-9. It shows proposed funding sources over a nine-year period assuming a 62% federal/38% nonfederal split. As cost estimates and funding availability become more definite, a more specific cash flow can be prepared.

Federal Share. UMTA is the federal agency that provides transit funding. Federal funds could finance up to a maximum of 75 percent of the capital costs of the project subject to UMTA's funding constraints. Because of these constraints, SCRTD is proposing to increase the local share so that federal funding levels are reduced to about 62 percent. The prime UMTA funding programs include Section 3 (discretionary capital assistance) and Section 9 (formula capital assistance).

Local Share. Nonfederal sources of financing include state and local assistance programs and SCRTD revenue programs. Nonfederal sources of funding are expected to provide about 38 percent of the capital costs of the Metro Rail Project. The California Transportation Commission (CTC) through the Los Angeles County Transportation Commission allocates a major source of nonfederal transit funding. Primary local funding programs include the following:

- Article 19 Mass Transit Guideways Program (Proposition 5) - State program which allows motor vehicle revenues to be used for rail transit projects.

- Transportation Planning and Development Funds (TPD) - Fund allocates "spill-over" revenues from the state sales tax on gasoline through AB2551 (formerly SB620). Recent legislation, SB 1331, calls for the combining of Article 19 and TPD Funds into one mass transit guideway fund.

- Proposition A - Measure which allows a 1/2 cent sales tax increase in Los Angeles County to help finance lower bus fares, local transit improvements, and construction of a rail rapid transit system.

- Joint Development/Value Capture Funds - Techniques to generate revenues for capital and construction costs. Joint development may result in cost efficiencies in the construction of the rail system, a limited recovery of capital costs, and increased farebox revenues. Value capture may create revenues by tapping the increased real estate value generated around station areas by the Metro Rail Project.

TABLE 2-8

TOTAL ANNUAL COST -- LOCALLY PREFERRED ALTERNATIVE
(millions of 1983 dollars)

	RAIL			TOTAL (Rail & Bus)		
Discount Rate	Annualized Capital Cost[1]	Annual O & M Cost	Total Annual Cost	Annualized Capital Cost	Annual O & M Cost	Total Annual Cost
4%	$121.1	$48.5	$169.6	$154.4	$495.8	$650.2
7%	185.6	48.5	234.1	224.0	495.8	719.8
10%	**253.9**	**48.5**	**302.4**	**297.9**	**495.8**	**793.7**

Source: Lynn Sedway & Associates for annualized costs.

[1] Annualized costs are derived using the following formula:

$$\text{Annualized Cost} = \frac{i}{1 - (1 + i)^{-n}} \times cc$$

Where: i = discount rate
n = economic life of capital item
cc = initial cost of purchasing the capital item (less present value of salvage)

Key assumptions are:

- Discount rates are 4, 7, and 10 percent.
- The economic life for capital items is 32 years.
- Salvage values at the end of 32 years:

Rights-of-Way	100%
Tunnel	50%
Stations in Subway	50%
Parking Facilities	50%
Yards	50%
Control Center	25%
Other	0%

(From UMTA and SCRTD, Final Alternatives Analysis/Environmental Impact Statement/Report on Transit System Improvements in the Los Angeles Regional Core, Appendix IIE, "Benefit-Cost Analysis," April 1979.)

TABLE 2-9

METRO RAIL PROPOSED FUNDING SOURCES
(in millions of dollars)

SOURCES	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	TOTAL	PROJECT SHARE
UMTA Section 3											
- 62% Share	—	$117.2	$336.0	$336.0	$378.0	$378.0	$377.0	$136.8	0	$2,059.0	61%
- 77% Share*	40.0	—	—	—	—	—	—	—	—	40.0	1%
Total	40.0	117.2	336.0	336.0	378.0	378.0	377.0	136.8	0	2,099.0	62%
State	39.3	30.0	53.0	72.0	72.0	57.0	57.0	19.7	0	400.0	12%
LACTC	5.4	38.0	54.0	55.0	56.0	70.0	70.0	42.6	21.0	412.0	12%
Local/Private	0	0	80.0	75.0	30.0	0	0	0	0	185.0	6%
UMTA Section 9	0	40.0	20.0	20.0	25.0	30.0	30.0	30.0	20.0	215.0	6%
City of L.A.	0	7.0	7.0	10.0	10.0	13.0	13.0	9.0	4.0	73.0	2%
Annual Totals	$84.7	$232.2	$550.0	$568.0	$571.0	$548.0	$547.0	$238.1	$45.0	$3,384.0	100%

Source: SCRTD, Milestone II Report: Cost Estimate, 1983.

*Average of $15 million at 80% and $25 million at 75%.

- Other - Other nonfederal sources of financing to be considered by SCRTD include Equipment Trust Certificates, Grant Anticipation Notes, Certificates of Participation, and Revenue Bonds.

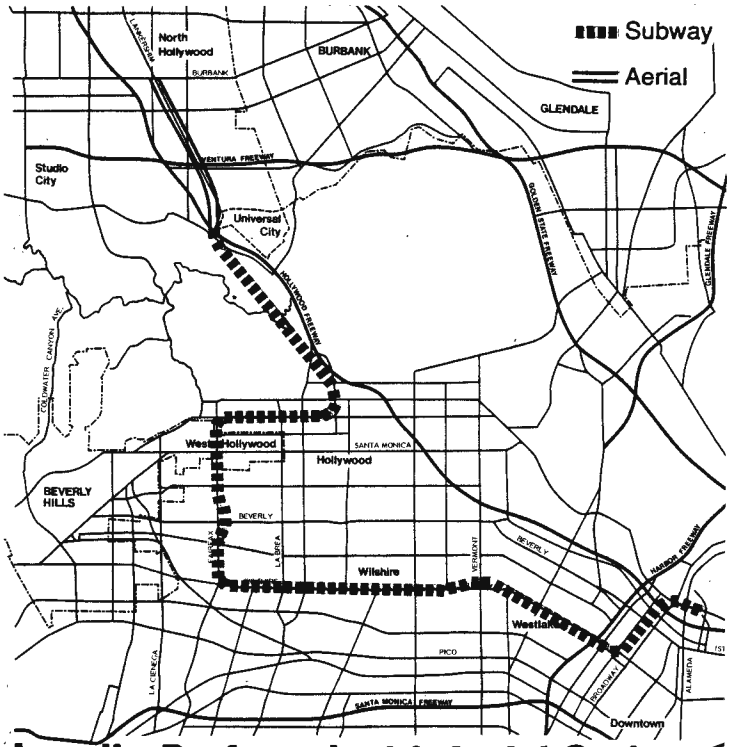
2.2.7 REVENUES

The Locally Preferred Alternative is expected to generate $1.10 million in total transit revenues per day, of which $796,000 would be from bus operations.

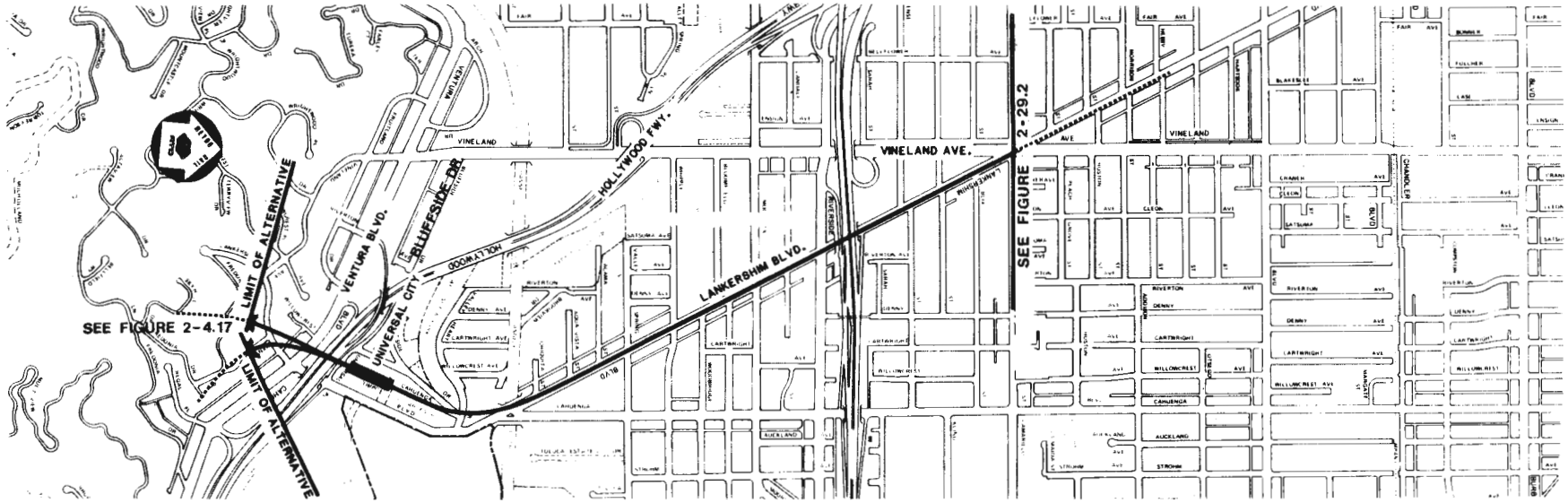
2.3 LOCALLY PREFERRED ALTERNATIVE WITH AERIAL OPTION (AERIAL OPTION)

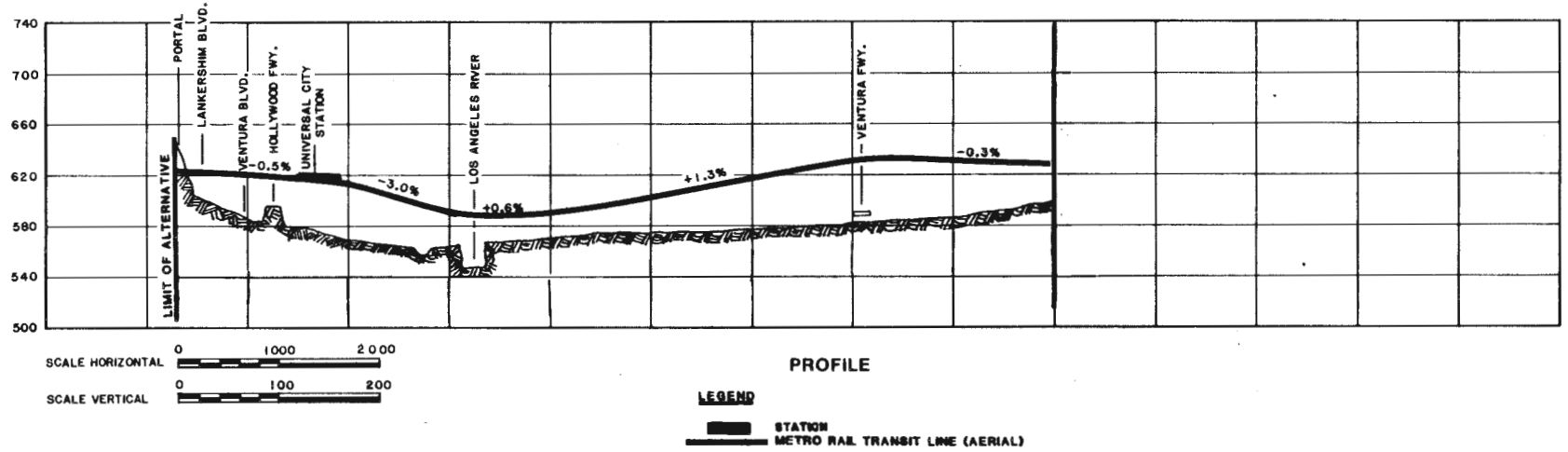
2.3.1 ROUTE DESCRIPTION AND ALIGNMENT

This systemwide alternative is a variation of the Locally Preferred Alternative. Although subways minimize environmental impacts and are justified in dense urban areas, the costs of tunneling are high. Outside the densest areas, above ground or surface construction may result in considerable savings. The Aerial Option was developed with costs savings as a key consideration. Based on preliminary estimates of costs and ridership, it was formulated by combining the alternative alignments that had the lowest capital and operating costs and generated the highest patronage. This alternative includes the Locally Preferred Alternative alignment from Union Station through Hollywood. In North Hollywood, however, the alignment would be above ground (Figures 2-29.1 and 2-29.2). The trains, operating on an elevated guideway, would emerge from the north slope of the Santa Monica Mountains and proceed to an aerial station at Universal City. Leaving Universal City, the trains would proceed northwest to a terminal station in North Hollywood at Lankershim and Chandler Boulevards.



Locally Preferred with Aerial Option





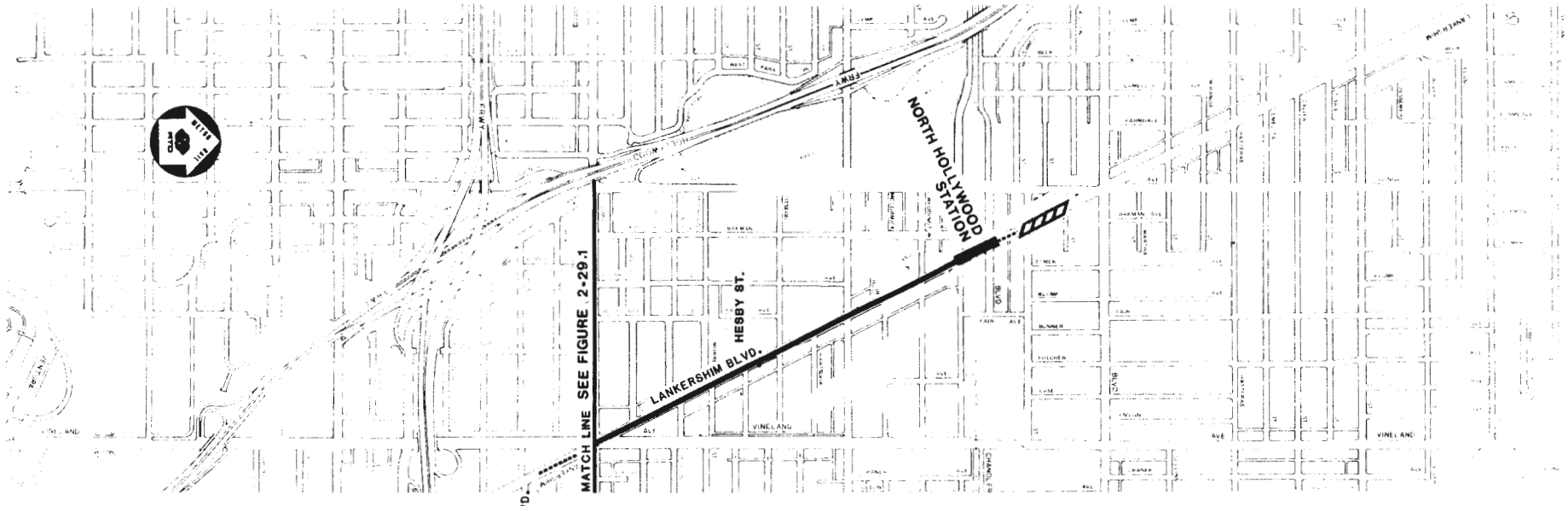
Preliminary: Subject to change during final design

Southern California Rapid Transit District
Metro Rail Project
PRELIMINARY ENGINEERING PROGRAM

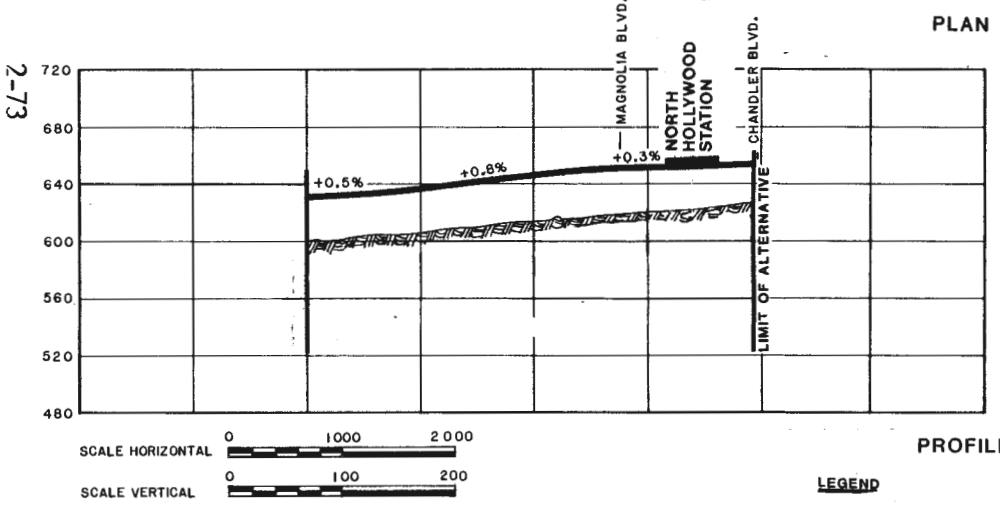
Figure 2-29.1

Source: DMJM/PBQD

Aerial Corridor
South of Camarillo Street



PLAN



PROFILE

LEGEND

- METRO RAIL TRANSIT LINE (AERIAL)
- ADJOINING ALTERNATIVES
- STORAGE
- STATION

Preliminary: Subject to change during final design

Southern California Rapid Transit District
Metro Rail Project
PRELIMINARY ENGINEERING PROGRAM

Figure 2-29.2

Source: DMJM/PBQD

Aerial Corridor
North of Camarillo Street

2.3.2 STATIONS

The stations for the Aerial Option are the same as for the Locally Preferred Alternative, except at Universal City and North Hollywood. At these locations, this alternative proposes elevated stations approximately 20-30 feet above the ground (Figures 2-30 and 2-31).

2.3.3 YARDS AND SHOPS

This alternative makes use of the same 45-acre major repair and storage yard described under the Locally Preferred Alternative. In addition, aerial tail tracks would be provided along Lankershim Boulevard immediately north of the North Hollywood Station.

2.3.4 SUBSYTEMS

The subsystems are the same as for the Locally Preferred Alternative.

2.3.5 OPERATING CHARACTERISTICS

The Aerial Option would have the same rail patronage as the Locally Preferred Alternative, more than 364,000 per day. Total ridership on the bus and rail systems would be about 2,429,000 per day. Hours of operation, boardings, and mode of arrival by station would be the same as for the Locally Preferred Alternative.

A one-way trip from North Hollywood to Union Station would take approximately 35 minutes, the same as for the Locally Preferred Alternative. Train size, fleet, vehicle loading, and system capacity also would be the same as for the Locally Preferred Alternative.

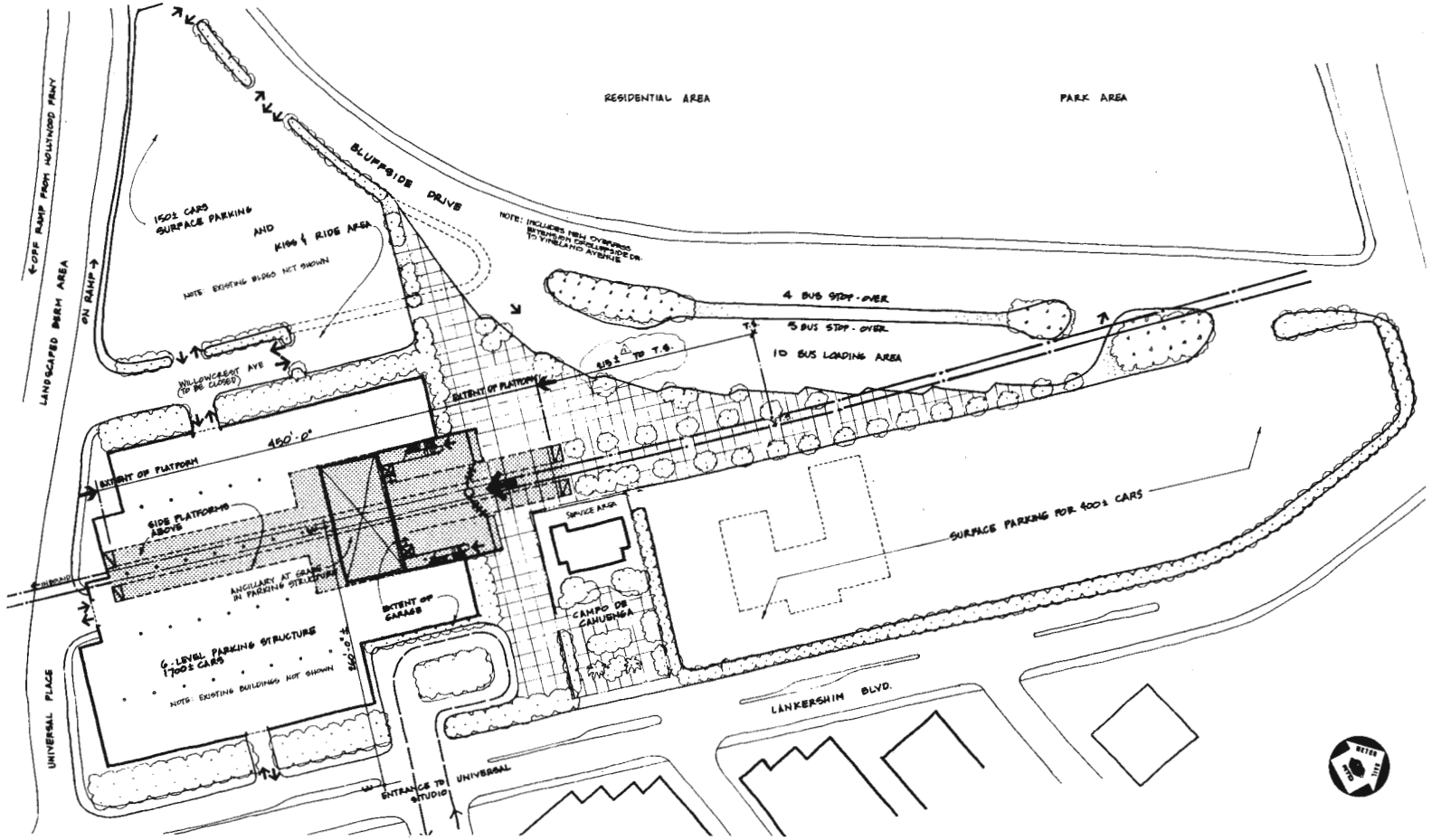
2.3.6 COSTS

Capital Costs. The Aerial Option with elevated guideway and stations at Universal City and North Hollywood would reduce the capital costs of the Locally Preferred Alternative by about $57.2 million to $2,411.4 million in 1983 dollars (Table 2-10). The escalated cost would be $3,299.7 million.

Total Annual Costs. The Aerial Option has the same annual rail O & M cost as the Locally Preferred Alternative, $48.5 million per year. Using the ten percent discount rate, the annualized cost for the rail component of the Aerial Option totals $248.1 million per year, slightly less than for the Locally Preferred Alternative. This gives a total annual rail cost of $296.6 (see Table 2-11). Total annual costs for rail and bus include $292.1 million in annualized costs plus $495.8 million in annual O & M costs.

2.3.7 REVENUES

The Aerial Option would generate the same daily revenues as the Locally Preferred Alternative: $1.10 million from both bus and rail operations.



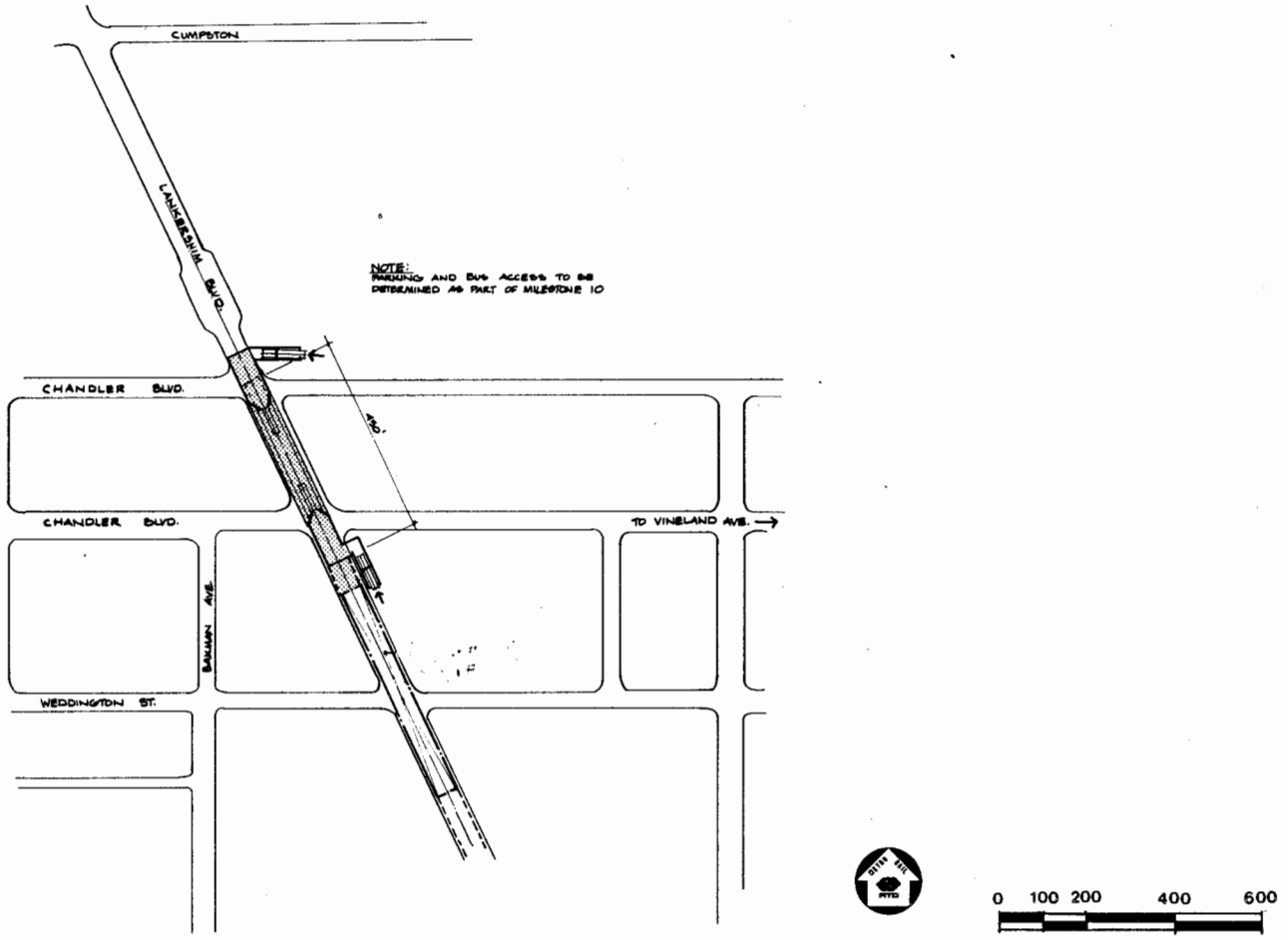
Preliminary: Subject to change during final design

Southern California Rapid Transit District
Metro Rail Project
PRELIMINARY ENGINEERING PROGRAM

Figure 2-30

Universal City Station Location for Aerial Option

Source: Harry Weese & Associates



Preliminary: Subject to change during final design

Southern California Rapid Transit District
Metro Rail Project
PRELIMINARY ENGINEERING PROGRAM

Figure 2-31

North Hollywood Station Location for Aerial Option

Source: Harry Weese & Associates

TABLE 2-10

CAPITAL COSTS OF THE AERIAL OPTION
(in 1983 dollars)

Item	Cost
Guideways	$497,101,500
Stations	691,430,500
Utilities	26,300,000
Parking	9,600,000
Central Control Facility	1,500,000
Main Yard	40,000,000
Trackwork	79,167,000
Train Control	57,015,000
Communications	22,539,000
Traction Power	38,062,000
Fare Collection	19,400,000
Vehicles-Passenger	130,000,000
Vehicles-Auxiliary	1,300,000
Capital Cost Subtotal	$1,613,415,000
Design Contingency 15% - Facilities 10% - Systems	$228,600,000
Right-of-Way	176,000,000
Design and Construction Management 13% - Facilities 10% - System	230,600,000
Agency Cost	82,800,000
Insurance	80,000,000
TOTAL COST* (in constant 1983 dollars)	$2,411,415,000
ESCALATED CAPITAL COST (at 7% to midpoint of construction design/ construction contracts)	$3,299,700,000

Source: SCRTD, Milestone II Report: Cost Estimate, 1983.

*An additional $295.40 million would be needed for the complementary bus system, but these costs would not be part of this project.

TABLE 2-11

TOTAL ANNUAL COST – AERIAL OPTION
(in millions of 1983 dollars)

Discount Rate	RAIL Annualized Capital Cost[1]	RAIL Annual O & M Cost	RAIL Total Annual Cost	TOTAL (RAIL & BUS) Annualized Capital Cost	TOTAL (RAIL & BUS) Annual O & M Cost	TOTAL (RAIL & BUS) Total Annual Cost
4%	$118.3	$48.5	$166.8	$151.6	$495.8	$647.4
7%	181.3	48.5	229.8	219.7	495.8	715.5
10%	248.1	48.5	296.6	292.1	495.8	787.9

Source: Lynn Sedway & Associates for annualized costs.

Note: Same notes as Table 2-8.

2.4 MINIMUM OPERABLE SEGMENT

Changes made to the Minimum Operable Segment between the Draft EIS/EIR and this Final EIS/EIR include the adoption of the Wilshire/Crenshaw Station, shifting the Wilshire/Fairfax Station from its previous paleontologically sensitive site in front of the Page Museum to a location behind the May Company Building, and refinements of the patronage estimates. The projected daily boardings have decreased from 295,000 in the Draft EIS/EIR to 261,000 in the Final EIS/EIR, and rail operating and maintenance costs have increased by $1.3 million. Consequently, operating costs for the entire transit system rose faster than projected revenues, resulting in an overall increase to the operating deficit derived in the Draft EIS/EIR.

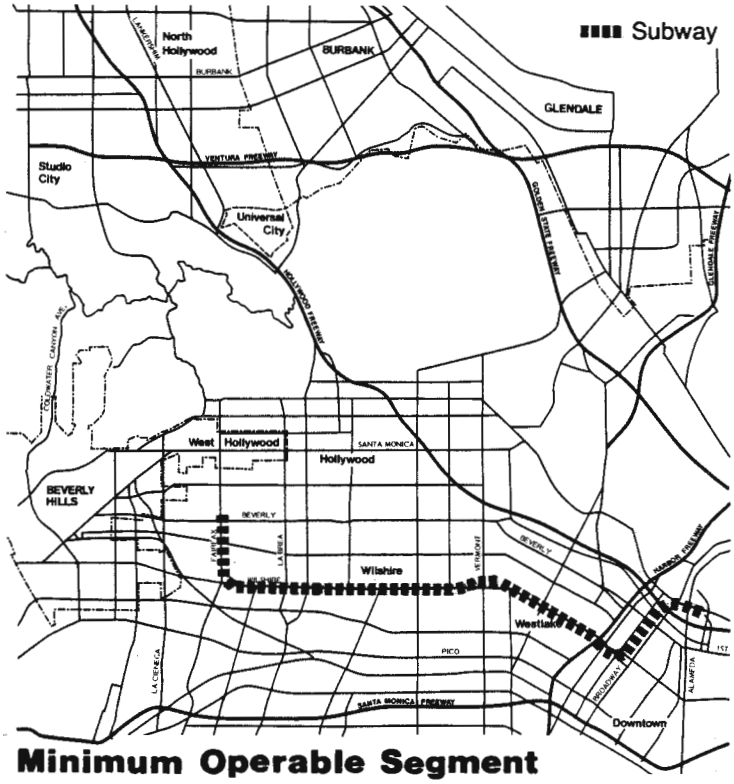
2.4.1 ROUTE DESCRIPTION AND ALIGNMENT

The Minimum Operable Segment is identical to the Locally Preferred Alternative from the main yard in the CBD to the Fairfax/ Beverly Station. Over the 8.8 mile route, the system would stop at twelve stations.

An earlier alternative of the Minimum Operable Segment ended at Wilshire/Fairfax. Initially this appeared to be acceptable because it served the areas likely to become most congested by the year 2000. However, upon closer examination, operational and service benefits suggested extending the system to Fairfax/Beverly. The rationale for making this adjustment included the following considerations:

- Major regional centers at CBS and Farmers Market would not be served as well by a terminal station at Wilshire/Fairfax.

- With the station at Fairfax/Beverly, buses can stop at Metro Rail entrances or within convenient walking distance.
- The orientation toward Hollywood and North Hollywood and to retain the link between Downtown and the San Fernando Valley would be preserved.
- This routing would help divide the load on the Wilshire/Fairfax Station so that rail passengers from the north and west could be intercepted at Fairfax/Beverly while patrons from the south and west would enter the rail system at Wilshire/ Fairfax.



2.4.2 STATIONS

This alternative would have the same 12 stations as the Locally Preferred Alternative between the Union Station and the Fairfax/Beverly Station. Station access facilities would be the same as for Locally Preferred Alternative. In this alternative the Fairfax/Beverly Station would serve as a terminal station. The station layout would be modified slightly to provide for bus layover space as noted in Figure 2-18.

2.4.3 YARDS AND SHOPS

The 45-acre site in the CBD industrial area would be used for a main yard and shops, as in the Locally Preferred Alternative. Additionally, tail end pocket tracks for temporary storage of passenger vehicles would be provided just beyond the Fairfax/ Beverly Station.

2.4.4 SUBSYSTEMS

Subsystems would be the same as for the Locally Preferred Alternative.

2.4.5 OPERATING CHARACTERISTICS

Daily rail transit boardings by mode of access for the Minimum Operable Segment are shown in Table 2-12. Total transit boardings for the Minimum Operable Segment

are approximately 2,430,000 per day. This includes 261,000 daily boardings on the rail component and about 2,169,000 on the SCRTD bus system. The greatest number of rail boardings is by feeder bus. This mode of access accounts for 54 percent of the total boardings. Figure 2-32 shows total daily boardings at stations, as well as patronage along the various segments of the Minimum Operable Segment. The highest total is between the Seventh/Flower Station and the Wilshire/Alvarado Station where over 73,700 patrons are accommodated daily in each direction. Hours of operation and train size are assumed to be the same as the Locally Preferred Alternative. A fleet size of 74 cars is proposed.

TABLE 2-12

DAILY RAIL TRANSIT BOARDINGS BY MODE OF ACCESS
MINIMUM OPERABLE SEGMENT

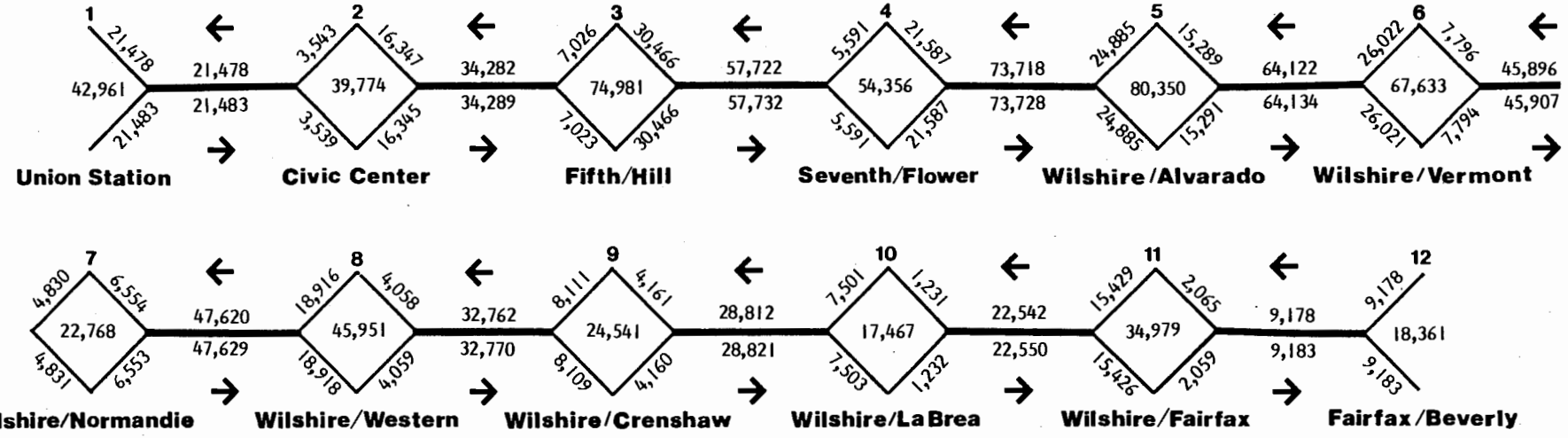
Station	Walk	Park & Ride	Kiss & Ride	Bus	Total
Union Station	2,302	4,065	2,178	12,986	21,531
Civic Center	9,197	0	0	10,764	19,961
Fifth/Hill	19,447	0	0	17,543	36,990
Seventh/Flower	7,162	0	0	19,934	27,096
Wilshire/Alvarado	19,392	0	3,602	17,380	40,374
Wilshire/Vermont	14,345	0	2,951	16,098	33,394
Wilshire/Normandie	4,313	0	2,335	4,733	11,381
Wilshire/Western	8,050	0	2,550	12,211	22,811
Wilshire/Crenshaw	3,342	0	2,717	6,192	12,251
Wilshire/La Brea	2,240	0	1,065	6,572	9,877
Wilshire/Fairfax	2,109	1,724	968	10,999	15,800
Fairfax/Beverly	1,070	1,290	286	6,399	9,045
Total	92,969	7,079	18,652	141,811	260,511

Source: Schimpeler-Corradino Associates, Transportation Planning and Modeling Services, Final Report, August 1983 (in print).

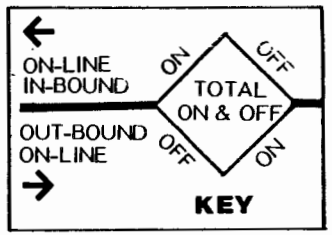
2.4.6 COSTS

Capital Costs. The estimated total cost for the rail portion of the Minimum Operable Segment is $1.54 billion (1983 dollars). Escalated cost totals $2.13 billion. Table 2-13 itemizes the capital costs for this alternative. Total capital costs for the increased bus fleet are $329.6 million.

Total Annual Costs. Table 2-14 shows the alternative's annual O & M costs. Table 2-15 shows the annualized, O & M, and total annual costs for the Minimum Operable Segment. The Minimum Operable Segment has the lowest total annual costs among the alternatives because of its shorter length and reduced service. Using the ten percent discount rate, the annualized costs for the rail component of



Note: Boardings on this figure do not match exactly to boardings on Table 2-12 because of differences in computer rounding.



Source: Schimpeler-Corradino Associates, Transportation Planning and Modeling Services, Final Report, August 1983 (in print).

Southern California Rapid Transit District
Metro Rail Project
PRELIMINARY ENGINEERING PROGRAM

Figure 2-32 Minimum Operable Segment Boarding, Alighting and Link Volumes by Direction Year 2000 Average Daily Volumes

TABLE 2-13

CAPITAL COSTS OF MINIMUM OPERABLE SEGMENT
(in 1983 dollars)

Item	Cost
Guideways	$278,000,000
Stations	471,600,000
Utilities	17,600,000
Parking	3,100,000
Central Control Facility	1,500,000
Main Yard	40,000,000
Trackwork	51,500,000
Train Control	36,200,000
Communications	16,700,000
Traction Power	21,700,000
Fare Collection	15,400,000
Vehicle-Passenger	74,000,000
Vehicle-Auxiliary	1,300,000
Capital Cost Subtotal	$1,028,600,000
Design Contingency 15% - Facilities 10% - Systems	146,000,000
Right-of-Way	118,000,000
Design and Construction Management 13% - Facilities 10% - System	147,200,000
Agency Cost	53,100,000
Insurance	51,000,000
TOTAL COST* (in constant 1983 dollars)	$1,543,900,000
ESCALATED CAPITAL COST (at 7% to midpoint of construction design/ construction contracts)	$2,133,500,000

Source: SCRTD, Milestone II Report: Cost Estimate, 1983.

* An additional $329.6 million would be needed for the complementary bus system, but these costs would not be part of this project.

the Minimum Operable Segment totals about $158.8 million per year. The O & M costs are estimated to be $31.9 million making the total annual cost $190.7 million for the rail operations. For bus and rail operations, total annual costs amount to $728.1 million, including $207.9 million for annualized costs and $520.2 million for O & M (at ten percent).

TABLE 2-14

ANNUAL OPERATING AND MAINTENANCE COSTS
MINIMUM OPERABLE SEGMENT
(in millions of 1983 dollars)

Item	Cost
General Administration	$ 2.77
Maintenance of Ways and Structures	3.74
Maintenance of Vehicles	4.96
Electrical Power	5.55
Operations	6.89
Subsystems	6.77
Liability	1.25
Total Rail Costs[1]	$ 31.94*
Total Bus Costs[2]	$329.60

Source: [1]SCRTD, Milestone II Report: Cost Estimate, 1983.
[2]SCRTD Planning and Metro Rail Departments.

*Figures do not total exactly because of rounding.

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TABLE 2-15

TOTAL ANNUAL COST — MINIMUM OPERABLE SEGMENT
(in millions of 1983 dollars)

	RAIL			TOTAL (RAIL & BUS)		
Discount Rate	Annualized Capital Cost[1]	Annual O & M Cost	Total Annual Cost	Annualized Capital Cost	Annual O & M Cost	Total Annual Cost
4%	$75.7	$31.9	$107.6	$112.8	$520.2	$633.0
7%	116.1	31.9	148.0	158.9	520.2	679.1
10%	158.8	31.9	190.7	207.9	520.2	728.1

Source: Lynn Sedway & Associates for annualized costs.
Note: Same notes as Table 2-8.

2.4.7 REVENUES

The Minimum Operable Segment is expected to generate $183,300 per day from rail operations and $861,600 per day from bus operations, for a total daily revenue of $1,044,900.

3. COMPARISON OF ALTERNATIVES

Each of the alternatives has positive and negative attributes. The purpose of this section is to summarize and highlight the differences among the alternatives, the No Project Alternative, the Locally Preferred Alternative, the Aerial Option to the Locally Preferred Alternative, and the Minimum Operable Segment. The comparison covers the following categories, which correspond generally to the impact discussion in Chapters 3 and 4: transportation, land use and development, economic and fiscal concerns, displacement, social and community concerns, aesthetics, physical environment, and cultural resources. In addition, a cost effectiveness evaluation has been included.

3.1 TRANSPORTATION

3.1.1 TRANSIT

By the year 2000, over 3.7 million daily person trips will be generated within the Regional Core. Under the No Project Alternative, 20 percent of these trips would be made on the bus system and 80 percent by automobile. The transit demand would require a peak hour fleet of 2,209 buses. The Locally Preferred Alternative and Aerial Option would change this demand to 1,969 buses, and the Minimum Operable Segment would increase fleet requirements to 2,197 buses. Bus demand in the Wilshire Corridor under all rail alternatives and along the Hollywood Freeway under the Locally Preferred Alternative and Aerial Option would be reduced substantially relative to the No Project Alternative. Under the Locally Preferred Alternative and Aerial Option, about 236,000 daily auto person-trips would be diverted to transit. Under the Minimum Operable Segment, 232,000 daily auto person-trips would be diverted to transit. As a result of this diversion, total transit ridership (rail and bus) would increase from 1.96 million daily boardings to 2.43 million under the Locally Preferred Alternative and Aerial Option. Total daily ridership under the Minimum Operable Segment would be the same as the Locally Preferred Alternative although the proportion of rail boardings would be smaller.

3.1.2 TRAFFIC

Within the Regional Core, total vehicle miles of travel (VMT) under the No Project Alternative will grow from 14.2 million VMT in 1980 to 17.8 million VMT by the year 2000, a 25 percent increase. Peak hour traffic demand volumes on freeways will exceed capacity virtually everywhere within the Regional Core. On the Hollywood Freeway just east of the Harbor Freeway demand is projected to be nearly twice capacity. The arterial street system which currently handles the majority of the Regional Core travel is expected to carry an even larger share by the year 2000. As a result of this growth, three times as many of the Regional Core's key intersections will deteriorate to unsatisfactory levels of service. Under the No Project Alternative, these congested conditions mean motorists, transit users, and pedestrians will have diminished mobility and will therefore require more time to reach their destinations.

All of the rail alternatives would reduce automobile trips and VMT as compared to No Project conditions. Table 2-16 summarizes the effect the Metro Rail Project would have on various travel characteristics. The Aerial Option and the Locally Preferred Alternative would have the same impacts on travel, reducing vehicle miles traveled in the Regional Core by five percent and reducing average daily vehicular trips into and out of the Regional Core by about two percent.

3.1.3 PARKING

Demand for parking in the Regional Core is expected to increase faster than the supply of available spaces between now and the year 2000. Under the No Project Alternative the CBD will have a net parking deficiency of well over 23,000 spaces. With implementation of the rail transit project, many auto drivers will be diverted to transit, and parking pressures should ease at many locations in the Regional Core. The increased development that may be accommodated because of the presence of the rail line will, on the other hand, add to parking pressures in some areas. The net effect of these factors on parking supply and demand is that the CBD stations will continue to experience parking shortages under the rail alternatives, and that the Fairfax/Beverly, Universal City, and North Hollywood Stations will experience parking deficiencies that would not have occurred under the No Project Alternative.

TABLE 2-16

TRAVEL CHARACTERISTICS UNDER SYSTEMWIDE ALTERNATIVES

Travel Characteristics	No Project Alternative	Locally Preferred Alternative and Aerial Option	Minimum Operable Segment
Average Daily Traffic crossing			
Harbor Freeway between Sunset & Pico	657,000	619,000	644,300
Western between Franklin & Santa Monica Freeway	1,015,600	938,800	1,001,100
La Cienega between Sunset & Santa Monica Freeway	739,100	732,500	735,700
Hollywood Boulevard between Laurel Canyon & Wilton	486,400	469,100	486,400
Pico between La Cienega & Alameda	957,400	955,500	957,200
Vehicle Miles Traveled In Regional Core	17,826,000	16,961,000	16,981,000
Percent of Key Intersections (a.m. peak) with			
- improved conditions	-	56%	NM
- no significant change	-	32%	NM
- worsened conditions	-	12%	NM
- good operating conditions	44%	47%	NM

Source: Los Angeles City Department of Transportation, Draft Traffic Analysis Report, 1983; SCRTD Metro Rail Department.

NM = Not measured

Park and ride facilities will be provided at some of the rail stations, initially as surface lots and ultimately as parking garages. The Locally Preferred Alternative and Aerial Option include 8,675 total spaces (3,080 initially) at five stations, while the Minimum Operable Segment includes facilities at three stations containing 3,675 spaces (725 initially). Demand for the park and ride facilities under each rail alternative will exceed the number of spaces supplied at each of these stations. Consequently, parking demand will spill over into surrounding areas, creating more traffic in these areas. While the traffic will not affect Union Station, which is surrounded by commercial and industrial activities, residential areas in the other station areas with proposed parking facilities are more sensitive to traffic and would be adversely affected.

3.2 LAND USE AND DEVELOPMENT

Rail rapid transit would intensify development and, if supported by appropriate land use decisions, accommodate development beyond projections for the No Project conditions. A comparison of total development levels within the Regional Core under the various systemwide alternatives is presented in Table 2-17. The land use and development effects of the Aerial Option would be virtually identical to those of the Locally Preferred Alternative within station areas, but for land use along the Aerial Corridor, the Aerial Option would be significantly more adverse than the Locally Preferred Alternative. A direct consequence of this growth will be the increasing "densification" of the Regional Core and, particularly, the station areas.

TABLE 2-17

INCREASED DEVELOPMENT IN STATION AREAS
UNDER SYSTEMWIDE ALTERNATIVES, YEAR 2000

	No Project Alternative	Locally Preferred Alternative[1]	Minimum Operable Segment
Commercial Space (1,000 Gross Sq. Ft.)	91,315	105,015-116,835*	102,615-111,615*
Employment	368,000	419,300-466,900*	412,000-449,900*
Dwelling Units	44,280	58,750	55,350
Population	97,000	131,250	124,470
Persons per Square Mile[2]	13,355	16,504	15,548

Source: SCRTD, Technical Report - Land Use and Development Impacts, June 1983.

*Range reflects amount of development both without and with a concerted effort by SCRTD and others to promote joint development.

[1]Also reflects development under the Aerial Option.

[2]For Regional Core.

Within designated centers in the Regional Core, 87.4 million gross square feet of commercial floor area is expected to be constructed by the year 2000 under the No Project Alternative. Commercial development in conjunction with the Locally Preferred Alternative could increase by 13 to 24 percent over the No Project Alternative. The commercial floor area is expected to increase 10 to 19 percent in conjunction with the Minimum Operable Segment.

Focusing development into specific areas is consistent and supportive of both the City of Los Angeles' long range land use and development goals, as well as the county's General Plan, specifically its Urban Form and General Development policies. These goals call for the development of major centers of residence and business. Fourteen of the 18 stations on the Locally Preferred Alternative and 10 of the 12 stations on the Minimum Operable Segment are in designated centers. These high density areas are envisioned to contain a rapid transit station, high-rise office structures, department stores, hotels, theaters, restaurants, and government offices. The Locally Preferred Alternative is the most effective in helping fulfill the city's and county's Centers Concept. The Minimum Operable Segment is somewhat less effective and the No Project Alternative would not stimulate development in designated centers. The Minimum Operable Segment could have a slightly different impact on commercial development than the Locally Preferred Alternative. Under the Minimum Operable Segment, the Wilshire Corridor would have greater regional accessibility than Hollywood and North Hollywood. Accordingly, office and regional retail development that may have been attracted to these areas under the Locally Preferred Alternative might instead locate in the Wilshire Corridor.

While the Centers Concepts, adopted by the city and by the county, specifically call for rapid transit stations in centers, they do not exclude the location of transit stations in non-centers. In non-centers as well as centers the primary measure of land use and development impacts is whether growth expected to occur in conjunction with the Metro Rail Project would be consistent with applicable local plans. Commercial growth expected to occur in conjunction with the Locally Preferred Alternative or the Minimum Operable Segment in the Wilshire/Fairfax Station area may exceed the development capacity established by the Wilshire District Plan. Residential growth expected to occur in conjunction with the Locally Preferred Alternative may exceed the development levels established by the Wilshire District Plan for the Wilshire/La Brea and Fairfax/Beverly station areas, by the West Hollywood Community Plan for the Fairfax/Santa Monica Station area,* and by the Sherman Oaks-Studio City-Toluca Lake District Plan for the Universal City Station area. Both commercial and residential development expected to occur in conjunction with the Locally Preferred Alternative in the Wilshire/Crenshaw station area would not exceed the development capacities established by the Park Mile Specific Plan.

Residential growth expected to occur with the Minimum Operable Segment may exceed established development capacities in the Wilshire/La Brea and Fairfax/Beverly station areas.

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*Residential growth expected to occur with the Locally Preferred Alternative would not exceed the development capacity established by the county proposed Specific Plan for this station area.

These impacts can be mitigated through the actions of responsible planning agencies with the support of the SCRTD. Specific plans for each station area, currently being prepared by the City of Los Angeles Department of Planning, the County of Los Angeles Regional Planning Department, and the Community Redevelopment Agency of the City of Los Angeles, are the principal means by which mitigation measures can be implemented.

3.3 ECONOMIC AND FISCAL CONSIDERATIONS

The rail rapid transit project would have substantial and diverse economic and fiscal impacts. The regional economy, employment, development opportunities, and the fiscal obligations and revenues of governments in the Regional Core would all benefit. The impacts from the Locally Preferred Alternative and its Aerial Option would be essentially the same and would result in the greatest positive benefit.

The Locally Preferred Alternative would generate between 3,000 and 5,000 jobs annually during construction, and 800 and 850 permanent jobs. The Minimum Operable Segment would, given its shorter route, generate fewer employment opportunities. The Locally Preferred Alternative is expected to increase the gross regional product (total income within the Southern California Region) by between $97.0 million and $145.6 million, while the Minimum Operable Segment would add between $63.9 million and $95.8 million.

The additional development that the rail rapid transit project could help accommodate would also have considerable economic benefits. These benefits would affect not only the regional economy in general but SCRTD in particular, were SCRTD to pursue an aggressive program to capture a share of the revenue generated by development in station areas. These "value capture" mechanisms include leasing air rights above parcels acquired by SCRTD and formation of a special benefit assessment district. Under the Locally Preferred Alternative, SCRTD could realize about $6.7 million a year in lease revenues from development on SCRTD acquired sites. Special assessment districts could also be established in all station areas, as has been done in other U.S. transit systems, generating between $26.3 and $52.6 million for SCRTD in the year 2000. Under the Minimum Operable Segment, $1.9 million a year in lease revenues could be realized, as well as between about $25.7 and $51.4 million in assessment district revenues in the year 2000. The California legislature recently enacted enabling legislation to permit special assessment districts at all station areas. This authority extends for one mile from stations in the CBD and one-half mile from other stations.

While initially there could be some potentially adverse fiscal impacts from the rail rapid transit project, the overall fiscal effects would be positive. Some property acquisition by SCRTD would remove parcels from the property tax base. Business loss could decrease sales tax revenues, but these effects would be only temporary, given the increased development expected to occur in conjunction with the project. Under the Locally Preferred Alternative, this development could increase annual property tax revenues by between $8.1 million and $14.1 million over No Project figures in the year 2000 and could increase year 2000 sales tax revenues by between $.5 million and $1 million. The Minimum Operable Segment would add between $6.6 million and $11.6 million to property tax revenues and $.4 million and $.8 million to sales tax revenues over year 2000 No Project figures. These figures to not account for the relatively small losses associated with land acquisition by SCRTD. The

higher estimates assume SCRTD actively pursues joint development programs on its sites.

3.4 LAND ACQUISITION AND DISPLACEMENT

Construction of the rail rapid transit project would require the acquisition of land and the removal or replacement of uses within its right-of-way. The displacement under each alternative is summarized in Table 2-18. The Locally Preferred Alternative and the Aerial Option would displace the greatest number of residences and businesses. While the Locally Preferred Alternative would displace 14 more businesses than the Aerial Option, it would displace two fewer residences. The Minimum Operable Segment requires the least land acquisition and incurs the least in relocation costs.

TABLE 2-18

DISPLACEMENT UNDER PROJECT ALTERNATIVES

Use	Locally Preferred Alternative	Aerial Option	Minimum Operable Segment
Residences			
Single Family	6	10	0
Multifamily	195	193	24
Businesses	197	183	77
Public Services/Nonprofit Organizations	5	3	0

Source: SCRTD, Draft Staff Relocation Analysis and Report, August 1983.

3.5 SOCIAL AND COMMUNITY CHANGES

Social and community impacts can be both positive and negative, since population groups with different social values may be affected differently. Most of the long term impacts on a community result from the growth expected to be accommodated by the rail alternatives. These physical land use and economic changes are considered in conjunction with surveyed community values to arrive at an evaluation of social change in the station environs. For the environs common to each Project alternative the impacts are expected to be similar. Relative to the No Project Alternative, the Project alternatives would result in the following impacts:

- A beneficial net increase in housing supply at all station environs except Hollywood Bowl and Universal City. Higher density housing as well as commercial development is anticipated in the vicinity of stations. However, this would result in some direct displacement and would also cause some indirect displacement if rents rise beyond the financial means of the tenants.

- A beneficial net increase in commercial services. The benefits include revitalizing economically stagnant or declining areas, creating opportunities for pedestrian oriented shopping areas, and increasing the availability and choice of services. The greater attractiveness and accessibility of commercial areas could increase rents and consequently cause businesses to relocate. To some extent this would occur in all station areas except Union Station, Civic Center, Wilshire/Crenshaw, and Hollywood Bowl.

- It is assumed induced growth will result in direct and indirect displacement of social services and public facilities at all station environs except at Union Station, Civic Center, Wilshire/Fairfax, Hollywood Bowl, and Universal City. Growth in conjunction with the rail transit project will require expanding existing social services. This will require additional revenues to maintain the same level of social services as now exists. Accordingly, Metro Rail could indirectly, adversely affect social services, if funding for these services were constrained.

- Improved mobility for the community and greater accessibility to major destinations because of faster travel service, somewhat reduced congestion, and the expanded and modified bus network designed to connect with the rail project. Patrons who are dependent on transit would benefit most.

- The character and cohesiveness of the Fairfax community could diminish, if the new commercial development is permitted to conflict with the area's many small businesses and parking deficiencies are not alleviated.

- The aerial structures of the Aerial Option would disrupt the neighborhood atmosphere, as defined through surveys of local residents, in the San Fernando Valley.

3.6 AESTHETICS

Visual impacts would be the same for the Project alternatives along the alignment from Union Station to Fairfax/Beverly, where the Minimum Operable Segment terminates. The Locally Preferred Alternative and the Aerial Option, would create the same visual impacts up to the north face of the Santa Monica Mountains, where the Aerial Option would emerge as an elevated guideway. Virtually all adverse impacts for these segments of the route can be mitigated, so that the net effect of the Locally Preferred Alternative and the Minimum Operable Segment will be a beneficial one. The significant adverse impacts of the Aerial Option can only be partially mitigated. These impacts include the contrasting and inappropriate scale of the aerial guideway to the surrounding visual setting and the visual intrusion upon the occupants of commercial and residential structures fronting along the aerial alignment. Local and regional views from streets, homes, and businesses also would be obstructed by the elevated guideway and stations.

3.7 PHYSICAL ENVIRONMENT

3.7.1 NOISE AND VIBRATION

Various design features (such as use of resilient direct fixation fasteners) have been proposed to ensure that ground-borne noise and vibration from the rail rapid transit project would not be intrusive to occupants of nearby buildings. No vibration impacts are expected with any of the Project alternatives and only at a few locations would rail rapid transit operations generate noise levels exceeding adopted standards and criteria. Under the Locally Preferred Alternative, eight sites would experience noise levels in excess of standards unless special mitigation measures are implemented. Two sites, both theaters, would be affected under the Minimum Operable Segment. The Aerial Option, in addition to generating ground-borne noise, would emit airborne noise. Much of this noise would be reduced to acceptable levels through the use of sound barrier walls. Nevertheless, approximately 30 additional single family residences and 10 apartment buildings in the San Fernando Valley would experience excessive airborne noise that would not occur with the Locally Preferred Alternative.

3.7.2 AIR QUALITY

Impacts on air quality are defined at two geographic levels: subregional and local. The subregional analysis examines the effect of the rail rapid transit project on pollutant emissions for the area used to study traffic changes. Within this area, all alternatives would reduce emissions for all five pollutants studied (Table 2-19).

At the site specific, or micro, level air quality impacts are measured in terms of exposure to air pollutants at sensitive sites such as residences, parks, hospitals, and schools. The pollutant of primary concern is carbon monoxide whose effects are related to levels of traffic congestion. Such areas, known as "hot spots" include the Lankershim/Burbank intersection and four of the stations with parking. Background levels for carbon monoxide (eight-hour) in the year 2000 range from 9.7 parts per million at Union Station to 15.0 parts per million at Universal City. These levels exceed the state eight-hour standard. Changes to carbon monoxide levels by any of the Project alternatives beyond those under the No Project Alternative were found to be minimal. The traffic changes resulting from the project would not cause the eight-hour carbon monoxide standard to be exceeded.

3.7.3 ENERGY

Transportation energy requirements under the No Project Alternative include the demand for construction, operation, and maintenance of automobiles and buses, and the demand for fuel. The resultant energy demand in the year 2000 is a function of auto and bus travel. An estimated 552,371 billion British thermal units (BTUs) would be required for transportation purposes in the Los Angeles region.

TABLE 2-19

COMPARISON OF POLLUTANT EMISSIONS UNDER SYSTEMWIDE ALTERNATIVES
(tons/day)

Pollutant	No Project Alternative Regional Vehicular Emissions	Reductions in Emissions under Locally Preferred Alternative[1]	Reductions in Emissions under Minimum Operable Segment
Carbon Monoxide	461.3	7.9	7.5
Reactive Hydrocarbons	37.7	0.6	0.5
Oxides of Nitrogen	57.9	1.0	0.9
Sulfur Dioxide	8.9	0.1	0.1
Suspended Particulates	12.4	0.3	0.3

Source: SCRTD, Technical Report - Air Quality, 1983.

[1]Also reflects reductions under the Aerial Option

Under the Project alternatives, approximately three-fourths of the rail system energy demand is required for traction power and station operations; the balance is for construction of guideways, structures, and passenger vehicles and for maintenance. Total annual rail energy demand for the Locally Preferred Alternative is 1,556 billion BTUs; for the Aerial Option, 1,494 billion BTUs; and for the Minimum Operable Segment, 914 billion BTUs. The construction and operation of the Locally Preferred Alternative, the most energy demanding of the Project alternatives, would represent less than one-half of one percent of the City of Los Angeles' Department of Water and Power's projected year 2000 annual demand.

The energy demand imposed on the region by Metro Rail is projected to be offset by the reduction in auto and bus vehicle miles traveled. Most of the net energy savings generated by the rail transit system will come from reductions in propulsion energy consumption; that is, the gasoline and diesel fuel that would be consumed if Metro Rail were not built.

3.7.4 GEOLOGY AND HYDROLOGY

Features already incorporated into the design of the Project alternatives will eliminate nearly all potential geologic and hydrologic hazards. The only hazard with significant consequences for the rail transit system would be a fault rupture and subsequent ground shaking which could impact the alignment of all Project alternatives and damage support structures of the Aerial Option. However, the probability of such an event is extremely low--the maximum displacement estimated for the Malibu-Santa Monica Fault is expected to occur on an average of once every 20,000 to 30,000 years and for the Hollywood Fault, once every 60,000 to 70,000 years.

3.8 CULTURAL RESOURCES

3.8.1 SECTION 106 AND 4(f) HISTORIC PROPERTIES

The No Project Alternative would have no effect on the 29 properties found to be historically significant from surveys conducted along the Metro Rail alignment. Four historic properties would be adversely affected by the Project alternatives.

- At Union Station, a National Register District, station construction would cause the staged removal and replacement of Union Station rail track; removal of the north end of the Mail, Baggage, and Express Building; removal and later reconstruction of a ramp and an architecturally integrated wall on the north side of the station; the removal of the first floor of another section of the Mail, Baggage, and Express Building; and the removal of a canopied loading dock east of the track area.

- At the Title Guarantee Building on West Fifth Street and the Pershing Square Building on South Hill Street (if another station entrance is needed in the future) the ground floors of the building would need to be altered to include station entrances. Visual and audible elements out of character with the buildings would also be introduced.

- At Hancock Park/La Brea Tar Pits paleontological resources may be disrupted during construction.

Were the Aerial Option to be adopted, an additional 10 potentially historic structures may be adversely affected along the North Hollywood alignment.

3.8.2 ARCHAEOLOGY

Along the Locally Preferred Alternative's alignment, three archaeologically significant sites have been identified and four other sites are considered potentially significant. All Project alternatives have the potential for disrupting resources in the Los Angeles Passenger Terminal District, at the Civic Center and Hill Street Station locations, and in the Hancock Park/La Brea Tar Pits area. In addition, the Locally Preferred Alternative and the Aerial Option may uncover archaeological resources in the Campo de Cahuenga area of Universal City. No other adverse effects are expected but, to ensure protection of these resources, an archaeologist will observe construction activities at the other identified and potentially significant sites.

3.8.3 PALEONTOLOGY

Potential impacts on paleontological resources are identical for all Project alternatives. The most significant impact would be in the Rancho La Brea Tar Pits resource area where there are known occurrences of fossils. Marine invertebrates and vertebrates may also be encountered in the CBD and along the Wilshire Corridor.

3.8.4 PARKS AND RECREATION LANDS

The No Project Alternative would not enhance accessibility to public parks and other recreational facilities in the Regional Core, in contrast to the Project alternatives. While the long term net effect to 4(f) lands will be beneficial, short term effects are expected. Under all Project alternatives, removal of sidewalks and landscaping would occur at the Court of Flags and at Pershing Square would be necessary for construction of station entrances. In addition, the Locally Preferred Alternative and the Aerial Option would affect the Campo de Cahuenga park area through indirect construction impacts (such as noise and vibration). No actual use of parkland in the Campo de Cahuenga area would be required. The Hollywood Bowl Station also would be affected under these two alternatives. A station entrance and vent shafts at each end of the station would be built on Bowl property.

3.9 COST EFFECTIVENESS ANALYSIS

Cost effectiveness, as used here, is a measure of the cost of the benefits derived from investment in rail transit. Benefits include the number of patrons served and the number of passenger miles traveled. This section considers the cost effectiveness of the rail alternatives under differing assumptions about the discount rate and the patronage estimates.

3.9.1 COST SUMMARY

Table 2-20 presents a summary cost comparison of the alternatives in 1983 dollars. Included are total capital cost, annualized capital cost at ten percent (currently assumed to be the most accurate rate), year 2000 operating cost, and total annual cost. The costs include bus and rail costs. Over the time period of the financial analysis, the initial bus fleet with its 12 year economic life would have to be replaced twice. This has been taken into account in the annualization of the capital costs.

The Locally Preferred Alternative is the most costly alternative with a total rail and bus capital cost of $2,764.0 million and a total annualized capital cost of $297.9 million. The Aerial Option would reduce rail and bus capital costs by $57.2 million and total annualized capital costs by $5.8 million. The Minimum Operable Segment would cost a total of $1,873.5 million in rail and bus capital expenditures and result in a total annualized capital cost of $207.9 million. Expected annual revenue for the Locally Preferred Alternative and the Aerial Option are the same, estimated at $334.4 million. The Minimum Operable Segment could generate as much as $15.2 million a year less in revenue.

TABLE 2-20

COST COMPARISON
(in millions of 1983 dollars)

	No Project	Locally Preferred Alternative	Aerial Option	Minimum Operable Segment
Capital Cost[1]				
Bus	$331.4	$295.4	$295.4	$329.6
Rail	N.A.	2,468.6	2,411.4	1,543.9
Total	$331.4	$2,764.0	$2,706.8	$1,873.5
Total Annualized Capital Cost[2] (@ 10%)	$48.3	$297.9	$292.1	$207.9
Annual Operating Cost[1]				
Bus	$526.1	$447.3	$447.3	$488.3
Rail	N.A.	48.5	48.5	31.9
Total	$526.1	$495.8	$495.8	$520.2
Total Annual Cost[2] (@ 10%)	$574.4	$793.7	$787.9	$728.1
Total Annual Revenue[3]	$247.2	$334.4	$334.4	$319.2

Source: [1]DMJM/Kaiser Engineers/Booz, Allen & Hamilton (capital and operating costs. Annual operating costs are based on an average of 315 days of bus service and 310 days of rail service.

[2]Lynn Sedway & Associates (annualized costs).

[3]SCRTD; Schimpeler-Corradino Associates (patronage and revenues). Annual revenues are based on projected weekday revenues, multiplied by an average of 308 operating days for bus service and by an average of 295 operating days for rail service; service will be provided daily.

3.9.2 COST EFFECTIVENESS

This section presents calculations of cost effectiveness for total annual costs (annualized capital costs and annual O & M costs) on both an average cost and marginal cost basis. Average costs are total costs divided by either total passengers or total passenger miles. For systems of comparable length, the cost per passenger is a useful measure of comparison. However, for systems of different lengths it is more accurate to compare passenger miles because this measure better reflects system use by accounting for both trip volumes and trip length. Marginal costs are the expenditures incurred for each addition to the rail project. In the following discussion, the cost effectiveness in terms of average and marginal cost is presented first for the entire transit system and then for the rail component alone.

Analysis of Average Costs. Table 2-21 presents total annual costs on both a per passenger and passenger mile basis. As the table indicates, the relative ranking of each alternative's cost effectiveness is very sensitive to the discount rate used to annualize capital costs. For example, when considering total transit (rail and bus) costs on a per passenger basis, the Minimum Operable Segment is the least costly alternative when using the four percent and seven percent discount rates--per passenger costs are $0.85 and $0.91, respectively. However, at ten percent the No Project Alternative is least costly at $0.95 per passenger. The relative rankings are distributed in a similar manner when costs are estimated on a passenger mile basis. The Minimum Operable Segment is least expensive when using the four percent discount rate ($0.25 per passenger mile), and the No Project Alternative cost least per passenger mile at seven percent and ten percent. However, it should be noted that the costs per passenger mile for all discount rates are relatively comparable among alternatives. At four and seven percent, only two cents separate the "most" and "least" cost efficient alternatives; at ten percent, the difference is more significant at four cents per passenger mile.

Among the rail alternatives, the Minimum Operable Segment costs least per passenger; the Locally Preferred Alternative costs the most. This is to be expected for two reasons. First, the Minimum Operable Segment is shorter and has fewer stations; thereby costing about two-thirds of the Locally Preferred Alternative's capital and operating costs. Second, the Minimum Operable Segment, although much shorter, still carries 72 percent of the Locally Preferred Alternative's rail ridership.

Analysis of Marginal Costs. A marginal cost analysis can determine if further expenditures for a project are economically feasible. The analysis involves a comparison of the average cost of operations under the No Project Alternative against the incremental, or marginal, costs of expanding operations. If the marginal costs are less than the average costs, then expansion can occur without increasing the average cost. Conversely, if the marginal costs are greater than current average costs, then expansion will cause average costs to rise. In effect, further expansion is feasible if the marginal cost is less than the average cost of the No Project Alternative. It should be kept in mind that the cost effectiveness analysis offers only one perspective on the merits of a project. Other factors, such as improving mobility and supporting land use decisions, will be weighed by UMTA, SCRTD, and the public in determining the project's merits.

Total Annual Costs. Table 2-22 presents the additional costs of carrying an additional passenger or offering service for one more passenger mile. This table should be compared with total average costs per passenger and per passenger mile in Table 2-21. As seen in the tables, when marginal costs (Table 2-22) on a per passenger and passenger mile basis are less than the average costs (Table 2-21), then the additional investment in a rail system has the effect of reducing the average costs of building and operating the overall SCRTD transit system. This, in turn, means that the operating subsidy per passenger and per passenger mile are likewise reduced.

As with average costs, however, marginal costs are very sensitive to the interest rate used to discount capital costs. As a result, on a marginal passenger mile basis the Minimum Operable Segment has the lowest marginal total cost when using a four percent discount rate ($0.20 per passenger mile). This cost is also less than the average costs per passenger mile for the No Project Alternative, indicating the construction of the Minimum Operable Segment is cost efficient. The Locally Preferred Alternative would cost $0.23 per marginal passenger mile at four percent

TABLE 2-21

TRANSIT EFFICIENCY AND PATRONAGE SENSITIVITY
TOTAL ANNUAL COST PER UNIT OF PRODUCTIVITY[1]
(in 1983 dollars)

	No Project Alternative	Locally Preferred Alternative	Aerial Option	Minimum Operable Segment
Rail				
Per Passenger				
4%	N.A.	$1.58 ($2.26)	$1.55 ($2.22)	$1.40 ($2.00)
7%	N.A.	2.18 (3.12)	2.14 (3.06)	1.93 (2.75)
10%	N.A.	2.82 (4.02)	2.76 (3.94)	2.48 (3.54)
Per Passenger Mile				
4%	N.A.	$0.36 ($0.52)	$0.36 ($0.51)	$0.52 ($0.74)
7%	N.A.	0.50 (0.72)	0.49 (0.70)	0.72 (1.02)
10%	N.A.	0.65 (0.93)	0.64 (0.91)	0.92 (1.32)
Total (Rail & Bus)				
Per Passenger				
4%	$0.93 (1.33)	$0.87 ($1.25)	$0.87 ($1.24)	$0.85 ($1.21)
7%	0.94 (1.34)	0.97 (1.38)	0.96 (1.37)	0.91 (1.30)
10%	0.95 (1.35)	1.07 (1.53)	1.06 (1.51)	0.98 (1.40)
Per Passenger Mile				
4%	$0.26 (0.37)	$0.26 ($0.37)	$0.26 ($0.37)	$0.25 ($0.36)
7%	0.26 (0.38)	0.28 (0.41)	0.28 (0.40)	0.27 (0.39)
10%	0.27 (0.38)	0.31 (0.45)	0.31 (0.44)	0.29 (0.42)

Source: Lynn Sedway & Associates

[1] Figures in parentheses assume projected rail and bus patronage are reduced by 30 percent. For a discussion of the sensitivity of the costs to these different patronage levels, see section 3.9.3 of this chapter.

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TABLE 2-22

MARGINAL COST SENSITIVITY ANALYSIS - TOTAL ANNUAL RAIL AND BUS COST[1]
(in 1983 dollars)

	Locally Preferred Alternative	Aerial Option	Minimum Operable Segment
Marginal Total Annual Cost Per Marginal Passenger			
4%	$0.64 ($0.83)	$0.57 ($0.81)	$0.51 ($0.72)
7%	1.10 (1.44)	0.98 (1.40)	0.80 (1.14)
10%	1.60 (2.08)	1.43 (2.04)	1.11 (1.58)
Marginal Total Annual Cost Per Marginal Passenger Mile			
4%	$0.23 ($0.32)	$0.22 ($0.31)	$0.20 ($0.29)
7%	0.39 (0.56)	0.38 (0.54)	0.31 (0.45)
10%	0.57 (0.81)	0.55 (0.79)	0.44 (0.62)

Source: Lynn Sedway & Associates

[1] Figures in parentheses assume projected rail and bus patronage are reduced by 30 percent. For a discussion of the figures, see section 3.9.3 of this chapter.

and $0.44 at ten percent. This situation is a good example of where other factors should at least be recognized. While the Minimum Operable Segment costs the least, it does not provide the desired improvement in transit travel times between the San Fernando Valley and destinations in Hollywood, the Wilshire Corridor, or the CBD, nor does it satisfy the land use and development objectives of Hollywood and North Hollywood. At the seven percent and ten percent discount rates, the incremental costs per passenger mile for the Minimum Operable Segment are higher than the average costs for the No Project Alternative, indicating the cost effective transit option is the No Project Alternative. The marginal cost analysis at ten percent shows that all of the Project alternatives will raise the average cost of SCRTD's transit system.

Operating Costs. The efficiency of operating costs is a useful index, because once the rail project is built, a primary concern becomes the annual operating costs and how they will be met. Table 2-23 presents measures of marginal operating costs on both a marginal passenger and marginal passenger mile basis with regard to the total system (rail and bus). To carry an additional passenger the Locally Preferred Alternative and the Aerial Option would both incur the least additional operating cost. This is because their operating costs are lower than projected for the No Project Alternative, and each alternative increases boardings by almost 23 percent. The Minimum Operable Segment is not as efficient as the full-length systems on the per marginal passenger basis because the former neither reduces operating costs nor increases patronage to the extent projected for the Locally Preferred Alternative and the Aerial Option.

TABLE 2-23

MARGINAL OPERATING COST SENSITIVITY ANALYSIS[1]
(in 1983 dollars)

	Locally Preferred Alternative	Aerial Option	Minimum Operable Segment
Rail			
Marginal Operating Cost Per Marginal Passenger	$0.45 ($0.64)	$0.45 ($0.64)	$0.41 ($0.59)
Marginal Operating Cost Per Marginal Passenger Mile	$0.10 ($0.15)	$0.10 ($0.15)	$0.15 ($0.22)
Total (Rail & Bus)			
Marginal Operating Cost Per Marginal Passenger	$-0.22 ($-0.29)	$-0.22 ($-0.29)	$-0.04 ($-0.06)
Marginal Operating Cost Per Marginal Passenger Mile	$-0.08 ($-0.12)	$-0.08 ($-0.12)	$-0.02 ($-0.02)

Source: Lynn Sedway & Associates.

[1] Figures in parentheses assume projected bus and rail patronage is reduced by 30 percent. For a discussion of these figures, see section 3.9.3 of this chapter.

The marginal operating cost analysis on a per marginal passenger mile basis likewise shows the full-length system to be more cost efficient. This results from the factors listed above and from passengers on the full-length system making longer trips than on the Minimum Operable Segment. The combination of more boardings plus longer average trip lengths means the Locally Preferred Alternative and Aerial Option are projected to carry more than twice as many (124%) rail passenger miles than the Minimum Operable Segment. Moreover, even though the 18.6 mile system is longer and has more stations, its operating costs are only about 50 percent greater than the shorter rail alternative. Thus, the Locally Preferred Alternative and Aerial Option on a per marginal passenger mile basis are most cost efficient.

Revenue and Cost Analysis. A comparison of annual revenues against annual operating costs shows which alternatives would operate at a surplus or deficit. Table 2-24 indicates that operating costs for each alternative are projected to exceed revenues. The greatest deficit, therefore requiring the greatest operating subsidy, is projected for the No Project Alternative ($278.9 million). The operating subsidy is significantly reduced with the rail components. Under the Locally Preferred Alternative, the deficit decreases by $166.0 million to $112.9 million; under the Minimum Operable Segment, the deficit decreases by $109.8 million to $169.1 million. This improvement in the financial aspects of transit operation is one of the most positive effects of the rail alternatives. With a reduction in the operating subsidy, SCRTD has the opportunity to improve services, reduce fares, reduce the demand for funding, or some combination of all of these.

TABLE 2-24

COST/REVENUE SENSITIVITY ANALYSIS - YEAR 2000
TOTAL RAIL AND BUS SYSTEM[1]
(in millions of 1983 dollars)

	No Project Alternative	Locally Preferred Alternative[2]	Minimum Operable Segment
Annual Revenues	$247.2 ($173.0)	$334.4 ($234.1)	$319.2 ($223.4)
Annual Operating Costs	526.1 (526.1)	447.3 (447.3)	488.3 (488.3)
Annual Operating Deficit	$278.9 ($353.0)	$112.9 ($213.2)	$169.1 ($264.9)

Source: Lynn Sedway & Associates.

[1]Figures in parentheses assume projected rail and bus patronage are reduced by 30 percent. For a discussion of these figures, see section 3.9.3 of this chapter.

[2]Figures are identical for the Aerial Option.

3.9.3 PATRONAGE SENSITIVITY ANALYSIS - 30 PERCENT REDUCTION

Because of the uncertainty inherent in predicting patronage, a patronage sensitivity analysis was conducted. The analysis was undertaken to assess the cost effectiveness of the project if bus and rail patronage did not reach the predicted level. For the purpose of this analysis, a reduction of 30 percent was assumed. This would mean that annual transit boardings would be 520.4 million under the Locally Preferred Alternative and Aerial Option and 521.5 million for the Minimum Operable Segment. Annual rail boardings would be 75.2 million under the Locally Preferred Alternative and 53.8 million under the Minimum Operable Segment.

The analysis was conducted assuming that there would be no reduction in the capital costs of the alternatives. The assumption, as stated above, is that the project which uses six car trains and 450 foot platforms is built as planned but patronage is less than projected. While operating costs could be lower, the analysis assumes no reduction in operating cost. These "worst case" assumptions are selected to highlight the most negative effect on cost effectiveness. It is recognized that ultimately service will be matched with the realized patronage. The reduction in patronage would result in a reduction of revenue (Table 2-24).

For the Locally Preferred Alternative and Aerial Option annual transit revenue would drop from $334.4 million to $234.1 million, a $100.3 million difference. For the Minimum Operable Segment, the reduction in revenue is approximately $95.8 million. With the costs remaining the same, this decrease in revenues would increase the expected annual operating deficits of the alternatives by a like amount. However, the total deficit for the Locally Preferred Alternative and Minimum Operable Segment with the reduced patronage would still be less than for the No Project Alternative.

Cost per passenger and cost per passenger mile would both increase if patronage were less than predicted (Table 2-21). For the rail system only (assuming a discount rate of ten percent) the cost per passenger would increase by about $1.20 for the Locally Preferred Alternative, by about $1.10 Aerial Option, and by about $1.05 for the Minimum Operable Segment. This represents a 43 percent increase in cost per rail passenger. If bus and rail passengers are looked at together, the reduction in total transit patronage would result in a comparable percentage increase in cost per transit passenger and cost per passenger mile. The effect of a decrease in total transit patronage under the Project alternatives is to reduce their cost effectiveness. The relative rankings of each alternative, however, do not change when patronage is reduced, as each is affected in a similar manner. All project alternative's would have greater average costs than the no project alternative.

The impacts on marginal cost per marginal passenger and marginal cost per passenger mile were reviewed (Table 2-22). A reduction in rail patronage would increase the figures for all alternatives. For the ten percent discount rate the marginal cost per marginal passenger becomes $2.28 for the Locally Preferred Alternative ($0.68 increase), $2.22 for the Aerial Option ($0.61 increase), and $1.58 for the Minimum Operable Segment ($0.67 increase). The increase in marginal cost per marginal passenger mile likewise increase. With either the full projected patronage or the scenario assuming 30 percent less patronage, the Minimum Operable Segment has the lowest marginal cost per marginal passenger or passenger mile.

In summary, a 30 percent reduction in patronage is **not** a major factor in choosing among alternatives: the Minimum Operable Segment is preferable, but on a marginal

cost basis. Using the criterion that marginal costs should be less than average costs, the patronage reduction does not influence the cost effectiveness analysis. Under the predicted patronage levels (not reduced by 30 percent), none of the Project alternatives would be considered cost efficient on a per passenger basis. Similarly, under the reduced patronage levels, no alternative has marginal costs less than average costs. But, as noted earlier, this scenario assumes worst case assumptions. This analysis represents only one perspective upon which to evaluate the project. If this worst case situation were to occur, system changes could be effected to reduce service and make them commensurate with the patronage levels. In turn service charges would reduce overall operating costs, and thereby, result in a smaller demand for transit subsidy.

3.10 SUMMARY EVALUATION OF ALTERNATIVES

Table 2-25 summarizes the impacts of the alternatives. Each measure is more fully discussed in Chapters 3 and 4. There, the basic information and rationale upon which the evaluations are based are presented. The summary table provides a broad overview for a comprehensive comparison of the alternatives.

TABLE 2-25

SUMMARY COMPARISON OF ALTERNATIVES

	No Project Alternative	Locally Preferred Alternative/ Aerial Option[1]	Minimum Operable Segment
FINANCIAL[2]			
Patronage - Annual Boardings (millions)[3]			
Rail	N.A.	107.42	76.85
Bus	605.95	635.97	668.21
Total	605.95	743.39	745.06
Capital Costs (millions)			
Rail	N.A.	$2,468.6/$2,411.4	$1,543.9
Bus[4]	$331.4	$295.4	$329.6
Total	$331.4	$2,764.0/$2,706.8	$1,873.5
Annual Operating Costs (millions)[5]			
Rail	N.A.	$48.5	$31.9
Bus	$526.1	$447.3	$488.3
Total	$526.1	$495.8	$520.2
Total Annual Operating Costs			
Per Passenger	$0.87	$0.67	$0.70
Per Passenger Mile	$0.25	$0.20	$0.21
Total Annual Costs at 10 percent discount			
Per Passenger	$0.95	$1.07/$1.06	$0.98
Per Passenger Mile	$0.27	$0.31	$0.29
Total Annual Revenues (millions)[3]	$247.2	$334.4	$319.2
Operating Subsidy Per Passenger (dollars)	$0.46	$0.20	$0.23
TRANSPORTATION			
Daily Auto Vehicle Miles Traveled Diverted (millions)	N.A.	1.12	1.06
Daily Auto Person-Trip Diverted to Transit	N.A.	236,463	232,317
Transit Mode Split (percent)	3.34	3.81	3.80
Daily Revenue Bus Hours Traveled	28,590	25,098	26,970
Daily Revenue Bus Miles Traveled	391,114	322,471	359,790
Peak Hour Buses Operated	2,209	1,969	2,197
REGIONAL CORE DEVELOPMENT, YEAR 2000			
Growth			
Commercial Floor Space - 1000 sq. ft.	271,400	290,400-298,100	287,400-290,300
Employees	984,500	1,053,500-1,083,700	1,046,200-1,066,100
Dwelling Units	428,720	528,230	492,020
Population	1,021,670	1,262,560	1,189,420
Estimated Tax Revenues (millions)	$16.9	$25.5-$32.0	$23.9-$29.3
Estimated Annual Value Capture Potential (millions)			
Via Ground Leasing	N.A.	$6.7	$1.9
Via Assessment District	N.A.	$26.3 - $52.6	$25.7 - $51.4
Displacement			
Residential Units	N.A.	201/203	24
Commercial Establishments	N.A.	197/183	77
Nonprofit Establishments	N.A.	5/3	0
PHYSICAL ENVIRONMENT			
Annual Transportation Energy Requirements (billions of BTUs)			
Rail Transit	N.A.	1,556/1,494	914
Total Transportation System	552,371	550,045/549,983	550,076
Air Pollutant Emissions (tons/day)			
Carbon Monoxide	461.3	453.4	453.8
Reactive Hydrocarbons	37.7	37.2	37.2
Oxides of Nitrogen	57.9	56.9	57.0
Sulfur Dioxide	8.9	8.8	8.8
Suspended Particulates	12.4	12.1	12.1

Note: All costs and revenues are in 1983 dollors.

N.A.: Not applicable.

[1] Indicated only where it differs from the Locally Preferred Alternative.

[2] A financial comparison assuming the Metro Rail Project does not achieve predicted patronage levels has been performed. See Section 3.9.3 of this chapter for more details.

[3] Annual boardings and revenues assume an average of 308 operating days for bus service and 295 operating days for rail service; service will be pravided daily.

[4] Only includes initial cost. Full capital cost would require two cycles of replacement costs.

[5] Annual operating costs assume an average of 315 operating days for bus service and 310 operating days for rail service; service will be provided daily.

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing and future environmental setting of the Regional Core, the likely effects of a rail transit project on the setting, and possible ways to minimize the adverse effects. The setting includes key land use, socio-economic characteristics, as well as natural and physical features, that may be affected by the construction and operation of the Project alternatives. The impact assessment focuses on the site-specific issues that could not be addressed in the First Tier EIS/EIR. Accordingly, the impact area receiving the greatest attention is the station area, covering approximately 1/4 mile around each station. Larger areas are used in order to properly address areawide or regional impacts. Air quality impacts, for example, extend beyond the boundaries of the Regional Core, so a larger study area was defined.

Two types of impact, **short term** and **long term,** are evaluated. The first type of impact occurs during the temporary construction period; whereas the second type occurs during Metro Rail's operation. Because of their long term nature and potential for changing environmental setting, long term impacts are covered in greater detail than short term impacts, which have all been combined into one discussion. Aside from these "timing" aspects, impacts can be **direct** or **indirect.** With direct effects, such as noise and vibration, there is an immediate connection between the Metro Rail Project and its alteration of the environmental setting. By contrast, indirect impacts occur later in time or are farther removed in distance. Growth accommodated by Metro Rail and the subsequent economic and fiscal implications are examples of indirect impacts.

Following each impact assessment, mitigation measures are described to avoid, reduce, or eliminate significant adverse impacts. The measures presented represent various strategies that can be adopted. Some mitigation strategies can be carried out completely by SCRTD. These measures have been committed to by SCRTD in this Final EIS/EIR and the costs of implementing them are included in the estimates of project cost and funding. Other measures are not in SCRTD's jurisdiction or directly related to project impacts. In this Final EIS/EIR this latter group of mitigation measures are suggested to other agencies for implementation. These will have to be refined and finalized during Final Design for the project. SCRTD has signed Master Agreements with the City and the County of Los Angeles and under these agreements their traffic and transportation departments will assist SCRTD in developing and implementing transportation-related measures. Should UMTA commit funding to a rail project, the grant agreements for construction funding will include a commitment to carry out specific mitigation measures contained in the Final EIS/EIR. The following sections of this chapter discuss the timeframes and procedures that will be followed and the measures most likely to be adopted for each impact area.

While in many cases, mitigation measures will eliminate adverse impacts, there will be situations where adverse impacts cannot be completely mitigated by any reasonable means. These impacts are also identified.

1. TRANSPORTATION

1.1 INTRODUCTION

This section describes the existing transportation situation in the Regional Core, defines the transportation impacts of the alternatives, and describes mitigation measures where practicable. Transit data has been prepared by SCRTD's Planning, Scheduling, and Metro Rail Departments. Traffic and parking data have been compiled by the Los Angeles City Department of Transportation and can be examined in greater detail in their Draft Analysis Report (1983). The transportation impacts are subdivided into transit, traffic, and parking. Transit impacts involve the transportation providers as well as riders. Traffic impacts also involve the agencies who build and maintain the road system as well as auto owners and drivers. Parking is of concern at all stations.

1.2 TRANSIT

1.2.1 EXISTING CONDITIONS

Southern California has the largest all-bus transit system in North America, dominated by SCRTD's 2,400 bus fleet including spares. The SCRTD system extends from the Ventura County line on the west to Riverside and San Bernardino on the east, a distance of approximately 90 miles, and from the north end of the San Fernando Valley to San Pedro and Long Beach on the south, a distance of 40 miles. Typical weekday patronage on SCRTD's 226 lines has risen from 1.2 million boardings per day in fiscal year 1982 to 1.5 million in 1983. This increase in ridership was in response to the fare reduction (approximately one-half) resulting from Proposition A. Within SCRTD's service area, the Regional Core accounts for approximately half of the daily service commitment of 1,950 peak buses, 280,000 revenue bus miles and 21,000 revenue bus hours, and more than half of the passengers. In contrast to the remainder of the region, where only about three percent of the population's daily trips use public transportation, 15 percent of all trips within the Regional Core are made by transit. Figures 3-1 and 3-2 illustrate the intensive bus route pattern in the Western Los Angeles (includes Wilshire area) and San Fernando Valley portions of the Regional Core, respectively. Service is provided on conventional local bus lines, express buses on freeways, and limited-stop lines on arterial streets (Table 3-1).

Speeds of both local and limited buses in the Wilshire Corridor are unusually low (Table 3-2), especially in the p.m. peak hour. For example, lines 20, 21, and 22 average only 6.7 miles per hour for 3.6 miles on Seventh Street and Wilshire Boulevard from Maple Avenue to Western Avenue. The limited lines on the same route, 308 and 309, save seven minutes over the same distance and average 8.7 miles per hour by skipping local stops. Of the bus lines in the east-west corridors to be served by Metro Rail, only the Olympic Boulevard Limited (line 311) exceeds the SCRTD system average of 14.1 miles per hour.

These low speeds result from a combination of traffic congestion, delays at closely-spaced traffic signals, and long dwell times needed to load the large number of passengers. Load factors are higher in the Wilshire Corridor (Western Los Angeles)

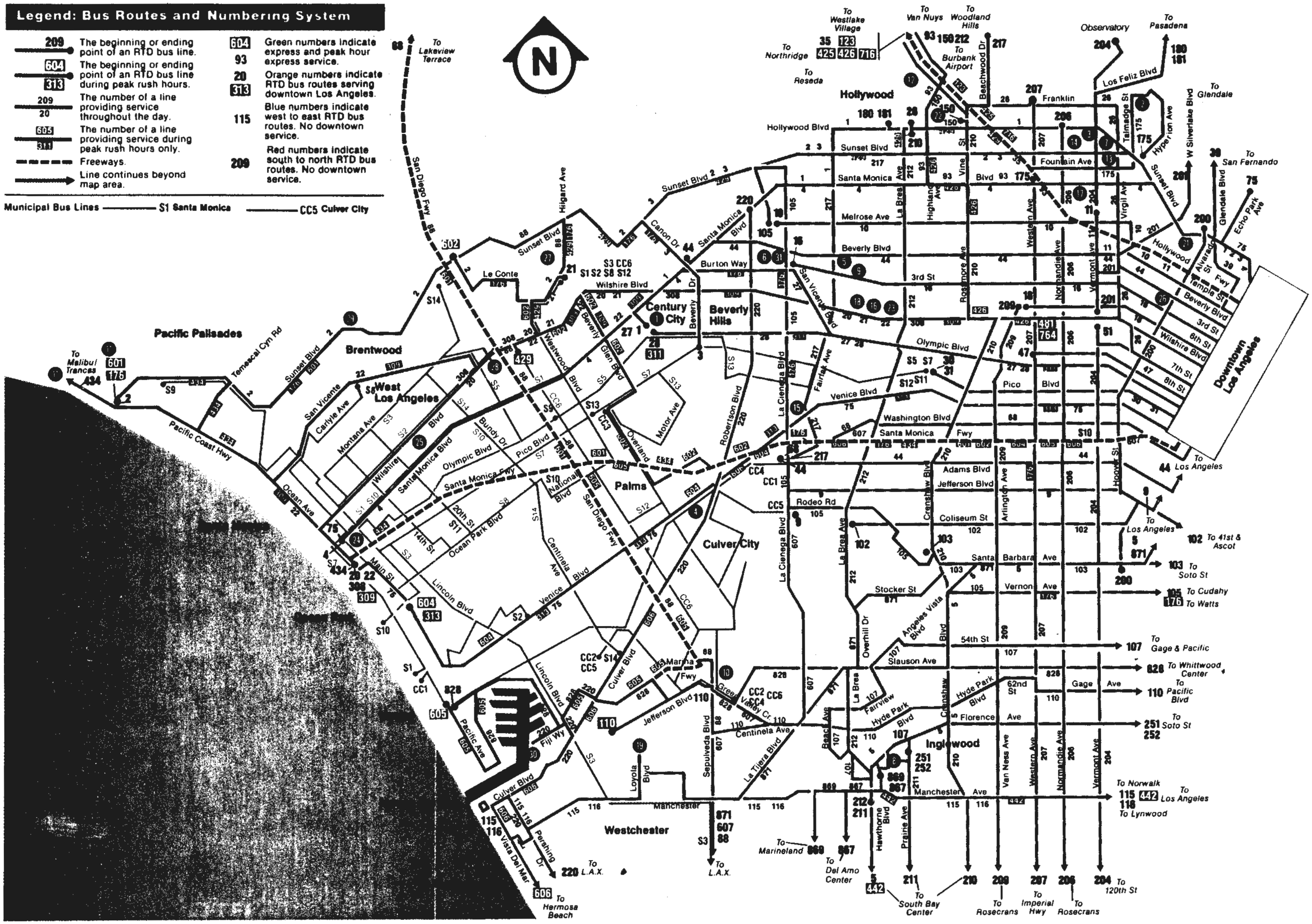

Figure 3-1 Western Los Angeles Bus Routes

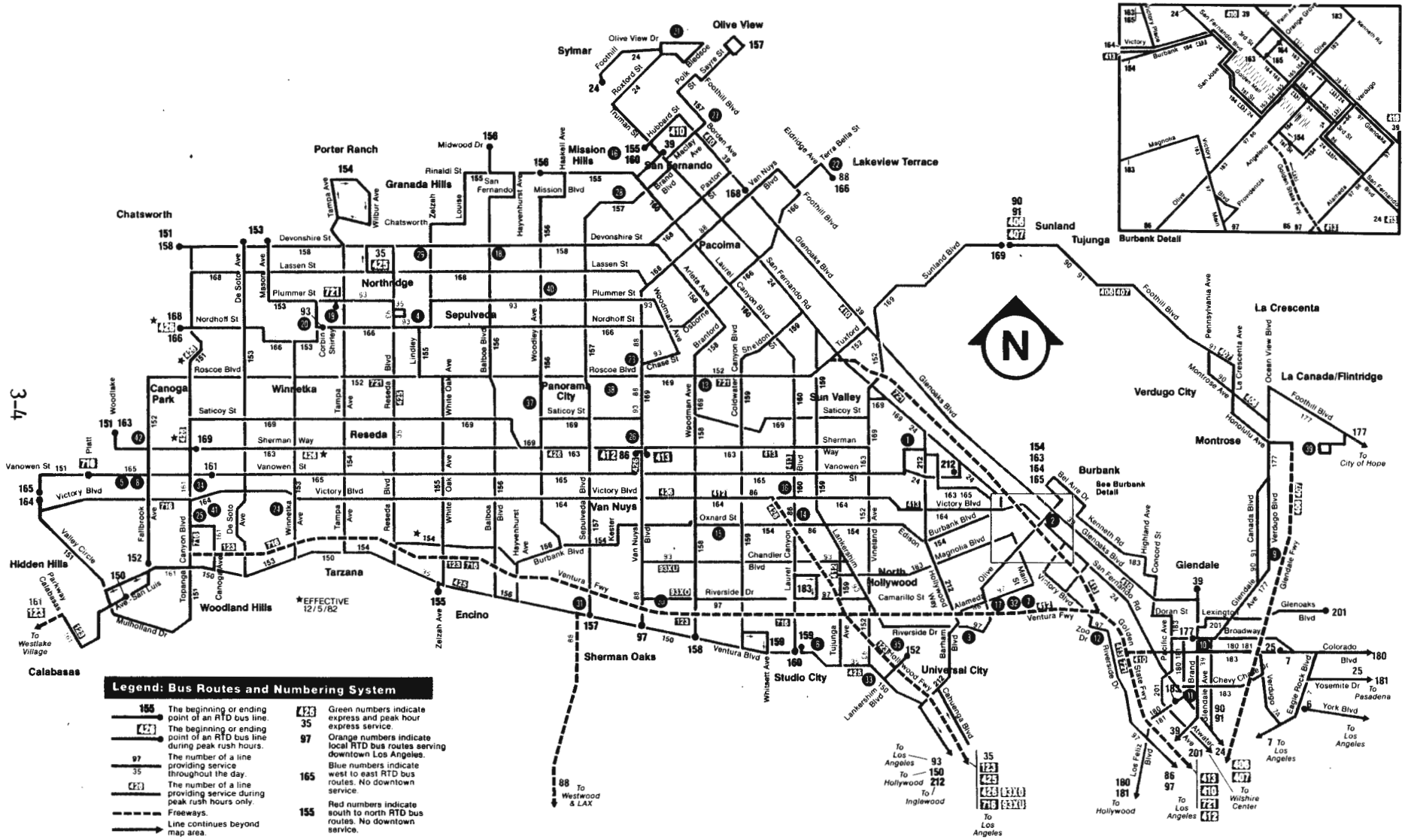

Figure 3-2 San Fernando Valley Bus Routes

TABLE 3-1

SUMMARY OF REGIONAL CORE EXISTING BUS SYSTEM

Area and Type of Line	Number of Lines	Weekday Passengers	Peak Buses Required	Revenue Bus-Hours
Western Los Angeles				
Radial-Local[1]	28	423,099	558	5,755
Crosstown-Local	13	159,820	184	2,181
Express	10	7,287	67	302
Park-and-Ride	1	737	9	31
Total	52	590,943	818	8,269
San Fernando Valley				
Radial-Local[2]	9	59,217	137	1,293
Crosstown-Local	13	54,185	94	1,168
Express	3	1,203	16	57
Park-and-Ride	1	1,127	16	41
Total	27	115,732	263	2,559
Total Regional Core[3]				
Radial-Local[1,2]	43	551,616	832	8,449
Crosstown-Local	20	208,013	266	3,013
Express	40	91,387	365	3,209
Park-and-Ride	10	7,069	77	252
Total	112	858,085	1,540	14,923

Source: SCRTD Bus Planning, Milestone 9 Report, and related analyses.

Note: Data shown is for entire routes, rather than specific segments.

[1] Includes four related limited-stop lines (308, 309, 311, and 313).

[2] Includes three related express services (410, 412, and 425).

[3] Includes all lines passing through Central Los Angeles regardless of corridor.

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TABLE 3-2

TYPICAL BUS SPEEDS IN THE HOLLYWOOD/WILSHIRE CORRIDOR
IN HIGH DENSITY COMMERCIAL AREAS
(p.m. Peak Hours)

Line	Timepoint 1	Timepoint 2	Distance (miles)	Time (min.)	Speed (mph)
Local					
1	Hollywood/Vine	Hollywood/La Brea	1.0	8	7
2 & 3	Sunset/Western	Sunset/La Brea	1.9	12	9
4	Santa Monica/Western	Santa Monica/Fairfax	2.9	16	11
16	Third/Rampart	Third/Western	1.7	10	10
18	Sixth/St. Paul	Sixth/Alvarado	0.9	7	8
20, 21 & 22	Seventh/Maple	Wilshire/Western	3.6	32	7
27 & 28	Olympic/Figueroa	Olympic/Western	2.7	13	12
Limited					
308 & 309	Seventh/Maple	Wilshire/Western	3.6	25	9
311	Olympic/Figueroa	Olympic/Western	2.7	10	16

Source: SCRTD Schedules for Winter 1982-83.

Note: Average local bus speeds are 12.5 mph in West Central Los Angeles and 18.5 mph in the San Fernando Valley. Regional Core freeway express buses average 28 mph.

than in other parts of the system. Over 55 percent of the buses operating in the Wilshire Corridor in the a.m. peak hour—including crosstown and express lines as well as locals—have standing passengers. More than 25 percent have over 10 standees per bus, a level where the standing passengers begin to hinder passengers leaving the buses. During rush hours, on Wilshire Boulevard, buses are consistently at crush loads exceeding 70-80 passengers per bus.

Despite the relatively high average bus speeds (28 miles per hour) of freeway express lines systemwide, in the Wilshire/Hollywood/North Hollywood corridor the freeway buses are delayed in peak hour congestion just as much as autos and trucks. Only on the San Bernardino Freeway Busway are buses able to bypass stop-and-go freeway traffic during peak periods.

Bus schedule reliability is also a problem. On Wilshire Boulevard, where over 30 buses per hour are scheduled, service frequency is seldom at the rate of one bus every two minutes. More typically, a platoon of three or four buses arrives at intervals of four to ten minutes—due to a combination of traffic congestion, signal delays, and heavy passenger loading on the lead buses. The lead bus in such a platoon tends to become so overloaded that the driver will be instructed by the dispatcher to pass up stops in an effort to regain the original schedule. Waiting passengers who are passed up by the overloaded buses do not understand the operational needs of the the system and protest strongly. On other heavily used lines in the corridor, similar problems are found, though they are not so severe as on the Wilshire Boulevard lines.

1.2.2 IMPACTS

No Project Alternative. The bus system under the No Project Alternative would be based on the existing bus system, plus the Sector Improvements now underway. These improvements were approved in 1980 and have been implemented in phases since then. They should be complete by 1985 and would require 2,209 buses during peak hours and 1,278 at midday.

If a rail transit project were not implemented, the logical alternative would appear to be one of expanding the present system. However, neither the highway network nor the bus system can be expanded sufficiently to provide for the anticipated growth of employment in the Regional Core. Bus system expansion is constrained by the number of vehicles that can be accommodated by the street system in the downtown. Within the downtown, moreover, convenient curb space for loading commuter buses in p.m. peak hour is almost fully utilized. Accordingly, the No Project Alternative is virtually a "do-nothing" alternative, reflecting year 2000 conditions without major transit improvements. It assumes no growth in transit service to match expected population and employment increases in the region. Consequently, a reduced share of trips would be made using transit.

Without improved transit service, worsening congestion will likely retard or preclude further economic growth. Some employers and workers will endure circulation problems with correspondingly reduced efficiency. However, the more enterprising will tend to move to locations where their time can be occupied more productively than in traffic jams or late, overcrowded buses. Transit patronage may still increase, but the traffic and loading delays will require a higher commitment of drivers and vehicles in relation to results achieved, with higher operating costs per passenger as a result.

Minimum Operable Segment. The Minimum Operable Segment would provide a new, highly reliable express transit facility in the Wilshire Corridor. Table 3-3 presents some comparative bus, auto, and bus/Metro Rail travel times for selected journeys to or within the Regional Core. Further travel time comparisons, measuring changes in regional accessibility, may be found on Table 3-30. The faster rail transit system will benefit public transit commuters whose trips involve traveling along the line. For example, a commuter from Century City to Civic Center could travel by bus to a rail transit station. The time involved in transferring to a train would be offset by the much faster train, resulting in a reduced overall travel time.

TABLE 3-3

TRANSIT TRAVEL TIME COMPARISON

Origin and Destination	TRIP TIME IN MINUTES No Project Alternative	Minimum Operable Segment	Locally Preferred Alternative
North Hollywood to Financial District	53	53	38
Miracle Mile to Civic Center	42	25	24
Crenshaw/M. L. King Boulevard to Universal City	65	65	52
Beverly Hills (Wilshire/Canon) to Hollywood/Vine	47	47	36
Marina Del Rey to Wilshire/Vermont	65	48	47
Union Station to L.A. Coliseum	37	37	36

Source: SCRTD, Technical Report - Regional Accessibility and Travel Time Analysis, 1983.

This alternative would not service the San Fernando Valley since it would not be feasible to reroute San Fernando Valley buses through the congested Hollywood and Fairfax District surface streets to the Fairfax/Beverly terminal of the Minimum Operable Segment. This circuitous routing would require much more time than a direct bus ride to downtown via the Hollywood Freeway.

In order to minimize total transit system operating costs, changes in the bus network are planned to coordinate with the rail transit line. The bus system would require 2,197 buses, or 12 less than the No Project Alternative. Detailed discussions of the bus route plans are presented in SCRTD's Milestone 9 Report: Supporting Services Plan. The following bus changes are associated with the Minimum Operable Segment:

- Some of the El Monte Busway lines will terminate at Union Station. The other El Monte buses will distribute passengers in the CBD but will not continue to serve the Wilshire Center area.

- The limited lines on Wilshire Boulevard will be discontinued, and some of the local buses on Wilshire Boulevard will terminate at the Metro Rail station at Wilshire/Fairfax.

- Two new rail feeder services will be initiated: S-101 Rampart Boulevard - Union Avenue, servicing the Wilshire/Alvarado Station, and S-215 Park La Brea Shuttle, serving the Wilshire/La Brea and/or Fairfax/Beverly Stations.

- The north-south lines connecting with the Metro Rail stations along Wilshire Boulevard will be reinforced in peak hours by short-service "trippers" in order to accommodate Metro Rail passenger loads.

- The SCRTD express bus lines which now use the Santa Monica Freeway will be rerouted via Fairfax Avenue to terminate at the Wilshire/Fairfax Station of Metro Rail.

- Lines on streets closely paralleling Wilshire (on Sixth, Seventh, and Eighth) will be extended to terminate at Metro Rail stations and will have service adjusted as needed to reflect changing ridership patterns.

- Some additional CBD-oriented routes would terminate at Union Station.

- At Fairfax/Beverly, bus line frequencies would be increased to accommodate increases in rail feeder ridership. Some lines may be terminated at this station for which additional bus bays would be required. Changes would not be major since North Hollywood or Hollywood buses would not be terminating here. This station will help distribute passengers arriving from the west between it and the Wilshire/Fairfax Station. See Section 2.4.1 of Chapter 2.

In addition to the improved mobility for present users and the potential to attract the auto user to a fast, reliable form of transit, rail transit will dramatically increase the passenger-carrying capacity of the corridor's transit system. The 190,000-plus passenger load crossing the Harbor Freeway in buses each day approaches the capacity of the bus system, as well as the ability of buses to be loaded conveniently in downtown Los Angeles curb space. The Minimum Operable Segment would approximately double that capacity. This capacity increase would not only remove the present ceiling on transit use but also would allow existing passenger flows to be carried with a smaller commitment of vehicles, staff, and funds. Bus needs for Wilshire Corridor lines alone would be reduced substantially relative to the No Project Alternative. When it is considered that maintaining peak hour bus service is much more costly than all-day "base" service because of the substantial amount of overtime involved and the higher proportion of time needed in shuttling vehicles into and out of service, the economic advantages of rail transit to the provider are multiplied.

Locally Preferred Alternative and Aerial Option. The Locally Preferred Alternative will tap travel desires from the San Fernando Valley to the CBD, Hollywood, the Wilshire Center and Century City, as well as travel by western Los Angeles residents to Universal City and Burbank. Peak requirements will be 1,969 buses, or 240 fewer than the No Project Alternative. The reduction in bus requirements results primarily from terminating many San Fernando Valley lines at Universal City or North Hollywood Stations rather than continuing them on to the Los Angeles CBD.

With rail transit service to Hollywood and North Hollywood, SCRTD bus service will be modified. All changes identified for the Minimum Operable Segment would apply, in addition to the following.

- Express bus lines 429 and 601 between the westerly portion of Sunset Boulevard and the CBD will be discontinued and replaced by a limited-stop feeder service.
- Minor changes will be made in lines serving Hollywood and West Hollywood in order to provide direct station access.
- Lines 93 (Northridge-Van Nuys-Los Angeles), 150 (Ventura Boulevard), 152 (Fallbrook-Roscoe-Vineland), 159 (Lankershim), 160 (Laurel Canyon), and 423 Westlake Village will be terminated at the Universal City Station.
- Express lines 35 and 425 (Northridge-Tampa-Los Angeles) will be replaced by a new limited-stop service on Ventura Boulevard.
- Express lines 419 (Chatsworth-Downtown Los Angeles), 426 (San Fernando Valley-Wilshire Center-Downtown Los Angeles), 427 (Canoga Park-Los Angeles Park-and-Ride) and 721 (Reseda-Van Nuys-Los Angeles Park-and-Ride) are planned to be replaced by peak hour limited-stop lines terminating at either the Universal City or North Hollywood Station.

In addition to these changes, lines 86 and 97 may be either combined or replaced with a feeder line connecting Downtown Burbank and the Burbank Media Center with either the Universal City or North Hollywood Station.

Relative to the Minimum Operable Segment, patronage projections indicate that while serving Hollywood and North Hollywood with rail transit will not increase the number of transit riders, bus needs would be reduced substantially (228 buses) in the Regional Core, because rail patronage would be 39 percent greater under the Locally Preferred Alternative.

1.3 TRAFFIC

1.3.1 EXISTING CONDITIONS

In the City of Los Angeles, there are 156 miles of freeways and 6,415 miles of surface streets. During a typical weekday almost half (45 percent) of the Regional Core vehicle miles traveled (VMT) occurs on the freeway system. Freeways which skirt the Regional Core are the Hollywood, Santa Monica, Golden State, and Ventura Freeways. While more than half of the Regional Core travel occurs on arterial streets, there are only six continuous arterial streets extending westward from the CBD: Beverly Boulevard, Third Street, Sixth Street, Wilshire Boulevard, Olympic Boulevard, and Pico Boulevard.

To determine traffic levels in the Regional Core, 24-hour machine traffic counts and six-hour manual counts conducted citywide in 1980 were examined. Where 1980 counts were not available, 1979 and 1981 data were utilized; approximately 100 additional manual counts were made at intersections within the Metro Rail station impact areas (generally a one-mile-wide corridor) as part of this study. The individual counts were compared with adjacent link volumes, and the data were

adjusted to provide a reasonable areawide flow pattern. Development of similar information for freeways was based on counts supplied by the California Department of Transportation (Caltrans). Current VMT in the Regional Core is 14,185,000 miles per day.

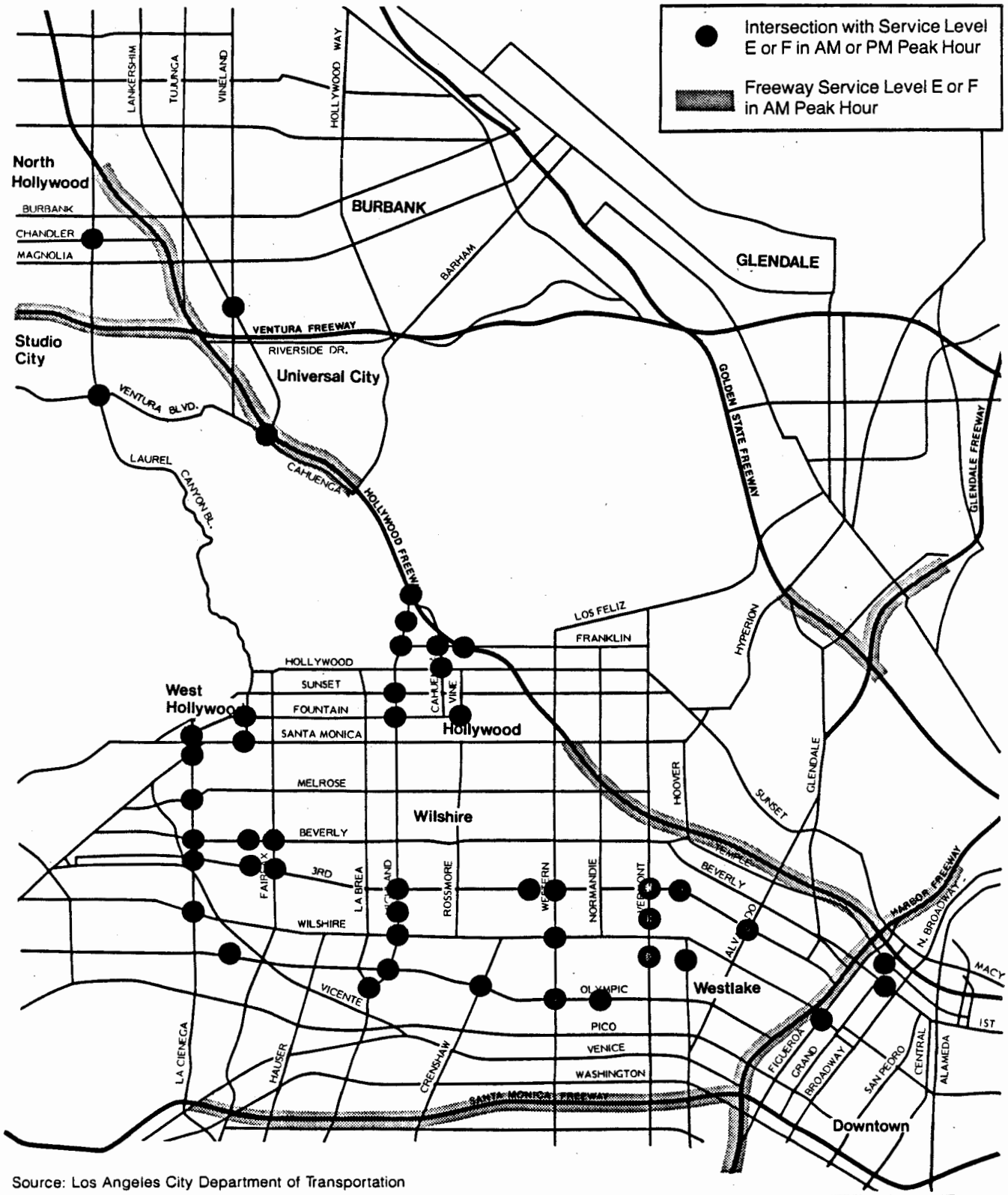
In the Regional Core, 256 key intersections were studied to evaluate traffic impacts. They generally lie within a one-half-mile radius of the proposed stations in the San Fernando Valley and at Union Station, a one-mile-wide corridor along the proposed alignment from Hollywood through Fairfax and Wilshire to the Harbor Freeway, and a one-fourth-mile radius of the proposed stations in the CBD. The methodology used to calculate intersection capacity was the "Planning" application of the Critical Movement Analysis (CMA). The high bus and pedestrian volumes in the CBD were taken into account in calculating downtown intersection volume-to-capacity (V/C) ratios. (A V/C ratio represents the volume of vehicles passing through an intersection in a given time period, compared to the calculated traffic capacity of the intersection.)

The term Level of Service (LOS) is used to describe the quality of traffic flow, based on the V/C ratio. Levels of Service A to C (V/C ratio of 0.80 or below) operate quite well. LOS C normally is taken as the desirable design level in urban areas outside of a regional center. LOS D (V/C ratio between 0.81 and 0.90), typically the maximum level for which a metropolitan area street system is designed, is characterized by relatively heavy traffic on the approaches. Excessive back-up does not occur. LOS E (V/C ratio of 0.91 to 1.00) represents volumes at or near the capacity of the intersection. This condition is characterized by unstable flow with long queues and stoppages of several signal cycles. LOS F (V/C ratio over 1.00) occurs when an intersection is overloaded (demand exceeds intersection capacity) and is characterized by stop-and-go traffic with stoppages of long duration.

Rather than present all data provided by the City of Los Angeles Department of Transportation (LADOT)*, the streets and intersections at station locations were selected to show current and projected traffic conditions. The available traffic capacity of the principal Regional Core highways is fully utilized during peak hours, and delays are also common in high density areas. Figure 3-3 indicates where service levels of "E" or "F" (severe peak hour queuing delays) prevailed in 1980 in the Metro Rail Corridor. Typical freeway travel speeds, illustrated in Figure 3-4, are slow because of peak-hour congestion, which has been extending over a longer time period as demand has increased.

Even where the calculated LOS is C or D, peak arterial streets speeds may be low (15-20 mph) due to close spacing of traffic signals, high pedestrian flows, and heavy turning movements. Such conditions are presently found on Hollywood Boulevard, along Fairfax Avenue north of Wilshire Boulevard, and on Wilshire Boulevard in the "Miracle Mile" and east of Wilton Place, as well as in the CBD. A total of 46 intersections operate at or near capacity in either the a.m. or p.m. peak hours.

*A complete list of the reports prepared by LADOT and used in the preparation of this EIS/EIR can be found in the References section of Chapter 7.



Source: Los Angeles City Department of Transportation

Southern California Rapid Transit District

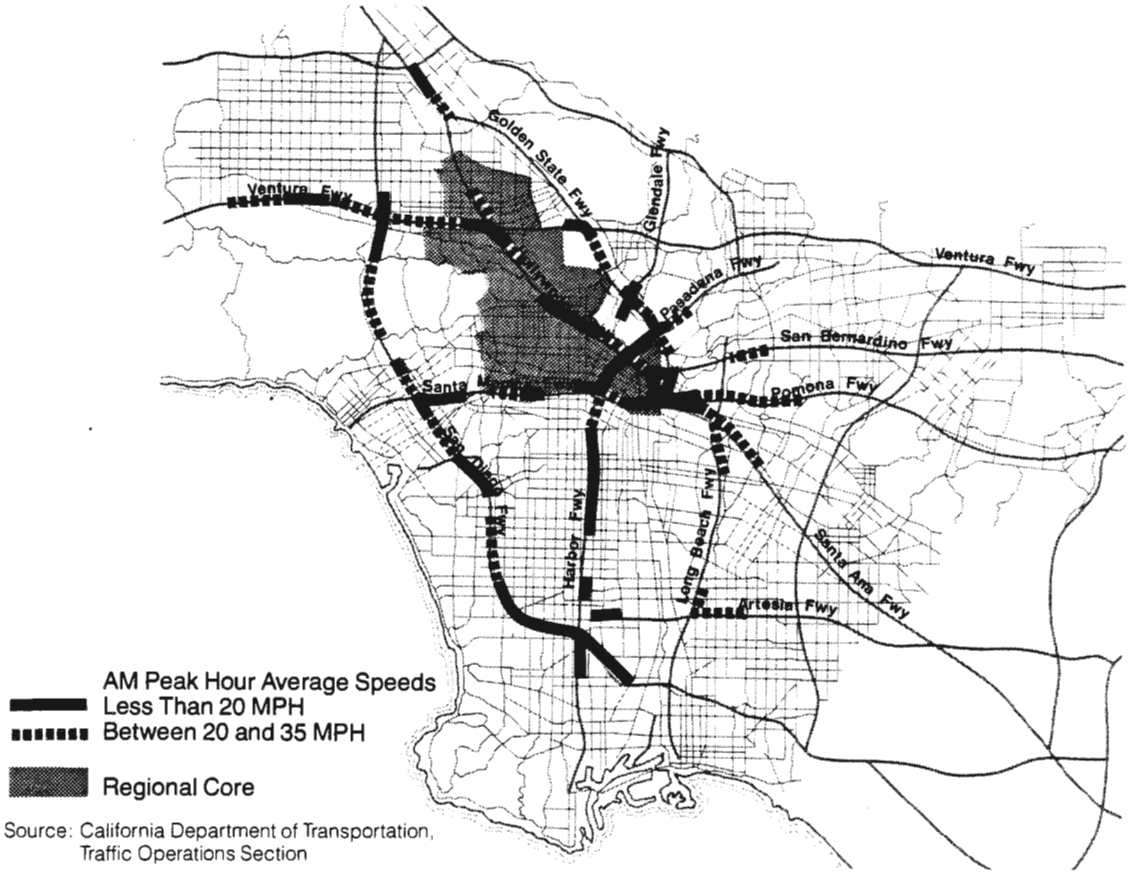
Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

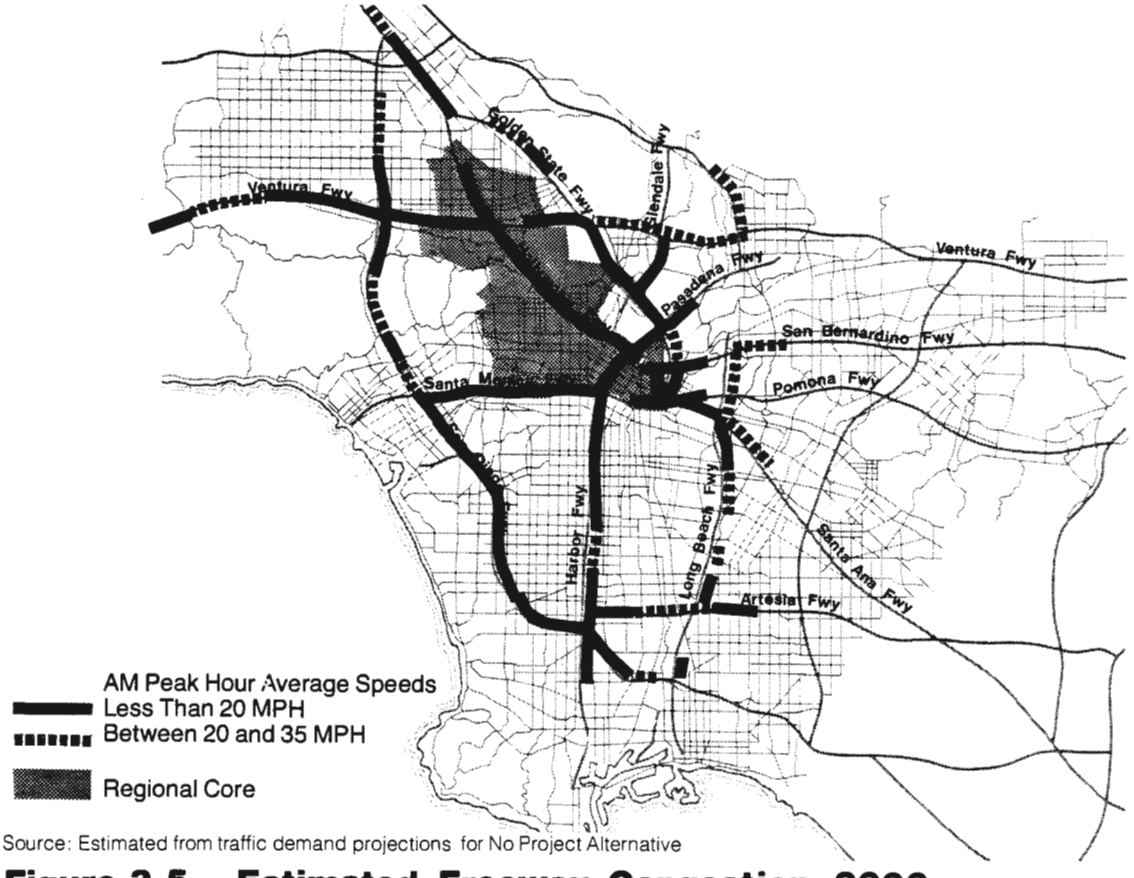
Figure 3-3
Regional Core Traffic Conditions Year 1980

SEDWAY/COOKE
Urban and Environmental Planners and Designers



Source: California Department of Transportation, Traffic Operations Section

Figure 3-4 Freeway Congestion, 1981



Source: Estimated from traffic demand projections for No Project Alternative

Figure 3-5 Estimated Freeway Congestion, 2000

1.3.2 IMPACTS

Measures of traffic impacts in the Regional Core include:

- average daily traffic on roadway segments
- directional peak hour traffic volumes on roadway segments
- volume-to-capacity (V/C) ratios in a.m. and p.m. peak hours at key intersections
- vehicle miles traveled (VMT) in the Regional Core

In addition, the intersections near each station were selected for special traffic analyses. A summary of traffic impacts for each alternative is provided in Table 3-4. Traffic impacts at intersections at station locations are shown in Table 3-5, while intersection V/C ratios at these locations are given in Table 3-6. There is no significant difference in the impacts for the Locally Preferred Alternative and the Aerial Option. Impacts are discussed by alternative below.

TABLE 3-4

SUMMARY OF TRAFFIC IMPACTS, 1980 and 2000*

	1980 Existing Condition	No Project Alternative		Minimum Operable Segment		Locally Preferred Alternative and Aerial Option	
		Volume	Change[1]	Volume	Change[2]	Volume	Change[2]
Screenline Traffic Volumes, 24-Hour Two-Way Totals							
Crossing Wilton/Arlington	784,700	1,015,600	29%	999,700	-2%	983,800	-3%
Crossing Hollywood Blvd.	370,400	486,400	31%	486,400	0	469,100	-4%
Peak Hour Traffic Volumes, Entering/Leaving L.A. CBD From/To Local Streets to the West							
Inbound-a.m. Peak Hour	14,350	20,030	40%	20,480	2%	18,860	-6%
Outbound-p.m. Peak Hour	17,380	22,610	30%	22,740	1%	22,930	1%
Number of Key Intersections in Regional Core at or Near Capacity (V/C more than 0.90, LOS E or F)							
Either a.m. ar p.m. Peak Hour	46	156	239%	163	+4%	156	0
Vehicle Miles Traveled (VMT) Daily in Regional Core (thousands)							
Freeways	6,092	7,566	24%	7,397	-2%	7,393	-2%
Major/Secondary Streets	7,384	9,369	27%	8,735	-7%	8,720	-7%
Collector/Local Streets	709	891	26%	849	-5%	848	-5%
Total	14,185	17,826	26%	16,981	-5%	16,961	-5%

Source: City of Los Angeles Department of Transportation; SCRTD.

*No Project Alternative, Minimum Operable Segment, and the Locally Preferred Alternative and Aerial Option impacts reflect Year 2000 projections.

[1]Year 2000 No Project Alternative is measured against existing conditions.

[2]Minimum Operable Segment, Locally Preferred Alternative, and Aerial Option are measured against the No Project Alternative.

TABLE 3-5

INTERSECTION 24-HOUR TRAFFIC VOLUMES AT STATION LOCATIONS
TWO-WAY TOTALS (in thousands)

Intersection (First Street/ Second Street)	1980 Existing Conditions		No Project Alternative		Minimum Operable Segment		Locally Preferred Alternative and Aerial Option	
	1st Street	2nd Street	1st Street	2nd Street	1st Street	2nd Street	1st Street	2nd Street
Alameda/Macy	23.6	23.1	28.6	27.3	30.3	29.1	29.5	29.3
First/Hill	23.1	15.4	32.3	21.4	31.0	20.9	30.6	20.1
Fifth/Hill	16.6*	18.9	23.2*	24.1	22.7*	23.7	22.5*	23.2
Seventh/Flower	17.9	16.4	31.7	25.5	31.4	25.7	30.7	25.4
Wilshire/Alvarado	22.2	24.0	29.4	32.8	28.2	33.3	28.1	32.7
Wilshire/Vermont	30.0	41.2	39.5	54.4	39.2	52.9	38.8	52.5
Wilshire/Normandie	32.7	16.6	42.5	22.0	41.4	21.9	41.3	22.2
Wilshire/Western	32.2	31.2	42.7	41.1	39.9	39.7	39.4	39.5
Wilshire/Crenshaw	36.1	17.0	48.1	22.1	46.7	22.1	45.6	22.1
Wilshire/La Brea	29.0	38.1	41.1	52.8	40.4	50.7	39.6	50.5
Wilshire/Fairfax	29.4	27.3	40.3	38.7	43.1	37.5	42.7	37.3
Fairfax/Beverly	27.7	31.9	39.0	41.5	40.2	42.7	37.8	42.1
Fairfax/Santa Monica	24.3	33.3	33.6	41.8	32.4	41.8	31.1	41.6
La Brea/Sunset	33.5	46.3	43.7	57.7	42.3	57.1	41.1	55.2
Hollywood/Cahuenga	30.1	23.2	38.7	31.1	37.9	30.3	36.6	30.9
Lankershim/Cahuenga	23.9	12.2	37.2	17.4	37.2	17.4	36.2	19.4
Chandler/Lankershim	4.3	17.1	6.8	22.2	6.8	22.2	13.1	22.6

Source: Los Angeles City Department of Transportation

* One-Way Street

TABLE 3-6

INTERSECTION V/C RATIOS AT STATION LOCATIONS
A.M. AND P.M. PEAK HOUR, 1980 and 2000*

Location		1980 Existing Condition[1] V/C	1980 Existing Condition[1] LOS	No Project Alternative[1] V/C	No Project Alternative[1] LOS	Minimum Operable Segment[2] V/C	Minimum Operable Segment[2] LOS	Locally Preferred Alternative and Aerial Option[1] V/C	Locally Preferred Alternative and Aerial Option[1] LOS
Alameda/Macy	- AM	.72	C	.85	D	.92	E	.92	E
	- PM	.69	B	.83	D	1.09	F	1.09	F
First/Hill	- AM	.88	D	1.19	F	1.09	F	1.09	F
	- PM	.90	E	.92	E	.92	E	.92	E
Fifth/Hill	- AM	.68	B	.82	D	.79	C	.79	C
	- PM	.70	C	.93	E	.91	E	.91	E
Seventh/Flower	- AM	.57	A	.70	C	.68	B	.68	B
	- PM	.82	D	.76	C	.77	C	.77	C
Wilshire/Alvarado	- AM	.56	A	.74	C	.73	C	.73	C
	- PM	.79	C	1.02	F	.90	E	.90	E
Wilshire/Vermont	- AM	.71	C	.94	E	.89	D	.89	D
	- PM	.82	D	1.13	F	1.05	F	1.05	F
Wilshire/Normandie	- AM	.65	B	.92	E	.81	D	.81	D
	- PM	.71	C	.96	E	1.01	F	1.01	F
Wilshire/Western	- AM	.89	D	.99	E	.93	E	.93	E
	- PM	.94	E	1.03	F	.99	E	.99	E
Wilshire/Crenshaw	- AM	.71	C	1.01	F	.96	E	.96	E
	- PM	.87	D	1.11	F	1.08	F	1.08	F
Wilshire/La Brea	- AM	.58	A	.84	D	.78	C	.79	C
	- PM	.69	B	1.06	F	1.05	F	1.05	F
Wilshire/Fairfax	- AM	.61	B	.88	D	.90	D	.70	D
	- PM	.79	C	1.11	F	1.17	F	1.17	F
Fairfax/Beverly	- AM	.85	D	.96	E	.97	E	.95	E
	- PM	.95	E	1.07	F	1.09	F	1.07	F
Fairfax/Santa Monica	- AM	.77	C	.95	E	.95	E	.90	E
	- PM	.85	D	1.05	F	1.05	F	1.04	F
La Brea/Sunset	- AM	.67	B	.85	D	.85	D	.93	E
	- PM	.85	D	1.06	F	1.06	F	.98	E
Hollywood/Cahuenga	- AM	.72	C	.95	E	.95	E	.98	E
	- PM	.90	E	1.13	F	1.13	F	1.23	F
Lankershim/ Cahuenga	- AM	.53	A	.89	D	.89	D	1.01	F
	- PM	.55	A	.73	C	.73	C	.85	D
Chandler/ Lankershim	- AM	.45	A	.62	B	.62	B	.71	C
	- PM	.38	A	.57	A	.57	A	1.27	F

Sources: [1]Los Angeles City Department of Transportation
[2]SCRTD

Note: Calculations reflect ultimate park and ride facilities at Union Station (2,500 spaces), Wilshire/Fairfax (175 spaces), Fairfax/Beverly (1,000 spaces), Universal City (2,500 spaces), and North Hollywood (2,500 spaces).

V/C = Volume to Capacity Ratio
LOS = Level of Service

*No Project Alternative, Minimum Operable Segment, and the Locally Preferred Alternative and Aerial Option V/C ratios reflect Year 2000 projections.

No Project Alternative. Projections of traffic volumes and intersection V/C ratios were made by LADOT for the year 2000 for the No Project Alternative. To project directional splits of daily traffic and a.m. and p.m. peak hour volumes it was assumed that current patterns would continue. Street widenings associated with the city's Capital Improvement Program, Community Redevelopment Agency projects, and private development were assumed to exist. In addition, possible operational improvements normally implemented by LADOT were identified for those intersections projected as operating at LOS E or F.

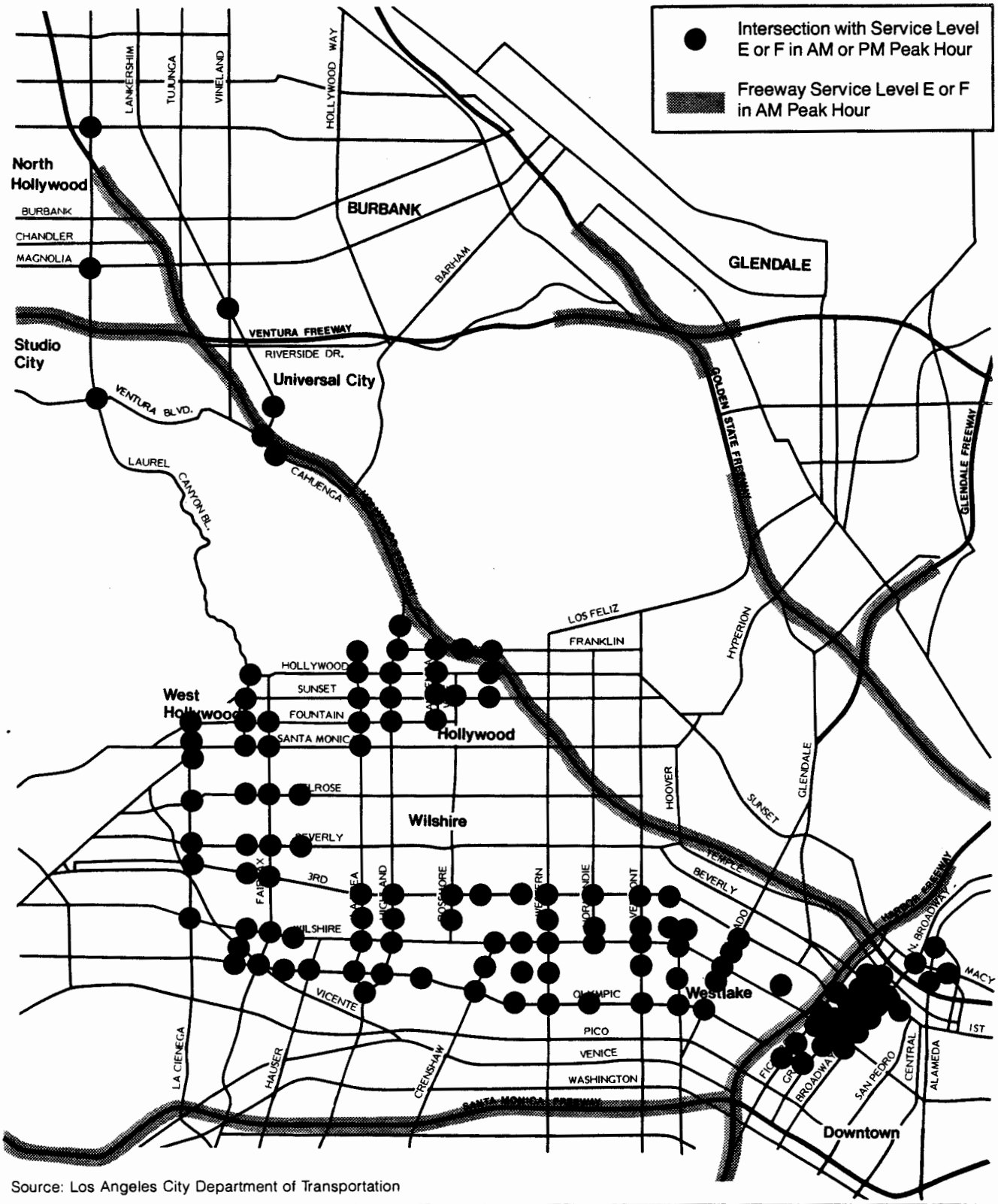
Resulting traffic conditions are illustrated in Figures 3-5 and 3-6. In practice, certain heavily congested points, known as critical intersections, will effectively limit volumes elsewhere in the system so that low service levels may not prevail quite as universally as Figure 3-6 indicates. What is shown, however, is that any "bottleneck" improvement on corridor arterial streets will simply transfer the problem to a neighboring intersection or street segment. In the CBD, Hollywood, Wilshire Center, and Fairfax District, the forecasts indicate a substantial risk of "gridlock" conditions, where the queues of vehicles from an intersection accumulate to a point where cross-streets, and ultimately exits from the area, are blocked.

At present, freeway ramp metering tends to stabilize speeds and maintain LOS D or better in most locations. By the year 2000, p.m. peak queues at ramps meters will regularly accumulate to a point where they obstruct surface streets. In order to prevent gridlock on the surface streets, Caltrans may have to raise ramp metering rates and allow a reduction in the already low peak hour freeways speeds, approaching stop-and-go traffic flow at many locations.

The most severe traffic congestion under the No Project Alternative will occur south of the Hollywood Hills as a result of increasing population and employment densities. In contrast, traffic congestion in the North Hollywood area is expected to be relieved somewhat by street improvements. These include a new Universal City access bridge across the Hollywood Freeway and reconstruction of the six-legged complex intersection at Camarillo, Lankershim, and Vineland. Other improvements, programmed to accompany redevelopment in the North Hollywood Commercial Core (Lankershim between Magnolia and Chandler) will improve traffic flow quality, even when the traffic from planned new developments are factored in. Only in the vicinity of Universal City along Lankershim Boulevard do North Hollywood traffic delays appear likely to worsen. The Universal Place on-ramp to the Hollywood Freeway will become a particular problem area. Traffic on the Hollywood and Ventura Freeways will continue to operate slowly at LOS E or F during peak hours.

Minimum Operable Segment. Traffic flow in the year 2000 with Metro Rail differs from the No Project Alternative in that auto trips are diverted to transit, while additional auto trips are made to access Metro Rail stations. These changes were estimated based on mode-of-arrival projections. Physical and operational intersection improvements assumed under the No Project Alternative were again assumed in the Minimum Operable Segment and Locally Preferred Alternative analyses.

The Minimum Operable Segment will reduce vehicle traffic across the principal screenlines by up to 2.7 percent. Even this small reduction will likely reduce congestion along Wilshire Boulevard and parallel arterial streets, relative to the No Project Alternative (Tables 3-5 and 3-6). For example, Metro Rail is expected to improve the p.m. peak hour V/C ratio at Vermont Avenue and Wilshire Boulevard



Source: Los Angeles City Department of Transportation

Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

Figure 3-6
Regional Core Base Traffic Conditions Year 2000

SEDWAY/COOKE
Urban and Environmental Planners and Designers

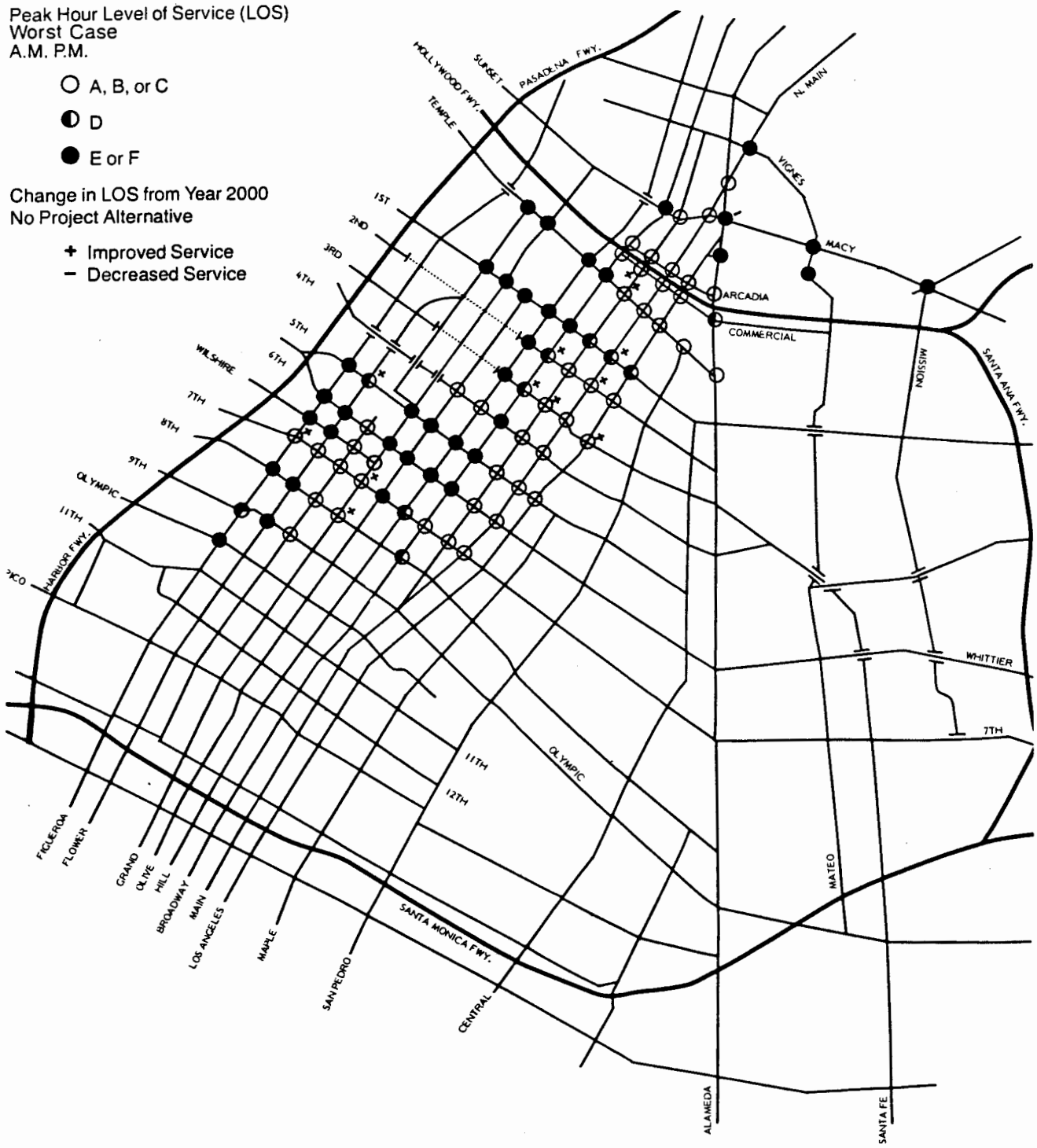
from 1.13 to 1.05. Even though both ratios are LOS F, the risk of gridlock at this point would be reduced by the Minimum Operable Segment.

The general traffic impact of Metro Rail in the Wilshire Corridor would be favorable. Nevertheless, traffic at station locations is expected to worsen, especially at stations planned for parking facilities (Union Station, Wilshire/Fairfax, and Fairfax/Beverly), where peak hour commuter vehicles are expected to offset the general improvement. The greatest impacts will be at Union Station, which is planned to have the largest parking facility. For example, the p.m. peak hour V/C ratio at Alameda and Macy Streets near Union Station is expected to change from 0.83 (LOS D) for the No Project Alternative to 1.09 (LOS F) for the Minimum Operable Segment. At Wilshire Boulevard and Fairfax Avenue, the p.m. peak hour V/C ratio is projected to remain approximately the same as before Metro Rail (before and after V/C ratios of 1.11 and 1.17, respectively).

With Fairfax/Beverly as the terminal station, impacts at this location are not much different than for the Locally Preferred Alternative. Even though many passengers using the Fairfax/Santa Monica Station under the Locally Preferred Alternative would use the Fairfax/Beverly Station under the Minimum Operable Segment, this additional patronage would be offset by the loss of riders traveling between West Los Angeles and destinations in Hollywood and North Hollywood. The major destination for feeder buses from the west is the Wilshire/Fairfax Station. Most bus transfer passengers at Fairfax/Beverly will be arriving on lines which continue on past the station providing through service on Fairfax and on Beverly. Since the station is well to the north of the Santa Monica Freeway, well to the west of the Hollywood Freeway, and has the Hollywood Hills as a barrier to the north, it will not attract high volumes of long distance auto access trips to the rail line. The station is expected to have virtually the same patronage under all rail alternatives, and so traffic pressures at Fairfax/Beverly should be only somewhat worse under the Minimum Operable Segment than under the Locally Preferred Alternative.

To measure the impact of Metro Rail on a more comprehensive, regional level, data from the patronage forecasts were utilized to calculate the hours of auto travel time saved annually due to the higher average speeds for the Project alternatives. Using the projected auto vehicle hours of travel (VHT) in the LARTS region, approximately 10,890,000 hours are saved annually at the average speed calculated for the Minimum Operable Segment, rather than at the No Project average speed. At an average auto occupancy of 1.49, this is equivalent to 16,220,000 annual person hours of travel.

Locally Preferred Alternative and Aerial Option. Traffic projections were made based on the same data sources as for the Minimum Operable Segment, but reflect the increased ridership on the full 18-mile Metro Rail line, and the resultant changes in travel patterns. When Metro Rail is extended to serve Hollywood and North Hollywood, a further improvement in corridor traffic conditions can be anticipated. Traffic conditions are the same whether the North Hollywood alignment is subway or elevated. For example, a further 0.8 percent reduction over the Minimum Operable Segment in traffic demand crossing Western Avenue (Wilton/Arlington) is projected. Since this percentage reduction will be concentrated in peak periods, an improvement in peak hour service levels can be anticipated. The station area traffic conditions in the downtown area and Wilshire Corridor are similar for both the Minimum Operable Segment and Locally Preferred Alternative. See Figures 3-7 through 3-9 for intersection LOS under the Locally Preferred Alternative and how they differ from the No Project Alternative. The annual auto vehicle and person hours of travel saved, due to higher average speeds for these alternatives, are 11,450,000 VHT and 17,050,000 person hours of travel.



Source: Los Angeles City Department of Transportation

Southern California Rapid Transit District

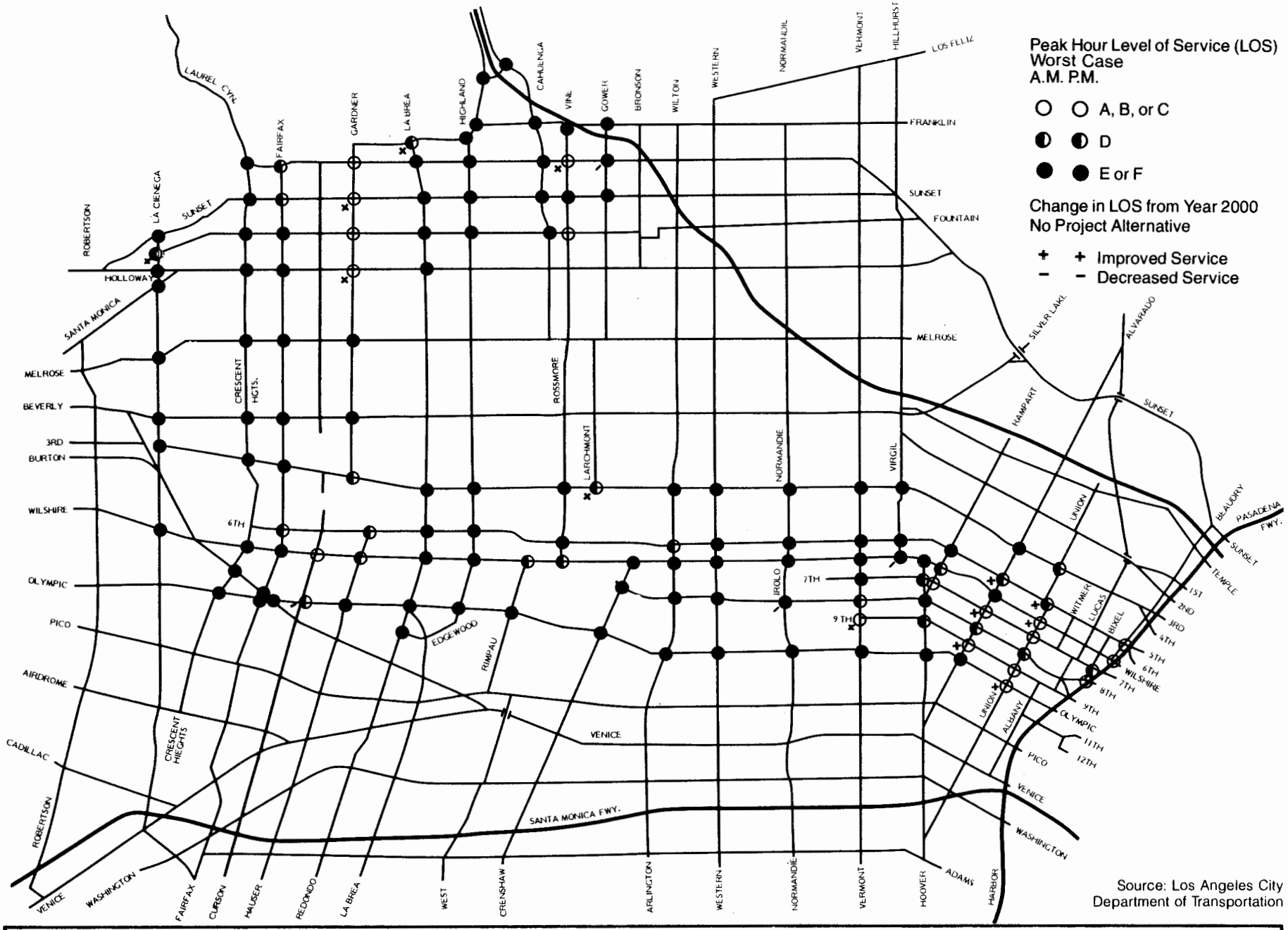
Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 500 1000 feet

Figure 3-7
Central Business District Intersection Level of Service with Metro Rail Project Year 2000

SEDWAY/COOKE
Urban and Environmental Planners and Designers



Source: Los Angeles City Department of Transportation

Southern California Rapid Transit District

Metro Rail Project

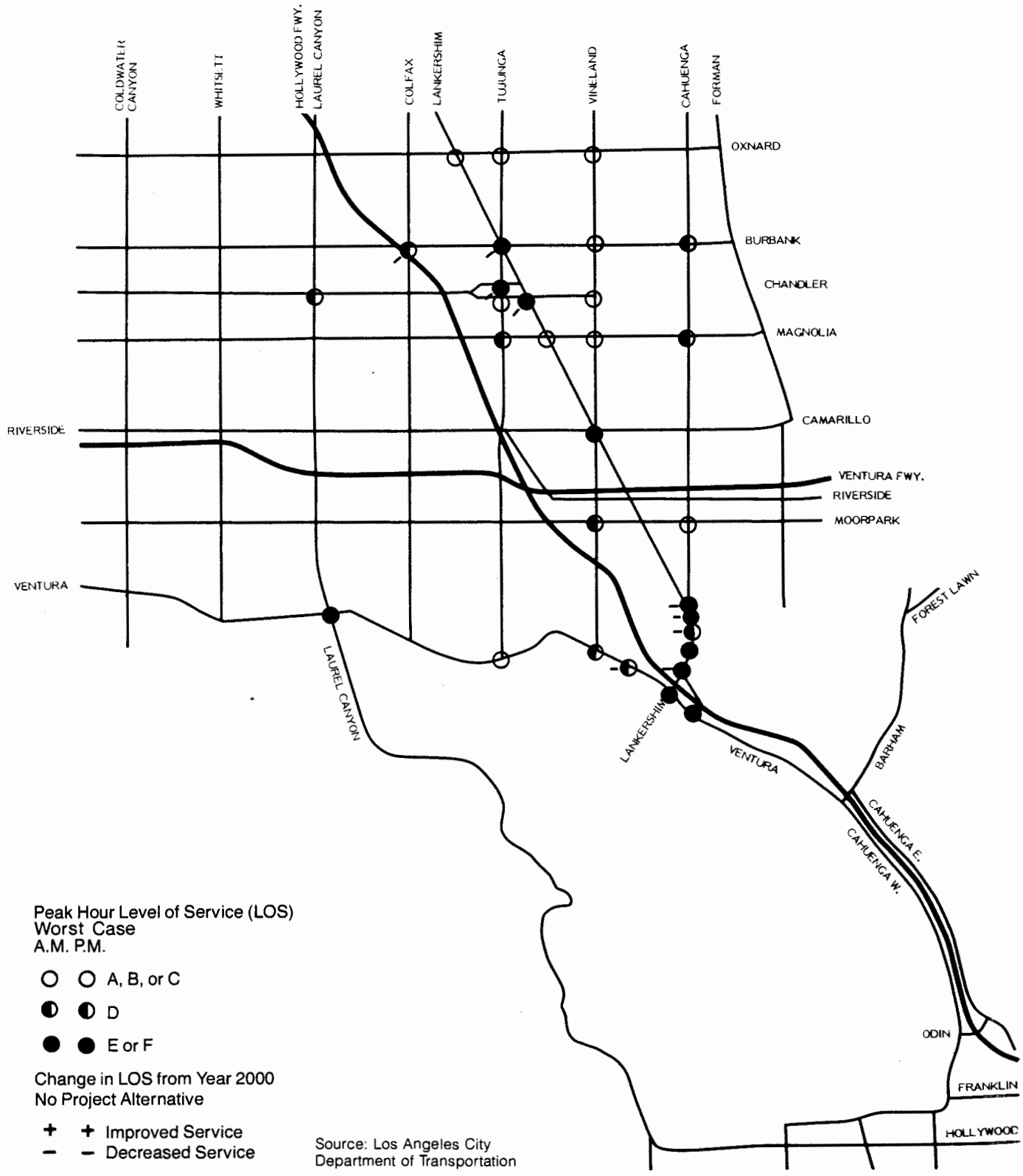
PRELIMINARY ENGINEERING PROGRAM

Urban and Environmental Planners and Designers

0 2000 4000 feet

SEDWAY/COOKE

Figure 3-8
Hollywood-Wilshire
Intersection Level of Service
with Metro Rail Project Year 2000



Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 2000 4000 feet

Figure 3-9
North Hollywood
Intersection Level of Service
with Metro Rail Project Year 2000

SEDWAY/COOKE
Urban and Environmental Planners and Designers

1.3.3 MITIGATION

It is evident from Table 3-6 that traffic mitigation measures will be needed in the vicinity of Metro Rail stations with major park and ride facilities, particularly Union Station, Universal City, and North Hollywood. Factors to be considered in designing mitigation measures include costs, public acceptance, effectiveness, and responsibility for funding and/or enforcement. These measures are being developed in conjunction with Milestones 10 and 12, closely tied in with station design. Plans are being coordinated among the responsible public agencies and local community groups.

The traffic analyses upon which the mitigation measures are based were done by LADOT in late 1982-early 1983 using the most up-to-date patronage projections, bus volumes, and station access plans available at that time. As the project proceeds into Final Design and construction, all of these will be refined. Under the terms of a Master Agreement between SCRTD and the City of Los Angeles, the City Department of Transportation will assist in finalizing these measures. Therefore, the locations needing mitigation measures, as well as the specific measures proposed, are subject to change.

SCRTD is responsible for certain specific mitigation measures, primarily those within the immediate vicinity of stations, and these will be implemented as part of station construction. Other measures are suggested for consideration by the LADOT and the County Road Department for possible inclusion in their Capital Improvement Programs. These measures apply for areas not in the immediate vicinity of stations and thus would probably not qualify for project funding. Implementation of these measures would be subject to availability of adequate city or county capital improvement funds. Finally, there are some intersections for which no reasonable measures were found to be available to completely mitigate the adverse traffic impacts.

Traffic mitigation measures have been analyzed for the 29 intersections with projected LOS E or F after completion of Metro Rail Project, or projected V/C increase of .02 or more over the No Project Alternative. The mitigation measures considered include:

- increase approach capacity through installation of a parking restriction
- restripe approach to provide an additional through lane and/or turn lane
- install left turn restriction/prohibition
- add or revise traffic signal phase to accommodate the projected traffic pattern
- widen approach
- provide reversible lanes, if peak period traffic is highly directional.

The first two mitigation options are generally but not always implemented together. Generally, the least restrictive measure that would completely mitigate the anticipated adverse impact was chosen. If there was no measure available to completely mitigate an anticipated adverse impact, then that measure which would

most effectively improve the intersection LOS was selected. Street widening was not considered feasible at locations where either extensive building demolition or remodeling would be required, or in business districts where substandard sidewalks would result. Street widening was considered to be a realistic mitigation measure at locations contiguous to station sites where property acquisition is contemplated and cut and cover construction techniques would require street reconstruction.

The intersections requiring mitigation and the measures to be employed are listed below, by station area. V/C ratios before and after mitigation are presented in Table 3-7.

The following traffic mitigation measures are being considered **for all rail alternatives.**

Union Station Area.

Alameda/Macy. Provide left-turn channelization, three through lanes in each direction, and a northbound right-turn lane on Alameda. This requires some right-of-way acquisition, and the replacement of two railroad tracks with one, in Alameda Street. These are proposed for LADOT consideration.

Macy/Mission. No reasonable mitigation measures were found to be feasible, beyond the widening of Mission, which is assumed in the No Project Alternative as part of the city's Capital Improvement Program. The alternative of widening Macy would only marginally improve the LOS while requiring right-of-way acquisition and bridge widening. It is therefore not recommended.

Macy/Vignes. Install right-turn lanes northbound, eastbound and westbound, requiring right-of-way acquisition. These are proposed for LADOT consideration.

Ramirez/Vignes/Santa Ana Freeway Ramps. SCRTD will construct the entrance/exit to the Union Station park and ride facility to provide two lanes in and three lanes out. The existing freeway ramps will also be reconstructed by SCRTD to streamline entrance to the park and ride lot, as part of the rail project. Additional measures for LADOT consideration are: restripe Ramirez and Vignes, add a traffic island to better accommodate turning movements, and signalize the intersection.

Fifth/Hill Area.

Olive/Fifth. Since project-related traffic has only a small impact, no mitigation measures are recommended. Both streets have substandard lane widths and widening them would not increase intersection capacity.

Wilshire/Vermont Area. All mitigation options are proposed for LADOT consideration.

Vermont/Sixth. Install eastbound right-turn lane on Sixth within existing right-of-way.

Vermont/Wilshire. No reasonable mitigation measures were found to be available. The impact of project-related traffic is relatively small.

Virgil/Third. Restripe Virgil to provide three lanes northbound and two lanes southbound and add parking restrictions on Virgil. This does not mitigate the

TABLE 3-7

EFFECTS OF TRAFFIC MITIGATION MEASURES

Station Area and Intersection	Worse Case V/C Ratio: No Project	Minimum Operable Segment[1]	Locally Preferred Alternative/ Aerial Option	Mitigated	Time Period
Union Station					
Alameda*/Macy	.83	1.15	1.09	.88	pm
Macy/Mission	.86	.95	.99	None	am
Macy*/Vignes*	.95	1.02	1.05	.97[2]	am
Macy*/Vignes*	.88	1.07	1.10	.89	pm
Ramirez*/Vignes*	No Signal	1.04	1.08	.92	pm
Fifth/Hill					
Olive/Fifth	1.08	1.06	1.05	None	am
Wilshire/Vermont					
Vermont/Sixth*	1.17	1.22	1.21	1.18	pm
Vermont/Wilshire*	.88	.93	.93	None	pm
Virgil*/Third	1.18	1.28	1.23	1.23[2]	am
Virgil*/Third	1.15	1.34	1.22	1.07	pm
Virgil/Sixth*	.97	1.12	1.07	.93	pm
Wilshire/Normandie					
Irolo/Eighth*	.86	.98	.98	.93[2]	pm
Normandie*/Wilshire	.96	1.01	1.01	.96	pm
Normandie/Third	1.13	1.17	1.17	None	pm
Normandie/Sixth	1.02	1.08	1.06	None	pm
Wilshire/Fairfax					
Fairfax*/Wilshire	.97	1.17	1.17	1.08	pm
Fairfax/Beverly					
Beverly*/Gardner	.96	1.02	.99	.83	pm
Fairfax/Santa Monica					
Crescent Hts.*/Fountain	1.06	N.A.	1.08	.91	pm
Hollywood/Cahuenga					
Cahuenga*/Hollywood	1.13	N.A.	1.23	.98	pm
Cahuenga/Sunset	1.00	N.A.	1.02	None	pm
Universal City					
Bluffside*/Lankershim*	.74	N.A.	.92	.82	pm
Cahuenga/Hollywood Fwy/Regal	.94	N.A.	.96	.94	am
Cahuenga/Lankershim*	.89	N.A.	1.01	.81	am
Hollywood Fwy/Lankershim*/ Universal Place	.87	N.A.	1.08	.86	am
Lankershim*/North Gate	.54	N.A.	.81	.64	am
Lankershim only	.67	N.A.	1.06	.83	am
Lankershim/Tour Center	1.16	N.A.	1.31	1.31	am
North Hollywood					
Burbank*/Lankershim/Tujunga	.82	N.A.	1.41	1.28[2]	am
Chandler*/Lankershim(S)	.57	N.A.	1.27	.79	pm
Chandler*/Tujunga (N)	.54	N.A.	.96	.55	am
Chandler*/Tujunga (N)	.71	N.A.	.92	.68	pm
Chandler*/Fair	N.M.	N.M.	N.M.	N.A.	N.A.

Source: Los Angeles City Department of Transportation, Technical Report--Traffic Mitigation Measures, March 1983.

Note: No traffic mitigation measures are required in the following station areas: Civic Center, Seventh/Flower, Wilshire/Alvarado, Wilshire/Western, Wilshire/La Brea, La Brea/Sunset, and Wilshire/Crenshaw.

N.A. = Not Applicable.

N.M. = Not Measured.

*Street to be improved.

[1]Estimated by SCRTD.

[2]Project-related traffic impact is not fully mitigated, i.e. LOS E or F still exists and V/C increase of at least .02 over No Project Alternative still exists.

project-related traffic impacts in the morning; however, improvements are needed at this intersection whether or not the rail project is built.

Virgil/Sixth. Widen Sixth by four feet within existing right-of-way and stripe to provide an additional through lane westbound.

Wilshire/Normandie Area. All mitigation options are proposed for LADOT consideration.

Irolo/Eighth. Restripe Eighth to provide east and westbound left-turn pockets and install peak hour parking restrictions. This would not fully mitigate the anticipated impact. Other mitigations investigated would move adverse impacts to adjacent intersections.

Normandie/Wilshire. Prohibit northbound left turns in the p.m. peak.

Normandie/Third. No reasonable mitigation options were found which would improve traffic flows sufficiently to correct the overcapacity condition. Projected-related impacts, however, are relatively small, and improvements are needed at this location regardless of whether the rail line is built.

Normandie/Sixth. No mitigation measures are recommended, since widening either street would move the overcapacity condition to adjacent intersections. Some improvement is needed at this intersection with or without the rail line.

Wilshire/Fairfax Area.

Fairfax/Wilshire. No left turns would be allowed from Wilshire at its intersection with Fairfax during the a.m. or p.m. peak hours. The traffic would be routed to complete this trip.

Fairfax/Beverly Area.

Beverly/Gardner. Widen Beverly within existing right-of-way to provide three through lanes and left-turn channelization in each direction. This is recommended for the one-mile section from La Brea to Fairfax and could be done in conjunction with a storm drain project administered by the Los Angeles County Flood Control District. The implementation of this mitigation measure would be coordinated with both the Flood Control District and other appropriate city and county departments.

The following mitigations would be necessary **for the Locally Preferred Alternative and Aerial Option only:**

Fairfax/Santa Monica Area.

Crescent Heights/Fountain. Restripe Crescent Heights for three through lanes in each direction in the immediate vicinity of the intersection (one block north and south) and install peak period parking restrictions. This is proposed for consideration by the Los Angeles County Road Department.

Hollywood/Cahuenga Area.

Cahuenga/Hollywood. Install a reversible lane on Cahuenga, southbound in a.m. and northbound in p.m. and also prohibit left turns from Cahuenga in a.m. peak. This is suggested for LADOT consideration. (Note: Relocation of the planned kiss and ride

lot from south of Hollywood Boulevard to north of Hollywood has eliminated the need for these mitigation measures.)

Cahuenga/Sunset Boulevard. No reasonable mitigation measures were found to be available, given the small impact of project-related traffic at this intersection.

Universal City Area. SCRTD will construct a new bridge over the Hollywood Freeway to provide better access to the station's auto and bus facilities from the west. This bridge will divert much of the project-related traffic away from Cahuenga and Lankershim and is therefore a mitigation measure for a number of intersections, as noted below. This bridge and the access road extending to Vineland will be built as part of station-related construction.

Lankershim/Cahuenga. Construct an additional through lane southeastbound on Lankershim. This requires widening a bridge over the Los Angeles River but no right-of-way acquisition. This is proposed for LADOT consideration. Construction of the new station access bridge (see above) would also help mitigate traffic impacts at this intersection.

Lankershim/Bluffside/Universal City exits. Widen southbound Lankershim north of Bluffside to provide a right-turn lane, provide a three-phase traffic signal, prohibit pedestrian crossings of the north leg, and widen Bluffside to provide two lanes in each direction west of Lankershim. Right-of-way acquisition is required. This is proposed for LADOT consideration. (Bluffside is the connection from the new access roadway to Lankershim.)

Lankershim/Hollywood Freeway Ramp/Universal Place. Widen Lankershim to provide a southbound right-turn lane. This requires additional right-of-way contiguous to the station site and will be the responsibility of SCRTD. Construction of the station access bridge and roadway (see above) would also help mitigate impacts at this location. Change Universal Place to a one-way westbound street.

Lankershim/North Gate (Universal City). Construct the new station access bridge over the Hollywood Freeway (see above).

Lankershim/Tour Center. Construction of the new station access bridge over the Hollywood Freeway will provide partial mitigation in the p.m. peak hours.

Cahuenga/Hollywood Freeway Ramp/Regal. Construct the new station access bridge over the Hollywood Freeway (see above).

North Hollywood Area.

Burbank/Lankershim/Tujunga. Install eastbound right-turn only lane and optional right-turn lane, and associated parking restrictions eastbound on Burbank. This is proposed for LADOT consideration.

Chandler/Lankershim (south intersection). Widen the eastbound Chandler approach to provide a second left-turn lane and a through lane, as well as the existing left-turn and right-turn lanes. This requires additional right-of-way. This is proposed for LADOT consideration. (However, relocation of all park and ride facilities to the east of Lankershim may obviate the need for this widening.)

Chandler/Tujunga (north intersection). Widen the southbound Tujunga approach to provide a through lane and a right-turn lane and install parking restrictions

southbound. This measure, which requires acquisition of right-of-way, is proposed for LADOT consideration. (However, the need for this improvement may be eliminated with the relocation of all park and ride facilities to the east of Lankershim.)

Chandler/Fair. Relocate Fair Avenue eastward. Widen the section of Chandler between Lankershim and Fair Avenue to add left turn lane for traffic using Fair Avenue.

1.4 PARKING

Parking is relevant to the Metro Rail Project in two ways:

- the rail project would reduce the need for parking facilities in the CBD and other regional centers
- rail patrons driving to and parking at a station will create a demand for parking near stations

As travel by transit to the CBD increases relative to automobile travel the demand for parking spaces in the CBD will decrease. This is a positive impact for the CBD. At stations where the demand for park and ride spaces is greater than the number of spaces provided, a potential for negative impacts will exist.

To measure current conditions and to project future parking supply and demand, LADOT inventoried parking spaces, usage, and costs within a one-quarter mile radius of the proposed rail stations. For the downtown area, this data was obtained from the Central City Parking Study, done for LADOT in 1981 by Wilbur Smith & Associates. Based on this data and anticipated development plans, future conditions in each station area were projected for the year 2000 under No Project and Project conditions. Results of the analyses are shown in Table 3-8.

1.4.1 EXISTING CONDITIONS

The CBD in 1979 had a total of 111,124 parking spaces. Of this total, 5,888 spaces (5 percent) were located at the curb with the remaining 105,236 spaces located off-street. Over the previous 13 years the CBD experienced only a 13 percent increase in parking spaces*. Changes in the type of parking facilities providing these spaces have been dramatic. Curb spaces have decreased by 19 percent and off-street surface lot spaces have decreased by 26 percent, while spaces in garages have increased 142 percent. Many of the surface parking lots have been replaced by new construction, and curb spaces have been eliminated to improve traffic flow. These changes have resulted in high parking charges in certain sections of the CBD. Off-street parking now costs as much as $5.00 per hour or $15.00 per day near the Financial District. In the areas surrounding each of the three proposed CBD stations, more than 80 percent of the parking supply is used.

* Based on CBD parking studies conducted in 1966 and 1979 by Wilbur Smith and Associates.

TABLE 3-8

TOTAL PARKING SUPPLY AND USAGE BY STATION AREA

Station	Parking Supply			Parking Usage		
	1980 Existing Conditions	No Project	Locally Preferred Alternative[1]	1980 Existing Conditions	No Project	Locally Preferred Alternative[1]
Union Station	5,158	5,158	8,706	3,020	3,020	5,644
Civic Center	16,443	17,166*	15,203*	13,829	15,517	15,859
Fifth/Hill	11,828	20,457*	19,187*	9,977	21,222	21,359
Seventh/Flower	17,344	22,029*	18,932*	15,013	22,010	22,808
Wilshire/Alvarado	4,899	5,265	5,847	3,231	3,681	3,617
Wilshire/Vermont	13,107	15,482	15,463	9,962	12,366	11,365
Wilshire/Normandie	13,358	15,917	16,964	9,933	12,623	15,106
Wilshire/Western	8,670	12,015	11,628	6,289	10,360	9,059
Wilshire/Crenshaw	3,254	4,294	4,158	1,521	2,601	2,132
Wilshire/La Brea	4,152	4,780	5,544	2,964	3,596	4,112
Wilshire/Fairfax[2]	6,473	11,268	8,844	3,423	7,633	7,876
Fairfax/Beverly	5,554	8,660	12,754*	3,357	6,612	11,653
Fairfax/Santa Monica	2,753	3,233	3,838	1,523	2,067	2,386
La Brea/Sunset	5,592	6,089	6,017	3,649	4,173	4,327
Hollywood/Cahuenga	7,121	8,613	10,352	4,528	6,325	8,666
Hollywood Bowl	3,000	3,000	3,000	**	**	**
Universal City	1,175	13,978	13,743*	654	12,208	14,432
North Hollywood	4,804	6,229	8,048*	2,307	4,313	7,476
Total	131,685	180,633	185,228	95,180	150,337	167,877

Source: Los Angeles City Department of Transportation, Draft Traffic Analysis Report, 1983.

* Parking deficiency = usage greater than 90 percent of supply.
** Full usage for Bowl events. No parking for Metro Rail.

[1]Includes Aerial Option.

[2]The construction of the Wilshire/Fairfax Station behind the May Company building would require the removal and use of an area which currently has 1,000 parking spaces. This means that demand could reach 89 percent of supply. Spillover would be limited by the metered and restricted parking in the surrounding neighborhoods and frequent bus service to this station. This may not be a permanent loss since additional parking could be built at the station site after station construction is completed.

Outside the CBD, parking is more available and less expensive, but it remains a major concern especially where residential neighborhoods adjoin commercial centers. Usage exceeds 70 percent of supply at five stations (Union Station, Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western, and Universal City), resulting in some "spillover" of parking demand into neighborhoods.

In April 1983, a new Parking Management Plan was implemented by the City of Los Angeles. The plan will have the effect of reducing the costs of providing parking spaces, especially in the CBD. It allows developers to reduce by up to 40 percent the number of parking spaces provided in a building if they can implement an effective ridesharing or vanpooling program. It also allows a reduction of up to 75 percent of the required spaces on-site if a remote parking lot is provided, and an effective means of transporting employees from the remote lot to the worksite is developed. The plan provides special protection for residential neighborhoods near commercial centers by requiring participating developers to prove that the parking reduction will not result in spillover parking into residential neighborhoods.

1.4.2 IMPACTS

No Project Alternative. The demand for parking, especially in the CBD, will continue to increase as new development occurs. The supply, however, will grow more slowly, as new development replaces surface parking in many cases. The Central City Parking Study projects that the supply in the CBD will increase only slightly, to 119,000 spaces, while the peak demand will increase to over 123,000 by the year 1990.

A review of Table 3-8 shows that the parking supply is projected to increase at almost all stations, generally by 20 to 40 percent, and 37 percent overall. Demand is expected to increase even more than supply (58 percent overall). The three CBD station areas will be effectively at capacity, given the criteria that 90 percent of off-street spaces and 100 percent of curb spaces will be utilized under full conditions.

Project Alternatives. The greatest projected percentage increases in parking usage occur at Union Station, Fairfax/Beverly, and North Hollywood. Parking supply will also increase at each of these stations, but only at Union Station will it increase sufficiently to avoid a parking shortage. Under the No Project Alternative, three station areas experience parking deficiencies, when usage exceeds 90 percent of the supply. Under the Minimum Operable Segment, the area around the Fairfax/Beverly Station would also experience a shortage of parking spaces. Under the Locally Preferred Alternative and Aerial Option, Fairfax/Beverly, as well as Universal City and North Hollywood would have parking deficiencies. These six stations and the amount of parking deficiencies are identified below.

Station	Parking Deficiency
Civic Center	2,176
Fifth/Hill	4,091
Seventh/Flower	5,769
Fairfax/Beverly	174
Universal City	2,063
North Hollywood	233

The parking deficiencies presented above are for the area surrounding the station. Greater deficiencies may exist at specific locations since available spaces are not located where the greatest demand occurs.

Park and ride facilities will be provided at three stations for the Minimum Operable Segment: Union Station, the Wilshire/Fairfax Station, and the Fairfax/Beverly Station. Under the Locally Preferred Alternative and Aerial Option, facilities will also be provided at Universal City and North Hollywood. Only these stations were selected for park and ride facilities in order to maximize reliance on the bus system and other modes not requiring parking, and to minimize capital costs. Also, the number of parking spaces provided at a station was determined by policy in addition to estimated demand. Initially, only surface parking will be provided; the ultimate supply will be accomplished by building parking structures on most of the surface parking lots. The structures, however, will be deferred until other funding sources are identified.

Table 3-9 shows the number of spaces to be supplied at each park and ride station under each alternative and the number needed based on demand. The demand exceeds the number of spaces being supplied at each of the stations. Potential for spillover parking to the surrounding neighborhood will exist. Although the potential for spillover is greatest at the Union Station, it is considered more adverse at the Wilshire/Fairfax and Fairfax/Beverly Stations. Union Station is located in a mixed land use area of industrial and commercial uses, whereas the areas around the Wilshire/Fairfax and Fairfax/Beverly Stations are more residential.

TABLE 3-9

RAIL ACCESS PARKING DEMAND AND SUPPLY BY STATION

	Minimum Operable Segment			Locally Preferred Alternative and Aerial Option		
		Supply			Supply	
Station	Demand	Initial	Ultimate	Demand	Initial	Ultimate
Union Station	4,363	300	2,500	4,352	300	2,500
Wilshire/Fairfax	1,875	175	175	1,894	175	175
Fairfax/Beverly	1,251	250	1,000	1,281	250	1,000
Universal City	N.A.	N.A.	N.A.	3,272	1,175	2,500
North Hollywood	N.A.	N.A.	N.A.	2,732	1,180	2,500

Source: SCRTD, Milestone 10 Report: Fixed Facilities, 1983; Schimpeler-Corradino Associates, 1983.

N.A. = Not Applicable

1.4.5 MITIGATION

Mitigation measures will be needed to control the spillover parking from the stations. The difference between the demand for parking spaces and the amount to be supplied does not represent the total number of spillover parkers. Some of these potential riders would be lost to Metro Rail due to the unavailability of readily accessible parking. However, the potential for spillover parking will exist and mitigation measures are discussed below.

The stations with significant adverse parking impacts are divided into two distinct groups. The first group includes the CBD stations (Civic Center, Fifth/Hill and Seventh/Flower) where the year 2000 parking condition is already crowded even without Metro Rail. These stations are not adjacent to residential neighborhoods that may be impacted by parking usage overflow. As noted above, the impacts at these stations are based not on Metro Rail itself, but on the increased development accommodated by a rail transit system.

The second group of stations are the Fairfax/Beverly, Universal City, and North Hollywood Stations. They have a relatively high park and ride demand, and are adjacent to residential neighborhoods that may be impacted by parking usage overflow.

Possible parking mitigation measures that require the cooperation of other agencies and/or the private sector and that may be applied to the CBD stations are as follows.

1. Encourage or require employer-sponsored rideshare or transit incentive programs to reduce potential parking usage.

2. Encourage developers and employers to take advantage of the city's new Parking Management Plan, as discussed in Section 1.4.1 above. Use of the provisions in this plan can effectively reduce both the cost of providing parking (by allowing off-site facilities) and the need for it (by encouraging vanpools, ridesharing, and transit).

Parking supply increases can be counterproductive to diverting auto trips to the Metro Rail system. Metro Rail itself is a principal parking mitigation measure, since it makes transit a more attractive alternative to the automobile.

The aforementioned parking measures may also be applied to the second group of stations. Additional parking measures that may be applied to the second group include:

1. Establish preferential parking districts within residential neighborhoods that are adjacent to station areas. This is an ongoing program managed by LADOT, which requires local property owners to prepare petitions and obtain City Council approval. It has already been implemented in six neighborhoods of the city. Such districts have not been established in the county, but they are being discussed by the West Hollywood Citizens Plan Advisory Committee for application in the Metro Rail station areas.

2. Include more project-provided parking in the Metro Rail Project. This could be the responsibility of SCRTD, but at this time funding sources seem insufficient to provide for this option.

3. Operate an extensive network of feeder bus lines serving the stations and provide an alternative to the park and ride mode of station access. SCRTD will provide these bus services, as specified in the discussion of transit impacts, above. Over 60 percent of Metro Rail riders are expected to access the stations using feeder buses.

4. Provide more metered curb spaces in commercial areas, effectively reserving these spaces for short-term use by customers of commercial establishments. Implementation and enforcement would be the responsibility of the City of Los Angeles and of the county in the unincorporated areas.

5. Bicycle parking will be provided at Metro Rail stations outside the Central Business District plus Union Station.

6. Preferential parking for car and van pools will be studied. If not immediately adopted on opening, it will remain an available option should conditions warrant its adoption.

Increasing parking fees as a policy tool would discourage some potential parking and thus rectify the projected shortages in Downtown Los Angeles, the Wilshire Center, and at Fairfax/Beverly. People who would otherwise drive to these areas would divert to other Metro Rail stations that have more available nearby parking--or, in the Wilshire Corridor, be diverted to feeder bus use.

The potential Universal City and North Hollywood parking problems are complicated by the planned role of these stations as park and ride railheads for the entire San Fernando Valley. To the extent that Metro Rail riders are not directly responsible for spillover parking demand (it is derived from development in conjunction with Metro Rail rather than Metro Rail park and ride passengers), it may be possible to divert these commuters to the feeder bus system through pricing policies. Increasing the Metro Rail parking supply at these two sites will be undesirable because of the traffic impacts of such parking (see previous discussion on Traffic Impacts).

2. LAND USE AND DEVELOPMENT

2.1 INTRODUCTION

Impacts on land use from the operation of the Metro Rail Project can be expected primarily within a one-quarter mile radius around each station, on the basis of experience with rail rapid systems in other North American cities. For each station in the Metro Rail Project, a potential impact area, or "station area," with a radius of approximately one-third mile was established. The boundaries of the station areas generally correspond to the boundaries of the City of Los Angeles Department of Planning's (LADOP) and Los Angeles County Department of Regional Planning's (LADRP) Specific Plan areas and represent a walking time of about 10 minutes from any point in the station area to a station entrance. Each station area consists of 150 to 200 acres, of which about 75 percent is parcel area and 25 percent is street right-of-way. Throughout this section, the term parcel refers only to the buildable parcel and does not include the adjacent street right of way. Maps showing station area boundaries are included in the SCRTD Technical Report on Land Use and Development Impacts (1983).

2.2 EXISTING CONDITIONS

This section describes existing conditions relevant to the assessment of impacts, emphasizing conditions in station areas. It focuses on existing land use, intensity of development and economic activity, relevant land use plans and policies including community plan and zoning designations, and the capacity for new development in each station area. Further background information on land use, population growth, economic development trends, and property valuation for the community plan areas is presented in the SCRTD Technical Report on Existing Conditions--Regional and Community Setting (1982). The planning and regulatory context for development within station areas and planning areas in the Regional Core is described in more detail in the First Tier EIS, the SCRTD Milestone 6 Report: Land Use and Development Policies, and in two SCRTD Technical Reports: A Summary of Public Policies and An Impact Assessment Methodology (1982), and Land Use and Development Impacts (1983).

2.2.1 REGIONAL CORE

Planning Areas. The Regional Core encompasses much of the following planning areas in the city: Central City, Central City North, Westlake, Wilshire, Hollywood, Toluca Lake-Studio City-Sherman Oaks, and North Hollywood. The West Hollywood and Universal City planning areas of the county also lie in the Regional Core. For presentation purposes, the Central City and Central City North Planning Areas have been combined as the Central Business District (CBD). The Universal City and North Hollywood Planning Areas have been combined to represent a single south San Fernando Valley area. The majority of land in all planning areas except the CBD is devoted to residential use. In all planning areas, except the CBD and Westlake, single family housing consumes more parcel area than multifamily housing although there are more than twice as many multifamily units as single family units in the Regional Core.

The Regional Core contains more than half of all the high-rise commercial space in the Los Angeles Urbanized Area and represents the greatest concentration of development in the Southern California region. During the 1970s, 68 percent of the 12 million square feet of high rise commercial development in the Regional Core occurred in the CBD, 31 percent along the Wilshire Corridor, and the remaining one percent in Hollywood and the Universal City/North Hollywood areas. As of 1980 there were 40.9 million square feet of high rise commercial space in the Regional Core. This space was generally distributed as follows: CBD, 24.9 million square feet; Westlake, 2.1 million square feet; Wilshire, 11.6 million square feet; Hollywood, 1.7 million square feet; and Universal City/North Hollywood, 0.6 million square feet.

A generalized land use summary of the planning areas reveals:

- The CBD has only 10 percent of its parcel area in residential uses. The most prominent land uses in terms of area are industrial and public facilities/open space.
- Westlake, with the smallest planning area, has the greatest percentage of parcel area devoted to multifamily residential (about 40 percent) and to commercial/mixed uses (about 20 percent).
- Approximately three-fourths of the Wilshire Planning Area is devoted to residential uses.
- Hollywood is the largest area and contains an equal percentage of single family residential and public facilities/open space (about 40 percent).
- The Universal City/North Hollywood area is predominantly single family residential, with about two-thirds of the parcel area devoted to this use.

Although the station areas comprise only a small percentage of the parcel area in the Regional Core, they contain a significant concentration of its commercial and multifamily land uses. Most significant, commercial land use accounts for nearly 10 percent of all parcel area in the Regional Core, but over 30 percent of parcel area in the station areas. Similarly, while multifamily residential use accounts for under 20 percent of the Regional Core parcel area, it amounts to about 25 percent within the station areas. In summary, the stations are located in areas of intense use within the Regional Core.

Station Areas. Table 3-10 shows the current distribution of parcel area among general land use categories in each station area. In the CBD station areas the predominant land use is regional commercial, except in the Union Station area, where 80 percent of the land is used for industrial purposes. The Union Station site, owned by Southern Pacific Railroad, and the Terminal Annex Post Office site occupy 50 percent of the station area. All downtown station areas contain a substantial amount of land that is either vacant or used for commercial surface parking not directly serving any particular facility.

Along the Wilshire Corridor the land use mix varies among station areas. At both the Wilshire/Vermont and Wilshire/Normandie Stations over 50 percent of the land is used commercially, while only about five percent of the Wilshire/Crenshaw Station area is devoted to commercial uses. Only in the Wilshire/Normandie, Wilshire/Fairfax, and Fairfax/Beverly Station areas do substantial portions of the

TABLE 3-10

STATION AREA LAND USE PROFILES, YEAR 1980[1]
Percent of Parcel Area in Generalized Land Use Categories

	Single Family Residential	Multi-Family Residential	Community (Low Intensity) Commercial[2]	Regional (High Intensity) Commercial[2]	Industrial	Public Facilities/ Open Space	Vacant/ Commercial Surface Parking[3]
UNION STATION							
Land Use	-	-	5%	-	70%	5%	20%
Community Plan	-	-	10%	-	80%	10%	-
Zoning	-	-	20%	-	80%	-	-
CIVIC CENTER							
Land Use	-	2%	-	35%	-	38%	25%
Redevelopment Project Designation	-	10%	-	40%	-	50%	-
FIFTH/HILL							
Land Use	-	2%	30%	45%	-	3%	20%
Redevelopment Project Designation	-	2%	-	95%	-	3%	-
SEVENTH/FLOWER							
Land Use	-	-	8%	50%	-	2%	40%
Redevelopment Project Designation	-	48%	-	50%	-	2%	-
WILSHIRE/ALVARADO							
Land Use	2%	45%	30%	3%	-	20%	-
Community Plan	-	34%	40%	8%	-	18%	-
Zoning	-	40%	36%	4%	-	20%	-
WILSHIRE/VERMONT							
Land Use	2%	18%	60%	12%	-	5%	3%
Community Plan	-	40%	15%	40%	-	5%	-
Zoning	-	50%	35%	10%	-	5%	-
WILSHIRE/NORMANDIE							
Land Use	5%	35%	35%	25%	-	-	-
Community Plan	-	40%	10%	50%	-	-	-
Zoning	-	48%	10%	42%	-	-	-
WILSHIRE/WESTERN							
Land Use	7%	48%	35%	10%	-	-	-
Community Plan	-	45%	20%	35%	-	-	-
Zoning	-	55%	25%	20%	-	-	-
WILSHIRE/CRENSHAW							
Land Use	70%	15%	5%	-	-	5%	5%
Specific Plan	65%	20%	10%	-	-	5%	-
WILSHIRE/LA BREA							
Land Use	40%	36%	15%	5%	-	4%	-
Community Plan	45%	31%	12%	8%	-	4%	-
Zoning	45%	31%	7%	13%	-	4%	-
WILSHIRE/FAIRFAX							
Land Use	30%	37%	5%	10%	-	18%	-
Community Plan	22%	45%	5%	10%	-	18%	-
Zoning	22%	45%	5%	10%	-	18%	-
FAIRFAX/BEVERLY							
Land Use	37%	30%	8%	25%	-	-	-
Community Plan	30%	30%	40%	-	-	-	-
Zoning	30%	30%	40%	-	-	-	-
FAIRFAX/SANTA MONICA							
Land Use	15%	71%	10%	-	-	4%	-
Community Plan	10%	76%	10%	-	-	4%	-
Zoning	10%	76%	10%	-	-	4%	-
LA BREA/SUNSET							
Land Use	25%	50%	12%	3%	-	10%	-
Community Plan	-	60%	5%	25%	-	10%	-
Zoning	-	68%	5%	15%	2%	10%	-
HOLLYWOOD/CAHUENGA							
Land Use	5%	25%	28%	25%	-	2%	15%
Community Plan	-	15%	-	85%	-	-	-
Zoning	-	20%	-	80%	-	-	-
HOLLYWOOD BOWL							
Land Use	35%	10%	5%	-	-	50%	-
Community Plan	35%	10%	5%	-	-	50%	-
Zoning	35%	10%	5%	-	-	50%	-
UNIVERSAL CITY							
Land Use	30%	12%	10%	20%	-	18%	10%
Community Plan	30%	12%	10%	30%	-	18%	-
Zoning	30%	12%	10%	30%	-	18%	-
NORTH HOLLYWOOD							
Land Use	10%	15%	35%	-	25%	15%	-
Community Plan	-	15%	40%	-	30%	15%	-
Zoning	-	25%	45%	-	15%	15%	-

Source: Sedway/Cooke from existing land use data provided by the County Regional Planning Department and the City Department of Planning.

[1]Each station area contains from 100 to 150 acres of parcel area.

[2]Includes on-site parking required by Code to serve the commercial facilities.

[3]Commercial parking consists of facilities not affiliated with or required by Code to serve a commercial facility.

commercially developed land serve a regional market. In the Mid-Wilshire area (Vermont to Normandie and Western Avenues Station areas) residential development is primarily multifamily. Along the Miracle Mile (La Brea and Fairfax Station areas) and at Fairfax/Beverly, residentially developed land is more evenly divided between multifamily and single family housing. At Crenshaw the housing is predominantly single family.

The Fairfax/Santa Monica and La Brea/Sunset Station areas are predominantly high density residential neighborhoods with community-serving commercial enterprises as the secondary use. The Hollywood/Cahuenga Station area is devoted primarily to a mix of regional and community commercial uses, with high density residential development as the secondary use. This station area includes a substantial amount of land that is vacant or used for commercial surface parking.

The Universal City Station area contains a mix of primarily single family residential, regional-serving commercial, and public open space uses. The North Hollywood Station area is evenly divided among community-serving commercial, industrial, and residential uses.

Table 3-11 shows the commercial floor area, employment, dwelling units, and population in Metro Rail station areas. Figures for each planning area are also provided to further illustrate that stations have been located in areas of considerable development intensity. As an example, the entire CBD Planning Area contained 81.5 million square feet of commercial space and 289,700 employees. About 45 percent of the floor space and employees are within the four Metro Rail station areas in the CBD. Overall, station areas contain 27 percent of all commercial floor area and 30 percent of all employees on just 6.3 percent of the parcel area in the Regional Core.

2.2.2 LAND USE PLANS AND POLICIES

Land Use Planning and Regulation. The basic principle for the organization and planning of the Los Angeles area is the Centers Concept. The Centers Concept was developed during the late 1960s and early 1970s and adopted by the City of Los Angeles in 1974 as a fifty-year plan. The Concept Plan envisions a series of regional centers connected by a regional rapid transit system, with low to medium building intensity between centers. The concept of a series of regional centers connected by a rapid transit system was also adopted by the County of Los Angeles in 1970 and by the Southern California Association of Governments (SCAG). The county's concept is incorporated into its General Plan and identified as the "Urban Form Policy." Reference to the "Centers Concept" in this report refers to the city's policy for areas located within its jurisdiction and the county's policy for areas in the unincorporated county.

The city's Concept Plan is refined and localized in the twenty-year Citywide Plan and short-term Community Plans. In some cases, the Community Plan is further refined by Specific Plans that define both the planning and the zoning for an area, like the Park Mile Specific Plan area which contains the Wilshire/Crenshaw Station. The City of Los Angeles Department of Planning (LADOP) is developing a single Specific Plan for the areas around ten of the proposed stations. The Specific Plan is being prepared with input from Citizens Advisory Committees in each station area.

The county's 1980 General Plan is further refined by community or area plans. Like the city, the county may also prepare Specific Plans which represent both the plan and the zoning for an area. Two unincorporated areas of the county lie within

TABLE 3-11

DEVELOPMENT IN REGIONAL CORE, YEAR 1980

	COMMERCIAL		RESIDENTIAL	
	Floor Area[1] (in 1,000 sq. ft.)	Employees[2]	Dwelling Units	Population
CBD PLANNING AREA	**81,500**	**289,700**	**12,740[8]**	**43,000[8]**
Union Station	900[3]	3,000	0[5]	0[9]
Civic Center	7,500[4]	37,000	1,030[5]	1,720[9]
Fifth/Hill	16,500[4]	44,000	780[5]	1,250[9]
Seventh/Flower	14,000[4]	41,000	1,380[5]	1,660[9]
All CBD Station Areas	38,900	125,000	3,180	4,630
WESTLAKE PLANNING AREA	**23,800**	**83,500**	**35,200[8]**	**92,450[8]**
Wilshire/Alvarado	1,400[5]	8,500	3,240[5]	7,720[9]
WILSHIRE PLANNING AREA	**65,100**	**227,000**	**137,780[8]**	**308,210[8]**
Wilshire/Vermont	4,500[5]	21,300	3,500[5]	7,720[9]
Wilshire/Normandie	3,800[5]	19,200	3,960[5]	7,860[9]
Wilshire/Western	2,900[5]	10,000	4,260[5]	8,810[9]
Wilshire/Crenshaw*	800[5]	4,200	820[5]	1,800[9]
Wilshire/La Brea	1,600[5]	4,500	3,150[5]	5,670[9]
Wilshire/Fairfax	3,000[5]	13,300	630[5]	1,070[9]
Fairfax/Beverly*	900[5]	5,000	2,390[5]	4,300[9]
All Wilshire Station Areas	17,500	77,500	18,710	37,230
HOLLYWOOD PLANNING AREA	**39,700**	**136,300**	**114,520[8]**	**216,520[8]**
Fairfax/Santa Monica*	400[6]	1,200	4,990[5]	8,480[9]
La Brea/Sunset	1,000[5]	5,500	2,320[5]	3,650[9]
Hollywood/Cahuenga	2,600[5]	12,400	2,230[5]	4,020[9]
Hollywood Bowl*	15[5]	300	460[5]	830[9]
All Hollywood Station Areas	4,015	19,400	10,000	16,980
UNIVERSAL CITY/NORTH HOLLYWOOD PLANNING AREA	**22,700**	**75,100**	**77,860[8]**	**172,740[8]**
Universal City	1,000[7]	9,100	1,170[5]	2,230[9]
North Hollywood	500[5]	2,900	560[5]	1,230[9]
DESIGNATED CENTERS	61,200	231,700	30,200	54,610
ALL STATION AREAS	63,315	242,400	38,860	70,020
REGIONAL CORE	**232,800**	**811,600**	**378,100**	**832,960**

*Station areas not designated as centers in the city's Concept Plan or in the county's General Plan.

[1]Includes office, retail, and hotel space. Total estimates for the planning areas were derived by Sedway/Cooke, assuming 250 sq. ft./employee for office space and 500 sq. ft./employee for retail space.

[2]Assumes 250 sq. ft./office employee, 500 sq. ft./retail employee, and 2 rooms/hotel employee. Total estimates for the planning areas are from the Southern California Association of Governments, 1980 base for SCAG-82A and -82B projections.

[3]Sedway/Cooke estimate.

[4]City of Los Angeles Department of Transportation, 1981.

[5]City of Los Angeles Department of Planning survey.

[6]Los Angeles County Department of Regional Planning.

[7]Music Corporation of America.

[8]U.S. Census Bureau, 1980 Census. See SCRTD Technical Report on Land Use and Development (1983) for Census tracts in each planning area.

[9]Derived by multiplying dwelling units by average persons per household in corresponding census tracts.

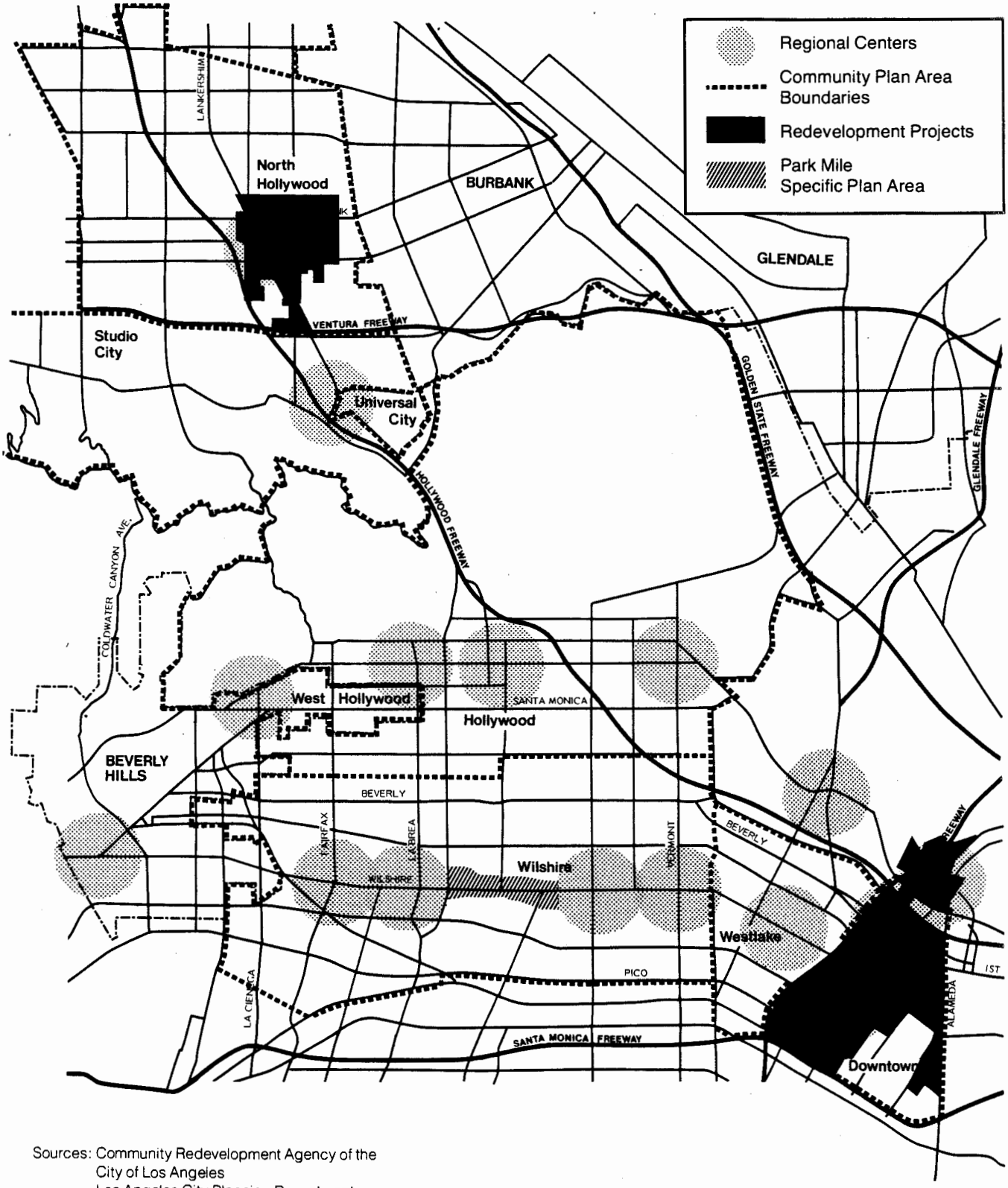
station areas. Most of the Fairfax/Santa Monica Station area is located within that portion of the county represented by the West Hollywood Community Plan and one-third of the Universal city station area lies within an unincorporated area of the county represented only in the county General Plan. The county is preparing the Specific Plan for the Fairfax/Santa Monica Station, under the continuing review of the West Hollywood Citizens Plan Advisory Committee, and for that portion of the Universal City station within its jurisdiction.

Zoning is the regulatory mechanism by which the Community Plans (and the General Plan) are implemented, and California State law requires that zoning conform to land use plans. Zoning in most station areas basically conforms to a jurisdiction's General Plan (and its constituent parts such as Community or District Plans) land use designations (Table 3-10). In a few station areas where the Community Plan land use designation has been revised to reflect "regional center" commercial development, the existing high density residential zoning has not been changed correspondingly. This inconsistency between planning and zoning occurs to the greatest degree in the Sunset/La Brea Station area.

Specific Plans are ordinances. Unlike General Plans, Community Plans, District Plans, and other policy documents, Specific Plans have the force of law and are intended to implement a jurisdiction's General Plan. Where adopted, Specific Plans supersede zoning and can regulate a broad range of activities, including details of signage, facades, landscaping, and parking that are important in a particular locality but are not feasible for the city's or county's zoning ordinances to address. Specific Plans, therefore, are a principle tool for guiding a station area's development in conformance to community desires and public policy objectives.

The Los Angeles Community Redevelopment Agency (CRA), a state empowered body, has designated some areas in the Regional Core as Redevelopment Projects. In these areas, the CRA and LADOP jointly oversee the development process. Except for Union Station, all downtown stations lie within the Central Business District Redevelopment Project area. The North Hollywood Station is adjacent to the first phase commercial core development project in the North Hollywood Redevelopment Project area. Other areas along the Metro Rail route may be designated as redevelopment areas by the City Council and the CRA through adoption of redevelopment plans. The redevelopment process has been initiated in the Hollywood commercial core area which includes the two Hollywood stations. The CRA has primary responsibility for steps leading to the preparation and adoption of redevelopment plans and for their implementation. Once adopted, redevelopment plans become the governing land use plans for redevelopment areas and supersede zoning. The process leading to adoption generally takes 12 to 18 months. The CRA is preparing the Specific Plans for all four CBD stations as well as for the La Brea/Sunset, Hollywood/Cahuenga, and North Hollywood Stations.

Figure 3-10 shows centers designated in the city's Concept Plan, Community Plan areas, the Park Mile Specific Plan area, and Redevelopment Projects within the Regional Core along the Metro Rail route. It should be noted that the identified centers correspond to multipurpose or institutional/cultural/recreational centers designated in the county General Plan. Although not presently a center, the Fairfax/Santa Monica locale is being considered by county planning staff for such a designation. The county's Urban Form Policy also designates Fairfax Avenue as an institutional/cultural/recreational center. Figure 3-11 shows the relative development intensities permitted by city zoning code, county plans, and CRA Redevelopment Projects for the Regional Core. The regional commercial category in the city's



Sources: Community Redevelopment Agency of the City of Los Angeles
Los Angeles City Planning Department

Southern California Rapid Transit District

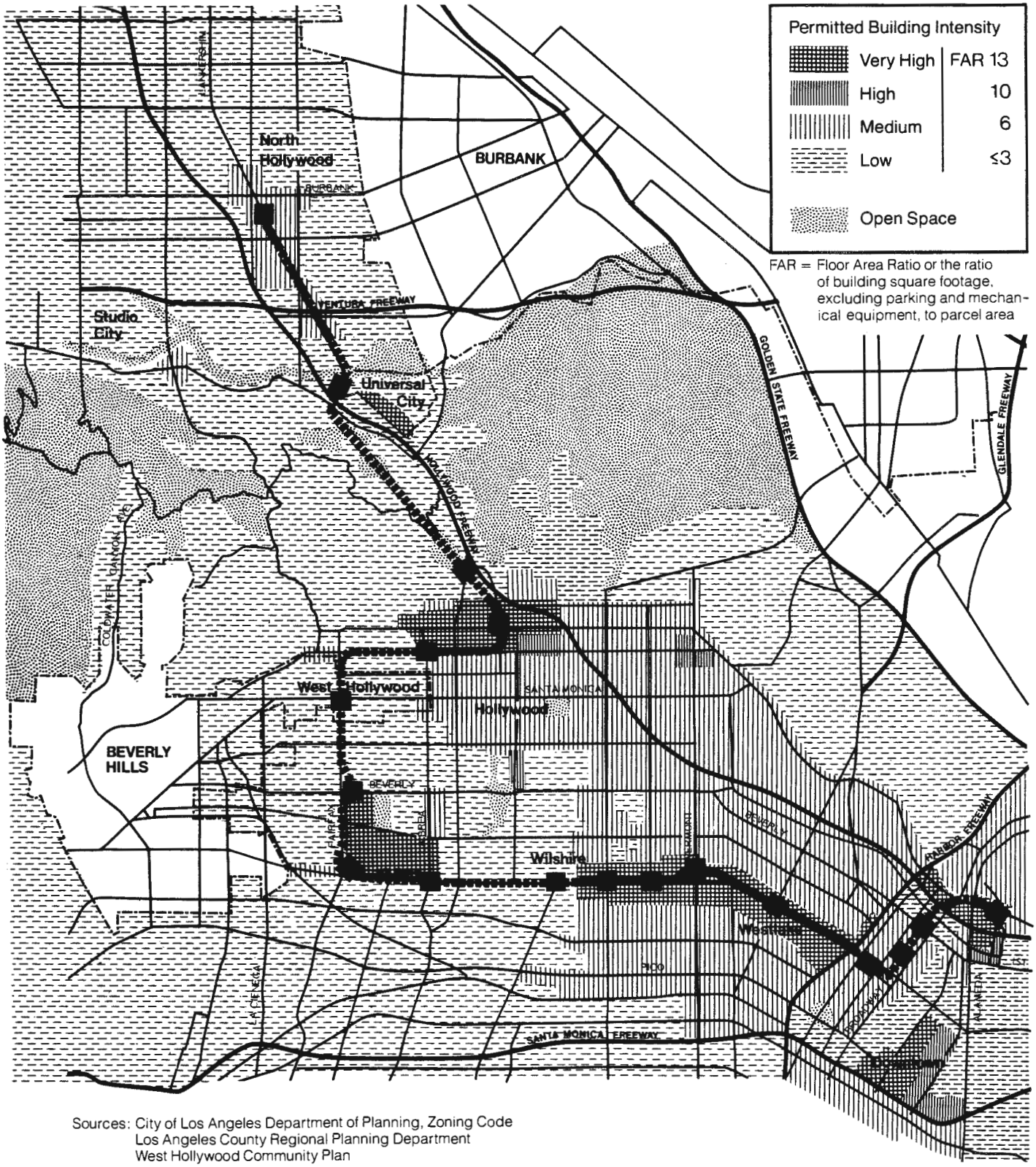
Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

Figure 3-10
Local Land Use Development Plans

SEDWAY/COOKE
Urban and Environmental Planners and Designers



Sources: City of Los Angeles Department of Planning, Zoning Code
Los Angeles County Regional Planning Department
West Hollywood Community Plan

Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

Figure 3-11
Permitted Building Intensity

SEDWAY/COOKE
Urban and Environmental Planners and Designers

Community Plans and in zoning generally corresponds to Height District 4 (FAR 13)* and community commercial to Height District 1 or 2 (FAR 3 or 6). The multifamily residential category includes R3, R4, and R5 zoning at theoretical maximum densities of 54 units per net acre, 101 units per net acre, and 216 units per net acre, respectively. The majority of land zoned for multifamily residential use downtown, along Wilshire from Alvarado to Western, in Hollywood, and in North Hollywood is zoned R4 or R5. From Wilshire/Crenshaw to Fairfax/Beverly, the multifamily category represents primarily R2 and R3 zoning with some R4. In the Fairfax/Santa Monica Station area the county's planning and zoning permits 50 units per net acre with a 50 percent density bonus for all-rental projects and a density bonus of FAR 1 on commercially zoned land if that additional development is residential.

In both the city and county, lesser intensities than the zoned use as well as some other less intensive uses are permitted in any given zoning category. For example, residential development, up to the intensity permitted by R5 zoning and the Height District designated for a particular parcel, is permitted within commercial zones as either single-use structures or mixed use developments with retail and/or office space. Similarly, commercial development, up to the intensity permitted by the designated Height District, is permitted on industrially zoned land. However, residential development is not permitted on industrially zoned land.

Consistency between Planning and Zoning. California state law requires that zoning be consistent with the General Plan. According to the County Counsel, zoning in the unincorporated county is largely consistent with the county General Plan. When conflicts between the two occur, it is the county's policy that the General Plan or a more specific community or area plan, if available, would prevail. In the West Hollywood area where the Fairfax/Santa Monica Station is located, the potential for conflict was avoided during the period between adoption of the West Hollywood Community Plan and the adoption of a Community Standards District designed to implement the plan through the passage of an "urgency ordinance". That ordinance established the West Hollywood Community Plan as the prevailing land use regulation for the area. With the adoption of the Community Standards District in June of 1983, zoning was brought into consistency with the plan.

Within the City of Los Angeles, there are significant discrepancies between zoning and the applicable community or district plans along the Metro Rail route. Major discrepancies include the following areas. The frontage along Wilshire Boulevard, with the exception of the Park Mile Specific Plan area, is zoned for FAR 13 while the Westlake Community Plan and the Wilshire District Plan establish FAR 6 for that frontage. The area east of Fairfax Avenue between Beverly Boulevard and Fourth Street is zoned for FAR 13, while the Wilshire District Plan establishes FAR 3. In Hollywood zoning permits FAR 13 along the Hollywood and Sunset Boulevard corridors while the Hollywood Community Plan establishes FAR 6. Discrepancies with respect to type of use exist as well, the most significant of which occur in the La Brea/Sunset Station area, as documented in Section 2.4 of this chapter.

The LADOP is in the process of bringing zoning and the community or district plans into consistency. It is currently the city's policy that zoning is the legally enforceable land use regulation when there is a conflict between zoning and the

* FAR is Floor Area Ratio, the ratio of building square footage, exclusive of parking and mechanical equipment storage, to parcel area.

General Plan (except where a subdivision or a zone change is being proposed). For example, at the present time a developer would be permitted to build to FAR 13 along Wilshire Boulevard or in Hollywood, even though the district or community plans establish an FAR of 6. Once Specific Plans for the station areas are adopted, they will supersede current zoning regulations. The Specific Plans can be expected to respect the objectives of community plans much more than current zoning.

Within the CBD, the CRA has established a single land use regulation in the form of the redevelopment plans which establish average FARs ranging from 3 in the Civic Center area to 6 in the Central City area.

2.2.3 A COMPARISON OF EXISTING AND PERMITTED LAND USE INTENSITIES

In general, the pattern of land use types designated in the Community Plans and zoning is consistent with existing land use. However, the intensity of development established by the plans and zoning is, in most cases, substantially higher than the current intensity of use except in the CBD development areas. In these areas the CRA has downzoned land from FAR 13 to FAR 3 (with a maximum of FAR 6), or to FAR 5 or 6 (with a maximum of FAR 13 on a given site). The maximum development intensities are permitted on individual sites as long as the overall intensity does not exceed the permitted average. Only occasionally in the CBD has recent development approached intensities permitted on individual sites. For example, the Crocker Bank towers in Bunker Hill redevelopment area are built at an FAR of 13. This FAR is balanced by other sites having FARs of less than 5 in the redevelopment area. Older, stable buildings not expected to be renovated or removed for redevelopment in the CBD typically have FARs of 4 to 6. Recent residential development in the South Park Area achieves a density of 100 units per net acre, substantially less than the 216 units per net acre permitted by R5 zoning.

Along the Wilshire Corridor where FARs of 13 are permitted by zoning, mid- to high-rise buildings fronting Wilshire typically achieve FARs of 4 to 6, comparable to the intensity recommended by the Wilshire District Plan. Community-serving commercial uses, usually located in areas zoned Height District 2 (FAR 6), are typically developed at FARs of 0.5 to 1. Recent multifamily residential development is typified by three-story wood-framed structures over parking, usually on 100-foot-wide lots (two single family parcels). A maximum density of about 90 units per net acre is achievable with this type of development, compared with densities of 101 units per net acre or 216 units per net acre currently permitted by R4 or R5 zoning.

Commercial intensities of stable buildings in station areas along Fairfax, in Hollywood, and in the San Fernando Valley station areas are on the order of FAR 0.5 to 1.5. The overall FAR for the proposed North Hollywood Commercial Core development project is about 2. FARs permitted by zoning may vary from 3 to 13 along Fairfax Avenue and in the San Fernando Valley station areas; FAR of 13 is generally permitted in Hollywood. Recent residential densities are similar to those described for the Wilshire Corridor. In summary, development rarely reaches the intensity permitted by zoning. In the CBD recent development has occurred at the intensities permitted by the redevelopment plans. Along the Wilshire Corridor recent development has occurred at the intensity established in the plan for that area.

2.2.4 PARCELS SUSCEPTIBLE TO REINVESTMENT

The ability of a station area to accommodate new development is a key measure of land use impact potential. To evaluate the ability of station areas to accommodate demand for development, areas susceptible to reinvestment have been identified. These areas are mapped and presented in the SCRTD Technical Report on Land Use and Development Impacts (1983). Reinvestment is defined as either:

- replacement of existing structures (if any) on a site by a new structure or structures, or
- renovation and/or expansion of existing structures if their inherent architectural or historic value suggests that they should be preserved.

A parcel is considered to be susceptible to commercial redevelopment or renovation if it meets all the following criteria:

- It is zoned for commercial use;
- The assessed value of the existing improvement is less than the assessed value of the land--typically a vacant parcel, surface parking lot, or an older, poorly maintained low-rise structure on a parcel zoned for substantially more intensive development; and
- It can be combined with contiguous parcels into a development site comparable in size to sites recently developed in the area.

A parcel is considered to be susceptible to residential redevelopment if it meets all the following criteria:

- It is zoned for multifamily residential use--R3, R4 or R5;
- Its current use is single or two family residential; and
- Other parcels on its block have already been redeveloped.

Table 3-12 identifies the acres of residential and commercial parcel area susceptible to reinvestment, and the intensity of development that would be permitted on it by zoning as well as the intensity that would be likely to occur with current development practices. In general, the intensity of development permitted by zoning is unlikely to be achieved by current or expected development practices. The "probable" development intensity represents an intensity slightly higher than that of recent development projects in the area and substantially higher than the existing average FAR of existing development in the station area.

The parcel area susceptible to reinvestment is used in two ways in this analysis. First, in evaluating existing conditions, it provides a measure of the development opportunities in a station area and the amount of additional development needed to achieve the land use pattern established by the Community Plan or Specific Plan and by zoning. A substantial amount of land susceptible to reinvestment indicates a need for revitalization. Second, in assessing impacts, the development capacity establishes an impact "threshold." If the amount of development projected with construction of the Metro Rail Project does not consume all of the parcels susceptible to reinvestment, that development will not, in general, produce adverse

TABLE 3-12

PARCEL AREA SUSCEPTIBLE TO REINVESTMENT

Station Area	PARCEL AREA SUSCEPTIBLE TO COMMERCIAL REINVESTMENT					PARCEL AREA SUSCEPTIBLE TO RESIDENTIAL REINVESTMENT		
	Acres	As Percent of All Parcel Area in Station Area	Development Intensity (FAR[1]) Maximum Permitted by Zoning	Maximum Designated in Appropriate Plan	Probable[2]	Acres	As Percent of All Parcel Area in Station Area	Development Intensity (Net Dwelling Units[3]) Permitted by Zoning
Union Station	73	49%	13	4	3	0	0	0
Civic Center	28	19%	4[4]	4	4	3.5	2%	760
Fifth/Hill	71	47%	6[4]	6	6	0	0	—
Seventh/Flower	71	47%	6[4]	6	6	0	0	—
Wilshire/Alvarado	35	23%	13	6	3	20.5	14%	3,780
Wilshire/Vermont	30	24%	13	6	6	25	20%	4,270
Wilshire/Normandie	28	25%	13	6	6	17	15%	2,180
Wilshire/Western	34	27%	13	6	6	26	21%	2,090
Wilshire/Crenshaw	15	12%	1.8[5]	1.8	1.5	18	14%	990
Wilshire/La Brea	26	17%	13	4	4	10	7%	980
Wilshire/Fairfax	8	5%	13	6	8	21	14%	2,080
Fairfax/Beverly	48	32%	12	3	5.7	2	1%	170
Fairfax/Santa Monica	20	13%	2[6]	2[6]	2[6]	30	20%	1,200
						See Footnote 7		610
La Brea/Sunset	26	17%	10.4	6	3	21	14%	2,350
Hallywood/Cahuenga	83	55%	13	6	3	7	5%	700
Hollywood Bowl	0	0	—	—	—	3	2%	600
Universal City West of Lankershim (City)	5	3%	3	3	2.5	0	0	0
East of Lankershim (City)	10	5%	3	6	6	0	0	0
East of Lankershim (County)	10	5%	13	13	6	6	0	0
North Hollywood	53	35%	3	3	3	25	17%	2,310

Source: Sedway/Cooke

[1]FAR = Floor Area Ratio, or the ratio of floor area, excluding parking and mechanical equipment storage, to parcel area.

[2]Likely development intensities based on current land use patterns, trends, and projected land uses in each station area.

[3]Net dwelling units take into account units that would be displaced.

[4]Maximum permitted by Redevelopment Plans which supersede zoning.

[5]Maximum permitted by the Park Mile Specific Plan which constitutes zoning.

[6]This FAR represents the average maximum permitted by the West Hollywood Community Plan and Community Standards District. The average maximum development intensity that would be permitted in this station area by the county's proposed Specific Plan would be FAR 3.3 and the probable development intensity would be FAR 2.5.

[7]A density bonus of FAR 1 is permitted on the 21 acres of commercial parcel area if that additional development consists of housing units. Assuming an average unit size of 1,500 square feet, an additional 610 residential units would be permitted in the station area.

impacts because it is consistent with land use planning designations. The comparison of development projections with capacity assumed that development would occur at "probable development intensities" indicated in Table 3-12. In all station areas except one this intensity is less than or equal to the development intensity established by applicable local plans. Furthermore, if the Metro Rail Project stimulates development in an area designated as a growth center and with a substantial amount of land susceptible to reinvestment, the impact is beneficial.

For example, only five percent of all parcel area in the Wilshire/Fairfax Station area is susceptible to commercial reinvestment. Zoning would permit up to 4.5 million square feet of new development at an FAR of 13. The Wilshire District Plan would permit 2 million square feet at an FAR of 6. Given expected development practices, which would result in an average FAR of 8, 2.6 million additional square feet of floor area could be accommodated in addition to the existing approximately 3.0 million square feet. In contrast, 55 percent of the parcel area in the Hollywood/Cahuenga Station area is susceptible to commercial reinvestment. Zoning would permit the development of 47 million square feet at an FAR of 13. The Hollywood Community Plan would permit 28 million square feet at an FAR of 6. Current development practices and projected land use in the station area suggest that an average FAR of 3 better reflects the probable intensity of development and would result in the addition of 11 million square feet to the existing 2.6 million square feet of commercial development. This comparison indicates that the Wilshire/Fairfax Station area is more stable and much less in need of revitalization than the Hollywood/Cahuenga Station area.

All station areas except Wilshire/Fairfax and Wilshire/Crenshaw contain 20 or more acres of commercially zoned land susceptible to reinvestment, with probable development capacities ranging from 2.6 million square feet to 20 million square feet per station area. The supply of residentially zoned land susceptible to change varies dramatically from almost none in some station areas to over 20 acres in others.

2.3 IMPACT ASSESSMENT

2.3.1 METHODOLOGY AND MEASURES

Development that occurs in conjunction with the Metro Rail Project may produce both beneficial and adverse impacts. In general, the stimulation of development in the Regional Core and around stations is itself a positive land use impact with respect to stations designated as centers. It implements the Centers Concept by connecting centers with a "regional rapid transit system" and by promoting development at designated growth centers, revitalizing economically stagnant areas, and providing commercial services and employment near established concentrations of population. However, it may result in some potentially adverse impacts, particularly in the neighborhoods around stations. It is also more likely to produce adverse impacts at stations not designated as centers. In the case of both centers and non-centers, the primary measure of impact is the compatibility of development expected to occur in conjunction with the Metro Rail Project with the type and intensity of development permitted by local plans. In order to assess the impacts of the growth likely to occur in conjunction with the Metro Rail Project, it was necessary to first determine the level of development expected under each alternative both with and without a concerted effort by SCRTD and other agencies to promote development around stations.

Residential development projections for planning areas and individual station areas in the Regional Core were based on growth projections developed by SCAG in their SCAG-82 Growth Forecast Policy (1982). The No Project Alternative growth levels were based on SCAG-82A, a growth projection which assumes that the vast majority of population and housing growth will be dispersed throughout outlying areas, with limited growth in the Regional Core.

The residential growth levels for the Locally Preferred Alternative and its Aerial Option correspond to SCAG-82B, which assumes a concentration of new growth within the Regional Core. The adoption by SCAG of a 1982 growth projection roughly equivalent to SCAG-82A suggests that the SCAG-82B projection may be too high for the Regional Core as a whole. However, it is a reasonable projection of population growth within station areas where development would concentrate. **For the purposes of impact assessment, it is appropriate to think of the SCAG-82B projections for the entire Regional Core not as growth that would be directly induced by the Metro Rail Project but as an intensification of recent trends independent of the Metro Rail Project and an expression of the policies of the Centers Concept, which probably could not be accommodated without a rail rapid transit system in the Regional Core.**

For the Minimum Operable Segment, the growth projections for the CBD, Westlake, and Wilshire Planning Areas and for the Union Station through Fairfax/Beverly Station areas are the same as the Locally Preferred Alternative (SCAG-82B). Projected development in the balance of the Regional Core for this alternative is the same as the No Project Alternative and is based on SCAG-82A.

Under both SCAG-82A and SCAG-82B forecasts, new residential units in the Regional Core are expected to be accompanied by a slight increase in the number of persons per household in both new and existing units. In some areas, four or five people will be added for every additional dwelling unit.

Commercial growth projections were developed in a real estate market absorption study prepared by Peat Marwick Mitchell & Co. and Sedway/Cooke. The market study identified commercial absorption potential for the period from 1980 to 2000 for three scenarios: 1) assuming the Metro Rail Project is not constructed, 2) assuming that the Locally Preferred Alternative or Minimum Operable Segment is constructed, and 3) assuming that SCRTD and other local agencies actively promote joint development around stations. Six categories of development were considered: major office, community office, hotel, employee-serving retail, regional retail, and community retail. The projections reflect projects under construction or completed from January 1980 through January 1983, as well as market absorption projections for January 1983 to January 2000 based on historic growth rates, recent development trends and information provided by local developers and brokers. The figures for retail development were based on projected population growth for each alternative. (Retail projections are derived from the SCAG-82A and -82B population projections). The six commercial development categories were summarized into a single commercial value for this impact assessment. The market projections are presented in detail in the SCRTD Technical Report on Land Use and Development Impacts (1983).

Only the No Project Alternative growth projections for office space are derived from the market study. The "With Project" office space projections are **illustrative** of the increase in development that could occur given experiences in other cities with fixed

rail systems and the constraints on the local market. Actual additional development in conjunction with the Metro Rail Project may be substantially higher or lower depending on actual population growth and the extent to which local agencies actively promote joint development.

The projected growth under each alternative is assessed for its consistency with land use plans and policies and whether it can be accommodated in station areas without adverse impacts in the surrounding community. Consistency with land use plans and policies is assessed at two geographic scales: regionwide and station area. Accommodation of growth is evaluated only for the station areas. Consistency of projected growth with land use plans and policies is evaluated at the regional scale by four measures which correspond to key objectives of the city's and county's General Plans. The city's plan objectives are to concentrate development at designated growth centers along the Metro Rail route; to concentrate development at designated centers in other areas of the Regional Core (first two measures are in accordance with the Centers Concept); to revitalize economically stagnant or declining areas; and to provide additional commercial services and employment near established concentrations of population. Comparable objectives are sought by the county, which uses centers as an implementation strategy for desired urban development. Centers are viewed as a way of conveniently and efficiently providing the broadest array of services and Centers are also viewed as a way of improving areas of blight, areas suffering from disinvestment, and areas where substantial public investment are needed. At the station area level, consistency is evaluated by the above measures as well as by the extent to which new development implements applicable Community Plans, Specific Plans, and/or redevelopment plans. Accommodation of projected growth within station areas and potential adverse impacts are evaluated at the station area level by six measures which correspond to basic planning objectives in these areas.

2.3.2 GROWTH PROJECTIONS

Regional Core. Table 3-13 summarizes the commercial and residential growth projections for each of the systemwide alternatives and compares it with total development and population in 1980. Projections are given for the Regional Core. Commercial projections are expressed as gross square footage and include office, retail, and hotel development. With construction of the Locally Preferred Alternative commercial development added within the Regional Core would be expected to increase by a range of 50 to 69 percent over development added under the No Project Alternative. The effects of the Aerial Option would be virtually identical to those of the Locally Preferred Alternative. Commercial development added under the Minimum Operable Segment would increase by a range of 41 to 49 percent over the No Project Alternative.

With the construction of the Locally Preferred Alternative, the number of dwelling units added would increase by about 200 percent over the No Project Alternative. Population added would increase about 130 percent over the No Project Alternative. With the Minimum Operable Segment, the Regional Core is projected to experience an increase in dwelling units added of about 125 percent and an increase in population added of about 85 percent over the No Project Alternative.

Planning Areas. Table 3-14 compares total 1980 population and population densities in planning areas and the Regional Core with those projected under the various Project alternatives. Population density in the Regional Core would increase from

TABLE 3-13

PROJECTED REGIONAL CORE GROWTH FOR SYSTEMWIDE ALTERNATIVES, YEARS 1980 TO 2000

	1980 Total	NO PROJECT ALTERNATIVE Increment	NO PROJECT ALTERNATIVE Percent Change	LOCALLY PREFERRED ALTERNATIVE Increment	LOCALLY PREFERRED ALTERNATIVE Percent Change	MINIMUM OPERABLE SEGMENT Increment	MINIMUM OPERABLE SEGMENT Percent Change
Commercial Development (1,000 sq. ft.)	232,800	38,600	17%	57,600-65,300[1]	25%-28%	54,600-57,500[1]	23%-25%
Residential Development (dwelling units)	378,100	50,620	13%	150,130	40%	113,920	30%
Population Growth	832,960	188,710	23%	429,600[2]	52%	356,460[2]	43%

Source: Southern California Association of Governments, Draft SCAG-82 Growth Forecast Policy, 1982; LADOP; Sedway/Cooke.

[1]Range reflects amount of development both without and with a concerted effort by SCRTD and others to promote joint development.

[2]Although this level of residential development is identified by SCAG-82B for the entire Regional Core, it is more likely to occur at this intensity only within station areas and to be less for the Regional Core as a whole.

TABLE 3-14

POPULATION AND DENSITY IN PLANNING AREAS AND REGIONAL CORE, YEARS 1980 AND 2000

		1980		NO PROJECT		LOCALLY PREFERRED ALTERNATIVE		MINIMUM OPERABLE SEGMENT	
Planning Areas	Sq. Mi.	Population	Persons/ Sq. Mi.	Population	Persons/ Sq. Mi.	Population	Persons/ Sq. Mi.	Population	Persons/ Sq. Mi.
CBD	6.76	43,040	6,367	73,930	10,936	102,890	15,220	102,890	15,220
Westlake	3.53	92,450	26,190	126,620	35,870	159,410	45,159	159,410	45,159
Wilshire	20.05	308,210	15,372	383,530	19,129	489,530	24,415	489,530	24,415
Hollywood	21.21	216,520	10,208	258,290	12,178	324,870	15,317	258,290	12,178
Universal City	9.71	41,100	4,232	42,630	4,390	44,160	4,548	42,630	4,390
North Hollywood	15.24	131,640	8,638	136,670	8,968	141,700	9,298	136,670	8,968
Regional Core	76.50	832,960	10,888	1,021,670	13,355	1,262,560	16,504	1,189,420	15,548

10,888 persons per square mile in 1980 to 13,355 persons per square mile in 2000 with the No Project Alternative, 16,504 persons per square mile with the Locally Preferred Alternative, and 15,548 persons per square mile with the Minimum Operable Segment. The density of those planning areas served by the Minimum Operable Segment (CBD, Westlake, and Wilshire) would increase from 14,624 persons per square mile in 1980 to 19,251 persons per square mile in 2000 with the No Project Alternative and to 24,780 persons per square mile with the Minimum Operable Segment.

With respect to commercial development activity under the No Project Alternative, the CBD Planning Area is expected to capture the majority of commercial development within the Regional Core at an average annual rate of 750,000 square feet for major office space. This rate is slightly higher than the capture rate of 690,000 square feet per year during the last decade (1970-1980) and 550,000 square feet per year during the last five years of the decade (1975-1980). Although development activity is expressed as an average annual absorption arate, in reality the annual rate may fluctuate significantly. During some years, when large projects come on the market, the rate could well exceed 1,000,000 square feet, while in other years it may be below the projected average. The CRA estimates that the growth increment between the No Project Alternative and the Project alternatives may range from zero to 450,000 square feet of major office space in any given year.

Westlake is expected to capture 50,000 square feet of major office space per year. The Wilshire Planning Area is expected to capture 400,000 square feet per year compared with 433,000 square feet per year during the last decade and 220,000 square feet per year during the last five years of the decade. Hollywood is expected to capture 75,000 square feet per year, continuing the trend established by a decline from 87,000 square feet per year in the 1970's to 73,000 square feet per year from 1975 to 1980. The Universal City/North Hollywood area is expected to capture 225,000 square feet of major office space per year, reflecting a continuation of recent trends. The area absorbed 105,000 square feet per year during the 1970s and 155,000 square feet per year from 1975 to 1980.

Residential development is expected to continue at the same rate as during the last two decades except in the CBD where CRA involvement is expected to increase the rate of growth considerably. Because most stations are at established centers, development within the Regional Core planning areas will tend to concentrate within station areas even under the No Project Alternative.

With the Locally Preferred Alternative, the CBD is expected to increase its capture rate to a range of 1,000,000 to 1,050,000 square feet of major office space per year. Westlake is expected to increase its capture rate to a range of 75,000 to 125,000 square feet per year. Wilshire is expected to capture 650,000 to 750,000 square feet per year. Hollywood could increase its capture rate to a range of 100,000 to 150,000 square feet per year. The Universal City/North Hollywood capture rate is not expected to increase significantly without special incentives. Because the Music Corporation of America (MCA) owns the Universal City area, where the majority of development is expected to occur, its development costs are substantially lower than a typical developer's. Since MCA has been able to act relatively independently of the development market, its development plans under the No Project Alternative probably reflect its internal ability to accommodate development. Similarly, the current market demand has already been increased by the North Hollywood Community Core Redevelopment Project, the major development site in North Hollywood. Consequently, additional growth as a result of the Metro Rail Project is not expected, unless incentives are provided in these two areas. With incentives, the

capture rate in Universal City/North Hollywood could increase to 275,000 square feet per year.

With the Minimum Operable Segment, the CBD, Westlake, and Wilshire Planning Areas would experience increases in capture rates comparable to those experienced under the Locally Preferred Alternative. The Hollywood and Universal City/North Hollywood areas would experience no increase in capture rate.

Station Areas. Table 3-15 indicates **total** residential and commercial development in station areas for each alternative in the year 2000 and Table 3-16 shows population and employment in station areas. The level of development for the Project alternatives is presented as a range. The low end is illustrative of the development that could occur in conjunction with the Metro Rail Project and that could be absorbed by the market under normal circumstances. The high end includes the additional development that the market could absorb given special incentives by SCRTD and other agencies to encourage joint development adjacent to stations. Table 3-17 presents growth in residential and commercial development over the 20-year period between 1980 and 2000 while Table 3-18 indicates the growth in population and employment.

A close look at these tables, especially Table 3-17, indicates that under the No Project Alternative total commercial development in the 14 station areas designated as core areas of centers will increase by 43 percent over 1980; with the Locally Preferred Alternative it will increase by 61 to 77 percent; and with the Minimum Operable Segment, 58 to 70 percent. Employment will be similarly concentrated within designated centers under the Locally Preferred Alternative, and the Minimum Operable Segment. Thus, relative to the No Project Alternative the Metro Rail Project will promote the concentration of activity within designated centers in accordance with the Centers Concept. The Locally Preferred Alternative will more effectively implement the Centers Concept in the Regional Core than will the Minimum Operable Segment. The Minimum Operable Segment will not provide the economic stimulation needed to promote revitalization in Hollywood and North Hollywood.

Table 3-19 identifies the parcel area that would be required to accommodate the growth projected under each alternative from January 1980 to January 2000 and the corresponding percentage of the total parcel area susceptible to reinvestment. Figure 3-12 depicts these results graphically. This comparison of the development projections with development capacity provides the basis for assessing impacts associated with the accommodation of growth.

3.3.3 IMPACTS OF GROWTH

Potential impacts both in the region and in station areas are listed in Table 3-20. The table contains a matrix which evaluates the Locally Preferred Alternative and the Minimum Operable Segment relative to the year 2000 No Project Alternative base conditions. Impacts are identified as potentially beneficial impacts, potentially adverse impacts which can be mitigated, and potentially adverse impacts which cannot be mitigated. Impacts of the Aerial Option are identical to those of the Locally Preferred Alternative.

Consistency With Land Use Plans and Policies. A number of local land use plans and policies are relevant in addressing the potential impacts of growth that would occur

TABLE 3-15

TOTAL DEVELOPMENT IN REGIONAL CORE FOR SYSTEMWIDE ALTERNATIVES, YEAR 2000

	COMMERCIAL FLOOR AREA (1,000 Sq. Ft.)			RESIDENTIAL (OCCUPIED DWELLING UNITS)		
	No Project	Locally Preferred Alternative[1]	Minimum Operable Segment[1]	No Project	Locally Preferred Alternative	Minimum Operable Segment
CBD PLANNING AREA	**100,400**	**107,500 - 109,600**	**107,500 - 109,600**	**22,310**	**33,810**	**33,810**
Union Station	900	1,800 - 3,200	1,800 - 3,200	0	530	530
Civic Center	9,400	9,800 - 10,200	9,800 - 10,200	2,116	2,960	2,960
Fifth/Hill	24,300	26,000 - 27,300	26,000 - 27,300	1,830	2,780	2,780
Seventh/Flower	20,000	21,600 - 23,200	21,600 - 23,200	2,040	2,380	2,380
All CBD Station Areas	54,600	59,200 - 63,900	59,200 - 63,900	6,030	8,650	8,650
WESTLAKE PLANNING AREA	**25,500**	**26,200 - 26,800**	**26,200 - 26,800**	**47,330**	**58,660**	**58,660**
Wilshire/Alvarado	1,600	2,000 - 2,700	2,000 - 2,700	4,410	5,440	5,440
WILSHIRE PLANNING AREA	**75,600**	**83,800 - 86,100**	**83,800 - 86,100**	**150,770**	**191,260**	**191,260**
Wilshire/Vermont	5,300	5,700 - 6,700	5,700 - 6,700	3,690	5,920	5,920
Wilshire/Normandie	5,000	6,600 - 6,800	6,600 - 6,800	4,210	6,060	6,060
Wilshire/Western	4,300	4,800 - 5,000	4,800 - 5,000	4,570	5,140	5,140
Wilshire/Crenshaw*	1,200	1,300 - 1,500	1,300 - 1,500	880	990	990
Wilshire/La Brea	1,800	2,400 - 2,600	2,400 - 2,600	3,590	4,880	4,880
Wilshire/Fairfax	4,800	5,700 - 6,400	5,700 - 6,400	740	990	990
Fairfax/Beverly*	2,100	4,300 - 5,400	4,300 - 5,400	2,900	4,020	4,020
All Wilshire Station Areas	24,500	30,800 - 34,400	30,800 - 34,400	20,580	28,000	28,000
HOLLYWOOD PLANNING AREA	**41,800**	**44,400 - 46,000**	**41,800**	**124,530**	**154,840**	**124,530**
Fairfax/Santa Monica*	600	1,000 - 1,400	600	5,440	6,930	5,440
La Brea/Sunset	1,200	1,500 - 1,900	1,200	2,530	3,220	2,530
Hollywood/Cahuenga	3,200	4,200 - 5,500	3,200	2,430	3,040	2,430
Hollywood Bowl	15	15 - 35	15	480	930	480
All Hollywood Station Areas	5,015	6,715 - 8,835	5,015	10,880	14,120	10,880
UNIVERSAL CITY/NORTH HOLLYWOOD PLANNING AREA	**28,100**	**28,500 - 29,600**	**28,100**	**83,760**	**89,660**	**83,760**
Universal City	4,100	4,300 - 4,500	4,100	1,250	1,330	1,250
North Hollywood	1,500	2,000 - 2,500	1,500	1,130	1,210	1,130
DESIGNATED CENTERS	87,400	98,400 - 108,500	96,400 - 104,100	34,580	45,880	44,420
ALL STATION AREAS	91,315	105,015 - 116,835	102,615 - 111,615	44,280	58,750	55,350
REGIONAL CORE	**271,400**	**290,400 - 298,100**	**287,400 - 290,300**	**428,720**	**528,230**	**492,020**

Source: Sedway/Cooke

*Station areas not designated as centers in the city's Concept Plan or the county's General Plan.

[1]Range reflects amount of development both without and with a concerted effort by SCRTD and others to promote joint development.

TABLE 3-16

TOTAL POPULATION AND EMPLOYMENT IN STATION AREAS, YEAR 2000

	NO PROJECT		LOCALLY PREFERRED ALTERNATIVE/AERIAL OPTION[1]		MINIMUM OPERABLE SEGMENT[1]	
	Population	Employment[2]	Population	Employment[2]	Population	Employment[2]
CBD	**73,930**	**373,100**	**102,890**	**401,500-408,100**	**102,890**	**401,500-408,100**
Union Station	0	3,000	1,059	5,900-11,300	1,050	5,900-11,300
Civic Center	4,530	45,400	7,300	47,100-48,900	7,300	47,000-48,900
Fifth/Hill	3,880	78,700	6,250	87,400-93,300	6,250	87,400-93,300
Seventh/Flower	3,310	66,700	4,160	70,800-78,500	4,160	70,800-78,500
All CBD Station Areas	11,720	193,800	18,760	211,100-232,000	18,766	211,100-232,000
WESTLAKE	**126,620**	**91,400**	**159,410**	**94,400-96,900**	**159,410**	**94,400-96,900**
Wilshire/Alvarado	10,580	9,300	13,320	11,200-14,400	13,320	11,200-14,400
WILSHIRE	**383,530**	**276,200**	**489,530**	**306,500-317,300**	**489,530**	**306,500-317,300**
Wilshire/Vermont	8,960	25,100	14,120	27,100-31,500	14,120	27,100-31,500
Wilshire/Normandie	9,320	25,000	13,800	30,300-31,200	13,800	30,300-31,200
Wilshire/Western	10,030	16,900	11,210	18,900-19,700	11,210	18,900-19,700
Wilshire/Crenshaw	2,080	6,100	2,390	6,900-7,800	2,390	6,900-7,800
Wilshire/La Brea	9,500	5,500	13,000	8,200-9,000	13,000	8,200-9,000
Wilshire/Fairfax	1,720	22,200	2,350	25,900-28,600	2,350	25,900-28,600
Fairfax/Beverly*	7,190	10,400	9,620	18,700-22,100	9,620	18,700-22,100
All Wilshire Station Areas	48,800	111,200	66,490	136,000-149,800	66,490	136,000-149,800
HOLLYWOOD	**258,290**	**145,000**	**324,870**	**151,100-156,800**	**258,290**	**145,000**
Fairfax/Santa Monica*	10,720	2,100	14,130	3,900-5,500	10,720	2,100
La Brea/Sunset	4,690	6,400	6,280	7,300-8,700	4,600	6,400
Hollywood/Cahuenga	5,020	14,900	6,380	16,900-20,500	5,020	14,900
Hollywood Bowl	830	300	830	300-340	830	300
All Hollywood Station Areas	21,260	23,700	27,620	28,400-35,000	21,260	23,700
UNIVERSAL CITY/ NORTH HOLLYWOOD	**179,300**	**98,800**	**185,860**	**100,000-104,600**	**179,300**	**98,800**
Universal City	2,290	22,300	2,600	22,700-23,600	2,290	22,300
North Hollywood	2,350	7,700	2,460	9,900-12,100	2,350	7,700
DESIGNATED CENTERS	76,180	349,100	104,280	389,500-431,160	100,910	384,000-417,610
ALL STATION AREAS	97,000	368,000	131,250	419,300-466,900	124,470	412,000-449,900
REGIONAL CORE	**1,021,670**	**984,500**	**1,262,560**	**1,053,500-1,083,700**	**1,189,420**	**1,046,200-1,066,100**

Source: Sedway/Cooke

*Station areas not designated as centers in the city's Concept Plan or the county's General Plan.

[1]Range reflects development both without and with promotion of joint development by SCRTD and others.

[2]Tables assume 200 sq.ft./office employee (reflects the current downward trend from 250 sq.ft./employee in 1980), 500 sq.ft./retail employees and 2 rooms/hotel employee.

TABLE 3-17

NET CHANGE IN TOTAL DEVELOPMENT, YEARS 1980 TO 2000

	COMMERCIAL FLOOR AREA						RESIDENTIAL UNITS					
	NO PROJECT		LOCALLY PREFERRED ALTERNATIVE		MINIMUM OPERABLE SEGMENT		NO PROJECT		LOCALLY PREFERRED ALTERNATIVE		MINIMUM OPERABLE SEGMENT	
	1,000 Sq.Ft.	%	1,000 Sq.Ft.	%	1,000 Sq.Ft.	%	Dwelling Units	%	Dwelling Units	%	Dwelling Units	%
CBD PLANNING AREA	**18,900**	**23**	**26,000-28,000**	**32-34**	**26,000-28,100**	**32-34**	**9,570**	**75**	**21,070**	**165**	**21,070**	**165**
Union Station	0	0	900-2,300	100-250	900-2,300	100-250	0	0	530	—	530	—
Civic Center	1,900	25	2,300-2,700	31-36	2,300-2,700	31-36	1,086	105	1,930	187	1,930	187
Fifth/Hill	7,800	47	9,500-10,800	58-65	9,500-10,800	58-65	1,050	135	2,000	256	2,000	256
Seventh/Flower	6,000	43	7,600-9,200	54-66	7,600-9,200	54-66	660	48	1,000	72	1,000	72
All CBD Station Areas	15,700	40	20,300-25,000	52-64	20,300-25,000	52-64	2,850	89	5,470	172	5,470	172
WESTLAKE PLANNING AREA	**1,700**	**7**	**2,400-3,000**	**10-13**	**2,400-3,000**	**10-13**	**12,130**	**34**	**23,460**	**67**	**23,460**	**67**
Wilshire/Alvarado	200	14	600-1,300	43-93	600-1,300	43-93	1,170	36	2,200	68	2,200	68
WILSHIRE PLANNING AREA	**10,500**	**16**	**18,700-21,000**	**29-32**	**18,700-21,000**	**29-32**	**12,990**	**9**	**53,480**	**39**	**53,480**	**39**
Wilshire/Vermont	800	18	1,200-2,200	27-49	1,200-2,200	27-49	190	5	2,420	69	2,420	69
Wilshire/Normandie	1,200	32	2,800-3,000	74-79	2,800-3,000	74-79	250	6	2,100	53	2,100	53
Wilshire/Western	1,400	48	1,900-2,100	66-72	1,900-2,100	66-72	310	7	880	21	880	21
Wilshire/Crenshaw*	400	50	500-700	63-86	500-700	63-86	60	7	170	21	170	21
Wilshire/La Brea	200	13	800-1,000	50-63	800-1,000	50-63	440	14	1,730	55	1,730	55
Wilshire/Fairfax	1,800	60	2,700-3,400	90-113	2,700-3,400	90-113	110	17	360	57	360	57
Fairfax/Beverly*	1,200	133	3,400-4,500	377-500	3,400-4,500	377-500	510	21	1,630	68	1,630	68
All Wilshire Station Areas	7,000	40	13,300-16,900	76-97	13,300-16,900	76-97	1,870	10	9,290	50	9,290	50
HOLLYWOOD PLANNING AREA	**2,100**	**5**	**4,700-6,300**	**12-16**	**2,100**	**5**	**10,010**	**9**	**40,320**	**35**	**10,010**	**9**
Fairfax/Santa Monica*	200	50	600-1,000	150-250	200	50	450	9	1,940	39	450	9
La Brea/Sunset	200	20	500-900	50-90	200	20	210	9	900	39	210	9
Hollywood/Cahuenga	600	23	1,600-2,900	62-112	600	23	200	9	810	36	200	9
Hollywood Bowl*	0	0	0-20	0-133	0	0	20	4	470	102	20	4
All Hollywood Station Areas	1,000	25	2,500-4,820	62-120	1,000	25	880	9	4,120	41	880	9
UNIVERSAL CITY/NORTH HOLLYWOOD PLANNING AREA	**5,400**	**24**	**5,800-6,900**	**26-30**	**5,400**	**24**	**5,900**	**8**	**11,800**	**15**	**5,900**	**8**
Universal City	3,100	310	3,300-3,500	330-350	3,100	310	80	7	160	14	80	7
North Hollywood	1,000	200	1,500-2,000	300-400	1,000	200	570	102	650	116	570	102
DESIGNATED CENTERS	26,200	43	37,200-47,300	61-77	35,200-42,900	58-70	4,380	15	15,680	52	14,220	47
ALL STATION AREAS	28,000	44	41,700-53,520	66-85	39,300-48,300	62-76	5,420	14	19,890	51	16,490	42
REGIONAL CORE	38,600	17	57,600-65,300	25-28	54,600-57,500	23-25	50,620	13	150,130	40	113,920	30

Source: Sedway/Cooke

*Station areas not designated as centers in the city's Concept Plan or the county's General Plan.

[1]Range reflects amount of development both without and with a concerted effort by SCRTD and others to promote joint development.

TABLE 3-18
NET CHANGE IN TOTAL POPULATION AND EMPLOYMENT, YEARS 1980 TO 2000

	POPULATION						EMPLOYMENT					
	NO PROJECT		LOCALLY PREFERRED ALTERNATIVE		MINIMUM OPERABLE SEGMENT		NO PROJECT		LOCALLY PREFERRED ALTERNATIVE		MINIMUM OPERABLE SEGMENT	
	Population	%	Population	%	Population	%	Employees[2]	%	Employees[2]	%	Employees[2]	%
CBD PLANNING AREA	**30,930**	**72**	**59,890**	**139**	**59,890**	**139**	**83,400**	**29**	**111,800-118,400**	**39-41**	**111,800-118,400**	**39-41**
Union Station	0	0	1,059	—	1,050	—	0	0	2,900-8,300	97-276	5,900-8,300	97-276
Civic Center	2,810	163	5,580	324	5,580	324	8,400	23	10,100-11,900	27-32	10,100-11,900	27-32
Fifth/Hill	2,630	210	5,000	400	5,000	400	34,700	79	43,400-49,300	99-112	43,400-49,300	99-112
Seventh/Flower	1,650	99	2,500	151	2,500	151	25,700	63	29,800-37,500	73-91	29,800-37,500	73-91
All CBD Station Areas	7,090	153	14,130	305	14,130	305	68,800	55	86,100-107,000	69-86	63,100-107,000	69-86
WESTLAKE PLANNING AREA	**34,170**	**37**	**66,960**	**72**	**66,960**	**72**	**7,900**	**9**	**10,900-13,400**	**13-16**	**10,900-13,400**	**13-16**
Wilshire/Alvarado	2,860	37	5,600	73	5,600	73	800	9	2,700-5,900	32-69	2,700-5,900	32-69
WILSHIRE PLANNING AREA	**75,320**	**24**	**181,320**	**59**	**181,320**	**59**	**49,200**	**22**	**79,500-90,300**	**35-40**	**79,500-90,300**	**35-40**
Wilshire/Vermont	1,240	16	6,400	83	6,400	83	3,800	18	5,800-10,200	27-48	5,800-10,200	27-48
Wilshire/Normandie	1,460	19	5,940	76	5,940	76	5,800	30	11,100-12,000	58-63	11,100-12,000	58-63
Wilshire/Western	1,220	14	2,400	27	2,400	27	6,900	69	8,900-9,700	89-97	8,900-9,700	89-97
Wilshire/Crenshaw*	280	16	590	33	590	33	1,900	45	2,700-3,600	64-86	2,700-3,600	64-86
Wilshire/La Brea	3,830	68	7,330	129	7,330	129	1,000	22	3,700-4,500	82-100	3,700-4,500	82-100
Wilshire/Fairfax	650	61	1,280	120	1,280	120	8,900	67	12,600-15,300	95-115	12,600-15,300	95-115
Fairfax/Beverly*	2,890	67	5,320	123	5,320	123	5,400	108	13,700-17,100	274-342	13,700-17,100	274-342
All Wilshire Station Areas	11,570	31	29,260	79	29,260	79	33,700	43	58,500-72,300	75-93	58,500-72,300	75-93
HOLLYWOOD PLANNING AREA	**41,770**	**19**	**108,350**	**50**	**41,770**	**19**	**8,700**	**6**	**14,800-20,500**	**11-15**	**8,700**	**6**
Fairfax/Santa Monica*	2,240	26	5,650	67	2,240	26	900	75	2,700-4,300	225-358	900	75
La Brea/Sunset	1,040	28	2,630	72	1,040	28	900	16	1,800-3,200	33-58	900	16
Hollywood/Cahuenga	1,000	25	2,360	59	1,000	25	2,500	20	4,500-8,100	36-65	2,500	20
Hollywood Bowl*	0	0	0	0	0	0	0	0	0-40	0-13	0	0
All Hollywood Station Areas	4,280	25	10,640	63	4,280	25	4,300	22	9,000-15,600	46-80	4,300	22
UNIVERSAL CITY/NORTH HOLLYWOOD PLANNING AREA	**6,560**	**4**	**13,120**	**8**	**6,560**	**4**	**23,700**	**32**	**24,900-29,500**	**33-39**	**23,700**	**32**
Universal City	60	3	370	17	60	3	13,200	145	13,600-14,500	149-159	13,200	145
North Hollywood	1,120	91	1,230	100	1,120	91	4,800	166	7,000-9,200	241-317	4,800	166
DESIGNATED CENTERS	21,570	39	49,670	91	46,300	85	117,400	51	157,800-199,460	68-86	152,300-185,910	66-80
ALL STATION AREAS	26,980	39	61,230	87	54,450	78	125,600	52	176,900-224,500	73-93	169,600-207,500	70-86
REGIONAL CORE	188,710	23	429,600	52	356,460	43	172,900	21	241,900-272,100	30-34	234,600-254,500	2-31

Source: Sedway/Cooke.

*Station areas not designated as centers in the city's Concept Plan or the county's General Plan.

[1]Range reflects development both without and with promotion of joint development by SCRTD and others.

[2]Assumes 250 sq.ft./office employees in year 1980 and downward trend of 200 sq.ft./office employees in year 2000, 500 sq.ft./retail employee, and 2 rooms/hotel employee.

TABLE 3-19

ACRES OF PARCEL AREA REQUIRED TO ACCOMMODATE GROWTH
(Percent of Parcel Area Susceptible to Reinvestment Consumed)

	NET COMMERCIAL DEVELOPMENT[1]			NET RESIDENTIAL DEVELOPMENT[1]		
	No Project	Locally Preferred Alternative	Minimum Operable Segment	No Project	Locally Preferred Alternative	Minimum Operable Segment
CBD						
Union Station	0 0	7-17 10-23%	7-17 10-23%	0[2] *[2]	6[2] *[2]	6[2] *[2]
Civic Center	9 32%	12-14 42-49%	12-14 42-49%	7[2] *[2]	16[2] *[2]	16[2] *[2]
Fifth/Hill	25 33%	37-39 52-55%	37-39 52-55%	11[2] *[2]	22[2] *[2]	22[2] *[2]
Seventh/Flower	23 33%	29-36 41-50%	29-36 41-50%	7[2] *[2]	11[2] *[2]	11[2] *[2]
WESTLAKE						
Wilshire/Alvarado	2 4%	5-7 13-20%	5-7 13-20%	7 37%	14 70%	14 70%
WILSHIRE						
Wilshire/Vermont	2 8%	8-13 27-43%	8-13 27-43%	2 5%	17 69%	17 69%
Wilshire/Normandie	9 15%	18-20 46-54%	18-20 46-54%	3 14%	19 113%	19 113%
Wilshire/Western	4 12%	5-6 15-19%	5-6 15-19%	4 15%	14 51%	14 51%
Wilshire/Crenshaw	6 39%	8-11 54-75%	8-11 54-75%	2 6%	4 18%	4 18%
Wilshire/La Brea	2 8%	4-6 15-23%	4-6 15-23%	7 70%	27 273%	27 273%
Wilshire/Fairfax	4 50%	8-10 103-127%	8-10 103-127%	2 6%	4 19%	4 19%
Fairfax/Beverly	9 17%	20-26 37-48%	20-26 37-48%	11 294%	27 1,594%	27 1,594%
HOLLYWOOD						
Fairfax/Santa Monica	2 10%	5-8 26-40%	2 10%	11 36%	32[4] 107%	11 36%
La Brea/Sunset	2 6%	13-20 50-78%	2 6%	2 10%	9 43%	2 10%
Hollywood/Cahuenga	4 5%	15-29 18-35%	4 5%	2 32%	10 136%	2 32%
Hollywood Bowl	0 0%	0-1[3] *[3]	0	0.1 3%	3 100%	0.1 3%
UNIVERSAL CITY/ NORTH HOLLYWOOD						
Universal City	12 48%	15-16 60-64%	12 48%	2[5] *[5]	4[5] *[5]	2[5] *[5]
North Hollywood	12 23%	27-35 51-66%	12 23%	7 28%	8 31%	7 28%

Source: Sedway/Cooke

[1]Net growth is projected new development minus floor area or dwelling units displaced. An average of one single family or duplex unit would be displaced for every 13 multifamily units added in areas outside the CBD.

[2]Only 3.5 acres of land susceptible to reinvestment are zoned for residential use in the CBD station areas; most residentiol development would be located on commercially zoned land designated for residential development by the CRA.

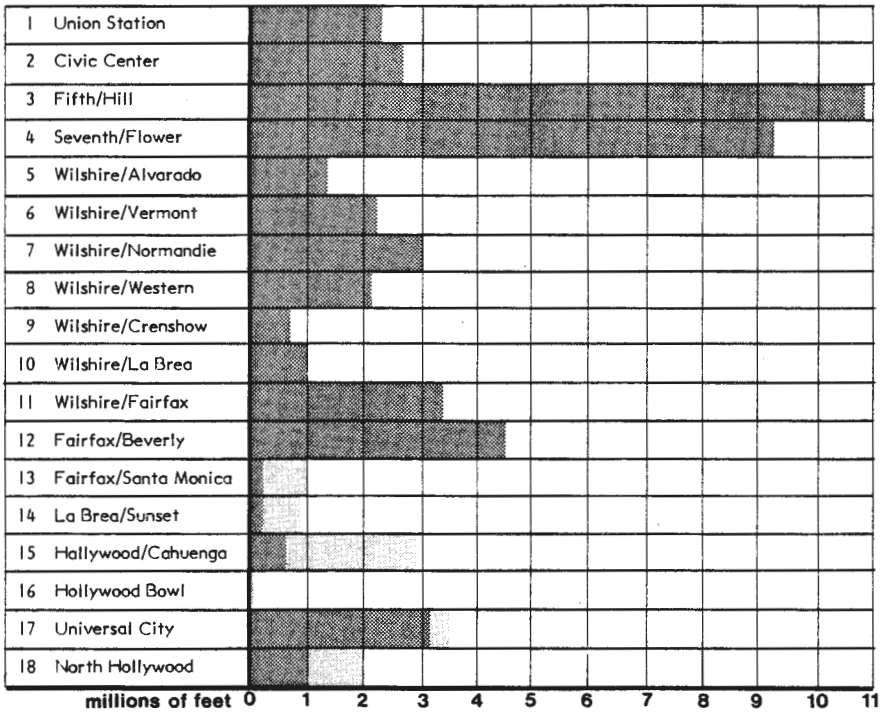
[3]Commercial development would be located on the county-owned Hollywood Bowl site.

[4]This parcel area requirement assumes that full advantage would be taken of the incentive for residential development in conjunction with commercial development, resulting in 610 new housing units in mixed use projects and reducing the demand for new residential development on residentially zoned land (see Table 3-12).

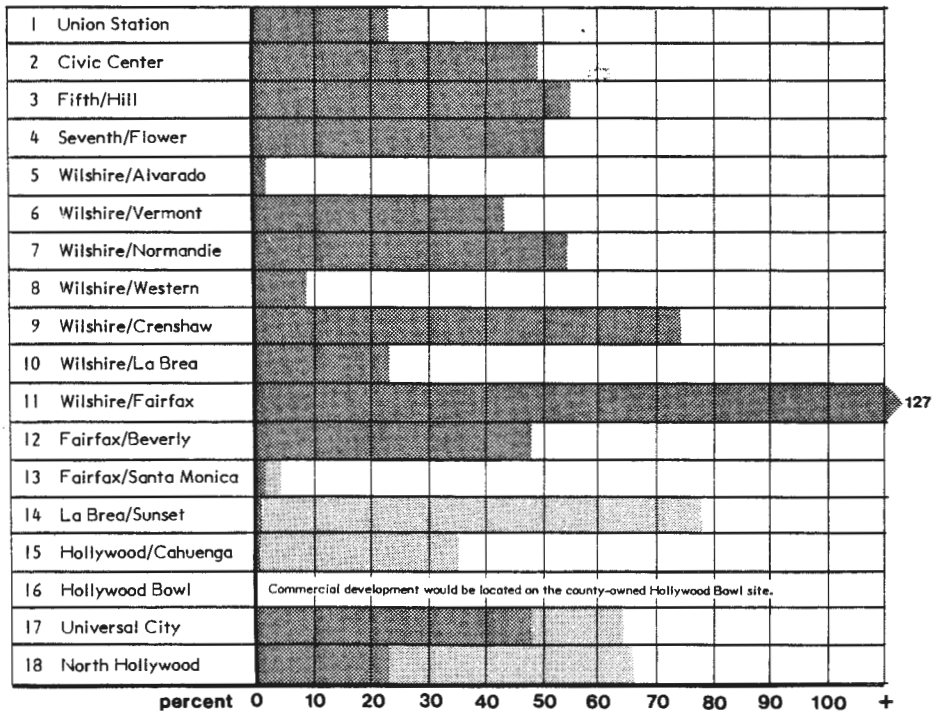
[5]There is no residentially zoned land susceptible to reinvestment in this station area.

Figure 3-12 Growth Projections, 1980-2000

Commercial Floor Area Added



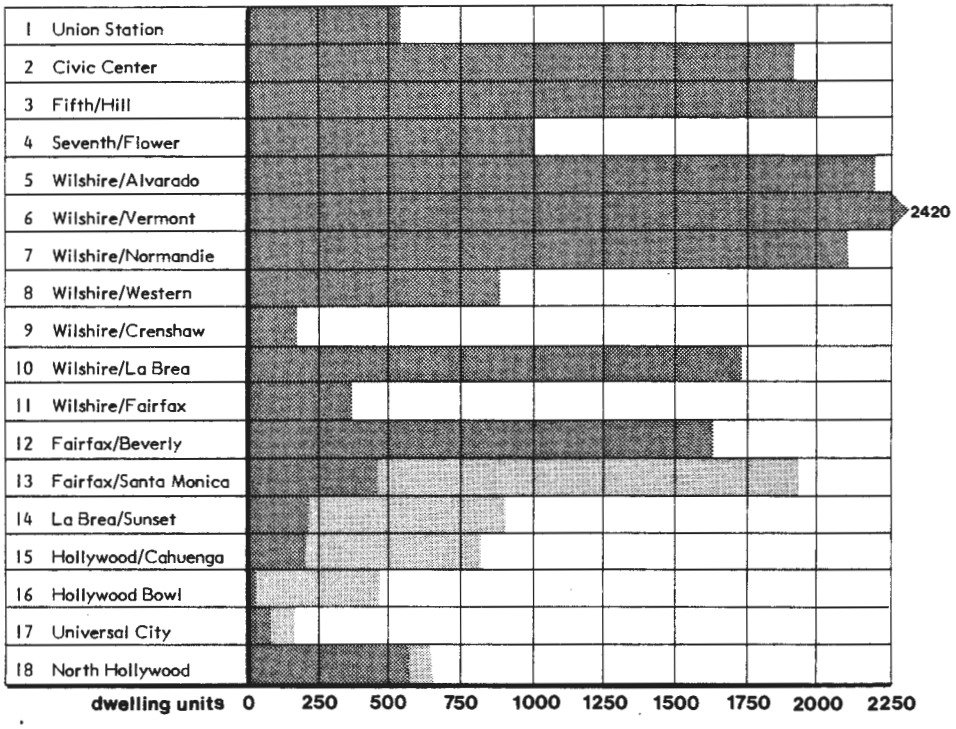
Percent of Commercially Zoned Land Supply Used



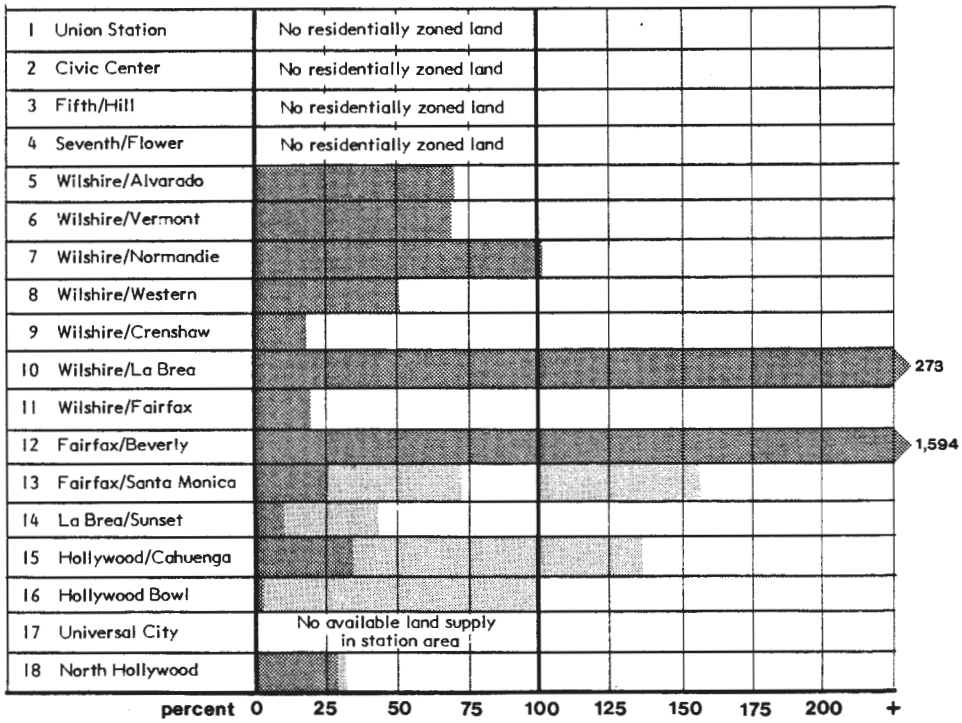
Locally Preferred Alternative, Minimum Operable Segment and Aerial Alternative

Locally Preferred Alternative and Aerial Alternative

Dwelling Units Added



Percent of Residentially Zoned Land Supply Used



Locally Preferred Alternative, Minimum Operable Segment and Aerial Alternative

Locally Preferred Alternative and Aerial Alternative

in conjunction with Metro Rail. The primary ones include the county General Plan and West Hollywood Community Plan; the city's General Plan, Concept Plan, community plans, and the Park Mile Specific Plan; and the CRA's development plans.

Regional Impacts. All Metro Rail Project alternatives benefit the region by implementing the Centers Concept within the Regional Core. Fourteen of the 18 proposed stations along the Locally Preferred Alternative are located within 12 of the 13 designated growth centers in the Regional Core. Ten of the 12 stations on the Minimum Operable Segment would be located in eight of the 13 growth centers. While the Centers Concept specifies that designated centers should contain regional rapid transit stations, it does not exclude the location of transit stations outside of designated centers. The non-center stations serve essential transit functions not necessarily tied to concentrations of population and comercial activity, such as interfacing with other transit modes or providing access to major public facilities. For non-center stations, as for stations located in centers, land use and development impacts are assessed primarily within the station areas by evaluating the compatibility of development expected to occur in conjunction with the project with local plans. Relative to the Locally Preferred Alternative, the No Project Alternative would adversely affect implementation of the Centers Concept. It would neither stimulate development in designated centers nor accommodate the transportation demands generated by such development.

The only potentially adverse impact of the Locally Preferred Alternative at the regional scale might be a shift of development from centers not on the route to centers that are on the route. The growth centers in the Regional Core which would not be connected by Metro Rail and which would attract office development under the No Project Alternative—West Hollywood, Beverly Center and Century City—as well as centers in West Los Angeles, are expected to continue to attract substantial amounts of new office development. However, as traffic congestion increases, some of the development that would occur in these areas under the No Project Alternative is likely to shift to station areas primarily along the Wilshire Corridor where congestion will have been reduced by the Metro Rail Project. Similarly, office development may be attracted away from centers outside the Regional Core as traffic congestion increases.

Increased development along the Metro Rail route is not expected to significantly impact the East Hollywood Center at Vermont and Sunset. That center consists primarily of medical and related facilities and is accessible to the Hollywood Freeway. As a result, the East Hollywood area is expected to avoid direct competition with the West and Central Hollywood Centers and to maintain its present viability as a development center. In addition, as population of the Hollywood area increases with the support of the Metro Rail Project, retail development would be expected to increase in the East Hollywood area to serve that added population. Nonetheless, the LADOP and CRA, if it becomes involved in the redevelopment of the Hollywood area, should be particularly sensitive to the need for East Hollywood and the Vermont corridor to develop simultaneously with other centers in Hollywood.

In general, retail development will be attracted to the Regional Core and to station areas as a function of the distribution of population growth. Residential development will be attracted away from outlying areas currently experiencing rapid growth and to station areas and other parts of the Regional Core. With the Locally Preferred Alternative, community-serving retail development, which tends to be located in small centers within predominantly residential areas, would increase throughout the Regional Core over the No Project levels. In contrast, regional retail

TABLE 3-20
LAND USE IMPACT ASSESSMENT FOR RAIL ALTERNATIVES

Impact Measures	Consistency With Land Use Plans and Policies: 1	Concentrate development at growth centers along Metro Rail route per Centers Concept. 2	Concentrate development at non-station growth centers per Centers Concept. 3	Revitalize economically stagnant or declining areas. 4	Increase commercial services/employment at or near population centers. 5	Implement community plan, Specific Plan, or redevelopment plan objectives.	Accommodation of Projected Station Area Growth Without Adverse Impacts: Accommodate projected residential growth within walking distance of stations. 6	Accommodate projected commercial growth within walking distance of stations. 7	• Avoid pressure to increase residential densities in stable single family areas. 8	• Avoid pressure to rezone residential areas for commercial use. 9	Maintain stable land values in surrounding neighborhoods. 10	Preserve historic and/or cultural resources. 11	Maintain compatibility with existing land uses and community character. 12	MITIGATION OPTIONS (See Mitigation Text) 13
REGIONAL IMPACTS	□	●	□	□										
STATION AREA IMPACTS														
Union Station	□		□				◑	□				□◑		1
Civic Center	□						□	□						
Fifth/Hill	□				□		□	□			●	□◑		7
Seventh/Flower	□			□	□		□	□			●	□◑		7
Wilshire/Alvarado	□		□	□	□		□	□						
Wilshire/Vermont	□		□	□	□		□	□						
Wilshire/Normandie	□		□	□	□		◑	□						1
Wilshire/Western	□		□	□	□		□	□						
Wilshire/Crenshaw			□		□		□	□						
Wilshire/La Brea	□		□		□		◑	□	◑			□◑		1,8
Wilshire/Fairfax	□						□	◑		◑	●			4-7
Fairfax/Beverly	◑		□◑				◑	□	◑				◑	1
Fairfax/Santa Monica			□	□			◑	□	◑					1-3
La Brea/Sunset	□		□	□	□		□	◑		◑			◑	4,6
Hollywood/Cahuenga	□		□	□	□		◑	□				□◑		1,8
Hollywood Bowl							□	□						
Universal City	□			□			●	□	◑					1
North Hollywood	□		□	□	□		□	□						

Legend:

□ Potentially beneficial impact.

◑ Potentially adverse impact that can be mitigated by SCRTD and/or other responsible agencies.

● Potentially adverse impact that cannot be mitigated.

Blank represents a neutral situation.

development would be likely to concentrate within station areas, with a much smaller share spilling over into the surrounding communities.

Since the Locally Preferred Alternative is expected to support an increase in population and community-serving retail development throughout the Regional Core, the community retail areas in Echo Park and Koreatown, as well as in East Hollywood and the Vermont corridor, can be expected to experience no loss of development as a result of the Metro Rail Project. These areas may experience a stimulation of development due to the overall population growth and enhancement of the Regional Core's economy.

The impact of the Minimum Operable Segment will be similar to the Locally Preferred Alternative for the portion of the Regional Core along its alignment. However, office and regional retail development that might have been attracted to Hollywood and North Hollywood with the Locally Preferred Alternative would be likely to relocate instead to the Wilshire Corridor. It is possible that, in time, less lucrative businesses forced to move away from the Wilshire Corridor due to increased lease rates or new construction would relocate to Hollywood, thereby increasing economic activity in Hollywood to some extent. However, such activity would not be expected to generate new construction or to approach the magnitude expected with the construction of the Locally Preferred Alternative in Hollywood.

Station Area Impacts. As long as the station areas designated as centers can accommodate projected growth (see following discussion of the accommodation of growth in station areas), the Metro Rail Project will have a beneficial effect on those centers. Since the Locally Preferred Alternative includes 14 centers compared with 10 along the Minimum Operable Segment, the Locally Preferred Alternative will promote the Centers Concept in the station areas more effectively than the Minimum Operable Segment. Both Project alternatives are more effective in promoting the Centers Concept than the No Project Alternative.

There are two station areas on the Minimum Operable Segment which are not located in the cores of centers--the Wilshire/Crenshaw and the Fairfax/Beverly Stations--and two additional stations on the Locally Preferred Alternative--the Fairfax/Santa Monica and the Hollywood Bowl Stations. Projected commercial growth in "non-center" station areas is consistent with the intensity of development established by the applicable Community Plan or Specific Plan and, in the case of Wilshire/Crenshaw and Fairfax/Beverly, with their Concept Plan designations as a node and satellite, respectively. The commercial development projected for the four non-center station areas can be accommodated on commercially zoned land susceptible to reinvestment. The Fairfax/Beverly and Fairfax/Santa Monica Station areas do not contain sufficient residentially zoned land susceptible to reinvestment to accommodate projected growth.* This potential impact can be mitigated by locating residential development on commercially zoned sites (see the following discussions of accommodation of growth in station areas and mitigation options).

In the case of the Wilshire/Crenshaw Station, where the commercial frontage along Wilshire Boulevard has been substantially downzoned relative to the rest of the Wilshire Corridor by the Park Mile Specific Plan, 54 to 75 percent of the development capacity permitted by the Specific Plan would be used to absorb

*The county's proposed Specific Plan for the Fairfax/Santa Monica Station would permit that area to accommodate all projected residential growth.

projected commercial growth with the Locally Preferred Alternative or Minimum Operable Segment. Under the No Project Alternative the equivalent of two or three additional low-rise offices like the one currently under construction, equivalent to 40 percent of the development capacity permitted by the Specific Plan, might be expected. In general, developers would remain relatively uninterested in this area because of the stringent development restrictions established by the Specific Plan. If Metro Rail is built **without** a station at Crenshaw, **no** additional growth would be expected in the station area; development that would have occurred under the No Project Alternative would be attracted to other station areas. The commercial corridor in this area could continue to deteriorate because of the lack of any revitalizing influence. A Metro Rail station could create the incentive needed to attract developers to the Park Mile area to build out at least a portion of the Specific Plan development program. The housing growth projected for the station area could be accommodated on parcels south of Wilshire Boulevard, primarily along Crenshaw Avenue, that are zoned for multifamily use and currently occupied by single family units. The residential growth could also be accommodated on surplus commercially zoned land susceptible to reinvestment along Wilshire Boulevard.

Accommodation of Projected Station Area Growth without Adverse Impacts. Accommodation of projected growth in station areas is a desirable goal in that it implements the Centers Concept and places jobs, services, and housing within walking distance of public transit. However, it may, in some cases, result in adverse impacts on the existing community.

Accommodation of growth is measured by comparing the 20-year residential and commercial growth projections with the development capacity of the station areas. More specifically, the impact assessment is based on a station area's ability to accommodate projected residential and commercial growth on land susceptible to reinvestment and within walking distance of stations. Table 3-19 summarizes the comparison of growth projections with the supply of land susceptible to reinvestment. The potential adverse impacts of not being able to accommodate the projected development levels are described below in the context of desirable development objectives. Table 3-20 identifies the particular station areas in which these impacts may occur.

Accommodation of Projected Residential Growth on Residentially Zoned Land Susceptible to Reinvestment and Within Walking Distance of Stations. Residential growth in conjunction with the Metro Rail Project is potentially beneficial if it can be accommodated without disrupting the planned land use pattern--on land that is zoned for multifamily housing and currently occupied by single family dwellings or duplexes. It is potentially adverse if there is insufficient residentially zoned land susceptible to reinvestment, since new residential development could displace existing single family housing in the station area. Alternatively, new development could be forced to locate outside of the station area and, consequently, would be less accessible to the public transit system and to the service and employment centers adjacent to stations.

There is insufficient residentially zoned land to accommodate projected residential growth at Union Station, Wilshire/Normandie, Wilshire/La Brea and Fairfax/Beverly which are common to the Locally Preferred Alternative and the Minimum Operable Segment, and Fairfax/Santa Monica, Hollywood/Cahuenga, and Universal City which are only included in the Locally Preferred Alternative. In all cases, except Universal City, this potentially adverse impact could be mitigated.

Accommodation of Projected Commercial Growth on Commercially Zoned Land Susceptible to Reinvestment and Within Walking Distance of Stations. Commercial growth projected to occur in station areas is potentially beneficial if it can be accommodated on commercially zoned land susceptible to reinvestment. It is potentially adverse if the land supply is inadequate, since development may be forced to locate outside station areas. This would reduce accessibility to transit and to other activities in the center or may produce adverse impacts within the station areas. This impact is potentially adverse at Wilshire/Fairfax (Locally Preferred Alternative and Minimum Operable Segment) and at La Brea/Sunset (Locally Preferred Alternative only).

Preservation of Stable Residential Areas. Insufficient land supply to accommodate projected **residential growth** may adversely affect stable residential areas, whose preservation is a primary objective of the Centers Concept. In station areas where the supply of land susceptible to reinvestment for residential use is insufficient to accommodate projected residential growth and where there are stable single family neighborhoods, pressure to rezone and redevelop those single family neighborhoods for higher-density residential use could result. This potentially adverse impact could occur at Wilshire/La Brea, Fairfax/Beverly (Locally Preferred Alternative and Minimum Operable Segment) and at Fairfax/Santa Monica and Universal City (Locally Preferred Alternative only).

In station areas where there is not sufficient land susceptible to reinvestment to accommodate **commercial growth** projections, pressure to rezone residential areas for commercial use may result. This potentially adverse impact could occur at Wilshire/Fairfax (Locally Preferred Alternative and Minimum Operable Segment) and at La Brea/Sunset (Locally Preferred Alternative only).

Maintenance of Stable Land Values in Surrounding Neighborhoods. Speculative increases in land value could lead to increased rental and lease rates for both existing and new commercial and residential space which could, in turn, displace current tenants.

Land values will increase to some extent at all stations where development occurs. They may increase abruptly when construction on the Metro Rail Project begins and when operation begins. However, land costs are likely to stabilize except where there is a limited supply of land relative to demand for development. This situation could occur at Fifth/Hill and Seventh/Flower. However, land values are already relatively high in these areas due to current development activity. Thus, additional increases may not be as dramatic as might otherwise be expected and could not be attributed specifically to the Metro Rail Project. The land supply is also limited relative to demand at Wilshire/Fairfax, where land speculation may occur. The above station areas would be impacted both under the Locally Preferred Alternative and Minimum Operable Segment.

In areas where property values and the local tax base may be declining due to lack of business activity and new development, the Metro Rail Project may have a beneficial impact. It may stabilize or increase property values and thereby increase the tax base of the community. This impact would be expected to occur with the Locally Preferred Alternative in Hollywood and North Hollywood.

Preservation of Historic and Cultural Resources. Historic and cultural resources within station areas could be affected either positively or negatively by growth induced by the Metro Rail Project. Where zoning permits an FAR of 13, historic

structures frequently represent an underutilization of the parcels on which they are located. As described in section 3.3.2, underutilized parcels are prime candidates for reinvestment, which can take the form of either renovation and expansion or removal and replacement of existing structures. This situation is possible at Union Station and Wilshire/La Brea (Locally Preferred Alternative and Minimum Operable Segment), and Hollywood/Cahuenga (Locally Preferred Alternative only). Mitigation measures would be required in these areas to ensure that reinvestment takes the form of renovation rather than removal.

The Fifth/Hill and Seventh/Flower Station areas (Locally Preferred Alternative and Minimum Operable Segment) also contain historic and cultural resources. Zoning in these areas permits an average FAR of 6, while many of the historic structures are developed at an FAR of 6 or greater. This situation creates an incentive for renovation rather than removal.

Maintenance of Compatibility with Surrounding Land Uses and Community Character. Generally, a determination of whether development at station areas will be compatible with surrounding land uses or with the existing or desired community character cannot be made. Nearly any development program can be planned and designed to be compatible with surrounding uses and to create the image desired by the surrounding community. However, that development can just as easily—or more easily—be designed to do the opposite. A process for controlling the form of development would have to be provided to achieve the objectives of compatibility with surrounding uses and with the character desired by the local community. This process would include local community input.

At the Fairfax/Beverly Station areas (Locally Preferred Alternative and Minimum Operable Segment) and La Brea/Sunset Station area (Locally Preferred Alternative only), it is highly probable that development will not be compatible with surrounding uses or with the community's goals concerning the form of development. Additional discussion of these potential impacts and their mitigation is also provided in section 5.3 and 5.4 of this chapter.

2.4 MITIGATION

Table 3-21 identifies mitigation measures, techniques for implementing them, agencies responsible for implementation, and applicability of techniques to affected station areas. SCRTD has limited authority in implementing all of the stated mitigation measures, but the District's cooperation and support with the responsible agencies listed on Table 3-21 will be required. Measures encouraging the use of joint development techniques will require active participation by SCRTD in cooperation with the CRA, LADOP, the Los Angeles County Department of Regional Planning (LADRP), and other responsible agencies. The LADOP and LADRP are currently preparing specific plans for all station areas with funding from the SCRTD in order to help mitigate many of the potential adverse impacts and enhance development opportunities, where appropriate. In addition, the SCRTD is currently preparing agreements with LADRP, LADOP, LADOT, and CRA to clarify the distribution of responsibility for planning and impact mitigation and establish a mechanism for coordination among agencies. The recently executed agreement between the SCRTD and the CRA establishes the CRA's responsibility for preparation of Specific Plans within existing redevelopment areas, for Union Station and for the two Hollywood stations. The city and county will prepare the Specific Plans for areas in their jurisdictions.

TABLE 3-21
LAND USE IMPACT MITIGATION

	Effectiveness	Responsible Agencies	Station Areas: Union Station	Civic Center	Fifth/Hill	Seventh/Flower	Wilshire/Alvarado	Wilshire/Vermont	Wilshire/Normandie	Wilshire/Western	Wilshire/Crenshaw	Wilshire/La Brea	Wilshire/Fairfax	Fairfax/Beverly	Fairfax/Santa Monica	La Brea/Sunset	Hollywood/Cahuenga	Hollywood Bowl	Universal City	North Hollywood
1 Develop residential projects on commercially zoned land:																				
Rezone surplus commercially or industrially zoned land for residential uses.	Moderate	LADOP	●				●								●					
Require the construction of housing as part of large scale projects or the contribution to a housing fund for small projects.	High	LADOP, LADRP CRA	●				●			●		●	●		●		●			
Encourage the construction of housing as mixed use or independent projects through density bonuses and other incentives.	Low	LADOP, LADRP, CRA	●				●			●		●	●		●					
Undertake joint development projects which include a housing component.	High	SCRTD, CRA, CEDO, CDD, CDC	●				●			●		●	●		●					
2 Increase density of new residential development in existing multifamily residential zones.	Moderate	LADRP												●						
3 Accommodate commercial development within station area by rezoning select residential parcels for commercial use.	High	LADOP										●			●					
4 Redirect commercial development to other station areas by providing joint development opportunities elsewhere.	Moderate	LADOP, SCRTD										●								
5 "Expand" station area by directing commercial development to adjacent areas through the Specific Plan and master planning processes.	Low	LADOP, SCRTD										●			●					
6 Create financial incentives for preservation																				
Provide low-interest rehabilitation loans.	Moderate	CRA			in effect					●						●				
Promote use of existing tax incentives.	Moderate	CRA, LADOP, SCRTD			in effect					●						●				
7 Downzone and permit TDRs.	High	CRA, LADOP			in effect					●						●				

Legend:
- LADOP = City of Los Angeles Department of Planning
- LADRP = Los Angeles County Department of Regional Planning
- CRA = Los Angeles Community Redevelopment Agency
- CEDO = City of Los Angeles Economic Development Office
- CDD = City of Los Angeles Community Development Department
- CDC = Los Angeles County Community Development Commission

The following discussion describes eight mitigation measures for each impact in each affected station area. Table 3-21 identifies the station areas where each mitigation measure is applicable.

1. **Develop residential projects on commercially zoned land.**

2. **Increase density of new residential development in existing multifamily residential zones.**

These two measures are designed to mitigate impacts occurring where the availability of residentially zoned land susceptible to reinvestment limits the opportunity for residential development within walking distance of the stations. New residential development on commercially zoned land could occur in any of the following forms: as vertical mixed use development with residential units above retail and/or office space; as a horizontal mixed use development with commercial development fronting on the commercial corridor and residential use behind it; or as an exclusively residential project on a commercially zoned parcel.

Union Station. Residential development would be most appropriately located on commercially zoned land in the northwest corner—in Chinatown, where the CRA would be responsible for implementation.

Wilshire/Normandie Station. Residential development could be dispersed throughout this area on commercially zoned parcels, especially as mixed use projects in conjunction with retail development, or it could be located on the southern portion of the Ambassador Hotel site.

Wilshire/La Brea. Residential development in this area could be accomplished through either vertical or horizontal mixed use development in order to avoid pressure for increasing the density of stable single family areas.

Fairfax/Beverly. To avoid pressure to increase the density of existing residential neighborhoods, mixed use development incorporating residential uses on the CBS/Gilmore site would be necessary—possibly in the southeast portion.

Fairfax/Santa Monica. Currently higher densities on residential sites and mixed use projects are encouraged through a density bonus program. Developers would have to take advantage of these incentives in order to accommodate projected residential growth.

Hollywood/Cahuenga. The majority of the land to be developed between 1980 and 2000 is expected to accommodate regional-serving retail uses generally limited to an FAR of 1 and a height of one, two, or three stories. There is insufficient market demand for office space to permit a mix of offices over retail facilities on all sites, so most sites would be underutilized whether the permitted FAR is 13 or is reduced to 6. A mix of residential and retail development on these sites would increase the intensity of use, thus returning investment to developers, and provide additional housing.

Universal City. Impacts resulting from an insufficient supply of residential land in this area would be difficult to mitigate. The existing very low density residential zoning and Community Plan designations reflect substantial public input, suggesting that increases in the density of existing residential areas will not be likely in the

next 20 years. The portion of MCA's Universal City within and adjacent to the station area is not well-suited for residential development. Consequently, it is expected that the Universal City station area will not develop as a residential center dependent on transit, but will serve as an employment and visitor center and as a transfer station for Metro Rail riders arriving by bicycle, bus, or automobile.

3. **Accommodate the demand for commercial development within the station area by rezoning residentially zoned parcels for commercial use which are currently vacant or used for parking and are adjacent to existing commercial development.**

4. **Redirect commercial development to other station areas by creating incentives to develop elsewhere.**

5. **"Expand the station area" by directing commercial development to sites adjacent to the currently defined station area boundaries through the Specific Plan and master planning process.**

These three measures are designed to mitigate impacts where the available commercially zoned land supply is inadequate for the projected level of development and where speculative increases in land values could result in tenant displacement. These measures are applicable in the following station areas.

Wilshire/Fairfax. Commercial development in this area is constrained by the proximity of stable residential neighborhoods to both the north and the south of the Wilshire frontage. This impact could be mitigated in several ways:

- One or two major sites partially zoned R4-P (multifamily residential or parking) which are presently occupied by surface parking and are adjacent to commercially zoned parcels could be rezoned and developed commercially. This would facilitate strong commercial activity near the Metro Rail station, reinforcing the public activity centered at the County Museum.

- Development could be redirected to the Wilshire/La Brea Station. There is a substantial supply of underutilized commercial land and limited market interest in development at the Wilshire/La Brea Station. Promotion of development at the Wilshire/La Brea Station early in the station area "master planning" process by SCRTD could remove some of the pressure for development from Wilshire/Fairfax and, at the same time, enhance the potential of Wilshire/La Brea to develop as a transit-oriented center.

- Development could be encouraged to expand westward along Wilshire. Because the commercial frontage along Wilshire is shallow (100- to 150-foot parcel depth) a corridor of activity rather than a focal point would develop, with decreasing accessibility to the Metro Rail Project as development moves west.

La Brea/Sunset. See discussion under mitigation measure 8.

6. **Promote use of existing tax incentives and rehabilitation loans.**

7. **Downzone and create a mechanism to transfer unused development potential.**

These two measures are designed to mitigate impacts where the construction of the Metro Rail Project increases pressure for redevelopment of historic or cultural resources. These measures are applicable in the following station areas.

Fifth/Hill. This station is adjacent to the Broadway and Spring Street historic districts. Substantial tax incentives and current CRA policies, including the following, have been successful in encouraging preservation of historic structures in this area:

- The average permitted FAR for new construction is 6 (reduced from an FAR of 13). This FAR is exceeded by many historic structures, creating an incentive to preserve them.
- When a historic building's FAR is less than 6, its unused density can be transferred to other sites in the CBD.
- Low interest loans are available for rehabilitation.

There are several groups of underutilized parcels in the Fifth/Hill Station area on which one or two historic structures are located. The historic/cultural value of these structures should be reevaluated and, if they are determined to be valuable, they should be preserved and integrated into a larger development project.

Seventh/Flower. Although Seventh Street, the CBD's original shopping street, is not a historic district, it includes numerous historic buildings and provides a very pleasant pedestrian-scale streetscape. All the tax incentives and CRA policies described above apply to historic buildings in this area as well. The FAR limit and transfer of density policies apply to all buildings. In the CBD, then, preservation of historic buildings has been effectively integrated into CRA's development program, but careful monitoring will be necessary to ensure their preservation as pressure for development increases. SCRTD and private developers should cooperate with this program.

Wilshire/La Brea. At Wilshire/La Brea the grouping of Art Deco buildings under consideration for a historic district designation would encounter limited development pressure since little developer interest in this area is expected during the initial years of Metro Rail operation. However, if the mitigation measure of redirecting development to Wilshire/La Brea proposed in response to other impacts were implemented, pressure would increase. Mitigation measures modeled after the CRA's CBD policies could be initiated. It would be difficult to reduce the FAR enough to discourage redevelopment. Even if the area were downzoned from FAR 13 to 6, no incentive for preservation would be created, since many of the buildings in the area do not reach that intensity. However, a downzoning to FAR 6 would make a transfer of density or transfer of development rights (TDR) mechanism feasible.

Hollywood/Cahuenga. The approach described for Wilshire/La Brea could also be applied at Hollywood/Cahuenga. Again, an overall downzoning would be required to create a market for TDRs.

8. Develop special station area mitigation measures to preserve community character.

Fairfax/Beverly. Two basic goals of the Fairfax community are to preserve the character of commercial and residential areas and to revitalize the commercial area. All of the commercial development projected for the Fairfax/Beverly Station area could be accommodated entirely on the CBS/Gilmore site and on the May Company site at Third and Fairfax, thereby avoiding impacts on the existing retail

area. However, because the existing retail area represents an underutilization of land and retail revenues are marginal in some cases, location of all new commercial space on the two large development sites cannot be assured, nor would it necessarily benefit the existing shopping area. An approach more beneficial to the community might be to locate most new commercial space on the large development sites, avoiding retail uses that would compete with existing shops. Allowances for some development in the existing Fairfax shopping area through a carefully designed and controlled revitalization program could be made. Community groups including Vitalize Fairfax should be involved. Major components of this program should include the following:

- Clustered parking either in small, partially subterranean structures behind the existing strip commercial development or in a single location, perhaps in conjunction with Metro Rail parking provided by SCRTD. This would permit more intensive development of the small parcels along the strip.

- Preservation of the fine-grained character of the shopping strip.

- Guaranteed tenancy for current tenants with regulated increases in rent, possibly tied to increased revenues expected from the combination of Metro Rail and revitalization.

- Enhancement of pedestrian spaces through landscaping and street furniture.

The Project alternatives may result in redevelopment pressures along the existing retail area of the Fairfax/Beverly Station area. Park and ride patrons could make purchases from shops in the area before returning home in the evenings. Other Metro riders can be expected to shop at these facilities and thus increase their retail sales. This increase could result in pressure to redevelop some of the underutilized and marginal properties. Because the parking supply and daily passenger boardings in this station area are similar under each of the Project alternatives, the pressure for redevelopment would also be comparable. However, should access to the station by auto or bus be greater under the Minimum Operable Segment, as this station is the western terminus of the system, the pressure for redevelopment and the resulting impacts under this alternative would be more severe. Under this alternative the need to cluster new commercial development onto the large development sites adjacent to the station location becomes even more important towards preserving the character of the local retail community.

The potential impact of development pressure on the stable residential neighborhoods in the area was included in the discussion of the impacts of an insufficient residential land supply.

La Brea/Sunset. This station is on the western edge of the Hollywood commercial core. Land to the east between Sunset and Hollywood Boulevards is designated and zoned for regional commercial use; land to the west is designated and zoned primarily for high density residential use. There are several blocks in this transitional zone where Community Plan and zoning designations are not consistent. The blocks between La Brea and Orange, northeast of the station, are zoned and used for multifamily housing but are designated for regional commercial use in the Community Plan. The adjacent block to the east between Orange and Highland is occupied by Hollywood High School. The station's location on the fringe of the commercial core, surrounded by residential uses, and its isolation from the rest of the commercial core area limit the opportunity for large scale development immediately around it.

If the population growth projected for the Hollywood Planning Area under the high growth projections were to occur, the level of development identified in Table 3-16 would be expected and would consist predominantly of retail space. As such, much of it would be developed at an FAR of 1 or less as a regional shopping center and would require redevelopment of large amounts of land. Development would be expected to extend to the east around Hollywood High School. Substantial development directly adjacent to the station could occur only if the two blocks northeast of the station were rezoned to be consistent with the Community Plan. The development of these blocks would result in the displacement of existing multifamily dwellings and could disrupt activities at the adjacent high school.

The La Brea/Sunset Station is too far from the Hollywood/Cahuenga Station (one mile) and too isolated to create two "anchors" between which pedestrian-oriented development could occur. For commercial revitalization and joint development, it would be better to have the station at Las Palmas or Highland (0.5 to 0.7 miles from the Hollywood/Cahuenga Station). Then the two stations would establish activity centers between which development could expand to create a contiguous, integrated commercial core. At their currently proposed locations they will develop as independent centers, with development tending to radiate in all directions. Besides inhibiting the creation of a single integrated commercial core, this will create pressure for rezoning and redeveloping land west of the La Brea/Sunset Station from residential to commercial use.

If the station cannot be relocated, the pattern of development should be carefully planned and managed to extend north around Hollywood High School and east toward the Hollywood/Cahuenga Station. This will help minimize development pressure on residential neighborhoods to the west, facilitate revitalization, and minimize impacts on Hollywood High School. Mixed use projects should be developed on parcels adjacent to the station to create concentrations of both commercial and residential uses immediately around the stations, and to reinforce the transition between residential use to the west and commercial use to the east.

Universal City. The conflict between the Universal City Station's growth inducing impact and community development goals was discussed under the mitigation of "insufficient residentially zoned land to accommodate housing growth." There may also be pressure to develop the commercial areas along Lankershim and Vineland at greater intensities than presently permitted. Current zoning and land use plan designations, based on substantial community input, limit the FAR to 3 and the height to three or six stories. Revision of current regulations would require community involvement and consensus comparable to that which produced the current community plan.

3. ECONOMIC AND FISCAL IMPACTS

3.1 INTRODUCTION

Metro Rail construction may cause regional and subregional economic and fiscal impacts. Potential economic impacts involve changes in the level of economic activity in the Los Angeles region and each of the station areas. Potential fiscal impacts are the revenues and service costs that the Metro Rail Project would generate to local governments in the Regional Core, particularly the City of Los Angeles.

3.2 LOCAL EMPLOYMENT IMPACTS

The Metro Rail system will generate both short term employment opportunities related to the construction of the project and long term jobs required for the day-to-day operation of Metro Rail.

Construction of the Locally Preferred Alternative is projected to produce between 3,000 and 5,000 jobs per year over approximately five years. Peak employment could be as much as twice this number. The size of any short term employment impact varies directly with the total construction costs. The Aerial Option would result in only slightly fewer construction jobs than the Locally Preferred Alternative. The Minimum Operable Segment would generate the fewest construction-related jobs, while the Locally Preferred Alternative would generate the most. The jobs created would be primarily in the construction, employment, material, manufacturing, and service industries (not including employment generated in the manufacture of the system's stock and electrical equipment and in industries that support construction).

Under the Locally Preferred Alternative or the Aerial Option the operation of the Metro Rail system is expected to require between 800 and 850 permanent employees. These jobs will be primarily in management, operation, maintenance, and security. The Minimum Operable Segment, with fewer track miles, would generate fewer long term jobs.

3.3 REGIONAL ECONOMIC IMPACTS

Gross regional product (GRP) is defined as the total income within a region (like the gross national product, except applied regionally rather than nationally). The GRP can be increased through expenditures and their "ripple" effect, resulting from construction and operation of the Metro Rail Project. The operation of Metro Rail will entail recurring expenditures and should therefore have a long term effect on the regional economy. When the cumulative effect of direct, indirect, and induced impacts is considered, a dollar spent on operations is conservatively expected to generate between one and two additional dollars in total regional economic activity. The largest potential impact on GRP, between $97.0 million and $145.6 million per year, would result from the Locally Preferred Alternative. The impacts of the Aerial Option are identical to the Locally Preferred Alternative. The economic impact of the Minimum Operable Segment would be between $63.9 million and $95.8

million per year. The economic sectors likely to benefit from Metro Rail operating expenditures are maintenance and repair services; electric utilities; finance, insurance, and real estate; business services; wholesale and retail trade; and medical services.

3.4 MINORITY BUSINESS PARTICIPATION

SCRTD is committed to the meaningful and maximum participation of minority and women-owned businesses in all contract and joint development efforts related to the proposed rail rapid transit project. Presently, SCRTD staff is engaged in an aggressive effort to collect the needed data with which to plan for such minority and women-owned business participation. Major input for this planning process is being solicited from the local minority business community and from the CRA. SCRTD is forming a minority business enterprise (MBE) advisory and joint development committee for the purpose of refining joint development and MBE goals, objectives and procedures.

SCRTD has formulated a five-point program to solicit minority business participation. Once Final Design and its associated procedures are established, this program will be revised into final form and fully implemented. The five key areas of this program are:

- A draft policy statement on minority economic development opportunities and objectives along the Wilshire Corridor. The District has shown already its intent in this area through the SCRTD Board adoption of the policies in the Milestone 6 Report: Land Use and Development, which seek to include the interests, concerns, and full participation of the minority business community in all SCRTD land use and development policies.

- A draft policy statement on equity as well as relocation rights of property owners, particularly minority property owners, displaced by joint development around transit. In the Milestone 5 Report: Right-of-Way Acquisition and Relocation Policies and Procedures, the SCRTD Board adopted the CRA's policy for relocation rights of property owners which protects minority property owners displaced by possible joint development projects around Metro Rail stations.

- Initial discussions on development roles with members of the minority development committee. SCRTD has received a grant from UMTA to do further economic analysis on the various station projects and, in conjunction with the MBE joint development committee, identify economic development opportunities along the Wilshire Corridor. This work is underway and the analysis will enable SCRTD to further identify the most plausible and possible opportunities for minority development.

- Identification of other opportunities in real estate for MBEs along the Metro Rail line. In consultation with the SCRTD minority advisory and joint development committees, other real estate opportunities for MBEs will be identified during this project. These shall include, but will not be limited to, brokerage, appraisal, market analysis, commercial leasing, and commercial management.

- Preparation of a report indicating minority business contracting and subcontracting, supply and service opportunities likely to derive from the construction and operation of the Metro Rail Project. With the completion of the Preliminary Engineering phase of the Metro Rail Project, SCRTD will identify the potential construction packages in which MBE participation is most likely, based upon analyses of the available minority contractor capacity.

3.5 VALUE CAPTURE REVENUES FROM METRO RAIL

In addition to economic and fiscal benefits generally occurring to the area and its residents, considerable economic benefits can accrue to properties in the vicinity of a Metro Rail station, especially properties that are appropriate for higher intensity commercial development. SCRTD will be pursuing a range of measures to recapture a portion of these benefits. These "value capture" revenues will be used to reduce the Metro Rail construction expenses. A preliminary budget target of $185 million (see Table 2-9) has been set for all "local private" revenue sources for the first ten years of the project.

The Milestone 6 Report discussed the various mechanisms being considered to generate value capture revenues. The following discussion only briefly describes the mechanisms likely to make the greatest contribution.

3.5.1 BENEFIT ASSESSMENT DISTRICTS

Legislation has recently passed in the State Legislature (Senate Bill 1238) that will allow the SCRTD Board to initiate proposals for benefit assessment districts around Metro Rail stations. A benefit assessment district proposal will require a two-thirds voter majority of the SCRTD Board. Before SCRTD's Board can adopt a benefit assessment district proposal, a determination must be made of the benefits accruing to properties within the boundaries of the proposed district.

All Metro Rail benefit assessment district proposals will be subject to public hearings and advance notice will be given to all property owners. If owners of 25 percent of the assessed value within a proposed district petition SCRTD, the proposed asessment district will be put to a vote of all of the property owners within a proposed benefit assessment district. If there is not a qualifying petition or if any referendum is in favor of the benefit assessment district, the proposal then goes to the local government of jurisdiction (either the City of Los Angeles City Council or the Los Angeles County Board of Supervisors). These bodies may approve or disapprove a benefit assessment district proposal. They may also turn a proposal back to the SCRTD Board for changes before concurrence. Once concurrence of the local jurisdiction is obtained, the SCRTD Board must formally adopt the benefit assessment district by a two-thirds majority.

Any property owner may individually petition the SCRTD Board to be excluded from a benefit assessment or have his assessment reduced on the basis that the proposed assessment exceeds the actual benefit that property owner will receive from Metro Rail facilities.

The Metro Rail benefit assessment district process is primarily intended for commercial districts. Benefit assessment boundaries may not exceed a half mile from a Metro Rail station; except in the case of the downtown stations, where

boundaries may extend one mile. For legal reasons, the legislation itself does not exclude residential property. However, the SCRTD Board declared in a formal resolution of August 11, 1983, that ". . . it shall be the policy of the Board of Directors that to the maximum extent possible within the limits of the United States and California Constitutions:

"a) The boundaries of any special benefit assessment districts shall be drawn so as to exclude single family residences; and

"b) Single family residences which must be included within assessment districts shall be excluded from assessment."

The basis for benefit assessments is to be parcel or floor area or some combination of the two. Legislation does not prescribe any particular rates, but does require that a benefit assessment not exceed the demonstrable benefit to a given parcel. Within a given assessment district, rates of assessment may be varied by zones, given the greater or lesser likelihood of benefit.

To provide an indication of the financial impact on a general level, floor area assessments might typically range between 25 cents and 50 cents per square foot per year. For most commercial structures, this would result in a cost burden comparable to the costs of operating the building's elevators; it would substantially be less than many standard property overhead and maintenance items. It is certain to be inconsequential in relation to total market valuation of a given property. It is unlikely that these assessments would result in any other significant environmental impacts.

If the projected floor space within the Metro Rail station areas were to be uniformly assessed at between 25 and 50 cents a square foot, this would generate between $26.3 and $52.5 million in the year 2000 for the Locally Preferred Alternative. For the Minimum Operable Segment, potential revenues range from $25.7-$51.4 million in the year 2000. Pending legislation would provide for bonding these amounts in order to obtain substantial, near-term construction funds that could then be amortized over many years in moderate increments.

3.5.2 TRANSFER OF DEVELOPMENT RIGHTS

Transfer of development rights (TDR) is already possible in several parts of the City of Los Angeles, most notably the Central Business District. A Metro Rail TDR process would identify the additional increment of development (several additional floors of an office building, for instance) made feasible by a nearby Metro Rail station. Rights to this additional development could either be sold or conveyed in a long term lease to an interested developer at a negotiated market price.

3.5.3 TAX INCREMENT FINANCING

Where a Metro Rail station is in a redevelopment area, the CRA collects tax increment revenues. Metro Rail operations are certain to increase the revenue "increment" in these areas. With the cooperation of the CRA, this increase in increment revenues can be directed toward amortizing Metro Rail facility costs within the redevelopment area. SCRTD has recently contracted with the CRA for a host of activities in station area development that includes the generation of local share revenues.

3.5.4 STATION COST SHARING AND CONNECTION FEES

At some locations, particularly where a station is off-street, Metro Rail facilities can be designed into commercial development with significant benefit resulting for the private developer involved. SCRTD is seeking such possibilities and initiating discussions with private developers and property owners. The May Company site for the Wilshire/Fairfax Station would be an instance where connection fees would be collected.

3.5.5 JOINT DEVELOPMENT OF SCRTD PROPERTY

SCRTD will need to acquire certain parcels of property for stations, train yards, parking lots, bus terminals, and auxiliary equipment. Careful design of these facilities can sometimes permit some additional, "joint" use of the property by private development after Metro Rail facilities have been constructed.

Table 3-22 describes development programs for parcels that have been preliminarily identified for acquisition for the construction of stations and ancillary facilities. The commercial development programs in Table 3-22 reflect probable development patterns on each site given physical characteristics of the site, absorption potential, and current trends in development intensity. Land costs reflect the market-based development potential for each site first in 1982 and second in 1984 assuming that construction of Metro Rail is underway. The increase in land value from 1982 to 1984 is attributable to the reduced risk to private developers as a result of SCRTD's ability to assemble parcels and carry them until development can begin, to the increased ease of leasing the development because of the Metro Rail station's presence and, in some cases, to the increased development potential on the site as a result of Metro Rail.

In some cases the amount of commercial development that could be absorbed by the market (expressed as Floor Area Ratio (FAR) or the ratio of building floor area to parcel area) is less than the amount that could be physically accommodated on the site without adverse impacts. In such cases the unused development capacity could be dedicated to residential use. SCRTD could, in effect, subsidize the cost of land for residential development by leasing the land at rates reflecting only its commercial development potential. Developers could then construct rental or low to moderate income housing as part of mixed use projects.

The total land acquisition costs for potential lease sites along the Locally Preferred Alternative or the Aerial Option amount to $80.7 million (in 1982 dollars). Assuming a simple ground lease rate of 9 percent of the reuse value of the land in 1984 tied to the inflation rate, an annual income to SCRTD of about $6.7 million (in 1982 dollars) would be generated by all the sites listed in Table 3-22. Over a representative 65-year lease life, approximately $438.4 million (in 1982 dollars) would be generated. With the Minimum Operable Segment an annual income of $1.9 million and $123.4 million over a 65-year lease life could be generated.

3.6 FISCAL IMPACTS

This section examines the revenues and service costs Metro Rail would generate to local governments in the Regional Core, particularly the City of Los Angeles. These

TABLE 3-22

POTENTIAL REVENUES TO SCRTD FROM LEASING AIR RIGHTS
ON PROPERTY TO BE ACQUIRED FOR TRANSIT USE

Station	Parcel Area (Sq.Ft.)	1982 Acquisition Costs (in thousands of 1982 dollars): Land	Relocation and Good Will	Land Acquisition Cost Per Sq. Ft. (in 1982 dollars)	Commercial Development Potential: Floor Area Ratio Assumed	Office Space (thousands of sq. ft.)	Retail Space (thousands of sq. ft.)	Parking (Spaces)	Income from Lease: 9% of reuse value[1] (in thousands of 1982 dollars): Annual	65 Years
Seventh/Flower	12,000	3,180	14	265	6	70	5	75	286	18,600
Wilshire/Alvarado	49,000	2,330	941	48	4	100	50	300	210	13,631
Wilshire/Vermont	156,000	10,120	1,036	65	4	500	120	1,240	911	59,202
Wilshire/La Brea	55,000	5,470	251	99	5	250	25	550	492	32,000
Hollywood/Cahuenga	30,000	1,390	75	46	4	90	30	240	125	8,132
Universal City[2]	580,000	31,110	828	54	1.6	850	100	2,850 +2,500 (for Metro Rail)	2,800	182,000
North Hollywood[3]	610,000	21,350	2,615	35	1.5	800	100	1,800 +2,500 (for Metro Rail)	1,922	124,898
TOTALS										
Potential Lease Sites on the LPA	1,502,000	74,950	5,760						6,746	438,463
Potential Lease Sites on the MOS	272,000	21,100	2,242						1,899	123,433

Source: SCRTD Report on Preliminary Land Acquisition Costs and Sedway/Cooke.

[1]Reuse value of the land is assumed to be equivalent ot the land acquisition cost for those portions of acquired parcels that are developable.

[2]Development potential and revenues for these two stations assume one to two levels of subterranean parking in order to meet height limits, maximize development potential, and accomodate Metro Rail parking.

[3]Land acquisition corresponds with Milestone 10 Report: Fixed Facilities rather than SCRTD Report on Preliminary Land Acquisition Costs; acquisition costs are estimated assume the per-square-foot cost for this station site in the Report on Preliminary Land Acquisition Costs.

fiscal impacts can be both direct and indirect. Direct impacts are the public service costs associated with the construction and operation of the Metro Rail System. Indirect impacts are caused by the changes in land use stimulated by Metro Rail. This impact analysis focuses on the annually recurring revenues and costs (such as operating and maintenance costs) rather than on direct capital costs, which are part of the Metro Rail Project's construction costs. All costs and revenues are shown in 1982 dollars.

SCRTD's security force will be responsible for system security and will limit the potential for crime on Metro Rail. As a result, the system is not expected to affect demand for police services. Similarly, the Los Angeles City Fire Department has indicated that the existing fire protection services in the Regional Core, combined with the SCRTD's fire safety measures, would adequately serve Metro Rail. On balance, then, the Metro Rail Project would not adversely affect the city's fiscal situation.

3.6.1 REDUCTION OF TAX REVENUE

Acquisition of parcels for the Metro Rail system would remove land from the property tax base, thus reducing property tax revenues. Assuming a conservative, worst case situation, land condemnation for the Locally Preferred Alternative or the Aerial Option would take an estimated $34 million in assessed valuation from the county tax rolls, leading to an annual loss of at least $340,000 in property taxes. However, this impact would be lessened through joint development, which would bring Metro Rail land back into productive use and onto the tax rolls. Because joint development would result in a much more intensive use of land than what had existed before Metro Rail, the negative fiscal impacts of land condemnation would be entirely eliminated.

Land acquisition would also displace existing businesses, thus affecting sales tax revenues. Because SCRTD is committed to helping displaced businesses relocate, in accordance with federal and state laws, this impact would be only temporary. (Displacement effects and mitigation measures are discussed in section 4 of this chapter.) Its magnitude would depend largely upon the length of the time between the closure of a business and its reopening at another site. The more intensive development and greater potential customer traffic attracted by Metro Rail would also, in the long run, increase overall sales in station areas and thus also increase sales tax revenues.

3.6.2 GROWTH AND REVENUE IMPLICATIONS

The Metro Rail Project is expected to stimulate land development around many of the transit stations. This growth in conjunction with the rail project would both generate tax revenues and require public services. Much of this growth would actually be an intraregional shift of population and employment, the fiscal implications of which are complex. For example, if all of the shifts occur within one jurisdiction, such as the City of Los Angeles, then the net fiscal impact on the city would likely be insignificant. However, the increases in density and the development associated with this type of shift might significantly improve the efficiency of services and thereby reduce average service costs.

In part because the extent of shifts between and within jurisdictions is unknown, an analysis of indirect fiscal impacts is not now appropriate. Presented below, however, are illustrations of the potential order of magnitude of indirect revenues to the City of Los Angeles that would be attributable to the Metro Rail system assuming none of the new development represents an intrajurisdiction shift and that all development occurs at approximately the same time. (The timing of development is an important consideration under Proposition 13, which, upon completion of construction, limits the annual increase in assessed value to two percent.) Revenues have been calculated for individual station areas and aggregated into four market areas within the Regional Core. These market areas generally correspond to the planning areas presented in Land Use and Development (section 2 of this chapter), except that Westlake is included as part of the Wilshire market area and Universal City is included as part of the North Hollywood market area.

Table 3-23 presents projections of the growth through the year 2000 that could be stimulated in Metro Rail station areas by the Locally Preferred Alternative relative to the No Project Alternative. This assessment assumes SCRTD actively pursues joint development around its stations in cooperation with local agencies. As the table indicates, without joint development the majority of new space would be residential (approximately 13.9 million square feet). With joint development, offices would become the dominant use (approximately 17.4 million square feet). It is important to note, however, that this assessment does not include hotel development nor the secondary, but substantial, revenue benefit likely to be generated in the Regional Core outside of station areas.

TABLE 3-23

DEVELOPMENT STIMULATED BY METRO RAIL
BY MARKET AREA
Year 1982 to 2000
(Thousands of Square Feet)

	INCREMENTAL SQUARE FOOTAGE WITH METRO RAIL			INCREMENTAL SQUARE FOOTAGE WITH DEVELOPMENT INCENTIVES		
Market Area	Office	Retail	Residential	Office	Retail	Residential
CBD	2,960	1,036	2,620	6,944	1,386	2,620
Wilshire	4,750	1,219	8,295	7,870	1,807	8,295
Hollywood	560	795	2,790	1,600	1,387	2,790
North Hollywood	400	395	168	1,000	438	168
Total	8,670	3,445	13,873	17,414	5,018	13,873

Source: Sedway/Cooke

By influencing the amount of new development projected in the Regional Core, Metro Rail will likewise influence the amount of property tax accruing to the City of Los Angeles (Table 3-24). In the year 2000 the city could receive approximately $15.6 million in property taxes from new development occurring since 1980 under the

TABLE 3-24

PROPERTY TAX REVENUES
ACCRUING TO CITY OF LOS ANGELES, YEAR 2000
(in thousands of 1982 dollars)

Market Area	NO PROJECT ALTERNATIVE		LOCALLY PREFERRED ALTERNATIVE				MINIMUM OPERABLE SEGMENT			
			Market Value[1]		Property Tax Revenues[2]		Market Value[1]		Property Tax Revenues[2]	
	Total Market Value[1]	Property Tax Revenues[2]	Total	Total With Development Incentives[3]	Total	Total With Development Incentives[3]	Total	Total With Development Incentives[3]	Total	Total With Development Incentives[3]
CBD	$3,005,000	$9,830	$3,743,000	$4,756,000	$12,240	$15,550	$3,743,000	$4,756,000	$12,240	$15,550
Wilshire	1,057,000	3,450	2,330,000	2,844,000	7,620	9,300	2,330,000	2,844,000	7,620	9,300
Hollywood[4]	173,000	570	532,000	722,000	1,740	2,360	173,000	173,000	570	570
North Hollywood	538,000	1,760	653,000	774,000	2,140	2,530	538,000	538,000	1,760	1,760
Total	$4,773,000	$15,620	$7,258,000	$9,096,000	$23,740	$29,740	$6,784,000	$8,311,000	$22,190	$27,180

Source: Peat, Marwick, Mitchell & Co.; Lynn Sedway & Associates

[1]Compares market value for office, retail and residential land uses.

[2]Approximately 32.7 percent of the one percent tax rate (based on current year tax increments allocation factors).

[3]Development incentives are those tools used to encourage joint development of SCRTD property.

[4]Excludes the Fairfax/Santa Monica Station (an unincorporated area).

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TABLE 3-25

SALES TAX REVENUES
ACCRUING TO CITY OF LOS ANGELES, YEAR 2000
(1982 dollars)

Market Area	NO PROJECT ALTERNATIVE		LOCALLY PREFERRED ALTERNATIVE				MINIMUM OPERABLE SEGMENT			
			Employment[1]		Sales Tax Revenues[2]		Employment[1]		Sales Tax Revenues[2]	
	Total Employment[1]	Sales Tax Revenues[2]	Total	Total With Development Incentives[3]	Total	Total With Development Incentives[3]	Total	Total With Development Incentives[3]	Total	Total With Development Incentives[3]
CBD	68,800	$688,000	86,100	107,000	$861,000	$1,070,000	86,100	107,000	$861,000	$1,070,000
Wilshire	34,500	345,000	61,200	78,200	612,000	782,000	61,200	78,200	612,000	782,000
Hollywood[4]	4,300	43,000	9,000	15,600	90,000	156,000	4,300	4,300	43,000	43,000
North Hollywood	18,000	180,000	20,600	23,700	206,000	237,000	18,000	18,000	180,000	180,000
Total	125,600	$1,256,000	176,900	224,500	$1,769,000	$2,245,000	169,600	207,500	$1,696,000	$2,075,000

Source: Lynn Sedway & Associates

[1]Based on projections of office and retail square footage from Table 3-23. Assumes 250 square feet per office employee and 500 square feet per retail employee.

[2]Assumes: (a) Each employee spends an average of $4.00 per business day; (b) 250 business days per year; and (c) 1.0 percent of retail expenditures are retail sales taxes accruing to the City of Los Angeles.

[3]Development incentives are those tools used to encourage joint development of SCRTD property.

[4]Excludes the Fairfax/Santa Monica Station (an unincorporated area).

No Project Alternative. This amount could rise to $23.7-$29.7 million if the Locally Preferred Alternative is implemented. Though much shorter, the Minimum Operable Segment includes the most heavily developed areas and would thus generate about 90 percent of the property tax revenues of the Locally Preferred Alternative, between $22.1-$27.2 million.

The tables do not include benefits that might accrue to the county, although the county's tax revenues would also be expected to benefit from Metro Rail. Insofar as moderate levels of development are foreseen under the currently adopted West Hollywood Community Plan, the additional tax revenues associated with Metro Rail facilities would be modest. This situation could change were significant commercial or mixed use joint development to occur.

Additional sales tax revenues will be generated through the increase in employment associated with new development in the Regional Core* (Table 3-24). These incremental revenues could total approximately $1.26 million under the No Project Alternative. Development under the Locally Preferred Alternative or the Aerial Option could increase these sales tax revenues to $1.77-$2.25 million. The additional sales taxes attributable to the Minimum Operable Segment could total slightly less than those projected for the Locally Preferred Alternative, between $1.70-$2.08 million. County sales tax revenues would also benefit as a result of greater employment. However, as with property tax revenues, the county's benefits have not been calculated, because of the modest development potential projected.

Placement of the Wilshire/Fairfax Station entrance at the location of the May Company store is expected to enhance the retail sales of that establishment by increasing customer flow. The experience of transit systems in other cities (e.g., Philadelphia, Boston, and Montreal) indicates the most effective station entrances from a retailing standpoint are those that connect directly to the store. In addition, the increase in sales created by this channeling of transit users has a positive fiscal impact in that sales taxes are likewise increased. The magnitude of this impact, however, is not expected to be large enough to significantly change the sales tax estimates presented in Table 3-24. The transit system would also benefit from the store/station linkage in that retail customers will have an incentive to become transit users.

Table 3-26 shows that when projected property tax and sales tax revenues are aggregated, the Locally Preferred Alternative could increase total tax revenues by approximately 50 to 90 percent above the amount received under the No Project Alternative. The Minimum Operable Segment could increase total tax revenues by approximately 40 to 70 percent above the amount received under the No Project Alternative.

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*The sales tax revenue projections are conservative in that they exclude revenues attributable to the households occupying new dwelling units developed as a result of Metro Rail. Sales taxes from these households will depend on household income, the percent of income spent on taxable items, and the location of the stores where households shop. (This latter variable is important in that spatial shopping patterns will determine the amount of sales tax revenues received by different jurisdictions.)

TABLE 3-26

TOTAL PROPERTY AND SALES TAX REVENUES
ACCRUING TO CITY OF LOS ANGELES BY ALTERNATIVES, YEAR 2000
(Thousands of 1982 Dollars)

	NO PROJECT ALTERNATIVE	LOCALLY PREFERRED ALTERNATIVE		MINIMUM OPERABLE SEGMENT	
		Total	Total With Development Incentives	Total	Total With Development Incentives
Property Taxes	$15,620	$23,740	$29,740	$22,190	$22,180
Sales Taxes	1,256	1,769	2,245	1,696	2,075
Total Revenue	$16,876	$25,509	$31,985	$23,886	$29,255
Increment of Revenue Above No Project Alternative	—	$8,633	$15,109	$7,010	$12,379
Percentage Increment	—	51%	90%	42%	73%

Source: Lynn Sedway & Associates

3.7 MITIGATION

Wherever it appears desirable or necessary for SCRTD to acquire property, the existing level of the revenues contributed by that property will be identified. SCRTD will then seek to identify any feasible and desirable residual development potential that property has and, in coordination with local taxing jurisdictions, to promote use of the property. Where SCRTD is able to realize the residual development potential from real property acquired for Metro Rail and where SCRTD's ownership of such property deprives the taxing jurisdication of net revenues that they would otherwise have received, SCRTD will explore methods to compensate these taxing jurisdictions. Factors that could be examined in determining whether compensation should be paid include the burden that the development places upon the services of the jurisdiction, the revenues that would have accrued to the jurisdiction in the absence of Metro Rail (offset by increases in revenues arising out of Metro Rail), and the importance of the development in promoting public policies.

Additionally, SCRTD joint development programming will identify residual joint development capacity in excess of foreseeable or likely commercial demand. In cooperation with local public and nonprofit agencies concerned with housing, SCRTD will seek to have housing development incorporated into station area development where its site costs can effectively be "carried" by commercial development. This additional housing supply should, in turn, reduce pressures on housing costs in station areas.

4. LAND ACQUISITION AND DISPLACEMENT

4.1 INTRODUCTION

Displacement deals with the removal of existing land uses for project right-of-way (ROW) requirements. The right-of-way is the composite of total requirements of all interests and uses or real property needed to construct, maintain, protect, and operate the transit system, including tunnels and the land on either side of the tracks for street-level or aerial sections. SCRTD will either acquire the land or obtain easements from the owners. This section provides an inventory of the residences, businesses and nonprofit organizations which would be displaced as a result of SCRTD's ROW program.

4.2 EXISTING CONDITIONS

SCRTD has the power to acquire "by grant, purchase, gift, devise, or lease, or by condemnation . . . real and personal property of every kind within or without the District to the full or convenient exercise of its powers," as outlined in the California Public Utilities Code Section 30600. Section 30503 of the Code gives SCRTD the power to "exercise the right to eminent domain within the boundaries of the District to take any property necessary or convenient to the exercise of the powers granted in this part." The exercise of the right of eminent domain must comply with the requirements of the California Eminent Domain Law. (Code of Civil Procedure Section 1230.010 et seq.)

During the construction and operation of Metro Rail, SCRTD would need to make different types of real property acquisitions. Full and partial acquisition of parcels would be necessary for right-of-way requirements, for stations, and for equipment storage. Easements, which are interests in land owned by another that entitles its holder to a specific limited use, would be necessary for both construction and the underground alignment. Temporary construction easements would be necessary for construction sites, and underground easements would be required for the alignment to pass under private property.

4.3 IMPACT ASSESSMENT

Construction of the Metro Rail Project would directly displace residents, homes, businesses, social services, and public facilities. Indirect displacement because of development induced by the Metro Rail Project may also occur. This section discusses only the direct physical removal of structures for project construction and operation. Indirect displacement is discussed in the Social and Community Impacts section of this chapter. In all cases the acquisition of property and the relocation of residents and businesses by SCRTD will be in accordance with the federal Uniform Relocation and Real Property Acquisition Policies Act of 1970 (Uniform Relocation Act) and the procedures adopted under this law.

4.3.1 IMPACT MEASURES

The specific measures used to assess the impact of direct displacement from Metro Rail construction are identified below.

Direct Displacement of Local Residents. This measure identifies the number of housing units to be acquired along the right-of-way. The hardships posed by dislocation of the residents are immediate and include losses of time, money, and quality of life.

Displacement of Business Concerns. This measure identifies the number of business firms to be acquired along the right-of-way. The hardships to owners and employees posed by displacement are immediate and include losses of time, money, and quality of life. The elimination of commercial firms adversely affects local residents not only because it eliminates local employment opportunities, but because it also forces residents to either forego certain services or products or to travel farther to obtain them.

Displacement of Social Services and Public Facilities. This measure identifies the number of social services and public facilities to be removed along the right-of-way. Community groups most affected by the loss of social services and public facilities are special users, who generally have a greater overall need for social services and who, because of mobility problems, must often depend more on their local area's services and facilities. The elimination of local services and facilities will mean that the local population in general, and special user groups in particular, must forego certain services or travel farther to obtain them.

4.3.2 METHODOLOGY

SCRTD land acquisition maps were reviewed and a field survey of commercial land uses was conducted to identify the types of businesses subject to displacement. The field survey did not cover demographic characteristics of residential displacement. Instead, 1980 census tract data were analyzed to determine likely characteristics of displaced residents. After land acquisition requirements are refined, it will be necessary to identify more precisely the characteristics of both residential and commercial displacement in order to suggest comparable relocation sites as required by the Uniform Relocation Act.

4.3.3 DISPLACEMENT IMPACTS

Table 3-27 presents general information on the type and extent of displacement that would occur because of construction of the Metro Rail Project. This table differs from that in the Draft EIS/EIR as a result of refined estimates of land acquisition that have been documented in SCRTD's Staff Relocation Analysis and Report (August 1983). Off-street siting of stations and facilities creates considerable displacement in some areas, as shown by the high number of commercial establishments displaced around the Wilshire/Alvarado and Hollywood/Cahuenga Stations and the numerous residential displacements around the Wilshire/Alvarado, Hollywood/ Cahuenga, and Universal City Stations. With respect to social services and public facilities, none are displaced under the Minimum Operable Segment, five are displaced under the Locally Preferred Alternative, and three are displaced under the Aerial Option.

TABLE 3-27

METRO RAIL DISPLACEMENT[1]

Affected Areas	Total Residential Units	Total Commercial Establishments	Total Nonprofit/Services/ Facilities
Main Yard and Shop	0	8	0
Station			
Union Station	0	2	0
Civic Center	0	1	0
Fifth/Hill	0	3	0
Seventh/Flower	0	14	0
Wilshire/Alvarado	24	17	0
Wilshire/Vermont	0	4	0
Wilshire/Normandie	0	0	0
Wilshire/Western	0	3	0
Wilshire/Crenshaw	0	0	0
Wilshire/La Brea	0	4	0
Wilshire/Fairfax	0	2	0
Fairfax/Beverly	0	19	0
Fairfax/Santa Monica	0	27	1
La Brea/Sunset	0	5	0
Hollywood/Cahuenga	27	40	2
Hollywood Bowl	0	0	0
Universal City	136	24	0
North Hollywood Underground[2]	14	24	2
North Hollywood Aerial[2]	0	5	0
Aerial Corridor	16	5	0
Locally Preferred Alternative	**201**	**197**	**5**
Aerial Option	**203**	**183**	**3**
Minimum Operable Segment	**24**	**77**	**0**

Source: SCRTD Staff Relocation Analysis/Report, August 1983.

[1]These estimates are subject to change during Final Design as more detailed information is developed.

[2]Does not include parking structures or tail tracks.

Displacement of residential structures under the Minimum Operable Segment would include 24 multifamily dwellings in the Wilshire/Alvarado Station area. The Locally Preferred Alternative would displace an additional six single family and 171 multifamily units. The Aerial Option requires more residential land acquisition than the Locally Preferred Alternative, involving a total of ten single family and 193 multifamily units. Table 3-28 presents population and housing characteristics of residents in the affected areas. This information was obtained from interviews with owners of the residential population and a sampling of the tenant population. Additional population characteristics were obtained from the 1980 census statistics. The relocation report has identified that sufficient resources should be available to meet the projected needs for replacement housing in all station environs.

Service and office businesses account for the overwhelming majority of displaced commercial and nonprofit establishments. On the average, they are small to medium-sized businesses. The one exception is at Universal City, where the displacement of 24 businesses affects nearly 276 employees. Table 3-29 presents detailed information about displacement of commercial/service establishments. This data was obtained from a complete occupancy survey of all affected businesses in the station site. The relocation report indicates that in most cases it will be feasible to relocate all businesses in the general vicinity of their displacement.

A total of five nonprofit/services facilities would be displaced under the Locally Preferred Alternative, three under the Aerial Option, and none under the Minimum Operable Segment. The facility in the Fairfax/Santa Monica Station environs is a small church located in a 2-story office and retail building. The two nonprofit facilities in the Hollywood/Cahuenga Station environs consist of a women's health education center and small religious center. Of the two facilities in the North Hollywood area, one is a thrift store and the other is a small religious center located in a converted residential structure. In addition to these displacements, a city fire station will be relocated. The relocation report indicates that no special problems are likely with the relocation of any of these nonprofit/service facilities.

4.4 MITIGATION

The federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) mandates certain relocation services and payments by SCRTD to eligible residents, business concerns, and nonprofit organizations displaced by the Metro Rail Project.* The Act provides for uniform and equitable treatment of persons displaced from their homes, businesses, or farms by federal and federally assisted programs and establishes uniform and equitable land acquisition policies. The State of California revised Government Code Section 7260 et seq. brings the California Relocation Act into conformance with the federal Uniform Relocation Act.

* UMTA's Circular 4530.1 dated March 1, 1978 covers the appraisal and acquisition of real property, relocation services, moving and replacement housing payments, and other allowable expense payments mandated by the Uniform Relocation Act.

TABLE 3-28

ESTIMATED POPULATION AND HOUSING CHARACTERISTICS OF RESIDENTIAL DISPLACEMENT[1]

Affected Area	HOUSING TYPE			UNIT TENURE			HOUSEHOLD	
	Single Family	Multi-Family	Number of Residents	Owner	Renter	Vacant	Median Income	Percent Minority[2]
Wilshire/Alvarado[3]	0	24	50	0	24	0	$ 6,941*	91
Hollywood/Cahuenga[4]	0	27	32	1	26	0	8,452*	40
Universal City[4]	4	132	201	1	131	4	16,062	16
North Hollywood	2	12	43	1	13	0	13,033	98
Aerial Corridor	6	10	27	30	66	0	13,033	15

Source: SCAG, 1980 Population and Housing Report.

*Since the median income in these areas is less than 80 percent of the County's median income, they are considered low income by the State of California.

[1]These estimates are subject to change upon confirmation of Final Design.

[2]Minority is defined to include Hispanic, Black, Asian, Indian, and other.

[3]Common to all Project alternatives.

[4]Relevant only to the Locally Preferred Alternative and Aerial Option.

TABLE 3-29

DISPLACEMENT OF COMMERCIAL/NONPROFIT ESTABLISHMENTS[1]

Affected Areas	Commercial Parking	Retail	Service/ Office	Restaurant	Industrial	Total Commercial Establishments	Total Nonprofit/ Services	Preliminary Estimate of Total Employees
Main Yard and Shop and Line Segment	0	0	1	1	6	8	0	322
Stations								
Union Station	0	0	1	0	1	2	0	0
Civic Center	1	0	0	0	0	1	0	0
Fifth/Hill	2	1	0	0	0	3	0	20
Seventh/Flower	0	4	8	2	0	14	0	51
Wilshire/Alvarado	3	8	1	5	0	17	0	110
Wilshire/Vermont	1	1	1	1	0	4	0	56
Wilshire/Western	1	2	0	0	0	3	0	28
Wilshire/La Brea	1	2	1	0	0	4	0	10
Wilshire/Fairfax	0	1	1	0	0	2	0	30
Fairfax/Beverly	0	19	0	0	0	19	0	36
Fairfax/Santa Monica	0	9	18	0	0	27	1	58
Sunset/La Brea	0	1	4	0	0	5	0	11
Hollywood/Cahuenga	2	12	21	5	0	40	2	176
Universal City	0	0	24	0	0	24	0	276
North Hollywood Underground[2]	0	6	18	0	0	24	2	222
North Hollywood Aerial[2]	0	3	2	0	0	5	0	46
Aerial Corridor	0	1	4	0	0	5	0	75
Locally Preferred Alternative	**11**	**66**	**99**	**14**	**7**	**197**	**5**	**1,406**
Aerial Option	**11**	**64**	**87**	**14**	**7**	**183**	**3**	**1,301**
Minimum Operable Segment	**9**	**38**	**14**	**92**	**7**	**77**	**0**	**663**

Source: SCRTD Staff Report on Preliminary Property Acquisition and Relocation Costs, April, 1983.

[1]These estimates are subject to change upon confirmation of Final Design.

[2]Does not include parking structures or tail tracks.

In the acquisition of real property by a public agency, both the federal and state acts seek to insure consistent and fair treatment for owners of real property; to encourage and expedite acquisition by agreement in order to avoid litigation and relieve congestion in the courts; and to promote confidence in public land acquisition. One of the fundamental requirements of the legislation is that no person be required to move from his or her home unless affordable, decent, safe, and sanitary replacement housing is available and not generally less desirable with regard to public utilities and public and commercial facilities than the home from which the individual is being displaced.

In addition to the legislation discussed above, owners of private property acquired for public use have a federal and state constitutional guarantee that their property will not be taken or damaged for public use unless they first receive just compensation. Just compensation is measured by the market value of the property taken. Generally, the fair market value of property taken is the

> "highest price on the date of valuation that would be agreed to by a seller, being willing to sell but under no particular or urgent necessity for so doing, nor obliged to sell, and a buyer, being ready, willing and able to buy but under no particular necessity for so doing, each dealing with the other with full knowledge of all the uses and purposes for which the property is reasonably adaptable and available." (Code of Civil Procedure Section 1263.320a.)

The preferred approach to dealing with displacement is avoidance, by modifying either the alignment or entrance locations. (For example, by modifying the alignment for the Wilshire/Fairfax area and placing the station in the parking lot behind the May Company, the displacement impact is reduced from nine commercial establishments to two, a gas station and the May Company Budget Store.) However, it is not always feasible to make such a change without causing more displacements. Where this is infeasible, SCRTD will follow the provisions of the Uniform Relocation Act by identifying replacement sites for housing, businesses, and nonprofit organizations. A detailed relocation report has been developed which contains an inventory of all displaced persons and businesses and identifies those that may be difficult to relocate. The plan also evaluates the availability of replacement resources. SCRTD will establish a relocation advisory program that will coordinate all such assistance efforts by using a staff of experienced real estate specialists.

As part of the relocation advisory program, public informational meetings will be held to describe the relocation program and to identify the impacted parcels. These meetings will be held as frequently as necessary in the project station areas and at times that are convenient for the displaced persons to attend. Individual letters announcing the public meetings will be mailed to the affected owners and occupants and will also be advertised in local newspapers. Written information which explains the relocation benefits, the related eligibility requirements, and the procedures for obtaining assistance will be distributed. Each residential and commercial occupant will have a Real Estate Specialist assigned to work directly with the occupant throughout the relocation process.

The Real Estate Specialist assigned to a residential occupant will personally interview each person to be displaced and determine the person's relocation needs and preferences. Addresses of comparable replacement dwellings that are currently

available and within the financial means of the displacee will be provided. Transportation to inspect the referred properties will be offered and made available if desired by the occupant. Information on the location of schools, parks, churches, shopping centers, and public transportation will be made available. Special literature on other housing-related topics such as energy efficiency, family budgeting, building code requirements and standards, and equal opportunity will also be available as the need requires. A current listing of available VA and FHA properties and Section 8 housing will also be maintained. The Real Estate Specialist will inform the displacees of the eligibility requirements for obtaining such housing and serve as a liaison to assist them in securing these accommodations. The Real Estate staff will seek to minimize hardship to persons adjusting to relocation by providing counseling advice and referrals to social services agencies when the need is identified.

Business and nonprofit organizations will be personally interviewed to determine their relocation needs and preferences. The Real Estate Specialist will assist the commercial occupant in contacting the Small Business Administration, the Economic Development Agency, trade associations, Chambers of Commerce, lending institutions, real estate agencies, brokers, and multiple listing realty boards in order to provide assistance in locating and obtaining a suitable replacement facility, financial assistance and guidance in reestablishing a successful business operation. Advisory services and assistance will also include: consultations concerning space, traffic patterns, and market requirements; information explaining the availability of space, costs, and square footage of comparable sites; and information relative to property values, growth potential in various areas, zoning ordinances, and any other information that may assist the businessperson in making an informed decision relative to a relocation site. Assistance in helping to plan and prepare for the actual move will also be provided. This will include assistance in the preparation of inventory lists and moving specifications, obtaining bids from qualified movers, and scheduling the move to cause the least disruption to normal operations.

Policies and procedures to ensure that displaced residential and commercial owners and occupants obtain information regarding acquisition and relocation services are described in SCRTD's Milestone Report 5: Right-of-Way Acquisition and Relocation Policies and Procedures. The polices and procedures stipulate that all real property acquired by SCRTD will be appraised for its fair market value and an amount of just compensation determined. An offer is made based on the appraisals. Each person or business required to relocate will be given 90 days notice and may be eligible for certain relocation services and payment. No residential occupant will be required to move until other available housing that is decent, safe, sanitary, and within the financial means of the displaced person has been offered. If it is determined that a sufficient amount of affordable, comparable housing is not available for replacement purposes, SCRTD may offer a last resort housing payment to supplement the relocation payments on a case-by-case basis to qualified residential occupants. The Real Estate Specialist will work with businesses to assure that comparable facilities are available.

In some cases a business may not be so able to relocate without a substantial loss of its existing patronage. In this case the business may choose to receive a fixed payment in lieu of actual moving and related expenses in order to mitigate the negative impact and business losses.

5. SOCIAL AND COMMUNITY IMPACTS

5.1 INTRODUCTION

The Metro Rail alignment will traverse communities with many diverse social characteristics. This section identifies those communities which comprise the station environs and focuses on neighborhoods within one-half mile around each station. It discusses existing characteristics, community values, and trends and identifies impacts specific to the construction and operation of the Metro Rail Project, as well as those that may result from increased development stimulated by the Project alternatives in the station environs.

5.2 EXISTING CONDITIONS

Sociologically similar stations have been grouped together in the following discussion which provides a backdrop against which the Locally Preferred Alternative, the Aerial Option, and the Minimum Operable Segment can be evaluated.*

CBD. The downtown station environs have relatively low residential populations, consisting primarily of minorities with relatively even age distributions. Downtown residential development would probably change the ethnic and economic composition of these station environs. Middle- to upper-income-oriented condominium projects are likely to attract new residents who will raise the median income while decreasing the percentage of the minority population. The elderly population may also increase when additional housing for the elderly is built. Dispersed throughout the area are residential hotels which provide low cost housing and artists' studios.

Union Station. The immediate station area borders on the industrial periphery of the CBD and is near several ethnic communities on the east side of the downtown area: Chinatown, Little Tokyo, and expanding Hispanic areas. The social fabric of the area is characterized by an overall resident population approximately 45 percent Asian, primarily Chinese, and 39 percent Hispanic, mostly Mexican. These residential areas are transitional low-income areas strongly divided by ethnic background with very territorial populations. The Union Station architecture, important public places nearby, and ethnic contrasts create a strong image and draw significant tourist and pedestrian trade to the area. Olvera Street, the Pueblo, and Chinatown are regional attractions, generating activity both day and night. The primary traffic artery is Alameda Street, although pedestrian movement is concentrated in the areas around Olvera Street and on parking areas to the west and north.

Civic Center. Government buildings, Civic Center Plaza, the Mall, and the Music Center Complex to the north are the major focuses of the station area. Along Hill Street, just to the west of the proposed station entrances, lies a portion of the high density Bunker Hill housing development primarily for the elderly.

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*Data collection and survey techniques are detailed in the SCRTD Technical Report on Social and Community Impacts (1983).

Fifth/Hill. This station area lies in the heart of the CBD. The Pershing Square area offers pedestrian access to a number of important activity centers--retail commercial shopping on Broadway, the Jewelry Mart, Grand Central Market, Spring Street, the Biltmore Hotel, and the Main Library. The focus of the area for residents, employees, and tourists is Pershing Square. The plaza is heavily used during daylight hours, attracting tourists, vagrants and youth gangs, and downtown employees during lunch. After office hours the area becomes unsafe for pedestrian activity.

Seventh/Flower. This station area contains the important office, retail shopping, and financial buildings of the CBD, with access to Seventh Street retail stores. As a result, Seventh Street is a major auto and pedestrian artery through the Central Business District. Pedestrian volume is heavy during the day. Housing is located on the periphery of the station environs in the South Park and the Convention Center areas.

Westlake. The Wilshire/Alvarado Station area is in transition and contains a predominantly young, Hispanic population. The area serves as a port of entry for Central Americans. Shops and services are well patronized by this largely low income population. Residents value the ethnic homogeneity of the area, as well as its central location and good public transportation, characteristics all expected to continue. The Hispanic population will probably increase in the area because rental rates are comparatively low; the lack of new housing units may increase the already high level of overcrowding.

Mid-Wilshire. The Wilshire/Vermont, Wilshire/Normandie, and Wilshire/Western Station environs are ethnically similar, with considerable white, Asian, and Hispanic populations. In the last decade, the Asian population has formed Koreatown, which continues to grow. Hispanics represent a larger percentage of the population at Wilshire/Vermont than at either of the other station environs. North of Wilshire Boulevard, incomes are higher and white residents constitute a larger percentage of the population. Overall, the population tends to be young. Important attributes of the area include central location, good public transportation, and convenient amenities. In the future, Koreatown will probably expand and Hispanics will continue to migrate westward along Wilshire Boulevard. The relatively large increase in younger members of minority groups suggest that the median age will become more youthful.

Wilshire/Vermont. The generally low-income resident population reflects a diversity of ethnic groups. The population is 45 percent Hispanic, 30 percent white, and 15 percent Asian and, in general, is relatively young--the median age is 30 years--residing almost exclusively in renter occupied units. The area is an important Wilshire Corridor location, with a very high daytime employment population and heavy volume of pedestrian and auto traffic. The hierarchy of primary auto and pedestrian traffic arteries supports the definition of the land use pattern. Wilshire Boulevard and Vermont Avenue are clearly primary, Seventh and Sixth Streets are secondary, and there are "tertiary" residential streets. The intersection of Wilshire and Vermont is a main bus transfer point.

Wilshire/Normandie. Residential areas north and south of Wilshire (north of Sixth, south of Seventh) support a large, ethnically diverse resident population: 30 percent Hispanic, 32 percent white, 10 percent Black, and 25 percent Asian. There is little overlap in the spatial and movement patterns between the area's employment and resident populations. High rise office buildings, between Howard Avenue and the Ambassador Hotel or Wilshire Boulevard, attract a large daytime employment population.

Wilshire/Western. The station area is a blend of regional and local influences: major office buildings are near neighborhood churches, retail stores, and housing. The resident and employment population are fairly independent of each other. A relatively dense population lives north and south of the office, commercial, and retail uses along Wilshire Boulevard. This population is ethnically diverse—22 percent Hispanic, 35 percent white, 25 percent Asian, and 14 percent Black—and predominantly low and low-middle income.

Crenshaw. The Wilshire/Crenshaw Station environs are relatively high income areas containing sections of Hancock Park and Windsor Square. The majority of the population is white, though Hispanics and Asians together comprise 40 percent. These minority populations reside primarily south of Wilshire Boulevard. There are few public services and commercial shops in the station environs, so residents must leave the area for shopping and social services and facilities. Important attributes of the community are stability, atmosphere, and central location. The area is likely to change little because of restrictive zoning, community organization, and the relatively high incomes required to live in most of the environs. Ethnic diversity will slowly increase, however, as minority groups move west along Wilshire Boulevard.

Miracle Mile. The Miracle Mile area, containing the Wilshire/La Brea and Wilshire/Fairfax Station environs, consists of a largely elderly, white population with middle incomes. Much of the population is Jewish and identifies with the nearby Fairfax/Beverly neighborhood. The commercial section of these environs is currently undergoing a gradual revival. Community surveys show the area's central location, convenient amenities, low housing costs, and good public transportation were most important. In the future, the minority population in these station environs is likely to increase slightly as middle income Asians and Hispanics move west along Wilshire, replacing elderly residents. Middle income Blacks now living south of Wilshire Boulevard are likely to move northward. Relative to other station environs, income in this cluster would remain high.

Wilshire/La Brea. The middle income resident population in the station area is 68 percent white, 18 percent Black, 8 percent Asian, and 6 percent Hispanic. The area is currently characterized by very light pedestrian traffic and mostly through auto traffic. The area has no major destinations or public spaces and attractions.

Wilshire/Fairfax. This station area serves a residential community and major regional, public activity center. It includes the following attractions: the Los Angeles County Art Museum, the Rancho La Brea Tar Pits, and the Page Museum of Natural History. The area draws visitors and tourists seven days a week, and is especially busy on weekend afternoons, when auto traffic and pedestrian activity around Hancock Park are high. The resident population in the station area is homogeneous—80 percent white and predominantly middle income.

Fairfax. The Fairfax/Beverly and Fairfax/Santa Monica Station environs have large Jewish populations to which the commercial area is generally oriented. A large percentage of the population is elderly, with low to middle incomes, but in recent years many young singles and couples have moved in. Attributes valued by residents include convenient amenities and good public transportation, as well as neighborhood atmosphere and ethnic homogeneity. Though projections show few land use changes for the Fairfax/Santa Monica Station environs, the Fairfax/Beverly area is projected to experience large scale office, residential, and retail development. Higher densities and a more diverse, regionally oriented commercial atmosphere would change

the character of the area. The average age would continue to decline, and new residential units would probably be oriented toward middle to upper income professionals who identify less with the area's Jewish orientation than current residents.

Fairfax/Beverly. The resident population is of predominantly eastern European, Jewish descent. The area has the highest median age (50.7 years) and the highest percentage of population over 65 years old (34 percent) of any Metro Rail station area in the Regional Core. The population is socially stable and homogeneous. The cultural and religious homogeneity is readily apparent in the physical structure of the neighborhood and in activity patterns of residents. Generally, residents are low and middle income. More than seventy percent are renters. Their territorial definition of the area is further enhanced by the proximity of neighborhood shopping, banking, cultural, religious, and entertainment facilities. In addition, two regional scale retail, tourist, and employment centers in this immediate vicinity--Farmers Market and CBS Television City-- are important regional destinations.

Fairfax/Santa Monica. The proposed station is at the intersection of Fairfax and Santa Monica Boulevards on the juncture of two very distinct communities, the Fairfax district and the west Hollywood "gay" strip. The area is high density, ethnically homogeneous (90 percent white), and 40 percent single. The resident population spans the full range of income groups.

Hollywood. Three proposed stations would serve the mixed retail-office-residential community of Hollywood, one in the predominantly residential La Brea/Sunset area, one in the predominantly commercial Hollywood/Cahuenga area, and one adjacent to the Hollywood Bowl. The population in the La Brea/Sunset and Hollywood/Cahuenga Station environs is mainly white, although there is a Hispanic minority population and a recent influx of immigrants from the Middle East. The current residents are low to middle income and many identify with the entertainment and tourist-oriented atmosphere of Hollywood Boulevard. Population in the environs of the Hollywood Bowl Station is also primarily white, although their economic status would be considered high income. The community survey revealed that Hollywood residents value the area's central location and proximity to work, as well as convenient amenities and good public transit. These environs would probably experience slight increases in minority and immigrant populations. New residential developments, however, would probably be oriented to higher income residents and draw new residents to the area.

La Brea/Sunset. This area is predominantly residential. The resident population is 75 percent white, with a Hispanic population of 15 percent. Approximately 55 percent of this population live in single person households. The area is primarily a commercial and regional employment and activity center. The commercial area includes a diverse mix of retail stores, motels, and entertainment uses, and pedestrian activity is high most of the day.

Hollywood/Cahuenga. In the heart of Hollywood, this primarily commercial area contains a mix of retail and office development. It includes the concentration of offices centered at Sunset Boulevard and Vine Street which serves the entertainment industry. This station area has a resident population, a transient population, and a significant population of tourists, visitors, and patrons. The resident population is predominantly white, with 24 percent of the population Hispanic. Both auto and pedestrian activities are high most of the day. At night, pedestrian movement is particularly heavy.

Hollywood Bowl. The proposed station location is located on Highland Avenue just south of the Hollywood Freeway and next to the Whitley Heights area. The housing along Highland Avenue is primarily rental units in the medium to high cost range. Traffic along this major connector to the Hollywood Freeway is heavy, particularly during rush hours and is mostly limited to automobile travel. The area experiences extremely heavy traffic during evening summer performances at the Hollywood Bowl. The over 160 exclusive homes in the Whitley Heights area on the opposite side of the avenue were built to resemble a Mediterranean hillside village. This area is listed on the National Register of Historic Places. The population in this general area is predominantly white, high income.

San Fernando Valley. The Universal City and North Hollywood Station environs, like the CBD, are not heavily populated. Predominantly, residents are white and have higher incomes, but the North Hollywood commercial district also contains large Hispanic communities. In the Universal City area, residents reported neighborhood stability and atmosphere to be important community qualities. Inexpensive housing and convenient amenities are the valued characteristics in the North Hollywood Station environs. Both station environs would experience dramatic land use changes by the year 2000. Office space in Universal City would increase significantly. This may not, however, affect the relatively isolated, well-buffered residential communities within the station environs. The North Hollywood Station environs are within a CRA project area, which is expected to induce a major expansion of retail, office, and residential land uses. This CRA project would increase the elderly population and would also make North Hollywood a more regionally oriented office center.

Universal City. Most of the small, predominantly white, middle-upper income resident population live in single family dwellings in the hills south of the proposed station site, south of Ventura Boulevard. The station area has direct access to major planned and existing corporate facilities, the Campo de Cahuenga historical landmark, Weddington Park, and the residential areas south of Ventura Boulevard. Universal Studios is a major tourist attraction.

North Hollywood. The site is a juncture of light industrial, retail, public, and residential uses. The resident population is 66 percent white and 27 percent Hispanic, and predominantly lower-middle income.

Aerial Corridor. Ethnic distributions along the Aerial Corridor are similar to those in the environs of the Universal City and North Hollywood Stations. There is a large percentage of whites and a substantial Hispanic population. The community survey revealed the existing neighborhood quality to be highly valued, with visual appearance, stability, and neighborhood atmosphere the most important components. Communities along the corridor would probably experience few changes from the present trend of an increasing percentage of Hispanics and young people. Deterioration, mentioned by residents as a negative characteristic of the area, may also continue unless the proposed commercial anchors at North Hollywood and Universal City revitalize the areas near Lankershim Boulevard.

5.3 IMPACT ASSESSMENT

Social impacts have been assessed in two broad categories: community cohesion and accessibility. Impacts affecting community cohesion include land use and

displacement, traffic, aesthetics, and noise and vibration. Both regional and local accessibility are addressed particularly as they affect special user groups.

5.3.1 COMMUNITY COHESION

Social change in neighborhoods can be perceived as both positive and negative, depending on the social values and characteristics of the community. As discussed in the Community Participation chapter, a significant effort has been made to involve the community in the planning process. As a result, the maintenance of essential neighborhood qualities, which are important to a community's cohesiveness, has been an integral objective in the planning of station design and location.

Land Use and Displacement. Two types of displacement could occur as a result of the construction and operation of the rail rapid transit system which could affect community cohesion directly and indirectly. Direct displacement, which involves acquisition and removal of existing residences and facilities for Metro Rail construction, are discussed in the Land Acquisition Displacement section of this chapter. Generally, displacement in most station areas is minimal relative to the total population, and a loss of cohesiveness for the majority of station environs has been determined to be insignificant if occurring at all. The direct displacements which are identified for each station environs are estimates from the SCRTD Draft Relocation Analysis/Report and these estimates are subject to change during Final Design.

Indirect displacement could occur as a result of increased development accommodated by the project. As documented in the Land Use and Development section of this chapter, increased development is a primarily positive impact in all station environs, especially those within designated centers. Economically stagnant or declining areas would be revitalized; additional commercial services and jobs would be more accessible to the surrounding community; and opportunities would be created for pedestrian-oriented activity. Additionally, the increased suitability of station environs for residential uses could lead to a net increase in housing for all station environs. In most of the station environs, La Brea/Sunset and Hollywood/Cahuenga for example, increased development could increase community cohesion by fostering social and economic interaction. However, development can also adversely impact the existing community activities.

Increased development may be seen as negative when it displaces existing uses, such as housing, commercial services, and public facilities, which are perceived by residents as vital to community cohesion. This displacement may occur either as a direct result of redevelopment or indirectly if rents were to rise beyond the financial means of existing tenants. Impacts due to increased rents may especially affect social, recreational, and cultural services which generally operate on tight budgets and can quickly feel economic pressures. Generally, the degree of impact on cohesion due to these indirect as well as direct displacements can be considered proportional to a neighborhood's degree of ethnic homogeneity, its frequency of daily social interaction at local social or religious institutions, and cultural and social perceptions. Potential changes to community cohesion within each station's environs is described below.

Central Business District. Under the No Project Alternative, substantial increases in both residential and commercial development is expected to occur in the CBD. Metro Rail will increase this development trend to some degree, however, much less

than in other stations. Joint development may serve as a stimulus to further development, and surrounding property values may increase leading to either redevelopment or increased rents. This may have a negative impact on existing low-income residents and businesses such as residential hotels and social, recreational, and cultural services.

The Los Angeles Community Redevelopment Agency (CRA) has expressed a concern that galleries and art-related activity such as artists' studio space may be indirectly displaced. These uses, which are currently dispersed throughout the station environs, generally occupy marginal, vacant commercial space. The CRA anticipates that the Museum of Contemporary Art, planned for Bunker Hill, will increase the demand for these types of facilities.

Residential hotels are dispersed throughout the station environs, which are zoned almost exclusively for commercial use. Residential hotels are especially vulnerable to indirect displacement as they are frequently located in buildings which are susceptible to reinvestment--either removal and replacement by new commercial buildings or renovation, probably as office space. Occupants of these hotels will be negatively impacted as they are generally low-income residents.

The demographic profile in the CBD will begin to change towards a higher median income, a higher level of auto ownership, and a greater percentage of whites, as middle and upper income professionals seeking to live closer to work move in. The rise in population in the downtown area will increase the demand on existing social services. While this is primarily a fiscal impact, it also affects the "quality of life" in the CBD. Displacement of commercial establishments at the Fifth/Hill and Seventh/Flower Stations could reduce the availability of local services, thus somewhat altering local activity patterns.

Wilshire/Alvarado. Under the Locally Preferred Alternative or the Minimum Operable Segment, population is expected to increase substantially over what would have occurred under the No Project Alternative. The Project alternatives could change the demographic characteristics of the area, as median income might increase slightly if new residential units appeal to higher income groups. If this occurs, current residents might not be able to afford higher rents in the new housing. New commercial development in the currently vital lower income Hispanic commercial center might jeopardize the area's many small marginal businesses which cater to this population.

Under the Locally Preferred Alternative and the Minimum Operable Segment, 17 commercial establishments and 24 residential units will be directly displaced. The majority of the residents to be displaced are Hispanic. These displacements, therefore, may negatively impact this highly cohesive Hispanic community. Additionally, since most of the commercial establishments to be displaced are typical of the many small marginal businesses in the area which cater to the predominantly Hispanic population, this may also negatively impact community cohesion. Mitigation measures have been identified, however, which may assist these establishments in remaining in the community. The SCRTD Relocation Analysis Report indicated that sufficient resources should be available within a one-mile radius to meet the projected needs for replacement housing.

Wilshire/Crenshaw. The area around the Wilshire/Crenshaw Station has a high median income and is almost entirely residential. Residents in the area have expressed concern that a station would result in high-intensity development that

would be inconsistent with the Park Mile Specific Plan and would create pressure to redevelop single family housing. As the Land Use and Development section indicates, year 2000 market projections for development under the Project alternatives would utilize 54 to 75 percent of the capacity for new commercial development and 18 percent of the capacity for new residential development permitted by the Park Mile Specific Plan. Furthermore, as long as the Specific Plan remains intact, and it cannot be altered without the same public input that went into its formation, overdevelopment of the Specific Plan area cannot occur.

Increased pedestrian activity around the station and the additional development of a low-rise office building along Wilshire Boulevard, consistent with the Park Mile Specific Plan, would be the only changes expected with the Locally Preferred Alternative or Minimum Operable Segment. Restrictive zoning would deter significant land use changes in the station environs. The community's two most valued characteristics--social stability and neighborhood atmosphere--are not likely to be affected by the addition of a Metro Rail station. Accordingly, community behavior and activity patterns are unlikely to change and community cohesion would be maintained.

Wilshire/La Brea. Impacts in this segment of the Wilshire Corridor include major increases in residential and commercial development. In particular, the amount of residential acreage developed in the Wilshire/La Brea Station area is projected to almost triple over the growth projected under the No Project Alternative. The increased development is expected to improve the availability of local shopping and services. However, the new residential development might be unaffordable to lower income minorities. The currently high percentage of elderly residents is also projected to decline.

Wilshire/Fairfax. To avoid potential paleontological resources a station site to the west of the most sensitive areas, in the parking lot behind the May Company, has been adopted. Two commercial uses (a gas station and the May Company Budget store) and no residential units would be displaced. The displacements would have no impact on community cohesion. This station location has accessibility to buses and the subway and provides for integration of the bus/rail interface. Service to major trip generators will be provided (County Art Museum, La Brea Tar Pits, May Company, etc.) while still maintaining excellent accessibility to the La Brea Tar Pits/Museum Complex. There exists less community opposition by local residents to this site than the previously proposed site.

Fairfax/Beverly. Under all rail alternatives, 19 small retail businesses in the Farmers Market complex would be directly displaced. The primary clientele for these businesses are tourists who frequent the Market and CBS studios, and these businesses will probably desire to remain in the Farmers Market complex. This may be accomplished by reconstruction of the demolished wing after construction is completed. Temporary facilities may be an alternative solution that allows these businesses to continue operating during the construction period.

Significant pressures for social change are expected to occur with or without the Metro Rail Project. The area is projected to be a major new development center. Under the Minimum Operable Segment, this station would be the terminal station. With the Locally Preferred Alternative or Minimum Operable Segment, the amount of growth is expected to be comparable. It would more than double the No Project Alternative estimates. As a result, the demand for residential land in the station area would far exceed the supply of residentially zoned land. The new commercial

development would be oriented towards more regional uses and could conflict with the area's many small businesses which cater to local residents. Valued by its residents for its convenient services, good public transportation, ethnic homogeneity, and neighborhood atmosphere, this largely Jewish community could begin to lose some of its cohesiveness and character as a result of growth in conjunction with the rail project.

Fairfax/Santa Monica. Under the Locally Preferred Alternative and Aerial Option, two 2-story buildings containing 27 commercial businesses and a church would be displaced. These commercial properties consist of retail street-level businesses and small offices on the second story. The church is located in second story office space. The SCRTD Relocation Analysis Report has identified that sufficient resources should be available to assist these facilities in relocating. Displacement of these uses is not expected to affect community cohesion.

With Metro Rail, the amount of induced growth would more than double the No Project Alternative estimates at this station. This is perceived by many residents as a positive impact since it may revitalize the community by providing additional services, jobs, and accessibility. At the same time, however, residents who perceive the area as a stable residential community, view this as a negative impact, as the demand for housing may increase beyond the available supply of housing causing indirect displacements.

La Brea/Sunset, Hollywood/Cahuenga. Metro Rail would triple the projected residential development for both the La Brea/Sunset and Hollywood/Cahuenga Station areas. Hollywood/Cahuenga is already a large retail and entertainment area; Metro Rail would double the projected commercial square footage expected under the No Project Alternative. La Brea/Sunset is not currently a strong retail area, but Metro Rail would stimulate retail development in the immediate station area. This increased demand for commercial space could increase current rents and adversely affect existing social services agencies in the environs if they were unable to afford these higher rents.

Increases in commercial, particularly retail activities would have a greater impact at La Brea/Sunset than at Hollywood/Cahuenga. Demographically, the area's median income would increase as new housing units would probably attract wealthier residents, possibly curtailing the flow of many different immigrant groups to the Hollywood area, and slowing the growth of the youth population.

Although a substantial number of direct displacements will occur, the SCRTD Relocation Analysis Report identifies that relocation should present no special problems because of the large number of available commercial facilities in the adjoining area and the substantial number of comparable residential units available.

Hollywood Bowl. No development at the Hollywood Bowl is likely as a result of the proposed Metro Rail station, and no change in the neighborhood mix is expected. Daily traffic is expected to decrease along both Highland and the Hollywood Freeway due to the Metro Rail. Bowl season traffic would also decrease as concert goers would find the Metro Rail far more convenient than driving.

Patronage at this station is projected to be quite low during the Bowl's off-season and would be limited to the people living in the immediate area. Those persons living north and south of the area would be more likely to travel to the Universal City and Hollywood/Cahuenga Stations, respectively. No park and ride facility is being

planned for this station due to the potential conflict with Hollywood Bowl performance parking.

Universal City. Under the No Project Alternative, development for the Universal City Station environs is substantial. MCA, a private corporation, has plans for a substantial amount of development in the area. The environs will change significantly by the year 2000 regardless of Metro Rail construction. It is likely, however, that Metro Rail would have a role in supporting these trends to some degree. Under the Locally Preferred Alternative, 136 residential units will be directly displaced as well as 24 commercial establishments. Four of these residences are single family units and 66 percent of the total units are renter occupied. The majority of all residences to be displaced can be attributed to a relatively new condominium project consisting of a diverse, middle-income population.

North Hollywood. Under the No Project Alternative, development for the North Hollywood Station environs is substantial. Under both the Locally Preferred Alternative and the Aerial Option, the proposed station environs would be located within a Community Redevelopment Agency project area and large projects are being proposed for this area. These projects make neighborhood trends and perceptions difficult to analyze since the environs will change significantly by the year 2000 regardless of Metro Rail construction. It is likely, however, under the Locally Preferred Alternative, that Metro Rail would have a role in supporting these developments to some degree.

Concern has been expressed by residents of North Hollywood that the Aerial Option alignment would have a negative impact on community cohesion. Residents are concerned that the visual impact of the alignment could cause decreases in surrounding property values, cause indirect displacements, and lead to eventual neighborhood decline. These concerns have not arisen in the experiences of relatively new aerial systems in other cities. While this alternative creates adverse environmental effects that can be partially mitigated, the community perception that the Aerial Option will detract from the community character is an impact which cannot be mitigated.

Traffic and Congestion. Mobility within neighborhoods and accessibility to activity centers and other desired destinations is currently impaired in many neighborhoods in the Regional Core, largely due to congestion and parking deficiencies. As documented in the Transportation section, the Project alternatives are projected to have a significant positive impact on such conditions by diverting a significant number of automobile users to transit. In the station environs, however, Metro Rail will lead to increased vehicular and pedestrian volumes on streets leading to and surrounding the stations as users seek access in a variety of modes. The impacts of traffic and parking demands due to direct effects of the stations as well as the indirect impacts of increased development, if unmitigated, could result in the reduction of community cohesion in the environs where it occurs. It could reduce the current level of daily social interaction at local facilities by reducing mobility and have an adverse impact on the residents' perception of neighborhood quality. These potential impacts were all given significant consideration in the planning of stations and supporting facilities. As discussed in Milestones 10 and 12, specific measures were taken throughout the station and system design process to mitigate such impacts.

An example of this conscious effort is in the design of the Fairfax/Beverly Station, which has been sited off-street station so that direct traffic impacts are

minimized. As in many of the station designs, bus bays have been included to mitigate the impact of on-street bus boardings and alightings. Parking has been planned at the stations at the outer ends of the alignment, at Union Station and in North Hollywood at Lankershim and Chandler, and at the Wilshire/Fairfax Station with the objective of intercepting riders at these locations. This would prevent an excessive parking demand at other stations along the line. Additional design considerations include kiss and ride facilities at stations and an adequate level of feeder bus service to the stations. While system and station design is expected to mitigate the impacts of traffic spillover and increased parking demand in adjacent neighborhoods, additional mitigation options have been identified and are discussed in the traffic and parking sections of this chapter (1.3 and 1.4).

Fairfax/Wilshire, Fairfax/Beverly. Park and ride facilities will be provided at both of these stations under all rail alternatives. The number of parking spaces which will be provided by these facilities, however, is less than the projected demand for parking at these stations. As a result, it is likely that Metro Rail patrons may seek parking in the surrounding, predominately residential, neighborhoods. This spillover parking demand would mean more traffic on the surrounding residential streets. Under the Minimum Operable Segment, the Fairfax/Beverly Station would be the terminal station. The Fairfax community has expressed concern that under this option, the station might attract additional vehicles through the residential streets north of the station, instead of just from the west along Beverly.

Universal City/North Hollywood. The designation of these stations as park and ride facilities for the San Fernando Valley will significantly increase traffic congestion in the station environs. To mitigate impacts on Bluffside Drive, considered to be particularly sensitive due to its quiet residential character, design measures such as a new station access bridge over the Hollywood Freeway and landscape berms have been proposed, as documented in Milestones 10 and 12 and Section 1.3 of this chapter. Additional mitigation measures, however, may also be taken.

Aesthetics. Through design, stations can enhance community activity centers and promote the revitalization of declining areas. As discussed in the Aesthetics section, an important objective in the design of stations and joint development projects will be to ensure that the station blends well with its surroundings so that it represents an attractive architectural addition to its immediate environs. A station can add to the sense of pride, prestige, and satisfaction felt by its neighbors. An additional design consideration for all stations will be the inclusion of attractive art work. In other systems, stations have become symbolic gateways to a neighborhood or community, such as BART's Lake Merrit station with its sculpture wall, and the Louvre station of the Paris Metro with its artwork and statuary.

Under the Locally Preferred Alternative and the Minimum Operable Segment, the aesthetic aspects of all stations will have a positive impact on community cohesion. They have been designed so that they will be attractive, easily maintained, safe, and secure. Impacts of the visual appearance of an aerial alignment on neighborhood stability and atmosphere were the most important concern arising from public meetings held to obtain comments from North Hollywood citizens on several alternative proposals. The Aerial Option could negatively impact community cohesion by changing the visual setting and character of Lankershim and by intruding into the visual privacy of building occupants along the Aerial Corridor.

Noise and Vibration. In community meetings, especially those which were held in Hollywood and North Hollywood to determine the route alignment and design,

possible noise and vibration effects of the Project alternatives were raised as a primary factor which could disrupt overall neighborhood quality and cohesion. Under the Locally Preferred Alternative and the Minimum Operable Segment, the rail alternatives would not increase ambient noise and vibration levels except in a few locations. The Aerial Option, however, would generate more noise which could possibly disrupt neighborhood quality. These impacts are documented in the Noise and Vibration section of this chapter.

5.3.2 ACCESSIBILITY

Special User Groups. A major social impact of transit improvements is the mobility and accessibility they provide to "special user groups" within the population. These are sectors of the population which have limited access to the private auto as a means of transport and thus may derive particular benefit from improved accessibility. This section identifies six groups which may rely heavily on transit. Table 3-30 is a breakdown of these groups by station environs and is indicative of the degree to which their needs may be met by the Project alternatives. Overall, Metro Rail would significantly improve accessibility to these special user groups.

Minority Populations. The station environs of Wilshire/Alvarado, Wilshire/Normandie, Wilshire/Western, and Wilshire/Crenshaw have large minority populations. This characteristic is important because nearly 70 percent of the transit users in SCRTD's service area are minorities. The largest ethnic group is Hispanics, who account for 20 to 60 percent of the total population in these station environs. Many Asians also live in these areas, making up approximately 25 percent of the environs' populations. The Fairfax/Beverly Station environs have a large Jewish population and serve as an important center for the Los Angeles Jewish community.

Youths and Elderly. The age distribution in the station environs is important to transit planning because certain age groups, particularly youths (ages 5-19) and the elderly (ages 65 and older), rely more on transit. Station environs with the highest percentages of elderly include Wilshire/La Brea, Wilshire/Fairfax, Fairfax/Beverly, and Fairfax/Santa Monica—all with 25 percent or more of their total population 65 or over. Stations with 15 percent or more of their population aged 5 to 19 years include Union Station, Wilshire/Alvarado, and North Hollywood.

Low Income Families. The median family income for Los Angeles County in 1980 was $21,334. Station environs defined by the State of California as low income (less than 80 percent of the median) include all the CBD station environs, all the Wilshire Corridor station environs from Wilshire/Alvarado to Wilshire/Western, all Hollywood station environs, and the North Hollywood Station environs.

Handicapped Persons. Many handicapped persons depend on transit for mobility. Station environs with comparatively large populations of transit disabled include Civic Center, Fifth/Hill, Wilshire/Alvarado, Wilshire/La Brea, and Wilshire/Fairfax.

Households Without Vehicle Access. As shown on Table 3-30, 75 percent or more of all households in the CBD station environs do not have access to vehicles. Wilshire/Alvarado and Wilshire/Vermont Station environs also have comparatively high numbers of households without vehicle access (54 percent and 45 percent, respectively). In the remainder of the station environs except Universal City and North Hollywood, 24 percent to 38 percent of all households do not have access to the use of a vehicle, a substantially higher percentage than for the county or city as a whole.

TABLE 3-30

SPECIAL USER GROUPS

Station Environs	Total Population	Percent Minority[1]	Percent Aged 5-19 yrs	Percent Aged 65+ yrs	Percent Transit Disabled[2]	Percent Households Without Vehicle Access	Median Annual Family Income($)
Union Station	6,194	92%	26%	11%	4.0%	55%	9,091*
Civic Center	6,300	71%	11%	16%	6.6%	80%	9,215*
Fifth/Hill	9,721	56%	6%	19%	6.0%	92%	8,486*
Seventh/Flower	14,065	72%	14%	16%	4.5%	75%	9,818*
Wilshire/Alvarado	39,530	76%	16%	13%	5.7%	54%	10,045*
Wilshire/Vermont	24,966	70%	13%	14%	3.6%	45%	11,376*
Wilshire/Normandie	33,575	68%	12%	13%	3.3%	38%	12,368*
Wilshire/Western	29,164	64%	11%	13%	4.2%	30%	16,010*
Wilshire/Crenshaw	14,472	55%	12%	17%	5.1%	26%	18,874
Wilshire/La Brea	13,344	33%	10%	33%	7.6%	31%	21,482
Wilshire/Fairfax	13,905	22%	7%	42%	8.0%	27%	22,040
Fairfax/Beverly	12,088	9%	10%	34%	5.4%	28%	19,284
Fairfax/Santa Monica	20,893	11%	9%	26%	4.5%	24%	14,637*
La Brea/Sunset	19,282	27%	9%	19%	4.2%	26%	15,260*
Hollywood/Cahuenga	14,398	41%	12%	12%	3.2%	32%	13,649*
Hollywood Bowl	10,292	22%	9%	14%	3.5%	6%	37,736
Universal City	5,133	14%	8%	13%	2.2%	8%	48,695
North Hollywood	8,959	34%	15%	12%	4.0%	14%	15,978*
Aerial Corridor	6,585	15%	11%	15%	3.6%	10%	20,872

Source: U.S. Bureau of Census, 1980

*Station environs with an osterisk have median income defined by State of California as low income (less than 80 percent of L.A. County median income.)

[1]Minority includes Hisponic, Black, Asian & Indian & Other populations as identified by U.S. Census. Percentages have been rounded off. Exact percentages can be found in the SCRTD Technical Report on Social and Community Impacts (1983).

[2]Transit disability refers to those residents of working age (16 to 65 years) with physical handicaps who cannot easily use normal transit.

Local Accessibility. The Metro Rail Project could improve local accessibility in two ways. First, as the number of commercial services around stations increases, those services become more accessible to residents, particularly to those without automobiles. Residents in the station environs can typically walk to commercial services adjacent to the station in less than 15 minutes. Access to commercial services adjacent to stations would be particularly convenient for residents who commute by transit, since they would be able to shop on their way home from work. Second, accessibility to other destinations along the corridor is increased. A resident of the Wilshire/Crenshaw Station environs would be able to travel to the County Art Museum and to Farmers Market on either the Locally Preferred Alternative or Minimum Operable Segment, or to a movie in Hollywood on the Locally Preferred Alternative. All rail alternatives would significantly increase accessibility to all station environs relative to the No Project Alternative. The Locally Preferred Alternative, however, would increase accessibility more effectively than the Minimum Operable Segment.

Regional Accessibility. Improved accessibility throughout the Los Angeles region is one of the single most important social effects arising from the rail project. Area residents will likely gain direct and immediate benefits that reduce travel times attributable to the Project alternatives. There are a number of regionally significant employment, shopping, educational, and cultural sites within the Los Angeles region to which the Metro Rail alternatives can improve access. Additionally, the effective integration of bus interface with Metro Rail stations, as discussed in Milestone 9, will further enhance regional accessibility.

Table 3-31 exemplifies how accessibility may be improved in the Los Angeles region. Four significant locations within the region were selected and the travel times with and without the Project alternatives were estimated to destinations within the region. The table indicates, for example, that if a person traveling from the Los Angeles County Museum to the El Monte bus station in the San Gabriel Valley chose to travel on the Locally Preferred Alternative over auto, he could save four minutes in travel time, and a 12-minute savings would be realized over a bus trip. All trips reflect travel from points outside the Minimum Operable Segment (shown on the left) to points within the Regional Core (shown on top).

5.4 MITIGATION

Table 3-32 summarizes mitigation measures and options, their effectiveness, and their applicability to affected station areas or environs. Mitigation measures are identified which SCRTD will implement and the mitigation options are those which may be implemented by other public agencies, possibly in coordination with SCRTD. SCRTD has contracted with the planning departments of the City of Los Angeles and the County of Los Angeles during Metro Rail's Preliminary Engineering phase to prepare specific plans for each Metro Rail station area. The City of Los Angeles Community Redevelopment Agency has also been recently contracted with for this work within existing and proposed redevelopment areas Metro Rail will serve. Citizens Advisory Committees (CAC) have been formed for each station area and these CACs have been advising planning staffs on land use, traffic, and other types of mitigation measures to be incorporated into the Specific Plans. During Final Design, preparation of these Specific Plans will continue.

TABLE 3-31

REGIONAL ACCESSIBILITY UNDER SYSTEMWIDE ALTERNATIVES
(Travel Time in minutes for Selected Trips)

Selected Trip Origins	Destination Within the Regional Core: CBD 7th/Flower — No Project Auto	Bus	LPA	MOS	L.A. City College 855 N. Vermont Ave. — No Project Auto	Bus	LPA	MOS	Museum 5801 Wilshire Blvd. — No Project Auto	Bus	LPA	MOS	Universal City Universal Studios — No Project Auto	Bus	LPA	MOS
E. San Gabriel Valley -- El Monte Station																
Estimated	37	37	36	37	40	53	51	52	52	60	48	49	50	52	62	N.A.
Measured	48	34							56	63						
Westwood -- U.C.L.A.																
Estimated	39	62	58	59	37	73	69	70	25	41	N.A.	N.A.	39	73	60	N.A.
Measured	52	67							29	38						
San Fernando Valley -- Galleria																
Estimated	42	59	61	N.A.	34	44	61	N.A.	40	70	43	N.A.	25	24	N.A.	N.A.
Measured	53	58							46	79						

Source: SCRTD, Technical Report - Regional Accessibility and Travel Time Analysis, 1983.

Note: Auto travel times based on the following average speeds reflecting existing peak hour conditions: freeways -- 30mph; arterials -- 25mph (20 in Western LA); CBD streets -- 12mph. Transit travel times based on current bus schedules, projected Metro Rail schedules, and bus routings under each condition. Current travel time for the selected trips has also been measured and is indicated under the "No Project" column.

Speeds on non-grade separated modes (auto, bus) are projected to decrease by the year 2000, due to increased development and activity in the Regional Core.

N.A.: Not Applicable

MOS: Minimum Operable Segment

LPA: Locally Preferred Alternative

TABLE 3-32
SOCIAL AND COMMUNITY IMPACT MITIGATION

Mitigation Measures that SCRTD Will Implement	Effectiveness	Applicable Station Areas
1. Relocation assistance to all residents and businesses directly displaced by the project.	Moderate-High	All except Civic Center, Wilshire/Normandie, Wilshire/Crenshaw, Hollywood Bowl.
2. Assist City and County of Los Angeles in the development of Specific Plans for each station.	High	All except Hollywood Bowl

Mitigation Options	Effectiveness[1]	Agencies That Could Implement	Applicable Station Areas
1. Maintain existing low density residential zoning or downzone to preserve stable residential neighborhoods.	Moderate -High	LADOP, LADRP	Wilshire/Crenshaw, Fairfax/Beverly, Fairfax/Santa Monica, Universal City
2. Provide relocation assistance to residential tenants displaced by new development in station areas.	Low	SCRTD, LA City Housing Authority, LACDC, CDC, CRA	All except Hollywood Bowl
3. Include affordable and market rate housing at stations on commercially zoned sites in lieu of increasing density in adjacent neighborhoods	Moderate	SCRTD, LADOP, LADRP, CRA	Civic Center, Fifth/Hill, Seventh/Flower, Wilshire/Normandie, Wilshire/Crenshaw, Fairfax/Beverly, Fairfax/Santa Monica, La Brea/Sunset, Hollywood/Cahuenga
4. Establish special rent control districts to avoid severe increases in rental rates in station areas.	Moderate-High	LA City Council, LA County Board of Supervisors, CDD, CRA	All except Hollywood Bowl
5. As a last resort, provide housing assistance for low income residential tenants in station areas to mitigate severe increases in rental rates.	Low	LA City Housing Authority, LACDC, CRA, CDD	Downtown stations, Wilshire/Alvarado, Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western, Fairfax/Beverly, Fairfax/Santa Monica, La Brea/Sunset, Hollywood/Cahuenga
6. Implement measures to reduce traffic spillover into adjacent neighborhoods (see Transportation section)	Low-Moderate	LADOP, LADOT, LADRP, CRA	All except Hollywood Bowl
7. Provide relocation assistance to business tenants displaced by new development in station areas.	Low	SCRTD, CEDO, CDD, LACDC, CRA	All except Hollywood Bowl
8. Establish special commmercial zoning or development review procedures to preserve existing small business that provide community services in station areas.	Moderate-High	SCRTD, LADOP, LADRP, CRA	All except Hollywood Bowl, Wilshire/La Brea
9. Encourage tenancy and investment in joint development to displaced firms.	High	SCRTD, LADOP, CRA, LACDC, CDD	All except Hollywood Bowl
10. Provide relocation assistance to social services or facilities displaced by new development.	Low	SCRTD, CEDO, CDD, LACDC, CRA	All except Hollywood Bowl

Table 3-32 (continued)

Mitigation Options	Effectiveness	Agencies That Could Implement	Applicable Station Areas
11. Establish special zoning or development review procedures to preserve existing and accommodate new social services and facilities in station areas.	Moderate-High	SCRTD, LADOP, LADRP, CRA	All except Hollywood Bowl
12. Encourage the inclusion of displaced and new social services and facilities in joint development projects/ stations.	Moderate	SCRTD, LADOP, LADRP, LACDC, CRA, CDD	All except Hollywood Bowl
13. Require 15% of all new housing constructed in the CBD to be low-moderate income housing.	High	CRA	Downtown stations

[1]The following scale has been devised to rate the probable degree of effectiveness in mitigating a potential impact:
- Low - Options designed to offer compensatory assistance after the fact to local residents, businesses or institutions experiencing hardship.
- Moderate - Options intended to soften, but not eliminate the impact on the community.
- High - Option essentially mitigates the impact, largely by preventive action.

Legend: CRA = Community Redevelopment Agency of Los Angeles
LACDC = Los Angeles County Community Redevelopment Commission (including the Economic Development Corporation)
LADOP = City of Los Angeles Department of Planning
LADOT = City of Los Angeles Department of Transportation
LADRP = Los Angeles County Department of Regional Planning
CEDO = City of Los Angeles Economic Development Office
CDD = City of Los Angeles Community Development Department
CDC = Los Angeles Community Development Commission

The mitigation options which will be implemented by other public agencies, however, cannot be ascertained with certainty at this time. Most will require further consultation with the responsible public agencies throughout the design process. While some may possibly be implemented during early stages of the project's construction and operation, it is possible that others may be implemented after several years of operation as the impacts of induced development are realized.

The following are mitigation measures which SCRTD will implement.

1. Relocation assistance will be provided for all displaced residents and businesses in accordance with state and federal regulations.

2. SCRTD will assist the City and County of Los Angeles in the development of Specific Plans for each station. This process began during Preliminary Engineering and will be completed during the project's Final Design.

The following are mitigation options which may be implemented by SCRTD and/or other public agencies. Table 3-32 identifies the public agencies which could be responsible for implementation.

1. To preserve stable residential neighborhoods subject to possible development pressure as a result of Metro Rail, zoning should reflect the existing use. At the Wilshire/La Brea, Fairfax/Beverly, Fairfax/Santa Monica, and Universal City Stations, this would require leaving the existing land use plans and zoning designations unchanged in some neighborhoods. In other neighborhoods in these station areas, as well as in other station areas, it might be necessary to revise the current zoning downward from R-3 or R-4 (multifamily) to R-1 (single family) or R-2 (duplexes) to reflect current usage.

2. Where residents of rental units are displaced by the construction of new residential or commercial development within a station area, relocation assistance could take a variety of forms. It could range from the identification of comparable units and payment of moving expenses to the extreme case of providing subsidized replacement housing as a "last resort." Such assistance is likely to be required in all station areas and could be provided, in part, by developers.

3. Where the demand for residential development within existing neighborhoods would create pressure for rezoning of existing residential areas to higher densities, housing could be provided on commercially zoned sites to reduce that pressure. The Land Use and Development section of this report describes implementation techniques for achieving this objective.

4. To mitigate the impact of residential rent increases due to increased land value in station areas, the existing rent control policy of the city could be modified as needed to address problems unique to Metro Rail station areas. This measure may be required in all station areas.

5. In cases where the above measure proves inadequate, direct housing assistance might be required for low-income tenants as a "last resort."

6. To mitigate the traffic and parking impacts likely to "spill over" from stations into surrounding neighborhoods, the mitigation options identified in the Transportation section could be implemented.

7. Where existing business tenants are displaced by new development in station areas, relocation assistance should be provided. It could range from tenancy in the new development project at rates comparable to current rates, which could increase as sales increase over time, or to the identification of comparable sites and payment of relocation expenses. This impact could occur at all stations and mitigation could be provided by developers.

8. Where it is desirable to preserve an existing shopping area because of its value to the community, zoning or development review procedures could be formulated to achieve that objective. The need for this mitigation option may emerge as a community goal in any station area during the Specific Plan process. It is expected to be a major concern at the Fifth/Hill, Seventh/Flower, Fairfax/Santa Monica, Fairfax/Beverly, and Hollywood/Cahuenga Stations. Potential implementation techniques include downzoning to reflect current development intensities and transfer of development rights. These techniques are discussed in the Land Use and Development section of this report.

9. SCRTD could encourage developers to offer tenancy and an opportunity to invest in joint development projects to businesses displaced by development throughout the station area.

10.-12. Options 10 through 12 are identical to Options 7 through 9 except that Options 10 through 12 apply to displacement of social services and facilities.

13. The CRA's low-moderate income housing requirement (15 percent) could be implemented for all new housing constructed in the CBD.

6. SAFETY AND SECURITY e)

6.1 INTRODUCTION

The Metro Rail Project will create new public areas and change the daily travel patterns of residents and employees of the Regional Core. Attention to the design of these new areas and their relationship to the surrounding community can both encourage ridership on the system and contribute to the vitality of the urban environment. System design can help achieve both of these benefits by creating a safe and secure environment. This section provides an overview of the safety, fire/life safety, security and system assurance design requirements which will ensure construction and operation of a safe, secure and reliable system.

6.2 SAFETY

Safety refers to the prevention of accidents to passengers resulting from such things as fires, faulty equipment, and improper boarding. The safety record of rail rapid transit (measured in deaths per millions of passenger miles) is better than any other form of urban transportation. To ensure that the operation of the Metro Rail system will either equal or exceed the safety systems currently in operation, safety planning has been a primary focus of preliminary architectural design and site planning work.

SCRTD has formulated policies and a system safety program plan as part of the Milestone 7 Report: Safety, Fire/Life Safety, Security, and Systems Assurance. Basic to the program are safety procedures, training programs, accident reporting procedures, system hazard tests, and fire/life safety requirements drawn from applicable local, state, and federal codes. Specific guidelines cover safety features for stations, communications, passenger vehicles, automatic train control, electrification, central control, ways and structures, and personnel.

6.3 SECURITY

Security refers to the prevention of acts defined as unlawful, criminal or intended to bring harm to another or damage property. In a broader sense, it also means freedom from threats or uncertainty about the likelihood of such acts. Crime and anti-social behavior is a potential problem in any public environment because there is often uncertainty about who is responsible for supervising the space and how undesirable acts can be controlled.

By careful, systematic design and planning, experience in recently constructed rapid transit systems (Washington, D.C., Atlanta) suggests that rail rapid transit facilities not only can mark an improvement over what transit patron security has been, but can also help reduce crime risks in surrounding neighborhoods as well by creating new public space that is often frequented and, thus, informally surveilled. As a result, most of the security problems rail transit riders are likely to experience do not differ from security problems in other public places. Nevertheless, there is a general perception that people around or in the stations or even aboard the trains are subject to higher crime risks.

Potential security problems for the project have been examined for each station complex, station area, and station environs so that the potential for criminal activity could be reduced through preliminary architectural design and site planning. Each of these areas and the conditions affecting crime risks are outlined below.

Station Complex. The station complex consists of station components such as parking facilities, entrances, pedestrian passages, bus bays, and bus terminals. These components are designed to avoid areas that are remote, dark, or out of public view, so that potential impacts—including a greater risk of muggings, assaults, robberies, and auto thefts—can be avoided.

Station Area. This impact area includes the immediate vicinity around a station. Security concerns within this area include increased pedestrian activity; increased bus and auto boardings, exits, and drop-offs; increased curbside parking; and increased off street parking. These concerns require specific measures to control the risk of crime to people and property.

Station Environs. The more territorially defined the residential base of a community, the more it will resist crime impacts. Metro Rail will induce development into communities around stations. New development should be properly integrated with the existing communities to preserve or to better perceptions of neighborhood security, boundaries, and territory. With adequate security, increases in the risk of robberies and burglaries can be avoided in higher density development, with high rise offices and multiple occupancy residential buildings.

6.4 IMPACT ASSESSMENT

The most significant determinant of crime seems to be the type of community through which the transit system runs. Thus, the likelihood of criminal activities varies with the "ambient" crime level of the communities served. At the station complex level it is expected that crime impacts would be minimal. The attention SCRTD has focused on the problem of crime control coupled with the general and specific measures for mitigation suggest that the potential for increased crime in and around stations can be controlled.

Particular attention is needed to provide adequate surveillance where long passages are needed to connect the station entrance and loading platforms. In station environs and station areas, the impact of Metro Rail depends on the character of the surrounding development. Areas with many vacant lots and parking areas are considered "porous", allowing criminals to escape easily. In other areas, well-defined land uses and stable neighborhoods, reduce opportunities for crime. In Washington, D.C., the beginning of subway rail rapid transit operations in the central city area was accompanied by a drop in the crime rate in a number of the areas surrounding the system. This drop in reported crime has been attributed to a variety of factors: the perception by criminal elements of an increased law enforcement presence in the areas near stations; greater number of people around the station areas which tended to increase "public surveillance" (especially in the evening hours); and reinvestment and upgrading of the buildings and neighborhoods around stations which discouraged loitering by criminal elements. The successful security practices and methods developed by BART, the Washington Metropolitan Area Transit Authority (WMATA), and other recent rapid transit systems should generally become "standard practice" for the Los Angeles Metro Rail system. Metro Rail in Los Angeles can be expected to achieve the high levels of station area security typified by these other new systems.

The No Project Alternative neither creates opportunities for crime nor presents a way to reduce crime risks. Neither the Minimum Operable Segment nor the Locally Preferred Alternative creates any unmitigable adverse impacts, and at several locations, such as Wilshire/Alvarado and Hollywood/Cahuenga, they provide a stimulus for revitalization or redevelopment that can help reduce existing high ambient crime levels. An aerial configuration can be properly designed to prevent crime, so the Aerial Option is not expected to affect crime risks any differently than the Locally Preferred Alternative. A detailed assessment of potential crime risks on a station-by-station basis is presented in SCRTD's Technical Report - Crime Impact Analysis of SCRTD Metro Rail Project (1983).

6.5 MITIGATION

6.5.1 SAFETY CONSIDERATIONS

Safety considerations involved the mitigation of potential hazards and prevention of accidents so that passengers and employees are not injured and transit system property is not damaged. SCRTD has carefully determined the criteria which are essential to the design and operation of a safe system and developed a safety

program plan. Design criteria associated with the prevention of accidents in stations, aboard vehicles, and in other areas of the transit system place heavy emphasis on architectural features that will minimize the potential for accidents. Following are some of the design criteria which have been utilized.

- The station and surrounding site have been designed so that bus and automobile traffic patterns will safely interface with pedestrian and street traffic. Clear, comprehensible signs, as well as high levels of visibility between pedestrians and vehicle drivers, will also be utilized to achieve this.

- Station architectural design criteria include provisions such as those for adequate lighting, walking surfaces constructed of nonslip materials, safe pedestrian access to station entrances, and fail safe train control apparatus.

- Design criteria focusing primarily on protection of people and property include planning for adequate emergency exits, stand-by electrical power supplies, appropriate alarming systems and emergency communications systems. The communications system will include closed circuit television monitors, a public address system, and emergency telephones.

6.5.2 FIRE/LIFE SAFETY CONSIDERATIONS

Fire/life safety deals with emergency preparedness for all types of major incidents including fires and other major disasters. Fire/life safety considerations involve preventive design criteria and those which provide protection for people and property in the event an emergency should occur.

Preventive Measures. Preventive design considerations rely on the use of low combustion or non-combustible materials to the maximum extent possible. Where low-combustion materials are used, as in seat cushions or electrical wiring, the materials will be low smoke and toxic fume producing substances. Preventive criteria include those requiring extensive fire sprinklers and standpipe installations, smoke and gas detectors, alarm systems, adequate exits and other emergency provisions for safety walkways, exits to streets and cross passages for safe egress to an adjacent tunnel should a fire occur. Tunnel ventilation equipment will keep smoke and toxic fumes to safe levels until patron evacuation is completed.

Protective Measures. Protective criteria include planning emergency procedures and responses by and for SCRTD personnel and local emergency response agencies. Periodic and extensive training drills will be developed and conducted by these various agencies to assure rapid and effective emergency response.

6.5.3 SECURITY CONSIDERATIONS

Many of deterrence, detection, and apprehension measures that can reduce crime risks are described in greater detail in the Milestone 7 Report. The following discussion seeks to highlight some of these security measures from the transit user's standpoint.

Station Supervision. A key element in assuring transit patron security is station layout (see also Station Design following) and the effective employment of transit station personnel. In older transit systems, station personnel are often used to

collect fares. Because this operation involves money, these personnel are often locked into ticket booths, off in a corner of the station. They are, thus, in a "defensive" position, somewhat vulnerable to crime (robberies) and unable to see or do anything about patron security.

Metro Rail station personnel, by comparison, will operate out of a supervisor's command center or podium, positioned at a central location on the station mezzanine where transit personnel can continuously supervise the train platform, station access points, elevators, and fare gates. The station supervisor's direct visual surveillance will be assisted by closed-circuit television cameras that scan all parts of the train platform and each station entry point. Emergency telephones will also be located in station areas so that patrons can report problems or incidents directly to the station supervisor. Public address systems will allow station supervisors to broadcast to patrons (or offenders) as soon as incidents are reported or spotted on television cameras. These measures, combined with immediate, direct radio communication with transit police, will enable transit personnel to quickly detect undesirable behavior and take necessary steps to apprehend any suspects.

Because all tickets are expected to be issued by automated ticket machines, the station supervisor handles no money. He will be free to move around the station, to assist patrons, respond to infractions, and assist transit police. The station supervisor should thus be able to assert a presence that will help relieve perceptions by patrons that the station areas are unsupervised.

Station Design. People's perceptions of their security needs will also be recognized in station design. Station interiors will be open and clearly lighted; low ceilings, excessive numbers of columns, and darkened areas will be avoided; clear sight lines will be emphasized; and designs will seek to eliminate any blind spots or potential hiding places for criminals. Passages to the street, often a troublesome area, will get particular attention. Stair passages will generally be kept straight and will be sufficiently wide so that their entire length can be readily seen, thus reducing unanticipated (and unobserved) conflicts with other users.

SCRTD designers recognize that station appearance can have a subtle but important influence on behavior and attitudes. Station facilities that seem overly utilitarian, impersonal and/or uncared for tend to elicit anti-social behavior more than other environments. For these (and other) reasons, station cleanliness will be given attention, and vandal- and graffiti-resistant materials in both stations and vehicles will be used to facilitate quick repair and restoration of any abused areas. Station architects will seek to instill, within the limits of available funding, a sense of care and civic pride. The special station arts program will also help give stations a more human, personalized character.

Train Security. Each train car will have intercoms that patrons can use to report disturbances to the train operator. The train operator will then alert transit security people to board and/or otherwise intercept any suspects at the next station. Transit police will also be assigned to routine patrols on-board trains.

Over the past several years, SCRTD has substantially expanded and upgraded its own transit police force. Transit police officers now complete essentially the same rigorous academy training as LAPD officers and particpate in a wide range of police activities, including undercover and investigative work. The State legislature has recently given SCRTD's transit police the power to make arrests, write tickets and enforce laws as sworn peace officers. Officers covering Metro Rail facilities will be

professionally trained in the use of firearms in confined spaces and bodily defense techniques.

SCRTD now deploys officers to patrol areas in the community where transit patrons congregate and to quickly respond to complaints of disturbances on board buses. With the beginning of Metro Rail operations, significant additions would be made to the transit police force so that Metro Rail security can receive priority attention. SCRTD Transit Police will work cooperatively with the Los Angeles Police Department and the Los Angeles County Sheriff's Department. Metro Rail design criteria involving interagency law enforcement will include extensive communications systems, as well as detection and alarm apparatus.

(Text continued on the following page.)

7. AESTHETICS

7.1 INTRODUCTION

The rail transit facilities will alter the visual setting and appearance of the communities through which the system passes. The changes brought about by the construction of stations, possibly an elevated guideway, ventilation shafts and ancillary structures can either enhance or impair the visual setting, depending on the scale and design of the transit facilities and the physical and visual characteristics of the areas along the system's route. A summary analysis of the more significant visual changes follows, and a fuller description of findings is provided in the SCRTD Technical Report on Aesthetics (1983).

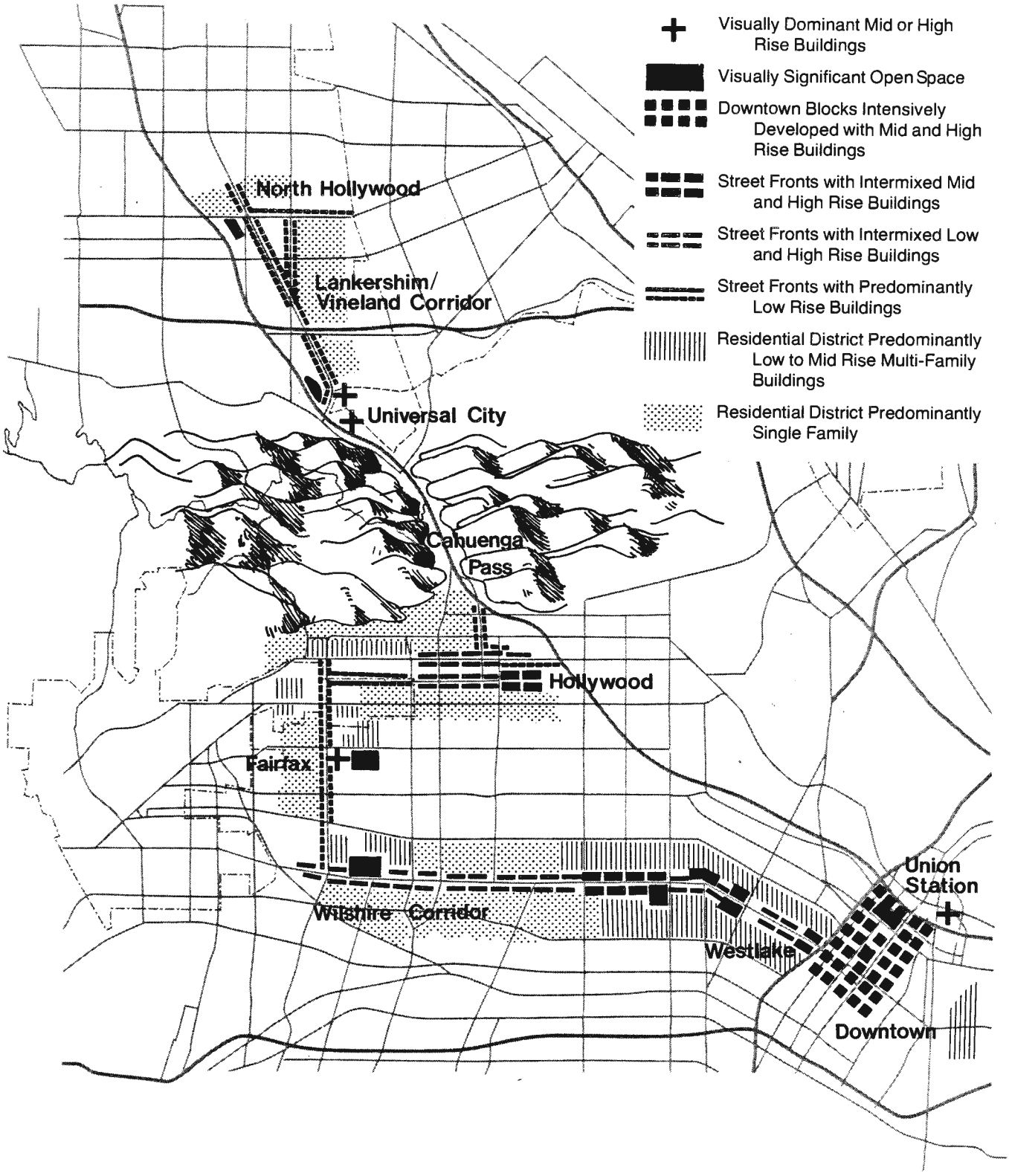
7.2 EXISTING CONDITIONS

Mountains form a natural backdrop for Metro Rail facilities, and the street and freeway grids are the man-made key to the Regional Core's visual organization. Within these grids is a series of districts served by Metro Rail, each with its own visual character. Some areas, such as the Central Business District and Wilshire Boulevard with their prominent high-rise buildings, are visible from many locations, thus serving as regional orientation points. Figure 3-13 describes the urban form along the proposed alignment.

The visual character of each district along the alignment is described to provide a sense of how surface or above ground rail transit facilities may affect the visual setting. Such facilities include park and ride areas, traction power substations, cooling towers, and elevated components of the Aerial Option.

Union Station. The large space surrounding and including Union Station feels open and pleasant, largely because of extensive landscaping. This space is bounded by the Terminal Annex Post Office and El Pueblo de Los Angeles State Historic Park and is dominated by the freestanding Union Station. Though the station is as high as a mid-rise structure, its great length, the expanse between the station and Alameda Street, and architectural features at the ground level all work to create a comfortable scale. To the rear of the station is a train and baggage handling area, containing low-scale sheds that are currently underutilized. Between the sheds and Vignes Street is an abandoned open space not part of the station proper, bounded by the Santa Ana Freeway, adjacent industrial structures, the six-story Piper Technical Center, and a restaurant. The San Gabriel Mountains to the north are highly visible from here.

Central Business District. The visual setting of the Civic Center district is influenced by the formal placement of government buildings around the open space of the Civic Center Mall above which rises one of downtown's most prominent landmarks—The Music Center Complex. While the area north of First Street is completely developed with substantial and viable buildings, there are developable sites located south of First Street including the L.A. Times-Mirror site, the county-owned parcels, the former State Office Building site, and the remaining vacant lands in the Bunker Hill Redevelopment Project. The Civic Center Station will serve



Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

Figure 3-13
Urban Form

SEDWAY/COOKE
Urban and Environmental Planners and Designers

government workers, Music Center patrons, Bunker Hill workers and residents, and Little Tokyo residents and tourists.

The Fifth/Hill Station will be the most centrally located, intensively patronized station within the CBD, offering the greatest variety of destinations, including office, retail, cultural, and entertainment uses. The Fourth Street entrance, in particular, will need to function as a linkage between four major CBD activity areas: Bunker Hill to the north of the station, the financial district to the west, the Jewelry Mart to the south, and the Broadway retail/theater and future Spring Street mixed use district to the east. Visually, the Hill Street district is characterized by older buildings of architectural and historic significance ranging in height from two to thirteen stories and separated by parking lots. While the character of the Fifth/Hill Station area is derived from a significant surrounding stock of historic buildings, the station portals will also need to reflect major planned and projected development of the California Plaza and adjacent sites. The open space of Pershing Square provides a focus for the area and has the potential of becoming a major station-related, pedestrian amenity. The human factor overriding these design factors is the need to integrate very diverse user groups. This station will serve Bunker Hill residents and workers, ethnic shoppers using the Broadway district, tourists, and elderly residents.

Between the Harbor Freeway and Hill Street, Seventh Street is a mixed use district strongly influenced by approximately 750,000 square feet of regional retail floor area and over 1,500 hotel rooms. Office space is the predominant use north of Seventh Street, creating the largest concentration of CBD workers in the district's approximately three million square feet of office buildings. In the area south of Seventh Street, South Park, office uses and large development sites present opportunities for expansion of the CBD financial core and creation of a high density residential community. Visually the Seventh Street district is best described as a seven block canyon formed predominantly by twelve-story buildings which create a continuous streetwall along the property line. Within this canyon, there is both an atmosphere of congestion and an energized public space, generated by a continuous ground floor retail use serving CBD workers, shoppers, tourists, and South Park residents. It is a district distinguished by buildings of architectural and historic significance. Although the buildings vary in use and design, they share a continuity in their scale and facade detail and definition of ground level entrances and display.

Wilshire/Alvarado. This district comprises three blocks between 7th Street, Wilshire Boulevard, Alvarado Street, and the east side of Bonnie Brae Street. The interior of the blocks consists primarily of a large open area used for surface parking, bounded by structures with distinctly different frontages. Older, mid-rise office buildings (predominantly medical offices) line Wilshire Boulevard east of Alvarado. These well-maintained vintage buildings have distinctly different activity patterns. Alvarado Street's continuous one- and two-story facilities are part of a vital lower-income ethnic commercial center. While many of these buildings are older, they contribute to an intimate scale and an active street life extending to the adjacent MacArthur Park. This park is a major visual feature, incorporating extensive landscaping as well as a lake and a variety of other recreational facilities.

Wilshire Corridor. This district includes the building frontages on Wilshire Boulevard between Vermont and Curson Avenues and can be seen as a linear extension of downtown's mid- and high-rise uses, though fronting on a single boulevard instead of a grid. As with the downtown district, the corridor skyline is visible from many points in the region. The district has several consistent visual attributes: the width

of Wilshire Boulevard (105-foot right-of-way for most of its length), well-defined street space, a high level of building investment and maintenance, and good street landscaping. Wilshire Boulevard at Vermont contains a mixture of low-, medium-, and high-rise commercial structures that define the street space adequately but create inconsistent scale. At Normandie Avenue, Wilshire Boulevard is a well-defined, maintained and landscaped street incorporating mid- and high-rise buildings with such architecturally distinguished buildings as the Wilshire Christian Church. The intensity of corridor development continues at Western Avenue, but the spatial definition and scale are more fragmented, partly because of several architecturally distinct complexes (Pellissier Building, Ahmanson Plaza, Beneficial Plaza) that do not consistently relate to the Wilshire Boulevard frontage. Crenshaw Boulevard marks the transition between the high level of commercial development to the east and the lower level of residential, retail, and office development including some vacant lots and surface parking that extend to La Brea Avenue. From La Brea Avenue to Hauser Boulevard, Wilshire Boulevard narrows, with a consistent low- to mid-rise scale and strongly defined street space.

Wilshire/Fairfax. The dominant visual element in this district is the extensively landscaped Hancock Park, which contains major cultural resources. The station vicinity is strongly defined by Museum Square and other mid-rise structures. The southern boundary includes low- to high-rise commercial buildings and a large vacant parcel, resulting in inconsistent scale and weakly defined street space.

Fairfax/Beverly. South of Beverly Boulevard the predominant visual character is established by the free standing, five-story CBS studios as well as the one- to two-story Farmers Market, both surrounded by a large parking area. To the north of Beverly Boulevard on Fairfax Avenue is an area of one- and two-story commercial structures, housing a number of small shops oriented to the Jewish community. Their consistent scale and placement on the property line, coupled with the narrow street width of 70 feet, create a well-defined street space.

Fairfax/Santa Monica. This low-rise community commercial center for West Hollywood creates a fragmented visual impression, with street space poorly defined. The Hollywood Hills to the north on Fairfax Avenue are a major visual feature.

Hollywood. The Hollywood district incorporates three distinct types of settings, having in common closeness to and a view of the Hollywood Hills. In the La Brea Avenue/Sunset Boulevard area, a number of low and often freestanding commercial structures are at varying distances from the property line, resulting in weak and fragmented street space. By contrast, Hollywood Boulevard is a distinctive and strongly defined east-west corridor serving as a regional commercial and entertainment center. The clear spatial definition and the distinctive urban image of Hollywood Boulevard are not maintained in the area to the north centering on Cahuenga Boulevard, which typically contains low commercial and residential structures alternating with parking lots. In this section, only portions of the block fronts on Cahuenga Boulevard, Yucca Street, and Franklin Avenue have continuous building faces.

Universal City. This district incorporates Universal City, the commercial structures and residential community to the north, Weddington Park, and the mountains sloping to Ventura Boulevard south of the Hollywood Freeway. The freeway and the mountains are visible from many locations. The mid- to high-rise office structures of Universal City on Lankershim Boulevard establish a strong and varied block face,

as well as a unique visual image not reflected on the north side of the street. Here, large surface parking lots are interspersed with a few low commercial structures and the landmark, Spanish-styled Campo de Cahuenga. To the north, on both sides of Bluffside Drive and Willowcrest Avenue, is a well-established single family and multifamily residential community with one- to four-story structures, mature landscaping, and consistent scale. Weddington Park, a neighborhood facility with a large open grass area, is adjacent to the residential area on the north side of Bluffside Drive. The hills to the west of the Hollywood Freeway and Ventura Boulevard are densely developed with single family homes. Low-rise commercial structures form a consistent block frontage at the base of the hills on the west side of Ventura Boulevard.

Lankershim Boulevard. Lankershim Boulevard contains predominantly one- to three-story commercial buildings interspersed with a few mid-rise office structures, with most buildings at or near the property line. Road right-of-way width varies from 90 to 100 feet. Lankershim Boulevard between Chandler and Magnolia Boulevards narrows (80-foot right-of-way) and is bordered by older low-rise commercial buildings that establish a continuous frontage at the property line. The consistency of commercial uses, the utility power poles, the Ventura Freeway overpass, and the view of the mountains to the south contribute to a well-defined but somewhat chaotic visual and spatial character.

North Hollywood. The strong street space definition along Lankershim Boulevard gives way north of Chandler Boulevard to a more fragmented development pattern, including several freestanding commercial and industrial buildings surrounded by surface parking and storage yards. Chandler Boulevard west of Lankershim Boulevard to the Hollywood Freeway contains the historic Hendrick's Builders Supply Company building, and a variety of uses. The inconsistent setbacks from the street and alteration of structures with open lots result in a weak and fragmented definition of street space. Mountains to the north and the Hollywood Freeway to the west establish the regional visual setting.

7.3 IMPACT ASSESSMENT

Metro Rail stations will be designed with individual, unique identities and to provide a visually enjoyable experience. The station complex will be further enhanced by an artwork program that will include procedures for accepting donated artwork and for the commissioning of artwork by SCRTD. A percentage of each station's construction cost is proposed to be dedicated to artworks.

While the stations themselves will be visually pleasing, aesthetics are also concerned with how the system relates to the community. The rest of this impact assessment addresses this relationship.

7.3.1 IMPACT MEASURES

Impact measures have been used to document a range of significant visual changes, including significant contrast in scale between transit facilities and nearby development, changes in the appearance of streets as viewed by pedestrians or motorists, and increased visual exposure of occupants of residential and commercial structures.

View Alteration. The visual relationship between a specific area and the larger community and regional setting has both aesthetic and functional importance. If Metro Rail construction blocks or obscures views of major natural features, plazas, or distinctive buildings, the impact is negative. Conversely, if Metro Rail construction opens up new views, such as those created by an aerial alignment, or improves existing views by channeling the eye toward visually important structures or natural features, the impact is positive.

Change in Visual Setting. Displacement of existing uses and construction of major facilities such as parking areas, elevated stations, and subway station entrances could significantly alter physical conditions and appearance along the Metro Rail line. When this change removes negative elements, such as unsightly buildings and disorganized, unlandscaped parking areas, or eliminates uses which disrupt the prevailing function of the area, the impact is positive. Conversely, when uses that contribute to the vitality of the area or structures that lend visual interest are displaced, the result is negative.

Street Facade Appearance. An attractive, comfortable setting for pedestrians is important to the success of urban commercial streets. Essential to this setting is a relatively consistent and continuous commercial facade, uninterrupted by vacant parcels, parking lots, or buildings with inconsistent or deep setbacks. Ground level uses offering visual interest and variety, and such factors as carefully considered walkways, signs, and landscaping are also critical to the success of such streets. Where Metro Rail construction requires removal or disruption of buildings or other features that contribute to the scale, continuity, appearance, and utility of pedestrian-serving streets, the impacts are negative. When, however, Metro Rail construction eliminates buildings or spaces that detract from the street facade or creates opportunities for future construction that could enhance the pedestrian portions of the street space, the result is positive.

Street Space Appearance. The public—as motorists, pedestrians, and transit riders—sees the Metro Rail route primarily from the street. One's visual impression of the streets along the route is formed by the width of the street, its landscaping, the height of facing buildings, and the continuity or discontinuity of the structures along each side. As the basis for determining likely impacts of Metro Rail construction (1) the street space should be sufficiently contained o both sides to provide a sense of enclosure and a visual channel; (2) continuous or nearly continuous building facades should be maintained along each side of the street, with the buildings high enough to provide a sense of enclosure; (3) the heights of adjoining buildings should relate to the function and scale of the street--for example, two or three stories along narrow, 60- to 80-foot retail streets and five or more stories along broad boulevards; and (4) a clear distinction should be established between space for pedestrians and space for vehicles. Where Metro Rail construction produces or promotes development consistent with the above principles, the impact is positive. The impact is negative where construction and location of Metro Rail facilities eliminate existing features contributing to a well-defined street space or preempt future development that would be in accord with these principles.

Compatibility of Scale. The visual fit of Metro Rail facilities within the commercial and residential districts through which Metro Rail passes is a major concern. Where Metro Rail structures conform to the prevailing scale (height, bulk, proportions) of neighboring buildings, street spaces, and other outdoor public spaces, the result is positive. However, where Metro Rail structures produce an abrupt contrast with

surrounding structures and spaces, the effect is negative. Examples of the latter include elevated guideway structures that tower above adjoining buildings and multilevel parking structures immediately adjacent to low rise residential units.

Visual Proximity. The users of Metro Rail facilities and the occupants of adjacent residential and commercial structures can see each other where elevated guideways, stations, and the upper levels of a proposed parking structure are close to occupied buildings. Such effects are considered very serious when the outer edge of the guideway, elevated station, or station parking structure, is within 60 feet of the facing residential or commercial buildings. This is the approximate range in which facial expressions can be discerned. The effect is considered serious when the outer edge of the guideway, elevated station, or parking structure is within 61 to 120 feet of adjoining residential or commercial buildings. Within this range personal recognition is possible. Beyond 120 feet the adverse effects are considered negligible.

7.3.2 LOCALLY PREFERRED ALTERNATIVE

The Locally Preferred Alternative will have relatively insignificant adverse impact on the overall character, scale, and form of the visual setting in the Regional Core, however, in particular localized areas visual impacts are considerable. In various instances, the rail transit system will produce positive effects. For example, the location of station entrances will enhance the visual setting by increasing exposure to and channelizing views of parks and historic properties at Union Station, Civic Center, Fifth/Hill, Wilshire/Alvarado, and Universal City. Moreover, at Wilshire/Vermont, Wilshire/Crenshaw, and Fairfax/Santa Monica, station construction removes fragmented development and creates an opportunity for joint development to reinforce the street space and a continuous commercial facade.

In contrast, the displacement of buildings at other locations will adversely affect the visual setting by breaking the continuity of the building facade or by detracting from an otherwise consistent street appearance. Into these vacant sites, Metro Rail facilities like station entrances and vent shafts (box-like structures 10 feet from the ground) will be erected. The significance of the impact generally varies with the extent of demolition at each station and is most severe at Wilshire/Alvarado, Wilshire/Western, Hollywood/Cahuenga, and Universal City.

This disruption of the visual setting and scale relationships at the first two stations will be mitigated when new construction is erected and the continuity of the facade is restored. Moreover, if the cooling towers are carefully sited and acquisition or development agreements can be made with owners of adjacent property, these structures can eventually be incorporated into new on-site development, and visual problems can be eliminated. At the latter two stations, however, the off-street location limits further development of the site and thus mitigation of the adverse impacts. Construction of the Universal City Station removes portions of the Bluffside residential area, which helps enclose and define the street space of the area. The demolition of these small-scale residential buildings constitutes a permanent alteration of the area's coherent visual setting.

The system's parking structures, while not to be constructed initially, will have visual impacts when they are built. At Union Station and Fairfax/Beverly, the proposed structures will help organize and create visual definition for what are currently abandoned or open, visually fragmented areas. At Fairfax/Beverly the opportunity

exists to incorporate street level commercial uses along Beverly Boulevard and Fairfax Avenue to reinforce the continuity of the commercial street facade. The parking facility at Universal City would replace the existing Hewlett-Packard building, which because of its size and appearance is visually compatible with the adjacent Campo de Cahuenga, a state landmark. Parking at Universal City could be shared between two sites, one just north of the Campo de Cahuenga and the other along and north of Ventura Boulevard east of Vineland Avenue (Figure 2-24.1). Either site may have a surface parking lot, a three-story building or a six-story building. The parking structures would be bulkier than the Hewlett-Packard Building they replace, thereby exaggerating the contrast in scale between the Campo de Cahuenga and the surrounding building. The parking structures would nevertheless be more in scale with the nearby Universal City buildings and offer better street space definition than the current building. Consequently, overall, the parking structure will not have a negative impact. At North Hollywood, the multilevel parking structure, approximately 50 feet high, will contrast with the relatively small existing structures. However, as development progresses under the Community Redevelopment Agency's Redevelopment Project, this adverse impact is expected to be eliminated.

7.3.3 AERIAL OPTION

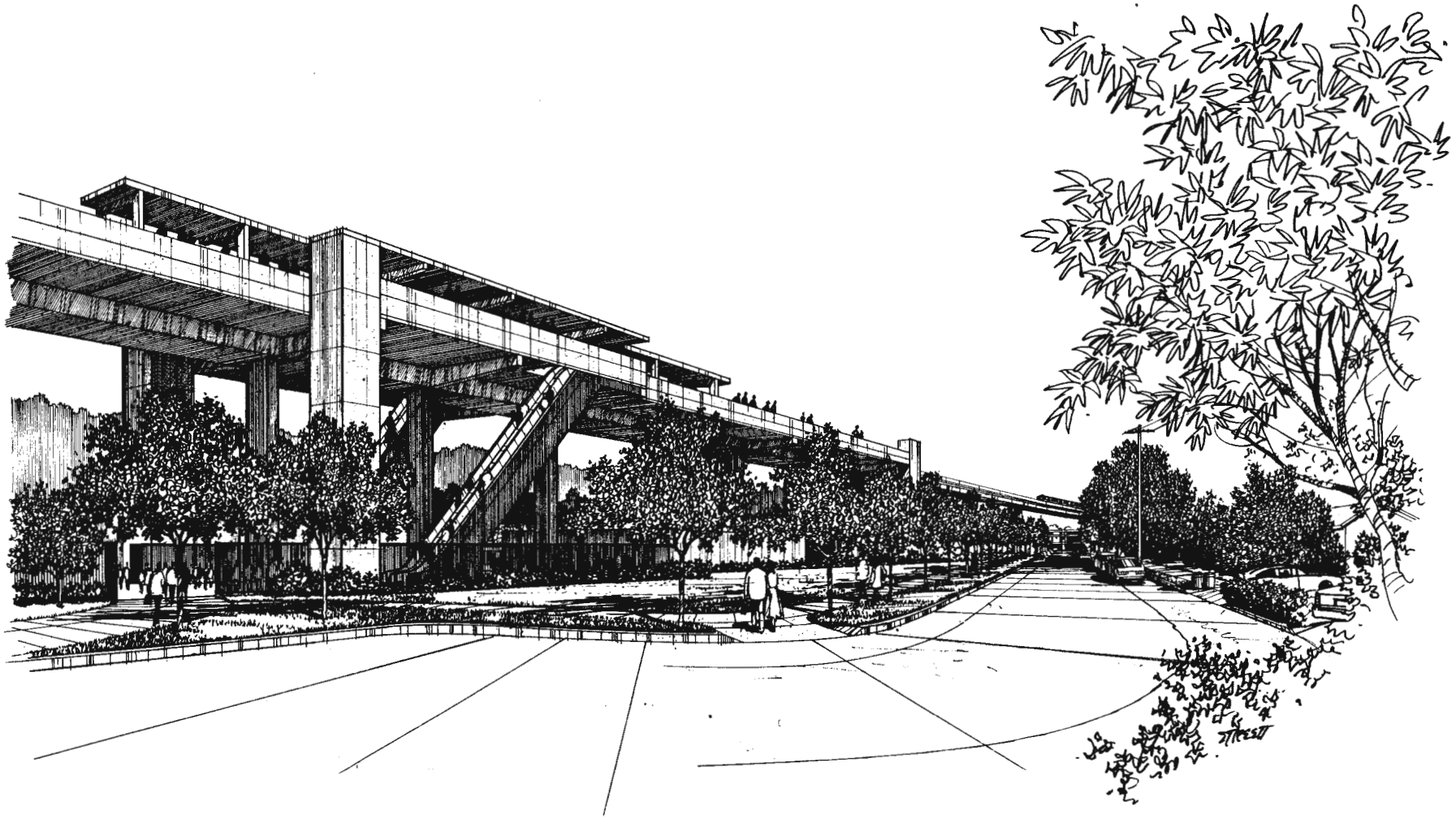
Visual impacts of the Aerial Option are identical to the Locally Preferred Alternative, except in the San Fernando Valley. In this segment, the alignment is elevated and its impacts on the visual character of the area become much more pronounced. The elevated guideway will be 20-42 feet high, about 25-30 feet wide, and supported by 6-foot wide columns. The aerial stations at Universal City and North Hollywood would stand approximately 20-33 feet above ground, be 84 feet wide at the platform level, and extend about 450 feet (Figure 3-14). Key impacts of the portal, stations, and elevated guideways are described below.

- The portal where the transit system emerges from the mountains is incongruous in scale to and will be constructed within 60 feet of the residential area below (Figure 3-15).

- The station at Universal City, while creating regional views to the east, degrades the outdoor space and introduces a structure incompatible in scale with surrounding land uses. The guideway is much taller than most buildings fronting onto Lankershim Boulevard and essentially will cut Lankershim Boulevard in half, creating two relatively narrow visual channels when viewed diagonally (Figure 3-16).

- The elevated guideway will also be within 60 feet of structures along the west side of Lankershim Boulevard for its entire length and along the east side of Camarillo Street. At this distance, the visual privacy of about 3,000 feet of residential frontage, all south of Camarillo Street, would be adversely affected. About 11,900 feet of commercial frontage would also be affected, although not necessarily adversely since such exposure may enhance local businesses by increasing their visibility.

- At North Hollywood, the design of the station and landscaped environment would have a beneficial effect by replacing a visually fragmented and unorganized setting. However, the parking structure's bulk and height is incompatible with the relatively small structures along Chandler Boulevard. As noted earlier, this



Southern California Rapid Transit District
Metro Rail Project
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Figure 3-14 Prototypical Aerial Station

Harry Weese & Associates

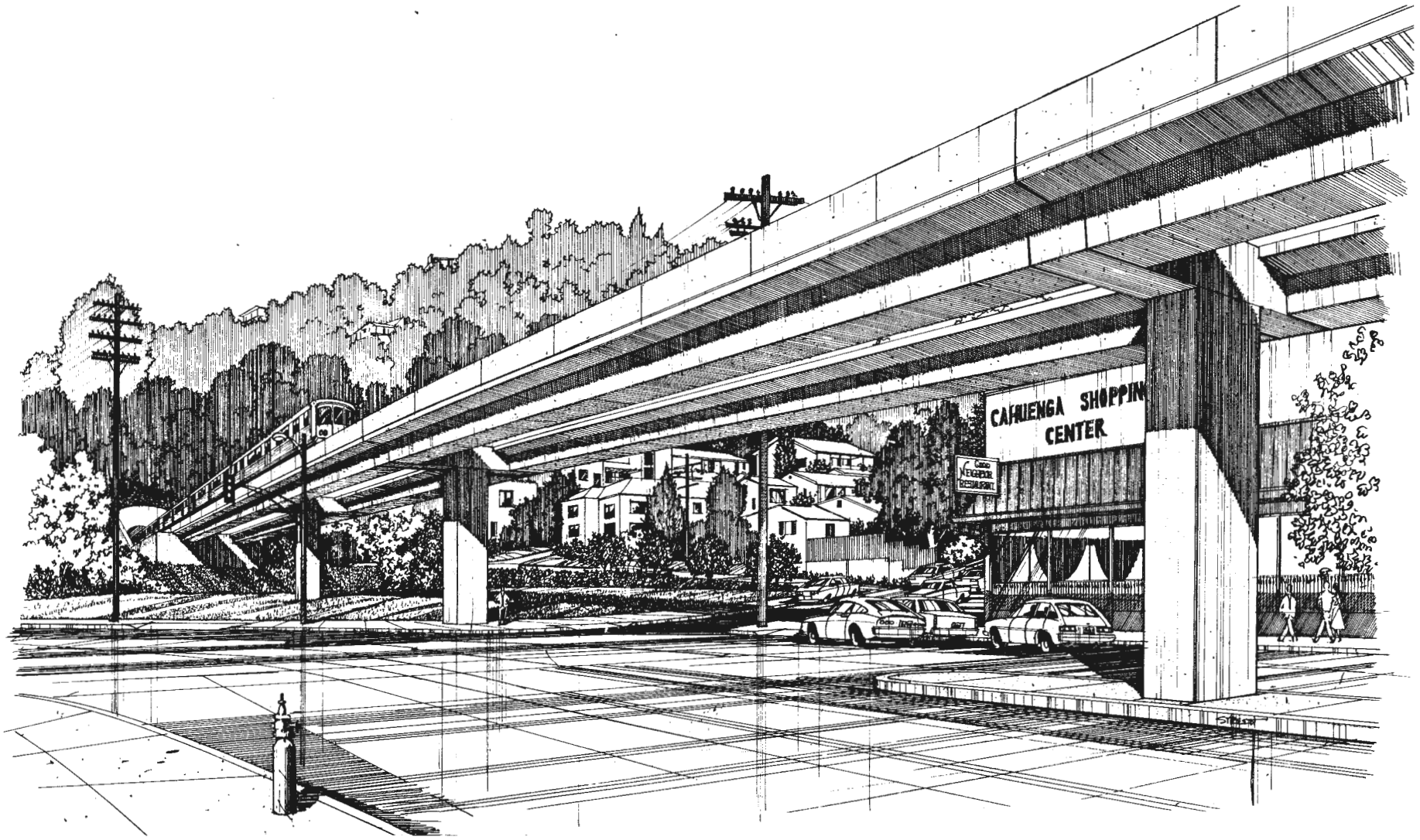

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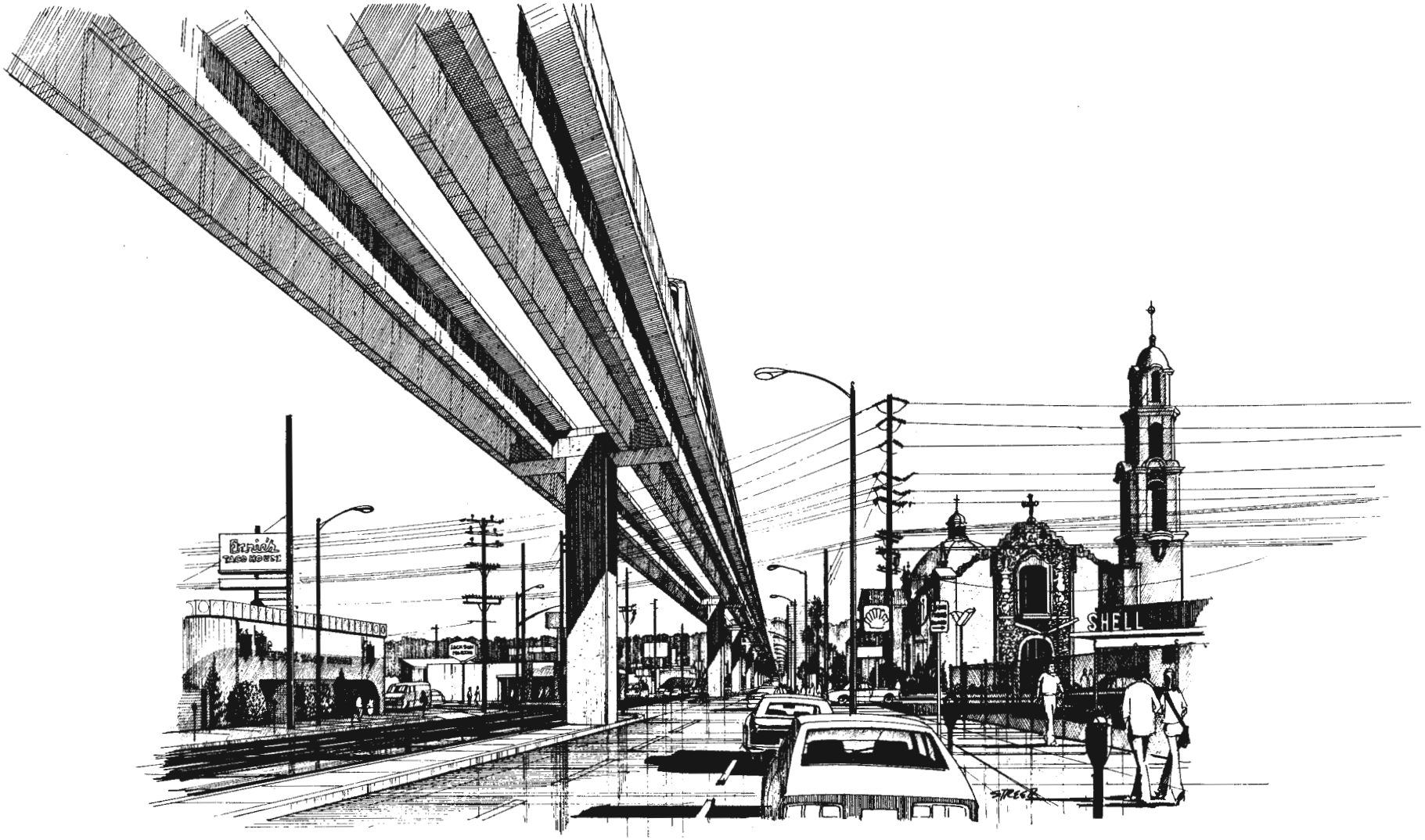
Figure 3-15 North Hollywood Portal, Aerial Option

Harry Weese & Associates



Southern California Rapid Transit District
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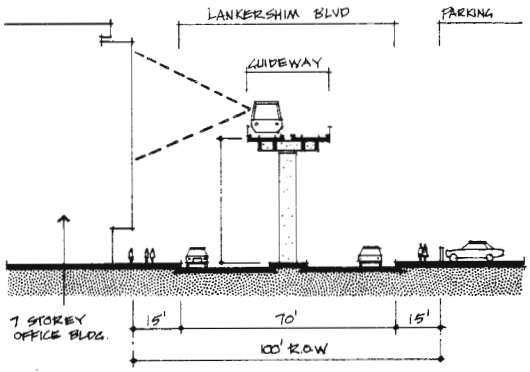
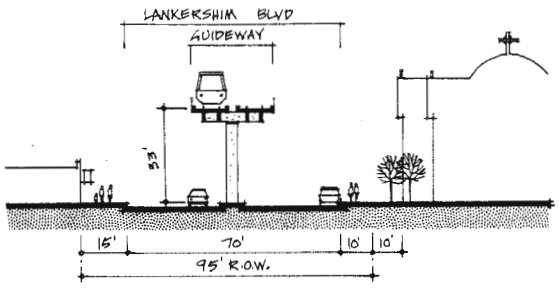
Figure 3-16 Lankershim General View - Aerial

Harry Weese & Associates



Lankershim Blvd. north of Ventura Freeway.
Section looking south. 0 15 30 60 feet



Lankershim Blvd. north of Moorpark St.
Section looking south 0 15 30 60 feet

impact is only short term, until the Community Redevelopment Agency's Redevelopment Project is implemented.

- The visual impact of the minor yard at North Hollywood will be to obstruct views from the residential area north of Chandler Boulevard to North Hollywood Park. In addition, the extensive length of the unbroken 25 foot high yard retaining wall is incompatible in scale with surrounding land uses.

7.3.4 MINIMUM OPERABLE SEGMENT

The beneficial and adverse impacts of this project alternative are identical to those described for the Locally Preferred Alternative from the main yard at Union Station to the Fairfax/Beverly Station.

7.4 MITIGATION

Two types of mitigation measures are described below. The first type involves actions that SCRTD can effectively implement alone. They involve small modifications to the station plans during final design to eliminate adverse visual effects or some landscaping treatment to improve the visual impression of the facilities after they are constructed. These measures are identified below.

Main Yard South of Union Station. Relocate the buildings at the property line or utilize a landscaped berm with a continuous planting of street trees to reach a height of 30 to 40 feet to reinforce the spatial definition of Santa Fe Avenue.

Civic Center. Replace trees along the south side of station entrance.

Fairfax/Beverly. The parking structure offers the opportunity to incorporate street level commercial uses along Beverly Boulevard and Fairfax Avenue to reinforce the continuity of the commercial street facade. Relocate the parking structure over the station close to Fairfax Avenue. Replace the landscaped berm and add a continuous

planting of street trees to reach a height of 30 feet to reinforce the spatial definition of Fairfax Avenue. Replace or relocate the displaced portions of the Farmers Market facility.

Universal City. Utilize a landscaped berm with continuous planting of street trees to reach a height of 30 to 40 feet to reinforce the spatial definition of Lankershim Boulevard and Bluffside Drive and to screen and reduce the impact of the kiss and ride area, the bus terminal, station, and access roads.

North Hollywood. Relocate the parking structure over the station entrance closer to Lankershim Boulevard. The parking structure would then offer the opportunity to incorporate street level commercial uses along Lankershim Boulevard that will reinforce the continuity of the commercial street facade.

Specific to the Aerial Option are the following measures.

Universal City Station. Utilize a landscaped berm with continuous planting of street trees to reach a height of 30 to 40 feet to reinforce the spatial definition of Lankershim Boulevard and Bluffside Drive and to screen and reduce the impact of the large parking area. To minimize adverse impacts of the portal, there are two possible mitigation options.

- Relocate the portal southeast to avoid having the elevated guideway pass over residences south of Ventura Boulevard.

- Relocate the elevated station underground, to the south, with its entrances on both sides of the Hollywood Freeway. Relocate the portal north of the Universal City Aerial Station so that the transition to the aerial guideway to Lankershim Boulevard will be high enough to clear Bluffside Drive.

Aerial Corridor. The visual intrusion along Lankershim Boulevard cannot be mitigated. One consideration was to acquire a strip of land one parcel deep along the east side of Lankershim Boulevard. However, the lessening of visual impacts would be outweighed by the increase in project costs and the displacements that would be caused. Both the federal and local governments favor the subway system for the total 18.6 mile project.

North Hollywood. Create a retail frontage along Lankershim Boulevard integrated with the entrance and elevated station to reinforce the continuity of the commercial street facade and street space definition. For the impacts of the minor yard at North Hollywood, special attention needs to be given to the design of the yard's two-story-high retaining walls. Particular measures include creating definition and rhythm by breaking and faceting it, and adding fronting landscaping to create a screen and foil.

The second type of mitigation that can be employed to minimize identified visual impacts involves actions that require the cooperation of other parties, generally in joint development opportunities. Applicable where buildings have been displaced, this mitigation requires the erection of new commercial, residential, or mixed use buildings that complement the station entrance and other Metro Rail facilities, reinforce the continuity of commercial street facade and street space definition, and restore visual scale and integrity. This process can be supported by the specific plans currently being formulated by the city and county.

8. NOISE AND VIBRATION

8.1 INTRODUCTION

This section presents information on noise and vibration impacts from transit train operation and ancillary facilities and discusses ways of minimizing impacts on the community. Material for this section is from a series of special studies conducted by Wilson, Ihrig and Associates, Inc. (1982), the noise and vibration engineering design consultant to SCRTD. These special studies have been summarized in the SCRTD Technical Report on Noise and Vibration (1983).

8.2 EXISTING CONDITIONS

8.2.1 AMBIENT NOISE ENVIRONMENT

Seventy-eight sites were chosen from which to characterize the ambient noise level along the Metro Rail route. "Spot check," or short term noise and vibration measurements were made at all locations, and 24-hour, or long term, noise measurements were also made at 16 locations.* Each measurement location was in a representative area or near a potentially noise sensitive building. Data presented in Table 3-33 provide a representative sampling of the monitoring sites and cover the diversity of conditions found in the Regional Core. Full documentation of the locations and measurements of all the monitoring sites is available in the SCRTD Technical Report on Noise and Vibration (1983). The short term measurements were made over a 10-minute period during four characteristic periods of the day: daytime, 10:00 a.m. to 2:00 p.m.; rush hour, 4:00 p.m. to 6:00 p.m.; evening, 7:00 p.m. to 10:00 p.m.; and night, 11:00 p.m. to 2:00 a.m. No measurements were made during morning rush hour because noise levels are essentially the same as during evening rush hour.

The typical minimum noise level during a measurement period is called the residual, or background, level. Survey measurements show that residual levels range from 37 to 69 dB(A) during the rush hours (and daytime), and 34 to 64 dB(A) during evening and nighttime, when levels decrease significantly at most locations monitored. The median noise level for the different sites ranges from 40 to 72 dB(A) during rush hour, 39 to 72 dB(A) during the day, 43 to 69 dB(A) in the evening, and 38 to 65 dB(A) at night. At many locations the maximum noise levels were over 70 dB(A), with some areas reaching 80 dB(A) or more one percent of the time. Levels above 80

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* There are three commonly used measures for environmental noise exposure: the Energy Equivalent Level, L_{eq}; the Community Noise Equivalent Level, CNEL; and the Day-Night Sound Level, L_{dn}. L_{eq} is a single number which represents the energy averaged sound level over the measurement period. The CNEL and L_{dn} measures are variations of L_{eq} and characterize the environmental noise exposure over a 24-hour period and differ only slightly. These two measures take into consideration the fact that people are generally more annoyed by a given sound level at night than during the day. All three measures are presented in terms of A-weighted sound level in decibels (dBA), which correlates well with people's subjective reaction to noise.

TABLE 3-33

SELECTED AMBIENT & PROJECT RELATED NOISE AND VIBRATION DATA BY METRO RAIL SEGMENT

Approximate Location[2]	N-Noise[3] V-Vibration[4]	EXISTING CONDITIONS[1] Leq PM Rush	Leq Night	Estimated Ldn/CNEL[5]	SUBWAY OPERATIONS Ground-Borne Noise Standard (dB(A))	Predicted Noise Level	Track and Bed Treatment[6]	AERIAL OPERATIONS Air Borne Noise Ldn With Side Barriers	Maximum Passby With Side Barriers	Allowable Maximum
CBD										
102 Hill Street north of Third Street	N	70	63	74*	50	31-37	RRF			
	V	59	51	—	—	—	—			
103 Seventh Street at Hartford Avenue	N	69	58	67-69	45-50	38-44	RRF			
	V	64	50	—	—	—	—			
4 Wilshire and Flower	N	75	NM[7]	72-74	40-45	34-40	FST			
	V	48	NM[7]	—	—	—	—			
104 Travelodge Motel, 1710 W. Seventh Street	N	66	60	67-69	40	30-36	RST			
	V	55	49	—	—	—	—			
Wilshire										
105 Near Mid-Wilshire Convalescent Hospital	N	63	54	64-66	40	29-35	RST			
	V	54	46	—	—	—	—			
8 Wilshire Boulevard and Commonwealth	N	71	61	69-71	40	28-34	RST			
	V	61	55	—	—	—	—			
10 Wilshire Boulevard and Normandie	N	74	NM[7]	73-75	35	29-35	RST			
	V	57	NM[7]	—	—	—	—			
19 South end of Orange Grove Avenue	N	58	49	61*	50	43-49	RRF			
	V	48	44	—	—	—	—			
12 Wilshire near St. James Espiscopal Church	N	72	67	69-71	35-40	28-34	FST			
	V	52	52	—	—	—	—			
15 Longwood Avenue 40' South of Wilshire	N	67	58	65-67	40	30-36	RST			
	V	50	38	—	—	—	—			
20 CBS TV Studio	N	57	NM[7]	56-58	25	18-24	RRF			
	V	47	NM[7]	—	—	—	—			
22 Country Villa Convalescent Home	N	68	59	68-70	40	41-47	FST			
	V	49	46	—	—	—	—			
Hollywood										
110 Sunset Boulevard and Fuller Avenue	N	69	67	72-74	50	34-40	RRF			
	V	51	46	—	—	—	—			
115 Selma Avenue and Hudson Avenue	N	65	58	66-68	50	44-50	RST			
	V	51	47	—	—	—	—			
29 Vine Street and DeLongpre Avenue	N	72	NM[7]	69-71	NA	NA	NA			
	V	60	NM[7]	—	—	—	—			
32 Las Palmas Avenue and Milner Terrace	N	60	55	77*	35-40	25	RRF			
	V	41	34	—	—	—	—			
31 Cerritos Place and Holly Hill Terrace	N	59	54	60-62	35-40	25	RRF			
	V	42	44	-	—	—	—			
35 7010 Pacific View Dr.	N	56	46	53-55	35	30	RRF			
	V	36	25	-	—	—	—			
36 3149 Oakshire Drive	N	59	52	58-60	35	30	RRF			
	V	43	43	—	—	—	—			
39 3623 Cahuenga Blvd.	N	72	NM[7]	70-72	50	37-43	RRF			
	V	50	NM[7]	—	—	—	—			
North Hollywood										
43 Vineland Avenue and Hartsook Street	N	67	59	68-70	35-40	29-35	RST	70-72	74-76	75
	V	57	55	—	—	—	—	—	—	—
119 Parking Lot, Lankershim and Valley Heart	N	61	57	64-66	35-45	20	RRF	64-66	69-71	85
	V	53	47	—	—	—	—	—	—	—
123 10705 Bloomfield	N	60	50	56-58	50	40-46	RST	58-60	79-81	85
	V	46	40	—	—	—	—	—	—	—
124 10830 Camarillo Street	N	64	58	66-68	45-55	38-44	RST	66-68	82-84	85
	V	52	44	—	—	—	—	—	—	—
126 10932 Morrison Street	N	62	49	56-58	35-40	29-35	RST	58-60	70-72	75
	V	50	39	—	—	—	—	—	—	—

Source: Wilson, Ihrig and Associates, Inc., Noise and Vibration Survey for the Metro Rail Project, Supplemental Noise and Vibration Survey, Noise and Vibration Study for Alternative Route Alignments, 1982.

[1]These measured levels are expected to also represent No Project condition in the year 2000 because expected traffic volume increases, the factor most likely to affect ambient noise conditions, will not result in detectable noise increases.

[2]Numbers refer to measurement locations, as defined during the noise monitoring survey.

[3]Noise levels — dB(A).

[4]Weighted vibration velocity levels — dB rel micro in/sec.

[5]Ldn and CNEL seldom vary more than 1 dB and are essentially equal measures.

[6]RRF = Resilient Rail Fasteners; FST = Floating Slab Trackbeds; RST = Resiliently Supported Ties.

[7]NM = Not Measured

*Reflects actual 24-hour measurement.

dB(A) are usually considered high for either commercial or residential areas. At several locations the maximum levels did not decrease significantly during evening and night hours because of a high level of vehicular traffic at night.

The survey data show that during any one time period, the noise varies by 20 to 30 dB(A) over the length of the route, indicating a great diversity in the local noise environment. Despite this wide range, the data indicate a high level of ambient noise along most of the alignment, primarily from vehicular traffic.

8.2.2 AMBIENT VIBRATION ENVIRONMENT

Existing exterior vibration sources include automobiles, trucks, buses, underground mechanical equipment, and pedestrians. The vibration level data were taken at the same time and place as the sound level data and were analyzed to obtain a single-number velocity level weighted to approximate the human response to vibration. The weighting methodology, known as CHABA*, is described in the SCRTD Technical Report on Noise and Vibration (1983). Weighted vibration velocity levels below about 69 dB are normally imperceptible or just perceptible.

The lowest vibration levels were measured in the Hollywood Hills and Santa Monica Mountains, where there are few vibration-producing activities, especially during evening and nighttime. These locations may also be on or near rock, which takes a greater vibration energy level to produce the same vibration amplitude at the receiver.

The L_1 level** at a number of locations exceeds 69 dB, meaning that for approximately 6 seconds in 10 minutes the vibration from passing vehicles was at least barely perceptible. These locations include two along Hill Street in the CBD segment, three along Wilshire between Union Avenue and Vermont, one near Sunset and Vine, and one on Vineland near Whipple in North Hollywood. Weighted vibration velocity Leqs at other locations generally ranged from 34 to 64 dB, typical of commercial and residential areas near heavily traveled streets and comparable to levels in other large cities (such as Baltimore and Chicago). In general, locations with the highest noise levels also have the highest vibration levels. Selected vibration data are provided in Table 3-34.

8.2.3 NOISE AND VIBRATION DESIGN STANDARDS AND CRITERIA

Since noise and vibration produced by operation of transit vehicles and associated ancillary facilities can cause significant environmental impacts, there has been considerable legislative action--at the federal, state, and local levels--which has produced regulations that may affect the design and operational requirements of the Metro Rail Project. The criteria require control of airborne and ground-borne noise and vibration from transit train operations and from transit ancillary areas and

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* CHABA = Committee on Hearing Bioacoustics and Biomechanics.

** The vibration velocity level exceeded 1 percent of the time, representing the occasional maximum or "peak" vibration level.

TABLE 3-34

NOISE AND VIBRATION CRITERIA FOR THE METRO RAIL PROJECT

Noise Source	Noise or Vibration Measure	BASED ON LAND USE					BASED ON OTHER CRITERIA*
		Res.	Comm.	Ind./ Hwy.	Sensitive Receptors	Other Sensitive Uses	
Transit Trains							
Single Event Passby (airborne noise)	Maximum A-weighted noise level in dB(A), applied at receiver's distance from track centerline	75	85	85	75	70	
Single Event Passby (ground-borne noise)	Maximum A-weighted noise level in dB(A), applied at receiver's distance from track centerline	35	50	50	35	25-30	
Single Event Passby (vibration)	Maximum CHABA-weighted vibration velocity level in dB, applied at receiver's distance from track centerline	70	75	75	70	70	
Noise Exposure Levels	L_{dn} and CNEL in dB(A), applied at receiver's distance from track centerline (Aerial Option)	65	65	80	65	65	0-3 dB(A) over ambient
Yard							
Maximum Expected Noise (train moving)	Maximum noise level in dB(A) applied at receiver's distance from track centerline						at grade: 70 dB(A), 50' from track centerline aerial: 68 dB(A), 50' from track centerline with side barriers
Maximum Expected Noise (train stationary)	Maximum noise level in dB(A) applied at specific distances from auxiliary equipment						at grade: 61 dB(A), 50' from track centerline aerial: 61 dB(A), 50' from track centerline with side barriers
Vent Shaft							
Maximum Allowed Naise	Maximum noise level in dB(A) applied at 50 feet from source	55	65	75	50	50	
Ancillary Facilities (including fan shafts)							
Maximum Allowed Noise	Maximum noise level in dB(A) applied at 50 feet from continuous source	45	55	65	40	40	
Traffic	Community average noise level (qualitative determination)						0-3 dB(A) over ambient

Sources: Southern California Rapid Transit District, Naise and Vibration, March 1983; Wilson, Ihrig and Associates, Inc., Noise and Vibration Study, November 1982; Wilson, Ihrig and Associates, Inc., Noise and Vibration Design Criteria, April 1982; Wilson Ihrig and Associates, Inc., Local and Federal Regulation Affecting Noise from the Construction and Operations of the Metro Rail System, April 1982; Noise Control Act of 1972, Public Law 92-574, enacted by Congress October 18, 1972, signed by the President October 27, 1972; American Public Transit Association (APTA), Guidelines for Design of Rapid Transit Facilities, January 1979; California Health and Safety Code, California Noise Control Act of 1973, Division 28, Naise Control Act, appraved October 2, 1973, Laws of 1973, Chapter 1095, amended by Laws of 1975, Chapters 957, 1124; Laws of 1976, Chapter 1063; Los Angeles County Board of Supervisors, Noise Contral Ordinance of the County of Los Angeles (Ordinance No. 11,778), undated; and Administrative Code of the City of Los Angeles, Noise Control Ordinance of the City of Los Angeles (as proposed for amendment) (Ordinance Na. 144,331), 1973.

*Experience indicates that an increase of ambient noise of less than 3 dB(A) is generally not perceptible.

facilities such as yard operations, vent and fan shafts, electrical substations, emergency service buildings, and air conditioning chiller plants. The criteria specify numeric limits for allowable noise emissions and establish criteria for determining compliance with standards.

SCRTD has developed a comprehensive set of noise and vibration design criteria, based upon a review of federal and American Public Transit Association (APTA) guidelines, local guidelines, and industry practice. The detailed descriptions and explanations of specific noise and vibration standards are contained in SCRTD Technical Report on Noise and Vibration (1983) and are summarized in Table 3-33. The salient features are discussed below.

Federal Guidelines. No federal agencies have produced regulations which directly apply to rapid rail transit noise. There are EPA regulations which affect construction equipment noise emission.

American Public Transit Association (APTA) Guidelines. APTA works very closely with transit-related government agencies, as well as local transit operators, in developing standards of performance. In the case of transit operations, the pertinent noise and vibration criteria are generally based on the American Public Transit Association document "Guidelines for Design of Rapid Transit Facilities," usually referred to as the "APTA Guidelines" (APTA, 1979). These criteria are fully considered in SCRTD's adopted Noise and Vibration Design Criteria for the Metro Rail Project. However, APTA guidelines do not include standards regarding construction noise and vibration.

Local Guidelines. The State of California has enacted a number of laws intended to control noise. None of these laws directly affect the Metro Rail Project. The California Administrative Code, Title 25, does indirectly establish a noise exposure limit standard for airborne noise from rail transit vehicle operation.

Both the County and City of Los Angeles have complied with the requirements of the California Government Code Section 65302(g) by adopting a Noise Element to the General Plan. These Noise Elements in combination with the city and county Noise Ordinances contain specific guidelines relevant to the Metro Rail Project. Primarily these restrictions apply to construction noise and vibration and to ancillary facility noise during operation. They do not apply to vehicle operation during revenue service. The county ordinance adopts measurement standards, establishes community noise criteria, and defines prohibited actions; while the city ordinance establishes standards for ambient noise levels within various land use zones and the criteria for maximum noise levels.

Transit Industry Practices. Transit industry practices generally follow the noise and vibration goals as outlined in the APTA's "Guidelines for Design of Rapid Transit Facilities." This includes all of the newer system facilities and equipment recently designed and built in Washington, D.C., Atlanta, Baltimore, and Buffalo. Specifications for the rail projects built in these cities can be used as the starting point for developing appropriate construction noise and vibration criteria for the SCRTD project.

8.3 IMPACT ASSESSMENT

8.3.1 IMPACT MEASURES AND METHODOLOGY

For commercial areas, noise from transit train operations is primarily a daytime consideration. In residential areas, noise from trains can be problematic during evening and nighttime, when the community ambient noise level is generally lowest. In commercial areas, daytime noise measurements are therefore the most relevant for transit system design. In residential areas, the evening and nighttime operations and noise levels are of primary concern.

To assess the noise and vibration impacts from the Metro Rail Project, the expected levels from rolling stock, maintenance and yard operations, auxiliary equipment, feeder transit systems, and ancillary facilities have been examined and compared with existing ambient levels and the Metro Rail Noise and Vibration Criteria (Wilson, Ihrig, 1982). Projections were made of the expected ground-borne noise levels from train operations in subway sections, and for the Aerial Option of the expected airborne noise levels produced by trains operating on aerial structures. Special attention was placed on identifying potential impacts on noise sensitive land uses including schools, hospitals, rest homes, and medical facilities. A summary of this data for representative sample sites along the alternative routes is projected in Table 3-33.

8.3.2 SUBWAY OPERATIONS

Underground rail rapid transit systems create ground-borne vibration and noise, which are transmitted from the subway structure to adjacent buildings. This vibration comes from wheels rolling on the rails and is generally perceived in nearby buildings as a low pitched rumbling. The vibration occasionally may be perceptible as mechanical motion. Ground-borne vibration transmitted to buildings near the subway is of such a low level that there is no possibility of structural damage.

The evaluation of subway operations has utilized the effectiveness of resilient rail fasteners, resiliently supported ties, and floating slab trackbeds in reducing ground-borne vibration. Resiliently supported ties reduce ground-borne noise and vibration by 6 to 10 dB, while floating slab trackbeds reduce them by 15 to 20 dB. These reductions are relative to trains operating on direct fixation resilient rail fasteners, which already significantly reduce noise and vibration better than the direct fasteners used on older systems. These special design features reduce noise and vibration in the frequency range most perceptible in the buildings near the subway structure. With the recommended track fixation methods, the ground-borne vibration from transit train operations should not be perceptible at any point along the Metro Rail subway alignment; thus there will be no impact from ground-borne vibration.

The results of the assessment of ground-borne noise for each line segment follow. The No Project Alternative will not result in noise and vibration impacts.

CBD - Wilshire. This segment is common to the Locally Preferred Alternative, the Aerial Option, and the Minimum Operable Segment. Calculations show that ground-borne noise along a large portion of this segment would require resiliently supported ties or floating slab trackbed. However, there are several locations where these

measures would not reduce the ground-borne noise from transit train operations to acceptable levels. These locations include the following: the theater at Second and Hill Streets, Theater of Arts on Wilshire east of Bronson Avenue, King Solomon Home for the Elderly on Fairfax north of Clinton Street, Country Villa Wilshire Convalescent Hospital on Fairfax south of Willoughby Avenue, Garden of Palms Rest Home on Fairfax south of Romaine Street, and the apartments on Fairfax midblock between Romaine Street and Santa Monica Boulevard. The somewhat higher noise levels expected in these buildings are due primarily to a very shallow tunnel (depth to top-of-rail of 30 to 40 feet) and/or a crossover in the tunnel raising the expected noise level about 10 dB. Significant impact would occur unless additional measures were taken to reduce ground-borne noise.

Hollywood. Only the Locally Preferred Alternative and the Aerial Option affect this segment. Substantial sections of the alignment would require resiliently supported ties or floating slab trackbeds to reduce ground-borne noise levels. Even with these measures ground-borne noise from transit train operations might not be reduced to an acceptable level at the Blessed Sacrament School on Sunset Boulevard east of Cherokee Avenue. Additional measures must be considered here.

North Hollywood. The Locally Preferred Alternative is in a subway configuration through this segment. (The Aerial Option to the Locally Preferred Alternative is discussed separately in the next section.) There are several sections where resiliently supported ties or floating slab trackbeds would be needed. On Lankershim Boulevard near the Los Angeles River, there is a commercial building where the ground-borne noise from transit train operations may exceed the appropriate criterion even with the use of a floating slab trackbed.

8.3.3 AERIAL OPERATIONS

Concrete deck and all-concrete aerial structures effectively reduce wayside and in-car noise over older all-steel structures, as they have at BART, WMATA Metro, and MARTA. It is also possible to use a sound barrier wall to reduce wayside noise further, since the noise is primarily radiated from the transit car and rails. Therefore, the impact predictions for wayside noise include sound barrier walls as part of the transit system facilities. If the Aerial Option is selected, sound barrier walls will be incorporated into the project for the length of the aerial alignment.

The predicted wayside noise levels from the Metro Rail transit trains take into account operational characteristics such as train length, speed, and auxiliary equipment noise. It has been assumed that solid wheels with either steel or aluminum hubs will be used on all vehicles and that the maximum speed would be 70 miles per hour. It should also be noted that rail train noise is strictly a function of speed.

Most of the areas along Lankershim Boulevard are strip commercial development, with medium density residential neighborhoods off the alignment. Applicable criteria* for maximum airborne noise from a single transit train passby are 75 dB(A) at single family residences, 80 dB(A) at multifamily residences, and 85 dB(A) at commercial buildings. In addition, the criteria indicate that the maximum airborne

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* These criteria were established by APTA in a publication called "Guidelines and Principles for Design of Rapid Transit Facilities," January 1979.

noise from a single transit train passby should not exceed 75 dB(A) at churches, theaters, schools, hospitals, museums, or libraries.

Calculating the noise from a single passby does not necessarily indicate the cumulative effect of noise, since it does not consider the duration of each passby or the number every hour or day. A loud noise occurring very infrequently may be less annoying or intrusive than a moderate noise occurring many times, and most of the noise from train operations would occur at fairly frequent, regular intervals.

With sound barrier walls, the noise from trains on aerial structures would raise the Ldn levels at the noise measurement locations by 0 to 3 dB(A), with an average of less than 1 dB(A). Increases of less than 5 dB(A) are not considered significant. Along the Aerial Option the maximum single-event airborne noise criteria are exceeded even with sound barrier walls at approximately 30 single family residences by 2 to 6 dB(A), with an average of about 4 dB(A). The criteria are also exceeded at approximately 10 apartment buildings by up to 3 dB(A), with an average of about 1 dB(A). Most of these residences are within 150 feet of the proposed aerial structure and where the trains will be operating up to the maximum speed of 70 miles per hour. At such locations, where standards are exceeded with sound barrier walls, the adverse impacts may be mitigated by additional mitigation measures, described in section 8.4 of this chapter.

8.3.4 STORAGE AND MAINTENANCE YARD

Storage and maintenance yard noise would result from a number of major sources, including transit cars rolling on the tracks, transit car auxiliary equipment, coupling and uncoupling of cars, train horns, maintenance work, workers shouting, telephone buzzers, and public address systems. The Union Station main yard would be in a train switchyard area with already high noise levels. The North Hollywood Station tail tracks for the subway would be designed to avoid any potential adverse impacts. The Aerial Option tail tracks would generate noise levels that intrude on nearby residential areas.

8.3.5 METRO RAIL SUBSYSTEMS

Vent Shafts. With no acoustical treatment in the shafts, most sounds from the system would be transmitted to the surface. The levels permitted in the noise and design criteria are generally lower than typical ambient levels. Acceptable levels are keyed to land use and are measured 50 feet from the source. Since noise will be kept within ambient limits, no significant adverse impacts will occur.

Ancillary Facilities. The final location of all ancillary facilities has not been determined, so only a general discussion of the noise from them follows. As with vent shaft openings, the noise from ancillary facilities is subject to the Metro Rail design criteria for maximum permissible noise levels. The Metro Rail design criteria would ensure that the noise generated by ancillary facilities, regardless of their final location, would be compatible with the ambient noise of the surrounding area.

The criteria for noise from ancillary facilities are similar to those for vent shafts (see SCRTD Technical Report on Noise and Vibration, 1983), except that equipment generating continuous noise levels shall be limited to 5 dB(A) lower because its tonal components can make it more obtrusive. Most power transformers will be below

ground to mitigate noise impact. The design of each ancillary facility will incorporate noise reduction features including sound barrier walls around noise sources, complete enclosures around noise sources, and sound attenuators on fans, blowers, and cooling towers.

8.3.6 TRAFFIC

With the construction of the Metro Rail Project, traffic analysis shows that there would be some reduction in traffic (from the year 2000 base condition), primarily on freeways (especially the Hollywood Freeway) and major arterial streets. Traffic reductions of between 1 and 15 percent are projected in some locations, but these will not significantly reduce noise levels, since traffic flow would have to drop by at least 50 percent before a reduction in the noise level would be noticeable.

The changes in traffic patterns around proposed stations would primarily consist of an increase in feeder buses and an increase in the local traffic because of trips to park and ride and kiss and ride areas. Stations most affected by increased traffic are at North Hollywood, Universal City, Fairfax/Beverly, Wilshire/Fairfax, and Union Station. The resulting total change in automobile traffic (up to a 20 percent increase) would not cause significant changes in cumulative noise levels.

8.4 MITIGATION

Mitigation of transit operational noise and vibration is approached by establishing performance standards, design criteria, and vehicle specifications. SCRTD is committed to enforcement of established design criteria and ensuring that such designs perform in accordance with specifications. The major tool utilized to accomplish this will be the contract documents developed between the District and designers, construction contractors, and vehicle suppliers.

Subway Operations. The detailed descriptions and explanations of specific impact mitigation measures and associated design criteria are contained in the report Noise and Vibration Design Criteria (Wilson, Ihrig and Associates, 1982) prepared for the Metro Rail Project. The key features of the mitigation measures described therein include:

- Using continuous welded rail instead of jointed rail on the steel wheel/rail interface.
- Utilizing rail vehicles with lightweight trucks rather than heavyweight trucks in order to provide minimum unsprung weight.
- Using special grinding (truing) equipment to ensure the smoothness of wheel/ rail interaction.
- Using Resilient Rail Fasteners (RRF) instead of Fixed Rail Fasteners (rigidly attached rails) as a track fixation method.
- If necessary, utilizing Resiliently Supported Ties (RST) where Resilient Rail Fasteners (RRF) are inadequate to satisfy applicable noise standards and criteria.

SCRTD is committed to the above design configurations and will include them in both subway and aerial systems. These built-in mitigation measures are proven technology which automatically reduce noise and vibration levels by a significant degree, and satisfy noise abatement criteria in most cases without the need for additional mitigation. This is especially true of the Resilient Rail Fasteners (RRF) and Resiliently Supported Ties (RST) mentioned above, to which SCRTD is firmly committed.

Certain locations require more effective noise mitigation measures. The complete detailed description of noise predictions and recommended track fixation methods (RRF, RST, FST) for each of the rail alternatives is in the SCRTD Technical Report on Noise and Vibration (1983). In this report, there are several locations identified at which Floating Slab Trackbed (FST) fixation methods are needed for the Locally Preferred Alternative, Aerial Option, and Minimum Operable Segment in order to reduce noise levels to acceptable levels. For the Locally Preferred Alternative, 32 of the 287 locations will require FST fixation. For the Aerial Option, 31 of the 320 locations will require the FST, and for the Minimum Operable Segment 13 of the 154 locations will require FST mitigation measures. The FST along with other techniques can provide greater sound reductions. The feasibility of using FST for sections of the project is being studied and has not been determined but will be decided prior to Final Design. During Final Design, consideration of this mitigation measure as well as those specified in this Final EIS/EIR will be implemented to meet the noise and vibration criteria adopted for the project. Other measures include the following:

1. Minor shifts in horizontal and/or vertical alignment

2. Crossover relocation

3. Rail system structure modification

4. Non-Standard Floating Slab Design

The subway system has special mitigation measures whose effectiveness have not been ascertained. More study will be done before deciding their appropriateness. These are:

1. Vibration isolation by blocking direct transmission of vibration where the subway structure is unusually close to buildings and their foundations. This can be accomplished by using elastomer pads and intervening soil as special resilient elements.

2. Tunnel noise abatement to improve the interior acoustical environment for employees and passengers. This can be accomplished by integrating an acoustical absorption system within the tunnel structure.

Aerial Operations. The aerial system has special mitigation measures which include, but are not limited to, the following:

1. All-concrete or combination concrete/steel structures rather than all-steel structures.

2. Sound barrier walls with sufficient height to "shadow" the noise transmitted from the train to the wayside. Such barriers could be constructed in a variety of forms such as:

   - Non-absorptive barriers associated with ballast and tie track installations.
   - Absorptive barriers treated with special acoustical absorbing material on the interior face of the wall.
   - Earth berm or earth cut barrier for at-grade portions.

If the aerial option were selected, sound barrier walls will be constructed for the entire length of the aerial segment.

Fan and Vent Shafts. These facilities will be designed to minimize noise intrusion by including the following specific mitigation measures.

1. Cellular glass and mineral fiber applied to the wall and ceiling surfaces of the shafts to maximize absorption.
2. Standard duct attenuators.
3. Contract specifications requiring certified maximum sound power levels for the fans.

Ancillary Facilities. These facilities, including power substations and emergency power generation equipment, will be modified to minimize noise and vibration using the following specific mitigation measures:

1. Below-ground location of power transformers.
2. Total enclosure of noise source.
3. Absorption material embedded within the facility.
4. Barrier walls surrounding the source.
5. Sound attenuators on fans and ducts.
6. Special mufflers.

9. AIR QUALITY

9.1 INTRODUCTION

The Metro Rail Project is located within the South Coast Air Basin (SOCAB), which includes approximately 6,580 square miles of the Los Angeles metropolitan area. Included within the air basin are the highly urbanized portions of Los Angeles, San Bernardino, and Riverside Counties, and all of Orange County. The discussion here of existing air quality conditions and future ones with a rail rapid transit project is summarized from the SCRTD Technical Report on Air Quality (1983). More detailed information and analysis can be reviewed in that document.

For purposes of the air quality analysis, project-related air pollution emissions will be assessed for an approximately 140-square-mile study area. The area quality study area and the smaller 75-square-mile Regional Core are shown on Figure 3-17. The study area boundary is the same as the area used in the assessment of transportation impacts. Approximately 15 percent of the air basin's VMT are traveled within this area.

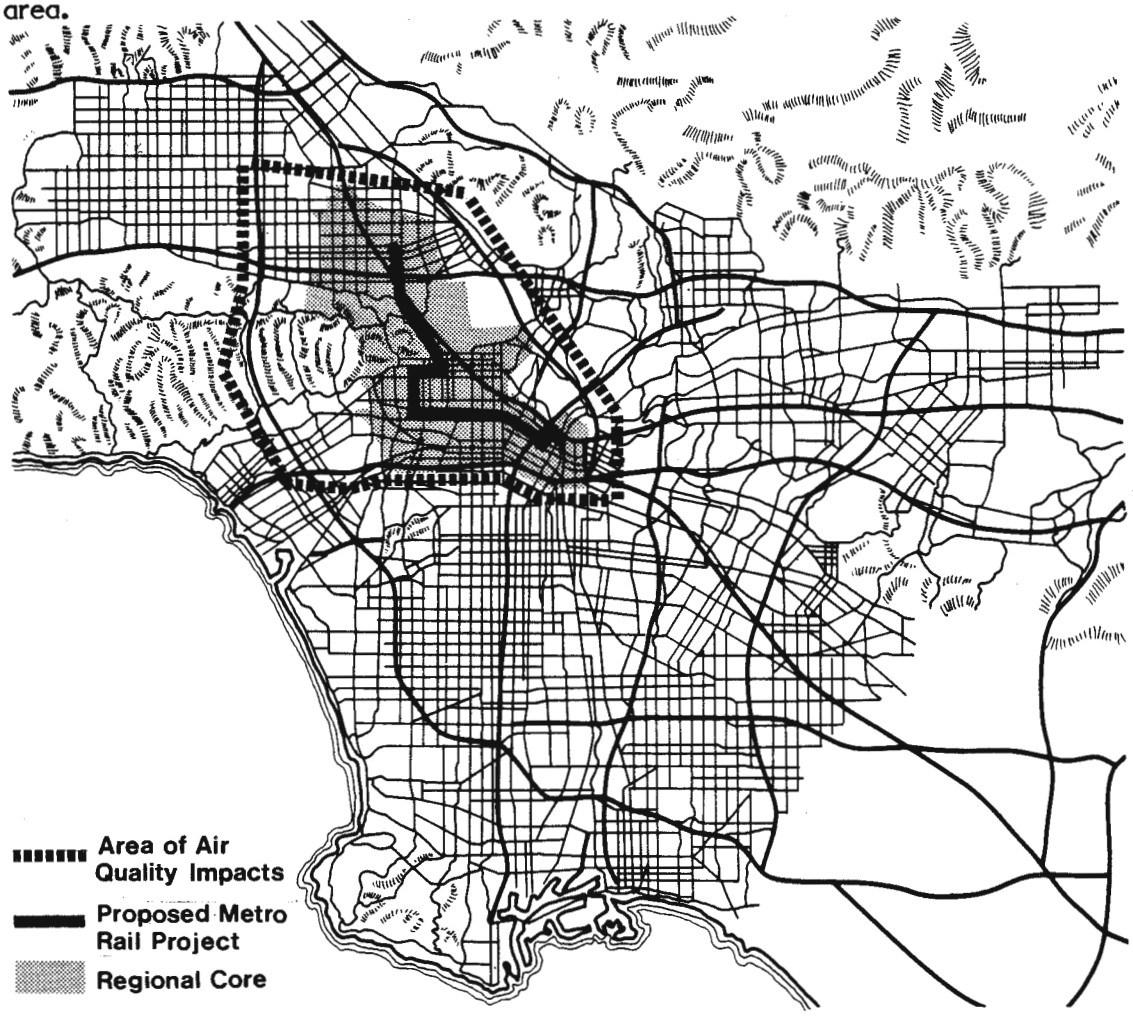

Figure 3-17 Study Area for Air Quality Impacts

9.2 EXISTING CONDITIONS

9.2.1 AIR POLLUTION METEOROLOGY

SOCAB is an area of high air pollution potential, particularly from June through September. The poor ventilation afforded by the generally light winds (5.6 miles per hour average in the downtown area) and shallow vertical mix of air in the area frequently keep emissions from being diluted. Added to this is the plentiful sunshine, whose energy converts emissions of the primary contaminants (nitrogen oxides and hydrocarbons) into ozone, photochemical aerosol, and other secondary products (SCAQMD, 1979).

Ambient air pollution levels at any particular SOCAB location are affected by air patterns. The land-sea breeze dominates the local wind patterns, resulting generally in onshore winds during the day and offshore winds at night. Pollutants move inland during the day, often causing high pollution readings in valley areas, and move seaward at night, often to be blown back in the next day. Thus ambient pollution levels at any given time do not always reflect the level of emissions actually generated within the immediate area.

9.2.2 AIR QUALITY STANDARDS

The state and federal governments have each established air quality standards for various pollutants, set at or below levels at which air is defined as essentially clean, and with a sufficient margin to protect public health and welfare.

The federal standards, established by the Environmental Protection Agency (EPA), are statutory requirements to be achieved and maintained as required by the Clean Air Act of 1970 (as amended). The Clean Air Act stipulates that primary ambient air quality standards for particulate matter, sulfur dioxide, and nitrogen dioxide were to be attained by the end of 1982. Primary standards for ozone and carbon monoxide were also to be attained, except where extensions were granted under strictly prescribed statutory provisions. California was among the states granted an extension until 1987 to meet the standards for carbon monoxide and ozone. Except for sulfur dioxide, SOCAB has been designated a nonattainment area for each of the primary pollutants; that is, they do not meet the established air quality standards. While some progress is being made, it is not expected that SOCAB will reach attainment of federal standards in the immediate future. State of California standards, established by the California Air Resources Board (CARB), represent the goals of existing and planned air pollution control programs. The applicable federal and state air quality standards for various pollutants of interest are included in Table 3-35.

9.2.3 STUDY AREA AIR QUALITY

The South Coast Air Quality Management District (SCAQMD) monitors air quality at numerous locations in SOCAB. Three monitoring stations are located within the study area: the West Los Angeles station (near the southwest corner of the study area), the Los Angeles CBD station, and the Burbank station (near the northeast corner of the study area). A summary of air quality data collected at study area monitoring stations for the year 1980 is provided in Table 3-35. Federal standards

TABLE 3-35

AIR QUALITY SUMMARY FOR STUDY AREA MONITORING STATIONS, YEAR 1980

Contaminant/Station	Days Exceeding State Standards	Days Exceeding Federal Standards	Annual Average of Monthly 1-Hr Max. Air Contaminant Concentrations	State Standard	Federal Standard
OZONE					
West Los Angeles	89	35	0.21 ppm	0.10 ppm/hr	0.12 ppm/hr
Los Angeles CBD	109	59	0.29 ppm		
Burbank	137	99	0.35 ppm		
CARBON MONOXIDE					
West Los Angeles	19[a,b]	36[b]	25 ppm	9 ppm/8 hr	9 ppm/8 hr
Los Angeles CBD	7[a,b]	14[b]	19 ppm	and	and
Burbank	39[a,b]	54[b]	29 ppm	20 ppm/hr	35 ppm/hr
NITROGEN DIOXIDE					
West Los Angeles	18	annual standard exceeded	0.37 ppm	0.25 ppm/hr	.05 ppm/annual avg
Los Angeles CBD	16	annual standard exceeded	0.44 ppm		
Burbank	23	annual standard exceeded	0.35 ppm		
SULFUR DIOXIDE					
West Los Angeles	0	0	.017 ppm	.05 ppm/24 hr	0.14 ppm/24 hr
Los Angeles CBD	0	0	.037 ppm		
Burbank	0	0	.028 ppm		
PARTICULATE MATTER					
West Los Angeles	29	0	79[c] ug/m^3	100 ug/m^3/24 hr	260 ug/m^3/24 hr
Los Angeles CBD	55	0	108[c] ug/m^3		
Burbank	NM	NM	NM		
LEAD					
West Los Angeles	2 months	1 quarter	2.02[d] ug/m^3	1.5 ug/m^3	1.5 ug/m^3
Los Angeles CBD	5 months	1 quarter	2.68[d] ug/m^3	30 day avg.	quarterly avg.
Burbank	NM	NM	NM		

Source: SCAQMD, May 1981. SCAQMD, September 1981.

NM = Not monitored.

ug/m^3 = Micrograms per cubic meter.

[a]Data shown are far the old ppm 10 hr standard which was revised in December 1982. The State eliminated the 12 hr CO standard and adopted the Federal 8 hr standard. The 40 ppm/hr CO standard was changed at the same time to 20 ppm/hr.

[b]Data is for 8 hr standard; 1 hr standard was not exceeded.

[c]Annual average of total samples.

[d]Annual average of monthly concentrations.

were not met for ozone, carbon monoxide, nitrogen dioxide, and lead. A brief description of air quality trends follows.

Ozone. Between 1976 and 1980 the number of days exceeding the state standard of 0.10 parts per million (ppm)/hour at the Los Angeles CBD station has steadily declined. Still, the standard was exceeded on 109 days in 1980. Ozone concentrations at the West Los Angeles station showed a marked increase in 1979 and 1980 over the previous three years. At Burbank, no discernible trend is evident, but ozone levels remain relatively high in comparison with those measured at other SOCAB stations. The federal standard is frequently exceeded at all three monitoring locations and most frequently at Burbank.

Carbon Monoxide. From 1976 to 1980 the number of SOCAB station days exceeding the federal eight-hour CO standard decreased by almost 50 percent. The one-hour 35 ppm federal standard has not been exceeded at any study area monitoring stations since 1975. In 1980, the one-hour CO standard was not exceeded anywhere in the Basin. The eight-hour standard remains difficult to achieve, however. Levels at the Los Angeles CBD station continued to decline in 1980, with West Los Angeles remaining about the same between 1976 and 1980. The Burbank station levels have stabilized in 1978-80 at levels well below 1976-77. The federal eight-hour standard is still frequently exceeded at West Los Angeles and Burbank and occasionally in the Los Angeles CBD.

Nitrogen Dioxide. In 1980, the state nitrogen dioxide standard of 0.25 ppm/hr was exceeded on 23 days at Burbank, more than at any other SOCAB monitoring station. NO_2 concentrations at the Los Angeles CBD station have exceeded the federal standard by some 50 percent since 1965, with little overall change since then. The three monitoring stations in the study area have recorded some of the highest NO_2 levels in SOCAB, and each has exceeded the federal (annual) standard in 1980 and previous years.

Sulfur Dioxide. During 1980, there were no violations of state or federal SO_2 standards at any SOCAB monitoring stations.

Particulate Matter. The 100 microgram per cubic meter (ug/m^3) state standard continued to be regularly exceeded at Los Angeles CBD and West Los Angeles with no apparent tendency towards improvement. The federal standard was not exceeded in 1980. Particulate matter is not monitored at Burbank.

Lead. Violations of the lead standard occur in SOCAB areas with high traffic volumes. The Los Angeles CBD station recorded violations of the state lead standard for five months in 1980, while West Los Angeles recorded two months in violation. Each station exceeded the federal quarterly standard once in 1980. Lead is not monitored at Burbank. Because of continued progress in reducing atmospheric lead concentrations in SOCAB, the federal standard should be attained by the mid-1980s (SCAQMD, 1981).

9.2.4 LOCAL AIR QUALITY SETTING

The use of SCAQMD station data to reflect conditions at specific locations has been determined to be extremely reliable. Correlation coefficients for any two stations in the air quality study area are generally within 0.90, indicating that CO distributions follow a clear regional pattern. As older cars have been retired from service and

replaced by newer cars that pollute less, baseline CO levels have slowly dropped and will continue to do so. Table 3-36 summarizes baseline CO measurements in 1980 and the projected background levels for the year 2000. The morning rush hour has the highest CO concentration and is therefore the period selected for detailed analysis in microscale CO impact analysis.

9.2.5 CONSISTENCY WITH REGIONAL TRANSPORTATION PLANNING

An assessment of a project's consistency with local, regional, state, and federal plans is required for all projects receiving federal funding. Two plans are of particular concern for the Metro Rail Project: the Regional Transportation Plan (RTP) and the Air Quality Management Plan (AQMP). This project is one part of the RTP for Southern California. The RTP provides the basis for projecting future growth and associated traffic patterns and for determining the emissions changes associated with that growth. The AQMP currently has a long range target of reducing reactive organic gases (nitrogen oxides and hydrocarbons) by 50 tons per day through transportation management and design (AQMD/SCAG, 1982). To the extent that Metro Rail reduces VMT, trip generation, or congestion by diverting automobile trips, it is consistent with the long range strategies of the AQMP.

TABLE 3-36

EXISTING AND PROJECTED MAXIMUM BACKGROUND CO LEVELS (ppm)

Location	1980 Baseline (hourly)	2000 Projection* (hourly)	1980 Baseline (8-hour)	2000 Projection* (8-hour)
Downtown Los Angeles (Union Station)	18.0	14.0	12.5	9.7
West Los Angeles (Fairfax area)	18.0	14.0	12.9	10.0
Burbank (Universal City, North Hollywood)	24.0	18.7	19.3	15.0

Source: WESTEC Services, Inc.

*SCAG, Air Quality Management Plan (AQMP), Appendix No. VI-B, Revised 1982.

Year 2000 projections calculated as follows: Ratio of $\frac{\text{year 2000 emissions}}{\text{year 1980 emissions}}$ x 1980 CO Levels

Metro Rail will conform with the Clean Air Act. In the Southern California region, the AQMP is the regional component of the State Implementation Plan, prepared pursuant to the Clean Air Act. The Metro Rail Project is in conformance with the AQMP, since it fulfills the three basic requirements (identified in Section IX.7 of the AQMP) to be addressed in any review for conformity:

- The AQMP/SIP is being implemented in the area where the project is proposed.
- SCAG has found that the project is consistent with the SCAG 82 growth forecast (the adopted growth forecast policy).
- The Metro Rail Project has been part of the SCAG Regional Transportation Plan (the applicable transportation project list) for seven years.

9.3 IMPACT ASSESSMENT

9.3.1 IMPACT MEASURES AND METHODOLOGY

Impacts on air quality have been assessed from two perspectives: a subregional analysis and a micro-scale analysis. The subregional analysis estimates emissions savings due to Project alternatives for the five primary pollutants. Emissions were calculated using trip generation factors for each alternative developed from traffic modeling tasks. Trip characteristics, such as hot start/cold start emissions and trip speeds, were obtained from Caltrans. The microscale analysis, examining carbon monoxide concentrations at each proposed parking structure, used a combination of methodologies including CALINE3, and Gaussian dispersion. Carbon monoxide concentrations pertinent to both the federal one-hour and eight-hour standards were assessed.

9.3.2 SUBREGIONAL ANALYSIS

The No Project Alternative is predicted to have a VMT level within the air quality study area of 35,254,000 in the year 2000. These VMT include only light-duty vehicles associated with commuter home-to-work trips. The Locally Preferred Alternative with and without the Aerial Option is expected to divert 1.12 million VMT per average workday. The Minimum Operable Segment is expected to divert 1.06 million VMT per day in the study area. According to the preliminary traffic modeling results, the average trip length does not change as a result of implementing any Project alternative.

Table 3-37 shows the resulting reduction in vehicular emissions. The rail project will have a major impact on reducing the incidence of air quality nonattainment in the region. Even when taking into account the pollutants resulting from project-related power generation, net impacts are still favorable in all cases except sulfur dioxide, for which the small net increase would not result in any air quality standards being exceeded.

TABLE 3-37

DIRECT REGIONAL AIR QUALITY BENEFITS
FROM THE METRO RAIL ALTERNATIVES, YEAR 2000

Pollutant	No Project Alternative	Locally Preferred Alternative[1]		Minimum Operable Segment	
	Regional Vehicular Emissions (tons/day)	Regional Vehicular Emissions (tons/day)	Regional Emissions Benefit (tons/day)	Regional Vehicular Emissions (tons/day)	Regional Emissions Benefit (tons/day)
Carbon Monoxide	461.3	453.4	7.9	453.8	7.5
Reactive Hydrocarbons	37.7	37.2	0.6	37.2	0.5
Oxides of Nitrogen	57.9	56.9	1.0	57.0	0.9
Sulfur Dioxide	8.9	8.8	0.1	8.8	0.1
Suspended Particulates	12.4	12 1	0.3	12.1	0.3

Source: WESTEC Services, Inc.; SCRTD.

[1]Locally Preferred Alternative and Aerial Option have the same impact. The regional emissions are based upon Caltrans' EMFAC 6C computer modeling and the following assumptions: 60°F average temperature; traffic flow composed of 86 percent light duty auto, 13 percent light duty truck, and 1 percent motorcycles.

Not only is the direct VMT reduction from the Project alternative significant, the secondary benefits, notably reduced congestion, involving the interaction of all AQMP transportation control measures appear substantial as well. Using outputs from various runs of the Caltrans Direct Travel Impact Model (DTIM-A Regional Air Emissions Simulation Model), the effects of implementing various traffic reduction measures including Metro Rail are shown to have a significant benefit on regional air quality. Decreases in emissions of HC, CO, and NO_x, ranging between two and four percent within Regional Statistical Areas comprising the City of Los Angeles, have been projected by the year 2000 relative to a scenario involving no transportation system improvements. Thus, the Metro Rail Project creates cumulative regional air quality benefits by providing a system that reduces auto use in association with other planned strategies.

9.3.3 MICROSCALE ANALYSIS

From a review of the traffic modeling results, Union Station, Universal City, and sections of Fairfax were identified as areas affected by a significant change in traffic volumes or in the level of service at key intersections. Traffic around the proposed parking structures at the North Hollywood Station would change, but such changes could be accommodated by planned improvements to the roads. The exception is the Lankershim/Burbank intersection, where increased congestion is

predicted. Accordingly, the Lankershim/Burbank intersection and the four stations at Union Station, Wilshire/Fairfax, Fairfax/Beverly, and Universal City were selected for microscale CO analysis.

Microscale air quality impacts are generally related to exposure to air pollutants at any sensitive sites, including residences, parks, hospitals, and schools. Most of the stations are in areas with commercial, office, or similar uses, where there are few potentially sensitive sites or the sites are far enough from areas of increased project-related vehicular activity to keep microscale impacts to a minimum.

CALINE3 calculations were carried out for the morning rush hour at the five selected locations using traffic conditions predicted by the Los Angeles City Department of Transportation and conservative estimates of the eight-hour traffic volumes at parking structures and kiss and ride locations. Emission factors for various traffic elements were developed by Caltrans LARTS staff.*

Calculations at each location were made first for winds parallel to the most significant emissions source near the five sites and then for winds perpendicular to the major roadway near the Metro Rail station. Parallel winds tend to maximize CO concentrations adjacent to the roadway, while perpendicular winds create higher CO concentrations farther from the source, often near potentially sensitive receptor sites. The maximum hourly and estimated eight-hour CO concentrations at siteswhere a significant population exposure is possible are summarized in Table 3-38. The following conclusions can be drawn:

- Microscale CO impacts from Metro Rail-related traffic, in conjunction with baseline traffic levels, are highly localized.

- Violations of the national ambient air quality standards for CO for eight-hour exposures will continue at about the same rate with or without the project within the air quality study area.

- Violations of the state one hour 20 ppm standard are projected at the Macy/Vignes intersection, at the corner of Beverly and Fairfax, at the Universal City Station, and at the Lankershim and Burbank intersection. Because the CO standard has been recently revised and implementing regulations have not been published, the full implications of these excess levels are not known.

It is expected that CO levels at the selected receptor sites under the Project alternatives would be higher than under the No Project Alternative. This result is expected because the parking and bus facilities associated with the Project alternatives will attract additional traffic in the station area.

The Metro Rail microscale air quality analysis included station area automobile parking at selected locations. However, since automobile parking is a major source of air pollution, SCRTD studied the projected effect on regional air quality of totally eliminating Metro Rail station parking. Using computerized Mode Choice and Mode

* The factors were based on ENV028 composite emissions factors, which in turn were derived from the EMFAC6C vehicular emissions model. For purposes of this analysis, traffic volumes that resulted in an increase in CO concentrations of 2 ppm are considered significant.

TABLE 3-38

PROJECTED CO LEVELS (PPM) AT POTENTIALLY SENSITIVE RECEPTOR SITES,[1] YEAR 2000

	ONE-HOUR CONCENTRATION[2]			EIGHT-HOUR CONCENTRATION[3]		
Receptor Site	Local	Background	Total	Local	Background	Total
UNION STATION[4]						
Macy/Vignes Intersection	6.6	14.0	20.6	3.3	9.7	13.0
Metro Rail Entrance	3.4	14.0	17.4	1.7	9.7	11.4
WILSHIRE/FAIRFAX[4]						
Northwest Subway Entrance	2.6	14.0	16.6	1.3	10.0	11.3
Southwest Entrance	1.8	14.0	15.8	0.9	10.0	10.9
West Service Drive Bus Stop	2.2	14.0	16.2	1.1	10.0	11.1
East Service Drive Bus Stop	2.4	14.0	16.4	1.2	10.0	11.1
NE Corner Wilshire and Fairfax	6.4	14.0	20.4	3.2	10.0	13.2
FAIRFAX/BEVERLY[4]						
Corner of Beverly/Fairfax	6.0	14.0	20.0	3.0	10.0	13.0
North Platform Entry Canopy	3.8	14.0	17.8	1.9	10.0	11.9
CBS Television City	1.6	14.0	15.6	0.8	10.0	10.8
UNIVERSAL CITY[5]						
Kiss and Ride Lot	10.0	18.7	28.7	5.0	15.0	20.0
Tram Pickup	7.0	18.7	25.7	3.5	15.0	18.5
Campa de Cahuenga	6.0	18.7	24.7	3.0	15.0	18.0
Station Entrance	5.4	18.7	24.1	2.7	15.0	17.7
Bus Unloading Area	4.8	18.7	23.5	2.4	15.0	17.4
Bluffside Residential Area	4.0	18.7	22.7	2.0	15.0	17.0
Weddington Park	4.0	18.7	22.7	2.0	15.0	17.0
LANKERSHIM/BURBANK INTERSECTION[5]						
Southwest Corner	8.8	18.7	27.5	4.4	15.0	19.4
50' W on Burbank	7.4	18.7	26.1	3.7	15.0	18.7
50' SE on Lankershim	6.8	18.7	25.5	3.4	15.0	18.4
100' W on Burbank	6.0	18.7	24.7	3.0	15.0	18.0
100' SE on Lankershim	5.2	18.7	23.9	2.6	15.0	17.6

Source: SCRTD, Technical Report - Air Quality, 1983.

[1]Projected CO concentrations are presented for the wind conditions that result in the highest concentration (the worst case condition).

[2]For comparison purposes, the state standard is 20 ppm/hour and the federal standard is 35 ppm/hour.

[3]For comparison purposes, the federal and state standard is 9 ppm/8 hours.

[4]Applies to Locally Preferred Alternative, Aerial Option, and Minimum Operable Segment.

[5]Applies to Locally Preferred Alternative and Aerial Option.

of Arrival Modeling, the travel patterns in the project impact area were recalculated without parking. Air pollution factors were applied to the revised mode and mileage data, yielding the projected air quality impacts of a no parking policy.

The results of these studies show that of the 29,510 projected park and ride trips, 24,435 would stop using Metro Rail, causing a 103,707 mile per day net increase in auto VMT over the Locally Preferred Alternative with its proposed surface parking. This increase in VMT would cause regional air quality benefits at the Metro Rail Project to decrease. The air quality impacts of the additional auto travel due to elimination of projected Metro Rail parking lots is shown in Table 3-39.

TABLE 3-39

ANTICIPATED REGIONAL AIR QUALITY DEGRADATION RESULTING FROM THE ELIMINATION OF METRO RAIL PARKING FACILITIES
(in tons/day)

Pollutant	Predicted Daily Emissions Increase*
Carbon monoxide	.74
Reactive hydrocarbons	.05
Oxides of nitrogen	.09
Sulfur dioxide	.01
Suspended particulates	.03

Source: Caltrans EMFAC6C Computer Program

Assumptions included: 103,707 auto VMT; 100 percent hot stabilized; 60°F average temperature; traffic mix of 86 percent light duty auto, 13 percent light duty truck, and 1 percent motorcycles.

9.3.4 ATMOSPHERIC LEAD ANALYSIS

The use of unleaded gasoline in new cars has caused significant reductions in atmospheric lead levels. Minor increases, ranging from 0.04 to 0.07 ug/m^3, have been projected above ambient levels at Metro Rail stations with parking structures. Such minor increases will have no significant adverse impact.

9.4 MITIGATION

The Metro Rail Project constitutes a significant air quality benefit for the region, but also creates some localized adverse air quality impacts. The project contributes

incrementally to local CO concentrations at several intersections by increasing congestion and reducing the intersection's level of service. But since CO standards will be exceeded at these locations with or without the project, the project does not of itself create unhealthful air quality. The traffic mitigation measures discussed in the Transportation section of this chapter are proposed in order to improve the level of service at Macy/Vignes, Lankershim/Tour Center, Lankershim/Burbank, and other locations; however, they would also improve air quality. Traffic measures that prevent CO concentrations from exceeding the 2 ppm significance threshold would be effective air quality measures.

The following measures, which will be adopted, would provide additional air quality benefits by diverting more auto users to Metro Rail and/or by reducing the number of patrons using their cars to drive to and park at Metro Rail stations.

- Provide secure facilities at stations for bicycle and motorcycle parking
- Improve feeder bus service to the transit stations
- Conduct public information programs to promote voluntary trip reductions and publicize feeder line possibilities.

An additional measure under consideration is to offer parking cost benefits to carpoolers.

10. ENERGY

10.1 INTRODUCTION

This section discusses the energy implications of Metro Rail alternatives. The general approach involves compiling energy use estimates for automobiles and buses, based on Vehicle Miles Traveled (VMT), and adding, where applicable, a comprehensive energy use analysis of the rail alternatives. All calculations have been converted to British thermal units (BTUs) to allow direct comparison. The area of analysis for this impact category is the six-county region. For a fuller discussion of materials presented here, the reader is referred to SCRTD's Technical Report - Energy Use Analysis (1983).

10.2 EXISTING CONDITIONS

Electricity for the Regional Core is primarily supplied by the City of Los Angeles Department of Water and Power (LADWP), whose service area encompasses the 464-square-mile City of Los Angeles. Principal power system facilities are located

throughout much of the Western states. During fiscal year (FY) 1980-81, approximately 20.1 billion kilowatt hours (kWh) of electricity were produced or purchased to satisfy LADWP customer demand, including an allotment for energy losses within the system. Nearly half this amount was produced within the Los Angeles Basin by steam generating plants. One-third was produced by the Coronado, Mohave, and Navajo Generating Stations. Hydroelectric sources supplied approximately 13 percent, and 6 percent of the demand was purchased or provided by net interchange supplies from other Western utilities.

To maintain a continued supply of reliable and economical electricity, LADWP is participating in a number of energy development projects both alone and in cooperation with other public agencies. In addition to the gas, coal and nucler projects now underway, generation sources under consideration include landfill gas, small hydro, geothermal, solar, cogeneration and other alternative energy sources.

By the year 2000 LADWP expects their peak demand to be 5,715 megawatts and their average annual energy usage to be approximately 26.7 billion kWh. It is projected that nearly half of LADWP's power supply will be produced by coal (49 percent). The remaining electricity will be produced by gas and oil (12 percent), nuclear (8 percent), hydroelectric (8 percent), and geothermal, solar, and cogeneration (6 percent), generic resources (6 percent), and the remaining power purchased (11 percent).

In the Los Angeles region, the reduction in gasoline consumption from 1979 to 1980 exceeded the Air Quality Management Plan's projected reduction of 1.4 percent for this same period, indicating a faster rate of decrease in gasoline consumption than expected (SCAG, 1981). Further reduction in gasoline sales will depend on the user population and increased fuel economies for vehicles. Assuming a conservative one percent reduction in gasoline sales per year, annual gasoline sales for Los Angeles region will be 4,140 million gallons by the year 2000.*

10.3 IMPACT ASSESSMENT

Automobiles and buses are the primary means of transporting people within Los Angeles. Most energy used for cars and buses is expended in propulsion, maintenance, vehicle manufacturing, roadway construction, and roadway maintenance. Energy required to support transportation was calculated for each of the above components per VMT. Table 3-40 represents the estimated year 2000 baseline, or No Project Alternative, energy demand. The factors in this table assume an average life span of 80,000 miles for autos and 1,000,000 miles for buses.

* This figure is for all taxable gasoline sales (except aviation fuel) and includes heavy-duty gasoline-powered vehicles not included in the analysis of energy requirements for the various alternatives.

TABLE 3-40

LOS ANGELES REGION TRANSPORTATION ENERGY DEMAND, YEAR 2000[1]
NO PROJECT ALTERNATIVE

Component	Energy Use Factor[2] (BTUs/VMT)	Annual VMT (millions)	Total Annual Energy (billion BTUs)
Vehicle Manufacturing			
Auto	1,100	69,167	76,083
Bus	1,200	123	148
Subtotal			76,231
Vehicle Maintenance			
Auto	1,600	69,167	110,667
Bus	1,000	123	123
Subtotal			110,790
Vehicle Propulsion			
Auto	5,208	69,167	360,222
Bus	41,688[3]	123	5,128
Subtotal			365,350
Total			552,371

[1]These figures do not include the energy needed in the maintenance, repair, and replacement of streets and freeways. These roadways generally have a life expectancy of 15 to 25 years. Nearly all road pavement is petroleum-based.

[2]Energy use factors derived from Transportation Research Board, 1982, and Kulash and Mudge, Urban Transportation Energy, December 1977. These factors for bus and auto are used throughout the energy analysis tables (Tables 3-40 to 3-45). Bus energy is for SCRTD buses only. It does not include smaller municipal operators, or public transportation outside Los Angeles County.

[3]Bus propulsion energy reflects actual SCRTD experience in the Los Angeles region.

Table 3-41 presents the assumptions used to analyze the energy demand of the rail system. Construction energy for rail guideways is estimated at 11,969 billion BTUs using a process analysis method. Construction energy for vehicles assumes 4.1 billion BTUs per vehicle and a year 2000 fleet of 130 rail vehicles. These estimates are converted to BTUs per VMT assuming a conservative 50 year project life and 10,533,000 rail vehicle miles traveled in the year 2000. The vehicle manufacturing factor is based upon a projected 30 year rail vehicle life. The energy requirement for vehicle maintenance propulsion and station operation are based on specific studies prepared for the Metro Rail Project.

TABLE 3-41

METRO RAIL ENERGY USE ASSUMPTIONS[1]

Component	BTUs/VMT[2]
Guideway Construction	22,691
Vehicle Manufacturing	1,709
Vehicle Maintenance	9,684
Vehicle Propulsion	65,224
Station Operation	48,419
Total	147,727

Source: Booz, Allen, & Hamilton, SCRTD Subsystems and Systems analysis for Metro Rail factors.

[1]These factors apply to the Locally Preferred Alternative. They vary slightly for the Aerial Option and Minimum Operable Segment, and these variations are reflected in the calculations shown in Tables 3-43 and 3-44.

[2]These figures are for the Locally Preferred Alternative with 18 stations.

10.3.1 NO PROJECT ALTERNATIVE

Energy requirements for each component of the No Project Alternative are shown in Table 3-40. The total annualized energy demand is 552,371 billion BTUs. Of this total, the bus sector would account for one percent and the automobile the remaining 99 percent. Propulsion energy totals 365,350 billion BTUs which translates to 2.88 billion gallons of gasoline for automobiles and 38.4 million gallons of diesel fuel for buses consumed annually.

10.3.2 LOCALLY PREFERRED ALTERNATIVE

The Locally Preferred Alternative would result in a total annualized energy demand of 550,045 billion BTUs (Table 3-42). The bus sector would account for .8 percent, the rail sector for .3 percent, and the automobile sector for the remaining 98.9 percent. SCRTD preliminary estimates show that operation of the Metro Rail Project and the associated bus network will decrease projected year 2000 annual automobile VMT by approximately 375 million (.54 percent) and bus VMT by approximately 21 million (17 percent). Considering year 2000 projected automobile energy requirements for vehicle propulsion, maintenance, and manufacturing, these reductions would save an annual total of 2,942 billion BTUs from autos and 940 billion BTUs from buses, for a total energy savings of 3,882 billion BTUs (2,823 billion for vehicle propulsion, 621 billion for vehicle maintenance, and 438 billion for vehicle manufacturing). Looked at another way, a reduction of 375 million automobile VMT would conserve 15.63 million gallons of gasoline, and a reduction of 21 million bus VMT would conserve 6.56 million gallons of diesel fuel.

TABLE 3-42

ANNUALIZED ENERGY REQUIREMENTS
FOR THE LOCALLY PREFERRED ALTERNATIVE, YEAR 2000
(in billions of BTUs)

Component	Auto	Bus	Rail	Total
Guideway Construction	not calculated	not calculated	239	239
Vehicle Manufacturing	75,671	122	18	75,811
Vehicle Maintenance	110,067	102	102	110,291
Vehicle Propulsion	358,292	4,235	687	363,214
Station Operation	not applicable	not calculated	510	510
Total	544,030	4,459	1,556	550,045

Source: SCRTD

In the year 2000 the propulsion, maintenance, and station operation energy requirements of the Locally Preferred Alternative rail component total 1,299 billion BTUs (120 million kWh). This energy would be supplied as electricity by LADWP and the Southern California Edison Company. The peak electric power demand for the Locally Preferred Alternative will be about 65 megawatts with 3.5 minute headways (projected conditions in the year 2000) and 88 megawatts with two-minute headways (approximately the ultimate system capacity). The needed energy would represent less than one-half of one percent of the LADWP's projected year 2000 electricity demand, a total too insignificant to have an adverse effect on LADWP's ability to supply electricity to its customers.*

10.3.3 AERIAL OPTION

The Aerial Option would result in a total annualized energy demand of 549,983 billion BTUs (Table 3-43). Compared to the Locally Preferred Alternative, energy savings are realized in guideway construction and station operation. The bus and rail sectors would account for .8 and .3 percent of the total, respectively. Looking at just the

* It was necessary to use BTUs for energy analysis so that nonelectrical (e.g., autos, buses, construction) energy could be directly compared with electric rapid transit. However, to convert electrical energy consumption from BTU heat energy to kilowatt hours electrical energy, a conversion factor of 10,000 BTUs per kWh must be used. This conversion factor includes the energy losses associated with the generation and transmission of electricity used by Metro Rail. Consequently the 1,299 billion BTUs of electrical energy required for the Locally Preferred Alternative would equal approximately 130 million kWh annually.

bus and auto components, this alternative, relative to the No Project Alternative, would save 15.63 million gallons of gasoline and 6.56 million gallons of diesel fuel, the same as the Locally Preferred Alternative.

TABLE 3-43

ANNUALIZED ENERGY REQUIREMENTS FOR THE AERIAL OPTION, YEAR 2000
(in billions of BTUs)

Component	Auto	Bus	Rail	Total
Guideway Construction	not calculated	not calculated	219	219
Vehicle Manufacturing	75,671	122	18	75,811
Vehicle Maintenance	110,067	102	102	110,271
Vehicle Propulsion	358,392	4,235	687	363,214
Station Operation	not applicable	not calculated	468	468
Total	544,030	4,459	1,494	549,983

Source: SCRTD

10.3.4 MINIMUM OPERABLE SEGMENT

The Minimum Operable Segment would result in a total annualized energy demand of 550,076 billion BTUs (Table 3-44). The resulting annual savings in gasoline and diesel fuel relative to the No Project Alternative would be 14.78 million and 3.13 million gallons, respectively. Like the other rail alternatives, the Minimum Operable Segment would not have a significant impact on the ability of LADWP to supply electricity to its customers.

TABLE 3-44

ANNUALIZED ENERGY REQUIREMENTS FOR
THE MINIMUM OPERABLE SEGMENT, YEAR 2000
(in billions of BTUs)

Component	Auto	Bus	Rail	Total
Guideway Construction	not calculated	not calculated	110	110
Vehicle Manufacturing	75,693	136	10	75,839
Vehicle Maintenance	110,099	113	87	110,299
Vehicle Propulsion	358,396	4,725	340	363,488
Station Operation	not applicable	not calculated	340	340
Total	544,188	4,974	914	550,076

Source: SCRTD

10.3.5 COMPARISON OF PROJECT ALTERNATIVES

For all Project alternatives, propulsion energy—largely made up of automobile and bus energy associated with VMT—is the largest single consumer of energy for the system. While the rail project of the Locally Preferred Alternative will require a total energy demand of 1,556 billion BTUs per year, it would save a net of 2,326 billion BTUs per year in reduced automobile and bus energy that would otherwise be consumed if the project were not built. Table 3-45 shows that the energy demand for transportation in the Los Angeles region would decrease .4 percent, from 552,371 billion BTUs per year with the No Project Alternative to 550,045 billion BTUs with the Locally Preferred Alternative.

TABLE 3-45

LOS ANGELES REGION TRANSPORTATION ENERGY DEMAND
UNDER SYSTEMWIDE ALTERNATIVES, YEAR 2000
(billions of BTUs)

Energy Demand	No Project[1]	Locally Preferred Alternative	Aerial Option	Minimum Operable Segment
Guideway Construction	—	239	219	110
Vehicle Manufacture	76,231	75,811	75,811	75,839
Vehicle Maintenance[2]	110,790	110,271	110,271	110,299
Vehicle Propulsion[2]	365,350	363,214	363,214	363,488
Station Operation	—	510	468	340
Total	552,371[4]	550,045	549,983	550,076

Source: SCRTD

[1]To maintain consistency within the EIS/EIR, the No Project Alternative assumes that no major additional transportation facilities will be built in the region. However, as the traffic analyses of the existing condition shows, little or no additional capacity is available on the existing street and freeway system.

[2]Does not include highway repair and reconstruction, maintenance, energy consumed by gasoline stations and so forth. Does include rail transit maintenance energy consumption.

[3]Does not incorporate reductions in fuel economy resulting from the aggravated congestion that would occur.

10.4 MITIGATION

SCRTD has evaluated numerous energy conservation options for the construction and operation of Metro Rail. Major adopted mitigation measures are listed below in two separate groups: propulsion energy and station and facilities design.

Although energy conservation measures during construction and in support activities (stations, maintenance, adminstration) will help, the most significant savings are likely to occur from reducing the traction energy required to stop and start vehicles and, secondarily, from diverting more patrons from their automobiles to transit.

10.4.1 PROPULSION ENERGY CONSERVATION*

Significant kinetic energy is created when a rail train accelerates and decelerates. This energy is typically wasted. A propulsion energy conservation measure Metro Rail will utilize is "chopper" (semiconductor) traction motor speed controls instead of conventional "cam" (mechanical) speed controls. Although somewhat heavier and bulkier, the new "chopper" control technology is considered to offer, on balance, significant energy benefits for Metro Rail. Use of extra-high voltages (1,000 volts or more) and AC current have also been investigated for their energy saving potential but have been found to involve too many technical uncertainties to be feasible.

SCRTD will equip Metro Rail vehicles to recapture some of the energy used to stop trains through regenerative electrical braking, a generally proven technique. Regenerative braking captures energy that would otherwise be dissipated into the subway as heat. This heat would, in turn, require additional ventilation and cooling energy. The real benefits of regenerative braking depend, however, on the ability to make use of the electrical power pumped back into the traction power system. If another nearby train is just starting up, one train's braking energy can be effectively absorbed by this other train. This is often not the case, but SCRTD will provide regenerative braking energy use or energy storage wherever feasible.

A variety of other mitigation measures will improve propulsion energy efficiency. A special aluminum-clad steel "third rail" which would be a much more efficient conductor than the conventional steel rail will be used. Initial installations of this compound rail have been promising. An automatic control system for train speed which promotes coasting will be implemented if feasible. Rail vehicles will be designed and operated so that they are switched off whenever not in service. In addition, the traction system will be designed so that it can eventually be integrated with any adjacent future electrical transit systems such as trolley buses and light rail systems, facilitating more efficient utilization of Metro Rail regenerative braking energy.

"Gravity Profiling" was considered in the Draft EIS/EIR as a potential energy conservation technique. This technique involves contouring the vertical profile of the tunnels so that gravity helps to pull a train away from a station and to slow it down as it approaches a station. This technique has a high degree of technical uncertainty. Model simulations of train behavior have indicated that this technique could save moderate amounts of propulsion energy or, alternatively, could actually require significant additional amounts of energy under various operating conditions. After considering the risks, additional cost, and safety issues, the technique was discussed with the Transit Technical Advisory Committee (a group of experts

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* For greater detail and additional measures see Kaiser Engineers, Draft Report for the Development of Milestone 8: Systems and Subsystems; Alternative Analyses for Traction Power Report, November 1982; Alternative Analyses of Auxiliary Power Report, December 1982.

knowledgeable in all aspects of transit). SCRTD then decided to preclude "Gravity Profiling" from further consideration.

10.4.2 STATION AND FACILITIES DESIGN

Opportunities for saving energy in and around stations can come from integrating station design and construction into stores, offices, and apartment complexes. These sorts of joint development and mixed use design concepts not only save building construction and operating energy but also internalize travel that otherwise would require vehicular energy.

Integrated station area design can achieve energy conservation in other ways as well. Interconnected heating and cooling (or other "districting" systems), for example, might save considerable amounts of energy. Building cooling systems might also be used to capture regenerative braking energy; one new CBD building, for instance, already stores off-peak electrical ventilating energy for up to 24 hours in a 50,000 gallon ice tank. In pursuing joint development, Metro Rail will utilize existing elevators to satisfy handicap accessibility requirements whenever possible.

During Final Design, every aspect of station design will be reviewed in order to minimize lighting, heating, ventilating, and air conditioning loads. Air conditioning requirements will be minimized by designing the stations to facilitate warm air exchange by utilizing the piston effect of the trains. Passenger areas within stations will be designed so that lights can be turned off during off-service hours. Any station hot water will include solar hot water pre-heating where feasible. In the maintenance yard, cold water will be utilized for vehicle washing. The track layout will be designed to minimize non-revenue vehicle movements, and solar hot water pre-heating will be used for hot water and steam needs. All major Metro Rail facilities (the yard, the car wash, administrative buildings, individual stations, sections of the traction rail, etc.) will have separate electric meters to facilitate energy consumption monitoring and conservation.

Because additional operating and construction energy savings would result if all auto driving Metro Rail riders used feeder buses, SCRTD studied the effect of totally eliminating station area parking. Using computerized Mode Choice and Mode of Arrival Modeling, the travel patterns in the project impact area were recalculated without station parking. Energy factors were applied to the revised mode and mileage data, yielding the projected energy impacts of a no parking policy. These studies showed that transportation energy use would increase without any station parking. Of the 29,510 projected park and ride trips, 24,435 would stop using Metro Rail, causing a 103,707 net daily increase in auto VMT over the Locally Preferred Alternative with the proposed surface parking. The annual increase in auto operating energy would be 262.5 billion BTUs. Bus energy consumption for feeder bus operation would increase by 12 billion BTUs annually. These results are shown in Table 3-46.

TABLE 3-46

INCREASED ENERGY USE DUE TO ELIMINATION OF METRO RAIL PARK AND RIDE LOTS

Component	Energy Use Factor[2] (BTUs/VMT)	Increased Annual VMT (Millions)	Total Annual Energy (Billion BTUs)
Vehicle Manufacturing			
Auto	1,100	33.18624	36.5
Bus	1,200	.38912	0.5
Vehicle Maintenance			
Auto	1,600	33.18624	53.0
Bus	1,000	.38912	0.4
Vehicle Propulsion			
Auto	5,208	33.18624	173.0
Bus	29,000	.38912	11.3
Subtotal Auto			262.5
Subtotal Bus			12.2
Total			274.7

Source: SCRTD computer Mode Choice and Mode of Arrival Modeling for auto VMT. Manual calculation from computer results for bus.

[1]These figures do not include the energy needed in the maintenance, repair, and replacement of streets and freeways. These roadways generally have a life expectancy of 15 to 25 years. Nearly all road pavement is petroleum-based.

[2]Energy use factors derived from Transportation Research Board, 1982, and Kulash and Mudge, Urban Transportation Energy, December 1977. Bus energy is for SCRTD buses only. It does not include smaller municipal operators, or public transportation outside Los Angeles County.

11. GEOLOGY AND HYDROLOGY

11.1 INTRODUCTION

Because the design of the proposed Metro Rail Project includes extensive tunneling and surface excavation, geotechnical evaluation of such factors as soils engineering and slope stability, seismicity and other potential geologic hazards, and hydrology/water quality is necessary. To this end, a major geotechnical study has been prepared (Converse Consultants, 1981), and a second study on seismicity has been completed (Converse Consultants, 1983).

These studies are summarized in SCRTD's Technical Report on Geology and Hydrology (1983). The technical report also contains more details on potential impacts of the system and measures to mitigate them.

11.2 EXISTING CONDITIONS

The Locally Preferred Alternative and the Aerial Option of the proposed Metro Rail Project traverse parts of three major geomorphic and topographic features: the Los Angeles Basin, the Santa Monica Mountains, and the San Fernando Valley. The Los Angeles Basin and San Fernando Valley are large alluvial basins characterized by relatively low relief, with natural slopes of 1 to 4 percent. In the project area, the Santa Monica Mountains rise steeply to elevations of nearly 1,200 feet along slopes with average gradients of 20 percent to as much as 30 percent. The Minimum Operable Segment, which terminates at the Fairfax/Beverly Station, stays entirely within the Los Angeles Basin.

The Los Angeles River, Tujunga Wash, and Ballona Creek provide drainage for the Regional Core. Each of these drainage systems have been channelized by flood control projects. As a result, their natural capacity to accommodate runoff has been increased considerably and flood hazards to nearby land uses have been minimized.

Geologic features in the vicinity of the Metro Rail Project are shown in Figure 3-18. These features along each of the four line segments are described in the following paragraphs. The discussions of the Los Angeles CBD segment and the Wilshire Corridor Segment apply to the Locally Preferred Alternative, the Aerial Option, and the Minimum Operable Segment. The discussions of the Hollywood and North Hollywood segments do not apply to the Minimum Operable Segment.

11.2.1 LOS ANGELES CBD SEGMENT

The Los Angeles CBD segment is underlain by up to 130 feet of loose to dense, stream-deposited young alluvium. Beneath the young alluvium and exposed at the ground surface in the central portion of the Los Angeles CBD are soft-rock claystones, siltstones, and sandstones of the Fernando and Puente Formations. There are no known faults in this segment.

The permanent groundwater level in the eastern portion of this segment near Union Station was found about 25 feet beneath the ground surface. In the rest of the CBD the permanent groundwater table is below 90 feet. Groundwater quality in the area is poor.

In the Los Angeles Basin the alignment passes through or near several oil fields. Oil or gas in sediments to be excavated is of concern because hydrocarbons may affect soil strength and tunneling safety. Soil borings in the CBD segment revealed minor amounts of oil in the underlying sediments, with larger concentrations in the Union Station area. The ground in this segment is therefore rated as potentially gassy to oily and gassy.

11.2.2 WILSHIRE CORRIDOR SEGMENT

East-West Reach. The east-west reach of the Wilshire Corridor from the CBD to Fairfax Avenue is mantled by about 20 to 90 feet of dense old alluvium over clays and silts of the Fernando and Puente Formations. West of Normandie Avenue, a westward-thickening wedge of dense, saturated sandstone of the San Pedro Formation lies between the bedrock clays and silts and the overlying alluvium. The MacArthur Park Fault, considered seismically inactive, crosses the Wilshire Corridor near Alvarado Street (Figure 3-18).

The permanent groundwater table in the east-west reach of the Wilshire Corridor is at a depth of over 100 feet; however, a shallow (20 to 50 feet deep) perched water table is encountered in the alluvium throughout the area. With the exception of MacArthur Park Lake, surface waters in the vicinity are limited to stormwater runoff.

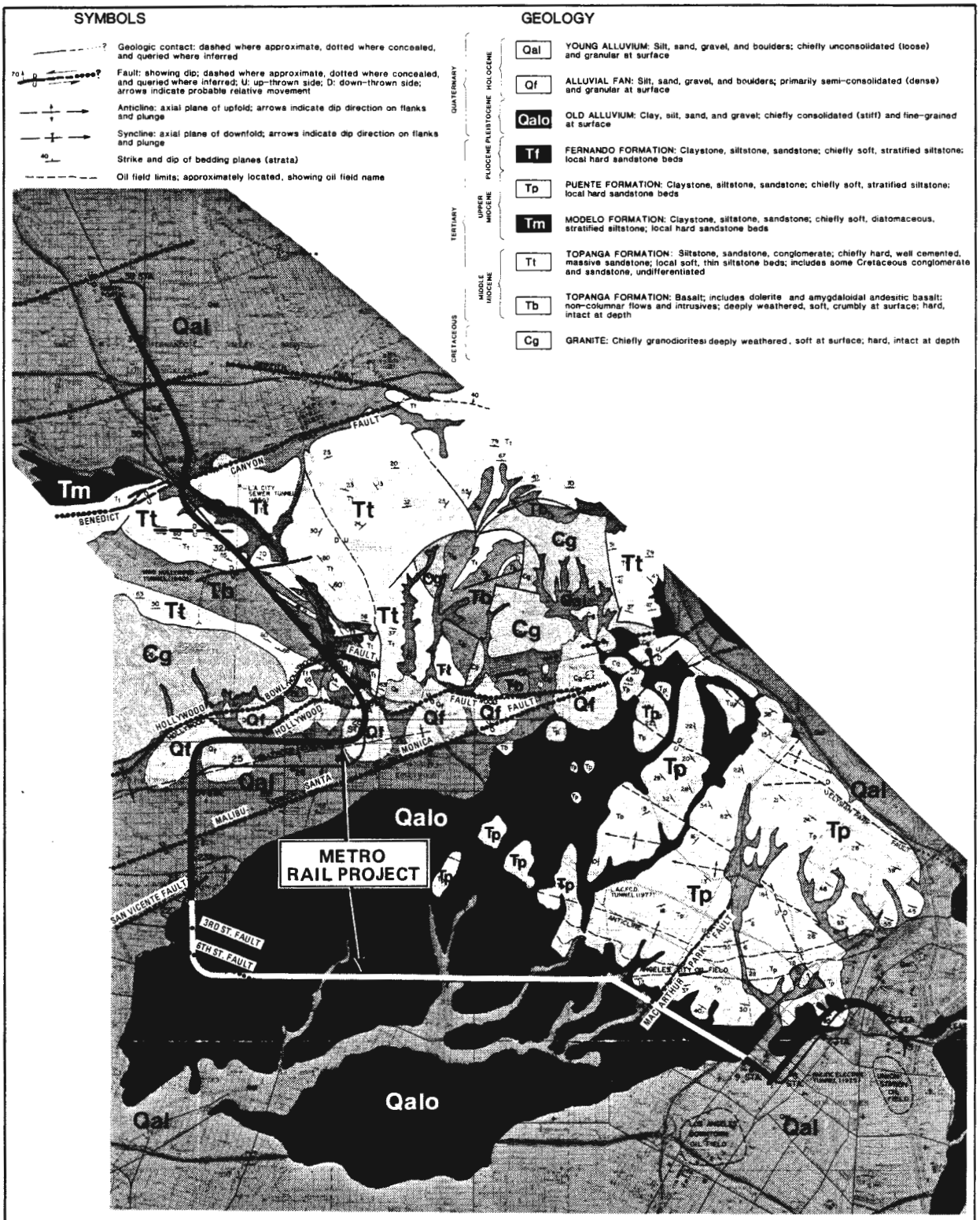
The entire Wilshire Corridor from the Los Angeles CBD to Fairfax is rated as potentially gassy to oily and gassy, particularly west of La Brea, where sediments saturated with oil and tar are at or near the surface.

Fairfax Reach. Along the Wilshire Corridor segment from Wilshire Boulevard north along Fairfax, the claystone Fernando and Puente Formations are at depths of 100 to over 300 feet. These materials are overlain by 50 to about 100 feet of San Pedro Formation sands and 40 to nearly 200 feet of old alluvium. A northward-thickening wedge of young alluvium up to 60 feet thick mantles the ground surface.

As shown on Figure 3-18, the Sixth Street, Third Street, and San Vicente Faults cross Fairfax Avenue in this reach. These faults are seismically inactive, but the Malibu-Santa Monica fault, which crosses the Metro Rail alignment near Melrose Avenue, is potentially active.

The regional water table is below 100 feet in the area, but perched groundwater is found at depths of no more than 10 feet in places. Storm runoff constitutes the only surface water in this reach.

From Wilshire north to Melrose Avenue, the ground beneath the proposed alignment is oily and gassy. North of Melrose Avenue along the remainder of the Metro Rail Project, underlying sediments are nongassy.



SOURCE: Converse et al. (1981, Drawing No.1)

Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

Figure 3-18
Local Geology

SEDWAY/COOKE
Urban and Environmental Planners and Designers

11.2.3 HOLLYWOOD SEGMENT

From Santa Monica Boulevard north to the base of the Santa Monica Mountains, dense young and old alluvium over 200 feet thick overlies the claystone bedrock formations. Near the mountain front, semiconsolidated alluvial fan deposits cover the ground surface at the mouths of major canyons. The seismically active Hollywood Fault crosses the proposed rail alignment at the northern edge of this reach.

The segment through the Santa Monica Mountains consists predominantly of a relatively thin layer of weathered bedrock over hard rock. Both basalts and well-cemented sediments of the Topanga Formation will be encountered in this reach. Several faults cross the alignment in the Santa Monica Mountains (see Figure 3-14). Of these, only the Hollywood Bowl Fault, a branch of the active Hollywood Fault, is of possible concern.

The permanent water table is deeper than 200 feet in the Hollywood segment south of the mountains, although small amounts of shallow perched groundwater were noted in the upper alluvium. Groundwater is also expected in fractures and fault zones in the Topanga Formation through the Santa Monica Mountains. Near the mouths of canyons in this area, there is short term flooding during peak stormwater runoff.

11.2.4 NORTH HOLLYWOOD SEGMENT

North of the Santa Monica Mountains the proposed alignment is underlain by approximately 50 feet of dense young alluvium over old alluvium. The bedrock Topanga Formation lies more than 200 feet beneath this segment. Two unnamed faults (see Figure 3-18) have been postulated in the area, but neither is considered seismically active.

The deep alluvial deposits in the San Fernando Valley are used for groundwater storage by the L.A. Department of Water and Power. In the project area the permanent water table is below 100 feet. Storm runoff in the area collects on surface streets, then drains into the Los Angeles River near the northern edge of the Santa Monica Mountains. Localized surface flooding occurs during heavy rains.

11.3 IMPACT ASSESSMENT

The No Project Alternative would not result in any geologic or hydrologic impacts. Accordingly, the following impact assessment on landform, geology, and hydrology focuses on each of the four Metro Rail line segments. A summary of the assessment is presented in Table 3-47. It should be noted that even though the Minimum Operable Segment is considerably shorter than the Locally Preferred Alternative and Aerial Option, any impact category that could affect the longer alignments also affects the Minimum Operable Segment.

TABLE 3-47

SUMMARY OF POTENTIAL LANDFORM AND GEOLOGY IMPACTS BY LINE SEGMENT

Line Segment	Landform Alteration	Seismic Ground Shaking	Fault Rupture	Soil Liquefaction Densification	Tunnel and Excavation Stability	Hydrocarbon Accumulation	Subsidence	Loss of Mineral Resources	Flooding	Water Quality
Los Angeles CBD	○	◑	○	◑	◑	◑	○	○	○	◑
Wilshire Corridor	○	◑	●	○	◑	◑	○	○	◑	◑
Hollywood	○	◑	●	○	◑	○	○	○	◑	○
North Hollywood	○	◑	○	○	◑	○	○	○	◑	○

○ Indicates no significant impact expected.

◑ Potential for significant impact exists, but measures to mitigate impact have been incorporated into project.

● Potential for unavoidable adverse impact exist, but probability of occurrence is extremely low.

11.3.1 LANDFORM ALTERATION

For the Locally Preferred Alternative and the Minimim Operable Segment, all of the proposed Metro Rail alignment and most of the stations will be underground and thus not evident from the land surface. Above-ground station elements, maintenance yards, and street-level rail segments are all located where very little landform alteration, such as the creation of artificial cut and fill slopes, will be necessary. The aerial components of the Aerial Option are also designed to minimize landform alteration. Thus, once construction is complete and the Metro Rail Project becomes operational, no significant, long term impacts to existing landforms are expected.

11.3.2 SEISMICITY

Seismic Ground Shaking. All four segments of the Metro Rail Project, like most of California, are in seismically active areas. The design of critical Metro Rail facilities takes into account not only the probable magnitude of earthquakes likely to occur once in the next 200 years but also the maximum credible ground motion possible. Thus, critical facilities could withstand the .22g (22 percent of gravity) horizontal ground movement from any likely earthquake in the next two centuries and even the .70g movement of the maximum credible earthquake. In contrast to the strong ground shaking effects that would be experienced by elevated structures of the Aerial Option, such effects are minimal in deep tunnels because underground structures vibrate as one with the surrounding ground. Seismic design criteria have been developed for this project specifically to withstand ground distortions and mitigate effects of vibrations (Converse Consultants, 1983). However, damage to Metro Rail tunnels, though not likely during the project's life, could occur primarily at the contact of different geologic formations. This impact would most likely occur in the Santa Monica Mountains, where only the Locally Preferred Alternative and the Aerial Option would be affected.

Fault Rupture. Movement along a fault displaces a portion of the earth's crust at or below the ground surface. Such displacement can be either rapid, as during an earthquake, or gradual, as with fault "creep."

The only seismically significant faults crossing the proposed alignment are the potentially active Malibu-Santa Monica Fault in the Wilshire Corridor segment and the active Hollywood Fault in the Hollywood segment. The estimated maximum, single-event displacements, based on geologic data concerning fault slip rates, are 3.3 feet along the Malibu-Santa Monica Fault and 1.0 feet along the Hollywood Fault. However, it is very unlikely that these displacements would occur during any reasonable service life. For example, a 1-foot displacement in the Hollywood Fault crossing would be expected to occur an average of once every 60,000 to 70,000 years. Similarly, the 3.3-foot displacement on the Malibu-Santa Monica Fault crossing might occur an average of once every 20,000 to 30,000 years (Converse Consultants, 1982).

Geologic logs and geophysical surveys conducted by Converse Consultants (1981) indicate a 170 to 400-foot vertical offset of the bedrock surface at the Hollywood fault and an approximately 150-foot offset of bedrock surface at the Malibu-Santa Monica fault. Neither fault is expected to move during the useful life of the Metro Rail.

Soil Liquefaction/Densification. Soil liquefaction is a process whereby loose to medium dense, water-saturated, granular sediments lose their shear strength and become liquefied from increased pore water pressure resulting from cyclical, dynamic (usually seismic) loading. Densification is a similar phenomenon occurring when loose, granular soils become more compact because of seismic ground shaking or vibrations from facility construction, or possibly, system operations.

In general, the granular deposits (primarily young and old alluvium) along the proposed Metro Rail alignments are dense to very dense and would not liquefy or densify. However, some of the granular alluvium in the Los Angeles CBD segment beneath the Union Station, Fifth/Hill, and Seventh/Flower Stations was found to be only loose to medium dense. Such materials may liquefy below the water table or densify because of vibrations. Soil liquefaction or densification could cause overlying structures to fail through the loss of bearing capacity, lateral spreading, and settlement.

11.3.3 TUNNEL AND EXCAVATION STABILITY

Tunnel and excavation stability will be of concern primarily during construction when tunnels or slopes may be unsupported for short periods. Directly after tunneling, however, precast concrete or steel ring tunnel liners will be installed to ensure support and stability. These measures will offset the possibility of a tunnel caving upward to or near the ground surface and causing the settlement of overlying facilities.

Upon completion of cut and cover excavations for Metro Rail stations, reinforced concrete base slabs, exterior walls, intermediate level horizontal slabs, and roof slabs will be installed and temporary construction bracing removed. The cross-station slabs and side walls, when fully installed, will provide adequate support against lateral soil and groundwater pressures as well as imposed vertical loads.

Special noncorrosive concrete mixtures and metal protection will be required for underground project elements in areas where corrosive groundwaters could otherwise eventually cause tunnel liners and station walls to deteriorate. Groundwater containing corrosive concentrations of substances such as sulfates or sodium chloride has been identified in parts of all four Metro Rail line segments.

11.3.4 HYDROCARBON ACCUMULATION

All Project alternatives pass through areas of known shallow hydrocarbon accumulation in the Los Angeles CBD and Wilshire Corridor line segments. Such accumulations can take the form of gas, asphalt, tar, or free oil. Where tunnels and stations are completed in areas of shallow hydrocarbons, long term buildups of liquid tar or oil may occur. Thus, where necessary, a system of gravel-filled drainage channels will be provided to collect these substances and carry them to a series of sumps. From the sumps they will be removed to the surface and disposed of in accordance with discharge requirements of the Regional Water Quality Control Board (RWQCB).

Long term accumulations of gaseous hydrocarbons are not considered likely following project construction. However, where such buildups appear possible, special tunnel linings will be installed to prevent gas from entering the subway system, or a gas collection and ventilation system will be provided to dissipate any hazardous concentrations.

11.3.5 SUBSIDENCE

Subsidence, or sinking, of the land surface can result from several causes. In the Metro Rail Project area the withdrawal of fluids, such as groundwater or hydrocarbons, has apparently caused the compaction of underlying sediments, resulting in land subsidence in the Union Station Oil Field in the CBD and near Burbank in the San Fernando Valley. Reported subsidence rates are on the order of 0.03 to 0.06 feet per year.

Vertical movement of the land surface would become a hazard to the Project alternatives only if it happened within a small area, and such differential subsidence does not appear to be occurring in the project vicinity, where relatively uniform subsidence affects areas of several square miles. Average subsidence of up to about 0.1 feet per year over a linear distance of approximately 3 miles in the Los Angeles area has been calculated (Yerkes et al., 1977). As presently known, subsidence would probably not be a problem in the construction of tunnels. Elevated structures with properly designed foundations of the Aerial Option also would not encounter subsidence problems.

11.3.6 LOSS OF MINERAL RESOURCES

The Los Angeles Basin has been one of California's most prolific oil producing districts for nearly 100 years, but the Project alternatives would not significantly affect operations in any producing oil field.

All four line segments of the Metro Rail Project pass through geologic materials that might strictly be considered mineral resources, such as sand and gravel, which could

be used as construction aggregate. In the Santa Monica Mountains the Locally Preferred Alternative and Aerial Option pass through granitic or volcanic rock, which could be used as riprap. However, the poor mineral value of most of these materials and their proximity to fully urbanized areas makes mining them uneconomical and impractical.

11.3.7 FLOODING

It is not expected that the Metro Rail Project will contribute to surface flooding, even though the alignment passes under the Los Angeles River and several areas identified as flood hazard zones on the Flood Hazard Maps of the National Flood Insurance Program.

As a result of flood control projects, the Los Angeles River within the Regional Core served by the Metro Rail Project is a fully channelized river without a floodplain. Nevertheless, because the subway alignment would be tunnelled under the Los Angeles River (in the vicinity of Universal City) floodplain encroachment will occur.

The Department of Transportation Order 5650.2, titled "Floodplain Management and Protection," "prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests." The order requires that attention be given and findings made in environmental review documents to specific issues:

- Examine any risk to or resulting from, the proposed transportation facility. At this location, the river is well contained in a (largely open) concrete box culvert. Urban residential and commercial facilities have been long established up to the culvert right-of-way without incident. The fact that the County Flood Control District is actively pursuing joint development (including enclosure of the culvert) of this right-of-way attests to the compatibility of well-designed structures with the river's facilities.

- Examine the impacts upon natural and beneficial floodplain values. The river is completely channelized with vertical walls. Bicycle paths and other recreational facilities adjoin at some locations. Bored-tunnel construction under the river will not disturb any of these surface features.

- Examine the degree to which the action provides direct or, indirect support for development in the floodplain. The proposed tunnel would have no contact with the area immediate to the river itself. Only the station would lend support to development activity. These station areas are well removed from any potential floodplains, and have been designated by local government as areas suitable for intense development.

Thus, the Metro Rail alignment will not result in a significant encroachment of a floodplain as defined in DOT Order 5650.2.

Six areas along the Metro Rail Alignment have been identified as flood hazard zones on the Flood Hazard Maps of the National Flood Insurance Program. This federal program has determined that a flood which has one percent chance of being exceeded in any given year (commonly known as the 100-year flood) is the base-flood for which flood protective measures are designed. The six areas are MacArthur Park, Lafayette Park, Wilshire Boulevard between Mariposa and Normandie Avenue,

Wilshire Boulevard between Wilton and Norton Avenues, Fairfax Avenue from Wilshire Boulevard to Willoughby Avenue, and Fairfax Avenue in the vicinity of Sunset Boulevard (Figure 3-19). The first three areas and portions of Fairfax Avenue and Sunset Boulevard lie within the anticipated 100 year flood boundaries or Flood Hazard Zone A. While Flood Hazard Zone A is considered a critical flood hazard zone, no significant impacts are anticipated from the construction and operation of the subway system. Any direct increase of runoff due to the Metro Rail Project is not significant enough to affect the carrying capacity of the existing storm drain systems.

The other three flood hazard areas along the Metro Rail Alignment lie between the limits of the 100 year and 500 year floods in Flood Hazard Zone B. Flood Hazard Zone B is not considered to be a critical flood hazard zone by the Federal Flood Insurance Administration. Consequently, no significant impacts are anticipated from the construction and operation of the subway system in Zone B.

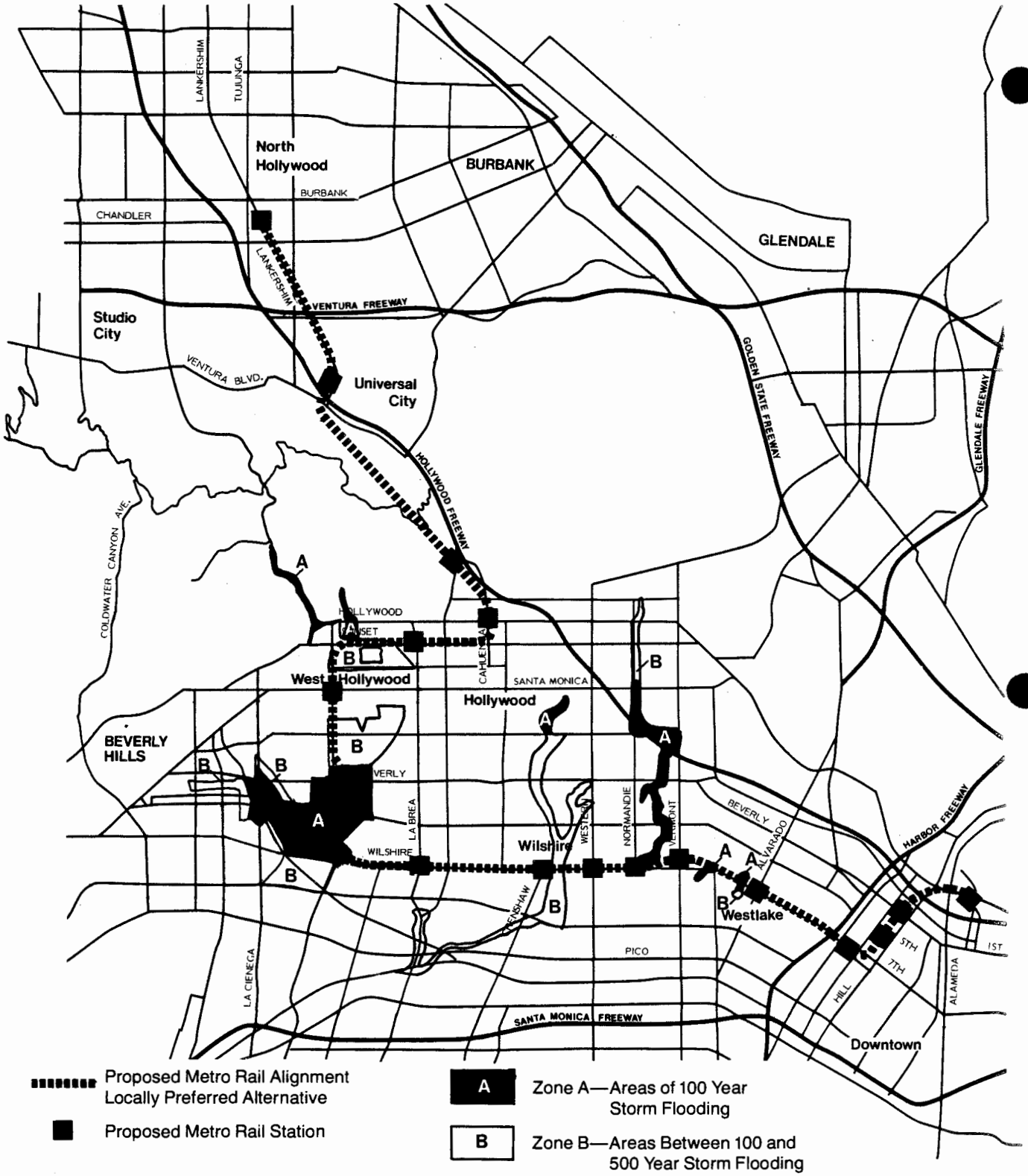
Alternately, if flooding should impact the subway system, the water can be removed by sumps and pumping systems and discharged into the local storm drains. In addition, planned city drainage projects from Laurel Canyon to Pan Pacific Park would eliminate any current shallow flooding problems in the vicinity of Sunset Boulevard and Fairfax Avenue.

11.3.8 WATER QUALITY

Water could collect in the lower portions of Metro Rail's underground facilities, through either rainfall runoff or groundwater draining from perched or fluctuating water tables. Such water will be collected in sumps and pumped to the surface for discharge. In the eastern portion of the CBD segment and the Wilshire Corridor from La Brea to Melrose Avenue, this water may contain oil and dissolved gas and require special treatment before being discharged. Dewatering excavated areas during construction would require the disposal of wastewater high in suspended solids. These activities will require monitoring as discussed under Mitigation. Further details on dewatering are presented later in this chapter in the section on Construction.

An additional source of contaminated water will be runoff from the maintenance yard in the Los Angeles CBD segment, where about 160 cars will be washed weekly. Chemicals used for vehicle cleaning include solvents, detergents, and surfactants. The wash area will be constructed to drain into a designated collection area, where all effluents will be contained for treatment before discharge. The Industrial Waste Section of the Los Angeles County Sanitation Districts has evaluated Metro Rail's proposed rail carwashing system which uses water recycling and water treatment through clarification. The Industrial Waste Section staff in a telephone discussion with SCRTD staff concluded that the proposed system is appropriate and will meet existing and proposed water quality standards.

Other sources of contaminated runoff include secondary maintenance yards, parking lots, kiss and ride areas, and bus bays, but even without the Metro Rail Project the pollutant from these areas would be generated elsewhere in similar or even greater quantities. Thus, on balance, project-related impacts are negligible.



Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

Figure 3-19
Flood Hazard Areas

Source: Federal Flood Insurance Program Flood Hazard Maps

SEDWAY/COOKE
Urban and Environmental Planners and Designers

11.4 MITIGATION

11.4.1 SEISMICITY

Seismic Ground Shaking. The mitigation of seismic ground shaking impacts will be achieved through project design and construction. For instance, internal structural elements of the Metro Rail Project considered "life critical" (that is, facilities whose structural failure during an earthquake would endanger many lives) will be designed and built to resist strong ground motions approximating the maximum credible earthquake, the largest seismic event reasonably expected to occur in the project region. Life critical Metro Rail facilities include such high occupancy structures as stations, tunnels, and aerial structures. System facilities considered to represent lower risk to life and safety in the event of structural failure include the maintenance yards and other at-grade, low occupancy structures. Such articulated design features might include using joints in the tunnel structures where they pass through soil/rock interfaces or where they enter the station boxes• and for the Aerial Option, designing the support structures with larger and deeper foundations using stronger materials. In addition, the guideway sidewalls will be designed with sufficient height to prevent rail cars from toppling over sideways (for additional details see Converse Consultants, 1983).

Fault Rupture. Fault movement could possibly occur at the potentially active Malibu-Santa Monica Fault and the active Hollywood Fault. Where this potential exists geologic studies were undertaken to determine the frequency of movement. Maximum credible fault displacements were inferred to occur on an average of once every 20,000 to 30,000 years for the Malibu-Santa Monica Fault and once every 60,000 to 70,000 a year for the Hollywood Fault.

Thus, the fault rupture hazard for those faults crossing the route is extremely low for any reasonable service life. Moreover, there is no practical way to prevent severe local damage in the unlikely event of a Maximum Credible fault rupture occurring across the alignment. However, in general, tunnels are safer than above-ground structures for a given level of shaking (Converse Consultants, 1983).

Soil Liquefaction/Densification. Before construction, more detailed geotechnical work will be completed in the CBD and in Universal City, where liquefaction or densification may be possible, to define fully the horizontal and vertical extent of loose granular soils above and below the water table. Should soils subject to liquefaction or densification be found, more conservative site preparation and foundation design measures will be taken. Depending on the specific conditions encountered, such measures could include compaction of soils, permanent lowering of the water table, special foundations such as pilings or additional underpinnings, and boring the tunnels below less dense soil into the more dense soil.

11.4.2 TUNNEL AND EXCAVATION STABILITY

The Metro Rail Project design documents address the long term operational stability of the proposed tunnels and excavations in considerable detail. Additional technical design information beyond that provided in the Impact Assessment section is contained in the "Report on Construction Methods" (DMJM/PBQD, 1982).

11.4.3 HYDROCARBON ACCUMULATION

As described previously, drains and sumps will be installed in the portions of the Metro Rail system constructed in sediments impregnated with oil and tar. Any gas buildups will be dissipated by a strong ventilation system, or special tunnel linings will be installed to prevent gas from entering the facilities.

11.4.4 WATER QUALITY

The disposal of wastewater removed from areas containing oil and gas will require a National Pollutant Discharge Elimination System (NPDES) permit. The permit will be issued by the RWQCB and would be expected to require wastewater treatment to remove hydrocarbons before discharge. This can be done by an oil/water separator, with the separated oil removed by truck to a Class I or II-1 disposal site which are presently available. Wastewater from the maintenance yard cleaning facility will also be treated before disposal.

12. BIOLOGICAL RESOURCES

12.1 INTRODUCTION

The Metro Rail routes for the Locally Preferred Alternative, the Aerial Option, and the Minimum Operable Segment pass primarily through a highly urbanized environment. Except for the North Hollywood Aerial Corridor of the Aerial Option, all alignments call for a subway configuration. In addition, all station entrances are located in urban areas. Wildlife and vegetative resources in urban areas consist of species introduced by man, as well as native species that have adapted. Accordingly, the Metro Rail Project would not adversely affect biological resources over much of its route. The only significant biological resources are in the Cahuenga Pass. Thus, the impact analysis of biological resources focuses on habitats in the Santa Monica Mountains portions only.

12.2 EXISTING CONDITIONS

The route of the Locally Preferred Alternative and the Aerial Option passes under the Santa Monica Mountains, where there is a mixture of low density residential areas and natural open space, which includes chaparral and steep slopes covered with coastal sage scrub. The chaparral areas are on the ridge tops and the more easterly and north-facing slopes. The chaparral is generally referred to as mixed chaparral (Thorne, 1976), a dense combination of medium to large shrubs. It is most developed on the north-facing slopes in the area north of Mulholland Drive and on the east-facing slope of Nichols Canyon.

Coastal sage scrub occupies the more arid south- and west-facing slopes in the area. This habitat, sometimes referred to as impoverished chaparral, is composed of low scrubs such as California sagebrush, California buckwheat, laurel sumac, and sage. Many of the plants associated with this habitat are drought-deciduous.

No truly natural riparian habitats are in the area, although urban runoff and drainage modifications have contributed to the development of a few riparian habitats in Nichols Canyon, as well as a few wetland habitats consisting of some arroyo willows and cattail marsh near several retention basins in the lower part of the canyon. The areal extent of the riparian habitats is very limited, and they are not expected to represent significant habitat for declining bird species.

Wildlife along the Metro Rail route is what one would expect throughout the Santa Monica Mountains: species naturally adapted to rugged shrublands along with a mixture of urban-adapted species. Because there are few open and grassy habitats in the study area, raptors are not particularly common.

No state or federally listed rare, endangered, or threatened plant or animal species are expected in the area (USFWS, 1979, 1980; CDFG, 1980, 1981). The California Native Plant Society (CNPS, 1980, 1981) identifies several declining species of interest that might exist in the area. These species and the likelihood of disrupting their habitat are discussed in SCRTD's Technical Report on Biological Resources.

Portions of the Regional Core lie within the Santa Monica Mountains National Recreation Area (Department of Interior, 1982). However, no areas designated as sensitive, vital, or representative within the Santa Monica Mountains are found in the study area. (California Natural Areas Coordinating Council, 1975; England and Nelson, 1976).

12.3 IMPACT ASSESSMENT

The purpose of this analysis is to assess possible impacts to significant biological resources which include state and federally designated rare, threatened, or endangered species of wildlife, any locally designated sensitive habitats or ecological areas, and any species of vegetation or wildlife given a "protected" status by local or state laws or statutes. The analysis involved research of previous biological documentation for the Metro Rail Project (UMTA, 1980), as well as numerous other sources including the Los Angeles City Planning Department (1978) and the Santa Monica Mountains Comprehensive Planning Commission (1979). A field survey overview also was made.

As currently proposed, the Locally Preferred Alternative would pass through the Santa Monica Mountains in a subway configuration, and would not generally affect natural biological communities. The aerial configuration in North Hollywood associated with the Aerial Option would require a tunnel portal and aerial structures through a portion of the North Hollywood Hills. However, these hillsides are urbanized, so project construction would have little impact on natural vegetation. Therefore, significant adverse effects on native plant communities are not expected.

Under the Locally Preferred Alternative, two vents and substations are to be built in the mountain areas. As a result, small areas (less than 1 acre) may be disturbed in a few locations. A significant impact could occur if these facilities are located in natural zones, where native vegetation and sensitive plant species might be disturbed. These facilities do not fall within the SMMNRA or the Mulholland Scenic Parkway. Neither the No Project or Minimum Operable Segment Alternatives would affect the Santa Monica Mountains area.

12.4 MITIGATION

Sensitive resources and habitats will be disturbed as little as practically possible, with surface disturbance limited to more urbanized areas. Any surface facilities in the mountains will be reached via existing rather than new roads. One vent facility is absolutely necessary within the natural zones of the Santa Monica Mountains. This vent will be about 1,000 feet northwest of Passmore Drive and Woodrow Wilson Drive. A biological review of detailed plans will be undertaken and site-specific surveys conducted as necessary to confirm that there are no plants listed as rare or endangered by CNPS. If any such plant is found to be affected, appropriate consideration will be given during Final Design to avoiding this impact.

13. CONSTRUCTION IMPACTS

This section examines activities during Metro Rail construction, briefly describing the various construction techniques to be used and analyzing their impacts. Key impact areas include circulation, community activities, business disruption, utility impacts, noise and vibration, air quality, energy requirements, and geology and hydrology. Further discussion of these impacts can be found in the appropriate SCRTD technical reports. It should be stressed that these impacts are temporary, as opposed to the long term impacts from operation of the system.

13.1 CONSTRUCTION METHODS

13.1.1 TECHNIQUES FOR LINE CONSTRUCTION

Cut and Cover Line Construction. Aside from stations, cut and cover construction would be used only in limited sections of the alignment and for special structures such as crossovers, pocket tracks, vent shafts, and ancillary structures. In an urban area this construction technique generally begins by opening the ground surface to an adequate depth to permit support of existing utility lines and to set piles or other means of retaining the excavation. After the surface opening is covered with a temporary decking so traffic and pedestrian movement can continue, excavation proceeds to the necessary depth. A concrete structure is then built, the excavated material replaced, and the surface restored.

The excavation must be retained by temporary walls, and adjacent building foundations, very often, must be supported. Because of the disruptive characteristics of this process, cut and cover construction is minimized for line segments. However, there are some areas where the underlying soil is not suitable for conventional tunneling methods, and cut and cover may, therefore, be preferred.

After the station or track structure has been completed, backfilling operations will commence. One half of a street will be restored at a time in order to maintain the surface traffic flow. The backfill material will be trucked in, placed, and compacted. During backfill operations, all utilities are restored to their permanent locations. New sewer manholes and cable/duct vaults are built. Any sidewalks

removed during construction are restored following backfill and/or the restoration of below sidewalk vaults. Finally, the street is repaved.*

Tunneled Line Construction. Tunneling has less effect on surrounding areas than the cut and cover method since the street surface and utilities are not appreciably disturbed and there is less dust, noise, and traffic disruption. The specific tunneling technique used depends largely on the type of material to be tunneled. In soft ground, tunnels are constructed using full-face tunnel boring or digger-arm machines mounted inside shields in order to hold the ground in place and prevent surface settlement. In hard rock sections, tunnel boring machines (TBM) will be used, although some localized drilling and blasting may be required. A tunnel staging site, roughly 2,500 square yards in area, would be required at the starting point of each tunnel drive for tunnel segment storage, loading facilities, construction equipment, personnel facilities, and offices. Excavated materials would be removed through isolated construction shafts or at cut and cover station excavations. Precast concrete or steel tunnel lining would then be placed inside the excavated area.

The tunnels for the Metro Rail may have several configurations. In soft ground, two circular tunnels bored side-by-side are proposed. Through hard rock formations, the tunnels would again be side-by-side, possibly horseshoe-shaped but most likely circular. A third alternative is the one over one configuration, in which one tunnel is bored directly above the other; this stacked arrangement is recommended only where an interchange with another line might be required in the future.

13.1.2 LINE CONSTRUCTION DETAILS

The subway tunnel construction would generally be carried out by TBMs. The tunnels will be driven from staging sites selected to minimize disruption of streets and utilities. It is expected that several tunneling contracts will be let at the same time so that some construction can occur simultaneously on different segments. The time to permit the construction or retrofitting of TBMs and the completion of necessary excavation at the stations is approximately nine to twelve months. Total time to construct the tunnels is approximately 3 to 3-1/2 years for the Locally Preferred Alternative and about 2-1/2 years for the Minimum Operable Segment, barring unanticipated delays.

Softground and Hardground Tunneling. The tunneling for the Locally Preferred Alternative and the Aerial Option can be divided into two basic types: softground tunnels in all areas except through the Santa Monica Mountains and rock tunnels through the Santa Monica Mountains. The Minimum Operable Segment would not require tunneling through the mountains.

Typical soft ground tunneling rates are expected to be approximately 40 to 60 feet per day and 30 feet per day for difficult conditions. Each tunneling contract will thus take 18 to 24 months to complete using two machines per contract. Under the Santa Monica Mountains, an overall average rate of 40 to 60 feet per day is expected, excluding the installation of the cast-in-place concrete liner. The Santa Monica Mountains tunnel contract will take approximately 2-1/2 years to complete if

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*Construction techniques are described and illustrated in detail in SCRTD's Milestone 10 Report: Fixed Facilities (1983) and in DMJM/PBQD's Report on Construction Methods (1982).

work proceeds on schedule. The rock tunnel may require blasting if the contractor does not elect to use TBMs. Blasting, if required, will involve specific safeguards and controls.

Excavation and Disposal of Tunnel Material. Excavated tunnel material will be transported from the tunnel faces in rail cars and hauled to the shaft or pit bottoms and then raised to the surface by a crane or hoist. From any one staging site this material will be produced at a maximum rate of 100 cubic yards per hour from two tunneling machines operating simultaneously. The tunnel waste will be loaded onto trucks for removal to the disposal site. The loading and hauling of tunnel waste will be restricted to minimize disturbance to residences and other noise-sensitive areas. For the Locally Preferred Alternative the total volume of material excavated from the tunnels will be approximately 6.55 million cubic yards, requiring approximately 766,000 truckloads. The Aerial Option would generate approximately 20 percent less tunnel material for disposal and the Minimum Operable Segment about 64 percent less.

The distance to the various landfill sites will vary. A special study examining tunnel waste disposal reviewed existing state approved landfills within 20 miles of the Regional Core and indicated an available capacity for all waste generated by the Project alternatives. Also, demand for fill by other construction projects in the Los Angeles region, such as the Century Freeway, may facilitate the disposal of excavated tunnel material. For further details on the analysis, an identification of the landfills and their capacities, and haul routes that would minimize impacts, see Disposal of Tunnel and Station Excavation Material (Sedway/Cooke, 1983).

Pocket Tracks and Crossovers. The system will require crossovers and pocket tracks for proper operation. Crossovers allow trains to move from one track tunnel to the other. A pocket track is a third track set between the existing two running tracks for temporary storage of defective trains and use as an emergency crossover. Each pocket track and crossover track will be constructed using cut and cover construction.

Each crossover will be approximately 450 feet long, 60 feet wide, and 55 feet below ground (depending upon the distances between track center). Pocket tracks will be approximately 1,100 feet long, 60 feet wide, and 55 feet below ground. The material removed from the cut and cover crossovers and pocket tracks will be hauled along established routes to landfill sites. The constructed cut and cover crossovers and pocket tracks will require backfilling with transported material, but it may not be economical to reuse excavated material for backfill because of storage, handling, and compositional problems.

13.1.3 STATIONS

Cut and cover construction will be used for Metro Rail stations. Each cut and cover station will be designed somewhat differently, but all stations have similar dimensions: approximately 650 feet long, 60 feet wide, and 55 feet below street level. Entrances would each be about 60 feet long, 20 feet wide, and 25 feet deep. Approximately 100,000 to 150,000 cubic yards of material will be excavated from each station site.

Construction Scheduling. Construction of each cut and cover station will take about 27 months to complete. The construction process would be similar to that used for cut and cover line construction.

Traffic. Traffic flow will be affected during the entire period of construction of approximately two years at a given location. Depending on the traffic flow and location, a variety of mechanisms are available to control and maintain traffic in constricted intersections, including heavy wood decking to replace street pavement and sidewalks and temporary bridges. Decking will contain hatches and removable planks to facilitate lowering odd-shaped and outsize items to the station level with minimal traffic disruption. Cross streets will be carried through intersections on wood decked bridges. Sidewalks may be removed, but pedestrian access to stores will be maintained by bridges, temporary walkways, and other means. Some streets will also have to be closed under certain circumstances.

Disposal of Excavated Material. The material from the cut and cover station excavation will be removed at an average rate of 860 cubic yards of material per day per station and brought to the surface and loaded on trucks for disposal. This rate yields approximately eight truckloads per hour.

Backfilling. Excavation at the station will require backfilling with transported material. Backfilling will be primarily carried out in the last three or four months as the project is completed. In tunnel construction, it may not be economical to reuse excavated material for backfill. Each station will require approximately 11,500 cubic yards (or 1,150 truckloads) of backfill. Approximately 15-20 trucks per day would be expected to bring backfill into the site.

Construction Material. The cut and cover stations will be constructed with poured-in-place concrete, with an estimated total of 3,390 truckloads of concrete required for each station. Reinforcement steel will average a total of 3,040 tons per station.

Water Removal. Water will be pumped out of sump pits as the excavation proceeds downward. Ditches and gravity flow will be used to drain the water into the low-lying sumps. Water will be passed through a settling basin to remove solids before being pumped into the local storm drain system.

13.1.4 AERIAL STRUCTURES

For the elevated portion of the Aerial Option, each track will be carried independently by precast prestressed concrete box or T-beams, in turn supported by cast-in-place reinforced concrete piers. The pier foundations consist of piling or spread footing, depending on expected loads and soil conditions. A typical construction sequence for an aerial guideway system would involve three phases of activity: foundation installation, installation of guideway supports, and installation of guideway sections. For a typical four-block segment, the three major construction phases would take about 14 to 18 weeks.

13.2 CIRCULATION IMPACTS

13.2.1 LOSS OF MOBILITY

Since Metro Rail would be routed through urban areas, motorists and pedestrians would at times be delayed and inconvenienced during the construction period. These impacts would be most acutely felt in the CBD and along Wilshire Boulevard, where stations are in areas with high auto, bus, and pedestrian volumes. Traffic capacity

may be temorarily reduced by as much as 50 percent on streets parallel to the long axis of the station and intermittently on intersecting streets during decking installation and removal. Factors such as the presence of a large number of heavy-duty construction vehicles on these streets, narrow lane widths and unusual detour configurations, uneven or poor roadway surfaces, and signal timing which is inefficient for construction conditions will also contribute to the reduction in capacity.

Traffic disruptions would increase around pocket tracks or crossovers, currently proposed at Union Station, Wilshire/Alvarado, Wilshire/Vermont, Wilshire/La Brea, Fairfax/Beverly, La Brea/Sunset, Hollywood/Cahuenga, and North Hollywood Stations. The disruption would also vary depending on whether a station is built on- or off-street. Off-street stations will generally have less of an impact on traffic circulation and are planned for Union Station, Wilshire/Alvarado, Wilshire/Vermont, Wilshire/Fairfax, Fairfax/Beverly, Hollywood/Cahuenga and Universal City.

While no streets would be permanently closed entirely to vehicular or pedestrian traffic, the congestion would likely spill over to other parallel streets. In addition, heavy duty vehicles delivering and hauling construction materials at each station site would reduce street capacity. These factors will have the effect of broadening the impacts of construction activity to area streets and neighborhoods. With a reduced width on streets near station construction sites and the temporary shifting of lanes, traffic control devices may have to be relocated and temporary supplemental devices installed. Circulation impacts for each station area are discussed in a Technical Report, Traffic Control Policies During Construction (LADOT, 1983).

In addition to the disruption to auto movement, construction activities would affect parking, pedestrian activities, and bus service. On-street parking would be temporarily eliminated to accommodate construction operations and vehicular flow on streets where stations are to be located. Pedestrian movement would be inconvenienced due to the temporary loss or narrowing of sidewalks. This impact would be greatest in the CBD, where pedestrian traffic is heavy and the sidewalks are relatively narrow. Some bus stops, bus schedules, and routes would need to be temporarily changed.

Vehicular and pedestrian traffic impacts during construction would be identical for all three Project alternatives along the alignment from Union Station to the Fairfax/Beverly Station. The Hollywood and North Hollywood areas are not affected by construction of the Minimum Operable Segment. The Aerial Option would create traffic impacts all along its approximately three-mile route on Lankershim Boulevard and Vineland Avenue. Construction of the support structures for the elevated guideway and station would occupy the median and portions of the inside traffic lanes of these two streets. By contrast, the impacts of the Locally Preferred Alternative would be localized around the Universal City Station and North Hollywood Station construction sites only.

13.2.2 MITIGATION

- Cut and cover construction will be minimized and used only at stations and other special structure locations.

- Construction in the CBD will be phased so that all station areas are not impacted at the same time.

- Cut and cover construction will substitute integrated panel decking (typically asphaltic coated steel) in place of wooden plank decking wherever feasible. (Integrated panel decking presents a neater appearance and a smoother roadway surface; it is typically much thinner in cross-section, thereby minimizing the difference in levels between decking and existing grade. It is often, however, more expensive.)

- Contractors will be required by SCRTD to control traffic during construction by following the "Work Area Traffic Control" Manual (1976 or most recent edition) prepared by the City of Los Angeles; Standard Plan S-610-12, "Notice to Contractors--Comprehensive" (1982 or most recent edition), prepared by Bureau of Engineering, City of Los Angeles; and "Standard Specifications for Public Works Construction" (1982 or most recent edition). Comparable standards would be enforced for work conducted in the County of Los Angeles.

- Before the start of construction, possibly during Final Design, traffic control plans, including detour plans, will be formulated in cooperation with the City of Los Angeles and other affected jurisdictions (County, State).

- The plans will be based upon lane requirements and other special requirements obtained from the Los Angeles City Department of Transportation for construction within the city and from other appropriate agencies for construction in those jurisdictions. The excavation and decking of arterial streets crossing the rail alignment will be phased so that the capacity of these streets is not reduced unnecessarily.

- Unless unforeseen circumstances dictate, no designated major or secondary highway will be closed to vehicular or pedestrian traffic. No collector or local street or alley will be completely closed preventing local vehicular or pedestrian access to residences, businesses, or other establishments.

13.3 COMMUNITY IMPACTS

In addition to the impacts discussed above, the two most important construction impacts on nearby residents are diminished access to local facilities and disruption of community activities.

13.3.1 LOSS OF ACCESS TO LOCAL FACILITIES

Diminished access would result primarily from street closures, which would worsen parking problems, perhaps causing drivers to seek areas with fewer parking difficulties and thereby affecting use of stores and services in the station environs. Pedestrian activity may also decline when sidewalks are blocked. The resulting detours and closures would be especially difficult for special user groups, who are less able to leave the area for shopping and services. The handicapped and elderly may perceive construction as both a psychological and physical barrier to local accessibility and thus be forced to take different, longer routes to their destinations. Special users forced to remain in the construction area could feel, and be, unsafe.

Impacts due to diminished access to local facilities would be identical for all three Project alternatives from Union Station to the Fairfax Beverly Station. Impacts to the Hollywood and North Hollywood areas do not apply to the Minimum Operable Segment. The Aerial Option would temporarily diminish access to all facilities along its aerial segment. There would be temporary diminished access to facilities near the Universal City and North Hollywood Stations under the Locally Preferred Alternative.

13.3.2 DISRUPTION OF COMMUNITY LIFE

Noise from construction equipment can bother residents and employees near construction sites. The most significant noise impacts would occur during installation of piles to support stations and other excavations, which may last three months at any one station. Bus stops and bus routes at construction sites may also be changed temporarily.

Impacts due to the disruption of community life would be identical for all three Project alternatives from Union Station to the Fairfax/Beverly Station. Under the Aerial Option, construction at the portal in the Hollywood Hills may adversely affect adjacent residents because disposal trucks would require queuing space on local residential streets for waste material hauling. Further, the physical and psychological barriers temporarily presented by construction of an aerial guideway would diminish pedestrian access to local facilities.

13.3.3 MITIGATION

Times of day for soldier pile drilling, driving by vibrating hammers and other construction activities that exceed noise standards will be controlled by terms of the construction contract. This procedure should be used only in locations where noise is a problem, such as residential areas at night. Other areas, such as the commercial zones near the Union Station, would not be disturbed by round the clock operations. The SCRTD Technical Report on Noise and Vibration contains noise standards by type of use and noise levels of typical equipment.

Specific traffic control measures for the construction period have been formulated by the Los Angeles City Department of Transportation and were described earlier. Although little can be done to mitigate the temporary impacts from psychological barriers, access to all businesses as well as the safety of all walkways will be maintained by the contractor.

Relocation assistance will include announcements of construction procedures, traffic control, schedules, and what to expect. While not eliminating the disruption of daily activities, these efforts will relieve many of the uncertainties and frustrations of the residents and business operators and minimize inconveniences.

13.4 BUSINESS DISRUPTION

13.4.1 PHYSICAL IMPACTS

The physical impacts from the construction of a rapid transit system are usually confined within one block of the construction site and include modified pedestrian and vehicular access; reduced visibility for store fronts and signs; reduced on-street parking and, in some cases, less convenient access to off-street parking; and temporary disturbances from noise and dust. The largest impacts are caused by cut and cover construction; aerial line construction is much less disruptive. Tunneling creates an insignificant impacts except where muck must be removed and where materials and equipment need to be lowered.

Stores most affected by the physical impacts of construction are marginal businesses and those that rely heavily upon impulse buying and foot traffic. Less affected are establishments that primarily serve other businesses, provide unusual services, or sell unique or expensive merchandise. Other types of specialized businesses that might suffer some disruption are theaters, motels and hotels, and retail businesses sensitive to noise impact (for example, stores selling stereo equipment).

Along the route of a transit line the greatest impacts of construction are most frequently experienced in the downtown of central cities, where the density of pedestrian-oriented business is high and the circulation pattern is congested. Significant economic impacts are also felt in business districts serving minority and ethnic communities, which may contain many marginal businesses.

13.4.2 ECONOMIC IMPACTS

The potential economic impacts resulting from construction of Metro Rail are difficult to project, but their significance can be estimated from the following indicators:

- linear feet of cut and cover construction
- linear feet of commercial space (retail uses, auto-related businesses, services, and hotels) abutting cut and cover construction
- ratio of linear feet of commercial space to linear feet of cut and cover construction
- streets intersecting cut and cover construction

The first two measures indicate the probable extent of direct construction impact such as declines in sales resulting from impaired visibility, dust, and noise. The third measure, the ratio of commercial frontage to cut and cover construction, shows the relative severity of impact per linear foot of construction. The fourth indicator, intersecting streets, notes the possibility for indirect impacts caused by interference with the automobile circulation pattern. Table 3-48 applies these four measures to each station area along the Metro Rail route.

Length of Cut and Cover Construction. By this measure, the Locally Preferred Alternative would physically disrupt about 17,000 linear feet, and the Minimum

TABLE 3-48

INDICES OF BUSINESS DISRUPTION BY STATION

Station	Length of Cut and Cover Alignment[1] (feet)	Length of Commercial Frontage[2] (feet)	Ratio of Commercial Frontage to Length of Cut and Cover Construction	Streets Intersecting Cut and Cover Construction	Comments
Union Station	2,850	Insignificant[3]	N.A.	N.A.	Station area currently oriented towards manufacturing uses.
Civic Center	450	Insignificant	N.A.	First/Hill	Uses in immediate area are public and quasi-public. Construction may affect indirectly.
Fifth/Hill	450	800	1.8	Fifth/Hill Fourth/Hill	Nearby retail and service uses are oriented toward the Hispanic community. Density of commercial use is high. Construction may indirectly affect downtown L.A. by disrupting circulation potterns.
Seventh/Flower	450	1,000	2.2	Seventh/Flower	Area of high commercial density, although some office buildings are underutilized and/or deteriorating.
Wilshire/Alvarado	950	200	0.2	Alvarado[4] Westlake[4]	Area typified by small retail establishments (strip commercial) along Alvarado and Seventh Streets. Primarily serve the Hispanic community. Other mid-rise (3 to 13 story) office buildings along Wilshire Boulevard, emphasizing medical services.
Wilshire/Vermont	1000	Insignificant	N.A.	Shatto[4] Vermont	Uses are mixed, but predominantly office with some ground floor retail.
Wilshire/Normandie	450	500	1.1	Wilshire/ Ardmore Wilshire/Normandie	Nearby uses are offices of 8-12 stories. Some ground floor retail. Little development over the last decade.
Wilshire/Western	450	500	1.1	Wilshire/Western Wilshire/Oxford	Mixed use area with offices and retail.
Wilshire/Crenshaw	1,000	500	0.5	Wilshire/Lorraine Wilshire/Crenshaw	Some retail is near station. Area is primarily residential.
Wilshire/La Brea	1,650	700	0.4	Wilshire/La Brea Wilshire/Sycamore	Neighborhood retail along La Brea interspersed with offices. Surrounded by a relatively old, stable multifamily residential area. On "Miracle Mile."
Wilshire/Fairfax	450	500	1.1	Sixth and Fairfax	A major department store with potential plan for renovation.
Fairfax/Beverly	1,000	Insignificant[4]	N.A.	Beverly First	Nearby uses are primarily neighborhood strip commercial (underutilized) with some tourist related development (Formers Market, CBS). Area has an ethnic character. Motel near alignment moy suffer some impact.
Fairfax/Santa Monica	450	500	1.1	Fairfax/Santa Monica	Retail uses nearby.
La Brea/Sunset	1000	500	0.5	Sunset/La Brea Sunset/Detroit	On edge of Hollywood cammercial core. Some commercial nearby.
Hollywood/Cahuenga	1,650	200	0.1	Hollywood[4] Yucca[4] Franklin[4]	Nearby uses are primarily retoil ond services. Area is experiencing some development pressure. Proposed alignment is along west side of Cahuenga.
Hollywood Bowl	N.A.	N.A.	N.A.	----	Alignment is tunneled past Hollywood Bowl; no cut and cover construction proposed.
Universal City	450	Insignificant	N.A.	----	Alignment runs along an alley behind commercial establishments and residences.
North Hollywood	1,850	600	0.3	Lankershim/Weddington Lankershim/Chandler Lankershim/Cumpston Lankershim/Killion	Central business area generally located beween Chandler ond Magnolia. Commercial uses are declining. Some light industry located along alignment.

Source: Lynn Sedway & Associates

[1]The lengths of cut and cover construction ore estimates based an 1"=200' plan and profile drawings prepared by DMJM/PBQD.

[2]The lengths of commercial frontages are based upon a station area land use inventory by the City of Los Angeles, and upon the 1"=40' architectural footprints drawn for each station by Harry Weese and Associates.

[3]"Insignificant" is generally defined as less than 200 linear feet.

[4]Off-street alignment.

Operable Segment would disrupt about 11,000 linear feet. The Aerial Option would disrupt about 15,000 linear feet through cut and cover construction; however, the entire aerial segment, about 15,000 linear feet, would also physically disrupt adjacent properties. Accordingly, the Aerial Option would have the greatest impact during construction.

Length of Commercial Frontage. The Locally Preferred Alternative has the potential of affecting at least 6,500 feet of commercial frontage during construction. The Minimum Operable Segment would potentially affect nearly 5,000 feet of business frontage. Again, the Aerial Option would have the greatest potential effect, directly affecting over 5,000 feet through the Central Business District, Wilshire Corridor, and Hollywood, as well as the numerous commercial establishments along Lankershim Boulevard and Vineland Avenue in the San Fernando Valley.

Ratio of Commercial Frontage to Cut and Cover Construction. Using this measure, the most severe impacts are expected in the CBD at the Fifth/Hill Station and the Seventh/Flower Station, where retail density is particularly high. Conversely, the least severe impacts are expected at the following stations: Union Station, Civic Center, Wilshire/Vermont, Fairfax/Beverly, and Universal City.

Intersecting Streets. Automobile circulation is impaired whenever cut and cover construction crosses a street. This, in turn, impedes access to businesses and can cause a decline in sales. The economic impacts, however, depend on the number of automobile trips affected and the extent to which particular businesses rely on an auto-oriented clientele. Construction of the North Hollywood Station would intersect the largest number of streets (four), while the Hollywood/Cahuenga Station intersects three streets. The remaining stations intersect two or fewer streets. Thus, the indirect impacts in the CBD, where traffic congestion and commercial densities are higher, are expected to be more severe than at other stations.

Conclusion. Short term economic impacts resulting from the construction of Metro Rail are expected to be most intense in downtown Los Angeles, where the density of businesses, particularly ground-floor retail establishments, is very high. These businesses also rely heavily on pedestrian accessibility. Construction impacts are also expected at most stations along the Wilshire Corridor and at the Fairfax/Santa Monica and La Brea/Sunset Stations. These impacts are expected to be less severe than those projected for the CBD because of lower commercial density and more limited pedestrian orientation. The fewest construction impacts will be at stations having little or no commercial space nearby.

In summary, the Locally Preferred Alternative affects about 20 percent more commercial frontage than the Minimum Operable Segment as a result of cut and cover construction. The Aerial Option, because of the need to construct an elevated guideway for about three miles in the San Fernando Valley, would probably create the greatest disruption for Regional Core businesses.

13.4.3 MITIGATION

As noted earlier under "Circulation Impacts," SCRTD with the city and county will develop a traffic maintenance plan to minimize traffic disruption. Because some cut and cover operations will overlap the sidewalk, a logical program of pedestrian traffic movement and sidewalk restoration also will be established. Options include

restricting construction during peak commute hours, allowing some construction at night in the CBD where there would be little impact on residents, and maintaining access to commercial establishments. Construction contracts will specify the traffic maintenance plan for the construction area and the means for implementation.

13.5 UTILITY IMPACTS

13.5.1 UTILITY RELOCATION AND SERVICE INTERRUPTION

Cut and cover construction requires initial excavation of all material within the construction site, thereby removing the existing support of underground utilities in that area. All affected utilities at or near the station site must be temporarily supported or rerouted during the construction period, and utilities in spaces occupied by accessways must be permanently rerouted. Subject to other constraints, stations have been located to avoid relocation of major utilities, and station elevations are selected to leave a reasonable (approximately 8 feet) space between the top of the structure and the surface so that as many of the utilities as possible can be temporarily supported in their present locations or rerouted within the construction site.

Utility impacts at station area construction sites would be similar for all Project alternatives, and construction methods will be predicated on keeping disruptions to utility service at an absolute minimum. Utilities which represent a hazard during cut and cover construction and which will not be permanently relocated will be temporarily moved to avoid accidental damage. Service connection lines will require multiple reroutings as excavation supports are placed. The North Outfall Sewer under Fourth Street conflicts with the station structure, but this can be resolved by raising the sewer's grade a few feet. Agreements will be executed with each utility company regarding relocation of the utility, responsibility for actual work, and method of reimbursement.

13.5.2 MITIGATION OPTIONS

Because the entire station construction procedure is already planned to minimize any interruptions of utility service for all Project alternatives, additional mitigation measures are not necessary. Despite these efforts, some unintended temporary disruptions are likely, so some allowance should be made in design and construction plans to ensure that utility work does not upset the construction schedule.

13.6 NOISE AND VIBRATION IMPACTS

13.6.1 DISTURBANCE FROM EQUIPMENT NOISE

Measurements at other transit system construction project sites provide the best indication of expected noise levels from Metro Rail construction (see Table 3-49). Considerable progress has been made recently in the reduction and control of construction noise through modifications in equipment and modification and selection of construction procedures. Noise limits or standards will be included in construction contracts.

TABLE 3-49

TYPICAL NOISE LEVELS OBSERVED AT RAIL TRANSIT SYSTEM CONSTRUCTION PROJECTS

Equipment or Process	Distance (ft)	Noise Levels (dBA)
Air Hammer (cutting concrete)	50	85-90
Crane and Pile Drilling Rig		
Moving Drill	50	90
Emptying Auger	50	86
Idling	50	82
Drilling	50	83-88
Placing Pile	50	74
Setting Pile	50	88
Concrete Mix Truck (placing Concrete)	50	81-85
Diesel Hammer Pile Driver	24	95-106
Compressor	24	83-90
Hydraulic Crane	24	88-90
Derrick Crane	50	88
Tamper	50	88
Scraper	50	88
Rock Drill	50	98
Truck	50	85-91
Paver	50	89

Source: Wilson, Ihrig and Associates, Inc., Noise and Vibration Study, 1982.

Project construction will require considerable earthwork, including the hauling of material to acceptable disposal sites. Noise from heavy duty trucks can have a substantial impact on the community, so haul routes for the disposal of excavated material have been proposed in a special report, "Disposal of Tunnel and Station Excavation Material" (Sedway/Cooke, 1983). The proposed haul routes would avoid sensitive land uses such as residential areas as much as possible. Use of these routes plus limitations on hauling hours should avoid significant noise impacts from disposal truck traffic.

13.6.2 DISTURBANCE FROM GROUND-BORNE VIBRATION

Blasting, drilling, and excavation procedures for cut and cover and tunneled subways can cause ground-borne vibration levels perceptible in adjacent community areas, although the amplitude of vibration from such activities is limited for safety reasons by procedural techniques. For example, time delay charges in blasting limit the maximum amplitude to a level well below the criteria for structural damage to adjacent facilities. Impact pile drivers, which create considerable noise and vibration, also produce vibrations too low to damage adjacent buildings and other facilities.

TBMs create ground-borne vibration and noise but considerably less than blasting or pile driving. The noise levels from TBMs would depend on the type of building structure, distance, and intervening materials. Because the ground-borne noise and vibration from TBMs is of very short duration since the machine passes by an area in a few days at most, there will be only limited impact. Vibration levels would be imperceptible more than 75 to 100 feet away; even at 50 feet, the TBM would create only barely perceptible vibration. For building occupants, noise impact from TBMs would be the same as from operations of subway transit trains. For the deep tunnels (approximately 125 feet below grade), the ground-borne noise from the TBM should be unnoticeable in buildings 100 feet or more in horizontal distance from the alignment. If the tunnel is about 35 feet below ground, then ground-borne noise may be noticed by building occupants approximately 100 feet in horizontal distance from the alignment.

During Final Design, SCRTD will conduct a survey to pinpoint sensitive structures adjacent to tunneling and surface excavation activities that require special construction stability techniques. While primarily developed in response to possible geology and hydrology construction impacts, this survey will include consideration of ground-borne noise and vibration impacts upon adjacent structures.

A special study has been made of construction vibration impact on the St. Charles Borromeo Church at the corner of Lankershim Boulevard and Moorpark Street in North Hollywood (Wilson, Ihrig and Associates, Inc., 1982). At 65 feet deep (top of rail to ground surface) and 30 feet from the subway centerline and the nearest part of the church, the TBM will create vibration levels less than the established criterion for churches and, at most, just perceptible to people in the church. During boring of the far tunnel, the ground noise should be considerably less noticeable, if at all. The relative impact would be minor since the TBM would be near the church for a few days at most, and arrangements could be made with the contractor to ensure that the TBM would not be operated near the church during any scheduled service or function.

13.6.3 MITIGATION

Construction noise and vibration impacts are mitigated by the performance standards and design criteria established for the project. Section 8.2.3 describes in detail these performance standards as they relate to construction activities as well as Metro Rail operations. Further detail and analyses are contained in various technical reports listed in the Noise and Vibration section of this chapter.

Conformance to these standards (including all applicable local regulations and codes) will be monitored by SCRTD. SCRTD will make these performance standards a part of the contract requirements for all applicable contractors.

Among the measures identified for mitigating construction noise and impacts are the following:

1. Use of alternative procedures of construction and selection of the proper combination of techniques that would generate the least overall noise and vibration. Such alternative procedures include, but are not limited to, the following:

    - Using a Tunnel Boring Machine in place of conventional blasting techniques as a method of excavation;
    - Using welding instead of riveting.
    - Mixing concrete offsite instead of onsite.
    - Employing prefabricated structures instead of assembling them onsite.

2. Use of construction equipment modified to dampen noise and/or vibration emissions, such as:

    - Using electric instead of diesel-powered equipment.
    - Using hydraulic tools instead of pneumatic impact tools.
    - Using drilled piles or vibratory pile drivers instead of impact pile drivers.
    - Utilizing "time-delay" charges instead of "instantaneous" charges, where drill and blast techniques must be used and the TBM is impracticable.

3. Maximize the physical separation, to the extent feasible, between noise generators and noise receptors. Such separation includes, but is not limited to, the following measures:

    - Selection of truck routes for muck disposal so that the noise from heavy duty trucks will have minimal impact on sensitive land uses (e.g., residential). Specific routes and measures for accomplishing this objective have been developed and specified in Disposal of Tunnel and Station Excavation Material (Sedway/Cooke, 1983).
    - Providing enclosures for stationary items of equipment and barriers around particularly noisy areas on the site or around the entire site.

4. Minimize noise-intrusive impacts during the most noise sensitive hours. Some of the key techniques used for this purpose could be as follows:

    - Plan noisier operations during times of highest ambient levels.
    - Keep noise levels at relatively uniform levels; avoid peaks and impulse noises.
    - Turn off idling equipment.

13.7 AIR QUALITY IMPACTS

13.7 1 FUGITIVE DUST

Dust from construction projects commonly termed fugitive dust and caused by wind and construction machinery, is the primary air quality impact during construction. Activities generating fugitive dust during project construction include cut and cover and open cut excavations; spoil loading, hauling, and disposal; construction of surface facilities such as stations and aerial guideways; and building demolitions. Dust impacts will be most severe at station sites and at tunnel shafts which also serve as locations for muck removal.

Station construction sites involving excavation from the surface and tunnel waste disposal have a high potential for fugitive dust emissions. Construction duration of a year or more will protract the period of noticeable dust generation. Cut and cover, as opposed to open cut, techniques will mitigate fugitive dust, since the construction site will be less exposed to wind. Fugitive dust would affect land uses immediately surrounding the portal location in North Hollywood near Fredonia Drive and Regal Place and around a fan shaft vent at Wilshire and Windsor.

Another source of fugitive dust emissions is building demolition. While reliable emissions factors for particulate generation have not been established by air pollution control agencies, dust generation varies dramatically from building to building as a function of size, materials of construction, and the choice of demolition methods. Demolition of buildings is required for all Project alternatives with the greatest amount required for the Aerial Option, especially near the portal location in the North Hollywood Hills.

Though there may be more fugitive dust than other kinds of particulate matter generated during construction, the fugitive dust is less of a problem, because the particle size tends to be larger, allowing much of the material to settle a short distance from the source (CARB, 1982). However, considerable amounts of fine particles are also emitted, contributing to the ambient suspended particulate concentrations over a larger area. Dust emissions are generally proportional to the volume of earth moved, although a large portion of emissions also results from heavy equipment traffic in construction areas. The type of material excavated can affect the quality of fugitive dust generated; however, in the Regional Core the difference is probably not significant.

13.7.2 OTHER AIR POLLUTANT EMISSIONS

Air quality in the Regional Core would be affected by increases in emission of CO, HC, NO_x, SO_2, and PM from direct and indirect sources during Project construction. Direct sources include emissions from the operation of gasoline and diesel powered construction machinery, including earth hauling equipment, and emissions generated by the construction work force traveling to and from job sites. Indirectly, construction activities may cause local traffic delays, detours, and congestion which increase the rate at which motor vehicles emit pollutants. In addition, some of the energy construction demand may be met by using locally available power for which there would be indirect air pollutant emissions due to power generation. Overall, the air pollutant emissions are expected to be insignificant on a regional basis and potentially significant on a local basis if substantial traffic congestion occurs.

13.7.3 MITIGATION

Fugitive Dust. South Coast Air Quality Management District Rules and Regulations apply to the proposed project and will govern construction operations. SCRTD has responsibility for the enforcement of these criteria. Standards for both amount and duration of fugitive dust emissions will be written into all construction contracts. SCRTD will monitor all construciton sites for compliance.

The detailed descriptions and explanations of specific impact mitigation measures are contained in the South Coast Air Quality Management District (SCAQMD) Rules and Regulations (Rule #403, "Limitation on Fugitive Dust Emissions"). The key features of the mitigation options described therein are as follows:

- A person shall not cause or allow the emissions of fugitive dust from any transport, handling, construction or storage activity so that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source.

- A person shall take every reasonable precaution to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land and solid waste disposal operations.

- A person shall not cause or allow particulate matter to exceed $100 mg/m^3$ when determined as the difference between upwind and downwind samples collected on high volume samples at the property line for a minimum of five hours.

- A person shall take every reasonable precaution to prevent visible particulate matter from being deposited upon public roadways as a direct result of their operations. Reasonable precautions shall include, but are not limited to, the removal of particulate matter from equipment prior to movement to paved streets or the prompt removal of any material from paved streets onto which such material has been deposited.

To implement these regulations, SCRTD will require contractors to take the following steps regarding trucks used to transport materials and debris to and from construction sites:

- Establish regular cycles and location for washing the trucks.

- Tarp loads of debris leaving sites.

- Water down and sweep the streets which have heavy volumes of construction vehicles at least daily.

Site watering is most commonly used to suppress dust, because it is effective if done frequently and water is generally available at construction sites. Site watering can reduce construction site dust emissions up to 50 percent. Watering will receive particular attention during materials handling associated with waste removal and disposal.

Other Air Pollutants. SCRTD will require all contractors to establish and maintain records of a routine maintenance program for all internal combustion engine powered vehicles and equipment. The mitigation measures described in the Transportation section of this chapter for reducing traffic congestion will also have a positive impact on air quality.

13.8 ENERGY REQUIREMENTS

13.8.1 ENERGY USE

Construction energy will be required to build Metro Rail guideways, stations, and associated facilities. Assuming total system construction energy requirements to be 643.5 billion BTUs per mile for the Locally Preferred Alternative, construction of the rail project would require 11,969 billion BTUs. Construction energy requirements will be less for the Aerial Option than for the Locally Preferred Alternative, because the line segment from Universal City to the North Hollywood Station would be elevated rather than underground. Elevated rail systems require less construction energy than do subway systems: 277 billion BTUs per mile for elevated versus 643.5 billion BTUs per mile for subway. Assuming 15.8 miles of subway and 2.8 miles of aerial rail, the Aerial Option would require 10,943 billion BTUs to construct. Because of its shorter length the Minimum Operable Segment would require 5,522 billion BTUs to construct, 6,447 billion BTUs less than the Locally Preferred Alternative.

13.8.2 MITIGATION

The choice of construction energy mitigation measures will in many cases depend on detailed design decisions that will be made during Final Design. However, SCRTD has identified a number of energy conservation measures during the course of Preliminary Engineering that will be used in building the rail project. These measures have been separated into two broad categories: those related to construction and those related to street restoration at cut and cover construction sites.

Construction Measures. SCRTD will include energy conservation standards in construction contracts and monitor compliance.* Material deliveries will be consolidated where feasible in order to insure efficient vehicle utilization. Deliveries to construction sites will be scheduled for non-rush hours both to minimize traffic disruptions and to maximize delivery vehicle fuel efficiency. A routine maintenance program for gasoline and diesel equipment will be required of all contractors (pumps and injectors must be calibrated for optimal fuel consumption). Wherever feasible, material will be directly hauled to construction sites as needed, avoiding stockpiling and double handling.

Street Restoration Measures. Several techniques will be utilized to minimize the energy consumed in restoring streets following the cut and cover construciton of stations and crossover tracks. Emulsified asphalts will be used instead of cut-back asphalts wherever possible. To the extent possible, slip form construction will be used for curbs and gutters, traffic separators, barrier walls and concrete pavement, reducing the need for wood and steel forms. Petroleum product delivery, disbursement and accounting will be monitored to document that usage is efficient and justified.

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* Energy conservation standards will be adapted from those reported by the Transportation Research Board of the National Academy of Science in "Optimizing the Use of Material and Energy in Transportation Construction (1976)."

13.9 GEOLOGY AND HYDROLOGY IMPACTS

13.9.1 EXCAVATION

Excavation would create the largest potential for construction-related environmental impacts on geology, hydrology, and water quality.

Tunneling. There are two primary environmental (as opposed to engineering) concerns associated with excavation stability when tunneling: possible caving of the tunnel upward to or near the ground surface (generally occurring in soft ground at the tunnel working face ahead of the TBM) and settlement of the land surface above the tunnel. The potential for caving and settlement would be greater in the Los Angeles CBD (affecting all Project alternatives) and in the North Hollywood segment (applicable only to the Locally Preferred Alternative) where tunneling would be through poorly consolidated young alluvium. Caving and settlement would be of less concern in tunnels through the better consolidated old alluvium and bedrock formations in the Wilshire Corridor and soft rock portions of the Hollywood segments. Caving or settlement is very unlikely through the Santa Monica Mountains.

Surface Excavations. Cut and cover or open cut excavations will be necessary for the Metro Rail stations, several short line segments, crossovers, pocket tracks, and ventilation shafts. The primary environmental concern associated with the stability of such excavations is the protection of adjacent properties. Many of the proposed stations, shafts, and potential cut and cover line segments will be constructed close to existing structures. In several areas, especially in the Los Angeles CBD and Wilshire Corridor segments, there may be no more than 10 to 20 feet between the excavation and existing building foundations. If unsupported, such surface excavations could result in the later movement of soils supporting adjacent foundations and severe damage to the overlying structures.

13.9.2 MUCK HANDLING

Substantial volumes of saturated and unsaturated soil will be generated by the boring of tunnels and construction of stations and maintenance yards for the Metro Rail Project. These soil materials, known collectively as muck, will be removed from the excavation areas, possibly stored temporarily in the vicinity, and then transported by truck to available solid waste disposal sites in the region. Approximately 6,550,000 cubic yards will be generated during the construction period under the Locally Preferred Alternative, of which an estimated 560,000 cubic yards may be contaminated by oil or tar and require disposal at a Class I or II-1 landfill. The remainder of the excavated soil is expected to be inert and suitable for disposal as Class III waste. Quantities of waste generated under the Aerial Option and Minimum Operable Segment are roughly 20 percent and 64 percent, respectively, less than under the Locally Preferred Alternative. An assessment of whether this volume of excavated material could be accommodated by nearby landfills was performed by Sedway/Cooke and presented in Disposal of Tunnel Station Excavation Material (1983). It was concluded that there is sufficient available capacity in the major landfills most likely to accept materials from the project. An estimated 15 percent of the available capacity in these landfills would be consumed. This figure represents an average so that some sites would have more of their capacity depleted, some less.

Environmental impacts associated with transporting muck from project excavations to disposal areas fall primarily into the categories of air quality (dust), truck traffic, noise, energy consumption, and water quality. Except for water quality, these impacts are described elsewhere. Mitigation options suggested for muck-related impacts would minimize any potential adverse impacts from this activity. To minimize disruptions resulting from the transport of the waste materials on sensitive land uses such as residences and schools, the Sedway/Cooke study recommended haul routes that avoided such areas as much as possible. Nevertheless, the large volume of trucks entering and existing construction sites, and their effects on traffic and noise levels cannot be avoided completely.

13.9.3 HYDROCARBON ACCUMULATIONS

Common to all Project alternatives are the liquid and gaseous hydrocarbons in relatively shallow sediments in portions of the Los Angeles CBD and Wilshire Corridor segments (Converse Consultants, 1981). Granular soils impregnated with liquid hydrocarbons, commonly referred to as tar sands, are found in the western part of the Wilshire Corridor segment. These tar sands are a potential environmental and engineering concern for two reasons. When they are rapidly unloaded, as during excavation or tunneling, dissolved natural gas in the tar comes out of solution, causing the sediment to expand and lose much of its strength. There is also some evidence tar sands may exhibit considerable creep, especially at higher temperatures, causing excavation, shoring, and bearing capacity problems.

In addition to tar sands, free natural gas in sediments to be tunneled can be of significant concern. The proposed Metro Rail alignment passes over or near six major oil fields and, according to geotechnical studies (Converse Consultants, 1981), over 50 percent of this alignment is in ground classified as gassy or potentially gassy.

13.9.4 WATER RESOURCES

Groundwater. The principal engineering problems encountered in tunnels or deep surface excavations under all Project alternatives are often related to the presence of groundwater. Large volumes of groundwater entering an excavation can seriously disrupt operations, and the presence of interstitial water significantly reduces soil strength, sometimes causing such soils to flow as a viscous fluid.

Geotechnical investigations indicate that shallow groundwater is present in the young alluvium in the eastern portion of the Los Angeles CBD segment and near the Los Angeles River crossing in the North Hollywood segment. Relatively shallow groundwater also appears to be present in the non-tar-impregnated sands of the San Pedro Formation in the central portion of the Wilshire Corridor segment. Shallow perched groundwater is believed to exist within the alluvium throughout much of the alignment; it may also exist in isolated pockets, or lenses, of granular soils.

Water Quality. Common to all Project alternatives are potential water quality problems associated with disposal of groundwater flowing into excavated areas and with surface excavation and muck hauling. Groundwater flowing into tunnels or surface excavations during construction reaches volumes of up to 6,000 gallons per hour. The largest flows would be expected where construction takes place below the permanent water table. Groundwater will be removed from excavations either by gravity flow to sumps and pumping system or by direct pumping to lower the water

table. Wastewater discharge from water removal systems will be high in suspended solids and, in areas of hydrocarbon accumulation, high in oil and dissolved gas concentrations. Surface excavation and muck hauling may deposit sediment on neighboring streets. Given the volume of material to be excavated for the project, the amounts of soil thus deposited could be substantial.

No additional significant water quality impacts are expected during construction although there may be limited impacts including fuel spills and small losses of greases, oils, and lubricating fluids from vehicles operating in tunnels, surface excavations, and other construction areas.

13.9.5 MITIGATION

Sensitive Structures Survey. During Final Design, SCRTD will conduct a survey to pinpoint sensitive structures adjacent to tunneling and surface excavation activities that require special construction stabilization techniques. While primarily developed in response to possible geology and hydrology construction impacts, this survey will include consideration of ground-borne noise and vibration impacts upon adjacent structures.

Tunneling. Several alternative tunnel support systems have proven to be effective and economical in similar tunneling projects locally and elsewhere to avoid caving or settlement. To support the proposed tunnels through soft ground segments of the Metro Rail alignment, a shield driven ahead of the TBM will be utilized and all excavation will take place within the shield. A permanent support system of precast concrete, cast-in-place concrete, or steel ring segments will be installed immediately behind the shield as the tunnel is driven. In the hard rock tunnels, support will be provided by rock bolts or other temporary support systems. Potentially unstable reaches through blocky ground or fault zones in hard rock will be supported by shotcrete or arch ribs and lagging.

Surface Excavations. Several measures to mitigate potential surface excavation stability impacts have been incorporated into the design of the Metro Rail Project. These measures include the following:

- To the extent possible, major surface excavations will be adjacent to undeveloped areas (such as parking lots).
- Small or relatively inexpensive structures adjacent to proposed excavations may be removed. In many cases, excavation to protect such structures may be more costly than the structures themselves.
- In some areas, it may be feasible to construct temporary shoring systems which--with adequate bracing, limited excavation stages, and controlled water removal--would minimize earth movements and allow excavation next to existing structures.
- There will be locations where the risk and consequence of damage from earth movements will be unacceptable, and underpinning may be prudent. These include areas of poor soil conditions, deep excavation close to existing structures, and areas of major structures. Underpinning consists of installing concrete piers or piles beneath a structure to provide additional foundation support. Such piles or piers must extend beneath the structure through the zone

of influence of the excavation. In lieu of pier or pile underpinning, there are two ways to provide additional foundation strength. One is chemical grouting in sandy soils to prevent soil runs and strengthen soil in critical areas, with grout injected from the surface under existing foundation elements. The second approach calls for compaction grouting in sands, silts, and clays. This can be effective in lifting and supporting lightly loaded structures. Again, the grouting is carried out from the surface. Both approaches have been successfully used in the Los Angeles area, in the Washington, D.C., and Baltimore Metro projects, throughout Europe, and in Japan.

Hydrocarbon Accumulation. The mitigation of potential impacts related to the presence of tar sands will include the following activities:*

- Additional soil borings will be made in critical areas to precisely define the vertical and horizontal extent of tar sands. These borings will also include in situ measurements of gas content and soil expansion potential.

- Laboratory testing of tar and sand samples from the borings will be conducted to provide information on their strength and deformation characteristics at different temperatures, confining pressures, strain rates, and stress levels.

- Based on data derived from the above tests, specific excavation, shoring, and foundation design criteria will be formulated to ensure short and long term stability of project facilities in tar sand areas. Conversely, once the location of shallow tar sands is precisely known, it may prove more economical to increase tunnel depth or change station locations to avoid problem areas.

The avoidance of safety hazards from explosive gas in tunnels will be a major element in project planning and construction efforts. The following measures are planned for tunneling in gassy or potentially gassy ground:*

- The consultant firm of Engineering Sciences Co. is doing a study of methane gas along the Metro Rail alignment. They will report the presence, concentrations and pressure of gas in a series of bore holes made along the route and will leave sensors in place to assist in monitoring and safely extracting gas during construction. Their report will detail specific criteria to be included in design and construction to mitigate the hazards from flammable gases.

- A multiple-station, constant gas monitoring system will be used in tunnel excavations. The monitoring system will be calibrated to detect minute quantities of gas that would be released as TBMs move into areas of greater gas concentration. As concentrations of gas increase toward explosive levels in the tunnel, other actions will be taken.

- Small-diameter holes will be drilled at least 20 feet into the tunnel working face ahead of the TBM to relieve pressurized gas pockets before they are encountered by heavy excavation equipment. At the shallow depths of the tunnels gas pressures will be relatively low and easy to handle. Wells can also be sunk ahead of the TBMs so gas can be pumped out.

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* For additional information, see Converse Consultants, 1981.

- An adequately sized collection and ventilation system will be installed to prevent the buildup of explosive gas concentrations anywhere in the tunnel.

- The District will coordinate final design and construction with the California Bureau of Mines, who have responsibility for compliance with state orders on safety of subsurface tunneling through hazardous material.

Groundwater. To avoid the engineering and environmental problems associated with excavating or tunneling in soils below the perched or permanent water table, it will be necessary to remove water (dewatering) from these materials before and possibly during construction. This is generally done by advancing slotted pipes into the saturated soils and then pumping or allowing water to flow from the pipes, thus lowering the water table locally. Alternatively, groundwater may be removed by pumping from shallow ditches or sumps within an excavation.

When any dewatering activities occur, they will be limited to the immediate excavation area by utilizing a variety of methods such as compressed air, chemical grouting, freezing, slurry shields or earth pressure balance where local geologic or other constraints dictate, thus avoiding potential ground subsidence or differential settlement of adjacent structures. (For more details, see DMJM/PBQ&D, 1982.) Moreover, by confining groundwater control activities to the immediate area of excavation, the Metro Rail Project will avoid potential adverse impacts on urban flora (trees, shrubs, etc.) caused by a lowered water table.

Water Quality. Wastewater discharge from excavation water removal will contain suspended solids and, in some areas, hydrocarbons. Related water quality impacts will be avoided by removing the suspended solids in siltation basins and, where necessary, removing hydrocarbons in oil/water separators. The monitoring of treated discharge water and periodic filing of water quality monitoring reports will probably be a requirement of the NPDES permit necessary for dewatering activities. This will help ensure the continued effectiveness of wastewater treatment procedures and equipment.

Surface accumulations of sediment from excavation and muck handling activities should not be allowed to reach significant volumes. As part of their contractual obligation, the Metro Rail construction contractors should be required to immediately clean up any accidentally spilled materials, including not only sediment but also vehicle fuels and lubrication fluids. In addition, the periodic cleaning of streets and sidewalks in the construction area should be required to regularly remove the more nominal, day-to-day operational spills.

13.10 CONSTRUCTION IMPACTS WHICH CANNOT BE MITIGATED

Mitigation techniques have been identified for all the construction impacts of the Metro Rail alternatives. However, no combination of mitigation techniques completely offsets all of these impacts. Therefore, for each of the construction impacts discussed in this chapter, some residual, unmitigated impacts would occur.

Community Impacts. Daily routines will be disrupted since mobility of residents, visitors, and employees around construction sites will be hampered. The increased traffic and noise from construction and dump trucks will be an inconvenience that cannot be avoided.

Business Disruption. Even with the application of the identified mitigation measures, some disruption of commercial activity will occur. Two basic types of construction activity are involved: cut and cover construction and aerial guideway and station construction.

Aerial segments will require support piers, typically every 90 feet for guideways and somewhat more in station locations. Preformed concrete cross-members are then placed on these piers and trackwork and other appurtenances installed. Tunnel segments require construction activity primarily only at stations and at crossovers and pocket tracks. The cut and cover type of construction involved, however, is of a more continuous, disruptive sort and may be as much as twice as long in duration.

The Aerial Option would impact approximately 15,000 feet of Lankershim (and other streets) with overhead guideway construction and another 5,000 feet of disruption due to cut and cover construction. The Locally Preferred Alternative would disrupt about 6,500 feet of commercial frontage with cut and cover construction, while the Minimum Operable Segment would disrupt almost 5,000 feet with cut and cover construction.

Dust and Noise. Under all construction alternatives, some temporary increase in dust and noise will occur at construction sites and along the muck disposal routes, even after mitigation techniques are applied.

Vehicular Traffic Congestion. Some increase in traffic congestion in the vicinity of station construction sites will probably occur, despite the application of mitigation techniques, because of constricted road areas and the addition of construction traffic.

Parking. Parking availability will be reduced in station environs where off-street yards for construction employee parking and equipment are not established.

14. LONG TERM AND CUMULATIVE IMPACTS

14.1 UNAVOIDABLE ADVERSE IMPACTS

Although most construction impacts will be temporary and can be mitigated by SCRTD and most of the long term operation impacts can also be mitigated, the Metro Rail Project will result in some adverse impacts which cannot be completely avoided or mitigated. Long term unavoidable adverse impacts are identified below; unavoidable short term or construction impacts are identified in section 13 of this chapter.

- Speculative increases in land value around station locations may increase rental and lease rates for residential and commercial space, particularly in the Wilshire/Fairfax, and to a lesser degree, the Fifth/Hill and Seventh/Flower Station areas.

- A total of 197 commercial and five nonprofit establishments, and six single family and 195 multifamily units will be directly displaced under the Locally

Preferred Alternative. A total of 183 commercial and three nonprofit establishments, and 10 single family and 193 multifamily units will be directly displaced under the Aerial Option. Under the Minimum Operable Segment, 77 commercial establishments, and 24 multifamily units will be directly displaced. SCRTD is committed to the relocation of all businesses and residents displaced by the Metro Rail Project. However, it is possible that some businesses and residents will not be relocated within the same station area.

- Land may be acquired for station entrances at three historic sites under the Locally Preferred Alternative and under the Minimum Operable Segment. It will be necessary to remove or alter a segment of the Los Angeles Union Passenger Terminal District, a National Register District, and alter the Title Guarantee and Pershing Square Buildings. Adverse impacts to these properties will be mitigated by employing designs which are architecturally compatible. Were the Aerial Option to be adopted, an additional 10 potentially historic structures in the North Hollywood area would be adversely affected.

- Local and regional views in the North Hollywood area will be obstructed by elevated guideways under the Aerial Option. Views from residential areas north of Chandler Boulevard to North Hollywood Park will be obstructed by the aerial storage yard of the Aerial Option. These adverse visual impacts could be mitigated only through extensive relocation of residents and businesses, itself an adverse impact.

- Because the exact nature and location of archaeological sites cannot be determined, some archaeological resources are likely to be inadvertently affected under the Project alternatives. The most likely impacts will be the disruption of resources in the Los Angeles Union Passenger Terminal District, during cut and cover construction at the Civic Center and Hill Street Station locations, and in the Rancho La Brea Tar Pits area. To insure protection of these resources, an archaeologist will observe construction activities at these sites. In addition, the Locally Preferred Alternative and the Aerial Option may disrupt resources in the Campo de Cahuenga area of Universal City (See Chapter 4 for further discussion.)

- Paleontological resources may be disrupted when the Metro Rail alignment traverses areas of high sensitivity, particularly the Rancho La Brea Tar Pits resource area. Marine invertebrates and vertebrates also may be encounted in the CBD and along Wilshire Corridor. This impact will be mitigated by the temporary halting of excavation when important or potentially important fossils are discovered. (See Chapter 4 for further discussion.)

- In some locations along the Metro Rail alignment increases in noise and vibration levels may still be experienced under all alternatives, even with proven mitigation measures. Under the Locally Preferred Alternative, eight sites would experience noise levels in excess of standards. Two sites would be affected under the Minimum Operable Segment. In addition to the eight sites under the Locally Preferred Alternative, the Aerial Option would impact 30 additional single family residences and 10 apartment buildings with airborne noise.

- Annualized energy requirements for the Metro Rail Project would be 1,556 billion British thermal units (BTUs) for the Locally Preferred Alternative, 1,494 billion BTUs for the Aerial Option, and 914 billion BTUs for the Minimum Operable Segment.

- The neighborhood character and stability of the Fairfax/Beverly and Fairfax/Santa Monica Station areas may change because of new development facilitated by Metro Rail.

- Under the Aerial Option, visual privacy of residential structures will be affected as the elevated guideway will be within 60 feet of structures along the west side of Lankershim Boulevard for its entire length and along the east side of Camarillo Street.

14.2 RELATIONSHIP BETWEEN LOCAL SHORT TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

14.2.1 TRADEOFFS BETWEEN SHORT TERM USES OF RESOURCES AND LONG TERM BENEFITS OF METRO RAIL

Construction of the Metro Rail Project will require the use and commitment of resources which must be weighed against the long term benefits of building the system. Uses of resources associated with the project include the following:

- acquisition of commercial, industrial, and residential land uses for Metro Rail right-of-way

- displacement of residents and businesses

- potential adverse impact of four National Register sites (see Chapter 4)

- potential for disrupting archaeological and paleontological resources (see Chapter4), especially notable in the Rancho La Brea Tar Pits Area.

- obstruction of local and regional views and possible visual intrusion

- increased use of electricity.

The use of these resources is a recognized expenditure worth the investment when weighed against the benefits of construction of the system. By improving transit service and efficiency, the Metro Rail Project will achieve the following:

- increase accessibility to employment, commercial, and recreational centers within the Regional Core

- improve travel time throughout the Regional Core by providing the only efficient means of transportation between certain areas

- decrease total vehicle miles traveled throughout the Regional Core

- accommodate more concentrated yet regulated growth and development, thus satisfying regional growth goals

- help to satisfy land use and environmental goals and objectives in local and regional plans

- through joint development, increase property tax revenues to the City of Los Angeles generated by joint development sites by more than 50 percent and sales tax revenues at these sites by 85 percent by the year 2000

- through transit induced development, increase the supply of residential and commercial units.

14.2.2 JUSTIFICATION FOR A PROJECT NOW

Rather than deferring the project, there are several reasons why the Metro Rail Project is justifiable at this time:

- Traffic congestion (vehicle trips and VMT) is severe now and is expected to increase steadily in the Regional Core if no project is implemented.

- Energy consumption, particularly the use of petroleum by autos, will continue to increase if no attractive alternative to the auto is implemented.

- The present public transit (bus) system in the Regional Core is at or over capacity, and a more efficient system is needed to help accommodate the riders that can be attracted to public transit.

- A more efficient and balanced transit system will significantly reduce net transit operating deficits in the Regional Core.

- A more efficient transit system will save its users time and money.

- The project will accelerate the achievement of current governmental and regional goals and plans for transportation, air quality, energy policy, redevelopment, the centers concept, and commercial growth.

14.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The construction of the Metro Rail Project will require the irreversible and irretrievable commitment of various resources, including land, manpower, energy, construction materials; and money.

Under all of the systemwide alternatives, the alignment for all or the majority of the system will run underground. However, the taking of privately owned land would be required at some station locations, yards, and parking lots and along the aerial guideway under the Aerial Option. The conversion of land from residential, commercial, and industrial uses to transit uses is an irreversible commitment of land resources.

The manpower expended to design, construct, and operate the rail system cannot be recovered. However, local and regional economic benefits would result from this expenditure of manpower.

Construction and operation of the system would require the use of both electricity and petroleum products. Energy for system operation would be primarily electricity

supplied by the City of Los Angeles Department of Water and Power. Energy would also be used in construction of the rail vehicles. Annual energy uses for the Locally Preferred Alternative have been estimated to include 239 billion BTUs for construction, 18 billion BTUs for vehicle manufacturing, 687 billion BTUs for traction power, and 510 billion BTUs for station operation and maintenance. Total energy demand would be 1,556 billion BTUs per year. Annual energy demand for the Aerial Option and the Minimum Operable Segment is estimated to be 62 and 642 billion BTUs less, respectively, than the Locally Preferred Alternative.

Consumption of construction materials such as asphalt, cement, steel, lumber, and fabricated metals represents a commitment of resources that would not occur under the No Project Alternative, assuming that no new highway improvements would be undertaken. The commitment of materials to this project may cause a short term increase in the cost of construction materials.

The financial resources committed to the construction and operation of the Metro Rail Project cannot be completely recovered, although the project would result in increased property and sales tax revenues to the City of Los Angeles. The estimated capital cost for the rail component of the Locally Preferred Alternative is $2.47 billion, and $57.2 million less for the Aerial Option. The rail capital cost for the Minimum Operable Segment would be $1.54 billion. The Metro Rail Project would absorb funding that could be used for other transportation projects in the county.

14.4 GROWTH INDUCING IMPACTS

Potential growth inducing impacts of the Metro Rail Project stem from three basic factors:

- Metro Rail helps alleviate the tremendous congestion and accessibility constraints imposed by an overcrowded transportation system.
- Metro Rail, as a substantial public investment, serves as a catalyst in the reinvestment of areas currently underutilized, and as a stimulus to the local economy.
- Metro Rail represents, from an individual developer's perspective, an opportunity to realize financial benefits from increased, lower cost transportation access.

The Regional Core through which the Metro Rail Project passes is already very highly developed. Significant, additional growth will take place, with or without the Metro Rail Project. However, projections used for the EIS/EIR indicate that there are likely to be measurable increments of additional growth in the Regional Core associated with the Project alternatives compared to the No Project Alternative.

The growth inducing potential of the rail rapid transit system can affect the region's land use, economy, transportation system, and other public services. Discussion of these potential impacts are examined primarily in sections 1 through 3 of this chapter, as well as in a series of technical reports that discuss specific impacts associated with the Metro Rail Project. The implications are repeated here in abbreviated form only and the reader is encouraged to see the referenced sections and reports for greater detail. In addition, Table 3-50 at the end of this section is

provided to indicate where more specific discussions of different growth inducing effects can be found in the EIS/EIR.*

14.4.1 REGIONAL CORE VERSUS REGIONWIDE GROWTH

The SCAG-82A growth projections are used to represent the development levels under the No Project Alternative. The SCAG-82B growth projections are used to represent development levels associated with the various rail alternatives. While these two growth projections differ for the Regional Core, they do not differ for the SCAG region as a whole. Both SCAG-82A and -82B project a total of 14,922,000 persons, 5.9 million dwelling units, and 7.9 million employees by the year 2000.

SCAG-82A assumes that adopted planning policies in the region will be largely unable to affect and control growth. Regional and local government forecasters believe that the circumstances associated with SCAG-82A are a distinct possibility if major public initiatives are not implemented. SCAG-82B, on the other hand, concentrates growth within regional centers. This growth distribution is a likely future scenario only with concerted public agency initiative and action. The Metro Rail Project would make it more possible to achieve the growth management objectives embodied in the SCAG-82B forecast than would otherwise be the case. For this reason, the SCAG-82B forecast is associated with the Metro Rail Project.

The Metro Rail Project does not itself cause the circumstances envisioned by the SCAG-82B forecast to come about. The rail project does, however, significantly enhance the chances that the growth management and development policies adopted by SCAG, the City of Los Angeles, and the County of Los Angeles will be implemented.

14.4.2 POPULATION AND ECONOMIC GROWTH

The clustering of population and employment forecast for the Metro Rail Project station areas is predominantly a reflection of the market potential of the Regional Core and partially a response to greater, more certain accessibility. Present zoning in the City of Los Angeles and in the County of Los Angeles communities within the Regional Core generally provides development capacities greater than the market will demand in the foreseeable future, even with the Metro Rail Project**. The growth facilitated by the Project alternatives would, therefore, generally not require significant changes in land use. It would simply increase utilization of areas and structures that might not otherwise be able to sustain reinvestment.

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* The following technical reports, available at SCRTD, consider secondary impacts:

- Land Use and Development Impacts, prepared by Sedway/Cooke;
- 2000 With Project Traffic Volumes, prepared by LADOT;
- 200 With Project Condition V/C Ratios and Impacts, prepared by LADOT;
- 2000 Parking Conditions, prepared by LADOT;
- Social and Community Impacts, prepared by The Planning Group; and
- Crime Impact Analysis, prepared by George Rand Associates.

** SCRTD, Technical Report - Land Use and Development Impacts of the SCRTD Metro Rail Project, June 1983.

Potential growth associated with the rail alternatives include increases in dwelling units, commercial development, employment, and city and county revenues, as described below.

An additional 14,470 dwelling units within station areas, most of which correspond to designated growth centers, can be accommodated with the Locally Preferred Alternative and Aerial Option over the No Project Alternative by the year 2000. This represents a 33 percent increase and an additional 34,250 persons within station areas. Under the Minimum Operable Segment, the Metro Rail Project would help accommodate an additional 11,070 dwelling units and 27,470 persons within station areas.

Commercial development with Metro Rail is expected to increase substantially over the No Project Alternative. The Locally Preferred Alternative and the Aerial Option are estimated to increase the level of new commercial square footage by about 15 to 27 percent over the No Project Alternative within the station areas in the year 2000. Commercial development within station areas in the Minimum Operable Segment would increase by about 12 to 22 percent.

Total employment in station areas for the year 2000 under the Locally Preferred Alternative and the Aerial Option is expected to increase by 51,300 to 98,900 employees over the No Project Alternative (14 to 27 percent increase) while station areas on the Minimum Operable Segment would experience a slightly less, but still considerable, growth in total employment. The growth projected to occur under all three Metro Rail alternatives is consistent with regionwide land use and development plans, which call for a concentration of development at designated centers in the Regional Core.

Metro Rail is expected to have an impact on the city's economy, increasing both sales and property tax revenues as a result of development induced by the project. In the year 2000, assuming the city receives 32.7 percent of the one-percent tax rate applied to this value, the growth accommodated by the Locally Preferred Alternative and the Aerial Option would generate nearly $8.1 million more in property tax revenues and $513,000 in additional sales tax revenues compared to the No Project Alternative. If SCRTD pursues an active joint development posture, revenues could increase by 90 percent over the No Project Alternative on joint development sites. These figures are actually understated as they do not also include the benefits to the unincorporated areas.

14.4.3 LAND USE

For the most part, additional growth is consistent with local land use plans*. Only in a few instances are land use effects that might be facilitated by the Metro Rail Project expected to be negative. In particular, there is the possibility that new development would not be compatible with surrounding uses or with the community's goals concerning the form of development in the Fairfax/Beverly and La Brea/Sunset Station areas. In addition, certain station areas do not have available land to accommodate the projected growth. The inability to satisfy residential growth demands and the resulting need to manage growth impacts may occur in the

Wilshire/La Brea, Fairfax/Beverly, Fairfax/Santa Monica*, and Universal City Stations. The inability to satisfy commercial growth demands may occur in the Wilshire/Fairfax Station area.

14.4.4 TRANSPORTATION

The transportation implications of new residential and commercial development are considerable. Projected growth would influence the pattern, volume, and modal distribution of future travel. Assuming a pattern of development consistent with SCAG-82B, the new development would greatly increase the number of total trips in the Regional Core, but a greater proportion of these trips would be made by transit. As a result, the critical measure of traffic growth, vehicle miles traveled, is substantially reduced (by 1.12 million vehicle miles annually) with the Metro Rail Project over the No Project Alternative.

14.4.5 PUBLIC SERVICE SYSTEMS

The fiscal effects of the growth associated with Metro Rail Project upon public services depends on a variety of variables, including:

- The make-up of existing population and land use.
- The type of new development (scale, type, location, value of land use).
- The state of capital facilities at the time the demand for services increases (i.e., the presence or absence of unused capacity, state of repair, etc.).
- The laws and policies concerning the types of taxes that are used to pay for public services.
- The policies that service districts apply to the setting of user charges and other nontax revenue sources.

If the new growth does not represent a net increase but a redistribution of development within a particular public service district, then the net fiscal effect on the service agency as well as the level of service provided may be negligible. In other words, the overall demand for service has not increased; it has merely changed location, presumably shifting to an area around a proposed Metro Rail station. In fact, if the growth is concentrated into areas where services are underutilized, then cost efficiencies in providing that service (i.e., lower average costs per unit of output) will be realized. On the other hand, if the services are near capacity and the increased demand is from new customers attracted into the service district, then the service may be overloaded and must be increased to maintain existing levels of service. A qualitative discussion of potential growth inducing effects on community services/facilities is included in the SCRTD Technical Report on Community and Social Impacts (1983).

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* The proposed Specific Plan for this station area would enable the area to accommodate all projected residential growth.

Schools and Libraries. The need for school and library facilities is heavily influenced by non-auto accessibility. Higher density residential districts with high quality public transit offer the greatest opportunities for flexible, efficient use of educational facilities.* It should be noted there are schools in the Regional Core where enrollment is approaching or has exceeded a desirable capacity and efficient pupil transportation to underutilized schools in the San Fernando Valley and other locations has become a critical need as a result. Should school construction continue to lag behind needs in the Regional Core, regional rapid transit may be an important element in transporting pupils out of overcrowded facilities in the Wilshire Corridor.

Police. Police costs per capita are thought to be most heavily influenced by factors other than growth patterns, specifically the demographics of the area involved. Since older, eastern American cities have high density slums, higher densities have been associated with higher per capita police costs (as have, for instance, multi-family dwellings generally). There does not appear to be substantiation that per capita police costs significantly vary with growth or density patterns without regard to the social environment.* New patterns of urbanization can become sources for crime unless appropriate countermeasures are incorporated. The SCRTD Technical Report - Crime Impact Analysis (1983) contains measures to address potential crime risks associated with higher densities, new mixed use developments, changes in community boundaries and buffer areas, and new travel patterns.

Fire. Fire costs increase most significantly when a transition is made to fully-manned professional services and when special high-rise building capabilities are added. Both of these costs are already committed to in the areas impacted by the Metro Rail Project. Newer, high quality commercial development typically makes the fewest demands upon fire services. The greatest fire threats are older, substandard, undermaintained apartment structures. To the extent that the Metro Rail Project can attract reinvestment in these structures, the provision of fire protection services will not be adversely affected.

Health Care. While the Metro Rail Project has the potential to dramatically increase accessibility to major health service facilities, such facilities are not presently adjacent to the proposed station sites. A potential problem arises where market demand drives up the land and rental costs beyond what health care agencies can afford and they must relocate. To the extent that these agencies and facilities serve a local clientele their indirect displacement would adversely affect the community. This problem, should it appear, could affect health facilities around the Fifth/Hill, Seventh/Flower and Wilshire/Fairfax Stations, where speculative increases in land value could raise rental and lease rates.

Open Space and Recreation. Open space and recreation facilities typically shift in character and configuration, depending upon local population density and character, other factors being held equal. To the extent that the Metro Rail Project increases land values, it will become more difficult to assemble recreation sites in the vicinity of stations. At the same time, the Metro Rail Project will provide for much greater access to a number of established parks (see Figure 4-11).

Utilities. It is assumed that most if not all of the utility systems have been sized to accommodate zoned development capacities. Hence, substantial investments have

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* Real Estate Research Corporation, The Costs of Sprawl: Literature Review and Bibliography, April 1974.

been made in capacity that have not been yet utilized by the market. In some instances, replacement and refurbishment of aged utility lines and equipment is a concern. In both cases, reinvestment in areas of committed utility service has the prospect of reducing the per unit cost of long term utility service on a regionwide basis. However, the potential savings could not be readily ascertained within the scope of the EIS/EIR.

Summary Effects. The growth inducing implications, as noted at the outset of this subsection, on public services are very complex. Only general statements can be made and even these must be carefully qualified. The possible effects are summarized below:

- Where the service is provided by a citywide or countywide agency, such as police and fire protection, it may be possible to shift resources to meet demands without a net increase in costs to a given jurisdiction.

- Expansions of wastewater treatment facilities and sanitary landfills are already projected by the year 2000. The growth potential associated with Metro Rail is not expected to impose an additional demand, since the growth projections are consistent with the regional, county, and city projections upon which these service requirements are based.

- Schools, libraries, recreation, and health care facilities are services particularly susceptible to shifts in the magnitude and location of growth. If budgetary constraints limit the supply of these facilities, then the growth associated with Metro Rail (even though it is consistent with the community plans that program the provision of these services) may overtax the facilities and residents will experience a decline in the level of service. Based on the growth projections (with or without the Metro Rail Project) alone, it is expected that the availability of these social services and public facilities could be inadequate in the following areas: downtown, Wilshire/Alvarado, Wilshire/Vermont, Wilshire/Normandie, Fairfax/Beverly, Fairfax/Santa Monica, Hollywood/Cahuenga, and North Hollywood. Potential problems could also occur in the Wilshire/Western, Wilshire/La Brea, and Wilshire/Fairfax Station areas, although not as readily as in the above station areas.

As a reference guide, Table 3-50 identifies where the primary discussions of growth inducing impacts can be found in the EIS/EIR.

TABLE 3-50

EIS/EIR REFERENCES TO GROWTH INDUCING AND CUMULATIVE IMPACTS

Page Number	Identifying Description
3-8	Increased passenger carrying capacity of travel corridors.
3-18	Increased traffic congestion around certain station locations.
3-29	Increased demand for parking near some stations, resulting in parking deficiencies.
3-30	Residential neighborhood impacted by spillover parking demand.
3-47	Increased commercial and residential development accommodated by Metro Rail in Regional Core.
3-50	Increased commercial and residential development accommodated by Metro Rail in station areas.
3-52, 54	Increased population and employment accommodated by Metro Rail in Regional Core.
3-50, 52, 54	Increased population and employment accommodated by Metro Rail in station areas.
3-55, 60	Consumption of available land supply required to accommodate growth.
3-58	Consistency of growth accommodation with regional development policies.
3-59	Consistency of growth accommodation with local development policies.
3-62, 63	Residential neighborhood impacted by spillover growth pressures.
3-62	Increased speculation in land value.
3-62	Stabilize declining tax base for some stations and reinforce revitalization efforts.
3-70	Increased construction-related employment.
3-70	Stimulate regional economy.
3-71	Enhance opportunities for minority business enterprises.
3-76, 78, 80	Increased property and sales tax revenues generated by development associated with Metro Rail.
3-94	Indirect displacement resulting from increased development accommodated by Metro Rail.
3-95	Residential hotels and other low-moderate cost housing impacted by new development.
3-95, 96	Marginal businesses impacted by new development.
3-96, 97	Increased availability of services resulting from new development.
3-100	Improved mobility, particularly for transit dependents.
3-109	Opportunity to reduce crime risks in station areas.

TABLE 3-50 (Continued)

Page Number	Identifying Description
3-119	Opportunity to improve visual setting by enhancing or creating views and reinforcing street space.
3-134	Change in community noise levels due to traffic generated by Metro Rail facilities.
3-142	Change in regional air quality due to reduction in auto trips.
3-143	Change in localized air quality due to traffic generated by Metro Rail facilities.
3-148	Change in energy consumption due to reduction in auto trips.
3-163	Loss of opportunity to extract mineral resources along the alignment.
3-165	Impacts on water quality from runoff from Metro Rail facilities.
3-187	Depletion of landfills as a result of accepting materials excavated during Metro Rail construction.

CHAPTER 4
CULTURAL RESOURCES

CHAPTER 4
CULTURAL RESOURCES

1. INTRODUCTION

This chapter presents an inventory and impact assessment of four types of cultural resources: historic/architectural, archaeological, paleontological, and parklands.

2. HISTORIC PROPERTIES

2.1 GENERAL REQUIREMENTS AND COMPLIANCE

A cultural resources inventory and assessment was conducted to satisfy the requirements of the National Historic Preservation Act of 1966 (Public Law 89-665 as amended), the National Environmental Policy Act of 1969 (Public Law 91-190), Section 4(f) of the Department of Transportation Act (Public Law 89-670), and Executive Order 11593. Section 106 of the National Historic Preservation Act (NHPA) affords the Advisory Council on Historic Preservation the opportunity to review and comment on Federal undertakings that affect properties included in or eligible for inclusion in the National Register of Historic Places. Procedures for implementing Section 106 are provided in 36 CFR 800 Protection of Historic and Cultural Properties.

2.1.1 COORDINATION WITH THE STATE HISTORIC PRESERVATION OFFICER (SHPO)

SCRTD has coordinated with the SHPO since the preparation of the Alternatives Analysis/First Tier EIS/EIR in 1978-1980. SCRTD staff has continued this coordination through meetings, field trips, and correspondence to resolve issues on scope of work, Areas of Potential Environmental Impact (APEI), project timing and scheduling, and documentation content. The SHPO was provided with the scope of work, project definition, a draft copy of a preliminary cultural survey, and a copy of the Draft EIS/EIR. The SHPO will continue to participate actively in the environmental review process and will review station plans and final designs prior to construction.

2.1.2 COORDINATION WITH THE LOS ANGELES CONSERVANCY

The Los Angeles Conservancy (LAC) has also participated actively in this study. The LAC Executive Director has been consulted about architectural significance, areas of particular interest to LAC, and definition of potential impact areas. An LAC volunteer served as a researcher and field surveyor for portions of the Wilshire

Corridor. LAC has participated in field visits to sites in question and in joint meetings with staffs of SCRTD and the SHPO.

2.2 IDENTIFICATION OF HISTORIC PROPERTIES

2.2.1 AREAS OF POTENTIAL ENVIRONMENTAL IMPACT

Based on discussions with the SHPO and LAC and a review of similar projects, APEIs were defined as one parcel deep around all cut and cover locations. These include all stations and auxiliary facilities such as crossovers and pocket tracks. Where power substations and vent shafts are planned separate from station locations, they would be located where they would not affect significant cultural resources. Larger areas were defined for particularly sensitive station locations and acquisitions, including the Fifth/Hill, Wilshire/Alvarado, Wilshire/Fairfax (Miracle Mile), Campo de Cahuenga, and Universal City Stations. Maps of the APEIs are contained in the SCRTD Technical Report on Historical/Architectural Resources (1983).

2.2.2 METHODS AND TECHNIQUES

Preliminary research for the cultural resource inventory involved the following steps.

- Consulting national, state, and local registers.
- Compiling information from cultural resource surveys within the project area, such as those by the Hollywood Revitalization Committee, Los Angeles County Museum of Natural History, Community Redevelopment Agency (City of Los Angeles), and City of Los Angeles Bureau of Engineering.
- Contacting historical and architectural reseachers who have conducted research in the project area, including the Los Angeles Conservancy, Los Angeles Cultural Heritage Board, Western History Research Center at the Los Angeles County Museum of Natural History, Hollywood Heritage, El Pueblo de Los Angeles State Historic Park, and numerous other institutions.

Field surveys for the Metro Rail Project were made of 301 properties within the APEIs. The surveys were conducted at each station location by both a historian and an architectural advisor. Historical and architectural data to be used to complete California Historic Resources Inventory forms (DPR 523) were collected for each noteworthy structure within the APEI. These forms include property name and address, type of ownership, present use, previous use, architectural style, National Register status, significance, and date of construction as well as photographs of the property.

2.2.3 SURVEY RESULTS

Of the total 301 properties surveyed, 67 were considered to be of potential historic significance. Since the remaining 234 properties may be deemed significant in the future, brief inventory forms have also been completed for each property and are included in the SCRTD Technical Report on Cultural Resources (1983).

Staff of the SHPO reviewed the inventory forms for these 67 properties and made field inspections. As a result, the SHPO agreed that 29 of the 67 were historically significant (Figures 4-1, 4-2, and 4-3.2) Of these properties ten are either listed in or were previously determined eligible for the National Register of Historic Places. The ten, all in the downtown district or Wilshire district, include Union Station, El Pueblo de Los Angeles, Title Guarantee Building, Pershing Square Building, Subway Terminal Building, Broadway Mart Center, Myrick and Markham Hotels, Federal Title Building, Barker Brothers Building, and the Pellissier Building. The SHPO also has agreed that another 19 properties are potentially eligible for the National Register. The Keeper of the National Register has determined that these properties are eligible for the National Register.

2.3 APPLICATION OF CRITERIA OF EFFECT

Section 106 directs federal agencies to assess the effect of their project on any district, site, structure, or object included in or eligible for the National Register of Historic Places. Federal agencies must obtain the review and comment of the Advisory Council on Historic Preservation (ACHP) before the approval of projects that affect such properties. As cited in 36 CFR 800.3a, a project or undertaking shall be considered to have an effect:

> . . . whenever any condition of the undertaking causes or may cause any change, beneficial or adverse, in the quality of the historical, architectural, archaeological, or cultural characteristics that qualify the property to meet the criteria of the National Register. An effect occurs when an undertaking changes the integrity of location, design, setting, materials, workmanship, feeling, or association of the property that contributes to its significance in accordance with the National Register criteria. An effect may be direct or indirect. Direct effects are caused by the undertaking and occur at the same time and place. Indirect effects include those caused by the undertaking that are later in time or farther removed in distance, but are still reasonably foreseeable. Such effects may include changes in the pattern of land use, population density or growth rate that may affect on properties of historical, architectural, archaeological, or cultural significance.

2.4 DETERMINATION OF NO EFFECT

2.4.1 NO PROJECT ALTERNATIVE

A determination of No Effect has been made for all of the 29 National Register properties if this alternative is implemented.

STATE OF CALIFORNIA—THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811

(916) 445-8006

In reply, refer to: UMTA 820708A

February 23, 1983

RECEIVED
SCRTD
FEB 25 1983
OFFICE OF
MGR/CHIEF ENGINEER
METRO RAIL PROJECT

Mr. Richard Gallagher, Manager
Metro Rail Project
Southern California Rapid Transit DIstrict
425 South Main Street
Los Angeles, California 90013

Dear Mr. Gallagher:

Re: Determinations of Eligibility for Properties Within the Area of Potential Environmental Impact (APEI), Metro Rail Project.

A copy of the cultural resources survey, "Historical/Architectural Resources, Parts A and B" was received in this office on January 23, 1983. This document has been reviewed by my staff. On the basis of that document and extensive on-site inspection, we have reached the following conclusions regarding the presence of properties listed in or eligible for listing in the National Register within the Metro Rail APEI.

First, we have concluded that the survey adequately identifies all potentially eligible properties within the project's APEI. Indeed, we feel that SCRTD has acted responsibly and cooperatively in its dealings with this office and the historic preservation community of Los Angeles during the identification phase of 36 CFR 800 compliance. The creditable cultural resource survey conducted by your office adds greatly to our understanding of historic resources in Los Angeles, especially along the Wilshire corridor. We would appreciate receiving the original survey forms for inclusion in our master inventory of statewide resources.

We have determined that the Metro Rail APEI includes nine properties previously listed in or eligible for listing in the National Register.

Property	Address	Status
Pellissier Building	3870 Wilshire	Listed
Union Station	800 N. Alameda	Listed
Broadway Mart	401 Broadway	Listed in National Register Dist.
Title Guarantee Bldg.	401 W. 5th Street	Determinied Eligible
Pershing Square Bldg.	448 S. Hill Street	" "
Barker Bros. Bldg.	700 W. 7th Street	" "
Federal Title Bldg.	437 Hill Street	" "
Myrick/Markham Hotel	324-326 Hill Street	" "
Subway Terminal Bldg.	415-425 Hill Street	" "

We note as well that the property, Campo de Cahuenga, at 3919 Lankershim Blvd., has been determined not to be eligible by the Keeper of the National Register. The state of California disagreed with the 1973 ruling and continues to disagree. For 36 CFR 800 compliance, however, the Keeper's judgement prevails.

We have in addition concluded that the following fifteen properties appear to be eligible for National Register listing, but have not yet been determined eligible by the Keeper of the National Register:

1.	Crocker Bank	1926-1930 Wilshire
2.	Post Office Terminal Annex	900 N. Alameda
3.	Wilshire Christian Center	634 S. Normandie
4.	Hollywood Bowl	2301 N. Highland
5.	Toluca Southern Pacific Depot	5401 Lankershim
6.	MacArthur Park	2200 Wilshire
7.	Global Marine Bldg.	807 W. 7th Street
8.	Hotel Clark	400-426 Hill
9.	McKinley Bldg.	3747-3763 Wilshire
10.	Zephyr Club	5209 Wilshire
11.	Clem Wilson Bldg.	5217-5231 Wilshire
12.	May Company	6067 Wilshire
13.	Security Pacific Bldg.	6381-6385 Hollywood
14.	Roosevelt Bldg.	648 Flower
15.	Miracle Mile Historic District	5318-5514 and 5519-5353 Wilshire

If you concur in the Eligibility of these properties, please prepare a Formal Request for Determination of Eligibility for each. My staff has supplied your staff with examples of Determinations of Eligibility commonly used in transportation projects. Completed requests should be sent with a copy of this letter to the Urban Mass Transit Administration for submission to the Keeper of the National Register.

The remainder of the properties surveyed in the project APEI not discussed above are, in the view of this office, not Eligible for listing in the National Register of Historic Places.

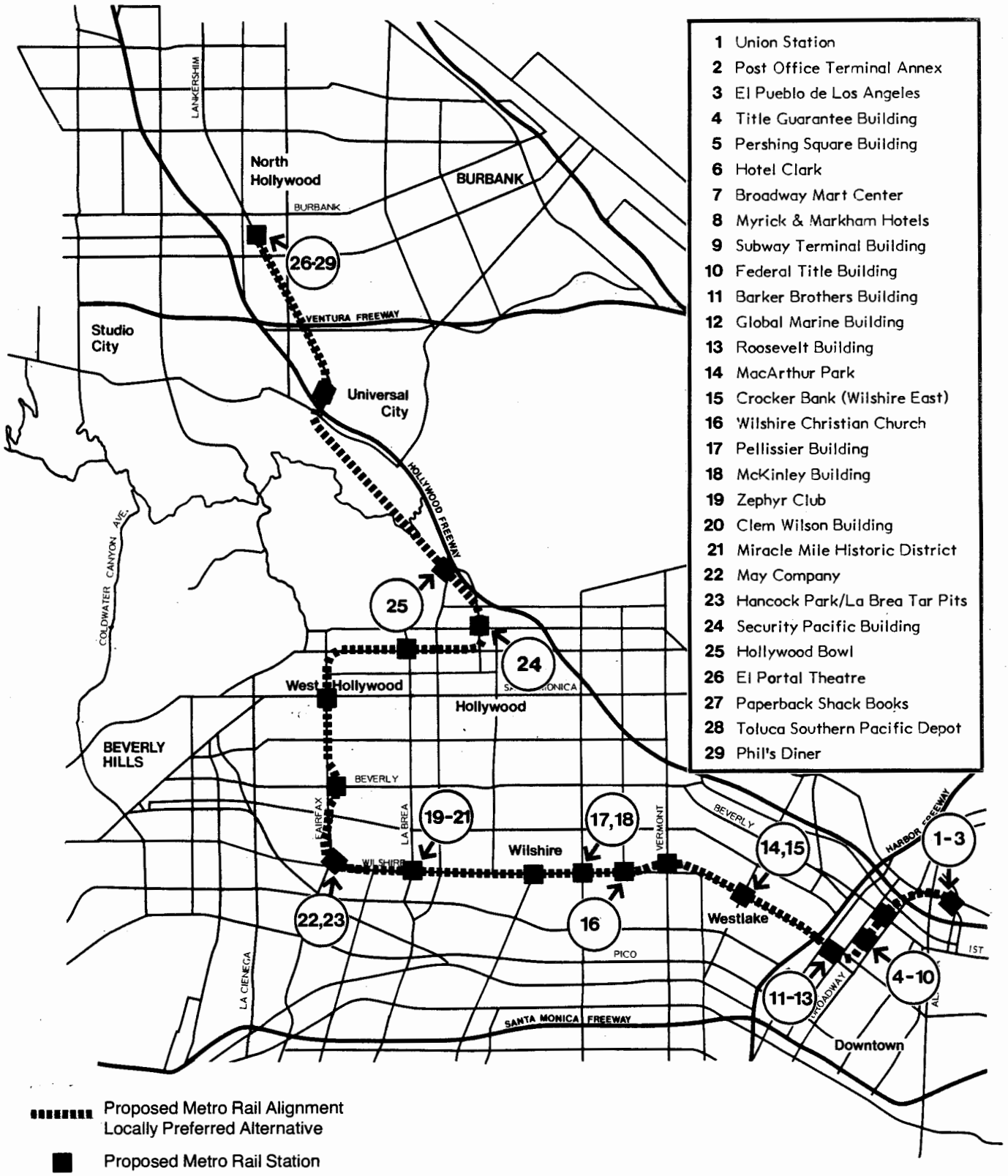
As it appears we agree on the eligibility of properties within the project's APEI, I recommend that you apply the criteria of Effect and adverse effect (36 CFR 800.3) to the 24 properties listed above. When we have reached agreement as to the effect, you may proceed to the drafting of a Memorandum of Agreement, if necessary, to complete consultation on this undertaking.

Again, we greatly appreciate your cooperation in this large and complex undertaking. If you have any questions, feel free to contact Stephen Mikesell of my staff at (916) 758-1813.

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer

Figure 4-1 SHPO Determination of Eligibility (February 23, 1983)



Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1 2 3 miles

Figure 4-2
Affected Historic Properties

SEDWAY/COOKE
Urban and Environmental Planners and Designers

2.4.2 LOCALLY PREFERRED ALTERNATIVE

The Criteria of Effect were applied, in consultation with the SHPO, to the properties listed in or eligible for the National Register. It was determined that the Locally Preferred Alternative would have No Effect on 16 of the 29 historic resources: Post Office Terminal Annex, El Pueblo de Los Angeles State Historic Park, Broadway Mart Center, Federal Title Building, Barker Brothers Building, Global Marine Building, Roosevelt Building, MacArthur Park, Crocker Bank (Wilshire East), McKinley Building, Zephyr Club, Clem Wilson Building, Miracle Mile District, El Portal Theatre, Paperback Shack Books, and Phil's Diner. Only El Pueblo de Los Angeles State Historic Park and Broadway Mart Center are listed in the National Register. The other properties are eligible. In all of the above cases, the station entrances would not be clearly visible from the resource, nor would they change the integrity of the location, design, setting, materials, workmanship, feeling, or association of the property. The May Company Building which had a finding of No Effect in the Draft EIS/EIR was changed to No Adverse Effect after the Wilshire/Fairfax Station was moved from its previous location in front of Hancock Park to a less paleontologically sensitive area in the parking lot behind the May Company (Figure 4-5).

2.4.3 AERIAL OPTION

The Criteria of Effect were applied, in consultation with the SHPO, to the properties listed in or eligible for the National Register. It was determined that the Aerial Option would have No Effect on 16 of the 29 historic resources: Post Office Terminal Annex, El Pueblo de Los Angeles State Historic Park, Broadway Mart Center, Federal Title Building, Barker Brothers Building, Global Marine Building, Roosevelt Building, MacArthur Park, Crocker Bank (Wilshire East), McKinley Building, Zephyr Club, Clem Wilson Building, Miracle Mile District, El Portal Theatre, Paperback Shack Books, and Phil's Diner. Only El Pueblo de Los Angeles State Historic Park and Broadway Mart Center are listed in the National Register. The other properties are eligible. In all of the above cases, the station entrances would not be clearly visible from the resource, nor would they change the integrity of the location, design, setting, materials, workmanship, feeling, or association of the property. The May Company Building which had a finding of No Effect in the Draft EIS/EIR was changed to No Adverse Effect after the Wilshire/Fairfax Station was moved from its previous location in front of Hancock Park to a less paleontologically sensitive area in the parking lot behind the May Company (Figure 4-5).

2.4.4 MINIMUM OPERABLE SEGMENT

The Criteria of Effect were applied, in consultation with the SHPO, to the properties listed in or eligible for the National Register. It was determined that the Minimum Operable Segment would have No Effect on 16 of the 29 historic resources: Post Office Terminal Annex, El Pueblo de Los Angeles State Historic Park, Broadway Mart Center, Federal Title Building, Barker Brothers Building, Global Marine Building, Roosevelt Building, MacArthur Park, Crocker Bank (Wilshire East), McKinley Building, Zephyr Club, Clem Wilson Building, the Miracle Mile District, El Portal Theatre, Paperback Shack Books, and Phil's Diner. Only El Pueblo de Los Angeles State Historic Park and Broadway Mart Center are listed in the National Register. The other properties are eligible. In all of the above cases, the station

entrances would not be clearly visible from the resource, nor would they change the integrity of the location, design, setting, materials, workmanship, feeling, or association of the property. The May Company Building which had a finding of No Effect in the Draft EIS/EIR was changed to No Adverse Effect after the Wilshire/Fairfax Station was moved from its previous location in front of Hancock Park to a less paleontologically sensitive area in the parking lot behind the May Company (Figure 4-5).

2.5 DETERMINATION OF NO ADVERSE EFFECT

This section discusses the application of the Criteria of Adverse Effect. In three letters, one dated April 5, 1983 (Figure 4-3.1), one dated August 23, 1983 (Figure 4-3.2), and one received by SCRTD on September 22, 1983 (Figure 4-3.3), the SHPO gives his determination of effect, including those with "No Adverse Effect" and those with "Adverse Effect," on the historically significant properties along the rail alignment.

As defined in 36 CFR 800.3b:

> . . . adverse effects on National Register or eligible properties may occur under conditions which include but are not limited to the following:
>
> - destruction or alteration of all or part of a property
> - isolation from or alteration of the property's surrounding environment
> - introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting
> - neglect of a property resulting in its deterioration or destruction
> - transfer or sale of a property without adequate conditions or restrictions regarding preservation, maintenance, or use

2.5.1 NO PROJECT ALTERNATIVE

No foreseeable adverse effects to the 29 properties listed or eligible for inclusion in the National Register could be expected if the project is not implemented.

2.5.2 LOCALLY PREFERRED ALTERNATIVE

The Criteria of Effect were applied, in consultation with the SHPO, to the properties listed in or eligible for the National Register. It was determined that, under the Locally Preferred Alternative, there would be No Adverse Effects on eight properties listed or eligible for inclusion in the National Register. These properties are the Myrick and Markham Hotels, the Subway Terminal Building, the Hotel Clark, the Wilshire Christian Church, the Pellissier Building (Wiltern Theatre), the May Company Building (6067 Wilshire Boulevard), the Security Pacific Bank at 6381-6385 Hollywood Boulevard, the Hollywood Bowl, and the Toluca Southern Pacific Depot. Only the Pellissier Building is listed on the National Register. All the other properties have been found eligible.

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811
(916) 445-8006

RECEIVED
APR 12 1983
GENERAL MANAGER
S.C.R.T.D.

April 5, 1983

In reply, refer to UMTA 820708A

John A. Dyer, General Manager
Southern California Rapid Transit District
425 S. Main Street
Los Angeles, California 90013

Dear Mr. Dyer:

Re: Determination of Effect, Metro Rail Project

Your letter requesting my concurrence in a determination of effect for the Metro Rail project was received on March 17, 1983.

With these conditions listed below, I concur in your determination of effect as stated in Section 4 of "(Preliminary Draft) Environmental Impact Statement and Environmental Impact Report, Los Angeles Rail Rapid Transit Project, Metro Rail," March 1983, Section 4. For the record, I will summarize my understanding of your determination of effect:

Properties for which there will be no effect:

1. Post Office Terminal Annex
2. Broadway Mart Center
3. Federal Title Building
4. Barker Brothers Building
5. Global Marine Building
6. Roosevelt Building
7. MacArthur Park
8. Crocker Bank
9. McKinley Building
10. Zephyr Club
11. Clem Wilson Building
12. May Company
13. Miracle Mile District

Properties for which there will be no adverse effect:

1. Myrick/Markham Hotel
2. Subway Terminal Building
3. Hotel Clark
4. Wilshire Christian Church
5. Pellissier Building
6. Hollywood Security Building
7. Hollywood Bowl
8. Toluca Southern Pacific Depot

Properties for which there will be an adverse effect:

1. Los Angeles Union Passenger Terminal
2. Title Guarantee Building
3. Pershing Square Building

My concurrence in the aforementioned determination of effect is conditional upon the following three provisions:

1. The Draft EIS/EIR should clarify the National Register status of each of the 24 properties, i.e., whether it is listed previously determined eligible, or determined eligilbe as part of this project.

2. My concurrence in a determination of adverse effect for three properties should not be interpreted as an endorsement of the recommended measures for mitigating that adversity. I do no mean to suggest that I object to those mitigation measures; I simply reserve judgement on mitigation until your agency has prepared a Preliminary Case Report and until we can negotiate the terms for a Memorandum of Agreement.

3. The section of the Draft EIS-EIR dealing with archeology (pages 4-29 to 4-30) should state than an archeological treatment plan for known resources and resources discovered during construction will be included as part of the project-wide Memorandum of Agreement.

I trust this letter clarifies our position with respect to the effect of this undertaking on properties listed in or eligible for listing in the National Register of Historic Places. If you have any questions on this matter, feel free to contact Stephen Mikesell of my staff at (916)322-8599.

Sincerely,

Knox Mellon

Dr. Knox Mellon
State Historic Preservation Officer

Figure 4-3.1 SHPO Determination of Effect (April 5, 1983)

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811

REPLY TO: UMTA820708A

AUG 23 1983

RECEIVED
SCRTD
SEP 22 1983
TRANSIT SYSTEMS DEV.

AGM Transit System
Administration
Program Control
Systems Design & Anal.
Comm. Relations
Fixed Facilities
Real Estate
Construction Mgmt.
Bus Facilities

Robert J. Murray
Assistant General Manager
Southern California Rapid Tansit District
425 S. Main Street
Los Angeles, California 90013

Dear Mr. Murray:

Re: Determinations of Eligibility and Effect for Additional Properties within the Area of Potential Environmental Impact (APEI), Metro Rail Project.

Thank you for your continued cooperation on this project. It is, of course, not uncommon for the list of affected properties for a project of this magnitude to increase or diminish as project plans are refined. Listed below are our opinions on eligibility and effect regarding properties recently identified as with the APEI for this undertaking.

In your letter of July 7, 1983, you requested our opinion on the eligibility of six properties: Farmers Market, 6333 W. Third; Halifax Apartments, 6375 Yucca; Avondale Apartments, 1825 Cahuenga; Paperback Shack Books, 5303 Lankershim; El Portal Theater, 5265-5271 Lankershim; and Phil's Diner, 11138-11142 Chandler. In our view, the Paperback Shack Books, Phil's Diner, and El Portal Theater properties are eligible for listing in the National Register of Historic Places. The remaining properties on this list are not, in our view, eligible for National Register listing.

4-9

Under Separate cover, you requested our opinion regarding the Eligibility of the Hancock Park-La Brea Tar Pits property. In a letter of August 2, 1983 to Abbe Marner of the Urban Mass Transportation Administration, I expressed the opinion that this property is eligible for National Register listing. A copy of this letter is attached.

Regarding effects, It appears that the project, as described in the June, 1983 Draft EIS/EIR, will have no effect on the Paperback Shack Books, El Portal Theater, or Phil's Diner properties, each of which is distant from actual project construction. Neither will the project affect the El Pueblo de Los Angeles State Historic Park, a property listed in the National Register of Historic Places but not treated in our earlier determination of effect correspondence.

The project's effect on the Hancock Park-LaBrea Tar Pits property is somewhat more difficult to assess at this time, owing to an absence of hard information regarding the extent of fossiliferous deposits beyond the confines of Hancock Park. The evidence available at this time suggests that the potential exists for an adverse effect on significant aspects of this property and that we should proceed as if adversity will occur. Provision for mitigation of this adversity should be included in the Memoradum of Agreement for the Metro Rail project and implemented to the extent necessary.

If you have any questions in this matter, feel free to contact Stephen Mikesell of my staff at (916) 322-9599.

Sincerely,

Original Signed by
Dr. Knox Mellon

Dr. Knox Mellon
State Historic Preservation Officer
Office of Historic Preservation

Figure 4-3.2 SHPO Determination of Effect (August 23, 1983)

RJ

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811

REPLY TO: UMTA820709A

Nadeem Tahir
Southern California Rapid Transit District
425 S. Main Street
Los Angeles, California 90013

Dear Mr. Tahir:

Re: Effect of new Wilshire/Fairfax Station, Metro Rail Project

Thank you for requesting our comment on the effect on historic properties of the newly-redesigned Wilshire Fairfax Station, astride the parcel of the May Company near the intersection of Wilshire and Fairfax. Based upon material submitted in your request for determination of effect, and taking into account your verbal description of this station, I conclude that the station construction and operation will not result in an adverse effect to the May Company structure, determined eligible for listing in the National Register of Historic Places, nor to any other property listed in or eligible for listing in the National Register.

If you have any questions in this matter, feel free to contact Stephen Mikesell of my staff at (916)322-8599.

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer
Office of Historic Preservation

RECEIVED
SCRTD
SEP 22 1983
TRANSIT SYSTEMS DEV.

DISTRIBUTION	A	1
AGM Transit System		
Administration		
Program Control		
Systems Design & Anal.		
Comm. Relations		
Fixed Facilities		
Real Estate		
Construction Mgmt.		✓
Bus Facilities		

Figure 4-3.3 SHPO Determination of Effect (September 22, 1983)

Myrick and Markham Hotels (324 - 326-1/2 Hill Street).

Description and Significance of Affected Property. The Myrick Hotel is a four-story brick Victorian, its prominent characteristics being a three-story set of recessed, double sashed windows with a fanlight on the fourth story, edged on both sides of the building by a three-story set of projecting, decorated oriel windows. Molding trim decorates all the windows. The ground floor entryway has been heavily modified, but the raised-letter "Myrick" name remains above the door.

Next door, the Markham Hotel is a three-story brick Victorian, its prominent characteristics being a set of arched two-story oriel windows (double-sash) with decorative columns. The central set of windows, partially obscured by a fire escape, are triple sashed with small, geometric glass paned doors, topped by the "Markham" name in raised letters. The main entrance has been modified to storefront. One small entrance exists on the left side of the building—a narrow door with a transom.

Built in the late Nineteenth Century, these two hotels now are used as commercial structures on the ground floor with apartments and transient quarters in the upper stories. Although slightly altered on the ground floor levels, these adjacent bay window structures are two of the last of their kind in downtown Los Angeles. The Myrick was built in 1893 and the Markham in 1897. The Myrick and Markham Hotels have been determined eligible for inclusion in the National Register of Historic Places.

Inapplicability of the Criteria of Adverse Effect. The Locally Preferred Alternative would not result in the destruction or alteration of all or any part of the Myrick and Markham Hotels. The Locally Preferred Alternative would not isolate the property from its surrounding environment, nor would it significantly alter that environment. The nearest station entrance would be approximately 130 feet across Hill Street from the Myrick and Markham Hotels. The station entrances would be in view of the

property but would not be out of character with the Myrick and Markham Hotels; nor alter this environment. The design of the station would be compatible with the existing urban environment. The Locally Preferred Alternative would not introduce visual, audible, or atmospheric elements that are out of character with the property. The Locally Preferred Alternative would not lead to neglect of the property, resulting in its deterioration or destruction. Implementation of the project would not require transfer or sale of the building.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Myrick and Markham Hotels (Figure 4-3.1).

Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Myrick and Markham Hotels.

Subway Terminal Building (415-425 Hill Street).

Description and Significance of Affected Property. The building has 13 stories arranged in four wings. The bottom two floors are faced with alternating strips of wide and narrow blocks, punctuated with entryway arches two stories high, with coffered ceiling in the doorways. The entrance lobby is columned with mosaic over an entryway with arched openings to each side. The upper three floors have an Italian Renaissance flavor, with slender, graceful arched windows and tile roof. A renovation in 1970 involved installation of new elevators, restrooms, central air conditioning, and improvement of the building's electrical capacity.

The Subway Terminal Building is historically important in Los Angeles' rapid transit system. It was built at the same time as, and in conjunction with, Los Angeles' one-mile-long subway, and was to be the terminal for the electric car lines as well as the headquarters for the Pacific Electric Company. The structure became a focal point

of the city's streetcar lines and in so doing, stabilized the center of business activity, which had been shifting with the streetcar line changes. The Subway Terminal Building, apart from its links to Los Angeles' transportation history, was at the time of construction one of the tallest office structures west of the Mississippi. Some of the important investors associated with its erection included Harry Chandler, I. H. Hellman, and J. J. Sartori. The Subway Terminal Building has been determined eligible for inclusion in the National Register of Historic Places.

Inapplicability of the Criteria of Adverse Effect. The Locally Preferred Alternative would not cause the destruction of or any alteration to the Subway Terminal Building, nor would it cause this building to be isolated from its surroundings. The nearest initial station entrance would be approximately 260 feet from the Subway Terminal Building. A proposed future entrance may be 100 feet away. Although the station entrances would be in view of this historic resource, they would not be out of character with the building or alter its setting. The design of the station would be compatible with the existing urban environment. The Locally Preferred Alternative would not lead to neglect of this building and would not introduce visual, audible, or atmospheric elements that are out of character with the building. The proximity of the subway station would add to the economic vitality of and generate interest in this historic subway structure. Implementation of the Locally Preferred Alternative would not require transfer or sale of the property.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, the SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Subway Terminal Building (Figure 4-3.1).

Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Subway Terminal Building.

Hotel Clark (426 Hill Street).

Description and Significance of Affected Property. The Hotel Clark is an eleven-story, classically detailed structure divided into seven bays with a two-story base and a large classical cornice. The base features original storefronts and windows and a projecting, bracketed marquee over the entrance. A broad, detailed entablature caps the base section. Another entablature with an egg and dart molded cornice and frieze with medallions at the piers tops the rusticated stone piers of the third floor. Each bay in the facade above has three double-hung windows divided by decorative spandrels and piers. The top two floors are set off by a projecting band supported by brackets at each bay and accented with flat capitals at each pier. The decorative projecting cornice has modillions, dentils, flat capitals at the piers and large brackets serving as capitals at each bay. The building also has an ornamental fire escape and a large perpendicularly hung sign. Exterior modifications include a new marquee and ground floor storefront alterations adjacent to the entrance.

This structure, built in 1913, was a lavish 11-story "skyscraper" (the sixth one on Hill Street) which took two years to build. Constructed of concrete, steel, and marble, the fireproof "palace" cost $2 million to build. Eli P. Clark, a prominent businessman, real estate investor, and contributor to the electric railway construction in Los Angeles, was responsible for building the hotel. Historically and architecturally, the Hotel Clark was the "fashionable" place to go in L.A. for many years. The hotel retains many of its original features. Some of the notable characteristics of the hotel include the largest marble lobby in the west, a bath in every room, banquet rooms and halls, a Dutch Grill, a ladies parlor, 555 rooms, and

an engine room and pumping plant three stories below the pavement. F. M. Dimmick, formerly with the Hotel Alexandria, became the first lessee of the Hotel Clark. Plans were made to upgrade the Hotel Clark in 1979.

Inapplicability of the Criteria of Adverse Effect. The Hotel Clark is located on Hill Street directly across from the Subway Terminal Building. The Locally Preferred Alternative would not cause the destruction of or any alteration to the Hotel Clark; nor would it cause this building to be isolated from its surroundings. The nearest

initial station entrance would be approximately 270 feet from the Hotel Clark. A proposed future entrance may be 110 feet away. The subway entrances would be visible from this building; however, the entrances would not be out of character with the Hotel Clark, nor alter its setting. The design of the station would be compatible with the existing urban environment. The Locally Preferred Alternative would not introduce visual, audible, or atmospheric elements that are out of character with the building. The Locally Preferred Alternative would not lead to neglect of the Hotel Clark. Instead, it would increase the economic viability of the building. Implementation of the Locally Preferred Alternative would not require transfer or sale of the Hotel Clark.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, the SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Hotel Clark (Figure 4-3.1).

Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Hotel Clark.

Wilshire Christian Church (634 South Normandie Avenue).

Description and Significance of Affected Property. The church is a tan-colored reinforced concrete building faced with art stone designed in an Italianate style. The main building has a basement, main floor, and gallery. There is a tall campanile roofed with red tiles on the Wilshire Boulevard side. The Normandie Avenue side is punctuated by a triple doorway above which is a deeply recessed rose window. The window is a copy of the rose window in the Rhiems Cathedral (France). The three-story and basement Sunday School building is to the north of the basilica structure. Palm trees line the street sides of the building.

Samuel J. Chapman, wealthy Los Angeles capitalist and partner with his brother, Charles, in the Chapman Brothers Company, donated the land for this church and was also on the building committee. Distinguished religious architect Robert H. Orr was the designer. The church is notable not only for its beautiful design, but also because it is one of a group of large, elegant houses of worship which were erected on Wilshire Boulevard during the 1920s. This particular section of the avenue attracted other important structures such as the Ambassador Hotel, the Wilshire Boulevard Temple, and the Immanuel Presbyterian Church.

Inapplicability of the Criteria of Adverse Effect. The Locally Preferred Alternative would not cause the destruction of or any alteration to the Wilshire Christian Church, nor would it cause it to be isolated from its surroundings. The Wilshire Christian Church is located approximately 250 feet away from the proposed station entrance. The building may view the subway entrance, but the view would not be out of character with the present surrounding environment. The design of the station would be compatible with the existing urban setting. Additionally, the Locally Preferred Alternative would not introduce visual, audible, or atmospheric elements that are out of character with the Wilshire Christian Church. The Locally Preferred Alternative would not lead to neglect of the church nor will it require transfer or sale of the property.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, the SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Wilshire Christian Church (Figure 4-3.1).

Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Wilshire Christian Church.

Pellissier Building/Wiltern Theatre/Franklin Life Building (3780 Wilshire Boulevard).

Description and Significance of Affected Property. The Pellissier Building, an example of Zig Zag Moderne style, with its blue green terra cotta veneer exterior and black granite base, is divided into four distinct parts that include the theatre, shop section, office section, and tower. The main entrance to the 2,500-seat theatre is distinguished by a large neon marquee with raised ornamental detail. The theatre, with its foyer diagonal to the street, is located in a tower with an Art Deco detailed marble and metal lobby entrance. The mercantile portion of the structure is two stories with twenty-one individual shops--eleven on Wilshire Boulevard, nine on Western Avenue, and one on Oxford Avenue. The tower is 190 feet in height. Several stories and levels are found on the tower, but the primary section consists of 12 stories. A garage is located in the basement. A small corner pavillion, diagonally situated to the street, is featured on the corner of Oxford and Wilshire streets. The pavillion carries out the Art Deco motif of the structure.

The reinforced concrete building has an ornamental terra cotta band over the second-story shop windows. Below these windows are decorated pressed metal bands which serve as a backdrop for the commercial neon signs. The store windows on the second floor have been dropped several feet below the normal second floor level. All windows, including those located on the tower, have spandrels constructed on steel with lead-coated copper. These window voids reflect the same blue-green color of the terra cotta building. A rounded bay window is located over the marquee.

The Pellissier Building was placed on the National Register of Historic Places in 1979. Originally known as the Pellissier Building, the structure was later purchased by the Franklin Life Company. The office and shop portion of the structure was designed by renowned architect Stiles O. Clements, while the theatre portion was planned by well-known theatre architect G. Albert Lansburgh. The Los Angeles architectural firm of Morgan, Walls and Clements first experimented with the vertical Art Deco styling, and the Pellissier Building is one of the finest remaining examples of this type of architecture in Los Angeles. The building has significance to the community in that it marks the gradual westward movement of the Los Angeles cultural and business sector from downtown to Wilshire Boulevard.

The theatre foyer well reflects the building's unique styling. The oval-shaped area is designed in a Moderne pattern with colorful terrazo floors and black marble walls and white metal walls with accents of Tennessee and Loredo Chiaro marbles. The Art Deco lobby adjoining the office building has ornamental white metal and black walnut panels on some of the walls and elevators, and copper and glass lighting. Except for present restoration, both the theatre and the office building have not been altered in any way since their construction; this is unusual for such a long period. The theatre lobby retains most of the original fixtures and furnishings. The foyer includes numerous chandeliers, ceilings painted in floral design, and floral wrought iron staircases leading up to the center of the main staircase. Ornate wrought iron grilles are found on all floors. The columns on the balcony overlooking the main theatre foyer have carved linear designs highlighted with copper. Although there have never been any live performances in the Wiltern Theatre, it retains its full working stage.

The theatre opened its doors on October 9, 1931, with George Arliss' "Alexander Hamilton." The auditorium itself is impressively tiered. Ornate three dimensional plaster decorations are found throughout the theatre. These are dominated by vertical detail. The main decorating motif is spear-like with copper and plaster carvings pointing downward. The lighting illuminates from the front of the theatre in a sunburst design which was one of architect Lansburgh's characteristic designs. The theatre pipe organ is the largest ever constructed by the Kimball Organ Company and is considered the largest theatre organ still in use in the United States.

Due to the Depression and a shortage of money for such elaborate projects, the Wiltern is the only Art Deco theatre that was ever built from Lansburgh's designs. The carefully planned decorative color scheme is retained in the theatre section. This is most unusual and makes the Wiltern one of the few remaining theatres that can make this claim. The structure vividly illustrates the characteristics generally associated with Art Deco styling. The central portion of the building consists of several set-backs and recessed windows separated by slender vertical bands, and the flat roof is capped by zig zag parapets and an off-set tower. The verticality of the structure is carried out so well that architectural historians David Gebhard and Robert Winter have commented that the "narrowness of the vertical recessed band windows and the spandrels so remove any reference to scale, that from a distance you would think that you were looking at a large skyscraper." The facade is further ornamented by zig zag motifs, geometrical leaf patterns, and a bright blue-green terra cotta veneer. The highly ornamental interior of the theatre carries out the Art Deco motif in its use of sunbursts, floral patterns, geometric designs, and elaborate fixtures.

Unlike many structures built during this period, the Pellissier Building has not been appreciably altered since its completion, giving testimony to the quality of its design

and construction. Large neon signs have been placed on the top of the tower for the Franklin Life Company but the signs do not alter the original construction. The theatre, originally known as the Warner Brother's Western Theatre, has had only the name changed on the neon signs. The marquee has been altered slightly; a narrow strip of ornamental wrought iron was removed, probably to meet earthquake standards. A band of iron backing located beneath the neon marquee is constructed of steel with lead-coated copper and carries out the geometric Art Deco vertical design. Presently the Pellissier Building is under complete restoration.

Inapplicability of the Criteria of Adverse Effect. A station entrance is planned directly across the street on the northeast corner of Wilshire and Western Boulevards, approximately 130 feet from the Pellissier Building. The Thrifty building, which now occupies this location, would be replaced with an entrance that would be designed in character with the surrounding structures so as not to alter the setting of the Pellissier Building. The design of the station would be compatible with the existing urban setting. The Locally Preferred Alternative would not cause the destruction of or any alteration to this building, nor would it introduce visual, audible, or atmospheric elements that are out of character with the buildings. The Locally Preferred Alternative would not lead to neglect of the Pellissier Building but would enhance use of this complex. The Locally Preferred Alternative would not require transfer or sale of this property.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, the SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Pellissier Building (Figure 4-3.1).

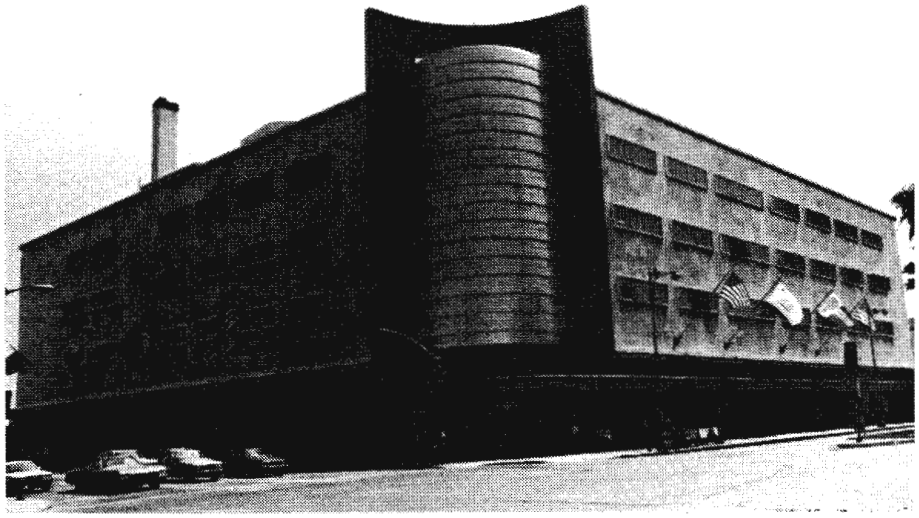
Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Pellissier Building.

May Company Building (6067 Wilshire Boulevard).

Description and Significance of Affected Property. The May Company Building is a five-story steel frame structure with reinforced concrete floors and walls. The exterior walls on Fairfax Avenue and Wilshire Boulevard are faced with South California black granite at street level and the second through the fifth stories with Texas shell limestone. At street level, metal-framed glass cubes protrude at intervals for display purposes. There are plantings fronting the granite between the cubes. Between the ground floor and the second floor is curved copper sheathing topped by a curved projecting overhang faced with black granite. Above the overhang on each main street side are four flagpoles mounted at a 45 degree angle.

The most distinctive exterior feature is the rounded corner at Fairfax and Wilshire. The upper four floors are decorated by a huge, semicircular convex tower covered by gold leaf glass tiles in a stepped pattern. This ornament, known as the "perfume bottle," is flanked by two concave projecting wings faced in black granite, each with the company insignia in vertical bas-relief. Beneath the tower are large, recessed, brass-framed, double-entry doors. There are smaller entrances at each corner of the facade.

The side portion of the building which does not front a main street is faced with limestone panels. It also has horizontal bands of multi-paned windows in protruding, bezel-like frames above the ground floor. Each upper floor has a steel ship railing balcony with access doors on the east side of the structure. The rear portion of the building is unfaced concrete above the ground floor and it too has bands on the windows.



The rear entrance is the major means of access to the building and fronts on a large parking lot. Its brass-framed, recessed doors are protected by a rectangular, beveled edged overhang. To the east of the entry are large, brass-framed panel windows. To the west, brass-framed glass cubes are separated by black granite facing.

The May Company Building is landscaped with shrub hedges, low trees, and pepper trees. Portable wooden benches with concrete legs are located at the rear of the building. Street lighting on Wilshire Boulevard consists of metal posts (painted green) with double luminaires. Ornate bases have leaf and egg designs. Lighting on Fairfax Avenue consists of simulated granite posts with a single luminaire. These fixtures are "Marbelite," produced by Pacific Union Metal Company.

The May Company Building is an excellent example of Streamline Moderne architecture, one of the last large remaining Moderne department stores still in operation in Los Angeles. At the time May Company was built, it stood out as an "imposing monument" in a district relatively undeveloped. Its gold "perfume bottle" corner decoration was an attraction to motorists in the distance. The structural integrity of the building has changed little since opening on September 8, 1939. The interior of May Company also follows a Streamline Moderne motif with rounded ceiling decoration and light fixtures. The May Company Building has been determined eligible for the National Register.

Inapplicability of the Criteria of Adverse Effect. The Wilshire/Fairfax Station location would have one entrance in the parking lot directly behind the May Company Building and another in the block east of this structure. This would require the removal of a three-story parking structure and the May Company Budget Center in

the next block, but neither of these are connected to the historic structure known as the May Company Building nor do they contribute to its significance. The Building may view the subway entrances but the view would not be out of character with the present surroundings or street setting. The design of the station would be compatible with the existing urban setting. The Wilshire/Fairfax Station would not cause the destruction of or any alteration to the May Company Building, nor would it introduce visual, audible, or atmospheric elements that are out of character with the Building. The Wilshire/Fairfax Station would not lead to the neglect of the May Company Building, but, rather, would increase its economic viability. The Wilshire/Fairfax Station would not require transfer or sale of the historic property.

Views of the State Historic Preservation Officer. In a letter received at SCRTD on September 22, 1983, the SHPO has stated that, in his opinion, the Wilshire/Fairfax Station location would have No Adverse Effect on the May Company Building (Figure 4-3.3).

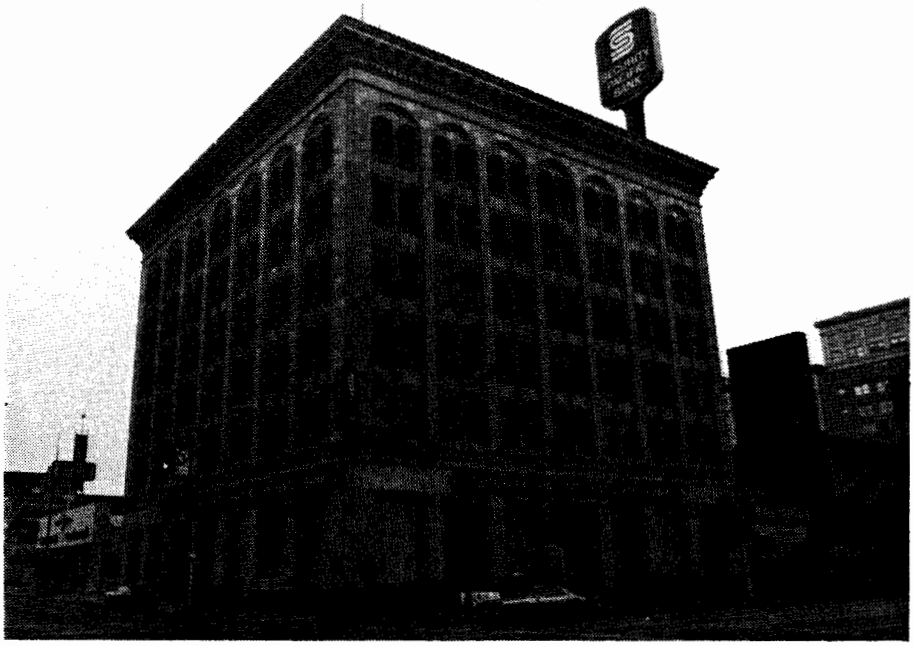
Determination. UMTA in consultation with the SHPO has determined that there would be No Adverse Effect on the May Company Building.

Security Pacific Bank Building/Hollywood Security Building (6381-6385 Hollywood Boulevard).

Description and Significance of Affected Property. The Security Pacific Building, an example of the Italian Renaissance Revival/Beaux Arts architectural style, is a six-story structure of reinforced concrete, terra cotta ornaments, and a granite base. The facade on both Cahuenga and Hollywood Boulevards is identical except for the lintel above the Cahuenga Boulevard entrance. The Hollywood Boulevard entrance cornice has been removed to accommodate a sign. The bottom floor (two stories high) is a thin pink granite-over-sandstone with black granite around the bottom four feet. There are recessed panel windows at this level. Between the ground and upper floors there is a double terra cotta band. The next five floors have Moorish columns. The top windows are arched, and this arch is repeated in the stonework above that. The roof is flat and non-parapeted with a heavily decorated bracketed cornice and entablature. Small gargoyle heads run the length of both sides just below the roof line. The brackets are scrolled with fanned trim separated by rosettes. The door on the Cahuenga side has a massive scroll bracketed shelf. Both entries have bas relief urns on the facade in a repeating pattern. The doors are recessed, double glass and framed in brass. Above and around them is massive iron with filigreed trim. The building has a basement. Landscaping includes gumdrop-shaped trees on Hollywood Boulevard. The terrazzo "Walk of Fame" light fixtures on Hollywood Boulevard are white bars with red stars.

The building was the first downtown Los Angeles bank to open offices in Hollywood. In 1921, Security Pacific bought the local Hollywood National Bank founded in 1905 by prominent early citizens C. G. Greenwood and E. O. Palmer. Security Pacific Bank brought needed capital to the growing Hollywood commercial area. This bank was one of the earliest publishers of local historical pamphlets. Donald and John Parkinson, who designed the bank building, also designed Bullocks Wilshire, Santa Monica City Hall, and the Pacific Coast Stock Exchange. This is clearly one of the outstanding Beaux Arts structures in Hollywood. This structure holds the distinction of being the first "high rise" on what would later be referred to as "Skyscraper Mile."

The Security Pacific Bank Building is presently under complete restoration and will be leased as office space in the future.



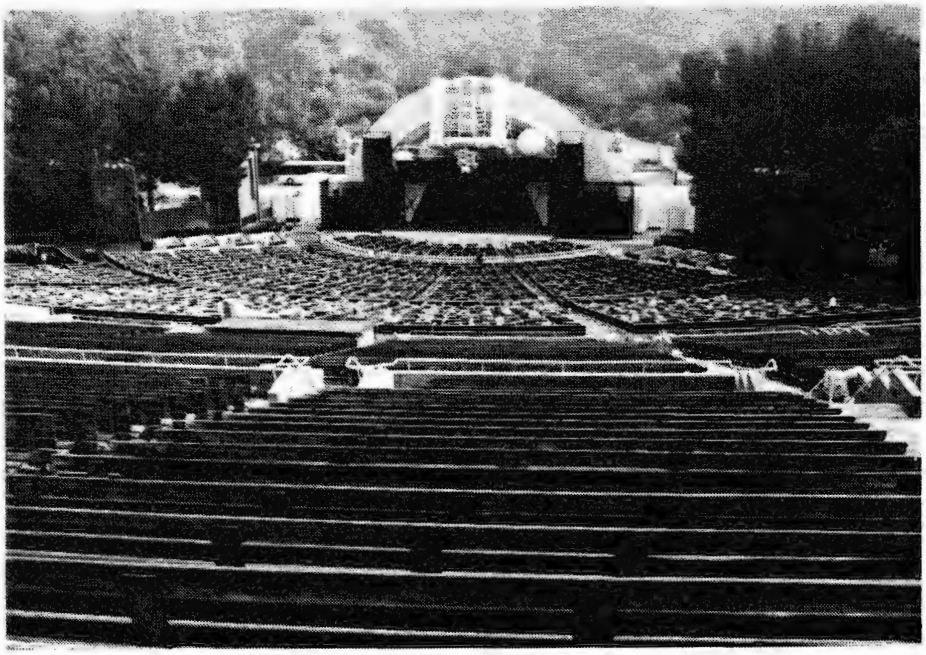
Inapplicability of the Criteria of Adverse Effect. The Locally Preferred Alternative would not cause the destruction of or any alteration to the Security Pacific Bank Building, nor would it cause it to be isolated from its surroundings. Two station entrances would be located across the street from this building; the nearest would be approximately 80 feet away. The design of the entrances would not be out of character with the present surroundings. The design of the station would be compatible with the existing urban setting. The Locally Preferred Alternative would not introduce visual, audible, or atmospheric elements that are out of character with the building. The Locally Preferred Alternative would not lead to the neglect of the building; it would, instead, increase its economic viability. No transfer or sale of the Security Pacific Bank Building would be required.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, the SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Security Pacific Bank Building (Figure 4-3.1).

Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Security Pacific Bank Building.

Hollywood Bowl (2301 North Highland Avenue).

Description and Significance of Affected Property. Hollywood Bowl is located on large undeveloped acreage in Cahuenga Pass and consists of a concrete acoustical shell, seating approximately 20,000, and several supportive structures including offices, concessions, and restroom facilities. The classical horn-shaped shell design is composed of welded steel, concrete, fiberboard, and wood with various structural modifications. The Hollywood Bowl with its horn-shaped shell design has become a landmark and a gathering place in Southern California. The gate to Hollywood Bowl on Highland Avenue is decorated by three Federal Arts Project statues representing music, drama, and dance. The statues were sculpted by George Stanley around 1935. The area around the Hollywood Bowl contains over 2,000 trees, hundreds of shrubs, picnic spots, and fountains.



Hollywood Bowl had its beginnings with a search for a natural outdoor amphitheatre in which concerts and plays could be staged "under the stars." H. Ellis Reed discovered the potential spot in Cahuenga Pass in the early 1920s. The area, originally known as Daisy Dell, became Hollywood Bowl. Easter sunrise services were first held on the site in 1922 and, when the Hollywood Bowl Association was established, funds were raised for the construction of improved facilities. In 1924, it was decided to improve the carrying power of the sound by building a shell, and Lloyd Wright was chosen as the designer. The wood shell was successful both visually and acoustically. In 1928, Wright constructed a shell elliptical in shape. In 1931, the Allied Architects replaced the wood shell with a concrete one. Because of difficulty in the acoustics, this shell has been continually remodeled. The Hollywood Bowl is currently owned and operated by the County of Los Angeles as a cultural activity area.

Inapplicability of the Criteria of Adverse Effect. An entrance would be constructed on Bowl property approximately 280 feet from the Bowl's shell. Two vent shafts 20 feet in diameter and standing 10-12 feet above the ground would be placed at either end of the station, one approximately 110 feet behind the shell structure and another approximately 625 feet away. The entrance would be sited to enhance the flow of patrons and would be compatible with the setting and character of the Hollywood Bowl. The Locally Preferred Alternative would not cause the destruction of or any alteration to the Bowl structure itself. A station or a vent and traction power substation at this location would not introduce visual, audible, or atmospheric elements that are out of character with the facility. The Locally Preferred Alternative would not require transfer or sale of any part of the Hollywood Bowl. It would not cause the facility to be isolated from its surroundings nor would it lead to neglect. Rather, the Locally Preferred Alternative would make the Hollywood Bowl more easily accessible.

For discussion of impacts to the Hollywood Bowl Recreation Area, refer to section 5.2.2 of this chapter.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, the SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Hollywood Bowl (Figure 4-3.1).

Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Hollywood Bowl.

Toluca Southern Pacific Depot/Backstage Car and Truck Rental Lot (5401 Lankershim Boulevard/11275 Chandler Boulevard).

Description and Significance of Affected Property. The structure located at 11275 Chandler Boulevard consists of a one-story wood frame building. It is a rectangular building and is designed in a utilitarian manner with applied decoration. Major architectural features include a pitched roof and a loading dock with open-shed construction. Architectural details include sawn bargeboards and brackets, and a flat window and door openings. The structure has minor alterations including a new loading dock, fencing, and signage. These alterations do not affect the architectural integrity of the structure, which has retained the majority of its original detailing. In addition, the site plan of the building remains virtually unaltered.

A portion of the supply company property is now used as a truck and car rental lot. The lot faces Lankershim Boulevard. New manufacturing warehouses and offices are being built along Chandler Boulevard.

The Toluca Southern Pacific Depot is significant for its association with the growth and settlement of North Hollywood, and for its relatively unaltered condition. Southern Pacific built the first rail line through Toluca (North Hollywood) in 1896, and the station appears to have been built at this time. A photograph of 1927

indicates that the station was known as the "Southern Pacific - Pacific Electric" station. In December of 1911 the Pacific Electric Company opened its line through North Hollywood, and the station was incorporated into dual service between the Southern Pacific and Pacific Electric. The Southern Pacific station is one of the few remaining wood frame, nineteenth century railroad stations in Southern California.

Inapplicability of the Criteria of Adverse Effect. Two station entrances and a parking facility would be located across Lankershim and 270 and 330 feet, respectively, away from the Toluca Southern Pacific Depot. The entrances would not result in the destruction of or alteration to the building. The Locally Preferred Alternative would not isolate the Toluca Southern Pacific Depot or alter its surrounding environment. The design of the station would be compatible with the existing urban setting. The Locally Preferred Alternative would not introduce visual, audible, or atmospheric elements that are out of character with the property. The Locally Preferred Alternative would not lead to neglect of the building, resulting in its destruction or deterioration. Implementation of the Locally Preferred Alternative would not require sale or transfer of the property.

Views of the State Historic Preservation Officer. In a letter dated April 5, 1983, the SHPO stated that, in his opinion, the Locally Preferred Alternative would have No Adverse Effect on the Toluca Southern Pacific Depot (Figure 4-3.1).

Determination. UMTA, in consultation with the SHPO, has determined that there would be No Adverse Effect on the Toluca Southern Pacific Depot.

Inapplicability of the Criteria of Adverse Effect. Discussion of the inapplicability of the Criteria of Adverse Effect for these properties is included in the discussion for the Locally Preferred Alternative in section 2.5.2 of this chapter.

2.5.3 AERIAL OPTION

Application of Criteria of Adverse Effect. The Criteria of Adverse Effect were applied, in consultation with the SHPO, to properties along the alignment of the Aerial Option which are listed or eligible for listing in the National Register. It was determined that the Aerial Option would have No Adverse Effect on nine such properties. Indicated on Figure 4-2, they include: Myrick and Markham Hotels, Subway Terminal Building, Hotel Clark, Wilshire Christian Church, Pellissier Building, May Company Building (6067 Wilshire Boulevard), Security Pacific Bank Building (6381-6385 Hollywood Boulevard), Hollywood Bowl, and Toluca Southern Pacific Depot.

Inapplicability of the Criteria of Adverse Effect. Because the Aerial Option route is beneath the surface at all of these locations except the Toluca Southern Pacific Depot, the discussion of the inapplicability of the Criteria of Adverse Effect for these properties is identical to the discussion for the Locally Preferred Alternative (see section 2.5.2 of this chapter). It is further determined that the Aerial Option North Hollywood Station would not be out of character with the Toluca Southern Pacific Depot and would, therefore, have No Adverse Effect on this property.

2.5.4 MINIMUM OPERABLE SEGMENT

Application of Criteria of Adverse Effect. Because the Minimum Operable Segment is essentially a shortened version of the Locally Preferred Alternative, the effects

are virtually the same for the stretch from Union Station to the Fairfax/Beverly Station. Application of the Criteria of Adverse Effect indicated that the Minimum Operable Segment would have No Adverse Effect on the following six properties which are listed in or eligible for listing in the National Register: Myrick and Markham Hotels, Subway Terminal Building, Hotel Clark, Wilshire Christian Church, Pellissier Building and May Company Building (6067 Wilshire Boulevard).

2.6 DETERMINATION OF ADVERSE EFFECT

The Criteria of Adverse Effect were applied in consultation with the SHPO to the remaining properties, included or eligible for inclusion in the National Register, that could be affected by the Metro Rail Project.

2.6.1 NO PROJECT ALTERNATIVE

It has been determined that, under this alternative, no properties would be adversely affected.

2.6.2 LOCALLY PREFERRED ALTERNATIVE

It has been determined that the following properties included or eligible for inclusion in the National Register would be adversely affected Union Station, Title Guarantee Building, Pershing Square Building, and Hancock Park/La Brea Tar Pits. Union Station is on the National Register. The other three properties are eligible.

Union Station (800 North Alameda Street).

Description and Significance of Affected Property. The Los Angeles Union Passenger Terminal (Union Station) is an historic district. It consists of the main terminal building; the Mail, Baggage, and Express Building east of the main terminal; rail tracks east of the express building; interconnecting tunnels and passageways; and canopies, loading docks, and other ancillary rail facilities.

The main terminal building is a large, 850-foot long, one- and two-story building built of reinforced concrete. Primary emphasis is placed on the entrance facade, a gigantic arch matched by the windows to the north. Immediately to the south is a 125-foot observation tower and clock. The building is characterized by its simplicity of strength and form. The building's features are largely overscaled; the entrance imparts the illusion of great wall thickness. The roofs are all red clay tile. The interior features two patios, beautifully landscaped to the south and the north of the main waiting room. The entrance and waiting rooms have high-beamed ceilings, marble floors and black walnut woodwork. Waiting room windows have iron grilles. Landscape features include garden courtyards and a ring of bay fig trees surrounding the parking lot area. Today, Union Station is landscaped with palms, eucalyptus trees, shrub hedges, and various other plants. The 1930s style furniture, constructed of concrete, still stands on the train station grounds.

The Mail, Baggage, and Express Building, approximately 1,000 feet long, is a two-story building with a third story at both ends. The building is largely unused and in disrepair.

Union Station was opened in 1939, costing $11 million and involving five architects. It typified the Los Angeles of that period, its gorgeously landscaped patios with lemon, orange, and pepper trees, and its quiet but lavish Spanish style. During the war years it was a busy, vital hub in the civilian and military transportation and cargo interchange, accommodating three of the nation's most important railways: Southern Pacific, Santa Fe, and Union Pacific. Union Station has been designated Cultural History Landmark Number 101 by the Los Angeles Cultural Heritage Board and has been placed on the National Register of Historic Places.

Today, the station is handling only a fraction of the volume of passengers and cargo it did previously, but still is in excellent condition and is functioning as Los Angeles' main terminal for trains.

Application of the Criteria of Adverse Effect. The Criteria of Adverse Effect were applied in consultation with the SHPO and it was determined that Union Station would be adversely affected according to the first criterion: destruction and alteration of part of the property.

The station would involve the staged removal and replacement of Union Station rail track during cut and cover construction, the removal of the north end of the Mail, Baggage, and Express Building (currently being used as the Superintendent's offices), and the removal and reconstruction of part of a ramp and a section of an architecturally integrated wall at the north end of the property. The west entrance to the station would require the removal of an additional section of the Mail, Baggage, and Express Building (at which point it is a baggage handling shed) to make room for a walkway. A canopied loading dock east of the track area would be removed to make room for a surface parking lot. The plan proposes a small bus facility next to a surface parking lot located east of the track area (Figure 4-4).

Views of the State Historic Preservation Officer. In his letter of April 5, 1983, the SHPO concluded that the project would have an Adverse Effect on this property (Figure 4-3.1). A Memorandum of Agreement relating to use of the property has been signed (Figure 4-5).

Views of Others. Formal comments concerning potential impacts to this property were received during circulation of the Draft EIS/EIR. Those comments are addressed in the Cultural Resources section of Chapter 6.

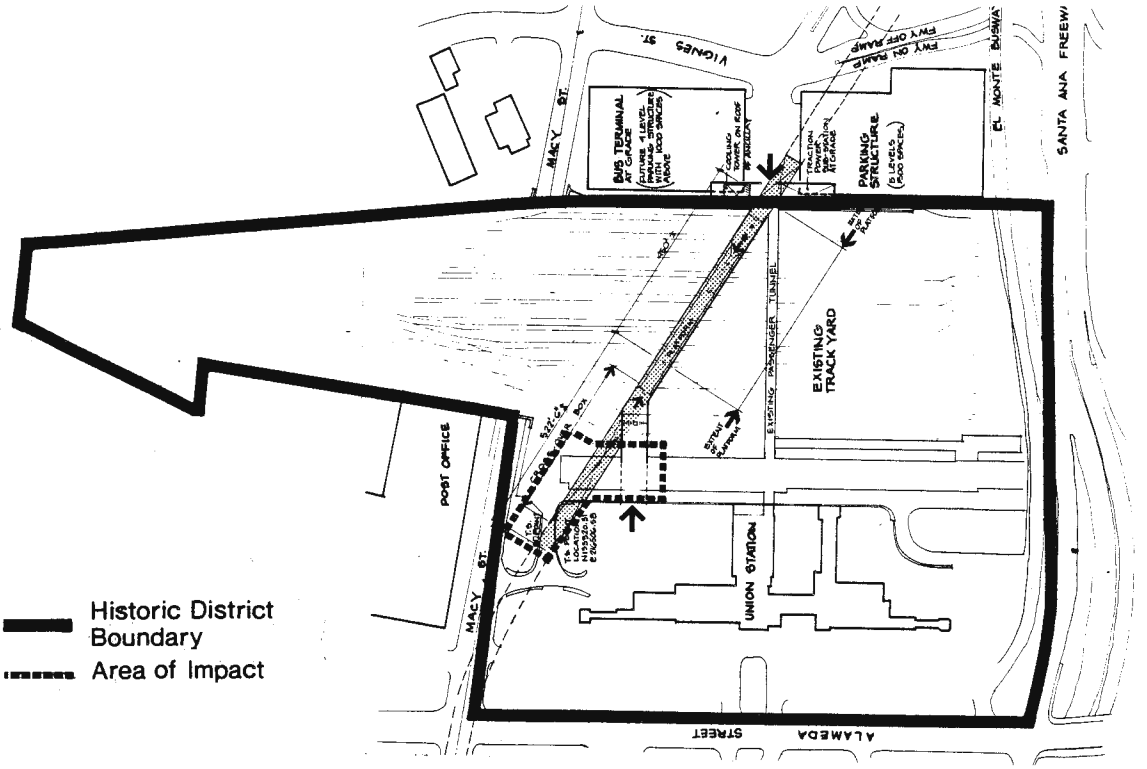


Figure 4-4 Los Angeles Union Passenger Terminal District Union Station

Alternatives That Would Avoid Adverse Effect. Alternatives that would avoid adverse effects to Union Station would be to eliminate the station or to move it to another location.

If the station were eliminated, service to this major transit interface area would be denied. This would be contrary to plans and current projects to make Union Station a major transportation center, linking the El Monte Busway extension, Amtrak operations, CBD circulator buses, and the Metro Rail Project. If the alignment were moved north to avoid Union Station, the Post Office Terminal Annex, another historic property, would be impacted. If the alignment were moved south, the architecturally significant main terminal building would be impacted by the cut and cover construction. This would involve removing and later reconstructing a portion of the terminal structure itself. A more southerly alignment would run directly under the El Pueblo de Los Angeles Historic District and possibly impact these structures. Track geometry considerations preclude relocating the station or track. The availability of the rail yard behind Union Station makes this the logical start of

MEMORANDUM OF AGREEMENT

WHEREAS, the Urban Mass Transportation Administration (UMTA), U.S. Department of Transportation, has determined that the Los Angeles Rail Rapid Transit Project (Project) will have an effect upon properties included in or eligible for inclusion in the National Register of Historic Places and has requested the comments of the Advisory Council on Historic Preservation (Council) pursuant to Section 106 of the National Historic Preservation Act (16 U.S.C. 470) and its implementing regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800),

NOW, THEREFORE, UMTA, the California Historic Preservation Officer (SHPO), and the Council agree that the undertaking shall be implemented in accordance with the attached proposal in order to take into account the effect of the undertaking on historic properties.

Execution of this Memorandum of Agreement evidences that UMTA has afforded the Council a reasonable opportunity to comment on the Project and its effects on historic properties and that UMTA has taken into account the effects of its undertaking on historic properties.

(signature pending)

Executive Director (date)
Advisory Council on Historic Preservation

(signature pending)

Chairman (date)
Advisory Council on Historic Preservation

PROPOSAL

Los Angeles Rail Rapid Transit Project

UMTA will ensure that the following measures are carried out by the Southern California Rapid Transit District (SCRTD):

I. UNION STATION, TITLE GUARANTEE BUILDING, AND PERSHING SQUARE BUILDING

A. Union Station

Project facilities at Union Station will be built as described in the project Final Environmental Impact Statement and the following conditions:

1. The north retaining wall and north vehicular ramp will be reconstructed to match existing conditions to the maximum extent possible. This will include replication or reuse of existing balusters, parapets, balustrade, wall surface treatment, electroliers, and planters on the new wall and ramp. If SCRTD and the California SHPO agree that any original ornamental feature cannot be reused as part of this reconstruction, that feature will be stored safely for reuse elsewhere at Union Station.

2. The portion of the Mail, Baggage, and Express Building to be modified for the project will be rebuilt to be compatible with the rest of the building.

3. The Metro Rail Building will be designed in accordance with IV.A., below.

4. Final plans and specifications for subway project facilities at Union Station including those items in I.A.1 and 2, above, will be developed in consultation with the California SHPO, who will be afforded 30 days to review and comment on these documents. If there are any objections to the final designs, there will be further consultation between the SCRTD and the California SHPO for agreement. If no agreement is reached, the Council will be afforded 10 days to offer a recommendation regarding this disagreement. SCRTD will take this recommendation into account in reaching a final decision regarding the design. In addition, SCRTD will send to the Los Angeles Cultural Heritage Board (Cultural Heritage Board) copies of pertinent correspondence, final plans and specifications, and other documents to keep them apprised of these consultations.

Figure 4-5 Memorandum of Agreement among ACHP, SHPO, UMTA, and SCRTD

5. All Union Station buildings or building elements to be substantially altered or demolished will be recorded prior to demolition or alteration so that there will be a permanent record of their present appearance. Historic American Engineering Record/Historic American Buildings Survey (HAER/HABS) (National Park Service, Department of the Interior, Western Regional Office, 450 Golden Gate Avenue, Box 36063, San Francisco, California 94102) will first be contacted to determine what documentation is required. All documentation must be accepted by HAER/HABS prior to the demolition or alteration.

B. Pershing Square Building and Title Guarantee Building

The lobbies of the main office towers will remain intact, without modification for subway station entrances. Storefronts will be modified to accommodate the new subway. Modifications will be in accordance with the "Secretary of the Interior's Standards for Rehabilitation" and the guidelines for new construction contained therein (Attachment 1). Modifications for station entrances will be designed in consultation with the California SHPO and subject to the review established in I.A.4., above.

II. AREAS OF ARCHEOLOGICAL SENSITIVITY AT UNION STATION AND CAMPO DE CAHUENGA

A. Identification Study

As early as possible in the project design, further work will be undertaken to determine whether intact archeological deposits exist and the significance of these deposits. This identification work will incorporate existing information and field information derived from remote sensing with ground truthing, subsurface testing, or a combination of such techniques. This Identification Study (Study) will be carried out by a professional archeologist meeting the qualifications set forth in the proposed guidelines, 36 CFR Part 66, Appendix C (Attachment 2) and who is knowledgeable of and experienced in urban historical archeology, especially of Southern California.

B. Treatment Plan

Should the Study identify deposits deemed to meet the National Criteria (36 CFR Sec. 60.6) (Attachment 3) in consultation with the California SHPO, a plan for their treatment will be developed based on the findings of the Study and implemented. If there is disagreement regarding whether identified deposits meet the National Register Criteria, a determination of eligibility will be requested in accordance with 36 CFR Part 63. Should such treatment involve data recovery, the treatment plan will take into account the principles and recommendations set forth in Parts I and III of the Council's "Treatment of Archeological Properties: A Handbook" (Attachment 4) and will be in accordance with the proposed guidelines, 36 CFR Part 66 (Attachment 2). Other such treatment may include in-situ preservation of archeological deposits and/or development of plans for their interpretation to the public. All work will be carried out by appropriate professionals with qualifications in II.A., above. The treatment plan will be reviewed in accordance with I.A.4., above. The plan cannot be implemented until completion of this review process.

III. AREAS WITH SIGNIFICANT RANCHO LA BREA PALEONTOLOGICAL/ARCHEOLOGICAL DEPOSITS

As soon as possible after the Wilshire/Fairfax station location and adjoining tunnel segment profile are fixed, a phased program of identification and recovery of significant Rancho La Brea paleontological/archeological data will be undertaken and paid for by SCRTD. This program will consist of the following:

A. Identification Study

An Identification Study (Study) will be undertaken to determine whether Rancho La Brea paleontological/archeological deposits exist at the locations stated above and, if so, what is the nature of the deposits and data contained. The Study will consider existing information (including, but not limited to, documentary data and data from prior, nearby field investigations) and field information from the project area derived from remote sensing combined with ground truthing, subsurface testing, or a combination of such techniques. The scope of the Study, its geographical area of study, and the identification methods to be used will be finalized after recommendations are provided by the Peer Review Board (Board) (see below). The California SHPO and the Board will evaluate the results of the Study and will determine whether it is necessary to develop and implement a Data Recovery Program (see below).

B. Data Recovery Program

A paleontological/archeological Data Recovery Program (Program) based on the findings of the Study will be developed and implemented. The Program will take into account the proposed guidelines, 36 CFR Part 66, and the Council's "Treatment of Archeological Properties: A Handbook." The Program will be

Figure 4-5 continued

designed to strike a reasonable balance, in the public interest, among the needs to address significant research questions in paleontology and archeology, the significance of the deposits and data to science and to the public, and the need to minimize costs and to complete the construction of the project in a timely manner. The California SHPO, the Council, UMTA, and the Board will be afforded a concurrent 30-day period to review the draft Program. If there are any objections to the draft Program, there will be a further 45-day consultation period to resolve the objections, during which time any of the signatories to this Agreement may solicit information from those interested. If no agreement is reached during this 45-day consultation period, the Board will be afforded 10 days to offer a recommendation regarding this disagreement. UMTA and SCRTD will take the Board's recommendation and the views of the California SHPO and the Council into account in making a final decision regarding the disagreement. The Program and all modifications, amendments, or addendums to it will not be implemented prior to completion of the above review process.

C. Peer Review Board

A Peer Review Board (Board) will be created that consists of two professional paleontologists (of which one is a specialist in vertebrae paleontology), a professional civil engineer, a professional geotechnical engineer, and a professional archeologist. All members will meet the appropriate qualifications in III.D., below. The Board will provide oversight guidance for the development, review, and proper implementation of the Study and Program. The Board will review and comment on all draft and final proposals, reports, and other documents, including but not limited to the Study, Program and modifications, amendments, and addendums of them. The Board will be kept apprised of the progress and preliminary findings of the project, and based on these progress and findings will make recommendations and suggestions for changes and will provide general input and guidance.

D. Minimum Professional Qualifications

Professionals serving on the Board and responsible for the development, implementation, and reporting of the Study and Program will have minimally the following qualifications: Paleontologists will have a Ph.D. in paleontology or other appropriate discipline and a demonstrated body of knowledge and experience relevant to the Rancho La Brea deposits. Engineers will have demonstrated extensive experience in the design and construction of large civil works projects. The archeologist will have a Ph.D. in his field of expertise and demonstrated research interests and experience pertinent to the contribution of the Rancho La Brea deposits to his given discipline. Individuals responsible for the development, implementation, and reporting of the Study and Program will have, in addition to the above qualifications, demonstrated experience and knowledge in conducting and supervising a data recovery program of comparable size and complexity as this Program.

IV. DESIGN COMPATIBILITY BETWEEN NEW CONSTRUCTION AND HISTORIC PROPERTIES

A. For substantial new construction associated with the project (e.g., joint development projects and multi-level parking structures at stations, etc.) located near historic properties, design guidelines will be developed and implemented to minimize adverse effects of new construction that may be incompatible with or which may alter the setting and environment of such properties. These guidelines will set forth recommendations regarding height (including height limits), massing, relationship between the building and property lines and other development, building setbacks, fenestration patterns, external colors, textures, and materials of the new construction to ensure compatibility with historic properties. These guidelines will be developed in consultation with the California SHPO and subject to the review set forth in I.A.4., above. Plans for these projects will be reviewed in accordance with I.A.4., above, to ensure conformance with these guidelines.

B. Less substantial new construction (e.g., substations, vents, and cooling towers and surface parking lots, etc.) will be designed as compatibly as feasible with nearby historic properties.

C. If aerial construction in North Hollywood is to occur, prior to beginning project design, means will be developed to avoid, minimize, or mitigate effects on historic properties eligible for or included in the National Register. These means will be developed in consultation with the California SHPO and subject to the review set forth in I.A.4., above.

V. INDIRECT EFFECTS OF DEVELOPMENTAL PRESSURES ON HISTORIC PROPERTIES

Historic and cultural properties that could be affected by the indirect effects of increased developmental pressures due to or contributed by the subway project will be identified and considered in the planning process for the Specific Station Plans.

Figure 4-5 continued

A. Areas where such indirect effects are expected to occur will be examined and evaluated for historic and cultural properties in consultation with the Cultural Heritage Board, the California SHPO, and interested local groups.

B. For those historic and cultural properties deemed of significance in V.A. that are expected to be affected by such indirect effects, mechanisms for their preservation will be proposed and incorporated in the Specific Station Plans. SCRTD will encourage the implementation of these proposed mechanisms.

Suggestions of mechanisms for the preservation of historic and cultural properties may include transfer of development rights, down-zoning, grants or low-interest loans for rehabilitation, establishment of a revolving loan fund for rehabilitation, conditioning or bargain sale or joint development with the preservation/rehabilitation of an historic or cultural property, property tax abatement or discount, advocacy of the tax incentives of Section 212 of the Economic Recovery Tax Act, and donation/acceptance of a facade easement.

VI. EFFECTS OF NOISE AND VIBRATION ON HISTORIC AND CULTURAL PROPERTIES

To the extent feasible, the subway and related facilities will be designed so as to not adversely affect historic and cultural properties due to increased noise and vibration.

VII. Failure to carry out the terms of this Agreement requires that UMTA again request the Council's comments in accordance with 36 CFR Part 800. If UMTA cannot carry out the terms of the Agreement, it shall not take or sanction any action or make any irreversible commitment that would result in an adverse effect with respect to National Register or eligible properties covered by the Agreement or would foreclose the Council's consideration of modifications or alternatives to the Project that could avoid or mitigate the adverse effect until the commenting process has been completed.

VIII. If any of the signatories to this Agreement determine that the terms of the Agreement cannot be met or believe a change is necessary, that signatory shall immediately request the consulting parties to consider an amendment or addendum to the Agreement. Such an amendment or addendum shall be executed in the same manner as the original Agreement.

IX. Within 90 days after carrying out the terms of the Agreement, UMTA shall provide a written report to all signatories to the Agreement on the actions taken to fulfill the terms of the Agreement.

(signature pending)

California State Historic Preservation Officer (date)

(signature pending)

Urban Mass Transportation Administration (date)

I concur:

(signature pending)

Southern California Rapid Transit District (date)

Figure 4·5 continued

the system. Acquiring land elsewhere for rail storage and maintenance activity would most certainly involve great displacement and considerably more environmental impact.

Alternatives That Would Mitigate Adverse Effect. Some adverse effects to Union Station could be mitigated by deleting the west station entrance. If this were done, all passengers would be received at the east entrance. Walking distances for most of the daily 2,400 passengers expected to walk to the station would be increased by approximately 900 feet. This would cause a major inconvenience to pedestrians and, therefore, is not recommended.

The architecturally integrated wall and the north ramp would be reconstructed after the cut and cover construction is completed. The Superintendent's office in the Mail, Baggage, and Express Building would be reconstructed. The west entrance to the station would be covered by an archway compatible with the other archways at Union Station.

As a matter of design, new construction would be compatible in terms of scale, massing, color, and materials and would be responsive to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Original ornamental materials would be reused whenever possible. Recording and architectural salvage would be undertaken according to the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) prior to demolition or alteration. The Memorandum of Agreement between the ACHP, UMTA, the SHPO, and SCRTD includes specific mitigation measures to be implemented.

Determination. The Locally Preferred Alternative would cause the staged removal and replacement of Union Station rail track; removal of the north end of the Mail, Baggage, and Express Building; the removal and later reconstruction of a ramp and an architecturally integrated wall on the north side of the station; the partial removal of the baggage handling shed of the Mail, Baggage, and Express Building; and the removal of a canopied loading dock east of the track area.

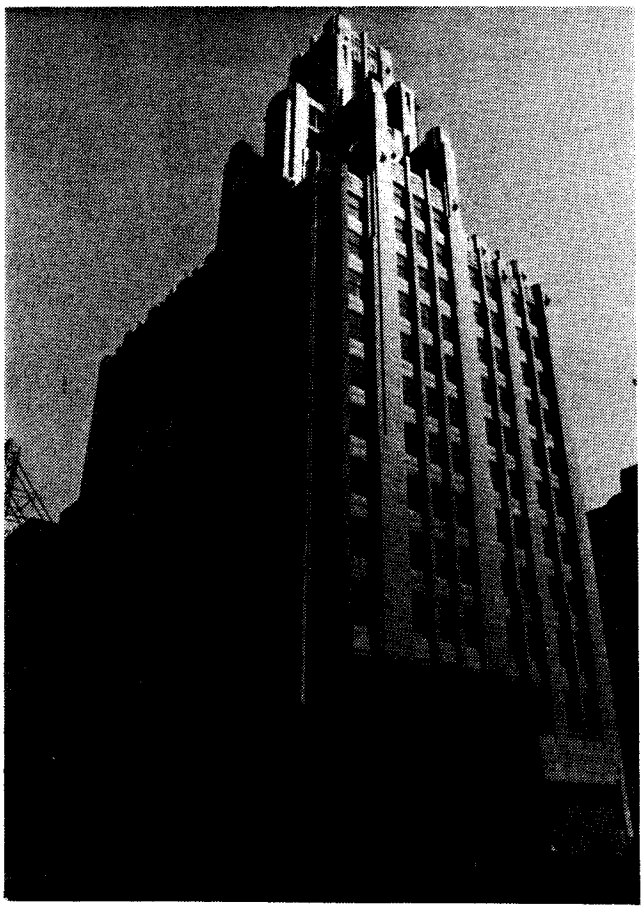
These actions would have an Adverse Effect on Union Station. Measures that would mitigate the adverse impacts have been analyzed and the project as proposed includes a provision to record existing conditions prior to construction and to design the Metro Rail station to be compatible with the historic Union Station structure.

Title Guarantee Building (401 West Fifth Street).

Description and Significance of Affected Property. The Title Guarantee Building is a vertical modern skyscraper sheathed in light buff terra cotta. It is an irregular, multistory building, ranging up to 13 stories, with a basement. The structure is fireproof and built of steel frame construction with reinforced concrete and tile. Major architectural details include vertical ribs, twin sash windows, and panels of zig-zag ornaments above the eleventh floor. The stepped-back tower is flanked by flying buttresses, with modern grilles. The bottom story windows are surrounded by decorative copper metal frames. The bottom two stories also contain bas relief panels. The building shows a possible combination of the Gothic and the Moderne. With the exception of some alteration to the street-level shop frontage, the building facade is intact.

Designed by the prominent Southern California architectural firm formed by John and Donald Parkinson, the Title Guarantee Building is one of the better zig-zag structures in Los Angeles. It is part of a noteworthy group of structures relating both to the Wells Fargo Building on Fifth and to the other side of the Federal Title and Subway Terminal Building. This building is the kind of monumentally scaled structure appropriate to an important urban space like Pershing Square.

Application of Criteria of Adverse Effect. The Criteria of Adverse Effect were applied in consultation with the SHPO, and it was determined that the Title Guarantee Building would be adversely affected according to the criteria of alteration of part of the structure and introduction of visual and audible elements that are out of character with the building. The Locally Preferred Alternative would require the renovation of the ground floor to include an initial station entrance. This action would include the removal or alteration of part of the architectural fabric of the building, but would not alter the main lobby or the building's facade, which contribute to the building's significance. A new building entrance also may be required. (Figures 2-7 and 4-6.)



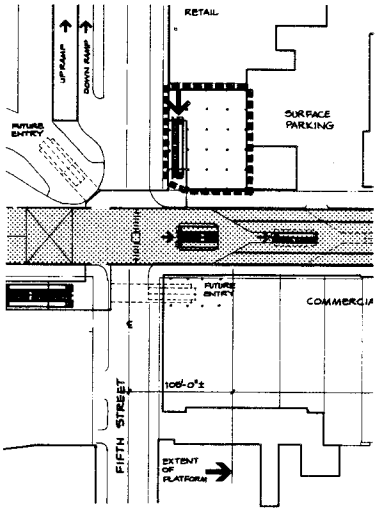


Figure 4-6
Title Guarantee Building

Views of the State Historic Preservation Officer. In his letter of April 5, 1983, the the SHPO concluded that the project would have an Adverse Effect on this property (Figure 4-3.1). A Memorandum of Agreement relating to use of the property has been signed (Figure 4-5).

Views of Others. Formal comments concerning potential impacts to this property were reviewed during circulation of the Draft EIS/EIR. Those comments are addressed in the Cultural Resources section of Chapter 6.

Alternatives That Would Avoid Adverse Effects. The adverse effects could be avoided by deleting or relocating the station or by deleting or relocating the entrance proposed for this building.

The Fifth/Hill Station location was selected to serve the following nearby activity centers: Bunker Hill, the Grand Central Market, the Biltmore Hotel, and the International Jewelry Center. Future additions to this area include the renovation of the Philharmonic Auditorium, the construction of a multi-use complex on Fifth between Hill and Olive, and the California Plaza, a major mixed use development at Fourth and Hill Streets. Because patronage projections for this station are among the heaviest of the entire alignment, it is not recommended that the Fifth/Hill Station be deleted.

The station could be moved either north or south on the alignment and still serve these centers. However, if the station were moved north, it would be too close to the Civic Center Station. If it were moved south, it would be too close to the Seventh/Flower Station. An alternative route alignment along Broadway was studied but dropped, because it was determined that a Hill Street alignment would be able to serve the west side of the CBD and the Broadway area without impacting the buildings in the historic Broadway shopping district.

The passenger volume at the Fifth/Hill Station is projected to be the highest of all the stations. Initially, at least two entrances would be required and in the future, it may be necessary to have an entrance at all four corners. One of the initial station entrances is planned at the southeast corner of Fifth and Hill Streets in a parking lot which has no historic connection. The other is planned inside the Title Guarantee Building. The remaining corners at this intersection, both scheduled for future entrances, are occupied by the historic Pershing Square Building and Pershing Square parkland. Moving the Title Guarantee Building entrance to one of these sites would neither avoid impact to an historic property or parkland nor eliminate the possibility of an entrance in this building in the future. Midblock station entrances have been considered but are unsatisfactory because they do not provide direct access for pedestrians arriving at the station along Fifth Street from the Broadway shopping district.

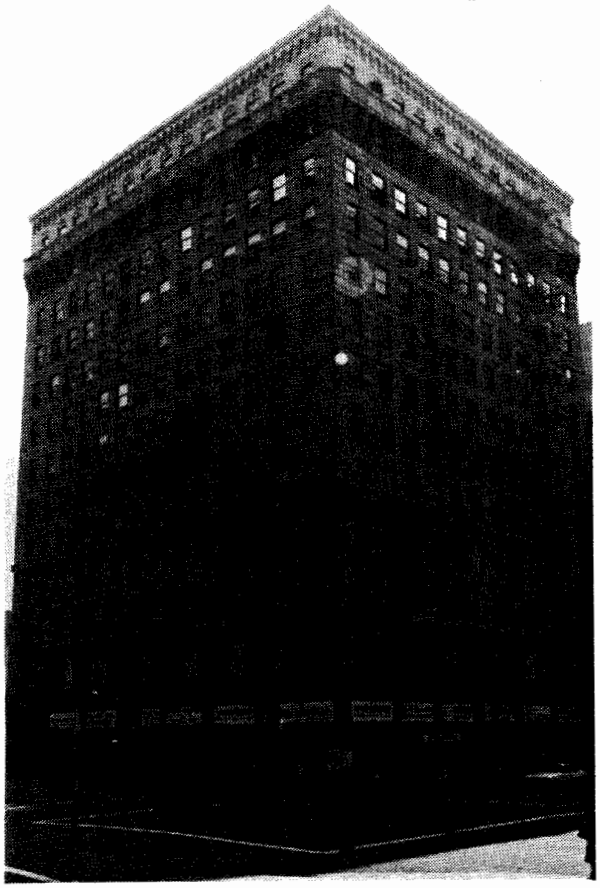
A sidewalk location for the station entrance just off the property was considered, but this location was also unsatisfactory. The sidewalks would become too narrow to accommodate the high passenger volume expected to board the system at this station and still maintain adequate pedestrian flow.

Alternatives That Would Mitigate Adverse Effect. The ground floor would be altered to include a station entrance designed to be compatible with the architectural aspects of the structure. All new construction would be compatible in terms of scale, massing, color, and materials and would be responsive to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Recording and architectural salvage would be undertaken according to the HABS/HAER. A Memorandum of Agreement between the ACHP, UMTA, the SHPO, and SCRTD includes these mitigation measures.

Determination. The Locally Preferred Alternative would require the renovation of the ground floor of the Title Guarantee Building to include an initial station entrance. This would include the removal or alteration of the architectural fabric of the building. This action constitutes an Adverse Effect on the Title Guarantee Building. Alternatives that would mitigate the adverse impacts have been analyzed, and the project as proposed includes measures to minimize harm to this property, which is eligible for the National Register.

Pershing Square Building (448 South Hill Street).

Description and Significance of Affected Property. This example of Italian Rennaissance is a Class A steel frame and reinforced concrete structure with 13 stories and a basement. It is terra cotta with patterns resembling cut stone. Small balconies are located in the third level at both ends of the Hill Street and Fifth Street facades; larger balconies are located on the seventh level in the mid-facade area. There is a frieze of garlands on the fourth story, metal-framed windows with special colorettes on the second, and a frieze of decorative--Ram and Griffin-head--panels above the first floor. Additional decorative features include metal scrollwork, bronze cherub heads, and architectural terra cotta. The floor of the lobby area is real travertine, cut in oblong blocks and laid in a herringbone pattern. The lobby area has been altered, but the major decorative features are still apparent. The exterior is also altered, but intact. Streetlights along Fifth Street are double-luminaire, metal fixtures with torch-style luminaires.



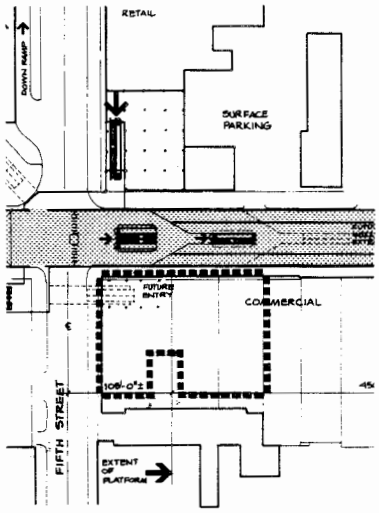


Figure 4-7 Pershing Square Building

The Pershing Square Building was designed by the prominent architectural firm of Curlett and Beelman. It is a moderate example of a utilitarian office structure with applied decoration. It suggests Italian influence in the masonry effect of the gray terra cotta exterior and in the massive, overhanging projection of the structure above the eleventh floor. The utilitarian plan and decorative detailing of the building mark an important step in the evolution of corporate architecture in Los Angeles.

Application of Criteria of Adverse Effect. The Criteria of Adverse Effect were applied in consultation with the SHPO, and it was determined that if the future entrance is constructed, the building would be adversely affected by the criteria of alteration of part of the structure and introduction of visual and audible elements that are out of character with the building. If a future station entrance planned for this location is built, the ground floor would be renovated, removing or altering part of the architectural fabric of the building. This would not alter the main lobby or the upper floors' facade which contribute to the building's significance (Figures 2-7 and 4-7). A new building entrance also may be required.

Views of the State Historic Preservation Officer. In his letter of April 5, 1983, the SHPO concluded that the project would have an Adverse Effect on this property (Figure 4-3.1). A Memorandum of Agreement dealing with the property has been signed (Figure 4-5).

Views of Others. Formal comments concerning potential impacts to this property were received during circulation of the Draft EIS/EIR. The responses to the comments are included in the Cultural Resources section of Chapter 6.

Alternatives That Would Avoid Adverse Effect. The adverse effects could be avoided by deleting or relocating the station or by deleting or relocating the station entrance proposed for this building.

The Fifth/Hill Station location was selected to serve the following nearby activity centers: Bunker Hill, the Grand Central Market, the Biltmore Hotel, and the International Jewelry Center. Future additions to this area include the renovation of the Philharmonic Auditorium, the construction of a multi-use complex on Fifth between Hill and Olive, and the California Plaza, a CRA Project at Fourth and Hill Streets. Because patronage projections for this station are among the heaviest of the entire alignment, it is not recommended that the Fifth/Hill Station be deleted.

The station could be moved either north or south on the alignment and still serve these centers. However, if the station were moved north, it would be too close to the Civic Center Station. If it were moved south, it would be too close to the Seventh/Flower Station. An alternative route alignment along Broadway was studied but dropped because it was determined that a Hill Street alignment would be able to serve the west side of the CBD and the Broadway area without impacting the historic buildings in the Broadway shopping district.

The passenger volume at the Fifth/Hill Station is projected to be the highest of all the stations. Initially, at least two entrances are required. Although the Pershing Square Building entrance is not in the current scope of the project or time frame, it is designated as a future entrance. If actual patronage levels require and cost considerations permit additional entrances at this station, the Pershing Square Building entrance would be constructed.

The remaining corner at this intersection is Pershing Square parkland. This location is also designated as a future entrance. Using the parkland as an alternative to the Pershing Square Building may not eliminate the future need for an entrance in this building.

Midblock entrances have been considered but are unsatisfactory because they do not provide direct access for pedestrians from the Broadway shopping district or for persons transferring from buses on Fifth Street. A sidewalk location for the station entrance just off the property was considered, but this location was also unsatisfactory. The sidewalks would become too narrow to accommodate the high volume of passengers expected to board the system at this station and still maintain adequate pedestrian flow.

Alternatives That Would Mitigate Adverse Effect. The ground floor would be altered to include a station entrance designed to be compatible with the architectural aspects of the Pershing Square Building. All new construction would be compatible in terms of scale, massing, color, and materials and would be responsive to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Recording and architectural salvage would be undertaken according to the HABS/HAER. A Memorandum of Agreement between the ACHP, UMTA, the SHPO, and SCRTD includes these mitigation measures.

Determination. The Locally Preferred Alternative may require the renovation of the ground floor of the Pershing Square Building to include a future station entrance. This would include the removal or alteration of the architectural fabric of the building. This action constitutes an Adverse Effect on the Pershing Square Building. Alternatives that would mitigate the adverse impacts have been analyzed, and the project as proposed includes measures to minimize harm to this property, which is eligible for the National Register.

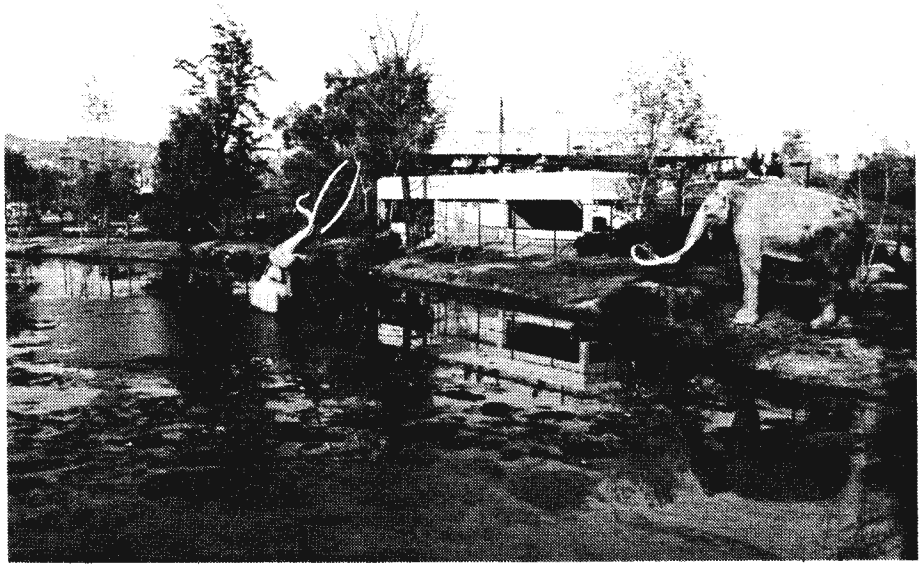
Hancock Park/La Brea Tar Pits.

Description and Significance of Affected Property. Hancock Park is a 23-acre parcel located in the west Wilshire District bounded by Sixth Street on the north, Curson Avenue on the east, Wilshire Boulevard on the south, and Ogden Drive on the west. The park's significance centers around the La Brea Tar Pits which are within the park's boundary. The locality is world-famous as more than one million fossil bones, as well as specimens of insects, shelled invertebrates and plant remains have been recovered since excavations began here in 1906.

G. Allan Hancock sold the parcel to the County of Los Angeles in 1916 with the condition that the land be used for public park purposes. The park contains large man-made lakes and several streams with life-size cement replicas of the reconstructed animals embedded in the pits. These animals include the Jefferson Mammoth, Harlan's Ground Sloth, the Sabertooth Tiger, and a Short Face Bear.

The Los Angeles County Art Museum located on 5-1/2 acres inside Hancock Park/La Brea Tar Pits was built as a result of the great demand from the public for a separate art museum in Los Angeles. The museum was originally located in Exposition Park. As part of the Los Angeles County Museum of History, Science and Art, private citizens under the direction of museum Trustee, Edward W. Carter, raised approximately $12 milliion for the museum's construction. Upon its completion in 1965, the Los Angeles County Board of Supervisors was deeded the building as a gift to the people of Los Angeles. The Museum of Art was dedicated on

March 30, 1965 and opened its doors to the public the following day. It is considered to be the youngest general art museum in America.



In 1965, Mr. George C. Page donated $2 million for the construction of a 60,000 square foot museum for the purpose of exhibiting the fossil remains found at the site. Previously, many of these remains had been on display at the Museum of Natural History in Exposition Park. In 1978, the George C. Page Museum was opened to the public. Its staff of scientists is engaged in research, preparation, and curation of the tremendous volume of specimens that has amassed over the years.

Application of Criteria of Adverse Effect. The Criteria of Adverse Effect were applied in consultation with the SHPO, and it was determined that the Hancock Park/La Brea Tar Pits would be adversely affected according to the criterion of destruction or alteration of part of the property. Studies show that the Rancho La Brea Tar Pits resources extend underground beyond the boundaries of Hancock Park. It is expected that the tunneling of the Locally Preferred Alternative under Wilshire Boulevard and the cut and cover construction of the station at the May Company site may encounter paleontological resources associated with the Rancho La Brea Tar Pits.

View of the State Historic Preservation Officer. In a letter of August 23, 1983, the SHPO concluded that the project would have an Adverse Effect on this property (Figure 4-3.2). A Memorandum of Agreement dealing with the property has been signed (Figure 4-5).

Views of Others. Formal comments concerning potential impacts to this property were received when the Draft EIS/EIR was circulated. The comments are addressed in the Cultural Resources section of Chapter 6.

Alternatives That Would Avoid Adverse Effect. There are two basic options to avoid adverse effect to Hancock Park/La Brea Tar Pits: delete the station or relocate it to another area.

The Adverse Effect could be avoided by deleting the Wilshire/Fairfax Station. This is not recommended. The proposed location is the most desirable for intercepting buses and autos coming from the southwest and west portions of Los Angeles. Both Wilshire Boulevard and Fairfax Avenue are major travel corridors, and it is expected that this intersection would become the major transfer point for the system. Also, the Wilshire/Fairfax area is a major attraction center with the Los Angeles County Museum of Art, the George C. Page Museum, the Mutual Benefit Life Plaza and the California Federal Plaza office buildings, and the May Company and Ohrbach's Department Stores located near the station.

Preliminary investigation determined that the previously proposed station location at Hancock Park had a high likelihood of affecting paleontological resources. It was also determined that these paleontological resources extend beyond the boundaries of Hancock Park. Any station location within this general area would still be located in a paleontologically sensitive area and would, therefore, not avoid the adverse effect.

Alternatives That Would Mitigate Adverse Effect. SCRTD studies and staff discussions with the Page Museum indicate that a westward movement would reduce the possibility of encountering paleontological resources during station construction. For this reason, among others, the SCRTD Board of Directors voted to move the station to the parking lot of the May Company Building at the northeast corner of Wilshire Boulevard and Fairfax Avenue. SCRTD is working with the staff of the Page Museum to determine the location of resources and to prepare a data recovery plan to insure that resources encountered will be preserved. The station design has been changed to an over/under design to reduce the width of tunneling to be done in sensitive areas. The off-street location would allow ample time and space for recovery of resources.

The design of the station and the entrances would be responsive to the Secretary of the Interior's Standards, and recording would be undertaken according to the HABS/HAER. A Memorandum of Agreement which includes mitigation measures has been signed. Other included measures are a resource identification study, a data recovery program, and the establishment of a Peer Review Board to monitor the project and its relation to the Hancock Park/Rancho La Brea area.

Determination. The Locally Preferred Alternative would require construction activity in the general area of Hancock Park/La Brea Tar Pits. The construction may cause removal of paleontological resources associated with the La Brea Tar Pits. The action constitutes an Adverse Effect on Hancock Park/La Brea Tar Pits. Mitigation measures are included in the Memorandum of Agreement.

2.6.3 AERIAL OPTION

It has been determined that, under the Aerial Option, the following properties included or eligible for inclusion in the National Register would be adversely affected: Union Station, Title Guarantee Building, Pershing Square Building, and Hancock Park/La Brea Tar Pits. The adverse effects to these properties are identical to those of the Locally Preferred Alternative. For discussion of these properties, their effects, and mitigation measures, refer to section 2.6.2 of this chapter.

The Aerial Option may adversely affect additional historic properties. Analyses performed indicated that the properties listed in Table 4-1 are of potentially historic quality and may be adversely affected by the Aerial Option. The adverse effects to these properties most likely would result from the introduction of visual and audible elements that would be out of character with the properties or would alter their settings. The alternative that would avoid such impacts on these properties is the preferred subway alignment which involves an additional $57.2 million in capital costs. With the exception of the El Portal Theatre and the Paperback Shack, the properties listed in Table 4-1 have not been examined for eligibility by the SHPO. Under agreement with the SHPO, further analyses will be conducted if the Aerial Option becomes the preferred alternative.

2.6.4 MINIMUM OPERABLE SEGMENT

It has been determined that the following properties included or eligible for inclusion in the National Register would be adversely affected: Union Station, Title Guarantee Building, Pershing Square Building, and Hancock Park/La Brea Tar Pits. The adverse effects to these properties are identical to those of the Locally Preferred Alternative. For discussion of these properties, their effects, and mitigation measures, refer to section 2.6.2 of this chapter.

TABLE 4-1

POTENTIAL HISTORIC PROPERTIES WHICH MAY BE ADVERSELY AFFECTED BY AERIAL OPTION

Resource	Address
Toyota Dealership	4100 Lankershim
Stained Glass Center	4209 Lankershim
Law Office	4224 Lankershim
Marco Mufflers	4340 Lankershim
Quisenberry Insurance	4342 Lankershim
Wellingtons	4354 Lankershim
St. Charles Borromeo Catholic Church	S.W. Corner--Moorpark and Lankershim
Porsche Service	4429 Lankershim
El Portal Theatre	5269 Lankershim
Paperback Shack	5303 Lankershim

Note: It has been determined that adverse effects to these properties would most likely result from the introduction of visual and audible elements that are out of character with the properties or would alter their settings. Several properties listed in the Draft EIS/EIR have been deleted from this table as a result of a study and evaluation by the Los Angeles Community Redevelopment Agency.

3. ARCHAEOLOGICAL RESOURCES

3.1 INTRODUCTION

The Metro Rail Project route follows existing right-of-way through extensively urbanized areas. Very little undisturbed original ground surface is visible, and little is known of archaeological sites in the Regional Core. Few archaeological sites have been recorded with the California State Clearinghouse in the vicinity of the proposed Metro Rail Project. Other sites in the area (such as of the village of Yangna in downtown Los Angeles) have been hypothesized from ethnographic and historic data as well as rumor, but exact locations have not been confirmed.

Although no archaeological resources have been reported in the area on the northeastern side of Cahuenga Pass near Universal Studios since a 1932 exploration of the historic foundations of Campo de Cahuenga, artifacts may be encountered here during construction of the Metro Rail Project. A more detailed description of the archaeological inventory performed for this project is contained in the SCRTD Technical Report - Archaeological Resources (1983).

3.2 IDENTIFIED ARCHAEOLOGICAL RESOURCES

Los Angeles Union Passenger Terminal (Union Station) National Register of Historic Places District. The Los Angeles Union Passenger Terminal National Register District (Figure 4-4), bounded by Macy, Alameda, and Aliso Streets, was placed on the National Register of Historic Places in 1980 because of its architectural and historic significance. Intact archaeological remains have been recovered within the district's boundaries below the present parking lot west of the main terminal buildings, further enhancing the Union Station District's significance.

As much as 20 feet of fill has been brought in to build up the Union Station property, which before construction fell within the active Los Angeles River floodplain and was periodically and severely flooded. Cultural materials apparently were buried beneath this fill and preserved rather than destroyed during construction.

Native American artifacts were found during construction of Union Station, and one archaeologist suggested that these remains were from the Gabrielino village of Yangna. However, it seems unlikely that Yangna would have been located in the active floodplain of the Los Angeles River. Recent researchers consider a more likely location for Yangna to be on higher ground, in the vicinity of the Bella Union Hotel, where artifacts were encountered during construction in 1870. It has been suggested that artifacts recovered at Union Station are related to the later post-contact (1836) Rancheria de Poblanos, a segregated Indian district established near the corner of Commercial and Alameda Streets.

Soil borings in the southwestern corner of the Union Station parking lot revealed an intact, historic refuse deposit below the present paved surface. Historic documents place the Mathew B. Keller residence and wine cellar and Hotel de France in the southern half of Union Station parking lot west of the terminal buildings. Although these soil borings did not reveal subsurface structural remains, the refuse deposit

contained artifacts assignable to the periods of occupation of the Mathew Keller residence and business and the Hotel de France.

Historical and archaeological investigations at Union Station clearly demonstrate that significant intact archaeological resources are present. Unfortunately, no extensive, systematic excavation has taken place here, and these buried cultural deposits are not assignable unquestionably to either the Mathew Keller residence and business or the Hotel de France.

El Pueblo de Los Angeles State Historic Park (National Register District). El Pueblo de Los Angeles State Historic Park is adjacent to Union Station on the west, and is bounded by Sunset Boulevard and Ord Street to the north, Hill and New High Streets to the west, the Santa Ana Freeway and Arcadia Street to the south, and Alameda Street to the east. Two previously recorded archaeological sites here (LAn-7 and LAn-887) have yielded material from every historic period in Los Angeles' downtown occupation, beginning with the Spanish/Mexican Period and extending into the recent American Period.

The Locally Preferred Alternative would tunnel under the north end of this District; however, since the top of the tunnel would be at least 70 feet below the original grade, it is expected that no resources would be encountered.

Civic Center and Fifth/Hill Station Locations. Isolated artifacts and buried human skeletal remains were recovered from a construction site at Temple and Hill, and remnants of Zanja No. 8 may be located below the Title Guarantee Building at Hill and Fifth Streets.

Hancock Park/La Brea Tar Pits. A site (labeled LAn-159) in Hancock Park is represented by artifacts recovered from the La Brea Tar Pits. Artifacts recovered indicate the La Brea Tar Pits may have been visited for hunting purposes and for acquiring pitch and tar rather than for settlement. The first non-Indian visitors to the La Brea Tar Pits were scouts of the Portola expedition on August 3, 1769. No mention of Native American settlement at that location was made in diaries kept by these explorers. The La Brea Tar Pits, containing Pleistocene to Early Recent fossil deposits, are considered one of the most significant paleontological sites in the world and have been designated California State Historic Landmark No. 170.

Campo de Cahuenga. Listed as California State Historic Landmark No. 151, Campo de Cahuenga is approximately at the site where the treaty signed on January 13, 1847 by General Andres Pico and Lieutenant Colonel John C. Fremont surrendered Mexican California to the United States. The structures now on the site of Campo de Cahuenga are replicas built in 1949. Excavations undertaken in 1932 exposed wall foundations and tile floors of the original Casa de Cahuenga. This structure measured 39 feet by 99.5 feet, with a 13-foot, 10-inch-wide pillared corridor extending along the entire north side of the building.

A map by Giffen (1937), located at City of Los Angeles Engineering Department, places the original Casa de Cahuenga north of the reconstructed building. As shown on the map, the northeast corner of the original Casa de Cahuenga was below Lankershim Boulevard, and an "old road" ran in front of the original building below the southeast corner of the reconstructed building. It is possible that the foundation below the original Casa de Cahuenga is located below the surface of the Hewlett-Packard parking lot north of the reconstructed Casa de Cahuenga. However, according to the 1932 explorations of the Campo de Cahuenga site, there were very little architectural remains left at that time.

The potential for affecting subsurface archaeological resources in the remaining areas is unknown because no archaeological sites or artifacts have been recorded in the vicinity.

3.3 IMPACT ASSESSMENT AND MITIGATION

3.3.1 NO PROJECT ALTERNATIVE

No impacts on archaeological resources are expected if the Metro Rail Project is not implemented.

3.3.2 LOCALLY PREFERRED ALTERNATIVE

The Locally Preferred Alternative has the most potential for disrupting archaeological resources in the Los Angeles Passenger Terminal District (Union Station), at the cut and cover location for the crossover northwest of the track area extending to Macy Street. SCRTD would begin construction in this area at least six months ahead of any major construction work on the station proper. This would allow time for archaeological testing, development of a data recovery plan, and proper recovery if resources are found. A qualified archaeologist will observe the cut and cover phase of this construction.

If archaeological resources exist at the Civic Center station location, they would be revealed during the cut and cover phase of construction. The exact location of the Zanja No. 8 (irrigation ditch) is unknown, but it is suggested that it may exist near Fifth and Hill Streets. A qualified archaeologist would observe the cut and cover construction phase at these stations to ensure avoidance of impacts and proper recovery of any finds.

It is unknown whether archaeological remains would be found at Hancock Park/La Brea Tar Pits, although it is quite likely that Pleistocene and recent fossil remains would be uncovered. A qualified archaeologist would be on site during work performed by paleontologists to assist in the identification of cultural remains. If a substantial archaeological deposit is encountered, the deposit's significance and eligibility for the National Register would be determined.

All initial surface modification activities at Campo de Cahuenga will be monitored by a qualified archaeologist. If significant archaeological remains are encountered, construction would be delayed or diverted from the site, until after recording and evaluation for National Register eligibility.

Construction in these areas would be scheduled to allow maximum time for investigating and recovering any archaeological material uncovered during construction. The construction schedules would be reviewed with the SHPO. If resources are discovered during construction, SCRTD will involve the SHPO and the Department of the Interior in expediting a data recovery plan. A qualified archaeologist would be retained by the project to monitor construction of these sites.

3.3.3 AERIAL OPTION

Based on current information on the location of known archaeological resources along the aerial segment of the Aerial Option, the impacts of this alternative are identical to those of the Locally Preferred Alternative.

3.3.4 MINIMUM OPERABLE SEGMENT

Since the Minimum Operable Segment is identical to the segment of the Locally Preferred Alternative from Union Station to the Beverly/Fairfax Station, the impacts of the Minimum Operable Segment on archaeological resources are the same as for the Locally Preferred Alternative except that Campo de Cahuenga is unaffected.

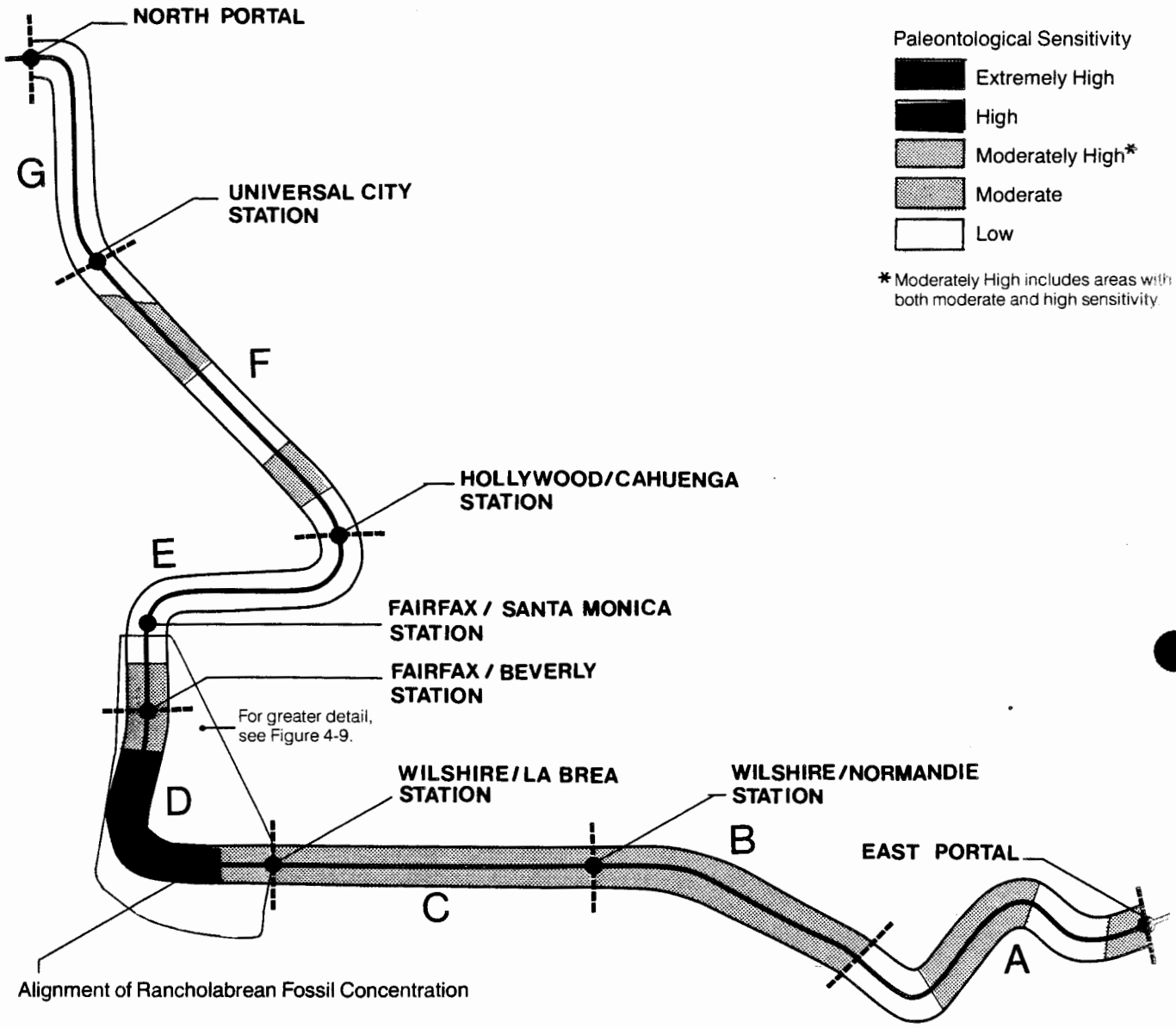
4. PALEONTOLOGY

4.1 EXISTING CONDITIONS

The Metro Rail route has been divided into seven segments for purposes of reviewing the subsurface soil/rock strata (or stratigraphy) and the potential for encountering paleontological resources (sites of fossils or ancient life forms). The paleontological resources of an area are largely a function of the kinds of sedimentary deposits found there. Figure 4-8 is a sensitivity map of the proposed route. The sensitivity ratings are based on the paleontologic potential, or sensitivity, of the stratigraphic units within the proposed depth of surface excavation for stations and subsurface excavations for tunnels. Except for the La Brea Tar Pits area, there are no recorded paleontological resources that would be affected by the proposed Metro Rail Project. However, the route would pass through and disturb a variety of marine and nonmarine sedimentary deposits ranging in age from Medial Miocene to Holocene. All stratigraphic units except the Holocene alluvium (young Quaternary alluvium) and the intrusive basalts and andesites in the Topanga Formation are considered to have at least moderate potential for paleontological resources. Materials presented here are summarized from a more detailed SCRTD Technical Report - Paleontological Resources (1983).

4.1.1 UNION STATION TO HARBOR FREEWAY

This segment includes Fernando and Puente Formations at 50 to 60 feet below the surface. Other units affected are old and young Quaternary alluvium. Invertebrate remains have been reported from holes bored in the Puente and Fernando Formations; thus, there is a potential for encountering marine invertebrates in this segment. There may be marine vertebrates in the Puente Formation between the East Portal and the Hollywood Freeway and the Fernando Formation between the Hollywood Freeway and Harbor Freeway. There may also be nonmarine vertebrates in old alluvium at Civic Center Station.



Source: Westec Services

Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

Figure 4-8

Paleontological Sensitivity Along Alignment

SEDWAY/COOKE

Urban and Environmental Planners and Designers

4.1.2 HARBOR FREEWAY TO WILSHIRE/NORMANDIE STATION

The Fernando Formation would be encountered between the Harbor Freeway and the Wilshire/Alvarado Station more than 25 feet to 30 feet beneath the surface. The Puente Formation would be encountered from the Wilshire/Alvarado Station to the Wilshire/Normandie Station at depths greater than 30 to 40 feet beneath the surface. Old alluvium is present at shallower levels. Bivalve mollusks have been found in bore hole samples from the Puente Formation, so marine invertebrates and vertebrates may be encountered in the Puente Formation between the Wilshire/Alvarado and the Wilshire/Normandie Stations. Similarly, marine invertebrates and vertebrates may exist in the Fernando Formation between the Harbor Freeway and the Wilshire/Alvarado Station, and nonmarine vertebrates may be in the old alluvium.

4.1.3 WILSHIRE/NORMANDIE STATION TO WILSHIRE/LA BREA STATION

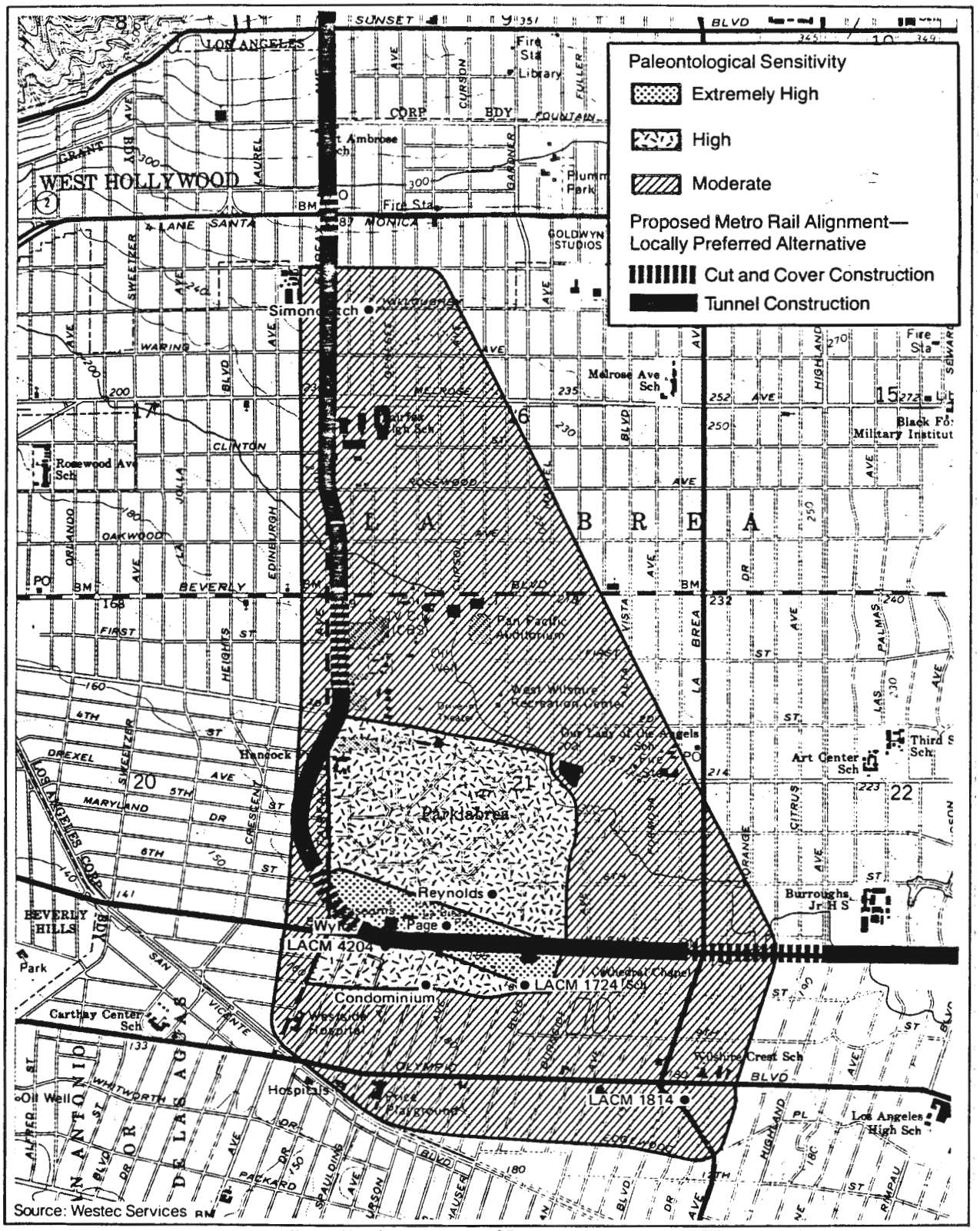
This segment would encounter old Quaternary alluvium from the surface down to depths of 50 to 60 feet. Deeper tunneling would also reach the San Pedro, Puente, and Fernando Formations. There are no known paleontological resources along this segment of the Metro Rail route, but there is a moderate potential for finding nonmarine vertebrates, as well as mixed nonmarine and marine invertebrates, in the old alluvium (Palos Verdes Sand).

4.1.4 WILSHIRE/LA BREA STATION TO FAIRFAX/BEVERLY STATION

This segment includes old Quaternary alluvium (Palos Verdes Sand) from the surface down to depths between 30 and about 60 feet. The San Pedro Formation would be reached in some areas below about 30 feet. This segment includes the La Brea Tar Pits area, which has produced abundant marine and nonmarine invertebrates, plants, and world-famous ice-age land animals.

Because of the abundance and extraordinary preservation, the Rancho La Brea area has provided the most prolific record of Late Pleistocene vertebrate animal life discovered anywhere in the world. Rancholabrean fossils are abundant in the upper 11 to 26 feet (under recent fill) of the area studied. Figure 4-9 shows the area with the heaviest concentration of known fossil deposits and, therefore, of extremely high paleontological sensitivity. This area starts at approximately Hauser Boulevard and ends at Fairfax Avenue. It is rectangular in shape with a width of 700 feet, running from east-south-east to west-north-west. The area described as high in sensitivity is roughly bounded by Third Street on the north, Eighth Street on the south, Fairfax Avenue on the west, and Burnside Avenue on the east. Deposits in this area tend to occur in large cone-shaped pockets, oriented vertically and tapering downward.

More than one million fossil bones, as well as specimens of insects, shelled invertebrates, and plant remains, have been recovered from about 35 excavations of various size (from approximately 100 that have been dug) since excavations began in 1906 in the La Brea Tar Pits area. Additional excavations outside the park area also have produced fossils, indicating that fossils are not concentrated in the La Brea Tar Pits area alone. The fossiliferous deposits at Rancho La Brea appear to be confined to the uppermost 55 feet below the present surface and particularly within the uppermost 25 to 30 feet.



Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

0 1000 2000 4000 feet

Figure 4-9
Paleontological Sensitivity in the La Brea Tar Pits Area

SEDWAY/COOKE
Urban and Environmental Planners and Designers

4.1.5 FAIRFAX/BEVERLY STATION TO HOLLYWOOD/CAHUENGA STATION

Along this segment, young Quaternary alluvium would be encountered from about 30 to 85 feet beneath the surface, with increasing alluvium thickness from south to north along Fairfax Avenue. Below this level old Quaternary alluvium extends for 100 feet or more. No fossils are expected in young alluvium, but there may be some terrestrial vertebrates in old alluvium. This segment is of low sensitivity because excavations are not likely to reach below the base of young alluvium. The young alluvium at the Fairfax/Santa Monica, La Brea/Sunset, and Hollywood/Cahuenga Stations is between 75 and 100 feet thick.

4.1.6 HOLLYWOOD/CAHUENGA STATION TO UNIVERSAL CITY STATION

Most of this segment includes the Topanga Formation. Topanga sedimentary rocks occur in the southern part of the segment between the Hollywood/Cahuenga Station and the Hollywood Bowl, and in the northern part beyond the Cahuenga Pass. The central part, from the Hollywood Bowl to west of Cahuenga Pass, includes the intrusive basalt and andesite part of the Topanga Formation. There are no known resources along this part of the proposed route, but numerous invertebrate (and some plant) discoveries in the eastern Santa Monica Mountains indicate a potential for fossils. There is also some chance of discovering marine vertebrate fossils (for example, desmostylans, whale, and shark teeth). No fossils are expected in the igneous rocks within the Topanga Formation.

4.1.7 UNIVERSAL CITY STATION TO NORTH HOLLYWOOD STATION

Along this segment young Quaternary alluvium would be encountered from the surface down to about 50 to 80 feet. The thinnest section occurs near Lankershim Boulevard. Old alluvium, consisting mainly of sand and gravel, lies beneath the younger alluvium. No fossils are expected in this geologically young material.

4.2 IMPACT ASSESSMENT AND MITIGATION

4.2.1 METHODOLOGY

The plans and profile for the Project alternatives were reviewed against Figure 4-8. In essence, the disruption of paleontological resources is of greatest concern where Figure 4-8 indicates extremely high sensitivity. Sections with a mix of moderate and high sensitivity have been designated moderately high in Figure 4-8. Sensitivity was determined by the likelihood of paleontological resources being present in any particular soil associations or rock formations, the presence of those associations or formations at or near the surface and in the project right-of-way, and their relationship to other associations or formations (stratigraphy). The assessment of impacts was accomplished through the following: 1) a thorough records and literature search for recorded paleontological localities along the proposed Metro Rail route, and also for information on the regional paleontological context of the stratigraphic units that will be affected by the project; 2) communication with scientists at the George C. Page Museum at the La Brea Tar Pits regarding impacts on the La Brea Tar Pits area, the most paleontologically sensitive part of the entire route; and 3) examination of the geotechnical report and appendix by SCRTD's

geotechnical consultants, as well as engineering maps and cross-sections showing planned depth and dimensions of excavations for tunnels and stations.

4.2.2 NO PROJECT ALTERNATIVE

The No Project Alternative would result in no construction, and therefore no alteration or destruction of paleontological resources, no alteration of the resources surrounding environments, no introduction of visual, audible, or atmospheric elements that would be out of character with or alter the setting of the resources. The resources would not be neglected, transferred, or sold.

4.2.3 LOCALLY PREFERRED ALTERNATIVE

The sensitivity of the segments of the Metro Rail Project is related to the probability of finding scientifically significant fossils during excavation. Figure 4-8 generally summarizes the sensitivity of the various segments of the project. If important or potentially important fossils are discovered during the cut and cover excavation phase, excavation would be temporarily halted or diverted until the findings can be appraised and, if necessary, the fossils removed by a qualified paleontologist. The proper repository for significant specimens is one of the most important elements in the mitigation of adverse impacts on paleontological resources. Invertebrate fossils and fossil plant material would be donated to an appropriate educational/research institution as dictated by the significance of the materials.

Union Station to Harbor Freeway. Impacts would include the potential for uncovering marine invertebrate fossils in the Fernando and Puente Formations and other vertebrates in old alluvium deposits at the Civic Center Station. Excavations exposing young alluvium will require no examination. The Civic Center Station excavation would be closely monitored by a qualified paleontologist. Fifth/Hill and Seventh/Flower Stations excavations need not be monitored, but spot checking would be done.

Harbor Freeway to Wilshire/Normandie Station. Impacts would include the potential for uncovering marine invertebrates and marine vertebrates from Puente and Fernando Formations and other vertebrates from old alluvium deposits. Surface excavations for stations at Alvarado Street, Vermont Avenue, and Normandie Avenue would be monitored by a qualified paleontologist.

Wilshire/Normandie Station to Wilshire/La Brea Station. Impacts would consist of the potential for uncovering marine and other invertebrate fossils in the old alluvium (Palos Verdes Sand). Surface excavations for stations on Wilshire at Western Avenue, Crenshaw Boulevard, and La Brea Avenue would be monitored for fossils, with closest scrutiny at the Wilshire/La Brea Station because of its proximity to the La Brea Tar Pits area.

Wilshire/La Brea Station to Fairfax/Beverly Station. There is high potential for discovery of scientifically significant fossils during excavation of most of the segment (Figure 4-9).

A study was done by the Page Museum to determine the most feasible measures for minimizing impacts to paleontological resources. Also included in this program was

a recovery and salvage plan with time and cost estimates. Provisions for protection of these resources are included in a Memorandum of Agreement.

Fairfax/Beverly Station to Hollywood/Cahuenga Station. Most of this segment has low sensitivity with a small chance of finding some terrestrial vertebrates in old Quaternary alluvium. Only the stretch immediately north of the Fairfax/Beverly Station is considered to be of moderate sensitivity. No monitoring is necessary for excavation of stations in this segment.

Hollywood/Cahuenga Station to Universal City Station. The area where igneous rocks would be encountered is of low sensitivity. Areas where sedimentary rocks of the Topanga Formation would be encountered are of moderate sensitivity. There is reasonable likelihood of invertebrate fossils being discovered during excavation. Some monitoring of excavation for the Universal City Station, particularly in the deeper excavations, would be conducted by a qualified paleontologist.

Universal City Station to North Hollywood Station. This segment is of low sensitivity. No monitoring of station excavations would be required.

4.2.4 AERIAL OPTION

The impacts on paleontological resources for the Aerial Option would be identical to those of the Locally Preferred Alternative from Union Station to the portal on the north slope of the Santa Monica Mountain. For a discussion of impacts and mitigation, see section 4.2.3 of this chapter. From the portal north to the North Hollywood Station, there is little potential for impacts since construction would be limited to relatively shallow foundations for the aerial structure. Strata that would probably be encountered would be young Quaternary alluvium which contains no fossils.

4.2.5 MINIMUM OPERABLE SEGMENT

The impacts on paleontological resources from the Minimum Operable Segment would be the same as those discussed for the Locally Preferred Alternative from Union Station to the Fairfax/Beverly Station. For a discussion of impacts and mitigation, see section 4.2.3 of this chapter.

5. SECTION 4(f) EVALUATION

5.1 INTRODUCTION

Section 4(f) of the Department of Transportation Act of 1966 (49 USC 1653(f)) declares a national policy that special effort be made to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) permits the Secretary of Transportation to approve a project that requires the use of publicly owned land from a park, recreation area, or wildlife refuge, or any land from a historic site of national, state, or local significance only if the following determinations have been made: there is no

feasible and prudent alternative to the use of such land, and all possible planning has been undertaken to minimize harm to the 4(f) lands resulting from such use.

Because of their interest in the project and its relation to 4(f) issues, the following agencies were sent a copy of the Draft EIS/EIR for their review and comment: U.S. Department of the Interior, the SHPO, Los Angeles City Department of Recreation and Parks, and Los Angeles County Department of Parks and Recreation. Comments and responses are in the Cultural Resources section of Chapter 6. A letter has been received from the United States Department of the Interior providing the required Section 4(f) determination (Figure 4-10).

5.2 USE OF PARKLANDS AND RECREATION AREAS

Recreational opportunities ranging from the neighborhood parks to a National Recreation Area (NRA) are located within the Regional Core. The First Tier EIS/EIR analysis of the use of local parks and recreation lands provided sufficient detail for the recreational description of existing conditions (UMTA and SCRTD, 1979). Field surveys for the current cultural resource studies provided specific information for areas along the Metro Rail alignment. Twenty-seven parks and senior citizen centers lie within a one-half mile of the Metro Rail route. These parks are listed in Table 4-2 and shown in Figure 4-11. Actual use of parkland for each alternative is discussed below.

5.2.1 NO PROJECT ALTERNATIVE

No use of public park or recreation lands, as defined by Section 4(f), would occur. However, with the Metro Rail Project many parks and recreation areas could benefit through increased use, since they would become more accessible to Metro Rail users. This potential increase in visitors would be lost if the No Project Alternative is accepted.

5.2.2 LOCALLY PREFERRED ALTERNATIVE

As currently proposed, the Locally Preferred Alternative would potentially affect four parks and recreation areas covered under Section 4(f) guidelines: the Court of Flags, Pershing Square, the Hollywood Bowl, and Campo de Cahuenga.

Court of Flags.

Description and Significance. The Court of Historic American Flags consists of a concrete mall with 14 flagpoles and associated metal plaques, and a series of stairs with a granite-based pedestal and dedication plague. Decorative lamp posts and black granite facings accent the Court of Flags. The Court of Flags is an integral part of the open space which forms the Civic Center Mall between Los Angeles County and City buildings and serves as a principal pedestrian corridor.

The construction of the Court of Historic American Flags in the 1960s was sponsored by the County of Los Angeles Board of Supervisors and the Los Angeles County Council of the Veterans of Foreign Wars. This court is in an important open space in Los Angeles' Civic Center Mall.

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO: 4/13

JUN 2 1983

The Director of the National Park Service is pleased to inform you of our determination pursuant to the National Historic Preservation Act, as amended, and Executive Order 11593 in response to your request for a determination of eligibility for inclusion in the National Register of Historic Places. Our determination appears on the enclosed material.

As you know, your request for our professional judgment constitutes a part of the Federal planning process. We urge that this information be integrated into the National Environmental Policy Act analysis and the analysis required under section 4 (f) of the Department of Transportation Act, if this is a transportation project, to bring about the best possible program decisions.

This determination does not serve in any manner as a veto to uses of property, with or without Federal participation or assistance. The responsibility for program planning concerning properties eligible for the National Register lies with the agency or block grant recipient after the Advisory Council on Historic Preservation has had an opportunity to comment.

We are pleased to be of assistance in the consideration of historic resources in the planning process.

E.O.11593
DETERMINATION OF ELIGIBILITY NOTIFICATION
National Register of Historic Places
National Park Service

Project Name: Los Angeles Rail Rapid Transit Project

Location: Los Angeles County **State:** CA

Request submitted by: DOT/UMTA Robert W. Stout

Date Received: 5-12-83 **Additional information received:**

36 CFR Part 63.3 Determination

Name of property	SHPO opinion	Eligibility: Secretary of the Interior's opinion	Criteria
Post Office Terminal Annex	Eligible	Eligible	
Hotel Clark	"	"	
Roosevelt Building	"	"	
Global Marine Bldg.	"	"	
Crocker Bank (Wilshire East)	"	"	
MacArthur Park	"	"	
Wilshire Christian Church	"	"	
McKinley Bldg.	"	"	
Zephyr Club (Security First National Bank of Los Angeles)	"	"	
Clem Wilson Bldg. (Mutual of Omaha)	"	"	
May Company	"	"	
Security Pacific Bank Building, Hollywood	"	"	

Carla M. Burgess
for Keeper of the National Register
Determined Eligible
Date: 24 MAY 83

WASO-27

E.O.11593
DETERMINATION OF ELIGIBILITY NOTIFICATION
National Register of Historic Places
National Park Service

Project Name: Los Angeles Rail Rapid Transit Project

Location: Los Angeles County **State:** CA

Request submitted by:

Date Received: **Additional information received:**

36 CFR Part 63.3 Determination

Name of property	SHPO opinion	Eligibility: Secretary of the Interior's opinion	Criteria
Hollywood Bowl	Eligible	Eligible	
Hendricks Builders Supply Company (Toluca Southern Pacific Railroad Depot)	"	"	
Miracle Mile Historic District	Eligible	Eligible	

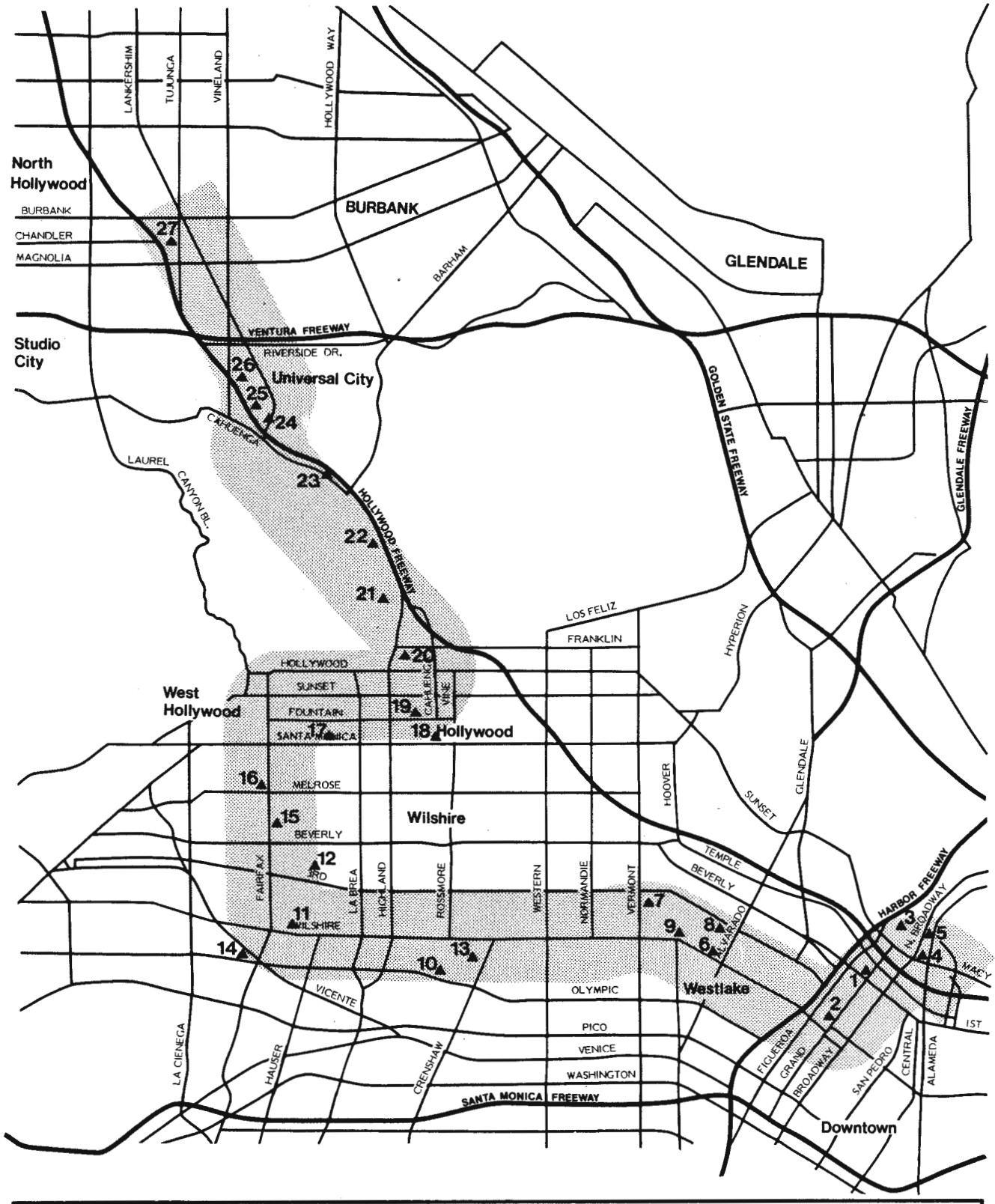
Figure 4-10 U.S. Department of the Interior Determination of Eligibility

TABLE 4-2

PARKS AND RECREATIONAL FACILITIES

Parks Facilities by Community Plan Area	Acreage
Central City	
1. City Hall Park First and Spring	4.0
2. Pershing Square Fifth and Olive	5.0
3. Alpine Recreation Center College and North Hill	1.9
4. El Pueblo de Los Angeles Macy and Spring	11.0
5. Pueblo de Los Angeles Alameda and Spring	1.7
Westlake	
6. MacArthur Park Wilshire and Alvarado	32.1
7. Shatto Recreation Center Shatto and Fourth	5.4
8. Park View Photo Center Carondelet and Oceon View	1.3
Wilshire	
9. LaFayette Park & Rec Center Wilshire and Hoover	9.7
10. L.A. High Memorial Park Olympic and Muirfield	2.5
11. Hancock Park/La Brea Tar Pits Wilshire and Curson	23.0
12. Pan Pacific Park (West Wilshire Rec. Center) Gardner between Third and Beverly	4.9
13. Harold A. Henry Park Ninth and Lucerne	1.7
14. Ramona Gardens Park Crescent Heights and Ramona	1.9
15. Rosewood Park Rosewood and Fairfax	.03
Hollywood	
16. Fairfax Senior Center Melrose by Fairfax	1.8
17. Plummer Park Plummer Place between Santa Monica and Fountain	7.8
18. Hollywood Recreation Center Santa Monica and Cahuenga	2.95
19. De Longpre Park De Longpre and Cherokee	1.4
20. Las Palmas Senior Center Las Palmas and Franklin	1.1
21. Hollywood Bowl Cahuenga Blvd. West	77.4
22. Santa Monica Mountains National Recreation Area including Mulholland Scenic Parkway Corridor Mulholland near Hollywood Freeway	150,000
North Hollywood-Studio City	
23. El Pasco de Cahuenga Cahuenga West and Ellington	1.3
24. Campo de Cahuenga Lankershim between Hollywood Freeway and the Los Angeles River	0.4
25. South Weddington Park Lankershim and Heart	14.5
26. North Weddington Park Acama and Riverton	9.2
27. North Hollywood Park and Recreation Center	58.1

Source: Los Angeles City Planning Department; Los Angeles County Department of Parks and Recreation



Southern California Rapid Transit District

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0 1 2 3 miles

Figure 4-11 Park and Recreation Facilities

SEDWAY/COOKE

Urban and Environmental Planners and Designers

Proposed Use. An entrance to the Metro Rail subway and a bus stop would be constructed at Hill Street inside the Court of Flags (Figures 2-6 and 4-12). The entrance would be designed to fit in with existing pedestrian flows thereby increasing access to the park.

Alternatives. The alternatives to using Court of Flags parkland are to change the route alignment to miss this area, to move or eliminate the Civic Center Station, and to move or eliminate the Court of Flags entrance.

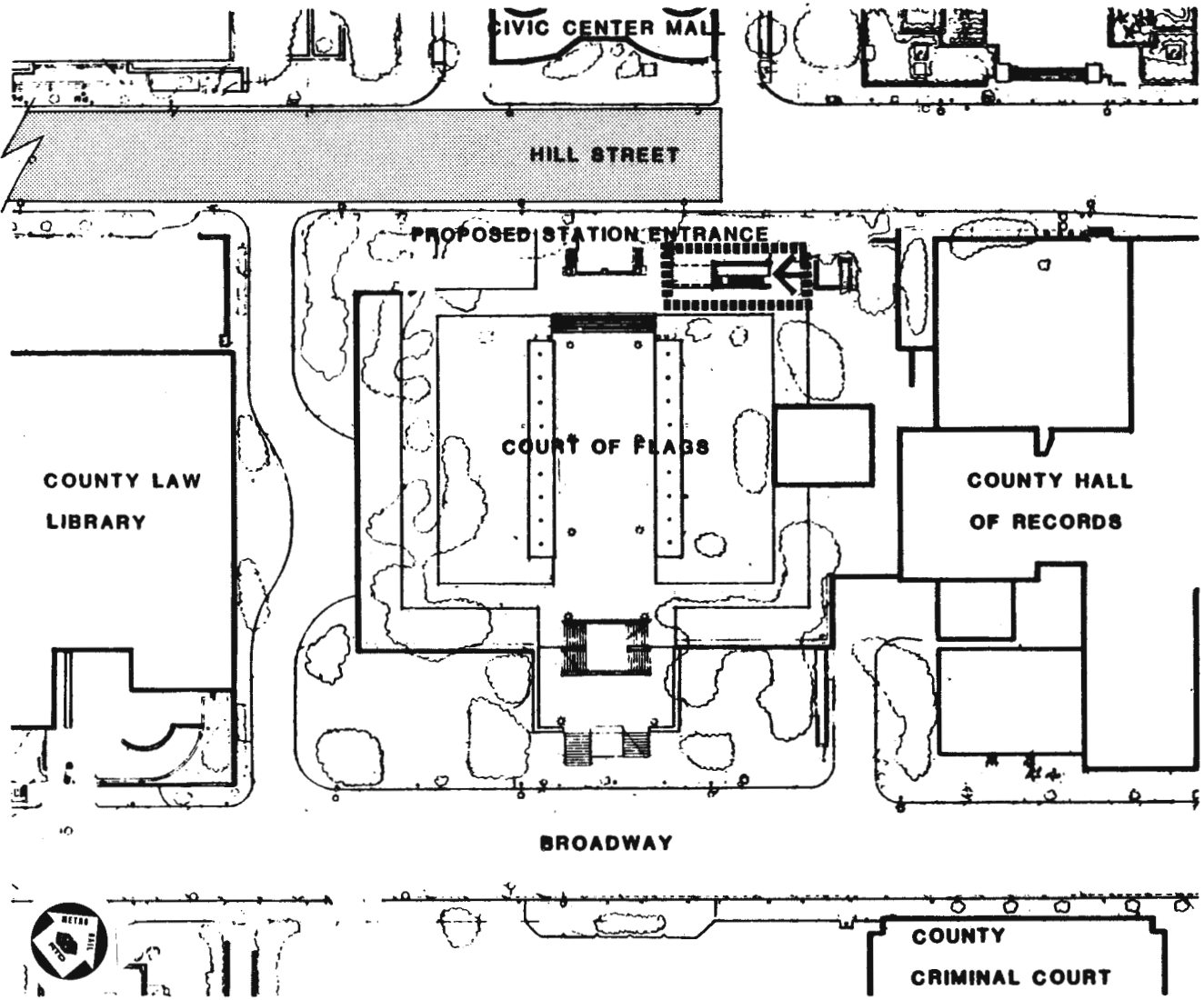
The Civic Center Station location was chosen because of the opportunity to serve the following buildings: City Hall, County Hall of Administration, Hall of Records, County Courthouse, Law Library, and State Office Building. Variations in the alignment were studied but dropped because the proposed alignment served this focal point of activity best. An alignment along Broadway was studied but dropped to serve the west side of the CBD better and to avoid the historic Broadway District.

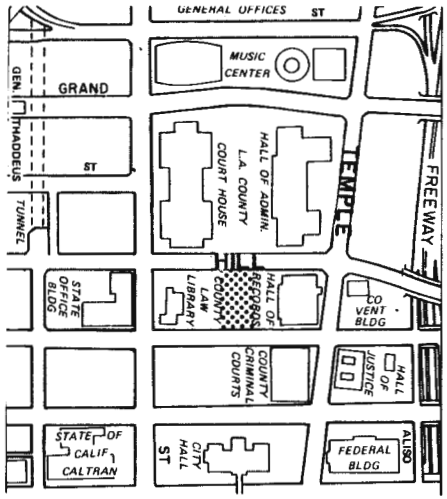
The station could be moved north on the proposed alignment to straddle the Court of Flags parklands. In this case, one station entrance would be possible in front of the Hall of Records building, and another across the street at the Hall of Administration. Another entrance could be placed on the same side of Hill Street between the Court of Flags and First Street, but this would involve the removal of the existing underground parking structure west of the Law Library. Since the remaining possibility is occupied by the County Courthouse building, this station would have entrances at only one end. Any further northerly movement of the station is not possible due to the curving of the alignment which is necessary to make the turn to Union Station. A southerly movement of the station would place it too close to the Fifth/Hill Station.

Given the proposed station location, there are no real options for moving the Court of Flags entrance. There is an underground parking structure across the street from the park and the remaining corners are already proposed for entrances. Mid-station entrances are not possible, because they would involve removal of the Los Angeles County Courthouse and an underground parking structure directly across from the courthouse. Finally, elimination of the Court of Flags entrance is not recommended because it will require at least one entrance at either end of the station to handle the daily boardings expected for the Civic Center Station.

Mitigation. Removal of sidewalks, trees, shrubs, and grass would be required in constructing the station entrance. These elements would be replaced with carefully integrated walkways and landscaping upon completion of construction.

Coordination. The County of Los Angeles' Department of Parks and Recreation has been consulted throughout the Preliminary Engineering phase of this project and will review the Final Design for the Civic Center Station.





Vicinity Map

STATION LOCATION

PROPOSED STATION ENTRANCE

40 0 80 200

4-55

Southern California Rapid Transit District

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Figure 4-12 Court of Flags

Pershing Square.

Description and Significance. Pershing Square, in downtown Los Angeles between Fifth, Sixth, Hill, and Olive Streets, consists of approximately five acres of landscaped area over an underground parking lot. The central plaza of the park is brick-paved with a large pool and 16-foot fountain. Three flagpoles also stand in the plaza. Four sculptured cherubs are part of the fountain's central motif. Several pieces of statuary have been erected throughout the park. The Spanish War Memorial by S.M. Goddard is located at the northeast corner of the park and is a 20-foot granite depiction of a Spanish War veteran at parade rest. A statue of Beethoven, donated in 1932 by Philharmonic Orchestra personnel in honor of William Clark Jr., its founder, is on Fifth Street. Humberto Perdretti's World War Memorial, an 18-foot granite obelisk with a bronze doughboy at the top is located in the northwest corner of the park. Other memorials include an iron cannon from the USS Constitution donated by the American Legion in 1935, a 1751 French bronze cannon captured in 1898 by Major George William R. Shafter and given to the city by him, and a plaque inscribed "In the memory of Benny, a squirrel," who was sorely missed when he was killed by an automobile in 1934.

Street furniture in the park includes concrete benches and sidewalks dedicated in 1952. Lighting is comprised of 35 aluminum poles with single clear globes. Fixtures with centrally pedestalled globes were present in the park until recently. Plants in the park include banana trees, agapanthas, lilies, magnolia, ivy, and bird-of-paradise.

The Square dates back to 1866, when Mayor Cristobal Aguilar approved an ordinance providing for a public square. This land had been left as unsold land from original pueblo holdings. Over the years the square was known as St. Vincent Park, Los Angeles Park, Central Park, La Plaza Abaja, Sixth Street Park, Public Square, and other names. In its early years this park was used as a campground for travelers entering the city. By the early 1870s, the square was plowed, graded, planted, and fenced. Trees and pathways decorated the park. By 1886, graveled pathways divided ornamental lawns and flower gardens; later a bandstand was constructed. John Parkinson was commissioned to redesign "Central Square" in 1910. The bandstand was replaced with a fountain, wide pathways laid out, tropical foliage planted, and ornamental streetlights put in. In 1918, the park was renamed Pershing Square in honor of General John J. Pershing.

Proposed Use. Although it is not in the current scope of project, a station entrance may be built at the northeastern corner of the park and, therefore, a 4(f) evaluation is appropriate (Figures 2-7 and 4-13). If this entrance is built, a portion of the existing sidewalk and planters would need to be removed during construction. Public access would also be restricted during construction.

Alternatives. Alternatives to using Pershing Square parkland are deleting or relocating the station or deleting or relocating this entrance. The reasons why eliminating or relocating the station are infeasible are discussed in section 2.6.2 of this chapter. With respect to the alternative of relocating the entrance, the passenger volume at the Fifth/Hill Station is projected to be the highest of all the stations. Initially, at least two station entrances are required and, in the future, it may be necessary to have an entrance at all four corners. The entrance in Pershing Square parkland would be built last of the four and only if patronage levels require and funding allows.

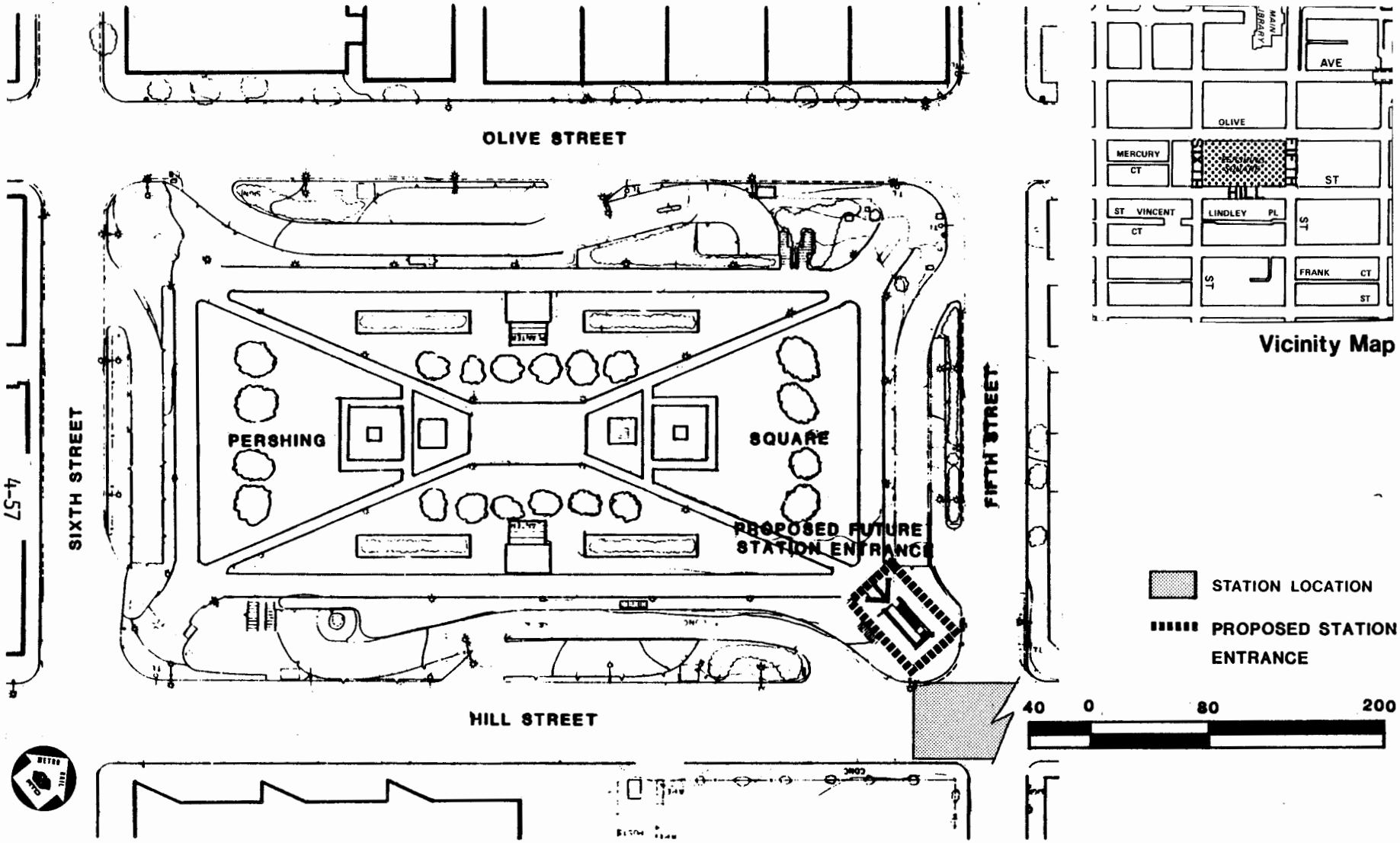

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Figure 4-13 Pershing Square

Mitigation. Parts of the sidewalk and planters in the northeast corner would be removed during construction to allow placement of the station entrance. The new entrance and replacement landscaping would be blended in with the existing surroundings. The main green area of the park would not be affected. At present, Pershing Square serves as a pedestrian mall, a use the Fifth/Hill Station would enhance.

Coordination. The City of Los Angeles' Department of Recreation and Parks has been consulted throughout the Preliminary Engineering phase of the Metro Rail Project.

Hollywood Bowl.

Description and Significance. The description and significance of the Hollywood Bowl is discussed in section 2.5.2 of this chapter.

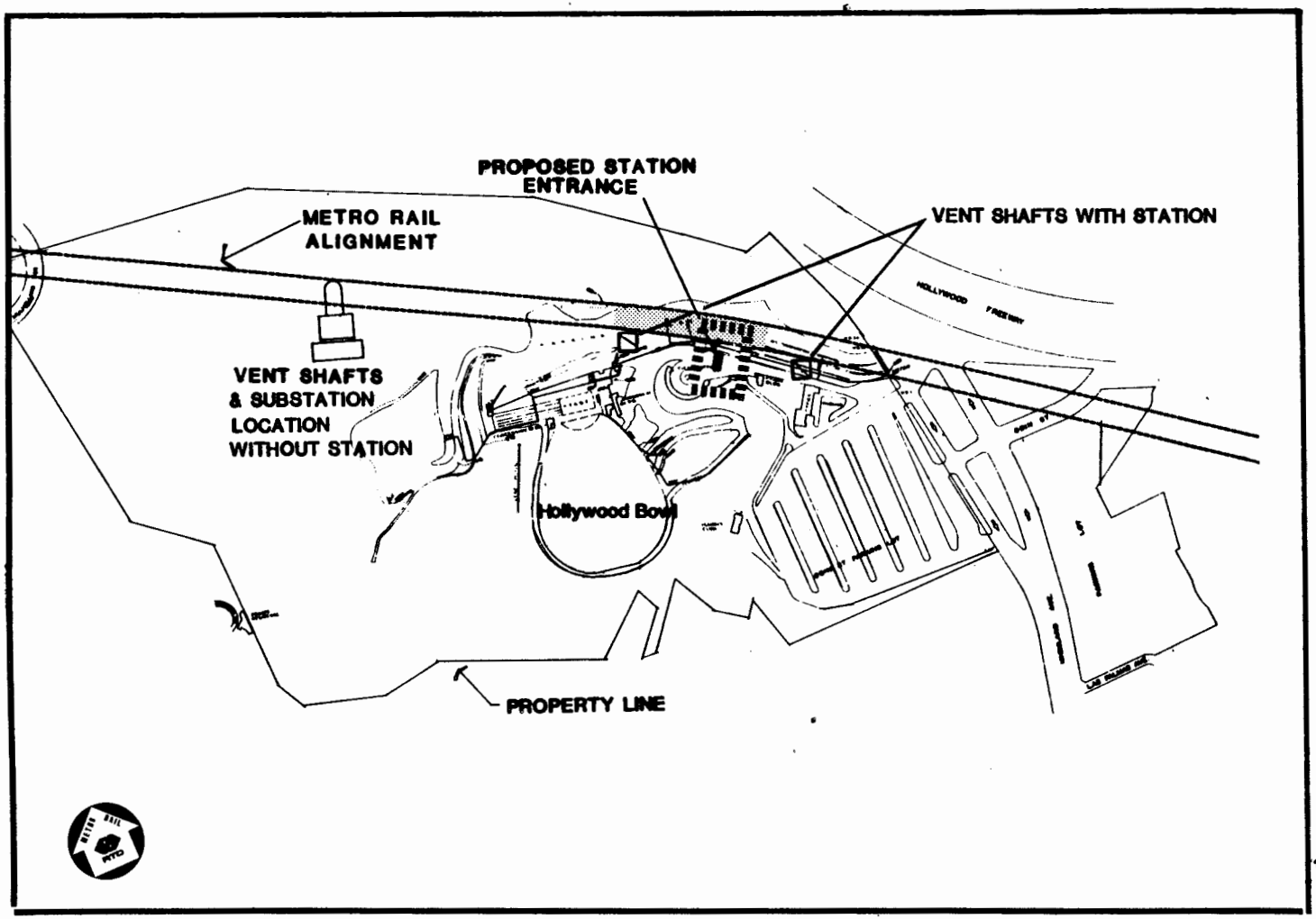
Proposed Use. The Locally Preferred Alternative includes a station at the Hollywood Bowl which would serve the performances at the Bowl (Figures 2-23 and 4-14). The Hollywood Bowl would have an entrance on Bowl property at the upper level parking and bus unloading areas. The entrance would lead into the area of the ticket booths. There would also be a vent shaft at either end of the station. Each would be approximately 20 feet in diameter and stand 10-12 feet above the ground. One would be located approximately 110 feet behind the Bowl shell and the other approximately 625 feet away.

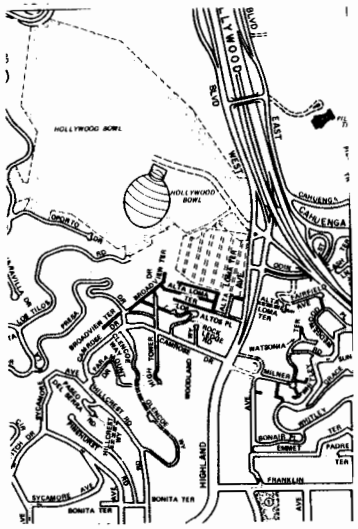
If the Hollywood Bowl Station is not built, a similar vent shaft and a traction power substation would be constructed in the Bowl Maintenance Area, approximately 900 feet from the Bowl shell near an existing access road.

Alternatives. The alternatives to using land from the Hollywood Bowl recreation area are to move the route alignment to miss this area, to delete or move the station and to delete or move the entrance.

The geometry of the alignment has been determined by the siting of a pocket track north of the Hollywood/Cahuenga Station and the need to avoid the Whitley Heights Historic District. The station may be deleted if it is decided this station is not warranted; however, this will not eliminate the need for the vent shaft and traction power substation. These facilities are necessary either as part of a station or as separate facilities because of the long distance between the Hollywood/Cahuenga and Universal City Stations. Moving them north on the alignment would place them in the Mulholland Scenic Parkway, an entrance to the Santa Monica Mountains National Recreation Area, and increase the cost of installing these facilities because of the rapid increase in grade. Moving the facilities south would require the taking of one or more residences.

Because the purpose of this station is to serve the Hollywood Bowl, it is not practical to move the station or the entrance out of the proximity of the Bowl's entrance. It is possible to provide an entrance near Highland Avenue and still serve the Bowl; however, this would increase walking distances to the Bowl and reduce considerably the effectiveness of the station. Since this is the only entrance planned for this station, deletion is not possible.





Vicinity Map

STATION LOCATION

VENT SHAFTS

PROPOSED STATION ENTRANCE

100 0 200 400 600 800

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Figure 4-14 Hollywood Bowl

Mitigation. If built, the Hollywood Bowl Station would be sited to enhance the flow of patrons and would be designed to be compatible with the setting and character of the Hollywood Bowl. The two vent shafts would be designed to blend in with the surroundings and would be sufficiently buffered to prevent all possibility of perceptible noise.

If the separate traction power substation and vent shaft facility are necessary, they would be constructed in the Bowl's maintenance area and sufficiently buffered against noise. The facilities would be designed to blend in with the surroundings.

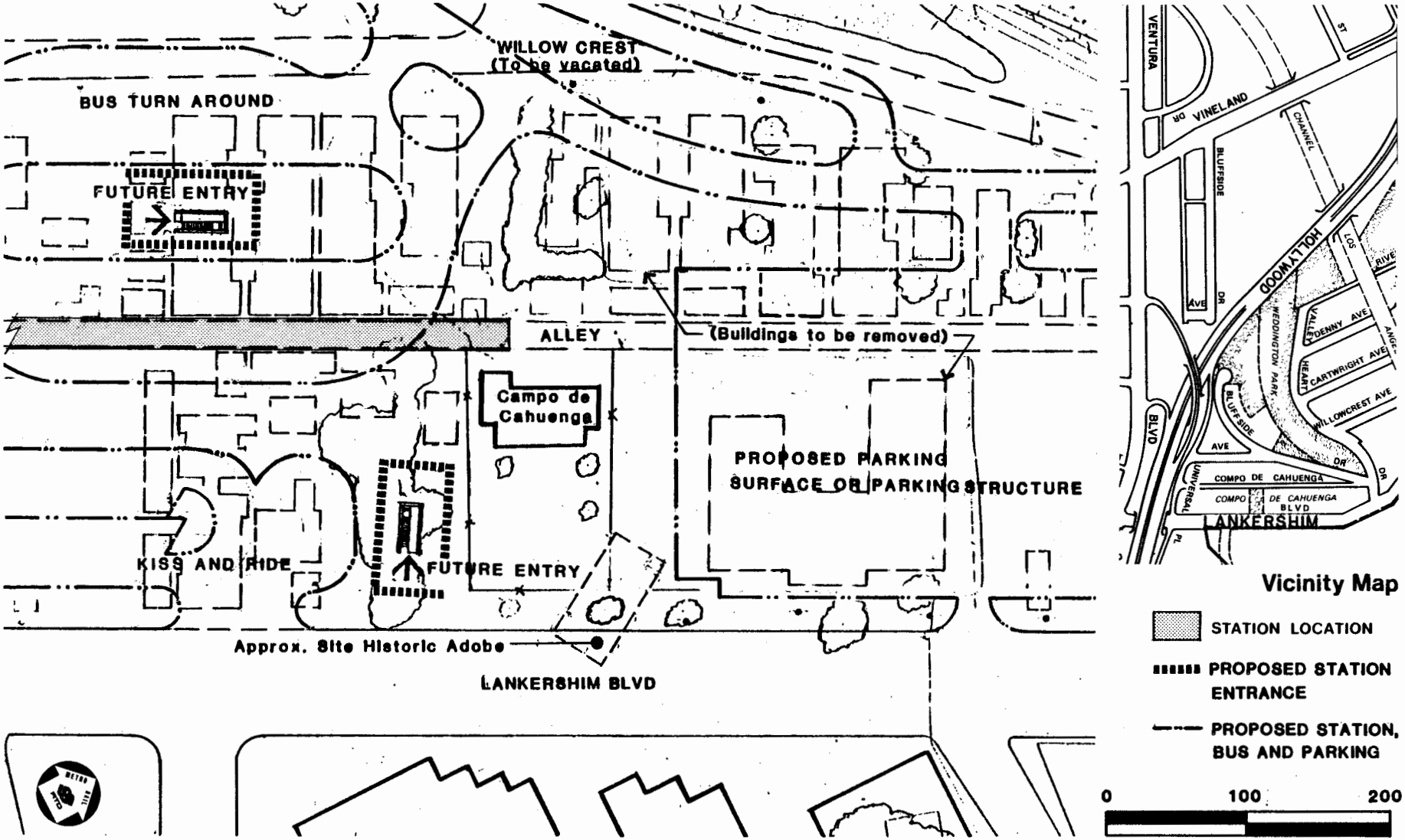
Coordination. The Los Angeles Philharmonic Association has voiced support for the possibility of a Hollywood Bowl Station. The County of Los Angeles' Department of Parks and Recreation has been consulted throughout the Preliminary Engineering phase of this project and will review the Final Design of the Hollywood Bowl Station.

Campo de Cahuenga.

Description and Significance. Campo de Cahuenga is State Historic Landmark #151 and is the location of an event of major historical importance in California and the West. The original adobe structure, the hacienda of Don Tomas Feliz, was erected at the foot of the north slope of the Santa Monica Mountains. Campo de Cahuenga was originally part of the Mission San Fernando land grant and was included in the boundaries of the "Ex-Mission San Fernando" land patent. On January 13, 1847, representatives of the U.S. Army and the Californians met at this adobe to end hostilities in California during the Mexican-American Treaty of Cahuenga, putting an end to the war within California. This military treaty, or capitulation, was followed the next year with the signing of the Treaty of Guadalupe Hidalgo in Mexico, by which California became a part of the United States.

Over the years, the adobe disintegrated and was demolished in 1900. In 1923, the City of Los Angeles purchased the property and established the Fremont-Pico Memorial Park. A replica of the original adobe was constructed in 1949, and has served as a meeting place for many recreational and historical groups. This excellent reconstruction of the adobe hacienda stands as a reminder of a major historic event for both the Southwest and the entire nation. The Campo de Cahuenga Memorial Association developed a museum for the structure which houses many relics of the occupation of California in 1846-1847. Oil paintings and portraits of the period, historical maps, resolutions, and plaques are also part of the museum. The reconstructed adobe structure is located in Universal City, across Lankershim Boulevard from the Music Corporation of America's World Headquarters. It is set off the street in a fenced landscaped courtyard with palms, magnolia trees, shrubs, lawns, fountains, and tiled walkways. The square-shaped structure is a single-story adobe with a slanted overhanging red-tile roof. Floors are tiled and walls are whitewashed plaster. A minimal number of windows are multipaned; doors are wooden; both windows and doors are accented by wooden lintels. The Campo de Cahuenga was submitted by the SHPO to the Keeper of the National Register of Historic Places but was determined not eligible for inclusion. It is, however, a City park and is therefore included in the Section 4(f) evluation of this document.

Proposed Use. The Locally Preferred Alternative would not require the use of any of the Campo de Cahuenga property. The Univeral City station would be located behind the Campo de Cahuenga and a proposed station entrance would be located south of this historic landmark (Figures 2-24 and 4-15). A possible future parking structure would be located north of the state landmark.



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Southern California Rapid Transit District

Metro Rail Project

PRELIMINARY ENGINEERING PROGRAM

Figure 4-15 Campo de Cahuenga

Although no actual use of Campo de Cahuenga parkland would occur as defined in Section 4(f), consideration is being given to potential impacts which may occur during construction of the station and its ancillary facilities. These impacts include vibration damage and settling, the possibility of encountering any remains of the foundation of the original adobe during construction of the future parking structure, and visual intrusion of the parking structure.

Alternatives. The alternatives to avoid impacts on the Campo de Cahuenga parkland area are deleting or relocating the station.

The location of the proposed station at the Campo de Cahuenga was recommended as the result of an extensive public analysis. During this analysis, the public decided that the proposed location would best serve the extensive development in Universal City as well as the needs of the surrounding commercial and residential areas. Deletion or relocation of this station would ignore this input.

Most of the alternatives to the proposed future parking structure have been eliminated because of difficulty in providing adequate bus or automobile access, high costs, or more serious environmental impacts. The site located on the northeast corner of Ventura Boulevard and Vineland Avenue will be combined with the location north of Campo de Cahuenga to provide necessary parking space for the station. Initially, parking would be provided as surface lots and ultimately, as a parking structure of up to six-levels. It is possible that only one six-level parking structure would be built at the Ventura/Vineland site, with no structure at the other site.

Mitigation. Although cut and cover construction of the station is very near the property, the building is about 35 feet away from the proposed excavation. The structure could be affected by vibration from heavy equipment used during excavation and construction. At this site in particular, construction equipment and techniques will be selected to minimize ground-borne vibration to the structure. There is also the potential for lateral soil movement during and after excavation which could lead to settlement of the building. Techniques will be determined during Final Design to shore-up excavation to prevent any settlement to the Campo de Cahuenga structure. A qualified archaeologist will observe excavation for the proposed parking structure.

Coordination. The County of Los Angeles' Department of Parks and Recreation has been consulted throughout the Preliminary Engineering phase of this project and will review the final design for the Universal City Station.

5.2.3 AERIAL OPTION

The Aerial Option to the Locally Preferred Alternative would affect the same parks and recreation areas covered for the Locally Preferred Alternative in section 5.2.2 of this chapter: the Court of Flags at the Civic Center Station, Pershing Square at the Fifth/Hill Station, the Hollywood Bowl at the Hollywood Bowl Station, and the Campo de Cahuenga at the Universal City Station.

5.2.4 MINIMUM OPERABLE SEGMENT

The Minimum Operable Segment operating from Union Station through Fairfax/ Beverly Station would have impacts on the Court of Flags at the Civic Center Station and Pershing Square at the Fifth/Hill Station. For a discussion of the impacts on these parks, see section 5.2.2 of this chapter.

5.3 USE OF HISTORIC PROPERTIES

The project proposes the use of land of four historic properties under the Locally Preferred Alternative and the Minimum Operable Segment. The Aerial Option may use land from more than four properties.

5.3.1 NO PROJECT ALTERNATIVE

Under the No Project Alternative, there would be no use of land of any of the properties that are eligible for the National Register.

5.3.2 LOCALLY PREFERRED ALTERNATIVE

The Locally Preferred Alternative would have an adverse impact on the Union Station, the Title Guarantee Building, the Pershing Square Building, and Hancock Park/La Brea Tar Pits.

Union Station.

Description and Significance. The description and significance of Union Station is discussed in section 2.6.2 of this chapter.

Proposed Use. The construction of the station itself and the two entrances would involve the staged removal and replacement of Union Station track during cut and cover construction, the removal and reconstruction of the north end of the Mail, Baggage, and Express Building (currently being used as the Superintendent's offices), and the removal and reconstruction of part of a ramp and a section of an architecturally integrated wall at the north end of the property. The west entrance to the station would require the permanent removal of an additional section of the Mail, Baggage, and Express Building (at which point it is a baggage handling shed) to make room for a walkway. The removal of a canopied loading dock east of the track area (Figures 2-5 and 4-4) also would be required to make room for a surface parking lot. A small bus facility would be constructed next to this surface parking lot east of the track area.

Alternatives. Alternatives to the proposed use were discussed. They include moving the route alignment and moving or eliminating the station. Section 2.6.2 of this chapter provides greater detail on these alternatives and explains why they are not feasible.

Mitigation. Mitigation measures are discussed in section 2.6.2 of this chapter. These include the following:

- deleting the west station entrance
- reconstructing the portion of the building demolished for station construction
- reconstructing the architecturally integrated wall demolished for station construction
- reconstructing the ramp demolished for construction
- designing an archway over the west entrance to be compatible with the other archways at Union Station
- recording and architectural salvage before demolition
- incorporating design elements of the structure in the alteration
- reusing ornamental materials whenever possible.

Coordination. The SHPO has been consulted throughout the Preliminary Engineering phase of this project and will review the final design for Union Station. Mitigation measures agreed to by UMTA, SCRTD, ACHP, and the SHPO appear in the Memorandum of Agreement.

Title Guarantee Building.

Description and Significance. The description and significance of the property is contained in section 2.6.2 of this chapter.

Proposed Use. The Title Guarantee Building will have an initial subway entrance constructed in ground floor retail space now occupied by Thrifty Drugs. A new street entrance for the building may be constructed. This action would remove or alter part of the architectural fabric of the building but would not affect the lobby or the facade which contribute to the building's significance (Figures 2-7 and 4-6).

Alternatives. The alternatives that would avoid using land of this historic property are discussed in section 2.6.2 of this chapter. They include deleting the station or relocating it to another site and deleting or relocating the entrance proposed for this building. Section 2.6.2 of this chapter explains why these alternatives are not feasible.

Mitigation. Mitigation measures for the Title Guarantee Building are discussed in section 2.6.2 of this chapter. As stated in that section, all new construction would be responsive to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Buildings. Also, recording and documentation would be undertaken according to the HABS/HAER.

Coordination. The SHPO has been consulted throughout the Preliminary Engineering phase of this project and will review final design for the Fifth/Hill Station. Mitigation measures for the Title Guarantee Building agreed to by UMTA, SCRTD, ACHP, and the SHPO appear in the Memorandum of Agreement.

Pershing Square Building.

Description and Significance. These elements are discussed in section 2.6.2 of this chapter.

Proposed Use. If additional entrances to the Fifth/Hill Station are required, the Pershing Square Building would have a subway entrance constructed. This action would remove or alter part of the architectural fabric of the building but would not alter the main lobby or the upper floors' facade which contribute to the building's significance (Figures 2-7 and 4-7).

Alternatives. The alternatives that would avoid using land at this historic property are discussed in section 2.6.2 of this chapter. They include deleting the station or relocating it to another site and deleting or relocating the entrance proposed for this building. Section 2.6.2 of this chapter explains why these alternatives are not feasible.

Mitigation. Mitigation measures for the Pershing Square Building are discussed in section 2.6.2 of this chapter.

Coordination. The SHPO has been consulted throughout the Preliminary Engineering phase of this project and will review final design for the Fifth/Hill Station. Mitigation measures for the Pershing Square Building agreed to by UMTA, SCRTD, ACHP, and the SHPO appear in the Memorandum of Agreement.

Hancock Park/La Brea Tar Pits.

Description and Significance. The description and significance of Hancock Park is discussed in Section 2.6.2 of this chapter.

Proposed Use. Because the paleontological resources associated with the Rancho La Brea Tar Pits in Hancock Park extend throughout the general area of the park's location, the Locally Preferred Alternative may encounter resources during construction. Refer to Section 2.6.2 of this chapter.

Alternatives. Alternatives to the proposed use are discussed in Section 2.6.2 of this chapter.

Mitigation. Mitigation measures are discussed in Section 2.6.2 of this chapter and include moving the station and data recovery plans to protect resources.

Coordination. The SHPO has been consulted throughout the Preliminary Engineering phase of this project and will preview the final design for the Wilshire/Fairfax Station. Mitigation measures agreed to by UMTA, SCRTD, ACHP and the SHPO appear in the Memorandum of Agreement.

5.3.3 AERIAL OPTION

It has been determined that, under the Aerial Option, land from the following properties included or eligible for inclusion in the National Register would be used: Union Station, Title Guarantee Building, the Pershing Square Building, and Hancock Park/La Brea Tar Pits. Because the use of land from historic properties is the same for the Aerial Option as for the Locally Preferred Alternative, the discussions of

each are identical (see section 5.3.2 of this chapter). In addition to these identified historic properties, the Aerial Option may use land from potentially historic properties (see section 2.6.3 of this chapter) along the aerial segment for station entrances and ancillary facilities. If the Aerial Option is selected as the preferred alternative, further design of station entrances and ancillary facilities will determine the need for 4(f) lands. As stated in that section, all new construction would be responsive to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Also, recording and documentations would be undertaken according to the HABS/HAER.

5.3.4 MINIMUM OPERABLE SEGMENT

It has been determined that under the Minimum Operable Segment, land from the following properties included or eligible for inclusion in the National Register would be used: Union Station, Title Guarantee Building, Pershing Square Building, and Hancock Park/La Brea Tar Pits. Because the use of land of historic properties is the same for the Minimum Operable Segment as for the Locally Preferred Alternative, the discussions of each are identical (see section 5.3.2 of this chapter).

CHAPTER 5

COMMUNITY PARTICIPATION

CHAPTER 5

COMMUNITY PARTICIPATION

1. BEGINNING OF A PUBLIC MANDATE

In June of 1974, a solid majority of Los Angeles County voters passed Proposition 5, allowing for the use of a portion of state gasoline taxes for rapid transit development. This measure provided a local source of funds for SCRTD to begin its rail rapid transit development program in Los Angeles. It was one of the first solid demonstrations of the voters' commitment to rapid transit and its financing. The administration of Proposition 5 funds is now under the Los Angeles County Transportation Commission.

2. THE ORIGINS OF A RAPID TRANSIT "STARTER LINE" FOR THE REGION

Although Los Angeles County voters solidly backed Proposition 5's reallocation of state gasoline taxes for rapid transit, there remained some skepticism about attempting to undertake very large rapid transit networks for the whole region all at once. The public failed to support Propositions A and B, which were to increase local taxes to build a 145-mile rapid transit system as well as substantially increase express bus service on freeways. The voters also declined to endorse Propositions R and T in June of 1976 that would have created a 230-mile "heavy-rail" rapid transit system (predominantly in elevated structures in the medians of freeways), plus another 51 miles of "light-rail" and "monorail" "feeder lines."

Elected officials, transit administrators, and community leaders responded to these events by concentrating on a "starter line" of rapid transit which could be built with the limited state funding available from Proposition 5 and which would concentrate on the most critical areas of transportation need.

The initial definition of the region's most critical transportation corridor stretched from downtown Long Beach through South Central Los Angeles, downtown Los Angeles, Wilshire Center, Hollywood, and into the San Fernando Valley. As this implied a larger "starter line" than could be funded, the corridor had to be reduced still further. Extensive studies indicated that the greatest need for improved public transportation and the most cost-efficient segment of a rapid transit system would be in the east Wilshire and downtown portion of the corridor. A consensus was reached to define a starter line rapid transit proposal for this part of the region, called the Regional Core. (The Los Angeles County Transportation Commission has since initiated a light rail transit project to serve the balance of the earlier defined most critical transportation corridor.)

3. FIRST TIER EIS/EIR AND THE ALTERNATIVES ANALYSIS

From 1977 through 1980, SCRTD and UMTA using federal and Proposition 5 funds, conducted an analysis of the transportation needs of the Los Angeles Regional Core and the transportation system alternatives that might best address those needs. As part of the First Tier EIS/EIR, there were four cycles of evaluation, entailing several hundred meetings in the Regional Core communities. At the meetings, major alternative routes, systems, and configurations were identified. From the alternatives analysis process emerged a locally preferred alternative, consisting of a subway system of 16 or 17 stations. Significantly, Regional Core residents rejected solutions involving more familiar surface transportation modes and chose an entirely new approach for Southern California. This alternative was recommended, in part, because it best fulfilled the communities' needs and priorities.

4. "PROPOSITION A" REFERENDUM

By June of 1981, the community had not only reached agreement on a particular transportation system, route, and configuration for the Regional Core, but a vote of the whole electorate of Los Angeles County had mandated that the Metro Rail Project become the keystone of a regionwide transportation plan. In this referendum, called "Proposition A," the people of Los Angeles County voted by the largest margin of any such election in the nation to add a half percent to the county sales tax to provide local share funding to implement the regionwide plan. This was only three years after the passage of the "Proposition 13" tax-cutting measure.

5. "SCOPING" OF THE SECOND TIER EIS/EIR PROCESS

The diversity of Regional Core needs, together with the complexity of transportation system choices, precluded the citizenry from making a single, all-encompassing decision about the region's transportation improvements. Not all alternatives could be designed and engineered in detail for the purposes of the Alternatives Analysis. Thus, a "scoping" process was conducted at the outset of the Second Tier process which encompassed detailed engineering and impact analyses.

On November 2 and 3, 1981, SCRTD and UMTA conducted three widely advertised "scoping" meetings. The meetings' primary objectives were to give the public and other agencies an early opportunity to indicate which environmental issues were important to the community and should be addressed in the Second Tier EIS/EIR. More than 100 persons attended the meetings. A wide variety of interests were represented including chambers of commerce, neighborhood associations, civil rights organizations, public agencies, and other special interest groups.

SCRTD took the concerns identified for further consideration in the First Tier process and those identified during the "scoping" meetings and distilled them into some 15 categories and 122 issues.* Each of these issues was responded to and targeted for resolution in the Second Tier process. Prominent among the identified issues were:

Alternative Routes

- Use Broadway, Hill, or Flower in the Central Business District.
- Interface with Caltrans' light rail transit proposals to Santa Monica Boulevard.
- Use Sunset Boulevard instead of Fountain Avenue in Hollywood.

Vertical Profiles

- Study limited aerial segments for their cost effectiveness and appropriateness.

Circulation and Parking

- Insure adequate parking at projected key park and ride stations.
- Insure adequate accessibility and mobility around stations.

6. MILESTONE PROCESS

A key element of the Community Participation Program for the Metro Rail Project is centered around 12 basic interrelated decisions, termed "Milestones," for the Metro Rail Project engineering and design. (See Chapter 2, Section 1, for a list of Milestones.) The Milestones are an integral part of the process of designing and developing the rail system. They address all of the issues raised at the scoping and earlier community participation meetings.

To maximize awareness of public concerns, SCRTD has established an extensive community participation and data input process to accompany the Milestone Process. This element of the Community Participation Program,** as adopted by the SCRTD Board of Directors, enables concerned citizens of the Los Angeles area to communicate with SCRTD staff, city and county officials, and the SCRTD Board of Directors regarding Metro Rail Preliminary Engineering issues and related areas of planning and development.

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* A detailed discussion of these issues and SCRTD responses is contained in "Scoping" Issues and Their Implications for the EIS/EIR Work Program (Report for Tasks 18AAA, 18AAB, by Sedway/Cooke, September, 1982).

** SCRTD Community Relations, Community Participation Program Work Program, February 1982.

The public has three opportunities to review and comment on the issues covered in each Milestone. The first opportunity is in a Data Presentation Meeting, where the Project Team presents its initial data and discusses the pros and cons of alternatives relative to a particular Milestone. Copies of the data report are distributed to each participant for review and comment, and subsequent meetings are scheduled if necessary to answer participants' questions. The second opportunity is the Draft Report Meeting, where the public reviews and comments on a draft Milestone report and the Project Team responds. The third opportunity is the SCRTD Board hearing, which the Board of Directors convenes before adopting each Milestone Report to give participants a final opportunity to comment on that specific Milestone. This process, which takes about 45 to 60 days for each Milestone, has been completed.

7. SPECIAL ALTERNATIVES ANALYSIS

At the SCRTD Board public hearing on July 29, 1982, the Board and the General Manager determined that although the public participation process for Milestones 3 and 4 (route alignment and station location) had been completed, significant issues had not been resolved for various communities. The Board directed the staff, under the leadership of the General Manager, to undertake joint studies with the Hollywood and North Hollywood communities to resolve the outstanding issues.

The Community Relations Department organized representatives from both communities into citizens' committees of approximately 40 members each. Each group met weekly in a work session with SCRTD staff and a special team of consultants. The sessions covered the alternatives analysis methodology, community goals and objectives, environmental impacts, and cost data. The results of these intensive studies were presented in the Special Alternatives Analysis, Hollywood Area; in the Special Alternatives Analsysis, North Hollywood Area; and in the supporting appendices to the SCRTD Board at a final public hearing on December 8, 1982. During the process, the community groups identified and ranked their collective goals and objectives, compared environmental and cost data for alternative alignments and, finally, ranked each alternative before selecting a community-preferred alternative for each area.

Even though their initial agendas have been successfully concluded, each of the study groups has continued to meet and aggressively participate in the Metro Rail Project's design and development. These groups' continuing efforts are indicative of a growing community commitment to rapid transit in Los Angeles.

8. OPTIONAL STATIONS AND STATION LOCATIONS

In addition to the Special Alternatives Analysis in Hollywood and in North Hollywood, there were a number of optional stations and alternative station locations that were considered during Preliminary Engineering. Each of these stations and alternatives was made part of a review process designed to focus on the particular issues involved in that situation.

8.1 WILSHIRE/CRENSHAW STATION

In response to considerable community comments during the Alternatives Analysis, the SCRTD Board designated the intersection of Wilshire and Crenshaw as an optional station location to be evaluated in the Second Tier EIS/EIR. Findings of these analyses done as part of the Milestone and EIS process indicated that a Wilshire/Crenshaw station would be well used and that much of the patronage would or could not otherwise use public transit.

Land use impact analyses indicated that a Metro Rail station at Crenshaw and Wilshire would help foster development, but the total development in the station vicinity by the year 2000 would amount to less than 60 percent of the development permitted by the Park Mile Specific Plan. If a station were not built, analyses indicated that future development would be attracted to other station locations. This would raise the issue of whether the quality of development envisioned by the Park Mile Specific Plan and the revitalization of deteriorated uses along Crenshaw Boulevard could be achieved.

Nonetheless, the Los Angeles City Planning Department and homeowner's organizations adjacent the prospective station location questioned whether a station at this location was consistent with the City's planning policies. To resolve these concerns, the Los Angeles City Planning Department convened a special Citizens Advisory Committee (CAC) for a Wilshire/Crenshaw Station. This CAC was asked to discuss whether or not a Metro Rail station at Crenshaw was supportive of land use and other community policy objectives and if it was, what particular design or planning concerns needed to be addressed in its implementation.

Based upon the lengthy deliberation of the CAC--together with other special activities such as an all-day open workshop at a nearby high school--the Director of City Planning made recommendations to the City Planning Commission that a station at Crenshaw would be appropriate. These recommendations were adopted and transmitted to the City Council which also adopted the recommendation that a station at Crenshaw be built. The SCRTD General Manager then made recommendations to the SCRTD Board that a Crenshaw station be incorporated into the Locally Preferred Alternative in response to the city's recommendations.

8.2 HOLLYWOOD BOWL STATION

A station at the Hollywood Bowl was originally included as part of the Locally Preferred Alternative. During the early stages of Preliminary Engineering, it became apparent that other locations in Hollywood would have substantially higher utilization and, thus, better serve the needs of the community than a station at the Hollywood Bowl. As a result, an alternative station location at Sunset and La Brea was identified. Both the Hollywood Bowl and the La Brea/Sunset Station locations were made part of the Milestone 4 (Station Location Alternatives) public discussion process. During this process, the Hollywood Bowl Station generated considerable public comment (both negative and positive) while the La Brea/Sunset Station appeared to engender no opposition in the community. As the question of utilization appeared to be paramount with regard to a Hollywood Bowl Station, the SCRTD Board scheduled a review of the Hollywood Bowl Station as part of Milestone 9 (Supporting Services Plan).

In response to public concern, the SCRTD Board asked that analyses be done on "phasing" the station into the system at a later time when its usage might be substantially greater. These analyses were considered as part of the Milestone 10 process. The SCRTD Board then decided, after receiving considerable public comment, to retain both the Hollywood Bowl Station as well as the La Brea/Sunset Station as part of the Locally Preferred Alternative.

8.3 WILSHIRE/FAIRFAX STATION

During Milestone 4 (Station Location Alternatives), numerous alternative sites, including an off-street location, were presented. A location east of Curson Avenue (east of Fairfax) under Wilshire Boulevard, appeared to be the most desirable in that it permitted the most efficient tunnel configuration between Wilshire and Fairfax. This site had the concurrence and support of the museums, which saw a Metro Rail station as aiding in the recovery of fossil materials presently under Wilshire Boulevard, as well as improving public access to the museum facilities.

Further analyses and discussion with museum paleontologists during the preparation of the Draft EIS/EIR raised uncertainties regarding the viability of expedited fossil recovery at the proposed station site. Two alternative station sites were then identified as possible mitigation measures. These sites were further west, presumably in a less paleontologically sensitive area. However, these alternative sites required more costly, less efficient transition tunnels between Fairfax and Wilshire, however.

Because of these limitations, discussions were initiated with the May Company in an effort to define another off-street station site alternative. This off-street site provides much greater flexibility in excavation and construction and this flexibility could be especially useful in retrieving any paleontological resources that might be found. The off-street site could also confer considerable commercial benefit on the surrounding property. Conversely, a portion of this benefit might be recaptured to help amortize the cost of the station's construction. As a result of these negotiations, the SCRTD Board concluded a joint development agreement with the May Company which will provide for siting the Wilshire/Fairfax Station behind the present May Company store, with access points near both Wilshire and near Fairfax (see Figure 2-17). It also provides for some sharing of construction costs as well as a future benefit assessment.

9. CONTINUING PUBLIC PARTICIPATION EFFORTS

An effective community participation effort must deal with the immediate issues as well as maintain long term, ongoing communications with segments of the community. Briefly summarized below are some of the efforts used to achieve this goal as they relate to the EIS and ongoing planning and engineering efforts.

9.1 CONTACTS WITH CIVIC ORGANIZATIONS

To initiate and maintain public awareness of the Metro Rail Project, meetings have been held with numerous civic and professional organizations, such as chambers of commerce, professional groups, labor organizations and homeowners' and tenants' associations. These have also included regionwide organizations such as the League of Women Voters, the Sierra Club, the Urban League, Rail Transit for California, the Los Angeles County Employees Association, and the Los Angeles NAACP.

These organizations have shown an appreciation for being involved in the Project and have indicated that they want to be kept involved in its progress until the final design decisions are made and the necessary funding committed. Most have expressed their support of the project with formal resolutions transmitted to local decision-making bodies.

9.2 CONTACTS WITH BUSINESS AND COMMERCIAL INTERESTS

Contacts have been made with the private sector through several chambers of commerce, other business organizations and direct contact with individual property owners and developers. These organizations and individuals have been thoroughly briefed on the current status and the projected development of the project. As a result, the organizations and individuals have increasingly sought out and identified their priorities to the Metro Rail staff.

9.3 CONTACTS WITH GOVERNMENT STAFFS AND ELECTED OFFICIALS

Continually updated printed information and personal briefings by Metro Rail staff have been provided to interested federal, state, and local elected officials whose jurisdictions fall within the Regional Core or who are specifically interested or involved in the eventual decisions on this Project. These include City Council members, County Supervisors, State Legislators, and U.S. Congressional Representatives. Elected officials and/or their representatives also have attended many of the community meetings and public hearings.

9.4 COORDINATION WITH THE MEDIA

A number of information briefings have been held with media representatives to encourage publicity for the Community Participation Program and to insure accurate media coverage of the project. All regional newspapers and electronic media were contacted, but particular emphasis was given to the local newspapers circulated in the Regional Core area. The media has provided continuous coverage since May of 1982 when decisions on route alignment and station locations were first discussed in public meetings. Radio spots, radio and television talk shows, and regionwide newspaper articles have kept the general public of Los Angeles aware of the progress of the Metro Rail Project.

9.5 SPECIAL MEETINGS

In addition to regularly scheduled meetings in support of Milestones, land use plans, or EIS concerns, the Community Relations staff holds meetings with many other groups and individuals to insure that their concerns are made known and addressed. These meetings have brought together Metro Rail Project Team members, the SCRTD General Manager, members of the SCRTD Board of Directors, elected officials and the public. The practice of keeping the decision-making process open to the public early in Preliminary Engineering has enabled SCRTD's staff and consultants to identify, analyze, and evaluate important environmental impacts of the Metro Rail Project. A direct result of such special meetings was the creation of the previously discussed Special Alternatives Analysis.

9.6 PUBLIC INFORMATION AND COMMUNICATION

Basic to the success of Metro Rail's Community Participation Program has been the coordinated dissemination of public information to the Regional Core and the entire Los Angeles metropolitan community. A few of the most heavily used techniques are noted below.

9.6.1 METRO RAIL NEWSLETTER

The Community Relations Department has published and distributed a newsletter on the Metro Rail Project since 1978. The newsletter provides current information on the Project as well as insight into the transit industry as a whole. A direct mailing of 3,000-4,000 of each issue is made to governmental agencies, civic and service organizations, businesses, and members of the public. Additional copies are distributed to all community meetings and presentations conducted by Metro Rail staff.

9.6.2 METRO RAIL NEWS BULLETINS

Metro Rail News Bulletins, covering one or two subjects or possibly a meeting notice, are used between newsletter editions. The bulletins allow news items to be tailored to specific geographic areas along the Metro Rail alignment.

9.6.3 NEWS RELEASES

For each community meeting, public hearing, and major development a news release is issued to some 250 radio stations, television stations, and newspapers in the Los Angeles metropolitan area.

CHAPTER 6

COMMENTS AND RESPONSES ON THE DRAFT EIS/EIR

CHAPTER 6

COMMENTS AND RESPONSES

1. INTRODUCTION

The purpose of this chapter is to present the substantive comments that were made on the Draft EIS/EIR and to provide the responses to those comments. This Final EIS/EIR is the only place where comments made on the Draft EIS/EIR are formally responded to. For that reason, it is particularly important that those who offered comments review this chapter. As a result of the comments, revisions to the text and graphics in the Draft EIS/EIR have been made in the Final EIS/EIR and are indicated by dashed lines in the margins.

The Draft EIS/EIR public comment and review process was the culmination of the Metro Rail Project's Preliminary Engineering phase. This was only one of the many aspects of public participation in the Metro Rail Project's development and design. The preceding chapter describes many of these other aspects.

1.1 DRAFT EIS/EIR REVIEW AND COMMENTS PROCESS

Publication of the Draft EIS/EIR was announced in the Federal Register on June 3, 1983. During the week of June 5, notices (encompassing the official "Notice of Intent to Hold Public Hearings") appeared in 27 metropolitan, community and ethnic newspapers serving Metro Rail Project area residents. These bold print notices included the times, dates, and places of the eight public hearings that were held on July 18-21 at five locations throughout the Regional Core, as well as notified the public of the availability of the Draft EIS/EIR. Similar notices were published twice in 30 newspapers during the two weeks immediately preceding the public hearings to stimulate attendance at the hearings.

Also during this period, several hundred posters were put up around proposed Metro Rail station and facility sites. Slightly smaller posters were distributed to libraries and other public places for posting. EIS/EIR hearing materials, along with general project literature, were mailed to the owners of parcels that were considered likely to be needed for Metro Rail facilities. Posters ("car cards") were placed on buses throughout SCRTD's service area, publicizing the availability of the Draft EIS/EIR and announcing the public hearings. The SCRTD Community Relations staff devoted the two weeks prior to the hearing to contacting known civic groups and organizations, alerting them to the public hearing schedules.

By the close of the public hearings, approximately 995 copies of the Draft EIS/EIR and its Addendum had been distributed.

1.2 DESCRIPTION OF COMMENTS RECEIVED

Over 50 letters commenting on the Draft EIS/EIR were received from public officials and government agencies, and more than 120 letters were received from private individuals and organizations. Over 1,200 persons attended the 21 hours of public

hearings. Of this number, 210 gave oral testimony and another 31 submitted comment cards with additional comments not contained in testimony. Transcripts of the oral comments were prepared by court reporters and are available at SCRTD.

Although some commentors limited themselves to simple statements of support or opposition to the project, most raised particular issues or concerns. The concerns raised were diverse and broad-ranging. However, the following issues were raised with particular frequency during the public hearings:

- Parking availability and the prospects of traffic congestion around station areas.
- The noise and air quality impact of the proposed bus turn-around facilities associated with stations, particularly at Wilshire and Fairfax.
- The possible disruption of the character of the Fairfax area's elderly and single family residential neighborhood and the ethnic commercial community.
- Very strong opposition to the aerial guideway alternative in the San Fernando Valley, as well as opposition to the Minimum Operable Segment.
- Preservation of the archaeological and paleontological resources of the La Brea Tar Pits area.
- The accuracy of the project's ridership projections and its cost effectiveness.

1.3 ORGANIZATION OF THE COMMENTS AND RESPONSES

All letters, cards, and transcripts of the public hearings have been reviewed. Substantive comments have been identified, classified into one of 21 different subject areas, and numbered consecutively. Because there was a great deal of overlap and repetition in many comments, similar comments were consolidated and paraphrased. As a result, the comments that appear in this chapter are very often not the precise words found in the commentor's letter, card, or oral testimony. This has been done to reduce duplication of similar comments and responses, and in no way was intended to obscure the substance of a comment. Copies of original letters, together with a cross-index of comments and commentors, are available for public inspection at SCRTD. Also available are copies of the complete transcripts of the Draft EIS/EIR public hearings. The 21 subject areas covered in this chapter include:

Alternatives
Aerial Alignment
Stations
Rail and Bus Operations
System Costs and Financing
Patronage and Cost Effectiveness
Transportation
Land Use
Relocations and Business Disruptions
Community and Social Concerns
Safety and Security
Aesthetics
Noise and Vibration
Air Quality
Energy
Water Quality and Flooding
Seismic Safety
Construction
Cultural Resources
Public Participation
Miscellaneous

Table 6-1 identifies all commentors who provided oral testimony or written comments on the Draft EIS/EIR. Each commentor has been classified into one of three groups: public officials and government agencies; corporations and civic organizations; and individuals unaffiliated with an organization or corporation. Within each of these classifications, the commentors have been alphabetized. Where agencies or organizations are listed, the spokesperson is also indicated.

1.4 ADOPTION OF THE FINAL EIS/EIR

The purpose of the Final EIS/EIR is to complete the definitive documentation of the Metro Rail Project's design and its impacts that are prerequisite for state and federal funding decisions. Unlike the Draft EIS/EIR, however, the Final EIS/EIR is not normally intended as a document for comment and further revision.

The SCRTD Board of Directors must review this document and certify its compliance with state law. It will then be submitted to state and federal funding agencies for their review. UMTA will be responsible for certifying this document's compliance with federal law.

TABLE 6-1

LIST OF COMMENTORS

PUBLIC AGENCIES AND OFFICIALS

Name of person and/or agency

California Air Resources Board, James D. Boyd, Executive Officer

California Department of Parks and Recreation, Office of Historic Preservation, Dr. Knox Mellon, State Historic Preservation Officer

California Department of Transportation, Division of Mass Transportation, Charles A. Welches

California Department of Transportation, Transportation District 07, Susan Brown, Acting Chief, Environmental Planning Branch

California Office of Planning and Research, Ron Bass, Director, State Clearinghouse

California Office of Planning and Research, Terry Roberts

California Public Utilities Commission, William L. Oliver, Principal, Railroad Operations & Safety Branch, Transportation Division

California Regional Water Quality Control Board, Los Angeles Region, Raymond M. Hertel, Executive Officer

California State Assemblyman Burt Margolin, represented by Bunny Wasser

California State Assemblyman Cray Davis, represented by Steven Glazer

California State Assemblyman Gruen Moore, represented by Kyle Maltani

California State Assemblyman Michael Roos represented by Jim McDermott

California State Assemblywoman Gloria Molina, represented by Carmen Luna

California State Office of Historic Preservation, Dr. Knox Mellon

California State Senator Alan Robbins

California State Senator Art Torres, represented by Juan Yniguez

California State Senator David Roberti, represented by Phyllis Holzman

California State Senator Herschel Rosenthal, represented by Caroline Westheimer

City of Beverly Hills, Planning Department, Irwin M. Kaplan, Planning Director

City of Los Angeles, City Council

City of Inglewood Councilman Daniel Tabor

City of Los Angeles, Community Redevelopment Agency, Edward Helfeld, Administrator

City of Los Angeles Councilman Conningham, represented by Lloyd Raikes, Senior Deputy

City of Los Angeles Councilman Joel Wachs, 2nd District

City of Los Angeles Councilman John Ferraro, represented by James Rosen

City of Los Angeles Councilwoman Joy Picus, Third District

City of Los Angeles Councilwoman Pat Russell, represented by Ozzie Hunt

City of Los Angeles Councilwoman Peggy Stevenson, represented by Newten Deiter, Field Deputy

City of Los Angeles, Cultural Heritage Board, Patricia M. Simpson, President

City of Los Angeles, Department of Public Works, K.W. Rashoff, Acting Division Engineer, Project Management Division

City of Los Angeles, Department of Water and Power, Duane L. Georgeson, Chief Engineer of Water Works and Assistant Manager

City of Los Angeles, Department of Water and Power, Edward G. Gladbach, Engineer of Environmental and Governmental Affairs

City of Los Angeles Fire Department, Mr. Bartlett, Chief

City of Los Angeles Mayor Tom Bradley, represented by Dodo Meyer

City of Los Angeles, Mayor Tom Bradley's Advisory Committee on Transportation, Dennis Archenbault, Chair

City of Los Angeles Police Department, Barry M. Wade, Assistant Chief, Acting Chief of Police

City of Redondo Beach Councilman Archie Snow, (also a representative of the Executive Council of the Southern California Association of Governments)

County of Los Angeles, Department of Health Services, Walter F. Wilson, Environmental Management Deputy

County of Los Angeles, Department of Parks and Recreation, Mr. James I. Okimoto, Administrative Deputy

County of Los Angeles, Department of Public Social Services, Michael Collins, Chief, Special Operations Division II

County of Los Angeles, Department of Regional Planning, Norman Murdoch, Planning Director

County of Los Angeles, Flood Control District, W. L. Smith

County of Los Angeles Regional Planning Department, Robert Chave

County of Los Angeles Supervisor Kenneth Hahn, represented by Burke Roche

County of Los Angeles Supervisor Michael Antonovich, represented by Ms. Leeta Pistone

Los Angeles Community Colleges, W.W. Shannon, Facilities Planner/Architect

Los Angeles County Museum of Natural History, Craig C. Black, Director

Los Angeles County Museum of Natural History, Ed N. Harrison, President, Board of Governors

Los Angeles County Museum of Natural History, Dr. William A. Akersten, Curator of Vertebrate Paleontology

Los Angeles County Transportation Commission, Rick Richmond, Executive Director

Los Angeles Unified School District, Byron L. Kimball, Director, School Facilities Services

Lt. Governor Leo McCarthy, represented by Barbara Atkinson

Metropolitan Water District of Southern California, Donald C. Brooks, Director of Planning

Southern California Association of Governments, Frank E. Hotchkiss, Director of Comprehensive Planning

U.S. Department of Health and Human Services, Centers for Disease Control, Dr. Frank S. Lisella, Chief, Environmental Affairs Group

U.S. Department of Housing and Urban Development

U.S. Department of Interior, Bruce Blanchard, Director, Environmental Project Review

U.S. Department of the Army, Los Angeles District, Carl F. Enson, Chief, Planning Division

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Joyce M. Wood, Chief, Ecology and Conservation Division

U.S. Federal Highway Administration, A.J. Gallardo, District Engineer

U.S. Department of Transportation, Office of the Secretary of Transportation, Joseph Canny, Deputy Director for Environment and Policy Review

U.S. Environmental Protection Agency, Charles W. Murray, Jr., Assistant Regional Administrator for Policy, Technical and Resources Management

U.S. Representative Anthony Beilenson, represented by Joyce Emerson

U.S. Representative Bobbi Fiedler, District 21

U.S. Representative Ed Roybal, District 25

U.S. Representative Henry Waxman, represented by Pat Garrett

U.S. Representative Howard Berman, represented by Windy Graham

U.S. Representative Julian Dixon, represented by Patricia Miller

U.S. Senator Pete Wilson, represented by Naomi Roufs

U.S. Social Security Administration, Al Bartolic, District Manager

CORPORATIONS AND CIVIC ORGANIZATIONS

A.F. Gilmore Company, Henry Hilty

ASPAC Investments Corporation, Chee Yung Kwan, President

Atchison, Topeka and Santa Fe Railway Company, Q.W. Torpin, General Manager

Auditorium Management Company, Inc., David G. Houk, President

Automobile Club of Southern California, Dr. James D. Ortner, Principal Scientist

Beverly-Fairfax Chamber of Commerce, Eugene Holt, President

Beverly-Wilshire Home Association, Diane Plotkin

Beverly-Wilshire Homeowners Association, Barry Solomon

Black Agenda, Grover Walker

Building Owners and Managers, George Julin

CBS Inc. and A.F. Gilmore Company

CBS Television City, Alfred Landolf

Cahuenga Pass Property Owners Association, Daniel Bernstein

Carlton Way Neighborhood Association, Leo Williams, President

Central City Association, Rod Root

Coalition for Rapid Transit, Dr. Abraham Falick, Chairman, AICP

Committee of 45, Christina Farley, North Hollywood

Committee of 45, Dolly Wageman

Committee of 45, Harmon Ballin

Committee of 45, Polly Ward

Committee of 45, Michael Malak

Community Development Coalition, Sam Schiffer

Community Development Coalition, Frank Fernandez, Executive Director

Community Involvement Association, Betty J. Peters, Wilshire Center,

Consolidated Real Estate Board, Jean Balara

Cordova Corporation, George Pla

Crenshaw Chamber of Commerce, Doug Washington

Dearborn Drive Homeowners Association, Tom Nelson

Federation of Hillside Canyon Association, Carol Stevens

Feminist Women's Health Center, Shelley Farber

First United Methodist Church, Bill Miller, Minister

Greater Van Nuys Area Chamber of Commerce, John M. Praiswater, President, and Bruce D. Ackerman, Executive Vice President

Hollywood Arts Council, Lois Staffen

Hollywood Chamber of Commerce, Bill Welch

Hollywood Coordinating Council, Buzz Johnson

Hollywood Heritage, Christy Johnson McAvoy

Hollywood Heritage, Inc., Frances Offenhauser, President,

Hollywood Hills Improvement Association, Yoran Raviv

Holmy Westwood Propertyowners, Fleur Levine

Jewish Family Service of Los Angeles, Sandra King, Associate Executive Director

LAMCO, John S. Long, General Partner

League of Women Voters, Ruth Mendelsohn

Lesbian Center - Women Research Center, Dr. Lauren Jardine

Lorraine Boulevard Association, Richard D. Workman, Chairman

Los Angeles Chamber of Commerce, Mr. Bruinsma, President

Los Angeles Chapter of Zero Planned Growth, Elaine Stansfield

Los Angeles Collegiate Council, Joseph Kovoza

Los Angeles Conservancy, Ruthann Lehrer, Executive Director

Los Angeles County Democratic Central Committee, David Gould

Los Angeles County Grant Jurors Association, Marvy Chapman

Los Angeles Federation of Labor, Jim Woods

Los Angeles National Association for the Advancement of Colored People, John T. McDonald, III, President

Los Angeles National Association for the Advancement of Colored People, Herman Thomas

Los Angeles National Association for the Advancement of Colored People, John W. Murray, Representative

Los Angeles Philharmonics Association, Ms. Leni Isaacs

Los Angeles Transportation Task Force

Los Angeles Union Passenger Terminal, R. L. Pfister, Superintendent

Los Angeles Urban League, James Garcia

Masselin Avenue Neighborhood Association, Lyn MacEwen Cohen

Masselin Avenue Neighborhood Association, Catherine Stern

Melrose Hill Neighborhood Association, Ida S. Kravif, President

Miracle Mile Residential Association, Kevin McEntee

Miracle Mile Residential Association, David Lippert

Music Corporation of America, Inc. of Committee of 45

Neighborhood Association, Frank Neal

North Hollywood Chamber of Commerce, Robert L. McKarney, President

North Hollywood High School, Wilbert S. Whitaker

North Hollywood Homeowner Association, Tom Paterson

North Hollywood Project Area Committee, Anne del Valle, Chairperson

Pacoima Chamber of Commerce, Juanita DeSosa

Park Mile Design Review Board, Lawrence Chaffin, Jr., AIA, Anthony P. Hays, Roy F. Avis, and Susan Rubin

RFK Democratic Club and South Bay Coalition Democratic Club, Helen Anderson

Rapid Transit Advocates, Inc., Michael A. Cornwell, President

St. Charles Rectory, Rev. Msgr. Francis Wallace, Administrator

UCLA Undergraduate Students' Association, Oliver Weiss

United Community and Housing Development Corporation, Ston Trietal, Executive Director

United Neighborhood Organization, Lydia Lopez

United Voters League, Ellison Bloodgood

VICA, Richard W. Hartzter

Valley Industry and Commerce Association, Richard W. Hartzler, President

Vitalize Fairfax Committee, Roger Gomez

Wave Newspapers, Alice Marshall, Editor

Webb Fair Housing Council of San Fernando Valley, Betty Witherspoon

Whitley Heights Civic Association, Bryan Moore

Wilshire Boulevard Property Owners Coalition, Peter Racicot

Wilshire Homeowners Association, L. Balkina

Windsor Hills Association, Ed Duncan

CITIZENS-AT-LARGE

George Abrams
Cary Adams, North Hollywood
Mariano Agbayani, Los Angeles
Michelle Allamandi
Angelo Allio, Canoga Park
Mr. and Mrs. William G. Anderson, Los Angeles
Roy Wise Anderson
Anonymous
Robert Aronoff, South Pasadena
Glenn Bailey
Kurt Banks
Michael Baron
George Barridge
Dorothy Beffman, Los Angeles
Charles A. Bennaton, Van Nuys
Carol Ford Benson, Los Angeles
Caroline Benzing
Douglas Black
Charles Bluestein
Larry Blumenstein
Rick Blythe
Hazel Boland, Los Angeles
Patrick Boylan
Howard Brandis
H.W. Brasel, Torrance
Elaine Bridger, North Hollywood
Stan Richard Brin
Phil Brown
Gustavia Brown, Los Angeles
Mr. Bruckner
Robert Burger
Mr. Campbell
William Chandler, Studio City
Carrie Chassin, Los Angeles
Dean Daily
Mr. & Mrs. Horace DeMille
Helen Dean
Lionel Dichter, M.D.
Grison Distaso
Jean Doran
Frank and Anna Drewe, Glendale
Tom Driber
Edward Duncan, Los Angeles
Joe Dunn
Joe Dunn
Shirley Eckstein
Maureen Eisenberg
O.O. Eninger, North Hollywood
Mark Epstein
Rich Farley
Carl W. Fisher, Los Angeles
Carol Fishman
Linda Fishman, Los Angeles
Hazel Frandsen
Penelope Friedman, Northridge
Pam Gargons, Lakewood
Don Genhart
Harry M. Goldstein, D.D.S., Los Angeles
Mr. Gruilbert
Jean Harrington, North Hollywood
Jonathan Hartmann, North Hollywood
Pete Hawes Family, Los Angeles
Jerry Hays
Daniel Helfgott, North Hollywood
Mrs. R.J. Holan, North Hollywood
Wendell A. Holtan, Pacific Palisades
Charles Hopkins
Robert W. Houston, Torrance
William Gardiner Hutson, Upland
Bill Imada
Laura Ingman
Interested Citizens for the Welfare of the Public
Dale Jackson
Sally James, North Hollywood
Dr. Alan C. Jasper
Elliott Johnson
J.D. Johnson
R. Jones
Louis Jones
Sylvia Kedan, Los Angeles
Henry D. Keeing
Lynn Kern
Ross King
Evan Kramer
Robert Krasik, Torrance
Milton Kurkoff
Richard Lagowski, Panarama City
Heli Lanz
Frank A. Lauria, Woodland Hills
Betty Lautus
Robert M. Lawson, Jr., Pasadena
Alfred T. Lee, Palmdale
Ms. Francis Levenson
Mitchell H. Levine
R.C. Leyland
George S. Lowett, Burbank
Pamela Malak
Kyle Malak
Mark Marcus
Kathy Marick
Geoffrey McCalla
Judith McCalla
Judith McCalla
Margaret McFarland
M. McGovern
Gaddes McGregor, Emeritus Distinguished Professor and Dean, USC
Mr. & Mrs. George McIntosh, Los Angeles
Melina, Los Angeles
Donald L. Mellman, Studio City
Dr. and Mrs. Walter Monia, Beverly Hills
Mr. and Mrs. Ted Myers
Marlys and Horris Nelson, Alhambra
T. A. Nelson, P.E., Los Angeles
James J. O'Connor, Long Beach
Fran Offenhauser
Harley M. Oka, Hollywood
Leon Opsethe, North Hollywood
Horry B. Pace
Ron Palmer
Peggy Parsky
Harvey D. Pearson, Los Angeles
Cathy Pierce
Jean Polacheck
Dorie Pyl
Alan Reilly
Jack Richard
Jack Richer
Sylvia Richman
Roberta Ridenow
Mr. Roberts
Greg Roberts
Farris Robertson, Sherman Oaks
Edward N. Robinson, Los Angeles
Mitchell Robinson, AIA-E
Jack Roth
Mike Russell
Said Issaq Said, Van Nuys
Olline Schmiers, Glendale
George Schweitzer
Dan Shapiro
Susan Sheldon
William R. Shuenk
Ray Shulda
Roger Sideman
Gilbert Simons
Artis Slipsager
Adam Smith
Ruth Smith
Vance Smith
Mr. and Mrs. Weldon Spears, Los Angeles
Louse Spiegal
Gloria Starks
David Stephan
Ron Stone
Richard A. Stromme, Santa Ynez
Rabbi Marvin Sugarman
Bernard A. Teitel, M.D., Long Beach
Don Torlumke,
Brad Turner
Janet Turner, North Hollywood
Dave Tuttle, Los Angeles
Paul Urpin, Agoura
Sue Vanderbrook
Mark Venegas
Andrew Vinstock
A. Von Fleck
Mike Walker
Amy Walker, Los Angeles
Gary Wallace
Sheldon Walter
Polly Ward
William P. Ward
Howard Watts
John Wellborne
Richard Willson, Los Angeles
Mrs. Jonathan Winters
Xavier Wittner
James Zager, M.D., Los Angeles
Asif Zaman
Mr. Zier

2. COMMENTS AND RESPONSES BY SUBJECT AREA

2.1 ALTERNATIVES

Comment 1: Successful rail transit in the Los Angeles region will require many routes and junctions to enable people to travel quickly to all areas. The Draft EIS/EIR lacks information about route expansion and operation. It does not deal with the alternatives covered in the Alternatives Analysis/First Tier EIS/EIR. (Richard A. Stromme, Maureen Eisenberg, U.S. Representative Bobbi Fiedler, Roger Sideman, Juanita DeSosa of Pacoima Chamber of Commerce, George Schweitzer)

Response: An extensive rail system would be desirable to serve the Los Angeles region's travel needs. The residents of Los Angeles voted for such a system when they approved Proposition A on November 4, 1980, which called for the Regional Rapid Transit System shown in Chapter 1, Section 3.3 of the EIS/EIR. Beginning in 1977 SCRTD began an exhaustive study of a number of different routes and modes of transportation to provide high capacity service within the Regional Core. In the first tier Alternatives Analysis EIS/EIR, published in 1980, concluded that an all-subway rail rapid transit system connecting the Central Business District, the Wilshire Corridor, the Fairfax Community, Hollywood, Studio City, and North Hollywood was the Locally Preferred Alternative. For a detailed discussion on alternative routes and modes of transportation, please refer to the 1980 Alternative Analysis EIS/EIR.

The Draft EIS/EIR is the second tier of environmental work to be done and is not intended to duplicate first tier work. The first tier was done in sufficient detail to allow choices to be made from among the eleven all-bus and bus-rail alternatives then under consideration. The Draft EIS/EIR is intended to narrow the focus and go into greater detail on the environmental impacts of the Locally Preferred Alternative, chosen in 1980.

This project, the backbone of the Regional Rapid Transit System, is just the beginning. Extensions of the Metro Rail Project will be addressed in subsequent environmental studies prepared during the planning processes for those projects.

Comment 2: The adoption of Proposition A by the voters cannot be interpreted as a mandate for the Wilshire Corridor subway. (U.S. Representative Bobbi Fiedler, Harley M. Oka, Frank and Anna Drewe, John T. McDonald, Angelo Allio, O.O. Eninger, Wendell A. Holtan, Farris Robertson, Olline Schmiers)

Response: The ballot measure for Proposition A showed a network of 150 miles of Rapid Transit which included the 18.6 mile Metro Rail Project. The measure, which received a 54 percent positive vote, authorized collection of 1/2 percent sales tax, 35 percent of which was earmarked for construction of the rapid transit network shown in the ballot. The 18.6 mile Metro Rail project is the first step to reaching that goal.

Comment 3: Los Angeles is a low density city, covering 450 square miles. The area covered by the Metro Rail alignment does not serve the needs of most commuters. The present proposal for an 18 mile system cannot serve more than a fraction of 1

percent of the city commuters. (James J. O'Connor, Harry B. Pace, Frank and Anna Drewe, Marlys and Harris Nelson, Amy Walker, Gloria Starks, Roger Sideman)

Response: Los Angeles has the second highest population density of any urbanized area in the nation. With a density of 5,188 persons per square mile, it is only surpassed by New York, with a density of 5,560 persons per square mile. In addition, Los Angeles' density is projected to exceed that of New York's urbanized area by 1986—only two years after the beginning of Metro Rail's construction.

With a total population of approximately 9.5 million people, the Los Angeles Urbanized Area is also among the nation's fastest growing regions. The projected increase in total population is about two million people by the Year 2000. This is like adding the current population of Houston to Los Angeles.

Within SCRTD's extensive service area, the Regional Core accounts for approximately 60 percent of SCRTD's total daily ridership (1.5 million boardings). In addition, the Regional Core accounts for nearly 40 percent of all the origins and destinations for bus riders in the entire Southern California region. It is for this reason that the Regional Core was selected as the initial service area. Ultimately, a 150 mile system is envisioned, as approved by the voters when they passed Proposition A in 1980.

Comment 4: This line will not serve the people who depend on and benefit from the public transportation system. East Los Angeles and South Central Los Angeles are examples of communities that use transit heavily but will not be served by Metro Rail. (City of Los Angeles City Council, Harley M. Oka, Jonathan Hartmann, California State Assemblywoman Gloria Molina represented by Carmen Luna, Lydia Lopez of United Neighborhood Organization, Andrew Vinestock)

Response: The Metro Rail Project is the starter line for a rail system which will ultimately total about 150 miles of high capacity heavy rail and medium capacity light rail or trolley lines. The rail network will be integrated into the transportion system so that the most appropriate and efficient mode will be used for each person's trip. The proposed network that was included on the 1980 Proposition A ballot measure is shown in Figure 1.2. Extensions to this network that would more directly serve East or South Central Los Angeles will be considered by the Los Angeles County Transportation Commission.

Initially, East Los Angeles residents will have access to the employment, shopping, and cultural opportunities served by the Metro Rail Project by transfers from bus lines at the Union Station, Civic Center, and Fifth/Hill Street Stations. Travelers from the South Central Los Angeles area can board the Metro Rail trains at the Vermont, Normandie, Western and Crenshaw stations along Wilshire Boulevard.

Comment 5: "Do nothing" and other alternatives which do not reach at least the southeastern corner of the San Fernando Valley are unacceptable. Without connecting the industrial, commercial, and growth areas of the Valley, Metro Rail would not be cost effective nor would it serve to implement the Regional Transportation Plan. A truncated route such as the Minimum Operable Segment which failed to reach the valley would be a tremendous disservice to the residents and businesses of the San Fernando Valley, resulting in a political crisis. Moreover, it would result in greatly decreased mobility with the inevitable deterioration in

environmental quality. This alternative is equivalent to the No Project Alternative insofar as addressing the transportation needs for Hollywood and other communities north in the San Fernando Valley. Adoption of the Minimum Operable Segment would be detrimental to the efforts for revitalization in Hollywood and North Hollywood. (John M. Praiswater and Bruce D. Ackerman of Greater Van Nuys Area Chamber of Commerce, T.A. Nelson, Richard W. Hartzler of Valley Industry and Commerce Association, Dolly Wageman of Committee of 45, Robert L. McKarney of North Hollywood Chamber of Commerce, California State Senator Alan Robbins)

Response: The Minimum Operable Segment was developed to determine the minimum section that could be built and still be a worthwhile project. SCRTD will make every reasonable effort to obtain funding for the Locally Preferred Alternative. However, because of funding uncertainty there is a remote possibility that sufficient funds for the Locally Preferred Alternative might not be available and a segment with less desirable length might be the temporary solution to a funding shortage. It should be clear that the SCRTD Board supports the Locally Preferred Alternative and recognizes the importance of Metro Rail service to the San Fernando Valley.

Comment 6: The vast distances to be traversed in the Los Angeles region and a competitive rail transit system require the operation of an integrated local and express service and the capability to operate trolley, interurban, and transit cars on the same track and system. (Richard A. Stromme)

Response: Metro Rail is only one component of the integrated transit system planned for the Los Angeles area under the directive of Proposition A. Other components include linking portions of the SCRTD's extensive bus network to the Metro Rail System, increasing the number of high occupancy vehicle (HOV) lanes on freeway arterials and exploring future transit corridors such as the Long Beach to Los Angeles Light Rail Line.

Providing express service capability on the Metro Rail would require bypass tracks which would add considerably to the cost of the system. Even without express service, it will take only 34 minutes to travel from Union Station to North Hollywood during rush hours. This is not possible by conventional means and should be sufficient to prove attractive to the commuter.

The suggestion to provide the capability to operate trolley, interurban and transit cars on the same track and system, is not considered practical. Each transit system has significantly different operating characteristics and the capacity of a heavy rail system could not be maintained if a slower light rail vehicle were operated on the same tracks.

Comment 7: The range of alternatives considered is too limited. Important alternatives were ignored that might have superior cost effectiveness. For example, a combination of policies relating to parking prices in the CBD, ride sharing, and HOV lanes could increase average vehicle occupancy and yield many of the benefits of heavy rail without a capital investment of $3.2 billion. (R.C. Leyland, Richard Willson, U.S. Representative Bobbi Fiedler)

Response: This EIS/EIR is the Second Tier EIS/EIR for the SCRTD Metro Rail Project. It follows extensive environmental analysis already performed for a range of eleven alternatives that included various combinations of Transportation System Management techniques, combinations of bus and rail

projects, and a "do nothing" alternative. This work was previously documented in the Alternative Analysis/EIS/EIR completed in April 1980. The Locally Preferred Alternative, which is the focus of this EIS/EIR, was selected as the most appropriate alternative for further consideration. It should be realized that the EIS/EIR in Chapter 3, Section 1.4.5 recommends parking mitigation measures which include ride sharing, parking management plan, as well as others. Also, new guideways, high occupancy vehicle lanes, and Transportation System Management measures were part of a Regional Transit Development Program adopted by local and state officials in 1976. They are separate from the Metro Rail Project and are not a part of the EIS/EIR. Refer to the response to Comment 1 of this section for further information on this subject.

Comment 8: A combination of trolley buses and streetcars similar to that available in San Francisco should be considered as an alternative to Metro Rail. (R.C. Leyland)

Response: The public, elected officials, and transportation planners have available to them a wide selection of proven modes of transit with which to meet the transit needs of Los Angeles County. Candidate modes for various corridors include heavy rail, light rail, and high occupancy vehicle (HOV) lanes on freeways. A less proven but still possible future candidate is automated guideway transit. The choice of what mode is appropriate to a particular corridor is a complex technical decision influenced by (but not limited to) such questions as business and residential density, adequacy of the current transportation system in the corridor, ability to influence development, necessary system capacity, and desired service speed.

Heavy (high capacity) rail was chosen as the appropriate transit mode for the Metro Rail Corridor following the consideration of eleven alternatives in the First Tier Alternative Analysis/EIS/EIR. This decision reflected the high density and large unmet travel need in the corridor. The present Second Tier EIS/EIR follows the First Tier EIS/EIR and focuses on the impacts of three alternative ways to implement heavy rail (a short Minimum Operable Segment to Wilshire and Fairfax, the Locally Preferred Alternative, and Aerial Option) and compares them with a No Project Alternative. It does not repeat the First Tier EIS/EIR consideration of eleven broad alternatives.

San Francisco, it should be pointed out, uses streetcars and trolley cars in part to feed BART, a high-capacity grade-separated rail system serving the heart of San Francisco. Extensions to both BART and the MUNI streetcars are under study; each has a role to play in concert with the other.

The Los Angeles County Transportation Commission (LACTC) has selected light rail (a modernized form of streetcar) as the transit mode for the Long Beach/Los Angeles Corridor. In addition, the LACTC is prioritizing future regional corridors and considering what mode of transit is appropriate to each. All of the modes of transit discussed above and possibly others including buses will be candidates in that procedure.

Comment 9: An above ground system utilizing public rights-of-way would allow for more rail miles in more directions for the same money and would also serve a greater number of the tax payers who are to pay for the system. (Farris Robertson, M. McGovern, Howard Watts)

Response: A large number of alternative corridors, alignments, and profiles were evaluated during earlier planning efforts. Those alternatives did not effectively serve the Regional Core, which was determined to be the highest priority corridor in the region for rapid transit service. Metro Rail provides the most cost-effective service to that corridor and is envisioned as the first increment of a regional network.

Comment 10: Metro Rail should be located along existing freeway corridors. Why not use other routes for the project such as 6th Street, Sunset Blvd., old "Red Car" right-of-way, or Hollywood Freeway? The old "Red Car" lines on the Pacific Electric railways in particular shouldn't have been abandoned. (Mr. and Mrs. Weldon Spears, Sylvia Kedan, Harry M. Goldstein, Harley M. Oka, O.O.Eninger, Alfred T. Lee, R.C. Leyland, William R. Schuenk)

Response: The region served by the Metro Rail, particularly Wilshire Boulevard, is not served directly by freeways. It would, therefore, not be possible to adequately serve travel needs by using existing freeways. It is possible this alternative may be considered during later studies of extensions to the Metro Rail Project. SCRTD began an exhaustive study in 1977 of a number of different routes and modes of transportation to provide high capacity service within the Regional Core. The study concluded that direct service to the office blocks in downtown Los Angeles and along Wilshire Boulevard, major tourist destinations like CBS and Universal Studio, Farmer's Market and Hollywood Boulevard, together with the numerous concentrations of local residents in the Fairfax, Hollywood and North Hollywood communities should have primarily consideration. The response to Comment 1 of this section discusses the role of the Alternative Analysis in evaluating and resolving these issues.

Unfortunately, few old rail rights-of-way remain. Most available trolley car rights-of-way are the subject of transit studies. For example, Los Angeles County Transportation Commission proposes to reinstall light rail transit on the Willowbrock line, and Caltrans is studying light rail proposals for Santa Monica Boulevard. The great majority of "Red Car" (as well as "Yellow Car") routes, however, have long been absorbed into street right-of-ways (or freight railroad operations). Conflicts with automobile traffic were a major factor in the demise of the streetcar. Street congestion is an even greater problem today than it was at that time, so the possibility of shared use is very remote in most cases.

With respect to going under other streets or routes: 6th Street would be no cheaper and further away from major concentrations along Wilshire; Sunset Boulevard is traversed by Metro Rail between Fairfax and Cahuenga; a Hollywood Freeway route would duplicate the high level of accessibility the freeway already provides while doing nothing for those areas by-passed by freeways. (See also the response to comment 14 of this section for a discussion of rail transit built along existing freeways or flood control rights-of-way.

Comment 11: The segment of the Metro Rail system through the Cahuenga Pass should be constructed above ground. (Charles Hopkins)

Response: This possibility was targeted as a cost saving measure early in the Preliminary Engineering program, and it was studied with some thoroughness. It turned out to be infeasible from an engineering point of view because of the excessive grades traversed in the area. Also, there were many constraints on

the available right-of-way through the Cahuenga Pass that made this approach unattractive.

Comment 12: Build a monorail system for Los Angeles using freeway and river/flood control channels. Costs would be one-eighth to one-quarter of the cost of a subway. (James J. O'Connor, Harry M. Goldstein, Carl W. Fisher, Richard Lagowski, Harvey D. Pearson, Frank and Anna Drewe, H.W. Brasel, William Chandler, Mr. and Mrs. W.G. Anderson, Frank A. Lauria, Olline Schmiers, Paul Urpin, Wendell A. Holtan, Sarah Jackson, Anonymous, William R. Schuenk, Ed Duncan of Windsor Hills Association)

Response: Monorails and a number of alternative technologies were considered in previous plans for transit in the Los Angeles region. Because of the generally experimental nature of the technology, its speed and capacity limits, more conventional and proven guideway (rail) and bus modes were selected for further study in the 1980 Alternative Analysis and First Tier EIS/EIR.

The concept of a monorail is popular and widespread and has generated many comments and questions during the Draft EIS/EIR review period. Monorail systems have the advantages of being derail-proof and require less structure than other aerial systems. The structures are relatively less permanent than subway tunnels in that can be demolished, but they cannot be considered as "moveable" or relocatable. A large fraction of the regional cost (in constant dollars) would have to be expended to dismantle/demolish and reconstruct a monorail.

In spite of these advantages, this technology has not been considered further for a number of reasons:

- The use of monorails in the United States has been confined to amusement parks such as Disneyland, Disneyworld and Seattle's World Fair Park. They have not been proven in revenue service. The costs of design and construction are uncertain.

- The hourly capacity of five or six car trains with 40 seated passengers each is about 10,000 riders. The cars have room for about 100 patrons each, including standees. Average daily volumes at Disneyworld are 70,000 with peak days around 150,000. This capacity would be insufficient to handle projected patronage of the Metro Rail Project of about 360,000 daily. The top speed of 50 miles per hour would produce a lower average speed and greater running time than for the faster heavy-rail equipment.

- The switches for monorail are slower, more expensive, harder to maintain, and leave the main line open during operation.

- Yards and shops require beamways throughout, which are more expensive and cause difficult yard operations.

- Emergency escape from the cars is difficult and would complicate the design and possibly the operation of the system. Some foreign systems have special ladder trucks that are intended to evacuate the cars in case they can not proceed to the next station. If an emergency exit was made on the support beam, it would be very difficult to evacuate passengers along the two-foot wide beam to a nearby column where they could climb down to the ground.

- Rubber tired vehicles are somewhat less fuel efficient than steel wheel and rails but are quieter and have better traction in cases where grades above 4 percent are encountered. On some operational systems, tire wear has been excessive and blowouts add to the maintenance burden. As rubber tires can become overheated and ignite, there is a potential for fires not found with steel wheels.

- Monorails are designed for overhead operation where they create visual and noise impacts on surrounding neighborhoods. The general attractiveness of the monorail concept offsets these impacts somewhat.

- Aerial structures including monorail are subject to more stress during earthquakes from the whipping or "fish pole" effect than are subway tunnels.

- A monorail that is suspended from above rather than supported from below is susceptible to swaying. Stabilizers are available but add to mechanical complexity. Suspended monorails are also more susceptible to collision with overheight vehicles below than are supported monorails or aerial versions of conventional rail.

Riding public transit is essentially an activity for those with limited mobility or for those who find it more convenient than driving automobile. For that reason, stations are best located within easy walking distance of origins and destinations or other modes of transportation. Freeways and flood control channels are seldom within easy walking distance of any sizeable segment of the population. For example, the freeway bus stops on the Harbor and San Bernardino freeways are very lightly used, even though they are on a heavily used vehicular route. Flood channels are even more remote from pedestrian concentrations.

In the Regional Core there are no freeways or flood control channels near Wilshire Boulevard where the largest demand for transit is located. The proposed Metro Rail Project best meets the transit needs of the population along the Wilshire Corridor.

Comment 13: Placing the line underground in the San Fernando Valley is questionable. The alternative of an elevated line along old Pacific Electric right-of-way in Vineland to Chandler is not discussed. (T.A. Nelson, Louise Spiegal)

Response: An aerial alignment along Vineland was extensively discussed. It was this proposed configuration, in fact, that prompted the formation of a citizens committee ("The Committee of 45") to evaluate other alternatives. The deliberations of this committee are referred to in Chapter 2, Section 2 of the EIS/EIR. Figure 2.3 illustrates the major alternatives evaluated in that special study; the Vineland aerial alternative is labeled S-4/N-5. The Final Draft for the Special Alternatives Analysis, North Hollywood Area (1982) is incorporated by reference as part of the EIS/EIR and considerable detail on the Vineland to Chandler alignment is available there.

Comment 14: Subway line should turn north on La Brea instead of Fairfax. (Greg Roberts)

Response: An alternative route following La Brea was studied during the Alternative Analysis phase of project development. This analysis concluded that such an alignment was not the most preferred because it would bypass the L.A. County Museum on Wilshire. In addition, it would not serve Farmers Market, CBS Studios and the La Brea Towers, nor the Miracle Mile section of Wilshire Boulevard. Finally, La Brea does not have the bus volume or travel demand which exists on Fairfax. For more details see the Alternative Analysis/EIS/EIR published in April 1980.

Comment 15: The proposed line up Fairfax Avenue does not contain a single major source or destination of ridership. La Cienega Boulevard one mile to the west lies at the junction of two major routes of expansion and is itself the terminus of tremendous commuter traffic. The subway should follow La Cienega rather than Fairfax. (Anonymous)

Response: La Cienega is not within the scope of the present project which is limited to the Regional Core. Possible extensions westward would be examined during future extension phases of the project.

Comment 16: The "wye" extension of the Metro Rail Project east from Union Station to the El Monte Busway was included in the Draft EIS/EIR in Figure 2.4.1. The "wye" extension was dropped as of Milestone 10 and this should be reflected in the Final EIS/EIR. (Rick Richmond of Los Angeles County Transportation Commission)

Response: The "wye" extension has been deleted in the Final EIS/EIR.

Comment 17: The feasibility of reestablishing the old Cal Train that operated between downtown L.A. and Oxnard should have been considered as an alternative. (R.C. Leyland)

Response: The Cal Train alignment would not serve the Regional Core area, particularly Wilshire Boulevard, and therefore could not be considered an alternative to the Metro Rail Project.

2.2 AERIAL ALIGNMENT

Comment 18: Numerous written and verbal comments have been received dealing with the aerial alignment in the San Fernando Valley. The majority of commentors judged that the Draft EIS/EIR did not adequately present all the negative impacts of the aerial alternative. Other responses questioned whether the aerial alignment ever was considered as a serious alternative. (Frank S. Lisella of Department of Health and Human Services - Center for Disease Control, Patricia M. Simpson of City of Los Angeles Cultural Heritage Board, Edward Helfeld of City of Los Angeles Community Redevelopment Agency, Councilman Joes Wachs, William Gardiner Hutson, Rev. Msgr. Francis Wallace, Cary Adams, Jean Harrington, Anne del Valle of North Hollywood Project Area Committee, Jack Roth, Polly Ward of Committee of 45, Judith McCalla, Michael Malak of Committee of 45, Robert L. McKarney of North Hollywood Chamber of Commerce, Pamela Malak, Leeta Pistone for Supervisor

Antonovich, Bunny Wasser for Assemblyman Burt Margolin, Christina Farley of Committee of 45, Harmon Ballin of Committee of Committee of 45, Geoffrey McCalla, Tom Patterson of North Hollywood Homeowners Association, Mr. Bruckner, Mike Walker, Dolly Wageman of Committee of 45, Music Corporation of America, Inc., of Committee of 45, California State Senator Alan Robbins, California State Senator Herschel Rosenthal represented by Caroline Westheimer, U.S. Representative Henry Waxman represented by Pat Garrett, Mike Russell)

Response: SCRDT developed the aerial alternative to the engineering level of detail necessary to determine cost implications and likely environmental impacts. The capital and operating cost estimates and the environmental impacts presented in the Draft EIS/EIR were consistent with the available engineering data. This response generally addresses a number of common issues raised by the Aerial Option. Particular issues that frequently appear in comments concerned seismic safety, property values, traffic displacement, and noise. These issues are discussed in this response; however, more detailed responses follow.

Many commentors stated that the impacts of the aerial alignment were understated or that the alternative was not presented in a negative enough light. The EIS/EIR does present the impacts of the aerial alignment in every environmental impact category. The impacts were not inflated to make a case against the aerial alignment. The purpose of the EIS/EIR is not to advocate one particular alternative nor is it to "stack the deck" against another of the alternatives. The purpose is to present all available information on the potential impacts of all alternatives to the decision-makers so that an informed decision can be made.

Other commentors suggested that an aerial alignment was unacceptable in and of itself. This is not always true as aerial alignments have been shown to be appropriate and desirable in a number of cities. Baltimore and Miami are scheduled to open rapid transit systems this year that have aerial structures. The Miami system is elevated for almost all of its 20-plus mile length. The impacts of these systems were found to be acceptable and, in some instances, can be a positive element in the community. One purpose of including the aerial alternative in the EIS/EIR was to determine if an aerial alignment in the San Fernando Valley would prove as effective a transportation solution as it has in other communities.

The issue of structural and public safety during earthquakes was raised. Although the aerial structure would have to comply fully with all applicable construction codes and earthquake survivability standards, the EIS/EIR in Chapter 3, Section 11.3.2, states that the Aerial Option could suffer structural damage in the event of severe ground-shaking and it is conceivable that train derailment could occur. Given that, if severe ground-shaking did occur, the aerial alignment would be less safe than a subway tunnel.

Concerns have been raised that the Aerial Option will result in lower property values and create a visual blight. Modern elevated rapid transit systems are clean, relatively quiet, and attractive. It has not been demonstrated that they adversely affect property values in recent research of other new rail systems. Property values in fact may rise, or they may hold steady. It is impossible to predict at this time. Modern elevated systems do change the visual setting of an area but they are not necessarily a visual blight. They can be visually

compatible with a variety of settings, particularly commercial and office areas. Businesses can experience improved economic conditions with an elevated rapid transit system as compared to having no rapid transit system because of enhanced visibility and accessibility.

Interference with traffic circulation has been raised as a concern. As currently envisioned the aerial guideway would be located so that there would be no reduction in the number of available traffic lanes. Piers would be placed to avoid interference with turning vehicles and critical sight distances. All traffic impacts due to the aerial guideway are expected to be mitigated. At the stations, the traffic impacts for the Aerial Option would be the same as for the subway option.

The number of displaced residences and businesses is a concern, because it personally affects the displaced individuals as well as the community as a whole. The number of direct displacements is identified in Table 3-27 of the Final EIS/EIR. The Aerial Option would result in 14 fewer residential displacements at the North Hollywood Station but 16 more along the Aerial Corridor. In addition, the aerial alternative would result in 6 fewer commercial displacements and 2 fewer nonprofit/service displacements than the subway alignment. Because the Aerial Option is no longer under serious consideration, it is unnecessary to acquire the one parcel deep strip along Lankershim Boulevard, as was proposed in the Draft EIS/EIR, as a possible visual and noise impact mitigation measure.

Noise was a major concern raised in many of the comments. The noise impacts of aerial operation were carefully evaluated. The results are presented in Section 8.3.3 of Chapter 3. The aerial operation would raise noise average levels at the noise measurement locations by not more than 3 dB(A), not a significant increase, with the use of sound barrier walls. APTA Guidelines of 1979 permit 75 dB(A) for single train passby at single family residences, 80 dB(A) at multifamily residences, and 85 dB(A) at commercial buildings. Even with sound barrier walls the adopted criteria for single event (train passby noise) noise would be exceeded at approximately 30 single family residences by 2 to 6 dB(A). The criteria would also be exceeded at 10 apartment buildings by up to 3 dB(A). Mitigation, in addition to sound barrier walls, would be needed to reduce the effects in these areas. The Blessed Sacrament School could be adversely affected.

One commentor asked about where the alignment would leave the subway configuration and go to an aerial configuration (the portal). The Portal has not been precisely located at this time.

The EIS/EIR presents a realistic overview of the potential impacts of the Aerial Option. The record now contains voluminous written comments and transcribed testimonies on the Aerial Option. This material has been reviewed by the SCRTD Board, and it has taken the position that the Aerial Option is not a viable alternative. The Board of Directors has no intention of reconsidering the Aerial Option in the San Fernando Valley. For that reason, more detailed work on engineering, costs, impacts, and mitigation is not being done. Should an aerial alignment be proposed for a different corridor, the Board will make a case-by-case review. The decision will be made based upon the criteria of cost, impacts, benefits, and community sentiment. UMTA has agreed with the SCRTD Board of Directors on this point. UMTA no longer considers the Aerial

Option a viable alternative in this application and agrees that elevated rapid transit may be viable in other locations in the region.

Comment 19: The Draft EIS/EIR includes an aerial alignment down Lankershim Boulevard. This option was never seriously studied. Aerial construction will result in the devastation of businesses in the Lankershim Corridor through the heart of North Hollywood. Visual blight, noise pollution, traffic obstruction, and parking problems will severely impact the commercial and residential communities alike. The report fails to recognize the adverse effects on development. The noise and visual impacts and the displacement caused by the Aerial Option are unacceptable. (Jack Roth, Robert L. McKarney of North Hollywood Chamber of Commerce, Leeta Pistone for Supervisor Antonovitch, Bunny Wasser for Assemblyman Burt Margolin, Councilman Joe Wachs, Harmon Ballin of Committee of 45, Jean Harrington, Anne del Valle of North Hollywood Project Area Committee, Rev. Msgr. Francis Wallace)

Response: The Aerial Option was prepared as requested by UMTA to determine its cost effectiveness as well as community impacts. UMTA is responsible for conserving funds and examines various options on major projects throughout the country. The Aerial Option was studied in sufficient detail to determine that this option would be less costly than a subway but would have greater negative impacts due to noise, visual intrusion, and community disruption. Circulation of the EIS/EIR confirmed conclusively that the Aerial Option did not have community acceptance, although the cost benefits of the aerial option made it worthy of examination. The point that the Aerial Option would result in significant adverse impacts in the North Hollywood area is made in the Draft EIS/EIR. These impacts, which were summarized in Comment 18 of this section, were considered and given great weight by the SCRTD Board of Directors in their endorsement of the subway as the Locally Preferred Alternative. UMTA recognizes the community desires and also favors the subway option.

Comment 20: The selection of the Aerial Option would also adversely affect the visual privacy of residents along 3,000 feet of residential frontage. What mitigation measures were considered other than acquiring a strip of land one parcel deep, redesigning Lankershim Boulevard, and putting the railway in a central medium strip? If the costs of these measures were determined, the cost savings of the Aerial Option would disappear. (Frank S. Lisella of Department of Health and Human Services - Center for Disease Control, Jean Harrington, Harmon Ballin and Polly Ward of Committee of 45)

Response: SCRTD has determined that the Aerial Option is not a viable alternative. The measures identified above were considered as the only ones that would completely eliminate the identified adverse impacts. It was recognized that these measures would in turn generate significant adverse impacts; however, it was also important to indicate the extreme measures required to make the Aerial Option acceptable from an aesthetic perspective. In part, because of the difficulty of mitigating this alternative's negative effects, the SCRTD Board has endorsed the subway system as the Locally Preferred Alternative. For information's sake, a preliminary estimate of the cost to acquire a strip of land one parcel deep along Lankershim Boulevard could range around $40 million in 1983 dollars. This would have reduced the cost savings of the Aerial Option by nearly 70 percent.

Comment 21: The rejection by the Valley of an aerial alignment is again narrowed to "residents of North Hollywood." The "community perception" is negated by "the experience of relatively new aerial systems in other cities." This contradicts the acknowledgements in the report that the Aerial Option would be a gross intrusion on the visual, aesthetic, physical and social aspects of the community. The intrusive aspects of the Aerial Option are attributed to those who perceive it as detracting from their neighborhood. The disruption of neighborhood quality is described only as a possibility, while elsewhere it is described as most factual. (Harmon Ballin of Committee of 45)

Response: One of the objectives of the social and community impact analysis was to identify the concerns and values of the neighborhoods traversed by the rail rapid transit system. If the Metro Rail Project resulted in measurable land use or environmental changes that were contrary to the expressed community values, then the project could be said to have an adverse community impact. Statements about land use or environmental changes can be made as if they were "factual" because recognized methodologies have been used to derive the extent of change and that change can be measured against standards (such as available land supply, street capacity, noise standards, etc.). In contrast, the cumulative effect of these changes on social and community cohesion and dynamics is less definitive. As a result, statements regarding community impacts must be recognized for their speculative and interpretive nature. Thus, references to "residents of Hollywood" or "community perception" are not meant to point out parochial interests or belittle the adverse consequences. Rather, these references were used to strengthen the validity of an assessment. Finally, it was important to note that research of other recently completed systems does not support many of the concerns commonly raised about subways or elevated structures. In many cases, it may be too early to discern any noticeable trends attributed to a rail system.

Comment 22: If UMTA or Congress insist that the Aerial Option run from Universal City to North Hollywood, instead of putting it along Lankershim, put it along the Hollywood Freeway where there would be minimal construction and noise impacts. (Adam Smith)

Response: Beginning in 1977, SCRTD began an exhaustive study of a number of different routes, modes, and configurations for a rapid transit system to provide service within the Los Angeles Regional Core. Furthermore, a Special Alternatives Analysis for the North Hollywood Area was performed to evaluate alternative routes and configurations for the North Hollywood community exclusively. These studies resulted in the proposed route up Lankershim Boulevard with stations at Universal City and Lankershim/Chandler. For specific reasons about why the Hollywood Freeway was not considered, see the response to Comment 10 in the Alternatives section of this chapter.

Comment 23: Why propose an elevated rail for the North Hollywood area to save money? Why not save money by elevating the alignment through the Wilshire District? (Mr. and Mrs. Ted Myers)

Response: It is recognized that aerial structures are less expensive to construct than subways and are often preferred in areas that are less densely populated. Outside of heavily used business and residential centers, aerial rail systems have been acceptable. One of the difficulties of proposing an elevated system along the Wilshire Corridor is the fact that this stretch is one of the most heavily used

and trafficked stretches in the Regional Core. The disruption to circulation and businesses would be severe. While these are precisely the same impacts expected along the Lankershim Corridor, initial evaluation during the Milestone 3 process suggested an aerial configuration would at least be worth testing. The results of this further examination, which are presented in the EIS/EIR, as well as in a Special Alternatives Analysis for the North Hollywood area, indicate that the impacts along the Aerial Corridor in North Hollywood would indeed be serious and that the costs to mitigate such adverse effects would negate much of any savings originally attributed to an elevated system. Consequently, the SCRTD Board of Directors has endorsed a subway system for the full length of the route.

Comment 24: A 45-foot high aerial system is incompatible with our existing community and our plans for future progress. The aerial option would have a negative impact on community cohesion. (Tom Patterson of North Hollywood Homeowners Association, Harmon Balin of Committee of 45)

Response: The analysis presented in the EIS/EIR and its technical appendices confirms that an aerial alignment along Lankershim Boulevard would indeed be disruptive to the community in North Hollywood. Construction of the elevated guideway will create noise, limit access, and thereby reduce the revenue potential for businesses along the entire Aerial Corridor. For virtually its entire length, the elevated guideway is out of scale with adjacent buildings and intrudes on the visual privacy of the occupants of these buildings. Further details on the effect of an elevated structure on visual setting, views and compatibility of scale are presented in the Aesthetics section of this chapter. The extreme mitigation proposed in the Draft EIS/EIR is indicative of the adversity of this alternative's impact. The Draft EIS/EIR proposed. The acquisition of a one parcel deep strip of land to allow the street to be reconfigured and to accommodate the aerial guideway and roadway relocation. This of course would create serious problems for the CRA's redevelopment program for the area, as well as displace a large number of structures. These impacts have been identified in the EIS/EIR to inform the SCRTD Board of the consequences of selecting the Aerial Option. Because of these problems and the further ones caused by the mitigation measures, the SCRTD Board of Directors has stated that the Aerial Option is not a viable alternative and has endorsed the subway option as the Locally Preferred Alternative.

Comment 25: The statement that Metro Rail aerial construction would be positive in the sense that it would open up new views is absurb. (Harmon Ballin of Committee of 45)

Response: View impacts of the aerial structure are evaluated from two perspectives: views of the facility and views from the facility. Impact measures were developed to recognize both beneficial and adverse impacts. The EIS/EIR and the SCRTD Technical Report on Aesthetics indicate that an elevated guideway can both enhance and block regional views. Enhancement of regional views is defined as improved views of mountains, hills, and community landmarks from the transit vehicles. From this elevated vantage point, new views to the east of the Universal City Station are created.

Comment 26: There is no discussion of the aerial yard in the Draft EIS/EIR. (Harmon Ballin of Committee of 45)

Response: A description of the impacts of aerial yard has been included in Section 7.3.3 of Chapter 3 in the Final EIS/EIR.

Comment 27: Consideration should be given to the safety of any aerial system in the event of a major earthquake, particularly with regard to the possibility of the structural support system cracking or collapsing and/or the possibility of trains being thrown off the elevated tracks during an earthquake. (John M. Praiswater and Bruce D. Ackerman of Greater Van Nuys Area Chamber of Commerce, Rev. Msgr. Francis Wallace)

Response: While structural support is a valid concern, the EIS/EIR recognizes that all of proposed project is in seismically active areas. The design of critical Metro Rail facilities takes into account not only the probable magnitude of earthquakes likely to occur once in the next 200 years but also the maximum credible ground motion possible. Ground shaking parameters associated with the maximum probable seismic event will be used in the design and construction of life critical elements. The Aerial Option structure would have been designed with larger and deeper foundations and using stronger materials. Thus, critical facilities could withstand the .22g (22 percent of gravity) horizontal ground movement from any likely earthquake in the next two centuries.

Additional information can be found in Converse Consultants' Seismological Investigation (1981), prepared for SCRTD Metro Rail Project.

Comment 28: Aerial structures would provide attractive nuisances and havens for the indigent as they have proven to be in other cities. Concerns for safety of children in the area need to be addressed. (Pamela Malak)

Response: Experiences of relatively new systems in other cities indicate that the occurrence of increased crime and neighborhood degradation has not materialized. For further discussion of potential crime and safety precautions, see the responses in the Safety and Security Section of this chapter.

Comment 29: The figures for Growth of Commercial Space, Employees, Tax Revenues, Annual Value Capture Potential, and Savings in BTUs as presented in Table 2-25 indicate substantial benefits for the Aerial Option. This must be an error. (Harmon Ballin of Committee of 45)

Response: The figures have been checked. Based upon the best aailable information they are correct.

Comment 30: What would be the maximum speed of trains on an elevated guideway? (Michael Malak of Committee of 45)

Response: The maximum speed of trains on elevated guideway, as in subway, would be the design limit of 70 mph.

Comment 31: What is the meaning of the dotted lines on Figure 2-30.1? Have these alignment questions been resolved? (Michael Malak of Committee of 45)

Response: The dotted lines show the extension of the aerial alignment southward through the Santa Monica Mountains and northward, as continued on Figure 2.30.2. Because the Aerial Option has been dropped from further consideration, further work to resolve some of the alignment questions will not be undertaken.

2.3 STATIONS

Comment 32: Stations are extravagantly elaborate. An artist's rendering of a typical station (Figure 2-8 of the EIS/EIR) shows an unneeded mezzanine level. "Elimination of the mezzanine would decrease station costs noticeably. (Sam Schiffer of Community Development)

Response: Station costs have been an important consideration in the preliminary design of all Metro Rail stations and will continue to be as the system is further refined during final design. Station design is guided by the following criteria:

- Provide an efficient, safe, and secure area for Metro Rail passengers moving between trains and the streets.
- Effectively present Metro Rail system information to passengers.
- Provide an aesthetically pleasant atmosphere.
- Accommodate fare collection and operating equipment as efficiently as possible.
- Preserve valuable ground level real estate for intensive uses.

Measures will be taken to reduce station costs whenever possible as long as the station continues to achieve the above criteria.

The mezzanine configuration of a station is determined by the expected patronage levels and the desired number and location of entrances. The mezzanine functions as a transition area between the entrance and the train platforms and provides the space for a number of necessary operating functions, including fare collection, and safety and security provisions.

Comment 33: Fare collection is another problem with this system. It seems to me it is going to take a lot of time for each one of those stations to collect fares, check passes, etc., on the rail system. (Greg Roberts)

Response: Fare collection will be similar to other rail systems constructed in recent years. The fares will be handled by automatic fare gates as the rail patron enters and exits the boarding platform and not at or on the train. This is one of the distinctions between a high-capacity rail system like Metro Rail and light rail or trolley car systems which have on-board fare collection.

Comment 34: Many stations appear to be planned with only one entrance/exit. Strong consideration should be given to the construction of more access to each station. This would facilitate the movement of passenger and eliminate crowding when passengers unload. (John M. Praiswater and Bruce D. Ackerman of Greater Van Nuys Area Chamber of Commerce)

Response: Station entrances have been designed to adequately handle the projected patronage. Consequently, several stations will initially have only one entrance. Should additional access be necessary, such as during an emergency, stairs at each end of the station will be available for exit. Station plans identify future entrances which can be provided when patronage demands.

Comment 35: The SCRTD program for enhancing each station with artworks should be clearly defined as part of a systemwide artwork program. In particular, the following steps can be taken:

- The intent of the SCRTD Arts In Transit Policy, recommending formation of both a Qualifications Committee and a Selection Committee, should be elaborated upon in the Final EIS/EIR.

- SCRTD should set aside at least 1/2 of one percent of systemwide construction costs for public art work. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

  Response: The process for selection of artists, in implementing the Arts in Transit Policy, is as follows:

  A Qualifications Committee, composed of eminent experts in the field, will be appointed by the SCRTD General Manager with the approval of the Board of Directors. The Qualifications Committee will consist of experts in art and art-related subjects, from the academic world, from the journalistic world, from the art community, from curators of art museums, and from the public sector. The purpose of the Qualifications Committee is to review and evaluate the qualifications of all artists who may have an interest in participating in the Arts In Transit Program and working directly with the station design teams.

  The Selection Committees will be separately constituted for each station design assignment and will consist of the Station Architect as chairperson, one representative from the Qualifications Committee and a person elected or selected from the community organizations that exist in the Metro Rail Corridor. The Selection Committees also will be appointed by the General Manager and will interview the artists identified by the Qualifications Committee, on a station-by-station basis. Upon selection, a standard commission and contract will be negotiated between the station design team and each artist selected.

  The SCRTD Board of Directors has approved an allocation for station artwork of 1/2 of one percent of the station structure cost. An allocation of 1/2 of one percent of systemwide construction costs would far exceed the amount allocated for art by any U.S. transit system.

Comment 36: What is the difference between the Southern California Rapid Transit District's Preferred Alternative for the Los Angeles Union Passenger Terminal (LAUPT) and Caltrans' plans for LAUPT? These plans should be modified to reflect

recently agreed upon changes. (Charles A. Welches of California Department of Transportation-Division of Mass Transportation, Michael Malack of Committee of 45)

Response: Although Caltrans does not have any drawn plans for LAUPT, their conceptual plan closely resembles the optional design shown as Figure 2-5.1 in the EIS/EIR. The difference between the two station plans is the location of the bus facility. The Preferred Alternative, proposed by SCRTD, has the bus facility located behind the LAUPT track area and the optional design alternative, proposed by Caltrans, places the bus facility between the main structure and the track area. The optional design is no longer being considered as a station plan alternative.

Comment 37: Cut and cover construction would disrupt all functions at Union Station. A north-south alignment of Metro Rail under the terminal would cause less disruption during construction and provide better intercept possibilities for other transportation modes that will ultimately end at Union Station. The proposed diagonal alignment will act as a barrier to other future transportation modes. (R.L. Pfister of Los Angeles Union Passenger Terminal, Richard A. Stromme)

Response: A north-south alignment was considered for Union Station prior to Milestone 3. With this alignment it was impossible to reach the yard area west of the L.A. River and south of First Street. The Metro Rail station at Los Angeles Union Passenger Terminal will be constructed in segments so that only a part of the track area will be torn up at once. After several tracks are removed, the excavation will be dug and shoring and decking installed so train operations can continue while the rest of the cut is made in like manner. This method of construction should cause no interruption in train service as there will be plenty of tracks available to accommodate existing service. Existing service currently operates at approximately one-third of the station's capacity.

SCRTD has analyzed the opportunity for connections to future systems and, because most of these projects are above ground, there is little likelihood of interference with other projects, such as Los Angeles-Long Beach light rail, high speed train, busway/guideway on freeway, etc.

Comment 38: Figure 2.5.1 represents an alternative design for Union Station which handles bus/rail transferring much better than does the initial design shown in Figure 2.5. The Los Angeles County Transportation Commission would prefer making this design the only one left in the final document. (Rick Richmond of Los Angeles County Transportation Commission)

Response: The alternative presented in Figure 2.5.1 of the Draft EIS/EIR has been deleted from the Final EIS/EIR. Patrons transferring from the local bus lines to Metro Rail will have an east entrance, as shown in Figure 2-5, which will allow direct access to the mezzanine. Local bus passengers transferring to AMTRAK can use the east entrance and the existing passenger tunnel to reach the trains or the ticket office. Busway passengers who wish to transfer to Metro Rail are expected to transfer at the Seventh/Flower Station. (See also the response to Comment 73 in the Rail-Bus section. Busway passengers transferring to AMTRAK may alight from the bus at the intersection of Aliso and Alameda on the south border of Los Angeles Union Passenger Terminal (LAUPT). This design was withdrawn from consideration because of the additional modifications it would require on the LAUPT historic structures, and because of additional land acquisition and construction costs.

Comment 39: The west entrance to the subway at Union Station would force train passengers to walk outdoors over 300 feet to the Los Angeles Union Passenger Terminal Depot ticket office and baggage area. (Richard A. Stromme)

Response: Train passengers would be more likely to board the subway at the east entrance which will have a connection to the existing passenger tunnel to the trains.

Comment 40: The construction of the east subway entrance, electrical substation, Central Control Facility, bus station, and parking garage would prohibit the construction of additional tracks on the east side of Union Station and train service expansion. (Richard A. Stromme)

Response: Other options were reviewed before selecting the preferred Union Station plan. One plan, to locate these facilities directly behind the Union Station structure and the railroad tracks, was discussed but was determined to be destructive to the historic significance of the complex. Although constructing these facilities behind the track area will limit future expansion, it is believed this will not be a concern because the existing tracks are capable of handling a considerable increase in activity. The number of tracks was designed to handle the level of activity found in the 1940's when train use was at its peak. Current train service operates at approximately one-third of the station's capacity.

Comment 41: Using the railroad yards for subway shop facilities would prohibit the southward extension of Union Station tracks to create a run-through station, preclude use by AMTRAK intercity and commuter train maintenance, and limit room for expansion. (Richard A. Stromme)

Response: To our knowledge, there are no plans for a run-through station at Union Station. Such an extension would require an elevated line over the 101 Freeway and the demolition of many industrial buildings along the route. If this were done, it would be possible for the line to remain elevated over the subway shops area.

Comment 42: Bureaucrats want to bury the trains, passengers and platforms at Los Angeles Union Passenger Terminal under developments such as offices, retail shops and a hotel. (Richard A. Stromme)

Response: There are no present SCRTD plans for development at Union Station; however, this does not preclude the possibility of future development at or near this location. The effects of possible future development on historic properties is addressed in the Memorandum of Agreement in Chapter 4 of the EIS/EIR.

Comment 43: The destruction of the Mail, Baggage, and Express Building, tracks and platforms for the bus facility cannot be permitted because the structure is required to handle mail, baggage and express services. (Richard A. Stromme)

Response: The optional alternative for Union Station shown in the Draft EIS/EIR with a bus facility at the top level of the Mail, Baggage and Express Building is no longer under consideration. Under the proposed alternative, only a small portion of this building will be removed during the construction of the Metro Rail station. This portion will later be reconstructed leaving a permanent

passageway as an entrance to the station. The area of this building to be affected will not involve the main activity center of the express service at Union Station. Careful staging of construction in the tract area will allow activities at Union Station to continue with little disruption of services.

Comment 44: The at-grade structure and support facilities proposed for the Los Angeles Union Passenger Terminal are not acceptable. These facilities, including a traction power substation, an unindentified building, bus terminal, and parkway, would utilize far too much valuable land and would substantially impair development plans and future extensions. (R.L. Pfister of Los Angeles Union Passenger Terminal, Richard A. Stromme)

Response: All facilities proposed for Union Station are based on Metro Rail system requirements and are critical for system operation. SCRTD will work with Los Angeles Union Passenger Terminal during final design to develop the best possible plan for integreating Metro Rail facilities with those of Union Station.

The building referred to as unidentified is the Central Control Facility. It should be noted that current plans now call for the traction power substation to be located below grade over the crossover track.

Comment 45: The EIS/EIR contains no data about how the Los Angeles Union Passenger Terminal (LAUPT) would be operated after the considerable demolition of its facilities and how interurban lines would interconnect with everything else at LAUPT. (Richard Stromme)

Response: Operation of LAUPT would continue during and after construction of Metro Rail. The operational plan will be completed when final design of the station is complete and construction plans have been prepared. The Metro Rail station would interface with passenger rail service, local bus service, and express bus service. Connections with other rail systems such as the Los Angeles to Long Beach light rail line are still in the planning stage.

Future expansions of train service are not expected to exceed present capacity of Union Station. Today's volume of 13 arriving and 13 departing trains is well below the 33 arrivals and 33 departures which was the norm for a period of 20 years after the Station's opening in 1939. That norm was not the capacity, however, as the station accommodated as many as 100 trains a day during the peak of World War II.

Comment 46: The Pershing Square Station should be under the parking lot. (Patricia M. Simpson of the City of Los Angeles Cultural Heritage Board)

Response: Locating a station under the subterranean parking lot of Pershing Square is not feasible for a number of reasons:

- The cost would be prohibitively high (at least $100 million) for construction of a mined station under the parking lot.
- The location of a station under Pershing Square would necessitate a costly shift in alignment of the tunnels under Hill Street.

- Conflicts between pedestrians from the station and autos using the parking lot would occur, thus impeding parking lot circulation and pedestrian safety.

- Patron access to and from the station would be impeded by the parking lot.

Comment 47: Because of the architectural and locational significance of the Title Guarantee Building, Pershing Square should be considered as a viable alternative to the initial station entrance at Fifth and Hill. This would eliminate potential impacts to the Title Guarantee Building. If a decision is made to proceed with a station location in the Title Guarantee Building, the following criteria should be met: evaluation of construction impacts on the building, approval of design plans by State Office of Historic Preservation, and evaluation of alternative location at the southwest corner of Fifth and Hill. (Ruthann Lehrer of Los Angeles Conservancy)

Response: The Pershing Square Park is not a viable initial entrance at the Fifth and Hill intersection. Fifth Street carries all the local buses from the East Los Angeles area. The farside bus stop at the Title Guarantee Building is one of the busiest transfer points on the line. Requiring bus patrons to cross Fifth Street, a congested one-way westbound street, would not only be inconvenient to the bus patron but would cause major traffic disruption on this heavily traveled corridor.

The Title Guarantee location best serves the Bunker Hill area and most people southwest of Pershing Square are expected to walk to the next station at Seventh/Flower.

In addition to these factors, Pershing Square presents construction problems due to the underground parking there. For all of these reasons, a station entrance at Pershing Square is appropriate and will be used only if patronage levels demand.

Refer to the Memorandum of Agreement in Chapter 4 of the EIS/EIR for specific measures to preserve the architectural integrity of the Title Guarantee Building.

Comment 48: The present design of the Fifth/Hill Station does not adequately takes into consideration the appropriate functioning of Pershing Square Center and the Equitable Building. The location of the proposed entrance at the northwest corner of Fifth and Hill Streets may adversely impact the future development of these sites. Accordingly, no final decision should be made on the location of that entrance until property owners and their design consultants can be consulted. (David G. Houk of Auditorium Management Company, Inc.)

Response: SCRTD has proposed two station entrances at Fifth and Hill Streets. One is in the Title Guarantee Building (also known as the Equitable Building). This entrance would be in a retail space of the ground floor and would not affect the parts of the building contributing to its architectural significance. This entrance is important because it would provide the main entry to the rail system for passengers embarking from the Fifth Street buses.

The other proposed entrance is in the now vacant lot on the southeast corner of the Fifth and Hill Streets intersection. This entrance may be incorporated into future joint development ventures.

There are also two future entrances planned if the patronage demand increases: in the Pershing Square Building on the northeast corner of the intersection and in Pershing Square on the southwest corner of the intersection.

As stated in the June 1, 1983 letter from SCRTD to SRS-LAM Associates, the present Equitable Building owners, "adjustments in entrance orientation and configuration are not precluded." SCRTD will consider all reasonable requests for adjustment to station entrances, provided they are timely and are not contrary to the best interest of the Metro Rail Project.

Comment 49: The owners of the building located at 411 W. 5th Street have the following objections to the station entry proposed at that location:

1. The entrance is undersized for the number of patrons which it intends to serve.

2. The station entrance is incorrectly oriented in the building, greatly interfering with the property's use as a commercial office building and prime retail corner. Additional design modifications should be developed by the involved parties.

3. The configuration creates a conflict with existing pedestrian flow, people waiting at the present RTD bus stop, and the flow of new subway patrons.

Additional design modifications are necessary to conform with policies as set forth in the various Milestones, and to limit the adverse environmental impact to the property. (John S. Long of LAMCO)

Response:

1. The station entrances with three stairs and three escalators at each end of the station meet all existing criteria relative to access for projected patronage for this station. There are provisions for additional entrances if patronage levels justify them.

2 & 3. Based on Preliminary Engineering studies the 411 W. 5th Street entrance orientation and configuration was determined to be the only feasible orientation and configuration, given the building structure. However, the section designer for continuing design of this station entry will be directed to study the entrance orientation and pedestrian flow to determine if feasible alternative configurations are possible. SCRTD will coordinate final design with the owners and other involved parties.

Comment 50: Stations at Fifth/Hill and at Wilshire/Normandie should be eliminated. (Greg Roberts)

Response: The Fifth/Hill Station serves the densest employment and bus activity center of downtown Los Angeles. It also serves the Broadway shopping district which is the main shopping area for the large number of Spanish/Latin residents of East Los Angeles. Given the valuable access to employment and retail services that this station location offers, it would be inappropriate to eliminate it. The Wilshire/Normandie Station serves the Wilshire Center, an area of high employment and population density with considerable future development potential. The analysis during the Milestone process determined

that a station at this location was necessary to serve the ridership demand. See also response to Comment 51 of this section for further information on the Wilshire/Normandie Station.

Comment 51: The Normandie Station is close to the Western and Vermont Stations. A goal of Metro Rail is to maximize ridership. The loss of passengers traveling from the Valley to the CBD due to excessive stops must be balanced with gains from the Normandie Station. (Dave Tuttle, Hazel Boland)

Response: The Normandie Station is expected to have 13,611 daily boardings, which is higher than for six other Metro Rail stations. This level of ridership is adequate to justify the station. In addition, the Normandie Station supports the General Plan of Los Angeles by providing rapid transit to a development center where growth is to be concentrated. The station will add approximately one minute to the travel time of the system. More details about the Normandie Station facilities can be found in Milestone 10.

Comment 52: It will be important to have well-designed and inconspicuous stations, especially those in or near residential areas such as Crenshaw. Tasteful multistory parking structures should be provided where necessary. (Gaddes MacGregor)

Response: The station entrances are designed to be inconspicuous and compatible with the surrounding neighborhood. Some will be in the open and will include a waist high railing or parapet around three sides of an approximately 15' by 30' rectangular opening to the underground station. Access for handicapped will be provided by an elevator housed in a small structure which will be integrated into the site landscaping. Other station entrances will be placed inside existing buildings or incorporated into new buildings.

The entrance of the Wilshire/Crenshaw Station will be outdoors. A plan of the station can be seen in Figure 2-14.

Parking facilities are proposed for five stations. Initially, they will be surface lots, with multistory structures provided when parking demand is established and funds become available.

Comment 53: The Crenshaw and Hollywood Bowl Stations economically overburden the Metro Rail Project proposal. They should have been deferred to a later time. The manner in which these decisions were made raise some question as to the temper of Metro Rail Project management. (Robert M. Larson, Jr., Hazel Boland)

Response: The SCRTD Board adopted the Wilshire/Crenshaw Station upon the recommendation of the Los Angeles City Council. The City Council's recommendation stemmed from lengthy deliberations by a specially convened Citizens Advisory Committee which made recommendations to the City's Director of Planning. The decision on the Hollywood Bowl Station was made by SCRTD's Board during the Milestone process and with substantial input from the public and Metro Rail technical staff.

It is quite costly to add stations after initial construction is completed. There was never any question of the Wilshire/Crenshaw Station's viability as a Metro Rail transportation investment; it made no sense, therefore, to postpone its construction if there was the intent to build it eventually. In contrast, the postponement of the Hollywood Bowl Station, because of its low initial

utilization, was considered by the SCRTD Board. After a lengthy review of the policy, patronage, and cost issues involved, the Board determined that the station would be part of the initial Metro Rail system.

Comment 54: A Wilshire/Crenshaw Station will conveniently serve the needs of the Crenshaw community and Hancock Park communters. Crenshaw serves as a major arterial for the middle class black community, and a station stop is needed to handle this ridership. A Crenshaw stop also would provide the stimulus needed for revitalization of residential uses along Crenshaw south of Wilshire. This station area should not be selected as a site for development intensification. Current zoning prohibits such an occurrence, and this zoning should remain in effect. I do not see any direct connection between a station and high rise development. (Dave Tuttle)

Response: If the Metro Rail were built and a station at Wilshire/Crenshaw was not included, real estate market analyses done for the EIS/EIR indicate that little or no additional commercial development would occur in this impact area over what is presently existing or committed. If a station at Wilshire/Crenshaw were included, residential development would be spurred somewhat, involving the development or upgrading of perhaps 4 acres of multi-unit residential area south of Wilshire. It is also estimated that between 8 and 11 acres of commercial uses (all along Wilshire) would be developed or upgraded. There are no indications that this level of market demand would prompt any particular pressures to repeal the strict building intensity limitations of the Park Mile Specific Plan. (See also Chapter 3, Section 2.3.3 of the EIS/EIR.)

Comment 55: The status of the Crenshaw Station should be accurately described on Page S-13. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The summary has been changed to indicate that the Wilshire/Crenshaw has been adopted as a preferred station by the District Board of Supervisors.

Comment 56: The profile of the Locally Preferred Alternative shown on Page S-15 appears to preclude construction of a Witmer Station at a future date. The City Council through its action approving the addition of the Crenshaw Station, adopted policies incorporating the addition of Witmer as a future station. (City of Los Angeles City Council)

Response: Nothing in the system design precludes the eventual construction of a Wilshire/Witmer Station at some future date should conditions warrant its construction.

Comment 57: The Draft EIS/EIR indicates that estimated patronage levels are sufficiently high to justify more than one entrance only at the CBD at Wilshire/Fairfax Stations. A number of stations have greater patronage than the Wilshire/Fairfax Station, yet only have one entrance. The number of entrances and their location should be reconsidered. The CBD Station at First and Hill should have another entrance to provide access from the west side of Hill Street midblock at the County Mall. The station at Fifth and Hill should be modified to provide direct access to the public Pershing Square Park and Garage. (City of Los Angeles City Council)

Response: The Wilshire/Fairfax Station has been moved westward to reduce the possibility of encountering paleontological resources. It is now positioned

diagonally in the parking lot behind the May Company Building which is located on the northeast corner of Wilshire Boulevard and Fairfax Avenue. This station will still have two entrances, one at either end, to serve the major flows of pedestrian traffic expected to come to the station from these two directions. One entrance will serve patrons boarding from Fairfax Avenue and from west side express buses and the other entrance will serve the Wilshire Boulevard museum areas. Heavy bus transfers are expected at both of these entrances.

Large service tunnels and other building infrastructure located on the west side of Hill Street, midblock at the County Mall, make the placing of a station entry at this location expensive and difficult. The same is true with regard to an entry from Pershing Square Park to the Fifth/Hill Station. However, future construction of these entries is not precluded.

It is the SCRTD policy, based on limited funding resources, to initially construct only those entrances needed to safely accommodate projected Year 2000 station patronage. All stations have been designed to accommodate additional entries if the need is demonstrated and additional funding becomes available.

Comment 58: The design and location of the Wilshire/Fairfax Station (primary location at Spaulding Avenue) and the bus depot and turnaround are unacceptable. This station should be placed west of Fairfax (Alternative B). Any other placement within the Miracle Mile R-1 area will seriously undermine and disturb the quality of residential life in this historic and culturally rich neighborhood. Known concerns are air and noise pollution, threat to R-1 zoning, aesthetic deterioration of the visual landscape of Wilshire Boulevard, increased crime and vandalism, loss of historic building and resources (tearing down the Craft and Folk Art Museum and Egg and I Restaurant), uncontrollable parking, traffic congestion and harrassment, destroying and damaging the La Brea Tar Pit paleontological fossils, extensive construction delays and cost increases caused by complicated construction engulfed in tar, plus increased residential oil seepage, and finally, displacement (flight) of quality-minded homeowner investors. (Lynn McEvan Cohen of Masselin Avenue Neighborhood Association, Carrie Chassin, Michael Baron, Ruthann Lehrer of Los Angeles Conservancy, Kevin McEntee of Miracle Mile Residential Association, Jean Polacheck)

Response: The SCRTD Board of Directors has voted to move the Wilshire/Fairfax Station location westward to the parking lot of the May Company Building which is located on the northeast corner of Wilshire Boulevard and Fairfax Avenue. Studies and consultations with the staff of the Page Museum indicated the May Company site is an area which is less sensitive regarding paleontological resources. Although the possibility of encountering such resources is not eliminated at the new site, it is reduced. Additionally, the off-street location will provide ample time and space for recovery if resources are encountered. The new location will not include a parking structure and the bus turnaround area will be accommodated around the May Company property.

This eliminates the need to disturb many structures along Wilshire as was required under the previous alternative. It will also eliminate the traffic, air quality, and noise impacts on the neighborhoods around the previous, Wilshire/Spaulding Station site.

Comment 59: The property owners of the Beverly/Fairfax Station site see no reason to have the alignment curve easterly into their properties and then back into the

Fairfax right-of-way. SCRTD should reduce to a minimum its right-of-way requirement for Metro Rail so that the Fairfax Avenue frontage can be used as zoned — for commercial property. (CBS, Inc. and A.F. Gilmore Co.)

Response: The Fairfax/Beverly Station is one of seven stations which have off-street rights-of-way. In this case, the off-street location improves passenger access, reduces station cost, and minimizes impacts. Stations and structures for crossover and pocket tracks will be constructed by the cut and cover method. When stations are constructed in streets, the street must be blocked off in phases and then decked over during construction to accommodate traffic. In addition, the utilities located under the streets must be relocated or supported in place during construction. These constraints add substantially to the cost of construction. To avoid these problems SCRTD therefore selects the less disruptive and less costly approach. Construction of the Fairfax/Beverly Station at the off-street location on CBS and A.F. Gilmore properties will greatly reduce the traffic disruption to the community and the cost and duration of station construction.

SCRTD shares the concern that appropriate and compatible use be made of viable street frontages. The off-street station location does not preclude the development of such frontage, in appropriate phasing with station construction. The street frontage on which the station will be built can be developed jointly by SCRTD and a developer. A complete discussion of joint development is found in Chapter 3, Section 3.5 and in Milestone 6. Such developments provide a way for the District to recapture some of the value that is created in surrounding property by the construction of a transit system.

Comment 60: The Fairfax/Beverly Station should be moved to Fairfax and Third Street. (Helen Dean)

Response: This and other such station location alternatives were examined during Milestones 3, 4 and 10. It was concluded that the Third Street location would be too close to the Wilshire/Fairfax Station and would also create a much greater distance to the next station on the line at Fairfax/Santa Monica. The location at Beverly was therefore considered most desirable.

Comment 61: The asterisked footnotes attached to the Fairfax/Santa Monica Station area in Tables 3-12, 3-16, and 3-17 incorrectly suggest that the station is located in the City of Los Angeles. (Norm Murdoch of County of Los Angeles Department of Regional Planning)

Response: The footnote is revised in the EIS/EIR to clarify this inaccuracy.

Comment 62: Relocate La Brea/Sunset Station to La Brea and Santa Monica Boulevard where there is a higher level of pedestrian and transit traffic. Constructing stations at both Santa Monica and Fairfax and Santa Monica and La Brea also would lay the framework for an eventual extension of the Metro Rail system in a straight line west along Santa Monica toward Beverly Hills and east toward downtown. (Charles Hopkins)

Response: The La Brea/Sunset Station is part of an east-west leg running under Sunset Boulevard. To relocate the station to Santa Monica Boulevard would require shifting this leg to Santa Monica Boulevard as well. This, in turn, would force the removal of the proposed Santa Monica Boulevard Station at Fairfax,

which would deny service to West Hollywood community. This alternative is therefore not feasible. (See Milestone Reports 3, 4, and 10 for further discussion.)

Comment 63: A preferable location for the Hollywood/Cahuenga Station would be at Hollywood and Highland. This station would better allow for a future expansion system east along Hollywood Boulevard, with an additional downtown Hollywood stop to be built at Hollywood and Vine. These two locations have traditionally been the major transfer points for local bus service in the Hollywood area. In addition, a station at Hollywood and Highland would shorten the length of the starter route by about a mile, with a substantial savings in the cost of construction. (Charles Hopkins) The Hollywood Bowl and the Hollywood/Cahuenga Station should be replaced by one station at Hollywood/Highland. (Greg Roberts)

Response: The Metro Rail line is running north-south as it crosses Hollywood Boulevard, whereas Hollywood Boulevard runs east-west. An eastward extension connecting Metro Rail with a station at Hollywood and Vine would involve an entirely new line.

As discussed in Section 1.2 of Chapter 2 of the EIS/EIR there was an extensive study done (Preliminary Draft Report for Special Alternatives Analysis, Hollywood Area) and incorporated part of the EIS/EIR under the auspices of a citizens committee. Among the alternatives examined were various east-west medium-capacity guideway systems (light rail, people-movers, etc.) through Hollywood from Metro Rail terminals at Fairfax or La Brea. The citizens committee eventually discarded these options in favor of the Metro Rail stations as shown for the Locally Preferred Alternative.

The initial route through Hollywood during the Alternative Analysis completed in 1980 was in the vicinity of Highland, as this was more economical. Vermont Avenue was considered in this analysis as a potential route which would serve the east side of Hollywood. This route was less costly, but left too much of the Wilshire Boulevard and Hollywood communities unserved. After considerable input from the community, it was agreed to relocate the Hollywood Boulevard Station to Cahuenga.

Comment 64: The Hollywood Bowl Station should be one of the cheapest stations to build. It is in a parking lot, has no buildings to demolish, no building foundations to shore up, no utilities to relocate and no land to buy. Estimate is under $30 million for cut-and-cover station. SCRTD in arriving at their $75 million 1990 cost of construction by starting with a current cost of 25% higher and using an inflation rate triple that of the current rate of inflation. (Abraham Falick of Coalition for Rapid Transit)

Response: Our cost estimate for Hollywood Bowl Station is $57.3 million in 1983 dollars. If escalated to the midpoint of construction, the cost would rise to $75.6 million. This cost is contained in Chapter 2, Section 2.2.6 of the EIS/EIR. The cost of a station is influenced by the volume of material to be moved, the difficulty of excavation and the difficulty of shoring up the open sides of the station box. Since the Hollywood Bowl Station is over 90 feet from the surface to the top of the rail at its deep end, the volume of spoil will be correspondingly large. As depth increases the complexity and cost of shoring up also increase.

Comment 65: The Hollywood Bowl makes no sense. The ridership served is too low and far too intermittent to support the continued stopping of trains and would slow service on the entire route. Special shuttle buses should operate from the Hollywood/Cahuenga Station to serve Bowl patrons. The subway alignment should be routed so a stop could be constructed at a later date if revitalization of this area occurs and thus, patronage increases. (Al Bartolic of U.S. Social Security Administration, David Tuttle, Carol Stevens of Federation of Hillside Canyon Association)

Response: Ridership served at the Hollywood Bowl Station will be substantially lower than other stations. Metro Rail is intended to serve all facets of community life. The Hollywood Bowl is a recreational and cultural facility that provides a service to many citizens of the Los Angeles area at a reasonable cost. To delay construction of this station until a later date would be costly, requiring deep excavations to be done twice. Ventilation and electrical facilities still would be required even if no station was built initially. The Hollywood Bowl Station was adopted by the SCRTD Board after considerable public input, and it is now a part of the Locally Preferred Alternative. (See also the response to Comment 53 of this section for further discussion of the Hollywood Bowl Station.)

Comment 66: Would it be worthwhile looking into the possibility of digging a tunnel from the Hollywood/Cahuenga Station to the Hollywood Bowl? That tunnel could have moving sidewalks going in both directions and be capable of being locked off at both the Hollywood and Cahuenga end and Hollywood Bowl end. (Newten Deiter for Councilwoman Peggy Stevenson)

Response: It is approximately one mile from the Hollywood/Cahuenga Station to the Hollywood Bowl. Construction of a pedestrian tunnel of such length would be costly, particularly with the installation of moving sidewalks. The time spent by pedestrians in the tunnel would add to the total trip time of the passenger with the result that rail patronage to the Hollywood Bowl would be even less than with the full station. The costs of the Hollywood/Cahuenga Station also would increase significantly to accommodate the tunnels and the added patronage. This idea would not be an improvement to or a cost-saving measure for providing service to the Hollywood Bowl.

Comment 67: What would happen to the Hollywood Bowl Station during the months the Bowl would be closed? The station would not be cost effective and would adversely impact nearby homeowners. The station construction could result in pressures to cover the Bowl to make it a year round facility. This would destroy the present atmosphere. This issue has not sufficiently been addressed. (Elliot Johnson, Carol Stevens of Federation of Hillside Canyon Association)

Response: Service to the Hollywood Bowl Station is unique among the stations in that the Bowl is not used full time. The Bowl events span the three summer months. It may be that full-time service is not needed. This service issue is a policy matter to be decided by the SCRTD Board of Directors. There has been no decision as to the times of operation of this station.

Any future plans to modify the Hollywood Bowl would have to comply with the provisions of state and local environmental laws. Such future plans are beyond the scope of this EIS/EIR.

Comment 68: The Hollywood Bowl Station should be included in the recommended system and planned as a park and ride station. The patronage estimates for the Hollywood Bowl Station are significantly understated and do not seem to reflect extended hours of Bowl usage and proximity to the J.A. Ford Theatre and two new museums. Construction costs are closer to $50 million rather than the $75 million stated by SCRTD staff. The station could be brought closer to the surface to reduce construction costs. (John M. Praiswater and Bruce D. Ackerman of Greater Van Nuys Area Chamber of Commerce, Abraham Falick of Coalition for Rapid Transit, Linda Fishman, T.A. Nelson, Charles Hopkins)

Response: The Hollywood Bowl Station was considered as an optional station in the Draft EIS/EIR. However, on July 14, 1983 the Hollywood Bowl Station was adopted by the SCRTD Board as part of the Locally Preferred Alternative and is no longer considered as an optional station. The cost estimate for the station is $57.3 million (1983 dollars). A park and ride facility, however, is not part of the station plans because of the anticipated adverse parking and traffic impacts it would have. As adopted by the SCRTD Board of Directors on July 14, 1983, the Hollywood Bowl Station is as close to the surface as it can be and still permit the approach tunnels to pass under Odin/Highland Avenues at an acceptable grade. This elevation is considerably higher (over 80 feet higher) and steeper (3.6 percent versus 1.0 percent grade) than the tunnels would otherwise be. Additional operating costs (traction energy, etc.) may result.

The patronage estimates do not reflect a presumption that the Bowl would be converted to a year-around, all-weather facility that would significantly extend its usage. There seems to be some question (at least on the part of the adjoining community) whether these modifications, Metro Rail notwithstanding, would be acceptable.

As for adjoining facilities, initial investigations identified substantial barriers between the Metro Rail station site, located adjacent to the Hollywood Bowl ticket gates, and these destinations. The pedestrian access from the Bowl to the Ford Theatre is not a feasible walk for most patrons, considering the terrain and distance. The museum(s) would be closer, but still not generally convenient. Shuttle bus systems to serve those destinations could probably be operated from the Hollywood/Cahuenga Station as well as from the Hollywood Bowl. Although no firm attendance data on the prospective museums seems to be available, it does not seem possible that they could affect projections by any significant order of magnitude.

Station architects have investigated the possibility of placing the station underneath Highland Avenue in order to make it more accessible to these secondary destinations and to take advantage of possible joint development. Most any joint development seems to be largely inconsistent with the character of the Hollywood Bowl and its surrounding community, however. A Highland Station location only marginally improves accessibility to secondary destinations while inconveniencing and compounding street congestion for the vast majority of patrons bound for the Hollywood Bowl.

Comment 69: The best site for the Universal City Station is under the Hollywood Freeway with pedestrian access to both the north and south sides of the freeway. (MCA, Inc., Committee of 45)

Response: A mined station is more expensive to build because all work is done inside the tunnel from which the station vault space is hollowed out and the

entrances dug. All excavations must be shored up as station construction proceeds. Additionally, access to the construction area is difficult, making soil removal untimely.

For the Universal Station the alignment would have to be altered significantly starting in Hollywood. Here the line would have to swing east so as to approach the Hollywood freeway from the east, on an east-west axis. In order to place the station entrances in available space, the alignment would have to pass under and interfere with the foundations of the Getty Oil Company Headquarters Tower. The line north of the station would turn onto Vineland, then Lankershim increasing the length and thus the cost of the line.

2.4 RAIL AND BUS OPERATIONS

Comment 70: What kind of bus service will exist when Metro Rail is built? (Howard Watts)

Response: The existing bus system will remain largely intact. Service will be increased to terminal stations and on bus lines that cross the Metro Rail alignment as demand builds up. Some service parallel to or on the alignment such as on Wilshire, Fairfax, and Cahuenga may have service reduced as appropriate. Many express bus lines will be rerouted to feed into the Metro Rail terminal stations in the Valley and at Wilshire/Fairfax. The SCRTD Milestone 9 Report contains greater detail on this subject.

Comment 71: An effective bus network is essential for success of the Metro Rail. This feeder network should provide special route buses that funnel passengers into the Metro Rail stations at minimal cost to the rider. (John M. Praiswater and Bruce D. Ackerman of Greater Van Nuys Area Chamber of Commerce)

Response: SCRTD agrees wholeheartedly with this comment. The integration of bus and rail services was precisely the intent of SCRTD's Milestone 9: Supporting Services Plan. The station plans include provisions for bus layover and terminal facilities.

Comment 72: Better transit access (i.e., feeder bus service) should be provided at the six stations identified in the Locally Preferred Alternative as having parking deficiencies. (Charles A. Welches, California Department of Transportation - Division of Mass Transportation)

Response: Feeder bus service has been designed to meet the forecasted needs at these stations. The feeder bus system will provide more frequent service on bus lines crossing the route of the Metro Rail and reorient express routes to the rail stations at Wilshire/ Fairfax and in the San Fernando Valley. More complete discussion of the feeder bus service may be found in the Milestone 9 Report: Supporting Services Plan. As transit access demands increase additional service can be provided. The shortage of parking spaces near Metro Rail stations would cause potential park and ride patrons to either use feeder buses to reach Metro Rail or continue to drive by automobile to their final destinations. If these destinations are in the Los Angeles Central Business District, motorists will increasingly find disincentives to drive because of greater congestion and higher parking fees. These factors, in turn, should divert some motorists to transit.

Comment 73: Most of the passengers on the buses at the Union Station bus facility would not be transferring to the trains or subway, so that proposals for a bus facility adjacent to the Union Station passenger terminal would obstruct access to and circulation at Union Station. (Richard A. Stromme)

Response: The optional alternative design for Union Station in the Draft EIS/EIR (with a bus terminal located between the main structure of Union Station and the track area) is no longer under consideration. The plan adopted by the SCRTD Board will have the bus facility located east of the track area and at a lower level. This location is a considerable distance from the passenger terminal and main parking areas and should not interfere with vehicle circulation in these areas.

In addition, the number of passengers leaving buses at the bus facility but not transferring to Metro Rail would not be sufficient to cause impacts. Under the proposed rerouting plan, only five local lines will terminate at the bus facility. A Busway Shuttle will be established between the El Monte Transit Center and downtown Los Angeles to serve Union Station and stops along Spring, Eighth, Flower, and Temple Streets. The majority of passengers who will not be transferring to the Metro Rail will travel to these stops.

Comment 74: The Metro Rail Project will serve the vested interests along the Wilshire Corridor, as they already have the most frequent bus (running time) system in the City of Los Angeles. (Harley M. Oka)

Response: The Wilshire Corridor currently has the heaviest bus ridership in the system and has had a long history of transit service. The frequency of service is tailored to this demand and reaches 30 buses per hour on Wilshire Boulevard. Milestone 9 discusses the present bus service and explains how bus service on Wilshire Boulevard, as well as those paralleling Wilshire, may be reduced and service on crossing lines increased when rail service begins. The Wilshire Boulevard service operates every two minutes during peak hours and four minutes during midday. With the Metro Rail Project, these service levels may be cut to every five minutes during peak hours and ten minutes at midday.

Comment 75: SCRTD proposes to reroute Santa Monica Freeway bus service to terminate at the Metro Rail Wilshire/Fairfax Station and to reroute the Hollywood Freeway bus service to terminate at Metro Rail North Hollywood and Universal City Stations. Express services operating on the Hollywood and Santa Monica Freeways should not be rerouted to terminate at the Universal City and Wilshire/Fairfax Metro Rail Stations. There still needs to be a parallel bus system, particularly for people who want to take the freeway to downtown Los Angeles or other destinations along the freeway. The addition of express buses on Fairfax Avenue will worsen local traffic conditions. Santa Monica Freeway express bus riders will experience a lengthening of trip time as will riders presently boarding and alighting at bus stops on the Hollywood Freeway. (James D. Ortner of Automobile Club of Southern California, Greg Roberts)

Response: Restructuring Hollywood and Santa Monica Freeway express services is a significant element of the Milestone 9 Report: Supporting Services Plan. In concept, the Supporting Services Plan is designed to enhance access to public transportation in general, provide a high level of access to Metro Rail service in particular, and reduce operating costs where feasible.

While improved access to public transportation is a major goal, improved operational efficiency is also important. It is expected that the benefits of better overall access to transit and of greater efficiency would outweigh possible inconvenience. For example, the inconvenience of having to transfer from a bus to Metro Rail would be offset by a possible reduction in bus operating time since rail would be faster. Concurrently, the savings in bus time would permit a more efficient use of resources. In some cases, given present traffic levels, a combined trip to downtown Los Angeles on express buses and Metro Rail would take longer than an uninterrupted trip on the express bus. However, the time difference will shrink in the future as Metro Rail trip time remains constant, but traffic conditions on the Hollywood and Santa Monica Freeways continue to worsen through the year 2000.

Undoubtedly, traffic volume on surface streets will continue to grow as well. Rerouting the Santa Monica Freeway express lines via Fairfax Avenue to the Wilshire Boulevard Metro Rail station would add approximately 7 to 10 vehicles during the morning and evening peak hours. Since these vehicles would operate non-stop to the station, they would have little negative impact on local traffic conditions along Fairfax Avenue.

Assuming present traffic conditions, it is quite possible that riders using the Santa Monica Freeway express services could realize a time savings. Travel time by freeway between Fairfax Avenue and downtown Los Angeles is approximately 25 to 35 minutes. By comparison, it is estimated that Metro Rail will travel between the Wilshire/Fairfax Station and the stations at Flower and Hill Streets in 12 to 14 minutes. It is estimated that rerouting the freeway express lines non-stop to the Wilshire/Fairfax Station would take approximately 8 to 9 minutes. Assuming a Metro Rail peak hour headway of approximately 3 1/2 minutes and a transfer time of 4 to 5 minutes, Metro Rail could reduce total travel time by as much as 7 to 8 minutes from present traffic conditions. As mentioned earlier, travel time savings could be significantly greater in forthcoming years as traffic conditions continue to deteriorate.

It is unavoidable that some District patrons will experience a degree of inconvenience as a result of route modifications required to support Metro Rail service. For example, passengers accustomed to direct service via the Hollywood Freeway express lines would be required to use a combination of routes if destined to points in the vicinity of the freeway stops. However, the majority of the District's present and future ridership traveling within the Metro Rail corridor will benefit from the service modifications proposed by the Supporting Services Plan.

Comment 76: RTD should look into the demand for local service in the area of Ventura Boulevard between Studio City and Hollywood. Metro Rail may or may not be able to adequately serve patronage in that area. (Glenn Bailey)

Response: Local service will be reviewed before bus lines are rerouted or terminated. If Metro Rail does not adequately serve local patrons, adjustments will be made. It is possible that local service on Line 150 may be cut in half between Universal City and Hollywood.

Comment 77: Have all Valley lines run into the Universal Station. (Joe Dunn)

Response: This is not feasible for a variety of reasons. First, routing all of the Valley bus lines to the Universal Station would add unnecessary mileage to many of the lines. Currently, many of the lines would be scheduled to interface with the North Hollywood Station. Second, the additional number of buses on Lankershim Boulevard would increase traffic congestion and interfere with park and ride access. Third, the physical size of the bus facility planned for Universal City is not capable of handling all of the Valley bus lines.

Comment 78: The money could be better spent to improve bus service in the west and north portions of the San Fernando Valley. In addition, the billions of dollars planned for the subway could be better spent by placing conductor/security people on each bus. There should be a driver and a conductor/security guard who also collects the fares. (John T. McDonald of Los Angeles NAACP, Bernard A. Teitel)

Response: The Metro Rail Project is only one part of a Regional Transportation Development Program which includes improvements to bus service, Transportation Systems Management measures, and the regional rail network. All elements are needed to improve the mobility in the region. (See also response to Comment 1 in Alternatives section.) About 85% of SCRTD's operating budget pays for personnel costs. SCRTD presently has an annual operating deficit of many millions of dollars. The hiring of additional conductor/security personnel would inflate that operating deficit. The money that may be available for Metro Rail would be for capital expenditures not operational expenses, which include personnel costs. Moreover, the federal government is following a program of reducing operational subsidies; therefore, it would be difficult to obtain federal financial assistance for the hiring of additional personnel. Instead, SCRTD would have to consider fare increases or reductions in service. Because a key feature of Metro Rail is to provide the best service at the lowest possible operating cost, and because additional personnel would increase the operating budget, the alternative use of funds proposed by the commentors is not believed to be desirable. Experience with other major rail rapid transit systems shows that excellent security can be provided to passengers by means of closed circuit television cameras, patrols on selected trains, and patrols through stations.

Comment 79: If RTD scheduled buses every 15 minutes at rush hour and every half hour during the day, an expensive proposal like the rail system would not be needed. (Sally James)

Response: Section 1.2.1 of Chapter 3 "Transit Existing Conditions" explains the heavy passenger loads and operational problems that SCRTD buses face in much of the Regional Core. Bus service on Wilshire Boulevard is already scheduled for a two-minute headway; a change in schedules to every 15 minutes would reduce service to 13 percent of present levels. Section 1.2.2. of Chapter 3 "Transit Impacts" details the changes that will occur by the year 2000 and the steps needed to accommodate the changes.

Comment 80: The commentor is completely opposed to the use of the diesel engine in the proposed feeder bus system. Diesel engines are not environmentally acceptable because of the direct link to cancer from diesel fumes. Trolley cars should be used as a feeder network. (Jonathan Hartman)

Response: The feeder bus system will utilize vehicles with diesel engines. The use of trolleys as feeders would be more disruptive, less flexible, and prohibitively more costly than the feeder bus system. Capital resources are limited and new trolley bus systems are considerably more capital intensive than on-going diesel systems. Presently, diesel buses are considered the most cost efficient bus equipment available. Although electric trolley buses are often favored by residents because they are quiet and free of exhaust fumes, their installations have usually not proven to be cost effective in residential areas (except those with extraordinary grades or other special circumstances).

Comment 81: It would seem appropriate that the Draft EIS/EIR and Addendum discuss the "Olympic" commuter line currently being proposed. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The proposed "Olympic" commuter line would run between USC and UCLA for two weeks in July of 1984 during the Olympics. The route is not located in the Regional Core, nor in proximity to the Metro Rail route. The Metro Rail Project would be under construction in the CBD only, with no segments in operation when the proposed Olympic line would be in operation. Accordingly, the Olympic line would have little influence on Metro Rail, and vice versa.

Comment 82: The subway should operate 24 hours per day rather than stopping at 12:00 or 1:00 a.m. People should have the assurance that if they take the subway somewhere they can always get back. (Greg Roberts)

Response: The Metro Rail system is being designed so that it can operate 24 hours a day, if warranted. A 20-hour operating day has been assumed for planning and cost estimating purposes. However, actual operating hours will be established on the basis of demand once the system is in operation, and consideration will be given to the need for supplemental bus services when Metro Rail is not operating.

Metro Rail is a high-capacity transit system and it is only cost efficient and resource efficient to operate it when patronage demand exceeds certain threshold levels. There are also substantial cost penalties when the system cannot be shut down for periodic maintenance.

Comment 83: The Metro Rail Project is not rapid transit because the stations are too close together. Average speeds between stations are about 20 mph. The Civic Center, Fifth/Hill, and Seventh/Flower Stations are spaced only one-half mile apart. Deleting four of the six closely spaced stations would save $160 million and speed up the trains. Information has not been provided on the distance between stations nor average speeds between stations. (Frank Fernandez of Community Development Coalition, Richard A. Stromme)

Response: The Metro Rail system is slightly over 18 miles in length with a total of 18 stations. This configuration results in an average spacing between stations of over one mile. However, stations are not evenly spaced along the alignment, because they are sited to consider system access requirements and modes of activity. This has resulted in station spacing which varies from one half mile to up to three miles between stations. The distance between stations is shown in alignment drawings in Milestone Reports 3 and 10 and is shown in a table in the Milestone 1 Report. Average speed of the Metro Rail trains between stations

varies with station spacing and geometric constraints. Average station to station speed, including a 30-second station stop, ranges from 22 mph to 49 mph. Overall system average speed, including stops, for Metro Rail is 33 mph. The top speed of Metro Rail will be 70 mph. This is truly "rapid transit" when compared with the 10 to 15 mph speeds projected for traffic on streets and freeways in the Regional Core during peak hours by the time Metro Rail begins operation.

2.5 SYSTEM COSTS AND FINANCING

Comment 84: How much would it cost to ride the system? (Rick Blythe, Howard Watts)

Response: The fare structure is established by the SCRTD Board as a policy matter, and it is not possible to predict the fare structure on the system in 1990. However, for the purposes of the economic analysis in the EIS/EIR, the fare on the rail system is assumed similar to the fare on the SCRTD Express Bus lines. This consists of a minimum $1.00 base charge for the first three miles of express ride plus 50 cent increments for each additional three miles up to a maximum of $2.50. The total fare for a full 18 mile ride on the rail system would therefore be $3.50. There is also a 10 cent transfer charge that would be added for those trips transferring from bus to rail or rail to bus.

Comment 85: What is the operating cost per passenger mile? (Dale Jackson)

Response: The operating cost per passenger mile for the rail portion of the Locally Preferred Alternative and the Aerial Option is $0.23. For the Minimum Operable Segment the operating cost per passenger mile is $0.37. Total annual operating costs (including bus and rail components and annualized capital costs) per passenger mile are shown in Table 2-25 of the Final EIS/EIR.

Comment 86: Why can't private capital build a subway? (David Stephan)

Response: Private developers do not make a profit from mass transit because the revenues derived from its patronage do not cover the capital, operational, and maintenance costs. Furthermore, almost all mass transit systems in the world operate with a deficit because they must keep the fares artificially low to entice riders and to make the system accessible to those who must depend on transit. Thus, a profit cannot be made and public subsidies are required.

Comment 87: It is uncertain whether the RTD will get the federal funding it wants. Only $700 million annually is available from the one-cent gas tax. The taxpayers of Southern California will pick up the increased bill. (U.S. Representative Bobbi Fiedler)

Response: President Reagan recently signed into law an appropriation bill, passed by both houses of Congress, allocating $117.2 million in Fiscal Year 1984 construction funds for the Metro Rail Project. (The House of Representatives specifically approved the project by a vote of more than 2 to 1).

In addition, the Congressional Budget Office estimates that the one-cent gasoline tax will generate more than $1.1 billion annually for FY 1985 and

1986. Future funds from this source for the Metro Rail Project are "uncertain" only in the sense that the Congress has not yet acted on FY 1985 and future appropriations.

Since the Metro Rail Project is the only major new rail start in the country, SCRTD is confident that federal funding and matching state and local funds will be available to complete the project by calendar year 1991.

Comment 88: The long term potential adverse effects listed in the EIS/EIR do not include the tax burden that will be required to operate the Wilshire Corridor subway or the "sponge" effect. Wilshire Corridor will absorb funding that would otherwise be used not only to build other systems in the country, but to operate the existing system as well. (U.S. Representative Bobbi Fiedler)

Response: The commitment of financial resources to Metro Rail is already listed in Chapter 3, Section 14.3 as an irreversible and irretrievable commitment of resources. However, that section has been modified to specifically mention the "sponge" effect. No new taxes are proposed to finance operation of the subway; therefore, taxation was not listed as a potential long term adverse effect.

Comment 89: The Proposition A transit tax was intended to keep bus fare at low levels, improve transportation, and develop a rail system. Wilshire Corridor may use almost all of the 40 percent of the funds that can be used for bus operation or rail development. This would adversely affect bus passengers and require new revenues through fare increases or additional taxation. RTD has indicated that bus fares may soon return to the $1.25 level. (U.S. Representative Bobbi Fiedler, Angelo Allio Elaine Bridger, Jerry Hays)

Response: The ballot measure for Proposition A indicated the purposes of the tax were to improve and expand existing public transit countywide through possible fare reductions and other means; to construct and operate a rail rapid transit system; and to more effectively use state and federal funds, benefit assessments, and fares.

The Metro Rail Project is consistent with these purposes since it is the first step toward a 150 mile network of light rail (trolley) and rail rapid transit service for the Los Angeles area. See Section 3.3 of Chapter 1 for the map that appeared in Ballot Proposition A, November 4, 1980.

Bus fares may indeed rise after June 1985. Projecting inflation at 10 percent for three years would cause the previous fare of $.85 to rise to $1.13. The District's Short Range Plan lists two fare alternatives of $.95 or $1.05. These fare increases would be necessary to bring the ratio of revenues to operating costs (currently 25 percent) to the previous ratio (about 45 percent) before fares were lowered. The timing and increments of any fare increase will be the subject of future public hearings.

Comment 90: The Draft EIS/EIR does not explain why the average cost per mile for light rail is $24.5 million per mile and for other heavy rail systems it is $61.9 million a mile, but for the Wilshire Corridor it is $202.4 million per mile. Why are subway costs so much higher than light rail lines? (U.S. Representative Bobbi Fiedler, Angelo Allio)

Response: The Milestone II Report: Cost Estimate and Chapter 2 of the EIS/EIR indicate the costs of the 18.6 mile Locally Preferred Alternative as $2.47 billion in 1983 dollars, or $132.7 million per mile. The 8.8 mile Minimum Operable Segment would cost $1.54 billion, or $175.4 million per mile. The total amount SCRTD will have to pay per mile in inflated dollars, (obtained by taking the cost of each contract in 1983 dollars and escalating it seven percent to the midpoint of construction) would climb to $173.9 million and $229.9 million, respectively.

Much of the cost difference between the other heavy rail systems mentioned by the commentor and Metro Rail can be explained by inflation. For example, if the figure of $62 million per mile quoted by the commentor was based on 1980 dollars, a 7 percent inflation rate would push that figure to $99.6 million per mile today. An earlier base year would raise the inflated figure even more. Another factor that could help explain the cost differential are the costs of real property for stations and right-of-way. Parcels needed for the Metro Rail Project range from $13 per square foot to $250 per square foot; this could vary considerably from the figures used to derive the costs for other heavy rail systems.

Comment 91: In the Draft EIS/EIR Table 2-20, "Cost Comparison," does not indicate the difference between cost and revenue, a shortfall which the Los Angeles taxpayers will be obliged to pay. The project is now too expensive and no discussion is included about how the debt by the project is to be retired nor how the massive operating deficit will be met. (Harley M. Oka, Carl W. Fisher, Donald L. Mellman, U.S. Representative Bobbi Fiedler, Howard Brandis, Frank Fernandez of Community Development Coalition, O. O. Eninger, Frank A. Lauria, Robert M. Lawson, Jr.)

Response: Transit in Los Angeles will certainly cost something, but the burden of financing the system will not fall entirely on the Los Angeles taxpayers. The figures in Table 2-20 do not show the shortfall between projected revenues and the cost of operating and maintaining the transit system. However, this information is contained in Table 2-24 which shows the operating subsidy will decrease with the rail system. Section 2.2.6 of Chapter 2 contains a discussion on financing the project. Specifically, Table 2-9 indicates the federal contribution could be up to 62 percent, while state and local funds would make up the balance of 38 percent or more. In addition to existing motor vehicle revenues, gasoline sales tax and Los Angeles County general sales tax programs, the District has sponsored state legislation to allow participation in joint development and establishing of special assessment districts. Both bills, SB 1159, authorizing joint development, and SB 1238, concerning special assessment districts, have been signed into law, and will help the District achieve the targeted $185 million from "local/private" sources.

Comment 92: It's unclear how one 18.6 mile rail line could reduce the entire SCRTD operating subsidy per passenger from $0.50 to $0.14 over the SCRTD system. The ratio of total annual revenues ($332.2) to annual operating cost ($388.3) for both bus and Metro Rail results in a 76.5% fare box recovery for the Locally Preferred Alternative. This appears to be unrealistic in view of other systems currently in operation. (Susan Brown of California Department of Transportation)

Response: Although revised projected revenue figures have been included in the Final EIS/EIR, the basic picture of a substantially improved revenue/cost ratio remains. The addition of Metro Rail will help foster higher SCRTD bus fleet

average vehicle occupancy levels, by eliminating the need for current bus service in the highly congested travel corridors in the Regional Core and allowing buses to be redeployed in areas where they can obtain higher service speeds and utilization.

Comment 93: The cost/revenue chart on page 2-99 needs clarification. When you say "cost" do you mean "fare"? (Sylvia Richman)

Response: No. In Table 2-24 of the EIS/EIR, fares from rail and bus operations are part of the row labeled Annual Revenues. The row labeled Annual Operating Costs refers to what it costs SCRTD to provide bus or rail service (labor, fuel, maintenance, etc). The table shows that the operating deficit (loss) of SCRTD is less with the rail system.

Comment 94: The cost is out of the question for only 18 miles. The cost will probably double before completion because of delays and increases in the cost of materials. San Francisco's rail system must be subsidized $10 for every $1.00 received from riders. (Richard Lagowski, Elaine Bridger, Pete Hawes Family, Roy Wise Anderson, William Chandler)

Response: The cost estimates for the system shown in Chapter 2 include design contingencies which can accommodate changes in conditions that surface during Final Design, including cost fluctuations for materials and some delays. The effect of delays are discussed in Section 2.2.6. A delay of one year would raise project costs over $237 million, while two years delay would increase costs $491 million.

The 1981 edition of the National Urban Mass Transit Statistics, Section 15 Report shows that San Francisco MUNI gets 36.7 percent of its total revenues from fares, 10 percent from federal grants, and 50.4 percent from local grants. San Francisco BART received 40.1 percent of its total revenues from fares, 49 percent from local taxes, and 5 percent from local grants. (Balance of 100 percent from other sources in small amounts.)

The light rail lines proposed for the Los Angeles region are to be built largely within existing rights-of-way and at grade. There are fewer parcels of land to buy and no tunnels or structures to build, except at the yard and shop areas and simple open stations. The light rail systems will operate more slowly and less frequently than the Metro Rail and may require grade crossings at major streets. Overpasses add to the light rail costs. Because of slower speeds, less frequent operation and slower trains, light rail systems carry fewer passengers than heavy rail. The Metro Rail expects and is designed for 364,000 passengers daily, while the Los Angeles to Long Beach light rail line expects about 25,000 passengers daily. On the basis of capital investment per passenger capacity, the Metro Rail costs $8.54 million per 1000 passengers capacity while the Long Beach line would cost $16 million per 1000 passengers.

The point is that Los Angeles needs an integrated transportation system that uses the most effective and efficient technologies to meet the mobility needs of its citizens. Some areas are better served by light rail, buses, or taxis.

Comment 95: The Metro Rail Project is a good idea, but it is questionable how long it would last when the costs of maintenance and operations are considered. Is it possible to cover the operating costs through the ridership revenue? (Pam Gargons, Sylvia Richman, Mr, and Mrs. William G. Anderson)

Response: Chapter 2, Section 3.9 discusses the cost effectiveness of the rail system and the bus system compared to the No Project Alternative. Operating costs would decrease with the Metro Rail system but they would still exceed revenues from transit riders. Table 2-20 shows that the Locally Preferred Alternative rail system would allow bus operating costs to be reduced from $526 million to $447 million annually. Table 2-24 shows the effect this has on the operating deficit. The No Project Alternative would have a deficit of $279 million, while the Locally Preferred Alternative would show an annual deficit of $113 million. As these numbers show, the rail system would help to reduce, not increase, the overall operating deficit of the SCRTD transit system. Given the experience of other transit properties, it can be safely assumed that the Metro Rail system would be operational for fifty years and more after it become operational sometime in 1990. The fact that the system does have a limit to its economic life is reflected in the annualization of the system's capital costs. Although many of the system's components will still be functional after 50 years, the economic life is conservatively estimated at 32 years (see Table 2-8).

Comment 96: How much revenue would be generated by assessment districts? (Sam Schiffer of Community Development Coalition)

Response: A crude estimate of potential revenues from benefit assessment districts around Metro Rail stations is presented in Chapter 3, Section 3.5.1 of the Final EIS/EIR. Assuming the projected commercial floor space is assessed between 25 cents and 50 cents a square foot, the Locally Preferred Alternative could generate $26.3 - $52.5 million annually in the year 2000; the Minimum Operable Segment could generate $25.7 - $51.4 million per year.

Comment 97: The Draft EIS/EIR does not include the effects of taxation required to fund construction of the project. Future operating subsidies impose a "blank check" commitment on the taxpayers of Los Angeles County. The SCRTD Board, a non-elected body, is allowed to be the "conclusive judge" of benefits received from the subway and to establish, after hearings by the Board and the city and county, special benefits assessment districts for purposes of taxation. Areas within a mile of the subway in the downtown business district and one-half mile in other areas would be subject to inclusion in special benefit assessment districts. However, the District Board, after notice and hearing, could change the boundaries of the assessment districts and thus bring the entire County of Los Angeles under threat from this bill. (U.S. Representative Bobbi Fiedler, Jerry Hays, Betty Lautus)

Response: The Final EIS/EIR contains a detailed discussion of benefit assessment districts and their impacts (See Chapter 3, Section 3.5.1). Recently enacted, this law requires the approval of the City Council to establish assessment districts within the city and approval of the County Board of Supervisors for areas not within the City of Los Angeles. The inclusion of areas in other cities would not be appropriate now, because the proposed 18-mile project is wholly within the City of Los Angeles and County of Los Angeles. Assessment districts will be formed only in areas around rapid transit stations. In the Los Angeles Central Business District, the boundaries cannot exceed one mile around stations and in areas outside the Los Angeles Central Business District, the boundaries cannot exceed a half mile around stations.

Formation of a benefit assessment district is subject to a referendum. Owners of 25% of the property in the proposed district can qualify the question for a

referendum. If a referendum is held, it requires a majority of qualified voters to implement the district.

Under these guidelines and the restrictions of this law, it will not be possible to subject the entire County of Los Angeles to these assessments.

Comment 98: It is assumed in the Draft EIS/EIS that a given amount of revenue will be generated from benefit assessment revenues for project use. While the Draft EIS/EIR noted that such legislation is not currently in effect, it is questionable whether or not it would be consistent with the intent of the voters when they passed Proposition 13 in 1978. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: At the time the Draft EIS/EIR was published the assessment district legislation was under consideration by the California State Legislature. This has now been enacted into law. Portions of the estimated $185 million programmed for local/private share of project funding would be raised through the benefit assessment mechanism. The response to Comment 20 of this section explains that revenues generated by such assessment are not considered a tax. The response to Comment 100 in this section provides an additional response on assessment districts. Also see Chapter 3, Section 3.5.1 of the Final EIS/EIR for more details.

Comment 99: How can a non-elected Board, such as SCRTD's be empowered to levy a tax as proposed in pending state legislation? (Angelo Allio)

Response: The legislation in question is an assessment not a tax, since it would be tied to benefits received by a property owner that the proceeds must be applied to Metro Rail facilities within the assessment district.

All SCRTD Board members are appointed by and directly accountable to elected county supervisors or city councils. The SCRTD Board, however, would only propose the formation of benefit assessment districts. Actual implementation would have to be approved by the City Council or the County Board of Supervisors.

Comment 100: The report does not mention that joint development proceeds can offset taxes needed to pay for the cost of a subway, despite Universal's, Studio City's, and the North Hollywood Redevelopment District's willingness to discuss such ventures. (Michael Malak of Committee of 45)

Response: Table 2-9 in Chapter 2 of the EIS/EIR shows about $185 million in local/private revenues are programmed to fund construction of the Locally Preferred Alternative. The recently enacted legislation allowing the creation of benefit assessment districts around rail transit stations will help this target to be realized. A portion of these revenues would come from assessment districts around the North Hollywood and Universal City Stations. To the extent that an Aerial Option would preclude some development around stations, the revenues generated near aerial stations would be less. However, it is unlikely that the difference would be enough to cover the $84.3 million (inflated) in construction cost differential between the aerial and subway alternatives.

Additional revenues could also be generated through joint development and value capture programs. These type of programs will be pursued vigorously by the District throughout the final design and construction stages of the project.

While the development of such programs has not moved beyond the initial stage for the Universal City and North Hollywood areas, considerable progress has been made in developing such a program at the Wilshire/Fairfax Station. An agreement currently in the final approval stage would provide benefits for both the District and the developers in that station area. Benefits to the District would include a fee simple easement into their property for station construction, and $2.0 million towards the construction cost of the Wilshire/Fairfax Station.

The Universal City site and the North Hollywood sites were not included in the Draft EIS/EIR analysis because the future parking structures proposed at these locations would have substantially limited the remaining development potential. Development at the Universal City site on Ventura Boulevard and on Lankershim Boulevard is limited to an FAR of three and six stories or 75 feet. At the North Hollywood site, development is limited to three stories or 45 feet. However, the commentor is correct in pointing out that it is inconsistent to exclude that potential even though it is limited. It was not excluded to make the Valley stations appear less competitive than the other stations but to provide a conservative estimate of revenue potential. The development potential of the Universal City and North Hollywood Station sites has been added to the Final EIS/EIR in Table 3-22 in Section 3.5.5 of Chapter 3, assuming that one to two levels of subterranean parking would be built at the North Hollywood Station site in order to conform to local height limits and accommodate air rights development.

Please note that all of Table 3-22 in the Final EIS/EIR has been revised to reflect new data available in the SCRTD Report on Preliminary Property Acquisition and Relocation Costs except at the North Hollywood Station site. At that location the land acquisition estimates shown in the most recent version of the Milestone 10 Report: Fixed Facilities Plan are used. The amount of land designated for acquisition in that report is substantially greater than the amount indicated in the Report on Preliminary Land Acquisition Costs and would consequently provide an opportunity for air rights development which was not expected to be available when the Draft EIS/EIR was prepared. Acquisition costs for this substantially larger area have been estimated in the Final EIS/EIR by applying the average cost per square foot cited in the Report on Preliminary Land Acquisition Costs to the additional land area identified for acquisition.

Because, on one hand, the amount of land identified for acquisition in the Report on Preliminary Land Acquisition Costs along the other segments of the Metro Rail Project route is smaller than the amount assumed to be acquired in the Draft EIS/EIR and, on the other hand, the amount to be acquired in North Hollywood was substantially increased, the analysis in the Final EIS/EIR indicates that the Universal City and North Hollywood Stations could generate a substantial share of the revenues potentially available from the leasing of air rights.

Comment 101: The local share of proposed funding should be updated. (Michael Malak of Committee of 45)

Response: The EIS/EIR has been revised to incorporate an updated financial plan. See Table 2-9 in Chapter 2 of the Final EIS/EIR for the revised estimate of the local share.

Comment 102: Stations at the Hollywood Bowl and Wilshire/Crenshaw have been evaluated in the Draft EIS/EIR but not included in project costs. (Rick Richmond of Los Angeles County Transportation Commission)

Response: The Hollywood Bowl and Wilshire/Crenshaw Stations have been approved by the SCRTD Board for inclusion in the Locally Preferred Alternative, and their costs are evaluated in the Final EIS/EIR. Refer to Chapter 2, Section 2.26 for a discussion of costs.

Comment 103: Funding for the extra construction cost of the bend under the San Bernardino Freeway/Busway Extension at Union Station for access to the maintenance facility must be provided by transit funding sources; it is not eligible for FHWA funding. (A.J. Gallardo of U.S. Federal Highway Administration)

Response: A funding source other than the Federal Highway Administration will be sought for this construction. This matter is being coordinated with Caltrans.

Comment 104: Why is the right-of-way cost the same for both options when the EIS/EIR states that land acquisition will be greater under an aerial? (Polly Ward and Michael Malak of Committee of 45)

Response: The right-of-way requirements for the Aerial Option are basically the same as for the Locally Preferred Alternative. The primary differences occur at the portal on the north slope of the Santa Monica mountains and north of the Universal City Station. Under the Aerial Option, SCRTD would be required to acquire parcels in these areas; for the subway, less expensive subsurface easements would be obtained.

In the Special Alternatives Analysis for North Hollywood, the difference in right-of-way costs between the Lankershim subway and aerial options were calculated at $6 million. Since that analysis was done, the North Hollywood Station was shifted from an off-street location south of Chandler to Lankershim straddling Chandler. The Aerial Option was not studied further in the analysis and no current right-of-way costs are available. Staff estimates that a revised Aerial Option with a similar north terminal would cost between $3 and $6 million more in right-of-way costs than in subway.

Comment 105: Further explanation is requested on cost differentials between aerial and subway alternatives. (Polly Ward of Committee of 45)

Response: Costs for aerial and subway guideways were based on experiences in other cities applied to Los Angeles conditions. Based on unit construction costs, aerial structures were considered less costly to construct than subway tunnels, although track work construction is shown to be somewhat higher for aerial. Train control, traction power, and communication are somewhat less for an aerial than for a subway system due to the differences in equipment and energy requirements between aerial and subway. For detailed a breakdown on these costs, see Chapter 2 (particularly Table 2-6 versus Table 2-10). For an explanation of the methodology used to estimate costs, see Milestone II on Estimates.

Comment 106: The assumption to escalate the entire project costs to 1987 and allocate the entire expenses as shown in the Milestone II Report does not reflect the actual funding requirements at this time. Using a factor of 1.75 percent per quarter

(even higher than that assumed in the EIS/EIR) and the schedule of the individual contract packages, produces an escalated cost for the project of $3,053,800,000, $54 million less than SCRTD's estimate. This appears to be a more realistic picture of the cost escalation and allows use of the funds as time passes. (Said Issaq Said)

Response: The escalation of project costs presented in the Draft Milestone II Report: Cost Estimate was based on an inflation of costs to the mid-point of construction for the entire project. However, the mid-point of each contract package is now used as the basis for the escalation factors, and this is reflected in the Final Milestone II Report and the Final EIS/EIR. In addition, the construction schedule has slipped due to funding constraints, and costs for the Hollywood Bowl and Wilshire/Crenshaw Stations have been added. These considerations--the revised methodology for cost estimates, the construction schedule, and the project definition--make it impossible to compare SCRTD's revised cost figures with those of the commentor's.

Comment 107: Cost estimates should be updated to 1990. (Michael Malak of Committee of 45)

Response: Both construction and operating costs were escalated to 1990. The operating cost escalation was a straight forward escalation from 1983 to 1990 at a rate of 7 percent. Construction cost escalation was done by escalating each construction package up to the year in which that package would be constructed. This was done for each construction package or segment, up to 1990, the year of project completion and scheduled operation.

Comment 108: There is no mention of the costs of a minimal security force in the tables on pages 2-67, 2-78, 2-83. (Mrs. Jonathan Winters)

Response: The cited tables only indicate capital (equipment) costs for the three different alternatives. Security costs are included in the tables of operating and maintenance costs. Table 2-7 lists operating and maintenance costs for both the Locally Preferred Alternative and the Aerial Option and Table 2-14 lists operating and maintenance costs for the Minimum Operable Segment.

Comment 109: The report says that revenue service starts as early as 1988 but the revenues are not shown in the bar chart. (Said Issaq Said)

Response: Since the Draft EIS/EIR does not mention the start of revenue service and does not show costs or revenues in bar charts, it is assumed that the referenced report is the Milestone II Report. Milestone II shows that Phase A1 (Union Station to Wilshire and Vermont) would be completed in the last quarter of 1988. No revenue service is contemplated for that segment. The first revenue service would start after Phase A2 was completed to Fairfax/Beverly, the Minimum Operable Segment, in June 1989.

Comment 110: Since the design contingency is an arbitrarily derived figure, should the $9,000,000 figure between the Locally Preferred Alternative and the Aerial Option be considered in examining the difference in cost between systems? (Michael Malak of Committee of 45)

Response: The design contingency is not arbitrarily derived. The contingency of 10 percent of costs for stations and 15 percent for facilities is based on design contingency values used for similar construction projects including transit

projects. The design contingency reflects the level of uncertainty and construction difficulty which is equal for both alternatives. It is therefore not appropriate to consider different contingencies for these alternatives. These contingency values have been explained along with other cost estimate assumptions in the Milestone II Report on project costs. The contingency for the Locally Preferred Alternative is $235.2 million and for the Aerial Option it is $228.6 million. This provides a difference of about $6.6 million.

Comment 111: Would not the Minimum Operable Segment add $39.2 to $58.8 million to the gross regional product as compared to the Locally Preferred Alternative's $74.4 to $111.6 million? Why did this information not appear in the EIS/EIR as it did in a preliminary draft dated March 1983, particularly in light of the information's significance? (Michael Malak of Committee of 45)

Response: The impacts of both the Locally Preferred Alternative and the Minimum Operable Segment on gross regional product were given in Chapter 3, Section 3.3 of the Draft EIS/EIR. The figures have been updated in the Final EIS/EIR to reflect revisions to the estimated operational costs.

Comment 112: The Draft EIS/EIR does not indicate that the Metro Rail Project will issue an Annual Report by an independent certified public accountant. This is necessary to ensure accountability to the taxpayers. (Frank Fernandez of Community Development Coalition)

Response: Each year, SCRTD issues an Annual Report certified by an independent certified public accounting firm. The Metro Rail Project has been and will continue to be recorded in this report along with the District's other projects and responsibilities.

Comment 113: What are the costs paid by the public for medical programs, medical and insurance costs, etc.? What are the public's costs to subsidize the automobile? How can Metro Rail serve to reduce those costs that were built and utilized by the general public? (Glenn Bailey)

Reponse: Many goods, services, and programs related to transportation are subsidized. Total costs, let alone those costs attributable to one transportation mode or another, are very difficult to ascertain, however real those costs may be. Public transit is believed to have overall costs (public and private) per unit of service far below those of the automobile. Public transit costs, both private (fares) and public (tax support) are very explicit and are readily available for public scrutiny. Automobile costs, by comparison, are largely diffuse. The costs in lives and property, air pollution, excessive parking facilities, inefficient urban form, lost social and economic mobility and so forth are very difficult to estimate. Even private costs (insurance, fuel, maintenance), because they are to some extent removed from actual trip-making (as compared with paying transit fares), are often imperfectly perceived.

Metro Rail should reduce per unit costs of public transit service over what would otherwise be the case, thus benefitting the taxpayer. It will most certainly offer faster, more convenient transit service and thereby be of great benefit to transit users.

2.6 PATRONAGE AND COST EFFECTIVENESS

Comment 114: The ridership figures in the EIS/EIR are different from previously published estimates by SCRTD. The estimates are also high given the experience of other systems now in operation and other independent analysis by transit experts. (U.S. Representative Bobbi Fiedler, Rich Willson, O.O. Eninger)

Response: The development of ridership estimates has been an ongoing process. The estimates have been refined using more up-to-date estimates and projections of population and employment and state-of-the-art computer modeling techniques. Bus routings have been refined and used in the later estimates. The estimates contained in the Final EIS/EIR reflect the latest results and supercede previously published estimates. Ridership estimates in the final EIS/EIR are lower than in the draft document. Daily rail boardings for the Locally Preferred Alternative are estimated to be 364,000 and the total daily transit boardings, including buses, are estimated to be 2,429,000. The ridership projections are consistent with the operational experiences of other systems when consideration is given to differences in population and employment densities.

Comment 115: Metro Rail construction is too costly and will not have the ridership necessary to justify its existence. (Daniel Helfgott, Janet Turner, Pete Hawes Family, William Chandler, Marlys and Harris Nelson)

Response: Patronage forecasts documented in the EIS/EIR and its technical reports indicate that the project is justifiable. Review by federal transportation officials has indicated that Los Angeles rapid transit system is likely to be one of the most cost effective high-capacity new rapid transit systems in the country.

Comment 116: The total daily boardings for the transit system in the year 2000 with the Metro Rail Project appear to be too high. The total daily boardings on page S-6 are shown to increase from 1.434 million under the No Project Alternative up to 2.346 million under the Project alternatives. Although there may be justification for these higher figures, the documentation should be provided in the EIS/EIR. (City of Los Angeles City Council, Robert M. Lawson, Jr.)

Response: The primary explanation for the large increase in daily boardings between the Project alternatives and the No Project Alternative lies in the definition of the No Project Alternative. Under this alternative, ridership projections are constrained by the capacity of the existing transit system, with no expansion in services to accommodate future population and employment growth beyond the changes made by 1980 Sector Improvement Program. The increased ridership observed under the Project alternatives is attributable to the additional transit capacity provided by the Metro Rail system. Also, as buses are converted from line-haul service to feeder service, they can carry more passengers in a given time period since the trips are shorter. The efficiency of the transit system is maximized with bus and rail services complementing each other. The Project alternatives satisfy a substantial latent transit demand that is not satisfied by the No Project Alternative. Additionally, since the Draft EIS/EIR was published, both the supporting services bus network and components of the travel simulation process have been adjusted resulting in the revised patronage projections presented in this document.

Comment 117: The Locally Preferred Alternative represents an enormous capital investment, especially when compared to projected daily boardings, areawide mode shift, vehicle miles saved, BTUs saved, air pollution reduced, and operating subsidies required. A downside projection of no more than 50 percent of official patronage should be considered. (Richard Willson)

Response: The Locally Preferred Alternative is recognized as a capital intensive investment, but it must be viewed in the context of its economic lifespan. Annualized capital costs have been based on an economic life of 32 years with a substantial salvage value at the end of that period. Development of the Locally Preferred Alternative has proceeded only after extensive analysis of many other alternatives, including lower cost alternatives. The Locally Preferred Alternative does not foreclose other low cost localized options if they are independently warranted.

A sensitivity analysis assuming a reduction in projected daily patronage was performed. UMTA recommended the use of a 30 percent reduction. This worst-case analysis concluded that all rail alternatives, regardless of the discount rate used, would increase average costs. Patronage estimates, while acknowledged to be uncertain, are accurate to the degree that a 30 percent reduction is considered worst case and lower patronage levels are not envisioned.

Comment 118: The percentage of transit riders for the Minimum Operable Segment as presented on page 3-9 should be re-computed. (Michael Malak of Committee of 45)

Response: The patronage estimates have been revised in the Final EIS/EIR. The statement regarding the difference in transit ridership between the Minimum Operable Segment and the Locally Preferred Alternative has been revised in the Final EIS/EIR to read:

> "Relative to the Minimum Operable Segment, patronage projections indicate that while serving Hollywood and North Hollywood with rail transit will not increase the number of transit riders, bus needs would be reduced substantially (228 buses) in the Regional Core, because rail patronage would be 39 percent greater under the Locally Preferred Alternative."

Comment 119: The section on Transportation of Chapter 2, page 2-85 indicated 8,651 auto person trips would be diverted to mass transit in Hollywood and San Fernando Valley. This number should be checked. (Dolly Wageman of Committee of 45)

Response: The daily auto person trips is estimated to be 236,463 for the Locally Preferred Alternative and 232,317 for the Minimum Operable Segment. These represent revised figures and have been incorporated into the EIS/EIR.

Comment 120: The Draft EIS/EIR forecasts Metro Rail will carry only 52,000 daily trips through the Cahuenga Pass. Commentor estimates peak hour demand through the Cahuenga Pass as 2,500-3,000 one-way rail trips. Bus/HOV strategies could provide adequate capacity and directly access Metro Rail stations at Hollywood/ Cahuenga or in the Los Angeles CBD. The more direct routing and potential guideway cost savings suggest that Bus/HOV alternatives for the Cahuenga Pass

Metro Rail segment should be included in the EIS/EIR. (James D. Ortner of Automobile Club of Southern California)

Response: The patronage projections for the Metro Rail system show that more than 6,100 persons will travel through the Cahuenga Pass towards the Regional Core during the a.m. peak hour. Bus/HOV alternatives along this segment would experience the same congestion faced by auto travelers and also contribute to the congestion. Auto travel through the Cahuenga Pass will benefit from the diversion of potential vehicle trips (bus and auto) to Metro Rail in addition to the environmental and energy savings that will accrue from the Metro Rail Project. A detailed examination of potential Bus/HOV alternatives was performed during Alternatives Analysis. However, the Metro Rail Project was selected as the most effective transit solution in the Regional Core. Metro Rail would provide services to the Valley, Wilshire Boulevard, Hollywood, and West Hollywood; these services would not be provided with Bus/HOV alternatives.

Comment 121: Through the pass on Metro Rail inbound/outbound trips, there will be a total of 63,900 or 52,700 trips, depending on whether you read page 2-62 or 2-63. This conflict should be resolved. (Dolly Wageman of Committee of 45)

Response: Table 2-3 of the EIS/EIR is a tabulation of boardings by mode of access and does not total inbound/outbound trips. The inbound/outbound trips shown in Figure 2-29 have been revised in the Final EIS/EIR to reflect a more refined analysis.

Comment 122: Patronage data presented for the Hollywood Bowl is based on 1990 population projections for SCAG and present Bowl attendance, with no consideration to three significant developments: use of Bowl parking lot as a park and ride facility, construction of two new museums and the increase in Bowl attendance resulting from improved access via subway. (Abraham Falick of Coalition for Rapid Transit)

Response: The Hollywood Bowl Station has been adopted by the SCRTD Board of Directors since the publication of the Draft EIS/EIR. Patronage data for the Hollywood Bowl Station in the year 2000 are included in the Final EIS/EIR. This data acknowledges the above considerations could affect patronage. For more details on these considerations, see the response to Comment 68 in the Stations section.

Comment 123: The patronage figures do not appear to include ridership from the Entertainment Center at Universal City or the increased ridership that could be generated by redevelopment in North Hollywood. (Michael Malak of Committee of 45)

Response: The patronage figures do include a provision for predicted growth in the vicinity of both the Universal City and North Hollywood Stations.

Comment 124: On page 2-102 (Table 2-25) there appear to be some inconsistencies between bus patronage and bus operational cost. Patronage for the No Project and Locally Preferred Alternative increases 37% (444.67 to 610.73 million), while the operating cost decreased 4% ($403.4 to $388.3) per year. (Susan Brown of the California Department of Transportation)

Response: In general terms, construction of Metro Rail will clearly reduce the number of bus miles needed. Thus, the 4 percent reduction in projected bus operating costs with Metro Rail compared to No Project is what would be expected. In addition, Metro Rail is projected to increase the average occupancy level of the bus system. Part of this increase will be the result of demand for feeder service to Metro Rail. There will also be an indirect effect, as Metro Rail takes over line haul duty in SCRTD's most congested service corridor. The buses currently serving that corridor will be available not only to provide feeder service, but also to provide more frequent service on SCRTD routes completely unrelated to Metro Rail. Thus, Metro Rail is projected to increase ridership on SCRTD's existing bus fleet.

2.7 TRANSPORTATION

Comment 125: Potential interface with proposed transitways on I-5, I-110, I-105, and I-7 should be mentioned. Metro Rail needs to be coordinated with other transit projects and services proposed for Union Station. (Susan Brown of California Department of Transportation, A. J. Gallardo of U.S. Federal Highway Administration)

Response: If the Santa Ana (I-5) Transitway is constructed it may link with the Metro Rail at Union Station. The Harbor Freeway (I-110) Transitway would feed buses into the downtown area via Figueroa and Hill Streets. The first link to the Metro Rail would be the transfer point at the Fifth/Hill Station. The Century and Long Beach (I-105 and I-7) Transitways would have links to future extensions to the Metro Rail. Although it is too early to predict the logistics of these interfaces, SCRTD has made the commitment to participate in the planning of these projects and to work toward connections that will provide the optimum efficiency for the region.

In addition to Metro Rail, two other transit projects are planned to terminate at Union Station. These are the Long Beach to Los Angeles Light Rail Line and the Bullet Train from San Diego. SCRTD and the Los Angeles County Transportation Commission currently are studying downtown alignments and possible links to Metro Rail for the Long Beach to Los Angeles Light Rail Line. The Bullet Train Project is in the scoping stage of its environmental review process. Metro Rail staff will monitor this project and coordinate as appropriate. Planning activities for all of these projects have been coordinated.

Comment 126: The report does not deal with the future traffic problem in downtown. The report also lacks detailed information on traffic impacts in the Universal City area. (Greg Roberts)

Response: The EIS/EIR describes the traffic impacts throughout the corridor. In the CBD, the major problems will be during construction of the stations. As each station is designed, a traffic management plan will be developed to minimize disruption to traffic.

Traffic impacts in the Universal City area were analyzed in the same manner as other areas along the Locally Preferred Alternative. Traffic mitigation measures are contained in Chapter 3, Section 1.33 of the EIS/EIR. The EIS/EIR summarizes the findings of a technical report on traffic prepared by Los Angeles

Department of Transportation (LADOT). That report and other LADOT reports are available for public review.

Comment 127: Don't build CBD parking. Instead tradeoff buying buses for RTD with funds that would go to CBD parking. (Edward Duncan)

Response: A transportation plan is now being developed for the CBD. The concept of not building (or reducing requirements) parking spaces is being considered. Buying buses for RTD is not one of the trade-offs being evaluated but rather requiring the developer to provide incentives for employees to ride transit (preferential parking spaces and reduced parking fees for carpool vehicles) are some of the techniques being studied.

Comment 128: Construction of the Wilshire/Alvarado Station would result in disruption to our buildings' parking lots, as well as permanent loss of a portion of these parking lots. The parking lots are vital to our building's tenants and their clients. Disruption/displacement of these lots will result in financial loss to our company due to a decrease in parking revenue and a loss in tenants, as well as a loss of business to our tenants due to lack of parking. Mitigation measures must be agreed upon in the EIS. (Chee Yung Kwan of ASPAC Investments Corp.)

Response: Where property, such as a parking lot, is taken for Metro Rail construction, the owner is paid a fair price for his property that reflects its market value (excluding that induced by Metro Rail) and the reasonable costs of severance for the owner. The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-649) mandates certain relocation services and payments. UMTA Circular 4530.1 of March 1, 1978 covers the appraisal and acquisition of real property, relocation services, moving and replacement housing payments, and other allowable expense payments mandated by the Uniform Relocation Act. This amount should readily enable the property owner concerned to provide alternative parking or other facilities for his tenants. It should also be noted that Los Angeles City Transportation Department analyses indicate that, once Metro Rail operation begins, parking demand at the Wilshire/Alvarado Station will drop significantly. The property owners, therefore, stand to reap significant benefits in reduced, long-term parking costs.

In extraordinary instances where the costs of severing a Metro Rail construction site from a larger parcel appear to be unreasonably large, there is the alternative of SCRTD purchasing an entire parcel. SCRTD then bears the burden of re-conveying the larger parcel back into productive use at the conclusion of Metro Rail construction. It is SCRTD's policy, to work with property owners within the confines of federal and state regulations.

Detailed studies conducted by the L.A. City Department of Transportation in the Spring of 1983 indicated that there was a abundant supply of off street parking available in the vicinity of the commentor's property. For example, there are 467 off-street spaces north of Wilshire Boulevard within 600 feet of the commentor's property. Of these, 297 are available to the public on a commercial basis; other spaces might be negotiated for the property owners concerned. Many of these spaces would be as close or closer to the offices as some of the commentor's present parking spaces.

Comment 129: The unnecessary and ill-advisable placement of a bus turnaround and layover facility and a kiss and ride parking facility at Wilshire and Vermont and at Sixth and Vermont could have dramatic impacts on an already congested intersection. (Robert M. Lawson, Jr.)

Response: Travel forecasts indicate a demand for Metro Rail patrons accessing the Vermont station by bus and "kiss and ride" modes of travel. The off-street bus terminal and the kiss and ride facilities are being placed at these stations in response to that demand. These off-street facilities will help to minimize congestion that would occur on Wilshire, Vermont, and Sixth if these facilities were not built.

No kiss and ride facilities are proposed for the Wilshire/Western Station. The bus layover and turnaround have been located off-street to minimize congestion, without it these necessary functions would have to be performed on-street increasing congestion levels.

Comment 130: The Draft EIS/EIR may be underestimating potential traffic problems at the intersection of Wilshire and Crenshaw and on surrounding residential streets. This is especially true considering placement of an off-street bus terminal at Wilshire and Crenshaw which may receive as many as 58 buses in the peak hour. (Richard D. Workman of Lorraine Boulevard Association)

Response: As shown in Table 3-6 the EIS/EIR, with the Metro Rail Project the Wilshire/Crenshaw intersection level of service remains the same in the p.m. peak hour (level of service F) and is improved in the a.m. peak hour (from level of service F to level of Service E) when compared to the No Project condition. Because the additional auto and bus traffic associated with the Metro Rail station and bus facility is not projected to worsen traffic over what would occur without Metro Rail, no traffic mitigation measures are presented in the EIS/EIR. Therefore, no mitigation measures are presented for the Metro Rail alternatives.

Comment 131: Table 3-6 presents the 1980 LOS, level of service, of Wilshire and Crenshaw a C in the morning and D in the evening. The City of Los Angeles Park Mile Specific Plan and it's EIR states the intersection was operating at an E level of service in 1978. We do not believe that the intersection improved in its level of service between 1978 and 1980. How is this discrepancy explained? (Richard D. Workman of Lorraine Boulevard Association)

Response: The traffic analysis in the EIS/EIR was based on more recent traffic data. The traffic analysis performed by the City of Los Angeles Department of Transportation is fully documented in technical reports available for review at locations identified in the EIS/EIR. The 1980 V/C ratios at this intersection are .71 in the a.m. (LOS C) and .87 in the p.m. (LOS D).

Comment 132: The Wilshire/Crenshaw Station should be pedestrian oriented with no bus stop-off and layover zones. Any merits of having a single bus stop at the Wilshire/Crenshaw Station are, as presently proposed, cancelled by the inconvenience to the general public that is implicit in the proposal. Another preferable alternative is the proposal by the Los Angeles Planning Department to use bus bays to load and unload, though details of that proposal need reevaluation on the basis of the previously noted traffic problems and the limitations imposed by current construction. (Mitchell Robinson)

Response: Analysis of the traffic and bus movements at the Wilshire/Crenshaw Station have been made and the preliminary design of the off-street bus facility was a product of that analysis. The placement of loading/unloading activities and bus layovers in off-street facilities create less congestion than having these functions occur at the curb (with or without bus bays). The off-street station also provides a place for the Crenshaw buses to turn-around without creating additional congestion on the streets.

Comment 133: Kiss and ride traffic will tend to avoid heavily traveled streets and will filter through residential streets to get to the Crenshaw Station. Mitigating measures are mandatory. (Park Mile Design Review Board)

Response: Kiss and ride traffic normally tends to filter through residential streets to reach a transit station. The present plans as presented in the EIS/EIR do not include kiss and ride facilities at the Crenshaw Station. Only those patrons of Metro Rail living in the surrounding residential area of the Crenshaw Station would use residential streets to access the station.

Comment 134: There is no space for kiss and ride dropoff which suggests competition for available space, namely the bus dropoff and layover zone at the Crenshaw Station. The report states one bus every ten minutes. It is rightfully assumed that the popularity of this station will attract more buses or causing rerouting of certain bus lines to increase this frequency. This will have buses arriving and departing every three to four minutes. (Park Mile Design Review Board)

Response: No kiss and ride facilities have been provided at the off-street station because of space constraints. Automobile traffic will not be allowed in the station as presently planned, therefore they will not compete with the buses for space. The frequency of bus service is based on the travel demand forecast and is not expected to change significantly. Kiss and ride facilities, if provided, would attract more patrons for the transit system.

Comment 135: Buses on Crenshaw Boulevard are required to make left turns into the stations impacting south bound traffic. Safe turns can only be achieved by additional signals and synchronization with those at Wilshire and Crenshaw or better still relocate the station to the southeast corner, eliminating all left turns. Buses could drop off passengers, return along Wilshire, and then proceed south via Western Avenue and drop back to Crenshaw.

There is no ideal single bus stop solution short of major street realignment, but, should the single stop solution be pursued, the southeast corner is definitely preferred. A check of specific traffic patterns rather than total load will support this, we believe. Using the southeast corner will not create a problem such as described for the southwest corner, since much south bound traffic on Crenshaw that would be turning right on Wilshire is diverted from the Crenshaw-Wilshire intersection by Eighth Street, one block east of Wilshire. Olypmic Boulevard, further east, also helps.

SCRTD, at a local meeting, gave as the reason for using the southwest corner as a station the existence of a filling station on the southeast corner. It was pointed out to SCRTD that there is no filling station, only its unsightly remains that are now being used for automobile repair, an unacceptable use under present zoning. The SCRTD then stated that the southeast corner was unsatisfactory for traffic

reasons. This was a rather startling comment in view of the SCRTD's willingness to ignore traffic in their proposed scheme. Even more satisfactory was the failure to provide supporting evidence for the comment, the unwillingness to pursue the matter, and a statement to the effect that this plan was set. (Mitchell Robinson)

Response: The entrance of the off-street station from Crenshaw will be over 150 feet south of Wilshire. A sufficient number of gaps in the south bound traffic will be available to safely make the turn. Traffic signals are not planned and would be used only as a last resort. Space is not available for the placement of the off-street station at the southeast corner even if the service station site is used. Left turns into a southeast station would be eliminated but south bound buses exiting the station would have to turn left across both directions of traffic movements on Crenshaw, a much more complex traffic movement. Diverting Crenshaw buses to Western is unacceptable because they are to serve Crenshaw in both directions of travel. Traffic flow at this station will be a major concern in the final design process. (See also response to Comment 192 of the land use section.)

Comment 136: Local street configurations have made Crenshaw south the route for private transport moving between the Wilshire/Crenshaw area and the Santa Monica Freeway, the airport, Convention Center, Coliseum and Sports Arena. Further, this traffic will not be significantly affected by the subway. The major problem that results is the vehicles moving east on Wilshire and turning right on Crenshaw are stopped by the buses loading and unloading on the Southwest corner of Wilshire and Crenshaw, so that traffic piles up for several blocks west of the intersection during peak periods. Because of this Lorraine, a twenty-five foot wide residential street, was being used as a high speed bypass resulting in the street, at present, being closed to thru traffic. The current SCRTD plan proposes not only to continue to move east bound Wilshire buses in and out of this traffic but to direct Crenshaw buses and west bound Wilshire buses across this same traffic lane. To relieve this congestion east bound Wilshire buses need to discharge east of the intersection and decidedly not on the southwest corner, nor should Crenshaw buses be directed across this traffic flow. (Mitchell Robinson, Richard D. Workman of Lorraine Boulevard Association)

Response: As indicated, Lorraine Boulevard was recently closed to through traffic by the City. This condition is reflected in the EIS/EIR.

The east bound Wilshire buses will not enter the off-street terminal. They will continue to load and unload at the southwest corner which is closest to the entrance to the subway. The number of Wilshire buses will be reduced because Metro Rail will help to mitigate the congestion. If the Wilshire buses discharged passengers east of the intersection, the heavy volume of passengers desiring to use Metro Rail would have to cross Crenshaw to the entrance. This would cause congestion for the right turning Wilshire to Crenshaw traffic.

Some of the Crenshaw buses will terminate at the off street station. Those Crenshaw buses that would continue north would use their current routing and would not enter the off-street station. Buses will not be allowed to turn left from the station onto Crenshaw. The Crenshaw station schematic will be modified to clarify the movements allowed from the off-street station.

Comment 137: Lorraine Boulevard is only 25 feet wide and cannot accommodate any additional traffic or parking. It should be closed to through traffic. Pages S-8 of the Draft EIS/EIR summarizes potential adverse effects of the subway. Additional

traffic is projected on local collector streets near stations. Metro Rail patrons looking for parking may intrude into adjacent residential areas. Lorraine Boulevard cannot accommodate any additional traffic. This street should be closed to through traffic to avoid congestion and deterioration of residential values. (Richard D. Workman of Lorraine Boulevard Association)

Response: Lorraine Boulevard has recently been closed to through traffic. This condition is be reflected in the EIS/EIR.

Comment 138: Considering the lead time needed for preparation of the EIS/EIR, the traffic figures probably do not include the added load that will result from occupancy of the three office buildings now nearing completion in the Park Mile section of Wilshire Boulevard. One building is diagonally opposite the proposed station site.

Parking requirements for the Park Mile exceed Los Angeles standard requirements, and if the new building follow the present pattern for this area the occupants will be professionals or others whose car use will not be greatly affected by public transportation. Also, studies for the Park Mile indicated heavier traffic than shown in the present study. Further, there are still undeveloped sites in this area, because until recent years it was not zoned for development. (Mitchell Robinson)

Response: The traffic information included in the analysis is based on travel forecasts using year 2000 population and employment data provided by the Southern California Association of Governments. Forecasts were not made on a building-by-building basis but for geographical areas (traffic zones). The traffic analysis does incorporate growth in employment for the Park Mile section of Wilshire Boulevard.

Comment 139: The Fairfax community is concerned about the Minimum Operable Segment insofar as a Beverly/Fairfax Station may attract additional vehicles through the residential streets north of the station instead of just from the west along Beverly. (Eugene Holt of Beverly-Fairfax Chamber of Commerce).

Response: Chapter 3, Section 1.3.2 of the EIS/EIR addresses the traffic impacts of the Beverly/Fairfax Station for the Minimum Operable Segment alternative. In summary, the traffic impacts are not much different than for the Locally Preferred Alternative. Traffic from the north will use Fairfax for access to the station. Major increases of through traffic on residential streets can be expected.

The intersection of Beverly and Fairfax in the year 2000 will be at level of service E with or without the Metro Rail Project. A mitigation measure of widening Beverly to provide three through lanes and left-turn channelization in each direction is proposed in the EIS/EIR (Section 1.3.3 Mitigation) to improve the level of service. Parking supply will somewhat limit the traffic impacts. These patrons will seek another station that has a parking supply to meet their needs.

Comment 140: Traffic and parking impacts on the Beverly/Fairfax community have not been addressed adequately. How will these problems be mitigated. (Kevin McEntee of Miracle Mile Residential Association, Barry Solomon of Beverly-Wilshire Homeowners Association, Eugene Holt of Beverly-Fairfax Chamber of Commerce)

Response: Metro Rail will lead to increased vehicular volumes on streets leading to and surrounding stations as users seek access in a variety of modes. As addressed in the Social and Community Impacts section of the EIS/EIR, SCRTD recognizes that the impacts of traffic and parking demands, if unmitigated, could result in the reduction of community cohesion where it occurs. It could reduce current levels of daily social interaction at local facilities by reducing mobility and have an adverse impact on the resident's perception of neighborhood quality.

These potential impacts all were given significant consideration in the planning of stations and supporting facilities and specific measures have been taken at the Fairfax/Beverly Station. The station has been designed as an off street station so that direct traffic impacts are minimized and bus bays have been included to mitigate the impact of on-street bus boardings and alightings. Park and ride facilities will be provided at both the Wilshire/Fairfax and Beverly/Fairfax Stations to avoid an excessive demand on existing parking spaces. Kiss and ride facilities and provisions for an adequate level of feeder bus service to these stations are also included in the design. To mitigate the traffic and parking impacts likely to "spill over" from stations into surrounding neighborhoods, mitigation options have also been identified in the Transportation section of the EIS/EIR (Chapter 3, Section 1.33). SCRTD can assist the community in identifying and developing such parking solutions.

Comment 141: The impact of proposed preferential permit parking districts in the area of Beverly/Melrose/Fairfax should be a part of the development study. (William P. Ward)

Response: Preferential permit parking districts will be evaluated where appropriate in the Transit Corridor Specific Plan and as part of the master planning process for station area development.

Comment 142: Parking Table 3-9, page 3-30 shows parking demand at the Fairfax/Beverly Station at 1,281; parking supply by Metro Rail, 250. That's a deficiency of 1,031. This deficiency makes much worse an already terrible parking situation. It is likely that Metro Rail patrons may seek parking in the surrounding predominately residential neighborhoods. Mitigation means on page 3-31 are inadequate. (Eugene Holt of Beverly-Fairfax Chamber of Commerce)

Response: Parking spillover effects can be reduced by the development of parking districts limited to residents such as those now in force adjacent to UCLA. It is also possible that additional parking will be provided at the Beverly/Fairfax Station as part of joint development.

Comment 143: On page 3-18, traffic mitigation measures will be needed in the vicinity of major park and ride facilities. Fairfax-Beverly is not mentioned under this category. This is a serious omission and should be corrected. (Eugene Holt of Beverly-Fairfax Chamber of Commerce)

Response: As shown in Table 3-6 of the EIS/EIR, with the Metro Rail Project at the Fairfax/Beverly intersection the level of service (LOS) remains the same in the a.m. peak hour (LOS E) and p.m. peak hour (LOS F). Even though these levels of service represent severe traffic congestion, they do not represent a worsening of traffic over what would occur without Metro Rail. Thus, no mitigation measures are presented in the EIS/EIR.

In addition, crossover track construction impacts at the Beverly/Fairfax Station will be reduced substantially by the use of an off-street location.

Comment 144: The draft report does not address Metro Rail's affect on traffic circulation in North Hollywood, Wilshire/Fairfax, and other areas. Mitigation measures are needed. (Anne del Valle of North Hollywood Project Area Committee, Greg Roberts, Roger Gomez of Vitalize Fairfax Committee, Kevin McEntee of Miracle Mile Residential Association, Mr. Bruckner, Stan Reilly)

Response: A substantial effort was made to analyze vehicular traffic generated by Metro Rail. The EIS/EIR only includes a portion of the traffic work addressing the significant impacts at key intersections. Mitigation measures for North Hollywood, Wilshire/Fairfax, and other station areas are discribed in Chapter 3, Section 1.3.3. Technical reports on traffic analysis have been prepared as an integral part of the EIS process. The Traffic Analysis Report (1983) prepared by the Los Angeles City Department of Transportation summarizes detail contained in eight separate task reports prepared for SCRTD. These reports contain more information on the issue of vehicular traffic than can be presented in the EIS/EIR. Locations where these documents may be reviewed are listed in the EIS/EIR. Some additional information can be found in the response to Comment 159 of this section.

Comment 145: Development at the Santa Monica/Fairfax Station will create an impact of large proportions and possibly an adverse parking situation. (Don Genhart)

Response: Development at the Santa Monica/Fairfax Station will take place within the context of the West Hollywood Community Plan. Additionally, the County Department of Regional Planning, under contract with SCRTD, is developing the Specific Plan for this area. One of the important elements of both of these plans is measures to minimize negative impacts.

As regards the parking situation, this area already has a shortage of parking to service existing facilities. While some traffic increase in the immediate vicinity of the station would be experienced, it should be noted that the transit station would enable much greater travel to this area than would otherwise be possible, unless major parking facilities are provided. SCRTD wants to provide station parking for Metro Rail patrons where needed that is within the financial constraints of the agency. SCRTD will not provide other parking facilities.

Comment 146: The existing parking situation in West Hollywood is disasterous. Unless provisions are made for parking, this report is incomplete. (Sylvia Richman)

Response: One of the major objectives of the Metro Rail Project is to provide high capacity public transit in the Regional Core (which includes West Hollywood). It is hoped that many of the people who now cannot drive to this area because of the shortage of parking, would be able to use Metro Rail to reach destinations in West Hollywood. The need for parking therefore could be reduced. Additional parking is desirable at several of the stations but is not considered feasible at the Fairfax/Santa Monica Station due to space constraints.

Comment 147: The report is unrealistic in its discussion of parking problems and transportation in the Hollywood area. There are many questions about where cars

will park and what kind of impact they will have on the quality of life. (Bill Welch of Hollywood Chamber of Commerce, Bunny Wasser for Assemblyman Burt Margolin, Mr. Newten Deiter for Councilwoman Peggy Stevenson)

Response: The handling of vehicular and pedestrian traffic is a concern throughout the Metro Rail Project service area and particularly in the vicinity of the stations. Existing traffic conditions indicate numerous intersections in Hollywood operating at Service Level E or F in peak periods. Sections of the Hollywood Freeway also operate at these levels during peak periods. Parking and transportation problems in the Hollywood area are recognized and will be thoroughly considered in the project design phase.

Comment 148: SCRTD should coordinate Metro Rail with a potential rail system on Route 2, Santa Monica Boulevard. (Susan Brown of California Department of Transportation, A. J. Gallardo of U.S. Federal Highway Administration)

Response: SCRTD currently reviews and provides input to the preparation of the Draft EIS/EIR for the Caltrans transportation improvement study. One alternative, the Santa Monica Boulevard rail system, could act as a major feeder to the Metro Rail for persons traveling from the southwest area. If this alternative is adopted for implementation, Metro Rail staff will work with Caltrans to coordinate interface/transfer options and construction activity.

Comment 149: What traffic and congestion impacts would there be on Whitley Heights Historic District due to the Hollywood Bowl Station. I fear parking lots there would be used as park and ride lots. (Bryan Moore of Whitley Heights Civic Association)

Response: There are no plans to use the Hollywood Bowl parking areas as a park and ride lot for the Metro Rail. Such use would cause conflict with parking for Bowl performances. Many patrons arrive early to picnic at the Bowl before the performances.

Comment 150: During the design phase, special attention must be paid to pedestrian and vehicular circulation at the Hollywood Bowl. (James I. Okimoto, County of Los Angeles Department of Parks and Recreation)

Response: The design consultants for the Hollywood Bowl Station, as well as the other stations, will be required to address pedestrian and vehicular circulation during station construction and operation. This will be coordinated with the County of Los Angeles Department of Parks and Recreation.

Comment 151: The existing parking lots will not provide enough parking and, therefore, a three-story parking structure will be constructed at the Hollywood Bowl Station. (Mark Schwartz)

Response: There are no plans to provide parking at the Hollywood Bowl Station.

Comment 152: What will be the effect of Metro Rail on traffic through Cahuenga Pass in terms of person trips by auto and rail, and the number of autos and buses going through the pass. (Dolly Wageman of Committee of 45)

Response: Person trips by rail through the pass are shown in Figure 2-29 of the EIS/EIR between the Hollywood/Cahuenga and Universal City Stations. With the

Locally Preferred Alternative, RTD buses would not use the pass. Metro Rail would divert approximately 236,463 person trips daily from auto to transit. As most of these riders will be traveling to and from the Valley, the percentage of trips diverted through the Cahuenga Pass would be significant.

Comment 153: At Universal City, use the parking access plans developed by MCA, Inc. or those following the same pattern which were developed by the Los Angeles City Planning Department. (Dolly Wageman, Committee for 45)

Response: The plans by other agencies have been reviewed and pertinent findings have been incorporated into the Metro Rail station plans and the EIS/EIR. The layout plan has not been finalized. At this time the Los Angeles Department of Transportation is updating the work. The plan will be completed during final design.

Comment 154: The intersection of Vineland Avenue and the new station access road under the Locally Preferred Alternative will need to be enlarged to handle the estimated volumes of vehicles which will park in adjacent lots. (Music Corporation of America, Inc. of Committee of 45)

Response: The station access road is planned as 4 lanes and should have adequate capacity. Future Metro Rail parking will total 2,500 spaces. The general layout is shown in the Universal City station footprint in the EIS. During final design detailed refinements and construction drawings will be developed.

Comment 155: Under the Locally Preferred Alternative with the new station access road across the Hollywood Freeway at the Universal City Station, the intersection of Valley Heart Drive, Willowcrest, and Lankershim Boulevard will create a major traffic problem. Vehicular access to station parking and kiss and ride facilities will seriously decrease the free flow of traffic along Lankershim Boulevard at peak times. We feel that all access to station parking should be from the new station access road and not from Lankershim Boulevard. (Music Corporation of America, Inc. of Committee of 45)

Response: The traffic situation at the intersection will be much different after the Metro Rail project is built. There will be no parking facility access from the north tip which presently contributes to congestion at the intersection. The new station access road will not allow through traffic from Lankershim to Vineland; it will be one way northbound from the west entrance of the parking structure to its intersection with Valley Heart Avenue.

Access to the station from Lankershim is necessary to accommodate buses and automobiles accessing Metro Rail from the north. In summary the intersection should function much better than it does at present but there will be an overall increase in traffic caused by general development and the Metro Rail project.

Comment 156: The 1,700 space parking structure at Universal Place and Lankershim Boulevard with the Aerial Option would make that intersection totally inadequate to handle the capacity of that parking structure and would result in four times as many cars passing through the intersection as with the Locally Preferred Alternative. Vehicles coming to the parking structure from Bluffside Drive would have to pass through the Valley Heart, Willowcrest, Lankershim intersection which would impact further the free flow of traffic on Lankershim. (Music Corporation of America, Inc. of Committee of 45)

Response: We agree that the aerial alternatives parking structure would concentrate about three fourths of the parking spaces near Lankershim and Universal Place. The parking layout would be the same as for the Locally Preferred Alternative. The 600 surface spaces would be easily accessible from the west via the new station access road. In the unlikely event that the aerial option were chosen, the parking structure location and traffic circulation could be further refined in final design.

Comment 157: The MCA Planning Department parking access plan should be inserted in this document, because it qualifies as previously analyzed and reviewed data. The figures submitted in the very sections dealing with parking capacities are confusing and could be misleading. We would request that these figures be rechecked and coordinated so that matching criteria are used and that totals can thus be truly comparable. (Dolly Wageman of Committee of 45)

Response: Space limitations do not permit the addition of the MCA Planning Department parking access plan (available separately) to the EIS/EIR. Metro Rail Parking and access designs were developed taking existing and planned development into account. Statistics and data are rechecked as a part of normal planning procedure. Metro Rail final engineering design will involve continued coordination with the Los Angeles Department of City Planning, County Regional Planning, and the Los Angeles Department of Transportation to ensure that parking and access plans for Metro Rail are compatible with those of private developers.

Comment 158: A more detailed analysis and possible additional mitigation measures are suggested in order to minimize the traffic impacts of the North Hollywood station on Los Angeles Valley College. (W. W. Shannon of Los Angeles Community Colleges)

Response: The traffic impact analysis conducted for the North Hollywod Station did not identify any impacts due to the Metro Rail near the Los Angeles Valley College. The nearest intersection anticipated to experience traffic congestion is Tujunga Avenue and Burbank Boulevard, which is over two miles from the college. This should not have an adverse effect on the college.

Comment 159: There is no indepth data for the San Fernando Valley on LOS and V/C ratios at intersections like there is for surface streets surrounding Wilshire Boulevard. We would like information on the following intersections:

- Lankershim/Moorpark
- Venture/Vineland
- Lankershim/Chandler
- Lankershim/Burbank/Tujunga
- Lankershim/Cahuenga (North)
- Lankershim/Vineland/Camarillo
- Lankershim/Magnolia

We would also like information on streets affected positively by the reduced traffic load on the freeway but negatively by a shift in traffic direction to station parking lots:

- Ventura Boulevard
- Moorpark Avenue
- Riverside Drive
- Magnolia
- Chandler Boulevard
- Burbank (between Cahuenga and Fulton)

(Michael Malak of Committee of 45)

Response: The detailed data on traffic analysis work conducted for SCRTD by the Los Angeles City Department of Transportation is contained in the Final Technical Traffic Analysis report dated June 1983. In Section 3.16 and 3.17 the traffic volumes, intersection analysis and parking for the Universal City and the North Hollywood Stations are discussed. Many intersections have been analyzed in detail. Included in this analysis is level of service and V/C ratios. Appendix A of this technical report provides the actual numbers related to the various intersections.

Intersections identified from the above and included in the analysis are shown for the p.m. condition. All intersections were not analyzed.

Venture-Vineland

1980	LOS D V/C .85
2000 Base	LOS D V/C .84
With LPA	LOS D V/C .88

Chandler-Lankershim

1980	LOS A V/C .38
2000 Base	LOS A V/C .57
With LPA	LOS F V/C 1.27

Burbank-Lankershim-Tujunga

1980	LOS A V/C .58
2000 Base	LOS C V/C .70
With LPA	LOS F V/C 1.08
Mitigate	LOS F V/C 1.01

Cahuenga-Lankershim

1980	LOS A V/C .55
2000 Base	LOS C V/C .73
With LPA	LOS D V/C .85
Mitigate	LOS D V/C .84

Camarillo-Lankershim-Vineland

1980	LOS F V/C 1.08
2000 Base	LOS E V/C .94
With LPA	LOS E V/C .90

Lankershim-Magnolia

1980	LOS C V/C .72
2000 Base	LOS C V/C .71
With LPA	LOS C V/C .72

With the above data it becomes obvious that certain streets and intersections will have added traffic generated by the Metro Rail stations.

For details on other intersections refer to the above mentioned technical report.

Comment 160: The traffic analysis presented in the Draft EIS/EIR and the mitigation measures for traffic impacts are to date insufficient. Specifically, the document needs to address directly the impacts, appropriate mitigation measures, and means of implementing these measures with regard to the following intersections: Magnolia Boulevard and Tujunga Avenue, Magnolia and Lankershim Boulevards, Chandler (north) and Lakershim Boulevards, Burbank Boulevard and Vineland Avenue, and Burbank and Lankershim Boulevards. These intersections are all directly affected by station oriented traffic. The Los Angeles Community Redevelopment Agency (CRA) has examined these intersections as part of its redevelopment efforts and is ready to work cooperatively to effectuate mitigation measures that will facilitate transit system completion, redevelopment, and transit-induced land development to take place.

In addition, the traffic analysis should include a discussion of the impacts, and if required, mitigation measures for Metro Rail generated traffic on the residential neighborhoods surrounding the station. (Edward Helfeld of Los Angeles Community Redevelopment Agency)

Response: As noted in the EIS/EIR, the traffic analyses upon which the mitigation measures are based were done by the Los Angeles Department of Transportation (LADOT) in late 1982-early 1983 using the most up-to-date patronage projections, bus volumes, and station access plans available at the time. As the preliminary engineering phase proceeds, however, all of these are being refined. Accordingly, the locations needing mitigation measures, as well as the specific measures proposed, are subject to change. While some of the improvements can be finalized before publication of the Final EIS/EIR, others will have to be refined during final design.

The intersections listed by CRA have been transmitted to LADOT for study. Although some of the listed intersections did not meet preliminary engineering standards for receiving mitigation measures, SCRTD will coordinate with CRA and LADOT in designing appropriate mitigation measures, where intersection Levels of Service E or F are projected after completion of Metro Rail Project, or where projected Volume Capacity ratios increase .02 or more over the No Project Alternative.

Comment 161: On Page 3-9, existing conditions are described only with respect to the City of Los Angeles. In view of the fact that as proposed, the system would affect the entire Southern California area RTA would contend that those local jurisdictions which are immediately adjacent to the proposed project, such as the Cities of Beverly Hills and Burbank should be consulted on the traffic issue. Existing conditions should be discussed with respect to other existing, proposed or currently approved projects in conjunction with the Metro Rail Project. Only if this takes place can the decision-makers have an adequate understanding of cumulative effects and the growth-inducing impacts of this project. (Michael A. Cornwell of Rapid Transit Advocates)

Response: Los Angeles Department of Transportation (LADOT), under contract to SCRTD, studied the projected traffic impacts of Metro Rail. This study took into account Metro Rail, Metro Rail induced growth, and projected traffic increases due to other projects and population increases within the traffic impact study area which is larger than and encompasses the Regional Core. The results of these studies are discussed in the Traffic Analysis Report incorporated

by reference in the EIS/EIR and available for public inspection at five locations listed in the EIS/EIR, including SCRTD Headquarters Library at 425 South Main Street, Los Angeles, CA 90013.

The findings of the LADOT studies were used to determine the proposed station area traffic mitigation measures contained in the EIS/EIR. The mitigation measures covered all streets meeting criteria for improvements due to Metro Rail. The overall effect of this project will be a reduction in automobile vehicle miles traveled.

Comment 162: The Draft EIS/EIR raises the issue again that the Hollywood Freeway cannot accommodate year 2000 demand. Yet, the Draft EIS/EIR does not present strategies to increase the people moving capacity of the freeway. (James D. Ortner of Automobile Club of Southern California)

Response: The Metro Rail EIS/EIR is not intended to evaluate additional alternatives to increase the person carrying capacity of the Hollywood Freeway. The Metro Rail Project will provide additional capacity for travel in the Hollywood Freeway Corridor to absorb a portion of the projected increases in year 2000 travel demand. Alternative strategies to provide more capacity on the Los Angeles region's freeways are not within SCRTD's jurisdiction.

Comment 163: The Final EIS/EIR should include a detailed transportation systems management plan for each station, including a detailed description of measures to be taken by each responsible agency. The traffic analysis should include a more detailed discussion of the impacts of traffic in the vicinity of stations. In addition, mitigation measures for Metro Rail generated traffic in the residential neighborhoods surrounding the station should be addressed. The document does not include an adequate discussion of the probable impacts resulting from the proposed station site plan, which provide less parking for transit patrons than SCRTD's forecasts indicate is necessary. An adequate assessment of parking requirements and the effect of providing less than required parking spaces should be included in the EIS/EIR. (James D. Boyd of State of California Air Resources Board, John T. McDonald of Los Angeles NAACP, City of Los Angeles Mayor Tom Bradley represented by Dodo Meyer)

Response: Although a detailed transportation systems management (TSM) plan for each station was not included in the EIS/EIR and will not be included, several TSM type improvements have been identified for each station in Chapter 3, Section 1.3.3, Mitigation, of the EIS/EIR. Descriptions and responsible agencies are identified for each measure.

Mitigation measures considered for traffic impacts are those that make intersection improvements such as increased approach capacity, provide additional lanes at intersections, left turn restrictions or prohibitions, modify signals to accommodate projected traffic patterns, widen the approach, and provide reversible lanes.

Significant traffic impacts of station access traffic in the residential neighborhoods surrounding the station are not expected. Impacts may occur in residential neighborhoods due to parking deficiencies at stations. Several mitigation measures have been identified in Chapter 3, Section 1.4.5 Mitigation of the EIS/EIR to minimize the impacts should they occur. Such measures include establishing preferential parking districts, additional parking in Metro

Rail Project, operation of an intensive network of feeder buses, and provisions for more metered spaces in commercial areas for short term use.

The traffic analysis and impact assessment presented in the EIS/EIR were products of the preliminary engineering efforts. The next phase, final design, will include more detailed analysis and plans for traffic engineering improvements. The design of these TSM type improvements will incorporate the changes in other station features that affect traffic flow. Continuing traffic analysis will be performed as the project construction plans are being finalized. Traffic analysis will given consieration to energy conservation, air quality impacts, and patronage sensitivity.

Comment 164: Trip change information should be addressed in the Final EIS/EIR in terms of local geographical area, number of vehicle trips, trip length, and mode. (James D. Boyd of California Air Resources Board)

Response: Local geographical areas, called Traffic Analysis Zones (TAZs), were used to perform the travel demand forecast where detailed trip change information was considered. However, since a rail rapid transit system is regional in nature, it is more meaningful to discuss trip change information on a broader geographical basis, specifically, SCRTD's service area.

Due to the wide range of distances which a passenger may traverse, the average trip length would be the most appropriate measure to use. In addition, unlinked passenger-trips (boardings) and auto person-trips are better parameters to work with, rather than vehicle trips, since the first two measures are a better reflection of ridership on transit and automobiles, respectively. With this framework established, a comparison can be made of the net changes in the above-mentioned factors for the year 2000 No Project Alternative and the Locally Preferred Alternative relative to the conditions in 1980, for the bus, rail, and auto modes.

Within the SCRTD service area, there would be 0.9 million more bus passenger-trips without the project. With the Locally Preferred Alternative bus ridership would drop by 0.2 million trips but the rail system would attract nearly 0.4 million boardings per day. Finally, the average trip length decreases for buses by 0.25 miles without Metro Rail and decreases by another 0.36 miles with the project. It is interesting to note that with rail rapid transit, the average trip length would be over one mile greater than with the bus mode, reflecting the willingness of people to travel longer distances on Metro Rail because of its regional nature.

Comment 165: The traffic analysis performed by this Department under contract to SCRTD led to the development of possible mitigation measures to offset the adverse impact of Metro Rail on a number of intersections. It was indicated to SCRTD that these measures should be constructed by SCRTD under appropriate private permits or included in the City's Capital Program with funding provided by the Metro Rail Project. On pages 3-22 and 3-26 many of the measures are shown as the responsibility of the Los Angeles Department of Transportation.

The mitigation measures have been developed to offset the adverse impact of the project and should be responsibility of the Metro Rail Project (SCRTD). It is possible that benefit assessment districts will generate funding to cover the costs of mitigation measures. (City of Los Angeles City Council)

Response: SCRTD has reviewed locations which will need traffic improvements, the feasible mitigation measures and how to implement at District expense those improvements which clearly are needed as a result of the Metro Rail Project. The rest are general traffic improvements which would have been needed even without Metro Rail and are the responsibility of the City of Los Angeles.

Comment 166: Los Angeles Department of Transportation (LADOT) did traffic analyses and developed mitigation measures as part of work paid for by SCRTD. LADOT believes that SCRTD should assume the responsibility for funding all of these measures. In the EIS/EIR, however, a few of these measures in Section 1.3.3 (Alameda/Macy, Burbank/Lankershim, Chandler/Lankershim, Chandler/Tujunga) are listed as LADOT's responsibility. This should be changed to SCRTD's responsibility. (Donald Howery of City of Los Angeles Department of Transportation)

Response: The precise definition of traffic mitigation measures and how they will be paid for will be part of the master agreement negotiations between the City of Los Angeles and SCRTD during final design. SCRTD will generally assume responsibility for measures that are directly and solely necessary because of the Metro Rail Project. Other measures are necessary to correct pre-existing deficiencies or maintain current adequate level of service. These measures fall outside the jurisdiction of SCRTD but suggestions have been made for consideration by the city and county. The Metro Rail Project, itself, will contribute substantially toward ameliorating the traffic and transportation problems that the city and county faces. These other measures will require negotiations subsequent to the approval of the project and initiation of final design.

Comment 167: Local residential streets in the vicinity of the transitway stations will be penetrated by through motor vehicles destined for the stations. (U.S. Department of Housing and Urban Development)

Response: An extensive traffic analysis was done as part of this Environmental Impact Statement. Prepared by the L.A. City Department, its results are contained in the Traffic Technical Report. Generally, it shows that while overall traffic in the Regional Core would improve, streets in the immediate vicinity of stations would experience increased activity. Several mitigation measures, such as restricting parking on neighborhood streets, have been proposed which should reduce this adverse impact. SCRTD will work with the community to implement these measures. As pointed out in the Traffic Section of the EIS/EIR, it is unlikely that this localized impact can be completely mitigated.

Comment 168: Historically, the construction of rapid transit lines has not alleviated congestion on surface streets or other transportation arteries. It is expected that the stations will cause pedestrian and vehicular volumes to increase and create even more crowded conditions. Past experience of other cities indicates there would be little reduction in automobile vehicle miles traveled. (Richard Stromme, U.S. Representative Bobbi Fielder)

Response: Due to continued growth, congestion continues to worsen and the task of coping with this congestion becomes more and more difficult. For the most part, rapid transit cannot be expected to alleviate congestion. A more

realistic goal for transit is to handle the circulation needs of a growing area and contribute to reducing congestion and improving mobility.

Table 3-4 in the EIS/EIR shows a summary of traffic impacts with and without Metro Rail in the year 2000. The projections show vehicle trips traveled in the region to be less with a Metro Rail alternative than without. Granted these reductions will not alleviate congestion but it is part of making travel more manageable in this growing area. (See also the response to Comment 171 of this Section)

Comment 169: The Draft EIS/EIR does not clearly state whether vehicular traffic induced by new real estate projects around Metro Rail stations is included in the analysis of level of service for key intersections. (James D. Ortner of Automobile Club of Southern California)

Response: Induced vehicular traffic was included in the level of service analysis for key intersections.

Comment 170: The estimate on page S-7 of the Draft EIS/EIR of 1.73 million daily auto vehicle miles of travel diverting to the transit system with project conditions appears to be too high. Documentation for these figures should be presented in the EIS/EIR. (City of Los Angeles City Council)

Response: The estimate of daily auto vehicle miles of travel diverting to transit has been revised and is presented in this EIS/EIR. The explanation for the high number of diversion is that the comparison is being made between the No Project Alternative and the Metro Rail Project. The No Project Alternative has been constrained to represent the existing bus service with minimal expansion to meet year 2000 demand (see Chapter 2, Section 2.1). With the constrained No Project bus system the demand that cannot be served by transit will make the trip by other means (primarily by automobile). The transit system for the "build alternatives" provides additional transit service to meet the demand and diverts these riders from the automobile. While the adjusted supporting services bus network and refined travel simulation models have resulted in some revisions of the diverted auto vehicle-miles of travel estimates, the auto diversion remains high due to the constraining effects of the No Project conditions on future transit ridership.

Comment 171: A reduction in vehicle delays on both freeways and arterial streets may be the most significant benefit associated with the project. The final report should try to quantify this impact. (Frank E. Hotchkiss of SCAG)

Response: Noticeable reductions in vehicle delays on streets and freeways are indeed expected in the Regional Core. This will be especially true in areas not immediately adjacent to transit stations (where auto access to rail trips will largely replace the auto trips no longer made). For example, daily traffic volumes on Olympic and on Highland are each projected to decline by up to 7 percent (depending on location) with the Project alternatives. Percentage traffic reductions such as this will generally result in much greater percentage reductions in traffic delays. Detailed projections on traffic volumes and levels of service on streets in the Regional Core has been developed in conjunction with the EIS/EIR process, and this data is available in technical reports done by the Los Angeles Department of Transportation. The measures used to evaluate traffic impacts in the EIS/EIR were traffic volumes at screenlines and at selected intersections, and intersections levels of service.

In the Final EIS/EIR, we will indicate, as suggested, the projected amount of time saved in regional auto travel due to higher average speeds prevailing in the Project Alternatives. This was calculated by comparing the vehicle miles and vehicle hours (and thus average speeds) traveled by auto in each alternative, which are outputs of the computer process used for the patronage forecasting; then multiplying the alternative's auto mileage by the No Project Alternative's average speed to obtain the difference in vehicle hours traveled. Annualized, these figures are substantial:

For Locally Preferred Alternative	11,450,000 hours saves
For Minimum Operable Segment	10,890,000 hours saved

Comment 172: I think it's better to make a small change in a big number than a big change in a small number. If average occupancy per vehicle in the region was increased perhaps just to the national average, I suspect the impact, air pollution, energy use and congestion might be even greater. (Richard Willson)

Response: Caltrans and Commuter Computer have on-going efforts to accomplish this goal. Raising vehicle occupancy levels has been a long time and often elusive regional goal. SCRTD supports these efforts and views them as complementary, rather than competitive with, its efforts to improve public transit. Historically, every possible avenue to reducing air pollution has been vital in our region and all are anticipated to be needed in the future. Public transportation improvements including Metro Rail have a role to play in a coordinated attack on air pollution and energy waste. Apart from its role in controlling air pollution and energy use, there are many reasons for providing public transit such as social equity, transportation access, fostering the city centers concept, and promoting pedestrianism.

Comment 173: Parking by rail patrons would intrude into residential areas. Parking deficiencies will exist. Neighborhoods should be protected with strong parking enforcement programs. (Barry Solomon, Beverly-Wilshire Homeowners Association, John M. Praiswater and Bruce D. Ackerman of Greater Van Nuys Area Chamber of Commerce)

Response: The EIS/EIR (Chapter 3, Section 1.4.2) shows parking supply and demand. When the demand exceeds the supply, there is the potential for spillover parking in the adjacent neighborhood. Section 1.4.5 gives mitigation measures, such as preferential parking programs to minimize the parking impacts.

Comment 174: Mandatory car pools should be a requisite to entering the massive parking structures. This would maximize ridership and minimize the utilization of such lots, while minimizing the exhaust emissions. (Carrie Chessin)

Response: It is unrealistic to make carpooling a requirement for using Metro Rail parking. With such a requirement ridership would be reduced not maximized. Carpooling can and will be encouraged. Where feasible, preferrential parking for carpools will be provided.

Comment 175: Figures in various sections dealing with parking capacities are confusing and could be misleading. The figures should be checked, specifically those

on pages 2-23, 2-56, 2-59, 2-62, 2-76, 3-28, 3-29, and 3-30. (Dolly Wageman of Committee of 45)

Response: The parking numbers have been checked and found to be correct. Parking to be provided is shown on the station layouts. Table 2-3 of the EIS/EIR shows the number of persons arriving at the stations by various modes of travel. The parking section of the document describes the total parking supply and useage by station area, the impacts of the project alternatives on total supply and useage, and the rail access parking demand and supply by station.

Comment 176: Examine how diversion of auto trips to bicycle trips could reduce traffic and parking congestion at rail stations. Consider selecting 3 to 4 model stations to provide secure bicycle parking as noted on page 3-131 of the Draft EIS/EIR, as well as feeder bike lanes, safe access to station, and bicycle marketing programs.

Response: SCRTD feels that the selection of 3 to 4 model stations for secure bike parking would be inadequate. Specific secure bike parking locations at twelve stations have been identified during Preliminary Engineering (as shown in Figure 2.5-2.27). More sites will be studied during final design. Adopted city and county bike routes intersect with the proposed Wilshire/Vermont, Fairfax/Beverly, Fairfax/Santa Monica, Universal City and North Hollywood Stations. SCRTD will coordinate with the Los Angeles County Regional Planning and the Los Angeles City Planning Department during Final Design to ensure that station areas connections with these routes where appropriate at included in final station design.

Comment 177: The Draft EIS/EIR does not address bicycle access to stations and trains; it only refers to lockers for bicycles. There should be some specific reference in this document that bicycles will be able to be taken into the stations. Also, there should be some reference to provisions such as permits and time restrictions to enable people to take bicycles on the trains. This is particularly important in terms of use of Metro Rail for access to AMTRAK. (Glenn Bailey, Elaine Stansfield of Los Angeles Chapter of Zero Population Growth)

Response: At this time, the only policy established for Metro Rail relative to bicycle access is that of providing lockers or racks for bicycle parking at stations. No decision yet has been made as to whether bicycles will be allowed on Metro Rail trains. Nothing in the system design will preclude bicycles from being carried on trains, but transportation must not jeopardize the safety, comfort or convenience of passengers. The SCRTD Board of Directors will establish a policy on bicycle transportation as part of the final system operating plan. If the established policy permits bicycle transport on Metro Rail trains, the Metro Rail station at Union Station will provide convenient access for those wishing to take bicycles on AMTRAK trips.

Comment 178: The Los Angeles City Police Department (LAPD) should be incorporated into traffic mitigation measures. (James Ortner of Southern California Automobile Club)

Response: SCRTD has contracted with both LAPD and LADOT to assist in the design, planning and impact evaluation for the Metro Rail Project. At the present time, LAPD has not had an identified role in any major Metro Rail mitigation measures. Traffic control measures during construction may make

minor demands upon LAPD personnel; should permit parking districts be established, they may also require some LAPD support. The needs for these services, as well as LAPD's role in Metro Rail safety and security, will be negotiated during final design.

2.8 LAND USE

Comment 179: Inconsistencies in Draft EIS/EIR regarding permitted development intensities in the CBD redevelopment areas should be corrected. (Edward Helfeld of the City of Los Angeles Community Redevelopment Agency)

Response: The introductory paragraph of "A Comparison of Existing and Permitted Land Use Intensities" (Chapter 3, Section 2.2.3) has been reworded to eliminate misunderstanding. The purpose of this section is to indicate that the CBD redevelopment areas have been downzoned to reflect a manageable intensity of development, in contrast to most of the Wilshire Corridor and Hollywood which have not. Figure 3-39 showing permitted building intensities has been revised to reflect the CRA's Redevelopment plans in the CBD.

Comment 180: Growth projections of 750,000 square feet of major office space per year without Metro Rail and 1,000,000 square feet per year with Metro Rail in the Los Angeles CBD are at least 100,000 square feet too low in either case. (Edward Helfeld of the City of Los Angeles Community Redevelopment Agency)

Response: Growth projections by different parties can be expected to vary somewhat. The projections used in the EIS/EIR attempt to provide an independent evaluation of the absorption rate of major office space, i.e., mid or high rise buildings containing first class office space. Documentation of historic growth trends by Peat Marwick Mitchell & Co., referencing Western Economic Research, Inc., and the Russell Company, indicates that in the CBD, which includes the Crown Hill areas west of the Harbor Freeway, an average of 690,000 square feet of major office space was absorbed and 829,000 square feet of total high rise commercial space was built each year from 1971 to 1980. Sedway Cooke Associates and Peak Marwick Mitchell & Co. projected a slightly higher absorption rate for the No Project Alternative for the next 17 years, constrained by increased traffic congestion. The probable constraining effect of increased traffic congestion on CBD growth was validated by developers and documented in the Technical Report on Land Use and Development Impacts.

The resulting estimates of major office space absorption in the Los Angeles CBD range from 750,000 square feet with no project to 1,050,000 square feet with Metro Rail plus development incentives. Annual absorption of all commercial development in the CBD is estimated at 945,000 square feet with the No Project Alternative, 1,300,000 square feet with Metro Rail, and 1,405,000 square feet with Metro Rail plus development incentives. For comparison, the Southern California Association of Governments projected a range of employment growth equivalent to 500,000 to 950,000 square feet of total commercial development per year in the CBD.

A reference to the fluctuation in the rate at which commercial space is added and absorbed has been added; readers should realize that the figures used in the text represent average annual growth over a 20-year period.

Comment 181: Downzoning to reflect current development intensity should not be proposed for the Fifth/Hill and Seventh/Flower Stations as measure for preserving existing shopping areas considered integral to the community. (Edward Helfeld of the City of Los Angeles Community Redevelopment Agency)

Response: The EIS/EIR does not recommend the use of this technique at the two CBD stations. Mitigation measure 8 under Social and Community Impacts refer the reader to text in the Land Use and Development section. In that section, mitigation measures 6 and 7 indicate that the use of downzoning and financial incentives to encourage preservation are already "in effect" in the Seventh/Flower and Fifth/Hill Station areas. The description of these land use mitigation identifies the CRA's program in the CBD as a model for use in the Wilshire/La Brea and Hollywood/Cahuenga Station area.

Comment 182: The EIS/EIR should include a discussion regarding the residential hotels in the CBD, which may be threatened by increased development potential. In addition, the project's impact on artist's live/work space needs to be addressed. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

Response: These issues have been addressed in the EIS/EIR, Chapter 3, Section 5.3.1, impacts on community cohesion which discusses vulnerability of residential hotels to indirect displacement.

Comment 183: The Seventh/Flower Station is located one-half block from the currently leased Community Colleges Administrative Offices. (The Parson's Building identified on Figure 2-9 should be the Hope Street Associates Building.) The District is particularly concerned with possible land/leasing cost speculation associated with the project and recommends more specific discussion of the issue. (W.W. Shannon of Los Angeles Community Colleges)

Response: The building in the architect's plan is referred to by its original name, the Parson's Building, even though it is currently owned by the Hope Street Associates. This is a convention used by architects to avoid confusion since buildings change ownership frequently.

With respect to the question of speculative increases in land value and lease rates, it is difficult to anticipate such increases because they are influenced by so many variables. The EIS/EIR makes the statement that, although demand for development in the Seventh/Flower Station area is expected to be high - a factor which would tend to increase land values - land costs are already high in this area due to recent development activity and are not likely to be as dramatically affected as they might otherwise be. To quantify the effect is beyond the scope of the EIS/EIR analysis.

Comment 184: The Draft EIS/EIR suggests residential development on commercially zoned land as a way of mitigating adverse impacts resulting from a undersupply of residentially zoned land. Exclusively residential development in Chinatown is not likely for economic reasons: CRA plans call for mixed use development throughout Chinatown. (Edward Helfeld of the City of Los Angeles Community Redevelopment Agency)

Response: The Draft EIS/EIR does not recommend exclusively residential development projects in Chinatown. It indicates that housing in the six Metro

Rail station areas identified as having a potentially inadequate supply of residentially zoned land to meet the demand for new housing could be provided either as mixed use or exclusively residential development. With respect to Chinatown, it does not suggest an appropriate form for residential development, indicating that the CRA will be responsible for deciding what form new housing will take.

Comment 185: The EIS/EIR does not recognize the significant concentration of office buildings at the Wilshire/Alvarado Station. (Chee Yung Kwan of ASPAC Investments Corporation)

Response: Revisions have been made in Table 3-45, and Section 7, Chapter 3 to reflect this development.

Comment 186: SCRTD is trying to change the height of buildings on Wilshire Boulevard from 10 stories to 20 stories to entice investors. Taller buildings may change air circulation along the street. (Mr. and Mrs. Horance DeMille)

Response: SCRTD has not proposed any changes in the height limitations along Wilshire Boulevard. Height limits along Wilshire Boulevard are presently determined by the Floor Area Ratio (FAR) and/or the height district established by zoning or a specific plan. The Transit Corridor Specific Plan being prepared by the Los Angeles Department of City Planning (LADOP) for Metro Rail station areas proposes making a portion of the floor area now permitted conditional upon improved building and site design. The purpose of these design improvements would be to reduce automobile dependence and facilitate transit patronage, enhance pedestrian orientation, and take into consideration the need for air and light in the streets around buildings.

For more detailed discussion on existing and permitted land use intensities, please refer to Section 2.2.3 of Chapter 3 in the EIS/EIR and the Land Use and Development Impacts Technical Report for the EIS/EIR.

Comment 187: There is a mistake on page 3-38. It shows the regional centers and the Park Mile Specific Plan boundaries overlapping. The borders of the centers and the border of the Park Mile (Specific Plan) area are the same and shouldn't overlap." (John Willborne)

Response: The Figure 3-10 has been revised in the Final EIS/EIR.

Comment 188: On page 3-47 the statement that environmental effects of the project were discussed with respect to station locations is generally true, but not accurate with respect to the Crenshaw Station. In fact, neither the Draft EIS/EIR nor its addendum contain a definitive analysis of the Preferred Alternative with respect to the Park Mile Specific Plan." (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The Wilshire/Crenshaw Station received the same level of analysis relative to the Park Mile Specific Plan as the other station areas received relative to the applicable zoning and community plans, i.e., redevelopment plans for redevelopment areas in the city, zoning and community plans for other station areas in the city, zoning and the West Hollywood Community Plan for the Fairfax/Santa Monica Station area. The results of that analysis are quantitatively summarized in Tables 3-13 and 3-18 and in Figures 3-12 and

discussed in Section 2.3. For more detailed documentation of the analysis, refer to the Technical Report on Land Use and Development.

The following provides a summary of the existing situation and analysis of the potential impacts of the proposed project on the Wilshire/Crenshaw Station area documented in the Technical Report on Land Use and Development Impacts.

The station area is bounded by Wilton Place on the east, Lucerne Boulevard on the west, Fifth Street on the north and Eighth Street on the south. It lies primarily within the Park Mile Specific Plan area, the east and south boundaries of which are co-terminous with those of the station area and the north and west boundaries of which are Sixth Street and Highland Avenue.

Land Use Profile. The frontage along the Wilshire Boulevard is composed of neighborhood related retail and office land use. To the north and south of Wilshire Boulevard the station area is composed of established stable residential neighborhoods.

Land Use Plans and Policies. The Park Mile Specific Plan provides a combined plan/zoning designation from Highland Avenue east of Wilton Place along Wilshire Boulevard, and includes lands north of Wilshire Boulevard to Sixth Street and south of Eighth Street. The Park Mile plan designates the frontage of Wilshire for community-serving uses. Commercial structures are limited in height to between three and six stories depending upon their locations. This limitation is intended to minimize shade and shadow impacts on adjacent land uses. Adjacent land uses designated by the plan include low density single family residential development north of Wilshire Boulevard; restricted density multifamily residential development south of Wilshire Boulevard and west of Crenshaw Boulevard; and single family housing south of Wilshire Boulevard and east of Crenshaw Boulevard.

North of Sixth Street, beyond the Park Mile Specific Plan's north boundary, the Wilshire District Plan designates low to medium density residential. The same general designations apply to the area south of Eighth Street.

Zoning. Most of the residential areas north of Sixth Street are zoned R1-1, single family residential, with some medium density residential (R3-1) in the southwest sector of this station area. Zoning within the Park Mile Specific Plan area is dictated by the Specific Plan.

Areas Susceptible to Reinvestment. This station area contains 15 acres of commercially zoned land susceptible to reinvestment which could accommodate 1.2 million square feet at the FAR of 1.8 permitted by the Specific Plan. All of this land is located along Wilshire Boulevard. The 18 acres of residentially zoned land susceptible to reinvestment and located exclusively south of Wilshire and west to Norton Avenue could accommodate 990 residential units at the R3-1 densities permitted by the Specific Plan and zoning. The under-utilized parcel area amounts mounts to 26 percent of all parcel area in the station area.

There is presently one 180,000 square foot office building under construction in the station area. The following commercial development is expected to occur within the station area from 1980 to 2000 (expressed in square feet).

	No Project	Locally Preferred Alternative/Minimum Operable Segment	Locally Preferred Alternative/Minimum Operable Segment With Incentives
• Major office	0	0	0
• Community serving office	380,000	530,000	720,000
• Employee serving retail	0	0	15
• Regional retail	0	0	0
• Community serving retail	0	0	0
• Hotel	0	0	0

The above projections are constrained primarily by the Park Mile Specific Plan which, as indicated above, limits building height and use. Development projections for the No Project Alternative would, at an average FAR of 1.5, consume 6 acres of land or 39 percent of all the commercial parcel area susceptible to reinvestment. Development expected to occur in conjunction with the Locally Preferred Alternative or the Minimum Operable Segment would, at the same FAR, consume from 8 to 11 acres or 54 to 75 percent of all commercial parcel area susceptible to reinvestment. The high end of this estimate would be likely to occuornly if incentives were provided to encourage developers to build in the station area.

The following net residential development would be expected to be added in the station area: with No Project 60 units and with the Locally Preferred Alternative or Minimum Operable Segment 160 units. This residential development would displace 7 to 19 existing single family and duplex units respectively if it were located on residentially zoned parcels. No units would be displaced if it were located on residentially zoned parcels. No units would be displaced if it were built entirely on commercial zoned parcels either as mixed use or as exclusively residential development.

The above analysis indicates that the amount of development expected to occur in conjunction with the Metro Rail Project would not exceed the amount that could be accommodated by the Park Mile Specific Plan. As is the case at all stations, the form that development takes, beyond meeting the requirements of the Park Mile Specific Plan, cannot be anticipated. However, the Park Mile Specific Plan established relatively specific guidelines for development. The station area specific plan being prepared by the Los Angeles Department of Planning is expected to be even more precise in its effort to maintain compliance with the intent of the Park Mile Specific Plan.

Comment 189: On the last paragraph of page 2-87 it is contended that the development aspects associated with Metro Rail are consistent with the City of Los Angeles' policy that calls for development in major centers of residence and business. It is not explained with respect to the Crenshaw Station, which is not

designated as a "Center," how this rationale supports the inclusion of the Crenshaw Station. In fact, the bald conclusion is stated with respect to the Crenshaw Station that its placement would be consistent with applicable land use plans without designating what land use plans are involved and that the placement of the station is in fact consistent with the goals and policies of such plans. (Michael A. Cornwell of Rapid Transit Advociates, Inc.)

Response: The statements of the EIS/EIR referenced in the comment represent a summary of the impact assessment documented in Chapter 3. Chapter 2 is a comparative summary of the various projects alternatives. The detailed assessment of consistency with land use plans is found in Chapter 3, Section 2.3.3; the analysis from which these conclusions were derived is documented in the Technical Report on Land Use and Development Impacts which is incorporated by reference into the EIS/EIR.

A statement has been added to the third paragraph of Section 3.2 of Chapter 2 specifying that "fourteen of the 18 proposed stations on the Locally Preferred Alternative and 10 of the 12 stations on the Minimum Operable Segment segment are located in designated centers."

The fourth paragraph has been rewritten to state the following: "While the city and county's Centers Concepts specifically call for rapid transit stations in centers, they do not exclude the location of transit stations in non-centers. In non-centers, as well as centers, the primary measure of land use and development impacts is whether growth expected to occur in conjunction with the Metro Rail Project would be consistent with applicable local plans. Commercial growth expected to occur in conjunction with the Locally Preferred Alternative or the Minimum Operable Segment in the Wilshire/Fairfax Station area may exceed the development capacity established by the Wilshire District Plan. Residential growth expected to occur in conjunction with the Locally Preferred Alternative may exceed the development levels established by the Wilshire District Plan for the Wilshire/La Brea and Fairfax/Beverly Station area, by the West Hollywood Community Plan for the Fairfax/Santa Monica Station area, and by the Sherman Oaks-Studio City-Toluca Lake District Plan for the Universal City Station area. Both commercial and residential development expected to occur in conjunction with the Locally Preferred Alternative in the Wilshire/Crenshaw Station area would not exceed the development capacities established by the Park Mile Specific Plan.

Residential growth expected to occur with the Minimum Operable Segment may exceed established development capacities in the Wilshire/La Brea and Fairfax/Beverly Station areas.

These impacts can be mitigated through the actions of responsible planning agencies with the support of the SCRTD. Specific Plans for each station area, currently being prepared by the City of Los Angeles Department of Planning, the County of Los Angeles Regional Planning Department, and the Community Redevelopment Agency of the City of Los Angeles, are the principal means by which mitigation measures can be implemented.

Further discussion of land use and development impacts is found in Section 2 of Chapter 3. The Wilshire/Crenshaw Station area is addressed in that section because of its controversial nature; the rationale for a determination of consistency with the Park Mile Specific Plan is explained in Section 2.3.3 of the EIS/EIR.

Comment 190: On page 3-43 there are references to the Centers Concept with no discussion of the areas subject to regulations by the County of Los Angeles or the fact that the Crenshaw Station is in an area which is not included within the Centers Concept. (Michael A Cornwell of Rapid Transit Advocates, Inc.)

Response: This introduction to the impact assessment methodology has been revised to clarify that "the stimulation of development in the Regional Core and around stations is itself a positive land use impact with respect to stations designated as centers" and that "it is also more likely to produce adverse impacts at stations not designated as centers." In the case of both centers and non-centers, the primary measure of impact is the compatibility of development expected to occur in conjuction with the Metro Rail Project with the type and intensity of development permitted by the applicable local plans." Reference to the status of the Wilshire/Crenshaw Station and Fairfax/Santa Monica Station vis-a-vis the city and county's Centers Concept can be found in the subsection of Section 2.3.3 Impacts of Growth entitled "Consistency with Land use Plans and Policies - Station Area Impacts" and in Tables 3-13, 3-16, and 3-17.

Comment 191: It is almost inconceivable that the areas surrounding the proposed station at Crenshaw and Wilshire Boulevards would not be identified as a stable residential area. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The areas referred to in the comment are designated as stable residential neighborhoods (see Table 3-31, Mitigation Option 1, and the description of the Wilshire/Crenshaw Station in Section 5 of Chapter 3, Social and Community Impacts). However, the assessment of land use and development impacts indicates that there is sufficient land south of Wilshire Boulevard, zoned for multifamily housing and occupied by single family or duplex units, to accommodate residential growth projected by SCAG. Furthermore, the single family character of the areas north of Wilshire from McCadden to Norton and south of Wilshire from Muirfield to Lucerne has been strongly reaffirmed by the RE15-1 (residential estate) zoning in the Park Mile Specific Plan, as has the character of residential neighborhoods in the areas south of Wilshire, East of Crenshaw and west of Tremaine. Since the develpoment that is projected to occur in the station area could be accommodated within the existing multifamily neighborhoods, it is not expected to impact the goal of preserving stable residential areas. Even if pressure for additional development did occur it would be likely to locate even further south of Wilshire because of the Park Mile Specific Plan and Wilshire District Plan designations for existing single family neighborhoods.

Comment 192: The City of Los Angeles has adopted various mitigation measures for the Wilshire/Crenshaw Station which are not mentioned in the EIS/EIR. The SCRTD should cooperate with the city in the study and implementation of these mitigation measures. (Richard D. Workman of Lorraine Boulevard Association)

Response: The measures apparently referred to were contained in an April 7, 1983, City Planning Department report to the City Planning Commission. Some of the issues that these measures are concerned with were mentioned by individual commentors and those are responded to separately. (See response to comments 130, 132, 134, 135, 137, and 167 of the Transportation section.)

It is SCRTD's understanding that the City of Los Angeles' Department of Transportation believes it would be premature to adopt many of these measures without further study. However, these measures seem to be useful and well-intended and the SCRTD will be pursuing their definition and implementation in cooperation with the city departments concerned. To briefly respond to some of the measures identified for SCRTD action:

- Design Review: SCRTD will closely coordinate transit facility design in the Park Mile area (and elsewhere in the city) with the Los Angeles City Planning Director, the Transportation Department's General Manager, the City Engineer and the Park Mile Design Review Board. Non-transportation facilities (e.g., joint development, air rights structures) will be coordinated with the Park Mile Design Review Board.

- Bus Terminal and Layover Facilities (off-street): SCRTD proposes to construct off-street terminal facilities on the southwest corner of Crenshaw and Wilshire. Expanding these facilities to the southeast corner as requested by the city might require a benefit assessment district or some other special revenue source. This appears unlikely at this time.

- Bus Bays (on-street): SCRTD proposes construction of a bus drop-off bay on the west side of Crenshaw south of Wilshire, as the city has suggested. It proposed that northbound Crenshaw bus service continue to load where it does now, along the east side of Crenshaw, immediately south of Wilshire.

  Bus bays along the north side of Wilshire, suggested by the city, would only serve local westbound Wilshire Boulevard bus service. As such, they would appear too expensive for the moderate usage they would be expected to receive. Special revenue sources (dedications from adjacent properties, benefit assessment district funds, etc.) might be sought here if the city believes these measures to be important.

  Although automobiles often do crowd into bus loading areas, to actually encourage auto to use bus bays, as the city suggests, is likely to not only significantly impede bus operations but to also create serious safety problems as well. Kiss and ride vehicle movements, to greatest degree possible, should be kept separate from bus movements.

- Bus routes from the east, it is suggested by the city, should stop at both the Western/Wilshire and Crenshaw/Wilshire Stations. This the variance with the routing adopted in Milestone 9, but may be examined during Final Design.

- Demand-response minibus services, as mentioned by the city, would be a special, local benefit and would require a special, local contribution.

- Additional station entrances on the north side of Wilshire and southeast of Wilshire and Crenshaw were suggested by the city. While these entrances would be an added convenience for those patrons on westbound Wilshire and northbound Crenshaw (respectively) buses, they are significantly beyond the bounds of the usage and cost criteria that SCRTD has had to impose on the project as a whole. Special funding soucres would need to be found to provide these additional entrances. This appears unlikely at present.

Comment 193: The Wilshire/Crenshaw Station is inconsistent with the Park Mile Specific Plan and will have a negative impact upon the residential areas surrounding Hancock Park by dramatically increasing densities and traffic. The station could lead to an influx of people from outside the neighborhood. (James Zager, Mitchell Robinson)

Response: The analyses done for the EIS/EIR indicates that the development likely to occur would increase the current intensity of land use and not be inconsistent with the adopted Park Mile Specific Plan. Additional floor space and dwelling units likely to be constructed if Metro Rail is built would use 54 to 75 percent of the available development capacity provided for under the Park Mile Specific Plan.

The real estate market analyses done as part of the EIS/EIR indicated that the Crenshaw intersection is not a particularly attractive or competitive location for development. There is a possibility that without Metro Rail, the Crenshaw intersection would become further blighted, thus endangering the stability of nearby residential areas. If Metro Rail is built, it is likely that a portion (but substantially less than half) of the undeveloped or underused land in the area might be developed in conformance with the conditions specified in the Park Mile Specific Plan.

By far the largest portion of the Crenshaw Station's patrons are projected to arrive and depart by bus, only about 6 percent are estimated to walk to the station. Insofar as there is substantial bus traffic already at this intersection and insofar as bus loading areas carefully buffered from the adjacent community, the impacts upon residents will be minimized. With Metro Rail, most of the bus transferees that now wait for Wilshire buses will disppear from surface streets, since they will be taking trains instead. In this respect, Metro Rail will reduce the proportion of transit patrons waiting on the streets adjacent to the neighborhood.

Comment 194: The Wilshire/Fairfax Station seems to impact upon the general plan for zoning for the city as well as for the Wilshire Plan. There is concern that all the planning for the area will be eliminated and modified, and its effects reduced. (David Lippert of Miracle Mile Residential Association)

Response: While it is true that the originally proposed station and bus facilities would have potentially impacted adjacent residential areas as well as directly displaced numerous businesses and several nonprofit organizations, the proposed facilities were not, in themselves, inconsistent with the Wilshire District Plan. Nonetheless, because of the original station location's potential impacts on the community as well as on the La Brea Tar Pits, the location has been moved to the north side of Wilshire Boulevard on the May Co. property. The station will be located behind the existing store. In this new location, it will not displace commercial establishments on the south side, and it will be further removed from any single or multifamily residences that it could potentially impact.

Commercial development expected to occur in conjunction with the Metro Rail project is expected to create pressure to develop underutilized parcels along Wilshire Boulevard to their permitted intensity. It is also possible that, at some future time, when all available commercially zoned land has been redeveloped or renovated (like the Museum Square Project), pressure could develop to

redesignate some of the parking buffer areas and even some areas zoned for multifamily use and currently used for parking (for example, the northern portion of the May Co. site) for commercial use. The primary mitigation measures to ensure that pressure for redevelopment does not extend to existing residential development are the enforcement of the existing Wilshire District Plan and the development of a Specific Plan for the station area that clearly defines areas to be preserved as residential.

Comment 195: As owners of commercially-zoned property near the Beverly/Fairfax Station, we object to mitigation measures that would place residential uses on our property so as to provide for the elimination of existing residential areas. The Specific Plan should recognize the benefit of using existing commercially-zoned properties for commercial uses. There are few large commercial parcels available for well planned commercial projects. The community's goal is to update and modernize but not to change the neighborhood character. (CBS Inc. and A.F. Gilmore Company)

Response: The mitigation measures identified in Table 3-20 of the EIS/EIR do not result from elimination of existing neighborhoods. These measures are in response to substantial, unmet demands for additional residential development in this part of the corridor. Even without the Metro Rail Project, the forecast year 2000 demand for residential development in this area is almost three times the residentially zoned site area identified as reasonably available. The Metro Rail Project is forecast to escalate this demand even more. The Housing Element of the General Plan, which the City of Los Angeles is required to maintain and update, must take cognizance of the same SCAG projections used to develop the analyses for EIS/EIR. The conclusions reached by the EIS/EIR, then, only anticipate what the City of Los Angeles will soon need to address in any event.

In contrast to the projection of housing demands in excess of the supply, the EIS/EIR forecasts that commercial space demand will absorb (at most) less than half the available commercial zoned land identified as susceptible to reinvestment by the year 2000. Without Metro Rail Project, only 17 percent of the commercially zoned parcel area identified as susceptible to reinvestment is forecast as being absorbed over the next 20 years. Thus, there appears to be a mismatch between the amount of land available for various uses and the demand for the uses. The City of Los Angeles will need to examine these issues and reconcile the situation according to its adopted public policies and state requirements.

The SCRTD agrees that very large, consolidated parcels represent special opportunities for both the private sector and the public sector to achieve respectively held goals. Neither SCRTD nor, do we understand, the City of Los Angeles Planning Department would agree with the assertion, however, that the best use of such parcels is necessarily limited to strictly commercial development.

In SCRTD's estimation, one of the major opportunities presented by a large site in an active urban area is to create a carefully planned mix of intense, mutually reinforced uses (employment commercial, entertainment, shopping, high density residential, etc.). For public transit, such development has been shown to generate much more stable, balanced transit utilization throughout the day than does a mass of one particular uses with its sharply peaked demands. From a city

planning point of view, well planned mixed development can often much better contain adverse "spill-over" effects, such as traffic, since activity is internalized more within a development. Mixed-use development can also result in more attractive, premium-quality environments that can attract people to them around the clock, rather than becoming abandoned and unused on evening and weekends.

Comment 196: As owners of large commercial parcels adjacent to a proposed Metro Rail station, we are not interested in joint development with SCRTD. We expect to pursue development of our property as it has been zoned unencumbered by public agency involvement. (CBS Inc., and A.F. Gilmore Company)

Response: SCRTD appreciates and respects the commitments of private property owners adjacent to Metro Rail station facilities. A Metro Rail station, however, represents an investment (in 1983 dollars) of perhaps $40 million in a station's construction, plus annual systemwide operating expenses that will serve many tens of thousands of patrons each day. These are taxpayer's funds, and they have the potential for creating enormous windfalls for property owners who just happen to be adjacent, particularly those with large, undeveloped commercial parcels.

Milestone 6 of the Preliminary Engineering program outlined the land use and joint development policies for Metro Rail. The EIS/EIR is only portraying the preferred policies that resulted from the Milestone 6 process.

In the Milestone 6 process, it was noted that public agencies involved with rapid transit system development are obliged to pursue a number of concerns in station areas which, as a consequence, often entail joint development. Among these concerns were: effective and efficient integration of transit facility spaces with surrounding land development; provisions for necessary public or community spaces and facilities in the immediate station area (e.g., parking); station area layout that assures optional utilization of public transit investments; and a sharing of the risks and benefits associated with objectives such as those above, between public and private interests in a station area that is commensurate with the commitments and responsibilities of the parties involved. SCRTD, in cooperation with the City of Los Angeles and the County of Los Angeles looks forward to working with local property owners in pursuit of these objectives. (Further discussion on such private/public partnerships refer to response to Comment 97 in the Cost Section.)

Comment 197: The potential of the Fairfax/Santa Monica Station area for major Metro Rail related growth and joint development appears to be underestimated. The Draft EIS/EIR should not prematurely preclude development options at the Fairfax/Santa Monica Station. (Norman Murdoch of Los Angeles County Department of Regional Planning)

Response: The county's proposed Specific Plan for the Fairfax/Santa Monica Station area, if adopted, together with a commitment by the county and the SCRTD to promote development, is likely to increase the rate at which development occurs in the station area. The proposed Specific Plan represents a 55 percent increase in the total commercial development capacity of the area over the adopted West Hollywood Community Plan. The background analysis for the EIS/EIR indicates that up to 2.2 million square feet of new commercial development, accompanied by displacement of about 200,000 square feet of

existing commercial space for a net gain of 2 million square feet in the station area, would be compatible with the West Hollywood Community Plan. If the Fairfax/Santa Monica Station area Specific Plan is adopted to supercede the West Hollywood Community Plan, it would increase development to as much as 3.6 million square feet, accompanied by displacement of about 200,000 square feet for a net gain of 3.4 million square feet.

The illustrative development estimates shown in the EIS/EIR show a 400 percent increase in commercial development within the Fairfax/Santa Monica Station area with Metro Rail and the incentives over the No Project Alternative from 1980 to 2000. This is the most dramatic increase for any of the 18 stations, suggesting that Metro Rail will have a more significant effect on development in this station area than in any other. The illustrative development projection of 1,092,000 square feet of new development minus 70,000 square feet displaced used in the EIS/EIR was derived from a conservative market study based on historic trends and the current attitudes of developers. It is very possible that the county will encourage development in excess of this illustrative value within the decade following completion of the Metro Rail Project (the time period addressed in the EIS/EIR). Additional development is certainly expected to occur, probably at an accelerated rate, following the 10-year period as ridership grows and the regional rapid transit system expands. If for example, a rail line is extended west on Santa Monica Blvd., the desirability of the Fairfax/Santa Monica Station area for development would be consistent not only with development policies in the West Hollywood Community Plan and the proposed Specific Plan but with the designation of the area as needing revitalization.

The magnitude of redevelopment advocated by the county will have more dramatic impacts on existing businesses (including displacement) than the level of development anticipated in the EIS/EIR. While promoting such development, the county will have to address the resulting impacts with sensitivity and in a manner that is responsive to the local community's objectives.

Comment 198: A series of inaccurate or misleading statements were made in the Addendum to the EIS/EIR:

1. Page 15, Subsection 15.2, Line 4: It is incorrect to imply that Fairfax/Santa Monica environs is overzoned.

2. Page 15, Subsection 15.3, Line 10: The Fairfax/Santa Monica Station should be excluded from this statement as there is nothing in Footnote 8 to substantiate an inability to satisfy growth pressures.

3. Page 26, Paragraph 3, Line 4: The statement that "the West Hollywood Community Plan sought to create an 'urban village' character along the Santa Monica Boulevard Corridor, although this development pattern was not precisely defined" is incorrect. The West Hollywood Community Plan, adopted in June, 1981, designated the station location as a "Future Specific Plan Area," recognizing the potential for major new development stimulated by the Metro Rail Project.

4. Page 27, Paragraph 1: The entire paragraph should be deleted and replaced with the following: "Once adopted by the County of Los Angeles, policies contained in the SCRTD assisted Specific Plan for the Fairfax/Santa Monica Station area will be implemented by means of special zoning standards designed to harness

and guide Metro Rail Station impacts in concert with community objectives." (Norman Murdock of County of Los Angeles Department of Regional Planning)

Response: These statements have been corrected as follows:

1. Reference to the county has been eliminated as it is not overzoned with respect to the West Hollywood Community Plan or to probable development intensities.

2. This statement is a generalization of the finding in the impact assessment section of the EIS/EIR that, under the residential development regulations established by the West Hollywood Community Plan, a maximum of 1,810 new units could be accommodated in the station area, while the SCAG growth projections used to represent demand for new housing with the Locally Preferred Alternative indicates a demand for 1,940 new units. This addition of 1.810 residential units would require redevelopment of all residential parcels "susceptible to reinvestment" (see Subsection 2.2.4 of Chapter 3 for definition of this term) and inclusion of the equivalent of one FAR of residential development on all commercial parcels susceptible to the reinvestment. Even with the redevelopment, there would be a slight shortfall.

   The proposed Specific Plan would eliminate this shortfall in "supply" by increasing the permitted density in several blocks directly adjacent to the station to a range of 70 to 100 units per net acre and in the remainder of the Specific Plan area (roughly bounded by Fountain, Laurel, Willoughby and Ogden Avenues) to a range of 50 to 75 units per net acre. Once the proposed Specific Plan is adopted, all of the projected residential growth could be accommodated within the station area.

   The statement in the Addendum does not differentiate between residential and commercial growth. The statement has been revised and incorporated in the EIS/EIR to read: "The inability to satisfy residential growth demands and the resulting need to manage growth impacts may occur in the Wilshire/La Brea, Fairfax/Beverly, Fairfax/Santa Monica and Universal City Station areas. The inability to satisfy commercial growth demands may occur in the Wislhire/Fairfax Station area." A footnote concerning the Fairfax/Santa Monica Station has been added which reads" The proposed Specific Plan for this station area would enable the area to accommodate all projected residential growth."

3. The statement has been revised to reflect the fact that the West Hollywood Community Plan does identify the station area as a future Specific Plan area using the language requested by the County.

4. This change has been made as requested by the County Department of Regional Planning.

Comment 199: With regard to Table 3-13, "Maximum Development Permitted by Zoning" and "Probable Development Intensity" should read 5.0 and 4.0 respectively rather than 2.0. (Norman Murdoch of Los Angeles County Department of Regional Planning)

Response: The land use impact assessment was based on an analysis of existing zoning and land use plan designations, since adopted Specific Plans for the station areas were not available when the assessment was performed. It was anticipated that the city and county planning department would use the results of the market study and impact assessment in their preparation of Specific Plan alternatives and the selection of one alternative.

In the Fairfax/Santa Monica Station area, the development regulations established by the West Hollywood Community Plan were used to represent zoning because, by ordinance, the plan did represent zoning and because it is the county's policy that the general plan is the enforceable planning regulation. As indicated in the Draft EIS/EIR, the maximum FAR permitted by the plan for the commercially zoned frontage along Fairfax and Santa Monica is 2 and the height limit is 45 feet with an increase to FAR 3 and 60 feet if one-third of the total floor area is residential.

The proposed Specific Plan establishes a maximum FAR (if all incentives are utilized) of 5 for commercial floor area in the "station core area" (containing 7.6 acres of parcel area) and a maximum FAR of 2.5 for commercial floor area in the "commercial corridors" (containing 8.9 acres of parcel area). If all of the commercially designated land susceptible to reinvestment in the station area (7.6 acres in the station area, 7.0 acres in the corridors, and 6.4 acres outside the Specific Plan area) were redeveloped to the maximum FAR, the average maximum FAR would be 3.25.

With respect to probable development intensities under current land use regulations, the FAR would likely be limited to below the permitted level by two factors: first, the relatively shallow parcel depth (60 to 150 feet) and width (50 feet); and second, the pattern of recent development along similar street frontages. Typically, development along shallow commercial frontage takes the form of one- to three-story structures with "tuck under" and/or surface parking, representing FARs of 0.5 to 1.5. An FAR of 2.0 is used in the impact assessment.

Note for reference to Comment 22 that the combined height limit of 45 feet for the commercial component and maximum lot coverage of 90 percent permitted by the West Hollywood Community Plan and the proposed Specific Plan would not limit the FAR to less than that permitted.

With the proposed Specific Plan, FARs in the "commercial corridor" and outside the Specific Plan area would be constrained by the factors identified above. Probable development intensities in the "station core area" might be limited by the parcelization pattern, that is, by the fact that there are many separately owned small parcels. This constraint could be mitigated by an effort on the part of the county to not only encourage land assembly as the Specific Plan recommends but to undertaken land assembly so that an FAR of 5.0 could be achieved.

Optimistically, then, with the adoption of the proposed Specific Plan probable average FARs of 1.75 for areas outside the Specific Plan area, 2.0 for the commercial corridor areas and 5.0 for the station core area could be achieved. The resulting average probable development intensity would be FAR 2.6.

Table 3-13 in the Draft EIS/EIR (Table 3-12 in the Final EIS/EIR) is revised to include a footnote indicating the maximum and probable development potential that could be achieved with the proposed Specific Plan is FAR 3.25 for the maximum development intensity and FAR 2.6 for the probable development intensity.

Comment 200: This community does not have a specific plan. The concerns are with building densities that potentially could go on around the commercial centers especially at the La Brea/Sunset Station. (Richard Wilson)

Response: As the EIS/EIR notes, development impacts will have to be managed with particular sensitivity at the La Brea/Sunset Station area. There is a definite potential for disruption of the existing community character. A Specific Plan for the area is currently being prepared by the Community Redevelopment Agency of Los Angeles with funding from the SCRTD. This plan is the primary vehicle available for mitigation impacts and will be prepared with public input.

Comment 201: The Draft EIS/EIR fails to recognize that West Hollywood and a portion of the Universal City area immediately adjacent to the proposed station location are under the jurisdiction of the County of Los Angeles. The Addendum references the 1980 General Plan but that plan is in its second printing, dated 1982. Furthermore, there is no reference to the West Hollywood Community Plan. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The staff of the County Regional Planning Department worked with the consultant throughout the analysis of land use and development impacts. Impacts in the Fairfax/Santa Monica Station area and in that portion of the Universal City Station area within the unincorporated county were evaluated against county's adopted plans and policies to the same level of detail as station areas in the city. In no case city policies used to evaluate unincorporated county land. The West Hollywood Community Plan was the principal planning document used to evaluate consistency of the project with local land use policies in the Fairfax/Santa Monica Station area in the EIS/EIR. Furthermore, the EIS/EIR has been revised to incorporate the proposed Specific Plan as well at the county's request. The County General Plan and zoning code were used in the evaluation of the unincorporated portions of the Universal City Station area.

The EIS/EIR has also been revised throughout to include all parallel references to the applicable county plan whenever the city land use policies are discussed.

With respect to the implied differences among various printing of the 1980 County General Plan, there have been no changes in the body of the document. However, General Plan Amendments are included as a supplement to the main document. Any amendments to the General Plan that affect the two unincorporated areas under consideration in the EIS/EIR have been taken into account in the impact assessment.

Comment 202: The statement that the intensity of development is in virtually all cases substantially higher than the current intensity of use is not true for the West Hollywood area where many of the existing residential and commercial structures have been designated as being nonconforming structures and uses under applicable zoning regulations. (Micheal A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The comment may not be true for the West Hollywood area in general, but it is accurate for the Fairfax/Santa Monica Station area (see Technical Report on Land Use and Development Impacts for station area boundaries). With respect to development intensities, the average FAR for commercial buildings in that station area is less than 0.5 while the FAR permitted by the West Hollywood Community Plan is 2.0 for exclusively commercial buildings and 3.0 for mixed residential/commercial buildings. The proposed Specific Plan would permit a maximum average development capacity of FAR 3.0. Similarly, while the West Hollywood Community Plan designates the residential neighborhoods of the station area as high density (50 units per net acre) and the proposed Specific Plan would permit an average of about 75 units per net acre in the station area, the current average density is about 35 units per net acre. Clearly, the intensity of existing development is less than that permitted by the plans for the area.

With respect to types of use, the West Hollywood Community Plan does indicate that there is a substantial number of nonconforming uses in the West Hollywood area. However, within the station area, commercial uses are located on commercially zoned parcels and not on residentially zoned parcels. The latter would constitute a nonconforming use. A residential use on a commercially zoned parcel is non nonconforming use.

Comment 203: On page 3-40, the EIS/EIR states that the FAR along the Hollywood Corridor is 13. The City of Los Angeles was required to bring its zoning into conformance with community plans as a result of a lawsuit by the State. There is a plan in Hollywood and the Floor Area Ratio for Hollywood is 6, not 13. The maps and the projections in the EIS/EIR relative to land use are confusing, because it seems they are not based on any plan.

On the map on page 3-11, commentor's house (1922 North Sycamore) on a steep hillside is shown with a FAR of 6, that better get changed. RTD has fallen into the same trap as everybody else, showing all intense development north of Hollywood Boulevard and directly on the south, as opposed to along Sunset and in the Hollywood-Vine area where large sized parcels ready for development are available. (Frances Offenhauser of Hollywood Heritage, Inc.)

Response: While the City of Los Angeles is in the process of bringing zoning and the community or district plans into conformance, it is the city's policy to adhere to zoning rather than the applicable Community Plan designation as the legally enforceable development regulation and, therefore, as the basis for evaluating and approving projects, except in the case of subdivisions and zone changes. The California State Subdivision Map Act requires that a subdivision be consistent with the Community Plan. It is the City Attorney's policy to recommend disapproval of zone changes that are not consistent with the applicable Community Plan. However, the City Council may override the City Attorney's recommendation and has exercised the option with respect to zone changes that are inconsistent with the Community Plan. It should be noted that according to the County Counsel, it is the county's policy that the General Plan prevails where there is a conflict between zoning and the plan.

Thus, until each of the station area's zoning and the applicable Community Plans are brought into conformance, zoning remains the legally enforceable regulation with respect to the type and intensity of use on a given parcel. Once the Specific Plans for the station areas are adopted, they will supersede zoning regulations.

Thus far, the effort to bring zoning into conformance with the applicable plans has concentrated on portions of the San Fernando Valley, the Westside, San Pedro, and recently the Beverly-Fairfax area, all areas where council members have expressed support for the effort. The Planning Commission recently approved a change in zoning for portions of the Fairfax frontage from Height District 1 (FAR 3)to 1-VL (three stories or 45 feet). This action is expected to be approved by City Council within a few months. City of Los Angeles Planning Department recommendation for down-zoning in this area included properties on the east side of Fairfax between Beverly Boulevard and Fourth Street, but the Planning Commission did not adopt that portion of the recommendation. Therefore, the legally enforceable development intensity for those particular parcels remains FAR 13 (Height District 4).

Similarly, both the Hollywood Community Plan and the Wilshire District Plan call for an FAR of 6 for regional commercial land use designations and FAR 3 for other commercial designation, while the Westlake Community Plan would permit an FAR of 6 for both regional and community commercial land use designations. However, because zoning for these areas generally permits a maximum FAR of 13, a proposed development project at greater than FAR 6 and up to FAR 13 would be permitted by the Building and Safety Department in its review of compliance with zoning regulations, assuming other applicable regulations, including parking requirements, are met.

The map on Figure 3-11 in the EIS/EIR shows the intensity of development to which a developer would be permitted to build at the point in time at which the EIS/EIR was written. The section of the EIS/EIR on Land Use Plans and Policies has been revised in the Final EIS/EIR to discuss the issue of consistency between zoning and land use plans.

With respect to the commentor's house, it is incorrectly shown on Figure 3-11 as having a permitted building intensity of 6. The shape of the medium density area just north of Hollywood Boulevard between Highland and La Brea Avenues was overgeneralized in that graphic. It has been refined to include only the area between Sycamore Avenue and Fitch Drive.

The map on Figure 3-11 shows development intensities that are the same as "everybody else's," that is, the city and the county's, because the purpose of that figure is to identify the intensity of development permitted by the land use regulations that are currently enforceable in the Regional Core. In the case of Hollywood, that regulation is zoning. The area of high intensity commercial development established by zoning does, incidentally, extend south to Sunset Boulevard. It should be noted as well that the City's Community Plan extends the "Regional Commercial" land use designation to include the south frontage of Sunset Boulevard and to include the area between Wilcox Avenue and Vine Street south of Fountain Avenue.

Refer to the Technical Report on Land Use and Development Impacts for the findings of the EIS/EIR analysis concerning the probable location of future development within station areas. The market study and evaluation of land supply resulted in the conclusion that most new development in the Hollywood/ Cahuenga Station area would occur on large, more easily assembled parcels between Sunset and Hollywood Boulevards. Development that does occur north of Hollywood Boulevard along Cahuenga Boulevard is expected to locate there

largely because the Metro Rail station will be there. In general, development can be expected to gravitate toward the existing concentration of office commercial activity on Sunset Boulevard around Vine Street.

The sources of projections and mapped data are clarified in the Final EIS/EIR. Figure 3-11 is clarified to indicate that it represents "Permitted Building Intensities" and that those intensities represent what the City and County consider to be the legally enforceable land use regulations which may be zoning, specific plans, redevelopment plans or general plans depending on the location. Additional text has been added to clarify the issue of discrepancies between zoning and plan designations. A column has been added to Table 3-13 indicating the development intensity established by the applicable plan. The text has been revised to clarify that, with one exception, the analysis of compatibility with local land use policies uses a development intensity equal to or less than that permitted by the applicable plan as the impact threshold when there is a conflict between zoning and applicable plan. Only at the Wilshire/Fairfax Station, where the supply of commercially zoned land is limited and the demand for new development is high, is the FAR of new development likely to exceed that suggested in the Wilshire District Plan. It is not expected to approach the intensity permitted by zoning.

Comment 204: The statements that there should be a regression on the part of this community from commercial and industrial property back to residential is distressing. Whoever prepared these statements appears to be unaware of the fact that this community has raised $150,000 for its share of the necessary funding for the beginning of a community redevelopment project. Through the Community Redevelopment Agency (CRA) some housing will be provided for people as part of the CRA project. The Southern California Association of Governments (SCAG) last year said that there were two areas that would have a great growth as far as communities were concerned in industry, business, and housing. A slogan "We are building the Hollywood of the Twenty-First Century," explains the goal and the report ignores that completely. (Bill Welch of Hollywood Chamber of Commerce)

Response: The EIS/EIR did not intend to suggest that commercial and industrial properties should "regress" to residential use. As the summary of development projections in the response to Comment 205 of this section indicates, the EIS/EIR analysis was based on a commercial growth level that greatly exceeds the historic growth rate for Hollywood. While development has occurred at an average rate of 73,000 square feet of major commercial space per year in the Hollywood area for the last ten years and a much lower rate during the last few years, the EIS/EIR assumes a rate of 105,000 square feet per year from 1980 to 2000 with No Project and 235,000 to 315,000 square feet per year with the Locally Preferred Alternative. These growth rates are slightly higher than the projections of SCAG referred to by the commentor. SCAG's employment projections correspond to about 77,000 square feet per year for a dispersed growth scenario (No Project) and 275,000 square feet per year under a concentrated development scenario (the Metro Rail Project).

The residential growth projections used in the EIS/EIR are SCAG's projections. The EIS/EIR analysis with which the commentor takes exception simply indicates that, if the level of residential growth projected by SCAG for the Hollywood/Cahuenga Station area is to occur, much of it will have to be located as mixed-use development on commercially zoned land. This does not mean that any of the commercial development potential of the area has to be sacrificed.

The goal of the mixed use development pattern is to preserve the existing integrated commercial-residential character of Hollywood, which is seen by many residents as one of its key attributes, and at the same time to intensify development through the revitalization efforts of the community.

The comparison of projected growth with the available land supply in response to Comment 205 should assure the commentator that both commercial and residential growth can be accommodated in an integrated manner in Hollywood.

Comment 205: Even though the floor area ratio in Hollywood is 13, the EIS/EIR predicts that actual development around the Hollywood/Cahuenga Station will probably be 3. This is very much underestimated. It is unrealistic and there will be a great deal of development pressure, but we will work for the fulfillment of this prediction during the planning process. (Lois Staffen of Hollywood Arts Council)

Response: The floor area ratio (FAR) permitted by current zoning around the Hollywood/Cahuenga Station is 13. The FAR designated for the area in the Hollywood Community Plan is 6. The average FAR for current development in the station area is less than 0.5. If the 83 acres susceptible to reinvestment in the station area that are designated in the Hollywood Community Plan and zoned for commercial use were redeveloped at an FAR of 13, 47 million square feet of commercial space could be accommodated. For comparison, less than one million square feet per year of major commercial space have been absorbed in downtown Los Angeles in recent years. The average annual absorption in all of Hollywood from 1971 to 1980 has been 73,000 square feet. At that historic rate, about 1.5 million square feet would be added over a 20 year period in all of Hollywood.

Typically, when there is as much available land at relatively low costs as there is in Hollywood, development will occur at extremely high intensities. In downtown Los Angeles where the cost of land is two to three times that in Hollywood, the demand for commercial space is ten times that in Hollywood and the supply of large, developable parcels is smaller, the average FAR of new development is 6.

In addition, the type of commercial development affects the intensity at which it occurs. Hollywood is a major retail center and much of the development to be added in the next 20 years is expected to be retail. Retail development rarely occurs at an FAR of greater than 3. Beverly Center near West Hollywood is an example of FAR 3.

The following discussion illustrates the magnitude of expected development relative to land supply. The market study prepared in conjunction with the EIS/EIR estimates the addition of 600,000 square feet of commercial space in the station area from 1980 to 2000 with No Project and 2.1 million square feet for the entire Hollywood area. This is equivalent to five percent of the capacity of the Hollywood/Cahuenga Station area at an FAR of 13 and 19 percent of its capacity at an FAR of 3. With the Locally Preferred Alternative, the market study estimates the addition of 1.6 to 2.9 million square feet in the station area and 4.7 to 6.3 million square feet for the entire Hollywood area. (The higher estimate assumes that incentives are provided to encourage developers to build in the area.) This is equivalent to 10 to 30 percent of the capacity of the station area at FAR 13 and 43 to 58 percent of the capacity of FAR 3.

These factors suggest that FAR 3 may not be an unreasonable average development intensity at least for the first 17 years of the redevelopment process in Hollywood. The intensity may increase over time. Furthermore, because the Hollywood area will be a redevelopment area under the jurisdiction of the CRA, the development intensities as well as location of development in the area can be managed to some extent. For example, the CRA may choose to concentrate development on large parcels south of Hollywood Boulevard in order to preserve the character of that significant commercial center. To do this, a reasonable average density for the entire area would be established so that densities could be transferred from parcels on Hollywood Boulevard to developable parcels to the south.

Comment 206: The characterization of Hollywood as primarily a residential community is inaccurate. The people of Hollywood certainly view themselves as a mixed use community. The community of Hollywood is also the center for the entertainment industry. (Newten Deiter for Councilwoman Peggy Stevenson)

Response: In the Land Use and Development Section (Section 2 of Chapter 3) Hollywood is characterized as primarily commercial around the Hollywood/Cahuenga Station and primarily residential around the La Brea/Sunset Station.

The description of the station environs in the Social and Community Impacts section (Section 5 of Chapter 3) does focus on residential characteristics of the station environs because impacts on the residential community are the primarily concern of the social and community section. This description has been revised in the Final EIS/EIR to characterize the Hollywood areas as a mixed use community and the center of the entertainment industry.

Comment 207: The discussion of "transferable development rights" and FAR changes in our area (Hollywood) is very fuzzy and we do not understand it. (Les Williams of Carlton Way Neighborhood Association)

Response: In Chapter 3, section 2.4 of the EIS/EIR, transferable development rights (TDRs) and FAR changes in the Hollywood area were discussed in the context of preserving existing structures and historic buildings along Hollywood Boulevard.

Currently, zoning in the area allows for a maximum FAR of 13. FARs on existing buildings on Hollywood Boulevard range from under 1, up to 4. If development pressure increases, there would be no incentive to preserve these structures. Buildings would be torn down and replaced with structures closer to the permitted FAR of 13. However, if this area was downzoned to an FAR of 6, as called for in the Hollywood Community plan, TDRs could be used effectively to preserve existing structures. There is less incentive to tear down an existing structure at a reduced FAR because the potential increase in revenues from realizing the additional development potential without tearing down and constructing a new building with a greater FAR. For example, an historic building with a FAR of 4 could transfer its remaining permitted development potential (FAR of 2) to a new development site located near the Metro Rail station. This would serve to concentrate high use development around the immediate station area while preserving historic structures.

Comment 208: A Metro Rail stop at Hollywood Bowl is inconsistent with the Hollywood Community Plan. (City of Los Angeles City Council)

Response: Several of the Metro Rail stations, such as the Fairfax/Beverly Station, are not located within centers defined by the city or county. They, however, do meet necessary ridership and development objectives. The Crenshaw Station, for example, is not located nor specifically called for in the Park Mile Specific Plan, but the City Council of the City of Los Angeles ruled that the station at Crenshaw was not inconsistent with this Plan. Similarly, while the Hollywood Community Plan does not call for a station at the Hollywood Bowl, it cannot be concluded that it is consistent with the Hollywood Community Plan.

Comment 209: Any joint development associated with surface parking north of the Universal City Station under the Aerial Option is nominal because the elevated guideway, at a height of 70 feet, will not permit joint development opportunities associated with the open space character which currently exists. (Music Corporation of America, Inc., Committee of 45)

Response: We agree that joint development in connection with surface parking or a parking structure north of the Universal City would be restricted under the Aerial Option. There is adequate lot depth between Lankershim and the aerial guideway to allow worthwhile joint development to take place. The open space character of the area is discussed in Section 7.3.2 of Chapter 3.

Comment 210: Reports provided by the CRA to the consultant team were not listed as references in the Draft EIS/EIR. (Edward Helfeld of the City of Los Angeles Redevelopment Agency)

Response: The references were inadvertently omitted. They have been included in the list of references in the Final EIS/EIR.

Comment 211: The text on Page 3-58 of the Draft EIS/EIR should be revised to reflect the recent contractual agreement between the SCRTD and the CRA to prepare master plans for stations within existing redevelopment project areas and for Union Station and the Hollywood Stations. (Newten Deiter for Councilwoman Peggy Stevenson, Edward Helfeld of the City of Los Angeles Community Redevelopment Agency)

Response: The text has been revised to reflect this change.

Comment 212: The EIS/EIR should rely on community and redevelopment plans land use designations rather than zoning for permitted development intensities. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

Response: The EIS/EIR addressed consistency both with plans and with zoning. In the City of Los Angeles, zoning is considered by the city to be the legally enforceable land use regulation, except where specific plans or redevelopment plan regulations supercede zoning. Consequently, it was necessary to consider zoning as well as the applicable plans in areas of the City of Los Angeles not covered by redevelopment plans or Specific Plans.

Where major inconsistencies between plan designations and zoning occur, they are noted in the EIS/EIR and in more detail in the Technical Report on Land Use and Development Impacts. An additional column has been added to Table 3-13 of the Draft EIS/EIR to show the development intensity permitted by the

applicable local plan for parcels susceptible to reinvestment. This additional information will allow the reader to compare the "probable" development intensity, against which compatibility with local plans is evaluated, with the intensity designated in the applicable plan as well as in the enforceable land use regulations.

In most cases, the probable development intensity is less than or equal to that established in the applicable plan. For example, in the Wilshire/Alvarado Station area zoning permits an FAR of 13 in commercial zones. The Westlake Community Plan would limit the FAR to 6. Current development practices and market demand in the area suggest an average probable development intensity of about 3 during the next 17 years. In only one case, the Wilshire/Fairfax Station area, is the probable development intensity likely to exceed that established in the Wilshire District Plan unless the area is downzoned, due to the limited supply of commercially zoned land.

In redevelopment and specific plans areas, the applicable redevelopment or specific plans are used to represent zoning since they are legally enforceable land use regulations for those areas. Specifically, for the three CBD station areas located in redevelopment areas, Table 3-13 lists the maximum development intensities permitted by "zoning" and the average permitted by the redevelopment plans. An FAR of 4 is shown for the Civic Center Station area, representing an average of the FAR 3 permitted in the Civic Center Redevelopment subarea and the FAR of 5 or 6 permitted in the two other redevelopment areas in the station area. An FAR of 6 is shown for the Fifth/Hill and Seventh/Flower Station areas. The fact that a portion of the Fifth/Hill Station area lies within the Bunker Hill Redevelopment Area where the maximum FAR is 5 is taken into account in the analysis.

A footnote will be added to Table 3-13 to clarify that the FARs for CBD Station areas reflect the applicable redevelopment plan regulations rather than zoning. Since development intensities permitted by the redevelopment plans in the Los Angeles CBD represent a downzoning to FAR 5 or 6 from a prior intensity of FAR 13, and because recent development projects achieve that permitted intensity, the probable development intensities in these areas are assumed to be the same as the permitted intensities. (See Comments 203 and 217 in this section for additional discussion.)

Comment 213: The description of the CRA's powers and responsibilities should be expanded. (Edward Helfeld of the City of Los Angeles Community Redevelopment Agency)

Response: Additional text requested by the CRA has been included in the Final EIS/EIR.

Comment 214: In addition to the two separate tables showing total development, population, and employment in 1980 and in 2000, the projected net growth from 1980 to 2000 or the total growth for both years in each station area should be shown in a single table to clarify and simplify the presentation. (City of Los Angeles City Council)

Response: Tables showing net growth were omitted from the Draft EIS/EIR due to page constraints but will be reintroduced as requested by the city in the Final EIS/EIR.

Comment 215: The concept of Floor Area Ratio (FAR) is faulty in areas where height restrictions exist because a height restriction would defeat the intent of any FAR regulated development. (Michael A. Cornwell of Rapid Transit Advocactes, Inc.)

Response: For the most part, in both the city and the county, height restrictions are not incompatible with the FAR permitted by the corresponding "height zone" (city) or "Maximum Height Limit" (county). In cases where the height limit would constrain development more than the FAR limit, the EIS/EIR estimate of probable development intensity takes that reduced potential into accounty. (See Comment 199 as an example of how this evaluation was performed.)

There is, however, one station area where the maximum and probable development intensity values in Tables 3-13 of the Draft EIS/EIR overstate these potentials because of parcel coverage limitations: Wilshire/Crenshaw. The height limit of 3 stories or 45 feet on about 75 percent of the commercially-designated land and 6 stories (or 75 feet) on the remainder with further restrictions on the north side of Wilshire, combined with the 50 percent lot coverage restriction (excluding parking buildings up to six feet) throughout would limit the overall maximum FAR to about 1.8. This value assumes that parking would be in a parking structure up to six feet tall on 50 percent of the parcel and/or a subterranean structure. (An approximately equivalent floor area would be required for parking as for the commercial or residential use.)

Table 3-13 has been revised in the Final EIS/EIR (now Table 3-12) to indicate a maximum development intensity of FAR 1.8 and a probable intensity of 1.5. This change results in a corresponding change in Table 3-18 (now Table 3-17). Projected commercial growth with no project would require development of six rather than three acres. This amounts to 39 percent of the 15 acres available for development or renovation for the No Project Alternative. With the Locally Preferred Alternative or the Minimum Operable Segment eight to eleven rather than four to six acres would be required, representing 54 to 75 percent of the land available for redevelopment or renovation.

While this change increases the land area required to accommodate projected development, it does not alter the overall impact assessment. The demand for development with the project will not exceed that permitted by the Park Mile Specific Plan. Only a little over 50 percent of available land will be required unless the city and SCRTD establish incentivies to encourage additional development. If the community is opposed to such incentives, the Station Area Specific Plan being prepared by the city with the Community Advisory Group can be expected to reflect that choice.

Comment 216: On page 3-32 a more detailed description is required concerning the contention that general conformity is achieved by the proposed station locations with applicable city and county plans. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: There is no statement on the referenced page of the EIS/EIR that "general conformity" is achieved by the proposed station locations with applicable city and county plans. The EIS/EIR indicates that the potential impact areas or "station areas" "generally correspond" to the City of Los Angeles Department of Planning (LADOP) and Los Angeles County Department

of Regional Planning's (LADRP) Specific Plan areas. To improve the clarity of the text, the EIS/EIR has been revised to state that "the boundaries of the station areas generally correspond" with "the boundaries" of the Specific Plan areas.

The discussion of proposed station's consistency with land use plans and policies briefly, states that:

- At the regional scale, all Metro Rail alternatives implement the Centers Concept within the Regional Core. Additional text has been added to explain that the location of stations outside of designated centers is not inconsistent with the Centers Concept. Note that although the West Hollywood Community Plan does not designate the Fairfax/Santa Monica Station area as a center, it does identify a Specific Plan area at that location in anticipation of the activity expected to occur in conjunction with the Metro Rail Station.

- At station area level, station areas designated as centers will be beneficially affected as long as they can accommodate projected growth. Whether growth can be accommodated is determined by comparing demand for development with the supply of land that is designated in the applicable plan and zoned for a corresponding use. Any inability to accommodate growth as identified in the EIS/EIR discussion of the "Accommodation of Projected Station Area Growth" indicates an inconsistency with local plans.

- Again at the station area level, non-center station areas are evaluated in the same way. The discussion of non-center stations is clarified in the Final EIS/EIR to state that "projected commercial growth at non-center station areas is consistent with the intensity of development established by the applicable Community Plan or Specific Plan," and that projected residential growth could not be accommodated at two of the non-center stations.

The entire impact assessment for land use and development focuses on establishing conformance with local plans and policies and is documented in Section 2 of Chapter 3 and in the Technical Report on Land Use and Development Impacts.

Comment 217: The statement in the Draft EIS/EIR that "in the city and county lesser intensities of the zoned use as well as other less intensive uses are permitted in any given zoning category" is inaccurate because it assumes that the existing zoning is consistent with the applicable general plan as is currently required by law. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: There seem to be two points in this comment: first, the accuracy of the statement regarding the structure of the zoning code is questioned; and, second, the issue of consistency between zoning and plans is raised. This statement that, "lesser intensities of the zoned use as well as, the less intensive uses are permitted in any given zoning category," is part of an explanation of how the zoning code works. For example, if a parcel is zoned C4-4 (commercial with a maximum FAR of 13), commercial uses at less than a FAR of 13 or in more restrictive categories (e.g., C-2 or C-3) or residential uses are permitted on that parcel by the zoning code.

The issue of consistency is an important one. There are major discrepancies between the intensity of development established by the Community or District Plans and that permitted by zoning along the Metro Rail route in portions of the City of Los Angeles. Section 2.2.2 of Chapter 3 has been revised to clarify this point.

Comment 218: The statement on page 3-54 of the Draft EIS/EIR concerning residential growth should distinguish between low and moderate income residential growth and other types of residential growth. The Draft EIS/EIR and Addendum avoid any meaningful discussion of having the Metro Rail Project square itself with the State policy for generation of low and moderate income units. The EIS/EIR should clarify whether its reinvestment concept embraces the generation of low and moderate income housing. (Michael G. Cornwell of Rapid Transit Advocates, Inc.)

Response: The scope of the land use and development impact assessment entailed an evaluation of whether the residential growth projected by SCAG for the station areas under both dispersed growth and concentrated growth policies (corresponding to the No Project and Metro Rail alternatively, respectively) could be accommodated on residentially zoned land susceptible to reinvestment. By definition, that available land area only includes parcels designated in the applicable land use plan and zoned for multifamily development (R3, R4 or R5). Therefore, little or no new single family housing is expected to be built in the station areas; all of the development identified in the EIS/EIR is expected to be multifamily housing on parcels currently zoned for multifamily development. In the case of the Wilshire/Crenshaw Station area, new development would be accommodated south of Wilshire Boulevard, on parcels zoned for multifamily use and designated for that use in the Park Mile Specific Plan. No new develpment would be expected to occur north of Wilshire Boulevard. The residential development projected by SCAG for this station area under the two growth scenarios could be accommodated in the area described above and is mapped in the Technical Report on Land Use and Development Impacts. These findings are summarized in Section 2.3.2 and Table 3-19 of Chapter 3 of the EIS/EIR.

The Social and Community Impacts section addresses the housing affordability issue in a qualitative manner. That discussion indicates that, in many station areas, the median income level is expected to increase somewhat with the project. It also identifies a series of mitigation measures that responds to the need for low and moderate income housing as well as for preserving stable residential neighborhoods. Measures 2, 3, 4 and 5 in Table 3-30 (Table 3-30 in the EIS/EIR) identify generic means of addressing the issues of housing affordability in the station areas and the responsible agencies, which include the city and county planning departments, the CRA, housing authorities, and community development agencies with support from the SCRTD. Suggested measures include relocation assistance to displaced residential tenants, a low-moderate income housing requirement as part of mixed use projects in the station areas where appropriate to existing character of the neighborhood, rend control districts to avoid severe rent increases, and housing assistance. The CRA has recommended a specific low-moderate income requirements of 15 percent of all new housing in the CBD. This requirement could be extended to other station areas where it would be compatible with existing residential development. The requirement could also be expanded to include all housing, not just mixed use projects, following the CRA's suggestion.

Comment 219: Consistency of station locations and development with the County's Centers Concept would not be determined by reference to just the County General Plan General Development Policy Map, but also minimally by reference to the Economic Development and Revitalization Policy, Housing Development and Neighborhood Conservancy Policy and Land Use Policy Maps of the County General Plan. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The applicability of the above referenced policies, as well as other county and city planning policies, to the Regional Core area are documented in the SCRTD Technical Report, A Summary of Public Policies and a General Environmental Impact Methodology, dated September 1982. With respect to the General Development Policy, the unincorporated area in which the Fairfax/Santa Monica Station is located is designated as needing revitalization as are portions of the unincorporated area in the Universal City Station area. The Metro Rail Project is consistent with this designation in that it would encourage development in both of these areas. With respect to the housing development and neighborhood conservation policy, residential areas in the Fairfax/Santa Monica Station area are identified as needing "selective revitalization" of individual dwellings which will require a moderate investment of public resources. By enhancing the desirability of the station area as a place to live with accessibility to the regional transit system, the Metro Rail Project would be expected to promote rehabilitation or replacement of deteriorating housing units. The Metro Rail, then, does conform to the policies of the County General Plan.

Comment 220: On page 3-41, what does the term "commercially zoned land susceptible to change" mean? (Michel A. Cornwell of Rapid Transit Advocates, Inc.)

Response: This phrase should read "susceptible to reinvestment." The term is basic to the impact assessment and is essential to an understanding of the entire section on land use and development impacts. It is explained in Section 2.2.4 of Chapter 3 entitled "Parcels Susceptible to Reinvestment" of the EIS/EIR.

Comment 221: On page 3-40 the second criterion (ratio of assessed value of improvements to assessed value of the land) for a parcel being susceptible to commercial redevelopment or renovation is meaningless. After Proposition 13 assessed value is determined solely on the basis of a change of ownership or new construction. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: It is true that as a result of Proposition 13, assessed value does not represent the current market value unless a property has recently changed ownership or experienced new construction or significant improvements to require reassessment. This fact does not affect the usefulness of the ratio of the assessed value of improvements to the assessed value of the land as an indicator of a parcel's "susceptibility to reinvestment."

To review the concept of susceptibility to reinvestment, if the improvements on a parcel are assessed at a lower value than the land itself, that parcel is likely to be redeveloped or renovated if there is a demand for development. For comparison, land costs typically account for, at most, 20 percent of the total investment in a new commercial development project, i.e., a ratio of 5:1 for improvements to land. Thus, using a threshold of a ratio of less than 1:1 to identify parcels susceptible to reinvestment results in a conservative estimate

of the quantity of land likely to be redeveloped. A ratio of less than 1:1 usually represents a vacant parcel, surface parking lot, or an older structure at less than one-sixth the FAR permitted by zoning.

While the analysis would be more exact if the assessed valuation figures were current, it is not essential. The assessed valuation figures are used only to establish an internal ratio. While the absolute numbers of will not represent current property values unless the property were reassessed in the last year, they do reflect the relative value of improvements to land on a given parcel.

The resulting estimate of land susceptible to reinvestment is conservative because, if it were updated, the most probable result would be an increase in the number of parcels susceptible to reinvestment since, over time, the value of the improvements tends to decline relative to the value of the land. The development expected to occur in conjunction with the Metro Rail Project would, therefore, be less likely to consume all of the developable parcels susceptible to reinvestment.

The assessed valuation numbers are not used to determine property value.

Comment 222: On page 3-66, the discussion of 'value capture' must consider existing physical conditions in the environment which include allocation of property taxes under Revenue and Taxation Code Section 95 et seq. which provide for no allocation of property taxes to the SCRTD. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: There is no intent on the part of SCRTD and no mention in the EIS/EIR of an "allocation of property taxes to the SCRTD." See response to Comment 90 under Costs for discussion of the distinction between a levy on property taxes and assessments on a special benefit assessment district.

Comment 223: Value capture potential should be disaggregated to separate those potential gains attributed to the access improvement from zoning changes and other variables influencing land values. Studies of land value impact of other fixed rail transit systems have shown the effect to be minimal. (Richard Wilson)

Response: In its discussion of "value capture" potential, the EIS/EIR does not attempt to attribute quantified increases in land value to the increased access provided by the Metro Rail Project. Rather, it looks at the revenue potential for leasing of air rights, which conservatively does not assume any increase in land value above normal inflation, and from the creation of a benefit assessment district which assumes that adjacent properties benefit in a variety of ways, of which increased property value is only one, from their proximity to a fixed rail transit station.

With respect to the effects of zoning versus accessibility to public transit, changes in zoning are not expected to significantly increase development potential or the value of land, at least during the 17 year period evaluated in the EIS/EIR. This is because there are not likely to be many increases in the intensity of use permitted by zoning due to current liberal zoning in much of the Metro Rail corridor. It is more likely that the Wilshire corridor Hollywood, which are overzoned relative to the Central Business District and the Valley, will be downzoned with the provision development incentives to permit higher intensities of use around station (possibly, intensities as high as those currently permitted).

Comment 224: The Locally Preferred Alternative is not analyzed in relation to proposed, presently approved, or recently constructed projects within the geographic area subject to the preferred alignment, but should be, since such plans can drastically alter acquisition costs. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: The EIS/EIR does evaluate the Locally Preferred Alternative in relation to proposed, approved and recently constructed projects along the corridor. The development projections reflected in Tables 3-16 and 3-17 (Tables 3-15 and 3-16 in the Final EIS/EIR) and in Figure 3-12 were derived in part from a review of all proposed, approved, under construction, or recently constructed projects. In order to anticipate the cumulative impacts of that development plus the additional development projected for each station area under three growth scenarios (No Project, with Metro Rail and With Incentives) for both the Locally Preferred Alternative and Minimum Operable Segment, real and hypothetial projects in conformance with development regulations were located on actual or possible sites. That exercise is documented in detail in the Technical Report on Land Use and Development Impacts. Proposed, approved, under construction and recently completed projects identified as of August 1982 are listed in Table III-5 of that document. The illustrative development pattern created in order to assess cumulative impacts is shown in Table III-15 and Figure III-1 through III-18 of the Technical Report.

Comment 225: The Planning Department's Special Core Plans were completed for all proposed stations but were not available for the public to view. Until the plans are available for public review, the EIS/EIR is incomplete. (Sylvia Richman)

Response: Initial specific planning work for the City Planning Department began during the Preliminary Engineering phase of the Metro Rail Project. During continuing Preliminary Engineering (Fiscal 1984), the city will be further developing these plans. Community input is an essential element this process without which the plan cannot reach implementation. Several Citizen Advisory Committees have been created and are providing advice and direction to the city in the development of these plans. The Metro Rail EIS/EIR must assess impacts of the project to be considered complete. Similarly, Specific Plans can only be considered complete when impacts of these plans have also been assessed.

Comment 226: The Metro Rail Project and the Proposition A master plan of regional rail corridors is consistent with the Long Range Development Plan of the City of Beverly Hills. (Irwin Kaplan of City of Beverly Hills Planning Department)

Response: This has been noted in the EIS/EIR text revisions.

2.9 RELOCATIONS AND BUSINESS DISRUPTIONS

Comment 227: A detailed relocation plan should be given public review and comments taken prior to its finalization. The public must be given the opportunity to provide its input into its publication. (Roger Gomez of Vitalize Fairfax Committee)

Response: The Relocation Report/Analysis for the Metro Rail Project has been completed and has been submitted to UMTA for review and approval. As soon as UMTA approves this document, it will be made available to the public. The plan will give a detailed assessment of the kind of displacements that will occur as a result of the project. It will also outline the relocation assistance that SCRTD will provide to commercial and residential occupants who are directly impacted.

Comment 228: The land acquisition and displacement section which begins on page 3-73 can only contain accurate analysis if the cumulative impacts and growth inducing impacts of the proposed project are adequately discussed in conjunction with other currently proposed or approved projects along the Locally Preferred Alternative alignment. (Michael A. Cornwell of Rapid Transit Advocates, Inc.)

(Text continued on the following page.)

Response: The residential growth projections in the EIS/EIR are net figures assuming displacement of up to approximately 8 single-family or duplex units for every 75 units added. New commercial development would be located on commercial zoned parcels susceptible to reinvestment. The displacement from this development cannot be predicted since the location of that development is unknown. For the purpose of assessing parking impacts, the projected development was hypothetically allocated to parcels susceptible to reinvestment within the development parameters established by applicable plans and zoning. That exercise located development first on vacant parcels and surface parking lots and then on minimally developed parcels. As a result, displacement would be correspondingly limited. However, it is possible that new development could occur on more intensely developed parcels resulting in greater displacement. The Social and Community Impacts section addresses this "indirect displacement" by identifying a series of mitigation measures.

Comment 229: The Draft EIS/EIR, on pages 3-84 and 3-85, views indirect displacement as a primary positive impact. In fact, there may be a negative impact on low income residents and businesses, particularly in the downtown area, and this issue should be addressed in the Final EIS/EIR. It appears there is no calculated analysis of the "ripple effect" of the system's joint development and induced growth potential on the rent structure. This is particularly critical at the Fourth and Fifth Street Station entrances where the eastward retail frontage on Fifth and Fourth Streets leading towards Broadway is characterized by businesses which, at the present, either cannot afford rent structures or otherwise make entry onto Broadway retail frontage. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

Response: While there are positive aspects resulting from indirect displacement, the EIS/EIR also identified adverse consequences, including the inability of tenants to afford higher rents. The negative aspects of indirect displacement are addressed in the EIS/EIR in Chapter 3, Section 5.3.1. Additional qualitative discussion of the "ripple effect" is presented in the SCRTD Technical Report on Social and Community Impacts. A quantitative evaluation would be purely speculative and could be misinterpreted as being a precise estimate of the effect.

Comment 230: The current relocation laws and procedures are inadequate for renters that would be displaced by Metro Rail construction. What financial aid and compensation will be given to displaced renters? (Cathy Pierce)

Response: Persons displaced from a rental dwelling because of Metro Rail construction will be entitled to assistance and compensation of various types. First, SCRTD will assist displaced residents in locating a comparable dwelling in the same general area or a similar area at a price within that person's financial means. Second, SCRTD will make payments for moving costs. Third, a supplemental housing or replacement housing payment may be made where the cost (rent) of a comparable new dwelling exceeds that of their former dwelling. Renters can use this payment toward the purchase of a residence if they so choose.

The current federally established maximum for a rental supplement or down payment allowance is $4,000. Because of the very special nature of the metropolitan Los Angeles real estate market and the potential effects of local rent stabilization ordinances, it is conceivable that these payments might not fully compensate a displaced renter for the added costs he or she might bear.

To respond to this possibility, SCRTD will be consulting with UMTA on the development of a "last resort housing" policy for Metro Rail. This policy might possibly involve additional compensation above the amount established in current relocation regulations to displaced residents in certain situations. SCRTD will work very closely with renters to assure that they find comparable units that are within their financial means.

Comment 231: The Draft EIS/EIR counts homes and businesses lost to the construction of Metro Rail, but does it count lost jobs as well? (Robert M. Lawson, Jr.)

Response: Section 4.3.3 of Chapter 3 describes displacement impacts. Table 3-27 of the Final EIS/EIR offers a preliminary estimate of the number of employees that would be affected by the displacement of commercial and nonprofit establishments. This information is based on SCRTD's Report on Property Acquisition and Relocation Costs. It should be realized that SCRTD will also undertake a relocation assistance program aimed at finding new sites for businesses that have been displaced. As a result, it is expected that much of the job loss will only be temporary.

Comment 232: The proposed station at Wilshire/Alvarado would affect the development potential of several properties envisioned to be a multistory hotel or office building with subterranean parking. How will Metro Rail deal with this lost or foregone development potential? (Chee Yung Kwan of ASPAC Investment Corporation)

Response: The Metro Rail Project would pay fair market value (exclusive of value determined to be induced or eroded by the Metro Rail Project) for needed right-of-way. This valuation will reflect most any viable land development potential. Refer to Milestone 5 for Metro Rail right-of-way acquisition procedure.

Comment 233: Walk-in business for small shops along Fairfax and Wilshire will be severely disrupted by nearly three years of construction. In addition to reducing traffic circulation, construction would also disrupt parking, bus service and pedestrian movement for up to three years. The elderly may perceive construction as both a psychological and physical barrier to Fairfax accessibility. What assistance or compensation will be provided for business losses during the construction period? (Roger Gomez of Vitalize Fairfax Committee, Eugene Holt of Beverly Fairfax Chamber of Commerce, and Mr. and Mrs. George McIntosh)

Response: As discussed in Comment 235 of this section, the prime Fairfax commercial area north of Beverly Boulevard will actually be affected very little, if at all, by Metro Rail construction. Construction will be several blocks away and located off-street. Businesses that might be indirectly impacted are those located along the west side of Fairfax Avenue south of Beverly and those vendors located in the northwest portion of Farmers Market. Approximately 19 businesses in the Farmers Market will be directly impacted and will have to be relocated, at least temporarily.

According to the land use survey data collected for the EIS/EIR, the most important community-serving commercial areas along Fairfax are north of Beverly and southeast of Third Street. As long as transit service and pedestrian connections along and between these destinations remain unaffected, there

should be no impacts on the Fairfax community's elderly population during construction. SCRTD will seek to ensure that all commercial establishments are accessible to the handicapped during the construction period.

For those businesses adjacent to Metro Rail construction activity, SCRTD will seek to organize programs among groups of affected merchants to help counter effects of construction disruption. Examples of such programs would include special advertising and promotions to maintain client/customer awareness of affected businesses, special design treatments of construction fencing, barricades adjacent to affected businesses, temporary landscape and streetscape improvements along affected street segments, and publicity efforts on Metro Rail construction tied into local merchants.

As a rule, SCRTD will endeavor to respond to the needs of impacted businesses in a manner commensurate with the impacts. Direct assistance will be available for those directly impacted (i.e., displaced). Those indirectly affected will generally not be eligible for direct assistance. SCRTD will, however, endeavor to respond to and work with affected areas and groups that are indirectly impacted.

Comment 234: Commentor estimates that SCRTD's proposed off-street alignment along the Farmers Market would displace 15 to 20 businesses. These are sole proprietorships who depend on these small businesses for a livelihood. In addition, they would directly affect an additional 10 to 15 businesses and indirectly affect the balance of the market's 150 businesses with construction noise, filth and disruption, restricted access of parking and customer anxiety. (Alfred Landolf of CBS Television City)

Response: The construction of Metro Rail requires that 19 small retail shops located within the Farmers Market complex be directly displaced. Federally mandated relocation assistance will be provided for these direct displaces. It is recognized that the primary clientele for these businesses are tourists who frequent the Market and CBS studios and that these businesses will probably desire to remain in the Farmers Market complex. This may be accomplished by construction of additional facilities on the remainder property or by reconstruction of the demolished wing after project construction is completed since the parcel will only be needed during the construction period. Temporary facilities may be an alternative solution to keep the businesses operating during the construction period.

Also refer to the response to Comment 233 of this section for a discussion of indirect impact mitigation.

Comment 235: Property owner expresses concern that his business would not survive if Fairfax Avenue were closed for two years or more. There must be other routes that do not have all of the stores, restaurants, banks, building, and other businesses that Farifax has. (Xavier Wittner)

Response: SCRTD has been particularly concerned about the possibility that small businesses could be adversely affected during Metro Rail construction phase. For that reason, station construction for the Fairfax/Beverly Station is proposed to be confined to an off-street site. Because all other Metro Rail construction in this area will be tunneled (that is, no disturbance of the surface will be required), Fairfax Avenue itself will not be disrupted.

This particular commentor is on the west side of Fairfax across from Farmers Market, where construction activity would occur. The great concentration of small Fairfax Avenue businesses north of Oakwood would not even be within sight of Metro Rail construction.

Other avenues such as La Brea and Vermont were studied extensively during the Alternatives Analysis phase (1977 to 1980). Fairfax Avenue was chosen, in part, because more activity--therefore, demand for public transportation services--was concentrated along this street.

Comment 236: The Feminist Women's Health Center rents a building located at the exact site of the Hollywood-Cahuenga Station. Our 40 full and part time employees provide telephone information, counseling, and clinical services to women. The impact of our relocation would be devastating if we were not adequately assisted in this change. (S. Farber, Feminist Women's Health Center)

Response: According to federal regulations, displaced non-profit organizations are entitled to relocation assistance. These organizations may choose one of two options. Under the first option, SCRTD will help locate another suitable location and pay for actual moving charges. Under the second option, SCRTD does not participate in the actual relocation, but pays to the non-profit organization a maximum fixed-payment of $2,500.

2.10 COMMUNITY AND SOCIAL CONCERNS

Comment 237: In the Draft EIS/EIR, there is mention of the impact of increased property value and resulting higher rent structures on social, recreational and cultural services. This is specifically relevant to many of the galleries and attendant art-related activity that are expected to be generated by the development of the Museum of Contemporary Art on Bunker Hill. These activities, like artists' studio space, usually occupy marginal, vacant commercial space. All of the above should also be discussed in the Final EIS/EIR. (Edward Helfield of City of Los Angeles Community Redevelopment Agency)

Response: These impacts have been incorporated into the Final EIS/EIR, Chapter 3, Section 5.3.

Comment 238: The Draft EIS/EIR states that in the CBD the demographic profile with change to reflect, among other characteristics, a higher level of automobile ownerhsip. The CRA's objective in promoting residential development downtown is to encourage a lifestyle with lower automobile ownership per household. (Edward Helfeld of the City of Los Angeles Community Redevelopment Agency)

Response: The statement in the Draft EIS/EIR merely reflects an observed correlation between increased income and auto ownership. With the residential development of downtown, it is anticipated there will be an influx of white collar professionals. Their income, on the average, would be higher than those of the current residents and, thus, auto ownership in the CBD is expected to rise. In spite of this projected trend, it is conceivable that auto trips per household could diminish because of the availaiblity of transit and the close proximity between residence and place of work. SCRTD shares the CRA's goal of decreasing auto usage.

Comment 239: Conclusions reached on page 3-80 of the Draft EIR/EIS are misleading because the analysis is based on residential population statistics. No statistics are given regarding employees, tourists or shopping populations which constitute the dominant user groups in the CBD. The downtown community includes a variety of low-income and other special user groups for whom specific sub-areas are a "second neighborhood". (Edward Helfeld City of Los Angeles Community Redevelopment Agency)

Response: The discussion of existing conditions on the identified pages of the Draft EIS/EIR was not intended to reach conclusions; conclusions are largely contained in the Impacts Section, 5.4. While SCRTD believes the data presented in this section to be adequate for the EIR/EIS, we nonetheless agree that additional statistics on non-residential CBD user populations would be very useful.

In response to this comment, SCRTD contacted a host of agencies and organizations involved in the CBD (including CRA). Unlike residential population which is collected by the U.S. Census, the data was found to be very limited and fragmentary. It appeared that, for the most part, reliable, primary data needs to be generated. This was beyond the bounds of time and effort that were believed to be reasonable for the preparation of the Final EIR/EIS, but SCRTD would look forward to working with any organization seeking to develop this data.

Comment 240: The following mitigation measures should be added to those in the EIS/EIR:

- The Community Redevelopment Agency's (CRA) low-moderate income housing requirement (15 percent) for all new housing constructed in the CBD.
- The option for residential, commercial, social services, and/or cultural tenant displacees to have first right to refusal at subsidized rates in new development.
- The provision of appropriately located subsidized facilities for indirect displacees.
- Add the CRA as a responsible agency under all mitigation options which are applicable to station areas within Redevelopment Projects. Mitigation option 3 should have the three CBD stations added as applicable affected station areas. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

Response: CRA's low-moderate income housing requirement for all new housing constructed in the CBD has been included in the Final EIS/EIR; CRA has been added as a responsible agency under all options applicable to station areas within Redevelopment Projects; and the CBD stations have been added to Mitigaton option 3 as applicable station areas. Other similar recommendations are already included in Table 3-31 of the EIS/EIR under mitigation options 2, 7 and 9. With the possible exception of tenanting policies for station area joint development, all of the measures mentioned in this comment are outside the jurisdiction of SCRTD; UMTA regulations proscribe funding for any of these measures.

Comment 241: The Metro Rail station at Alvarado and along Fairfax Avenue will double or triple rents for apartment renters and small shopkeepers, destroying them as communities for low and moderate income residents.

Metro Rail will stimulate the construction of offices and upper income housing, yet nowhere does the EIS/EIR demonstrate the need for this type of parasitic development.

The EIS/EIR accepts the destruction of the Westlake and Fairfax moderate income communities. Metro Rail will worsen Los Angeles' already critical housing problems. (Frank Fernandez and Sam Schiffer of Community Development Coalition)

Response: The Alvarado and Fairfax communities are generally recognized as important enclaves for low and moderate income residents, however it is also generally recognized that these areas are in critical need of repair and reinvestment.

In the experience of other new rapid transit systems in similar neighborhoods (for instance, the BART stations in San Francisco's Mission District), low income Hispanic residents have benefited considerably from the much-broadened mobility brought by a subway. Local residents have expressed their disappointment to BART, however, over the fact that not enough new development and investment was attracted to the neighborhood by the subway to help fortify the neighborhood economy.

To respond to this issue, SCRTD, in cooperation with the City of Los Angeles Planning Department and the County Regional Planning Department, is preparing station area Specific Plans and Master Development Plans.

A primary objective of these planning efforts will be to attract and to guide potential reinvestment into neglected portions of the inner city while retaining the orientation and viability of moderate-income neighborhoods. Past experience indicates that it may not be easy to attract this investment. The participation and support of the community will be very important.

With regard to demonstrating the "need" for additional office development or "upper-income housing," the question is largely not if this will occur, but where it will occur. This development would typically occur in Orange County or Ventura County or in other already affluent suburbs. On the other hand, it might be attracted, to a limited extent, to those older portions of the region most in need of additional jobs, mortgage funding, tax revenues, retail patronage and other reinvestment. Many of the economic problems of the Regional Core derive from this economic activity being drained away to other areas in recent decades; Metro Rail has the potential to help mitigate this imbalance to some degree.

Comment 242: The Westlake area is arguable the poorest area that will be served by Metro Rail. The potential economic impact of the Alvarado Station may be the greatest of any in the system. The area has a large population of low-income, senior citizens, is highly transient, and contains a phenomenal number of small businesses. Housing is inadequate, very overcrowded and badly deteriorated. Urge the SCTRD and UMTA to pay special attention to these problems in the Alvarado station area when drawing up station design plans and land use policies in conjunction with the city. (State Assembly Majority Leader M. Roos)

Response: These concerns are well taken. In assessing the impact of a Metro Rail station in the Wilshire/Alvarado area, SCRTD identified a broad range of

needs and concerns in this vital, lower-income Hispanic community. Other far-reaching problems already exist, however, which cannot be directly addressed by SCRTD.

As the commenter points out, SCRTD has been sponsoring the City of Los Angeles City Planning Department in the preparation of a specific plan ordinance for the Alvarado station area. It may be, however, that planning and regulatory mechanizations alone might not fully address critical issues such as housing supply and support of community-oriented small businesses. Should the City of Los Angeles choose to broaden its efforts in addressing the problems of Westlake, SCRTD will seek to support these efforts in any way that it can. Because of the breadth of the needs and concerns involved, SCRTD has to look for support and leadership from the local community and from responsible local jurisdictions to fully exploit the opportunities presented by Metro Rail.

With regard to SCRTD facilities and any prospective joint development, SCRTD will take particular care in its designs to respect the community fabric of Alvarado and Seventh Streets. The Relocation Plan will take particular note of the special problems Westlake tenants are likely to have. The station design itself (which could include appropriate art elements) will make an effort to reflect the community's character and its residents.

Comment 243: The EIS/EIR states the intensification of land uses around particular station locations could adversely affect established residential and commercial patterns, and that the neighborhood character and stability of the Fairfax-Beverly area may change because of new development facilitated by Metro Rail. In fact, introduction of the rapid transit line would instantly gentrify the Beverly-Fairfax neighborhood, forcing out the kosher butchers and the old world shops. Despite density zoning, as soon as current leases expire, in would come the banks, brokerages and cutesy boutiques. The surrounding residential population would change from one consisting of elderly and the middle class to one composed of rich singles able to afford rents inflated by the lack of vacancy decontrol.

The Vitalize Fairfax Project and the Chamber of Commerce, have guided much local effort into maintaining our neighborhood character while updating and refurbishing our buildings and homes. The land use and community impacts are a direct contradiction of what the neighborhood has been working for. Specific data is needed on what can and will occur so the community can take appropriate action. (Eugene Holt of Beverly-Fairfax Chamber of Commerce, Stan Richard Brin)

Response: The above excerpts from the Draft EIS/EIR are from the section on Community and Social Impacts. That section summarizes the impacts in the Land Use and Development section, focusing on their effect on the community. The Land Use and Development Impacts and Mitigation sections of the EIS/EIR discuss these impacts in more detail. Figure 3-12 in the EIS/EIR shows that there is insufficient land supply to meet projected residential growth in the Beverly-Fairfax area. Table 3-17 forecasts a dwelling unit demand between the years 1980 and 2000 of 1,630 additional units. Over 1,000 units of this demand are associated with the more concentrated growth patterns of the Southern California Association of Governments 82B forecasts.

Because of the vast expanse of underdeveloped land southeast of the station, the Beverly/Fairfax Station environs is projected to be a major new development center and significant pressures for social changes are expected to occur with or

without Metro Rail. To assist in the preservation of valued community characteristics, SCRTD is assisting the City of Los Angeles in the development of a Specific Plan for this area, and a Citizen Advisory Committee for the Beverly-Fairfax area has been formed as a part of this process. It is the purpose of the Specific Plan to establish design and development standards tailored to address the future development in the station area.. These standards are to provide the appropriate measures to preserve and enhance the unique characteristics of the area and to promote sensible development which minimizes adverse impacts on residential areas and community businesses.

The impacts of these growth projections are discussed in Chapter 3, Section 2.3.3 of the EIS/EIR. Section 2.4 and Table 3-20 discuss the mitigation measures which could offset the projected impacts. Section 3.7 in Chapter 3 also discusses approaches whereby commercial joint development sponsored by SCRTD could "carry" housing site costs.

The Technical Report on Land Use and Development Impacts provides additional quantification of the intensification of land use impacts around the Fairfax/ Beverly Station and the likely location of that new development. Additional information may be available during the Specific Plan and station area master plan processes. (See also the response to Comment 245 of this section.)

Comment 244: None of these plans speak to the effect Metro Rail will have on the Fairfax community and specifically on the small business. (Mark Epstein)

Response: The impacts of new development on the Fairfax community are discussed in the Social and Community Impacts section of the EIS/EIR and mitigation measures and options are identified (see Chapter 3, Section 5.4). Such mitigation measures may include, where appropriate, relocation assistance for directly displaced residents and businesses, and development of Specific Plans tailored for each station area. The mitigation options available for the Specific Plans include downzoning, provisions for affordable housing, rent control, neighborhood parking permits, rent subsidies, development review boards, and many other options too numerous to mention here.

Comment 245: Significant economic impact are also felt in business districts serving minority and ethnic communities, which may contain many marginal businesses. (EIS Draft, page 3-160). I believe that our large, eastern European, Jewish cultured people have minority characteristics making them vulnerable as stated above. (Eugene Holt of Beverly/Fairfax Chamber of Commerce)

Response: SCRTD acknowledges the unique character of the Fairfax community. SCRTD is working with the Los Angeles City Department of Planning on the preparation of station area specific plans for each station area.

Individuals and local community groups can participate in this process through the Citizen's Advisory Committee for each station area. The coming of Metro Rail will bring great opportunities to the areas near stations. Business potential will be increased and private investment capital will probably be attracted. However, in sensitive areas, like Beverly/Fairfax the potential also exists for these opportunities to give rise to damaging change. Active community participation in the public process of developing the station area specific plans is needed to ensure that the opportunities Metro Rail provides are maximized, such as providing jobs for those who need them while at the same time protecting the unique characteristics of the existing community.

Comment 246: Although there is wide support of the Metro Rail Project, Assemblyman Margolin continues to be concerned that the needs of the Hollywood community will be examined and considered. These concerns include the protection of residential and commercial property and the plans for pedestrian and parking traffic in the Hollywood District. (Bunny Wasser for Assemblyman Burt Margolin)

Response: RTD will continue to coordinate with the City of Los Angeles Community Redevelopment Agency and community and civic groups throughout the final design process to insure that Metro Rail is designed and built to best serve the needs of the Hollywood Community.

Comment 247: The Draft EIS/EIR, on page 3-83, seems to imply there is a wasteland between the two stations on Lankershim Boulevard. Communities, such as the Toluca Lake Community, exist along this corridor. (William Gardiner Hutson)

Response: The text in the Draft EIS/EIR recognizes three subareas within the San Fernando Valley -- each of the two station environs and the communities along the corridor outside of the station environs. The Corridor is characterized as a series of neighborhoods valuing neighborhood quality, visual appearance, stability, and neighborhood atmosphere. Preparers of the Draft EIS/EIR realize that a number of communities were not mentioned by name. This in no way was intended to suggest that those communities were not important and valuable to the city.

Comment 248: The discussion of cumulative and growth inducing impacts is inadequate in view of the proposed magnitude of the project. The extent to which proposed development will generate or eliminate housing units needs to be examined. (Michael A. Cornwell of Rapid Transit Advociates, Inc.)

Response: Please see the response to Comment 224 in Land Use as background to this response. An evaluation of the effect of the Project on the generation or elimination of housing units was included in the impact assessment.

The methodology for evaluating the cumulative impacts of housing generation and elimination resulting from current, proposed and projected development is summarized in Section 2.3.1 of Chapter 3 and described in detail in the Technical Report on Land Use and Development Impacts, which has been incorporated into the Final EIS/EIR by reference. The two housing projections developed by SCAG and used to represent growth for the No Project Alternative and for the Locally Preferred Alternative/Minimum Operable Segment both assume that the overall growth rate for the region would be the same. However, one would reflect a policy of dispersed growth throughout the Southern California region (No Project Alternative) and the second, a policy of concentrated growth within the Regional Core (Locally Preferred Alternative/Minimum Operable Segment).

The Metro Rail Project is expected to support the latter policy. It is not expected to attract new housing demand from outside of the region. As a transportation system, funded by federal, state and local transportation funds, it is expected to increase the viability of a more concentrated residential and commercial land use pattern, which for a variety of other planning reasons, is considered desirable. (See SCRTD Milestone 6 Land Use and Joint Development for a more detailed discussion.) In order to address the cumulative effects of

the project, it is assumed that the demand reflected in SCAG's "concentrated growth" policy will occur. The measure of land use impacts, then, is whether the potential demand could be accommodated within current development regulations and without generating secondary impacts. The social and community impact section also focuses on the secondary, cumulative impacts of housing demand and of displacement.

Comment 249: The proposed transit route would have little effect on improving public access to the district welfare offices in North Central Los Angeles. However, two district offices (Metro North and Echo Park), presently serving about 55,000 people, lie within six to ten blocks of the proposed route. (Michael Collins of the County of Los Angeles Department of Public Social Services)

Response: None of the Los Angeles Department of Social Services offices will be displaced by the construction of Metro Rail, thus direct impacts are indeed minimal. However, the population which is served by the two offices located within the station environs will benefit from improved accessibility via Metro Rail, as well as from the integration of bus interface with stations. This improved accessibility, especially for "special user groups", including those requiring the service of social service offices, is one of the most important effects arising from Metro Rail.

Comment 250: The purpose of the subway is not to relieve overcrowded streets and freeways as claimed, but to facilitate population growth and concentration for land speculation, for destruction of neighborhoods and historic buildings, and land developers. (Richard A. Stromme, Pete Hawes Family)

Response: Rail transit in itself does not "create" population; such population growth within the region will occur with or without a subway. What rail transit can promote is orderly, compact development in response to this population growth. In addition, the Metro Rail Project is consistent with the centers concepts, adopted by the city and by the county, which encourages efficient development and infrastructure patterns, thereby minimizing inefficient use of public services.

Comment 251: Community meetings and the EIS/EIR were oriented toward large and small landlords, but ignored renters. Since the community meetings did not include all citizen groups it is incorrect to say that the proposed Metro Rail route is "Locally Preferred." (Frank Fernandez of Community Development Coalition)

Response: The term "Locally Preferred Alternative" refers to the alignment which represents the preference of those who participated in the review process of the first tier Alternatives Analysis during 1977-80 and adopted by the SCRTD Board of Directors. Following this period a second tier of meetings was held. During the second tier review, all persons concerned or interested in the project were invited and encouraged to participate through notices published in newspapers of general circulation and through direct mailings to persons who had called into SCRTD. The Community Advisory Committees formed during the extensive 6-month Special Analyses for the Hollywood and North Hollywood segments had participating members who are renters.

Most of the stations have been located in commercial districts, not residential areas. The EIS/EIR, therefore, tends to concentrate on these areas and associated potential land use impacts. Moderate to large office space users are

the predominent existing tenants in most of the commercial areas concerned. For these tenants the prospect of Metro Rail will largely be a matter of expanded options and choices. Retail tenants, especially those that may be small and tied to a very local clientele, could be susceptible to some adverse effects and the EIS/EIR addressed these in Sections 2.4.8, 3.4 and 5.4 of Chapter 3.

Apartment renters are substantially protected from potential indirect impacts, such as increased land values and consequential increases in dwelling prices, by rent stabilization ordinances. The EIS/EIR proposes that consideration be given to similar ordinances for small commercial tenants. Relocation payments and benefits will be provided to renters as well as owner occupants (see response to Comment 230 of the Relocation Section).

For detailed information on the Community Participation Programs for the Metro Rail Project, refer to Chapter 5 of the Final EIS/EIR.

Comment 252: Metro Rail will only benefit a comparatively small group of profiteering merchants. (Wendell A. Holtan, Richard A. Stromme)

Response: Benefits to retailers are a small part of the overall benefits of the Metro Rail project. The net operating subsidy per passenger is projected to drop 21¢, automobile vehicle-miles-traveled is projected to be over a million less each day than it would be otherwise, and over two trillion BTUs annually in transportation energy would be saved. In addition, Metro Rail could help bring about a 27 percent increase in employment around station areas by the year 2000, generate an addition $8.6 million annually in revenue for local taxing jurisdictions, and help support increases in the Regional Core's housing supply.

Retailing, with the possible exception of the 7th and Flower and the Wilshire and Fairfax intersections, is a relatively weak sector along the Metro Rail line. A disproportionate number of merchants adjacent to Metro Rail stations are small businesses catering to limited income clienteles. As described in Section 5, Chapter 3 of the EIS/EIR, revitalization of these businesses has become a widespread public policy concern.

To help recapture any "windfalls" to large commercial property owners from Metro Rail, the state recently passed legislation enabling SCRTD to establish special benefit assessments, the proceeds of which would be used to defray taxpayers' costs for local Metro Rail facilities. City Council or Board of Supervisors concurrence would be required for each benefit assessment. (Refer to Chapter 3, Section 3.5.1 in the EIS/EIR for a discussion of special benefit assessments.)

Comment 253: Construction of the subway would have the effect of moving jobs away from the other 17 centers in Los Angeles to concentrate them in the downtown area. This would create a great burden on water, energy, and other scarce resources. (U.S. Representative Bobbi Fiedler)

Response: Metro Rail would directly serve 12 of the 16 growth centers in the Regional Core as defined in the City's Concept Plan. The system would encourage growth at all 12 centers, not just the downtown area. Section 2.3.3, "Impacts of Growth," in Chapter 3, states that the Locally Preferred Alternative may cause a shift in development from centers not on the route to those centers that are.

Comment 254: Schools and churches are noise-sensitive environments. They do exist along the proposed route of the Metro Rail Project. The impacts of an aerial system on nearby schools has not been addressed in the EIR/EIS. (Artis Slipsager, Judith McCalla)

Response: All local social services and public facilities, including schools and churches, which lie within a one half mile radius of each station were identified and plotted on maps included in the Social and Community Impact Technical Report. Under the Locally Preferred Alternative all subway alignment, no schools, churches or other noise sensitive facilities will be impacted. Under the aerial option the only facility which may be impacted is the St. Charles Borromeo Church on Lankershim Boulevard. (For a discussion of noise and vibration impacts and mitigation measures related to churches, see response to Comments 282 and 286 of the Noise Section.)

Comment 255: Population increases attributable to the Metro Rail Project could potentially cause overcrowding in schools near the Metro Rail route. At the same time, the Metro Rail Project could make facilities like the Los Angeles City College more accessible and thus have a favorable impact on enrollment. (Byron L. Kimball of Los Angeles Unified School District, W.W. Shannon of Los Angeles Community Colleges, Michael A. Cornwell of Rapid Transit Advocates, Inc.)

Response: According to SCAG, increases in population are forecasted to occur within the Regional Core with or without the Metro Rail Project. The project was conceived, in part, to deal with continuing population and employment growth by facilitating the mobility of the population and by allowing for the more efficient utilization of urban land and existing facilities. The relatively modest increment of population growth attributable directly to Metro Rail could turn out to have fewer children per household than is the case for the Regional Core as a whole. Many households attracted to the Regional Core by Metro Rail are likely to be employees responding to commuting needs, or attracted to new residential development. These households, generally higher income, have fewer children per household. For community school facilities, like the Los Angeles Community College, it is believed Metro Rail would improve accessibility, if not directly, through improved connections with bus service. (Further discussion of these issues can be found in Chapter 3, Section 5.3.2 of the EIS/EIR and in the Social and Community Impacts Technical Report.)

Comment 256: Riding the RTD is not a viable proposition for many handicapped and elderly people. Specifically what Metro Rail System arrangements will be made for people using wheelchairs, those with mobility impairments, the blind and the deaf? How will the senior citizens walk down to a subway? (Penelope Friedman, Helen Dean)

Response: The SCRTD Metro Rail System will be fully accessible for the elderly and the handicapped in accordance with present Federal and State requirements. All Metro Rail stations will have elevators and special fare gates for wheelchair access to station platforms. Priority seating for the elderly and wheelchair accommodations would be provided on passenger vehicles. Both audio and visual advisory systems are designed to warn patrons and the hearing impaired of approaching trains. Tactile safety strips are incorporated into the platform design to help those with vision impairments detect the platform edge. Station design also incorporates accessibility ramps at sidewalk curbs,

preferential parking for the handicapped at stations, and special directional signs.

SCRTD also recognizes that the accessibility of the bus system must be improved and is actively working on that objective. By May, 1985, over 1,800 of SCRTD's buses will have wheelchair lifts and, for the physically impaired, a "kneeling" feature that can lower the front steps of a bus. Already 147 of SCRTD's total line have at least some of these buses. Some very important lines for the Metro Rail System (such as the 217 on Fairfax) do not presently have this equipment; SCRTD will be seeking to remedy these concerns.

Comment 257: The need for considerable parking lots will necessitate the condemnation of single family housing for parking lots. The change of stable community units to high rise apartment buildings will further reduce the access of local citizens to City Hall regarding community matters. (Frank Neal of Neighborhood Association)

Response: The projected parking lots for Metro Rail are not going to displace single-family dwellings, although some multi-family dwellings will be taken. Population growth is anticipated for the Los Angeles Regions with or without the Metro Rail Project. Metro Rail will tend to concentrate growth in designated centers helping to preserve the existing single-family dwelling character of large portions of the region. The preservation of access to Los Angeles City government is also as much a function of an active and involved citizenry as of the scale of development.

Comment 258: What is a marginal business as referred to in the statement on page 5-9 of the Draft EIS/EIR, (low income renters and marginal businesses will be forced out.) (Barry Soloman, Beverly-Wilshier Homeowners Association)

Response: A marginal business is one which is operating on a minimum profit and any significant decline in business would not permit continued operation.

2.11 SAFETY AND SECURITY

Comment 259: What provisions for personal safety, especially that of women, have been made when entering, using, and exiting from Metro Rail facilities? Violence, disrepair, graffitti, police officers and police dogs on the New York subway lines are commonplace. What precautions are being taken, if any, to prevent this situation from happening to the Metro Rail? (Penelope Friedman, Bernard A. Teitel, A. Von Fleck, George S. Lowett, John T. McDonald of Los Angeles NAACP, William Chandler, Sandra King of Jewish Family Service of Los Angeles, Maureen Eisenberg, Mr. and Mrs. George McIntosh, Anonymous, Wendell A. Holtan, Dr. Harry Goldstein)

Response: SCRTD has ongoing contracts with both the Los Angeles Police and Fire Departments (in addition to its own transit police force) to study the special safety and security needs of Metro Rail. During the Preliminary Engineering process, extensive attention has been paid to making Metro Rail a safe and secure environment. In particular, the Milestone 7 Report is devoted entirely to safety and security issues.

The Metro Rail will be policed by the District's Transit Police officers who will be supplemented by the Los Angeles Police Department. Police officers, both in uniform and undercover, will be in the stations and on the trains. Closed circuit television will be established between the stations, trains, and central control. The stations will be designed with security in mind (such as open, unobstructed spaces) and will be well lighted to prevent crime.

No environment, public or private, can be made completely safe. A few of the oldest subway systems, such as New York's, have been very badly neglected for many decades and the cumulative results of this neglect are now painfully evident. Modern mass transit systems like Metro Rail have been designed, built, and operated as well-maintained, high secure systems. The safety and security record of modern fixed rail transit systems like MARTA in Atlanta, BART in San Francisco, and WMATA in Washington, D.C. has been excellent.

Comment 260: The EIR/EIR should more clearly evaluate the police and security requirements necessary to maintain a safer transportation system. (James Rosen for Councilman John Ferrano, John T. McDonald of Los Angeles NAACP, City of Los Angeles City Council, Barry M. Wade of City Los Angeles Police Department)

Response: While the EIS/EIR does not go into detail on security requirements, extensive work has been undertaken on measures being taken to protect patrons from crime. This work is described in Milestone 7 Report: Safety, Fire/Life Safety, Security and System Assurances, and Milestone 12 Report: System Plan. It should be noted that a Metro Rail Security Subcommittee, comprised of Los Angeles Police Department and SCRTD Transit Police, was established more than two years ago and has been evaluating Metro Rail security needs. This subcommittee is providing guidance to Metro Rail designers to help assure that security measures are addressed. Its recommendations will be submitted in a report for consideration by the SCRTD Board.

According to security professionals, between 165 and 175 additional security personnel of various categories will be needed in order to provide the very high quality of personal and property security that SCRTD believes is needed. SCRTD is commmitted to provide for an efficient and effective policing system when Metro Rail becomes operational. This policing system will include cooperative arrangements with all jurisdictional authorities.

Comment 261: Metro Rail facilities will generate additional crime, according to SCRTD's Technical Report on Crime Impacts. The Draft EIS/EIR does not adequately reflect this additional burden on local police and neighborhood. Metro Rail will encourage increases in population and development densities that will generate increased crime. Station facilities, particularly parking facilities, will result in increased criminal activity. What plans are being made to increase police protection. (Barry M. Wade of City of Los Angeles Police Department, Mitchell H. Levine)

Respones: Data assembled by the Security Peer Review Board (made up of transit security professionals from across the nation) clearly indicates that in each of the recently completed rapid transit systems in Washington, D.C., in Atlanta, and in the San Francisco Bay area, crime significantly decreased in the areas contiguous to rapid transit facilities. In at least one case, detailed long term data is available to show that this lowered crime level continues even in areas that were previously high crime areas.

With respect to higher population densities, it must be recognized that, with or without the project, high population and development densities already exist and that Los Angeles city plans and ordinances propose that established development patterns largely be allowed to continue and to be accommodated. A major factor in achieving reductions in crime around transit facilities are high levels of security personnel assignments (in some cases, "saturation" levels) at the outset of operations so that adverse social behavior patterns have no chance to get established. SCRTD will adopt and build upon these successful crime prevention strategies at Metro Rail facilities. Law enforcement in neighborhoods around the station will be the responsibility of the agency in whose jurisdiction the neighborhoods are located.

It is true that parking lots (and automobiles in general) are associated with a broad range of criminal activity. SCRTD seeks strongly to de-emphasize automobile use in its design and planning. Where SCRTD does provide parking, the facility will usually be supervised by SCRTD security personnel.

SCRTD is committed to deploying a transit police force, sufficiently staffed and trained to police our system on a day-to-day basis, and to cooperate in operational agreements with other jurisdictions to cover the full range of potential crimes and crime prevention objectives.

Comment 262: Security will be more efficient above ground than in subways. (Roy Wise Anderson, Gilbert Simmons, Anonymous)

Response: Crime activity has been effectively controlled on new rail transit systems by the better understanding of security problems and how to avoid them through design. Moreover, the factors inherent in better design are independent of the configurations (i.e., aerial or subway) a rail system may take. As a result, most of the security problems rail transit riders are likely to experience do not differ from security problems in other public places. (See also the response to Comment 259 of this section.)

2.12 AESTHETICS

Comment 263: A more encompassing characterization of the visual setting in the downtown station areas should be incorporated into the Final EIS/EIR. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

Response: Because of space limitations, the earlier description of the visual setting of the downtown stations had been abbreviated; nevertheless, expanded descriptions as requested by the CRA have been incorporated into the Final EIS/EIR.

Comment 264: The discussion of the Wilshire/Fairfax parking structure and bus terminal do not address the visual impact on the integrity of the streetscape nor on the museum and the park which are a major focus for the neighborhood and contribute to the quality of life in the neighborhood in a substantial way. The section on mitigation of these problems fails to adequately address either of these questions. (Dr. Alan T., Ruthann Lehrer of Los Angeles Conservancy)

Response: The location of the Wilshire/Fairfax Station has been moved westward behind the May Company Building. The shift from the site presented in the Draft EIS/EIR was prompted by adverse paleontological impacts, as well as considerable opposition by local community groups. As a result of the station relocation, the visual and land use impacts will be avoided and the paleontological impacts minimized.

Comment 265: The location of a multi-deck parking structure at Beverly and Fairfax would be a visual detriment to both pedestrians and automobile visitors to the area. (CBS, Inc. and A. F. Gilmore Company)

Response: The proposed parking garage is not expected to be visually detrimental to the area. The EIS/EIR recommends that the proposed structure at Fairfax/Beverly incorporate street level commercial uses to reinforce the commercial street facade and thereby contribute to an aesthetically pleasing experience for pedestrians and motorists. Design and finish materials will be compatible with the nearby structures. The scale of the parking facility will be consistent with the nearby CBS Television City complex.

Comment 266: The Draft EIS/EIR does not present a plan to mitigate the visual disruption caused by the Hollywood/Cahuenga Station's off-street alignment and building demolition. (Lois Staffen of Hollywood Arts Council)

Response: The existing buildings will be displaced and the continuity of the building facade will be interrupted. The off-street, location of the station limits further development of the site and thus reduces opportunities for mitigation of the visual impacts. However, wherever possible, new commercial, residential, or mixed use buildings should be designed to:

- complement or incorporate the station entrance and other Metro Rail facilities,
- reinforce the continuity of commercial street facade and street space definition, and
- restore visual scale and integrity.

The existing scale of the streetscape is predominantely 2-4 stories, so that new development should be consistent with this range. In addition, the station area will be landscaped to make the area visually attractive.

Comment 267: Inadequate attention has been focused on the visual impacts and visual environments in Hollywood. (Lois Staffen of Hollywood Council)

Response: Considerable work has been performed in studying and understanding the visual quality of the Hollywood community. It should be understood that the material in the EIS/EIR represents but a summary of the work performed. Further discussion and documentation is included in the Aesthetics Technical Report and in the Special Alternatives Analysis for Hollywood. It is true, however, that this document only addresses the surface visual landscape and does not discuss the station interiors. Station interiors and their facilities are of course essential to the overall aesthetic effect of the system and these components of the system are described in greater detail in Milestone 10: Fixed Facilities.

Comment 268: What efforts were made to survey community opinion on the visual impact of an aerial system? If such a survey was conducted, what were its results and why do they not appear in the EIS/EIR? (Michael Malak of Committee of 45)

Response: While no separate community opinion survey on the visual impacts of an aerial system were made, complete presentations were made to the Committee of 45 and the general public as part of the Hollywood-North Hollywood Special Alternatives Analysis. These presentations used graphics such as plan section views, renderings, and photo montages to represent and simulate the introduction of stations and aerial guideways into its visual setting. These presentations and media coverage generated a large volume of comment from committee members and the general public which is reflected in the Final EIS/EIR.

Comment 269: From a purely aesthetic point of view, an "aerial" train running through the Universal/North Hollywood communities will have a negative impact and drastically alter a long established way of life. The statements of the Technical Report on Aesthetics are slanted and misleading. Judgements about the community have been made by unknown individuals who have never visited the area. (Christina Farley of Committee of 45)

Response: The statements in the Technical Report on Aesthetics are based on field surveys of the community and on carefully defined impact measures in the EIS/EIR. These measures were presented to the public at the series of meetings held during the Special Alternatives Analysis for Hollywood and North Hollywood. The visual aesthetic quality of the community is described using six different components. The impact assessment was performed on each component only after considerable field survey and review of corridor photographs. Because each of the impact measures deals with only a narrow perspective of visual quality, the entire assessment must be reviewed to understand the overall impact of the Aerial Option. For example, a station may improve the streetscape of the immediately adjacent surroundings while at the same time obstruct significant views. The EIS/EIR does not attempt to weight one measure more heavily than another. It describes the anticipated impacts based on well-defined evaluation measures.

Comment 270: On page 3-103, paragraph 5, Lankershim Boulevard is characterized by mid- to high-rise office structures. This is inconsistent with paragraph 6 which states Lankershim Boulevard contains predominantly one- to three-story buildings. (William Gardiner Hutson)

Response: Paragraphs 5 and 6 deal with two distinct segments of Lankershim Boulevard. Paragraph 5 is describing the Universal City station environs, whereas paragraph 6 deals with the stretch of Lankershim Boulevard north of the Universal City Station environs and south of the North Hollywood station environs—the identified Aerial Corridor.

Comment 271: The Draft EIS/EIR states that approximately 11,900 feet of commercial frontage would be visually affected by the proximity of the elevated guideway. The Draft EIS/EIR further states that this proximity may not be entirely adverse, since such exposure may enhance local businesses by increasing their visibility. If this is the case, the entire project should be elevated, especially in business and commercial areas. (William Gardiner Hutson)

Response: A purpose of the EIS/EIR is to disclose both beneficial and adverse effects of a proposed alternative. It is true that most of the impacts associated with the Aerial Option are adverse; however, it must be acknowledged that some retail businesses may gain from increased exposure offered by an elevated rail system. It is not suggested that this be the overriding criterion in the design of the Metro Rail Project.

Comment 272: The Draft EIS/EIR states the elevated station and guideway will have no visual impact on street space appearance. This is hard to believe when the aerial structure is 40 to 60 feet above ground. (Christina Farley of Committee of 45)

Response: The impact measure of street space appearance deals with changes in building facades, heights, visual enclosure, and definition. The elevated station and guideway within the station complex will not affect this aspect of the visual setting. In contrast, the Aesthetics Technical Report does state that the parking facilities and bus terminals will adversely affect the street space at the station and that the elevated guideway will adversely affect the street space along the Aerial Corridor.

Comment 273: The Draft EIS/EIR states the elevated station, elevated guideway, and parking structure on the Lankershim Boulevard side relate in scale to the Universal City Buildings opposite. This is not true--the only structure the elevated system would be in scale with is the new Getty Oil Building, the single tallest structure in the San Fernando Valley. (Christina Farley of Committee of 45)

Response: At the Universal City Station, the impact measure of compatiblity of scale relates to the size and bulk of adjacent structures. The buildings within the immediate station area are mid- to high-rise, which does contrast greatly from the proposed elevated station. Outside of the station area, the elevated guideway will dominate buildings along the alignment, and this is reflected in the negative rating on page II-25 of the SCRTD Technical Report on Aesthetics.

Comment 274: The Draft EIS/EIR states the elevated station, elevated guideway, and parking structure will have no visual impact with respect to visual proximity. Furthermore, that an elevated train 40 to 60 feet above ground running down the narrow Lankershim Boulevard Corridor would supposedly have no visual impact. (Christina Farley of Committee of 45)

Response: At the Universal City Station, the elevated station is not sufficiently proximate to adjacent buildings to have a visual impact. However, the circumstances are much different along Lankershim Boulevard where visual privacy is seriously compromised. This is noted in the Technical Report on page II-26 of the SCRTD Technical Report on Aesthetics.

Comment 275: Figure 3-16 should be redrawn to conform with the actual width of Lankershim Boulevard. (Michael Malak of Committee of 45)

Response: In an effort to provide as comprehensive a projection of the visual aspects of an aerial system as possible three artists renderings were shown. These are Figures 3.14, 3.15 and 3.16. In addition, two sectional views to exact scale are also included in the aesthetics section. Several other visual graphics were prepared by project consultants in connection with the North Holywood and Hollywood Special Alternatives Analysis. These graphics are contained in the reports prepared upon completion of these studies.

Comment 276: Walls in public places tend to become covered with graffiti, but murals seem to deter graffiti. Metro Rail should give active consideration to incorporating murals into its facilities whenever possible. (Mark Marcus)

Response: Metro Rail station design is to pay particular attention tp avoiding spaces that encourage anti-social behavior, such as vandalism and graffiti and will use architectural materials that can be easily and quickly cleaned if they do become defaced. Realizing, as this commentor suggests, that impersonal and inhuman spaces tend to encourage antisocial behavior, SCRTD will be setting aside one half of one percent of a station's construction cost for art works at the station. Murals are likely to be a major category of art work that will be incorporated into Metro Rail station areas.

2.13 NOISE AND VIBRATION

Comment 277: The CNEL is an inappropriate measure for assessing very loud noises (such as airplanes) over short periods of time. Do not all such averaging tests fail to reflect the true level of noise discomfort from aircraft or other noise exposure? (Michael Malak of Committee of 45).

Response: The CNEL measurement accounts for the number and duration of all single noise events over an entire 24-hour period. It provides an indication of the subjective response of people to noise, especially during evening (7:00 p.m. - 10:00 p.m.) and late-night/early-morning (10:00 p.m. - 7:00 a.m.) hours, when human sensitivity is greatest. Several methods were used in order to get a comprehensive view of noise; not only for 24-hour periods, but also for smaller ("compressed") time frames. In particular, measurements were taken during four characteristic periods: daytime (10:00 a.m. - 2:00 p.m.), rush hour (4:00 p.m. - 6:00 p.m.), evening (7:00 p.m. - 10:00 p.m.), and nighttime (11:00 p.m. - 2:00 a.m.). Morning rush hour measurements were not taken because it is generally found that the noise level results are essentially the same as for evening rush hour. Measurements during these characteristic periods were based on a statistical analysis of the observed noise levels in decibels. These are levels exceeded 99%, 90%, 50%, 10%, and 1% of the time, designated L_{99}, L_{90}, L_{50}, L_{10}, and L_1, respectively. In addition, the "Energy Equivalent" level (Leq) was utilized. This measure is generally considered most accurate when measuring typical noise exposure, especially since it is more sensitive to high noise levels of short duration (such as automobiles, buses, trucks, airplanes, and trains). Finally, the most "concentrated" time frame is the instantaneous or momentary single event passby. This measure recognizes the highest predicted noise level in the shortest possible time. Such conditions were taken into account when noise impacts were assessed for rail transit operations.

Comment 278: For aerial operations, the impact of loud noises which occur infrequently are underemphasized and can be very annoying. This is especially true in quiet neighborhoods at nighttime, where transit trains may significantly exceed the median ambient noise level. (Walter F. Wilson of County of Los Angeles Department of Health Services)

Response: For the protection of the surrounding community, SCRTD has developed design criteria which establish maximum permissible noise levels. These criteria are presented in the EIS/EIR and in the Technical Report on Noise

and Vibration. The criteria conform to all applicable federal and state guidelines, county and city noise ordinances, and modern industry practice. In addition, such criteria consider ambient noise levels which normally exist with particular types of land uses. Typical ambient noise levels vary significantly from one land use to another. Thus, noise levels of a given magnitude can be more objectionable in a residential area than in a commercial area. Furthermore, even within residential land uses, medium to high density areas can tolerate more noise than low density (i.e., "quiet" neighborhood) areas. Since human sensitivity to noise is greater at night than during daytime because it is quieter at night, these design criteria are applied to nighttime rail transit operations where loud, infrequent noises are recognized and taken into account.

In the case of the aerial segment, adjacent land uses are primarily medium to high density residential mixed with commercial and office use, much of which is in close proximity to the Hollywood and Ventura Freeways. During nighttime hours (11:00 p.m. to 2:00 a.m.), some areas along the aerial portion have maximum ambient levels as high as 70 dB(A), which exceed the typical average ambient level by 20 dB(A). This is due to the high level of traffic which exists. With rail transit, design criteria are based upon the maximum level that will not cause significant intrusion or alteration of the pre-existing noise environment, and represent levels which are considered acceptable for the type of land use in each area. By using standard sound barrier walls, supplemented with special acoustical absorbing material on the interior face of the wall, over 95 percent of the locations along the aerial portion will successfully meet design criteria. These locations are identified in the EIS/EIR and in the Technical Report on Noise and Vibration.

For the remaining 5 percent of the locations, noise levels would not meet design criteria even after the application of the mitigation measures mentioned above. These locations are the medium to high density residential buildings located between engineering stations 828 +00 and 852 +00 and between 889 +50 and 903 +50 (see Figure 2-4 of the EIS/EIR).

Comment 279: The 10-minute short term noise measurements are not sufficient for quieter (i.e., less than 50 dB(A) ambient) areas. Twenty-minute checks are more appropriate. (Walter F. Wilson of County of Los Angeles Department of Health Services)

Response: Research conducted by SCRTD's noise and vibration consultant (Wilson, Ihrig and Associates) has shown that the noise in quieter communities can be characterized adequately by making 10-minute spot-check measurements during appropriate times of day. Such measurements have a high degree of statistical correlation with other measurement periods, including 20-minute intervals. In addition, these data were supplemented by complete 24-hour noise surveys at several representative locations. A detailed description of all measurement techniques are in SCRTD's Technical Report on Noise and Vibration.

Comment 280: Noise impacts would be of special concern if the Aerial Option were selected. Predicted noise levels for a single event passby are still at maximum acceptable noise standards. Since there will be regularly scheduled rail operations over a 20-hour period, this constitutes a more severe noise impact than just a single event passby. Noise levels could actually be greater than predicted. What sound reduction measures could be undertaken in residences and buildings if noise standards

are exceeded after construction? (Frank S. Lisella of Department of Health and Human Services - Center for Disease Control, David Stephan)

Response: Given the proposed mitigation measures, most of the predicted noise levels will actually be below the maximum allowable noise levels. At only 9 to 12 percent of all the locations (approximately 300) where single event passby predictions were made will such levels exceed maximum allowable standards. The single event passby is only one noise measurement technique of several which were employed in the noise and vibration study. Other measures such as the Day-Night Sound Level (Ldn) account for the number and duration of all single event passbys over a 24-hour period. In addition, it provides an indication of the subjective response of people to noise, especially during late night and early morning hours (10:00 p.m. - 7:00 a.m.). Analysis of the noise data shows that Ldn has less overall impact than single event passbys by 4 to 21 dB(A) with a median reduction of 12 dB(A). This is due to the fact that Ldn accounts for all the noise events throughout the day, both high and low, while single event passby noise accounts for worst-case conditions.

One of the bases upon which noise projections were made was the experience of other modern rail transit systems (e.g., TTC, WMATA, MARTA, and BART) after construction, utilizing the same mitigation measures as proposed and committed to in this Final EIS/EIR. These transit properties provided the testing ground upon which to validate the reliability of mitigation technology. In addition, measurements of these systems provide a well-founded empirical basis for evaluation and verification of theoretical noise levels projections. For the above mentioned reasons, the possibility that actual noise levels after construction will exceed those predicted is highly remote, thereby, effectively eliminating any substantive need for abatement measures inside residences and other buildings.

Comment 281: Noise and dust pollution from an aerial structure are a concern. (Pamela Malak)

Response: Over the past 10 years, considerable legislation--at the federal, state, and local levels--has been enacted to protect the public health and general well-being from excessive noise intrusion. Part of this involves the protection of vested interests such as property values within the community. Local governments recognize the potential negative impacts of noise (e.g., airplane flights) upon real estate values and have developed county and city noise ordinances which take this issue fully into account. Such ordinances ensure that noise would be properly controlled so that the community's amenities (which include a serene environment) would be preserved. In addition, the transit industry has established its own guidelines (developed by the American Public Transit Association (APTA)) for rail operations which are consistent with the above objectives. SCRTD has developed design criteria which conform to the above federal and APTA guidelines as well as local ordinances. These design criteria are geared toward achieving maximum compatibility between rail transit operations and adjacent land uses. To this end, maximum permissible noise levels have been established that would not cause substantive alteration of the existing noise environment.

There will be no appreciable dust produced by the operation of the Metro Rail Project's steel wheels on steel rail. An aerial system is set back from property lines so that a train's passage would not stir up any dust. There will, however,

be dust impacts during the construction of the system, and these are addressed in Section 13.7.1 of Chapter 3 in the EIS/EIR.

Comment 282: Schools and churches are noise-sensitive environments. They do exist along the proposed route of the Metro Rail Project. What are the impacts? Were comprehensive measurements taken? Why weren't they mentioned? (Artis Slipsager, Michael Malak of Committee of 45)

Response: The EIS/EIR presents a summary of the extensive noise analyses performed for the Metro Rail Project. Complete details are available in SCRTD's Technical Report on Noise and Vibration. Specifically, land uses along the entire Metro Rail alignment are identified in Table 1, pages 3-7, inclusive. Predicted noise levels, along with the maximum permissible levels and proposed mitigation measures, for subway operations are on Tables 8-12 (pages 86-135) and for aerial operations on Tables 13-14 (pages 146-159). The existing noise environment, along with the various measurement techniques used are discussed on pages 1-78.

In the case of subway operations, the use of all three proposed mitigation techniques (identified in the response to Comment 1 of this section) would still be insufficient for meeting noise standards at the Blessed Sacrament School and adjacent church. Additional measures such as minor shifts in horizontal and/or vertical alignment, crossover relocation, rail system structure modification, and non-standard floating slab design need to be considered. These techniques will be further examined during Final Design. In the case of aerial operations, the proposed measures would adequately mitigate impacts on schools and churches.

For example, ground-borne (subway) noise intrusion upon the St. Charles Borromeo Church could be reduced to less than 35 dB(A) by using floating slab trackbeds, and airborne (aerial) noise intrusion could be reduced to less than 75 dB(A) by using standard sound barrier walls. In both instances, noise would be reduced to a level well below maximum allowable levels.

Comment 283: The allowable noise level of 75 dB(A) for aerial operations would be unacceptable on playgrounds and in classrooms. It is mandatory that vibration levels be imperceptible. (Artis Slipsager)

Response: The noise level of 75 dB(A) is the maximum allowable for a single event at churches, schools, theaters, hospitals, and museums. With rail transit, long term noise exposure criteria are based upon the maximum level that would not cause significant intrusion or alteration of the pre-existing noise environment, and represent levels which are considered acceptable for the type of land use in each area. Schools and playgrounds have typical Ldn in the 55-65 dB(A) range.

As for vibration, trains operating on aerial structures would not produce vibration levels that could be felt by occupants or nearby buildings nor cause any structural damage.

Comment 284: Noise acceptability criteria for the community fail to take into consideration site specific issues relative to structures with particular sensitivities, such as motion picture and television scoring stages and recording studios, technical companies, such as electronic recording and reproduction facilities, motion picture film laboratories, and churches? (Michael Malak of Committee of 45)

Response: Acceptability criteria for both general land use categories as well as specific building types, which include sensitive structures, have been established in the noise and vibration analysis. Buildings such as concert halls, radio/TV studios; auditoriums and music rooms; as well as churches, theaters, hospitals, courtrooms, schools, and libraries have site-specific acceptability criteria to account for their special noise-sensitivity. For example, criteria for maximum airborne noise for churches, recording studios, and motion picture production facilities are 75 dB(A), 70 dB(A), and 70 dB(A), respectively. Similarly, criteria for maximum ground-borne noise for the same structures are 35 dB(A), 30 dB(A), and 25 dB(A), respectively. The entire set of criteria for sensitive structures is summarized in the Final EIS/EIR and detailed in the SCRTD Technical Report on Noise and Vibration.

Comment 285: At the proposed Hollywood Bowl Station, any increase in noise from the project would be disruptive to the musical performances. (James I. Okimoto of County of Los Angeles Department of Parks and Recreation)

Response: The Hollywood Bowl Station adopted by the SCRTD Board is underground, which means the nature of noise emanating from such operations would be "ground-borne." Studies conducted by SCRTD's noise and vibration consultant (Wilson, Ihrig, and Associates) show that ground-borne noise is perceptible inside a building only, not in an exterior environment. Since the Hollywood Bowl is an outdoor amphitheatre, musical performances are not expected to be disrupted.

Comment 286: The Draft EIS/EIR did not note any ground-borne noise impacts stemming from rail operations, except at one commercial building. Yet, noise and vibration from aerial operations would disrupt church services and adversely affect the Van Zolan organ at the St. Charles Borromeo Church. No mitigation measures are available to alleviate this. The sound barrier walls are incapable of effective noise reduction. What about structural damage to the church resulting from construction methods as well as rail operations? (Rev. Msgr. Francis Wallace, Elaine Bridger, Michael Malak of Committee of 45)

Response: Particular buildings are identified in the Draft EIS/EIR only if they present noise sensitivity problems which cannot be resolved by standard or special mitigation technology, and additional measures would be required in order to reduce the noise to acceptable standards. Such mitigation technology consists of resilient rail fasteners (standard), resiliently supported ties (special), and floating slab trackbeds (special). The specific method employed is described for each building or group of buildings along the entire alignment in SCRTD's Technical Report on Noise and Vibration. In the case of ground-borne noise along the San Fernando Valley segment, there is only a hotel, located between engineering stations 797 +50 and 800 +30 (see alignment plans in Figure 2.4), where the use of all three methods would still be insufficient for meeting noise standards. In such a case, additional measures could be employed such as minor shifts in horizontal and/or vertical alignment, rail system structure modification, and non-standard floating slab design.

In the case of the St. Charles Borromeo Church, ground-borne noise can be reduced to a level of 39 to 44 dB(A) with resilient rail fasteners. It can be further reduced to a range of 33 to 38 dB(A) with resiliently supported ties and to a level of 27 to 32 dB(A) with floating slab trackbeds. Since the maximum

allowable criteria for ground-borne noise is 35 dB(A) in a church, the use of floating slab trackbeds will successfully reduce noise to a level well within acceptability criteria, as explained in the EIS/EIR.

The Aerial Option has special mitigation measures which include standard sound barrier walls that reduce airborne noise by 9-10 dB(A). In addition, if special acoustical absorbing material is placed on the interior face of the wall, noise can be further reduced by 2-3 dB(A). If the Aerial Option were selected, sound barrier walls will be constructed for the entire length of the aerial segment. As a result, predicted noise levels will meet established maximum airborne noise design criteria both for short term and long term. For single event passbys, the predicted maximum airborne noise level would be 68-70 dB(A). Since the maximum allowable level is 75 dB(A) for a church, the predicted levels will be 5 to 7 dB(A) less than the maximum standard for exterior noise exposure. For long term exposure (measured using the Day-Night Sound Level, or Ldn), the predicted maximum airborne noise level would be 62-66 dB(A) at the maximum train speed of 70 miles per hour. Since the maximum allowable Ldn level is 65 dB(A) for a church, the predicted maximum level will be one dB(A) above the maximum criteria, a difference considered insignificant. Thus, the predicted Ldn levels will effectively meet the acceptability criteria established by the City of Los Angeles for long term airborne noise exposure.

According to a special study conducted by SCRTD's noise and vibration consultant (Wilson, Ihrig and Associates) on the St. Charles Borromeo Church, vibration from construction or rail operations of a subway will be well below the levels which would present any structural damage to the church. During construction, a Tunnel Boring Machine (TBM) will be used which causes considerably less vibration than traditional drilling/blasting techniques. In particular, the TBM will create vibration levels that are barely perceptible. Since the TBM moves at a relatively rapid pace (approximately 50 feet per day), any noticeable vibration would be only momentary. Furthermore, during construction, arrangements could be made with the contractor to ensure that the TBM will not be operated in close proximity to the church during a church service.

During rail operations, trains operating in subway will produce ground-borne vibration levels which would be only 1/3000th of the minimum level required to produce any structural damage. Trains operating on aerial structures will produce vibration levels so low that they will neither be felt by occupants of nearby buildings nor cause any structural damage.

It is important to note that acceptability criteria are based in large part upon the existing ambient exterior and interior conditions. In the case of churches, typical activities include speaking and the playing of musical instruments. Since organs, such as the Van Zolan type, are not unusual instruments for church services, they have been fully considered in the development of maximum noise level design criteria. Based upon projected levels, there will be no damage to this organ.

Comment 287: The noise impacts of aerial operations on the MCA Universal, Technicolor, and Getty Oil buildings; on St. Charles Borromeo Church; and on the downtown North Hollywood Redevelopment Project were not addressed in the Draft EIS/EIR. (Michael Malak of Committee of 45)

Response: As noted in the response to Comment 286 of this section, particular buildings are identified in the Draft EIS/EIR only if they present noise sensitivity problems which cannot be resolved by standard or special mitigation technology, and additional measures would be required in order to reduce the noise to acceptable standards. In the case of aerial operations in North Hollywood, there are no commercial buildings that will be negatively impacted when the recommended mitigation measures are employed. For example, noise intrusion from aerial operations upon the Technicolor Corporation building would be reduced to less than 75 dB(A) by using standard sound barrier walls. Since the maximum allowable airborne noise level is 85 dB(A) for a commercial building, such mitigation measures would successfully reduce noise to a level well within acceptability criteria. MCA Universal and Getty Oil would be even further away from the aerial alignment (greater than 200 feet). As a result, they too would be safe from negative noise impacts. This has been confirmed by Wilson, Ihrig and Associates, SCRTD's noise and vibration consultants. SCRTD has been working continually with the Community Redevelopment Agency to ensure that the Metro Rail Project and its associated impacts will not have any negative effects upon the North Hollywood Redevelopment Project. Concerns about noise impacts on St. Charles Borromeo Church are responded to in Comment 286 of this section.

Comment 288: What are the sound pressure levels at St. Charles Borromeo Church, Getty Oil Building, MCA Tower, Sheraton Universal Hotel (and in a similar hotel under construction), and in the North Hollywood redevelopment area. (Michael Malak of Committee of 45)

Response: Sound pressure levels are quantified and measured in decibels on the A-weighted scale (most closely correlated with human perception of noise). These are, in fact, the noise levels in dB(A) which constitute the central discussion of noise in the EIS/EIR. Noise measurements were taken at representative and strategic locations throughout the entire alignment during rush hours, daytime, evening, and nighttime to establish the ambient conditions. The specific, detailed information on such levels is contained in SCRTD's Technical Report on Noise and Vibration. Measurements of the existing ambient levels taken at the site of the MCA Universal Studios are characteristic of the noise not only at the MCA Tower, but also the Sheraton Universal Hotel (including the similar hotel under construction) and the Getty Oil Building as well. Noise measurements were also taken at representative locations covering the North Hollywood Redevelopment Area and the St. Charles Borromeo Church.

Comment 289: What is the sound absorption coefficient for stained glass relative to an aerial system? (Michael Malak of Committee of 45)

Response: The Sound Absorption Coefficients (SAC) for stained glass of the type found in churches is dependent upon frequency (in cycles per second, called Hertz) of noise from aerial operations. For example, at 125 Hertz (HZ), the SAC is 0.18; at 250 HZ, it is 0.06; at 500 HZ, it is 0.04; at 1,000 HZ, it is 0.03; and at 2,000 HZ, it is 0.02.

Comment 290: What is the reverberation time (RT) of sound in St. Charles Borromeo Church, the Getty Oil Building, the MCA Tower, the Sheraton Universal Hotel (and similar hotel now under construction), and in the North Hollywood redevelopment area? What is the reverberant field for the above? (Michael Malak of Committee of 45)

Response: Although an analysis of reverberation times and their associated reverberant fields is neither a legal nor a technical requirement for an EIS/EIR, such effects were already considered within the noise analysis. Reverberant sound is only a "tertiary" impact (secondary impacts would be increased traffic volume around stations), which is significantly outweighed by the primary impact of "direct" sound (which is the sound heard close to the original noise source of rail transit operations). Therefore, when direct noise (such as a single event passby) meets design critiera, so would reverberant noise. Since buildings and residences within which people live and work are normally acoustically designed and furnished to minimize such reverberation, this maximizes the protection from overall noise intrusion.

Comment 291: Vibrations from construction and rail operations of a subway through the mountains could cause significant structural problems. There is no mention of the distance between house foundations and the subway tunnel. (R. Jones, Roberta Ridenon, Daniel Bernstein)

Response: During construction, a Tunnel Boring Machine (TBM) would be used. This type of equipment causes considerably less vibration than traditional drilling/blasting techniques and would create vibration levels that are barely perceptible and well below damage thresholds. Since the TBM moves at a relatively rapid pace (approximately 50 feet per day), whatever vibration that exists would be only momentary. During rail operations, trains operating in subway would produce ground-borne vibration levels significantly below the minimum level required to produce any structural damage. The horizontal distance from the tunnel to the nearest building is detailed in SCRTD's Technical Report on Noise and Vibration (Tables 8-12, pages 86-135).

Comment 292: The EIS/EIR does not adequately consider noise in the hills nor contain detailed information on noise impacts? (Daniel Bernstein)

Response: Potential noise-impacted land uses along the entire Metro Rail alignment, including the hill area, are identified in SCRTD's Technical Report on Noise and Vibration (Table 1, pages 3-7). The specific predicted noise levels, along with the maximum permissible levels and proposed mitigation measures are summarized in the EIS/EIR and detailed in the Noise and Vibration Technical Report (Tables 8-12, pages 86-135 for subway operations; and Tables 13-14, pages 146-159 for aerial operations).

Comment 293: What are the indirect impacts of noise associated with subway stations in the quieter neighborhoods? Noise impacts on residential land uses resulting from station traffic are not examined. (Walter F. Wilson of County of Los Angeles Department of Health Services, U.S. Department of Housing and Urban Development)

Response: Indirect noise impacts from subway stations derive from changes in traffic volumes as a result of station activity, as discussed in Chapter 3, Section 8.3.6, of the EIS/EIR. The changes in traffic patterns around the proposed stations would consist primarily of an increase in bus traffic, as bus routes are modified to feed the rail system, as well as an increase in the local automobile traffic due to park and ride and kiss and ride trips. Although the traffic volume around subway stations would rise as much as 20 percent in certain locations, the resulting noise exposure increases would be negligible. This is because it

takes at least a 100 percent increase in traffic volume in order to cause a noticeable (i.e., 3 dB(A) or greater) increase in noise.

Comment 294: Use of sound barrier walls will destroy any aesthetics which the Aerial Option might have. (William Gardner Hutson)

Response: The use of sound barrier walls will not significantly reduce any visual aesthetics of an aerial structure. Nearly all of the noise generated by a train originates in the area beneath the rail cars. The main sources are the noise radiated by the wheel/rail vibration, the propulsion system, and other undercar components. Aerodynamic noise of the upper parts of a rail car body has only a minor effect on the overall noise generated. For these reasons, a sound barrier wall, approximately four feet above the top of the rail, is sufficient to shield the noise from beneath the car. Since the barrier would be low, visual impacts would be minimal. Figure 3-15 shows an artist's rendering of how an aerial structure would look with a low noise barrier wall.

Comment 295: Was a sound analysis report developed which analyzed the low frequency effects of various sound levels? (Michael Malak of Committee of 45)

Response: A mathematical curve of human response to noise as a function of frequency has been developed by acoustic scientists from several research studies. The findings have been documented in the International Standards Organization (ISO) document #2631, as well as the American National Standard Institute (ANSI) document #S3.29-198x. These studies evaluated both high and low frequency effects of various sound levels. Sensitivity to noise is relatively independent of frequency for the general frequency range of the noise generated by transit trains, or levels above 12 to 16 cycles-per-second.

Comment 296: How would noise from fan and vent shafts be handled? (R. Jones, Daniel Bernstein, Michael Malak of Committee of 45)

Response: Reduction of noise from fan and vent shafts can be achieved through sound absorption treatment applied to the wall and ceiling surfaces of the vent shafts and sound attenuators on the ventilation fans. In addition, noise from subway ventilation fan units would be limited by certified maximum sound power level requirements which would be included in the contract documents. These mitigation measures to be implemented by SCRTD would achieve noise levels which are comparable to or less than the existing typical ambient noise levels. As a result, the surrounding community would not be negatively impacted. The ventilation shaft locations are identified in the Final EIS/EIR and are generally located as follows: Wilshire vicinity of Mullen Avenue, Fairfax Avenue vicinity of 6th Street, Santa Monica Mountains at 1000' northwest of Passmore Drive and Woodrow Wilson Drive, and Lankershim Boulevard between Kling Street and Box Street. A map showing these locations is contained in the Milestone 12 Report: System Plan.

Comment 297: The use of rubber tires for vehicles, instead of steel wheels (if rubber tires will fit the track system), is recommended for consideration. With their use, noise and vibration will be greatly reduced. (Mariano Agbayani)

Response: Rubber-tired systems have several major shortcomings which make them unsuitable for the Metro Rail Project: a weight limit on pneumatic tires limits the weight, size and capacity of the cars; high heat generation requires additional tunnel and station ventilation capacity; energy consumption is higher

than a comparable steel-wheel/steel-rail system; a dual running and steering system with both rubber tires and steel wheels (the latter for switching and safety) is required; and fire hazard is greater. The use of the rubber-tired concept for high-capacity transit systems has declined in the last few years because of these problems.

SCRTD expects to purchase cars similar to those being procured by other U.S. rail transit systems. The District should be able to save money and gain in reliability by specifying standard designs and components and by combining orders with other transit properties.

It should be emphasized that steel-wheel/steel-rail technology has progressed significantly in recent decades. Together with sound maintenance procedures, modern track construction technology and methodology will result in a quiet rail system. See the EIS/EIR, Chapter 3, Section 8.3.2 and Section 8.4 for more information related to rail operations and specific measures to reduce this noise.

Comment 298: What are the costs of mitigating noise for an aerial system, especially with the use of Resilient Rail Fasteners, Resiliently Supported Ties, and Floating Slab Trackbeds? (Michael Malak of Committee of 45)

Response: The mitigation measures for the aerial system would include neither Resiliently Supported ties nor Floating Slab Trackbeds. This is because the noise reduction resulting from application of these techniques on the aerial structure would not be sufficient to justify the capital cost. However, Resilient Rail Fasteners (RRF) would be utilized and supplemented with sound barrier walls (SBW) to effect significant noise reductions of 9-10 dB(A) from aerial operations. As stated in the EIS/EIR, RRF constitute a "built-in" and proven mitigation measure that would automatically reduce noise and vibration levels by a significant degree, and satisfy noise abatement criteria in most cases without the need for additional mitigation. It is also stated in the EIS/EIR that if the Aerial Option were selected SBW would be constructed for the entire length of the aerial segment. As a result, SBW would also constitute a built-in mitigation measure. Since the cost of all built-in features are already considered within the total cost, there will be no additional expense due to the implementation of these techniques.

Comment 299: Is it not true that the sound level of 85 decibels was measured during a Wilson, Ihrig test at Grove Street in Oakland, California, a direct parallel to North Hollywood? (Michael Malak of Committee of 45)

Response: "Direct parallels" cannot be made with another transit property in another city unless rail operating conditions are comparable and affected land uses are similar. Typical ambient noise levels vary significantly from one land use to another, and can be more tolerable in a commercial area than in a residential area. Furthermore, even within residential land uses, medium to high density areas can tolerate more noise than low density neighborhoods.

In the case of the aerial segment in North Hollywood, land use is primarily medium to high density residential mixed with commercial and office use, much of which is in proximity to the Hollywood and Ventura Freeways. During rush hours, some areas along the aerial portion have maximum ambient levels as high as 80 dB(A). This is due to the high level of traffic which already exists even without rail transit. In no case along the aerial portion would the noise levels

reach as high as 85 dB(A) with rail operations. In fact, most aerial noise would be substantially below this level.

2.14 AIR QUALITY

Comment 300: What will the impact of Metro Rail and associated new development be on air quality? (Gary Wallace, Frank Neal of Neighborhood Association)

Response: Both the subregional and microscale air quality impacts of the project with the anticipated Year 2000 patronage are analyzed in the EIS/EIR, in Chapter 3, Section 9. This analysis includes the travel that will be associated with new development induced by Metro Rail.

The Metro Rail Project constitutes a air quality benefit for the region, but also creates some localized adverse air quality impacts. The project contributes incrementally to local CO concentrations at several intersections by increasing congestion and reducing the intersection's level of service. But since CO standards will be exceeded at these locations with or without the project, the project does not of itself create unhealthful air quality.

SCRTD has developed mitigation measures, which are listed in the EIS/EIR, to increase traffic flow and decrease air pollution at heavily impacted intersections. The anticipated benefits from these efforts are listed in Table 3-7. In addition to intersection modifications, SCRTD will offer improved bus feeder service to stations and station parking for bicycles and motorcycles. Parking cost benefits to carpoolers are also under consideration. These measures should further help to reduce any negative local air quality impacts of the Project.

Comment 301: How would the air quality and energy benefits of the Metro Rail Project be affected if parking lots are not provided at the stations? (Frank Hotchkiss of SCAG, Councilman Archie Snow)

Response: The benefits would decrease if parking lots are not provided. SCRTD has studied the projected effect on regional transportation energy use and air quality if Metro Rail station parking were eliminated, by using computerized models of mode choice and mode of arrival modeling. The results of this analysis have been incorporated in the EIS/EIR in Chapter 3, Section 9.3.4. This section discusses the modeling results quanitatively. In summary, if parking were eliminated, most Metro Rail Patrons using park and ride lots would drive their cars for the whole trip rather than take feeder lines, increasing regional air pollution.

Comment 302: The Final EIS/EIR needs to include a formal finding of whether the Metro Rail Project is in conformity with the adopted State Implementation Plan, prepared pursuant to the Clean Air Act. (Joseph Canny of U.S. Department of Transportation)

Response: The necessary language concerning consistency with the State Implementation Plan has been added to the Final EIS/EIR.

The South Coast Air Quality Management Plan (AQMP) constitutes the Clean Air Act State Implementation Plan (SIP) for the Southern California region. The

Plan (Section IX.7) specifies three criteria for assessing conformity with the AQMP:

1. Is the AQMP/SIP being implemented in the area where the project is proposed?

2. Is the project consistent with adopted regional growth forecasts?

3. Is the project part of any applicable regional transportation project lists?

Metro Rail meets all three criteria. It is in an area where the AQMP/SIP is being implemented, and the Southern California Association of Governments, in a letter dated July 14, 1983, reaffirmed Metro Rail's consistency with projected growth rates and its long-time presence on the Regional Transportation Plan Project List.

Comment 303: The exhaust fumes and noise from hundreds of buses idling at and roaring through Union Station each hour would abuse and harm the health of passengers. (Richard A. Stromme)

Response: It is estimated that a maximum of 10 or 12 buses would use the bus facility at Union Station at any one time and this would occur only during rush hours. This amount of activity is common to other transportation centers, such as at El Monte Station, and does not present unhealthful conditions. Additionally, the bus terminal is located on the other side of the tracks. The nearest edge of the terminal would be approximately 900 feet from Union Station.

Comment 304: The hydrocarbons from a 1,000 car parking lot serving Metro Rail located above ground is a concern. Any parking lot adjacent to a residential community should be underground. (Carrie Chassin)

Response: There would be no significant difference in the total hydrocarbons or other emissions from a parking garage above ground and an underground structure. Levels could build up even higher within an underground structure because its enclosed. Automobile operation in enclosed structures tend to inhibit air pollution reduction through dispression. The cost of an underground garage is almost twice the cost of an above-ground structure. Building underground would add several million dollars to the cost of each facility and make the cost prohibitive.

Comment 305: I would like to see all feeder buses fueled with non-polluting natural gas rather than choking diesel fuel. (Carrie Chassin)

Response: SCRTD and its predecessor agencies have actively experimented with alternative fuels for buses. For many years, SCRTD operated mini-bus equipment in downtown Los Angeles, first on CNG (compressed natural gas) and then on propane. This equipment, using converted gasoline engines was not durable enough for sustained urban transit service. For a variety of reasons, this equipment has had to be replaced with small size heavy duty diesel buses. Previous experiments with full sized steam powered buses concluded that certain technologies needed additional testing and development. Earlier experiments with full sized propane powered buses (using converted gasoline engines) had to be abandoned because of, among other things, serious safety questions.

There is no question that compressed gas fuels would reduce particulate emissions, but, since these fuels must be odorized for safety reasons, there would still be the smell of "fumes". Compressed gas propulsion fuel raises a host of safety, technology and cost questions that are beyond the scope of the EIS/EIR.

Comment 306: The microscale air quality analysis on Page 3-130 of the Draft EIS/EIR grossly under-estimates the air quality impacts on my neighborhood (the vicinity of Ridgeley Drive near Wilshire). (Carrie Chassin)

Response: The microscale air quality analysis on Page 3-130 of the Draft EIS/EIR summarizes a much more detailed discussion contained in the Metro Rail Air Quality Technical Report. Individuals concerned about the air quality impacts of autos accessing Metro Rail on particular specific locations near stations with parking lots will find these impacts mapped in detail in the Air Quality Technical Report. Technical Reports are available for public review at five locations, listed in the Draft EIS/EIR Addendum, including the SCRTD Library at 425 South Main Street, Los Angeles, California.

In the particular neighborhood mentioned in this comment, SCRTD has mapped projected carbon monoxide level increases due to Metro Rail auto parking at the Fairfax/Wilshire Station. The Ridgeley vicinity is not within an area where carbon monoxide levels will exceed the state one hour standard of 20 parts per million. Projected carbon monoxide levels in this area are shown in Table 3-38 of the Final EIS/EIR.

It should be noted that violations of the national ambient air quality standards for carbon monoxide for 8-hour exposures will continue throughout the next several decades with or without the project. Within the Metro Network Area, such violations are due to elevated background levels above the standard and are little affected by project development.

Although some local air quality impact will exist very near stations, the introduction of electrically powered mass transit is an air quality benefit to Los Angeles as compared to the alternative of greater automobile usage.

Comment 307: The EIS/EIR is inadequate in addressing the cumulative air impacts of all buses. Current SCRTD buses do not meet existing standards. Under the Clean Air Act, this is a non-attainment area. Unless RTD clean buses are used, this project can easily result in substantial increases in pollutants. (Carrie Chassin)

Response: The cumulative air quality impact of all SCRTD's buses is outside the scope of this EIS/EIR. However, the buses in the fleet meet the air quailty standards for new buses at the time of their procurement.

The Final EIS/EIR includes Table 3-38 which shows projected carbon monoxide levels (PPM) at potentially sensitive receptor sites in the year 2000. This table shows the local micro scale carbon monoxide impacts of both buses and autos in the vicinity of the Miracle Mile area.

2.15 ENERGY

Comment 308: Can Metro Rail have its own energy source, rather than rely on public utilities? What will happen to the system's operation in the event of a power blackout? (Mr. Zier)

Response: SCRTD has not considered building a separate generating plant because it is more economical to purchase power than to generate it. The total Metro Rail traction load amounts to a fraction of a percent of the Department of Water and Power generating capacity; still a small power plant of that size would be expensive to own and operate. (As an example, the traction power requirement is aproximately equal to the load for the ARCO Towers in Downtown Los Angeles or the General Motors plant in Panorama City.) In fact, several of the transit properties that owned generating plants have eliminated them and now purchase their power from public utility companies.

In the event of a blackout, the effect on the Metro Rail System would depend upon the extent of the blackout. Should the whole Los Angeles metropolitan area be blacked out, trains would stop running, but each station would have battery-powered lights to facilitate patron evacuation. In case of a blackout in a small area, the trains could continue to operate because each end of a third rail section is fed from a different substation; essentially, the third rail system is continuous. Each passenger station and each traction power substation will have two separate feeders from the serving utility.

Comment 309: The energy existing conditions section of the EIS/EIR should be rewritten to conform to the Department of Water and Power's April 1983 Load Forecast and the DWP's 1983-2003 Resource Plan dated April 1983. (Edward G. Gladbach of City of Los Angeles Department of Water and Power)

Response: The Final EIS/EIR's existing conditions for the energy section has been rewritten to reflect the Department of Water and Power's April 1983 Load Forecast and 1983-2003 Resource Plan dated April 1983.

Comment 310: The Department of Water and Power of the City of Los Angeles is the only power utility authorized to provide electric power within the city. (Edward G. Gladbach of City of Los Angeles Department of Water and Power)

Response: The Metro Rail Project is located entirely within the DWP service territory except for a small area around the Fairfax/Santa Monica intersection, which is served by Southern California Edison Company. SCRTD is presently evaluating alternatives for supplying the passenger station and traction power substation located in that area.

Comment 311: The actual expected electrical energy requirements of the Metro Project should be measured in the Final EIS/EIR using a watt-hour format. (Edward G. Gladbach of City of Los Angeles Department of Water and Power)

Response: It was necessary to use BTUs for energy analysis so that non-electrical (e.g., autos, buses, construction) energy could be directly compared with rapid transit energy. A footnote has been added to Section 10.3 "Energy Impact Assessment stating that a conversion factor of 10,000 BTU per kWh should be used to convert from BTU heat energy to kWh hours electric energy.

This conversion factor includes the energy losses associated with the generation and transmission of the electricity used by Metro Rail. Consequently, the electrical energy required for the Locally Preferred Alternative would be 120 million kWh annually. The peak electric power demand for the system will be about 65 mega-watts with 3.5 minute headways (projected conditions in the year 2000) and 88 mega-watts with a two-minute headways, approximately the ultimate capacity of the system.

Comment 312: The energy used to construct San Francisco's BART has been computed to exceed all that will be saved by full use of the BART system over its lifetime and it is likely to be the same in Los Angeles. (George Abrams, U.S. Representative Bobbi Fiedler)

Response: Metro Rail's construction energy estimate was developed by WESTEC Services, Inc. based on a process analysis method developed by DeLeuw, Cather Company. The resultant figure was checked by both SCRTD's engineering consultants and the Argonne National Laboratory, both of whom verified its reasonableness. The Metro Rail construction energy estimate per mile developed for the EIS/EIR is actually higher than the average of those cited by Kulash and Mudge (1976), who investigated construction energy estimates for mass transit for the Congressional Budget Office. Even if actual construction energy requirement prove to be triple what is estimated and operating energy savings (net after the originally estimated annualized Metro Rail energy use) and only half what is anticipated, the payback period for construction energy from operating energy savings would still occur well within a very conservative 50 year project life.

It should be borne in mind that while achieving energy savings equal or greater than the energy used to construct Metro Rail is important, about one-third of the energy consumed in construction (coal in material manufacture, hydro-electric power) is, in the long run, generally more abundant than the gasoline used to power cars.

See Section 3.10 of the EIS/EIR for a detailed, quantified analysis of construction and operating energy.

Comment 313: The Metro Rail vertical alignment should use a "dipped or gravity profile" design thereby realizing greater energy efficiency. (City of Los Angeles City Council)

Response: "Gravity Profiling" is a technique of designing the subway so that the track drops as it leaves the station to help the trains gain speed and rises as it enters the station to help the trains slow to a stop. This technique is no longer under consideration. Further information can be found in Chapter 3, Section 10.4.1 of the EIS/EIR.

2.16 WATER QUALITY AND FLOODING

Comment 314: Portions of the subway alignment and stations subject to flood hazard and surface flooding could disrupt the subway. (W.L. Smith of Los Angeles County Flood Control District, Richard Lagowski, William R. Shuenk, Anonymous)

Response: If surface flooding should enter the system, the water will be removed by sumps and pumping systems and discharged into the local storm drains. In addition, SCRTD section designers will work with engineers from the city and county, Flood Control, and Army Corps of Engineers to ensure that necessary permits are obtained and that design measures that will alleviate the potential for surface flooding are incorporated into the Metro Rail Project.

For further information, please refer to the Geology and Hydrology Technical Report and to the EIS/EIR Chapter 3, Section II.

Comment 315: Adequate precautions must be taken to control surface runoff during construction activities and prevent silt-laden water from entering storm drains. (Raymond M. Hertel of California Regional Water Quality Control Board)

Response: All normal engineering practices will be followed to control surface runoff during construction. Surface accumulations of wet and dry soils will be controlled during construction activities by requiring Metro Rail construction contractors to remove these sediments before large quantities are accumulated. Moreover, silt laden water will be prevented from entering the storm drains by removing the suspended solids in siltation basins and, where necessary, removing hydrocarbons in oil/water separators. A National Pollution Discharge Elimination System permit will be filed with the L.A. County Flood Control District during the Final Design and Construction phase of the project when necessary for these and associated dewatering activities.

For more information, please refer to the Geology and Hydrology Technical Report, and the EIS/EIR, Chapter 3, Section 13.

2.17 SEISMIC SAFETY

Comment 316: The Metro Rail will not be safe during earthquakes (U.S. Representative Bobbi Fiedler, Dr. and Mrs. Walter Monia, James J. O'Connor, Harley M. Oka, Sally James, Richard Lagowski, Pete Hawes Family, John T. McDonald of Los Angeles NAACP, Angelo Allio, Elaine Bridger, Mr. and Mrs. William G. Anderson, Alfred T. Lee, Bernard A. Teitel, Wendell A. Holtan, Ray Wise Anderson, Caroline Benzing, Margaret McFarland, Judith McCalla, Michael Malak, Mrs. Jonathan Winters, Roy Wise Anderson, Anonymous, William R. Shuenk)

Response: Rapid transit systems, both above and below ground, have been built and operated in other seismically active areas (San Francisco and Tokyo, for example).

SCRTD and its geotechnical-seismological consultants (Converse Consultants, Lindvall-Richter and Associates) have developed specific seismic design criteria for this project to enable it to withstand the maximum credible earthquake without loss of life. The maximum credible earthquake is a Richter magnitude 7.0 quake on the Malibu-Santa Monica fault, which would yield 0.7g horizontal and 1.05g vertical peak ground accelerations in the project area. The maximum credible earthquake is a measure of capability rather than probability.

The system design would also withstand the somewhat smaller maximum earthquake that will probably occur during the next 100 years without serious

structural damage. The maximum probable or maximum design earthquake is a Richter magnitude 8.0 quake on the San Andreas fault, which would cause 0.22g horizontal and 0.17g vertical peak ground accelerations along the project route. The San Andreas earthquake would have a lesser effect on the project than the Malibu-Santa Monica quake because the San Andreas fault is 30 miles from the project while the Malibu-Santa Monica fault crosses the Metro Rail alignment. Such design features will include, where appropriate, motion detectors that will shut off power to the trains during earthquakes, articulated subway tunnel liners with movement joints, automatic fire suppression equipment, and larger and deeper foundations using stronger materials and guideway sidewalls for the Aerial Option.

For detailed discussions on seismic hazards and the design criteria developed to mitigate the hazards, refer to Converse Consultants Geotechnical Investigation Report Volumes I and II and Seismological Investigation and Design Criteria and Lindvall-Richter's Structural Seismic Design Criteria - Metro Rail Project.

Comment 317: Why is the Hollywood Fault considered less hazardous then the Malibu-Santa Monica Fault when the vertical offset of the Hollywood Fault is 400 feet as compared to 160 feet for the Malibu-Santa Monica Fault? (Terry Roberts of California Office of Planning and Research)

Response: Geologic logs and geophysical surveys conducted by Converse Consultants (1981) indicate the Hollywood Fault's vertical offset ranges from 170 feet to 400 feet, whereas the Malibu-Santa Monica Fault has approximately 150 feet vertical offset. When other factors, such as the maximum credible Richter magnitude earthquake value is taken into consideration, it is the opinion of RTD's geotechnical and seismic consultants (Converse Consultants and Lindvall-Richter, respectively) that the Hollywood Fault is less hazardous than the Malibu-Santa Monica Fault. Neither fault is expected to move during the useful life of the Metro Rail Project.

Comment 318: The lessons of the Kern County earthquake of 1952—when a railroad tunnel across a fault line collapsed—make building the subway of great concern. (U.S. Representative Bobbi Fiedler)

Response: The Southern Pacific Railroad tunnels of Kern County were originally timber-lined and then relined with a reinforced concrete liner over the original timber liner. In Tunnel No. 3, the track buckled and the walls appearing to have lifted allowing the rails to slide under. The Tunnel No. 4 was extensively damaged with about 4 feet of vertical displacement. Tunnel length between portal No. 3 and No. 4 may have been shortened by up to 3.3 feet. Much of the shaking damage was due to the different responses of the walls and floors, since the walls were not attached to the floor.

In preparing the seismic design criteria, RTD's consultants, Converse Consultants and Lindvall-Richter, considered the lessons learned from the Kern County railroad tunnels, as well as other tunnels from around the world damaged by earthquake activities. For instance, a reinforced concrete liner will be installed in the tunnels in segments to make a ring as the Tunnel Boring Machine advances. The segments and rings are bolted together, then a concrete floor is poured in the cylindrical tunnel.

Comment 319: Recent Coalinga earthquakes are proof that earthquake predictions pertaining to location, intensity, and time are not yet possible. Mere tunneling could trigger an earthquake. (Elaine Bridger)

Response: There is no evidence found that tunneling activities could trigger an earthquake.

Lindvall-Richter and Converse Consultants have been retained by SCRTD to develop special earthquake protection criteria for the project that will provide a high level of assurance that public safety will be maintained during and after a Maximum Design Earthquake. The chances of exceeding such an earthquake during the 100 year facility life is 5 percent or less. See also the response to Comment 316.

Comment 320: No seismic refractions were taken north of Ventura Boulevard, despite a vastly different soil condition in the Valley. (Michael Malak of Committee of 45)

Response: SCRTD's geotechnical consultants, Converse Associates took fifty-two (52) seismic refractions, nine (9) of which were north of Ventura Boulevard, during the months of February and March of 1981. For detailed information on the Seismic Refraction Survey, please refer to the Geotechnical Investigation Report - Volume II, Appendix C, page II-670, a copy of which may be reviewed at SCRTD Headquarters, Metro Rail Department, 425 South Main Street, 6th Floor, Los Angeles, California.

Comment 321: Poor design of barrier walls for the aerial alignment would not reduce noise and would not be earthquake proof. (Michael Malak of Committee of 45)

Response: All structural work on the Metro Rail Project would be done in strict adherence to the District's own design criteria plus all applicable city and state design codes and standards. Barrier walls can be built to meet both safety, earthquake and noise reduction requirements.

Comment 322: The guideway sidewall design for the Aerial Option will not restrain a runaway train in case of seismic incidents. (Michael Malak of Committee of 45)

Response: The District has not made engineering designs of train restraint systems including barrier walls. Should the Aerial Option be implemented for the Valley portion of the Metro Rail alignment, comprehensive and detailed alternative studies for the design of aerial structures adequate to meet the contingency of a major earthquake would be performed. In any case, aerial structures and trains operating on them remain more susceptible to earthquake damage than do tunnels.

Comment 323: Soil in North Hollywood is unsuitable for aerial structures. These structures are also vulnerable to earthquakes. (Michael Malak of Committee of 45)

Response: The type of soil in North Hollywood could accommodate the construction of an aerial structure. While aerial structures have a somewhat higher vulnerability in an earthquake, proper structural design measures, which are required by structural design codes could provide an acceptable level of earthquake resistance.

Comment 324: Has a poll been conducted to determine how many people, if any would not ride in a subway because of the earthquake hazard? If so, what are the results? If not, why not? Why no further investigation? (Lionel Dichter, M.D.)

Response: No poll has been conducted to see if people would not ride in a subway due to the earthquake hazard. However, based on the community input received during the Alternatives Analysis, the Milestone Process, and the Draft EIS/EIR hearings, it appears the majority of Los Angelenos prefer a subway configuration despite the earthquake hazard. (See also response to Comment 316 of the Seismic section)

2.18 CONSTRUCTION

Comment 325: The "blasting" for trainway tunnels will cause problems with existing buildings. (Mr. Zier)

Response: Tunnels will be constructed using Tunnel Boring Machines. Tunnel construction using blasting techniques is expected to be limited; it has been ruled out for portions of the alignment through the Hollywood Hills because of the hard rock material. This can and has been used routinely without damage to existing structures. The EIS/EIR, Chapter 3, Section 13.9 discusses construction impacts of blasting. Additional material may be found in the SCRTD Noise and Vibration Technical Report.

Comment 326: Excavation and tunneling for the Metro Rail Project will destabilize adjacent building foundations. (William R. Shuenk, Mr. Zier)

Response: During Final Design, SCRTD will conduct a survey to pinpoint sensitive structures adjacent to tunneling and surface excavation activities that require special construction stabilization techniques. Such techniques will include where appropriate underpinnings; chemical grouting for sandy soils; and compaction grouting in sands, silts, and clays.

To the extent possible, surface excavations will be adjacent to undeveloped areas, small or relatively inexpensive structures adjacent to proposed excavations may be removed, and in some areas it may be feasible to construct temporary shoring systems.

For further information, refer to the EIS/EIR, Chapter 3, Section 13; Report of Construction Methods by Daniel, Mann, Johnson and Mendenhall/Parsons, Brinckerhoff, Quade and Douglas; and Milestone 10 Report: Fixed Facilities.

Comment 327: Construction impacts on the Title Guarantee Building are not addressed. The impacts of noise and vibration on the structural fabric of the existing building, as well as structural undermining, could be serious. (Ruthann Lehrer of Los Angeles Conservancy)

Response: Impacts due to construction and mitigation measures are discussed in Chapter 3, Section 13, of the EIS/EIR As Final Design continues, these measures will be refined. To prevent loss of ground during excavation which could undermine adjacent structures, sheeting systems and underpinning/protection are available. Protection of the Title Guarantee Building, in particular, will

be based on the Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.

Comment 328: The construction of subway tunnels, stations, entrances, and exits will devastate Wilshire Boulevard. What steps are being taken to minimize the adverse environmental impacts of the excavation, mountains of dirt, roaring motor equipment, etc.? (Mr. and Mrs. Weldon Spears, Frank and Anna Drewe, Mr. and Mrs. George McIntoch)

Response: The EIS/EIR in Section 3.13 of Chapter 3 deals with a number of possible impacts during the construction of the project. A primary means of ensuring that these impacts are minimized is through the contract specification documents that will govern the work performed by designers, construction contractors, and vehicle suppliers for SCRTD. Similarly, the transportation departments of both the city and county will have formulated very specific traffic control measures to minimize traffic circulation problems. Estimates of the volume of soil material to be excavated and methods for its disposal are presented in a special report prepared for SCRTD, entitled Disposal of Tunnel and Station Excavation Material (Sedway/Cooke, 1983). The report recommends routes for the dump trucks that minimize impacts to sensitive land uses such as residential and noise sensitive areas.

Disruption to Wilshire Boulevard will be mitigated by utilizing Tunnel Boring Machines (TBMs). Only stations and their entrances/exits, vent shafts, pocket tracks, and crossover tracks will be excavated. Station excavations will be about 700 feet long. The cut and cover construction technique to be used involves opening the ground surface to an adequate depth to permit excavation support, and then covering the surface opening with temporary decking so traffic and pedestrian movement can continue while excavation and construction proceed.

Comment 329: The document should identify construction impacts such as traffic disruption, traffic delay, and noise. (A.J. Gallardo of U.S. Department of Transportation-Federal Highway Administration)

Response: Chapter 3, Section 13 on construction impacts deals with the impacts mentioned above. Traffic disruption and delay are mentioned in Section 13.2. Construction noise is discussed in Section 13.6.

Comment 330: The Draft EIS/EIR indicates about 6.55 million cubic yards of soil material will be excavated and placed in landfills. Much of the material to be excavated (560,000 cubic yards) is from tar sands and will require disposal at Class I or II landfills. Are such landfills readily available near the project, and have they been approved by the State regulatory authority? The Final EIS/EIR should provide the specific landfill locations and state whether or not these sites are approved by the State regulatory authority. (Frank S. Lisella of Department of Health and Human Services - Center for Disease Control, Ellison Bloodgood of United Voters League)

Response: In a report entitled Disposal of Tunnel and Station Excavation Material (April 1983), Sedway/Cooke examined this question for SCRTD. In consultation with the California State Solid Waste Management Board, the County Regional Planning Department, the County Sanitation Districts, the County Department of Engineering, and the County Department of Health,

Sedway/Cooke mapped and described the major existing state approved landfills within a twenty-mile radius of the project area. Landfills potentially available for use during construction of Metro Rail were then screened on the basis of their available capacity and ability to accept the waste types generated during construction. After an analysis of potential fill rates, it was concluded that the available capacity of the eligible landfills sites (including Class I and II facilities) will be many times greater than the disposal requirements resulting from project construction. The report also lists and explains applicable federal, state, and local regulations with which SCRTD will comply.

Comment 331: How will subsurface water be disposed of? (Ellison Bloodgood of United Voters League)

Response: Subsurface water or groundwater intrusion will be controlled by localized dewatering, and disposal will be to local storm drains or flood control channels in accordance with the federal discharge permit and all local or state requirements. For further discussion, refer to the EIS/EIR, Chapter 3, Section 13.9.5.

Comment 332: Rock composition in the area is not strong or stable enough to be conducive to a safe subway. (William Chandler, Pete Hawes Family, Interested Citizens for the Welfare of the Public)

Response: The results of the Geotechnical Investigation by Converse Consultants indicate the underlying rocks of the area are strong enough to support a subway. Furthermore, the seismic design criteria developed by Lindvall-Richter for the Metro Rail Project will mitigate potentially unstable rock conditions caused by seismic activity.

For detailed discussions on rock composition, refer to Converse Consultants, Geotechnical Investigation Report, Volumes I and II (available at SCRTD offices) and Seismological Investigation and Design Criteria.

Comment 333: The area starting at Third Street and Vermont Avenue, going in a southerly and south-westerly direction, was a slough up until 1920. This undoubtedly accounts for the cracked, uneven, and out of alignment sidewalks, as well as ongoing subsidence which has been repaired by new paving in some cases, such as in the immediate area between Vermont and Normandie Avenues and a little south of Third Street. (William R. Shuenk)

Response: Station construction and tunnel boring will utilize the same modern engineering techniques which allow high rise buildings to be built in Los Angeles without settling. Details of station construction, tunnel boring techniques, and proposed mitigation measures to ensure the safety of adjacent structures are outlined in Chapter 3, Section 11.4 of the EIS/EIR. The techniques utilized (including temporary shoring of adjacent structures and more elaborate systems such as concrete piers or pile underpinning and chemical grouting where appropriate) will ensure against subsidence even in areas where the existing surface soil is fill.

Comment 334: High underground water table will be a problem. (Gloria Starks)

Response: The need to locate tunnels in areas with a high water table has been encountered in the construction of most underground transit systems. Sealed

tunnel-liners will be used in the construction of the Metro Rail system to minimize water infiltration. Any water entering the tunnel will be removed by sumps and a pumping system. Also see responses to Comments 314 through 315 of the Water Quality and Flooding section.

Comment 335: How will a fresh air supply be maintained during high levels of smog? (Ellison Bloodgood of United Voters League)

Response: All tunnels and stations will have ventilation systems that will maintain air circulation and provide fresh air.

Comment 336: The Draft EIS/EIR mentions that soldier piles will be placed by either driving or by vibrating hammers and the noise from this activity would be controlled by the construction contractor. The Final EIS/EIR should discuss the issue of other construction activities in residential areas during sleeping hours. (Frank S. Lisella of Department of Health and Human Services-Center for Disease Control)

Response: There are several other construction activities which would cause a slight increase in the ambient noise level. Besides the cut and cover excavations in the station areas, there will also be utility relocations, building demolition, park and ride lot construction, etc. A prime consideration in the scheduling of these activities and the selection of construction methods and techniques would be to minimize impacts on residential areas. Section 13.3.3 of the Final EIS/EIR has been modified to mention control of noise from other construction techniques in residential areas during nighttime hours. A Technical Report on Noise and Vibration was prepared specifically for the project and shall be used as a guideline for reducing construction noise levels.

Comment 337: The Wilshire Corridor would be the first subway line ever built in the country in a hydrocarbon intensive environment. The potential impacts on engineering and construction costs and on safety are not adequately addressed. There is no safe technology for drilling through oil and gas fields. What happens if a gas pocket is breached or a former well shaft is struck or if tar from the pits breaks into the excavation? (U.S. Representative Bobbi Fiedler, Mr. and Mrs. George McIntosh, Robert W. Houston, Mr. and Mrs. William G. Anderson, William R. Shuenk, David Lippert of Miracle Mile Residents Association)

Response: The potential for hydrocarbon buildup has been examined in the Geotechnical Investigation Report by Converse Consultants (1981). The report indicates that the alignment will pass over six major oil fields and that over 50 percent of the alignment has been classified as gassy or potentially gassy groups. Such subsurface conditions can slow excavation activities, require special lining provisions in some sections, and mandate adequate collection and ventilation systems for the finished project. Because of potential safety problems, an extensive soil boring program and analysis of tar and sand samples is planned. As outlined in Chapter 3, Section 13.9.5 of the EIS/EIR, mitigation measures have been carefully programmed to deal with construction problems associated with tar sands and safety problems associated with tunneling in gassy ground. These measures are designed to anticipate problems before they occur and, thus, avoid the collapse of tar sands or explosive buildup of gases. Cost estimates include contingencies for construction in tar sands and gassy groups.

Comment 338: How can the Metro Rail system be constructed in the area of the Tar Pits? Soils in the Wilshire/Fairfax Station area make it difficult to construct the

station. (Roy Wise Anderson, Elaine Bridger, David Lippert of Miracle Mile Residential Association, U.S. Representative Bobbie Fiedler, Mr. and Mrs. George McIntosh, Robert W. Houston, Mr. and Mrs. William G. Anderson, William R. Shuenk)

Response: The District has moved the Wilshire/Fairfax Station location from Wilshire Boulevard at Stanley Avenue to behind the May Company on the northeast corner of Wilshire Boulevard and Fairfax Avenue. This does not completely avoid potential impacts on fossils but, according to the scientific staff of the Page Museum, it greatly reduces the chances for encountering fossil deposits. Construction techniques used to build high-rise buildings in the Tar Pit area would be similar to those used for cut an cover construction for Metro Rail. Tunnels would be bored using the same techniques as elsewhere in the adjacent soft ground, with some adjustments for the tar/sand mixture. The potential for hydrocarbon buildup has been examined in Geotechnical Investigation Report (Converse Consultants, 1981). As outlined in Chapter 3, Section 13.9.5 of the EIS/EIR mitigation measures have been carefully programmed to deal with tar sands and tunneling in gassy ground. These measures are designed to anticipate problems such as collapse of tar sands or explosive buildup of gases before they occur. See the response to Comment 337 of this section for a fuller description of construction along the Wilshire Corridor.

Comment 339: What assurance do property owners have from RTD that the drilling for the Metro Rail will not affect slant drilling oil wells, which could result in fire or houses to sink? If this does happen, will RTD reimburse property owners? (L. Balkind of Wilshire Homeowners)

Response: Because of the shallow depth of the subway tunnels and stations, the likelihood of encountering slant drilled oil wells is virtually nonexistent. Furthermore, all precautions necessary would be taken to avoid oil wells during the tunneling of the subway and the excavations of the stations. Should a fire develop or a house sink as a result of the construction of the Metro Rail Project, SCRTD and its contractors would be responsible and would take appropriate action.

Comment 340: The EIS/EIR does not sufficiently address the project's impacts on the city's highway system nor on the public utility system in the vicinity of the stations. Metro Rail construction will create a substantial amount of construction-related travel including heavy trucks. The Draft EIS/EIR does not discuss how this construction traffic will be controlled nor does it include roadway damages as a project cost. A plan mitigating construction traffic, impacts, and costs should be included in the EIS/EIR. Mitigation measures should be proposed that would alleviate the problem of increased street maintenance, and the adverse impact on substructures such as sewers and storm drains. Funding sources for these mitigation measures should also be discussed. (K.W. Rashoff of City of Los Angeles Department of Public Works, James D. Ortner of Automobile Club of Southern California)

Response: Construction impacts have been described in the EIS/EIR along with mitigation measures. The traffic control plans to be developed before the start of construction will address construction-related travel. Roadways or utilities that are damaged by construction vehicles will be repaired as part of the Metro Rail Project and their costs are included in the cost estimates presented in the EIS/EIR. Metro Rail is not expected to cause sewers and storm drains to exceed their capacity; however, specific improvements can be identified during the Final Design Phase of the project if warranted.

Comment 341: All three proposed alignments through the Santa Monica Mountains will cross under Metropolitan Water District's Santa Monica Feeder. In addition, the Hollywood Tunnel alignment crosses the Locally Preferred Alternative near the location of the traction power substation and vent structure in the Santa Monica Mountains. (Donald C. Brooks of the Metropolitan Water District of Southern California)

Response: System planners are aware of the location of the Hollywood Tunnel and feeder. The lines of the Metropolitan Water District are sufficiently distant from the project alignment so that no impacts are expected.

Comment 342: The proposed Metro Rail eastward extension will impact the Department of Water and Power's 230-kV transmission line, St. John to River Junction and Velasco to St. John; other locations may also be affected. The DWP must be consulted regarding project impacts. (Edward G. Gladbach of City of Los Angeles Department of Water and Power)

Response: Figure 2-4-1 which shows an eastward extension of Metro Rail is deleted from the project and is not shown in the Final EIS/EIR. If the construction on the eastward extension is undertaken, SCRTD and its section designer will coordinate with the Department of Water and Power to ensure adequate protection of its facilities. The same is true at any other location where utilities might be affected. A master agreement between SCRTD and the Los Angeles Department of Water and Power has been prepared to work toward a resolution of this and other issues. There is also a similar agreement with the Metropolitan Water District. See Section 13.5 of Chapter 3 for a discussion of general planning procedures for utility systems.

Comment 343: Construction of the proposed Metro Rail Station on Fairfax Avenue at Santa Monica Boulevard will impact Department of Water and Power's Nichols Canyon to Hollywood Underground Transmission Line. (Edward G. Gladbach of the City of Los Angeles Department of Water and Power)

Response: The Nichols Canyon to Hollywood Underground Transmission Line is located in the Orange Grove Avenue right of way and is sufficiently distant from the limits of construction for the Fairfax/Santa Monica Station to not be impacted.

Comment 344: How will the system affect underground utilities and what mitigation measures will alleviate the problems? Who will be responsible for damage to utility lines and pipelines? (Edward G. Gladbach of the City of Los Angeles Department of Water and Power, Harley M. Oka, Mr. and Mrs. George McIntosh, Ellison Bloodgood of United Voters League)

Response: Section 13.5 of Chapter 3 discusses the impacts of construction on utilities at construction sites. There are no long term adverse impacts expected, although there may be some interruption of service especially around cut and fill sites. Utility lines and pipelines near or within construction right of way will be supported or rerouted (either temporarily or permanently). Should damage occur during construction, SCRTD and its contractors will be responsible and will make the necessary repairs.

Comment 345: Will construction of the project preclude future widening of existing roadways or bridges or prevent other operational improvements from being made at station entrances or exits? (A.J. Gallardo of U.S. Department of Transportation Federal Highway Administration)

Response: To provide for future street widening and for other reasons, all station entrances have been set back inside property lines. Requests by the City of Los Angeles or other appropriate agencies to provide specific setbacks for future planned street widening have been accommodated. Construction of the Metro Rail Project will not preclude future widening of existing roadways and bridges.

Comment 346: Construction impacts on existing State Highway and freeway facilities should be discussed. (Susan Brown of California Department of Transportation)

Response: The cut and cover construction of the Fairfax/Santa Monica Station would affect circulation on one State Highway, Route 2-Santa Monica Boulevard. Disruption would be mitigated at this and all cut and cover locations through use of phased construction, integrated panel decking over street openings to allow traffic crossing, and traffic control measures. No State freeway will be impacted by actual construction, nor will any lane or ramp closures occur.

Comment 347: It is likely that the RTD #204 line will be rerouted during construction of the Wilshire/Vermont Station. If this is the case, it must be publicized to avoid inconveniencing the student population. The Los Angeles Community College Office of Communication Services at the District Office and the Dean of Student Services at Los Angeles City College should both be informed. (W. W. Shannon of Los Angeles Community Colleges)

Response: Route #204 on Vermont has historically been second only to the Wilshire Corridor in RTD patronage. Over 40,000 rides are made on this line daily. It is unlikely that it will be rerouted, either for Metro Rail station construction or any other reason. In the improbable event that the line were rerouted, a route change would occur only in the area immediately adjacent to any construction work and after the public, including the two identified offices, had been fully informed.

Comment 348: A bus service plan for the Wilshire Corridor during Metro Rail construction should be included in the EIS/EIR given the 177,000 weekday boardings that occur in the Corridor and the reduction in street capacity. (James D. Ortner of Automobile Club of Southern California)

Response: The Wilshire Corridor includes Wilshire Boulevard and other major parallel streets which are served by District bus routes. It should be noted that the 177,000 weekday boardings that occur within the Corridor includes patronage that is generated along parallel roadways, as well as Wilshire Boulevard. At any single location where surface construction would be employed, total boardings impacted would be considerably less.

Several factors will assist in mitigating disruption to vehicular and pedestrian traffic flow during Metro Rail construction. First, Metro Rail will be constructed with cut and cover and tunnel boring techniques. Tunnel boring does

not cause any surface disruption while the cut and cover method involves incremental excavation at a site causing only short term localized disruption. Second, cut and cover will be limited to only a few sites within the Wilshire Corridor at any one time. Third, as in any sizeable construction project, some bus and auto traffic may have to be temporarily detoured. However, this is essentially a routine matter which can be successfully dealt with by the District and the City Traffic Engineers on an on-going basis. Finally, as indicated in Milestone 12, traffic control plans and material haul routes developed by contractors involved with Metro Rail construction will keep congestion at acceptable levels. Their plans must meet appropriate code requirements and must be approved by the city. These factors ensure that traffic control problems associated with Metro Rail construction will not exceed acceptable limits. A more detailed bus service plan is not necessary at this time, but will be developed prior to rail service start-up.

Comment 349: What plans are being made to alleviate the automobile congestion during the construction of the subway? Is Fairfax Avenue going to become a one-lane street? How long will traffic flow be negatively affected? ()Daniel Bernstein)

Response: Fairfax Avenue will temporarily become a single-lane street in both directions while decking is being installed. Once decking is installed, traffic flow will resume. Moreover, only the Fairfax/Santa Monica Station area will be affected as the Fairfax/Beverly Station will be built off-street on the CBS property. Traffic flow around stations will be affected for about two years, approximately the time it takes to construct a station. Traffic management plans will be developed for all areas where cut and cover construction will occur. These areas are generally limited to where stations will be built. For further details, see the discussion in Section 13 of Chapter 3 in the EIS/EIR.

Comment 350: Safety hazards for student pedestrians going to and from school would be posed by street closures during aerial construction. Bus transportation may need to be provided and/or special crossing guards hired to ensure their safe passage. (Artis Slipsager)

Response: With all Project alternatives, street closures would be kept to a minimum. A traffic maintenance plan will be developed during the design stage. This plan will include safety provisions for both vehicular and pedestrian traffic. It should be noted that the SCRTD Board of Directors does not consider the Aerial Option to be a viable alternative. Construction of a subway segment in the San Fernando Valley would result in fewer street closures than construction of an elevated structure.

Comment 351: All possible mitigation measures should be undertaken to reduce dust, noise, vibration, and circulation impacts on schools during the construction and operation of the Metro Rail. (Byron L. Kimball of Los Angeles Unified School District)

Response: All possible mitigation measures will be undertaken to ensure that noise, dust, vibration, and circulation impacts are minimized. These include, using tunnel boring machines instead of blasting for excavation; using welding instead of riveting; mixing concrete off-site instead of on-site; watering and sweeping streets to prevent fugitive dust; using electric instead of diesel-powered equipment; using hydraulic tools instead of pneumatic impact tools; implementing traffic control procedures during working hours; and many other

measures. For a detailed discussion on construction impacts mitigation, refer to the EIS/EIR, Chapter 3, Section 13.

Comment 352: What impact will the system's construction have on the Beverly/ Fairfax businesses and elderly? The following should be given consideration by SCRTD during the construction period:

1. If bus routes are changed, new bus stops must be designated which are accessible to the seniors, as many cannot walk long distances and are dependent upon bus transportation.

2. Physical barriers will limit the mobility of this elderly population. Broken-up or narrowed sidewalks, large machinery, and diverted traffic should be kept to a minimum whenever possible.

3. In the event that elderly shoppers cannot reach necessary stores, alternatives should be available. This may involve temporary transportation to other shopping areas.

4. Many seniors have lived in their apartments for long periods of time and are paying rent which is less than than being charged in newer buildings. If they are displaced from their apartments, subsidies may be necessary in particular cases.

5. The Senior Services Building, sponsored by Jewish Family Service of Los Angeles, which is located just north of the corner of Beverly and Fairfax is a central meeting and service location for the elderly in the area. In this facility, seniors receive health care, counseling, help with Social Security and other Government programs, and a variety of other social services. Many groups meet every day for activities, discussions and socialization. It is very important that this facility and the street and sidewalks in front of it, remain accessible at all times.

(Eugene Holt of Beverly-Fairfax Chamber of Commerce, Sandra King of Jewish Family Service of Los Angeles)

Response: The Beverely/Fairfax Station and crossover tracks will be constructed in an off-street alignment; therefore, street decking will not be necessary in this neighborhood. The off-street location should also minimize traffic disruption during construction. Contractors will be required to maintain continuous unencumbered access to property entrances, and SCRTD will seek to ensure that all commercial establishments are accessible to the handicapped during the construction period. SCRTD will also work closely with business owners during construction to minimize disruption impacts and special public relations programs will be enacted to inform the public that businesses are open and accessible to encourage continued patronage. In direct response to the items raised by the commentor, the following points are made.

1. SCRTD currently operates two local lines within a quarter mile radius of the proposed Fairfax/Beverly Station and no changes to these routes are proposed. Bus accessibility to seniors may be improved when Metro Rail begins construction since a local circulator bus route may be established in the Park La Brea area that would provide direct access to both the Wilshire/La Brea and Fairfax/Beverly Stations for residents of the Park La

Brea Towers. As in the planning of all bus routes, every effort will be made to ensure that bus stops are convenient and accessible to all, but especially to seniors and other transit-dependent user groups.

2, 3, 5. During the construction of Metro Rail, SCRTD will seek to ensure that pedestrian and traffic flow are maintained within the practical needs of the construction contractor. SCRTD recognizes the special needs of the population in the Fairfax/Beverly Station environs and every effort will be made to accomodate these special needs. Accessibility to shops along Fairfax and the Fairfax Senior Services Building is not expected to be diminished. SCRTD, however, will closely monitor activities during construction and will work closely with business owners and the community to minimize disruption impacts.

4. No direct residential displacements will occur at the Fairfax/Beverly Station. While SCRTD acknowledges that indirect displacements may occur, relocation assistance can only be provided for residents and businesses directly displaced due to the acquisition of property to be utilized for Metro Rail. To facilitate the minimization and mitigation of indirect displacements, SCRTD is assisting the City and County of Los Angeles in the development of Specific Plans for station areas. It is the purpose of these Specific Plans to establish design and development standards tailored to address the future development in each station area. These standards are to provide the appropriate measures to preserve and enhance the unique characteristics of certain areas and to promote sensible development which minimizes adverse impacts on residential areas and community businesses. Mitigation options have been identified in Section 5.4 of Chapter 3 of the EIS/EIR which may be implemented to further preserve the valued characteristics of each station environs.

Comment 353: The length of cut and cover excavation in North Hollywood is second in distance to Union Station. This will certainly disrupt activities in the area. (Ellison Bloodgood of United Voters League)

Response: Construction of the North Hollywood Station will create unavoidable adverse impacts, as noted in Sections 13 and 14 of Chapter 3. Table 3-46 of the EIS/EIR indicates that construction activities would affect 600 feet of commercial frontage and disrupt traffic on four streets crossing Lankershim Boulevard.

Comment 354: Subway construction at the Los Angeles Union Passenger Terminal must be done by burrowing underneath existing facilities rather than using cut and cover construction techniques. (Richard A. Stromme)

Response: Boring has been considered as an alternative to cut and cover construction. However, it was ruled out because of the excessive cost and the shallow depth of the tunnel, in places only 25 feet of cover. Tunneling would require heavy reinforcement. Cut and cover construction can be accomplished with no permanent damage to the property. See also responses to Comments 363 and 364 in the Cultural Resources section.

Comment 355: What are the specific tunneling procedures which may be required in the Valley, as identified in the Geology and Hydrology Report? Why were these procedures not addressed in the EIS/EIR? (Michael Malak of Committee of 45)

Response: Construction techniques are summarized in Chapter 3, Section 13, of the EIS/EIR. The techniques to be used will be selected based upon soil types and other technical considerations.

Comment 356: What efforts were made to identify the Coast Horned Lizard on the hills and grounds of Universal Studios and on other MCA-owned property? What efforts were made to ascertain the existence of Astragalus Brauntonii (Brauton's Milk'Vecth) and Dudleyea (Many-Stemmed Dudleya) in these same locations? Is it not true that an aerial system would present greater potential for disrupting these species of flora and fauna than a subway system? (Michael Malak of Committee of 45)

Response: The biological resources analysis used previous biological documentation for the Metro Rail Project, as well as numerous other sources including the Los Angeles City Planning Department and the Santa Monica Mountains Comprehensive Planning Commission. The documentation and analysis of biological resources is contained in the SCRTD Technical Report on Biological Resources (January 1983). The Astragalus brauntonii and Dudleya multicaulis are noted on the CNPS List 2 - Rare and Endangered as declining species of interest potentially occurring in the study area. The CNPS, though not supported by any statutory protection, is considered by public agencies to be the most accurate and comprehensive compilation of valuable plant resources.

The coast horned lizard is identified as a candidate for U.S. Fish and Wildlife and California Department of Fish and Game lists of declining species in California. It is expected that the impacts of construction for the Aerial Option would be similar to that of the Locally Preferred Alternative and that significant disturbance to sensitive plant species and to wildlife is not anticipated, since the affected areas are already developed. In contrast, there is a potential for disturbance if vent shafts are located in certain natural zones shown in Figure 1 of the above referenced technical report.

Comment 357: The Draft EIS/EIR gives no costs for constructing the guideway by cut and cover rather than tunneling. (Frank Fernandez of Community Development Coalition)

Response: Cut and cover construction for the entire guideway is not being considered because this technique would greatly disrupt streets, homes, and businesses. Cut and cover construction is planned only for stations, vent shafts, pocket tracks, and crossover tracks.

Comment 358: Who will supply steel, pipes, pumps, wiring, cars, and rails? Will foreign suppliers and contractors be used? (Ellison Bloodgood of United Voters League, Charles Bluestein)

Response: There are several suppliers of the above cited items in the Los Angeles region and SCRTD's construction contractors will contact them for supplies when construction commences. Contract awards will be made to the lowest bidder. The UMTA requirements for this project are specific as to use of the "Buy America Act." American products will be used unless there is some unique supply that meets the exceptions specified in the Buy America Act.

Comment 359: Why not start construction on the Metro Rail at both ends of the alignment simultaneously? While this may revise yearly cost estimates, it will ensure the Valley is not "shortchanged" and left without a subway system in the event of a change in priorities. Also, it would help stimulate the economy and generate tax revenues in the North Hollywood Community Redevelopment Project Area. (John M. Praiswater and Bruce D. Ackerman of Greater Van Nuys Area Chamber of Commerce, Leon Opseth, Jim Woods of Los Angeles Federation of Labor, Stan Trietal)

Response: The present cash flow commitments for the Metro Rail Project are not large enough for the suggestion to be considered at this time. Funds for the Metro Rail Project are made available from UMTA and Proposition 5. Both are limited and cash funds are made in a piecemeal fashion. Therefore, as presently planned, construction will begin from the downtown end. Furthermore, to enable initial operation, the line must begin where the rail yard and shops will be--south of Union Station.

Comment 360: What are the guarantees that cement in an aerial guideway will not be below contract specifications, such as happened in Miami? What grades of concrete does the Mercali Scale base its assumptions upon? (Michael Malak of Committee of 45)

Response: Inspections during construction would ensure that all materials meet contract specifications. Mercali Scale impact prediction is not based on any specific grade of concrete.

Comment 361: Who will provide insurance during construction and operation of the system and at what cost? (Ellison Bloodgood of United Voters League)

Response: SCRTD, its consultant and their subcontractors will be jointly insured and will place and maintain in full force and effect a District Insurance Program in which the above will be named as the insureds. The costs for insurance during construction of the project is estimated to be $75,000,000, with annual operating and maintenance liability costs of $1,813,000 (see Milestone II Report: Cost Estimates). In addition, the District will hire an Insurance Administrator prior to construction, to request proposals for insurance services and to administer the insurance program for the Metro Rail Project.

Comment 362: The National Ocean Service must be notified at least 90 days in advance of any activity that will disturb its geodetic control survey monuments. (Joyce M. Wood of U.S. Department of Commerce-National Oceanic and Atmospheric Administration)

Response: During the next phase of engineering design, SCRTD will determine if construction of the Metro Rail Project would disturb any survey monuments. If any such disturbances are identified, the requested notification would be made.

2.19 CULTURAL RESOURCES

Comment 363: The Los Angeles Union Passenger Terminal must be reserved, preserved and restored for both historic preservation and railroad operation. (Richard A. Stromme)

Response: This property is listed on the National Register of Historic Places as an historic district, and, as such, is afforded all of the rights and protection of any National Register property. UMTA, the California State Office of Historic Preservation (SOHP), and the Advisory Council on Historic Preservation (ACHP) have all visited Union Station to determine the extent of possible impacts and mitigation measures to lessen these impacts. Final plans for this station, and all other stations which affect historic properties, will be reviewed by the SOHP.

Measures will be taken to minimize the impacts to train operations during the construction of the station. Such measures include staged construction and coordination with train officials. The impacts are temporary, however, and no interference with train operations is expected after the construction has ended and the Metro Rail is in operation.

Provisions for preserving historic properties have been agreed to by SCRTD, UMTA, SOHP, and ACHP in the Memorandum of Agreement included in Chapter 4 of the EIS/EIR. Specific commitments regarding Union Station appear in part I.A of the Memorandum of Agreement.

Comment 364: Historic features integral to Los Angeles Union Passenger Terminal ambience and operation would be demolished and incompatible elements added. (Richard A. Stromme)

Response: The design of any new construction at Union Station will be compatible with the existing structure in terms of scale, massing, color, and materials. Wherever possible original materials such as lighting fixtures and planters will be reused in the new construction. Refer to part I.A. of the Memorandum of Agreement in Chapter 4 of the EIS/EIR for specific measures to preserve the historic integrity of Union Station.

Comment 365: The potential adverse impact on the Union Station property is of great concern. It is strongly recommended that a working committee, including the Cultural Heritage Board, be established to work with the station architects. (Patricia M. Simpson of City of Los Angeles Cultural Heritage Board)

Response: The impacts of the historic aspects of Union Station have been addressed in detail in Chapter 4 of the Final EIS/EIR and mitigation measures agreed to by SCRTD, UMTA, SOHP and the ACHP are contained in the Memorandum of Agreement in that Chapter. As part of this agreement SCRTD will provide final design plans for station affecting cultural resources to the Cultural Heritage Board for their review. The Cultural Heritage Board will be kept informed of design decisions.

Comment 366: The discussion of mitigating impacts of redevelopment pressure on potentially historic resources at the Fifth/Hill Station should note that the CRA has evaluated the historical significance of these properties and state that the Floor Area Ratio of historic structures is 6 as permitted by the CBD Redevelopment Plan. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

Response: The EIS/EIR states that the FAR of many historic structures is "6 or greater." A number of historic structures on Broadway, Spring Street and Seventh Street were built without on-site parking, at a parcel coverage of greater than 50 percent and to a height of 12 or 13 stories. They were built long before the CRA established a maximum FAR of 6, but they were in compliance with regulations then in force which established a 13 story height limit and did not require on-site parking. While the average FAR for these historic areas is less than FAR 6, the FAR on individual parcels sometimes exceeds FAR 6. Examples include the Security Building at Fifth and Spring and the Million Dollar Theater Building at Third and Broadway.

Comment 367: Based on Figure 2-7, it is not clear if the Fifth/Hill Street Station will require the demolition of the Title Guarantee Building. (Patricia M. Simpson of City of Los Angeles Cultural Heritage Board, Richard A. Stromme)

Response: The Fifth/Hill Street Station will not require the demolition of the Title Guarantee Building. The station entrance will be built on the ground floor of this building in an area currently occupied by a retail establishment. For a complete discussion of the historic significance of the Title Guarantee Building and its relation to Fifth/Hill Station, please refer to Section 2.6.2 in Chapter 4 of the EIS/EIR.

Comment 368: The at grade traction power substation at the Seventh/Flower Station would destroy the Old Fire Station No. 28, a National Register property. (Patricia M. Simpson of City of Los Angeles Cultural Heritage Board)

Response: The Seventh/Flower Station will not require the demolition of Fire Station No. 28. The traction power substation here will be built in the parcel next to the fire station. This parcel currently is the Home Savings and Loan Building.

Comment 369: Hancock Park is a unique area with many historic homes. The neighborhood would be adversely affected by the proposed line and particularly by the Wilshire/Crenshaw Station. (James Zager)

Response: No homes in the Hancock Park area which are eligible for the National Register of Historic places will be impacted by the Metro Rail project. The likely impacts on this neighborhood are described in the response to Comment 193 under Land Use.

Comment 370: The Tar Pits, with all of their archaeological aspects, are unique in the U.S. and should be preserved. The Los Angeles County Museum of Natural History concludes that the area of Extremely High Paleontologic Sensitivity must remain undisturbed and that the area of High Paleontologic Sensitivity should be disturbed as little as possible. (Craig C. Black Los Angeles County Museum of Natural History, Catherine Stern of Masseline Avenue Neighborhood Association, Mr. and Mrs. George McIntosh, Ray Wise Anderson, Carol Ford Benson)

Response: Due to the extremely high probability of encountering paleontologic resources in the immediate area of the La Brea Tar Pits, the SCRTD Board of Directors has voted to move the Wilshire/Fairfax Station away from that area. The new location for this station is in the parking lot behind the May Company Building which is at the northeast corner of the intersection of Wilshire Boulevard and Fairfax Avenue. (Refer to Figure 2-17 in the EIS/EIR)

While the new location does not eliminate the possibility of encountering paleontologic resources, it moves the cut-and-cover construction activity out of the area termed "extremely high probability" and, according to Page Museum staff, reduces the possibility of encountering paleontologic resources. In addition, the new off-street location will avoid disruption to Wilshire Boulevard thereby affording extra time and space for resource recovery.

Comment 371: How can you avoid disturbing known fossil deposits if you build this station at Curson instead of Fairfax? Who will pay for removal, cleaning, curation, and storage of the fossils and what will the cost be? Why not put the station at Fairfax and the tunnel 50 feet deep? (Sue Vanderbrook)

Response: The location of the Wilshire/Fairfax Station has been moved to the parking lot area behind the May Company Building. This new location significantly lowers the possibility of encountering paleontological resources during the station cut and cover construction. The SCRTD is also examining the possibility of tunneling at a deeper elevation along Wilshire Boulevard to miss La Brea deposits.

Regarding the salvage of any resources that are found, SCRTD holds responsibility for developing and implementing a Master Plan for Mitigation and a data recovery plan. These plans will involve the input of the Page Museum and a Peer Review Board as mandated in the Memorandum of Agreement in Chapter 4 of the EIS/EIR.

Comment 372: The study does not consider the cost or the construction time delay that would be imposed if slower and more expensive techniques were required to avoid destroying fossil materials along the Wilshire Corridor. For example, the alignment may need to be rerouted or extensive recovery programs may be needed. (See the Memorandum of Agreement, Figure 4-4, for further information.) (U.S. Representative Bobbi Feidler)

Response: To minimize delays to the project, SCRTD is working closely with the staff of the Los Angeles County Natural History Museum to develop a plan for protection and/or recovery of fossil resources. Provisions for this work are included in the Memorandum of Agreement in Chapter 4 of the EIS/EIR. Work would begin early enough at the Wilshire/Fairfax Station site to ensure salvage of resources and completion of the station construction within the overall construction schedule. The details of the actual recovery plan will be determined with the input of a Peer Review Board according to the Memorandum of Agreement. Project costs do include funds for the salvage of any encountered resources. (Note that the location of the Wilshire/Fairfax Station has been moved to a less paleontologically sensitive area. Refer to Comment 370 of this section).

Comment 373: The Draft EIS/EIR implies that geologic units mapped as "young quaternary alluvium" are not fossiliferous. The Los Angeles County Museum has recorded fossil vertebrates from such units, particularly south of the Santa Monica Mountains and recommends that excavations conducted within these units also be monitored for paleontological resources. (Craig C. Black of Los Angeles County Museum of Natural History)

Response: SCRTD hired a qualified consultant to conduct an extensive study of paleontological sensitivity along the entire Metro Rail Alignment. The results of this study (See Figure 4-9 in the EIS/EIR) indicated that the area classified as "young, quaternary alluvium" has little possibility for paleontological resources. Based of this finding it was decided that it would be unproductive to have a full-time paleontologist monitor excavations in these areas. This matter will be referred to the Peer Review Board (See Memorandum of Agreement in Chapter 4) for their input and a final decision will be made at that time.

Comment 374: The Draft EIS/EIR intimates that impacts on paleontological resources are of concern only for the excavation of the Wilshire/Fairfax Station. An equal potential for impact upon paleontological resources exists for all cut and cover excavations, not just those associated with station construction. (Craig C. Black of County of Los Angeles Museum of Natural History)

Response: Cut and cover construction areas defined in the EIS/EIR include areas for stations, crossover tracks, and related facilities. At station locations where monitoring of excavation is recommended for paleontological and archaeological purposes, the entire cut and cover areas will be monitored.

Comment 375: It is recommended that arrangements be made in advance with potential public scientific repositories for the acceptance of paleontological material rather than giving them the material at some point subsequent to salvage. Who will pay for removal, cleaning, and storage of the fossils and what will the costs be? (Craig C. Black of Los Angeles County Museum of Natural History, Sue Vanderbrook)

Response: Arrangements for potential public scientific repository are being negotiated with the May Company as part of the agreement for locating the station on the May Company site. The current arrangement is for 20,000 square feet of space of which 3,000 will be air-conditioned. SCRTD recognizes the need for public scientific repositories and will continue to seek out such possibilities. This is included as an element of the Master Plan for Mitigation being prepared by the Page Museum staff.

Comment 376: What will be the criteria for selecting a "qualified paleontologist" and who will select such a person or persons? It is recommended that such the selected paleontologist also be qualified to observe and record the needed information or that another person who is qualified to do so be included in the mitigation effort. (Craig C. Black of Los Angeles County Museum of Natural History)

Response: The SCRTD in consultation with the Natural History Museum, UMTA, and the State Historic Preservation Officer will select the paleontologist based on criteria defined by these groups. A Peer Review Board, meeting criteria stipulated in the Memorandum of Agreement in Chapter 4, will be formed to oversee the work of the professionals working directly with the Project. Qualified professionals will be used both to observe excavation work and to record recovered information.

Comment 377: Will the project necessitate the destruction of the Craft and Folk Art Museum? The museum is one of only two in the nation and is a major cultural institution. Their main building, according to WESTEC's cultural resources survey, was evaluated as potentially eligible to the National Register. (Patricia M. Simpson of City of Los Angeles Heritage Board, Ruthann Lehrer of Los Angeles Conservancy)

Response: The location of the Wilshire/Fairfax Station has been moved to the parking lot behind the May Company Building at the northeast corner of Wilshire Boulevard and Fairfax Avenue. Due to this change, the Metro Rail construction will not require the taking of the Craft and Folk Art Museum.

Comment 378: Wilshire Corridor is like a city of monuments. None of these buildings should be destroyed. (Melina, Mr. and Mrs. Weldon Spears)

Response: As indicated in Chapter 4 of the EIS/EIR (Cultural Resources), a thorough inventory and impact assessment of historic/architectural properties has been conducted in compliance with all federal, state and local regulations. None of the many culturally significant buildings along the Wilshire Corridor will be displaced or adversely impacted.

Comment 379: We do not believe a body of research in existence known as the Hollywood Historical and Cultural Resources Survey has been adequately used. (Christy Johnson McAvoy of Hollywood Heritage Inc.)

Response: The report Final Report: Hollywood Historic and Cultural Resources Survey, (Published by the Hollywood Revitalization Committee, Inc. for the Office of Historic Preservation, Department of Parks and Recreation, State of California, Sacramento), was used as a research source document during the Cultural Resources Survey. Use of this survey is described in Chapter 4 and listed in the bibliography. Also used was another publication shared by this same group and the Los Angeles Conservancy, Would you Believe . . . Hollywood Boulevard? A Walking Tour, 1979.

In addition, the Cultural Resource consulting team interviewed four members of the Hollywood Heritage (formerly the Hollywood Revitalization Committee, Inc.) including its historian.

Comment 380: The delineation of the Hollywood APEI is questioned in the absence of a Specific Plan. Data in Figure 3-11 in the EIS/EIR indicates serious avoidable adverse impacts upon historic structures and on tourism will result from Metro Rail. Mitigation measures must be specified. (Frances Offenhauser of Hollywood Heritage, Inc., Ida S. Kravif of Melrose Hill Neighborhood Assocation)

Response: Under contractural agreement between the City of Los Angeles and the SCRTD, the Community Redevelopment Agency (CRA) and SCRTD will jointly fund the preparation of station area masterplans within the context of a prospective redevelopment plan. A CRA redevelopment plan would take the place of a Specific Plan ordinance within the boundaries of a redevelopment or revitalization area. This is proceeding on a timely basis and should be more than adequate in responding to potential APEI issues.

As to the possibility of adverse effects upon historic structures, a careful inventory of potentially historic structures was done in Hollywood of sites subject to direct impacts from Metro Rail facilities. No findings of adverse effect were made by UMTA and the State Historic Preservation Officer for any potentially affected historic structures in Hollywood. The Hollywood Security Building (northeast corner of Cahuenga and Hollywood Boulevard) was found to be possibly affected, but not adversely. The Julian Medical Building, though found not to be affected, has been noted as particularly meritorious and SCRTD

would expect that CRA will appropriately treat this site in its plans. Several structures will need to be demolished on the west side of Cahuenga, but none were determined to be historically significant. Sensitive reconstruction of the area could strengthen the visual character of the intersection. Detailed evaluations of historic resource impacts are provided in the SCRTD Technical Report on Historic/Architectural Resources prepared as part of the EIS/EIR effort.

No basis for alleged adverse impacts upon tourism can be discerned. Metro Rail would very likely serve a significant portion of Hollywood's tourists, and connect Hollywood with a number of other major tourist destinations. Metro Rail would also seem to give a boost to the evening patronage of Hollywood's many movie theaters, appealing to an audience that may be presently discouraged by perceptions of street traffic and parking costs. (For additional information, see the Memorandum of Agreement, Figure 4-4 in the EIS/EIR.)

Comment 381: It is not clear whether the Owl Drug Store building will have to be destroyed for the Hollywood/Cahuenga Station. This building merits consideration for preservation. (Patricia M. Simpson of City of Los Angeles Cultural Heritage Board)

Response: The Hollywood/Cahuenga Station will require the demolition of the Owl Drug Store building. This property was surveyed by the State Office of Historic Preservation which determined it did not qualify for listing on the National Register of Historic Places.

Comment 382: Additional discussion is needed regarding the impacts on historic structures in the Hollywood commercial core, including the development pressures that will surely follow, the Metro Rail Project. The use of Transfer of Development Rights should be given more coverage. (Ida S. Kravif of Melrose Hill Neighborhood Association, Leo Williams of Carlton Way Neighborhood Association, Christy Johnson McAroy and Frances Offenhauser of Hollywood Heritage, Inc.)

Response: Historic landmarks would not be directly impacted by the construction of the Metro Rail System. This document contains only general discussion of impacts from indirect future development, primarily because plans for such development are not known at this time. While future development associated with Metro Rail may affect historic properties, it would only be speculation to discuss where and to what extent those effects would occur. Detailed discussions of future developments will be included in environmental reports done for those specific projects, if and when they are planned.

With respect to Transfer of Development Rights in the Hollywood area, the EIS/EIR refers to the City of Los Angeles Community Redevelopment Agency (CRTA's) policies in the downtown area as a model for addressing the effects of development pressures on historic buildings in Hollywood. Since the CRA will be responsible for the preparation of specific plans for the two Hollywood stations with public input and since the entire Hollywood Core area will be designated as a Redevelopment Area by the CRA and Los Angeles City Council, more specific measures are not included in the EIS/EIR. The CRA's recent policies and implementation programs in the Spring Street and Broadway historic districts of downtown Los Angeles have gained the agency a reputation for sensitive and effective integration of development and renovation within the context of an historic district. The agency is expected to adopt a similar approach in the Hollywood area and should be encouraged to do so by the community.

Comment 383: Hollywood wants the same "special effort" with regard to preservation of historic resources as that given to the Miracle Mile area. (Christy Johnson McAvoy of Hollywood Heritage, Inc.)

Response: RTD did not extend special effort to the Miracle Mile area. Due to the thorough work of the Los Angeles Conservancy, who surveyed this area, the Miracle Mile area was determined eligible to be listed on the National Register of Historic Places. Because of this determination, the Miracle Mile district was listed as an adjacent historic property.

Comment 384: The Hollywood Bowl is an important activity center and should not be destroyed. (Melina)

Response: The Hollywood Bowl will not be destroyed by the construction of a subway station at that location. On the contrary, a Hollywood Bowl Station would enhance that facility by providing patrons with a fast, efficient, and convenient means for attending concerts and other cultural events without having to use their cars. See station footprint Figure 2.24 in the EIS/EIR.

Comment 385: Table 4-1 showing structures with potential for historical significance includes properties along Lankershim Boulevard which were found by a Community Redevelopment Agency survey to be non-historic. (Edward Helfeld of City of Los Angeles Community Redevelopment Agency)

Response: Table 4-1 includes all properties along the aerial alignment which were identified in an initial survey to have some historic value. No further refinement of the list was done after the Aerial Option received extreme opposition from the public. Based on the results of the CRA survey and review by the State Historic Preservation Offices, those properties determined by CRA to be non-historic have been eliminated.

Comment 386: The proximity of the proposed North Hollywood Station to the Southern Pacific Toluca Depot will ensure its early destruction. (Richard A. Stromme)

Response: The Toluca Depot is located in the North Hollywood Community Redevelopment Project area. Although no Metro Rail facilities will directly affect the Toluca Depot, plans for the North Hollywood Community Redevelopment may involve the Toluca Depot and its surroundings. Because the Toluca Depot has been determined eligible to be listed on the National Register of Historic Places, it is highly unlikely that this structure would be destroyed. Due to its status, public projects are required to preserve the integrity of this and all other National Register properties. Other projects within the specific plan area would also be required to address impacts to historic properties.

Comment 387: All final measures to minimize harm to Section 4(f) lands should be coordinated with the Los Angeles Department of Parks and Recreation and the State Historic Preservation Officer and evidence to that effect should be documented in the final statement. (Bruce Blanchard of U.S. Department of Interior)

Response: The County of Los Angeles Department of Parks and Recreation, the City of Los Angeles Department of Recreation and Parks and the State Office of Historic Preservation (SHPO) have been consulted throughout the

of Historic Preservation (SHPO) have been consulted throughout the environmental review process regarding parks and historic properties. These agencies will be kept informed of progress on the Metro Rail Project, and SHPO will review final designs for stations. Refer to the Memorandum of Agreement in Chapter 4.

Comment 388: In order to ensure that stated mitigation measures are implemented, clarification is needed in the Memorandum of Agreement that the State Historic Preservation Officer will review and approve all architectural plans for construction at historic sites. (Ruthann Lehrer of Los Angeles Conservancy)

Response: The State Historic Preservation Offices and the Advisory Council on Historic preservation will have the opportunity to review and comment on final station designs. This provision for review by the State Historic Preservation Office appears in the Memorandum of Agreement included in Chapter 4 of the EIS/EIR.

Comment 389: The vast majority of potential adverse impacts on significant historical buildings and sites can be avoided. The unavoidable adverse effects will be minimized through the provisions of a Memorandum of Agreement to be signed by this office, SCRTD, and the Advisory Council on Historic Preservation. (Dr. Knox Mellon of California State Office of Historic Preservation)

Response: SCRTD has formally committed to provisions in the Memorandum of Agreement which will minimize the unavoidable adverse effects to cultural resources resulting from the Metro Rail Project. SCRTD will continue to work with the State Office of Historic Preservation to ensure the preservation of cultural resources. (See Memorandum of Agreement in Chapter 4.)

Comment 390: The Draft EIS/EIR, Chapter 4, Section 4.1.4 implies that the paleontologic resources of Rancho La Brea are restricted to Hancock Park. While Hancock Park includes most of the known fossil deposits, they are known to occur at least up to a mile outside the Park. (William A. Akersten of Natural History Museum Los Angeles County)

Response: Figure 4.8 in Chapter 4 depicts the area of paleontological sensitivity in the Rancho La Brea area. The figure clearly depicts a moderate level of sensitivity (likelihood of encountering resources) at some distance from Rancho La Brea along the alignment. Construction will be monitored, as described in Section 4 of Chapter 4, to allow identification and recovery of paleontological resources.

2.20 PUBLIC PARTICIPATION

Comment 391: The area is not well informed on the plans for the Metro Rail Project. (John T. McDonald of Los Angeles NAACP)

Response: This project has been one of the most publicized in the Los Angeles area in this decade. Chapter 5 has been expanded to better explain the effort that SCRTD has put into the Metro Rail Project and the response from the public.

Comment 392: Chapter 5 of the EIS/EIR addressing community participation should be expanded to more fully document the efforts to respond to community goals and concerns. (City of Los Angeles City Council)

Response: A truly complete documentation of all citizen participation efforts would exceed the limits of conciseness and compactness to which the EIS/EIR must subscribe. Some expansion has been attempted, however, particularly with regard to the City Council's concerns with the Crenshaw Station.

Comment 393: Additional public dialogue on the design and station area planning for Crenshaw is needed. (Mitchell Robinson)

Response: Extensive public participation has occurred with regard to a Crenshaw Station. Most local residents, however, have not (at least until recently) expressed any particular interest in station area planning and design. SCRTD had originally made provisions for a Crenshaw Station Specific Plan Citizens Advisory Committee to be established as part of the Los Angeles City Planning Department's work program. As a decision to include this station has at least been made, this may be one action to be considered.

Comment 394: As an Hispanic businessman in a metropolitan area that encompasses the largest concentration of Hispanic in the country, I am especially concerned that this community be given ample opportunity to fully participate in and benefit from what is perhaps, the most signifcant construction project in the history of Los Angeles. SCRTD officials must, in a deliberate manner, commit hard resources to the cultivation of minority participation. (George Pla of Cordova Corporation)

Response: Chapter 5 of the Draft EIS/EIR describes the community participation program of the Metro Rail Project. SCRTD is committed to the meaningful and maximum participation in all minority and women-owned businesses in contrct and Joint Development efforts. Major input is being solicited from the local minority business community and, during the Final Design Phase, detailed programs will be developed and implemented through a coordinated effort between SCRTD and the minority business community.

2.21 MISCELLANEOUS

Comment 395: The EIS/EIR should address project impacts on Southern Pacific Transportation Company operations and the mitigation measures proposed for them. (William L. Oliver of California Public Utilities Commission)

Response: The only identified area where the project will impact Southern Pacific Transportation Company facilities is at the Southern grade crossing at Lankershim and Chandler Boulevards where the station is to be constructed by the cut and cover method. There are several alternative construction methods possible which would mitigate adverse impacts. The selection of mitigation measures will be determined in consultation with Southern Pacific Transportation Company during the next phase of engineering design. Railroad service will be maintained.

Comment 396: The Draft EIS/EIR does not address the provision of substitute operating facilities for the Atchison Topeka and Santa Fe Railway Co. (ATSF). The

First Street Yard has been designated as the site for the Metro Rail main yard and shop facillity. (Q. W. Torpin of the Atchison, Topeka and Santa Fe Railway Company, Richard A. Stromme)

Response: SCRTD recognizes that the ATSF's First Street Yard is of vital importance as a support facility for the Hobart Yard intermodal trailer-on-flat-car/container-on-flat-car operations. The District has been discussing the acquisition of the First Street Yard with ATSF since September 1981 with a goal of maintaining ATSF's critical operations. When SCRTD acquires the First Street Yard for its use, Santa Fe's operations will be maintained at equivalent replacement facilities. These facilities could be in the area between the District's facilities and the Los Angeles River, at Amtrak's old Mexico Yard or at Santa Fe's Hobart Yard. SCRTD will pay a fair market value for property acquired and would include such relocation costs as necessary for railroad operations. Any betterments to the railroad will not be reimbursed.

Comment 397: Building subway as opposed to aerial would reduce graffiti problems. (Rick Blythe)

Response: All efforts will be made to reduce or eliminate the graffiti problems. These include proper security measures and appropriate station design measures. Security measures include closed circuit television monitoring of stations and a transit security force that will patrol the system. Design measures could consist of elimination of dark corners and providing maximum open and construction areas in the stations.

Comment 398: The public has a right to demand that all employees, individually, sign a strike-and-you-are fired statement upon application for employment. It must apply to construction operation (including power supply), maintenance, and management employees. (Charles A. Bennaton)

Response: Construction will be done by a multitude of contractors and with these contractors there is always the possibility of labor disputes. The Metro Rail operators and maintenance personnel will need to be under the same labor arrangement as the SCRTD bus operators and mechanics. At this time these employees are unionized and do have the right to strike.

Comment 399: Historically, attempts at instituting mass transportation have proved vulnerable to strikes, power outages and equipment breakdowns. As a result, rapid transit has offered exceptionally unreliable service. (Richard A. Stromme)

Response: Each Metro Rail passenger station will be supplied with power from two separate utility company high-voltage lines. Only one line will be used under normal circumstances and the other will act as a back-up supply.

Equipment breakdowns will be minimized by selection of equipment and proper maintenance. SCRTD has the opportunity to build on the experiences of other transit systems and to take advantage of the latest technology. Peer review panels have revealed what has worked and what has not worked for other systems, and this information has been used in designing Metro Rail and will help decide which types of equipment will be purchased. After the system is operational, regularly scheduled checks and maintenance will ensure the reliability of the system. (See also response to Comment 308 of the Energy Section.)

Comment 400: On page S-14 the date by which comments should be received should be changed because of the subsequent distribution of the Addendum by letter dated June 17, 1983. RTA would contend that because of the nature of the material contained in the Addendum, all interested parties should be afforded an additional time for comment. This is especially true with respect to the Addendum as it appears to be couched in language which anticipates litigation rather than setting forth analysis of the required environmental and planning issues. (Michael A. Cornwell of Rapid Transit Advocates)

Response: SCRTD met federal and state requirements for a 30 day time period from the time the addendum was published and distributed until public hearing began. In addition, SCRTD accepted, responded to, and where necessary changed the EIS/EIR, to accommodate comments received up to one month after the legally required comment period expired.

Comment 401: Was any consideration given in the design of the system so that in the event of an atomic war the system could be used as shelters. (Patrick Boylan)

Response: The system would lend itself well only as blast shelters should a nuclear war occur. However, no special design provisions have been made for the use of the system as long term bomb and fallout shelters.

Comment 402: On page 3-1 there is a reference in the third paragraph to the possibility that discussion of mitigation measures might not be accomplished during the time frame of the EIS/EIR. If this is the case, this would be contrary to both NEPA and CEQA. Otherwise, the decision-makers of this project would not be fully informed of the environmental consequences and whether or not they are subject to mitigation. (Michael A. Cornwell of Rapid Transit Advocates)

Response: The language on page 3-1 is intended to convey that within the range of impacts identified, SCRTD will not merely pursue mitigation measures for which is has legal authority, but rather will also enact such additional mitigation measures as the Final Design indicates are appropriate as well as coordinate with other agencies responsible for mitigation efforts. The last effort, in particular, will require a time frame that extends beyond the EIS/EIR process. For example, the Specific Plans currently being prepared by the city, county, and CRA will include provisions crucial to mitigating some of the concerns raised in the EIS/EIR. However, the measures will not become effective until the plans are adopted. The adoption by the respective decision-makers is expected to occur after the EIS/EIR process concludes.

Comment 403: The cars proposed for this subway appear to be badly designed: the rectangular cross section produces a boxy appearance, the stations are unattractive, platforms must be longer to accommodate 10-car trains, and they accommodated only two tracks. (Richard A. Stromme)

Response: The cars used on the Metro Rail System will be attractive, well-designed and will use equipment and material that is fire resistant. Car design will be governed by stringent federal and industrial guidelines, design criteria and suggestions and recommendation by transit industry experts and peers. For more information on car design, see Milestone 8 on System and Subsystem Design.

CHAPTER 7

REFERENCES

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REFERENCES

1. GLOSSARY

Aerial Option: A variation of the Locally Preferred Alternative, with an aerial alignment and two aerial stations in San Fernando Valley

alignment: the route of the Metro Rail Project, including both its vertical and its horizontal extension

ALRT: advanced light rail transit

APEI: Area of Potential Environmental Impact (for cultural and historic resources)

APTA: American Public Transit Association

AQMP: Air Quality Management Plan

ATP: Automatic Train Protection

BART: (San Francisco) Bay Area Rapid Transit

BPL: City of Los Angeles Bureau of Power and Light

bus bays: on-street areas for loading and unloading Metro Rail bus passengers without impeding traffic flow

bus terminals: off-street structures for loading and unloading Metro Rail bus passengers

CARB: California Air Resources Board

CBD: Los Angeles Central Business District

CCTV: closed circuit television

CHABA: weighting methodology used in measuring vibration levels

CNEL: Community Noise Equivalent Level, which measures subjective response to noise over 24 hours, expressed in A-weighted decibels

CNPS: California Native Plant Society

concourse entrance: a street-level semienclosed structure that serves as both an entrance and a ticketing area for a station

cooling towers: heat and cool ambient air for the station

CRA: Los Angeles Community Redevelopment Agency

crossover tracks: a stretch at which the ordinarily parallel sets of tracks cross each other, primarily so that trains can change direction easily

db(A): A-weighted decibels, which correspond to subjective perception of noise levels

discount rate: rate applied to future costs to reflect their current value

EIR: Environmental Impact Report (a State of California environmental document)

EIS: Environmental Impact Statement (a federal environmental document)

elevated guideway: a support structure with two tracks, electrified rails, and an evacuation walkway

elevated stations: have platforms approximately 20-30 feet above ground level connected by escalator, elevator, and stairs to a concourse entrance

EPA: Environmental Protection Agency

ETS: emergency trip station, which shuts off third rail power

FAR: Floor Area Ratio, the ratio of building square footage, excluding parking and mechanical equipment storage, to parcel area

FY: fiscal year

GRP: gross regional product: the total sales and income within a region

ICTS: Intermediate Capacity Transit System

kiss and ride: auto drop-off and pick-up of transit riders

kWh: kilowatt hours

LAC: Los Angeles Conservancy

LACM: Natural History Museum of Los Angeles County

LADOP: City of Los Angeles Department of Planning

LADOT: City of Los Angeles Department of Transportation

LADWP: City of Los Angeles Department of Water and Power

LAPD: Los Angeles Police Department

LARTS: Los Angeles Regional Transportation Study unit of Caltrans

Ldn: Day-Night Sound Level, which measures subjective response to noise levels over 24 hours, expressed in A-weighted decibels

Leq: Energy Equivalent Level, a number representing average sound energy over a measurement period, expressed in A-weighted decibels

Locally Preferred Alternative: An 18.6-mile all-subway route, with 16 stations and 2 optional ones. It includes the CBD alignment along Hill Street, the Wilshire Corridor alignment with off-street stations at Wilshire/Alvarado and Wilshire/Vermont, the northward turn along Fairfax Avenue with an off-street station at Fairfax/Beverly, the Cahuenga Bend, and the Lankershim alignment north and south of Camarillo Street.

LRT: light rail transit

LUPAMS: Land Use Planning and Management Subsystem (City of Los Angeles Department of Planning)

MARTA: Metropolitan Atlanta Regional Transit Authority

Minimum Operable Segment: As required by UMTA, this alternative represents the minimum segment for a practical and meaningful transit operation in the Regional Core. It is identical to the other Project alternatives, but is 8.8 miles long, ending at the Fairfax/Beverly Station, and includes 11 stations plus an optional one at Wilshire/Crenshaw.

MMcf: million cubic feet

NHPA: National Historic Preservation Act

2. SUPPORT DOCUMENTS

Technical reports on virtually all subjects covered in the Draft EIS/EIR were developed as an integral part of the EIS/EIR process. These go into great detail on the methodologies of obtaining and analyzing data and the presentation of results. Other reports produced by SCRTD and its consultants have also been the source of much of the material in the Draft EIS/EIR. Most notably these include the twelve Milestone Reports, which were developed for community input in the process of designing the rail system. These are discussed in Chapter 2, Section 1, and Chapter 5, Section 6, of the EIS/EIR. These technical and milestone reports shown below are incorporated by reference into the EIS/EIR as if fully set forth therein.

All documents incorporated by reference in the EIS/EIR are available for public inspection at the following locations:

SCRTD Administrative Offices (Monday-Friday)
425 South Main Street
Los Angeles, CA 90013
Metro Rail Department:
Phone: (213) 972-6439
Library/Information Center:
Phone: (213) 972-6467

City of Los Angeles Central Library
(Monday-Saturday)
630 West Fifth Street
Los Angeles, CA 90071
Phone: (213) 626-7461

Southern California Association of Governments
(Monday-Friday)
600 South Commonwealth Avenue
Los Angeles, CA 90005
Phone: (213) 385-1000

University of California, Los Angeles
University Research Library
Public Affairs Service (Monday-Saturday)
405 Hilgard Avenue
Los Angeles, CA 90024
Phone: (213) 825-3135

State Clearinghouse, Room 121 (Monday-Friday)
State of California
1400 Tenth Street
Sacramento, CA 95814
Phone: (916) 485-0613

Following is a complete list and brief summary of each document which is incorporated by reference in the EIS/EIR.

No Project Alternative: The most likely set of transportation improvements to be implemented if the Metro Rail Project is not built.

NPDES: National Pollution Discharge Elimination System

NRA: National Recreation Area

O & M: operations and maintenance

pocket track: a third pair of tracks between the usual two, allowing for storage of cars—for peak periods, for example

Regional Core: encompasses the Central City North, Central City, Westlake, Wilshire, Hollywood, Studio City, and North Hollywood community plan areas, and part of the West Hollywood area. This area, served by Metro Rail, is the financial, retail, cultural, and entertainment center of Southern California.

ROW: right-of-way

RTD: Southern California Rapid Transit District

RTDP: Regional Transit Development Plan

RTP: Regional Transportation Plan

RWQCB: Regional Water Quality Control Board

SCAG: Southern California Association of Governments

SCAQMD: South Coast Air Quality Management District

SCE: Southern California Edison Company

SCG: Southern California Gas Company

SCRTD: Southern California Rapid Transit District

setback: the distance of a structure from the street

SHPO: State Historic Preservation Officer

SIP: State Implementation Plan (when referring to air quality); Sector Improvement Plan (when referring to SCRTD bus system)

SMMNRA: Santa Monica Mountains National Recreation Area

SOCAB: South Coast Air Basin

street space: the public right-of-way for both vehicles and pedestrians along a street

subway station entrance (covered): located within buildings

subway station entrance (open): escalators and/or a stairway surrounded by a protective parapet connecting the ground and station mezzanine levels

TCM: Transportation Control Measure

TDR: transfer of development rights; transferable development rights

UMTA: Urban Mass Transportation Administration

VMT: vehicle miles traveled

WMATA: Washington Metropolitan Area Transit Authority

2.1 TECHNICAL REPORTS

Southern California Rapid Transit District. 1982. Task Report--Existing Conditions-Regional and Community Setting. Prepared by Sedway/Cooke. 193 pages plus appendix.

Describes the existing environmental conditions in the Regional Core, encompassing the physical, natural attributes as well as the socio-economic, cultural, aesthetic, and man-made attributes.

_____. 1982. A Summary of Public Policies and an Impact Evaluation Methodology. Prepared by Sedway/Cooke. 72 pages.

Documents and summarizes a variety of existing public policies relative to the design and evaluation of the Metro Rail Project. Also describes an evaluation methodology and proposes various evaluation measures.

_____. 1982. Task Report--"Scoping Issues" and Their Implications for the EIS/EIR Work Program. Prepared by Sedway/Cooke. 72 pages.

Summarizes the issues raised in the process of "Scoping" the environmental impact evaluation process, and especially those issues raised at three public meetings on the project held in November, 1981. Highlights issues which need to be addressed in greater detail.

_____. 1982. Technical Report--Growth Scenarios. Prepared by Sedway/Cooke. 42 pages.

Formulates high-growth and low-growth scenarios to describe future patterns in the Regional Core. The scenarios help to show what may result from different assumptions about the growth rates and distribution of population and employment.

_____. 1982. Preliminary Draft Report for Special Alternatives Analysis, Hollywood Area. 54 pages plus appendices.

Outlines the Metro Rail Community Participation Program and includes perspectives and recommendations from the Hollywood area. Discusses alignment alternatives, station locations, and operating plans.

_____. 1982. Final Draft Report for Special Alternatives Analysis, North Hollywood Area. 136 pages plus appendices.

Describes the Metro Rail Community Participation Program and outlines community perspectives and recommendations for the North Hollywood area. Alignment alternatives, station locations, and operating plans are discussed.

_____. 1983. Technical Report--Land Use and Development Impacts. Prepared by Sedway/Cooke. 162 pages plus appendix.

Documents existing conditons in station areas, provides detailed quantitative documentation of impacts of the Metro Rail Project on projected growth, and prescribes measures to minimize negative impacts.

_____. 1983. Technical Report--Social and Community Impacts. Prepared by The Planning Group.

Summarizes demographic characteristics and community values within each station environs, and assesses the impacts of the proposed stations on neighborhoods.

_____. 1983. Technical Report--Crime Impact Analysis of Metro Rail Project. Prepared by George Rand Associates. 85 pages.

Analyzes the potential impacts on crime of the Metro Rail system. Discusses existing conditions, methodology and results of impact assessment, and mitigation measures.

_____. 1983. Technical Report--Aesthetics. Prepared by Sedway/Cooke. 56 pages.

Presents documentation on the analysis and results of the visual impact assessment in the EIS/EIR. Also documents visual analysis performed in conjunction with the Hollywood and North Hollywood Special Alternatives Analyses.

_____. 1983. Technical Report--Noise and Vibration. Prepared by WESTEC Services, Inc. 174 pages plus appendices.

Compiles information from other sources, notably reports by Wilson-Ihrig & Associates, Inc., on existing noise and vibration conditions, assessment of potential impacts. Also discusses appropriate noise regulations and design criteria.

_____. 1983. Technical Report--Air Quality. Prepared by WESTEC Services, Inc. 68 pages.

Discusses, existing air quality levels, analyzes expected impact of Metro Rail system, and proposes mitigation measures. Includes analysis of regional air quality burden, localized hot spots, and construction impacts.

_____. 1983. Technical Report--Energy Use Analysis. 14 pages.

Discusses energy use implications of Metro Rail alternatives by compiling estimates of automobile and bus energy use as well as for Metro Rail construction and operations.

_____. 1983. Tehcnical Report--Geology and Hydrology. Prepared by WESTEC Services, Inc. 58 pages.

Addresses existing landform, geology, seismicity, and hydrology conditions along the proposed Metro Rail Corridor. Assesses potential impacts for both construction and operations/maintenance, and proposes mitigtion options.

_____. 1983. Technical Report--Biological Resources. Prepared by WESTEC Services, Inc. 9 pages.

Describes existing biological conditions along the Metro Rail Project Corridor. Assesses potential environmental impacts to both vegetation and wildlife, and presents mitigiation options.

_____. 1983. Technical Report--Archaeological Resources. Prepared by WESTEC Services, Inc. Describes known and potential archaeological resources. Identifies potential impacts of the Metro Rail Project on these resources.

_____. 1983. Technical Report--Paleontological Resources. Prepared by WESTEC Services, Inc. 24 pages.

Describes known and potential paleontological resources and their sensitivity. Also discusses possible impacts of the Metro Rail Project, and suggests mitigation measures.

_____. 1983. Technical Report--Seismological Investigation and Design Criteria. Prepared by Converse Consultants.

Outlines findings of seismic investigation and establishes design criteria for the Metro Rail Project. Topics covered include geologic setting, historic seismicity, geologic seismicity, probable ground motions, maximum credible ground motions, and fault crossing rupture hazard.

_____. 1982. Report on Construction Methods. Prepared by Daniel, Mann, Johnson, & Mendenhall/Parson, Brinckerhoff, Quade and Douglas.

Describes various construction methods available for both the line and station structures of the Metro Rail Project. Recommends methods for the various segments of the system and establishes foundation upon which preliminary cost estimate is based.

_____. 1983. Technical Report--Historical/Architectural Resources. Prepared by WESTEC Services, Inc. 225 pages.

Inventories historical/architectural properties eligible or potentially eligible for the Natural Register of Historic Places. Also discusses potential impacts and effects of the Metro Rail Project on these properties as well as parklands.

Converse, Ward, Davis, and Dixon--Earth Sciences Associates, Geo./Resource Consultants. 1981. Geotechnical Investigation Report, Vol. I and II.

Outlines results of subsurface soil investigation. Describes exploration and testing program, project geologic features of engineering significance, previous tunneling experience in the area, anticipated ground behavior in underground construction, anticipated ground behavior in surface excavations, design considerations, and specific subsurface problems in design and construction. (Available only at SCRTD Offices.)

Los Angeles City Department of Transportation. 1983. Draft Traffic Analysis Report.

Summarizes data collection and analyses which are presented in more detail in eight separate task reports prepared for SCRTD. Subjects include traffic volumes, intersection evaluation, parking conditions, and traffic during construction.

Sedway/Cooke. 1983. Disposal of Tunnel and Station Excavation Material. 56 pages.

Discusses the legal, institutional, and technical parameters of waste disposal in the Los Angeles region. Explores disposal options and potential land fill sites; also recommends haul routes.

2.2 MILESTONE REPORTS

_____. 1982. Milestone 1: Preliminary System and Operating Plan. 39 pages plus appendices.

Presents the Preliminary System Definition and Operating Plan for the Metro Rail system as defined at the start of Preliminary Engineering. Public comments and responses are also included.

_____. 1982. Milestone 2: System Design Criteria. 29 pages plus appendices.

Outlines the basic rules, requirements, and guidelines used during the design process to ensure that the system design conforms to project objectives and requirements and all applicable laws. Public comments and responses are also incorporated.

_____. 1982. Milestone 3: Route Alignment. 140 pages plus appendices.

Outlines route alignment alternatives and explains the analysis procedure used to evaluate such alternatives. Discusses alignment alternatives considered, evaluation methodology and criteria, analysis and evaluation, community-suggested options, and board actions and final alignment.

_____. 1982. Milestone 4: Station Locations. 77 pages.

Outlines the development of the selection of station locations for the Metro Rail system. Topics covered include design philosophy, station entrances, station components, patron movement, and other station considerations.

_____. 1982. Milestone 5: Right-of-Way Acquisition and Relocation Policies and Procedures. 83 pages.

Outlines comprehensive policies and procedures developed to assure the timely availability of real estate for construction of the Metro Rail system, while assuring compliance with legal requirements for land acquisition and relocation of displaced individuals. Public comments and responses are also included.

_____. 1982. Milestone 6: Development and Land Use Policies. 103 pages plus appendices.

Develops an effective and coherent set of SCRTD land use and development objectives and policies that will effectively govern the implementation of the Metro Rail Project. Also discusses joint development and value capture. Public comments and responses are also incorpoarted.

_____. 1982. Milestone 7: Safety, Fire/Life Safety, Security, and Systems Assurance. 101 pages plus appendices.

Covers all aspects to satisfy transit safety, fire/life safety, security and systems assurance requirements. Public comments and responses are also included.

_____. 1983. Milestone 8: Systems and Subsystems. 75 pages plus appendices.

Provides an overview of the system and subsystem analyses which were performed to evaluate system operating requirements and select preferred subsystem (e.g., vehicles, train control, traction power, technology) alternatives. Public comments and respnses are also included.

_____. 1983. Milestone 9: Draft Report for Supporting Services Plan. 136 pages plus appendices.

Describes methods and designs to ensure that the supporting services (feeder bus routes, etc.) connected with the Metro Rail system will be integrated effectively and efficiently into the overall transit project. Public comments and responses are also included.

_____. 1983. Draft Report for Milestone 10: Fixed Facilities. 191 pages.

Documents the design of fixed facilities (physical plant, stations, tunnels, etc.) developed during Preliminary Engineering. Describes station design, ways and structures design, and construction methods.

_____. 1983. Draft Report for Milestone 11: Cost Estimate. 66 pages plus appendices.

Presents the Preliminary Engineering estimates of System Capital Cost, together with estimated Maintenance and Operating Costs. Outlines cost estimating basis and methodology, and discusses program schedule and cash flow.

_____. 1983. Milestone 12: Preliminary Draft Report for System Plan. 169 pages plus appendices.

Summarizes results of the entire Milestone process, with sections on Metro Rail system policies, requirements, ways and structures, station design and descriptions, yard and shops, subsystems (vehicles, communication, etc.), and costs. Also includes glossary and bibliography.

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5.1 PARTIAL LIST OF AGENCIES

A number of governmental agencies, businesses, professional groups, and community organizations have been sent copies of the Draft Second Tier Final EIS/EIR. Others interested in obtaining copies of this Final EIS/EIR should contact the Planning Manager of the Metro Rail Project staff or the Community Relations Department of the Southern California Rapid Transit District, 425 South Main Street, Los Angeles, California 90013. Agencies and organizations receiving this document are identified below.

5.1.1 FEDERAL AGENCIES

1. U.S. Department of Transportation
   Office of the Secretary of Transportation
   Federal Highway Administration
   Federal Railroad Administration
2. U.S. Department of Agriculture
3. U.S. Department of Energy
4. U.S. Department of the Interior
5. U.S. Department of Commerce

6. U.S. Department of Housing and Urban Development (HUD)
7. U.S. Department of Health and Human Services
8. U.S. Environmental Protection Agency (EPA)
9. U.S. Army, Corps of Engineers
10. Interstate Commerce Commission

11. General Services Administration
12. Office of Management and Budget
13. Advisory Council on Historic Preservation

5.1.2 STATE AGENCIES

1. Office of the Governor
2. California Transportation Commission
3. State Department of Transportation

4. State Air Resources Board
5. State Resources Agency

6. State Department of Water Resources
7. State Office of Planning and Research
8. State Energy Resources Conservation and Development Commission
9. State Department of Rehabilitation
10. State Legislative Audit Committee

11. State Office of Historic Preservation
12. Public Utilities Commission
13. State Lands Commission
14. State Department of Housing and Community Development
15. State Department of Parks and Recreation

16. State Department of Conservation
17. Regional Water Quality Control Board
18. State Department of Education
19. State Department of Public Health
20. State Department of General Services

21. Division of Mines and Geology
22. Santa Monica Mountains Conservancy
23. California State Publications Librarian
24. El Pueblo de Los Angeles State Park

5.1.3 REGIONAL AND LOCAL AGENCIES

1. Southern California Association of Governments
2. South Coast Air Quality Management District
3. Los Angeles County Transportation Commission
4. Los Angeles County (Board of Supervisors & Chief Administrative Officer)
5. Los Angeles County Regional Planning Commission

6. Los Angeles County Community Development Commission
7. Los Angeles County Road Department
8. Los Angeles County Regional Planning Department
9. Los Angeles County Health Services Department
10. Los Angeles County Hospital and Clinics Services

11. Los Angeles County Public Social Services Department
12. Los Angeles County Parks and Recreation Department
13. Natural History Museum of Los Angeles County (George S. Page Museum)
14. Los Angeles County Museum of Art
15. Los Angeles County Assessor

16. Los Angeles County Engineer
17. Los Angeles County Fire Department
18. Los Angeles County Sheriff's Department
19. Los Angeles Senior Citizen Affairs Department
20. Los Angeles County Commission on Human Relations

21. Los Angeles County Commission on Women
22. Los Angeles County Commission on Disabilities
23. Los Angeles County Superintendent of Schools
24. Los Angeles County Flood Control District
25. Los Angeles County Sanitation District

26. Los Angeles County Library Department (see Libraries, below)
27. Los Angeles County Clerk
28. Los Angeles City (Mayor and Council & Chief Administrative Officer)
29. Los Angeles City Transportation Department
30. Los Angeles City Planning Commission

31. Los Angeles City Planning Department
32. Los Angeles City Public Works Department
33. Los Angeles City Bureau of Engineering
34. Los Angeles City Bureau of Street Maintenance
35. Los Angeles City Recreation and Parks Department

36. Los Angeles City Police Department
37. Los Angeles City Fire Department
38. Los Angeles City Library Department (see Libraries, below)
39. Los Angeles City Cultural Affairs Department
40. Los Angeles City Cultural Heritage Board

41. Los Angeles City Social Service Department
42. Los Angeles City Community Redevelopment Agency Board
43. Los Angeles City Community Redevelopment Agency
44. Los Angeles City Housing Authority
45. Los Angeles City Community Development Department

46. Los Angeles City Building and Safety Department
47. Los Angeles City Department of Water and Power
48. Los Angeles Community College District
49. Los Angeles City Board of Education
50. Los Angeles City Legislative Analyst

51. City of Beverly Hills
52. City of Santa Monica
53. City of Burbank
54. City of Glendale
55. Southern California Edison Company

56. Southern California Gas Company

5.2 BUSINESS, COMMUNITY, AND PROFESSIONAL ORGANIZATIONS

1. Citizens Advisory Committee, Los Angeles County Transportation Commission
2. Sierra Club/City Care
3. National Association for the Advancement of Colored People
4. League of Women Voters
5. Urban League

6. National Organization for Women
7. Countywide Citizens Planning Council
8. Los Angeles County Federation of Labor
9. Los Angeles Conservancy
10. Los Angeles Grand Jury

11. Van Nuys Chamber of Commerce
12. North Hollywood Chamber of Commerce
13. North Hollywood Project Area Committee
14. Universal City Specific Plan Citizens Advisory Committee
15. Hollywood Heritage

16. Hollywood Chamber of Commerce
17. Hollywood Specific Plan Citizens Advisory Committee
18. Hollywood Coordinating Council
19. West Hollywood Planning Advisory Committee
20. West Hollywood Chamber of Commerce

21. West Hollywood Community Alliance
22. Beverly Fairfax Chamber of Commerce
23. Vitalize Fairfax Project
24. Beverly Fairfax Specific Plan Citizens Advisory Committee
25. Miracle Mile Specific Plan Citizens Advisory Committee

26. Park Mile Specific Plan Design Review Committee
27. Crenshaw Station Specific Plan Citizens Advisory Committee
28. Wilshire Chamber of Commerce
29. Korean Chamber of Commerce of Southern California
30. Southwestern University

31. West Coast University
32. Central City Association
33. Central Business District Redevelopment Project Area Committee
34. Los Angeles Area Chamber of Commerce
35. Little Tokyo Businessmens Association

36. Little Tokyo Project Area Committee
37. Chinatown Project Area Committee
38. Chinese Chamber of Commerce of Los Angeles
39. Los Angeles Convention and Visitors Bureau
40. Institute of Electrical and Electronics Engineers

41. American Institute of Architects
42. American Planning Association
43. American Society of Civil Engineers
44. American Society of Mechanical Engineers

Additional copies of the report will be made available to other interested agencies, groups, or individuals as appropriate.

5.3 AVAILABILITY TO PUBLIC

In addition to the distribution listed above, copies of this Final EIS/EIR are available for review at the locations identified below.

5.3.1 PUBLIC LIBRARIES

1. RTD Library and Information Center
   425 South Main Street
   Los Angeles, CA 90013

2. Central Library
   630 West Fifth Street
   Los Angeles, CA 90071

3. City of Los Angeles Municipal Reference Library
   City Hall East, Room 530
   200 North Main Street
   Los Angeles, CA 90012

4. North Hollywood
   5211 Tujunga Avenue
   North Hollywood, CA 91601

5. Studio City
   4400 Babcock Avenue
   North Hollywood, CA 91604

6. West Los Angeles
   11360 Santa Monica Boulevard
   Los Angeles, CA 90025

7. Cahuenga Library
   4591 Santa Monica Boulevard
   Los Angeles, CA 90029

8. Fairfax Library
   161 South Gardner Street
   Los Angeles, CA 90029

9. Felipe de Neve Library
   2820 West Sixth Street
   Los Angeles, CA 90057

10. San Vicente Library
    715 North San Vicente
    West Hollywood, CA 90069

11. John C. Fremont Library
    6121 Melrose Avenue
    Los Angeles, CA 90038

12. West Hollywood Library
1403 North Gardner Street
Los Angeles, CA 90004

13. Wilshire Library
149 North St. Andrews Place
Los Angeles, CA 90004

14. Chinatown Area Library
536 W. College Street
Los Angeles, CA 90012

5.3.2 SCHOOL LIBRARIES

14. University of Southern California
Architecture and Fine Arts Library
Watt Hall, University Park
Los Angeles, CA 90007

15. California State University, Los Angeles
John F. Kennedy Memorial Library
5151 State College Drive
Los Angeles, CA 90032

16. University of California Los Angeles
Public Affairs Service/
Local, University Research Library
Los Angeles, CA 90024

17. California State University
Northridge Library
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18. Institute for Transportation Studies
University of California
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19. American Public Transit Association Library
1225 Connecticut Avenue, N.W.
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20. Southwestern University School of Law Library
675 South Westmoreland Avenue
Los Angeles, CA 90020

21. West Coast University Library
440 Shatto Place
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22. Otis/Parsons Art Institute Library
2401 Wilshire Boulevard
Los Angeles, CA

23. Woodbury University Library
1027 Wilshire Boulevard
Los Angeles, CA 90017

24. Los Angeles Valley College
Reference Library
5800 Fulton Avenue
Van Nuys, CA 91401

25. Los Angeles City College
Reference Library
855 North Vermont Avenue
Los Angeles, CA 90029

26. Fairfax High School Library
7850 Melrose Avenue
Los Angeles, CA 90036

27. Hollywood High School Library
1521 North Highland Avenue
Los Angeles, CA 90028