FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/
SUBSEQUENT ENVIRONMENTAL IMPACT REPORT



Los Angeles Rail Rapid Transit Project

Metro Rail

U.S. DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

JANUARY 23, 1989

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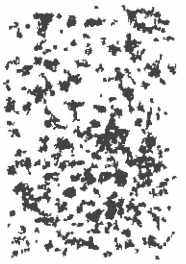

RTD

Alan F. Pegg
General Manager

JAN 25 1989

Ms. Brigid Hynes-Cherin, Western Area Director
Urban Mass Transportation Administration
211 Main Street, Room 1160
San Francisco, California 94105

Dear Ms. Hynes-Cherin:

Enclosed are two copies of the revised Final SEIS/SEIR for your review. The document has been revised consistent with:

1) The recommended changes in your letter of December 9, 1988,

2) Agreements reached at a meeting between your staff and SCRTD staff held on December 29, 1988 in your office, and

3) Phone conversations and exchange of various sections of the document between SCRTD staff and UMTA Headquarters staff.

At the December 29 meeting between UMTA and SCRTD staff, a number of draft revisions were discussed in detail and agreed to by your staff (Carmen Clark). These changes have been incorporated into the document. Additionally, the Noise/Vibration, Cultural, and Subsurface sections have been discussed in detail on the phone and/or exchanged with the Headquarters UMTA Office (Joe Ossi) prior to incorporation into the document.

As discussed at the December 29, 1988 meeting, it is our understanding that UMTA now intends only to make some minor, final edits (i.e., a marked up version of the enclosed document). For that reason, we have provided the document in loose-leaf form so that replacement pages can be readily inserted.

Southern California Rapid Transit District 425 South Main Street, Los Angeles, California 90013 (213) 972-4300

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Your December 9, 1988 letter lists program and design issues that are answered in the enclosed Final SEIS/SEIR by:

1) Inclusion of the plan and profile drawings for Phase II (Figure 2-4 through 2-19, on pages 2-1-7 through 2-1-22),

2) Inclusion of station site plans and station location plans (Figure 2-21 through 2-36 on pages 2-1-25 through 2-1-44),

3) Revisions to the Noise/Vibration Section (Section 8 of Chapter 3),

4) Revision to the Subsurface Section (Section 11 of Chapter 3), and

5) Revisions to Capital Costs in the document to assure that the utility relocation costs are adequate.

We also have enclosed one copy for Carmen Clark and one copy for Joe Ossi of all letters received by the SCRTD regarding the Draft SEIR, the Draft SEIS/SEIR, and the Addendum to the Draft SEIS/SEIR. This will enable a comparison of the files to assure that both the UMTA and SCRTD files are complete.

My staff and I look forward to the completion of the co-operative process of producing a final and revised document. Your comments and guidance have been invaluable in reaching this stage in the editorial process. We look forward to finalizing the document with UMTA in the next few days so that we can proceed with this critical transportation system in Los Angeles.

Sincerely,

Alan F. Pegg

cc: Carmen Clark
Joe Ossi

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SUMMARY

SECTION 1. INTRODUCTION

1.1 PROJECT HISTORY

In December 1983, the U.S. Department of Transportation/Urban Mass Transportation Administration (UMTA) and the Southern California Rapid Transit District (SCRTD) published a Final Environmental Impact Statement (FEIS) on the Los Angeles Rail Rapid Transit Project, Metro Rail. In compliance with California Environmental Quality Act (CEQA) requirements, a Final Environmental Impact Report (FEIR) was published in November 1983. These documents provide detailed analyses of the Metro Rail Locally Preferred Alternative (LPA), herein referred to as the "Original LPA," adopted by the SCRTD in 1983. The Original LPA is a component, the central link, of a 150-mile regional rapid transit system under development in Los Angeles County in accordance with Proposition A.

Proposition A, approved by a majority of the voters of Los Angeles County in November 1980, authorized the collection of a one-half of one percent retail sales tax to fund the improvement of public transit in the County. Other elements of the 150-mile Proposition A system include the 11-mile El Monte Busway, which is to be converted to rail. The Busway has been in operation since 1974 and carries 22,000 daily riders. Nearly 41 miles of light rail transit are now under construction in the Los Angeles-Long Beach Corridor (planned opening 1990) and Century Freeway Corridor (planned opening 1993). A light rail project in the San Fernando Valley and a busway on the Harbor Freeway are now under study by the Los Angeles County Transportation Commission and the California Department of Transportation. Future extensions of Metro Rail will provide additional rail capacity in the more heavily traveled corridors of the County.

The Original LPA is an 18.6-mile subway adopted for construction for which a capital grant application was submitted to UMTA. Due to budget constraints and a legislative prohibition on the commitment of federal funds beyond Fiscal Year 1986, UMTA determined that it was unable to commit to funding the full 18.6-mile system or a shorter 8.8-mile segment identified in the FEIS. In response, SCRTD proposed a 4.4-mile, five-station Minimum Operable Segment (MOS-1), extending from a yard and shop facility south of Union Station to a Wilshire/Alvarado Station, as an initial segment for funding purposes. In August 1984, UMTA and SCRTD completed an Environmental Assessment (EA) for MOS-1. A finding of no significant impact (FONSI) for this segment was issued in November 1984. On December 19, 1985, the President signed legislation requiring that the Secretary of Transportation enter into a full funding contract with SCRTD for the construction of MOS-1. That contract was signed on August 27, 1986, and construction of MOS-1 was initiated in September 1986.

In March 1985, a fire occurred at the Ross Dress-for-Less Store near Wilshire Boulevard at Third and Ogden Streets. Subsequent investigation of this event by a special City of Los Angeles Task Force resulted in the conclusion that the source of the fire was naturally-occurring methane gas. The "Task Force Report on the March 24, 1985, Methane Gas Explosion and Fire In Fairfax Area," dated

June 10, 1985, identified specific zones where subsurface conditions indicated a "potential risk" or "potential high-risk" of encountering methane gas during subsurface excavations. As a result of concerns associated with the subsurface presence of methane gas, the U.S. Congress attached to Public Law No. 99-1980 (December 19, 1985) the stipulation that the SCRTD could not tunnel in any of the risk zones identified in the City Task Force report. The U.S. Congress also stipulated that the SCRTD should identify and study candidate alignments that would avoid these risk zones.

In compliance with the Congressional mandate, the SCRTD initiated the Congressionally Ordered Re-Engineering (CORE) Study. The CORE Study includes the identification and evaluation of candidate alignments, the investigation of subsurface conditions, and the assessment of environmental impacts. The goal of the CORE Study is to identify an appropriate alignment, the New LPA, to link the San Fernando Valley, the Wilshire Corridor, and the Central Business District. This alignment will provide service to the Los Angeles Regional Core comparable to the service that would have been provided by the Original LPA, while avoiding tunneling through any portion of the risk zones identified in the Task Force Report. This document contains a discussion of the anticipated impacts associated with the New LPA. It has been prepared to provide guidance to decision makers in selecting a course of action that must include consideration of impacts not identified in the 1983 FEIS.

A California State Draft Subsequent Environmental Impact Report (SEIR) was completed and circulated in February 1987. That Draft SEIR was re-issued in November 1987 as a joint federal and state document (Draft SEIS/SEIR) with changes in one of the candidate alignments and additional data developed since February 1987. That Draft SEIS/SEIR examined the impacts of five candidate alignments and a null alternative. As stated in 23 CFR Part 771.130 (amended August 28, 1987), "A draft EIS, final EIS, or supplemental EIS may be supplemented at any time. An EIS shall be supplemented whenever the Administration determines that:

1) changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or

2) new information or circumstances relevant to environmental concerns and bearings on the proposed action or its impacts would result in environmental impact not evaluated in the EIS.

An Addendum to the November 1987 Draft SEIS/SEIR addressing a sixth candidate alignment was circulated in May 1988. The reader is referred to these documents for in-depth discussion of the CORE Study and the resulting project alternatives. On July 14, 1988, the SCRTD Board of Directors selected a new Locally Preferred Alternative (New LPA) for inclusion in this document. This New LPA is discussed in subsequent sections.

1.2 NULL ALTERNATIVE

A Null Alternative is included in this Final SEIS/SEIR for comparison purposes. Impacts associated with the Null Alternative are provided in the November 1987 Draft SEIS/SEIR and the May 1988 Addendum to the Draft SEIS/SEIR. These projected impacts have not changed. The Null Alternative includes a completed and operational 4.4-mile MOS-1 subway system, extending from a yard and shop facility south of Union Station to a terminal station at Wilshire at Alvarado, and a supporting bus system. MOS-1 is the initial segment of the 18.6-mile Original LPA defined for funding purposes. A full funding contract for MOS-1 was signed August 27, 1986, and construction was initiated September 29, 1986. Service initiation for this segment is expected in January 1993.

The MOS-1 alignment begins at Union Station, where it turns northwest and runs through the Central Business District (CBD) along Hill Street. Turning on Seventh Street, the MOS-1 heads toward the west side of the CBD, past the Harbor Freeway, and continues to Wilshire and Alvarado. Crossover tracks are located just east of the terminal station at Wilshire/Alvarado to satisfy operational requirements. In addition to a Union Station and a Wilshire/Alvarado Station, stations are located at the Civic Center, Fifth and Hill Streets, and Seventh and Flower Streets.

SECTION 2. LOCALLY PREFERRED ALTERNATIVE

On July 14, 1988, the SCRTD Board of Directors adopted Candidate Alignment 1 as the New Locally Preferred Alternative (New LPA) for inclusion in this Final SEIS/SEIR. Minor modifications have been made in the number and location of stations, the impacts of which have already been assessed as part of Candidate Alignment 3. Specifically, the optional Hollywood Bowl Station for Candidate Alignment 1 is replaced with a station at the intersection of Hollywood Boulevard and Highland Avenue.

The New LPA is a 17.3 mile, all subway alignment with sixteen stations, including the five-station, 4.4 mile, MOS-1 initial segment (See Figure S-1). The alignment proceeds from the MOS-1 Station at Wilshire/Alvarado Station along Wilshire Boulevard to Western Avenue, and north along Vermont Avenue from the Wilshire/Vermont Station, west along Hollywood Boulevard, north through the Hollywood Hills to Universal City, and then terminating at Lankershim and Chandler in North Hollywood.

This New LPA was selected following substantial community involvement in the process. Three public hearings were held on various options. Numerous public meetings were held in the community, and the SCRTD consulted with elected officials, business leaders, neighborhood organizations and interested citizens throughout the process. Prior to selection by the SCRTD Board of the New LPA, two committees of the Los Angeles City Council, the full City Council and the Los Angeles City Planning Commission each unanimously recommended that the SCRTD Board adopt the New LPA alignment as defined here.

The New LPA is a combination of two prior alignments. Between the MOS-1 segment, the Wilshire/Western Station and the Hollywood/Vine Station, the New LPA alignment is identical to Candidate Alignment 1, as defined in the November 1987 Draft SEIS/SEIR. Between the Hollywood/Vine Station and the North Hollywood Station, the New LPA alignment is identical to Candidate Alignment 3, as defined in the 1987 Draft SEIS/SEIR.

In addition to MOS-1, four of the eleven new stations have been defined as potential temporary termini for the New LPA:

1) Wilshire/Western Station;
2) Wilshire/Vermont Station;
3) Hollywood/Vine Station; and
4) Universal City Station.

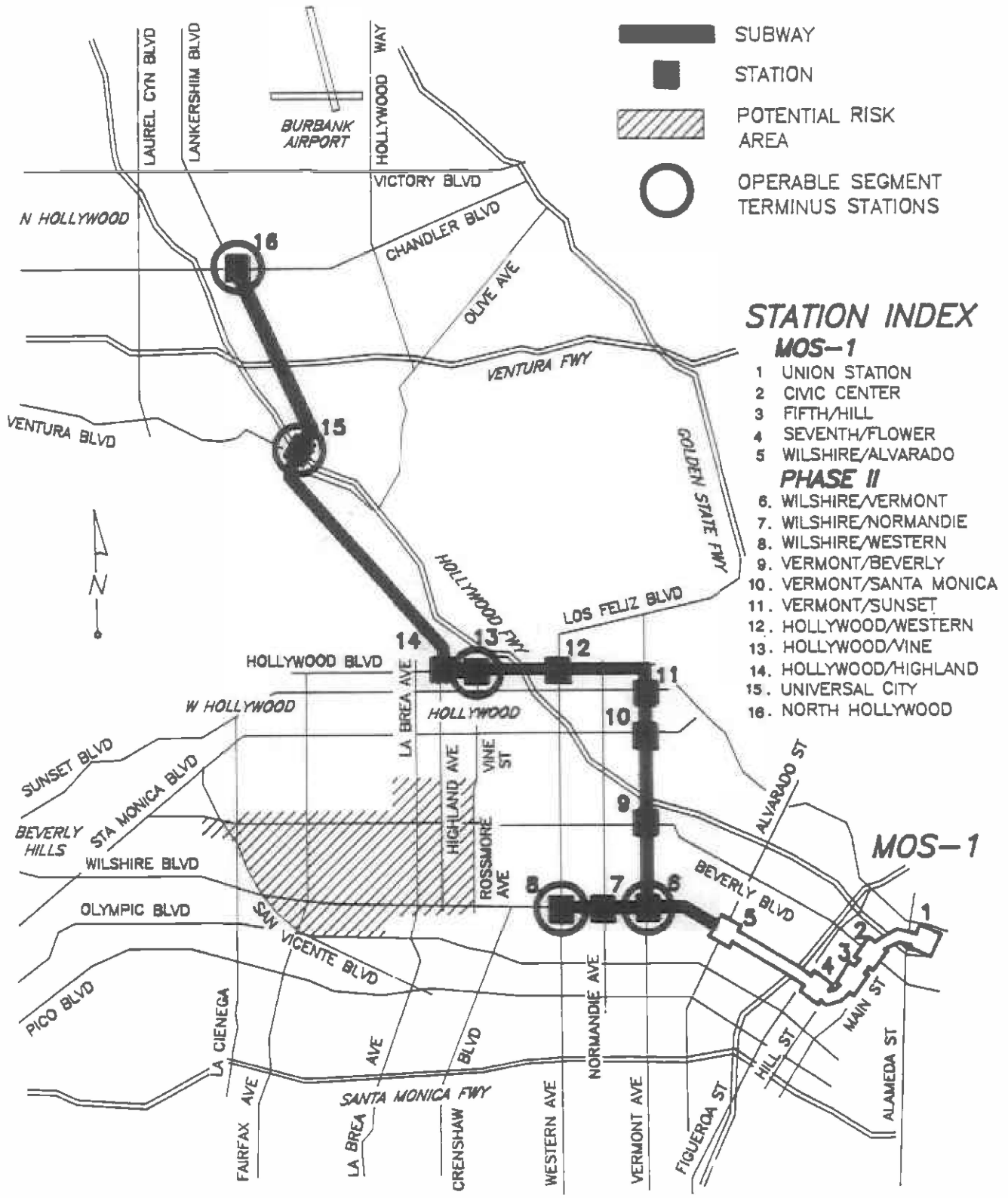
The Los Angeles City Council has voted to make the full New LPA alignment the second operable segment, i.e., have the next construction segment terminate at Wilshire/Western and North Hollywood.

Following selection of the New LPA, the SCRTD Board of Directors expressed its strong desire to receive funding from the City of Los Angeles for completion of appropriate environmental studies and development of a local funding plan for

FIGURE S-1

SCRTD METRO RAIL
NEW LOCALLY PREFERRED ALTERNATIVE
VERMONT/HOLLYWOOD BLVD. SUBWAY

LPA SELECTED BY SCRTD BOARD OF DIRECTORS JULY 14, 1988



implementation of a direct transit connector between the Hollywood/Highland Station on the New LPA and the Hollywood Bowl. The secondary and cumulative impacts of such a connector are reviewed in the Addendum to the Draft SEIS/SEIR.

SECTION 3. DEFINITION OF KEY TERMS

The following terms are used in this document with these definitions:

1. MOS-1: The 4.4-mile rail transit system currently under construction in downtown Los Angeles.

2. Null Alternative: The 4.4-mile MOS-1 rail system with a supporting regional feeder bus operation.

3. Phase II: The 12.9-mile extension of MOS-1 west and north of the Wilshire/Alvarado Metro Rail Station.

4. New LPA: MOS-1 and Phase II taken together.

5. MOS-2: That portion of Phase II on which the $667 million, authorized by the Surface Transportation and Urban Rail Authorization Act (STURA), will be spent. The exact length for MOS-2 will be decided prior to negotiation of the Full Funding Contract (FFC). Three MOS-2 possibilities, called "cases," are discussed in this document.

6. MOS-3: The remainder of the Phase II beyond MOS-2, as eventually defined above.

SECTION 4. KEY SYSTEM CHARACTERISTICS

Key system characteristics of the Null Alternative and the New LPA are presented in Table S-1. The Null Alternative consists of the MOS-1 segment of Metro Rail and a supporting bus system. The New LPA would have daily rail boardings of just under 300,000. The Null Alternative is projected to have 55,000 rail boardings per day in the Year 2000. UMTA considers the SCRTD patronage forecasts to be at the high end of reasonable expectations. Therefore, for each environmental impact associated with ridership, explicit consideration is given in this document to the effects if the SCRTD forecasts are not realized. Rail capital costs in December 1985 dollars are $2,849 million for the New LPA ($1,151 for MOS-1 and $1,698 for Phase II). Annual rail operating costs in the year 2000 are projected to be $34 million for the New LPA and $ 15.4 million for the Null Alternative.

The reader is referred to the November 1987 Draft SEIS/SEIR and its May 1988 Addendum for discussions on the operating characteristics of Candidate Alignments 1 through 6.

TABLE S-1

SYSTEM CHARACTERISTICS OF OPTIONS EVALUATED

System Characteristics	Null Alt.	Phase II	New LPA
SCRTD Rail System			
o Length (Miles)	4.4	12.9	17.3
o Alignment (Miles)			
- Subway	4.4	12.9	17.3
- Aerial	0	0	0
o No. of Stations	5	11	16
o Daily Boardings	55,000	N.A.	298,000
o Fleet Size (Cars)	30	80	110
o Total Capital Costs* (1985$ Millions)	$1,151	$1,698	$2,849
o Annual Operating (1985$ Millions)	$15	N.A.	$34
o Annual Rail Car Miles of Travel (in 1,000's)	865	N.A.	6,300
SCRTD Bus System			
o Peak Buses Reqd	2,051	N.A.	2,029
o Daily Boardings (1,000's)	1,357	N.A.	1,648
o Annual Operating & Maint. Costs (1985$ Millions)	$543	N.A.	$532
o Annual Vehicle Miles of Travel (VMT in 1,000's)	110,928	N.A.	103,700
Automobile			
o Regional Daily Vehicle Miles of Travel (VMT in 1,000's)	260,425	N.A.	259,015

N.A. = Not Applicable

* Revised Since Nov. 1987 Draft SEIS/SEIR and Since May 1988 Addendum. See Chapter 4.

Sources: SCRTD/General Planning Consultant and Environmental Assessment Los Angeles Rapid Transit Project Union Station to Wilshire/Alvarado, SCRTD with the cooperation of U.S. Department of Transportation, Urban Mass Transportation Administration, August, 1984.

SECTION 5. EVALUATION OF ALTERNATIVES

The following paragraphs present a summary of the direct and indirect impacts associated with the two project options. The reader is referred to the November 1987 Draft SEIS/SEIR and its May 1988 Addendum for examinations of impacts associated with Candidate Alignments 1 through 6. Key evaluation data for these options are presented in Table S-2.

5.1 TRANSPORTATION

Consideration of the alternative alignments has required reassessment of the Supporting Services Plan, which establishes feeder bus routes. Changes to the Supporting Services Plan that would be necessary for efficient support of rapid rail service on the full system have been defined for the project options. Projected peak vehicle requirements are 2,051 buses for the Null Alternative and 2,029 buses for the New LPA.

TABLE S-2

SUMMARY OF EVALUATION DATA FOR PROJECT OPTIONS

EVALUATION AREA	NULL ALTERNATIVE	PHASE II	NEW LPA
1. SERVICE			
a. # OF STATIONS	5	11	16
b. LENGTH IN MILES			
o Subway	4.4	12.9	17.3
o Aerial	0	0	0
o Total	4.4	12.9	17.3
c. METRO RAIL			
o Daily Boardings	55,000	N.A.	298,000
o Fleet Size	30 CARS	80 CARS	110 CARS
o Annual Rail Car Miles Traveled (1,000s)	865	N.A.	6300
d. SCRTD BUS SYSTEM			
o Daily Boardings	1,357,000	N.A.	1,648,000
o Peak Buses Req'd	2,051	N.A.	2,029
o Annual Vehicle Miles Traveled (1,000s)	110,928	N.A.	103,700
2. COST			
a. CAPITAL COST (MILLIONS OF 12/85 $s)			
o Construction and Procurement	--	$1,088	$1,088
o Contingency, Design, Construction Management	--	$288	$288
o Right-of-Way	--	$125	$125
o Insurance/Agency	--	$197	$197
SUBTOTAL	--	$1,698	$1,698
MOS-1	$1,151	--	$1,151
TOTAL	$1,151	$1,698	$2,849

continued-

TABLE S-2 (CONTINUED)

SUMMARY OF EVALUATION DATA FOR PROJECT OPTIONS

EVALUATION AREA	NULL ALTERNATIVE	PHASE II	NEW LPA
b. ANNUAL OPERATING COST			
(MILLIONS OF 12/85 $s)			
o Rail	$15.4	N.A.	$34.1
o Bus	$542.6	N.A.	$532.0
Total	$558.0	N.A.	$566.1
3. LAND USE AND DEVELOPMENT			
a. CITY CENTERS			
o # of Centers Served	4	7	11
o # of Stations in Centers	5	8	13
b. REDEVELOPMENT PROJECTS			
o # of Projects Served	1	2	3
o # of Stations in Proj Area	4	3	7
c. DISPLACEMENTS			
o Commercial Enterprises	N.A.	87	87
o Residential Units	N.A.	150	150
o Nonprofit Enterprises	N.A.	2	2
o Employees Displacements	N.A.	834	834
4. ENVIRONMENT			
a. TRANSPORTATION			
o Traffic (Flow at Critical Intersections)			
-Minor Impacts	N.A.	20	20
-Moderate Impacts	N.A.	5	5
-Major Impacts	N.A.	6	6
o Parking (in Spaces)			
-Expected Deficiency	0	1,029	4,419
-Park-N-Ride Available	2,500	5,000	7,500
-Kiss-N-Ride Available	20	150	170
b. SOCIAL AND COMMUNITY (# of Stations exhibiting characteristics)			
o Minority Communities (33% or More Minority Pop.)	5 OF 5	7 OF 11	12 OF 16
o Youth Populations (10% or More Age 5-19 Yrs.)	4 OF 5	10 OF 11	14 OF 16
o Elder Populations (15% or More Age 65 & Older)	3 OF 5	6 OF 11	9 OF 16
o Zero-Auto Households (33% or More W/O Autos)	5 OF 5	9 OF 11	14 OF 16

continued--

TABLE S-2 (CONTINUED)

SUMMARY OF EVALUATION DATA FOR PROJECT OPTIONS

EVALUATION AREA	NULL ALTERNATIVE	PHASE II	NEW LPA
c. ACCESSIBILITY			
o All LA County Households	--	N.A.	13.0
o Majority Transit Users	--	N.A.	10.4
o Minority Transit Users			
-Asians	--	N.A.	14.8
-Blacks	--	N.A.	18.8
-Hispanics	--	N.A.	16.6
o Zero-Auto Households	--	N.A.	18.5
o Poverty Level Households	--	N.A.	16.7
d. SUBSURFACE IMPACTS -- LIKELIHOOD OF ENCOUNTERING SUBSURFACE GAS BEYOND WILSHIRE/VERMONT STATION (ALL ALIGNMENTS SHARE SOME LIKELIHOOD BETWEEN WILSHIRE/ ALVARADO AND WILSHIRE/ VERMONT.)	--	MODERATE ALONG VERMONT & HOLLYWOOD	MODERATE ALONG VERMONT & HOLLYWOOD
e. NOISE AND VIBRATION			
o Subway			
-Impacted Properties With Mitigation Measures	4	0	0
-Length of Mitigation Measures (in Feet)			
(Soft Fasteners	0	6,900	6,900
(Resiliently Supported Ties	0	600	600
(Floating Slab Trackbed	4,768	2,600	7,368
f. CULTURAL/HISTORIC			
o Properties Adversely Affected	--	0	0

N.A. = Not Applicable
* % of total L.A. County jobs within sixty minutes door-to-door transit travel time.

The Null Alternative would have a negligible effect on parking demand near downtown stations. The very limited "commuter shed" of the Wilshire/Alvarado Station will utilize a small portion of an existing parking surplus, which is expected to continue after MOS-1 becomes fully operational.

5.2 LAND USE AND DEVELOPMENT

The Metro Rail Project is likely to induce additional growth in the Regional Core. The project would promote the concentration of development in designated Centers (consistent with the City Centers Concept), and would help maintain surrounding low-density residential areas and reduce development pressures on

sensitive undeveloped areas outside the Regional Core. The project was designed to mitigate the effects of growth that have already occurred or are expected in the Regional Core. Metro Rail may result in upward pressures on land values in station areas, an adverse impact which cannot be mitigated.

The rapid rail component of the Null Alternative (MOS-1) would serve four designated City Centers. All five stations in MOS-1 support the Centers Concept of the Los Angeles City and County General Plan.

Of the eleven new stations in the Phase II, eight reinforce the City Centers Concept of the Los Angeles City and County General Plans and support the revitalization of eight Designated Centers.

The New LPA presents no unmitigable situations where combined residential and commercial growth would adversely affect single-family housing in a station area.

5.3 ECONOMIC AND FISCAL IMPACTS

Additional property tax revenues and sales tax revenues would accrue to the City of Los Angeles as a result of new development occurring in conjunction with each project option. The loss of property tax revenues from parcels acquired by SCRTD for the project would be negligible relative to increases in property tax revenues from new development. Tax revenues could increase even more with development incentives which encourage joint development of SCRTD property around stations.

5.4 LAND ACQUISITION AND DISPLACEMENT

Construction of Metro Rail would require SCRTD to acquire real estate to accommodate stations, guideways, vent shafts, and other ancillary structures. Easements through or beneath properties also would be required. These acquisitions would result in direct displacements of residents, businesses, and nonprofit organizations.

The New LPA would affect 87 commercial enterprises, 150 residential units, and 2 nonprofit enterprises for a total of 239 displacements. No displacements would occur under the Null Alternative.

Because there would be no displacements under the Null Alternative, no employees would be affected. The New LPA would affect 834 employees.

Though SCRTD has made and will continue to make every effort to avoid displacements in its design of the selected alignment and station entrance locations, some would be necessary. Where acquisition and relocation are unavoidable, SCRTD would follow the provisions of the Uniform Relocation Assistance Act by identifying replacement sites for housing, businesses, and nonprofit organizations. SCRTD has established a Relocation Advisory Program which coordinates all assistance efforts, using a staff of experienced real estate specialists. SCRTD has and would continue to initiate communication with all potentially affected parties through public meetings which would be announced both in the local media and with direct correspondence. These meetings would include explanations of relocation benefits, the related eligibility

requirements, and procedures for obtaining assistance. Each residential and commercial occupant would be assigned a real estate specialist for assistance throughout the relocation process.

Policies and procedures adopted by SCRTD ensure that all real property acquired for Metro Rail is appraised for its fair market value and that just compensation is determined. Each person or business required to relocate would be given a minimum ninety days notice and may be eligible for certain relocation services and/or payments. No residential occupant would be required to relocate until decent, safe, sanitary and affordable replacement housing is made available. If comparable housing is not found, SCRTD may offer a last-resort housing payment to eligible residents. Real estate specialists would work with businesses to assure that comparable facilities are available. In some cases, a business may be eligible to receive a fixed sum in lieu of other moving and related expenses.

5.5 SOCIAL AND COMMUNITY IMPACTS

Social and community impacts of the project options were assessed in two broad categories: community cohesion and accessibility. Impacts affecting community cohesion include changes in land use, displacements, traffic and congestion, aesthetics, and noise and vibration. Accessibility impacts were examined in terms of availability of transit services and travel time to and from selected points of origin and destination. Transit accessibility was explored with particular emphasis given to selected, typically transit-dependent, segments of the general population.

All five stations served by MOS-1 under the Null Alternative have minority populations greater than fifty percent. Twelve of the sixteen stations in the New LPA have minority populations of 33 percent or more.

Four of the five stations served by MOS-1 under the Null Alternative have youth populations (ages 5 to 19 years) greater than ten percent, while 14 of the New LPA's 16 stations serve such groups.

Three of the five stations served by MOS-1 under the Null Alternative stations have elderly populations (65 years and older) fifteen percent or greater as do nine of the sixteen station areas along the New LPA.

All five stations served by MOS-1 under the Null Alternative have populations with more than one-third of the households without private transportation, as do fourteen of the sixteen station areas along the New LPA.

5.6 SAFETY AND SECURITY

SCRTD has developed system safety and fire/life safety design criteria and a System Safety Program Plan to ensure that Metro Rail equals or exceeds the safety and security of other systems currently in operation. There is no appreciable difference between the project options in this regard.

5.7 AESTHETICS

The construction of a subway would have little visual impact on the surrounding environment. No facilities would be developed under the Null Alternative; therefore, physical aesthetic impacts would not occur. The New LPA, because it is completely underground, would present no major visual impacts other than station entrances, and at some stations, bus and parking facilities.

5.8 NOISE AND VIBRATION

Variations among the alternatives are evident in terms of noise and vibration after the inclusion of mitigation measures. After the recommended mitigation measures, the all-subway MOS-1 of the Null Alternative would be expected to have noise and vibration impacts on four structures, while the all-subway New LPA is predicted to affect no structures. The Null Alternative and the New LPA would not impact single-family residences and apartment buildings with airborne passby noise above the adopted criteria of 75 and 80 dB(A). More detailed criteria are shown in Section 8.3.2 of Chapter 3. Each alternative would result in increases in ground-borne noise and vibration.

5.9 AIR QUALITY

A minor reduction of vehicular emissions of carbon monoxide, reactive hydrocarbons, oxides of nitrogen, sulfur dioxide, and suspended particulates would be realized in the Los Angeles region with each of the project options. Although these reductions would be a benefit of the project, they represent only minor improvements in overall regional air quality.

Localized increases in carbon monoxide (CO) concentrations could occur at critical intersections in station areas. The New LPA would affect 11 intersections listed on Table 3-4 in Chapter 3.

5.10 ENERGY

The assessment of energy impact is based on vehicle miles of travel by auto, bus, and rail in the six-county Los Angeles region. The energy categories include construction of rail facilities, vehicle manufacture, vehicle maintenance and propulsion, and station operation. The New LPA is projected to result in an annual regional energy savings over Null Alternative conditions of 2,759 billion BTU's.

5.11 SUBSURFACE CONDITIONS

In response to a methane gas explosion and fire at the Ross Store at Third Street and Ogden Drive, March 24, 1985, the CORE Study was mandated by Congress to determine the possibility of encountering subsurface gas (including methane) along the routes of alternative alignments. The Subsurface Conditions section of this document examines the results of the CORE Study. Also examined were the local and regional geologies and their potential influence on alternative alignments in terms of seismicity and subsurface soil and strata compositions and characteristics. Finally, the hydrological characteristics of proposed alignment routes were examined.

There are eight known oil fields in various stages of production and/or abandonment in the Regional Core, the area to be served by Metro Rail. The alternative alignments would pass over or within 500 feet of four of these fields. The likelihood of encountering subsurface gases associated with these oil fields would be greatest west of the Wilshire/Western Station. Along Vermont Avenue, the likelihood would be slightly less; along Hollywood Boulevard, the chances would be reduced still further.

None of the alternative alignments would completely avoid the possibility of encountering subsurface gas. In all subway sections, SCRTD would utilize a barrier in the form of a high-density polyethylene (HDPE) membrane to line the tunnels. This HDPE membrane has a 99 percent calculated effectiveness for preventing the migration of subsurface gases into Metro Rail facilities. Other, more detailed mitigation measures are described in Section 11 of Chapter 3.

The potential for significant seismic effects on Metro Rail has been thoroughly examined. Eleven known faults and two folds have been identified in the study area. However, only two of the eleven, the Hollywood Fault and the Santa Monica Fault, are considered potentially active. Geologists estimate that the probability of a Richter magnitude seven earthquake associated with these faults (or any other faults in the area) in the next 100 years is five percent.

Nine intersections of faults or folds with the alternative alignments are evident. The segment along Wilshire Boulevard between Alvarado Street and Vermont Avenue intersects the MacArthur Park Fault and another unnamed fault. The Vermont segment intersects the Los Angles Anticline near Beverly Boulevard. The Hollywood Boulevard segment of the New LPA intersects the Santa Monica Fault just west of Normandie Avenue. The New LPA crosses the Hollywood Fault as it heads north to the San Fernando Valley.

Extensive discussion concerning tunneling and surface excavations for MOS-1, the rail component of the Null Alternative, are presented in the 1983 FEIS and 1984 EA and are included herein by reference. The EA states hydrocarbon accumulations are expected in the western Wilshire Corridor, and construction actions may expose gassy ground near the Wilshire/Alvarado Station. Oily or tar saturated ground is not expected except for a small deposit west of the Seventh/Flower Station. Appropriate design and construction methods are being employed to minimize potential seismic, soil liquification/densification, tunnel excavation/stability, and hydrocarbon accumulation problems.

5.12 HYDROLOGICAL IMPACTS

The project area is drained by the Los Angeles River, Tujunga Wash, and Ballona Creek. These watercourses have been channelized for flood control. The construction of Metro Rail would not have a significant impact on the ability of present flood control facilities. Additionally, it is not expected that Metro Rail service and operations would be significantly affected by a 100-year flood in the Regional Core.

5.13 BIOLOGICAL RESOURCES

Because most of the route of any option passes through a highly urbanized area, the project options would not adversely affect unique or endangered biological resources. The only significant biological resources are in the natural areas associated with Laurel Canyon and Cahuenga Pass in the Santa Monica Mountains. The New LPA passes through the Santa Monica Mountains in a subway configuration, and only one required air vent shaft would result in any disturbance. That air vent would disturb less than one acre of native vegetation. Short-term impacts of human presence and noise during construction would also occur. No impacts to state or federally listed rare, threatened or endangered wildlife species are anticipated because no significant impacts on wildlife habitats are anticipated. When detailed construction plans are completed, a site-specific survey would be conducted to confirm that no rare or endangered plants are present. If such a plant is found to be affected, appropriate consideration will be given to avoiding the impact in final design.

5.14 ELECTROMAGNETIC EMISSIONS

Electromagnetic emissions from operations of trains in subway are attenuated by the tunnel structure and the earth cover to a level of insignificance. The Metro Rail system design specifications would result in a system that radiates electromagnetic emissions below the ambient level.

5.15 CONSTRUCTION IMPACTS

Several short-term impacts would result from the construction of Metro Rail. Each impact and its relation to the project options have been analyzed and examined for mitigating measures. The cut-and-cover construction method for stations would have greater impact, in general, than would the tunnel construction of the guideway elements of the Null Alternative and the New LPA. Most impacts will be short-term and occur during the construction period. Some construction impacts are long-term and unavoidable, such as the potential adverse effects on historic properties.

Circulation impacts include the disruption of traffic movement in the areas of construction causing delays and inconvenience. To maintain reasonable traffic flow to the greatest possible extent, contractors will be required to follow the Worksite Traffic Control Plans (WTCP) approved by the City of Los Angeles Department of Transportation. No major or secondary streets or highways are expected to be closed except at nights and weekends. Community impacts include temporary disruption of access to local facilities and construction noise which will disturb community life.

Economic impacts, in terms of business disruption, are dependent on commercial density and pedestrian orientation. Station areas outside the CBD are expected to be less impacted. Approximately 9,000 feet of cut-and-cover construction for the New LPA involves commercial frontage. To mitigate the impacts and disruption of businesses, a WTCP would be required along with specific facilities to maintain pedestrian movement. Construction during peak commute hours may be restricted.

Noise impacts and vibration from construction would be minimized to the extent possible. Several maximum permissible noise levels are to be observed and noise reduction techniques would be required, including restrictions by time of day on use of specific equipment. Air quality impacts caused by construction activities are fugitive dust and emissions from construction equipment. Regulations of the South Coast Air Quality Management District (SCAQMD) would be enforced by SCRTD. These regulations include site watering and street sweeping to suppress dust. Energy impacts would be reduced by consolidation of material delivery schedules and the routine maintenance of gasoline- and diesel-powered equipment.

Geology and hydrology impacts would result from the substantial volume of subsoil known as "muck" to be excavated in each of the alternative alignments. Disposal of muck and any associated material that may be hazardous must be in strict conformance to state and federal laws and regulations and specifications of SCRTD. The type of muck expected to be encountered for each alignment and potential disposal sites have been identified. Of particular concern is the presence of tar sands principally along the Wilshire corridor. Soils with tar sands can be an unstable environment for construction and contain pockets of explosive gas. The hazards of tar sands would be avoided by implementation of extensive testing, constant monitoring and ventilation. Some station areas may need to have groundwater removed during construction. Final design and construction will be coordinated with the California State Division of Safety and Health, which has responsibility for safety of subsurface tunneling through hazardous material.

Construction impacts cannot be completely offset. Some residual, unmitigable impacts will occur such as the disruption of daily routines with regard to circulation and commercial access, temporary increases in dust and noise associated with construction, increases in vehicular congestion and some reduction of on-street parking in and around construction sites.

No construction impacts would occur under the Null Alternative. However, on February 26, 1987, the SCRTD Board of Directors approved the realignment of MOS-1 some 50 to 400 feet in the vicinity of Union Station. Realignment would mitigate the need to remove large quantities of contaminated material. An Environmental Assessment entitled, "Metro Rail Project, Minimum Operable Segment 1, Realignment Between the Civic Center Station and the Yard and Shops," has been prepared to review the impacts of this realignment near Union Station; UMTA issued a Finding of No Significant Impact for the realignment on September 30, 1987.

5.16 CULTURAL RESOURCES

The Null Alternative and the New LPA are not predicted to affect cultural/historical properties.

SECTION 6. LONG-TERM AND CUMULATIVE IMPACTS

Although most temporary short-term construction impacts and most long-term operation impacts could be mitigated to acceptable levels, continuation of the Metro Rail Project by construction of the New LPA would result in some adverse impacts which could not be completely avoided or mitigated. Long-term unavoidable adverse impacts include:

- Additional traffic on local arterial and 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 of businesses near stations.

- Some displacements associated with all alternative alignments. 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.

- All alternatives would result in increases in ground-borne noise and vibration. The Null Alternative and the New LPA would not impact single-family residences and apartment buildings with airborne passby noise above the adopted criteria of 75 and 80 dB(A) respectively. More detailed criteria are shown in Section 8.3.2 of Chapter 3.

The SCRTD Board weighed these recognized adverse and long-term impacts against the benefits of Metro Rail. Benefits include increased accessibility to all centers in the Regional Core, improved travel times and decreases in vehicle hours of travel, and accommodation of more concentrated yet regulated growth pursuant to regional growth goals. The SCRTD Board found the project to be justified because of severe traffic congestion in the Regional Core, overcrowding of the present bus system and the need for a more efficient transit system. A balanced transit system would reduce transit operating deficits. A more efficient transit system would save users time and money. The Metro Rail Project would accelerate the achievement of goals for transportation, air quality, energy policy, redevelopment, the City Centers Concept and commercial growth.

The Metro Rail Project would require the irreversible and irretrievable commitment of land, manpower, construction materials and money. Long-term funding support at the federal, state, and local levels would be required. The Metro Rail Project would likely induce additional growth in the Regional Core, but would help concentrate development at designated Centers, consistent with the City Centers Concept.

The Null Alternative, would not require the long-term use and ongoing commitment of resources beyond those already committed for MOS-1. Increased traffic and parking impacts may occur at the Wilshire/Alvarado Station in its role as a terminal station.

SECTION 7. ISSUES TO BE RESOLVED

A public works project the size of Metro Rail passing through a highly urbanized area typically will have associated with it issues that need to be resolved. The following sections discuss key remaining issues.

7.1 TEMPORARY TERMINAL STATIONS

Four alternative temporary terminal stations have been identified for the New LPA. These terminal stations are:

- o Hollywood/Vine
- o Wilshire/Western
- o Universal City
- o Wilshire/Vermont

Each of these temporary terminal stations was evaluated in the Draft SEIS/SEIR and the Addendum. This information is repeated in this Final SEIS/SEIR.

The Los Angeles City Council voted unanimously to select the entire New LPA as the next construction segment. The temporary terminal stations listed above have been proposed to provide maximum flexibility during future funding negotiations in the event that the City Council's desire cannot be realized due to funding constraints.

Negotiations between the funding partners for Metro Rail are anticipated to continue over the next few months. Completion of these negotiations will determine which construction segment will be implemented.

7.2 HOLLYWOOD BOWL CONNECTOR

Over the course of the CORE Study, numerous candidate alignments and station locations were proposed and evaluated. As a part of this review, substantial discussions were held regarding appropriate locations for stations in central Hollywood. The City of Los Angeles expressed a strong desire for a station to be located at the intersection of Hollywood Boulevard and Highland Avenue, noting that such a station would be highly supportive of the Hollywood Redevelopment Plan and efforts by the Los Angeles Community Redevelopment Agency to promote appropriate economic development in central Hollywood.

A Hollywood/Highland Station was included as a part of three candidate alignments reviewed in the Draft environmental documents: Alignments 3, 4 and 6. Candidate Alignment 4 provided service not only to Hollywood/Highland but also to the optional station at the Hollywood Bowl. This was one of many reasons why Candidate Alignment 4 was initially selected as the locally preferred alternative by the Los Angeles City Council and the SCRTD Board of Directors prior to the public hearing on the November 1987 Draft SEIS/SEIR.

Candidate Alignments located on Hollywood Boulevard in central Hollywood (Alignments 1, 2, 3, and 6), however, cannot provide service to both a

Hollywood/Highland Station and the Hollywood Bowl for engineering reasons. An analysis of a transit connector between the Hollywood/Highland Station and the Hollywood Bowl was, therefore, included in the May 1988 Addendum to the Draft SEIS/SEIR.

The City of Los Angeles Planning Commission, City Council and committees of the City Council each unanimously recommended the adoption of Candidate Alignment 1. with minor modifications to the number and location of stations, as the New LPA. The recommended modification of Alignment 1 included the addition of a station at Hollywood and Highland. Because Alignment 1 is located on Hollywood Boulevard, this station addition precluded direct Metro Rail service to the Hollywood Bowl.

Much of the discussion by the SCRTD Board of Directors during its deliberations on the adoption of a Locally Preferred Alternative was focused directly on this issue. Following extended debate, the SCRTD Board adopted Candidate Alignment 1, with minor modifications to the number and location of stations, as the Locally Preferred Alternative. During the meeting, the following resolution later was passed in response to the station location issue:

> BE IT RESOLVED, that in recognition of the significance of the Hollywood Bowl to the residents and businesses of the City of Los Angeles, the City of Los Angeles shall commit to: (1) the completion of an environmental impact report by the SCRTD and funded by the City in an amount not less than $200,000 covering alternative direct transit linkages between the Metro Rail System and the Hollywood Bowl, and (2) identify a plan for considering all possible public and private funding to construct this direct transit linkage in time for its simultaneous opening with the Metro Rail System in Hollywood.
>
> IT IS FURTHER RESOLVED, that this commitment be made by the City of Los Angeles concurrent with its funding agreement with the District for construction of the MOS-2 Project.

7.3 UNIVERSAL CITY STATION CHANGES

For the Universal City Station, specific solutions have been identified as the result of an extensive evaluation of traffic demands to be associated with Metro Rail. The 1983 FEIS contains a plan to integrate station access requirements through construction of a two-lane facility bridging the Hollywood Freeway and connecting surface parking to the station. Facilities provided by the original FEIS site plan include:

1. Two-lane station access road.
2. Two-lane freeway overpass.
3. Two-lane station area road.
4. Single-lane extension of Universal Place Road.

Facilities to be provided by the adopted plan include the following items not covered by the original plan:

1. Removal of the existing Riverton Avenue off-ramp.
2. Six-lane (in lieu of two-lane) station access road.
3. Six-lane (in lieu of two-lane) freeway overpass.
4. Six-lane (in lieu of two-lane) station area road.
5. Reconfiguration of Bluffside Drive Road into a two lane frontage road.
6. Widening of certain streets and intersections.
7. A dual lane extension of Universal Place Road.
8. An additional lane on the northbound ramp to the Hollywood Freeway.

Changing the two-lane station access road to a six-lane roadway can be accomplished without requiring additional right-of-way beyond that identified in the original FEIS site plan. The reconfiguration of the station area and the additional lanes will be developed in a manner which will not preclude the construction of a proposed auxiliary lane on the east side of the Hollywood Freeway connecting the Station Access Road to Vineland Avenue at some future date.

These changes represent a major mitigation for the traffic impacts potentially associated with operation of the Universal City Station. The traffic mitigation aspects of these roadway changes are reviewed in Section 1.2.3 of Chapter 3 of the Final SEIS/SEIR, "Mitigation of Traffic Impacts."

The addition of these facilities to the program has been endorsed by the California Department of Transportation (Caltrans), area developers, property owners, and also the Los Angeles City Planning Commission, the Los Angeles City Council, and the LACTC. Funding for the six lane roadway and other associated requirements listed above have been included in the project cost estimate. Detailed design of these traffic mitigation elements will be conducted as soon as the project is adopted and final design work can proceed.

SECTION 8. CHANGES BETWEEN THE DRAFT SEIS/SEIR & FINAL SEIS/SEIR

Planning activities have continued since circulation of the Draft SEIS/SEIR and the Addendum. These activities and the public review process resulted in clarification and refinement of some information relating to the alternatives. Modifications that have been made since the circulated documents for production of this document include:

- o The identification of a Locally Preferred Alternative (New LPA) as defined by the SCRTD Board of Directors;
- o Refinement of capital cost estimates for the New LPA;
- o More detail on the impacts to MacArthur Park and planned mitigation action;
- o An updated analysis of Wilshire/Alvarado Station area parking impacts;
- o An updated analysis of Noise/Vibration impacts for the New LPA;
- o The inclusion of substantive public comments resulting from circulation of the Draft SEIR, Draft SEIS/SEIR, and the Addendum to the Draft SEIS/SEIR and the public hearings, and
- o Responses to these comments.

This document contains analyses related only to the New LPA and the Null (MOS-1 only) alternatives. The reader is referred to the Draft SEIS/SEIR of November 1987 and its May 1988 Addendum for detailed analyses of Candidate Alignments 1 through 6. Pertinent information from these earlier documents is incorporated into this document by reference.

8.1 REFINEMENT OF CAPITAL COSTS

Capital cost estimates for the New LPA alignment have been revised extensively since publication of the November 1987 Draft SEIS/SEIR. These revisions are a result of preliminary engineering efforts that are being performed for the New LPA. The updated costs are based on specific construction and procurement bid experience for MOS-1, which is under construction. Unit costs for tunneling, aerial guideway, and stations have been revised to reflect recent bid experience and, in some cases, more stringent guidelines related to safety and the maintenance of traffic and street capacity.

These revised capital costs are provided in the Summary and Chapter 2 of this document, with a more extensive analysis provided in Chapter 4. Given that these revised costs were developed subsequent to publication of both the Draft SEIS/SEIR and the Addendum, Chapter 4 of the Draft SEIS/SEIR has been replaced

with an updated Chapter 4 for this document. This updated Chapter contains the revised costs.

8.2 MACARTHUR PARK

The May 1988 Addendum to the SEIS/SEIR contained an updated analysis of the impacts of the Metro Rail Project (all alignments) on MacArthur Park. Various alternatives to the construction of Metro Rail, including a necessary pocket track, were evaluated along with associated impacts on the Park and necessary mitigation measures. This analysis was performed subsequent to the circulation of the November 1987 Draft SEIS/SEIR. For this document, this analysis has been incorporated into Chapter 3, Section 15 ("Construction Impacts"). A resolution regarding the MacArthur Park construction program has been reached among involved parties.

8.3 WILSHIRE/ALVARADO PARKING DEFICIENCY

Table 3-15 of the Draft SEIS/SEIR contained incorrect figures for the projected parking deficiency at the Wilshire/Alvarado Station. The situation, caused by the misreading of computer printout information, has been corrected in this document.

8.4 NOISE/VIBRATION IMPACTS

Prior to the Public Hearing on the Draft SEIR, the Los Angeles City Council and the SCRTD Board of Directors recommended that Candidate Alignment 4 be adopted as the Locally Preferred Alternative, resulting in a more intense interest on the part of the broadcasting and recording industry in the possible impacts associated with an aerial alignment along Sunset Boulevard. In response, the Mayor of the City of Los Angeles appointed an Independent Technical Review Panel (ITRP), which issued a report regarding noise, vibration and electromagnetic impacts of Metro Rail. The SCRTD performed additional analyses of these impacts. The results of these findings were published in the May 1988 Addendum to the SEIS/SEIR. The noise and vibration analysis has been revised for the New LPA and is contained in Chapter 3, Section 8 of this document.

8.5 COMMENTS ON THE PROPOSED ACTION

During the circulation periods and public hearings for the Draft SEIR, the Draft SEIS/SEIR, and the Addendum to the Draft SEIS/SEIR, numerous comments were received from citizens, organizations, and public officials. The comments are summarized and catalogued according to relevant issue areas in Chapter 7. The responses indicate an action taken or to be taken or explain the rationale for not taking any action. In all cases, the SCRTD has attempted to be as responsive as possible to the specific concerns or suggestions submitted.

CHAPTER 1: PURPOSE OF AND NEED FOR PROJECT

SECTION 1. PROJECT CONTEXT AND BACKGROUND

Under provisions of the National Environmental Policy Act (NEPA), 1969, the U.S. Department of Transportation/Urban Mass Transportation Administration (UMTA) and the Southern California Rapid Transit District (SCRTD) published in December 1983 a Final Environmental Impact Statement (FEIS) on the Los Angeles Rail Rapid Transit Project, "Metro Rail." In compliance with California Environmental Quality Act (CEQA) requirements, a Final Environmental Impact Report (FEIR) was published in November 1983.

The Original LPA, an 18.6-mile subway with eighteen stations, was selected to serve the Regional Core of Los Angeles. The Regional Core is a 75-square mile financial, retail, cultural, and entertainment center of Southern California (Figure 1-1). The Original LPA included a subway beginning in downtown Los Angeles, running from Union Station in a roughly southwestern direction through the Central Business District (CBD) with stations along Hill Street at First and at Fifth streets (Figure 1-2). The route turned west under Seventh Street, with a station at Flower Street. After passing under the Harbor Freeway, the route paralleled Wilshire Boulevard to a station at Alvarado Avenue between Wilshire and Seventh Street. The route proceeded west along the Wilshire Corridor, and then north through the Fairfax and West Hollywood areas, with stations at Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western, Wilshire/Crenshaw, Wilshire/La Brea, Wilshire/Fairfax, Fairfax/Beverly, and Fairfax/Santa Monica. The subway then proceeded eastward to serve Hollywood at Sunset/La Brea and Hollywood/Cahuenga and northward to serve the Hollywood Bowl. It then continued underneath the Santa Monica Mountains just west of the Cahuenga Pass to the San Fernando Valley, with final stations along Lankershim Boulevard at Universal City and at Chandler Boulevard in North Hollywood.

The Original LPA was selected in 1983 for construction, and a capital grant application was submitted to UMTA. However, UMTA determined that it was unable to commit to the funding of the full 18.6-mile system or even an 8.8-mile segment because of budget constraints and legislation granting funding authority that prohibited the commitment of federal funds beyond the Fiscal Year 1986. UMTA requested that SCRTD define a project that could be funded within the authorization limits. SCRTD proposed a four-mile, five-station Minimum Operable Segment (MOS-1), extending from a yard and shop facility south of Union Station to the Wilshire/Alvarado Station, as an initial segment for funding purposes. In August 1984, UMTA and SCRTD completed an Environmental Assessment (EA) for MOS-1. UMTA issued a Finding of No Significant Impact (FONSI) on November 21, 1984. On August 15, 1986, UMTA signed a full-funding contract with the SCRTD for construction of MOS-1. Contracts were also signed with other state and local funding sources: (1) California Transportation Commission, (2) Los Angeles County Transportation Commission, and (3) City of Los Angeles.

FIGURE 1-1

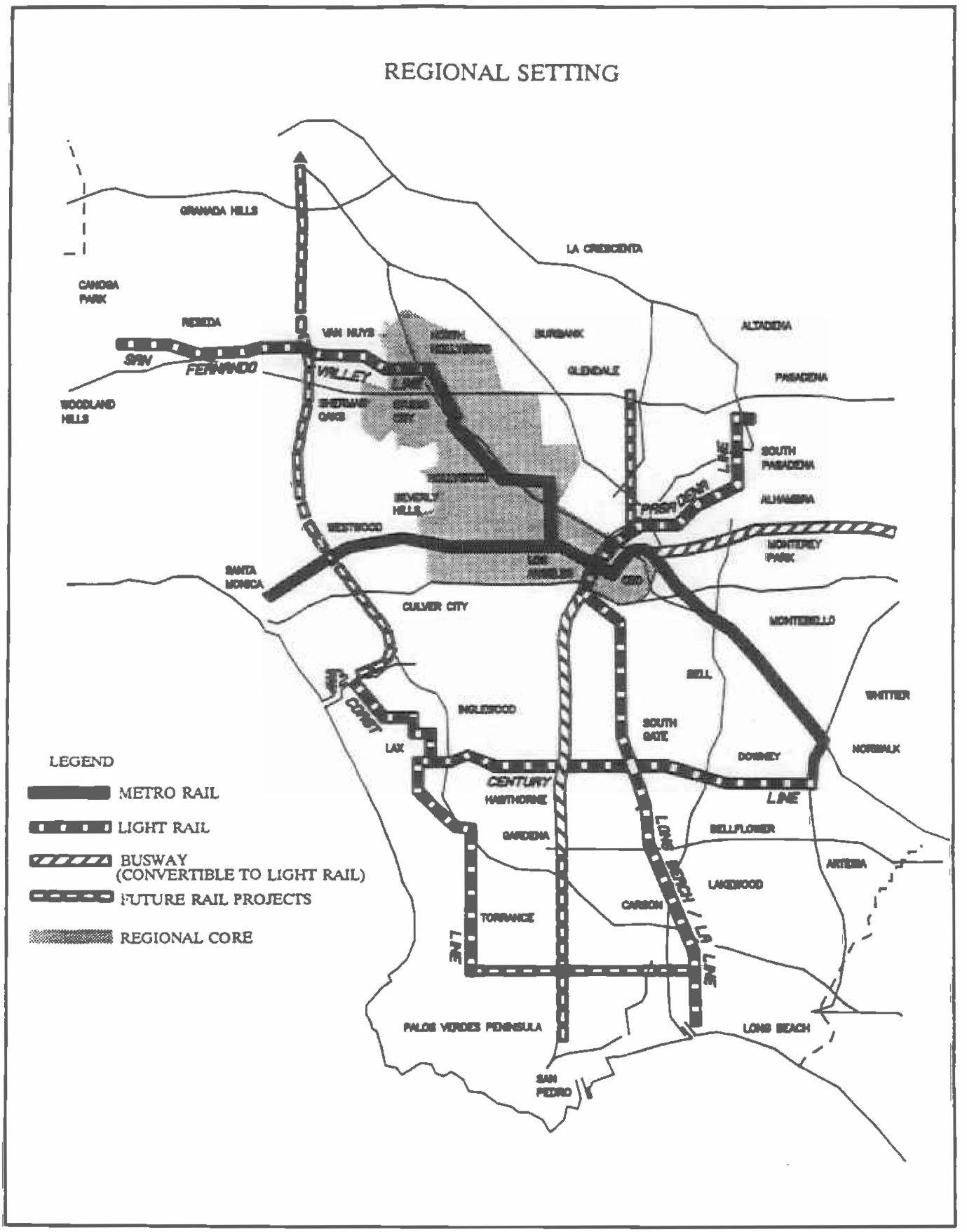
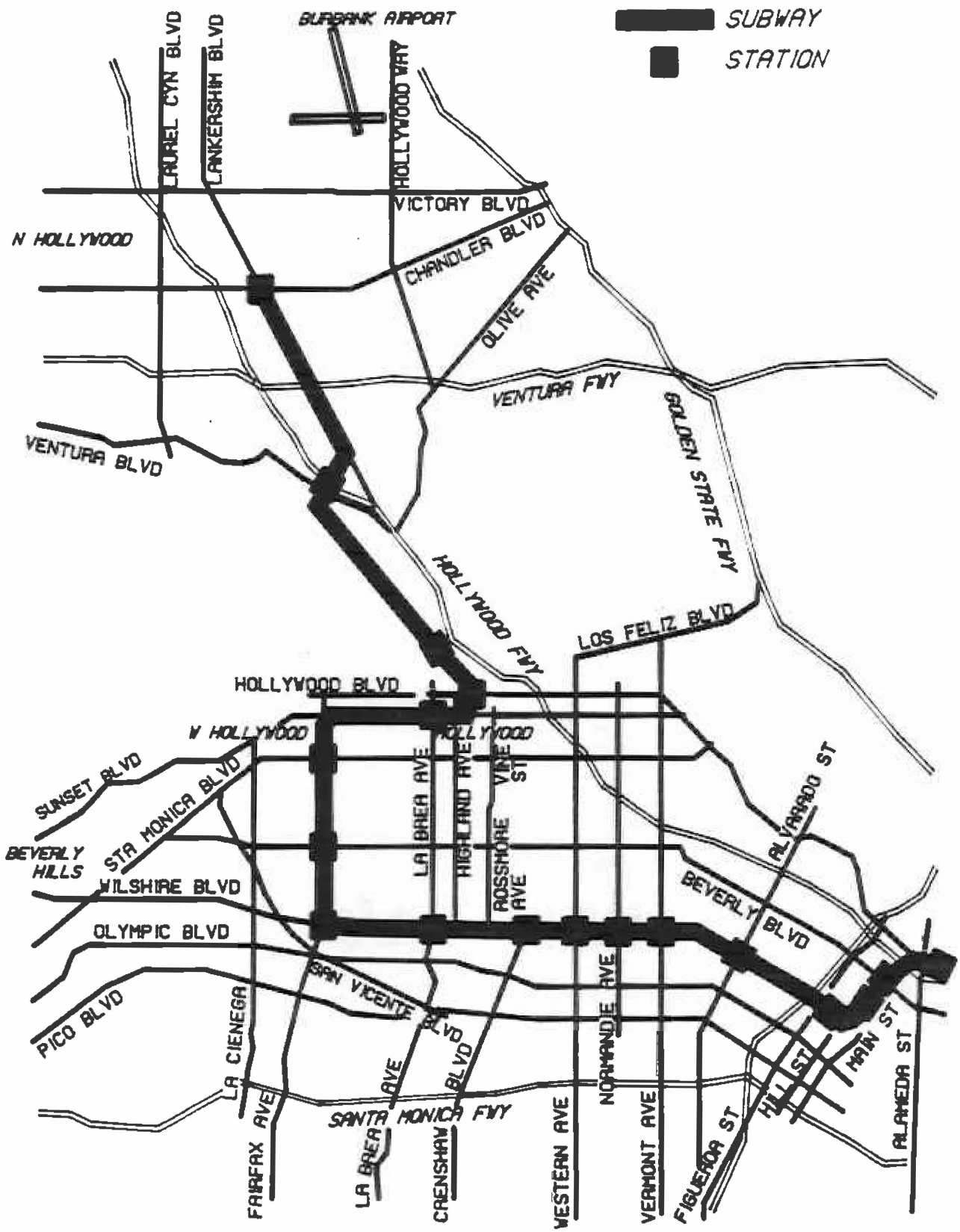

REGIONAL SETTING
GRANADA HILLS
CANOGA PARK
LA CRESCENTA
RESEDA
VAN NUYS
BURBANK
ALTADENA
SAN FERNANDO VALLEY
GLENDALE
PASADENA
WOODLAND HILLS
SHERMAN OAKS
SOUTH PASADENA
BEVERLY HILLS
ALHAMBRA
WESTWOOD
MONTEREY PARK
SANTA MONICA
CULVER CITY
MONTEBELLO
BELL
WHITTIER
INGLEWOOD
SOUTH GATE
LAX
DOWNEY
NORWALK
CENTURY
HAWTHORNE
LINE
GARDENA
BELLFLOWER
ARTESIA
LAKEWOOD
CARSON
TORRANCE
LONG BEACH / LA LINE
PALOS VERDES PENINSULA
LONG BEACH
SAN PEDRO
LEGEND
METRO RAIL
LIGHT RAIL
BUSWAY
(CONVERTIBLE TO LIGHT RAIL)
FUTURE RAIL PROJECTS
REGIONAL CORE

FIGURE 1-2

DECEMBER 1983
LOCALLY PREFERRED ALTERNATIVE



The ground-breaking ceremony for MOS-1 occurred on September 29, 1986, and construction on the MOS-1 segment has progressed on schedule and within the full-funding contract budget of $1,249,900,000. In Fiscal Year 1988, thirteen construction contracts were awarded, with a total value of $239,555,000. Of the active contracts, five have been completed and twenty are in progress. Eight construction/procurement contracts are scheduled to be awarded in fiscal year 1989 (July 1, 1988 - June 30, 1989) for a total estimated value of $18,544,000. Service initiation for this segment is expected in January 1993.

SECTION 2. CONGRESSIONALLY ORDERED RE-ENGINEERING (CORE) STUDY

In March 1985, a fire occurred at the Ross Dress-for-Less Store near the Wilshire Corridor at Third and Ogden Streets. Subsequent investigation by a special City of Los Angeles task force resulted in the conclusion that the source of the fire was naturally-occurring methane gas. The "Task Force Report On the March 24, 1985, Methane Gas Explosion and Fire in Fairfax Area," dated June 10, 1985, identified specific zones where conditions indicated a "potential risk" or "potential high risk" of encountering methane gas during subsurface excavations (Figure 1-3). An approximately three-mile segment of the Original LPA, including the Wilshire/La Brea, Wilshire/Fairfax, and Beverly/Fairfax Stations, fell within the boundaries of these risk zones.

As a result of concerns associated with the subsurface presence of methane gas, the U.S. Congress attached to Public Law No. 99-190 (December 19, 1985) the stipulation that the SCRTD could not tunnel in any of the risk zones identified in the City Task Force Report. The Congress also stipulated that the SCRTD should identify and study alternatives which would avoid these risk zones.

In compliance with the Congressional mandate, the SCRTD initiated the Congressionally Ordered Re-Engineering (CORE) Study. The goal of the CORE Study was to revise the Original LPA to avoid tunneling through gas risk zones while still providing service in the Los Angeles Regional Core comparable to the service that was to have been provided by the Original LPA. The CORE Study was structured to respond to five decision milestones:

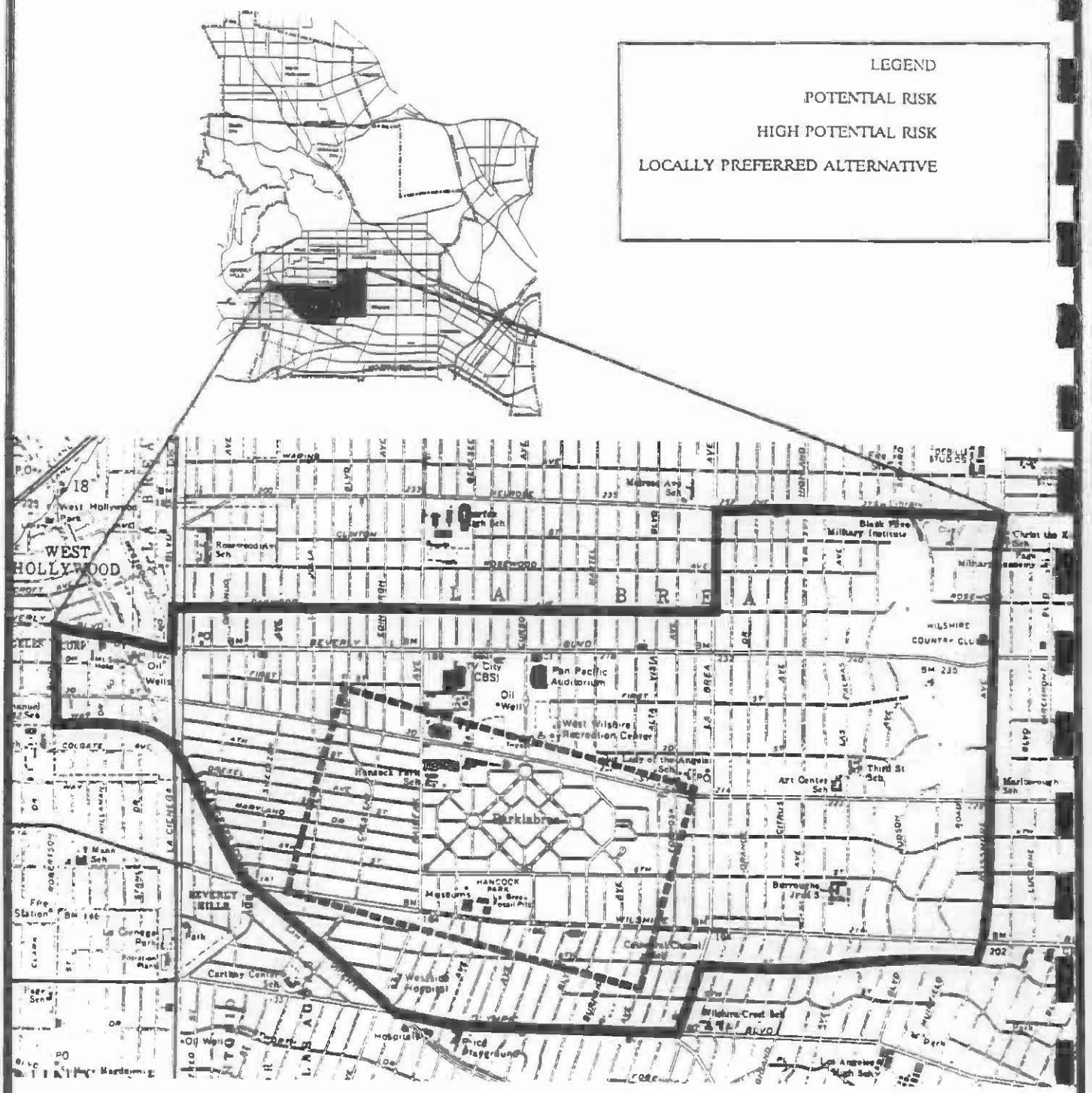
One --- Public Consultation Plan;
Two --- Subsurface Conditions Study;
Three - Preferred Alignments and Stations;
Four -- Operable Segments; and
Five -- Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR).

To achieve the study goal, attention was focused on three main objectives: the identification and evaluation of alternative Metro Rail routings, the investigation of subsurface conditions, and the assessment of environmental impacts. The resulting "New LPA" avoids tunneling through the methane gas risk zones.

The CORE Study was formally initiated in January 1986 and incorporated an extensive technical and public involvement process. Chapter 6 of the November 1987 Draft SEIS/SEIR provides detailed information on the community involvement process. A chronological account of the evaluation of various project options may be found in the Appendix to the Draft SEIS/SEIR. The CORE Study process followed a two-level screening procedure instituted to promote examination of all feasible options, an appropriate level of community discussion, and an objective decision-making framework for identifying a New LPA.

FIGURE 1-3

METHANE GAS RISK ZONES



SOURCE: CITY TASK FORCE REPORT, JUNE 10, 1985

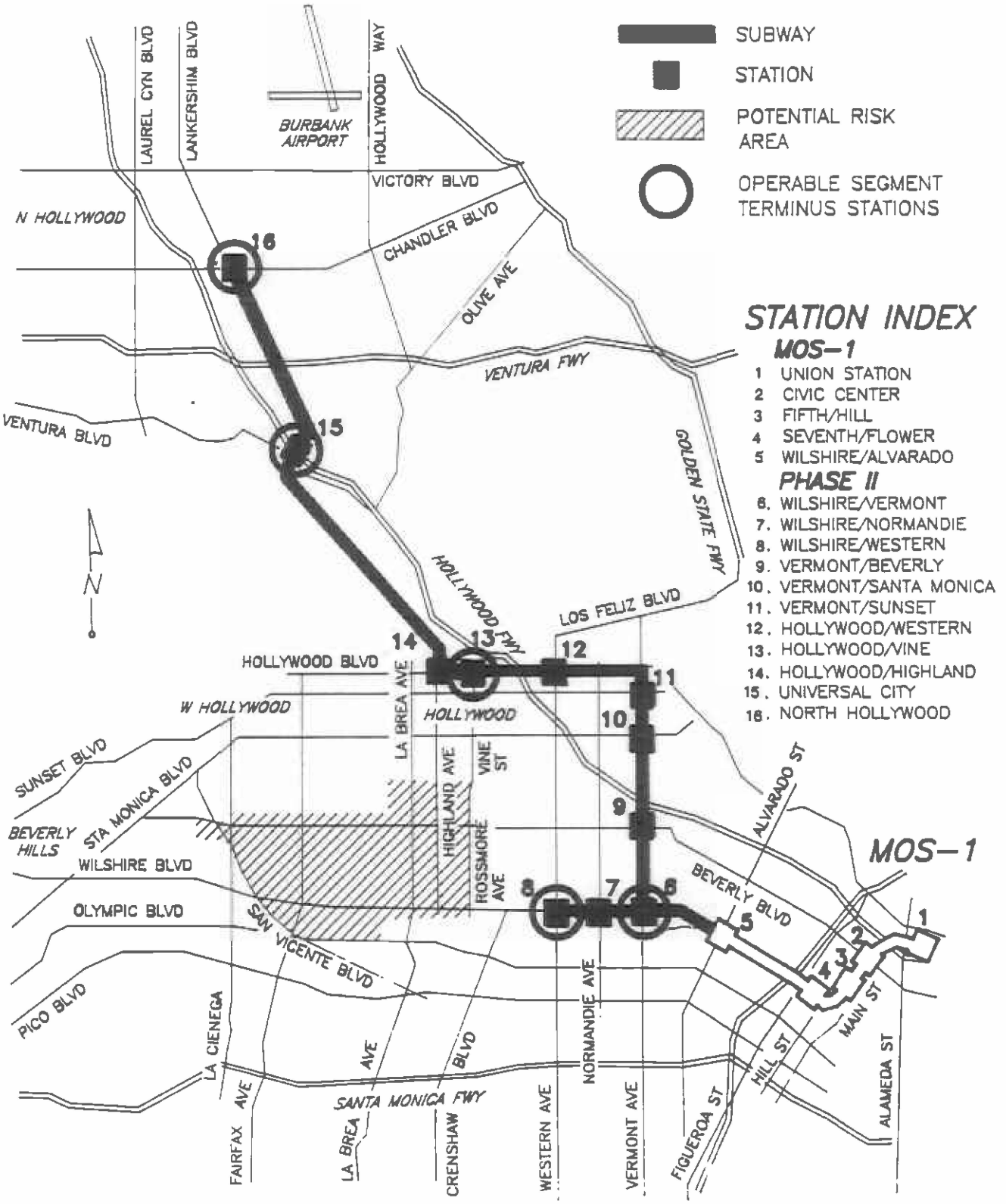
(On the March 24, 1985 Methane Gas Explosion and Fire in Fairfax Area.)

The Draft SEIS/SEIR of November 1987 and its May 1988 Addendum document the activities undertaken by the SCRTD to comply with Congress' December 1985 Mandate. These documents were developed consistent with federal and state regulations that require a supplemental (NEPA) and subsequent (CEQA) document when changes have occurred to the proposed action that would result in significant environmental impacts that were not evaluated previously in the EIS/EIR. The additional documents, when taken in conjunction with the 1983 FEIS and 1984 EA, complete the environmental review of the changed project. On July 14, 1988, the SCRTD Board of Directors selected Candidate Alignment 1, with minor modifications in the number and location of stations, as the New LPA (Figure 1-4).

FIGURE 1-4

SCRTD METRO RAIL
NEW LOCALLY PREFERRED ALTERNATIVE
VERMONT/HOLLYWOOD BLVD. SUBWAY

LPA SELECTED BY SCRTD BOARD OF DIRECTORS JULY 14, 1988



SECTION 3. NEED FOR PROJECT

The Original "Needs" for the Los Angeles Metro Rail Project were put forth in Chapter 1, Section 3, of the December 1983 FEIS. These justifications, as well as those additional stated in the November 1987 Draft SEIS/SEIR, are still valid. The major need for the New LPA is to allow the SCRTD to resume its original goal of providing transit accessibility throughout the Regional Core while, at the same time, complying with the Congressional Mandate to avoid tunneling through identified methane gas risk zones.

CHAPTER 2: PROJECT ALTERNATIVES

SECTION 1. DESCRIPTION OF ALTERNATIVES

1.1 INTRODUCTION

A discussion of eight project alternatives is presented in this section: the Null or No Action Alternative, six build alternatives (CORE Study Candidate Alignments 1 through 6), and the New Locally Preferred Alternative (LPA). The New LPA is Candidate Alignment 1, modified to include a station at Hollywood/Highland and to omit the Hollywood Bowl Station. All project options include the MOS-1 segment from the yard and shops south of Union Station to the Wilshire/Alvarado Station. The Valley segment between the Universal City and North Hollywood Stations is common to Candidate Alignments 1 through 6 (see the FEIS and the FEIR, or the EA for description and characteristics of these segments). A supporting bus system has been defined and incorporated into each of the project options. Plans and profiles, typical sections, and station layouts for Candidate Alignments 1 through 6 are contained in the Appendix to the Draft SEIS/SEIR of November 1987 and its May 1988 Addendum. The reader is referred to these documents for more in-depth discussion of Candidate Alignments 1 through 6. Plans, profiles, and station layouts for the New LPA are included in this chapter. The descriptions of station design features, yards and shops remain essentially unchanged from the descriptions provided in the FEIS (see Chapter 2 of that document for details).

Negotiations among the various responsible agencies are still in progress for final funding commitments. To provide flexibility for these continuing negotiations, potential temporary terminal stations were identified for each candidate alignment. The impacts of these termini are analyzed in-depth in the Draft SEIS/SEIR of November 1987 and its Addendum of May 1988, to which the reader is referred. The New LPA is similarly treated, and descriptions of potential "Phase II" segments are presented in this chapter.

As described below, Candidate Alignments 2, 4, 5 and 6 include a segment of Metro Rail west of the Wilshire Boulevard/Western Avenue Station. The Council of the City of Los Angeles and the SCRTD Board of Directors recommended that this portion of the project undergo additional study conducted jointly by the City of Los Angeles and the SCRTD. Federal involvement in a Metro Rail extension beyond Wilshire/Western is not certain.

1.2 NULL ALTERNATIVE

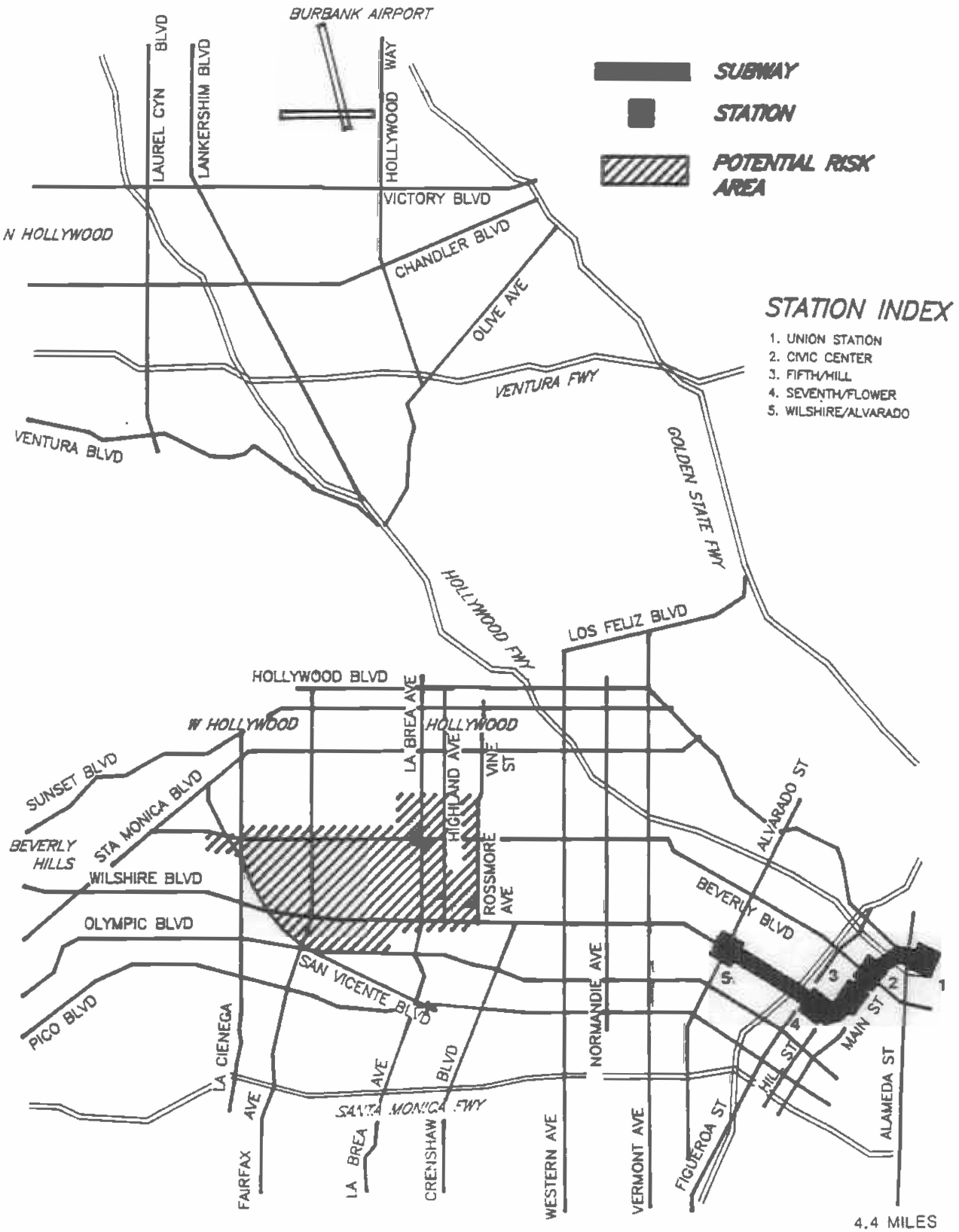
1.2.1 ROUTE/ALIGNMENT DESCRIPTION

The Null Alternative includes a completed and operational MOS-1, the 4.4-mile subway system extending from a yard and shop facility south of Union Station to a temporary terminal station at Wilshire Boulevard at Alvarado Street (Figure 2-1). MOS-1 is the initial segment of the Original Locally Preferred

FIGURE 2-1

NULL ALTERNATIVE MOS–1

CBD/WILSHIRE SUBWAY



SOURCE: SCRTD

Alternative defined for funding purposes. A full funding contract for MOS-1 was signed August 27, 1986, and construction was initiated September 29, 1986. The Null Alternative includes this 4.4-mile subway system and a supporting bus system.

The route for MOS-1 begins at Union Station, where it turns west and south and runs through the CBD along Hill Street. Turning on Seventh Street, MOS-1 heads toward the west side of downtown, past the Harbor Freeway, and continues to the Wilshire and Alvarado Station. Crossover tracks are located just east of the terminal station at Wilshire/Alvarado to satisfy operational requirements. In addition to the Union Station and Wilshire/Alvarado stations, stations are located at the Civic Center (First and Hill Streets), Fifth and Hill Streets, and Seventh and Flower Streets. Operating characteristics of MOS-1 are described in detail in the EA of 1984.

1.2.2 NULL ALTERNATIVE BUS SYSTEM

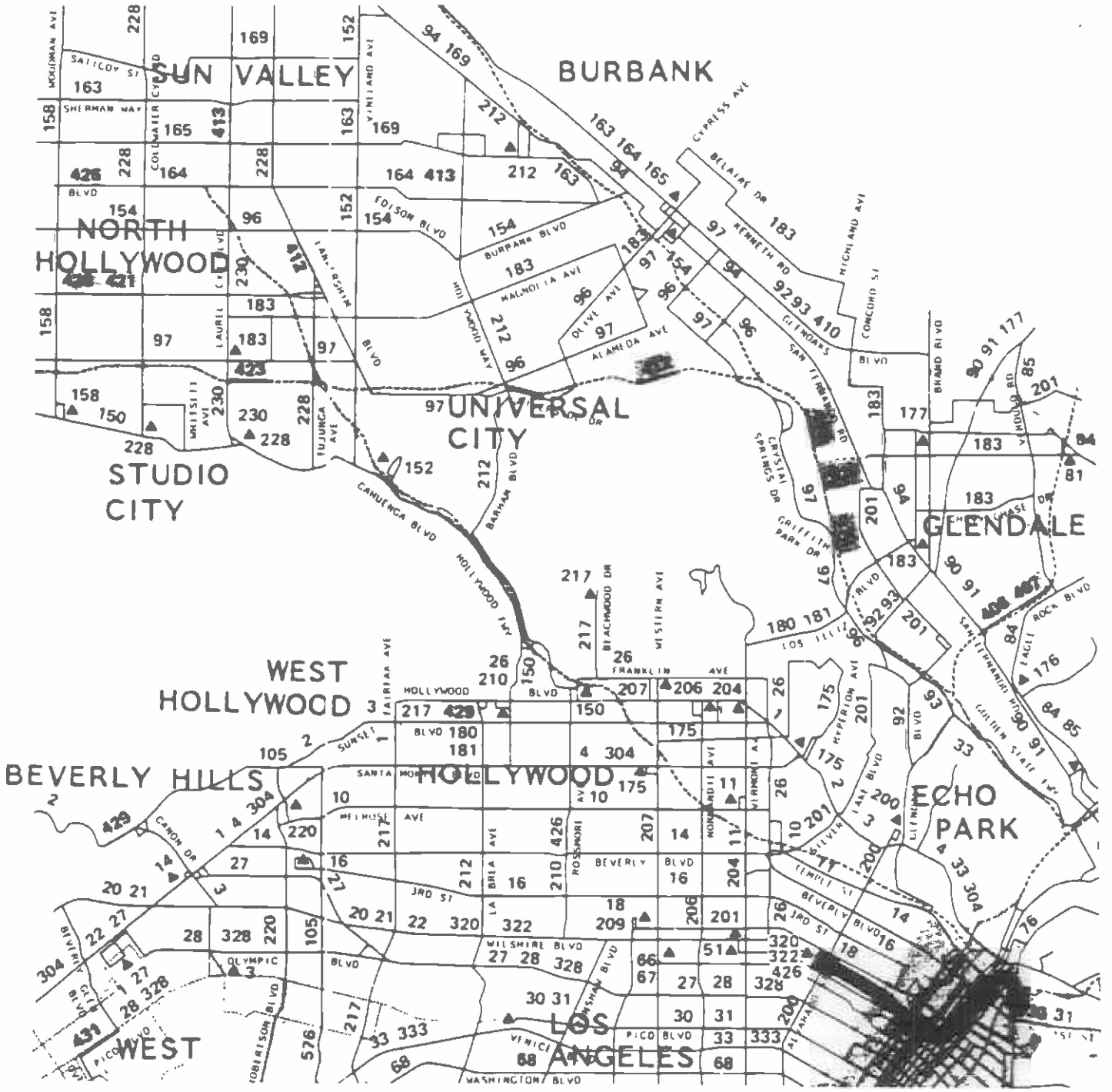
Southern California has the largest all-bus transit system in North America, dominated by SCRTD's 2400 bus fleet including spares. The SCRTD system extends from the Ventura County Line on the west to Riverside and San Bernardino on the east, a distance of approximately 90 miles, and from the north end of the San Fernando Valley to San Pedro and Long Beach on the south, a distance of 40 miles. Typical weekday patronage on the District's service system is approximately 1.3 million. The District operates approximately 1900 buses in each peak and almost 1100 during the base period. Figure 2-2 illustrates the intensive bus service system in place in the Western and San Fernando Valley sectors.

A bus feeder operating plan was developed as part of the Environmental Assessment for MOS-1 (August 1984). Routes would be changed in order to directly serve the two terminal stations of the MOS-1 alignment -- namely Union Station and Wilshire/Alvarado. Specifically, lines operating along Wilshire Boulevard would be modified to serve the Wilshire/Alvarado station. A layover for terminating buses would be created on Westlake Avenue immediately behind the station. While some Wilshire Boulevard buses would continue to run past the Alvarado Station to the Los Angeles Central Business District, the limited services (lines 320 and 322) and the express line operating on Wilshire Boulevard (line 426) would be terminated at the Wilshire/Alvarado Station. In addition, Line 26 (Franklin - Virgil) would be routed to the Westlake terminal.

Buses serving Union Station directly would proceed to a terminal on the west side of the station site. A future ramp from the bus terminal would allow El Monte Busway buses to immediately begin the return trip to the El Monte terminal. A shuttle system from El Monte to Union Station is contemplated for the busway operations. Lines currently using the busway which do not enter the busway at El Monte Station would also run to Union Station. Some buses would continue to run past the Union Station terminal to provide local service in the CBD, providing bus service connections between the Civic Center and Union Station along the rail line. A more detailed description of the proposed bus system changes is contained in the Milestone 9: Supporting Services document published in 1983 and the Environmental Assessment published in 1984. Prior to the opening of the rail system in 1993, the SCRTD will undertake an extensive community notification campaign to alert riders to the bus system changes. All proposed

FIGURE 2-2

NULL ALTERNATIVE TRANSIT SYSTEM
MOS-1 AND BACKGROUND BUS SYSTEM



changes to the bus system will be the subject of a public hearing and affirmative action by the SCRTD Board before implementation.

1.2.3 COSTS

1.2.3.1 Capital Cost

Under the Null Alternative, no additional rail capital costs beyond those associated with construction of MOS-1 would be incurred.

1.2.3.2 Operating Cost

The annual Year 2000 rail operating cost for MOS-1 would be $15.4 million (1985 dollars). The associated bus system operating cost would be $542.6 million in the same year. The operating total cost is predicted to be $558.0 million.

1.3 NEW LOCALLY PREFERRED ALTERNATIVE

On July 14, 1988, the SCRTD Board of Directors selected the CORE Study Candidate Alignment 1 with minor modifications in the number and location of stations as the New Locally Preferred Alternative (New LPA). Like the others, Candidate Alignment 1 was extensively analyzed during the CORE Study. The reader is referred to the Draft SEIS/SEIR of November 1987 for further details. The New LPA differs from Candidate Alignment 1 chiefly in its substitution of the Hollywood Bowl Station with one at Hollywood Boulevard and Highland Avenue. This substitution results in the New LPA differing from Candidate Alignment 1 in terms of patronage, costs, and environmental impacts. Descriptions of the New LPA's alignment, operating characteristics, and costs follow.

1.3.1 ROUTE/ALIGNMENT DESCRIPTION

1.3.1.1 Full Alignment

The New Locally Preferred Alternative (New LPA) is a 17.3-mile all-subway line with sixteen stations (Figure 2-3). Plans and profiles (Figures 2-4 through 2-19) illustrate the route, station locations, and lengths of cut-and-cover and bored-tunnel construction for Phase II of the New LPA. Leaving the Wilshire/Alvarado Station, the alignment would proceed west, passing under MacArthur Park Lake to Wilshire Boulevard at Park View. It would follow Wilshire Boulevard to Virgil Avenue, where it would turn northwest to the Wilshire/Vermont Station, located on a diagonal in the northern half of the block formed by Wilshire Boulevard, Vermont Avenue, Sixth Street, and Shatto Place. After leaving the Wilshire/Vermont Station , the alignment would branch, one line continuing west in the Wilshire Corridor and the other line turning north along Vermont Avenue to Hollywood and the San Fernando Valley.

The Valley branch would leave the Wilshire/Vermont Station heading northwest and curve back under Vermont Avenue at Third Street. It would continue north under Vermont, passing through stations at Beverly, Santa Monica and Sunset Boulevards. It would curve west under Hollywood Boulevard and continue to the Hollywood/Western, Hollywood/Vine, and Hollywood/Highland stations. It would

FIGURE 2-3

SCRTD METRO RAIL
NEW LOCALLY PREFERRED ALTERNATIVE
VERMONT/HOLLYWOOD BLVD. SUBWAY

LPA SELECTED BY SCRTD BOARD OF DIRECTORS JULY 14, 1988

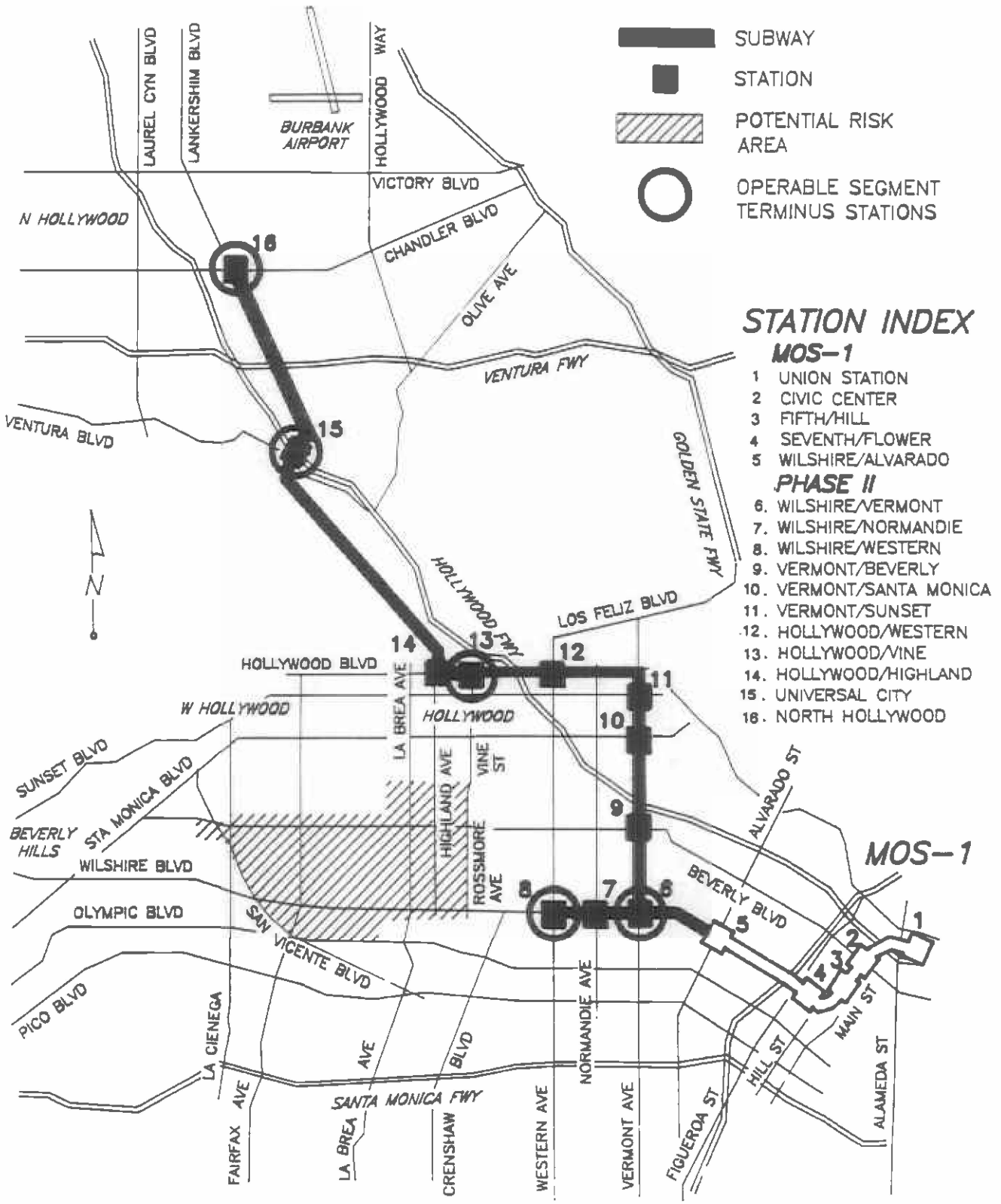


Figure 2-4 Plan & Profile (1)

Figure 2-5 Plan & Profile (2)

Figure 2-6 Plan & Profile (3)

Figure 2-7 Plan & Profile (4)

Figure 2-8 Plan & Profile (5)

Figure 2-9 Plan & Profile (6)

Figure 2-10 Plan & Profile (7)

Figure 2-11 Plan & Profile (8)

Figure 2-12 Plan & Profile (9)

Figure 2-13 Plan & Profile (10)

Figure 2-14 Plan & Profile (11)

Figure 2-15 Plan & Profile (12)

Figure 2-16 Plan & Profile (13)

Figure 2-17 Plan & Profile (14)

Figure 2-18 Plan & Profile (15)

Figure 2-19 Plan & Profile (16)

then continue to the northwest along the Original LPA alignment through the Santa Monica Mountains to the Universal City and North Hollywood stations.

Leaving the Wilshire/Vermont Station, the western branch would curve back under Wilshire Boulevard west of Alexandria Avenue to serve stations at Wilshire/Normandie and Wilshire/Western.

1.3.1.2 Temporary Terminal Stations

UMTA intends to fulfill federal environmental reporting requirements for the entire New LPA with this document. Negotiations among the various funding agencies on funding commitment are in progress. To complete the environmental work while allowing flexibility for the negotiating process and final design, possible pairings of terminal stations along the New LPA have been identified. The impacts of terminating either temporarily or permanently at these stations have been evaluated in the Draft SEIS/SEIR and are repeated in this document. Unless there are project changes resulting in significant new impacts or significant changes in impacts, this document will fulfill federal environmental reporting requirements for this New LPA, regardless of the outcome of these funding negotiations.

For purposes of evaluating potential impacts associated with opening only portions of the New LPA alignment, the following three station pairs have been identified (Figure 2-20):

Case 1: Termini at Wilshire/Western and at Hollywood/Vine;
Case 2: Termini at Wilshire/Western and at Universal City;
Case 3: Termini at Wilshire/Vermont and at Universal City;

Impacts associated with these possible terminal stations, both individually and when in pairs, are investigated in the Draft SEIS/SEIR and are repeated in this document.

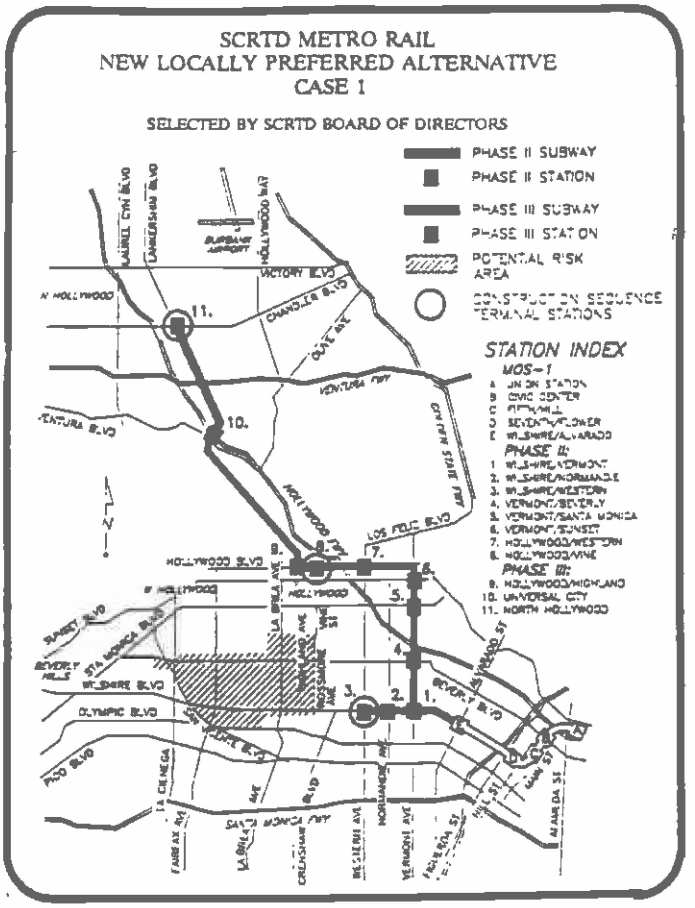
1.3.1.3 Station Descriptions

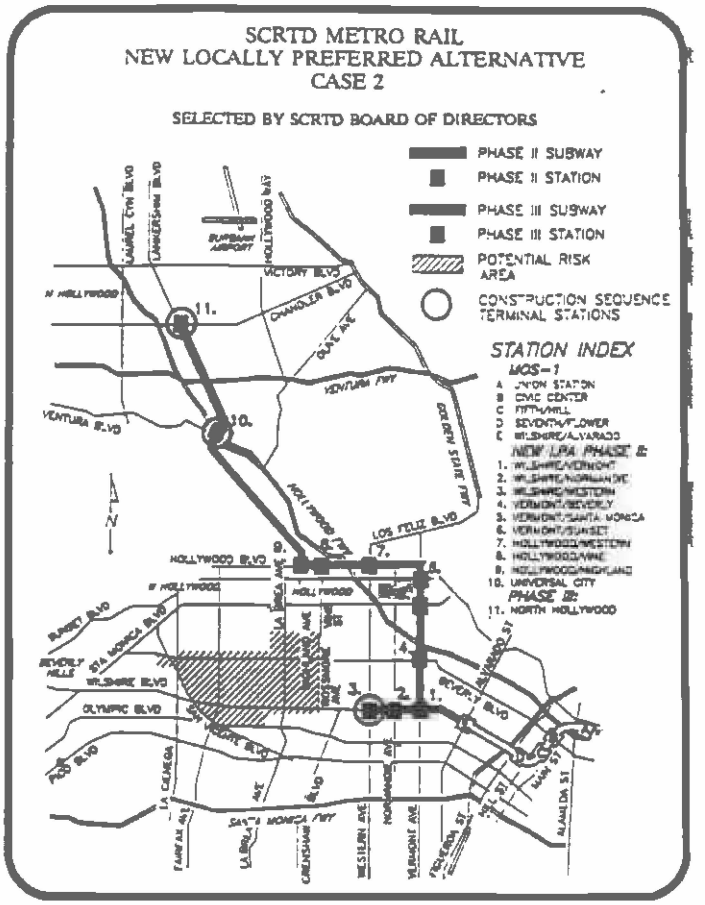
Station footprint plans for the New LPA have been developed as a part of Preliminary Engineering during the CORE Study and are shown in Figures 2-21 through 2-35. For stations that may operate as terminals, both a station site plan and station location plan are shown. General descriptions of Metro Rail Station design features also can be found in Chapter 2, pages 2-11 and 2-32, of the December 1983 FEIS. To best serve as much of the regional population as possible, all stations will be designed to meet Uniform Federal Accessibility Standards.

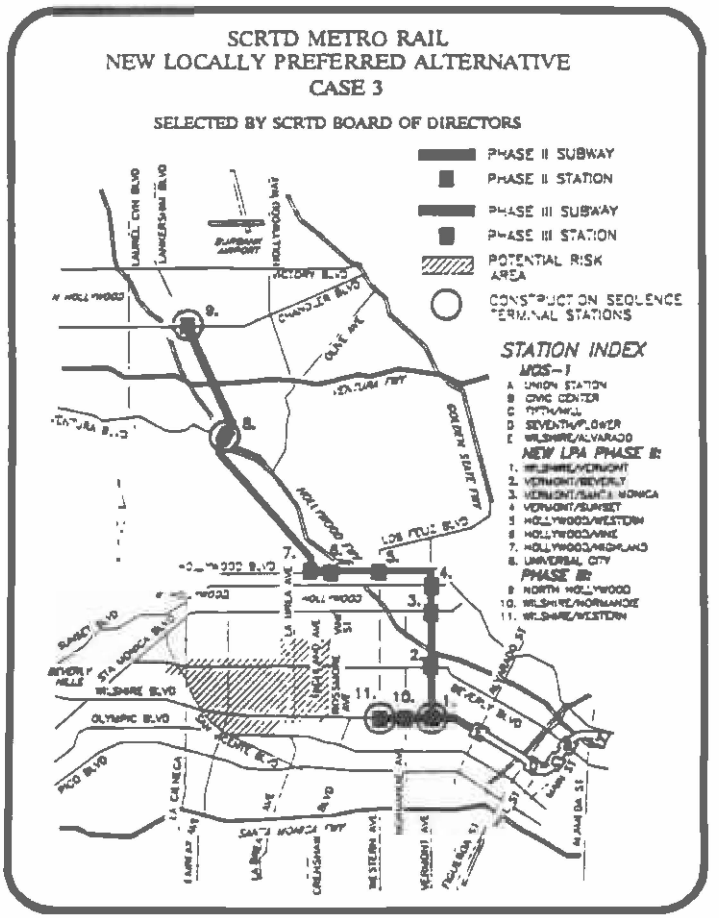
Wilshire/Vermont

The Wilshire/Vermont Station (Figures 2-21 and 2-22) is a two-level facility with side platforms on each level. Entry is from stairs, escalators, and elevators located at the northeast corner of Wilshire Boulevard and Vermont Avenue. A

FIGURE 2-20


SCRTD METRO RAIL
NEW LOCALLY PREFERRED ALTERNATIVE
CASE 1
SELECTED BY SCRTD BOARD OF DIRECTORS
PHASE II SUBWAY
PHASE II STATION
PHASE III SUBWAY
PHASE III STATION
POTENTIAL RISK AREA
CONSTRUCTION SEQUENCE TERMINAL STATIONS
STATION INDEX
MOS-1
A UNION STATION
B CIVIC CENTER
C FIFTH/HILL
D SEVENTH/FLOWER
E WILSHIRE/ALVARADO
PHASE II:
1 WILSHIRE/VERMONT
2. WILSHIRE/NORMANDIE
3. WILSHIRE/WESTERN
4. VERMONT/BEVERLY
5. VERMONT/SANTA MONICA
6. VERMONT/SUNSET
7. HOLLYWOOD/WESTERN
8. HOLLYWOOD/VINE
PHASE III:
9. HOLLYWOOD/HIGHLAND
10. UNIVERSAL CITY
11. NORTH HOLLYWOOD


SCRTD METRO RAIL
NEW LOCALLY PREFERRED ALTERNATIVE
CASE 2
SELECTED BY SCRTD BOARD OF DIRECTORS
PHASE II SUBWAY
PHASE II STATION
PHASE III SUBWAY
PHASE III STATION
POTENTIAL RISK AREA
CONSTRUCTION SEQUENCE TERMINAL STATIONS
STATION INDEX
MOS-1
A UNION STATION
B CIVIC CENTER
C FIFTH/HILL
D SEVENTH/FLOWER
E WILSHIRE/ALVARADO
NEW LPA PHASE II:
1. WILSHIRE/VERMONT
2. WILSHIRE/NORMANDIE
3. WILSHIRE/WESTERN
4. VERMONT/BEVERLY
5. VERMONT/SANTA MONICA
6. VERMONT/SUNSET
7. HOLLYWOOD/WESTERN
8. HOLLYWOOD/VINE
9. HOLLYWOOD/HIGHLAND
10. UNIVERSAL CITY
PHASE III:
11. NORTH HOLLYWOOD


SCRTD METRO RAIL
NEW LOCALLY PREFERRED ALTERNATIVE
CASE 3
SELECTED BY SCRTD BOARD OF DIRECTORS
PHASE II SUBWAY
PHASE II STATION
PHASE III SUBWAY
PHASE III STATION
POTENTIAL RISK AREA
CONSTRUCTION SEQUENCE TERMINAL STATIONS
STATION INDEX
MOS-1
A UNION STATION
B CIVIC CENTER
C FIFTH/HILL
D SEVENTH/FLOWER
E WILSHIRE/ALVARADO
NEW LPA PHASE II:
1. WILSHIRE/VERMONT
2. VERMONT/BEVERLY
3. VERMONT/SANTA MONICA
4. VERMONT/SUNSET
5. HOLLYWOOD/WESTERN
6. HOLLYWOOD/VINE
7. HOLLYWOOD/HIGHLAND
8. UNIVERSAL CITY
PHASE III:
9. NORTH HOLLYWOOD
10. WILSHIRE/NORMANDIE
11. WILSHIRE/WESTERN

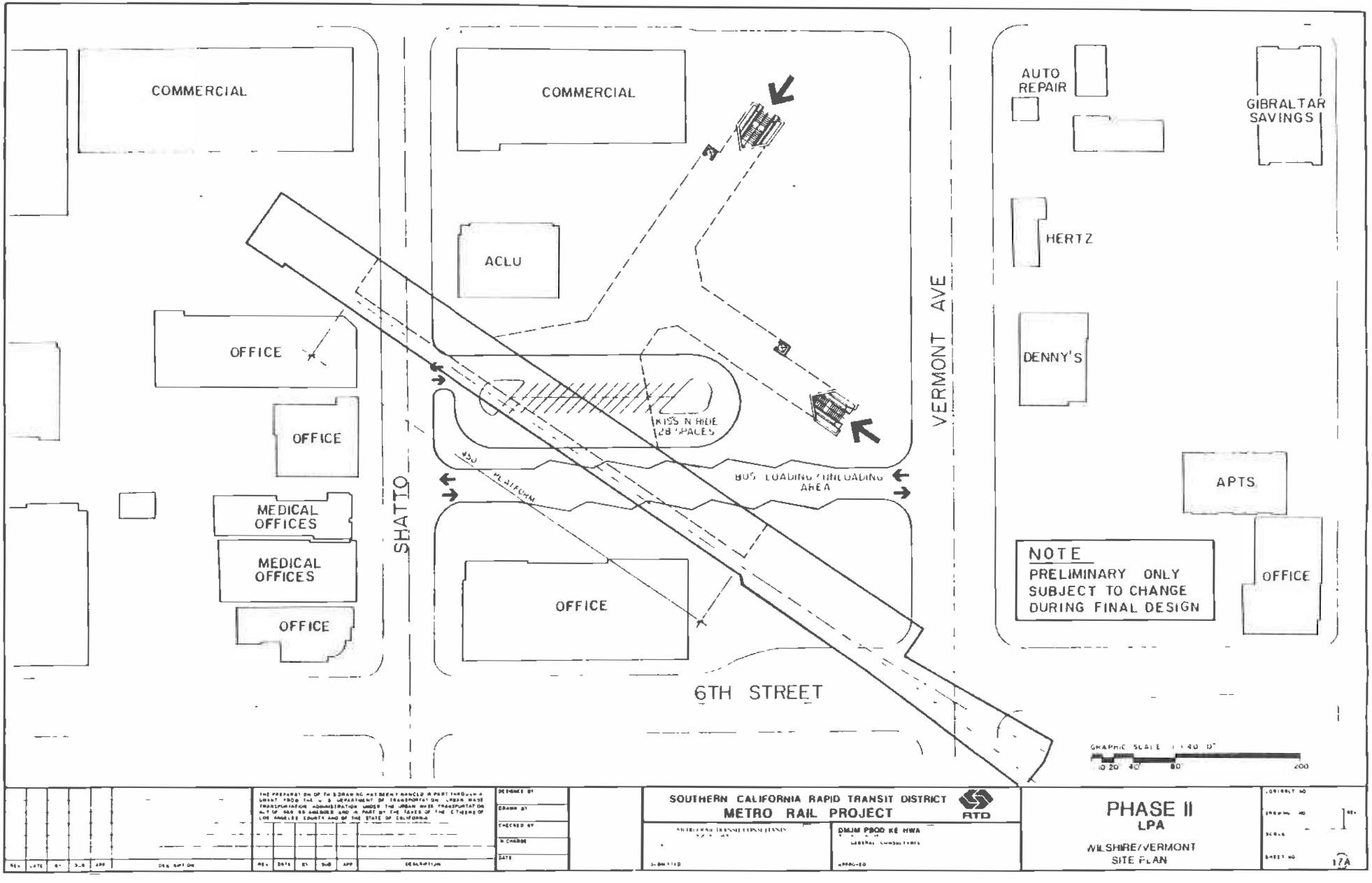

COMMERCIAL
COMMERCIAL
AUTO REPAIR
GIBRALTAR SAVINGS
ACLU
HERTZ
OFFICE
DENNY'S
OFFICE
KISS N RIDE 128 SPACES
VERMONT AVE
SHATTO
BUS LOADING/UNLOADING AREA
APTS
MEDICAL OFFICES
MEDICAL OFFICES
OFFICE
OFFICE
OFFICE
6TH STREET
NOTE
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
WILSHIRE/VERMONT
SITE PLAN
17A

FIGURE 2-21

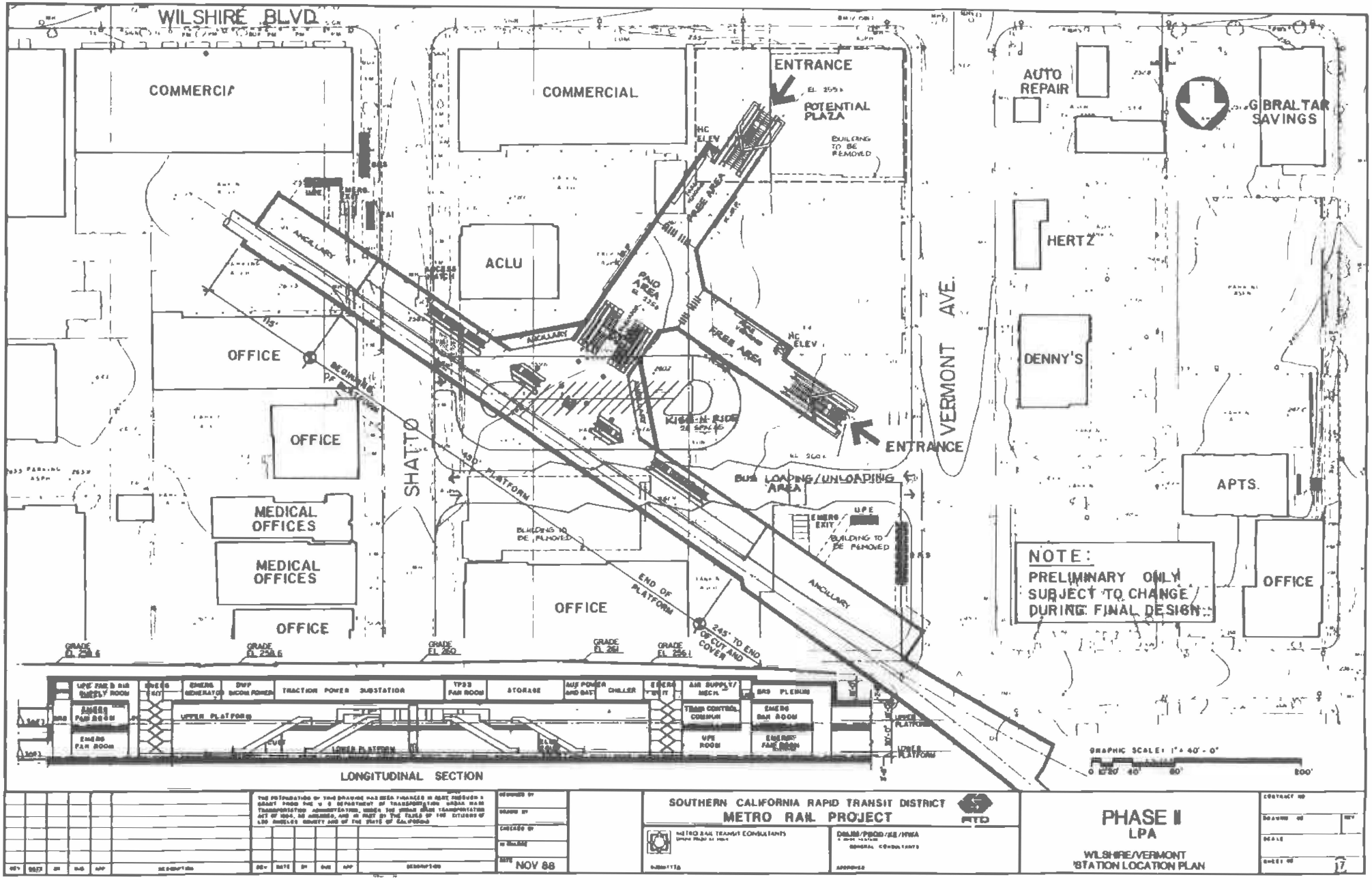

WILSHIRE BLVD
COMMERCIAL
COMMERCIAL
ENTRANCE
POTENTIAL PLAZA
BUILDING TO BE REMOVED
AUTO REPAIR
GIBRALTAR SAVINGS
HERTZ
DENNY'S
ACLU
PAID AREA
FREE AREA
ANCILLARY
OFFICE
OFFICE
OFFICE
OFFICE
MEDICAL OFFICES
MEDICAL OFFICES
SHATTO
VERMONT AVE.
ENTRANCE
BUS LOADING/UNLOADING AREA
APTS.
OFFICE
NOTE:
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
END OF PLATFORM
245' TO END OF CUT AND COVER
LONGITUDINAL SECTION
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
PHASE II
LPA
WILSHIRE/VERMONT
STATION LOCATION PLAN
NOV 88

FIGURE 2-22

second station entrance is located approximately mid-block between Wilshire and Sixth Street on the east side of Vermont. Transit patrons descend to fare vending areas. Beyond banks of turnstiles is the paid area of the concourse and more stairs, escalators and an elevator to the upper level train platform. For this level, one may descend via stairs, escalator, or elevator to the lower platform.

The Wilshire/Vermont Station will have 28 kiss-and-ride spaces off of Shatto Place. A through-block drive with 10 parking locations is planned for feeder bus service. A bus turnout for loading and unloading is currently planned for the east side of Vermont just north of its intersection with Wilshire. The length of the turnout will be determined during final design and will be adjusted to meet traffic conditions. No park-and-ride spaces are planned for this station.

Wilshire/Vermont has been chosen as a potential temporary terminal station. As such, it will serve as a termination point for Lines 21, 22, 320, and 322. These lines will move to the Wilshire/Western Station upon its completion. Chapter 3, Section 1.2.2.3 of this document contains a discussion of possible temporary terminal impacts and mitigation provisions for Wilshire/Vermont.

Wilshire/Normandie

The Wilshire/Normandie Station (Figure 2-23) is a center-platform facility located in the Wilshire Boulevard right-of-way. A single entrance is to be located in the vacated right-of-way of Irolo Street just south of Wilshire Boulevard. Entry will be by stairs, escalators and elevator to a mezzanine at the station's east end containing free and paid areas. A knock-out panel will be provided across the mezzanine from the planned entry to provide for a potential future entrance from the north side of Wilshire. Transit patrons will have access to the train platform from the mezzanine by means of stairs, escalators, or elevator. A bus turnout is planned for Irolo Street south of its curve to Normandie. No other access features are planned for this station.

Wilshire/Western

The Wilshire/Western Station (Figures 2-24 and 2-25) is a center-platform facility located in the Wilshire Boulevard right-of-way. A single station entrance will be located in the block in the northeast corner of the intersection of Wilshire and Western Avenue. Patrons will have access to a mid-platform mezzanine via stairs, escalators, and elevator. A knock-out panel at the foot of the stairs will allow future entry from the west side of Western Avenue. A second knock-out panel to be located across the mezzanine from the entrance will allow for a future entrance on the south side of Wilshire. Each end of the mezzanine will have stair and escalator access to the train platform below. An elevator will be located near the eastern end of the mezzanine.

A through-block drive between Western and Oxford Street north of Wilshire will provide layover spaces for twelve buses. Chapter 3, Sections 1.2 and 1.3, contains a discussion of traffic impacts and mitigations for this terminal station. Bicycle parking will also be provided near the station entrance.

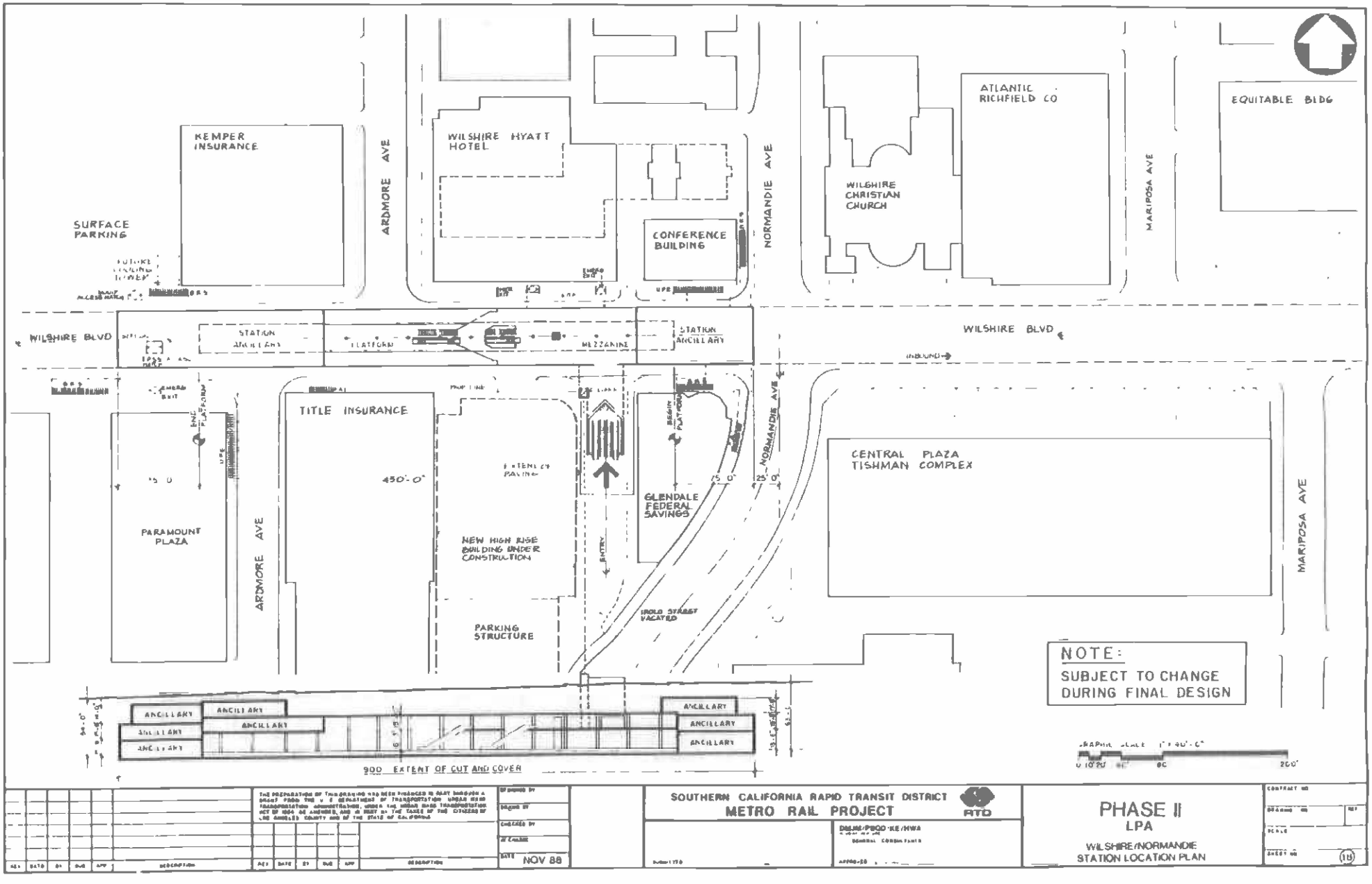

KEMPER INSURANCE
SURFACE PARKING
ARDMORE AVE
WILSHIRE HYATT HOTEL
CONFERENCE BUILDING
NORMANDIE AVE
WILSHIRE CHRISTIAN CHURCH
ATLANTIC RICHFIELD CO
MARIPOSA AVE
EQUITABLE BLDG
WILSHIRE BLVD
STATION ANCILLARY
PLATFORM
MEZZANINE
STATION ANCILLARY
WILSHIRE BLVD
INBOUND
TITLE INSURANCE
450'-0"
PARAMOUNT PLAZA
ARDMORE AVE
NEW HIGH RISE BUILDING UNDER CONSTRUCTION
PARKING STRUCTURE
GLENDALE FEDERAL SAVINGS
NORMANDIE AVE
CENTRAL PLAZA TISHMAN COMPLEX
MARIPOSA AVE
IROLO STREET VACATED
ANCILLARY
ANCILLARY
ANCILLARY
ANCILLARY
ANCILLARY
ANCILLARY
ANCILLARY
900 EXTENT OF CUT AND COVER
NOTE:
SUBJECT TO CHANGE DURING FINAL DESIGN
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
NOV 88
PHASE II
LPA
WILSHIRE/NORMANDIE
STATION LOCATION PLAN

FIGURE 2-23

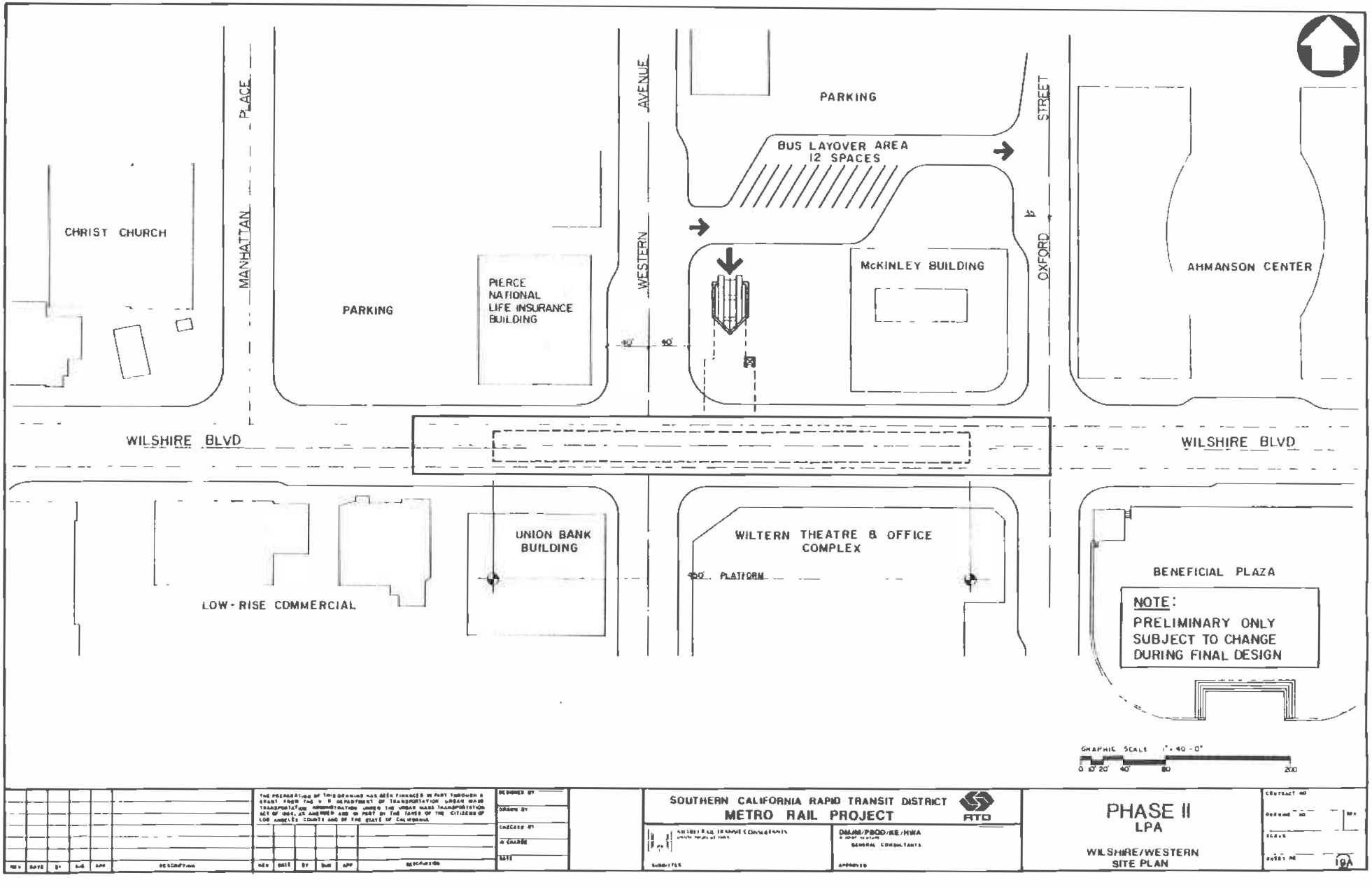

CHRIST CHURCH
MANHATTAN PLACE
PARKING
PIERCE NATIONAL LIFE INSURANCE BUILDING
WESTERN AVENUE
PARKING
BUS LAYOVER AREA 12 SPACES
McKINLEY BUILDING
OXFORD STREET
AHMANSON CENTER
WILSHIRE BLVD
WILSHIRE BLVD
UNION BANK BUILDING
WILTERN THEATRE & OFFICE COMPLEX
PLATFORM
BENEFICIAL PLAZA
NOTE:
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
LOW-RISE COMMERCIAL
GRAPHIC SCALE 1" = 40'-0"
0 10 20 40 80 200
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
DMJM/PBQD/RE/HWA
GENERAL CONSULTANTS
PHASE II
LPA
WILSHIRE/WESTERN
SITE PLAN

FIGURE 2-24

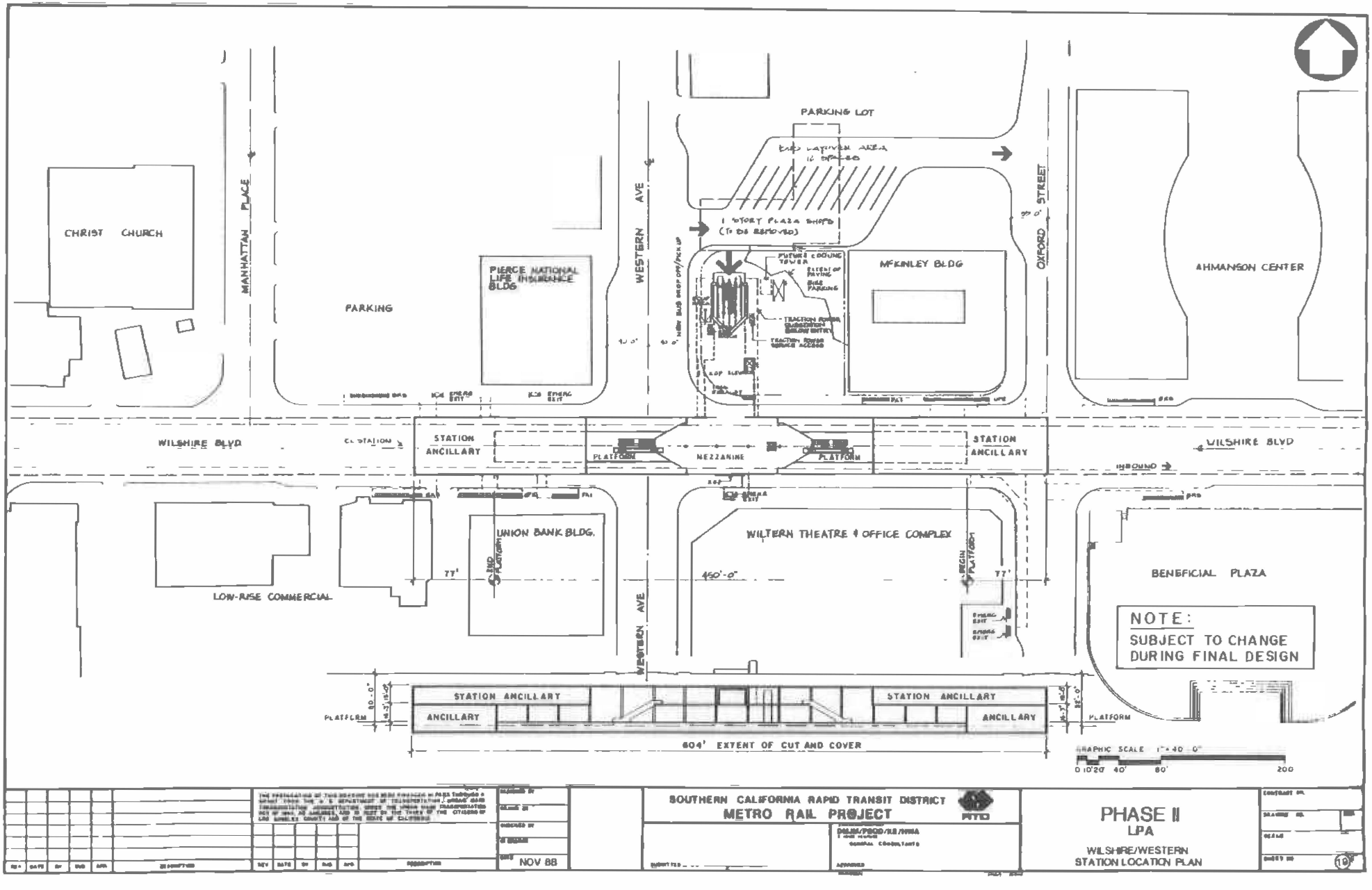

CHRIST CHURCH
MANHATTAN PLACE
PARKING
PIERCE NATIONAL LIFE INSURANCE BLDG
WESTERN AVE
PARKING LOT
1 STORY PLAZA SHOPS
McKINLEY BLDG
OXFORD STREET
AHMANSON CENTER
WILSHIRE BLVD
STATION ANCILLARY
PLATFORM
MEZZANINE
PLATFORM
STATION ANCILLARY
WILSHIRE BLVD
INBOUND
LOW-RISE COMMERCIAL
UNION BANK BLDG.
WILTERN THEATRE & OFFICE COMPLEX
450'-0"
77'
77'
BENEFICIAL PLAZA
NOTE:
SUBJECT TO CHANGE
DURING FINAL DESIGN
STATION ANCILLARY
STATION ANCILLARY
ANCILLARY
ANCILLARY
PLATFORM
PLATFORM
604' EXTENT OF CUT AND COVER
GRAPHIC SCALE 1"=40'-0"
0 10'20' 40' 80' 200
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
PHASE II
LPA
WILSHIRE/WESTERN
STATION LOCATION PLAN
NOV 88

FIGURE 2-25

Vermont/Beverly

The Vermont/Beverly Station (Figure 2-26) is a center-platform facility located in the Vermont Avenue right-of-way. Entry is planned from the northeast corner of the Vermont and Beverly Boulevard intersection. Stairs, escalators, and an elevator will lead to a passageway which will turn to allow access to a mezzanine over the southern end of the train platform. A knock-out panel across the mezzanine from the entrance will allow for future access from the west side of Vermont. Access to the platform will be via stairs, escalator, and elevator. Crossover tracks will be located south of the station platform.

Vermont/Santa Monica

The Vermont/Santa Monica Station (Figure 2-27) is a center-platform facility located in the right-of-way of Vermont Avenue. A station entrance is planned for the west side of Vermont between Santa Monica Boulevard and Willowbrook Avenue. Stairs, escalators, and an elevator will serve a mezzanine located above the center of the train platform. Stairs and escalators on either end of the mezzanine serve to the platform below. And elevator from the mezzanine to the platform will be located near the north end of the mezzanine.

Vermont/Sunset

The Vermont/Sunset Station (Figure 2-28) is a center-platform facility located in the right-of-way of Vermont Avenue. Two station entrances are planned. The first, located on the west side of Vermont between Fountain Avenue and Sunset Boulevard, will serve a mezzanine over the south end of the train platform. Access at this entrance will be provide via stairs and escalators. A knock-out panel on the mezzanine level will allow future access from the east side of Vermont. Stairs and escalators will lead from the mezzanine to the train platform.

The second station entrance, located at the southeast corner of Vermont and Maubert Avenue, will serve a mezzanine over the north end of the train platform. Access at this entrance will be provided via stairs, escalators, and elevator. A passageway leads from the entrance to the mezzanine where transit patrons may use stairs, escalators and an elevator for access to the train platform. Crossover tracks will be located south of the platform.

Hollywood/Western

The Hollywood/Western Station (Figure 2-29) is a center-platform facility with a single entrance located at the southeast corner of the Hollywood Boulevard and Western Avenue intersection. Patrons will use stairs, escalators, and elevator to enter a long passageway leading to a mezzanine over the middle of the train platform. A knock-out panel across the mezzanine from the passageway allows for future access from the north side of Hollywood Boulevard. Stairs and escalators on either end of the mezzanine allow access to the platform below. An elevator from the mezzanine to the platform will be located near the east end of mezzanine.

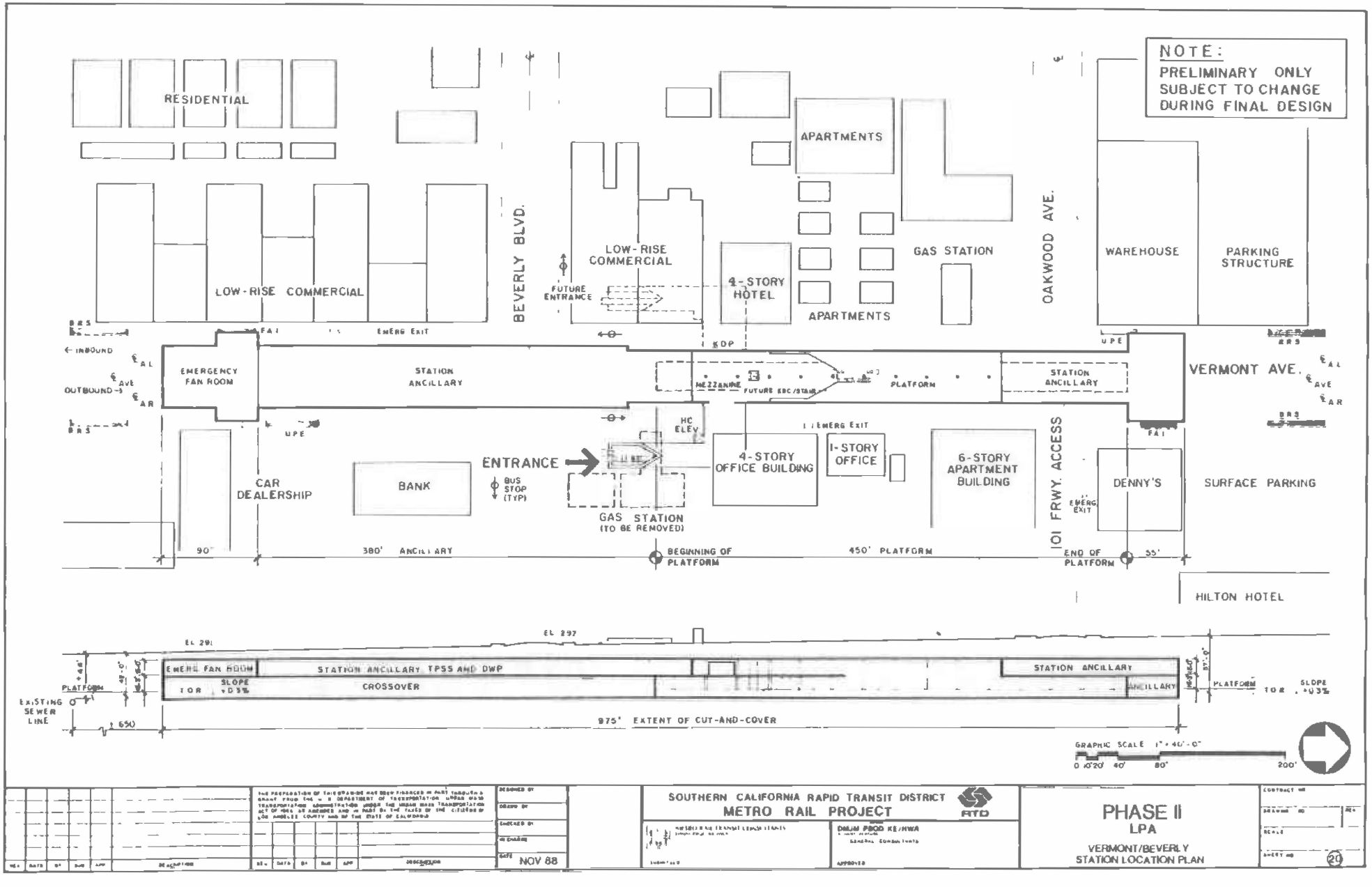

NOTE:
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
RESIDENTIAL
LOW-RISE COMMERCIAL
BEVERLY BLVD.
LOW-RISE COMMERCIAL
FUTURE ENTRANCE
4-STORY HOTEL
APARTMENTS
APARTMENTS
GAS STATION
OAKWOOD AVE.
WAREHOUSE
PARKING STRUCTURE
VERMONT AVE.
INBOUND
OUTBOUND
EMERGENCY FAN ROOM
STATION ANCILLARY
MEZZANINE
FUTURE EBC/STAIR
PLATFORM
STATION ANCILLARY
HC ELEV
ENTRANCE
BUS STOP (TYP)
4-STORY OFFICE BUILDING
1-STORY OFFICE
6-STORY APARTMENT BUILDING
101 FRWY. ACCESS
DENNY'S
SURFACE PARKING
CAR DEALERSHIP
BANK
GAS STATION (TO BE REMOVED)
90'
380' ANCILLARY
BEGINNING OF PLATFORM
450' PLATFORM
END OF PLATFORM
55'
HILTON HOTEL
EL 291
EL 297
EMERG FAN ROOM
STATION ANCILLARY TPSS AND DWP
STATION ANCILLARY
CROSSOVER
ANCILLARY
PLATFORM
SLOPE +0.3%
EXISTING SEWER LINE
± 650
975' EXTENT OF CUT-AND-COVER
GRAPHIC SCALE
0 10 20 40 80 200
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
VERMONT/BEVERLY
STATION LOCATION PLAN
NOV 88
20

FIGURE 2-26

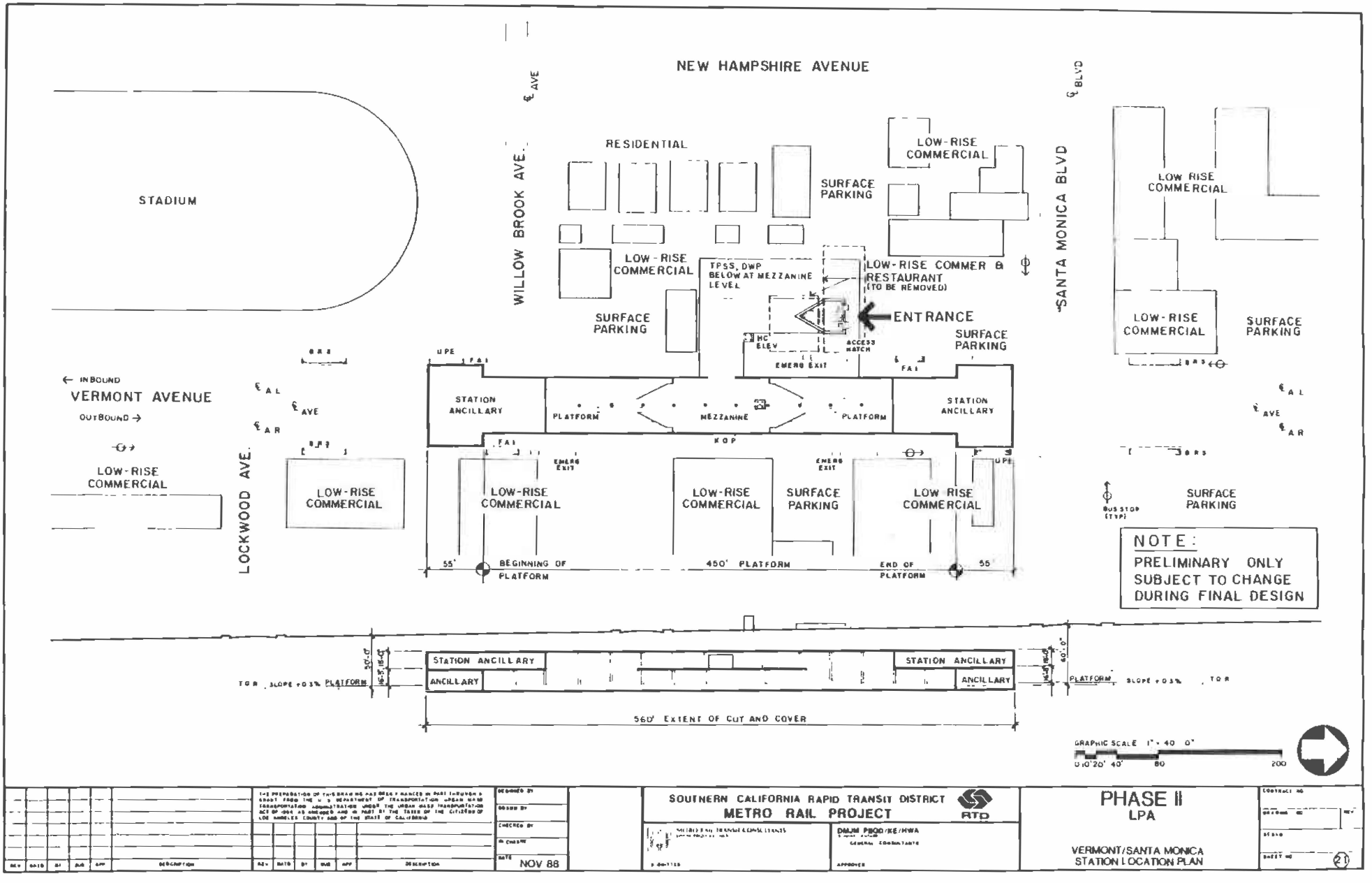

NEW HAMPSHIRE AVENUE
STADIUM
WILLOW BROOK AVE.
RESIDENTIAL
SURFACE PARKING
LOW-RISE COMMERCIAL
LOW-RISE COMMERCIAL
TPSS, DWP BELOW AT MEZZANINE LEVEL
LOW-RISE COMMER & RESTAURANT (TO BE REMOVED)
ENTRANCE
SURFACE PARKING
SURFACE PARKING
SANTA MONICA BLVD
LOW RISE COMMERCIAL
LOW-RISE COMMERCIAL
SURFACE PARKING
HC ELEV
ACCESS HATCH
EMERG EXIT
INBOUND
VERMONT AVENUE
OUTBOUND
LOW-RISE COMMERCIAL
LOCKWOOD AVE.
LOW-RISE COMMERCIAL
STATION ANCILLARY
PLATFORM
MEZZANINE
PLATFORM
STATION ANCILLARY
KOP
LOW-RISE COMMERCIAL
LOW-RISE COMMERCIAL
SURFACE PARKING
LOW RISE COMMERCIAL
BUS STOP (TYP)
SURFACE PARKING
55'
BEGINNING OF PLATFORM
450' PLATFORM
END OF PLATFORM
55'
NOTE:
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
STATION ANCILLARY
ANCILLARY
STATION ANCILLARY
ANCILLARY
TOR SLOPE +0.3% PLATFORM
PLATFORM SLOPE +0.3% TOR
560' EXTENT OF CUT AND COVER
GRAPHIC SCALE 1" = 40' 0"
0 10' 20' 40' 80 200
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
VERMONT/SANTA MONICA
STATION LOCATION PLAN
NOV 88
21

FIGURE 2-27

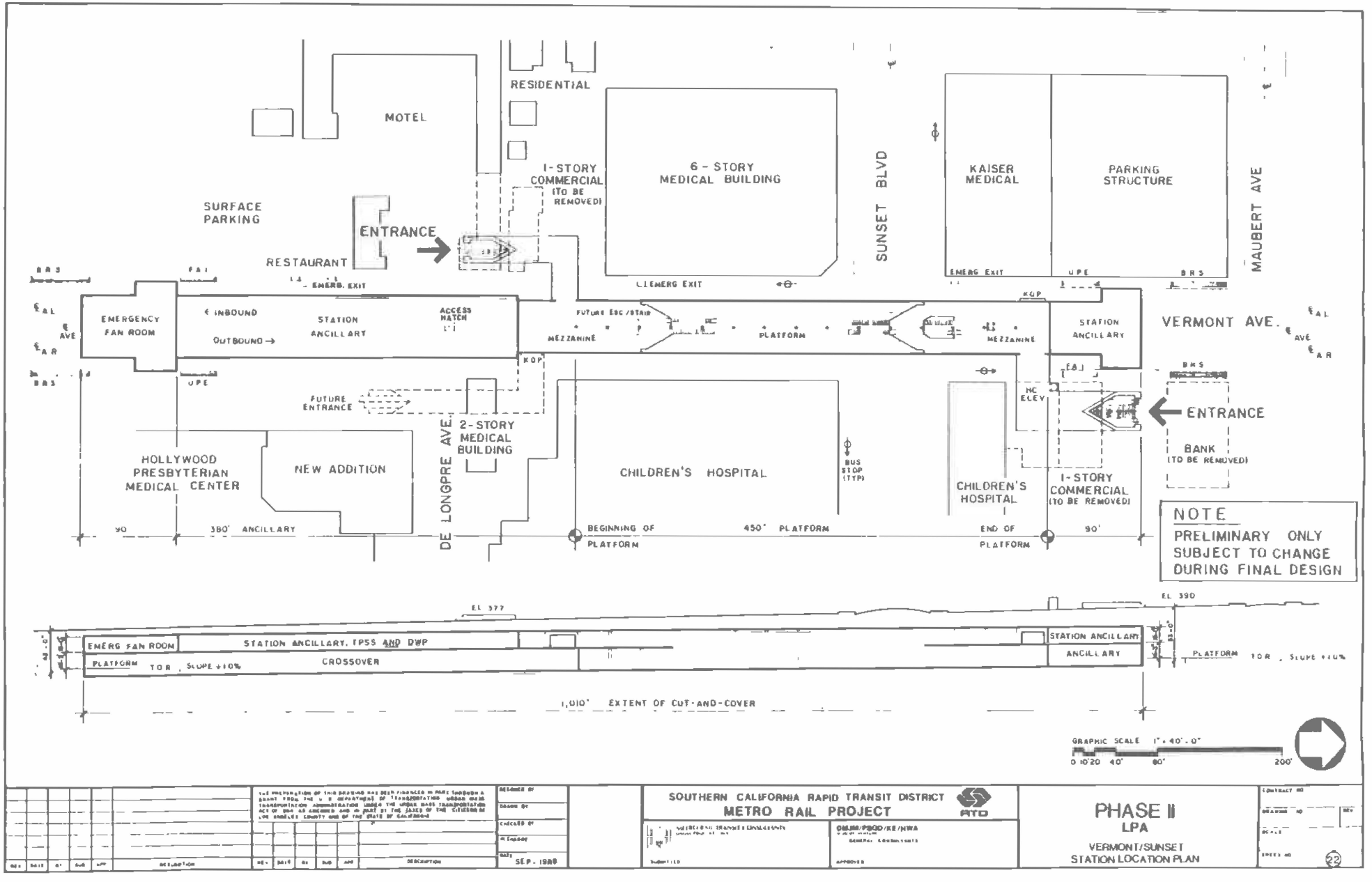
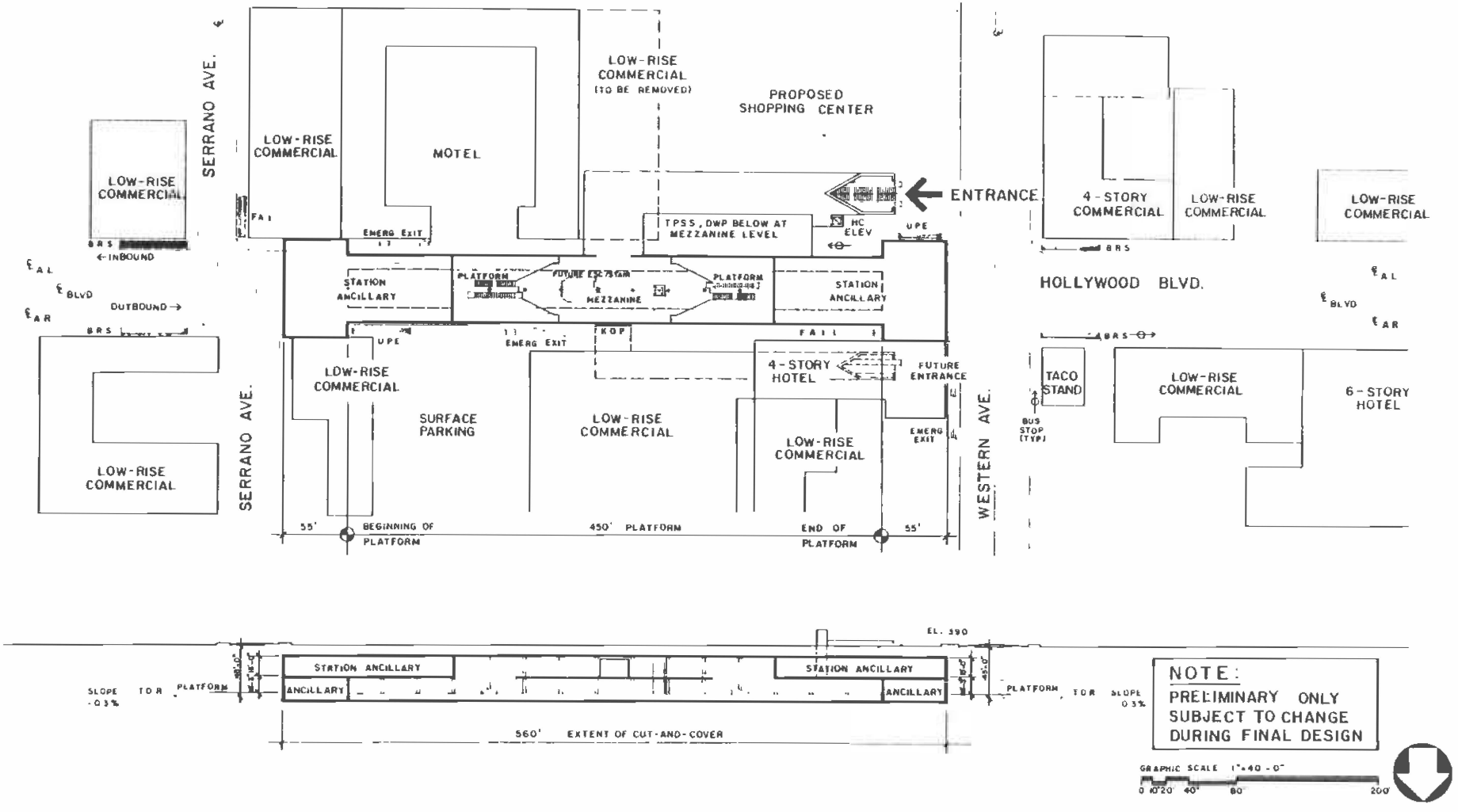

MOTEL
RESIDENTIAL
1-STORY COMMERCIAL (TO BE REMOVED)
6-STORY MEDICAL BUILDING
SUNSET BLVD
KAISER MEDICAL
PARKING STRUCTURE
MAUBERT AVE
SURFACE PARKING
ENTRANCE
RESTAURANT
EMERG. EXIT
EMERG EXIT
EMERGENCY FAN ROOM
INBOUND
OUTBOUND
STATION ANCILLARY
ACCESS HATCH
FUTURE ESC/STAIR
MEZZANINE
PLATFORM
MEZZANINE
STATION ANCILLARY
VERMONT AVE.
FUTURE ENTRANCE
2-STORY MEDICAL BUILDING
HC ELEV
ENTRANCE
BANK (TO BE REMOVED)
HOLLYWOOD PRESBYTERIAN MEDICAL CENTER
NEW ADDITION
DE LONGPRE AVE.
CHILDREN'S HOSPITAL
BUS STOP (TYP)
CHILDREN'S HOSPITAL
1-STORY COMMERCIAL (TO BE REMOVED)
90
380' ANCILLARY
BEGINNING OF PLATFORM
450' PLATFORM
END OF PLATFORM
90'
NOTE
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
EL 377
EL 390
EMERG FAN ROOM
STATION ANCILLARY, TPSS AND DWP
PLATFORM TOR, SLOPE +10%
CROSSOVER
STATION ANCILLARY
ANCILLARY
PLATFORM TOR, SLOPE +10%
1,010' EXTENT OF CUT-AND-COVER
GRAPHIC SCALE 1" = 40'-0"
0 10 20 40' 80' 200'
SEP. 1980
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
ATD
PHASE II
LPA
VERMONT/SUNSET
STATION LOCATION PLAN
22

FIGURE 2-28



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD

PHASE II
LPA

HOLLYWOOD/WESTERN
STATION LOCATION PLAN

NOV 88

23

FIGURE 2-29

Hollywood/Vine

The Hollywood/Vine Station (Figures 2-30 and 2-31) is a center-platform facility located in the right-of-way of Hollywood Boulevard. Two station entrances are planned. The first, located on the south side of Hollywood between Vine Street and Argyle Avenue, will serve a mezzanine over the west end of the train platform. Access at this entrance will be provided via stairs, escalators, and elevator. Stairs, escalators, and an elevator will lead from the mezzanine to the train platform.

The second station entrance will be located on the north side of Hollywood between Argyle and Vista del Mar. Stairs and an escalator will serve a mezzanine over the east end of the train platform. Stairs and an escalator will lead from the mezzanine to the platform.

Hollywood/Vine has been chosen as a potential New LPA temporary terminal. Chapter 3, Section 1.2.3.2, contains possible provisions to be used to accommodate the predicted high volume of bus traffic at this station resulting from its use as a temporary terminal. Twenty kiss-n-ride spaces with access from Argyle will be located immediately north of the second station entrance.

Hollywood/Highland

The Hollywood/Highland Station (Figure 2-32) is a center-platform facility with a single entrance located at the northeast corner of the Hollywood Boulevard and Orchid Avenue intersection. Stairs, escalators and an elevator provide access to a short passageway leading to a mezzanine over the west end of the train platform. Access from the mezzanine to the platform will be via stairs, escalators, and elevator. A second mezzanine over the east end of the platform, with a knock-out panel leading to the southeast corner of the Hollywood and Highland Avenue intersections, will be provided for a future second station entrance.

An off-street facility that will require layover space for eight buses is desireable. However, in the event an off-street facility cannot be secured, layover for eight buses using on-street curb space in the vicinity of the station will be needed. Bus lines 1 (short line), 2 (short line), 5 (short line), and 210 will utilize the layover spaces.

Universal City

The Universal City Station (Figures 2-33 and 2-34) is a center-platform facility located in the northwest corner of the Lankershim Boulevard and Hollywood Freeway intersection. A station entrance is planned for the west side of Lankershim Boulevard, adjacent to the Campo de Cahuenga State Historic Site. Stairs, escalators, and an elevator will serve a mezzanine located above the center of the train platform. Stairs and escalators on either end of the mezzanine serve to the platform below. An elevator from the mezzanine to the platform will be located near the north end of the mezzanine.

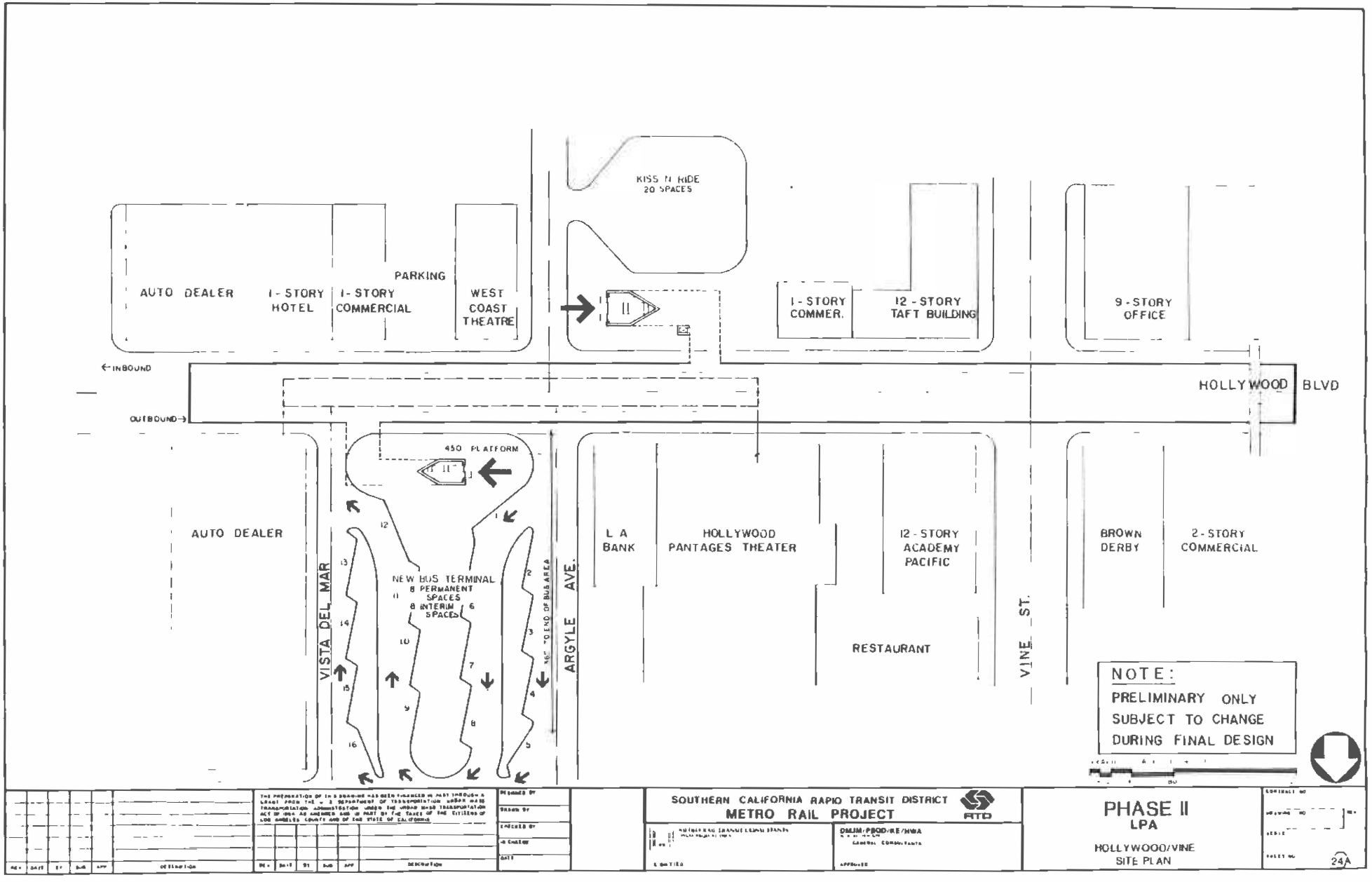

KISS N RIDE
20 SPACES
AUTO DEALER
1-STORY HOTEL
1-STORY COMMERCIAL
PARKING
WEST COAST THEATRE
1-STORY COMMER.
12-STORY TAFT BUILDING
9-STORY OFFICE
INBOUND
OUTBOUND
HOLLYWOOD BLVD
450' PLATFORM
AUTO DEALER
VISTA DEL MAR
NEW BUS TERMINAL
8 PERMANENT SPACES
8 INTERIM SPACES
450' TO END OF BUS AREA
ARGYLE AVE.
L A BANK
HOLLYWOOD PANTAGES THEATER
12-STORY ACADEMY PACIFIC
RESTAURANT
VINE ST.
BROWN DERBY
2-STORY COMMERCIAL
NOTE:
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
HOLLYWOOD/VINE
SITE PLAN
24A

FIGURE 2-30

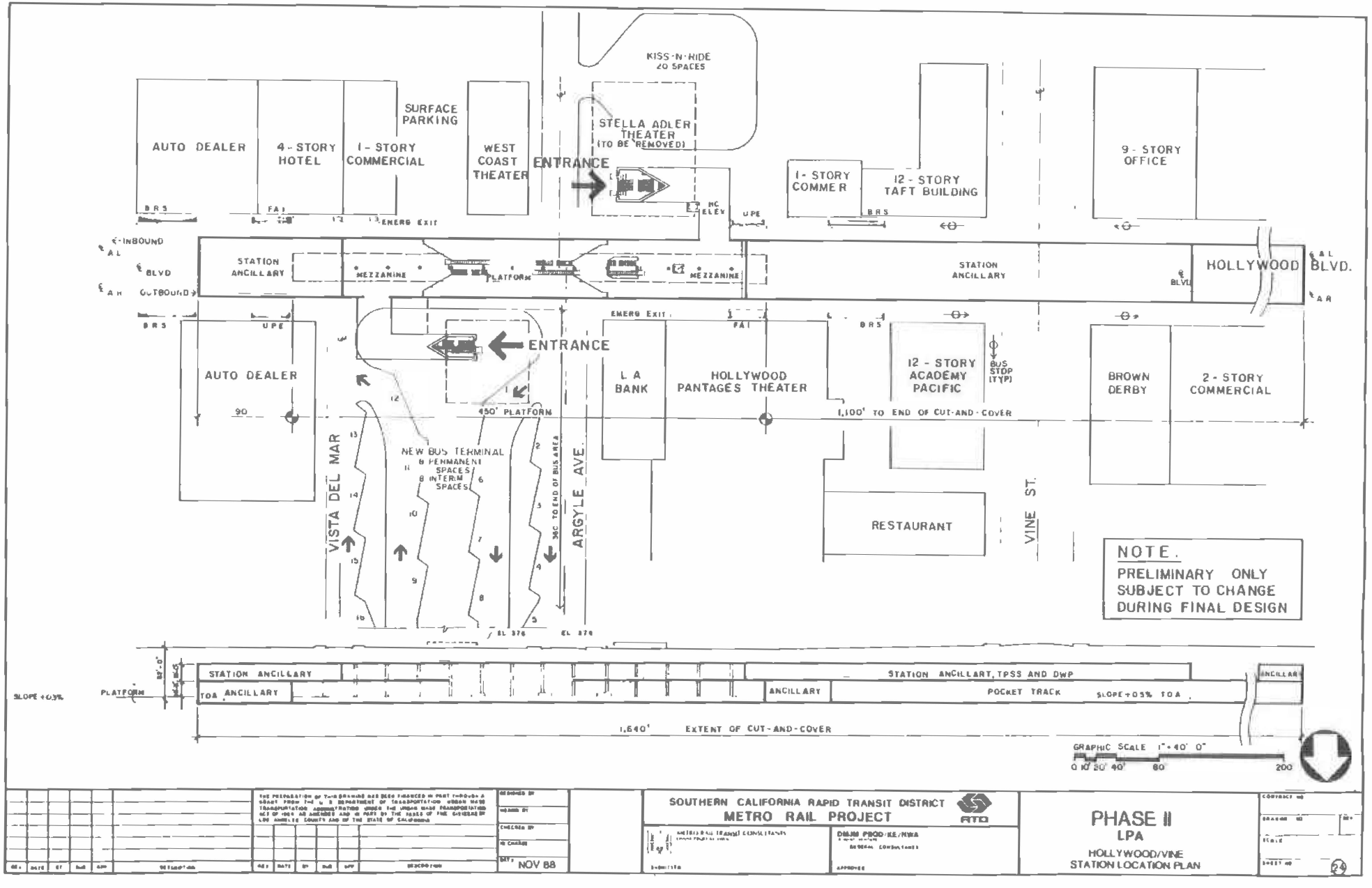
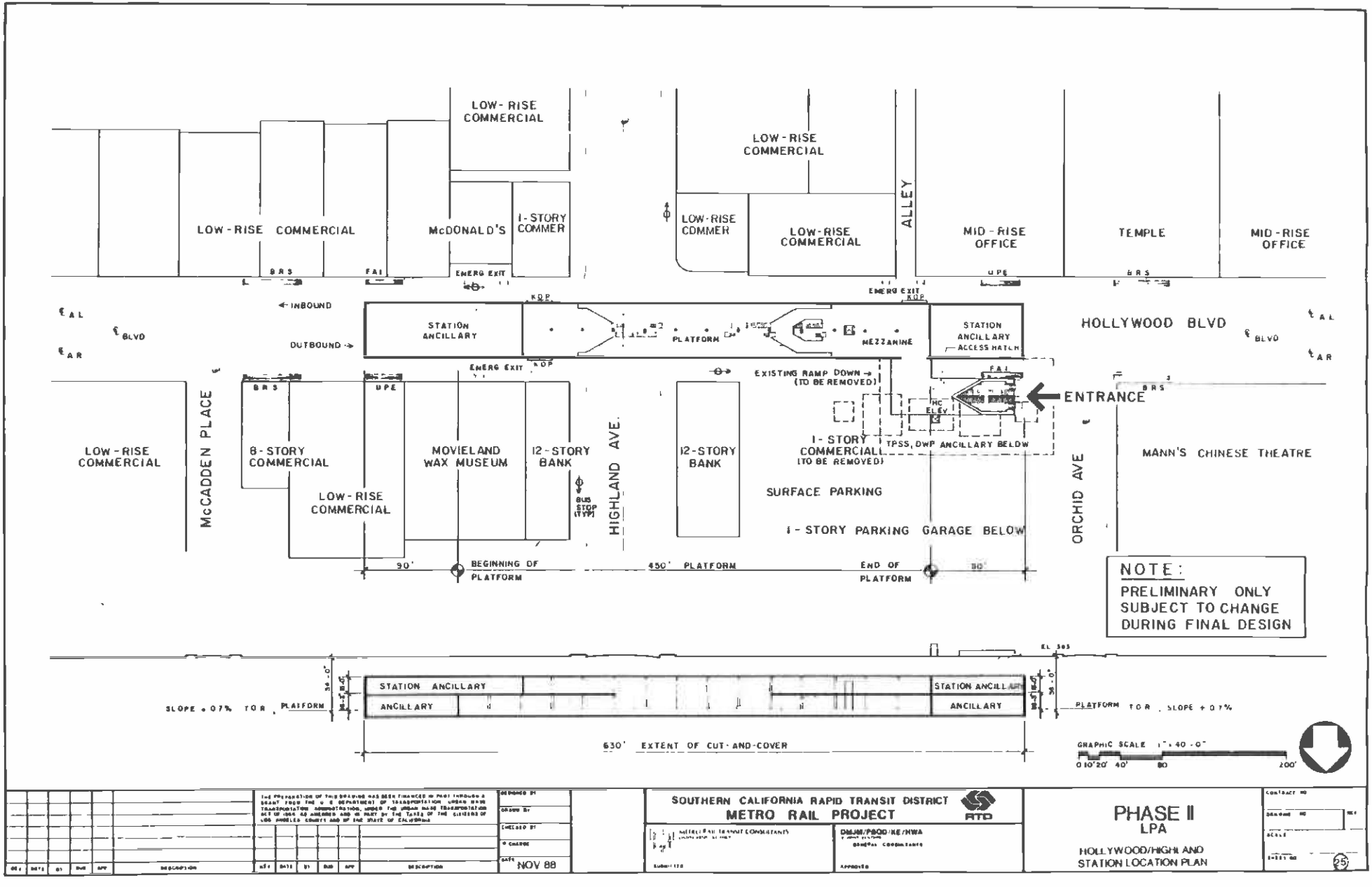

KISS-N-RIDE
20 SPACES
AUTO DEALER
4-STORY HOTEL
1-STORY COMMERCIAL
SURFACE PARKING
WEST COAST THEATER
ENTRANCE
STELLA ADLER THEATER (TO BE REMOVED)
1-STORY COMMER
12-STORY TAFT BUILDING
9-STORY OFFICE
ENERG EXIT
INBOUND
BLVD
OUTBOUND
STATION ANCILLARY
MEZZANINE
PLATFORM
MEZZANINE
STATION ANCILLARY
HOLLYWOOD BLVD.
EMERG EXIT
ENTRANCE
AUTO DEALER
L A BANK
HOLLYWOOD PANTAGES THEATER
12-STORY ACADEMY PACIFIC
BUS STOP (TYP)
BROWN DERBY
2-STORY COMMERCIAL
450' PLATFORM
1,100' TO END OF CUT-AND-COVER
NEW BUS TERMINAL
8 PERMANENT SPACES
8 INTERIM SPACES
VISTA DEL MAR
ARGYLE AVE.
VINE ST.
RESTAURANT
NOTE.
PRELIMINARY ONLY
SUBJECT TO CHANGE
DURING FINAL DESIGN
STATION ANCILLARY
STATION ANCILLARY, TPSS AND DWP
ANCILLARY
TOA ANCILLARY
ANCILLARY
POCKET TRACK
SLOPE +0.5% TOA
PLATFORM
SLOPE +0.3%
1,640' EXTENT OF CUT-AND-COVER
GRAPHIC SCALE 1" = 40' 0"
0 10 20 40 80 200
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
HOLLYWOOD/VINE
STATION LOCATION PLAN
NOV 88

FIGURE 2-31



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD

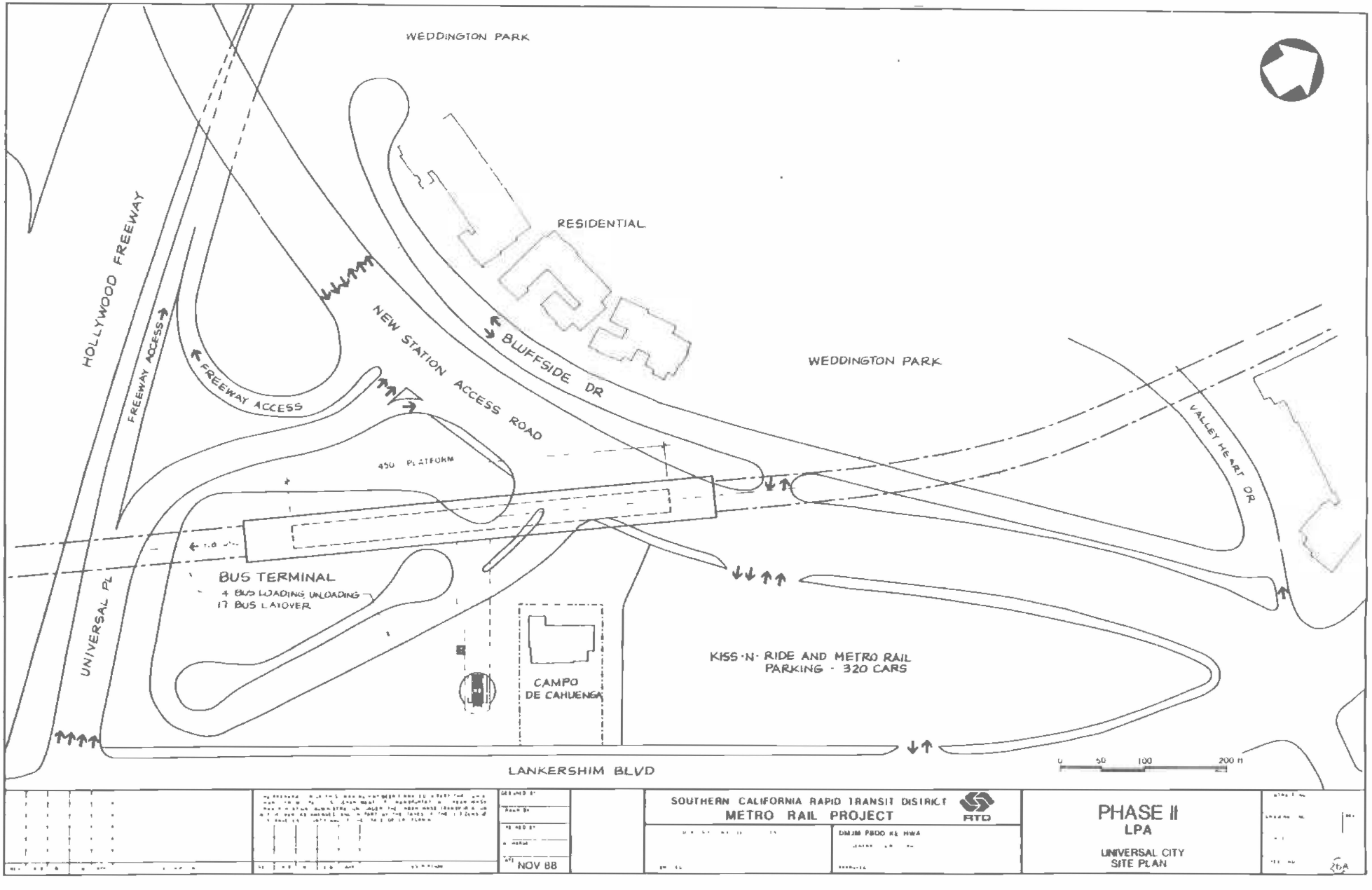
PHASE II
LPA

HOLLYWOOD/HIGHLAND
STATION LOCATION PLAN

DESIGNED BY
DRAWN BY
CHECKED BY
QUANTITIES
DATE NOV 88

25

FIGURE 2-32



2-1-40

FIGURE 2-33

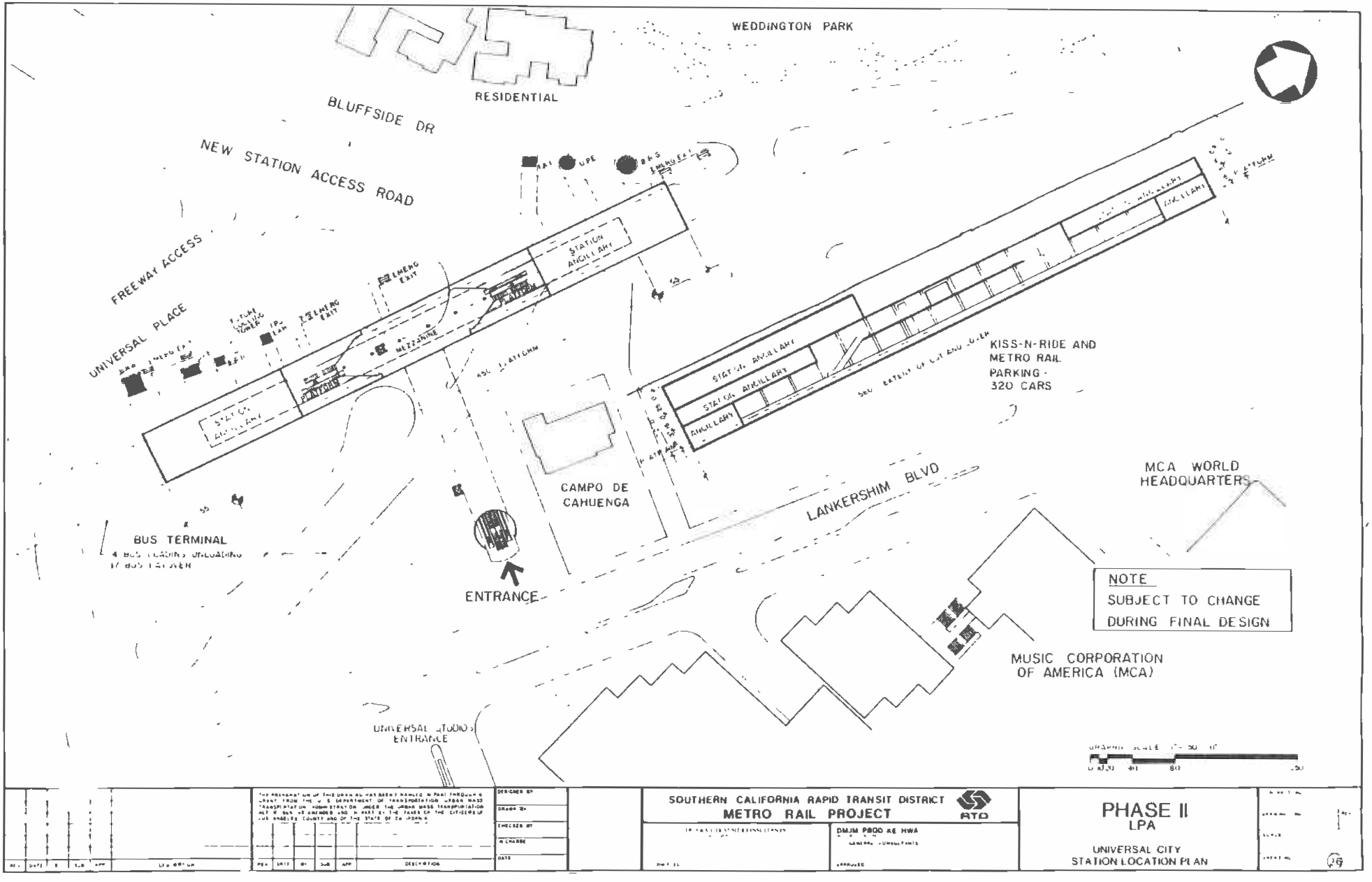

WEDDINGTON PARK
RESIDENTIAL
BLUFFSIDE DR
NEW STATION ACCESS ROAD
FREEWAY ACCESS
UNIVERSAL PLACE
STATION ANCILLARY
MEZZANINE
PLATFORM
KISS-N-RIDE AND METRO RAIL PARKING - 320 CARS
CAMPO DE CAHUENGA
LANKERSHIM BLVD
MCA WORLD HEADQUARTERS
BUS TERMINAL
ENTRANCE
NOTE
SUBJECT TO CHANGE DURING FINAL DESIGN
MUSIC CORPORATION OF AMERICA (MCA)
UNIVERSAL STUDIOS ENTRANCE
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
UNIVERSAL CITY
STATION LOCATION PLAN

FIGURE 2-34

A new station access road, parallel to Bluffside Drive and spanning the freeway, will link three large surface parking lots. Park-and-ride patrons will occupy 1,175 spaces, while kiss-and-ride patrons will use 40 spaces. Ultimately, 2,500 spaces will be provided in surface and structure parking. A bus terminal will occupy the southern portion of the station site. Four bays will be available for passenger loading and unloading, and seventeen layover bays will be provided. Universal City has been chosen as a potential New LPA temporary terminal. As a result, projected high volumes of bus and auto transit may result in the impacts discussed in Chapter 3, Section 1.2.2.2. Possible mitigation measures for these impacts are discussed in Chapter 3, Section 1.2.3.2.

North Hollywood

The North Hollywood Station (Figures 2-35 and 2-36), the northern terminus of the New LPA, is a center-platform facility located in the right-of-way of Lankershim Boulevard. The station has two entrances. The first, at the southeast corner of Lankershim and Chandler Boulevard South, is served by stairs and an escalator. A short passageway leads to a mezzanine over the south end of the train platform. A knock-out panel located across the mezzanine from the entrance will allow future access from the southwest corner of the Lankershim and Chandler Boulevard South intersection. A surface parking lot with access from Chandler Boulevard South will be located across the street from the station entrance. This lot will accommodate 146 park-n-ride and kiss-n-ride spaces.

The second station entrance will be located at the northeast corner of the Lankershim Boulevard and Chandler Boulevard North intersection. Stairs, an escalator, and an elevator will serve a passageway leading to a mezzanine over the north end of the train platform. A knock-out panel located across the mezzanine from the entrance will allow future access from the southwest corner of the Lankershim and Chandler Boulevard North intersection. Stairs, an escalator, and an elevator from the mezzanine will serve the platform below.

A surface parking lot located immediately north of the second station entrance will contain 700 park-n-ride spaces. Access to this lot will be from Compston Avenue on the north and Fair Avenue on the east. Future plans call for the construction of a parking garage to increase total park-n-ride capacity at the station to 2,500 automobiles. A driveway served by and parallel to Chandler Boulevard North will accommodate twelve buses for drop-off/pick up and layovers. A bicycle parking area is planned for near the station entrance.

1.3.2 OPERATING CHARACTERISTICS

1.3.2.1 Patronage

SCRTD expects daily rail boardings in the Year 2000 for the New LPA (including MOS-1) to be:

- Case 1 (Wilshire/Western & Hollywood/Vine): 260,000
- Case 2 (Wilshire/Western & Universal City): 288,000
- Case 3 (Wilshire/Vermont & Universal City): 278,000
- Full LPA (Wilshire/Western & North Hollywood): 298,000

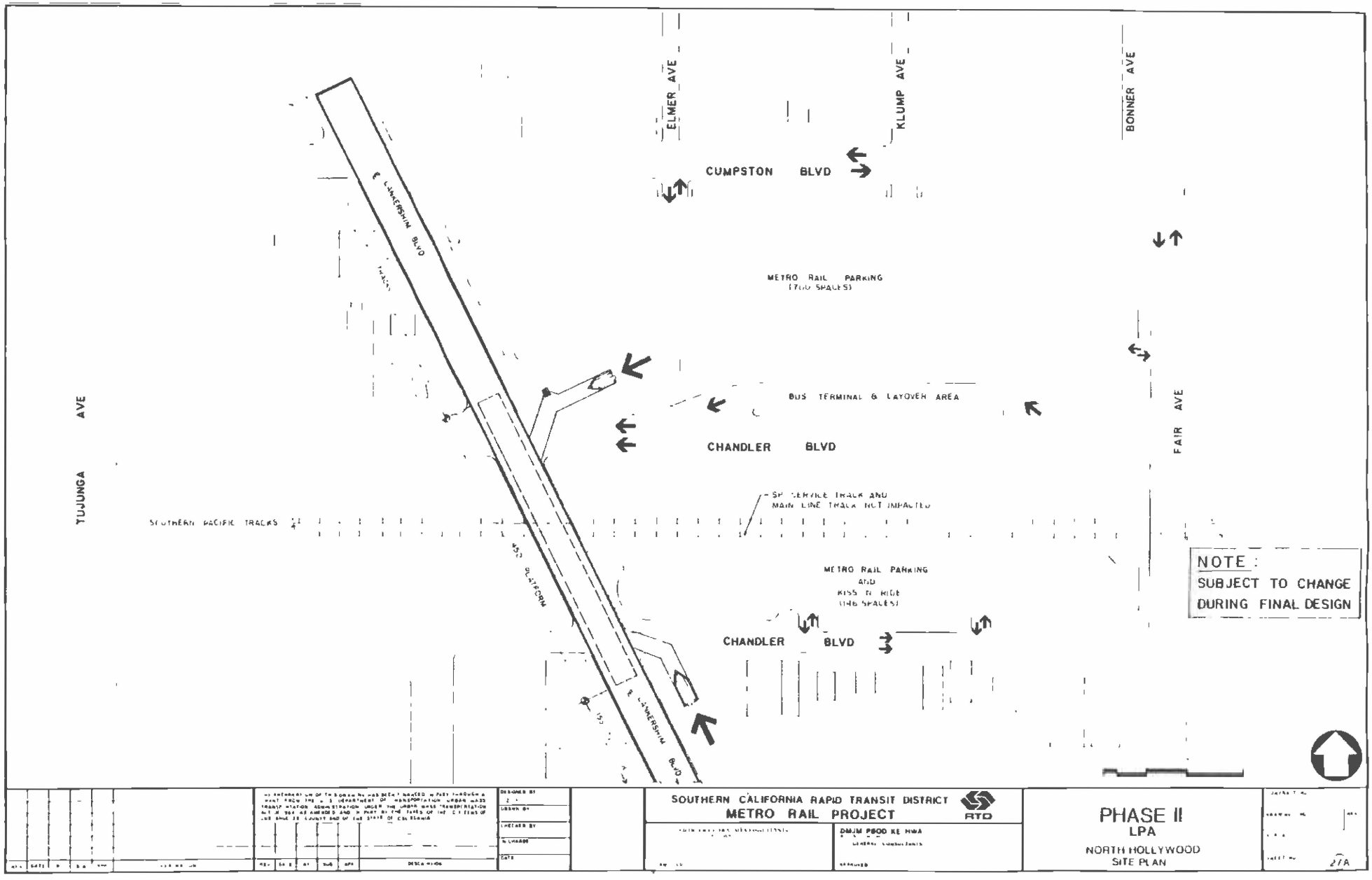

ELMER AVE
KLUMP AVE
BONNER AVE
CUMPSTON BLVD
METRO RAIL PARKING
(700 SPACES)
BUS TERMINAL & LAYOVER AREA
CHANDLER BLVD
TUJUNGA AVE
FAIR AVE
SOUTHERN PACIFIC TRACKS
SP SERVICE TRACK AND
MAIN LINE TRACK NOT IMPACTED
450' PLATFORM
METRO RAIL PARKING
AND
KISS N RIDE
(1146 SPACES)
CHANDLER BLVD
NOTE:
SUBJECT TO CHANGE
DURING FINAL DESIGN
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
NORTH HOLLYWOOD
SITE PLAN
27A

FIGURE 2-35

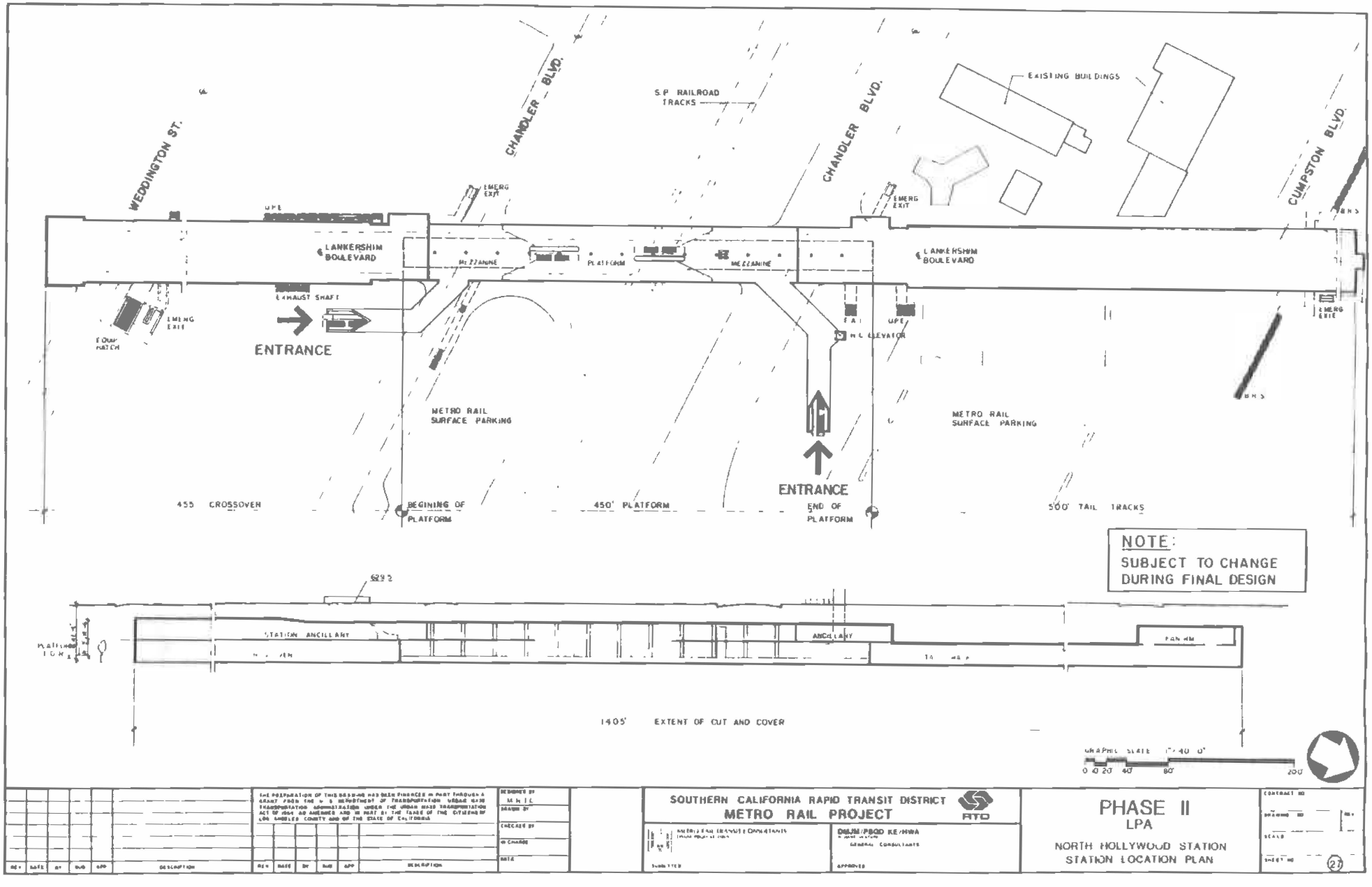

WEDDINGTON ST.
CHANDLER BLVD.
S.P. RAILROAD TRACKS
CHANDLER BLVD.
EXISTING BUILDINGS
CUMPSTON BLVD.
EMERG EXIT
EMERG EXIT
LANKERSHIM BOULEVARD
MEZZANINE
PLATFORM
MEZZANINE
LANKERSHIM BOULEVARD
EXHAUST SHAFT
EMERG EXIT
EMERG EXIT
ENTRANCE
METRO RAIL SURFACE PARKING
METRO RAIL SURFACE PARKING
ENTRANCE
455 CROSSOVER
BEGINING OF PLATFORM
450' PLATFORM
END OF PLATFORM
500' TAIL TRACKS
NOTE:
SUBJECT TO CHANGE DURING FINAL DESIGN
STATION ANCILLARY
ANCILLARY
1405' EXTENT OF CUT AND COVER
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD
PHASE II
LPA
NORTH HOLLYWOOD STATION
STATION LOCATION PLAN

FIGURE 2-36

Total daily regional transit boardings for the SCRTD system would be 1,946,000 of which 1,648,000 would be on the bus system. Daily rail boardings by mode of access are shown in Table 2-1. Figure 2-37 shows the average daily rail boardings at all stations in the Year 2000, as well as patronage along the

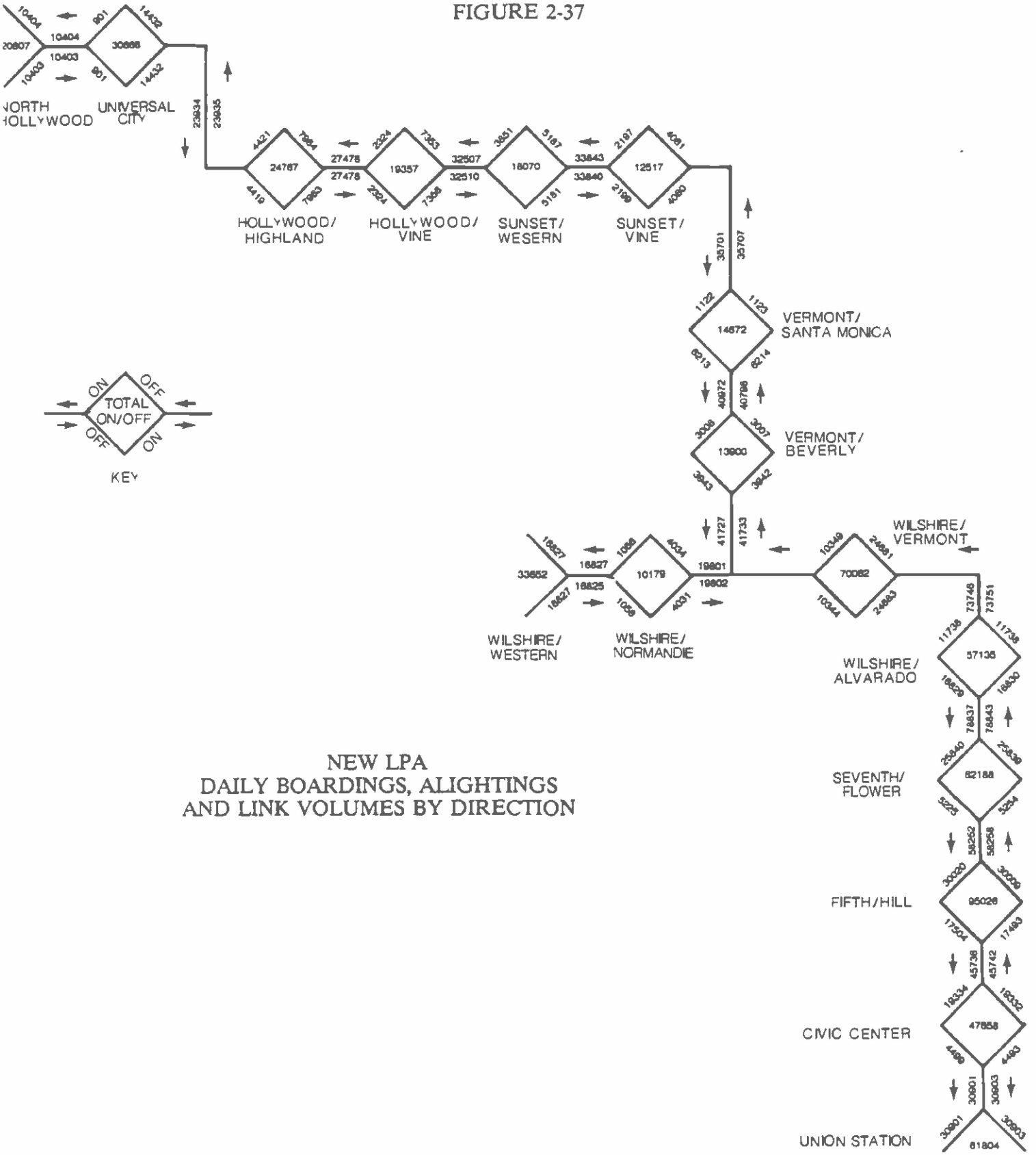
TABLE 2-1

SCRTD-PREDICTED DAILY RAIL TRANSIT BOARDINGS BY MODE OF ACCESS:
NEW LOCALLY PREFERRED ALTERNATIVE
(Including MOS-1)

Station	Walk	Park-n-Ride	Kiss-n-Ride	Bus	Total
MOS-1					
Union Station	3,874	3,737	1,425	21,918	30,954
Civic Center	12,614	0	0	11,364	23,978
Fifth/Hill	28,972	0	0	18,722	47,694
Seventh/Flower	8,951	0	0	22,194	31,145
Wilshire/Alvarado	17,557	0	3,631	7,633	28,821
Phase II					
Wilshire/Vermont	16,656	0	3,419	15,186	35,261
Wilshire/Normandie	2,376	0	1,811	909	5,096
Wilshire/Western	3,413	0	3,196	10,383	16,992
Universal City	1,276	2,539	450	11,203	15,468
North Hollywood	251	2,188	356	7,671	10,466
Vermont/Beverly	2,026	0	338	4,593	6,957
Vermont/Santa Monica	3,098	0	237	4,064	7,399
Hollywood/Vine	5,463	0	759	3,467	9,689
Hollywood/Highland	6,527	0	802	5,050	12,379
Vermont/Sunset	1,552	0	483	4,284	6,319
Hollywood/Western	1,803	0	553	6,759	9,115
TOTAL	116,409	8,464	17,460	155,400	297,733
When Operating As A Terminal:					
Case 1:					
o Wilshire/Western	3,288	0	1,761	10,745	15,794
o Hollywood/Vine	4,670	0	1,457	14,741	21,165
Case 2:					
o Wilshire/Western	3,393	0	3,177	10,322	16,892
o Universal City	1,270	3,868	678	15,088	20,904
Case 3:					
o Wilshire/Vermont	21,918	0	4,469	20,729	46,416
o Universal City	873	3,849	674	15,071	20,467

Source: General Planning Consultant, Patronage Technical Report, 1987.

FIGURE 2-37



NEW LPA
DAILY BOARDINGS, ALIGHTINGS
AND LINK VOLUMES BY DIRECTION

various sections or "links" of the alignment. The highest link volume is expected to occur between the Seventh and Flower Station and the Wilshire/Alvarado Station, where about 79,000 patrons would be accommodated daily in each direction. UMTA considers the SCRTD patronage forecasts to be at the high end of the range of reasonable expectations.

1.3.2.2 Bus Access

Bus access would be provided either at off-street bus facilities or on-street bus bays or "turnouts." Off-street facilities would include separate areas for passenger boarding/alighting and bus layover. Off-street bays would be used, in most cases, by buses terminating at the stations; on-street turnouts generally would be used by buses not terminating at the stations. Bus access facilities are shown on the station layout plans and are listed in Table 2-2.

1.3.2.3 Parking

The drop-off and pick-up of kiss-and-ride passengers will be accommodated either off-street or on-street at all stations outside the CBD. For Phase II, park-and-ride facilities are planned at two stations: Universal City and North Hollywood. Station access facilities are listed in Table 2-2.

1.3.2.4 Service Frequency

Operation of service on this alignment will consist of trains running alternatively from Union Station to the Wilshire/Western Station and from Union Station to the North Hollywood Station. On each of these branches, trains will operate every ten minutes during peak periods (Table 2-3). Because trains on both branches will operate over the section of line from Union Station to Wilshire/Vermont, this section of line will have a service frequency of five minutes for most of each weekday and 3 to 4 minutes in the peak periods. In the late evening, trains would operate at twenty-minute intervals on each branch, giving a combined headway on the downtown to mid-Wilshire section of ten minutes.

On weekends, service on each branch would be operated at fifteen-to-twenty-minute intervals, giving a downtown to mid-Wilshire service interval of 7 1/2 to 10 minutes.

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 2-3 shows the proposed hours of operation during the week and the frequency of service.

TABLE 2-2

SUMMARY OF STATION ACCESS FEATURES
NEW LOCALLY PREFERRED ALTERNATIVE

Station	Right-of Way Location	Bus Facilities Bays(1)	Turnout	Off-Street Auto Facilities (Spaces) Park-n-Ride (2)	Kiss -n- Ride
MOS-1					
Union Station(5)	Off-Street	27+20	--	300/2,500	--
Civic Center	Hill	--	Hill	--	--
Fifth/Hill	--	--	--	--	--
Seventh/Flower	Seventh	--	--	--	--
Wilshire/Alvarado(5)	Off-Street	--	Alvarado	--	20
Phase II					
Wilshire/Vermont(4)(5)	Off-Street	5+5	Vermont	--	28
Wilshire/Normandie	Wilshire	0	Irolo	--	--
Wilshire/Western(4)	Wilshire	0+12	Western	--	--
Vermont/Beverly(5)	Vermont	--	--	--	--
Vermont/Santa Monica(5)	Vermont	--	--	--	--
Vermont/Sunset(5)	Vermont	--	--	--	--
Hollywood/Western(5)	Hollywood	--	--	--	--
Hollywood/Vine(3)(5)	Hollywood	--	--	--	20
Hollywood/Highland(5)	--	--	--	--	--
Universal City(3)(5)	Off-Street	8+9	--	1,175/2,500	40
North Hollywood(5)	Lankershim	6+6	Chandler	1,800/2,500	146

(1) Bus facilities identified are for boarding/alighting and for layover bays, respectively.
(2) Park-and-ride capacities shown are for surface-only spaces, and for surface + structure(s) spaces, respectively
(3) Potential temporary terminus for north branch of Phase II.
(4) Potential terminus for western branch of Phase II.
(5) Bicycle racks or lockers will be provided at all but the three CBD stations and Wilshire/Normandie.

Source: SCRTD.

TABLE 2-3

PRELIMINARY YEAR 2000 SERVICE FREQUENCY:
NULL ALTERNATIVE AND NEW LOCALLY PREFERRED ALTERNATIVE

		Scheduled Headway		
		NULL ALTERNATIVE	NEW LPA	
Day/Period	Time	(MOS-1)	North Branch & West Branch	Common Section*
Weekdays				
Early Morning	5:30 a.m. - 6:30 a.m.	20 minutes	10 minutes	5 minutes
A.M. Peak	6:30 a.m. - 8:30 a.m.	5 minutes	6-8 minutes	3-4 minutes
Midday	8:30 a.m. - 3:30 p.m.	10 minutes	10 minutes	5 minutes
P.M. Peak	3:30 p.m. - 5:30 p.m.	5 minutes	6-8 minutes	3-4 minutes
Evening	5:30 p.m. - 7:30 p.m.	10 minutes	10 minutes	5 minutes
Late Evening	7:30 p.m. - 1:30 a.m.	20 minutes	20 minutes	10 minutes
Saturdays				
Morning	5:30 a.m. - 7:30 a.m.	20 minutes	20 minutes	10 minutes
Day/Evening	7:30 a.m. - 7:30 p.m.	20 minutes	15 minutes	7.5 minutes
Late Evening	7:30 p.m. - 1:30 a.m.	20 minutes	20 minutes	10 minutes
Sundays/Holidays				
All Day	5:30 a.m. - 1:30 a.m.	20 minutes	20 minutes	20 minutes

*From the branching point east to Union Station.

Source: SCRTD.

1.3.2.5 Estimated Travel Time

Travel times depend upon the length of the line, the number of stations to be serviced, the speed restrictions encountered at curves on the line and the performance capabilities of the trains. One-way travel times from Union Station to terminal stations are shown in Table 2-4.

1.3.2.6 Train Size

Trains will consist of either four or six cars, depending upon the capacity required to satisfy ridership levels. For the full alignment, peak period trains will have six cars and off-peak trains will have four cars.

TABLE 2-4

ONE-WAY RAIL TRAVEL TIMES
FROM UNION STATION

Project Option	Terminal Station	One-Way Travel Time
Null Alternative	Wilshire/Alvarado	7 minutes
New LPA	Wilshire/Western (Full LPA)	13 minutes
	Universal City (Cases 2 & 3)	26 minutes
	North Hollywood (Full LPA)	30 minutes

Source: SCRTD.

1.3.2.7 Fleet Size

Fleet size depends upon the peak period service frequency, length of peak period trains and the round-trip time for each branch service established to serve expected demand. Fleet size also includes vehicles needed for standby use (in the event a train in revenue service must be replaced) and spare vehicles to account for vehicles undergoing maintenance and repair. Table 2-5 shows the fleet size required. The Case 3 fleet requirement is based on a service plan in which all trains operate to Universal City. In the other two Phase II Cases and for the New LPA, train service would alternate between the north branch and the shorter west branch. The full LPA will require a fleet of 100 cars.

1.3.2.8 Vehicle Loading

Service frequency and train size have been set to ensure that a peak load of 169 passengers per car is not exceeded on the heaviest link. This loading standard provides for 59 seated passengers, one patron in a wheelchair and 109 standees, each of which will have 3.3 square feet of standing room. During the off-peak periods, it is expected that the number of passengers in each car will not exceed 100.

1.3.2.9 System Capacity

The ultimate capacity shown in Table 2-6 is the maximum number of passengers that could be carried given various schedule headways and passenger loads per car.

TABLE 2-5

FLEET SIZE
NULL ALTERNATIVE AND NEW LPA

Options	Number of Rail Cars Required in Total Fleet
Null Alternative	30
Phase II	
Case 1 (Wilshire/Western & Hollywood/Vine)*	72
Case 2 (Wilshire/Western & Universal City)*	88
Case 3 (Wilshire/Vermont & Universal City)*	90
New LPA*	100

*Including MOS-1 Fleet

Source: SCRTD.

TABLE 2-6

SYSTEM CAPACITY PASSENGERS PER HOUR

Load Standard	Passengers/ Cars	Sq. Ft./ Standee	Planned Peak Headway (3 Minutes)	Ultimate Peak Headway (2 Minutes)
Peak	169	3.3	20,280	30,420
Crush	220	2.25	26,400	39,600
UMTA Standard	163	3.5	19,560	29,340

Source: SCRTD Systems Operating Plan, October, 1986

1.3.2.10 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.

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.

1.3.3 COSTS

1.3.3.1 Capital Cost

The capital costs (in December 1985 dollars) associated with the New LPA and the operable segments alternatives for Phase II are shown in Table 2-7. Operable

TABLE 2-7
CAPITAL COSTS:
NEW LOCALLY PREFERRED ALTERNATIVE AND OPERABLE SEGMENTS
(MILLIONS OF DECEMBER 1985 DOLLARS)

	ALTERNATIVE CONSTRUCTION SEGMENTS					
	MOS-1	MOS-2			Phase II	New LPA
Cost Element	Null Wilshire/ Alvarado	Case 1 Wilshire/ Western & Hollywood/ Vine	Case 2 Wilshire/ Western & Universal City	Case 3 Wilshire/ Vermont & Universal City	Wilshire/ Western & North Hollywood	Wilshire/ Western & North Hollywood
Construction & Procurement	$586	$700	$974	$864	$1,088	$1,674
Contingency, Design & Construction Management	$287	$194	$259	$227	$ 288	$ 575
Right-of-Way	$ 91	$ 51	$ 94	$ 85	$ 125	$ 216
Insurance/ Agency/Other	$187	$122	$182	$170	$ 197	$ 384
Total	$1,151	$1,067	$1,509	$1,346	$1,698	$2,849

Source: SCRTD

segments alternatives are referred to as Cases 1, 2, and 3 as defined in Section 1.3.1.2 of this Chapter. These costs are based on unit costs per running foot for tunnel and cut-and-cover construction and applied to lengths taken off current plan and profile sheets. Average costs are used for each station although special costs are included for three of the stations (North Hollywood, Universal City, and the over-under station at Wilshire/Vermont). Other costs for items such as tail tracks, crossovers, systems components, right-of-way, etc. are derived from earlier cost estimates based on specific quantities for this alignment. Cost data have been revised based on bid experience for MOS-1. The total cost of Phase II is estimated to be $1,698 million while the New LPA is estimated to cost $2,849 million in December 1985 dollars.

1.3.3.2 Operating Costs

The annual operating cost of the New LPA in the Year 2000 is presented by operable segment and modal system in Table 2-8. For the full alignment, the annual rail operating cost would be $34.1 million. The associated bus system operating cost would be $532.0 million in the same year.

TABLE 2-8
YEAR 2000 BUS AND RAIL OPERATING COSTS
NEW LOCALLY PREFERRED ALTERNATIVE AND OPERABLE SEGMENTS
(MILLIONS OF DECEMBER 1985 DOLLARS)

	ALTERNATIVE CONSTRUCTION SEGMENTS				
	MOS-1	MOS-2			New LPA
System Component	Null Wilshire/ Alvarado	Case 1 Wilshire/ Western & Hollywood/ Vine	Case 2 Wilshire/ Western & Universal City	Case 3 Wilshire/ Vermont & Universal City	Wilshire/ Western & North Hollywood
Bus	$542.6	$535.3	$534.0	$539.9	$532.0
Metro Rail	$ 15.4	$ 27.8	$ 31.6	$ 33.8	$ 34.1
Total	$558.0	$563.1	$565.6	$573.7	$566.1

Source: SCRTD

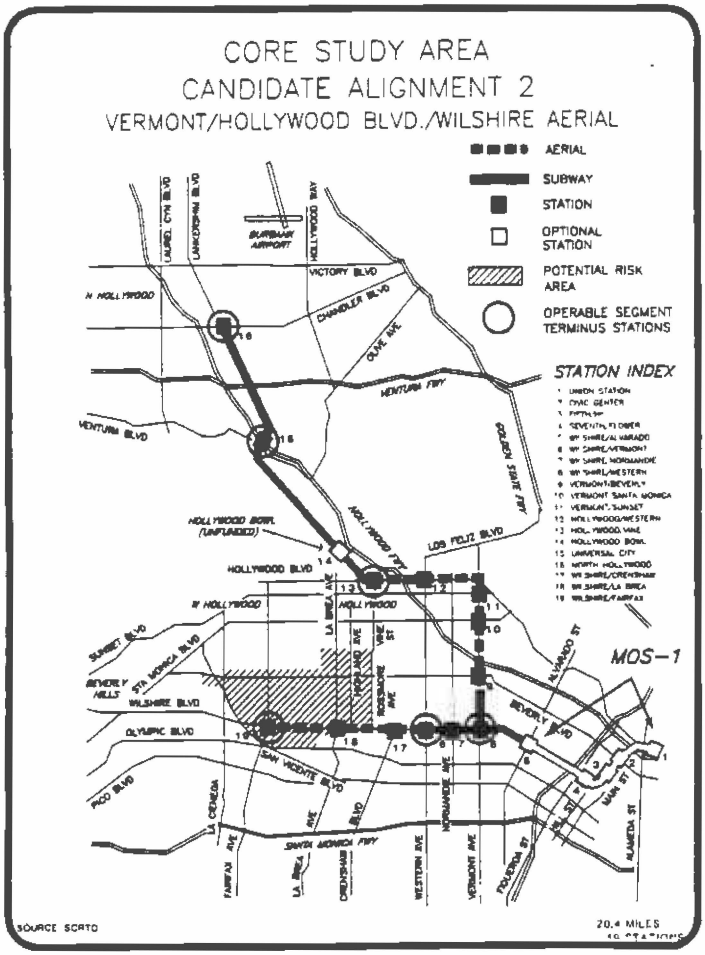
1.4 OTHER ALTERNATIVES

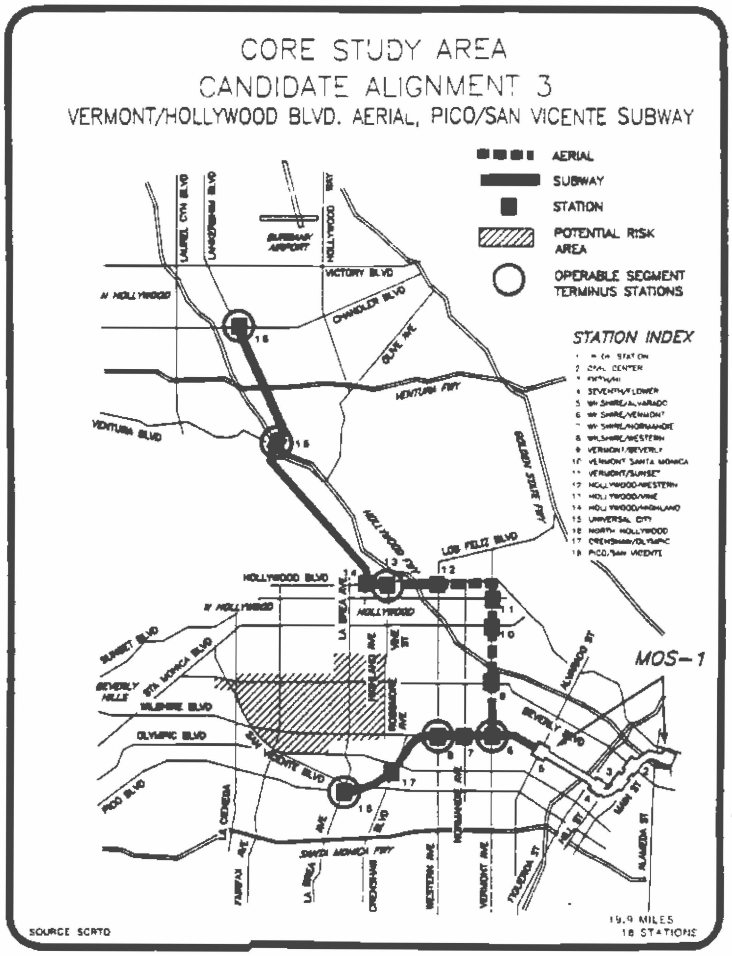
Other alternative alignments were considered during the CORE Study and evaluated in the Draft SEIS/SEIR and Addendum. These alternatives are described below.

1.4.1 CANDIDATE ALIGNMENT 2

Candidate Alignment 2 is a 15.9-mile aerial and subway line with fourteen stations (Figure 2-38). Leaving the Wilshire/Alvarado Station, the alignment would proceed west, passing under MacArthur Park Lake and following Wilshire Boulevard to the Wilshire/Vermont Station. After leaving the Wilshire/Vermont

FIGURE 2-38
PROJECT OPTIONS





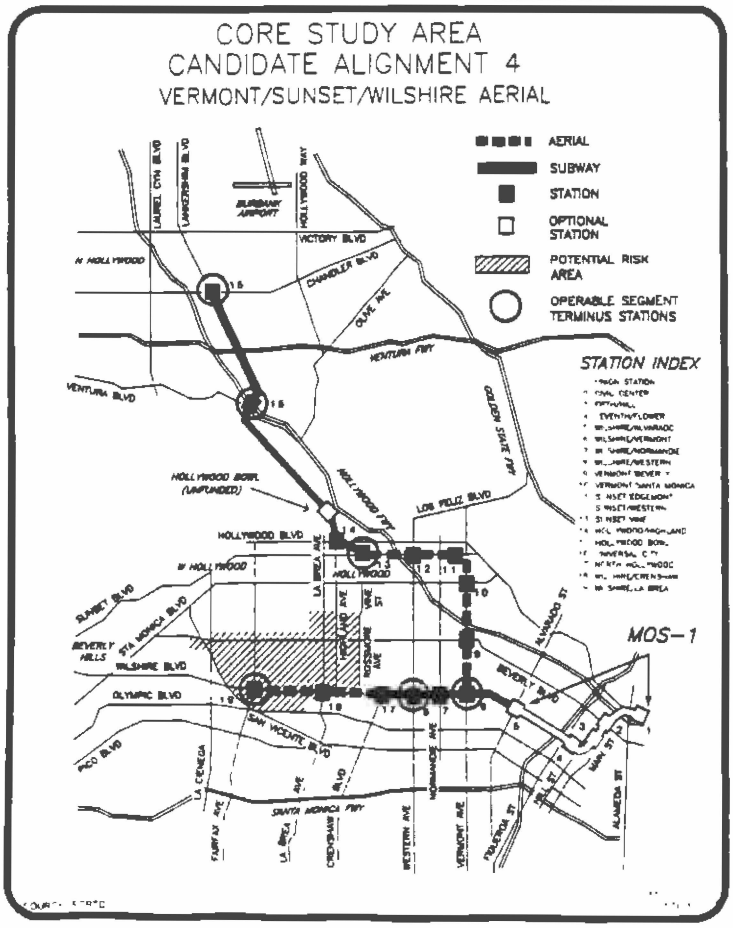
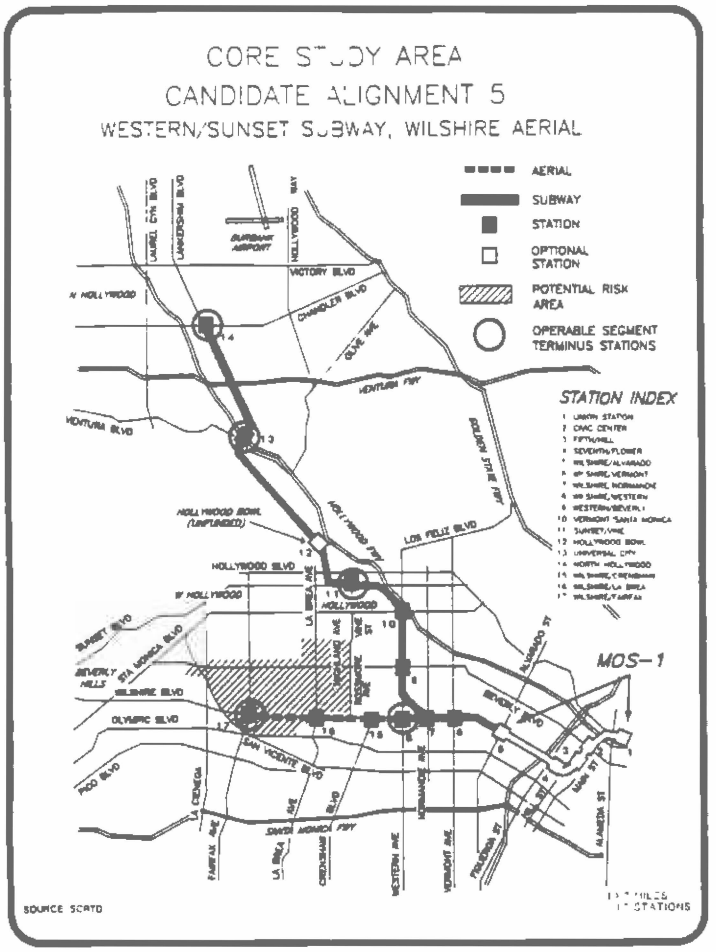
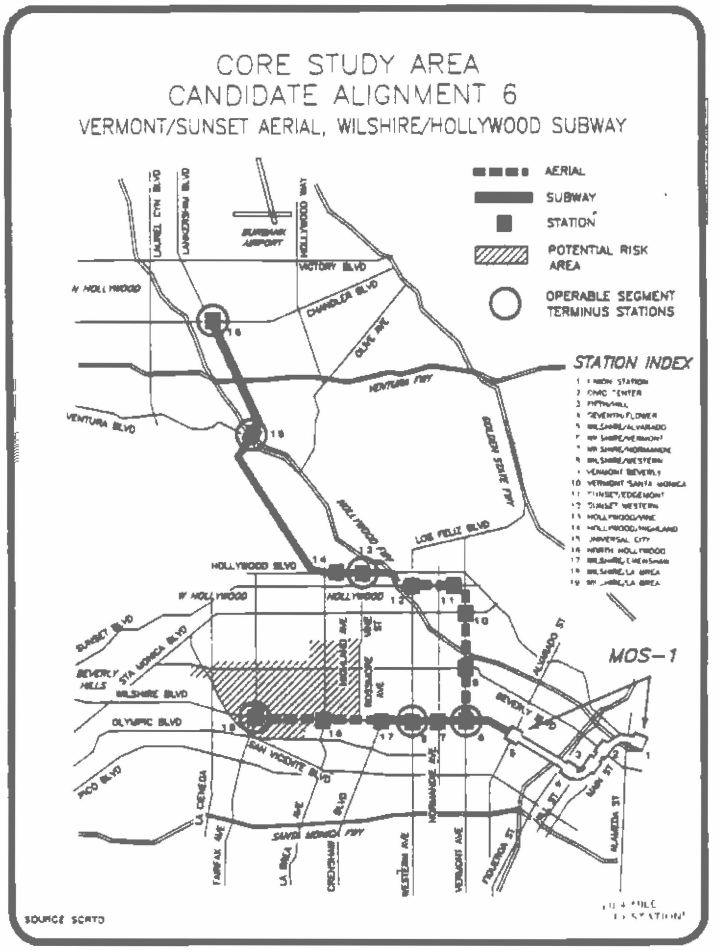


FIGURE 2-38 (Continued)
PROJECT OPTIONS





Station the alignment would branch with one line continuing west in the Wilshire Corridor and the other line turning north along Vermont Avenue to Hollywood and the San Fernando Valley.

The Valley branch would transit from subway to aerial between Third and First Streets and continue as an aerial structure in the center of Vermont Avenue through stations at Beverly, Santa Monica, and Sunset Boulevards. It would curve to the west over a corner of Barnsdall Park, then continue west in the center of Hollywood Boulevard. The aerial structure would continue along Hollywood Boulevard to the Hollywood/Western Station, transit from aerial to subway between Bronson Avenue and Gower Street, and would continue by cut-and-cover construction to the subway station at Hollywood/Vine. It would curve to the Hollywood Bowl Station and continue to the northwest along the Original LPA alignment through the Santa Monica Mountains to the Universal City and North Hollywood Stations.

Leaving the Wilshire/Vermont Station, the western branch would continue under Wilshire Boulevard, passing through the Wilshire/Normandie and Wilshire/Western stations. The alignment would transit from subway to aerial between Wilton Place and Irving Boulevard and continue as an aerial structure in the center of Wilshire Boulevard to the Wilshire/Crenshaw Station, the Wilshire/La Brea Station, and an interim terminal at Fairfax Avenue.

1.4.2 CANDIDATE ALIGNMENT 3

Candidate Alignment 3 is a 15.4-mile aerial and subway line with thirteen stations (Figure 2-38). Leaving the Wilshire/Alvarado Station, the alignment would proceed west, passing under MacArthur Park Lake and following Wilshire Boulevard to the Wilshire/Vermont Station. After leaving the Wilshire/Vermont Station, the alignment would branch with one line continuing west in the Wilshire Corridor and the other line turning north along Vermont Avenue to Hollywood and the San Fernando Valley.

The Valley branch would leave the Wilshire/Vermont Station, transit from subway to aerial between Third and First Streets, and continue as an aerial structure in the center of Vermont Avenue through stations at Beverly, Santa Monica, and Sunset Boulevards. It would curve to the west over a corner of Barnsdall Park, then continue west in the center of Hollywood Boulevard. The aerial structure would continue along Hollywood Boulevard to the Hollywood/Western Station, transit from aerial to subway between Bronson Avenue and Gower Street, and continue by cut-and-cover construction to subway stations at Hollywood/Vine and Hollywood/Highland. It would curve to the Hollywood Bowl Station and continue to the northwest along the Original LPA alignment through the Santa Monica Mountains to the Universal City and North Hollywood Stations.

Leaving the Wilshire/Vermont Station, the western branch would continue west under Wilshire Boulevard, passing through the Wilshire/Normandie and Wilshire/Western Stations. The alignment would turn south under Crenshaw Boulevard and proceed to a station at Crenshaw/Olympic. It would turn west under Pico Boulevard east of Plymouth Boulevard. From Pico Boulevard, the alignment would turn south through a reverse curve to the interim terminal at the Pico/San Vicente Station.

1.4.3 CANDIDATE ALIGNMENT 4

Candidate Alignment 4 is a 16.0-mile aerial and subway line with fifteen stations (Figure 2-38). Leaving the Wilshire/Alvarado Station, the alignment would proceed west, under MacArthur Park Lake and following Wilshire Boulevard to the Wilshire/Vermont Station. After leaving the Wilshire/Vermont Station, the alignment would branch with one line continuing west in the Wilshire Corridor and the other line turning north along Vermont Avenue to Hollywood and the San Fernando Valley.

The alignment for the Valley branch would leave the Wilshire/Vermont Station, transit from subway to aerial between Third and First Streets, and continue as an aerial structure in the center of Vermont Avenue through stations at Beverly and Santa Monica Boulevards. Leaving the Vermont/Santa Monica Station, the alignment would continue on Vermont, then curve west onto Sunset Boulevard. It would proceed on Sunset Boulevard, passing through stations at Edgemont and Western Avenues. Between Argyle Avenue and Gower Street it would transit from aerial to subway and continue beneath Sunset Boulevard to the Sunset/Vine Station. Turning northwest, it would pass through the Hollywood/Highland Station. The alignment then would curve to the Hollywood Bowl Station and continue northwest along the Original LPA alignment through the Santa Monica Mountains to the Universal City and North Hollywood Stations. Leaving the Wilshire/Vermont Station, the western branch would be the same as for Alignment 2, described previously in Section 1.4.1.

1.4.4 CANDIDATE ALIGNMENT 5

Candidate Alignment 5 is a 15.2-mile aerial and subway line with twelve stations (Figure 2-38). Leaving the Wilshire/Alvarado Station, the alignment would follow the Original LPA Wilshire Corridor route under the MacArthur Park Lake to Wilshire Boulevard, continuing in an underground easement between Wilshire Boulevard and Sixth Street. After passing through the Wilshire/Vermont Station, it returns to Wilshire Boulevard near Mariposa Avenue, passing through the Wilshire/Normandie Station. The alignment then would branch with one line turning north up Western Avenue and the other continuing west on Wilshire Boulevard.

The alignment for the Valley branch would leave the Wilshire/Normandie Station in a northwesterly direction and curve under Western Avenue to the Western/Beverly and Western/Santa Monica Stations. It would curve northwest to the Sunset/Vine Station, then continue on to the Hollywood Bowl Station and follow the Original LPA route to the North Hollywood Station.

Leaving the Wilshire/Vermont Station, the western branch would be the same as for Alignment 2, described previously in Section 1.4.1.

1.4.5 CANDIDATE ALIGNMENT 6

Candidate Alignment 6 is a 15.9-mile aerial and subway line with fourteen stations (Figure 2-38). Leaving the Wilshire/Alvarado Station, the alignment follows Wilshire Boulevard to the Wilshire/Vermont Station. After leaving

the Wilshire/Vermont Station, the alignment branches, with one line continuing west in the Wilshire Corridor and the other line turning north along Vermont Avenue to the Hollywood area and the San Fernando Valley. The western branch is the same as for Candidate Alignment 4, described in Section 1.6.1 of this chapter.

The alignment for the Valley branch leaves the Wilshire/Vermont Station, transits from subway to aerial between Third and First Streets, and continues as an aerial structure in the Vermont Avenue right-of-way where it serves the Vermont/Beverly and Vermont/Santa Monica Stations. It then curves west along Sunset Boulevard to the Vermont/Sunset and Sunset/Western Stations, transits to subway, and heads west beneath Hollywood Boulevard to the Hollywood/Vine and Hollywood/Highland Stations. West of Hollywood/Highland, the alignment curves northwest through the Santa Monica Mountains to the Universal City and North Hollywood Stations.

SECTION 2. SELECTION OF THE NEW LOCALLY PREFERRED ALTERNATIVE

2.1 INTRODUCTION

The environmental impact assessment process is designed to provide decision-makers with information pertinent to the anticipated effects associated with reasonable alternatives. This document in conjunction with other associated information provides the basis for selecting a New Locally Preferred Alternative (LPA). The SCRTD Board of Directors considered for decision purposes six CORE Study candidate alignments and a Null Alternative. These options were presented in the Draft SEIS/SEIR (November 1987) and the Addendum to the Draft SEIS/SEIR (May 1988). Expected environmental impacts, service to the Regional Core, community support, costs, and other evaluation measures were reviewed in the selection of the New LPA.

The New LPA alignment could not be configured so as to include both the Hollywood/Highland and Hollywood Bowl Stations and support local land use objectives in the Regional Core. The Board considered whether (1) to not establish a direct link between the Hollywood Bowl and Metro Rail or (2) to design and implement a direct transit connector. The Board expressed a strong desire to receive funding from the City of Los Angeles for completion of appropriate environmental studies and development of a local funding plan for implementation of a direct transit connector between the Hollywood/Highland Station and the Hollywood Bowl.

2.2 DECISION RATIONALE

Candidate Alignment 1, with minor modifications to the number and location of stations, was selected as the New LPA after careful review of the benefits, actual and potential environmental impacts, service characteristics, costs, and community support associated with each candidate alignment and the Null Alternative. Substantial public input was included in this decision-making process. Also considered were the recommendations of the City of Los Angeles. Specific elements making up the decision rationale for selecting the New LPA are discussed below. The reader is referred to the November 1987 Draft SEIS/SEIR and its May 1988 Addendum for more detailed discussion of Candidate Alignments 1 through 6.

2.2.1 PUBLIC INPUT

Since inception of the CORE Study in January 1986, strong public support has been received for extending Metro Rail service beyond the initial MOS-1 project. Participation in the planning and environmental analysis of the CORE Study alternatives has been coordinated through the Interagency Management Committee (IMC) composed of representatives of local, regional, and state agencies; the CORE Forum meetings engaging community representatives and elected officials; neighborhood presentations which sought public input on alignment and sequencing considerations; and, periodic presentations to the Los Angeles City Council and its committees as required for information and action.

The overwhelming majority of comments received regarding the CORE Study candidate alignments are in favor of an all-subway system. The New LPA is consistent with an apparent public consensus. Comments that have indicated some acceptance of alignments with aerial segments have done so largely from the perspective of the potential cost savings. Potential savings were significantly reduced as a result of an increase in the length of subway, higher displacement costs and revised capital cost estimates. Strong opposition to aerial operations was expressed by those who live and work in the corridors considered for aerial treatment.

2.2.2 CAPITAL COSTS

In March 1988, the Urban Mass Transportation Administration (UMTA) approved an Letter of No Prejudice (LONP) permitting the SCRTD to initiate Limited Preliminary Engineering (LPE) on Phase II of the Metro Rail Project. As part of this work, the District revised and updated the capital cost estimates for all CORE Study candidate alignments. The new estimates reflect recent bid experience on MOS-1 and include revised estimates for right-of-way acquisition and other District costs. These new estimates reflect recommendations made by independent consultants on costing methodologies which take into account the varying degrees of uncertainty regarding subway and aerial construction in the regional core.

The revised costs differ from those published in the Addendum to the Draft SEIS/SEIR on May 20, 1988. These revised costs were provided to the IMC for consideration and to the City of Los Angeles and the LACTC for their LPA and Phase II deliberations. Revised costs also were presented at the June 21, 1988 public hearing on the Addendum to the Draft SEIS/SEIR.

Based on these cost revisions, it is now estimated that the capital costs, for example, of construction segments terminating at Wilshire/Western and Universal City for Candidate Alignment 1 (all-subway) and for Candidate Alignment 6 (subway and aerial) would be virtually the same. (It must be noted that Candidate Alignment 6 has one additional station at Hollywood Boulevard and Highland Avenue.) Candidate Alignments 2 through 4, which have nearly four miles of aerial guideway, are $20-100 million less expensive (1.2% to 5.9%). Candidate Alignment 5, which as three less stations than Candidate Alignment 6 and two less stations than Candidate Alignment 1, is $200 million less.

The savings associated with the inclusion of aerial segments in Candidate Alignments 2, 3, 4, 5, and 6 largely are diminished by:

- the relatively short length of aerial segments;
- the considerable real estate costs associated with right-of-way acquisition at subway-aerial transition zones;
- special bridge construction over the Hollywood Freeway;
- right-of-way costs associated with Fire/Life/Safety requirements for emergency exists from station platforms; and,

- o requirements for maintaining street capacity which necessitate additional real estate acquisition in some areas.

Although the New LPA costs more than other alignments considered, the SCRTD Board of Directors believes that the LPA choice is justified principally because of: (1) the added benefits of service (the New LPA is 0.8 miles longer and has two more stations than the equivalent Phase II portion of the least costly alignment), (2) the support of local land use plans by the New LPA, (3) the environmental impacts associated with aerial alternatives (noise, vibration, land use, relocation/displacement, traffic, parking, visual, historic/cultural, etc.), and (4) the conformance of the New LPA with the expressed public support for an all-subway system.

2.2.3 SERVICE

The goal of the Metro Rail Project is to serve the Regional Core of Los Angeles in support of the City and regional land use objectives, specifically including the interconnection of the Los Angeles Central Business District (CBD), the Alvarado/Westlake District, the Wilshire District, Hollywood and the San Fernando Valley. All candidate alignments meet these objectives to varying degrees; however, the New LPA appears to more satisfactorily reflect local objectives relative to service, land use, and environmental impacts as discussed below.

2.2.3.1 Vermont Avenue versus Western Avenue Alignment

All candidate alignments, except Candidate Alignment 5, serve Vermont Avenue. Vermont Avenue is the second most heavily patronized route in the SCRTD bus system.

Several major institutions and traffic generators would be served by an alignment on Vermont Avenue, including Los Angeles City College, the Braille Institute, and the Kaiser, Hollywood Presbyterian, and Children's Hospitals. No major generators or institutions are located on Western Avenue and the street primarily has residential-oriented commercial businesses. All public comment favored a Vermont Avenue alignment. There was no support expressed from the community for a Western Avenue alternative.

2.2.3.2 Hollywood Boulevard versus Sunset Boulevard Alignment

Both Hollywood and Sunset Boulevards are highly developed and have high bus ridership. Hollywood Boulevard rail ridership potential is higher initially given the existing commercial and tourist attractions and given that Hollywood Boulevard serves as the terminus for several bus lines and provides more suitable station locations for this purpose. The existing land uses on both streets would be supported by Metro Rail, although Sunset Boulevard has a higher joint development potential. In the long run, considerable Metro Rail patronage could be generated from new Sunset Boulevard development; but there is considerable concern by the Sunset Boulevard broadcast and recording industry regarding environmental impacts (especially, noise, vibration, and electromagnetic interference) resulting from either aerial or subway alignments.

2.2.3.3 Hollywood/Highland Station versus Hollywood Bowl Station

Downtown Hollywood is generally defined as the area surrounding the Hollywood/Highland intersection. Major redevelopment actions proposed to the west of the Hollywood/Highland Station would provide substantial additional ridership currently not reflected in patronage estimates. Also, the Hollywood/Highland Station is located at the center of the major Hollywood tourist attractions, which undoubtedly would generate ridership. This potential ridership is not reflected in patronage estimates. The Hollywood Bowl is an important regional resource for its events and museums, but a Hollywood Bowl Station does not provide the continuous, year-round transportation benefits that is anticipated with the Hollywood/Highland Station included in the New LPA.

The desire by the City of Los Angeles to locate a Metro Rail station at Hollywood and Highland effectively precludes a future station at the Hollywood Bowl and adds approximately $66 million to the cost of the project when compared with Candidate Alignment 1. This additional station is justified on the basis of its transportation benefits and conformance with the land use and growth management objectives for Hollywood. It will be located in an area of high population and employment density which is planned to receive additional, high quality development in future years.

This decision, while benefiting Hollywood, has negative regional impacts in that it eliminates direct rail transit service to the Hollywood Bowl, a significant cultural resource for the people of the Los Angeles Metropolitan area. Recognizing the significance of the Hollywood Bowl, the SCRTD Board of Directors adopted a resolution for the City of Los Angeles to commit to: (1) the completion of an environmental study of alternate transit linkages between Metro Rail and the Hollywood Bowl, and (2) securing the necessary public and private funding to construct this linkage in time for its simultaneous opening of Metro Rail service in Hollywood.

The Hollywood Bowl Transit Connector is discussed in this document and the Addendum to the Draft SEIS/SEIR to satisfy the Council on Environmental Quality requirement that the secondary and cumulative impacts resulting from the Federal project and other reasonably foreseeable future projects be assessed. The construction of a Hollywood Bowl Connector would not involve the use of UMTA funds.

2.2.4 ENVIRONMENTAL IMPACTS

The New LPA, like the other all-subway candidate alignments, would have the least adverse environmental impacts, particularly impacts relating to noise, vibration, land use, relocation and displacement, traffic and parking, and the number of cultural and historic properties affected. The New LPA would require relocation of 87 commercial properties, 834 employees, and 150 residential units. Candidate Alignment 6, by comparison, would require location of 154 commercial properties, 2,636 employees, and 311 residential units.

Public review of the 1983 Final EIS plan for traffic facilities in the vicinity of the Universal City Station resulted in the identification of additional facilities to mitigate the anticipated traffic impacts. The addition of these

facilities to the program has been endorsed by the California Department of Transportation (Caltrans), area developers, property owners, and also the Los Angeles City Planning Commission, the Los Angeles City Council, and the LACTC. This m i-agency program includes a parking structure, street widening, a new six-lane roadway, and changes to ramp connections to the Hollywood Freeway.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing and probable future environmental setting of the Regional Core, the likely environmental effects associated with the New LPA and the Null Alternative, and mitigation measures to minimize or avoid potential adverse effects. At times, reference is made to the FEIS (November, 1983) or EA (August, 1984) for the details of existing conditions and impacts related to portions of the Original LPA, specifically MOS-1 and the San Fernando Valley segment, that have not changed. In some cases, information in the FEIS and EA has been updated to reflect changes since publication. In other cases, additional material is included to cover new relevant areas not described in the FEIS or EA. This chapter focuses on segments of the New LPA that were not evaluated in the FEIS. Impacts for the New LPA have been evaluated for various geographic subareas of the Regional Core (e.g., specific alignment segments, one-half mile and one-quarter mile radii from the stations, general station areas, defined community areas, etc.).

SECTION 1. TRANSPORTATION

This section provides discussion of existing transportation conditions in the Regional Core and expected transportation impacts of the New LPA. Transportation impacts encompass changes associated with transit, traffic, and parking. More detail on existing conditions can be found in the FEIS (see pp. 3-2 through 3-6, pp. 3-9 through 3-12, and pp. 3-27 through 3-29). The "Traffic and Parking Technical Report" (Schimpeler Corradino Associates, 1987), the "Special Analysis of Traffic Impacts of Vermont Aerial Alignment" (Schimpeler Corradino Associates, 1987), and the "Patronage Technical Report," (SCRTD General Planning Consultant, 1987), should be consulted for more detail on potential transportation impacts. The Draft SEIS/SEIR of November, 1987 and its May 1988 Addendum summarize the impacts of Candidate Alignments 1 through 6. Discussion of circulation impacts during Metro Rail construction may be found in Section 15.2 of this chapter.

1.1 TRANSIT

1.1.1 EXISTING TRANSIT SERVICES

Existing conditions in the Regional Core are described in the FEIS. SCRTD's "Milestone 9 Report: Supporting Services Plan," published in 1983, contains a detailed discussion of the bus routing plan for the Original LPA.

1.1.2 TRANSIT SERVICE IMPACTS

Consideration of the candidate alignments required an assessment of the Supporting Services Plan, which establishes feeder bus routes. As a result of this assessment, the SCRTD prepared a report addressing the "Bus-Rail Interface for CORE Alignments." The report specifies changes to the Supporting Services Plan necessary to attain efficient bus support of each rapid rail alignment.

Table 3-1 identifies the bus routes that would be affected by the New LPA. The New LPA would have a fleet requirement exceeding 2,000 vehicles. With reduced requirements for "feeder bus" service, the Null Alternative would require a fleet of 2,051 buses.

1.2 TRAFFIC

1.2.1 EXISTING TRAFFIC CONDITIONS

Freeways serving the Regional Core become severely congested during peak commuter periods and operate at or near capacity during much of the day. The daily travel demand on freeways is projected to increase by approximately twenty percent by the year 2000. Given the capacity constraints on existing freeways, the majority of travel between major destinations within the Regional Core occurs on arterial streets. Without major improvement in transit service, traffic congestion will worsen significantly, affecting an increasing number of facilities.

1.2.2 TRAFFIC IMPACTS

Traffic flow associated with the New LPA would be expected to differ from the Null Alternative. Travel diverted to an extended rapid rail transit system would reduce the number of auto trips in the Regional Core. However, auto trips also would be associated with travel to and from Metro Rail stations. Thus, there will be localized traffic increases in the area of stations, especially those with parking facilities offering high levels of access for park-and-ride and kiss-and-ride patrons. Increases in traffic volumes on streets in station areas could have an effect on traffic flow at intersections critical to transit station access.

Traffic conditions for the Null Alternative in the year 2000 were established as "background" traffic volumes in the Regional Core, with only MOS-1 in place. Only station access traffic associated with MOS-1 stations is included. To determine traffic impacts associated with the candidate alignments, base traffic volumes established for the Null Alternative were modified to include additional station access traffic. Station access traffic includes park-and-ride and kiss-and-ride auto traffic and bus traffic consisting of feeder and line-haul buses. Physical and operational intersection improvements assumed under the Null Alternative also were assumed with respect to analyses of the New LPA. Impacts at critical intersections near temporary terminal stations were analyzed.

TABLE 3-1

BUS ROUTES THAT CHANGE WITH THE NEW LPA*

Bus Line	Route Name
1	Century City/Hollywood Blvd./Sunset Blvd.
18	W. 6th St./Wilshire Blvd.
21	Wilshire Blvd.
22	Wilshire Blvd.
26	W. 7th St./Virgil Ave./Franklin Ave.
51	W. 7th St.
66/67	E. Olympic Blvd./8th Street
180	Hollywood/Glendale/Pasadena
181	Hollywood/Glendale/Pasadena
201	Silverlake Blvd.
204	Vermont Ave.
207	Western Ave.
208	Beechwood Shuttle
209	Van Ness Ave./Arlington Ave.
210	Crenshaw Blvd./Vine St.
212	La Brea Ave./Hollywood Way
217	Fairfax Ave./Hollywood Blvd.
304	L.A./S. Monica Ltd.
320	Wilshire Blvd.
322	Wilshire Blvd.
420X	S.F. Valley/Cahuenga Pass/L.A. CBD
424X	S.F. Valley/Hollywood Fwy/L.A. CBD
425X	S.F. Valley/Hollywood Fwy/L.A. CBD
427X	S.F. Valley/Hollywood Fwy/L.A. CBD
434X	Westwood/S. Monica Fwy/L.A. CBD
436X	Venice Blvd./S. Monica Fwy/L.A. CBD
439X	Westwood/S. Monica Fwy/L.A. CBD

* Routes identified are those for which operational changes are anticipated to support Metro Rail services. Other routes that may be affected indirectly (i.e., more ridership) are not identified.

Source: MOS-1, Environmental Assessment; Candidate Alignments, "Bus-Rail Interface for CORE Alignments," SCRTD.

Changes in auto trips between the Null Alternative and the New LPA were examined in terms of the diversion from auto to transit. Four screenlines were established to measure changes in auto trips in both the east-west and north-south direction within the Regional Core. Changes in the number of auto trips across the screenlines were obtained from mode-choice model output generated by the SCRTD from total person trip projections produced by the Southern California Association of Governments (SCAG) for the region.

The screenline analysis predicted a 2.1 percent average reduction in auto trips in the east-west direction under "with project" conditions. For the north-south screenlines, a 1.25 percent average reduction in auto trips was calculated. The overall reduction in auto trips from the Null Alternative was calculated to be 1.6 percent for the Regional Core. This estimated decrease in auto trips within the Regional Core should result in reduced congestion. However, the analysis of traffic impacts of the candidate alignments at selected intersections did not include an adjustment of traffic volumes to reflect the expected shift to transit. More extensive analysis of previous work by LADOT may show a traffic decrease of up to five percent due to the presence of Metro Rail stations at intersections along the New LPA alignment. The use of unadjusted traffic volumes, in effect, represents a "worst case" analysis.

Expected changes in critical volumes and level of service (LOS) at affected intersections were identified (see Table 3-2 for definitions of level of service). This was accomplished by assigning station access traffic to background traffic volumes established for the Null Alternative. Level of service D was considered to be acceptable. Service levels E and F were considered unacceptable. At these service levels, severe congestion would be expected to occur and efforts would be required to mitigate the impact of station access traffic.

The method used for calculating capacity followed procedures for planning applications as described in Circular 212, "Interim Materials on Highway Capacity," published by the Transportation Research Board (TRB). The capacity estimation procedures adopted from Circular 212 are referred to as "critical movement" analysis. Critical movement analysis involves the assessment of intersection geometry and traffic signal operation to establish the level-of-service (or capacity) for an intersection as an operating unit. The calculation of capacity assumed the existence of street improvements included in the City's Capital Improvement Program, Community Redevelopment Agency projects, and private development projects. In addition, possible operational improvements normally implemented by LADOT were identified for intersections expected to be operating at LOS E or F in the Year 2000.

TABLE 3-2
LEVEL OF SERVICE OPERATING CHARACTERISTICS

Level-of-Service	Interpretation
A & B	Uncongested operations; all vehicles clear intersection in a single signal cycle.
C	Light congestion; occasional backups on critical approaches to intersection.
D	Congestion on critical approaches, but intersection is functional. Vehicles required to wait through more than one cycle during short peaks. No long standing lines formed.
E	Severe congestion at intersection with some long standing lines on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements.
F	Total breakdown with stop-and-go operation.

Source: Highway Capacity Manual.

The severity of impact of station access traffic was qualitatively determined to be "minor," "moderate," or "major." If the change in critical volume was calculated to be 75 vehicles or less, the impact was determined to be minor. Moderate traffic impacts would be expected if the change in critical volume was more than 75, but less than 150 vehicles. A change in critical volume greater than 150 vehicles was considered to be a major impact on traffic flow at the intersection. This rating of traffic impacts was derived from threshold levels of critical volumes for levels of service A through F for planning applications as described in Circular 212. A review of the critical volumes by level of service revealed that a change in critical volume of 150 vehicles per hour would produce a change in service level from one level to the next.

1.2.2.1 Null Alternative

The Null Alternative includes a 4.4-mile rail transit system serving the CBD and Westlake area. Projected residential and employment growth in the Regional Core will further burden an already inadequate traffic circulation system. By the year 2000, demand on the Regional Core's arterial system will increase by nearly two million vehicle miles daily; such an increase will result in severe delays. Assuming that no major addition to capacity occurs and that only currently planned intersection and roadway improvements are implemented, it is projected that the number of severely congested key intersections and freeway sections will increase significantly by year 2000.

The above conclusion is based on an analysis of traffic conditions established for the Null Alternative. Traffic volumes were obtained from the auto assignments performed for the FEIS, as reported in the "Working Paper, Revised 2000 Base Condition Traffic Volumes," prepared by the Department of Transportation, City of Los Angeles (LADOT), October 1982. The year 2000 traffic assignment was validated using current traffic counts through the year 1985 as obtained from LADOT. The accuracy of LADOT's auto assignment was found to be within the acceptable range of error for simulated travel forecasts.

Traffic conditions for the Null Alternative were established for a total of 58 selected intersections. The selection of intersections was guided by the routes of the candidate alignments and traffic access requirements related to the location of stations. The selection thus facilitated establishing impacts related to the availability of rail service in corridors examined. Selected intersections generally lie within a one-half mile radius of proposed station locations in the San Fernando Valley and a one-half mile corridor along each of the candidate alignments outside of the Valley. The selected intersections associated with each station were identified through a review of existing traffic volumes within the station areas and the directional distribution of the projected station access trips. The previous work performed by LADOT in support of the FEIS and EA also was incorporated in the process to select intersections for traffic analysis.

The results of the analysis of volume and capacity at selected intersections under the Null Alternative are presented in Table 3-3. Intersections operating at LOS E or F during the p.m. peak hour are displayed graphically in Figure 3-1. Of the 58 intersections analyzed for traffic impacts, a total of 43 would operate at LOS E or F. Fifteen would operate at LOS D or better.

The most severe traffic congestion under the Null Alternative would occur south of the Hollywood area 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 the recent reconstruction of the complex, six-way intersection at Camarillo, Lankershim, and Vineland. Other improvements, programmed to accompany redevelopment in the North Hollywood Commercial Core (Lankershim between Magnolia and Chandler), are expected to improve traffic flow, even when the traffic from planned new developments is included. Only in the vicinity of Universal City along Lankershim Boulevard would traffic delays in North Hollywood appear likely to worsen. The Universal Place on-ramp to the Hollywood Freeway is expected to become a particular problem area. Level of service E or F is expected to be commonplace on the Hollywood and Ventura Freeways during peak commute periods.

TABLE 3-3

TRAFFIC CONDITIONS AT SELECTED INTERSECTIONS: BULL ALTERNATIVE

Intersection	Critical Volume (Veh./Hour)	Level-of-Service
Beverly @ Normandie	2,208	F
Beverly @ Virgil	1,975	F
Chandler @ Tujunga (N)	678	A
Chandler @ Tujunga (S)	476	A
Crenshaw @ Olympic	1,585	F
Crenshaw @ Pico	2,532	F
Fairfax @ Beverly	1,558	F
Fairfax @ Olympic	1,799	F
Fairfax @ Santa Monica	1,386	F
Fountain @ Vine	1,705	F
Highland @ Odin (E)	1,488	D
Highland @ Odin (W)	1,264	C
Hollywood @ Cahuenga	1,712	F
Hollywood @ Highland	1,401	E
Hollywood @ Vine	1,271	D
Hollywood @ Western	1,546	F
La Brea @ Fountain	1,363	E
La Brea @ Hollywood	2,172	F
La Brea @ Pico	1,698	F
La Brea @ Venice	3,523	F
Lankershim @ Burbank/Tujunga	1,188	D
Lankershim @ Cahuenga	1,170	C
Lankershim @ Chandler	797	A
Lankershim @ Ventura/Cahuenga	1,320	E
Normandie @ Olympic	1,484	E
Normandie @ Sixth	1,816	F
Pico @ San Vicente	1,314	E
San Vicente @ La Brea	1,433	D
San Vicente @ Venice	1,427	D
San Vicente @ Wilshire	2,222	F
Santa Monica @ Normandie	1,342	D
Santa Monica @ Vermont	1,351	E
Santa Monica @ Virgil	1,301	E
Santa Monica @ Western	1,588	F
Sunset @ Cahuenga	1,179	C
Sunset @ Fairfax	1,294	E
Sunset @ Gardner	1,467	E
Sunset @ Highland	1,678	F
Sunset @ La Brea	1,470	F
Sunset @ Vermont	1,515	F
Sunset @ Vine	1,634	F
Sunset @ Western	1,737	F
Vermont @ Beverly	1,499	F
Vermont @ Fountain	1,314	D
Vermont @ Melrose	1,303	D
Vermont @ Olympic	1,616	F
Vermont @ Sixth	1,609	F
Vermont @ Third	2,564	F
Vermont @ Wilshire	1,483	F
Western @ Beverly	1,487	E
Western @ Melrose	1,390	F
Western @ Olympic	1,668	F
Western @ Third	1,909	F
Wilshire @ Crenshaw	1,553	F
Wilshire @ Fairfax	1,687	F
Wilshire @ La Brea	1,496	F
Wilshire @ Normandie	1,102	D
Wilshire @ Western	1,609	F

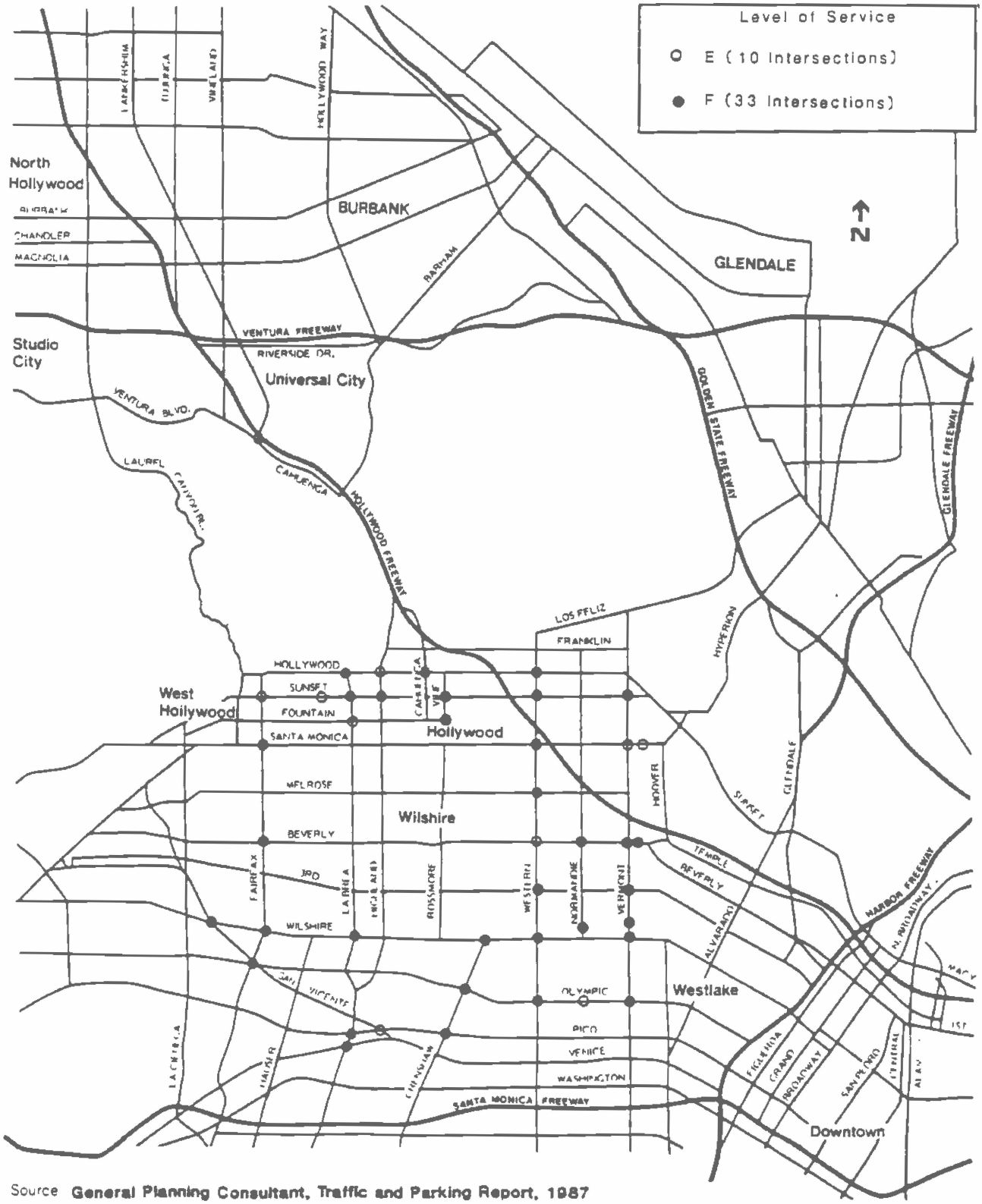
SUMMARY--

Number of Intersections:	LOS D or better	15
	LOS E	10
	LOS F	33
	TOTAL	58

Source: Traffic and Parking Technical Report, General Planning Consultant, 1987

FIGURE 3-1

LEVEL OF SERVICE AT SELECTED INTERSECTIONS: NULL ALTERNATIVE



Source **General Planning Consultant, Traffic and Parking Report, 1987**

1.2.2.2 New Locally Preferred Alternative

System Traffic Impacts

Table 3-4 summarizes the impacts of station access traffic on critical volumes and levels of service at critical intersections for the New LPA. Figure 3-2 shows the location of these intersections. Analysis of the Null Alternative data reveal that 16 of 31 critical intersections along the New LPA alignment would be operating at LOS F in the year 2000, with five at LOS E, and ten at LOS D or better. Adding station access traffic, the number of intersections at LOS F would increase by three to nineteen, and the number at LOS E would decrease to four. The remaining eight intersections would operate at LOS D or better. Station traffic impacts on critical volumes at these intersections were rated as major for six intersections, moderate for five intersections, and minor for 20 intersections. If patronage on the New LPA is lower than SCRTD projections, traffic impacts would be less severe and some traffic control measures discussed in Section 1.2.3 of this Chapter may not be necessary.

Temporary Terminal Station Impacts

At temporary terminal stations, increased kiss-and-ride and park-and-ride auto activity would occur as a result of the larger travel sheds that the stations would serve. Because they are considered temporary terminals, however, no additional facilities are planned to accommodate the increased auto access. Increased auto activity, combined with the station serving as a major destination for feeder buses, could result in increased volumes of traffic at critical intersections (Table 3-5).

With Wilshire/Western as a temporary terminal station, the increased auto traffic generated by the station would result in a major impact on two of four intersections critical to station access. The impacts at the other intersections were rated as moderate for one intersection and minor at one intersection. Traffic would be operating at LOS F at the four intersections near Wilshire/Western in the year 2000.

With Hollywood/Vine as a temporary terminal station, the increased auto traffic generated by the station would likely result in a minor impact at three of the intersections critical to station access, a moderate impact at one intersection and a major impact at two intersections. All six of those intersections would deteriorate to LOS F.

With Universal City as a temporary terminal station, increased auto traffic generated by the station would likely result in a minor impact at one intersection and a major impact at another intersection. Both would operate at LOS E.

TABLE 3-4

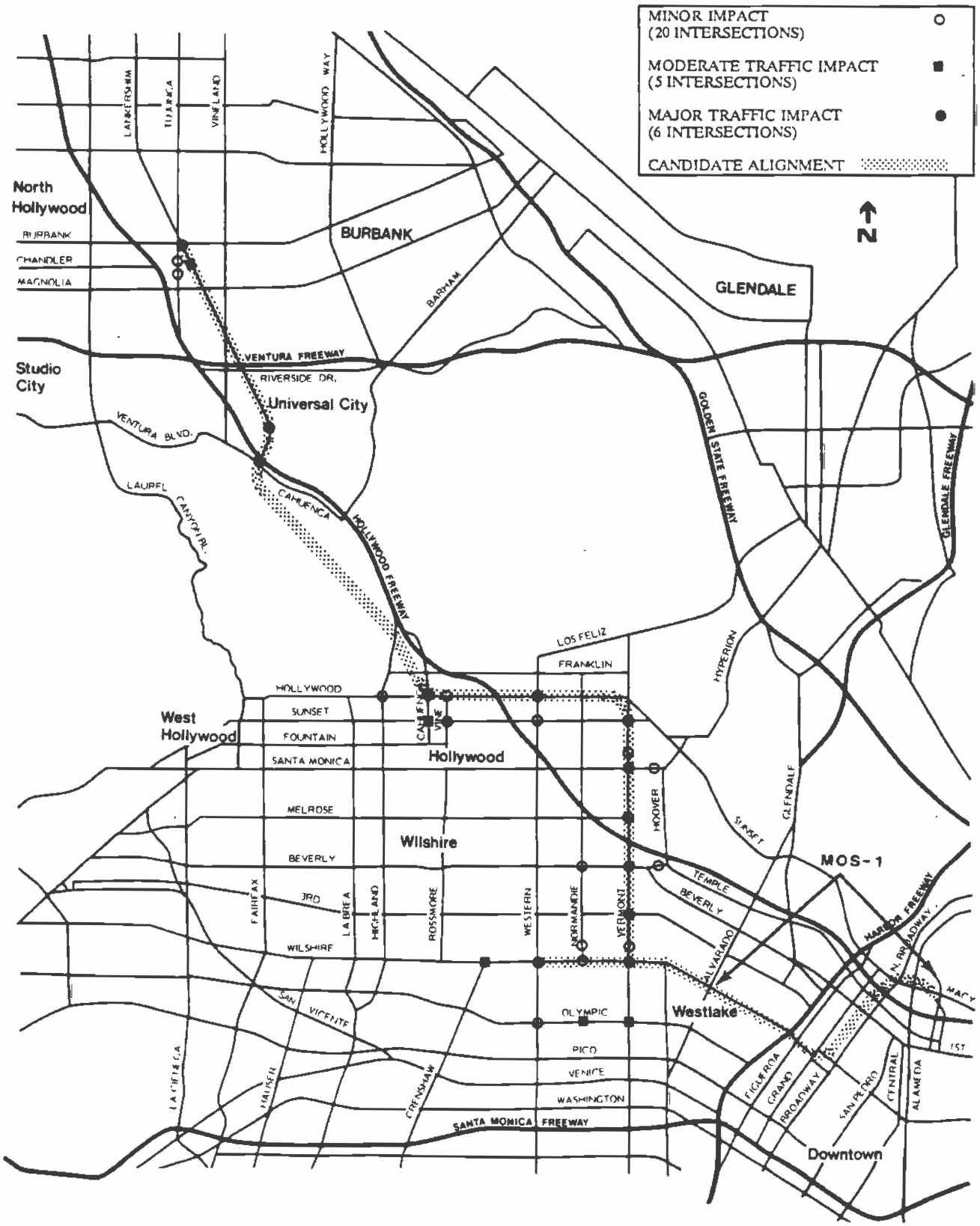
IMPACT OF YEAR 2000 STATION ACCESS TRAFFIC:
NEW LPA
(WITHOUT MITIGATION MEASURES)

Intersection	NULL ALTERNATIVE Critical Volume (Vehicle Per Hour)	LOS	NEW LPA Critical Volume (Vehicle Per Hour)	LOS	Absolute Change in Critical Volume	Expected Impact
Beverly @ Normandie	2,208	F	2,208	F	0	Minor
Wilshire @ Normandie	1,102	D	1,102	D	0	Minor
Vermont @ Fountain	1,314	D	1,317	D	3	Minor
Vermont @ Third	2,564	F	2,569	F	5	Minor
Hollywood @ Highland	1,401	E	1,401	E	6	Minor
Santa Monica @ Virgil	1,343	D	1,347	D	4	Minor
Vermont @ Melrose	1,303	D	1,313	D	10	Minor
Chandler @ Tujunga (S)	476	A	487	A	11	Minor
Hollywood @ Vine	1,271	D	1,286	D	15	Minor
Santa Monica @ Vermont	1,351	E	1,367	E	16	Minor
Vermont @ Beverly	1,499	F	1,518	F	19	Minor
Western @ Sunset	1,737	F	1,758	F	21	Minor
Beverly @ Virgil	1,975	F	2,003	F	28	Minor
Sunset @ Vermont	1,515	F	1,544	F	29	Minor
Chandler @ Tujunga (N)	678	A	718	A	40	Minor
Normandie @ Sixth	1,816	F	1,876	F	60	Minor
Hollywood @ Cahuenga	1,712	F	1,775	F	63	Minor
Hollywood @ Western	1,546	F	1,611	F	65	Minor
Vermont @ Sixth	1,609	F	1,675	F	66	Minor
Western @ Olympic	1,668	F	1,738	F	70	Minor
Normandie @ Olympic	1,484	E	1,568	F	84	Moderate
Lankershim @ Chandler	767	A	901	D	104	Moderate
Sunset @ Cahuenga	1,179	E	1,289	E	110	Moderate
Vermont @ Olympic	1,616	F	1,729	F	113	Moderate
Wilshire @ Crenshaw	1,553	F	1,679	F	126	Moderate
Wilshire @ Western	1,809	F	1,984	F	175	Major
Lankershim @ Cahuenga	1,170	C	1,425	E	255	Major
Vermont @ Wilshire	1,483	F	1,752	F	269	Major
Sunset @ Vine	1,634	F	1,927	F	293	Major
Lankershim @ Ventura/ Cahuenga	1,320	E	1,636	F	316	Major
Lankershim @ Burbank	1,168	D	1,767	F	599	Major

Source: General Planning Consultant, Traffic and Parking Technical Report, 1987

FIGURE 3-2

IMPACT OF STATION ACCESS TRAFFIC:
NEW LOCALLY PREFERRED ALTERNATIVE



SOURCE: GENERAL PLANNING CONSULTANT, TRAFFIC AND PARKING REPORT, 1987

TABLE 3-5
IMPACT OF YEAR 2000 STATION ACCESS TRAFFIC:
NEW LPA TEMPORARY TERMINAL STATIONS
(WITHOUT MITIGATION MEASURES)

Intersection	NULL ALTERNATIVE Critical Volume (Vehicle Per Hour)	LOS	NEW LPA Critical Volume (Vehicle Per Hour)	LOS	Absolute Change in Critical Volume	Expected Impact
Wilshire/Western						
Western @ Third	1,909	F	1,945	F	36	Minor
Western @ Olympic	1,668	F	1,817	F	149	Moderate
Wilshire @ Crenshaw	1,553	F	1,768	F	215	Major
Wilshire @ Western	1,809	F	2,155	F	346	Major
Hollywood/Vine						
Fountain @ Vine	1,705	F	1,733	F	28	Minor
Hollywood @ Highland	1,401	E	1,441	F	40	Minor
Hollywood @ Cahuenga	1,712	F	1,776	F	64	Minor
Cahuenga @ Sunset	1,179	C	1,287	F	108	Moderate
Hollywood @ Vine	1,271	D	1,423	F	152	Major
Sunset @ Vine	1,634	F	1,829	F	195	Major
Universal City						
Lankershim @ Ventura/ Cahuenga	1,320	E	1,362	E	42	Minor
Lankershim @ Cahuenga	1,170	C	1,401	E	231	Major
Wilshire/Vermont						
Vermont @ Sixth	1,609	F	1,760	F	97	Moderate
Vermont @ Olympic	1,616	F	1,790	F	174	Major
Wilshire @ Western	1,809	F	2,176	F	367	Major
Wilshire @ Normandie	1,102	D	1,273	E	171	Major
Wilshire @ Vermont	1,483	F	1,878	F	395	Major

Source: General Planning Consultant, Traffic and Parking Technical Report, 1987.

With Wilshire/Vermont as a temporary terminal station, traffic impacts were rated as major for four of five intersections identified as critical for station access traffic. The level of service would continue at LOS F at four intersections, and would decline from D to E for the remaining one. With Universal City as a temporary terminal station, the increased auto traffic generated by the station would likely result in a major impact at one intersection and a minor impact at the other, such that both would operate at LOS E.

1.2.3 MITIGATION OF TRAFFIC IMPACTS

1.2.3.1 General Mitigation Measures

Traffic mitigation measures will be needed in the vicinity of Metro Rail stations, particularly those with park-and-ride facilities, those expected to be major points of access for park-and-ride and kiss-and-ride patrons, and those that serve as temporary terminal stations. Measures include:

- Restricting parking to increase intersection approach capacities.
- Restriping intersection approaches to provide additional through and/or turn lanes.
- Instituting left-turn restrictions/prohibitions.
- Adding or revising signal phases.
- Widening intersection approaches.
- Providing reversible lanes, if peak period traffic is highly directional.
- Constructing bus turnout lanes and loading/unloading areas.

Factors to be considered in the selection of appropriate mitigation measures include costs, public acceptance, effectiveness, and responsibility for funding and/or enforcement. The first two mitigation options are generally but not always implemented together. Street widening is not considered feasible at locations where either extensive building demolition or remodeling is required. Street widening is considered to be a realistic mitigation measure at locations contiguous to station sites where property acquisition is contemplated (see Section 1.2.3.2 below).

Measures not applicable in the immediate vicinity of stations would probably not qualify for project funding, but could be implemented by the Los Angeles City Capital Improvement Program and the Proposition A Program based on available funds. Due to limitations on available funds, the Capital Improvement Program presently is limited to such projects as resurfacing and maintenance of roadway. Additionally, final roadway design related to the project will be developed in consultation with the LADOT.

1.2.3.2 Mitigation Measures Related to Design Refinements at Stations and Roadway and Intersection Improvements

As design proceeds, the operational needs of individual transit routes become increasingly apparent, raising potential of the design options to mitigate site specific impacts. A number of operational design considerations are presented below.

Wilshire/Vermont Station

A Kiss-ride lot is planned on the west side of Shatto Place, South of Sixth Street. A two-way bus roadway will be designed for loading and unloading; this will be located immediately north of the kiss-ride lot, extending from Shatto Place to Vermont Avenue. This facility will be used as a terminal by short line service on Line 18, as well as full time by Lines 51 and 201 and short line Line 204 services. To facilitate transfers between bus and rail, the following suggestions and modifications will have to be considered:

1. The designated kiss-ride area will be temporarily used as a bus-only layover area.

2. The east side of Vermont Avenue between the bus roadway and Wilshire Boulevard will be used a discharge zone for buses whose routes terminate at the station. This includes Lines 51 and 204 (short line); as well as Lines 21, 22, 320, 322, and 426 until such time as Metro Rail Service is extended to the Wilshire/Western Station. This stop will also be used for both pick-up and discharge by through Line 204 buses.

3. A lay-over of a pull-through design should temporarily be provided for up to ten buses on the permanent site of the kiss-ride lot. No passenger activity would take place in this area, which is to be used by Lines 21, 22, 320, 322, and 426 as long as Vermont Avenue is the terminal of Wilshire Boulevard Metro Rail Service.

4. The curb along the north side of Wilshire Boulevard between Shatto Place and Vermont Avenue will be used as the primary loading area for westbound buses on Wilshire Boulevard, including terminal Lines 21, 22, 320, 322 and 426 as well as through Line 20 buses. When rail service is extended to the Wilshire/Western Station, activity at this location will be reduced to use only by through Line 20 buses.

5. The majority of bus movements on Shatto Place between Sixth Street and Wilshire Boulevard will be in the southbound direction.

6. An exclusive bus lane along the east side of Vermont Avenue north of Wilshire Boulevard will extend to Sixth Street, to avoid potential bus/auto weaving conflicts.

At least ten permanent bus stop locations (five on each side) along the north and the south curbs of the two-way bus only roadway will be required; Lines 51 and 204 (short line) would use the south curb, and Lines 18 (short line) and 201

would use the north curb. Sufficient space between Shatto Place and Vermont Avenue appears available for this purpose.

The two-way bus roadway will not have sufficient capacity to accommodate the terminating Wilshire Boulevard lines (21, 22, 320, 322 and 426) during the interim period lasting until Metro Rail service is extended to Wilshire/Western. The terminating buses on these lines will layover in a temporary facility of a pull-through design, to be located on the permanent site of the kiss-ride lot. This facility is being displaced because up to ten buses will layover at one time, and this function can most efficiently be accommodated at this location. The kiss-ride facility would temporarily be relocated to another area within the station site, possibly along the east side of Vermont Avenue, south of the bus roadway, with auto access to and from Vermont Avenue. In their temporary terminal facility, Wilshire buses could take their lay-over, and then leave by going south on Shatto Place and west on Wilshire Boulevard, making their first passenger pick-ups on the northeast corner of Wilshire and Vermont.

These mitigation measures will positively impact the traffic problems identified in Table 3-4 for the Wilshire/Vermont intersection.

Wilshire/Western Station

This station will become the terminus for Lines 21-22, 66/67, 209, 210 (short line trips), 320 and 322. Layover space for 12 buses is required. Because of the high volume of bus passenger activity anticipated, it would be best to separate the layover area from passenger loading and alighting. A bus layover area could be located on the north side of Wilshire Boulevard between Western and Oxford. This mitigation measure will positively impact the traffic problems identified in Table 3-4 for the Wilshire/Western intersection.

Vermont/Beverly Station

The Metro Rail entrance could be placed on the northwest corner of Vermont and Beverly rather than the northeast corner. This move would create an easier bus-rail transfer by allowing bus stops adjacent to the station entrance on both Vermont Avenue and Beverly Boulevard.

Hollywood/Western Station

To facilitate bus-rail passenger transfers, the station entrance could be located at the northwest corner of the Hollywood Boulevard and Western Avenue intersection. This placement will be evaluated during final design. Line 207, the Western Avenue bus, and Line 206, the Normandie bus, will terminate near this station. Its present operation has northbound buses turning west on Hollywood, north on Garfield and east on Franklin to loop back and layover southbound on Western Avenue. This zone must house up to five buses to accommodate both lines and be far enough north of Hollywood Boulevard to allow line 206 to turn left. This operation brings both north and southbound Western Avenue buses to the northwest corner of Hollywood and Western, so placement of the station entrance at this corner would serve the Western line as well as the Hollywood Boulevard lines.

Hollywood/Vine Station

Lines 26, 208, 217 and shortline trips on Line 212 will end at this station. Because of the volume of buses requiring layover (up to eight at a time) at this station, it may be necessary to use the area north of Hollywood Boulevard now planned for kiss-and-ride parking for bus layovers. An additional area programmed for acquisition on the south side of Hollywood Boulevard could be used for kiss-and-ride activities. While the Hollywood/Vine Station is an interim terminal, layover space for eight more buses on Lines 420, 424, 425, and 427 will be required. Line 426 will also end here after the Wilshire/Western Station is opened. The need could most efficiently be accommodated by acquiring additional space north of Hollywood Boulevard, adjacent to the permanent bus layover area.

This mitigation measure may positively impact the traffic problems identified in Table 3-4 for the Sunset/Vine intersection. The LADOT may consider additional mitigations, however, for this intersection.

Hollywood/Highland Station

An off-street facility that will require layover space for eight buses is desirable. However, in the event an off-street facility cannot be secured, layover for eight buses using on-street curb space in the vicinity of the station will be needed. Bus lines 1 (short line), 2 (short line), 5 (short line) and 210 will utilize the layover spaces.

Universal City Station

For the Universal City Station, specific solutions were identified in the FEIS. The original plan in the FEIS has been modified and now includes the following adopted measures:

- Removal of the existing Riverton Avenue off-ramp.
- Six-lane (in lieu of two-lane) station access road.
- Six-lane (in lieu of two-lane) freeway overpass.
- Six-lane (in lieu of two-lane) station area road.
- Reconfiguration of Bluffside Drive Road into a two-lane frontage road.
- Widening of certain streets and intersections.
- A dual lane extension of Universal Place Road.
- An additional lane on the northbound ramp to the Hollywood Freeway.

The changes can be accomplished without requiring additional right-of-way beyond that identified in the original FEIS site plan. The Riverton Avenue off-ramp will have to be removed to accommodate the reconfiguration of roads within the station area. The most probable rerouting of this traffic would be to exit the freeway via the Lankershim Boulevard off-ramp and either turn onto Lankershim to access Ventura Boulevard or continue across Lankershim to the station access road and then to Ventura near the previous terminus of the Riverton Avenue Ramp. This would require traffic exiting the Hollywood Freeway to Ventura Boulevard to travel on surface streets rather than a freeway ramp for a small portion of their trip (approximately one-third of a mile.) The reconfiguration of Bluffside Drive, the additional lanes on the new station access road and Universal Place,

and the revised northbound on-ramp to the Hollywood Freeway can be accomplished entirely within the previously identified right-of-way. The additional lanes on the access road and the ramps provide increased roadway capacity and serve to mitigate potential traffic congestion problems associated with both access to and circulation around the Metro Rail Station.

The reconfiguration of the station area and the additional lanes will be developed in a manner which will not preclude the construction of a proposed auxiliary lane on the east side of the Hollywood Freeway connecting the Station Access Road to Vineland Avenue at some future date. The SCRTD will prepare a multi-jurisdictional agreement to ensure that the design for the road and parking improvements at Universal City are implemented as part of the Project.

These mitigation measures will positively impact the traffic problems identified in Table 3-4 for the Lankershim/Ventura/Cahuenga intersection and for the Lankershim/Cahuenga intersection. The LADOT could consider construction of an additional through lane southeastbound on Lankershim, which would require widening a bridge over the Los Angeles River but no right-of-way acquisition.

North Hollywood Station

For the Burbank/Lankershim/Tujunga intersection identified in Table 3-4, an eastbound right-turn only lane and optional right-turn land and associated parking restriction eastbound on Burbank could be considered by the LADOT.

1.2.3.3 Post-Construction Roadway Widths

The LADOT, in a letter to SCRTD, identified desired post-construction roadway widths for Wilshire Boulevard, Vermont Avenue, and Hollywood Boulevard (all city-designated Major Highways). These general requirements are 10 foot sidewalks and 80 foot roadways. Specific desired widths, by roadway section, are listed in Table 3-6.

Impacts and mitigation measures to be taken during New LPA construction are discussed in Section 15 of this chapter.

1.3 PARKING

Parking demand in the CBD would be expected to decrease by the number of automobile trips diverted to transit. At stations where the demand for park-and-ride spaces is greater than the number of spaces provided, the potential for negative impacts would exist. Therefore, parking is relevant to the Metro Rail Project in two ways:

- The rail project could reduce the need for parking facilities in the Los Angeles CBD and other regional centers.
- Rail patrons driving to and parking at a station will demand increased parking in the immediate vicinity of a station.

TABLE 3-6

DESIRED CITY OF LOS ANGELES POST-CONSTRUCTION STREET WIDTHS

Station Area	Affected Streets	Limits	Restoration Width
Wilshire/Vermont	Vermont Avenue	Wilshire Blvd. to 6th Street	40 feet east half width
	Shatto Place	Bus driveway north of Wilshire Blvd.	22 feet west half width
	6th Street	Vermont Avenue to easterly thereof	Transitional width to eliminate jog on south side
	Wilshire Blvd.	Vermont Avenue to easterly thereof	40 feet north half width
Wilshire/Normandie	Normandie Ave.	Wilshire Blvd to southerly thereof	35 feet west half width
	Wilshire Blvd.	Normandie Ave to west of Ardmore Ave	80 feet
Wilshire/Western	Western Avenue	Wilshire Blvd. to northerly thereof	80 feet
	Oxford Street	Bus driveway north of Wilshire	35 feet west half width
	Wilshire Blvd.	East of Oxnard St to Manhattan Pl	80 feet
Vermont/Beverly	Vermont Avenue	North of Oakwood Ave to south of Beverly Blvd.	80 feet
	Beverly Blvd.	Vermont Ave to easterly thereof	40 feet north half width
Vermont/Santa Monica	Vermont Ave.	Lockwood Ave to Santa Monica Blvd	80 feet
Vermont/Sunset	Vermont Avenue	Maubert Ave to Fountain Ave	80 feet
Hollywood/Western	Hollywood Blvd.	Western Ave to easterly thereof	40 feet north and south half widths, except where sidewalk would be less than 10 feet
Hollywood/Vine	Hollywood Blvd.	West of Argyle Ave to Gower St	80 feet
Hollywood/Highland	Hollywood Blvd.	Highland Ave to westerly thereof	80 feet

Source: Correspondence to SCRTD from City of Los Angeles Department of Transportation, October 26, 1988.

A comprehensive survey of parking spaces, usage, and costs was undertaken in August 1986. It updated a parking survey conducted in 1981 and referenced in the FEIS. The 1986 survey like the 1981 survey covered an area within a one-quarter mile radius of each station. The number of parking spaces, parking restrictions, and the hourly cost of curbside parking were gathered. Off-street facilities were classified as commercial, patron, or other parking, and the cost to park for one hour and all day was noted. Detailed survey data may be found in the 1986 SCRTD Technical Report on Parking. Based on these data and anticipated development plans, future conditions at each station area were projected.

1.3.1 EXISTING PARKING CONDITIONS

The 1986 survey found 55,560 spaces in the CBD station areas (Table 3-7). Average usage in these areas exceeds eighty percent of supply. In the original parking study conducted in 1981 and discussed on page 3-27 of the FEIS, the same areas provided a total of 50,869 spaces. Thus, there was an eight percent increase in parking spaces in that five year period (less than 2% per year). Usage increased proportionately.

TABLE 3-7
1986 PARKING CONDITIONS

Station	Available Supply (Spaces)	Current Usage	
		Spaces	Percent of Supply
Union Station*	4,981	4,259	86
Civic Center*	12,743	10,582	83
5th/Hill*	13,351	11,785	88
7th/Flower*	24,485	18,299	73
Wilshire/Alvarado	5,865	3,583	61
Wilshire/Vermont	15,623	11,297	72
Wilshire/Normandie	11,256	7,014	62
Wilshire/Western	10,187	6,066	60
Vermont/Beverly	2,979	1,481	50
Vermont/Santa Monica	3,961	2,442	62
Vermont/Sunset	9,979	8,199	82
Hollywood/Western	3,423	1,931	56
Hollywood/Vine	9,329	6,161	66
Hollywood/Highland	6,973	4,574	66
Universal City	4,924	3,709	75
North Hollywood	2,753	1,435	52

* CBD Stations
Source: SCRTD, Survey of Parking Spaces, 1986.

Station areas along Wilshire Boulevard have more parking spaces and higher usage levels than other station areas outside the CBD. The station areas with the highest usage rates outside the CBD are Vermont/Sunset and Universal City with 82 and 75 percent usage, respectively.

1.3.2 PARKING IMPACTS

Impacts on station area parking can result from the "spillover" of rail patron parking into surrounding neighborhoods. Parking impacts were identified for each station with auto access and for streets directly affected by the siting of Metro Rail facilities. Parking impacts at temporary terminal stations were also assessed. Parking impacts presented below are based on a condition of maximum parking demand at stations. This condition assumes no constraints on park-and-ride demand relative to available parking supply. This "worst case" scenario depicts projected parking conditions that would exist in a station area if all rail patrons who desired to park at the station could do so. In reality however, the actual park-and-ride usage at a station would be constrained by the supply of parking available. If a park-and-ride patron could not locate a space, they would simply drive to the ultimate trip destination or to another station. Also, estimated parking demand under this condition of maximum demand does not account for the effect of enhanced accessibility to the area provided by Metro Rail. With improved accessibility to destinations in the station area, it is anticipated that auto drivers would become transit users. This shift to transit would increase the supply of available spaces in the station area. Therefore, the parking impacts presented here are considered to be greater than those that actually would occur.

1.3.2.1 System Impacts

Projections of parking demand in the year 2000 include three components: (1) total parking demand in each station area; (2) Metro Rail patron parking demand; and, (3) demand generated by future development. If the estimated parking supply does not meet the projected demand, a parking deficiency is predicted. The potential for negative impacts then must be considered and mitigated, if possible. Table 3-8 shows anticipated parking deficiencies by station area in the year 2000 for the New LPA, if no mitigation were provided. Note that parking demand increases downtown as the New LPA allows "reverse" commutes.

Demand for parking will continue to increase as new development occurs. Supply will grow concurrently consistent with zoning laws. The parking supply is expected to increase in almost all station areas except Union Station. The station areas expected to have the greatest increase in parking supply, due to new development, include Civic Center, Fifth/Hill, Seventh/Flower, Wilshire/Western, Hollywood/Highland, Universal City, and North Hollywood. The expected increase in parking supply between 1986 and 2000 at each of these seven station areas exceeds twenty percent. The overall increase in the total parking supply in all station areas is estimated at 28 percent. However, the median (50% above and 50% below) increase in parking supply in the station areas is expected to be only seven percent. Parking demand is projected to increase even more than supply by the year 2000: 37 percent overall, with a median increase of 29 percent.

TABLE 3-8

EXPECTED PARKING DEFICIENCY BY STATION AREA (1)
(YEAR 2000, NO MITIGATION)

STATION AREA	SPACES
MOS-1	
Union Station	1,605
Civic Center	0
Fifth/Hill	0
Seventh/Flower	0
Wilshire/Alvarado	1,785
NEW LPA	
Wilshire/Vermont	634
Wilshire/Normandie	0
Wilshire/Western	395
Vermont/Beverly	0
Vermont/Santa Monica	0
Hollywood/Western	0
Hollywood/Vine	0
Hollywood/Highland	0
Universal City	0
North Hollywood	0
TOTAL	4,419

(*)A parking deficiency is assumed when usage exceeds ninety (90) percent of available or estimated supply.

Source: SCRTD/General Planning Consultant.

At Union Station, a surplus of parking in anticipated under the Null Alternative, which assumes provision of 2,500 park-and-ride spaces. Under the New LPA the reverse commute to points west on Metro Rail would increase parking demand at Union Station relative to the Null Alternative by about 2,500 vehicles. This increased demand could be accommodated by the projected surplus of commercial spaces in the year 2000 (approximately 2,300 spaces) coupled with the surplus park-and-ride spaces to be provided. Since direct connection to the El Monte park-and-ride is also planned at Union Station, patrons coming to Metro Rail from the east will have an additional 1,500 parking spaces available.

At the Wilshire/Alvarado Station, no park-and-ride spaces would be provided because this station would not serve the main park-and-ride commuter sheds of the San Fernando Valley or Hollywood or the West Los Angeles areas of Century City, Beverly Hills, Westwood, and Culver City. A surplus of 2,300 commercial spaces is projected in this station area under the Null Alternative. With the New LPA, parking demand would increase substantially over the Null Alternative (almost 3,500), resulting in a parking deficiency in the Wilshire/Alvarado Station area of almost 1,800 spaces.

Under the New LPA, two additional stations are anticipated to have parking deficiencies: Wilshire/Vermont would have a deficiency of over 600 spaces and Wilshire/Western, about 400. Parking deficiencies would occur at Universal City and North Hollywood if park-and-ride spaces were not provided. Provision of 2,500 park-and-ride spaces at each location will result in projected surpluses in peak demand periods of about 400 and 700 spaces, respectively.

1.3.2.2 Temporary Terminal Stations

Parking demand at temporary terminal stations by kiss-and-ride and park-and-ride patrons would be greater than the number of spaces projected to be available in the station area, because of the larger travel sheds these stations would temporarily serve, and because no additional parking facilities are proposed to accommodate this short-range parking demand.

Table 3-9 illustrates projected parking deficiencies for temporary termini under the four scenarios for early system opening. Deficiencies would be most significant at Wilshire/Western under Cases 1 or 2 and Wilshire/Vermont under Case 3. At Universal City deficiencies would be significant when this is paired as a terminal station with Wilshire/Western under Case 2.

1.3.3 MITIGATION OF PARKING IMPACTS

Mitigation measures will be needed to control 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 people would not ride Metro Rail due to the unavailability of readily accessible parking.

TABLE 3-9
NEW LPA TEMPORARY TERMINAL STATION PARKING DEFICIENCIES

	Terminal Stations	Parking Deficiency
Case 1	Wilshire/Western	1,376
	Hollywood/Vine	0
Case 2	Wilshire/Western	1,518
	Universal City	769
Case 3	Wilshire/Vermont	1,343
	Universal City	115

Possible parking mitigation measures that require the participation of agencies and/or the private sector include:

1. Encouraging or requiring employer-sponsored rideshare or transit incentive programs to reduce potential parking usage. As of January 1, 1988, the City of Los Angeles requires employers with more than 200 employees to subsidize employees' transit costs up to $15/month.

2. Encouraging developers and employers to take advantage of the City of Los Angeles Parking Management Plan. Application of this plan can effectively reduce both the cost (by allowing off-site facilities) and the need for parking (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.

3. Joint development at stations offers the opportunity of providing a transit trip direct to a destination reducing parking demand while supporting development. The City is working with SCRTD to maximize joint development opportunities.

4. Establishing preferential parking districts within residential neighborhoods adjacent to station areas. This ongoing program managed by LADOT requires local property owners to prepare petitions and obtain City Council approval. This program has been implemented in 26 districts in Los Angeles. Sixteen of the already established districts are in the City's densely developed Westside area. It has not been established in the Los Angeles County, but it is under consideration by the West Hollywood Citizens Plan Advisory Committee for application in the Metro Rail station areas. Although parking districts will ensure that parking does not occur on a given street without a permit, parking supply is restricted and may promote increased cruising for available parking. Where parking districts

are needed due to Metro Rail, the SCRTD will assist residents in preparing and circulating the necessary petitions.

5. Including more project-provided parking for the Metro Rail Project. This could be the responsibility of SCRTD, but current funding sources appear insufficient for this option.

6. Operating an extensive network of feeder bus lines serving the stations, thereby providing an alternative to the park-and-ride mode of station access. SCRTD will provide these bus services as specified in the discussion of transit improvements. Over sixty percent of Metro Rail riders are expected to access stations using feeder buses. For example, the City of Los Angeles is now sponsoring express commuter bus service in the Ventura corridor that could in future be routed to Metro Rail stations.

7. Providing 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 Los Angeles County in the unincorporated areas.

8. Providing bicycle parking at Metro Rail stations outside the CBD, and at Union Station.

9. Evaluating preferential parking for carpools and vanpools. If not immediately adopted upon opening of Metro Rail, this option should remain available should conditions warrant its adoption.

As a policy tool, increased parking fees in Downtown Los Angeles and the Wilshire Center would discourage some parking and help mitigate projected parking shortages. People who would otherwise drive to these areas would divert to other Metro Rail stations which have less costly and/or more parking or, in the Wilshire Corridor, would divert to feeder buses.

SECTION 2. LAND USE AND DEVELOPMENT

Based on observed land use and development patterns associated with other heavy rail systems in the United States, land use impacts resulting from the operation of Metro Rail are expected primarily to occur in the station areas. Although recent observation indicates development of a transit system cannot by itself create growth, the location of growth may be influenced. Accordingly, Metro Rail is expected to influence the location of growth within the Regional Core and could marginally increase the proportion of growth occurring in the Regional Core relative to the remainder of the Los Angeles region.

The land use and development analysis involved examining the land use and development potential of areas around stations located along each alignment. A radius of one-quarter mile from each station was used to define the potential impact area. Thus, each station impact area consists of approximately 125 gross acres, of which approximately 75 percent generally is developable land. Use of the one-quarter mile radius ensures consistency in the projection of development and the analysis of the supply of land in the station impact areas, and avoids overlap between station areas. Maps showing the precise impact area for each station considered are included in both the Technical Report on Land Use and Development Impacts (1987) and in the Appendix to the Draft SEIS/SEIR (which includes station plans and profiles, station footprints and generalized land use maps).

2.1 EXISTING CONDITIONS

Existing conditions in prospective station areas were evaluated with respect to: (1) current land use, (2) land use plans and policies applicable to the area, (3) existing and permitted development intensity, and (4) the capacity of each station area to accommodate new development. Further background information on land use and development may be found in the following documents: SCRTD Technical Report, "Existing Conditions--Regional and Community Settings," (1982); SCRTD Milestone 6 Report, "Land Use Development Policies," (1982); SCRTD Technical Report, "Summary of Public Policies, and the Impact Assessment Methodology," (1982); SCRTD Technical Report, "Land Use and Development Impacts," (1983); and SCRTD Technical Report, "Land Use and Development Impacts" (1987).

2.1.1 EXISTING LAND USES IN STATION AREAS

The New LPA has six station areas which can be characterized as predominantly commercial. Five of the stations are classified as mixed-use areas, three of the stations are residential in character and two of the stations are developed predominantly with public facilities. Table 3-10 lists the stations by predominant land use type.

Table 3-11 shows the absolute levels of existing commercial floor area, employment, dwelling units, and population in the areas studied. This information is summarized by Community Planning Area, Designated Centers, and Conglomerate Station Areas. Community Planning Areas and Designated Centers are shown in Figure 3-3. The largest amount of commercial space in the Regional Core is in the CBD. Ninety-seven percent of the commercial and seventy-five percent of the population are located in designated centers.

TABLE 3-10

NEW LOCALLY PREFERRED ALTERNATIVE
STATION AREA LAND USE PROFILES, 1986

STATIONS BY PREDOMINANT LAND USE TYPE		
COMMERCIAL	RESIDENTIAL	MIXED USE
Wilshire/Vermont	Vermont/Beverly	Wilshire/Normandie
Hollywood/Vine	Vermont/S. Monica	Wilshire/Western
Universal City	Hollywood/Western	Sunset/Vermont
North Hollywood		Hollywood/Highland

Source: General Planning Consultant.

2.1.2 LAND USE PLANS AND POLICIES

2.1.2.1 Land Use Planning and Regulation

The Centers Concept of the Los Angeles General Plan (refer to Figure 3-3) establishes the primary framework for the growth of the community. The Centers Concept was adopted by the City of Los Angeles in 1974. Similar concepts have been adopted by the County of Los Angeles and the Southern California Association of Governments (SCAG) for their areas of responsibility. The Concept envisions a series of Centers connected by a regional rapid transit system. The Centers Concept Plan is further refined and localized in the twenty-year City-Wide Plan and short-term Community or District Plans. Community or District Plans may be further refined by Specific Plans that address both planning and zoning issues for a discrete area. Land use must conform to the Community or District Plan. The requirements of Specific Plans supersede the zoning ordinance.

TABLE 3-11
EXISTING SOCIOECONOMIC CHARACTERISTICS OF AFFECTED AREAS
FOR THE NEW LOCALLY PREFERRED ALTERNATIVE

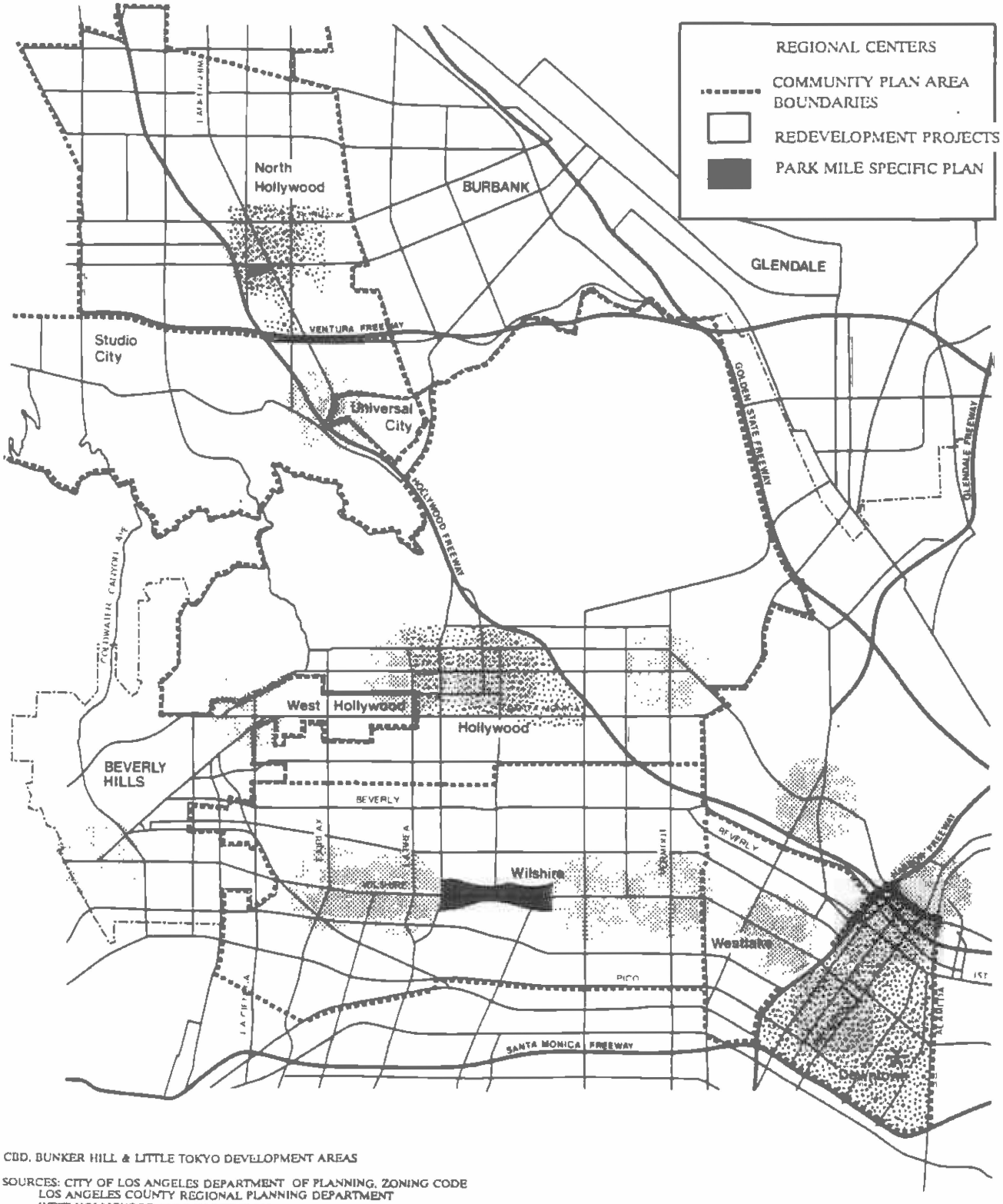
	SOCIOECONOMIC CHARACTERISTICS			
	COMMERCIAL SPACE*	DWELLING UNITS	EMPLOYEES	POPULATION
Wilshire Planning Area Wilshire/Vermont Wilshire/Normandie Wilshire/Western Vermont/Beverly	12,000	18,476	9,123	38,993
Hollywood Planning Area Vermont/Santa Monica Vermont/Sunset Hollywood/Western Hollywood/Vine Hollywood/Highland	6,350	12,946	29,884	26,543
Universal City/North Hollywood Planning Area Universal City North Hollywood	1,500	2,734	24.716	5,264
Designated Centers	17,750	23,242	41,438	46,551
All New LPA Station Areas	19,850	34,156	56,470	70,800

* 1,000's of Square Feet, Includes Office, Retail, and Hotel.

Source: Commercial Space, SCRTD and Los Angeles Department of Planning; Employees, Dwelling Units, and Population, U.S. Census Bureau.

FIGURE 3-3

LOCAL LAND USE DEVELOPMENT PLANS



* CBD, BUNKER HILL & LITTLE TOKYO DEVELOPMENT AREAS

SOURCES: CITY OF LOS ANGELES DEPARTMENT OF PLANNING, ZONING CODE
LOS ANGELES COUNTY REGIONAL PLANNING DEPARTMENT
WEST HOLLYWOOD COMMUNITY PLAN

The Los Angeles Community Redevelopment Agency (CRA) has designated five areas in the Regional Core as redevelopment project areas: North Hollywood, Hollywood, Central Business District, Bunker Hill, and Little Tokyo. The New LPA includes two of these areas: Hollywood and North Hollywood. The Hollywood Redevelopment Project area was designated since the adoption of the FEIS. Also, West Hollywood became an incorporated city, assuming responsibility for planning functions within its jurisdiction.

Figure 3-3 shows the City Centers designated in the City's Centers Concept Plan, Community Plan areas boundaries, the Park Mile Specific Plan area, and the five redevelopment project areas in the Regional Core. Figure 3-4 shows the development intensities permitted by the City zoning code, County plans and CRA redevelopment projects for the Regional Core. Additional information may be found in the FEIS, 1983, pages 3-37 to 3-38.

2.1.2.2 Consistency Between Planning and Zoning

California state law requires that zoning be consistent with a community's General Plan. The City of Los Angeles Department of Planning (LADOP) is in the process of bringing zoning into conformance with its General Plan. Major discrepancies between zoning and supporting Community or District Plans exist in the Wilshire Corridor and in the Hollywood area. In these areas, a floor area ratio (FAR) of 13:1 is permitted by zoning, yet the Community Plans establish a FAR of 6:1. LADOP anticipates the formulation of Specific Plans for each station area ultimately associated with the New LPA. The Specific Plans supercede existing zoning and, therefore, serve as a mechanism to achieve conformance with the Community Plans. Additional information on land use plans and policies may be found in the FEIS, 1983, Section 2.2.2., pages 3-37 through 3-41.

2.1.3 COMPARISON OF EXISTING AND PERMITTED LAND USE INTENSITIES

In general, existing land use is consistent with the pattern of land use types designated in the Community Plans and zoning regulations. However, the intensity of existing development in prospective station areas is less than allowed by existing plans and zoning.

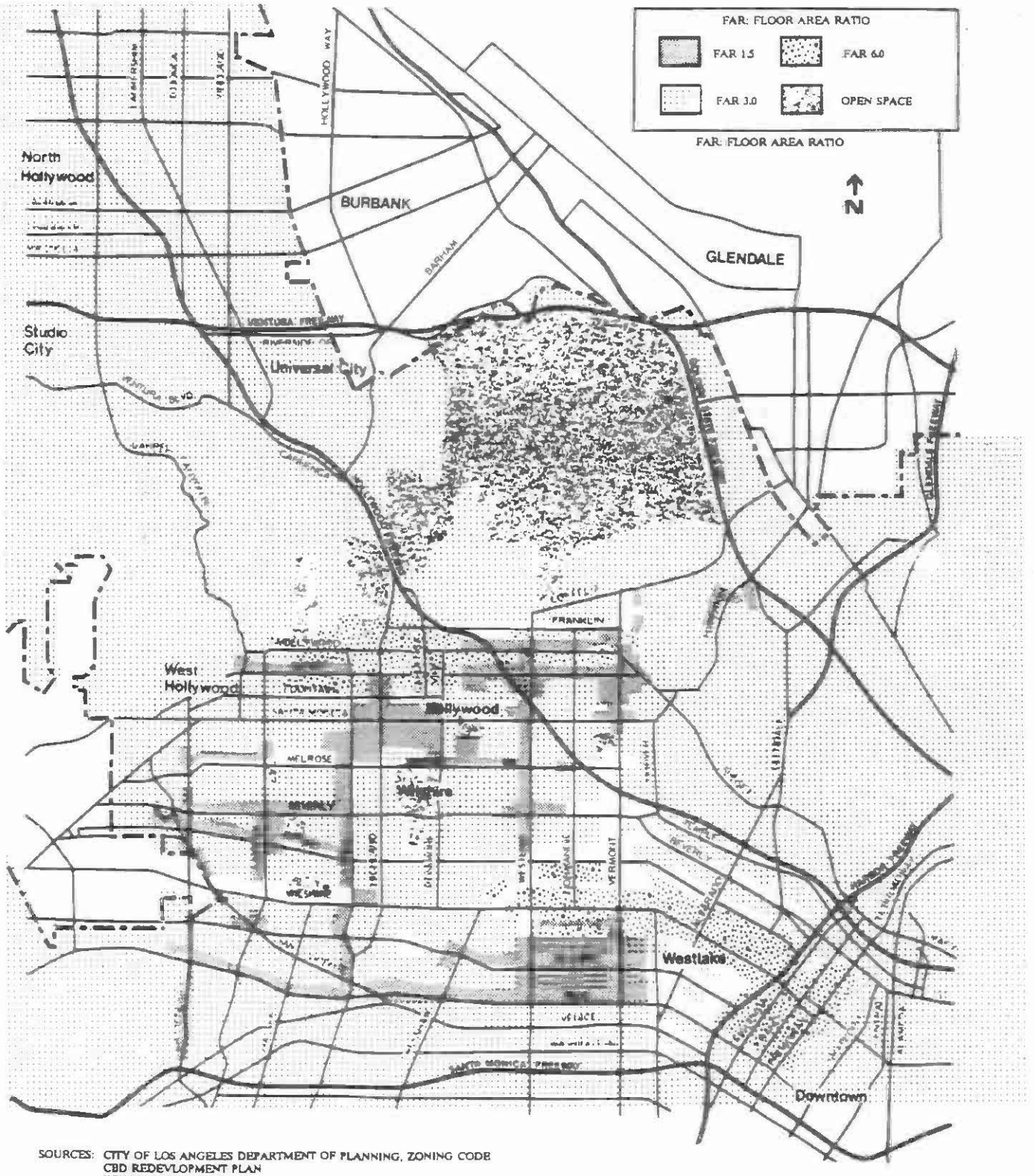
With the passage of "Proposition U" on November 4, 1986, the FAR was reduced from 3:1 to 1.5:1 in commercial zones within Height District One. Mid- to high-rise buildings fronting on Wilshire typically have FARs of 4:1 to 6:1. Community-serving commercial uses are typically developed at FARs of 0.5 to 1. Thus development rarely reaches the intensity permitted by zoning.

2.1.4 PARCELS SUSCEPTIBLE TO REINVESTMENT

The ability of a station area to accommodate development is a key measure of land use impact potential. Two categories were identified to evaluate the development potential in each station area susceptible to reinvestment:

FIGURE 3-4

PERMITTED BUILDING INTENSITY



SOURCES: CITY OF LOS ANGELES DEPARTMENT OF PLANNING, ZONING CODE
CBD REDEVLOPMENT PLAN
WILSHIRE DISTRICT PLAN
PARK MILE SPECIFIC PLAN
WESTLAKE COMMUNITY PLAN
NORTH HOLLYWOOD COMMUNITY PLAN

- Station areas where the assessed value of the existing improvement was less than the value of the land (termed "underutilized parcels");

- Station areas with vacant parcels.

It should be noted that the presence of improvements with an assessed value greater than the assessed value of the land may not always indicate that the property is currently developed to its highest and best use. Future land use decisions would be influenced by a variety of factors, including market conditions, the ability to assemble parcels, property owner and developer objectives, community plans, and land use controls.

If the property was zoned commercial and fell into one of the two categories identified above, it was considered to be susceptible to commercial development. If the property was zoned multi-family residential, it was considered to be susceptible to residential development. Industrially zoned property was not considered in this analysis because projected industrial growth in Metro Rail station areas is negligible.

Table 3-12 identifies the amount of residential and commercial parcel area susceptible to reinvestment for the New LPA and the Null Alternative. More detail by station area, respecting (1) the intensity of commercial development that would be permitted by zoning, (2) the maximum intensity of commercial development identified by applicable plans, (3) the most likely commercial development intensity based on current conditions in the station areas and (4) the number of residential units permitted by zoning, may be found in the Appendix to the Draft SEIS/SEIR. The New LPA has 360 acres zoned commercial which is susceptible to reinvestment and 164 acres of residentially zoned property susceptible to reinvestment. The Null Alternative would have little potential for supporting residential development.

The Vermont/Beverly station area has the least amount of commercial property susceptible to redevelopment. The Hollywood commercial core station areas (Hollywood/Vine and Hollywood/Highland) have the largest amount and highest concentrations of commercial properties susceptible to redevelopment of the station areas studied.

TABLE 3-12

PARCEL AREA SUSCEPTIBLE TO REINVESTMENT (1986)

NEW LOCALLY PREFERRED ALTERNATIVE

PROPERTY CATEGORY	
COMMERCIAL	
Commercial Parcel Area (Acres)	292
Avg. Percent of Net Parcel Area Within 1/4 Mile Radius	34
Max. Floor Area Ratio-(FAR)(1)	5.55
Probable Developed FAR(2)	4.09
Probable Developed Relative To Maximum FAR	.74
RESIDENTIAL*	
Residential Parcel Area (Acres)	180
Percent of Net Parcel Area Within 1/4 Mile Radius	23
Development Intensity Permitted By Zoning - Net Dwelling Units(3)	18,570
	17,230

(1) Maximum Floor Area Ratio permitted by Community, District, of Specific Plan. FAR = The ratio of building floor area, excluding parking and mechanical equipment space, to buildable area of lot or parcel.

(2) Likely development intensity based on current land use patterns, trends, and projected land uses in each affected station area.

(3) Net dwelling units account for units that would be displaced.

* CRA and District Plans must, by State law, conform to adopted Community and District Plans, including their land use and intensity components. No special CRA authority is required to develop residential uses on commercially-zoned properties in Los Angeles.

Source: SCRTD/General Planning Consultant. Refer to Appendix to Chapter Three, Section 3, in November 1987 Draft SEIS/SEIR.

The Vermont/Santa Monica station area has the highest amount and proportion of property susceptible to residential redevelopment. The Universal City station area has the least amount of property susceptible to residential development. The City's zoning code permits residential development on commercially-zoned property. The Hollywood/Vine, Hollywood/Highland, and North Hollywood Stations are located within CRA Redevelopment Areas. The plans for these stations must conform to adopted Community and District Plans, including their land use and intensity components. Additional information may be found in the FEIS, 1983, pages 3-42 through 3-45, Section 2.2.4.

2.2 LAND USE AND DEVELOPMENT IMPACTS

2.2.1 METHODOLOGY AND MEASURES

Development that occurs in conjunction with the Metro Rail Project may produce either positive or negative impacts. In general, new development in the Regional Core and around stations is considered a positive land use impact when the stations are designated as Centers in accordance with the City Centers Concept and when growth can be accommodated without adverse impacts. The New LPA would support implementation of the Centers Concept by connecting Centers, by promoting development at designated growth centers, by revitalizing economically stagnant areas, and by providing commercial services and employment near established population concentrations. The New LPA would benefit not only the Hollywood and North Hollywood Centers, but other Centers in the Regional Core. If growth cannot be readily accommodated, particularly in residential neighborhoods, new development in station areas can be potentially negative.

A two-step process was used to evaluate the land use and urban development impacts of the project options. First, residential and commercial growth projections were developed for the station areas. In order to assess the range of potential growth impacts, projections were made for three scenarios: (1) a year 2000 Dispersed Growth Condition representing the Null Alternative; (2) a year 2000 "Maximum Impact Condition;" and, (3) development expected under the Maximum Impact Condition in which there was a concerted effort by SCRTD and other agencies to promote station area development (termed "Maximum Impact Condition with Efforts To Promote Development.").

The Dispersed Growth Condition (i.e., the Null Alternative) and the Maximum Impact Condition are based upon a differing set of assumptions as to the distribution of growth in the Regional Core in the year 2000. The Dispersed Growth Condition assumes that the growth expected to occur in the Regional Core basically would be distributed evenly throughout the Regional Core. This condition reflects generalized growth throughout the Los Angeles Metropolitan Area. The assumptions used for the Maximum Impact Condition differs from the Dispersed Growth Condition in two ways: (1) the Regional Core would receive a slightly higher share of total regional growth than under the Dispersed Growth Condition and (2) Regional Core growth would be more concentrated in designated Centers. As a result, the projected growth rates for commercial and residential development can be expected to vary significantly between the Dispersed Growth Condition and Maximum Impact Condition.

The Maximum Impact Condition is considered to be reflective of the potential of Metro Rail to influence the location of growth and, therefore, represents the New LPA. The experience of other rail transit projects suggests that the land use impacts of transit stations are not uniform, but would vary according to the characteristics of the station areas. Because designated Centers are areas of high activity already, it is not unreasonable to expect that Metro Rail would enhance the extent to which these areas may attract growth. Although total Regional Core growth is higher under the Maximum Impact Condition, the data which follow indicate that the higher growth rates in some station areas do not simply reflect concentration of this additional growth in those station areas. The Maximum Impact Condition also reflects redistribution of some of the growth projected for non-Center station areas and for stations located at the edge of the Regional Core (such as Universal City and North Hollywood) into designated Centers of the Regional Core (excluding the San Fernando Valley).

The differences between the two scenarios are most readily apparent in the projections of residential growth. Residential development projections were based on growth projections developed by the Southern California Association of Governments in the process of adopting the SCAG-82 Growth Forecast Policy (1982). The projected Dispersed Growth Condition for the year 2000 corresponds to SCAG-82M, which is the currently adopted projection used by SCAG for regional planning. This projection assumes substantial growth throughout the region and a moderate amount of infill and intensification within existing urban subregions, such as the Regional Core. The residential growth projection under the Maximum Impact Conditions corresponds to SCAG-82B, an alternative projection developed by SCAG in 1982 which incorporates the assumption of a higher concentration of new growth in the most densely developed areas of the region, including the Regional Core. The SCAG-82B projection corresponds closely to the assumptions outlined above and represents the maximum concentration of growth which could be induced by construction of a rail transit system, such as Metro Rail. Both the SCAG-82M and SCAG-82B projections are based on 1980 Census data.

Commercial growth projection presented in the FEIS were integral to analyses performed in support of this SEIS/SEIR. The commercial growth projections were developed for the three growth scenarios just described. Six categories of commercial development were examined: major office, community office, hotel, employee-serving retail, regional retail, and community retail. The projections for major office, community office, and hotel growth were developed using market absorption projections through the year 2000 based on historic absorption rates and development trends. The assumptions used for these projections were re-evaluated using the most current data and were found to remain valid.

In order to maintain continuity, the previously derived projections for these categories were used unchanged for this analysis. The projections of employee-serving retail growth are based upon the projections of office growth. The projections of regional and community retail growth were updated in accordance with projected population increases in the station areas, using SCAG-82M population data for the Dispersed Growth Condition and SCAG-82B population data for the Maximum Impact Condition. In addition, distribution of taxable sales, per capita taxable sales, and average retail sales per square foot were updated using 1984 data. All commercial growth projections are calculated from a 1980 base. The 1980 base was considered appropriate, because the projections of some

categories of commercial growth are dependent upon population projections calculated from a 1980 Census base. Additional information on commercial growth projections can be found in the Technical Report on Land Use and Development Impacts (1987).

Projections for the six categories were combined to produce a projection of total commercial growth in each station area. The square footage of development projected for each category also was used to estimate the amount of parcel area required to accommodate the development, using assumptions of the probable density of development for each land use category. These projections were adjusted to reflect development which has occurred since 1980, because the amount of parcel area available to accommodate growth was calculated using 1987 data.

The growth projections then were used in the second step of the analysis to assess the land use impacts in each station areas. Two measures were used to conduct the impact assessment: (1) consistency with land use plans and policies and (2) the extent that projected growth can be accommodated in a station area or alignment without adverse impacts. The following sections provide an analysis of these impact measures.

2.2.2 GROWTH PROJECTIONS

2.2.2.1 Station Areas

Table 3-13 shows the net change in commercial and residential development projected to occur in the station areas between 1980 and 2000 for the New LPA and the Null Alternative (see the Appendix to the Draft SEIS/SEIR for a more detailed tabulation of projected residential and commercial development). A range of expected development is defined for commercial floor area reflecting activity with and without a concerted station area development effort. A range of 38,930,000 to 48,710,000 square feet of commercial development is expected in the Regional Core. Approximately 88% of the commercial development is expected in designated centers. Approximately 32,685 additional dwelling units are expected by the Year 2000 in the Regional Core.

2.2.2.2 Regional Core

Table 3-14 summarizes the incremental commercial and residential growth projections for the New LPA and compares them with the total development and population for 1980 in the Regional Core area. Projections of commercial growth are expressed in gross square footage (including office, retail and hotel development). With the construction of the New LPA under the Maximum Impact Condition commercial development added within the Regional Core would be expected to increase by a range of 23 to 26 percent over the existing 1980 Base conditions. Under the Null Alternative (year 2000), an increase of seven percent in commercial development is expected.

The number of dwelling units added to the Regional Core is expected to increase about 34 percent over 1980 Base under the Year 2000 Maximum Impact Condition and fourteen percent under the Null Alternative.

TABLE 3-13
EXPECTED NET CHANGE IN COMMERCIAL
AND RESIDENTIAL DEVELOPMENT IN METRO RAIL STATION AREAS
1980 - 2000

DEVELOPMENT CATEGORY BY PLANNING AREA	New LPA		NULL ALTERNATIVE	
	Without Effort	With Effort	Without Effort	With Effort
CBD PLANNING AREA				
Commercial Floor Area *	19,650 - 24,500		15,410 - 19,650	
Residential Units	11,330		11,330	
WESTLAKE PLANNING AREA				
Commercial Floor Area *	500 - 1,200		500 - 1,200	
Residential Units	2,170		2,170	
WILSHIRE PLANNING AREA				
Commercial Floor Area *	9,820 - 11,890		7,160 - 7,160	
Residential Units	11,020		5,060	
HOLLYWOOD PLANNING AREA				
Commercial Floor Area *	3,883 - 4,846		3,100 - 3,100	
Residential Units	7,185		4,025	
UNIVERSAL CITY/NORTH HOLLYWOOD PLANNING AREA				
Commercial Floor Area *	4,600 - 5,300		4,100 - 4,100	
Residential Units	210		150	
DESIGNATED CENTERS				
Commercial Floor Area *	33,350 - 41,850		15,560 - 20,150	
Residential Units	21,980		13,500	
ALL PLANNING AREAS				
Commercial Floor Area *	38,453 - 47,736		29,920 - 34,510	
Residential Units	31,915		22,735	

* In thousands of square feet

"Without Effort" - Reflects projected activity without a concerted station area development effort.

"With Effort" - Reflects projected activity with a concerted station area development effort.

Source: SCRTD/General Planning Consultant/SCAG-82B & SCAG-82M Growth Projections. Refer to Technical Appendix Section 4 for more detail by Station Area.

TABLE 3-14

PROJECTED REGIONAL CORE GROWTH
1980-2000

	Commercial Development 1,000 sq.ft.	Percent Change	Residential Development Dwelling Units	Percent Change	Regional Growth Population	Percent Change
1980 Base	232,800(1)	--	403,291(1)	--	833,389(1)	--
Null Alternative	40,300	17	50,330	12	115,639	14
New LPA	54,200-60,700(3)	23 26	136,260(2)	34	181,333	22

(1) Source: December 1983 FEIS.
(2) Although this level of residential development is projected in SCAG-82B for the entire Regional Core, it is more likely to occur at this intensity only with station areas and to be less for the Regional Core as a whole.
(3) Range reflects amount of development with and without a concerted effort by SCRTD and other agencies to promote station area development.

Source: Southern California Association of Governments, SCAG-82M and SCAG-82B Growth Projections; SCRTD, General Planning Consultant.

2.2.3 ASSESSMENT OF LAND USE AND DEVELOPMENT IMPACTS

As discussed in Section 2.2.1, two primary measures were used to assess the impacts of projected growth associated with the project options: (1) consistency with local land use plans and policies and (2) ability to accommodate projected growth. Within these two primary measures, several sub-measures were identified for use in the evaluation. These sub-measures were applied at both the station area and system levels. To determine the impacts of projected growth, the current conditions in the station areas for the project options were compared to year 2000 Maximum Impact and Null Alternative. The potential impacts identified by these analyses are contained in Table 3-15.

Impacts are identified as potentially beneficial impacts, potentially adverse impacts which can be mitigated, and potentially adverse impacts which cannot be mitigated. If a beneficial impact and adverse impact would be expected for the same station under different conditions, an adverse impact is shown in the table. Mitigation measures for potentially adverse impacts identified in this analysis are discussed in the next section. The following paragraphs address each of the impact measures identified in Table 3-15.

TABLE 3-15

LAND USE IMPACT ASSESSMENT FOR NEW LPA

	Consistency with Land Use Plans and Policies	1 Concentrated 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 Station Area Growth Without Adverse Impacts	6 Accommodate projected residential growth within walking distance of stations	7 Accommodate projected commercial growth within walking distance of stations	8 Preserve stable residential areas *Avoid pressure to increase residential densities in stable single family areas	9 Preserve stable residential areas *Avoid pressure to rezone residential areas for commercial use	10 Maintain stable land values in surrounding neighborhoods	11 Preserve historic and/or cultural resources	12 Maintain compatibility with existing land uses and community character	Mitigation Options (See Mitigation Table 3-18)
REGIONAL IMPACTS															
LPA		□	●	□	□	□		▼	□	▼	▼	●	▼	▼	
WILSHIRE PLANNING AREA															
Wilshire/Vermont		□			□	□		▼	□			●			1
Wilshire/Normandie		□			□	□		▼	□			●			1
Wilshire/Western		□			□	□		▼	□			●			1
Vermont/Beverly								▼	▼		▼	●		▼	2,3,5,9
HOLLYWOOD PLANNING AREA															
Vermont/Santa Monica								□	□						
Vermont/Sunset		□			□	□		□	□						
Hollywood/Western				□		□									
Hollywood/Vine		□		□		□		▼	□			●	▼		3,7,8
Hollywood/Highland		□		□	□	□		▼	□			●	▼		1,7,8
UNIVERSAL CITY/ NORTH HOLLYWOOD PLANNING AREA															
Universal City		□			□	□		▼	▼	▼	▼	●			
North Hollywood		□		□	□	□			□						1,3,5,6

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 neutral situation.
Applicable to Year 2000 Dispersed Condition.

SOURCE: SCRTD/GENERAL PLANNING CONSULTANT

2.2.3.1 Consistency with Local Land Use Plans and Policies

To determine the extent to which the stations and alignment are consistent with adopted local land use plans, five sub-measures were used:

1. The extent to which growth would be concentrated at City Centers along the Metro Rail route.

2. The extent to which growth would be concentrated at other Centers (non-station) in the Regional Core.

3. The extent to which economically stagnant or declining areas would be revitalized.

4. The extent to which commercial services and employment would be increased at or near population centers.

5. The extent to which the implementation of Community Plan, Specific Plan, or Redevelopment Plan objectives would be supported.

The effects or impacts associated with each project option are discussed for each of these measures, first relative to station areas and then to the system as a whole.

Concentration of Growth at Centers Along the Metro Rail Route

Station Area Impacts

The City Centers Concept calls for growth to be concentrated in designated Centers located throughout the City. A number of these Centers are located in the Regional Core. Stations located in designated Centers would support this concept by stimulating growth within the Center. For this reason, stations located within designated Centers of the City of Los Angeles General Plan were assessed to have potentially beneficial impacts under this sub-measure. Table 3-16 shows the proportion of commercial and residential growth projected for each project option that is expected to be located in designated City Centers. This table shows that the majority of projected growth for all project options would be expected to occur in Centers in support of the Centers Concept.

Because the Centers Concept does not preclude the location of transit stations outside of Centers and does not establish that growth outside of Centers would be in conflict with the Concept, the impacts of growth at stations outside the Centers were assessed to be neutral under this measure.

System Impacts

The New LPA would benefit the region by supporting development at designated City Centers within the Regional Core and will have eight stations located in Centers. All five stations associated with MOS-1 under the Null Alternative are in Centers.

TABLE 3-16

CONCENTRATION OF YEAR 2000 PROJECTED GROWTH
IN DESIGNATED CITY CENTERS IN REGIONAL CORE

	Percent of Projected Commercial Development Occurring in City Centers	Percent of Projected Residential Development Occurring in City Centers
Null Alternative	52-58%	59%
New LPA	87-88%	75%

Source: General Planning Consultant.

Concentration of Growth at Non-station Centers in the Regional Core

Station Area Impacts

No stations would be so isolated as to potentially cause growth to concentrate in other designated Centers or which could potentially attract growth from designated Centers.

System Impacts

It is possible that the New LPA could cause some growth to shift from Centers not located along the Metro Rail route to Centers that are on the route. However, the precise probability and extent of this outcome could not be determined. Similarly, the extent to which Metro Rail may attract additional growth to the Regional Core, which may then concentrate in non-station Centers could not be determined. These Centers, which include Sunset Strip, Beverly Hills, and Century City, are expected to continue to attract substantial amounts of new development.

Revitalization of Economically Stagnant or Declining Areas

Station Area Impacts

Construction of transit stations in economically stagnant or declining areas may stimulate beneficial development interest in those areas. It was determined that stations located in designated Redevelopment Project areas would have potentially beneficial impacts under this sub-measure.

System Impacts

The New LPA was assessed to have potentially beneficial impacts with respect to revitalization of economically stagnant or declining areas. The New LPA would serve the North Hollywood and Hollywood Redevelopment Projects and would have

three stations located in Redevelopment Project Areas. The Null Alternative, which includes the MOS-1 segment, includes four stations in Redevelopment Project areas.

Increase in Commercial Services/Employment At or Near Population Centers

Station Area Impacts

Construction of transit stations may stimulate beneficial development interest near population centers. Stations with projections of high commercial growth and also located in areas of high population concentration were assessed to have potentially beneficial impacts under this sub-measure. Accordingly, stations located in Centers, as identified under the first sub-measure, potentially would have beneficial impacts.

System Impacts

In general, for all project options, retail development would be attracted to the Regional Core and station areas in proportion to the redistribution of population growth. Much less redistribution of the population would be expected under the Null Alternative; therefore, increase in commercial services/employment would be proportionately less. The presence of community-serving retail development, which tends to be located in small centers in predominantly residential areas, would increase within the Regional Core with Metro Rail development. Regional retail development likely would concentrate with Metro Rail development in station areas.

Implementation of Community Plan, Specific Plan, or Redevelopment Plan Objectives

Station Area Impacts

Projections of growth in station areas were assessed for their consistency with established land use plans. The concentration of growth in Centers or Redevelopment Project Areas that may result from station construction would be a beneficial impact. For this reason, stations located in Centers and in the Redevelopment Project areas were assessed to have potentially beneficial impacts under this sub-measure.

All of the stations in the New LPA are assessed as having a potentially beneficial impact under this measure. The location of the New LPA would attract growth in centers in conformance with the Centers Plan, Community Plans, and Redevelopment Plans.

System Impacts

The New LPA would serve two designated Redevelopment areas with three stations and have thirteen stations in designated centers. The Null Alternative would serve the CBD Redevelopment areas and centers.

2.2.3.2 Accommodation of Projected Station Area Growth Without Adverse Impacts

To determine the extent to which the stations and alignments were able to accommodate projected growth without adverse impacts, seven sub-measures were used:

1. The extent to which projected residential growth could be accommodated in station areas.

2. The extent to which projected commercial growth could be accommodated in station areas.

3. The extent to which residential development pressure could lead to increasing residential density in stable single family areas.

4. The extent to which commercial development pressure could lead to rezoning of residential areas for commercial use.

5. The extent to which stable land values in surrounding neighborhoods can be maintained.

6. The extent to which historic and/or cultural resources will be preserved.

7. The extent to which projected growth is compatible with existing land uses and community character.

By comparing projected commercial and residential growth between 1980 and 2000 to the parcel area susceptible to reinvestment in each station area (refer to the Appendix to the Draft SEIS/SEIR), the ability to accommodate growth may be measured. Table 3-17 identifies the percentage of available parcel area that would be needed to accommodate growth projected for each station area. The resulting percentages provide an indication of the relative projected development pressure in the vicinity of each station. The findings from this analysis then were used to assess the potential impacts in station areas and related to the system as a whole of projected growth.

Accommodation of Projected Residential Growth on Residentially-Zoned Land Susceptible to Reinvestment in Station Areas

Station Area Impacts

Residential growth in conjunction with Metro Rail would be beneficial when accommodated within the station areas on residentially-zoned land susceptible to development. Under the year 2000 Maximum Impact Condition, station areas were divided into three categories based on the projected increase in residential units: High (greater than 50% increase in residential units forecast), Moderate (20 to 50% increase forecast), and Low (less than 20% increase forecast). Stations where projected residential growth would be expected to be High or Moderate then were examined to determine whether adequate parcel area existed to accommodate the forecasted growth. For station areas where the projected

TABLE 3-17

ACRES OF PARCEL AREA REQUIRED TO ACCOMMODATE GROWTH

	Net Commercial Development*				Net Residential Development*			
	Null Alternative		New LPA		Null Alternative		New LPA	
Station Area	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Wilshire/Vermont	5	16	6-10	21-34	8	62	31	239
Wilshire/Normandie	8	26	10-13	32-42	11	92	25	200
Wilshire/Western	9	33	9-12	33-43	15	83	11	61
Vermont/Beverly	1	17	3-7	50-117	8	38	53	252
Vermont/Santa Monica	1	7	2-2	13-13	4	8	17	32
Vermont/Sunset	2	9	2-3	9-13	4	36	7	64
Hollywood/Western	1	4	1-1	4-4	3	14	5	23
Hollywood/Vine	3	7	8-13	19-30	5	71	24	343
Hollywood/Highland	4	9	7-10	15-22	16	229	23	329
Universal City	13	131	10-12	100-121	4	100	0	0
North Hollywood	5	14	6-7	17-20	1	8	1	8

* 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 thirteen multi-family units added in areas outside the CBD. 1.2 times dwelling unit demand used (efficiency).

Source: SCRTD/General Planning Consultant.

growth would require 75 percent or less of the available parcel area (see Table 3-17), the impact of the growth was assessed to be potentially beneficial. This condition is expected to occur at the Vermont/Sunset and Vermont/Santa Monica station areas.

The impacts of residential growth can be potentially adverse when forecasted levels of residential growth are expected to exceed the supply of land available for residential development. For station areas where projected growth would require 75 percent or more of the available parcel area (see Table 3-17), the impact of growth was assessed to be potentially adverse. These conditions could occur in the following Planning Areas:

Wilshire Center - Wilshire/Vermont, Wilshire/Normandie, Vermont/Beverly;

Hollywood Planning Area - Hollywood/Highland, Hollywood/Vine. It is anticipated that these potentially adverse impacts could be mitigated in all cases.

The same analysis was conducted for the Null Alternative, represented by the dispersed growth condition. Station areas were divided into three categories based on the projected increase in residential units (see the Appendix to the Draft SEIS/SEIR): High (greater than 20% increase in residential units forecast), Moderate 12% to 20% increase forecast) and Low (less than 12% increase forecast). Stations where projected residential growth would be expected to be High or Moderate then were examined to determine whether adequate parcel area existed to accommodate the forecasted growth. For station areas where the projected growth would require 75 percent or less of the available parcel area (see Table 3-17), the impact of projected growth was assessed to be potentially beneficial. This condition is expected to occur at the Wilshire/Vermont, and Hollywood/Vine, station areas. The impact of projected growth was assessed to be potentially adverse at the following station areas: Wilshire/Normandie, Wilshire/Western, Hollywood/Highland, and Universal City. Residential redistribution expected to occur at Wilshire/Western and Universal City station areas under the New LPA would be more favorable than expected under the Null Alternative. For the remaining station areas in which residential growth is forecast to be low, the impact was assessed to be neutral.

System Impacts

The concentration of growth in Centers could cause the potentially adverse impacts of residential growth to exceed potentially beneficial impacts. Under the Year 2000 Maximum Impact Conditions, the New LPA has eleven stations where impacts of residential growth are assessed to be potentially adverse. It is anticipated that the potentially adverse impacts could be mitigated in all cases. The New LPA has two stations which have potentially beneficial impacts. The impacts of the Null Alternative would be less that the Maximum Impact Condition because the protected growth would be more evenly dispersed.

Accommodation of Projected Commercial Growth on Commercially-Zoned Land Susceptible to Reinvestment in Station Areas

Station Area Impacts

Commercial growth projected to occur in station areas would be beneficial, if it could be accommodated on commercially-zoned land susceptible to investment. Using the data developed for the Year 2000 Maximum Impact Condition (see Appendix to November 1987 Draft SEIS/SEIR), station areas were divided into three categories based on the projected increase in square footage of commercial development: High (greater than 90% increase in commercial development forecast), Moderate (51 to 90% increase forecast), and Low (less than 50% increase forecast). Stations where projected commercial growth was High or Moderate then were examined to determine whether adequate parcel area existed to accommodate the forecasted growth. For station areas where the projected growth would require 75 percent or less of the available parcel area, the impact of the growth was assessed to be potentially beneficial (see Table 3-15).

This beneficial impact occurred at:

Wilshire Planning Area - Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western;

Hollywood Planning Area - Vermont/Santa Monica, Hollywood/Vine, Hollywood/Highland; and

Universal/North Hollywood Planning Area - North Hollywood.

Commercial growth projected to occur in station areas would be adverse, if the land available to accommodate development is inadequate. Therefore, where projected growth could require 75 percent or more of the available parcel (see Table 3-17), the impact of commercial growth was assessed to be potentially adverse. For the year 2000 Maximum Impact Condition, this would occur at the Vermont/Beverly and Universal City station areas. It is expected that potential adverse impacts could be mitigated in all station areas.

Under the Null Alternative, station areas were divided into three categories based on the projected increase in square footage of commercial development: High (greater than 40% increase in commercial development forecast), Moderate (10 to 40% increase forecast), and Low (less than 10% increase forecast). For station areas where the projected growth would require 75 percent or less of the available parcel area (see Table 3-17), the impact of the growth was assessed to be potentially beneficial (see Table 3-15). This condition would occur at the following station areas:

Wilshire Planning Area - Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western;

Hollywood Planning Area - Vermont/Sunset, Hollywood/Vine, Hollywood/Highland, and

Universal/North Hollywood Planning Area - North Hollywood. The impact of a dispersed growth condition was assessed to be potentially adverse at the Universal City Station. It is anticipated that the potentially adverse impacts could be mitigated in all cases.

System Impacts

For the New LPA, the potentially beneficial impacts of commercial growth are assessed to exceed the potentially adverse impacts of growth. In all cases, the potentially adverse impacts could be mitigated. The New LPA has two station areas, Vermont/Beverly and Universal City, in which the supply of land potentially could be inadequate to support protected growth. Eight station areas in the New LPA have potentially beneficial impacts.

Avoidance of Pressure to Increase Residential Density in Stable Single-Family Areas

Station Area Impacts

If an insufficient supply of land exists to accommodate residential growth, there would be an adverse impact on surrounding residential areas. Pressure would be present to re-zone single-family or low-density residential neighborhoods for a higher density residential use, assuming that residential

growth attracted by Metro Rail would be multi-family in nature. These impacts conceivably could occur at station areas: (1) where projected residential growth has been assessed to have a potentially adverse impact and (2) where the predominant surrounding land use, Community Plan designation, and zoning is single-family residential. Based on these criteria, potentially adverse impacts could occur at the Universal City station. It is anticipated that the potentially adverse effects at this station could be mitigated.

The impact was assessed to be neutral in the remaining station areas: (1) where projected residential growth could be accommodated without adverse impact or (2) where projected residential growth may spill over into multi-family residential or commercial areas (Vermont/Beverly).

System Impacts

The New LPA has one station area (Universal City) that would potentially have adverse impacts resulting from residential development pressure which could lead to rezoning or development of single-family neighborhoods. There would be no potentially adverse impacts associated with the Null Alternative relative to this sub-measure.

Avoidance of Pressure to Re-zone Residential Areas for Commercial Use

Station Area Impacts

There would be an adverse impact on surrounding residential areas, if: (1) an insufficient supply of land exists to accommodate commercial growth; (2) pressure to rezone residential areas for commercial use exists; and, (3) development subsequently "spills over" into the residential area. Therefore, adverse impacts would be expected at station areas where projected commercial growth has been assessed to have a potentially adverse impact (i.e., pressure to rezone is evident) and the predominant land use is residential. Potentially adverse impacts could occur at the Vermont/Beverly, and Universal City stations. It is anticipated that the potentially adverse effects could be mitigated in all cases.

The impact was assessed to be neutral for the remaining station areas where projected commercial growth can be accommodated without adverse impact or where projected commercial growth may spill over into commercial areas.

System Impacts

The New LPA has two stations, Vermont/Beverly and Universal City in which the supply of land potentially could be inadequate to support projected commercial growth and which are located in predominantly residential areas. Station areas of the Null Alternative would not be adversely impacted under this sub-measure.

Maintenance of Stable Land Values in Surrounding Neighborhoods

Station Area Impacts

In general, it is expected that land values would increase to some extent at all station areas where development occurs. Potentially adverse impacts could occur in station areas where an inadequate land supply exists to accommodate projected commercial and/or residential development. This condition would exist at the following station areas:

Wilshire Planning Area - Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western;

Hollywood Planning Area - Hollywood/Highland, Hollywood/Vine, Vermont/Beverly; and

Universal/North Hollywood Planning Area - Universal City Station.

The greatest pressure is expected to occur where land susceptible to reinvestment (regardless of commercial or residential classification) is exceeded by the combination of projected commercial and residential growth -- Vermont/Beverly and Universal City. The greatest impact would be at Universal City where the predominant land use is single-family residential. Because land values are determined by market forces beyond the control of public agencies, these impacts are expected to be unmitigable.

The impacts on land values are assessed to be neutral for the remaining station areas where land supply is adequate to accommodate projected commercial and residential growth.

System Impacts

The New LPA has eight stations in which potentially adverse impacts on land values in surrounding neighborhoods could occur. They are:

Wilshire Planning Area - Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western, and Vermont/Beverly;

Hollywood Planning Area - Hollywood/Vine, Hollywood/Highland;

Universal/North Hollywood Planning Area - Universal City Station.

Six of the above stations may have difficulty accommodating projected residential growth. Vermont/Beverly and Universal City may have difficulty accommodating both residential and commercial growth. The concentration of development in the Regional Core resulting from the Metro Rail Project could cause land values to rise in general.

Preservation of Historic and Cultural Resources

Station Area Impacts

As described in Section 16 of this Chapter, historic and cultural resources within station areas could be affected either positively or negatively by growth induced by the Metro Rail project. If the floor area ratio allowed by zoning is significantly higher than the floor area ratio of existing structures and projected development pressure is assessed to be high, an adverse impact may occur with a replacement of the structure. Potentially adverse impacts could occur in station areas containing historic or cultural resources, where inadequate land supply exists to accommodate projected commercial or residential growth. This condition exists in the Hollywood/Highland, and Hollywood/Vine, station areas. In these station areas, mitigation measures would be established to promote the restoration/renovation of historic structures rather than displacement under the pressure of commercial or residential development.

System Impacts

The New LPA might have potentially adverse impacts on cultural and historic resources resulting from development pressures in the station areas.

Maintenance of Compatibility with Existing Land Uses and Community Character

Station Area Impacts

Projected growth in a station area may or may not be compatible with surrounding land uses or with the desired characteristics for a particular station area. Potentially adverse impacts could occur, if the projected growth is inconsistent with surrounding uses. This is primarily true for a station area where the predominant land use is residential (i.e., station area categorized as primarily residential) and where high levels of commercial growth (50% or greater) are forecast. This condition exists on the Vermont/Beverly station on the New LPA. At this station area, projected commercial development may be potentially out of scale with surrounding residential areas. Mitigation measures, however, could be employed at this station area.

System Impacts

The New LPA has one station, Vermont/Beverly, in which projected commercial development could possibly be incompatible with existing residential uses.

2.3 MITIGATION OF POTENTIAL ADVERSE LAND USE AND DEVELOPMENT IMPACTS

This section identifies actions to mitigate the potentially adverse impacts discussed in the previous section (refer to Table 3-15).

Table 3-18 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 SCRTD's cooperation and support with the responsible agencies identified in Table 3-18 will be required.

TABLE 3-18

LAND USE IMPACT MITIGATION FOR NEW LPA

		Station Areas		WILSHIRE PLANNING AREA	Wilshire/Vermont	Wilshire/Normandie	Wilshire/Western	Vermont/Beverly	HOLLYWOOD PLANNING AREA	Vermont/Santa Monica	Vermont/Sunset	Hollywood/Western	Hollywood/Vine	Hollywood/Highland	UNIVERSAL CITY/NORTH HOLLYWOOD PLANNING AREA	Universal City	North/Hollywood
		Effectiveness	Responsible Agencies															
1	Develop residential projects on commercially zoned lands																	
	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	Redirect commercial development to other station areas by providing joint development opportunities elsewhere	Moderate	LADOP, SCRTD					●										
3	Divert residential growth to other station areas where multi-family residential development would be more appropriate through use of specific plan	Moderate	CRA,LADOP					●					●			●		
4	Redirect commercial development to other station areas by providing joint Specific Plan and master planning processes	Moderate	LADOP, SCRTD, CRA					●								●		
5	"Expand" station area by directing commercial development to adjacent areas through the Specific Plan and master planning processes	Low	LADOP, SCRTD, CRA													●		
6	Create financial incentives for preservation of historic properties																	
	Provide low-interest rehabilitation loans	Moderate	CRA										●	●				
	Promote use of existing tax incentives	Moderate	CRA,LADOP SCRTD										●	●				
7	Downzone and permit TDRs	High	CRA,LADOP										●	●				
8	Develop special station area mitigation measures to preserve community character	High	ALL AGENCIES					●										

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 Commission

Measures encouraging the use of joint development techniques will require active participation by SCRTD in cooperation with the CRA, Los Angeles Department of Planning (LADOP), the Los Angeles County Department of Regional Planning (LADRP), and other responsible agencies.

The SCRTD in May 1983 adopted policies guiding the agency concerning land use and development around Metro Rail stations. In particular, the policy establishes the basis for the re-use of land acquired for construction purposes as well as the development of air rights above System facilities. Further in 1984, enabling legislation was passed giving the SCRTD the further capability to work with adjacent property owners to develop projects on combined parcels which wold support or otherwise enhance the Metro Rail system.

The SCRTD, as part of the project cost, will prepare station plans for those stations where available land owned by the SCRTD is most susceptible to development. The SCRTD will conform to the adopted land use goals set forth in adopted City Specific Plans, Community Plans, and Redevelopment Agency Plans for the Hollywood and North Hollywood station areas. These station plans will be used as the basis for obtaining development proposals, community support for development projects, and furtherance of the SCRTD's minority business enterprise utilization goals.

In areas identified for residential investment, the SCRTD will require, on land it owns, mixed use developments which will provide for the provision of new housing stock, or where appropriate, the rehabilitation of existing housing stock. In areas identified for commercial investment, the SCRTD will seek City approval for the transfer of development rights between station areas as a means of targeting growth and protecting those areas where community and City goals seek protection or reduced development pressure.

These measures are applicable in the following station areas: Wilshire/Vermont, Wilshire/Western, Hollywood/Vine, and Hollywood/Highland.

Other mitigation measures for potential adverse land use and development impacts are identified below. More detail concerning the actions to be taken in each station area may be found in the Appendix to the Draft SEIS/SEIR and in Table 3-18.

2.3.1 POTENTIAL INABILITY TO ACCOMMODATE PROJECTED RESIDENTIAL GROWTH IN STATION AREAS AND POTENTIAL PRESSURE TO INCREASE RESIDENTIAL DENSITY IN SINGLE-FAMILY AREAS

The accommodation of residential growth in the station areas of the Regional Core is the most significant potentially adverse impact under all project options. Three actions will be appropriate to mitigate the potentially adverse impacts of residential growth.

1. Develop residential projects on commercially-zoned land.

2. Increase density of new residential development in existing multi-family residential zones.

3. Divert potential residential growth to other station areas where multi-family residential development would be more appropriate.

These measures are applicable in the following station areas:

- o Wilshire Planning Area - Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western, and Vermont Beverly;
- o Hollywood Planning Area - Hollywood/Vine, Hollywood/Highland; and
- o Universal/North Hollywood Planning Area - Universal City

2.3.2 POTENTIAL INABILITY TO ACCOMMODATE PROJECTED COMMERCIAL GROWTH IN STATION AREAS

Three actions will be appropriate to mitigate the potentially adverse impacts of commercial growth.

4. 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.

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

6. "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 measures are applicable in the following station areas:

- o Vermont/Beverly
- o Universal City

2.3.3 POTENTIALLY ADVERSE EFFECTS ON HISTORIC AND CULTURAL RESOURCES

Two actions will be appropriate to mitigate the potentially adverse impacts associated with historic and cultural resources.

7. Promote use of existing tax incentives and rehabilitation loans.

8. Downzone and create a mechanism to transfer unused development potential.

These measures are applicable to the following station areas:

- o Hollywood Planning Area - Hollywood/Highland and Hollywood/Vine.

2.3.4 POTENTIAL INCOMPATIBILITY OF PROJECTED GROWTH WITH EXISTING LAND USES AND COMMUNITY CHARACTER

One action will be appropriate for mitigating potentially adverse impacts on existing land uses and community character.

9. Develop special station mitigation measures to preserve community character.

This mitigation measure is applicable to the Vermont/Beverly station for the New LPA. Refer to the Appendix to the Draft SEIS/SEIR for a detailed station-by-station examination of mitigation measures for potential adverse land use and development impacts.

2.4 SUMMARY OF MITIGATION MEASURES FOR THE NEW LPA

Metro Rail may attract growth to the Regional Core that may locate at City Centers not served by a rail station. This is treated as an unmitigable adverse impact.

It is recommended that residential projects be developed on commercially zoned land to accommodate excess residential growth when the supply of land susceptible to reinvestment (both residential and commercial) exceeds the combined commercial and residential growth demand. This mitigation measure is proposed for four stations -- in the Wilshire Planning Area: Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western; and in the Hollywood Planning area: Hollywood/Highland.

The diversion of commercial and/or residential development to other stations is proposed when the commercial and/or residential growth exceeds the total land available or when the development of residential projects on excess commercially zoned land is not desirable. This mitigation is being proposed for the following stations:

Hollywood Planning Area

- Vermont/Beverly where excess commercial and residential growth may be transferred to the Mid-Wilshire stations and where selective rezoning of multi-family parcels to higher densities may be appropriate.

- Hollywood/Vine where excess residential growth may be transferred to the Hollywood/Western station and where development of residential projects on excess commercially zoned land may conflict with the intent of the Hollywood Redevelopment Project.

Universal City/North Hollywood Planning Area

- Universal City where excess residential growth may be accommodated as a component of commercial projects or diverted to other stations; and where excess commercial growth could be diverted to other stations and appropriate adjacent areas. Maintaining stable land values is considered an unmitigable adverse impact because inadequate land exists to accommodate residential and/or commercial demands.

The use of preservation incentives and transfer of development projects is proposed where excess commercial and/or residential demand may adversely affect historic structures. This mitigation measure is proposed for Hollywood/Vine and Hollywood/Highland.

In summary, all adverse impacts are considered mitigable except land value stability and growth at Centers without stations.

SECTION 3. ECONOMIC AND FISCAL IMPACTS

Construction of any of the alternatives evaluated will result in regional and subregional economic and fiscal impacts. Potential economic impacts involve changes in the overall level of economic activity within the Los Angeles region as well as direct development effects in station areas. Potential fiscal impacts would be related to the revenues and service costs associated implementation of a particular alternative.

3.1 CHANGES IN ECONOMIC ACTIVITY

3.1.1 LOCAL EMPLOYMENT IMPACTS

The number of construction jobs associated with the New LPA is expected to be in the 3,000 to 5,000 range, as was the case for the Original Locally Preferred Alternative described in the FEIS (see Section 3.2, "Local Employment Impacts," page 3-69). There would be no rail construction jobs generated under the Null Alternative.

3.1.2 REGIONAL ECONOMIC IMPACTS

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, as defined by the gross regional product (see Section 3.3., "Regional Economic Impacts," page 3-70 of the FEIS, 1983). Applying this relationship, the New LPA would generate $34 million to $68 million secondary economic activity. Operating costs of the Null Alternative would be about $15.4 million annually. Therefore, secondary economic activity associated with the Null Alternative would be less than $30 million under the best condition.

3.1.3 MINORITY BUSINESS PARTICIPATION

The SCRTD has adopted a policy which affords meaningful and appropriate participation by Disadvantaged and Women's Business Enterprises (DBE's and WBE's) and other minority-owned enterprises in all contract and joint development opportunities. An extensive survey and assessment of the capability and availability of DBE's and WBE's in the construction and construction-supply industries was completed in April 1985. This assisted the SCRTD in contacting DBE's and WBE's to inform them about Metro Rail business opportunities and to anticipate any barriers to their successful competition and performance in these contracts. Survey results also were used to develop the annual and contract-specific DBE/WBE goals which UMTA grant recipients are required to establish pursuant to 49 CFR, Part 23.

DBE and WBE consultants have participated extensively in the planning, design, and construction management of Metro Rail. Their estimated level of participation is 25 percent and 5.5 percent, respectively, of total dollars committed for these contracts let to date. In the construction phase, contract-specific goals are averaging eighteen percent for DBE and four percent for WBE

participation. Overall annual goals for construction contracts are set at seventeen percent for DBE and three percent for WBE.

The SCRTD currently is reviewing the existing DBE/WBE policy. The following steps are designed to lead to full integration of a joint development component for this policy:

- Develop a program to open communication with minority developers, bankers, architecture and engineering firms, and suppliers, to inform them of SCRTD's project and direction, and to get policy advice from them on structuring a DBE/WBE involvement program;
- Review and revise, as required, current SCRTD policies to better define DBE/WBE participation in joint development projects;
- Conduct a conference to stimulate ideas on inclusion of DBE, WBE, and other minority-owned enterprises in joint development construction, operation and project equity; and
- Finalize a SCRTD DBE/WBE Joint Development Participation Plan.

3.1.4 VALUE CAPTURE REVENUES FROM METRO RAIL

Considerable economic benefits can accrue to properties in the vicinity of Metro Rail stations, especially to properties that are appropriate for high-intensity commercial development. SCRTD will pursue a range of measures to recapture a portion of these benefits resulting from the expenditure of public funds.

3.1.4.1 Benefit Assessment Districts

Sections 33000 et. seq. of the California State Public Utilities Code provide the SCRTD Board of Directors with authority to establish benefit assessment districts around Metro Rail stations, when it is determined that property would receive special benefits by virtue of being located near the station. Under the provisions of this law (described in detail on pages 3-71 and 3-72 of the FEIS, 1983), benefit assessment districts were established for the Central Business District and Wilshire/Alvarado stations on July 11, 1985, in conjunction with implementation of MOS-1. An assessment rate will be applied to all property within these districts, with the exception of residential properties and properties owned and used by either public or nonprofit organizations. The assessment rate will be set every two years at a level designed to support repayment of the $130 million in bonds, used to finance a portion of the MOS-1 construction cost for MOS-1.

SCRTD will pursue establishment of benefit assessment districts in the vicinity of any stations added to Metro Rail system. Characteristics of the assessment districts (including boundary designations, properties to be assessed, assessment rates and other issues, as appropriate) will depend upon the characteristics of individual station areas. There will be no further designations of benefit assessment districts should the Null Alternative be the selected course of action.

To provide a preliminary indication of the general financial impact of assessment districts in relation to the New LPA, an estimated assessment rate of 30 cents per square foot for property improvements used as offices, commercial, retail and hotels/motels was applied. The projected floor space within one-quarter mile of Metro Rail station areas would generate approximately $10.4-12.0 million for the New LPA. These amounts could be used over many years to amortize bonds which could provide substantial, near-term construction funds. Assessment rates, district boundaries (e.g., use of 1/3 mile vs. 1/4 mile boundaries), and other assessment district characteristics will be re-evaluated as the assessment districts are established for the selected alignment.

Benefit assessments for MOS-1 were collected for the first time in the 1986/87 assessment year, with final payments due April 10, 1987. The assessment rate was thirty cents per assessable square foot, below the maximum permitted rate of forty-two cents. Meetings were held with property owners and the general public as a continuation of the meetings held during the benefit assessment district formation process. SCRTD determined as a result of these meetings that it would be feasible to defer benefit assessments until 1992 when Metro Rail operation is scheduled to begin. SCRTD's outside financial consultants, Seidler-Fitzgerald Public Finance, examined the feasibility of a five-year deferral in collection of assessments and the impact on bond financing. Seidler-Fitzgerald determined there are several bonding alternatives that would raise the construction funds of $130.3 million yet accommodate the five-year deferral in collection of assessments. These alternatives included, but were not limited to, a bond issue to finance the entire $130.3 million with interest capitalized to 1993 and a cash contribution of the full 1986/87 revenues, or a series of three bond issues tied to the construction schedule, with the cash contribution of the 1986/87 revenues in the Series A issue.

After consideration of the financial consultant's report, the SCRTD's Board of Directors resolved on February 26, 1987, to endorse in principle a deferral of assessments until 1992 and consider further staff recommendations to implement the deferral. Under a revised bond schedule to accommodate the assessment deferral, additional revenues to cover increased interest costs needed to be raised. In December 1986, SCRTD's Board of Directors approved the issuance of bonds in the amount of $187 million for the two MOS-1 benefit assessment districts. On May 21, 1987, after a public hearing, the SCRTD's Board of Directors approved the issuance of bonds in the amount of $200 million to provide for the additional interest required to support the deferral. There is no schedule yet for issuing the bonds. On July 31, 1987, the SCRTD filed a petition in the Los Angeles Superior Court seeking to compel the signing and certification of the two resolutions to incur bonded indebtedness. The Superior Court granted the petition. The action is pending in the California Court of Appeals and is designed to validate the benefit assessment program in the courts.

On August 13, 1987, the SCRTD's Board of Directors voted to set the assessment rate for the 1987/88 assessment year at zero cents per square foot.

3.1.4.2 Station Cost Sharing and Connection Fees

At some locations, Metro Rail facilities can be integrated with private commercial development. Integration provides significant economic benefits to Metro Rail in the form of reduced stations operating costs and/or lease revenues and the owner of the development in the form of accessibility and high pedestrian activity. SCRTD will evaluate the feasibility of such possibilities at all proposed stations, and initiate discussions with private developers and property owners in order to achieve financial agreements regarding cost sharing or connector fees. The potential financial return of these agreements will depend upon the circumstances and characteristics of the individual station areas.

3.1.4.3 Joint Development of SCRTD Property

SCRTD will need to acquire certain parcels of property for stations, train yards, parking lots, bus facilities, and auxiliary equipment. Careful design of these facilities may sometimes permit joint use of the property by private development.

Table 3-19 identifies potential revenues from the development of parcels that have been preliminarily identified for acquisition to support construction of specified stations and ancillary facilities for the New LPA. Land acquisition costs are assumed to reflect the market-based development potential for each site in 1986. No additional purchases of property are anticipated in relation to the Null Alternative.

Assuming a simple ground lease rate of nine percent of land value, the potential annual lease income in December 1985 dollars to SCRTD along the New LPA could be as high as $1,649,000. The gross land value for potential lease sites (estimated acquisition cost) would be $18,316,000. Over a representative 65-year lease life, the income-generating potential of these leases (in current undiscounted dollars) is estimated to range as high as $107 million for the New LPA (1985 dollars).

TABLE 3-19
POTENTIAL REVENUES TO SCRTD FROM LEASE RIGHTS ON PROPERTY ACQUIRED FOR TRANSIT USE (DECEMBER 1985 DOLLARS IN THOUSANDS)

Station	Acquisition Costs	Income from Lease	
		Annual	65 years
Wilshire/Vermont	$13,110	$1,180	$76,691
Sunset/Vermont	2,578	232	15,081
Hollywood/Vine	950	86	5,560
Universal City	1,678	151	9,816

Source: SCRTD Preliminary Land Acquisition Costs.

3.2 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. Such fiscal impacts can be both direct and indirect. Direct impacts would include public service costs associated with the construction and operation of the Metro Rail system. Indirect impacts would result from changes in land use stimulated by Metro Rail, including potential increases in tax receipts from new development. SCRTD's Police will be responsible for system security. In conjunction with system-wide design measures intended to increase security for transit patrons (see Section 6 of this chapter for further detail), the occurrence of crime throughout the system is expected to be controllable. As a result, the Metro Rail system is not expected to increase demand for Los Angeles City police services. Similarly, the Los Angeles City Fire Department has indicated that existing fire protection services in the Regional Core, combined with SCRTD system-wide fire safety measures, would adequately serve Metro Rail. On balance, it is anticipated that the Metro Rail project would not adversely affect the City's fiscal situation.

For a discussion of fiscal impacts during Metro Rail construction, refer to Section 15.4 of this chapter, "Business Disruption."

3.2.1 REDUCTION OF TAX REVENUE

Acquisition of parcels for Metro Rail would remove some land from the property tax base, reducing public revenues. The estimated annual property tax loss due to acquisitions along the New LPA alignment would be $271,000 (property with a total 1986 assessed valuation of $27.1 million). The loss of property taxes will be mitigated by the implementation of joint development projects, which will return property acquired for Metro Rail use to the tax rolls. Because joint development would result in more intensive use of land acquired, the negative fiscal impacts of land acquisition may be translated into a positive benefit. The ultimate effect depends upon joint development agreements that can be consummated. In addition, the increase in property valuation resulting from the Metro Rail-induced concentration of growth in the Regional Core should more than offset reductions in the tax base due to property acquisition.

Land acquisition also will displace some existing businesses, thus affecting sales tax revenues. Because SCRTD is obliged to help businesses in relocation, this impact would be only temporary. The magnitude of the impact would depend largely upon the length of time between the closure of a business and its reopening at another site. The more intensive development and increased economic activity attracted by Metro Rail would be expected, in the long run, to increase taxable sales in station areas and, thus, offset the temporary loss of sales tax revenues. No additional purchases of property are anticipated in relation to the Null Alternative. Displacement effects and mitigation measures are discussed in Section 4 of this chapter.

3.2.2 GROWTH AND REVENUE IMPLICATIONS

The Metro Rail Project is expected to stimulate new development and/or redevelopment in the vicinity of many proposed stations. This transit-induced growth is expected to generate both tax revenues and demand for public services. However, to the extent that Metro Rail supports the concentration of new development in the Regional Core, increases in the cost of providing public services would be minimized and increases in revenues would be maximized compared to the effects of more dispersed growth which would be expected to occur in the absence of Metro Rail. As noted above, the increased property tax revenues resulting from this concentration would be expected to completely offset any loss of property tax revenues resulting from the acquisition of property for Metro Rail construction. Pages 3-76 through 3-79 of the FEIS, 1983, describe projected increases in sales and property tax revenues expected to accrue to the City of Los Angeles as a result of Metro Rail.

3.3 MITIGATION OF ECONOMIC AND FISCAL IMPACTS

In the establishment of benefit assessment districts for each Metro Rail station, SCRTD will work closely with affected property owners. Formal task forces or committees will be established to ensure that district boundaries, assessment formulas, assessment rates, and other key issues are addressed and resolved in an equitable manner so as not to create excessive financial hardships on property owners.

Whenever it becomes desirable or necessary for SCRTD to acquire property, the existing level of revenues contributed to taxing jurisdiction by that property will be identified. Methods to compensate the taxing jurisdiction will be explored. SCRTD will seek to identify feasible and desirable additional development potential of the property and, in coordination with appropriate local authorities, will actively seek to promote use of the property through the negotiation of joint development agreements with private developers designed to return acquired property to the tax rolls.

Additionally, SCRTD joint development programming will identify residual 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 be effectively "carried" by commercial development. This additional housing supply should, in turn, reduce pressures on housing costs in station areas.

SECTION 4. LAND ACQUISITION AND DISPLACEMENT

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 necessary 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 will need to acquire different types of real property. Full and partial acquisitions of parcels may be necessary for stations, ancillary structures and vent shafts. Easements, which are interests in land owned by another that entitle its holder to a specific limited use, will be necessary for both construction and the operation of underground alignments. Temporary construction easements would be necessary for construction sites, and underground easements will be required where an alignment passes under private property. Construction of Metro Rail may directly displace some residents, homes, and businesses. Indirect displacement due to development induced by Metro Rail may also occur. This section discusses only the direct physical removal of structures for project construction and operation. 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.

4.1 METHODOLOGY

The New LPA and the other candidate alignments were overlain on maps of the Los Angeles County Assessor which show the real estate parcels in the project area. The New LPA is discussed in this report. The other alignments are contained in the Draft SEIS/SEIR of November 1987 and its May 1988 Addendum. The right-of-way requirements for the line and station segments of the candidate alignments were superimposed on the Assessor's maps. These included stations, straight tracks, curves, crossovers, turnouts, pocket tracks, tail tracks, and transitions from subway to aerial guideways. The Assessor's map book, sheet and parcel numbers, general location and type of acquisition for each parcel intersected by the New LPA alignment were recorded. Field checks were made to determine the status of the parcel, such as whether the property was used for commercial or residential purposes, the number of stories, the square footage and/or the number of units in existing structures. The worksheets also were used to record the alignment and operable segment involved and the square footage of the acquisition for subsurface elements. A summary was developed from the worksheets giving the residential units, commercial properties, parking footage, and service or nonprofit units displaced.

4.2 DISPLACEMENT IMPACTS OF THE NEW LPA

Table 3-20 presents information on the type and extent of displacements that would occur for the New LPA.

Service and retail businesses account for the majority of displaced commercial establishments. Most of those displaced are small- to medium-sized businesses. Table 3-20 presents the approximate number of displaced commercial and non-profit establishments. This information was obtained from Assessor's records and field observations. Employee estimates were calculated from the floor areas of displaced buildings, using 500 square feet per employee for retail establishments. Offices, restaurant and nonprofit establishments employee data was calculated at 200 square feet per employee. Parking spaces displaced were calculated using 300 square feet per parking space. In most cases, it will be feasible to relocate businesses in the general vicinity of their original locations.

The displacement effects of the New LPA can be examined by reviewing the station plans in Chapter 2. These drawings show station locations, facility entrances, and related station facilities, such as space for bus bays and kiss-and-ride parking spaces. Other areas affected by the New LPA can be examined by reviewing the plan and profile drawings which show the location of the project alignment. These drawings also show the segments of the alignment which will be constructed by cut-and-cover method. These areas will be acquired for the project if they are in private rights-of-way. Other areas shown as tunnel construction segments will only be considered for sub-surface easements.

4.3 MITIGATION OF LAND ACQUISITION AND DISPLACEMENT IMPACTS

The Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 91-646) mandates that certain relocation services and payments by SCRTD be made available to eligible residents, business concerns, and nonprofit organizations displaced by the construction and operation of Metro Rail. The Act provides for uniform and equitable treatment of persons displaced from their homes, business, or farms by federal and federally assisted programs and establishes uniform and equitable land acquisition policies. The State of California's revised Government Code Section 7260, et seq., brings the California Relocation Act into conformance with the Federal Uniform Relocation Act. In the acquisition of real property by a public agency, both the federal and state acts seek: (1) to ensure consistent and fair treatment for owners of real property; (2) to encourage and expedite acquisition by agreement in order to avoid litigation and relieve congestion in the courts; and (3) 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 which is not generally less desirable with regard to public utilities and public and commercial facilities than the home from which the individual is displaced.

TABLE 3-20

DISPLACEMENT OF COMMERCIAL AND NON-PROFIT ESTABLISHMENTS
BY NEW LOCALLY PREFERRED ALTERNATIVE

Affected Areas	Commercial Establishments					Preliminary Estimate of Total Employment	Total Non-Profit	Total Residential Units
	Parking (Spaces)	Retail	Restaurant	Office	Total			
o Wilshire/Vermont	2(464)	1	1	4	8	165	0	0*
o Wilshire/Western	0(106)	7	0	0	7	38	0	0*
o Vermont/Beverly	0(0)	1	0	0	1	5	0	0
o Vermont/Santa Monica	0(10)	2	1	0	3	30	0	0
o Vermont/Sunset	0(20)	4	1	1	6	33	0	0
o Hollywood/Western	0(0)	3	0	0	3	15	0	0
o Hollywood/Vine	1(250)	1	1	2	5	20	0	0
o Hollywood/Highland	0(20)	5	1	0	6	30	0	0
o Universal City	0(362)	0	0	24	24	276	0	136*
o North Hollywood**	0(0)	6	0	18	24	222	2	14*
Total	3(1232)	30	5	49	87	834	2	150

*Impacts for these stations are unchanged from FEIS.

Source: SCRTD.

In addition to the legislation discussed above, owners of private property have federal and state constitutional guarantees that their property will not be taken or damaged for public use unless they first receive just compensation. Just compensation is measured by the "fair market value" of the property taken, where "fair market value" is taken to be 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 is to avoid displacements by modifying either the alignment or station entrance locations. However, it is not always feasible to avoid displacements through such modifications. Where acquisition and relocation are unavoidable, SCRTD will follow the provisions of the Uniform Relocation Act by identifying replacement sites for housing, business, and nonprofit organizations. (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.) SCRTD will establish a Relocation Advisory Program which will coordinate all such assistance efforts by using a staff of experienced real estate specialists.

As part of the Relocation Advisory Program, public information meetings will be held to describe the Program and to identify impacted parcels. These meetings will be held as frequently as necessary in the project station areas and at times that are convenient for potentially affected persons to attend. Individual letters announcing the public meetings will be mailed to the affected owners and occupants. Dates for public meetings will 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 be assigned a Real Estate Specialist for assistance throughout the relocation process.

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" and in internal operating procedures. These policies and procedures stipulate that all real property acquired by SCRTD will be appraised for its fair market value and just compensation shall be determined. An offer is made based on the appraisals. Each person or business required to relocate will be given ninety 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. Real Estate Specialists will work with businesses to assure that comparable facilities are available. In some cases, a business may not be able to relocate without a substantial loss of its existing patronage. If so, the business may choose to receive a fixed payment in lieu of actual moving and related expenses in order to mitigate negative impacts and business losses.

SECTION 5. SOCIAL AND COMMUNITY IMPACTS

The New LPA alignment traverses communities with many diverse social characteristics. This section identifies communities that comprise the station environs. Social and community impacts on neighborhoods are evaluated for an area within one-half mile of each station compared to land use and development impacts which are expected to be more concentrated (within a quarter mile) near the stations, major streets, and major activity centers. This section discusses existing characteristics, community values, and trends. Specific impacts associated with the construction and operation of the Metro Rail system along the New LPA, as well as those that may result from transit-induced development, are identified.

For a discussion of community impacts during Metro Rail Construction, refer to Section 15.3 of this chapter, "Community Impacts."

5.1 EXISTING CONDITIONS

The following discussion examines existing social and community characteristics at all stations incorporated in the New LPA alignment that were not included in MOS-1. Those stations identified as serving MOS-1 are discussed in Chapter 3, Section 5, "Social and Community Impacts," pages 3-88 through 3-103, of the 1983 FEIS. The discussion presented here focuses on recognized community areas, which are considered to possess unique social characteristics. These community areas are identified and are followed by a description of the environs surrounding each proposed station.

5.1.1 MID-WILSHIRE AREA

The Mid-Wilshire community area would be affected by the siting of three stations of the New LPA. A general discussion of the Mid-Wilshire area, originally presented on pages 3-89 through 3-90 of the 1983 Metro Rail FEIS, follows.

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.

5.1.1.1 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 volumes 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.

5.1.1.2 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.

5.1.1.3 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.

5.1.3 NORTH AREA

None of the stations in the North Area are located in designated City Centers. Existing development is smaller in scale than in other community areas. Commercial development serves auto traffic, as well as the surrounding neighborhood. A description of the environs of stations proposed for the North Area is presented below.

5.1.3.1 Vermont/Beverly

The resident population of the Vermont/Beverly station area is 51 percent White, with large Asian (22%) and Hispanic (19%) minorities. Retail stores line Vermont Avenue and Beverly Boulevard. Residential areas, including numerous apartments, are situated off the major thoroughfares. Virgil Junior High School is located one block south of the proposed station location on Vermont. The median income is 61 percent of the county average. Thirty-six percent of area households are without access to private automobiles.

5.1.3.2 Vermont/Santa Monica

The Vermont/Santa Monica Station area includes the Los Angeles Community College (LACC) and the Braille Institute. LACC is a major regional destination. Businesses along Vermont adjacent to the college cater to the student community.

The resident population is 58 percent White, 22 percent Asian, thirteen percent Hispanic, and five percent Black. The station area includes a Spanish-language multiscreen movie complex and a Spanish-language medical clinic. Thirty-six percent of area households do not have access to private automobiles. Median family income for the area is 59 percent of the county average.

5.1.4 HOLLYWOOD AREA

All of the proposed alignments would serve the mixed retail-office-residential community of Hollywood. The potential service area for the alignments extends from Santa Monica Boulevard north to beyond Hollywood Boulevard and from Vermont Boulevard west to Fairfax Boulevard. If recent trends continue, the Hollywood area will experience slight increases in minority and immigrant populations. New residential development, however, will likely be oriented to higher-income families and individuals.

5.1.4.1 Vermont/Sunset

The Sunset/Vermont Station area in East Hollywood is a major regional medical center including Children's Hospital and Presbyterian Hospital on Vermont and Kaiser Hospital on Sunset, four blocks to the west. In this area are many medical-related facilities such as medical offices, laboratories, and pharmacies. Sixty-five percent of the residents are White, with Asians forming the largest minority (19%). Thirty-five percent of area households are without access to private automobiles, and the median family income is 73 percent of the county average.

5.1.4.2 Hollywood/Western

The area surrounding the Hollywood/Western Station reflects an historically low level of new development. Occupants of the surrounding residential areas have pressed for an increased police presence along Hollywood Boulevard. The resident population is composed of 74 percent Whites, nine percent Hispanics, nine percent Asians, and six percent Blacks. Median family income for the area is 58 percent of the county average, and 37 percent of local households do not have access to private automobiles.

5.1.4.3 Hollywood/Vine

The Hollywood/Vine station area is located in the heart of the commercial core of Hollywood. This is perhaps the most famous intersection in Hollywood with the landmark Capitol Records Tower one half block to the north. Pedestrian traffic along Hollywood Boulevard's renowned Walk of Fame is heavy at all hours, increasing significantly at night. Much of the land behind the major buildings on Hollywood Boulevard and Vine Street is used for surface parking. Although the station area is nationally associated with the excitement of the movie industry, the median annual family income in the station area is 56 percent of the county average, and 41 percent of area households do not have access to private automobiles.

5.1.4.4 Hollywood/Highland

The Hollywood/Highland station area is in the heart of Hollywood. This area contains a mix of retail and office development serving the tourist and entertainment industries. This station area has a resident population, a transient population, and a significant population of tourists, visitors, and patrons. The resident population is 77 percent White with eight percent each Black and Hispanic and seven percent Asian. Auto traffic and pedestrian movements are high most of the day. At night, pedestrian movement is particularly heavy. Almost half of area households (46%) are without access to private automobiles, and median family income is only 57 percent of the county average.

5.1.5 VALLEY AREA

The general description of the two San Fernando Valley stations' environs, originally on pages 3-92 and 3-93 of the FEIS, 1983, is reproduced below.

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, small residential communities within the station environs. The North Hollywood Station environs are within a CRA Redevelopment 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.

5.1.5.1 Universal City

Most of the small, predominantly White, upper-middle income resident population lives 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.

5.1.5.2 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.

5.2 ASSESSMENT OF SOCIAL AND COMMUNITY IMPACTS

Social and community impacts of the New LPA alignment have been assessed in two broad categories: community cohesion and accessibility. Impacts affecting community cohesion include land use and displacements, traffic, aesthetics, and noise and vibration. Both regional and local accessibility are addressed, with particular emphasis given to special user groups. Accessibility was evaluated in terms of the availability of transit service and travel time to selected destinations.

5.2.1 COMMUNITY COHESION

Social change in neighborhoods can be perceived as both positive and negative, depending on the social values and characteristics extant within the community. A significant effort has been made to involve the community in the CORE Study planning process (refer to Chapter 6, Community Participation). As a result, the maintenance of essential neighborhood qualities, which are important to a community's cohesiveness, has been an important concern in the assessment of impacts associated with each candidate alignment. The candidate alignments have been assessed carefully to determine potential impacts relating to:

- Land Use Changes and Displacements;
- Traffic and Congestion;
- Aesthetics;
- Noise and Vibration.

A discussion of expected effects in these four evaluation categories is presented below.

5.2.1.1 Land Use Changes and Displacements

Two types of displacement, potentially affecting community cohesion, could occur as a result of the construction and operation of the Metro Rail system. Direct displacement, resulting from acquisition and removal of existing residences and commercial facilities for Metro Rail construction, has been discussed in the Land Acquisition and Displacements section of this chapter (Section 4). Generally, displacements in most station areas would be 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. Direct displacements identified in Section 4 are subject to change during Final Design.

Indirect displacement could occur as a result of transit-induced development. As documented in Section 2, Land Use and Development, increased development primarily would be a positive impact in all station environs, especially if the station is proposed within a City Center. 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. In the environs of many stations, increased development could increase community cohesion by fostering a higher degree of social and economic interaction.

Transit-induced development may be considered negative when it displaces existing uses, such as housing, commercial services, and public facilities, which are perceived by residents as vital to community cohesion. Displacements may occur either as a direct result of redevelopment or indirectly, if rents rise beyond the financial means of existing tenants. Increased rents may affect the viability of social, recreational, and cultural services which generally operate on tight budgets and can quickly feel economic pressures. Generally, the degree of impact on the cohesiveness of a neighborhood as a result of direct and indirect displacements is directly related to the degree of ethnic homogeneity, frequency of daily interaction at local social or religious institutions, and cultural and social perceptions. Probable effects on community cohesion within each of the Regional Core's community areas are described below by alignment and station location.

Mid-Wilshire Area

The anticipated conditions at each of the Mid-Wilshire area's three proposed stations are discussed below.

Wilshire/Vermont

The location of this station off-street and the presence of substantial amounts of developable land will help mitigate any negative impacts. New development may help unify existing development separated by surface parking and, thereby, increase community cohesion. Development of a Station Area Development Plan by the Los Angeles City Planning Department (in progress) should help ensure that Metro Rail becomes a positive force in enhancing community cohesion. The New LPA would require the displacement of eight commercial enterprises.

Wilshire/Normandie

Analysis contained in the Land Use section of this chapter indicates that demand for residential land may exceed supply in the Year 2000 with Metro Rail. However, the existence of a large site (the Ambassador Hotel site) in this station area and the development of a Station Area Development Plan by the Los Angeles City Planning Department (in progress) should ensure that new development enhances community cohesion. No direct displacements are anticipated in this station area.

Wilshire/Western

This station area contains substantial developable land and is the subject of a Station Area Development Plan (in progress) by the Los Angeles City Planning Department. The adoption of a Station Area Development Plan will provide a sound framework within which new development can proceed in an orderly fashion. This planning framework will help maintain and enhance community cohesion in the station area. The New LPA would require the anticipated displacement of seven business enterprises.

North Area

Metro Rail will bring increased accessibility to the North Area through service in the Vermont Avenue corridor. The anticipated land use and displacement situation for the New LPA in this corridor is presented below.

Vermont/Beverly
Vermont/Santa Monica

The Vermont Avenue corridor has growing Hispanic and Asian populations, and a significant number of households are without automobile access. Even though the areas served are not designated City Centers, Station Area Development Plans prepared for the Vermont/Beverly station area will enhance the potential for attracting new development. The New LPA is anticipated to require the direct displacement of one commercial activity in the Vermont/Beverly station area and three businesses in the Vermont/Santa Monica station area.

Hollywood Area

The Metro Rail project could play a major positive role in eliminating existing blight and stimulating redevelopment efforts in this community area. Developed in conjunction with implementation of the Community Redevelopment Agency's Hollywood Redevelopment Project, Metro Rail could be a major mitigating influence on the area's traffic problems and a source of patrons for new commercial development. Thus, Metro Rail has the potential to be a contributing factor in reestablishing community cohesion in Hollywood. Seven proposed station locations in the Hollywood community are discussed below.

Vermont/Sunset

The Vermont/Sunset Station would provide increased access to the designated East Hollywood City Center. The station would be designed in accordance with adopted SCRTD noise and vibration standards in order to avoid intrusive impacts on the adjacent hospitals. It is anticipated that the New LPA would require the direct displacement of eight commercial enterprises in this station area.

Hollywood/Western

Metro Rail, in conjunction with Community Redevelopment Agency's Hollywood Redevelopment Project, would encourage redevelopment in this station area, where market demand for new development has been low. The New LPA would require the displacement of three commercial enterprises in this station area.

Hollywood/Vine

Although only one quadrant of the Hollywood/Vine intersection is subject to immediate redevelopment, surrounding areas used for surface parking could accommodate substantial development, helping to increase community cohesion. Metro Rail would provide improved transit service for the large percentage of station area residents without access to automobiles. The New LPA would require the direct three of five commercial ventures.

Hollywood/Highland

Metro Rail would significantly aid projected commercial development in the Hollywood/Highland station area. This station area has a large proportion of vacant land and surface parking (over 20 percent). It is anticipated that Metro Rail would be a significant stimulating influence on the potential for new development. Coordination of the preparation of a Station Area Development Plan with planning efforts of the Community Redevelopment Agency, as part of the Hollywood Redevelopment Project, would ensure mitigation of any negative effects associated with extra growth.

New residential development in the Hollywood/Highland station area will probably attract residents with higher incomes. This would have the effect of raising the station area's median income and, therefore, have a positive influence on commercial activity. A rising economic level would possibly curtail the influx of different immigrant groups to the Hollywood community area, and it might slow the growth of the youth population. Although some direct residential displacements would occur, it is anticipated that a substantial amount of new development activity will take place on presently undeveloped or underdeveloped land. The New LPA would require the anticipated displacement of six commercial ventures.

Valley Area

Universal City

A description of anticipated land use changes for the Universal City station area can be found on page 3-97 of the FEIS, 1983. It is anticipated that Metro Rail will require the displacement of 136 residential units and 24 businesses in this station area.

North Hollywood

A description of anticipated land use changes for the North Hollywood station area can be found on page 3-97 of the FEIS, 1983. Metro Rail will require the displacement of fourteen residential units, 24 commercial ventures, and two non-profit organizations in this area.

5.2.1.2 Traffic and Congestion

Traffic and congestion are projected to worsen substantially in the Regional Core by the Year 2000 without Metro Rail. Mobility within neighborhoods and accessibility to activity centers and other desired destinations currently is impaired in many neighborhoods in the Regional Core, largely due to congestion and parking deficiencies. As documented in Section 1, Transportation, Metro Rail is projected to have a positive impact on such conditions by diverting a number of automobile users to transit. In the station environs, however, Metro Rail would lead to increased vehicular and pedestrian volumes on streets leading to and surrounding the stations. The impacts of the traffic and parking demands of Metro Rail users could reduce the current level of daily social interaction

at local facilities through a reduction of mobility and an adverse impact on the residents' perception of neighborhood quality.

These potential impacts have been given careful consideration in defining the route configuration and station locations of the New LPA. For some of the stations, particularly those chosen as temporary termini, bus bays will be included to avoid the problems associated with on-street bus boardings and alightings. Parking is planned at the Universal City and North Hollywood Stations with the objective of intercepting riders at these locations. Kiss-and-ride facilities are planned at four stations, and feeder bus service to the stations has been designed to support the rail system. The system and stations will be designed to minimize the impacts of "spillover" traffic and parking to adjacent neighborhoods. Additional mitigation actions are discussed in Section 1, Transportation.

5.2.1.3 Aesthetics

Properly designed stations can enhance community activity centers and promote the revitalization of declining areas. An important objective in the design of stations and joint development projects will be to ensure that Metro Rail facilities complement the environs and present an attractive architectural addition to the station area (refer to Section 7, Aesthetics). 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 the Bay Area Rapid Transit System's Lake Merritt station with its sculpture wall, and the Louvre station of the Paris Metro with its artwork and statuary.

All stations will been designed to be attractive, easily maintained, safe, and secure. Impacts on neighborhood stability and atmosphere associated with the visual appearance of an aerial guideway were the most important concerns arising from public meetings held to obtain comments from citizens, and this issue weighed heavily in the choice of the all-subway New LPA alignment.

5.2.1.4 Noise and Vibration

In community meetings, especially those held in the mid-Wilshire area to obtain public comments on route alignment and design, possible noise and vibration effects of the candidate alignments were raised as a primary factor which could disrupt overall neighborhood quality and cohesion. The subway portions of all alignments would incorporate mitigation measures such as resiliently supported ties or a floating slab track bed as needed to ensure that noise and vibration levels meet established District design standards.

With appropriate mitigation measures in place, the New LPA is not expected to have noise and vibration impacts on any structures. Expected noise and vibration impacts and proposed mitigation measures are discussed in greater detail in Section 8 of this chapter, Noise and Vibration. During final design the District will conduct additional analysis and further refine appropriate mitigation measures, as necessary, to meet project noise and vibration criteria.

5.2.2 ACCESSIBILITY

5.2.2.1 Special User Groups

One major social impact of transit improvements is the increased mobility and accessibility provided to some segments of the population. These "special user groups" typically have limited or no access to private transportation and, therefore, would be major beneficiaries of the services provided by Metro Rail. The following section identifies six segments of the community which are generally considered to be transit-dependent: minority populations, youth (ages 5 to 19 years) populations, the elderly (ages 65 years and older), the transit disabled, households without private transportation, and low-income family populations. Table 3-21 shows the representation of each of these groups within each half-mile station impact area. Metro Rail would significantly improve accessibility throughout the Regional Core for persons in special user groups.

Minority Populations

The New LPA passes through areas with significant minority populations. This characteristic is important, for nearly seventy percent of transit users in SCRTD's service area are members of ethnic minorities.

Seven of the proposed eleven stations along the route of the New LPA beyond Wilshire/Alvarado are located in communities with minority populations of 33 percent or greater. Wilshire/Normandie and Wilshire/Western each have 57 percent minority communities followed by Wilshire/Vermont (53%), Vermont/Beverly (49%), Vermont/Santa Monica (42%), North Hollywood (34%), and Vermont/Sunset (33%).

Population Ages 5 to 19 Years

Almost all of the proposed transit stations serve communities with youth populations of ten percent or greater. The only exceptions are Universal City, which serves a youth community of eight percent of the total population. The proposed Vermont/Santa Monica station would serve a youth population of 18 percent. All remaining station areas have youth populations which are ten to fifteen percent of the total population.

Population Ages 65 Years and Older

All of the communities surrounding proposed station locations have significant populations of elderly persons. The station areas with the greatest proportional population of persons aged 65 years and older are Vermont/Sunset and Hollywood/Western, each with sixteen percent.

Fifty-Five percent of the New LPA's station areas have elder populations of fifteen percent or greater (6 of 11 stations).

TABLE 3-21

SPECIAL USER GROUPS

		Portion of Total Population Group (%)					
Station Area (1)	Total Population	Minority(2)	Age: 5-19 Yrs.	Age: 65+ Yrs.	Transit Disabled (3)	Households Without Private Transportation	Median Annual Family Income ($)
Wilshire/Vermont	22,220	53	12	15	1.2	51	11,388*
Wilshire/Normandie	23,510	57	10	15	1.3	44	12,246*
Wilshire/Western	18,172	57	11	14	1.8	35	15,906*
Vermont/Beverly	15,246	49	14	12	1.2	36	12,964*
Vermont/Santa Monica	16,897	42	18	12	1.4	36	12,564*
Vermont/Sunset	12,593	33	15	16	1.0	35	15,497*
Hollywood/Western	19,497	25	13	16	1.8	37	12,264*
Hollywood/Vine	11,799	26	10	15	1.3	41	11,915*
Hollywood/Highland	18,675	23	10	16	1.2	46	12,063*
Universal City (4)	5,133	14	8	13	2.2	8	48,675
North Hollywood (4)	8,959	34	15	12	4.0	14	15,978*

*The State of California defines "Low Income" as a median family income of eighty percent or less of the county average (in Los Angeles, $16,900 or less)

(1)"Station area" is defined as that area within a one-half mile radius of the station, which includes pedestrian (1/4 mile) and auto traffic impacts.

(2)"Minority" includes Hispanic, Black, Asian, and Native American and other populations identified by U.S. Census. Percentages have been rounded off.

(3)"Transit disabled" refers to those residents of working age (16 to 65 years) with physical handicaps who cannot easily use normal transit.

(4)Information on these stations taken from Table 3-30 on page 3-100 of the FEIS, 1983.

Source: U.S. Bureau of Census, 1980

Transit-Disabled Populations

Persons of working age (16 to 65 years) with physical handicaps which restrict or prohibit normal use of transit facilities are considered to be "transit disabled". Proposed station areas with comparatively large populations of transit-disabled persons include North Hollywood, Universal City, Wilshire/Western and Hollywood/Western. To better serve handicapped patrons,

all Metro Rail Stations will be designed in accordance with the Uniform Federal Accessibility Standards.

Households Without Private Transportation

In all but two of the proposed station locations, more than one third of the households in the surrounding communities are without access to private transportation. Station communities with the highest proportions of households lacking private transportation include Wilshire/Vermont with 51 percent, Hollywood/Highland with 46 percent, Wilshire/Normandie with 44 percent, and Hollywood/Vine with 41 percent.

Low-Income Families

The 1980 median family income for Los Angeles was $21,125. The State of California defines low family income as not meeting or exceeding eighty percent of that figure ($16,900). With the exceptions of the Universal City station all of the communities to be served by Metro Rail have median family incomes below $16,900.

5.2.2.2 Local Accessibility

The Metro Rail alignments could improve local accessibility in two ways. Firstly, 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 fifteen minutes. Access to commercial services adjacent to stations would be particularly convenient for residents who commute by transit, because they would be able to shop on their way home from work. Secondly, accessibility to other destinations along the corridor is increased.

Metro Rail would significantly increase accessibility to destinations within its station environs. As an illustration, a resident of the Wilshire/Western Station environs would be able to use Metro Rail to travel to the Los Angeles City College or North Hollywood.

5.2.2.3 Regional Accessibility

Improved accessibility throughout the Los Angeles region is one of the single most important social effects arising from the Metro Rail project. Area residents will gain direct benefits through reduced travel times attributable to Metro Rail. There are a number of regionally significant employment, shopping, educational, and cultural sites within the Los Angeles region to which Metro Rail can improve access. Additionally, the effective integration of bus and other surface transportation services with Metro Rail stations will further enhance regional accessibility.

Table 3-22 exemplifies how accessibility may be improved in the Los Angeles region. Three significant trip origin locations within the region were selected and the travel times with and without benefit of rail travel were estimated to four destinations within the region. All trips reflect travel from selected

TABLE 3-22

REGIONAL ACCESSIBILITY UNDER SYSTEMWIDE ALTERNATIVES FOR YEAR 2000
(Travel Time in Minutes for Selected Trips)*

Selected Trip Origins	Null Alt.(1) Bus	New LPA Bus and Rail
DESTINATION: Los Angeles Central Business District, Seventh/Flower Station		
East San Gabriel Valley - El Monte Station	67	38
Westwood - U.C.L.A.	97	59
San Fernando Valley - Sherman Oaks Galleria	95	58
DESTINATION: L.A. City College. 855 North Vermont Avenue		
East San Gabriel Valley - El Monte Station	67	52
Westwood - U.C.L.A.	95	67
San Fernando Valley - Sherman Oaks Galleria	116	52
DESTINATION: Los Angeles County Art Museum, 5801 Wilshire Boulevard		
East San Gabriel Valley - El Monte Station	70	65
Westwood - U.C.L.A.	72	44
San Fernando Valley - Sherman Oaks Galleria	114	72
DESTINATION: Universal City/Universal Studios		
East San Gabriel Valley - El Monte Station	131	67
Westwood - U.C.L.A.	148	64
San Fernando Valley - Sherman Oaks Galleria	70	N/A

*Transit travel times based on current bus schedules, projected Metro Rail schedules, and bus routings under each condition.

N/A: Not Applicable--projected to be bus-only trips not utilizing Metro Rail. (1) Current travel time for selected trips. Speeds on non-grade separated modes (auto,bus) are projected to decrease by year 2000, due to increased development and activity in the Regional Core. (2) Metro Rail Project Travel Times sometimes include a combination of rail and bus.

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

trip origins (shown on the left column of the table) to destinations within the Regional Core (shown across the top of the table). Travel time is shown in minutes for selected trip origins. Table 3-22 indicates, for example, that a forty-two-minute travel time savings could be realized if a person traveling from the Sherman Oaks Galleria in the San Fernando Valley to the Los Angeles County Art Museum utilizes a combination of bus and rail, rather than bus-only travel.

With a selected trip destination at the Seventh/Flower Metro Rail station in the Los Angeles central business district and a trip origin at the El Monte bus station in the East San Gabriel Valley, the New LPA would have an estimated twenty-nine minute travel time savings in comparison to an all-bus trip.

5.2.2.4 Accessibility to Los Angeles County Employment

In this section, an analysis is made of the transit accessibility of jobs in Los Angeles County (Table 3-23). This comparison of the completed Metro Rail system and the Null Alternative is based on the number of jobs within a sixty-minute door-to-door travel time for seven categories of transit user groups: all household, majority (White) transit users, minority transit users (further broken down into subcategories of Asian, Black, and Hispanic transit users), 5 to 18 year old transit users, individuals aged 62 years and older, households without private transportation, and poverty-level households.

All Households in Los Angeles County

There are 3,970,164 jobs in Los Angeles County. Using transit services with the New LPA, 12.98 percent of those jobs (515,327) are within sixty-minute door-to-door travel time for all households in the county. Under the Null Alternative, 3.18 percent of countywide jobs (126,251) are within an hour's door-to-door travel time for all county households.

Majority Transit Users

With the New LPA, 412,897 (10.40%) of the 3,970,164 jobs in Los Angeles County are within a sixty-minute door-to-door transit travel time of all Whites in the county. The Null Alternative benefits only 111,165 of all countywide jobs (2.80%).

TABLE 3-23

PERCENT OF TOTAL LOS ANGELES COUNTY JOBS WITHIN 60 MINUTES DOOR-TO-DOOR TRANSIT TRAVEL TIME OF SELECTED USER GROUPS (Total Jobs in Los Angeles County - 3,970,164)*

	Null Alt.	New LPA
All Households in Los Angeles County:	3.18	12.98
Majority Transit Users in Los Angeles County:	2.80	10.40
Minority Transit Users in Los Angeles County:		
o Asians	4.21	14.80
o Blacks	3.14	18.78
o Hispanics	4.79	16.57
Transit Users Aged 5 to 18 Years:	3.04	11.74
Transit Users Ages 62 Years and Older:	3.21	13.79
Households Without Private Transportation:	4.67	18.52
Poverty-Level Households:	3.99	16.75

*U.S. Bureau of Census, 1980.

Source: SCRTD.

Minority Transit Users

Asians

Under the New LPA, 14.80 percent of the 3,970,164 jobs in Los Angeles County (587,584) are within an hour's door-to-door transit travel time for all Asian residents in the county. Under the Null Alternative, 4.21 percent of jobs (167,144) are within the one-hour travel time.

Blacks

Under the New LPA, 18.78 percent of all jobs in Los Angeles County (745,597) are within an hour's door-to-door transit travel time for all Black residents in

the county. The Null Alternative trails far behind with just 3.14 percent of countywide jobs (124,663).

Hispanics

Under the New LPA, 16.57 percent of all jobs in Los Angeles County (657,856) are within sixty minutes' door-to-door transit travel time for all Hispanic residents in the county. The Null Alternative trails with 4.79 percent of countywide jobs (190,171).

Transit Users Aged 5 to 18 Years

Under the New LPA, 466,097 (11.74%) of Los Angeles County's 3,970,164 jobs are within one hour's door-to-door transit travel time for all 5 to 18 year olds in the county. The Null Alternative benefits 120,693 jobs (3.04%).

Transit Users Aged 62 Years and Older

Under the New LPA, 547,486 (13.79%) of Los Angeles County's 3,970,164 jobs are within an hour's door-to-door transit travel time for all persons aged 62 years and older in the county. The Null Alternative benefits 127,442 jobs (3.21%).

Households Without Private Transportation

Under the New LPA, 735,274 (18.52%) of Los Angeles County's 3,970,164 jobs are within an hour's door-to-door transit travel time for all autoless households in the county. The Null Alternative benefits 185,407 jobs (4.67%).

Poverty-Level Households

Under the New LPA, 665,002 (16.75%) of Los Angeles County's 3,970,164 jobs are within an hour's door-to-door transit travel time for all poverty-level households in the county. The Null Alternative trails far behind with 158,410 jobs (3.99%).

5.3 SOCIAL AND COMMUNITY IMPACTS FOR THE NULL ALTERNATIVE

The Null Alternative will stimulate both residential and commercial development in the station areas, particularly those in the CBD. Joint development actions could further stimulate increases in the value of surrounding property, leading to either redevelopment or increased rents. It is expected that the demographic profile of the CBD will change towards a higher median income, greater automobile ownership, and a greater portion of residents being white, middle and upper income professionals. A similar trend, though to a much more limited degree, is expected in the Wilshire/Alvarado station area.

5.4 MITIGATION OF SOCIAL AND COMMUNITY IMPACTS

Table 3-24 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

TABLE 3-24

MITIGATION OF SOCIAL AND COMMUNITY IMPACTS

Mitigation Measures SCRTD Will Implement	Effectiveness (1)	Applicable Station Areas
Relocation assistance to all residents and businesses displaced by the project.	Moderate-High	All stations where direct displacement occurs.

Mitigation Measures Others Will Implement	Effectiveness (1)	Applicable Station Areas
Los Angeles Community Redevelopment Agency (CRA) to revise Hollywood Redevelopment Plan to incorporate Metro Rail.	High	Hollywood/Highland, Hollywood/Vine, Hollywood/Western
CRA to develop station master plans.	High	Hollywood/Highland, North Hollywood
City of Los Angeles to formulate Development Plans for each station area.	High	Wilshire/Vermont, Wilshire/Normandie, Wilshire/Western, Universal City
CRA and LADOP to require 15% all new housing constructed in Hollywood to be low-moderate income housing.	High	Hollywood/Vine, Hollywood/Highland, and North Hollywood.

Mitigation Options	Effectiveness (1)	Agencies that Could Implement (2)	Applicable Station Areas
1. Maintain existing low-density residential zoning or down-zone to preserve residential neighborhoods.	Moderate-High	LADOP, LADRP	Universal City
2. Provide relocation assistance to residential displaced by new development in station areas.	Low	L.A. City, CDC, CRA, LACDC, Housing Authority	All
3. Include affordable and market rate housing at stations on commercially zoned sites in lieu of increasing density in adjacent neighborhoods.	Moderate	LADOP, LADRP, CRA	Wilshire/Normandie, Hollywood/Highland,
4. Establish special rent control districts to avoid severe increases in rental rates in station areas.	Moderate-High	LA City Council, LA County, CDD, CRA, Board of Supervisors	All
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	All

(continued)

TABLE 3-24 (CONTINUED)

MITIGATION OF SOCIAL AND COMMUNITY IMPACTS

Mitigation Options	Effectiveness (1)	Agencies that Could Implement (2)	Applicable Station Areas
6. Implement measures to reduce traffic spillover into adjacent neighborhoods (see Transportation section).	Low-Moderate	LADOP,LADOT, LADRP,CRA	All
7. Provide relocation assistance to business tenants displaced by new development in station areas.	Low	CEDO, CDD, LACDC,CRA	All
8. Establish special commercial zoning or development review procedures to preserve existing small businesses that provide community services in station areas.	Moderate-High	LADOP, LADRP,CRA	All
9. Encourage tenancy and invest in joint development to displaced firms.	High	SCRTD,LADOP, CRA,LACDC,CDD	All
10. Provide density bonuses to projects for contributing to offsite housing.	Moderate	LADOP, CRA	All

(1) The following 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 impact on the community.

High - Option essentially mitigates the impact, largely be preventative action.

(2) 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
SCRTD = Southern California Rapid Transit District

Source: SCRTD

SCRTD. The Planning Department of the City of Los Angeles prepares specific plans for each Metro Rail station area except designated city redevelopment areas. The City of Los Angeles Community Redevelopment Agency will prepare station area plans for stations within existing and proposed redevelopment areas which Metro Rail will serve. Citizens Advisory Committees (CAC) will be formed for each station area and these CACs will be advising planning staffs on land use, traffic, and other types of mitigation measures to be incorporated into the Specific Plans.

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 operations, it is possible that others may be

implemented after several years of operation, as the impacts of induced development are realized.

The SCRTD will implement relocation assistance for displaced residents, tenants, businesses and non-profit organizations will be provided in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (of 1970) and the California Relocation Act as the primary mitigation measure for this impact area.

Mitigation options under consideration by SCRTD and/or other public agencies are described below. Table 3-24 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 Universal City Station, this would require leaving the existing land use plans and zoning designations unchanged in some neighborhood areas. In other areas, as well as in other station areas, it might be necessary to revise the current zoning downward from R-3 or R-4 (multi-family) 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 supplemental payments for replacement housing as a "last resort."

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. Potential implementation techniques include downzoning to reflect current development intensities and transfer of development rights and special design emphasis in individual projects. 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. This is particularly the case for parcels over which the District has control.

10. The SCRTD will have the ability to include DBE participation in joint development opportunities for District-controlled parcels.

11. The LADOP's and CRA's low-moderate income housing requirement (15 percent) could be implemented for all new housing constructed in Hollywood.

SECTION 6. SAFETY AND SECURITY

6.1 INTRODUCTION

Safety and Security were addressed in Chapter 3, Section 6, pages 3-107 through 3-111 of the FEIS, 1983. Applicable portions of that original discussion are reproduced below. Safety issues regarding mitigation measures addressing subsurface gas conditions are discussed in Section 11.1.4 of this chapter.

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 from of urban transportation. To ensure that the operation of the Metro Rail system will equal or exceed the safety systems currently in operation, safety planning has been a primary focus of 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 make an improvement over what transit patron security has been, but can also help reduce crime risks in surrounding

neighborhoods as well as 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 area outlined below.

6.3.1 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.

6.3.2 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.

6.3.3 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 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 need 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, 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.

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 stations and surrounding sites will be designed to avoid conflicts between Metro Rail-generated bus and automobile traffic and 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 properly 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.

6.5.2.1 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.

6.5.2.2 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.

6.5.3.1 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.

6.5.3.2 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 spot 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 arts program will also help give stations a more human, personalized character.

6.5.3.3 Train Security

Each 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 participate 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.

SECTION 7. AESTHETICS

Existing conditions in the Regional Core are described on pages 3-111 through 3-116 of the FEIS, 1983. Because the identification of visual impacts depends on the individual observer's perspective and sense of aesthetics, such an analysis can be extremely subjective. Experience shows, however, that the construction of a subway alignment will alter, to varying degrees, the visual setting of the community through which the system passes.

A subway alignment generally would not directly create significant long-term effects on the aesthetics or visual quality of the streetscape. Direct visual impacts would be short-term and associated with construction, especially at station areas. Indirect impacts may occur as a result of development induced in station areas. Impacts related to subsurface segments of the candidate alignments are fully addressed in the FEIS and are incorporated herein by reference.

7.1 IMPACTS OF THE NEW LOCALLY PREFERRED ALTERNATIVE

The New Locally Preferred Alternative will have relatively insignificant adverse impacts on the overall character, scale, and form of the visual setting in the Regional Core, however, changes will result from placement of station entrances, fan vent shafts, and cooling towers at stations and construction of park-and-ride, kiss-and-ride and bus loading and layover facilities.

Displacement of buildings and joint development will also affect the visual setting of some stations areas. 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.

Major park-and-ride facilities will be constructed at Universal City and North Hollywood. In each case, surface lot spaces would be supplemented by parking structures. Kiss-and-ride facilities would provided at Wilshire/Vermont, Hollywood/Vine, Universal City, and North Hollywood. Bus bays would be provided at Wilshire/Vermont, Wilshire/Western, Universal City and North Hollywood.

7.2 MITIGATION

Improving project aesthetics can take several forms, depending on the scale of facilities, for example, station entrances versus vehicle related facilities much as bus bays and parking.

For the most part, station entrances have been located where impacts to major existing structures are minimized or can be integrated into existing structures of planned future development. Where existing structures are taken, they are for the most part low rise. This is advantageous not only from the standpoint

of cost and potential redevelopment, but also from the standpoint of aesthetics as the change to the street scale is minimized.

At Wilshire/Vermont, kiss-and-ride and bus boarding and layover bays will be located mid-block with bus and auto access and egress from Vermont and Shatto. At Wilshire/Normandie, there would be a bus turnout southbound on Irolo Street where it meets Normandie south of Wilshire. At Wilshire/Western, there would be a turnout on the east side of Western north of Wilshire, with bus layover bays mid-block north of Wilshire on the east side of Western. At Hollywood/Vine, kiss-and-ride spaces would be on the east side of Argyle (one block east of Vine) north of Hollywood, again in a mid-block location. Placement of the kiss-and-ride facilities and bus bays at the above stations in mid-block locations helps screen these vehicle related functions.

Major parking facilities would be provided at the Universal City and North Hollywood Stations. Surface lots would be utilized initially, with later construction of structures ultimately bringing park-and-ride space available to 2500 at each location. At Universal City, parking would initially be spread over three lots, one adjacent to the bus terminal off Lankershim and the other two south of the Hollywood Freeway. One of the latter is the existing SCRTD park-and-ride lot. Bus terminal development and parking usage is compatible with the intense vehicle-related usages in the area (freeway and existing parking). The same is true at North Hollywood where the major parking development would occur north of the relocated Chandler Boulevard with bus bays off of Chandler and kiss-and-ride facilities to the south.

SECTION 8: NOISE AND VIBRATION

8.1 INTRODUCTION

This section presents the impacts of the noise and vibration expected from Metro Rail operations along the New LPA.

The noise and vibration criteria for the Metro Rail Project are given and compared to the predicted levels at locations along the New LPA alignment. The locations where the criteria are exceeded by the predicted levels are specified and measures recommended to mitigate these excessive levels.

Noise and vibration impacts of Candidate Alignments 1 through 6 can be found in the November 1987 Draft SEIS/SEIR and its May 1988 Addendum. Specific details regarding the study methodology and findings can be found in "Noise and Vibration Analysis for the Metro Rail Project CORE Study," Wilson Ihrig & Associates, Inc. (WIA), March 1987; an addendum to this report, "Noise and Vibration Survey for the Metro Rail Project CORE Study," WIA, August, 1987; WIA Letter to District, subject, "Noise Levels Near Television/Recording Studios," August 31, 1987; Draft, "An Assessment of Existing and Projected Noise Levels Near Radio and TV Studios and Other Sensitive Facilities on Sunset Boulevard, Hollywood," WIA, September 28, 1987; Draft, "An Assessment of Existing and Projected Noise and Vibration Levels near Studios and Other Sensitive Facilities on Sunset Boulevard," WIA, October 5, 1987; WIA Letter to District, subject, "Additional Noise and Vibration Data Concerning Proposed Metro Rail Sunset Boulevard Alignment," October 17, 1987; WIA Letter to District, subject, "Supplemental Data to WIA Noise and Vibration Report of 17 October, 1987, for Proposal Metro Rail Sunset Boulevard Alignment," October 27, 1987. These documents are incorporated into a November 1987, Noise and Vibration Technical Report. Also applicable is a WIA report on Ground-Borne Vibration Propagation investigation for the Proposed Metro Rail Sunset Boulevard Alignment, dated December 1987. The January 1983 "Technical Report on Noise and Vibration" by WESTEC Inc., contains more information on the noise and vibration criteria established for the Metro Rail Project based on a review and analysis of applicable federal, state, and local guidelines and transit industry practices. In several locations along the candidate alignments, the conditions described in the SCRTD, December 1983, Final Environmental Impact Statement (FEIS) are unchanged. These documents are incorporated herein by reference.

8.2 EXISTING CONDITIONS

Evaluation of the typical noise and vibration levels and type of occupancy in each community area provides a basis for selecting the appropriate maximum noise and vibration criteria which should be applied. Comparison of the expected performance with the criteria provides a means for determining those areas where special design features are needed to reduce the noise and vibration to levels below those for standard design facilities.

The Project noise and vibration consultant, Wilson Ihrig and Associates, determined the sensitive receptors along the alignment in terms of use, location, and type of construction based on information supplied by SCRTD and MRTC.

8.2.1 AMBIENT NOISE ENVIRONMENT

The noise environment created by air-borne noises was measured along Wilshire Boulevard in 1981 and along a short section of Lankershim Boulevard in 1982. Additional measurements of existing noise and vibration were made in 1987. The five locations along the New LPA are shown in Table 3-25.

Table 3-26 presents the results of the statistical analysis of the noise observed at each of the five noise measurement locations. All of the noise levels are presented in terms of A-weighted sound level in decibels, abbreviated dB(A). This measurement scale is used because it has become accepted as the best-compromise scale, using frequency weighting which approximates the hearing characteristics of the average human ear. The A-weighted sound level shows good correlation between the subjective response of people and communities with measured noise levels. Also, most noise ordinances, standards and specifications are written in terms of A-weighted sound level.

The measurements to determine the noise data in Table 3-26 consisted of ten minute long continuous samples of noise at the site recorded by means of a calibrated multi-channel precision magnetic tape recorder equipped with a sound level meter microphone. The recordings obtained were later analyzed to obtain the statistical distribution and other descriptors of the noise levels. The tape recordings can used in the future to obtain spectral analysis of the noise at the sites (such as octave band or 1/3 octave band analyses) and are permanently retained as a record of the noise environment existing at the time of the measurements. Most measurement sites were visited at least twice to ensure that the measured levels were characteristic. The data obtained on each day were averaged to obtain the results shown in Table 3-26.

The results of environmental noise measurements are presented in terms of a statistical analysis of the observed noise levels in decibels. The factors derived from the analysis are the levels exceeded 99 percent of the time, ninety percent of the time, fifty percent of the time, ten percent of the time, and one percent of the time designated L_{99}, L_{90}, L_{50}, L_{10}, and L_1, respectively. Sound level L_1 approximates the maximum observed noise level, or L_{max}.

Review of the sound level data obtained during the spot check or ten-minute measurements indicates that the residual background noise levels but are typical of areas with considerable street and freeway traffic at all times of day. At most locations the noise levels do show a significant decrease during the evening and nighttime hours when compared with those measured during the daytime and rush hour.

TABLE 3-25

LOCATIONS USED FOR EVALUATION OF THE EXISTING NOISE AND VIBRATION ENVIRONMENT ALONG THE NEW LPA ALIGNMENT

Location Number	Site Description
1	On sidewalk at northeast corner of First Street and Vermont Avenue, approximately 80 feet north of First Street in front of Full Gospel Church;
2	On sidewalk on west side of Vermont Avenue opposite Marathon Street, approximately 20 feet from normal curb of Vermont Avenue, in front of Braille Institute at 741 Vermont Avenue;
3	On sidewalk at northwest corner of Vermont Avenue and Sunset Boulevard, approximately 160 feet south of Sunset Boulevard in front of new hospital;
4	At perimeter of parking lot east of Barnsdall Park, near Hollywood Boulevard and Vermont Avenue, in front of H. Salt Fish & Chips;
5	On sidewalk at northeast corner of Highland Avenue and Hollywood Boulevard approximately 100 feet east of Highland Avenue.

Source: Wilson, Ihrig & Associates, Inc,. August 1987 "Noise and Vibration Survey for the Metro Rail Project CORE Study."

TABLE 3-26

ENVIRONMENTAL NOISE LEVELS MEASURED AT FIVE LOCATIONS ALONG THE NEW LPA (August 4 through 7, 1987)

Location Number	Time of Day	Date (August, 1987)	Noise Levels - dB(A) L_{99}	L_{90}	L_{50}	L_{10}	L_1	L_{eq}
1	Rush Hour	4 & 6	65	67	72	76	86	74
	Day	5 & 7	64	66	72	77	85	74
	Evening	5 & 6	62	64	70	74	80	71
	Night	5 & 7	53	58	64	71	76	68
2	Rush Hour	4 & 5	62	65	69	73	79	71
	Day	5 & 7	61	65	69	74	81	71
	Evening	5 & 6	58	63	69	73	77	70
	Night	4 & 7	56	58	66	72	77	69
3	Rush Hour	4 & 5	65	67	72	76	85	74
	Day	5 & 7	65	67	71	76	85	74
	Evening	5 & 6	60	62	67	71	79	69
	Night	4 & 6	57	60	65	72	77	69
4	Rush Hour	4 & 5	60	61	64	68	73	66
	Day	5	63	64	65	69	74	67
	Evening	4 & 5	54	58	62	66	77	66
	Night	4	54	58	62	66	74	64
5	Rush Hour	4 & 6	69	70	74	82	90	80
	Day	5 & 7	69	70	73	77	87	76
	Evening	4	68	70	72	76	83	74
	Night	6	67	70	72	80	85	75

Source: "Noise and Vibration Survey for the Metro Rail Project CORE Study," Wilson, Ihrig & Associates, Inc., August 1987.

For all of the locations, the data for L_{10} and L_1 show typical levels for a high volume of vehicular traffic on city streets. These readings are considered high noise levels for commercial and residential developed areas. At several of the measurement locations there was only a slight decrease in the L_1 and L_{10} noise levels during the evening and nighttime hours which indicates that there is a significant volume of nearby vehicular traffic at night.

The Energy Equivalent Level, L_{eq}, is widely used as a single-number descriptor of environmental noise. It is an energy integral over time and represents the constant or steady sound level which would give the same energy level as the fluctuating value integrated over the total time period. This measure is an effective descriptor of the average or typical noise exposure in a community and long-term noise evaluation descriptors such as CNEL and L_{dn} use the energy equivalent concept. As with the noise levels characterized by the other statistical descriptors, the values of L_{eq} are quite high and are due primarily to vehicular traffic on nearby streets.

As indicated in Section 8.3, criteria have been developed for ground-borne noise and vibration from train operations and airborne noise from ancillary facilities. Since the New LPA is entirely subway, criteria for airborne noise levels from train operations are not applicable and thus ambient noise levels cannot be directly compared with criteria. However, the ambient airborne noise levels are used, along with actual land use, to characterize specific areas into one of the five community category areas which are an integral part of the criteria. This process and the characteristics of each community category are described in the Metro Rail 1983 Technical Report on Noise and Vibration.

Ambient noise measurements were not made inside individual buildings since the noise inside one building is not comparable to another in the same way that the exterior noise level at a location can characterize the noise environment for an entire neighborhood. The interior noise level in a building depends on various factors, including: the noise generated by the uses within the building, the type of construction of the building, the level of exterior noise transmitted into the building, and the amount of ground-borne vibration from various sources which is transmitted into the building and reradiated as airborne noise within the building.

Because of these factors it is cumbersome and expensive to determine the ambient interior noise levels along an alignment. In addition, except in unusual situations, interior noise data do not provide significant additional information necessary to determine appropriate criteria, since this is adequately determined by exterior ambient noise measurements and actual land or building use.

8.2.2 AMBIENT VIBRATION ENVIRONMENT

The Committee on Hearing Bioacoustics and Biomechanics (CHABA) has developed a mechanism for weighting vibration velocity measurements to approximate the human response to vibration. This mechanism is described in the Metro Rail 1983 Technical Report on Noise and Vibration.

For this survey, the vibration level data were taken simultaneously with, and at the same locations as, the sound level data. Vibration acceleration was measured using a piezoelectric accelerometer, with a signal recorded on one channel of the data tape recorder. The data were analyzed to obtain a single-number velocity level, weighted in such a way to approximate the CHABA weighting previously discussed.

Although the CHABA weighting is not a standardized measurement, the resultant weighted velocity level is a good single-number indication of the human response to vibration. Weighted vibration velocity levels below about 69 dB overall level are generally imperceptible or just perceptible as vibration to the average person under normal conditions.

The weighted vibration velocity levels obtained in this manner were statistically analyzed to obtain the same statistical parameters used to describe the existing noise levels L_{99}, L_{90}, L_{50}, L_{10}, L_1, and L_{eq}.

Table 3-27 presents a complete tabulation of the statistical analysis of the weighted vibration velocity levels observed at each measurement site. In general those locations with the highest noise levels also have the highest vibration levels and vice versa, since in most cases trucks and buses which produce high noise levels also have the highest vibration levels and vice versa. However, this correlation is not always true since airplanes, motorcycles, and some cars can produce high noise levels but not necessarily high vibration levels.

Review of the data obtained shows that the vibration velocity L_{eq} ranges from 36 to 57 dB. The higher levels are typical of areas near moderately to heavily traveled streets and highways in commercial and residential areas. Comparing these data with that obtained during other environmental vibration studies performed by WIA indicates that the vibration levels are typical of those in other large cities (such as Baltimore, Chicago, or Dallas).

8.3 DESIGN FEATURES AND CRITERIA

Although a number of specific design features and the exact locations of facilities have not yet been determined, certain general assumptions have been made as to the type of structures and facilities that will be used. Structures and facilities similar to that for MOS-1 have been assumed. The standard design features for the New LPA in subway alignments include many provisions which result in much lower noise and vibration levels than are traditionally expected for a rail system. These features include such items as continuous welded rail, resilient (rubber) rail fasteners, the use of wheel and rail grinding or truing machines to maintain the smoothness of the wheels and rail, use of vehicles with lightweight trucks to provide minimum unsprung weight, and the setting of noise

TABLE 3-27

WEIGHTED OVERALL VIBRATION VELOCITY LEVELS
MEASURED AT FIVE LOCATIONS ALONG THE NEW LPA

Location Number	Time of Day	Date (August, 1987)	Weighted Vibration Velocity Levels - dB re 1 micro in/sec L_{99}	L_{90}	L_{50}	L_{10}	L_1	L_{eq}
1	Rush Hour	4 & 6	38	43	49	56	65	54
	Day	5 & 7	33	39	46	55	62	51
	Evening	5 & 6	32	38	47	55	63	52
	Night	5 & 7	24	28	40	50	60	47
2	Rush Hour	4 & 5	32	34	38	46	59	46
	Day	5 & 7	31	34	38	46	55	44
	Evening	5 & 6	26	29	34	40	52	40
	Night	4 & 7	24	26	32	38	48	36
3	Rush Hour	4 & 5	35	38	42	48	60	47
	Day	5 & 7	36	38	42	50	60	48
	Evening	5 & 6	32	34	38	44	52	42
	Night	4 & 6	29	31	36	42	52	40
4	Rush Hour	4 & 5	33	36	38	45	54	42
	Day	5	42	43	45	48	55	46
	Evening	4 & 5	26	29	34	42	52	40
	Night	4	24	27	33	41	53	40
5	Rush Hour	4 & 6	47	50	54	60	67	57
	Day	5 & 7	43	46	50	58	64	56
	Evening	4	47	48	52	58	65	55
	Night	6	49	50	52	56	65	55

Source: "Noise and Vibration Survey for the Metro Rail Project CORE Study," Wilson, Ihrig & Associates, Inc., August, 1987.

and vibration limits in the specifications and contract documents. All of these actions result in baseline noise and vibration levels for Metro Rail that are considerably less than those experienced with older systems.

As a project mitigation, the SCRTD has established strict criteria for maximum noise and vibration levels from the new transit system facilities and equipment. This is because with a new transit system it is desirable both to provide a favorable environment for patrons of the system and to minimize transmission of noise and vibration to adjacent communities, buildings and structures. Acoustical impact is a very important factor influencing community and patron acceptance of any new transportation system and, particularly, the acceptance of a new rail transit system. The procedures and facilities used for noise and vibration reduction, e.g., the use of "soft" fasteners, resiliently supported ties, floating slab trackbeds, and acoustical absorption materials depend upon the need for these features as evaluated by determining projected noise levels in comparison with the criteria for acceptable or appropriate noise levels in the community where the transit system facilities are placed. Thus, the impact of the New LPA should be and has been evaluated in terms of facilities and operations incorporating the design features recommended herein for control and reduction of noise and vibration.

As explained in the FEIS and the January 1983 "Technical Report on Noise and Vibration," the SCRTD developed a comprehensive set of noise and vibration criteria based upon a review and analysis of applicable Federal guidelines and transit industry practices. These criteria, which are explained and summarized in the following pages, specify numerical limits for allowable noise and vibration emissions for the Metro Rail Project. The criteria require control of air-borne and ground-borne noise and vibration from construction, train operations, and ancillary facilities. Noise levels experienced by patrons when riding the trains are controlled by the transit vehicle specifications.

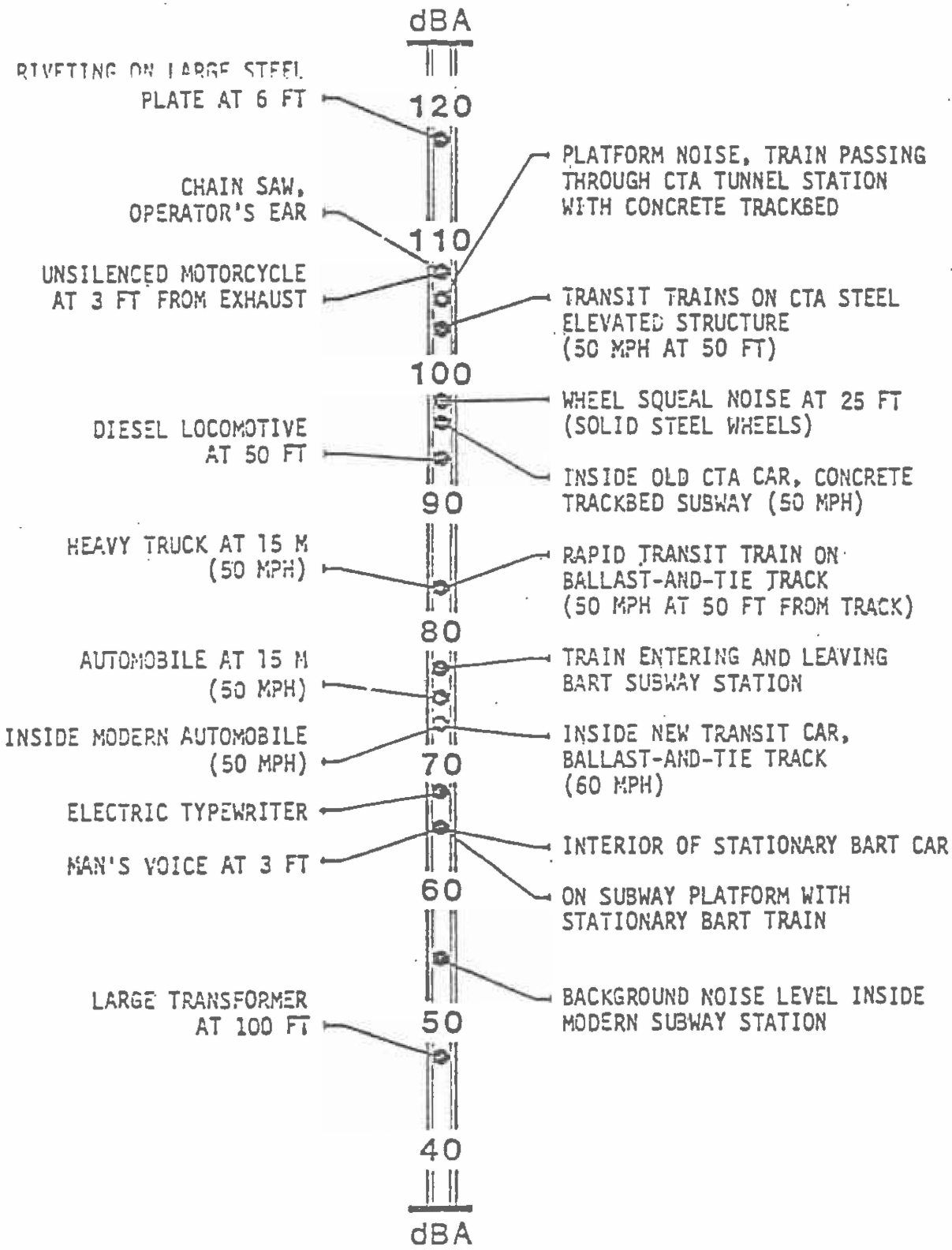
The selection of appropriate criteria and the determination of specific design features has been based on the type of occupancy of affected buildings and existing noise and vibration measurements as indicated in Section 8.4 of this chapter.

In order to assist the reader in understanding the levels of noise referred to in the criteria and in the predictions contained in this report, Figure 3-5 contains a scale of typical noise levels.

Note that the character of noise from transit trains operating at grade is different than the character of noise which arises from transit trains operating in subway. The noise from trains operating at grade is airborne and can be perceived by individuals outside of a building or inside of a building at an attenuated level after the noise has passed through the windows, doors, or walls of the building. The noise from trains operating in subway is ground-borne and can be perceived only when an individual is inside a building near the subway; outdoors ground-borne noise is inaudible. A train operating in subway creates vibration at the wheel/rail interface which is transmitted to the subway structure, to the ground, and then through the ground to a building structure where it is then radiated in the form of a low-frequency noise which can be heard and sometimes felt as mechanical vibration only inside buildings near the subway. Thus for the New LPA it is appropriate to have airborne criteria for

FIGURE 3-5

TYPICAL NOISE LEVELS



SOURCE: WILSON,IHRIG & ASSOCIATES, INC., OCTOBER 5, 1987
AN ASSESSMENT OF EXISTING AND PROJECTED NOISE AND VIBRATION LEVELS NEAR STUDIOS AND OTHER SENSITIVE FACILITIES ON SUNSET BOULEVARD"

ancillary equipment, and ground-borne noise and vibration criteria for train operations.

8.3.1 AIR-BORNE NOISE CRITERIA

Since the New LPA is all-subway, there will be no direct noise from train operations. The sources of air-borne noise will be traffic increases near the stations, and ancillary equipment such as ventilation machinery and openings.

SCRTD has set noise criteria for the maximum sound levels from related and ancillary equipment and facilities. Table 3-28 depicts a summary of the criteria. Because the noise from ancillary equipment only affects a localized area around the equipment, these criteria are set in terms of the maximum sound levels or L_{max}. Noise limits for traction power substations and emergency power generators shall be 5 dB(A) less than shown in Table 3-28, because of the obtrusive tonal components of these sources. A full explanation may be found in the 1983 Technical Report on Noise and Vibration. The criteria is generally more severe than is placed on typical residential air conditioning systems and other mechanical equipment found in residential and semi-residential/commercial areas.

8.3.2 GROUND-BORNE NOISE CRITERIA

Ground-borne noise criteria are summarized in Table 3-29. The criteria are set in terms of L_{max}. A full explanation may be found in the 1983 Technical Report on Noise and Vibration.

8.3.3 VIBRATION CRITERIA

Vibration criteria have been established based on the human response to vibration, which varies with the frequency of the vibration. Studies indicate that weighted vibration velocity levels below about 69 dB are generally imperceptible as vibration to the average person under normal conditions. Since weighted vibration velocity levels are not standardized, the criteria have been written in terms of unweighted velocity levels. These criteria are adjusted for different community area categories and for the type of receptor in the area as shown in Table 3-30. The vibration criteria are set at the maximum or L_1 for the same reasons as given in Section 8.2.1 of this chapter concerning ambient ground-borne noise.

8.4 METHODOLOGY

The noise and vibration consultant, Wilson Ihrig and Associates followed a widely accepted methodology to evaluate the noise and vibration impacts of the project. The following elements of the methodology apply equally to air-borne and ground-borne noise, and to vibrations:

- Determined the type of structures and related design features for the Metro Rail Project;

TABLE 3-28

DESIGN CRITERIA FOR NOISE FROM TRANSIT SYSTEM
FAN AND VENT SHAFTS

	Community Area Category	Maximum Noise Level, dB(A) Vent Shaft	Fan Shaft
I	Low-Density Residential	50	40
II	Average Residential	55	45
III	High-Density Residential	60	50
IV	Commercial	65	55
V	Industrial/Highway	75	65

Note: The criteria shall be applied at a distance of 50 feet from the shaft outlet or shall be applied at the setback line of the nearest building or occupied area, whichever is closer.

Source: Wilson, Ihrig & Associates, Inc. (1982).

TABLE 3-29

CRITERIA FOR MAXIMUM GROUND-BORNE NOISE
FROM TRAIN OPERATIONS

A. Residences and Buildings with Sleeping Areas

	Community Area Category	Maximum Passby Ground-Borne Noise Level		
		Single Family Dwellings	Multi-Family Dwellings	Hotel/ Motel Buildings
I	Low Density Residential	30 dBA	35 dBA	40 dBA
II	Average Residential	35	40	45
III	High Density Residential	35	40	45
IV	Commercial	40	45	45
V	Industrial/Highway	40	45	50

B. Special Function Buildings

Type of Building or Room	Maximum Passby Ground-Borne Noise Level (dBA)
Concert Halls and TV Studios	25
Auditoriums and Music Rooms	30
Churches and Theaters	30-35
Hospital Sleeping Rooms	35-40
Courtrooms	35
Schools and Libraries	35-40
University Buildings	35-40
Offices	35-45
Commercial Buildings	45-55

TABLE 3-30

CRITERIA FOR MAXIMUM GROUND-BORNE NOISE
FROM TRAIN OPERATIONS*

A. Residences and Buildings with Sleeping Areas

	Community Area Category	Maximum Passby Ground-Borne Vibration Velocity Level (dB re 10^{-6} in/sec)		
		Single Family Dwellings	Multi-Family Dwellings	Hotel/ Motel Buildings
I	Low Density Residential	70	70	70
II	Average Residential	70	70	75
III	High Density Residential	70	75	75
IV	Commercial	70	75	75
V	Industrial/Highway	75	75	75

B. Special Function Buildings

Type of Building or Room	Maximum Passby Vibration Velocity Level (dB re 10^{-6} in/sec)
Concert Halls and TV Studios	65
Auditoriums and Music Rooms	70
Churches and Theaters	70-75
Hospital Sleeping Rooms	70-75
Courtrooms	75
Schools and Libraries	75
University Buildings	75-80
Offices	75-80
Commercial Buildings	75-85
Vibration Sensitive Industrial or Research Laboratory	60-70

* Criteria apply to the vertical vibration of floor surfaces within the buildings.

- Determined noise/vibration criteria that apply to the sensitive receptors;
- Predicted the noise levels at the sensitive receptor using standard design features;
- Compared the predicted noise level for the receptor with the applicable standard;
- Determined the mitigation measures needed to reduce the predicted noise to criteria or below.

- Determined the sensitive receptors along the routes in terms of use, location and type of construction;

8.4.1 AIRBORNE NOISE METHODOLOGY

The main sources for air-borne noises from the all-subway Locally Preferred Alternative are the station ventilation openings, ancillary facilities, and the increase in traffic around the stations. The noise and vibration consultant measured the ambient air-borne noise levels for selected locations and representative receptors along the routes. A discussion of these measurements is in Sections 8.2.1 and 8.2.2 of this chapter. The consultant reviewed the design specifications of the ancillary facilities and ventilation equipment to determine that the maximum allowable sound levels were within project criteria or could be brought within the criteria with available mitigation measures. During final design the consultant will predict noise levels of ancillary facilities and ventilation equipment and select the appropriate mitigation measures to bring the noise levels within project criteria.

8.4.2 GROUND-BORNE NOISE METHODOLOGY

The noise and vibration consultant determined the type of soil and the vibration propagation characteristics for that type soil at representative points along the route. As indicated above, the consultant predicted the ground-borne noise levels at the sensitive receptor, compared the predicted noise levels with the criteria, and determined the necessary mitigation measures. Predicted noise levels are contained in the 1987 Noise and Vibration Technical Report for the CORE Study. Both the predicted noise levels and the project criteria for ground-borne noise are given in terms of L_{max}. The number of locations where the predicted levels exceed the criteria is shown in Table 3-31.

8.4.3 VIBRATION METHODOLOGY

The methodology used for determining ground-borne vibration is much the same as that used for determining ground-borne noise. The consultant determined the type of soil and the vibration propagation characteristics for that type soil at representative points along the route. The consultant then predicted vibration levels at the sensitive receptor, compared the predicted vibration levels with the criteria, and determined the necessary mitigation measures. Predicted vibration levels are contained in the 1987 Noise and Vibration Technical Report for the CORE Study. Both the predicted vibration levels and the project criteria for ground-borne vibration are given in terms of L_{max}. The number of locations where the predicted vibration levels exceed the criteria is combined with the noise level predictions and is shown in Table 3-31.

8.5 ASSESSMENT OF NOISE AND VIBRATION IMPACTS

The New Locally Preferred Alternative selected during the CORE Study is similar to the Original LPA examined and incorporated in the FEIS. Operating methods, technology applications, vehicles, and physical design of facilities are also similar. Therefore, the conclusions and findings presented in the FEIS relative to other related noise impacts are incorporated herein by reference.

8.5.1 AIRBORNE NOISE FROM RELATED SOURCES

For the all-subway New LPA air-borne noise is generated by traffic near the stations and from ventilation openings and other ancillary facilities. Section 1 (Transportation) of this chapter indicates that traffic volumes will increase up to 55% at some intersections near Metro Rail stations. Traffic volumes must double to cause a significant increase of 3 dB(A) in the neighborhood noise levels, therefore traffic increases that result from the project are not expected to cause significant increases in noise. The impacts of air-borne noise from ancillary facilities and ventilation equipment will be predicted during final design, when the exact locations are known.

8.5.2 NOISE AND VIBRATION IMPACTS FROM SUBWAY OPERATIONS

Operations of rail rapid transit systems can result in the transmission of ground-borne vibration and noise to adjacent buildings. The level of ground-borne noise and vibration reaching nearby buildings is dependent on the source level (i.e., subway operations), the intervening medium between the subway tunnel and building foundation, and the response of the building to the ground-borne vibration. To an individual inside a nearby building, the passage of a train may be perceived by the actual physical motion of the floor or objects (ground-borne vibration) or by a low frequency rumble radiating from the floor and/or walls (ground-borne noise). It should be noted that the vibration is of such a low level that there is virtually no possibility for structural damage due to the ground-borne vibration transmitted to buildings near subways.

Table 3-31 summarizes the anticipated impacts of ground-borne noise and vibration from Metro Rail trains operating in subway. These predicted impacts are representative of the kinds of impacts that will result from transit operations. They are not intended to identify all noise receptors along the New LPA alignment.

8.6 NOISE AND VIBRATION MITIGATION MEASURES

This section contains general noise and vibration mitigation measures related to design of the system, additional mitigation measures that will be applied at specific locations to meet the project criteria, and extraordinary measures that will be considered where additional measures are not adequate to meet project criteria. At the time of completion of the SEIS/SEIR, all projected ground-borne noise and vibration impacts can be brought within the project criteria by applying soft fasteners or floating slab trackbeds.

During Final Design, the noise and vibration consultant will analyze each building along the route to determine the actual uses of space, construction details, and the ambient levels.

Any one or a combination of these mitigation measures will be implemented as needed at any locations where standards are being exceeded to meet the noise and vibration criteria adopted for the project or, for unusual situations where criteria compliance cannot be achieved even with special mitigation, to meet the ambient conditions. This range of measures is expected to be adequate to mitigate noise impacts that could be generated by the Project.

TABLE 3-31

SUMMARY OF ANTICIPATED IMPACT OF GROUND-BORNE NOISE AND VIBRATION FROM METRO RAIL OPERATIONS IN SUBWAY

A. Number of Structures that Experience Impacts Without Recommended Mitigation Measures

Structure Type	MOS-1	New LPA
Commercial/Office	5(4)	9(1)
Apartments	9(3)	17(11)
Residential	1(0)	20(0)
Motel	1(0)	--
Church	--	1(0)
School	--	2(2)
Hospital	1(0)	2(2)
Theater and Museum	--	2(0)
Rec/TV Studio	--	4(0)

B. Number of Structures that Experience Impacts With Recommended Mitigation Measures

Structure Type	MOS-1	New LPA
Apartments	3(1)	--
Residences	--	--
Church	--	--
Rec/TV Studios	--	--
Hospital	1(0)	--

C. Approximate Length of Recommended Mitigation Measures for Both Tunnel Bores (feet)

Recommended Mitigation	MOS-1	New LPA
"Soft" Fasteners	--	6,900
Floating Slab Trackbed	4,768	2,600

Note: Impacts shown are for noise levels above the system criteria. Figures in parentheses are the quantity of structures impacted by noise levels 1 or 2 dB(A) above criteria.

Source: "Noise and Vibration Analysis for the Metro Rail CORE Study," Wilson, Ihrig & Associates, Inc., March 1987.

8.6.1 GENERAL MITIGATION MEASURES

Mitigation measures for noise and vibration impacts are contained in Section 8.4 of the FEIS, 1983, and are incorporated herein by reference. The mitigation measures shown below are standard design features. They were applied to the MOS-1 and will be applied to the New LPA.

- The use of continuous welded rail instead of jointed rail on the steel wheel/rail interface.
- The use of rail vehicles with lightweight trucks rather than heavyweight trucks in order to provide minimum unsprung weight.
- The use of special grinding (truing) equipment to ensure the smoothness of wheel/rail interaction.
- The use of Resilient Rail Fasteners (RRF) instead of Fixed Rail Fasteners (rigidly attached rails) as a track fixation method. These are standard features and are used on both subway and aerial guideway. They set the baseline noise levels.

8.6.2 SPECIFIC MITIGATION MEASURES

Where standard design features are not adequate to reduce noise and vibration levels additional measures will be applied:

- If necessary, the use of Resiliently Supported Ties (RST) where Resilient Rail Fasteners (RRF) are inadequate to satisfy applicable noise standards and criteria. RST's lower ground-borne noise by approximately 6 to 10 dB below baseline and ground-borne vibration by lesser amounts.
- Where needed, and when lesser measures are not adequate to satisfy project noise and vibration criteria, the use of floating slab trackbed (FST). This feature lowers ground-borne noise by as much as 15-20 dB below baseline. It also lowers ground-borne vibration by approximately 5-10 dB which is generally sufficient for the most critical locations.

For Phase 2 of the Metro Rail Project these additional measures are prescribed in several areas as follows:

Wilshire Boulevard Corridor

There are several locations where soft fasteners will be used to reduce ground-borne noise and vibration from train operations to within criteria. These locations include an office building at Sixth Street and Vermont Avenue, five office buildings at Sixth Street from Vermont Avenue to Berendo Street, and two office buildings north of Sixth Street between Berendo and Catalina Streets.

Vermont Avenue Corridor

Soft fasteners will be used at several locations to reduce ground-borne noise and vibration from train operations to within criteria. These locations include one office building on the northwest corner of Sixth Street and Vermont Avenue, six apartments on New Hampshire Avenue north of First Street. At the Hollywood Presbyterian hospital at Vermont and DeLongpre Avenues, floating slab trackbed will be required to reduce the noise from trains operating through a crossover.

Hollywood Boulevard Corridor

Soft Fasteners will be used to reduce noise and vibration levels from train operations at eleven apartments north of Hollywood Boulevard between Sycamore and La Brea Avenues to within criteria.

North Hollywood

There are several locations where soft fasteners will be used to reduce noise levels from train operations to within criteria. These include the Saint Charles Borromeo Church at Lankershim Boulevard and Moorpark Street, a recording studio at Lankershim Boulevard and Landale Street, and the Guild Theatre on Lankershim Boulevard north of Hartsook Street. Floating slab trackbed would be used to reduce noise and vibration levels to within criteria at ten residences southwest of Lankershim and Ventura Boulevards, ten residences along Willowcrest Avenue north of Valley Heart Drive, three recording studios on Lankershim Boulevard near Huston, Hesby, and McCormick Streets, and at El Portal Theatre on Lankershim Boulevard at Weddington Street near a cross-over.

For the New LPA, the approximate length of adopted mitigation measures for both tunnels is 6,900 feet of soft fasteners and 2,600 feet of floating slab trackbed.

8.6.3 EXTRAORDINARY MITIGATION MEASURES

In situations where the floating slab trackbed is not adequate to meet project noise criteria, the District will consider the following:

- Non-standard floating slab design;
- 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;
- Crossover relocation;
- Rail system structure modification;
- Minor shifts in horizontal and/or vertical alignment;

Final Design may discover cases where the ground-borne noise or vibration levels generated by subway train operations will exceed the project criteria even with

the application of floating slab trackbed or extraordinary mitigation measures. In such cases, where the interior ambient noise or vibration levels are so high that the additional noise contributed by subway train operations will not increase noise significantly above ambient levels, SCRTD may forego further mitigation measures. Although it is not expected now, there is a small possibility that for economic or technical reasons it would not be feasible to mitigate all noise or vibration impacts. In such cases, such impacts would remain as unmitigable over the long term.

8.6.4 FAN AND VENT SHAFTS MITIGATION MEASURES

These facilities will be designed to minimize noise intrusion by including the following specific mitigation measures.

- Cellular glass and mineral fiber applied to the wall and ceiling surfaces of the shafts to maximize absorption;
- Standard duct attenuators;
- Contract specifications requiring certified maximum sound power levels for the fans.

8.6.5 ANCILLARY FACILITIES MITIGATION MEASURES

These facilities, including power substations and emergency power generation equipment, will be modified to minimize noise and vibration using the following specific mitigation measures:

- Below-ground location of power transformers;
- Total enclosure of noise source;
- Absorption material embedded within the facility;
- Barrier walls surrounding the source;
- Sound attenuators on fans and ducts;
- Special mufflers.

SECTION 9. AIR QUALITY

The Metro Rail project is located within the South Coast Air Basin (SOCAB), which includes 6,580 square miles of the Los Angeles metropolitan area. Included within this air basin are the highly urbanized portions of Los Angeles, San Bernardino, and Riverside Counties and all of Orange County. Existing air quality conditions and future projections are summarized from the SCRTD Technical Report on Air Quality (1987), which is incorporated herein by reference.

For a discussion of air quality impacts during Metro Rail construction, refer to Section 15.7 of this chapter, "Air Quality Impacts."

9.1 EXISTING CONDITIONS

Section 9.2 of Chapter 3 of the 1983, FEIS, covers the conditions to be found in the SOCAB and discusses air pollution meteorology, air quality standards, study area air quality, the local air quality setting, and consistency with regional transportation planning. This material is summarized below in sections addressing air quality standards and consistency with regional transportation planning.

9.1.1 AIR QUALITY STANDARDS

The State of California and the Federal Government each have established air quality standards for various pollutants. These standards are set at or below levels with a sufficient margin to protect public health and welfare.

The South Coast Air Quality Management District (SCAQMD) monitors air quality at numerous locations in SOCAB, three of which are within the study area. A summary of air quality data collected at study area monitoring stations for the year 1986 is provided in Table 3-32. Federal standards were not met for ozone, carbon monoxide, and nitrogen dioxide. Except for sulfur dioxide and lead, SOCAB has been designated a nonattainment area for each of the primary pollutants. California failed to meet the 1982 attainment standard deadline for total suspended particulate matter and the 1987 deadline for carbon monoxide and ozone. EPA has imposed restrictions on major developments as a consequence of this failure.

9.1.2 AIR QUALITY MANAGEMENT PLAN AND 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: the Regional Transportation Plan (RTP) and the Air Quality Management Plan (AQMP). The RTP provides the basis for projecting future growth and associated traffic patterns and for determining the emissions changes associated with that growth. In the Southern California Region, the AQMP is the regional component of the State Implementation Plan (SIP), prepared pursuant to the federal Clean Air Act. The AQMP currently has a long-range target of reducing reactive organic gases (nitrogen oxides and hydrocarbons) by fifty tons per day through transportation management and design.

TABLE 3-32

AIR QUALITY SUMMARY FOR STUDY AREA MONITORING STATIONS, YEAR 1986

Contaminant / Station	Days Exceeding State Standards	Days Exceeding Federal Standards	Maximum Air Contaminant Concentrations	Air Quality Standards State Standard	Air Quality Standards Federal Standard
o Ozone					
West Los Angeles	81	30	.20 ppm	.10ppm/hr	.12ppm/hr
Los Angeles CBD	99	48	.22 ppm		
Burbank	142	93	.28 ppm		
o Carbon Monoxide					
West Los Angeles	0	0	11 ppm	9ppm/8 hr and 20ppm/hr	9ppm/8 hr and 35ppm/hr
Los Angeles CBD	2	2	13 ppm		
Burbank	21	16	19 ppm		
o Nitrogen Dioxide					
West Los Angeles	0	annual standard met	.24 ppm	.25ppm/hr	.5ppm annual average
Los Angeles CBD	7	annual standard exceeded	.33 ppm		
Burbank	2	annual standard exceeded	.28 ppm		
o Sulfur Dioxide					
West Los Angeles	0	0	.02 ppm	.5ppm/24 hr	.14ppm/24hr
Los Angeles CBD	0	0	.03 ppm		
Burbank	0	0	.02 ppm		
o Total Suspended/ Particulate Matter					
West Los Angeles	NM	0/1(a)	175 ug/m	NM	Primary 260 ug/m 24 hr
Los Angeles CBD	NM	0/3(a)	235 ug/m		Secondary 150 ug/m 24 hr
Burbank	NM	0/3(a)	241 ug/m		
o Lead					
West Los Angeles	0	0	0.45 ug/m	1.5 ug/m 30-day average	1.5 ug/m quarterly average
Los Angeles CBD	0	0	0.64 ug/m		
Burbank	0	0	0.74 ug/m		

Notes: (a): Primary/Secondary
ppm: Parts Per Million
ug/m: Micrograms per cubic meter,
NM: Not monitored.

Source: "Air Quality Data, 1986," SCAQMD

9.2 IMPACT ASSESSMENT

9.2.1 IMPACT MEASURES AND ASSESSMENT METHODOLOGY

Impacts on air quality have been assessed from three perspectives: consistency with air quality management and regional transportation planning; a subregional analysis; and a micro scale analysis. The subregional analysis provides estimates of project-induced emissions savings for the five primary pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. Emission estimates were related to vehicle miles of travel (VMT) of passenger vehicles. The micro scale analysis, examining carbon monoxide (CO) concentrations, used a combination of methodologies, including CALINE 3, and a screening procedure based on idle-time levels and emission changes related to speed changes. Carbon monoxide concentrations pertinent to both the federal one-hour and eight-hour standards were assessed. Existing and projected background CO levels reported in the 1983 FEIS (Table 3-36) are incorporated herein by reference.

9.2.2 CONSISTENCY WITH AIR QUALITY AND REGIONAL TRANSPORTATION PLANNING

To the extent that Metro Rail reduces automobile VMT, trip generation, and/or congestion by diverting trips to transit, it is consistent with the long-range strategies of the AQMP and, therefore, the Clean Air Act. The Metro Rail Project is in conformance with the AQMP, because 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.
- The Southern California Association of Governments (SCAG) has found that the project is consistent with the adopted SCAG 82 growth forecast.
- The Metro Rail project has been part of the SCAG Regional Transportation Plan (and listed on the applicable transportation project list) for a sufficient number of years.

The proposed action is also consistent with, and a part of, the Regional Transportation Plan for Southern California.

9.2.3 SUBREGIONAL ANALYSIS

A pollutant burden analysis was performed in the FEIS, 1983 (pg. 3-141) to determine the areawide regional vehicular emissions without Metro Rail. The "pollutant burden" is the total amount of pollutants emitted in a given time period. In this case, it represents the total daily amount of pollutants, in tons and by type, that would be emitted by passenger vehicles in the region in the year 2000. Table 3-33 presents the added benefit of the New LPA over and above the Null Alternative.

If patronage on the New LPA is lower than SCRTD projections, the air quality benefits would also be less.

TABLE 3-33

DIRECT REGIONAL AIR QUALITY BENEFITS - NEW LPA
YEAR 2000
(TONS/DAY REDUCTION OF POLLUTANT BURDEN FROM NULL ALTERNATIVE)

Pollutant	New LPA
Carbon Monoxide	5.44
Reactive Hydrocarbons	0.34
Oxides of Nitrogen	0.69
Sulfur Dioxide	0.06
Suspended Particulates	0.20
TOTAL	6.73

Source: General Planning Consultant.

9.2.4 MICROSCALE ANALYSIS

A screening methodology was used to determine what intersections would experience the greatest increase in carbon monoxide (CO) as a result of the project. The analysis assumes that negative impacts will be limited to those intersections identified in the traffic analysis as "critical," i.e., those intersections that would experience an increase in traffic due to the project (see Section 1.2 of this chapter). For the most part these were intersections immediately adjacent to or very near the station locations.

The critical-intersection analysis identified total approach volumes and critical approach volumes for each intersection for the Null Alternative and the New LPA. Based on current traffic projections, most of the identified intersections would operate at a level of service F in the year 2000, even before station-related traffic is considered. Level of service F in the context of this analysis implies that the theoretical capacity of the intersections would be exceeded. The approach taken here is to describe the relative impacts of station traffic by assuming that increased traffic results in increased delay and/or a speed reduction for vehicles passing through the intersections.

The traffic impact analysis produced an estimate of the capacity utilization of each "critical" intersection (most of these are in excess of 100%). The increased delay (idle-time) or reduced speed at each intersection for the New LPA is determined by finding the product of total approach volume and capacity

utilization for a given intersection and comparing this to the equivalent product for the Null Alternative. An increase in total vehicle idle-time was estimated for intersections already at level of service F. For intersections not already at level of service F, the introduction of new traffic to an intersection would slow traffic. Reduced travel speeds would result in increased CO emissions. Thus, CO impacts can be estimated by multiplying the appropriate emission factor for the Null Alternative speed times the Null Alternative volume and comparing this to the emission factor appropriate to the lower speed times the higher project volume. The speeds and emission factors associated with each level of service for 2000 are shown below (these factors are derived from information from a May 1986 run of EMFAC7, the California air pollution emissions factor model, supplied by the California Air Resources Board):

- Level of service A - 30 mph - 5.4 grams per mile
- Level of service B - 25 mph - 6.7 grams per mile
- Level of service C - 18 mph - 9.2 grams per mile
- Level of service D - 14 mph - 10.9 grams per mile
- Level of service E - 10 mph - 13.0 grams per mile
- Level of service F - 7 mph - 15.1 grams per mile
- Idle emission factor - 0 mph - 1.8 grams per mile.

The above procedure predicts a burden of CO based on delay. The methodology employed in the technical memorandum for the FEIS translated this burden into a concentration. It assumed that for small changes in traffic emissions the change in CO concentrations equals the change in the hourly emission factor (in grams/mile/hour) divided by the dispersion factor calculated from CALINE 3 (a CO dispersion model). For purposes of impact analysis, a change in local CO concentrations of 2 ppm for one hour was considered significant.

Translation of the burden at an intersection into a concentration permitted the screening of intersections to determine which, if any, might experience significant changes in CO concentrations. It should be noted that the methodology actually overstates the potential CO impacts because it is expressing the impacts of total approach volumes. Table 3-34 lists intersections where, under the New LPA, potentially significant increases in CO concentrations could occur.

TABLE 3-34

INTERSECTIONS WITH POTENTIALLY
SIGNIFICANT INCREASES IN CARBON MONOXIDE LEVELS - NEW LPA

1. Normandie/Olympic
2. Lankershim/Chandler
3. Sunset/Cahuenga
4. Vermont/Olympic
5. Wilshire/Crenshaw
6. Wilshire/Western
7. Lankershim/Cahuenga
8. Vermont/Wilshire
9. Sunset/Vine
10. Lankershim/Ventura
11. Lankershim/Burbank

Total Intersections: 11

Source: General Planning Consultant.

9.3 MITIGATION OF AIR QUALITY IMPACTS

The Metro Rail Project constitutes a planned air quality benefit for the region but will create minor, localized, adverse air quality impacts. Project-related traffic will contribute to local CO concentrations at a number of intersections through associated increases in congestion and reductions in the level of service. However, because CO standards will be exceeded at these locations even without the project, Metro Rail 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 these locations, which in turn will minimize air quality problems. Measures include restricting parking near intersections, restricting and/or prohibiting left turns, restriping, modifying signal phasings, widening approaches, providing reversible lanes, encouraging ridesharing and employer-sponsored transit-use incentive programs, providing feeder bus services to Metro Rail, providing secure bicycle and motorcycle parking at Metro Rail stations, providing preferential parking to carpools and vanpools at stations with parking, and conducting public information programs to promote voluntary trip reductions and publicize feeder bus service.

SECTION 10. ENERGY

This section discusses the energy implications of the project options. Energy use estimates for automobiles and buses based on Vehicle Miles Traveled (VMT) were compiled, and where applicable, a comprehensive energy use analysis of the rail alignments was added. 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 discussion of energy impacts during the construction of the New LPA, refer to Section 15.8 of this chapter, "Energy Requirements."

10.1 EXISTING CONDITIONS

The description of the sources of electrical power for the Los Angeles Region and the regional usage of electrical and petroleum energy is contained in Section 10.2 of Chapter 3 of the FEIS, 1983. Electrical power is obtained from plants throughout the western states, although nearly half is produced within the Los Angeles Basin by steam generating plants. Gasoline sales for the year 2000 are projected at 4,140 million gallons.

10.2 IMPACT ASSESSMENT

The energy analysis takes into account both day-to-day operating and maintenance energy, and the one-time, front-end energy uses required to construct both vehicles and the guideway system. Energy use for construction of physical facilities (including vehicles) has been annualized over the anticipated lifespans of the facilities. The energy analysis splits energy use into five areas as follows:

- Subway construction;
- Vehicle manufacture;
- Vehicle maintenance;
- Vehicle propulsion;
- Station operations.

Subway construction energy was estimated on a "per mile" basis using the same factor reported in the FEIS, 1983. This factor, which includes station construction, is 585 billion BTUs per mile. Miles of subway were multiplied by the factor and divided by an anticipated fifty year lifespan to yield estimated annual energy consumption for construction. Auto, bus, and rail manufacturing, maintenance, and propulsion energy were based on vehicle miles of travel (VMT) by mode for each alternative. Rail VMT was calculated based on the proposed operating schedule and the length of the lines. Car miles rather than train miles were used. Car miles were estimated by multiplying the number of train runs by the number of cars in each run. The VMT factors in the FEIS, 1983 (Table 3-40, page 3-147 and Table 3-41, page 3-148) were utilized for rail vehicle manufacturing. Rail maintenance energy was calculated based on shop building electrical energy requirements and the power required to move rail vehicles within the yard. Vehicle propulsion was calculated using computer simulations that are sensitive to such system parameters as cars per

train,vehicle weight, alignment, grade and curvature. Station operation energy was based on the number of stations. Annualized station operating energy factors were the same as those used in the FEIS.

As indicated in Table 3-35, the New LPA results in substantial energy savings compared to the Null Alternative, as fewer street vehicles would be manufactured, driven and maintained. If patronage on the system is lower than SCRTD projections, energy savings be less.

TABLE 3-35

REGIONAL TRANSPORTATION ENERGY SAVINGS - NEW LPA
(YEAR 2000, ANNUAL BILLIONS OF BTUs, COMPARED TO NULL ALTERNATIVE)

Energy Category		
Construction		
o Subway		-206
Vehicle Manufacture		
o Auto	482	
o Bus	11	
o Rail	-13	
Subtotal		480
Vehicle Maintenance		
o Auto	701	
o Bus	10	
o Rail	-152	
Subtotal		559
Propulsion		
o Auto	2280	
o Bus	405	
o Rail	-335	
Subtotal		2350
Operations		
o Subway Station		-424
Total Annual Energy Savings		2,759

10.3 MITIGATION OF ENERGY IMPACTS

The SCRTD evaluated numerous energy conservation options for the construction and operation of Metro Rail. Sections 10.3.1 and 10.3.2 below are drawn from Section 10.4 of Chapter 3 of the FEIS, 1983. These measures relate to propulsion energy conservation and station and facility design and are still applicable, except as described.

10.3.1 PROPULSION ENERGY CONSERVATION

The measures that reduce propulsion energy use are summarized below. Significant kinetic energy is typically wasted when a rail train decelerates. Metro Rail will utilize "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.

SCRTD will recapture some of the energy used to stop trains through regenerative electrical braking, a generally proven technique. This energy would otherwise be dissipated into the subway as heat, requiring additional ventilation and cooling. Regenerative braking pumps energy back into the traction power system so that one train's braking energy can serve another train's acceleration.

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. An automatic control system for train speed which promotes coasting has been implemented. Rail vehicles are designed and operated so that they are switched off whenever not in service. In addition, the traction system has been designed so that it can eventually be integrated with any adjacent future electrical transit systems such as trolley buses and light rail systems. During subsequent design it has been determined that MOS-1 will not share electricity generated by regenerative braking with the Long Beach-Los Angeles Light Rail because the largely at-grade Long Beach-Los Angeles Light Rail will cause stray-current corrosion problems for the MOS-1 subway. It would not be practical to provide adequate corrosion control if the two lines were interconnected to share regenerated electricity. However, the Metro Rail Seventh/Flower Station will still be able to supply emergency backup power to the adjoining Light Rail Subway Station in the event of loss of the normal light rail traction power supply.

"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. After discussing the technique with the Transit Technical Advisory Committee, SCRTD decided not to adopt "Gravity Profiling."

10.3.2 STATION AND FACILITIES DESIGN

Measures to reduce stations and facilities energy use are summarized below. Opportunities for saving energy in and around stations can come from integrating station design and construction into stores, offices, and apartment complexes.

During Final Design, every aspect of station design will be reviewed in order to minimized 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. In the maintenance yard, cold water will be utilized for vehicle washing. The track layout will be designed to minimize non-revenue vehicle movements. All major Metro Rail facilities (the yard, administrative buildings, individual stations, sections of the traction rail, etc.), except the car wash facility, 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 if station parking were not provided.

10.3.3 CHANGES TO MITIGATIONS FROM MOS-1 STATION AND FACILITY DESIGN EFFORTS

Solar pre-heating for station domestic hot water has been found not to be cost effective. The District has determined that the storage of energy captured from regenerative braking is not feasible because of excessive equipment costs. Further, it is not likely that adjacent developments could use energy recaptured from regenerative braking. Sharing of regenerative braking energy with the Long Beach-Los Angeles Light Rail Line has been found to be infeasible because of problems with stray-current corrosion.

SECTION 11. SUBSURFACE CONDITIONS

An extensive investigation of subsurface conditions was conducted as part of the CORE Study to determine the potential for encountering subsurface gas (including methane) along the proposed Metro Rail route. The Study has evaluated the potential for encountering subsurface gas by identifying gas migration pathways, and analyzing data on underground oil and gas reservoirs, abandoned oil, gas and water wells, and geologic and seismic characteristics. An analysis of recent and past combustible gas monitoring data was also undertaken.

The evaluation of subsurface conditions was conducted in response to a methane gas explosion and fire at the Ross Store at Third Street and Ogden Drive, March 24, 1985. In the appropriations bill for the first 4.4 mile segment of the 18.6 mile Metro Rail system there was an amendment added to the bill stipulating that no part of the Metro Rail project may involve tunneling into or through any "potential risk zone" as identified by the Los Angeles City Task Force Report dated June 10, 1985.

Passage of the amendment to H.R. 3244 followed extensive examination of the circumstances and conditions surrounding the explosion and fire at the Ross Store. Following the explosion and fire, the City of Los Angeles convened a special task force to investigate the cause of the fire and to make recommendations to prevent recurrence. In addition, the SCRTD convened an independent board of review to discuss and provide recommendations on various elements of the Metro Rail Project potentially impacted by the presence of subsurface gas concentrations. Since that time, as a result of intense public scrutiny of the causes of the fire, there have been numerous studies completed that specifically deal with the methane and oil/gas well issues relating to the Metro Rail Project. Of particular significance are:

- "City of Los Angeles Task Force Report on the March 24, 1985 Methane Gas Explosion and Fire in Fairfax Area," June 10, 1985.
- "Board of Review Report of Construction and Operation in Gaseous Areas," September 5, 1985.
- "A Board Report of Independent Review Board - Designs, Construction, and Operation in Gaseous Areas," October 31, 1984.
- "Report of the Independent Technical Review Committee Evaluation of the MOS-1 Portion of the Los Angeles Metro Rail Project," January 3, 1986.

Discussion in this document regarding subsurface conditions focuses on the existence and hazards of methane gas and oil/gas wells, geologic formations, and hydrologic conditions along the New LPA route. The six candidate alignments are discussed in the Draft SEIS/SEIR of November 1987 and its May 1988 Addendum. The findings and conclusions that follow reflect existing data and information in the FEIS as well as additional data and information developed in the ongoing and evolutionary process of responding to the engineering and environmental

issues which have arisen during the design and implementation of the Metro Rail project.

11.1 SUBSURFACE GAS CONDITIONS

11.1.1 EXISTING CONDITIONS

Extensive investigation of the possibility of encountering subsurface gas was accomplished and reported in "CORE Study Subsurface Conditions Report: "An Evaluation of Methane Gas Potential Along Candidate Alignments of the Los Angeles Metro Rail Project" (Engineering-Science, May 1986), which is incorporated by reference. Gases investigated during the subsurface conditions analysis were hydrocarbon gases. These gases are combustible when mixed with oxygen. While numerous forms of hydrocarbon gases are found in association with hydrocarbon reservoirs, the most common is methane gas. Methane gas typically constitutes more than ninety percent of the gas cap in an oil reservoir, and the term "gas" as used herein refers to methane gas.

Methane gas is combustible in air, and a methane-air mixture in the range of about five to fifteen percent methane (by volume) can explode. A mixture with more than fifteen percent methane will burn, but will not explode. Methane does not burn underground, because the flame cannot "flash back" through a hole that is smaller than about one-eighth of an inch in diameter.

The possible presence of gases from leaks in gas mains, liquid hydrocarbon (fuel) tanks, or pipelines was not evaluated, because the location of these manmade sources is known. The design and maintenance of these sources can be monitored and, if leaks should occur, repaired.

11.1.1.1 Source of Gas

Oil and Gas Fields

The major potential source of gas which may be encountered during the construction of Metro Rail is the existing inventory of hydrocarbons below the Los Angeles area. Natural hydrocarbon accumulations (oil and gas fields) are reservoirs of liquid or gaseous hydrocarbons under pressure. The amount of pressure increases with the depth of the field. Hydrocarbon reservoirs tend to be of two types: (1) liquid hydrocarbon reservoirs (principally crude oil mixed with water) and, (2) gas hydrocarbon reservoirs (principally gases). Most reservoirs have a mixture of these two types of hydrocarbons. Oil reservoirs have a "gas cap," and gas reservoirs have some liquids that would condense out if the reservoir were at atmospheric pressure.

The term "reservoir" may lead one to envision a subterranean pool of liquid oil or gas. In fact, oil or gas reservoirs are layers of sandstone or other permeable geologic structures that permit the accumulation of a liquid or gaseous substance within the pore spaces of the formation. Furthermore, there must be a barrier associated with the formation so that the oil or gas accumulates underground rather than disperses to the surface or to other formations. It is not until the barrier is compromised, either through deliberate penetration in

the creation of an oil or gas well or as the result of geologic movement, that the oil or gas can escape.

Hydrocarbon reservoirs are under substantial pressure due to the weight of the overlying strata. For example, the pressure of a reservoir at 7,000 feet would be over 3,000 pounds per square inch (psi). Thus, oil or gas released from a deep reservoir may be at substantial pressure. The pressures in oil or gas reservoirs increase as a function of depth from the surface.

Biogenic Gas

Oil and gas reservoirs have developed over millions of years under high temperature and pressure conditions. There is, however, another natural, gas-producing process: the decomposition of plant or animal matter in the absence of oxygen. This process results in the generation of methane gas such as occurs at landfills. When this gas is released from decaying detritus on the bottom of stagnant lakes or other standing water, it is usually referred to as swamp gas. Where the decaying organic matter is overlain by a physical barrier as noted above, a zone of gas-impregnated soil or rock may develop. A disturbance to the confining barrier could result in the escape of gas.

11.1.1.2 Possible Gas Pathways

To estimate the likelihood of gas occurring in the area in which underground construction would take place (approximately the first 100 ft. below the surface), the ways in which gas can travel to the near surface from a possible source must be considered. Two situations can be envisioned. In the first and most common situation, the gases diffuse through the porous soil materials. The rate of movement of the gas depends on the pressure of the gas at the source and the transmissibility of the soil. For example, gas passes more easily through dry, young alluvium than older, more consolidated materials. Also, soil saturated with water will be a greater barrier than will the same soil if it is dry. Soils that are saturated with fluid hydrocarbons, such as oil, tar, or asphalt can also provide a barrier to gas movement.

The second possible situation is one in which gas trapped at high pressure in one location is permitted to move to another. This is done intentionally when a well is drilled into a deep, pressurized reservoir to obtain the oil or gas for use; but this situation may also occur inadvertently or naturally. The following sections describe ways in which reservoirs of subsurface gas may escape to the surface or travel to other underground locations.

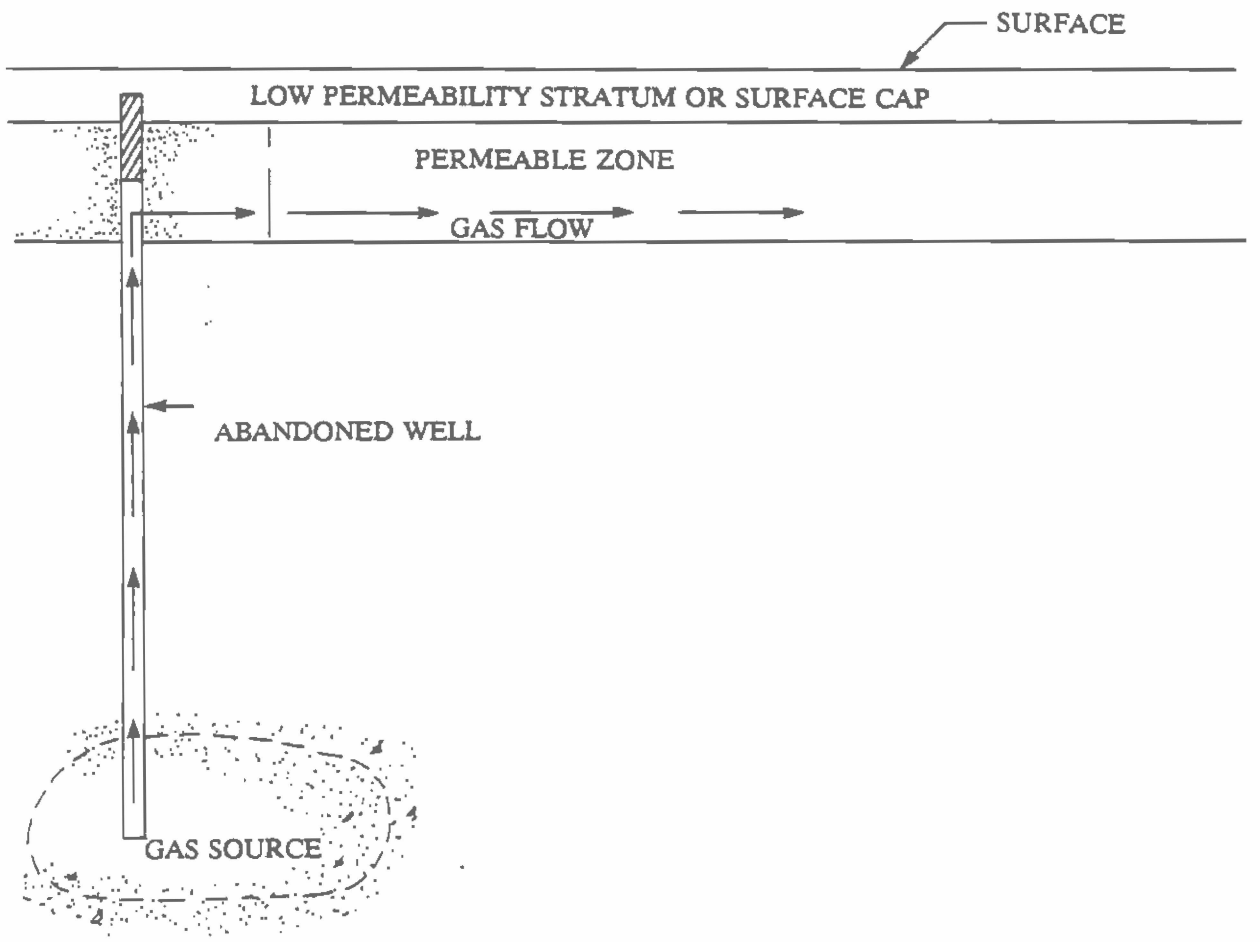
Abandoned Wells

Movement of gaseous hydrocarbons can occur via improperly sealed, abandoned oil wells. The gas would leave the well through holes in the well casing and would move through a horizontal, permeable stratum. Figure 3-6 illustrates this process by which methane gas could be transferred to the near-surface zone.

If the above process were to occur continuously, then gas should be present throughout the permeable stratum. The pressure would be dependent upon the pressure in the casing, the leakage rate from the casing, distance from the

FIGURE 3-6

GAS MIGRATION THROUGH
AN ABANDONED WELL



casing, and the nature of the overlying stratum. Gas monitoring probes may detect the escaping gas.

If the abandoned casing were pressurized and the gas did not escape, then gas would not be detected by the shallow probes. If the gas were released only periodically or released on a one-time basis from the casing, then the shallow monitoring probes would not indicate an upcoming episode. Also, it is possible that hydrocarbon gas could migrate between confining formations via producing or abandoned water wells.

Geologic Faults

The possible role of faults in the transmission or movement of gas is difficult to define due to the complex mechanisms involved and the lack of knowledge about the structure and behavior of specific faults. Two situations have been considered. The first considers how past fault movements have changed underground structures and how this relates to gas presence and movement; the second considers how movement along a fault might affect gas movement.

Shifting of the earth along a fault plane may create a passage that would allow the relatively free movement of subsurface gas. On the other hand, continued small movements along a fault may grind the materials at the points of movement into a fine powder ("gouge") that seals the passage and prevents easy movement of gas along the fault. Also, the displacement of strata relative to each other (as a result of ground movement along a fault plane) can trap oil and gases. Such trapped gases might be released in the future if seismic activity were to open a passage for the gases to escape.

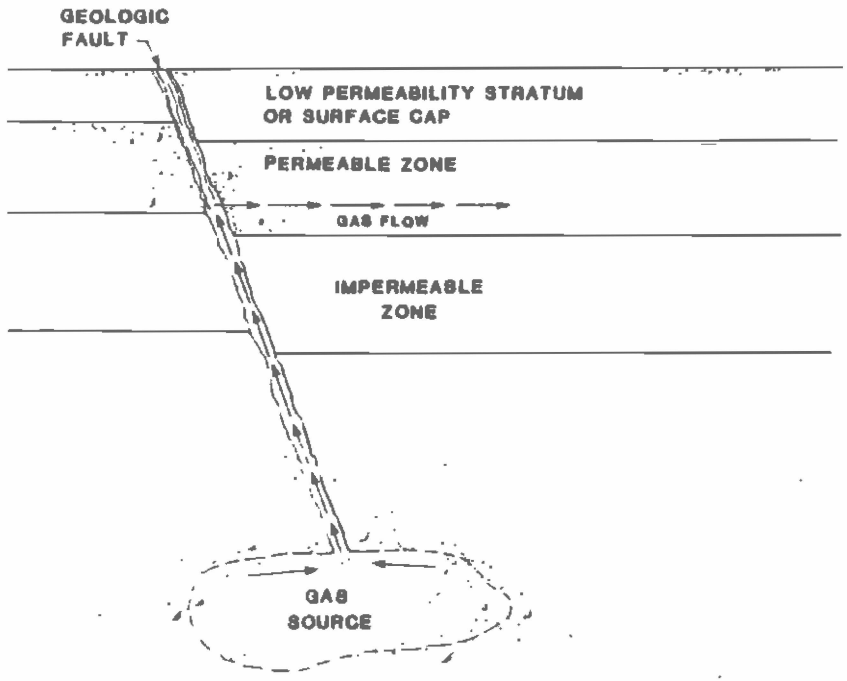
Figure 3-7 illustrates the potential role of a geologic fault in the transmission of gas from a subsurface reservoir to the surface zone. The amounts and pressures of gas around a subway tunnel would depend in part on the distance of the tunnel from the fault, the permeability and thickness of the zone, and the degree to which geologic layers permit gases to escape to other formations and/or the atmosphere.

Figure 3-8 shows how a fault can trap gas. The illustration depicts an inactive reverse fault that has not fractured the near-surface alluvium. The fault is sealed so that no gas can accumulate except where the older strata has been warped. The upper alluvial strata are neither oil- nor gas-bearing.

Diffused Gas

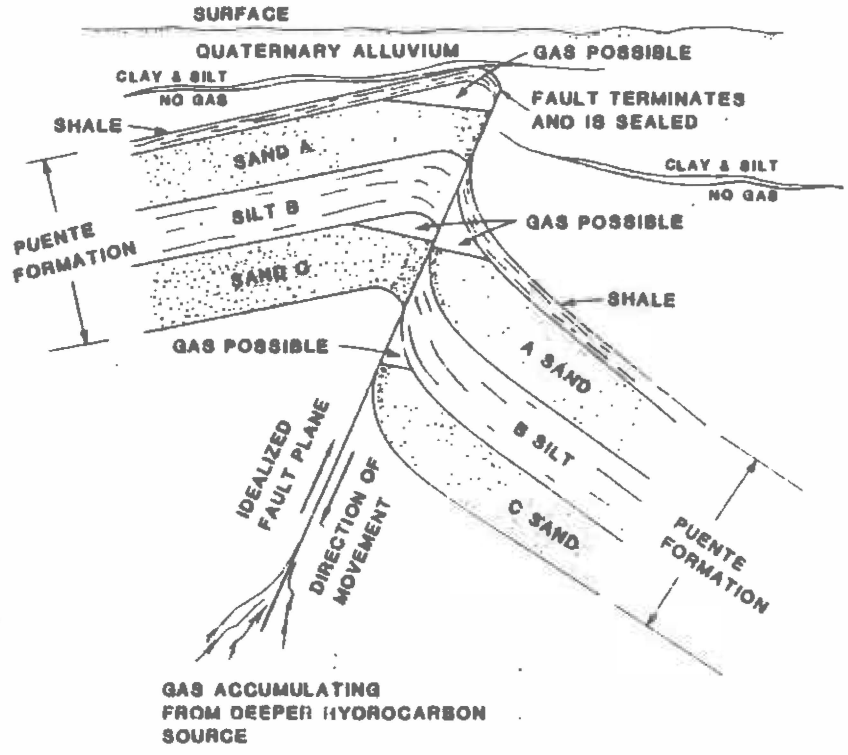
Gas may move into the near-surface zone by diffusion from deeper sources. Factors influencing the amount of gas at a tunnel alignment would be the presence of a deep reservoir, the permeability of the formation through which the tunnel passes, and the presence of a confining cap which may cause increasing gas pressures around the tunnel.

FIGURE 3-7



GAS MIGRATION IN GEOLOGIC FAULTS

FIGURE 3-8



SUBSURFACE GAS ACCUMULATION IN AN INACTIVE REVERSE FAULT

11.1.2 IMPACT ASSESSMENT FRAMEWORK

11.1.2.1 Data Sources

This section summarizes the data that were obtained in support of the CORE Study and previous analyses of subsurface conditions, especially gas. Detailed data are contained in Appendices to "CORE Study Subsurface Conditions Report," and Chapter 3, Section 11 of the FEIS, 1983, which are incorporated by reference.

Geologic Characteristics

Information collected about the geological characteristics of the area include:

- o Surface and near-surface soils
- o Subsurface strata
- o Depth to groundwater
- o Locations of faults
- o Locations and depths of oil reservoirs.

Most of the data were available from technical literature, reports, drilling permits, and other sources of existing public information. Key sources include the California Division of Oil and Gas, the U.S. Geological Survey, and the geological consultants, Converse, Ward, Davis, Dixon/Earth Science Associates/Geo/Resource Consultants. This information was supplemented by data obtained in a field investigation.

The field investigation consisted of drilling 51 holes, 40 to 88 feet deep, for installation of gas probes. In a 1983 study, Engineering Science installed 64 probes. Figure 3-9 shows these location of the probes. The shaded area represents the New LPA alignment. During the drilling of the probe holes, the soil cuttings brought to the surface by the drill bit were examined to determine the structure of underground formations.

The near-surface geology of the area is characterized primarily by four types of formations:

- o Alluvial Fan, composed of silt, sand, gravel, and boulders, which is primarily unconsolidated and granular but dense material.
- o Young Alluvium, a similar composition and consisting of loose, recent deposits of sands and gravels.
- o Old Alluvium, containing more fine-grained and cohesive material (clay, silt, sand, and gravel).
- o Puente Formation, composed of claystone, siltstone, and sandstone with some local hard sandstone beds.

The San Pedro Formation, composed of cohesionless sands (sometimes impregnated with oil or tar), is also found in the area, but is not exposed at the surface. Most of the surface of the Regional Core is overlain by alluvium. In the Core's eastern portion, the Puente Formation reaches the surface.

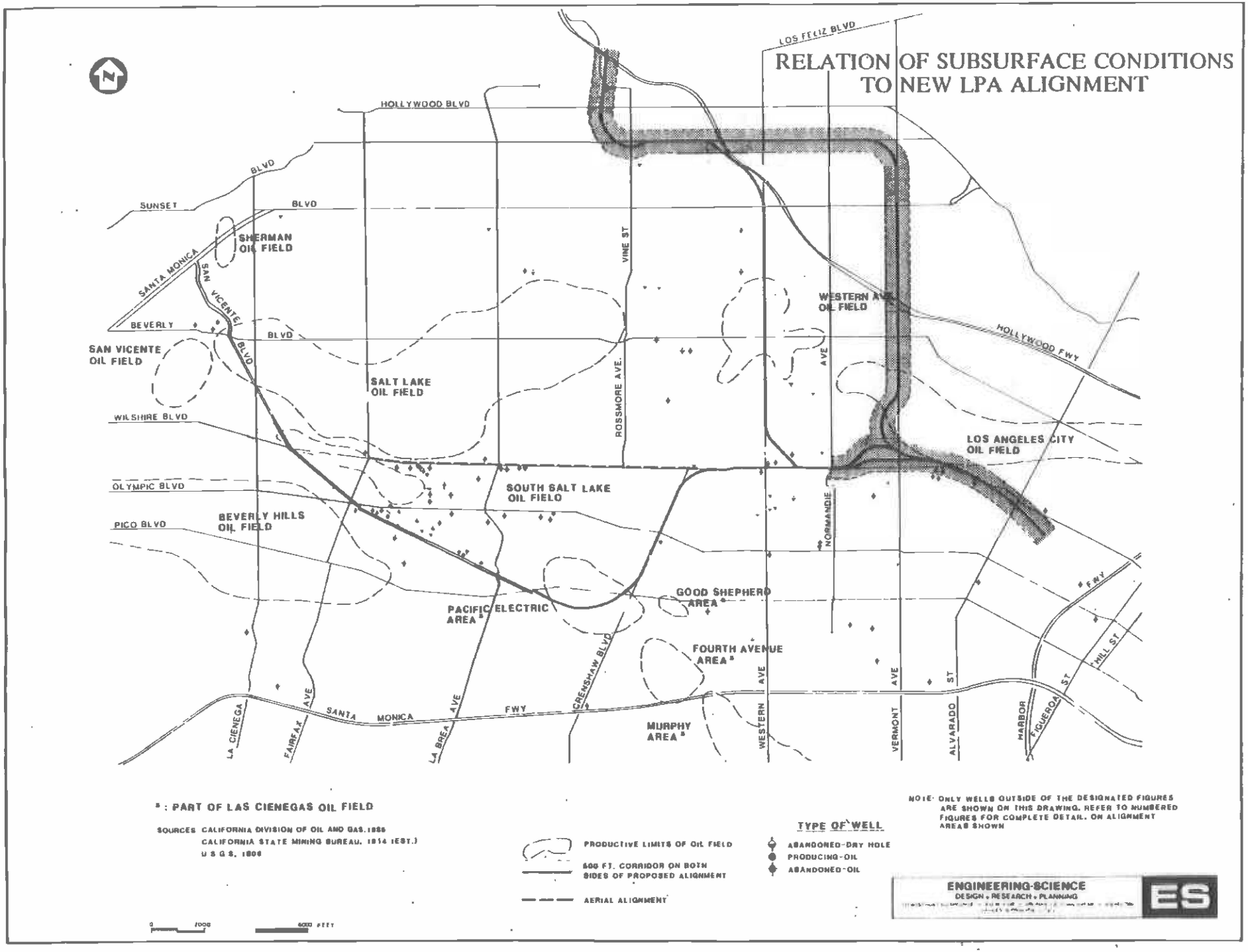

RELATION OF SUBSURFACE CONDITIONS TO NEW LPA ALIGNMENT
LOS FELIZ BLVD
HOLLYWOOD BLVD
SUNSET BLVD
SHERMAN OIL FIELD
SANTA MONICA BLVD
SAN VICENTE BLVD
BEVERLY BLVD
SAN VICENTE OIL FIELD
VINE ST
ROSSMORE AVE.
SALT LAKE OIL FIELD
WESTERN AVE. OIL FIELD
HOLLYWOOD FWY
WILSHIRE BLVD
OLYMPIC BLVD
SOUTH SALT LAKE OIL FIELD
LOS ANGELES CITY OIL FIELD
PICO BLVD
BEVERLY HILLS OIL FIELD
NORMANDIE AVE
GOOD SHEPHERD AREA
PACIFIC ELECTRIC AREA
FOURTH AVENUE AREA
CRENSHAW BLVD
MURPHY AREA
LA CIENEGA
FAIRFAX AVE
SANTA MONICA FWY
LA BREA AVE
WESTERN AVE
VERMONT AVE
ALVARADO ST
HARBOR FWY
FIGUEROA ST
HILL ST
: PART OF LAS CIENEGAS OIL FIELD
SOURCES CALIFORNIA DIVISION OF OIL AND GAS. 1986
CALIFORNIA STATE MINING BUREAU. 1914 (EST.)
U S G S. 1906
PRODUCTIVE LIMITS OF OIL FIELD
500 FT. CORRIDOR ON BOTH SIDES OF PROPOSED ALIGNMENT
AERIAL ALIGNMENT
TYPE OF WELL
ABANDONED-DRY HOLE
PRODUCING-OIL
ABANDONED-OIL
NOTE: ONLY WELLS OUTSIDE OF THE DESIGNATED FIGURES ARE SHOWN ON THIS DRAWING. REFER TO NUMBERED FIGURES FOR COMPLETE DETAIL ON ALIGNMENT AREAS SHOWN
ENGINEERING-SCIENCE
DESIGN • RESEARCH • PLANNING
ES
0
1000
6000 FEET

FIGURE 3-9

The locations of known faults are shown on Figure 3-10. Eleven faults and two folds (synclines and anticlines) have been identified in the study area. They are:

- o Santa Monica Fault
- o Sixth Street Fault
- o San Vicente Fault
- o Los Cienega Fault
- o Third Street Fault
- o MacArthur Park Fault
- o Hollywood Fault
- o Four unnamed faults
- o Hollywood Syncline
- o Los Angeles Anticline

Only two of the above faults are considered active or potentially active. "Active" faults are those that are believed to have moved within the last 10,000 years. "Potentially active" faults are believed to have moved between 10,000 and 2 million years ago. The Hollywood fault and the Santa Monica fault are considered potentially active. Geologists estimate that the probability of a Richter magnitude seven earthquake associated with these faults (or any other faults in the area) in the next 100 years is five percent.

The New LPA Mid-Wilshire Segment intersects the MacArthur Park Fault and another unnamed fault between Alvarado Street and Vermont Avenue. The North Segment (along Vermont) of the New LPA intersects the Los Angeles Anticline near Beverly Boulevard.

The Hollywood Boulevard segment of the New LPA intersects the Santa Monica Fault just west of Normandie Avenue. The Valley segment intersects the Hollywood Syncline and the Hollywood Fault.

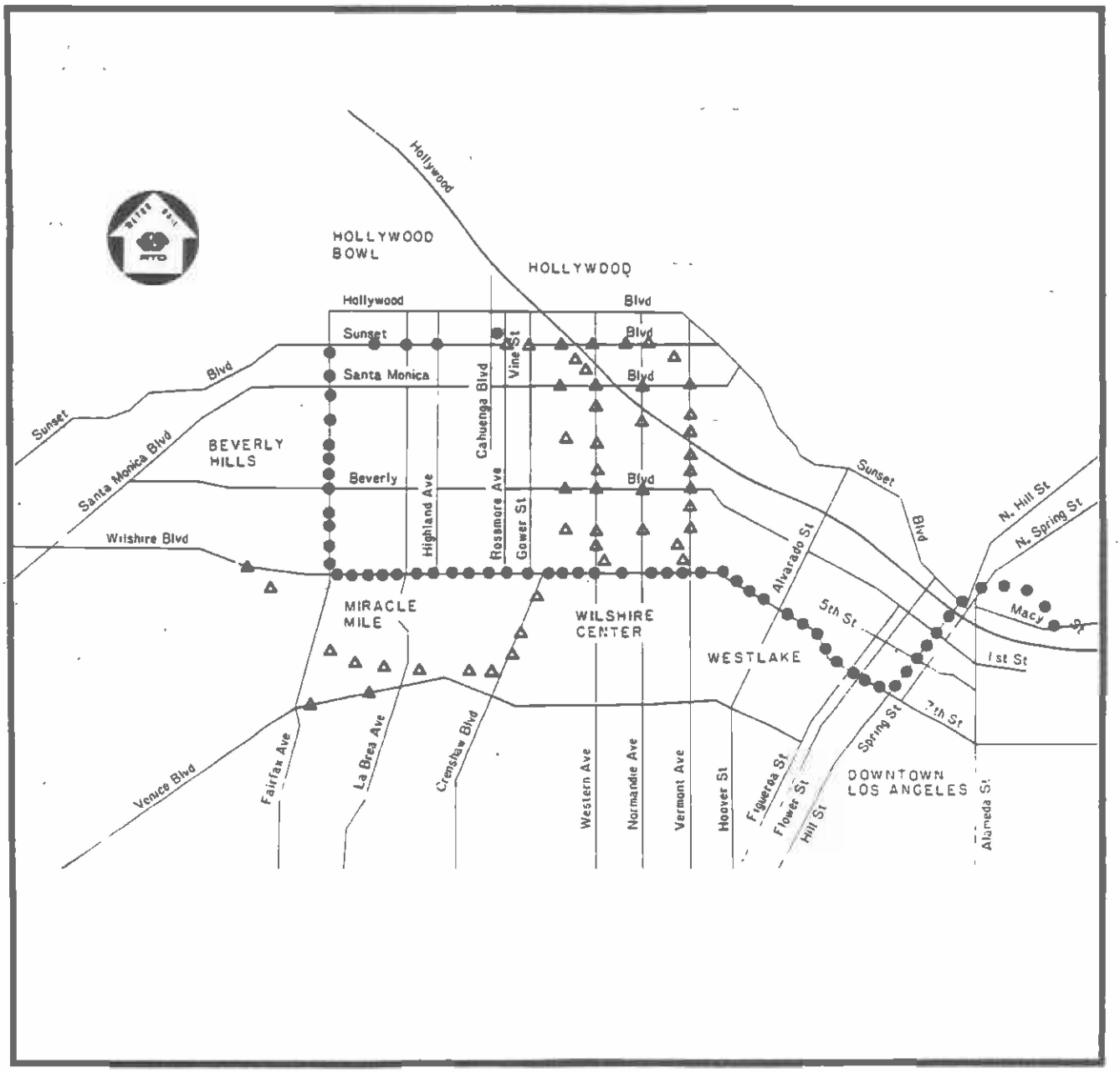
Oil field locations also are shown on Figure 3-10. Eight known oil fields have been identified in the study area. They are:

- o Los Angeles City Oil Field
- o Western Avenue Oil Field
- o Las Cienegas Oil Field (encompassing the Murphy, Fourth Avenue, Good Shepherd, and Pacific Electric Areas)
- o Beverly Hills Oil Field
- o South Salt Lake Oil Field
- o Salt Lake Oil Field
- o San Vicente Oil Field
- o Sherman Oil Field

The Mid-Wilshire Segment and the North (Vermont Avenue) Segment of the New LPA cross over or near the Los Angeles City Oil Field in the area of Wilshire Boulevard and up Vermont Avenue nearly to Beverly Boulevard. This field is estimated to be at a depth of 375 feet. This is the only oil field in the path of the New LPA.

FIGURE 3-10

LOCATIONS OF GEOLOGICAL PROBES



EXISTING PROBES (1983)
NEW PROBES (1985)

SOURCE: ADAPTED FROM CORE STUDY SUBSURFACE CONDITION REPORT, MAY, 1986

Information on groundwater was obtained from the drilling program. Water was found in virtually all of the holes drilled. The groundwater depth ranged from twenty to forty feet on the North Segment of the New LPA.

The hydraulic conductivity or permeability of a formation describes the relative ease or difficulty which fluids (liquids or gases) have in moving through it. Coarse sands have a higher permeability than silty clays and, therefore, would permit gas to move through more easily.

Data on permeability were not obtained during the 1986 drilling program; however, some of the data obtained during the 1981 Converse field investigation are applicable to the New LPA alignment. Those data show that there is a wide range in the permeabilities of the formations studied. For example, the San Pedro Formation is about 1,000 times more permeable than the Puente Formation.

Gas Measurements

Subsurface gas conditions along the New LPA alignment have been investigated by Engineering Science and reported in the Subsurface Conditions Report (1986). The program consisted of monitoring both the sampling probes installed in 1986 and the probes that were installed in 1983. The program consisted of initial gas monitoring during drilling of borings, a second set of measurements upon completion of the probe installations, and two subsequent monitorings four to fourteen days later. Water levels in each boring were measured during the drilling. Portable gas detectors were used to monitor new borings for combustible gas. The presence of hydrogen sulfide (if detected by smell) was noted, and gas pressure was measured.

Gas data are reported in percent by volume of combustible gas and pressure in pounds per square inch (psi). The concentrations of hydrogen sulfide, when measured, are reported in parts per million (ppm). Concentrations of up to approximately four percent were recorded along Vermont Avenue. Data also show pressures of up to 0.24 psi along Vermont Avenue and up to 7 psi along Wilshire Boulevard.

11.1.2.2 Well Locations

Oil and Gas Wells

Information about oil and gas wells in the project area was obtained from the California Division of Oil and Gas records, including the Regional Wildcat Map for this area. Early California State Mining Bureau and U.S. Geological Survey maps were inspected for the presence and location of wells.

The location of a number of dry wells or boreholes was determined. While such wells do not necessarily indicate the presence of a deeper hydrocarbon reservoir, they may serve as potential channels for gas movement. There exists in the vicinity of Vermont Avenue a high occurrence of abandoned oil wells.

To pursue further study of such well characteristics as depth of drilling and abandonment conditions, additional records from the Division of Oil and Gas and State Mining Bureau were obtained. These records consisted of Special Reports

on Operations Witnessed, Well Summary Reports, Well Completion Reports, Abandoning Reports, Proposed Operations and oil and gas well logs. Many records were incomplete or unavailable, and many were dated from the early 1900's.

Many of the wells in the Los Angeles City Field were drilled during a period from the mid 1800's to the early 1900's. The earliest wells were drilled with springpole cable tools or were hand dug. Early wells which were completed with steel pipe casing used a lightweight casing called "stove pipe." The stove pipe was often a slip joint connection type of liner.

Early abandonment methods were not as thorough as those used today. Old wells were filled with bricks, wood, and refuse to bridge the hole, then packed with soil and clay. This abandonment procedure left the well in a condition to be a potential conduit for gas movement from one zone to another. Recent abandonment procedures require that wells be sealed completely, and there is little likelihood of gas escaping through a properly sealed well.

Water Wells

Water well information was obtained from the State of California Department of Water Resources (DWR) and the County Flood Control District. Well locations were obtained from well logs, well reports, and visual inspection. There are many wells identified on the DWR maps that do not have corresponding logs or other data in DWR files.

Water wells have been drilled in the area at least since the 1880's. Recording of water well data was haphazard until the late 1940's. This change was due to the passage by the State Legislature of Chapter 1552 of the "Statute of 1949." Under this law, since codified as Section 13751 of the California State Water Code, water well drillers were required to submit, to the DWR, logs of wells drilled. Section 13752 requires that a report be submitted to the DWR within thirty days of the plugging or destruction of a well.

The data for wells drilled before 1951 are public information available for inspection; all of the files for these wells were reviewed. The data for wells drilled after 1951 are considered confidential information under state law and were not available. Data were available for 46 of the 179 wells identified in the study area.

11.1.2.3 Uncertainties in the Data

The data collected for this study are as complete as possible at this time. There are, however, some limitations to the data that should be kept in mind. Groundwater depths were measured in 1983. Additional measurements were taken in 1988, and piezometers have been installed for additional readings during final design. Significant influence on shallow groundwater levels can result from local and short-term events. Thus, one severe rainstorm will result in an observable change in groundwater levels.

The hydrocarbon reservoir data were compiled from public information, including California Division of Oil and Gas records. Information on hydrocarbon

reservoirs is generally considered by oil exploration or development companies to be highly proprietary and confidential.

The identification of geological formations was made from disturbed auger bit samples rather than from continuous cores. Mixing of materials in the samples from uphole sloughing may affect the accuracy of the lithological data. In some cases, the underlying formation was not penetrated, and continuity assumptions were made from boreholes on either side. Additionally, a borehole provides data only for that sampling location. Variations in strata in all directions from a borehole are not unusual, and sampling at even nearby locations may yield different results.

11.1.2.4 Assessment Methodology

The central question with respect to subsurface conditions is the likelihood of encountering gas in the vicinity of the subway tunnel. The observed presence of gas in an area over a period of time is, of course, a convincing indicator. However, the absence of observed gas in an area at this time cannot be taken as evidence that gas might not be present in the future. This is the reason for identifying the possible mechanisms by which gas might appear near or at the ground surface as noted in Section 11.1.1.2. These mechanisms or pathways were the basis for evaluating the candidate alignments, using the following criteria:

- The types of soils between the ground surface and the bottom of the proposed tunnels;
- The shallowest level of observed groundwater along the alignments;
- The number of faults crossing or near the candidate alignments;
- The length of the New LPA alignment over or near known oil fields;
- The depth of known oil fields that are under the alignment;
- The number of known oil wells within 500 feet of the alignments;
- The number of known water wells within 500 feet of the alignments;
- The observed presence (and concentrations) or absence of gas along the New LPA alignment.

A discussion of each of these evaluation criteria is provided below.

Geological and Soil Characteristics

The gas permeability of subsurface soil surrounding the tunnel is important. The Puente Formation is less permeable than Young Alluvium, for example. Thus, if gas is present at some distance from a tunnel in the Puente Formation, other factors being equal, less gas will flow towards the tunnel than if the tunnel were in Young Alluvium.

The permeability of soil in the surface layer also is important. If the surface soils are porous and there is no relatively impermeable covering (e.g., concrete or asphalt), gases in the ground can escape to the atmosphere and would be less likely to accumulate around the tunnel. Conversely, asphalt or impermeable soils in the surface layer could trap gases rising from below.

The presence or absence of impermeable surface covering has not been considered in this analysis, because it may change with time. Areas may be developed with greater impermeable surface coverage, and areas now developed might be redeveloped with less impermeable surface coverage. Therefore, the conservative approach used in this study is to consider all areas to be covered with an impermeable surface.

Level of Groundwater

If the tunnel is below the watertable, the soils around the tunnel would be saturated, and gases could not move as freely from one point to another as they could in dry soil. If the watertable rises from below a gas reservoir, it could increase the pressure on the gas in the reservoir and force it to the surface. This mechanism is thought to have occurred in the Ross Store explosion and fire.

Presence of Faults

The potential presence of faults crossing or near the New LPA alignment is considered important for the following reasons:

- Oil fields are often associated with faults;
- Faults can create conditions where gases can be trapped and accumulate underground;
- Fissures may form in the vicinity of a fault as a result of ground movement, and these fissures could provide a relatively unobstructed path through which gases, if present, might move easily.

The amount of coincidence between the tunnel alignment and potential methane gas sources raises the opportunity for problems to occur or develop over time. The linear distance or length of each of the candidate alignments in close proximity (within 500 ft.) to oil fields was measured.

Presence of Oil Fields

Oil fields typically have accumulations of gases; therefore, the distance of an alignment from an oil field is important. The depth of the field should also be considered. Petroleum geologists use a rule-of-thumb relationship which states that the pressure in an oil or gas field in pounds per square inch (psi) is 0.43 times the depth of the field in feet. For example, if a field is 2,000 feet below the surface, the pressure in the reservoir will be about 860 psi. We have assumed that deeper oil fields are more likely to be a source of gas than are shallow fields, because there is a greater distance from the field to the surface in which there may be more opportunities for significant quantities of gas to be trapped and accumulate. Also, if a direct route to the near-surface

strata is created, the gas from a deep field will travel more easily at a higher pressure than gas associated with a shallower field.

In the absence of information, it was not possible to predict accurately the volume of gas in any of the underlying hydrocarbon reservoirs identified. Thus, while the productive limits of known oil fields are shown on Figure 3-10, data on the possible volumes is not available.

Wells

Improperly abandoned wells can provide a route for gases to move easily and quickly from deep strata to the near-surface strata. Given the lack of detailed and accurate information on all wells or knowledge of how the wells were abandoned, it has been assumed that the number of unknown or improperly abandoned wells is proportional to the number of known wells. It is not possible to define accurately a zone outside of which an alignment would not be influenced by gas moving toward the surface through a well. Consequently, a distance of 500 feet on each side of the alignment centerline was chosen, because that distance provided a large sampling of the total number of wells in the area.

Oil wells are of greater concern than are water wells. Oil wells obviously are associated with oil fields and their associated gases. Also, oil wells generally are deeper than the water wells.

Observed Presence of Gas

The last but possibly most important criterion is the observed presence or absence of combustible gas and its concentration as measured by the probes installed along the candidate alignments. This criterion is based on direct measurements and, therefore, recorded data are considered to be of particular significance. The other criteria are considered to be theoretical predictors of the possibility that gas may be present now or in the future; however, it is uncertain whether these conditions would ever be realized in the appropriate combination to result in gas being present near the ground surface.

The actual detection of gas is indicative that conditions have occurred in the necessary combination to result in its presence. Furthermore, it is reasonable to assume that history can repeat itself; if gas were present in the past, it can be present again in the future. Finally, the observed concentration and pressure of gas are important. A high concentration may be associated with a large quantity of gas in the soil, and a higher pressure may provide a greater volume of gas.

11.1.3 IMPACT EVALUATION OF THE NEW LPA

To facilitate the evaluation of subsurface conditions, the New LPA alignment was divided into segments. These segments, used during the CORE study of subsurface conditions, are listed in Table 3-36; summary of the data for each segment is shown in Table 3-37. These data show that, from the standpoint of the likelihood of encountering subsurface gas, the analysis segments can be ranked on a

TABLE 3-36

NEW LPA ALIGNMENT SEGMENTS

Segment	Description
Wilshire-1	Wilshire Boulevard from Alvarado to Vermont
Wilshire-2	Wilshire Boulevard from Vermont to Western
Vermont	Vermont Avenue from Wilshire to Hollywood Boulevard (c)
Hollywood-1	Hollywood Boulevard from Vermont to Cahuenga
Hollywood-2	Hollywood Boulevard from Cahuenga to Highland

Source: CORE Study Subsurface Conditions Report, "An Evaluation of Methane Gas Potential Along Candidate Alignments of the L.A. Metro Rail Project," prepared for Metro Rail Transit Consultants, prepared by Engineering- Science, May, 1986.

continuum, as shown in Table 3-38.

There is a significant difference between the northern and southern portions of the New LPA alignment. Gas is more likely to be found in the area around Vermont Avenue than the affected section of Wilshire Boulevard. Given that no part of the area can be considered free of gas, all subsurface facilities should be constructed using standard precautions and gas mitigation measures to ensure the safety of the system.

11.1.4 MITIGATION OF SUBSURFACE IMPACTS

An extensive technical data base was developed to investigate the occurrence of subsurface gas. That data base and the findings drawn from it will be applied to define specific safety design measures to be incorporated into the Metro Rail Project. In addition, construction safety requirements will comply with the regulations of the California State Division of Safety and Health. The applicable controlling provisions of the California Administrative Code (Title 8, "Industrial Relations," Chapter 4: "Division of Industrial Safety," and Subchapter 20: "Tunnel Safety Orders") are among the most stringent tunnel safety orders in the country. These procedures have been adopted and are being applied to MOS-1 construction.

TABLE 3-37

DATA SUMMARY FOR THE NEW LPA ALIGNMENT SEGMENTS

CRITERION	WILSHIRE - 1	WILSHIRE - 2	VERMONT	HOLLYWOOD - 1,2,(c)
Soil Types	Puente(a) Formation	Puente(a) Formation	Puente Formation north	Alluvium
Groundwater levels with respect to tunnel	Mostly above tunnel	Mostly above tunnel	Mostly above tunnel	Mostly above tunnel
Number of faults	2	0	1	1
Length of alignments over or near known oil fields	1,000 ft.	0 ft.	1,500 ft.	0 ft.
Oil field depth	375 ft.	Not Applicable	375 ft.	Not Available
Number of oil wells within 500 feet	0	0	104	0
Number of water wells within 500 feet	1	0	2	0
Number of probes with observed gas/total number of probes	6/6(b)	5/6(b)	7/14	1/3
Maximum measured gas (% by volume)	4.0%	2.0%(b)	5.0%	0.1%
Maximum measured pressure (psi)	0.18(b)	0(b)	0.22	0

(a) Probable classification of Foundation Engineering, Inc. data.
(b) Includes 1983 gas probe data.
(c) Hollywood Boulevard segment assumed to be similar to Sunset Boulevard, although no probes were placed along Hollywood Boulevard. See Draft SEIS/SEIR for information on Sunset Boulevard.

Source: Adapted from CORE Study Subsurface Condition Report, May 1986.

TABLE 3-38
NEW LPA
LIKELIHOOD OF ENCOUNTERING SUBSURFACE GAS

Most Likely----------Least Likely

Group 1	Group 2	Group 3	Group 4
None	Vermont Wilshire-1 Hollywood-1 (East Section) Hollywood-2	Hollywood-1 (West Section)	Wilshire-2

Source: CORE Study Subsurface Condition Report, May 1986

SCRTD has chosen a high-density polyethylene (HDPE) membrane, one-tenth of an inch thick, to prevent the entry of hydrocarbons (including methane gas) into the tunnel and stations. It is calculated that this HDPE membrane will be 99 percent effective in preventing gas entry. This effectiveness rate exceeds design assumptions, which call for a ninety percent effectiveness rate. In addition, SCRTD has established procedures for sealing potential leaks in the membrane by the use of collars, clamps, and gaskets.

Studies of data have provided the basis for defining a set of recommendations to minimize the gas-related hazard. The mitigation recommendations were formally adopted by the SCRTD Board and applied to MOS-1 construction. Significant work on these measures has been done as contained in the MOS-1 Mitigation Measures Report. It is SCRTD's intentions to apply the measures that were successfully used for construction of MOS-1 to the segments of Phase 2 that are classified as "gassy" by the California OSHA, Mining and Tunneling Unit. The subsurface mitigation measures for Phase 2 are divided into categories for construction and operation of the system.

Construction

- The SCRTD has developed a method of locating uncharted oil and gas wells before such wells are encountered and ruptured by a tunnel excavator. A magnetometer will be used in holes bored into the tunnel heading to detect any ferrous metals in the path of the excavator. In coordination with the California Department of Oil and Gas the SCRTD has established procedures to safely plug and abandon any oil or gas well encountered. The use of the magnetometer and the well abandonment procedures will be included in the construction contracts for Phase 2.

- The SCRTD will provide all its available methane gas documentation and interpretations by qualified experts to those bidding on the construction contracts involving tunneling or station construction.

- The SCRTD will include in bid documents for tunneling or station construction controls, the requirement that the contractor provide all employees involved in underground construction work with at lease eight hours of training in dealing with the hazards created by methane gas, safety precautions and emergency procedures to be followed when working underground, prior to those employees commencing underground work. In addition, periodic emergency drills and simulated rescues will be staged to reinforce the training. These procedures will be implemented through the Metro Rail Project "Construction Safety and Security Manual."

- The SCRTD will require that any tunnel excavating machine used be equipped with an enclosed cab and/or self-contained oxygen supply for the machine operator. In addition, all other workers in the immediate vicinity of the face will have, at all times and in immediate proximity of their working location, self-contained "self rescuers" with an independent oxygen supply. Catalytic type "self rescuers" will not be relied upon since they are not effective in a methane environment.

- The SCRTD has examined its construction designs and has incorporated sufficient planning to accommodate the special needs of the handicapped patron to use emergency egresses with as little assistance from employees or other patrons as can reasonably be expected. SCRTD has set up a Fire/Life Safety Committee to review this issue during final design for the project.

- In order to detect unknown geologic faults, ground water, or methane gas pockets that the LPA will cross, SCRTD will assign a certified engineering-geologist at or near the working face of the tunnel. The engineering-geologist will inspect and log the tunnel geology to obtain accurate information about, and timely interpretation of, geologic conditions encountered during construction. SCRTD will use this information to map the location of ground water, gassy ground, and geologic faults and can modify the tunnel design to accommodate these factors.

- SCRTD and consultants have reviewed a copy of the USGS Professional paper 1300 and all other available literature on seismic structural design. SCRTD has considered the possibility of fault displacement and related damage to the tunnel. If faults are discovered during tunnel construction, SCRTD will determine if the fault is potentially active or inactive, using criteria established in a contingency plan. Where a potentially active fault is encountered, the standard concrete tunnel liner will be replaced by a specially reinforced cast-in-place concrete tunnel liner or a welded steel lining as appropriate.

- The SCRTD will better define the groundwater environment for the next phase of the Metro Rail Project by making additional geologic borings and preparing a detailed profile along the tunnel alignments, illustrating the position of the water levels. SCRTD will estimate water inflow rates, compare them with the capacities of pumping units to be installed in the tunnels, and example excavation plans and tunnel walkway plans to ensure they will remain useful to evacuate patrons and employees should excessive inflow occur.

- Based on the results of the geologic evaluation of tunnels, SCRTD will review its plans for incorporating adequate backup power supplies and utilize fixed or mobile generators to supply emergency power for the ventilation and dewatering pumps in critical areas.

- The SCRTD has specified the use of membrane clamps, and seals on grout holes and grout pipes to insure that the membrane surrounding the tunnel lining is properly sealed and closed off after grouting, and will install conduit seals and collars on any penetrations. SCRTD has included detailed procedures for installing membrane in contract specifications. This same procedure will be used for the next phase of construction.

- The SCRTD will comply with Title 24, Part 3 (Electrical Regulations), CAC, and other special orders, as may be issued by the California Division of Industrial Safety. Compliance with Electrical Regulations and other special orders was included in the contract specifications for MOS-1 and will also be applied to the next phase.

- The SCRTD has analyzed the applicability of using underground coal mine electrical equipment, as outlined in Parts 18 and 75 of title 30, Code of Federal Regulations and found that there is no essential difference between coal mine equipment and the equipment required in California Electrical and Tunnel Safety Orders.

- The SCRTD will coordinate final design and construction of the next phase of the Metro Rail Project with the California State Division of Occupational Safety and Health, which has responsibility for compliance with state orders on safety of subsurface tunneling through hazardous material.

- The SCRTD will continue to ensure ongoing coordination with local fire departments and invite key personnel underground during construction to familiarize them with the tunnel.

- The SCRTD will monitor measurements taken by existing gas probes and the ventilation air in the tunnel before and during construction.

- The SCRTD will locate all the gas probes and abandon them in a safe manner. SCRTD has established procedures for backfilling the borings after there is no further need to monitor the probes.

- o A separate group, responsible to the construction manager, will collect, reduce, and interpret gas data. This group, the Environmental Monitoring Section, is functioning and will assume the same duties for the New LPA.

- o Monitoring

  - Automatic and manual gas monitoring equipment shall be provided for the heading and return air of tunnels wherein mechanical excavators are being used. The monitor equipment shall shut down the mechanical excavators under specific defined conditions.

  - Audible and visual warning devices will be installed on tunnel excavating machines and in the tunnels to alert employees when detectors have identified the presence of methane gas.

  - Records of gas tests and air flow measurements shall be available at the surface and to the California Division of Industrial Safety/

- o Ventilation

  - Implement a detailed ventilation plan similar to that required by the federal Mine Safety Health Administration.

  - Provide an emergency ventilation system of fans and controls that can bring in fresh air and exhaust gases when required. The system shall have explosion relief mechanisms and shall be fireproof with a reversible main ventilation flow.

  - Fresh air shall be delivered in adequate quantities to all underground work areas. The supply shall be sufficient to prevent hazardous or harmful accumulations of dust, fumes, vapors, or gases and shall not be less than 200 cubic feet per man per minute at a velocity of sixty feet per minute.

- o Spark Control

  - Smoking and other sources of ignition will be prohibited.

  - Welding, cutting, and other spark-producing operations shall be done only in atmospheres containing less than twenty percent LEL (lower explosive limit) and under the direct supervision of qualified persons.

- o Gas Control

  - Install gas barrier membranes in all concrete tunnel sections and in the stations. SCRTD has determined that the HDPE membrane is as effective as steel in resisting gas intrusion at tunnel depth and is less expensive.

- Drill horizontal probe holes in advance of the working face to drain gas-bearing zones ahead.

- Where needed, collection wells will be sunk ahead of the tunnel excavation machines so gas can be pumped out.

o Refuge

- Refuge chambers or alternate escape routes shall be provided and equipped with equipment acceptable to the California Division of Industrial Safety. Workers shall be provided with emergency rescue equipment and trained in its use.

For a further description of precautionary measures to be taken during Metro Rail construction, the reader is referred to Section 15.9.3 of this chapter, "Mitigation of Impacts of Hydrocarbon Accumulation."

Operations

o The SCRTD will provide natural ventilation, ventilation created by train movements, and under-platform exhaust systems that will operate continuously during revenue service. This has been designed into the Metro Rail System and will be continued in the balance of the new LPA.

o The SCRTD has reviewed its procedures for control room operators activation of emergency ventilation fans. SCRTD has designed an automatic system for the control room so that, if the alarm should warn of increasing levels of methane gas and the appropriate actions required of a human operator do not occur within 30 seconds, a computerized sequence of events will be initiated to activate the required fans, blowers, and vents of the regular ventilation system, etc.

o For Phase 2, SCRTD will design a special system to collect air samples from different underground areas of Metro Rail and monitor the samples for flammable hydro-carbon or hydrogen sulfide gases before harmful concentrations can accumulate. The collection tubes for the system will sample gases from stations, tunnels, cross passages, equipment rooms, exhaust ducts, and other high or low areas where hydrocarbon or hydrogen sulfide gases are likely to collect. The tubes are located so that the gas monitor data can help identify the source of gas intrusion, should one occur.

The District has established procedures to track the progress in implementing these mitigation measures for construction of MOS-1. Each quarter, the District prepares a report on "Status of Environmental Mitigation Measures for LA Metro Rail Project, MOS-1." This report, which is incorporated herein by reference, details the method of implementation, the documents (such as contract specifications), locations where implementation is directed, status of implementing the measure and actions remaining for the future. In most cases,

where additional studies are called for, the District has completed the studies and acted on the results.

For example, the District has completed its investigations of a technology being used in oil fields to locate will casings. The technology involves the use of a magnetometer, located at the end of a probe, that is capable of detecting oil well casings with a ferrous material content. The findings indicate that this technology can be applied successfully to the Metro Rail Project. Therefore, the District will conduct magnetometer surveys from probes installed at the tunnel headings and will include the requirements for such surveys in Technical Specifications Phase 2 of construction contracts.

SECTION 12: HYDROLOGICAL IMPACTS

12.1 EXISTING CONDITIONS

The Los Angeles River, Tujunga Wash, and Ballona Creek provide drainage in areas affected by the Metro Rail project. Each of these drainage systems have been channelized for flood control. The natural capacity to accommodate runoff in the project area has been increased considerably, and flood hazards to nearby land uses have been minimized.

Flooding hazards would exist at eight different locations in the Regional Core (Figure 3-11). These areas on Wilshire, between Alvarado and Western, are within the 100-year flood boundaries (Flood Hazard Zone A). One other Zone A is located on Vermont at Melrose, north of the Hollywood Freeway. The three remaining flood hazard areas are classified as Zone B, 100- to 500-year flood probability.

12.2 IMPACT ASSESSMENT

Figure 3-11 reveals that the all-subway New LPA would not be affected in the Wilshire Zone A section. The subway would not significantly add to current runoff enough to affect the carrying capacity of existing storm drain systems. As with Wilshire Boulevard, no significant impacts are anticipated for the subsurface configurations on Vermont Avenue. No impacts are anticipated in relation to the construction and operation of the subsurface Metro Rail system in the Zone B Flood Hazard areas.

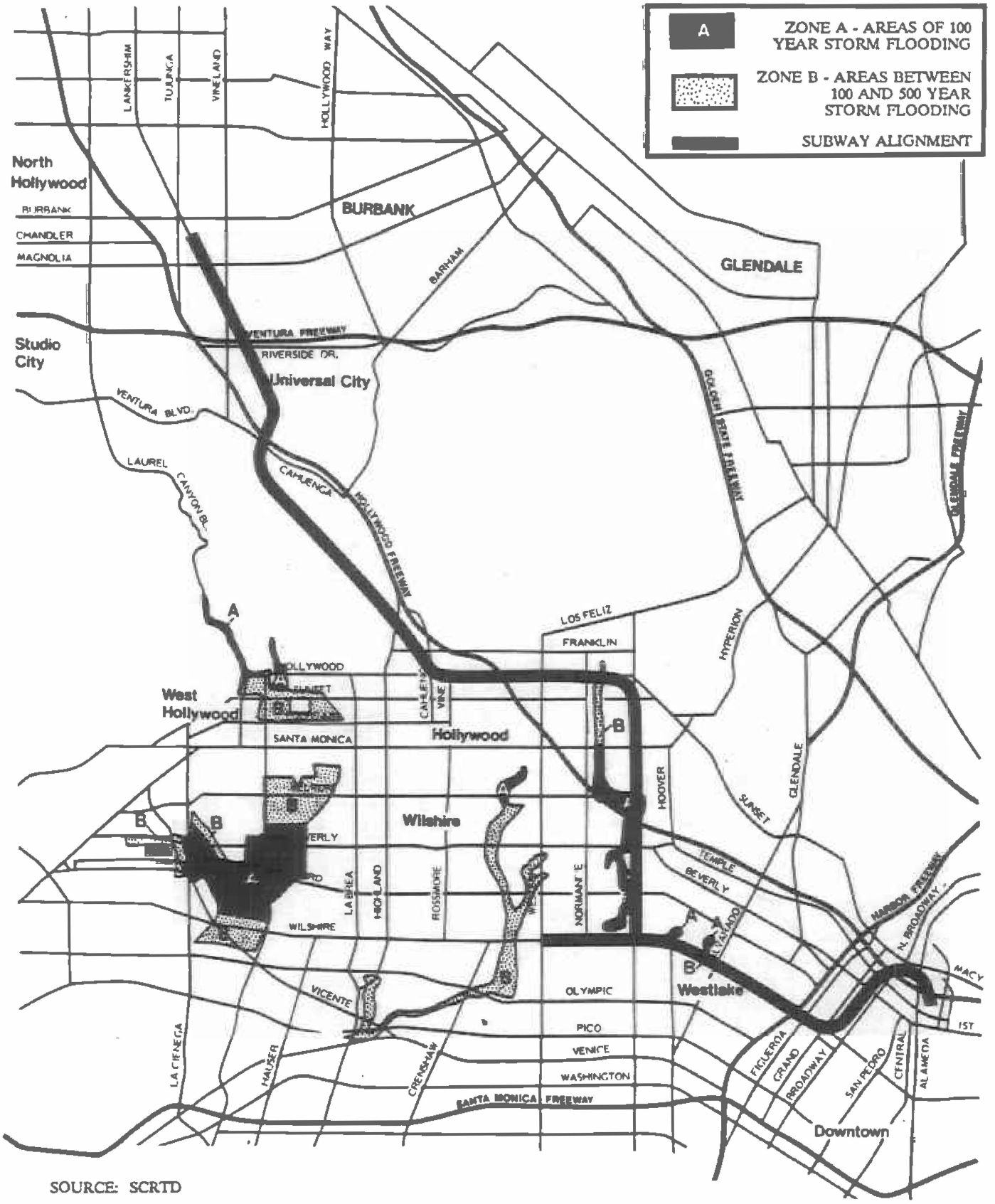
For a discussion of hydrology impacts during Metro Rail construction, refer to Section 15.9 of this chapter, "Geology and Hydrology Impacts."

No facet of the New LPA would alter the findings and conclusions regarding water quality presented in the FEIS. Therefore, they are incorporated herein by reference. Primary concern respecting water quality will focus on the disposal of soils containing oil and dissolved gases excavated in areas where hydrocarbons accumulations are most probable.

The U.S. Army Corps of Engineers inquired about the details of the impacts the Metro Rail Project would have on the Los Angeles River in the Universal City area. SCRTD provided the Corps with maps, engineering drawings, and extracts of Project impact descriptions and asked for a determination of jurisdiction. The Corps has reviewed the material submitted by the SCRTD. In a letter dated December 15, 1988, the Corps stated that the Project is not subject to Section 404 regulatory jurisdiction, and no permit is required. The letter and plans have been forwarded to the Corps Operations Branch for further review, and this Branch may want to review final designs for structural strength.

12.3 MITIGATION OF HYDROLOGICAL IMPACTS

Mitigation measures associated with hydrologic and water quality aspects of the Metro Rail Project are fully addressed in Sections 11.3.7 and 11.3.8 of Chapter 3 of the FEIS, 1983 and are incorporated by reference.



SOURCE: SCRTD

FLOOD HAZARD AREAS

SECTION 13. BIOLOGICAL RESOURCES

The New LPA is an all-subway alignment that passes through a highly urbanized environment. 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 unique or endangered biological resources over much of its route. The only significant biological resources are in the natural areas associated with Laurel Canyon and Cahuenga Pass in the Santa Monica Mountains. Thus, as in the FEIS (1983), the impact analysis of biological resources reported herein focuses on habitats in the Santa Monica Mountains portions only.

13.1 EXISTING CONDITIONS

The New LPA passes beneath the Santa Monica Mountains, where there is a mixture of low density residential areas and natural open space. The natural portions are characterized by chaparral and steep slopes covered with coastal sage scrub. The following is a summary of the principal physical and natural qualities of this area as contained in Chapter 12.2 of the FEIS (1983) pages 3-166 through 3-167.

- The chaparral areas are on the ridge tops and the more easterly and north-facing slopes.
- Coastal sage scrub occupies the more arid south- and west-facing slopes in the area.
- No truly natural riparian habitats are in the area.
- Wildlife is principally composed of species naturally adapted to rugged shrubland along with a mixture of species that have adapted to the urbanized environment.

The FEIS concludes that no state or federally listed rare, endangered, or threatened plant or animal species are known to inhabit the area. However, several declining species of interest might exist in the area, and the likelihood of disrupting the habitats of these species has been addressed in SCRTD's Technical Report on Biological Resources. Additionally, portions of the Regional Core lie within the Santa Monica Mountains National Recreation Area. However, no areas are considered to be sensitive, vital, or representative.

13.2 IMPACT ASSESSMENT

Reference was made to the findings and conclusions reported in the FEIS and the Technical Report on Biological Resources prepared in January 1983, in developing this reanalysis of biological impacts. The New LPA would pass through the Santa Monica Mountains in a subway configuration and, generally, would not affect natural biological communities. The New LPA would require two vents, several hundred feet in depth. These facilities would result in disturbance to a small area (less than 1 acre) of native vegetation, if situated within designated natural zones.

Overlay maps and reports from the California Department of Fish and Game Natural Diversity Data Base (NDDB) were consulted to identify the location of sensitive species relative to the proposed Metro Rail vent structure in the Santa Monica Mountains. The data base was established in 1982 and is patterned after other natural heritage programs which were originally created by the Nature Conservancy, a non-profit organization. The NDDB identifies in its reports and maps species which are listed as endangered or threatened by the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) and sensitive species reorganized by the scientific community to be deserving of such listing. The sensitive species are ranked by the NDDB in eleven categories.

According to the Hollywood, Burbank, and Beverly Hills overlay maps, there are three species in the vicinity of the two vent structure locations. None are officially listed as endangered or threatened by the California Department of Fish and Game or the U.S. Fish and Wildlife Service. The three species in the vicinity of the structures represent a "general" occurrence of each species as identified by the NDDB; source information is only detailed enough for the NDDB to map the occurrence of the species within a five mile radius. The exact boundary of the species' location is not known.

The first species identified is the Many-stemmed Dudleya (Dudleya multicaulis). The last observation of this species in this area, as recorded by the NDDB, was in 1905 and 1925. Since no recent field investigations have been recorded which would show that the plant is no longer present in this area, the species is presumed extant. This species is listed as a Candidate 2 for the Federal Endangered Species list (existing information may warrant listing of this species, but substantial biological information to support the proposed listing is lacking). The NDDB ranks this species as A2.1, an extremely rare and threatened species.

The second identified species is Braunton's Milk Vetch (Astragalus brauntonii). The last observation of this species in this area, as recorded by the NDDB, was in 1908; this plant is possibly extirpated from this area. This species is also listed as a Candidate 2 for the Federal Endangered Species List. The NDDB ranks this species as A2.1, an extremely rare and threatened species.

The last identified species is the San Diego Horned Lizard (Phrynosoma coronatum blainvillei). The last observation of this species in this area, as recorded by the NDDB, was in 1926. Since no recent field investigations have been recorded which show the lizard is no longer present in the area, the species is presumed extant. This species is listed as a Candidate 2 for the Federal Endangered Species List. The NDDB ranks this species as B2.2, rare and not threatened.

Construction of vents for the New LPA may result in short-term impacts associated with noise and human presence. Because affected areas would be small and the disturbances of short duration, no significant impacts on wildlife habitats are anticipated. No impacts to state or federally listed rare, threatened, or endangered wildlife species are anticipated. No significant biological impacts are associated with the Null Alternative.

13.3 MITIGATION OF BIOLOGICAL IMPACTS

Sensitive resources and habitats would 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. 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. If any such plant is found to be affected, appropriate consideration will be given during final design to mitigate potential adverse impact.

SECTION 14. ELECTROMAGNETIC EMISSIONS

This section describes the impact of electromagnetic emissions from projected Metro Rail operations on the environment. Of the possible modes of electromagnetic emissions, only radiated emissions need be addressed. Conducted and induced emissions do not extend beyond the rail and vehicle structure and therefore will have no impact upon neighboring operations.

The impact assessment is based upon recent measurements of the radiated ambient environment in the Sunset Boulevard area, comparative ambient measures from other metropolitan areas, and the radiated signature of a modern, chopper controlled, heavy rail transit vehicle similar to the vehicle likely to be utilized by the SCRTD.

14.1 CRITERIA

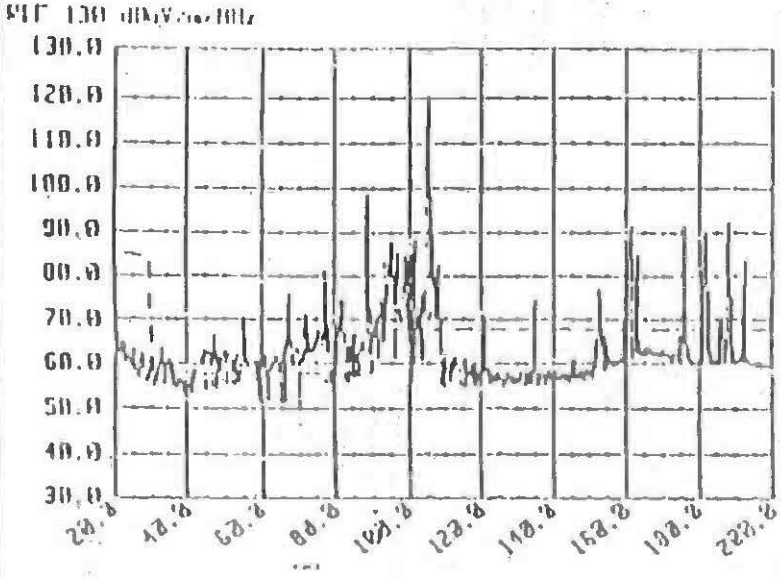
The National Bureau of Standards (NBS) has reviewed available standards and measurement procedures to determine their applicability to the measurement of electromagnetic interface from a moving, electrically powered, steel wheeled rail transit vehicle. It concluded that none of the existing standards could be applied directly to assess electromagnetic interface from a rail vehicle.

The Urban Mass Transportation Administration (UMTA) Electromagnetic Interference and Compatibility Program and the International Electromagnetic Interference and Compatibility Technical Working Group cooperatively developed Suggested Test Procedures for the specific purpose of measuring radiated emissions from rail transit vehicles.

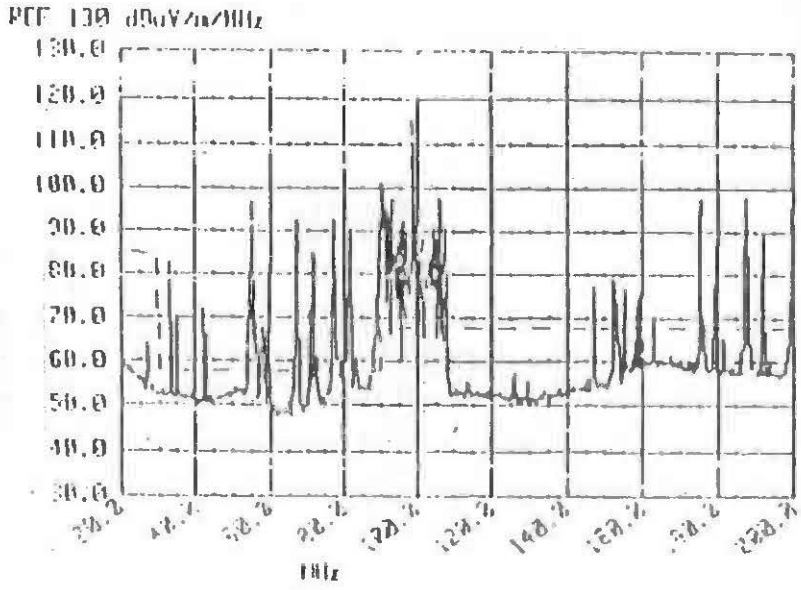
The SAE ARP 1393 limit describes the recommended signal level for specific frequencies in the range from 150 kilohertz to 400 megahertz, which radiated electromagnetic emissions from the transit vehicle should not exceed. The emissions are measured using the suggested Test Procedures developed by UMTA specifically for steel wheel on steel rail transit vehicles. In addition, the FCC requires that any incidental emissions must not interfere with licensed radio transmissions. If, as is the case in other transit systems, the source emissions measured at the worst case location of any receptor are below the measured R.F. ambient then it is highly unlikely that the emissions will have any affect on the sensitive receptor.

14.2 EXISTING CONDITIONS

Figure 3-12 presents the R.F. environment as measured in front of Golden West Broadcasting on Sunset Boulevard. Measurements were made approximately sixty feet from the centerline of the proposed transit operation. Additionally, the R.F. environment at a similar location in the San Francisco Bay area is presented for comparison.



SUNSET BOULEVARD AMBIENT



BART AMBIENT WITHOUT VEHICLE

COMPARISON OF SUNSET BOULEVARD AMBIENT RADIO-REQUENCY FIELD SPECTRUM TO SPECTRUM MEASURED IN SAN FRANCISCO BAY AREA

SOURCE: COMSTOCK ENGINEERS INC./ERASCO & ASSOCIATES INC.,

FIGURE 3-12

It should be understood that although the local R.F. environment was measured from 10 KHz to 1 GHz, only a small segment of that spectrum is presented here. The segment chosen for presentation contains the frequencies where most TV stations and all FM radio broadcast stations in the Los Angeles area transmit. The R.F. environment measured at Golden West Broadcasting on Sunset Boulevard is very similar to the example presented from the San Francisco Bay area.

14.3 IMPACT ASSESSMENT

The vehicle proposed by the SCRTD is very similar to vehicles operating on transit systems throughout the nation. As indicated above, the R.F. environments in most major metropolitan areas are quite similar.

Radio Frequency (RF) signals generated by a modern rail transit subway vehicle will be absorbed by the intervening soil and tunnel structures so that they will be nearly undetectable on the surface and unable to interfere with other users of the electromagnetic spectrum.

This comparison indicates that the projected emissions from the proposed vehicle will be below the R.F. environment measured in the Sunset area.

14.4 IMPACT MITIGATION

Since the New LPA is in subway and any RF signals generated by the rail transit system will be contained within the tunnel and absorbed by the intervening soil, there is no need for mitigation measures.

Further details are provided in a "Technical Report on Electromagnetic Compatibility for the Metro Rail Project CORE Study," Comstock Engineering, Inc./Frasco & Assoc., Inc., November 1987.

SECTION 15. CONSTRUCTION IMPACTS

Construction impacts of Metro Rail were detailed in Chapter 3, Section 13 of the FEIS (1983). These were also discussed for all candidate alignments in the November 1987 Draft SEIS/SEIR and its May 1988 Addendum. This document addresses the construction impacts of the New LPA. The Null Alternative does not have construction impacts beyond MOS-1.

15.1 CONSTRUCTION METHODS

Construction methods for cut-and-cover line and station construction, tunneled line construction, and aerial line and stations were described in Chapter 3, Section 13, of the 1983 Metro Rail FEIS. With the exception of the items discussed below, construction methods would generally be the same as described in the FEIS for the Original LPA.

15.2 CIRCULATION IMPACTS

15.2.1 LOSS OF MOBILITY

Because Metro Rail will be routed through urban areas, motorists and pedestrians will at times be delayed and inconvenienced during the construction period. These impacts will be felt most acutely in areas of cut-and-cover construction in city streets.

The degree of traffic disruption around areas of cut-and-cover construction would vary, depending on whether a station is built on or off-street. Off-street stations generally would have less impact on traffic circulation. The plan and profile drawings and station footprint drawings for the New LPA show the locations of cut and cover construction where the likely impacts would occur.

15.2.2 MITIGATION OF CONSTRUCTION CIRCULATION IMPACTS

The SCRTD has formulated the following actions as a means of mitigating impacts Metro Rail construction will have on affected roadways:

- Cut-and cover construction has been minimized and used only at stations and other special structure locations.
- Wooden plank decking, constructed to close tolerances, similar to that used on MOS-1 construction, will be used for temporary travel surfaces in areas of cut-and-cover construction as a means of maintaining traffic flow.
- Before the start of construction, possibly during final design, Worksite Traffic Control Plans (WTCP), including identification of detour requirements, would be formulated in cooperation with the City of Los Angeles and other affected jurisdictions (County, State). This is similar to procedure adopted for MOS-1.

- The WTCPs would be based on lane requirements and other special requirements defined by the Los Angeles City Department of Transportation (LADOT) 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.

- Contractors will be required to follow, during construction, the Worksite Traffic Control Plan (WTCP) for each site as approved by LADOT. This requirement will be incorporated in Construction Contract documents.

- Barring unforeseen circumstances, no designated major or secondary highway will be closed to vehicular or pedestrian traffic except at nights or on weekends. No collector or local street or alley will be completely closed, allowing local vehicular or pedestrian access to residences, businesses, or other establishments. This will be enforced similar to MOS-1.

- Comprehensive bus rerouting and detour plans will be adopted prior to construction activities.

- LADOT traffic control officers will be utilized as part of the WTCP at intersections affected by cut-and-cover construction. The exact locations and numbers will be worked out in agreement with LADOT similar to MOS-1 implementation.

In addition to the above, LADOT has recommended a number of measures for consideration in the Hollywood business district:

- A single rather than sequenced construction period along Hollywood Boulevard with simultaneous construction of the stations at Western, Vine, and Highland.

- Slightly relocating the Vine Street and Highland Avenue stations so that there is no construction whatsoever between Vine Street and Highland Avenue. In this manner, much of the Hollywood business district would not be impacted by cut-and-cover station construction. Relocation of these stations is dependant on suitable station access. The Community Redevelopment Agency will be consulted regarding the integration of access points with redevelopment on present buildings.

15.3 COMMUNITY IMPACTS

Impacts include temporary disruption of normal community activities and access to local facilities. Refer to the discussion on pages 3-173 to 3-174 of the FEIS (1983). Construction will impact various community resources considered to have cultural value. The electroliers along Wilshire Boulevard have historical, ornamental bases. There will be close coordination with the Bureau of Street Lighting to determine how they will be preserved.

Construction along Hollywood Boulevard will affect the Walk of Fame. The contractor will be required to safely store the bronze and terrazzo panels and may be required to restore the terrazzo sidewalk cross section when the panels are reinstalled. The Bureau of Engineering and Hollywood Chamber of Commerce will be consulted on this matter.

The SCRTD will work with the Community Redevelopment Agency to minimize disruption to Hollywood Boulevard during construction of Metro Rail and to define station entrance locations that have minimal impacts on cultural and historic resources. (Cooperative efforts in this regard have been initiated.) During final design, and as proposed Hollywood redevelopment projects mature, the location of specific additional station entrances will be identified.

15.3.1 CONSTRUCTION IMPACTS ON MACARTHUR PARK

SCRTD and its Metro Rail Design Consultants, MRTC, have conducted a detailed study, since the preparation of the November 1987 Draft SEIS/SEIR, to determine impacts and mitigation measures of Metro Rail construction through MacArthur Park.

In accordance with the 4(f) requirements, the study has examined several cut-and-cover and tunnel construction alternatives to minimize impacts on the park. Several mitigation measures also have been identified. The results of the study are contained in a report entitled "Construction Options Through MacArthur Park Lake" dated February 9, 1988. This study is incorporated herein by reference.

Impacts to MacArthur Park would result from the extension of the Metro Rail line from the MOS-1 interim station terminal at Wilshire and Alvarado. This station is situated approximately mid-block between Wilshire Boulevard and 7th Street. The park occupies the area between Seventh Street and Sixth Street on the south and north and Alvarado and Parkview on the east and west (Figure 3-13).

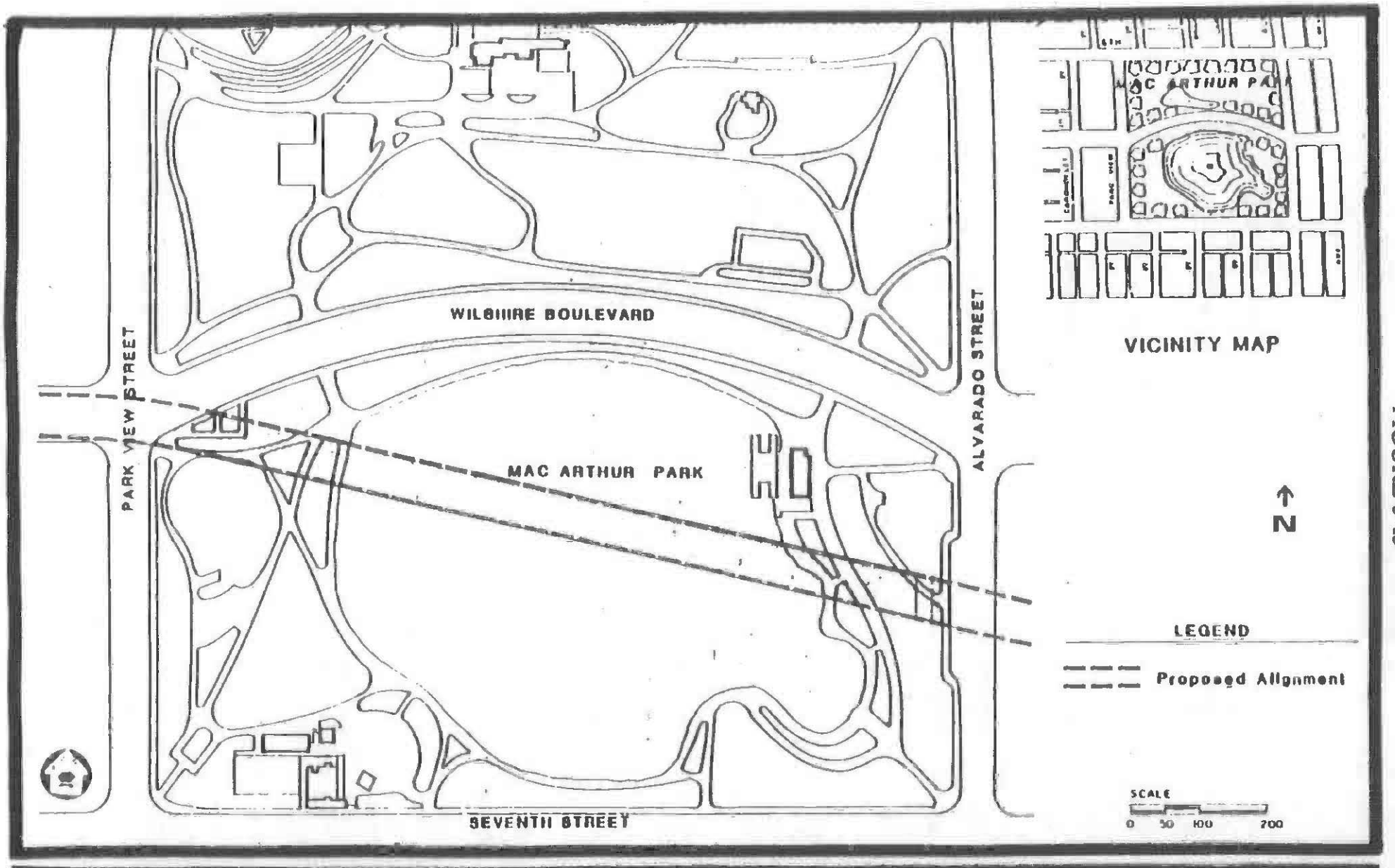
There is no way to extend Metro Rail without going through the park, which is situated immediately west of the station. The type of impacts on MacArthur Park and its lake would depend on the construction method used and the operational requirements of Metro Rail.

15.3.1.1 Need for Pocket Track

The pocket track is necessary to assure the maximum level of safety for Metro Rail operations. The purpose of the pocket track is to remove stalled or otherwise unsafe trains from mainline service during operating hours. The pocket track must be strategically located so that trains can be quickly removed from the mainline to reduce the potential for hazardous operating conditions.

15.3.1.2 Pocket Track Location

The major reason a pocket track is needed between the Wilshire/Alvarado and Wilshire/Vermont Stations is that the New LPA alignment splits into two branches at this location, one going north to Hollywood and the other going west along the Wilshire corridor. Locating the pocket track west of Wilshire/Vermont would require construction of two pocket tracks, one for each branch of the alignment.



Southern California Rapid Transit District

Metro Rail Project

MAC ARTHUR PARK

FIGURE 3-13

The construction disruption of locating a pocket track under Wilshire Boulevard just west of the park would double the cost and cause more than double the community disruption from the presently proposed site. This disruption would increase from hundreds of people wanting to use the lake on a seasonal basis, to tens of thousands of people using Wilshire Boulevard on a daily basis for 20 to 27 months. There also would be disruption to the retail establishments on Wilshire Boulevard.

15.3.1.3 Construction Options

Six primary construction options were examined in detail. These consist of three cut-and-cover options and three tunneling options. These are described briefly below and summarized in Table 3-39.. Detailed descriptions of the options are contained in the referenced report.

TABLE 3-39
NEW LPA
CONSTRUCTION OPTIONS THROUGH MACARTHUR PARK LAKE

	Tunneling Alternatives			Cut and Cover Structure Alternatives		
Alternative	A	A-1	A-2	B	B-1	B-2
Cost (In Millions)	$27.9	$31.8	$30.1	$23.6*	$24.3*	$25.4*
Impact of Metro Rail Construction On Park	20 Months	26 Months	26 Months	24 Months	27 Months	27 Months
Impact of Metro Rail Construction On Lake	20 Months	19 Months	22 Months	24 Months	25 Months	15 Months
Lake Available for use during construction	None	Half	None	None	Half	None
Permanent improvements for lake and park	(1) None	(1) None	(1) None	(2) Yes	(2) Yes	(2) Yes
Pocket Track	Under Wilshire Blvd.			Under the lake		

* Cost includes $2 million for park improvements.
(1) Only the excavated portion of the lake will be replaces and improved. Fresh water will be added as needed.
(2) Entire lake bed will be cleaned, regraded, restored with permanent lining and bottomed with sand or asphalt cover. Lake will be refilled with fresh water.

Three tunneling construction alternatives include:

- Alternative A, which provides for construction of twin tunnels under MacArthur Park. It includes excavating of the soils and replacing them with lean concrete, draining the lake, tunneling, and repairing the bottom of the lake.

- Alternative A-1, which provides for partial use of MacArthur Lake while constructing an earth dike, cofferdam, and preparing the substrata for construction of twin tunnels under the lake. Part of the lake would be drained, then restored and put back in service prior to tunneling.

- Alternative A-2, which provides for draining the lake completely with use of sloped excavation through the lake bed. Excavation would be carried approximately five feet into the rock and replaced with unreinforced lean concrete. The lake would be restored and put back in service prior to tunneling. Alternative A-2 would require a major portion of the lake for slope excavation and temporary storage of material.

Three cut-and-cover construction alternatives include:

- Alternative B, which provides for cut-and-cover construction of a three-cell subway box structure that extends from Wilshire/Alvarado Station to a point east of Park View Street. It involves decking of Alvarado Street, temporary support to minimize excavation outside the lake, and sloped side excavation through the lake bed. The lake would be drained for construction of the box structure, a permanent lining installed on the lake bottom to keep water from seeping through the lake bed, and the lake restored to its present usage (Figures 3-14 and 3-15).

- Alternative B-1, which provides for cut-and-cover construction of a three-cell subway box structure and installation of an earth dike and cofferdam allowing partial use of the lake. The lake north of the earth dike would be drained for construction purposes. Excavation would be carried out within the cofferdam. A permanent watertight concrete seal would be installed to have a dry base for the grade slab. Cast-in-place or precast concrete elements may be used to build a three-cell box structure.

- Alternative B-2, which provides for construction of a three-cell subway box structure by cut-and-cover method using sloped side excavation through the lake bed and by constructing two small dikes at either end of the lake. It involves first completing the subway structure inside the banks of the lake and then building the middle

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MacARTHUR PARK			
CUT &COVER ALTERNATIVE B			
PLAN			

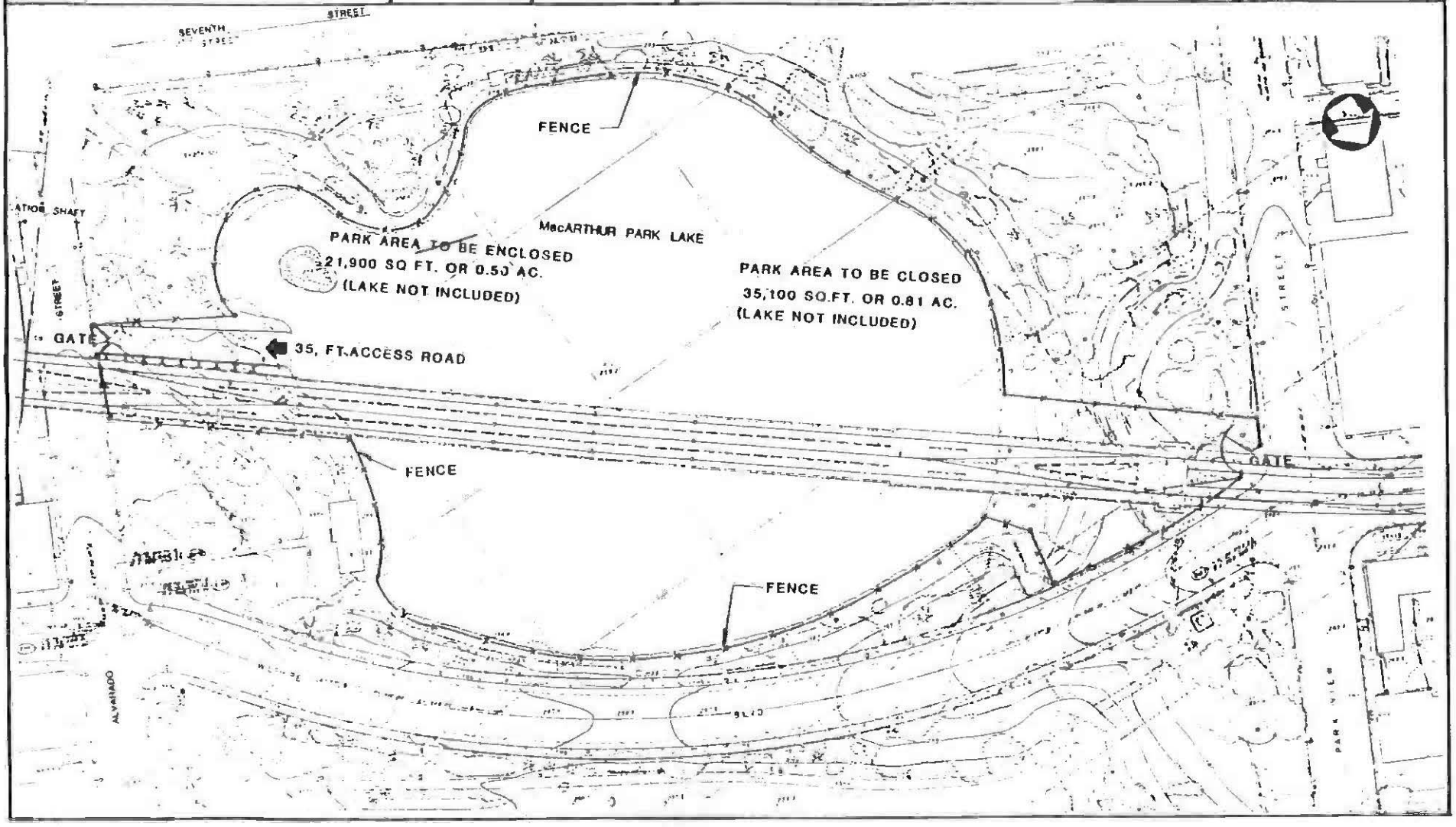


FIGURE 3-14

METRO RAIL TRANSIT CONSULTANTS

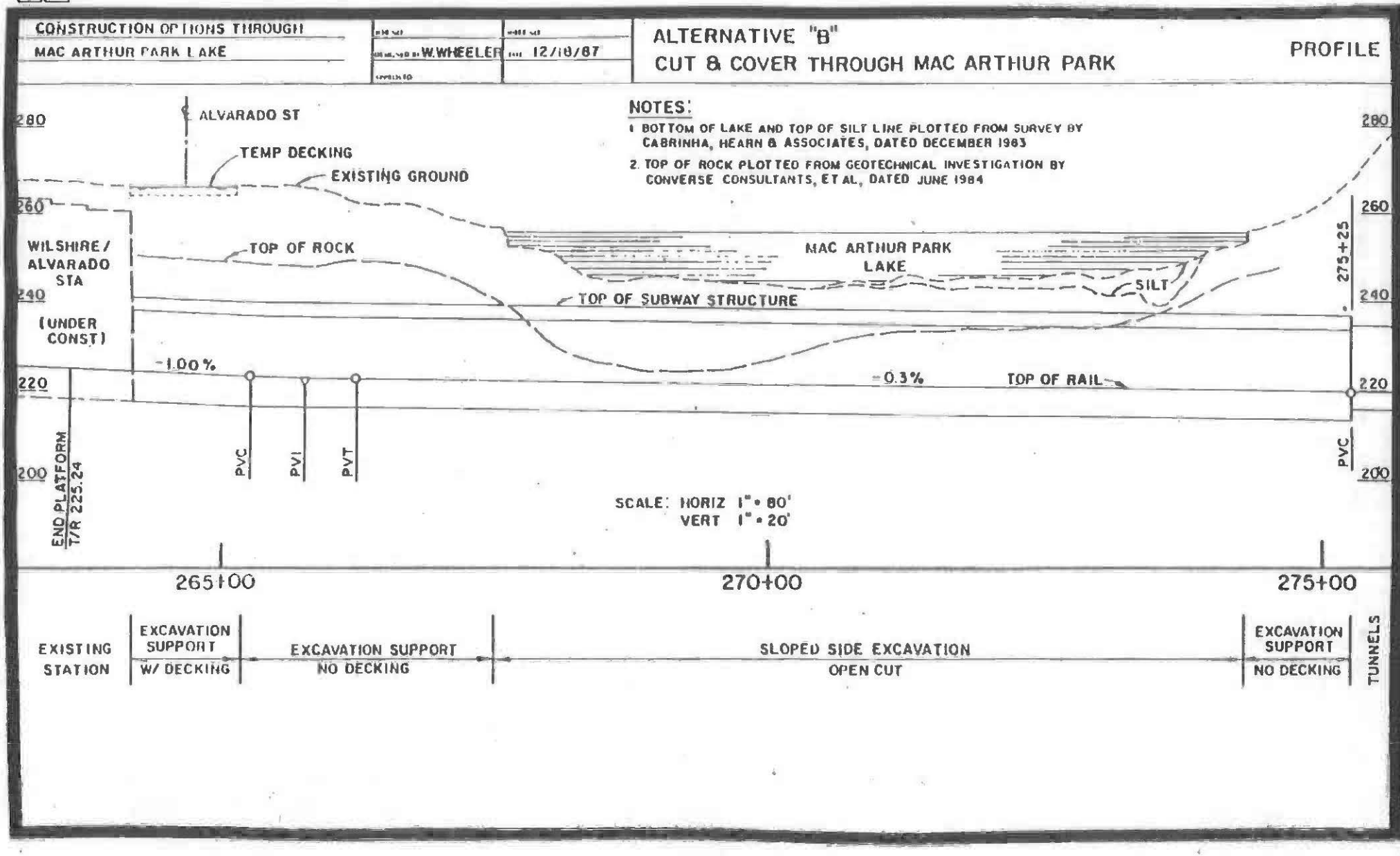


FIGURE 3-15

three-cell box structure. Support of excavation would be used for cut-and-cover construction inside the banks and side sloped excavation in the center 600 feet of lake bed. Smaller earth dikes would be built at the banks. The lake would be drained only for construction of this middle 600-foot-long subway box structure in the lake. A major portion of the lake would be kept in full service while constructing the cut-and-cover subway box structures at the east and west banks.

- o A pocket track is necessary at the Wilshire/Alvarado Station for safe and efficient operation of the Metro Rail system. The analysis completed indicates that construction will be least disruptive to the community and more economical under MacArthur Park Lake rather than under Wilshire Boulevard. Information from the Department of Recreation and Parks indicated small numbers of people use the concessions, including the boats. Based upon the analysis of the construction options and time frames, it is concluded that the Cut-and-Cover Alternative B offers the best construction approach and greater long-term benefits to the City, the Westlake Community, the commuting public, and SCRTD.

15.3.1.4 Impacts on Use of MacArthur Park

The Los Angeles Department of Recreation and Parks estimates that the park is used primarily by residents within one-half mile walking distance from the park. This translates to 85,250 people within the specified radius of potential users. All of the construction options offered will require only three to five percent of the park area. Ninety-five to ninety-seven percent of the park area will remain available for use by park visitors.

MacArthur Park is used for numerous activities, one of which is boating on the lake. Under all construction options, almost all of the impacts are on boating activity on the lake and not on any of the other majority of park activities. Therefore, the community will be able to continue using the park during construction. The Recreation and Parks Department was not able to provide lake or park utilization data.

Based on site observation, on February 6 and 7, 1988, an estimated 400-500 persons were at the area around the lake at MacArthur Park. In speaking with the boat house manager, SCRTD staff was informed that there is a maximum 10 boats on the lake on a half hour basis. The rental is $3.50 per half hour. The boat house operates six hours from 10:00 a.m. to 4:00 p.m. on weekends all year long, if weather permits. All three concessions are open on weekends and two remain open daily during the week. The total estimated commissions from concessionaires including the boat house, yield approximately $70,000 annually.

MacArthur Park is least utilized on weekdays and during the fall and winter months. It is estimated that up to 250 people for peak days and about 50 people for off-peak days would be unable to use the lake for boating activities during the 20- to 27-month construction period. These persons would, however, be able to continue using all other portions (at least 90%) of the park. Additionally, boating activities are available at Echo Park Lake which is a four-tenths of a

mile walk or a 12-minute bus ride (Line 200-Alvarado Street) from MacArthur Park. Other recreational parks are short bus trips from MacArthur Park. Among these are Exposition Park, the home of the Science and Industry Museum (Line 20 to Line 81 - Figueroa; Line 204 - Vermont; or Lines 66-67 - Eighth Street to Line 204). Park patrons may, if they so choose, utilize other parks during the construction period.

The lake has been drained in the past. It was drained in 1978, for 15 months, partly drained in 1983 for four months, and drained in 1984 for two months.

Based on the information summarized in Table 3-39, the construction costs for the cut-and-cover and tunnel alternatives range from 23.6 to 31.8 million dollars. The estimated construction duration ranges from 20 to 27 months. The time the lake would be out of service ranges from 15 to 25 months.

Under the cut-and-cover options, the improvement of the lake bottom is a reimbursable project expense. The reason is, more than 2/3 of the lake bottom will have been excavated to perform construction activities which provides the added benefit of removing bad material. On the other hand, under the tunneling alternatives, there is minimal disruption to the lake bottom, and excavation of unsuitable material and lining of the lake bottom is not needed. Improving the lake bottom under the tunneling alternatives is, therefore, classified as a "betterment" of existing non-project facilities which does not qualify for reimbursement. Any costs so incurred would have to be covered by local agencies. Currently, Metro Rail funding agreements with the City of Los Angeles, the Los Angeles County Transportation Commission (LACTC), and the California Transportation Commission (CTC) project for MOS-1 do not provide for payments of improvements to facilities not related to Metro Rail or necessary for Metro Rail construction or operation. The use of Proposition A transit funds for such activities is precluded under current LACTC guidelines.

15.3.1.5 Mitigation Measures

As a result of meetings and negotiations with Los Angeles city council members and departmental staffs, the SCRTD has agreed to specific mitigation measures. The costs of these mitigations are included in the estimated cost of the project. The SCRTD also has begun negotiations with the city's Department of Recreation and Parks to develop an agreement. This agreement will specify the method of payment and use of the park during construction, in accordance with the agreed construction method and mitigation measures. The mitigation measures are as follows:

- Overall mitigation measures will consist of community involvement and awareness as an integral part of the construction activities to minimize construction impacts.

- The current hotline number used for MOS-1 construction will be retained for the New LPA construction and will be prominently posted and disseminated in a number of locations at or near the construction staging area.

- o Public information activities begun under MOS-1 will be continued and will include meetings with the MacArthur Park Community Council Los Angeles, individual meetings with merchants, community residents, organizations and City Council Members. Dissemination of publications such as "Metrogram" will be made by mail or personal deliveries.

- o SCRTD will refine its construction program to minimize the period of time that the Wilshire/Alvarado Station serves as an interim terminal. The SCRTD is committed to advancing the opening of the Wilshire/Vermont Station to lessen the short-term impact on MacArthur Park and to improve system access to bus patrons.

The following additional mitigation measures associated with the cut-and-cover options will be implemented.

1. The lake bottom will be entirely cleaned, regraded, restored with a permanent lining and bottomed with a sand or an asphalt cover. The lake will be filled with fresh water. These improvements, at a cost of approximately $2 million, will result in fewer and shorter maintenance cycles for cleaning the lake in the future.

2. Access to and use of the entire park area north of Wilshire Boulevard will be maintained, and construction activities on the south side of Wilshire will be restricted to the smallest practicable area.

3. Park visitors will be allowed to continue using the area surrounding the lake with the exception of the narrow access areas over the tunnel segments on the east side of the lake.

4. An estimated $1.2 million will be provided for a temporary construction easement through the park and lake.

5. Improved aesthetics, cleanliness, and security of the construction site will be provided.

6. The lake's aeration and filtration system will be refurbished or replaced.

7. Incentive clauses in construction contracts will be investigated so that the total scheduled construction time will be lessened.

8. To provide additional mitigation, a shorter construction schedule will be considered so that only one peak summer period would be impacted by the drained lake, at an additional cost of $1.8 million (Alternative B-2).

15.4 BUSINESS DISRUPTION

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 rely heavily on pedestrian accessibility. Construction impacts are expected to be less severe outside the CBD because of lower commercial density and fewer pedestrian-orientated businesses.

15.4.1 PHYSICAL IMPACTS

Most physical impacts from construction will occur within one block of the construction site and include modified pedestrian and vehicular access, temporary disturbances from noise and dust, reduced visibility for storefronts and signs, reduced on-street parking. The greatest impacts will be caused by cut-and-cover line and station construction. Tunneling will create no significant impacts except at tunnel access shafts where debris must be removed and where materials and equipment are introduced.

Businesses most affected by the physical impacts of construction will be generally marginal businesses which rely heavily upon impulse buying and foot traffic. These could include tourist-related businesses along Hollywood Boulevard. Less severely affected will be 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 impacts (for example, stores selling stereo equipment).

15.4.2 ECONOMIC IMPACTS

The potential economic impacts resulting from construction of the New LPA are difficult to estimate, 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 noise, dust, and impaired visibility. 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, recognizes the possibility for indirect impacts caused by interference with the automobile circulation pattern.

For the New LPA, cut-and-cover construction constitutes approximately 9,500 lineal feet. This includes the lengths of all the stations, the cross-overs and the pocket tracks adjacent to the stations and special construction such as vent shafts in the tunnel segment through the Santa Monica Mountains and the cut-and-cover through MacArthur Park. The location of cut-and-cover construction are shown on the Plan and Profile sheets.

Commercial frontage of approximately 9,000 feet will be affected. This includes businesses adjacent to stations built in rights-of-way of the Wilshire Boulevard, Vermont Avenue, and Hollywood Boulevard corridors and at Universal City and Lankershim Boulevard in North Hollywood. The impacts will be less severe when the station excavation is off-street, such as at Wilshire/Vermont.

15.4.2.4 Impacts on Streets

Vehicular circulation will be impaired whenever cut-and-cover construction crosses a street, occurs along a street, or removes traffic or parking lanes. This, in turn, impedes access to business and can cause a decline in sales. The economic impacts, however, depend on the number of trips affected and the extent to which particular businesses rely on an auto-oriented clientele. For example, the construction of Hollywood/Vine Station would affect eight streets.

15.4.3 MITIGATION OF BUSINESS DISRUPTION IMPACTS

As discussed in Section 15.2.2 of this chapter, the SCRTD, with the City and County, has developed specific procedures implemented for MOS-1 construction which will be followed for the New LPA. These consist of a traffic maintenance plan to minimize traffic disruption. Because some of the cut-and-cover operations will overlap sidewalks, a logical program of pedestrian traffic movement and sidewalk restoration will also be established. Impact mitigation measures to be taken will include restricting construction to non-peak commute hours, allowing some construction at night if there would be minimal impact on surrounding residents, and developing a means to maintain access (pedestrian and otherwise) to commercial establishments. Construction contracts will specify the traffic maintenance plan for the construction area and the means of implementation.

15.5 UTILITY IMPACTS

There are no changes from the discussion in Chapter 3, Section 13.5, page 3-178 of the FEIS (1983). Additional information on the utility impacts of New LPA alignment is presented below.

15.5.1 UTILITY IMPACTS

Utility impacts and mitigations described in the Metro Rail Project, FEIS (1983), are still valid and apply to all underground excavation.

Prior to commencement of MOS-1 construction, the SCRTD executed agreements with each of the affected private utilities and public agencies. These included CALTRANS, City and County of Los Angeles, City Department of Water and Power-Water System and Power System, Chevron Oil, Pacific Bell, Santa Fe Railway, Southern California Gas, Western Union Telegraph, and CommuniCom. The terms of the agreements include the responsibility for utility rearrangements or for other necessary work, and for the method of reimbursement and credits. The agreements were developed to cover construction of the entire Metro Rail Project; hence they are in effect for MOS-1 and will be applied to the New LPA.

15.6 CONSTRUCTION NOISE LEVELS

One of the impacts associated with a transit construction project is the short-term noise and vibration impact of construction activities. As with any large project, construction will involve the use of machines and procedures which, in the past, have resulted in intense noise levels and, occasionally, high vibration levels in and around the construction site. Construction activities will include demolition, clearing, grading, excavating, pile driving, drilling, materials handling and placement, erection and finish work, and will involve the use of all the various machines and procedures associated with these activities.

In recent years, considerable progress has been made in the reduction and control of construction noise through: (1) modifications of the equipment to reduce noise generated at the source, (2) modifications of construction procedures and, (3) selection of those construction procedures that are less noisy. Also, in many areas and for many types of construction projects, there have been noise limits and/or noise standards included in the construction contracts or applied by governmental agencies in order to limit the noise impact from the construction. These efforts at reducing construction noise have produced considerable success, and work on new construction projects can be and is accomplished with considerably less impact than in the past.

Acoustical impacts can be of two different types. In areas where tunneling is used, the major impact due to the construction activities (except at access shafts) will be the ground-borne vibration from the tunnel boring machine. Also, there may be some ground-borne vibration due to the vehicles used to remove material. For cut-and-cover subway construction, there will be impacts due to ground clearing, excavation, erection, and finishing activities.

15.6.1 CONSTRUCTION EQUIPMENT NOISE LEVELS

Considerable information is available on typical noise levels created by modern construction equipment, and a growing body of information addresses how lower noise levels can be achieved with modified equipment constructed with noise reduction and control as design parameters.

Measurements made at transit system construction project sites provide the best information relative to expected noise levels from the type of construction activities which are associated with the Metro Rail system. The FEIS (1983), Table 3-49, pp. 3-179, presented a series of noise levels observed for various types of machines and activities associated with the Washington, D.C. Metro construction project. These data are for early construction activities using standard present-day equipment without noise control or noise reduction modifications. The data were obtained before noise restrictions and limits had been applied to the construction activities on the Metro project.

15.6.2 GROUND-BORNE VIBRATION FROM CONSTRUCTION

Because of the nature of some construction activities, high amplitudes of ground-borne vibration may result in some impact in neighboring community areas. Blasting and impact pile-driving are two activities traditionally associated with high levels of ground-borne vibration. For the Metro Rail Project, blasting is

specifically prohibited. It is also possible that some types of heavy vehicles and excavation activities can generate sufficient ground-borne vibration levels to be perceptible or noticeable in nearby buildings.

The vibration levels created by the normal movement of vehicles (including graders, loaders, dozers, scrapers, and trucks) generally are of the same order of magnitude as the ground-borne vibration created by heavy vehicles running on streets and highways. In general, the ground-borne vibration from vehicle operations on streets, even very rough streets, is not sufficient to create a noticeable widespread impact on adjacent community areas. Thus, it can be expected that the normal vehicle activities at the construction sites will not generate sufficient ground-borne vibration to result in significant impact.

Drilling and excavation procedures for cut-and-cover subways can result in ground-borne vibration levels which are perceptible or noticeable in adjacent community areas. The amplitudes of vibration from such activities are limited for safety reasons by procedural techniques.

For the subway sections, a possible method of excavation is with the use of a tunnel-boring machine (TBM). The potential noise and vibration associated with a TBM is considerably lower than the noise and vibration resulting from traditional blasting techniques. Noise and vibration impacts from TBM operations are not significantly greater than those associated with heavy trucks traveling on city streets and only affect occupants inside buildings adjacent to the new subway alignment. Outside of a building, there is little potential of noise or vibration impacts from TBM operation.

Use of a TBM will create vibration levels which are generally imperceptible at distances greater than 75 to 100 feet from the operating TBM. Even at a distance of fifty feet, the operation of the TBM will create vibration levels which are just perceptible. When the tunnel is approximately 35 feet below grade, there is some possibility that the ground-borne noise would be noticed by building occupants at buildings which are approximately 100 feet in horizontal distance from the alignment. The relative noise levels would depend on the type of building structure and the type of activities in the building. However, ground-borne noise and vibration from tunnel-boring machines is of very short duration. Since the machine passes by an area in a few days at most, there would be no significant impact.

15.6.3 MITIGATION OF CONSTRUCTION NOISE IMPACTS

There are numerous procedures available for reducing the noise generated by construction equipment and activities. One of the most effective methods of assuring controlled noise and minimum acoustic impact is the inclusion in and enforcement of noise limit specifications in the construction contract documents. The following specifications were incorporated in MOS-1 contracts and will be included in the New LPA Metro Rail contracts:

For each design section the construction contracts will include a section on permissible noise limits. The limits are based upon type of nearby land use, type of construction activity and time of day. Additional mitigation measures

may be implemented as necessary to comply with Los Angeles City noise ordinances as specified below in the following paragraphs.

The contractor shall conduct construction activities in such a manner that the noise levels measured at the closest point adjacent to the worksite in normal use by the public conform to the following:

- Stationary/Continuous Noise - Prevent noise intrusion from stationary sources, and/or mobile sources which produce repetitive or long-term noise lasting more than two hours from exceeding the limits shown on Table 3-40.

TABLE 3-40
ALLOWABLE SOUND LEVELS OF STATIONARY CONSTRUCTION EQUIPMENT

Affected Structure or Area	Maximum Allowable Continuous Noise Level dB(A)	
	Daytime 7:00 am to 8:00 pm	Nighttime*
Residential		
o Single-family residence	60	50
o Along an arterial or in multi-family residential areas, including hospitals	65	55
o In semi-residential/commercial areas, including hotels	70	60
Commercial	24 Hours	
o In semi-residential/commercial areas, including schools	70	
o In commercial areas with no nighttime residency	75	
Industrial		
o All locations	80	

Source: SCRTD

- Mobile/Intermittent Noise - Prevent noises from nonstationary mobile equipment operated by a driver, or from a source of nonscheduled, intermittent, nonrepetitive, short-term noises not lasting more than two hours from exceeding the limits shown on Table 3-41.

- Conduct regular, periodic measurements of sound levels at nearby structures and maintain records of the measurements for inspection by the District of its designee.

Special Zone or Special Construction Site:

- In areas outside of Construction Limits, but for which the Contractor has obtained designation as a Special Zone or Special Construction Site from the agency having jurisdiction, the noise limitations for buildings in industrial areas apply.

- In zones designated by the local agency having jurisdiction as a Special Zone or Special Premise or Special Facilities, such as hospital zones, the noise level and working time restrictions imposed by the agency shall apply. These zones and work hour restrictions shall be obtained by the Contractor from the local agency.

TABLE 3-41
ALLOWABLE SOUND LEVELS OF MOBILE CONSTRUCTION EQUIPMENT

Affected Structure or Area	Maximum Allowable Continuous Noise Level dB(A)	
	Daytime 7:00 am to 8:00 pm	Nighttime*
Residential		
o Single-family residence	75	60
o Along an arterial or in multi-family residential areas, including hospitals	80	65
o In semi-residential/commercial areas, including hotels	80	70
Commercial	24 Hours	
o In semi-residential/commercial areas, including schools	85	
o In commercial areas with no nighttime residency	85	
Industrial		
o All locations	90	

* All other periods including all day Sunday and legal holidays
Source: SCRTD

The contractor should use only equipment meeting the noise emission limits listed in Table 3-42, as measured in SCRTD's "Pollution Controls" (Section 01566), Paragraph 3.1.A, in conformity with the provisions of the latest revisions of SAE J366b (Society of Automotive Engineers (SAE), 1973, Exterior Sound Level for Heavy Trucks and Buses), SAE J88, SAE, 1979 (Exterior Sound Level Measurement Procedure for Earthmoving Machinery), and SAE J952b (SAE, 1973, 1973a,b,1979); and maintain a file of certificates that equipment meets the criteria. These certificates will be inspected by the District or its consultants.

In no case shall the contractor expose the public to construction noise levels exceeding 90 dB(A) (slow) or to impulsive noise levels with a peak sound-pressure level exceeding 140 dB as measured on an impulse sound-level meter or 125 dB(C) maximum transient level as measured on a general-purpose sound-level meter on "fast" meter responses.

Where more than one noise limit is applicable, the more restrictive requirement for determining compliance will be used.

TABLE 3-42
EMISSION LIMITS ON CONSTRUCTION NOISE

Type of Equipment	Maximum Noise Limit: Date Equipment Manufactured Before January 1, 1983	Maximum Noise Limit: Manufactured On or After January 1, 1983
Equipment other than highway trucks; including hand tools and heavy equipment.	90 dB(A)	85 dB(A)
Highway trucks in any operating mode or location.	83 dB(A)	80 dB(A)

Note: California Motor Vehicle Law has been relaxed. Highway trucks manufactured on or after January 1, 1986 must meet 80 dB(A) maximum noise level. For vehicles of less than 10,000 pounds GVW, manufactured before January 1, 1983, refer to the California Vehicle Code for allowed noise levels.

15.6.3.1 Inside Construction Limits:

- Blasting is specifically prohibited from use.
- 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:
  - Use drilled piles or vibratory pile drivers instead of impact pile drivers. If impact pile drivers must be used, their use is restricted to the hours from 8:00 a.m. to 5:00 p.m. weekdays in residential and semiresidential/commercial areas. Allowable sound levels in Tables 3-40 and/or 3-41 still apply.
  - Use welding instead of riveting.
  - Mix concrete offsite instead of onsite.

- Employ prefabricated structures instead of assembling them on site.

o Use of construction equipment modified to dampen noise and/or vibration emissions, such as:

  - Use electric instead of diesel-powered equipment.

  - Use hydraulic tools instead of pneumatic impact tools.

  - Use electric instead of air- or gasoline-driven saws.

  - Use effective intake and exhaust mufflers on internal combustion engines and compressors.

  - Line or cover hoppers, storage bins and chutes with sound-deadening material.

o 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.

  - Provide enclosures for stationary items of equipment and barriers around particularly noisy areas on the site or around the entire site.

  - Use shields, impervious fences or other physical sound barriers to inhibit noise transmission.

  - Site stationary equipment to minimize noise and vibration impact on the community, subject to approval of the District or its designee.

o Minimize noise-intrusive impacts during the most noise sensitive hours.

  - 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.

15.6.3.2 Outside Construction Limits

The alternate procedures and techniques used in Section 15.6.3.1 above can be used outside construction limits in Special Zones or Special Construction sites such as staging areas. In addition the following measures followed for MOS-1 will be used:

- Selection of truck routes for muck disposal so that the noise from heavy-duty trucks will have minimal impact on sensitive land uses. The District will coordinate the issue of handling tunnel and station excavation material with LADOT and will obtain haul routes from work sites to the various dump sites approved for the Project. See also Section 15.9.1.4 below.

- Conduct truck loading, unloading and hauling operations so that noise and vibration are kept to a minimum.

- Route construction equipment and vehicles carrying soil, concrete or other materials over streets that will cause the least disturbance to residents in the vicinity of the work.

The noise impacts associated with the placement of piles are of concern in construction projects utilizing such a foundation system. The Metro Rail project noise criteria set general and specific noise limits which may rule out the use of impact pile drivers unless additional steps are taken to isolate or muffle the sounds from pile driving. Impact pile drivers may be used only if the noise levels can be met and if there are compelling reasons to use them. Experience in MOS-1 construction indicates that piles can be placed using drilled holes without the need for impact pile drivers. Therefore, the likelihood of using impact pile drivers is considered small.

15.7 AIR QUALITY IMPACTS

15.7.1 IMPACTS

Dust from construction projects, commonly termed fugitive dust and caused by wind and construction machinery, is the primary air quality impact of 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 the most severe at station sites and at tunnel access 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.

Another source of fugitive dust emissions is building demolition. While reliable emission 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.

15.7.2 MITIGATION OF CONSTRUCTION AIR QUALITY IMPACTS

The mitigation measures discussed in Section 13.7.3 of Chapter 3 (page 3-183) of the FEIS (1983) and implemented on MOS-1 construction will be employed.

15.8 ENERGY REQUIREMENTS

15.8.1 ENERGY USE

A discussion of construction energy is presented in Section 10 of this chapter.

15.8.2 MITIGATION OF CONSTRUCTION ENERGY IMPACTS OF CONSTRUCTION

The mitigation measures presented in Chapter 3, Section 13.8.2 (page 3-184) of the FEIS (1983) still apply.

15.9 GEOLOGY AND HYDROLOGY IMPACTS

15.9.1 EXCAVATION, MUCK HANDLING, AND WATER RESOURCES

Impacts and mitigation measures for these impacts were addressed in Section 13.9 of Chapter 3 (pages 3-185 to 3-189) of the FEIS (1983). In addition to these measures, construction contractors will be required to clean up immediately any accidentally spilled materials, including sediment, vehicle fuels and lubricant fluids. Nominal operational spills will be removed during periodic cleaning of streets and sidewalks in the construction areas.

Substantial volumes of subsoil, known as "muck" in construction terminology, will be excavated during construction of the New LPA. The subsoil will be removed as a result of excavation of tunnel segments using tunnel boring machines, and stations segments using regular cut-and-cover excavation techniques.

15.9.1.1 Classification of Soils for Disposal

Article 3, Section 2520 of Title 23 of the Los Angeles County Code classifies waste material and disposal as follows.

Group 1 wastes consist of or contain toxic substances as defined in Section 2500 and substances which could significantly impair the quality of usable waters. Group 2 wastes consist of or contain chemically or biologically decomposable material which does not include toxic substances nor those capable of significantly impairing the quality of usable waters. Group 3 wastes consist entirely of non-water soluble, nondecomposable inert solids.

15.9.1.2 Type of Soil

The sub-soil material along the New LPA consists mainly of the following types of soils, as determined by an extensive sub-soil investigation study completed as part of the Metro Rail design effort, and the CORE Study. (See CORE Study

Sub-Surface Conditions Report, dated April, 1986, prepared by Engineering Science for the District and Geotechnical Investigation Report dated November, 1981 prepared by Converse Consultants for SCRTD). The principal soil types expected to be encountered are:

- o Alluvial fan composed of silt, sand, gravel and boulders.
- o Young alluvium consisting of similar loose deposits of sands and gravel.
- o Old alluvium containing more fine-grained and cohesive material (clay, silt, sand, and gravel).
- o Puente Formation composed of claystone, siltstone, sandstone with some local hard sand stone beds.

The sub-soil material described above is known as "inert earth". It is considered non-hazardous Group 3 soil and is suitable as fill material for use in parks and recreation areas, land reclamation, and in highway construction. This material has commercial value, and the construction contractor will be given the option to sell this type of soil to interested buyers.

At some locations, the soil boring samples show the presence of tar sands. Soils containing tar sands or other manufactured chemicals that may leach into the sub-soil from industrial plants or underground storage tanks are usually classified as hazardous materials (Group 1). The Group 1 soil would be disposed of in Class I landfills. Relatively small quantities of these materials are expected to be encountered.

Based on the geotechnical and sub-soil investigations referenced earlier and the types of soils indicated above, most sub-soil for the candidate alignments is expected to be classified Group 3. If the construction contractor is unable to sell or otherwise dispose of Group 3 construction wastes, they could be hauled to Class III disposal sites. As indicated above, some Metro Rail excavated material may be classified as Group 1; Group 1 construction waste are discussed later under the heading of Disposal of Hazardous Materials.

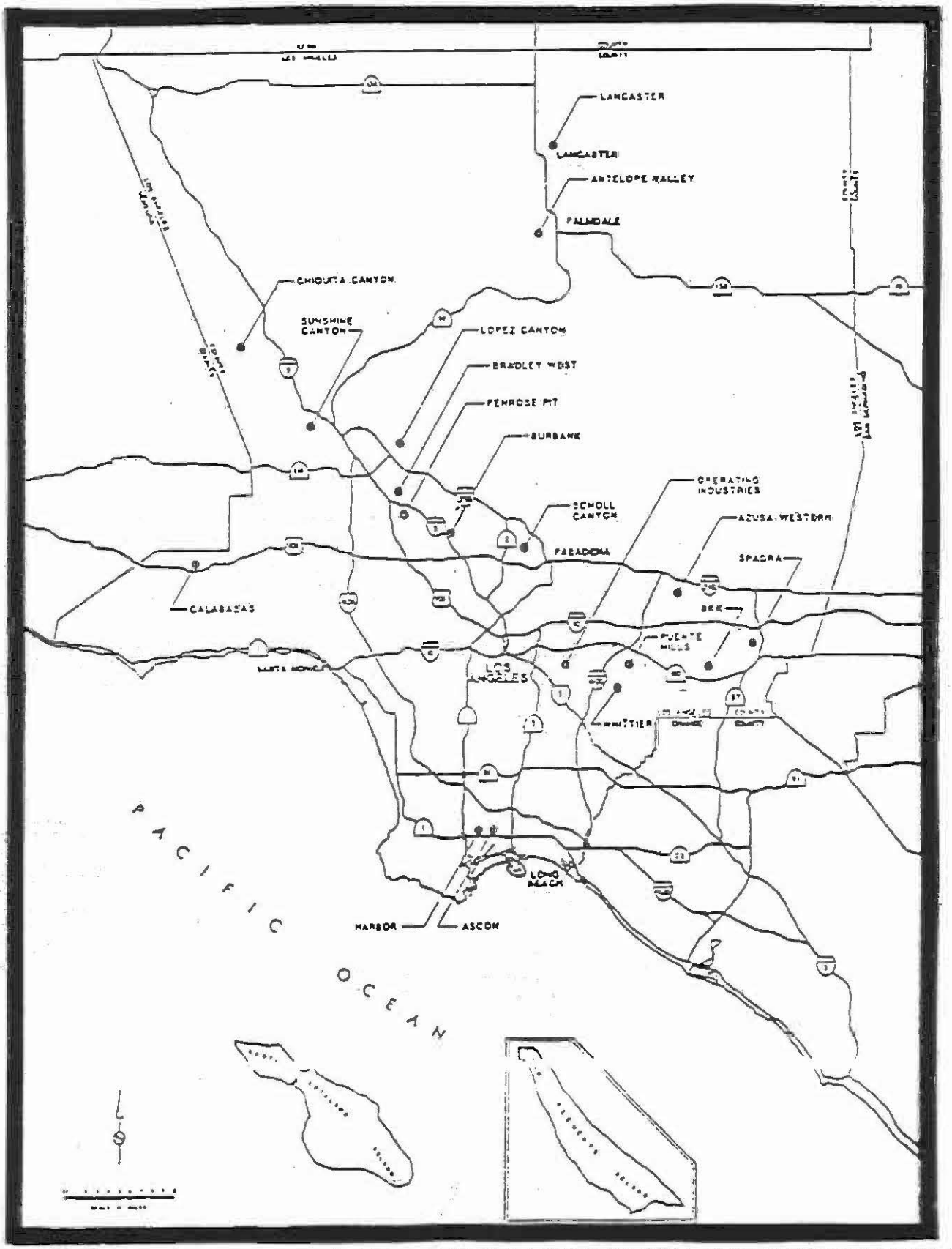
15.9.1.3 Class III Disposal Sites

The Los Angeles County "Solid Waste Management Plan Triennial Review," Volume I, "Non-Hazardous Waste, Revision A," published in August, 1985, presents an extensive evaluation of the various types of waste generated in Los Angeles County, the locations and capacities of disposal sites, and future planning for expansion of sites and treatment of waste material. This report shows the location of landfills which receive Group 2 and Group 3 waste materials (Figure 3-16) and lists them (Table 3-43). The report concludes in Chapter 3 on Disposal Sites that "Class III landfill capacity is sufficient for the long-term planning period and, as such, does not pose a planning concern."

The projections of long-term Group 2 and Group 3 waste quantities generated in Los Angeles County are shown in Table 3-44. An estimated 4.10 million tons/year of waste in these two groups are anticipated between 1980 through year 2000.

FIGURE 3-16

LOCATIONS OF MAJOR CLASS II LANDFILLS IN LOS ANGELES COUNTY



SOURCE: SOLID WASTE MANAGEMENT PLAN TRIENNIAL REVIEW VOLUME I, NON-HAZARDOUS WASTE, REVISION A, LOS ANGELES COUNTY, 1985.

TABLE 3-43

GEOGRAPHICAL DISTRIBUTION OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES (TSDF) IN LOS ANGELES COUNTY

City	Number of TSDF's	City	Number of TSDF's
Los Angeles	86	Norwalk	3
Long Beach	25	Pacoima	3
Torrance	19	Paramount	3
City of Industry	18	Pasadena	3
Santa Fe Springs	16	Redondo Beach	3
Gardena	16	Santa Monica	3
Van Nuys	13	Inglewood	2
Burbank	12	La Puente	2
El Monte	11	Monrovia	2
Azusa	8	Montebello	2
Chatsworth	8	Palmdale	2
Compton	8	San Pedro	2
South Gate	8	Sylmar	2
El Segundo	7	Terminal Island	2
Hawthorne	7	Valencia	2
Carson	6	Vernon	2
Commerce	6	West Covina	2
North Hollywood	6	Baldwin Park	1
South El Monte	6	Bell Gardens	1
Wilmington	6	Cerritos	1
Downey	5	Covina	1
Huntington Park	5	Culver City	1
Lynwood	5	Irwindale	1
Pico Rivera	5	La Habra	1
Pomona	5	La Verne	1
Saugus	5	Lawndale	1
Alhambra	4	Newhall	1
Canoga Park	4	Playa Del Rey	1
Harbor City	4	Rosemead	1
La Mirada	4	San Gabriel	1
Sun Valley	4	Signal Hill	1
Whittier	4	Venice	1
Glendale	3	Westlake Village	1
		Woodland Hills	1
		TOTAL	406

Source: Los Angeles County Solid Waste Management Plan Triennial Review, Volume 1, "Non-Hazardous Waste, Revision A," August, 1985.

TABLE 3-44

CURRENT GROUP 2 AND GROUP 3 WASTE QUANTITIES RECEIVED AT SOLID WASTE DISPOSAL SITES IN LOS ANGELES COUNTY

Disposal Sites	Waste Quantity (Tons/Year)
Class II	
Spadra Landfill	38,000
Scholl Canyon Landfill	110,000
Calabasas Landfill	90,000
Puente Hills Landfill(1)	90,000
Lopez Canyon Landfill	120,000
Burbank City Landfill	4,000
City of Whittier Landfill	15,000
Sunshine Canyon Landfill	330,000
Bradley Avenue Dump	200,000
Penrose Pit	430,000
Azusa Western	58,000
BKK Landfill	9,000
Operating Industries Landfill	18,000
Harbor Dump	20,000
Antelope Valley Public Dump	13,000
Lancaster Dump	16,000
Norwalk Dump	1,000
Brand Park Disposal Site (Glendale)	26,000
Other	2,000
Subtotal	1,590,000
Class III	
Nu-Way Landfill	1,750,000
Chandler Landfill	200,000
South Gate Landfill	6,000
Stone Canyon Reservoir Landfill	21,000
Livingston Pit(2)	200,000
Manning Brothers Beck and San Company(2)	30,000
Consolidated Rock Products(2)	40,000
Armco Steel (National Supply)	10,000
Sheldon Arleta	14,000
Hewitt Pit	150,000
Other	1,000
Subtotal	2,422,000
TOTAL	4,012,000

(1)Only 90,000 arrive as pure loads consisting entirely of Class III materials.
(2)Open only to company's customers.

A sensitivity analysis is also performed, indicating that these wastes could increase from 4.3 million tons/year in 1980 to 6.5 million tons/year in year 2000.

15.9.1.4 Disposal of Hazardous Material

Subsection 3-5 of Section 01566, "District Specifications for the Metro Rail Project," outlines the procedures and requirements relating to hazardous material that may be encountered during excavation of any of the candidate alignments. As indicated above, several soil borings showed the presence of tar sands at some locations. Also, as a result of leaching from underground storage tanks, minor pollutants may be present in small localized areas.

These materials will be disposed of in accordance with the District Specifications, as follows:

I. Solid and Hazardous Waste Controls

This section applies to solid hazardous waste. Solid waste is defined as all putrescible and nonputrescible solid, semisolid and liquid wastes, but does not include hazardous wastes as defined in Section 25117 of the Health and Safety Code, Division 20, Chapter 6.5.

A. Waste Generation - Solid waste or hazardous waste may be generated by the actions of the Contractor, including but not limited to demolition, site preparation, grading, excavation, construction, and maintenance of equipment.

B. Disposal Regulations - Wastes may be disposed of in a number of ways, including reuse on the project, sale for fuel through controlled incineration, donation to other public/private projects, and through dumping in approved public or private dump sites, either free or for a fee. The method of disposal is restricted according to the classification of the waste material by the California Hazardous Waste Control Law. This law found in Section 25100, Chapter 6.5, Division 20 of the Health and Safety Code, should be followed for disposal of hazardous or extremely hazardous materials. The regulations of the waste disposal facility shall also be followed. Additional definitions, lists, and regulations are found in the California Administrative Code, Title 22, Division 4, Section 66000. These regulations govern the handling and transportation of hazardous materials and shall be followed.

C. Determination of Hazardous Nature - Some of the material generated by the project, especially tar or oil-impregnated soil, may not obviously be hazardous. Physical and chemical analyses and tests may be required to determine if the material meets the criteria set forth in Sections 66693 -66723 (Article II) of Chapter 30, Minimum Standards for Management of

Hazardous and Extremely Hazardous Waste in Division 4, Title 22 of the California Administrative Code. The District will pay for such chemical analyses and will participate with the Toxic Substances Control Division of the California Health Services Department to determine the quantity and origin of samples to be analyzed for a questionable material.

D. Disposal - solid waste may be disposed of as mentioned in Paragraph 3.5.B. The District will investigate different methods of treating hazardous wastes, including land farming and incineration to reduce their hazardous nature prior to disposal. Hazardous materials shall be disposed of in Class I or Class II-I waste disposal facilities. Procedures to be followed may be found in the 1983 Technical Report on Disposal of Tunnel and Station soil mentioned in Paragraph 1.1 and in the references in Paragraph 3.5.B.

E. Haul Routes - The routes to be followed when transporting solids or hazardous wastes are subject to the approval of the City of Los Angeles. See also Section 15.6.3.2 above.

The Los Angeles County Solid Waste Management Plan Triennial Review Volume II: Hazardous Waste, Part I-Plan, Part II-Technical Supplement, Preliminary Draft, published in June 1986 includes detailed discussions of Hazardous Materials, disposal regulations, and disposal sites. Chapter 3, Section II, D, on direct land disposal indicates that "under existing regulations, land disposal of hazardous waste is only permitted at Class I sites, except for selected types of hazardous waste which have been granted a variance from hazardous waste management requirements pursuant to Section 66310 of the California Administrative Code. These "special wastes" are defined in Appendix 1C. Currently, there are no Class I land disposal sites in Los Angeles County. The two nearest disposal facilities in Southern California serving the generators of Los Angeles County are listed in Table 3-45.

Chapter 3, Section III, C, of the Solid Waste Management Plan indicates that "currently Los Angeles County has no off-site hazardous waste and disposal facility. Receipt of hazardous waste was discontinued at the BKK landfill site voluntarily on December 1, 1984, and the company withdrew Part B of their RCRA application for a hazardous waste facility permit."

TABLE 3-45

CLASS I LAND DISPOSAL FACILITIES SERVING LOS ANGELES COUNTY

Land Disposal Facility	Location	Materials Accepted
Casmalia Resources	Casmalia, Santa Barbara County	Bulk and containerized solid hazardous and PCB wastes; no hazardous liquids except inorganic acids and bases.
Chemical Waste	Kettleman City, Kings County	All wastes except radioactive, explosives, and biological wastes.

Source: State Department of Health Services listing of management facilities in Southern California receiving hazardous waste for disposal, December 23, 1985.

To provide additional information on the treatment, storage, and disposal of hazardous materials, relevant portions of Section II and III, Chapter 3 of the Solid Waste Management Plan are reproduced as follows:

II. Hazardous Waste Management System

A. General

The management of hazardous waste involves storage, collection, transportation, treatment, recycling and disposal. A major concern in handling hazardous waste is to fully protect public health and the environment against any type of release.

Disposal of hazardous waste is generally accomplished by: (1) discharge to a sewer system in compliance with sewer discharge requirements; (2) utilization of on-site or off-site treatment facilities, and (3) direct land disposal at a hazardous waste landfill.

The regulatory agencies are continuously in the process of revising their regulations to tighten current treatment/disposal standards. In general, the regulations in California have always been equal to or more stringent than the Federal standards.

B. Discharge to a Sewer System

Under the waste discharge requirements set forth by the responsible Regional Water Quality Control Board, municipal sewer districts are permitted to discharge waste that meets certain

specifications and does not exceed maximum concentration of toxic chemical constituents in their processed effluent. The local sewer districts, in turn, regulate the amount and the type of hazardous waste that industries may discharge into the local systems. Dischargers often are required to pretreat their waste before discharge to the sewer system.

It is estimated that 65 to 80 percent of all hazardous waste generated in this County is discharged [9] to sewer systems or surface water after pretreatment process. These waters are generally high volume, low toxicity wastes, such as rinse waters. The sewer system is an appropriate mechanism to dispose of low hazard waste as the disposed volume is usually insignificant in comparison to the volume of regular sewage. Acid and alkaline wastes, for example, with limitations, can be neutralized by the inherent buffering capacity of the sewage, rendering them non-hazardous.

Not all wastes, however, can be discharged safely to the sewer system. Toxic wastes can poison the biological organisms causing severe environmental and public health problems. Toxic contaminants in the by-products of sewage treatment plants can be untreated and be in the receiving waters that may be used for drinking, recreation and irrigation. Sewage sludge can contain excessive levels of heavy metals and synthetic organic chemicals, such as PCBs, from solute accumulation due to precipitation during dewatering of the sludge.

C. On-site and Off-site Treatment Facilities

A treatment facility may be either on-site or off-site. An on-site facility is one in which the waste is treated, stored or disposed on land at the point of generation owned or leased by the generator. An off-site facility is one in which waste is generated some distance away from the treatment facility and is transported to the site for treatment, storage and/or disposal. The precise definitions of on-site and off-site hazardous waste facilities (including generators) are included in the glossary.

Currently, most planners are turning away from direct land disposal of hazardous waste and are considering the treatment alternative as one of the safer tools in the management of hazardous waste. Treatment technology includes physical, chemical, biological and thermal processes that render the material non-toxic, reduce its toxicity, or substantially reduce its volume. An overview of the available treatment and disposal technologies is presented in Chapter 4 of the Solid Waste Management Plan.

III. Existing Facilities in Los Angeles County

A. General

A list of the treatment, storage, and disposal facilities (TSDF) in Los Angeles County, as compiled by a Department of Public Works

survey on generators listed with the State Department of Health Services and the State Board of Equalization, is included in Appendix 3A of the Solid Waste Management Plan. These facilities are identified by name, location, and waste management, technique used (i.e., treatment, storage) where appropriate.

Based on the information reported, there are 406 TSDFs in Los Angeles County. As shown in Table 3-43, the largest number are located in the City of Los Angeles with 86 TSDFs or 21 percent of the Los Angeles County total.

Further information concerning the major on-site and off-site land disposal facilities and major off-site treatment facilities are presented in the following sections.

B. On-Site Land Disposal Facilities

From the available data, there is only one major on-site disposal (landfarming) facility in Los Angeles County - Chevron USA (El Segundo). The Company is required to report its waste disposal quantities regularly to the Regional Water Quality Control Board.

C. Hazardous Waste Treatment Facilities

The information on major off-site hazardous waste treatment facilities provided in this section has been gathered from available public information sources, governmental agencies and private industries.

In addition, there are two mobile units under experimental permit in Los Angeles County.

1. Environmental Services Division, ENV, Inc. - Long Beach:

   The mobile unit serving Los Angeles and Orange Counties is under experimental permit for operation. The unit primarily treats process water from metal finishing processes and waste from deionized cylinders from plating companies.

2. IT - Los Angeles County:

   IT Corporation has a mobile centrifuge unit on experimental permit from the South Coast Air Quality Management Districts (SCAQMD). The unit is located at the Chevron Refinery and is used for treating oily wastes by separating oil, water, and solids.

15.9.2 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 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 that 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 New LPA alignment passes over a major oil field, according to geotechnical studies (Converse Consultants, 1981), and over fifty percent of this alignment is in ground classified as gassy or potentially gassy.

15.9.3 MITIGATION OF IMPACTS OF 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 define precisely the vertical and horizontal extent of tar sands. These borings will also include in site measurements of gas content and soil expansion potential.

- Laboratory testing of tar 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 street 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. (For additional information, see Converse Consultants, 1981.)

- The consultant firm of Engineering Sciences Co. has completed a study of methane gas along the Metro Rail alignment. Their report indicates the presence, concentrations and pressure of gas in a series of bore holes made along the route. The sensors will be left in place to assist in monitoring and safely extracting gas during construction. Their report includes specific criteria to be included in design and construction in order 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 twenty 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 TBM so that gas can be pumped out. 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 State Division of Safety and Health, which has responsibility for compliance with state orders on safety of subsurface tunneling through hazardous materials.

15.9.4 GROUNDWATER

There is groundwater at tunnel depths on all alignments. Indications are that this is perched water and not aquifers with the potential for substantial underground flows. Normal, limited dewatering is therefore anticipated and the permitting procedure outlined in the 1983 FEIS will be followed.

15.10 CONSTRUCTION IMPACTS OF THE NULL ALTERNATIVE

No rail-associated construction impacts are associated with the Null Alternative.

15.11 CONSTRUCTION IMPACTS WHICH CANNOT BE MITIGATED

Mitigation techniques have been identified for all the construction impacts of the New LPA. However, no combination of mitigation techniques will completely offset all of these impacts. Therefore, for each of the construction impacts discussed in this chapter, some residual, unmitigated impacts would occur.

15.11.1 COMMUNITY IMPACTS

Daily routines will be disrupted, since mobility of residents, visitors, and employees around construction site will be hampered. The increased traffic and noise from construction and dump trucks will be an inconvenience that cannot be avoided.

15.11.2 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 above-ground construction.

Tunnel segments require construction activity on the surface only at stations, at crossovers and pocket tracks and at ventilation/access shafts. The cut-and-cover type of construction involved in building the stations, crossovers and pocket tracks, however, is of a more continuous and disruptive nature and will take longer to complete than construction of the tunnels.

15.11.3 DUST AND NOISE

Under all construction alternatives, temporary increases in dust and noise will occur at construction sites and along the muck disposal routes, even after mitigation techniques are applied.

15.11.4 VEHICULAR TRAFFIC CONGESTION

Increases in traffic congestion in the vicinity of station construction sites probably will occur, despite the application of mitigation techniques, because of constricted road areas and the addition of construction traffic.

15.11.5 PARKING

Parking availability will be reduced in station environs where off-street yards for construction employee parking and equipment are not established.

SECTION 16: CULTURAL RESOURCES

This section presents an assessment of impacts to four types of cultural resources (historical, archeological, paleontological and parklands) that may be affected by the New LPA. The focus of discussion in this chapter is on potential adverse impacts and proposed mitigation measures.

The detailed architectural descriptions of the properties with their photographs, and discussions of properties with no effect or no adverse effect are contained in the "Technical Report on Cultural Resources", SCRTD, 1988.

16.1 PROJECT STATUS

The appropriate Section 106 consultation has been completed for the initial segment of the Metro Rail Project, Minimum Operable Segment-1 (MOS-1), which is now under construction. The impacts on Cultural Resources of MOS-1 are discussed in the FEIS published in 1983 and the Environmental Assessment (EA) for the MOS-1 published in 1984. Contained in these documents are the mitigations for adverse impacts on Cultural Resources. Also contained therein is the Memorandum of Agreement (MOA) which is now being implemented between the SCRTD, the Urban Mass Transportation Administration (UMTA), the State Historic Preservation Officer, and the Advisory Council on Historic Preservation (ACHP). This agreement outlines specific mitigation measures to be implemented on Metro Rail. These measures, such as archeological and paleontological monitoring of excavation work, have been implemented for MOS-1 construction and will be carried forward into the monitoring of future construction activities for the New LPA.

16.2 HISTORIC PROPERTIES

16.2.1 GENERAL REQUIREMENTS AND COMPLIANCE

A cultural resources inventory and assessment was conducted in accordance with the requirements of the National Historic Preservation Act of 1966 (Public Law 89-665, As Amended), the National Environmental Policy Act (NEPA) 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 NEPA affords the Advisory Council on Historic Preservation (ACHP) 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 (hereinafter referred to as the National Register). Procedures for implementing Section 106 are provided in 36 CFR 800, "Protection of Historic and Cultural Properties."

16.2.1.1 Coordination with the State Historic Preservation Officer

The SCRTD has coordinated with the State Historic Preservation Officer (SHPO) since the preparation of the Alternatives Analysis/First Tier EIS/EIR in 1978-1980. The SCRTD staff has continued this coordination through meetings, field trips, and correspondence to resolve issues on scope of work, Areas of Potential Effect (APE), project timing and scheduling, and documentation content. In accordance with the MOA, the SHPO will continue to participate actively in the environmental review process and will review the New LPA station plans and final designs that involve cultural resources prior to construction.

16.2.1.2 Coordination with the Los Angeles Conservancy, Hollywood Heritage, and the Los Angeles Cultural Heritage Board

Two private groups, the Los Angeles Conservancy (LAC) and Hollywood Heritage participated in this study. The City of Los Angeles Cultural Heritage Board was also consulted. The directors of all three organizations have been consulted about the architectural significance of potentially affected properties, areas of particular interest to each group, and definition of potential impact areas. The LAC has participated in field visits to sites in question and in meetings with staff of the SCRTD. Hollywood Heritage also consulted with SCRTD staff on a number of occasions during preparation of this document.

16.2.2 IDENTIFICATION OF HISTORIC PROPERTIES

Historic Properties that would be affected by the six candidate alignments are contained in the November 1987 Draft SEIS/SEIR and in its May 1988 Addendum. The New LPA properties are discussed in this SEIS/SEIR.

Areas of Potential Effect (APE) were determined based on the same criteria used in the 1983 FEIS. Maps of the APEs are contained in the 1988 Cultural Resources Technical Report. Historic properties for which determinations of eligibility and effect were completed in the 1983 FEIS are not discussed. Such properties are located along Wilshire Boulevard west of Alvarado Street and on Lankershim Boulevard, north of Universal City.

The properties within the APEs were evaluated to determine if they were of historic age and significance, or had been determined eligible for or were listed on the National Register of Historic Places. Lists of all properties investigated are included in the 1988 Cultural Resources Technical Report. Where properties were determined to be listed on the National Register, eligible for listing or potentially eligible for listing, they were referred to the State Historic Presentation Officer for determination of eligibility. The SHPO provided conclusions as to eligibility in a letter dated November 16, 1988 (Figure 3-17). Figure 3-18 shows the approximate location of each property affected.

16.2.3 APPLICATION OF CRITERIA OF EFFECT

Section 106 of the National Historic Preservation Act directs federal agencies to assess the effects of their projects on any district, site, structure, or object included in or eligible for the National Register.

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STATE OF CALIFORNIA – THE RESOURCES AGENCY
GEORGE DEUKMEJIAN, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 942896
SACRAMENTO, CALIFORNIA 94296-0001
(916) 445-8006

November 16, 1988

Mr. James E. Crawley, P.E.
Director of Engineering/Rail Facilities
Southern California Rapid Transit District
425 South Main Street
Los Angeles, CA 90013

Reply To: UMTA820708A

Dear Mr. Crawley:

Re: Los Angeles Metro Rail- LPA; Determinations of National Register Eligibility and Effect

Thank you for providing me with an opportunity to review and comment on the decision by the SCRTD Board of Directors to construct an all-subway LPA for the next phase of the Metro Rail Project. As a result of the Board's decision, the SCRTD has:

1. delineated an APE for the LPA applying the definition used throughout the consultation process for this undertaking.

2. identified and evaluated properties within the LPA APE for their historic significance under the National Register Criteria.

3. Determined the effects on historic properties of the LPA.

APE

I concur with the LPA APE as defined because it is consistent with the precedent we have been using throughout and because no compelling new circumstances now exist that warrant reconsideration of our approach to delineating APEs for this undertaking.

National Register Eligibility

1. Korean Philadelphia Presbyterian Church

We agree that this property, whose boundaries are the legally recorded lot lines, is eligible for inclusion in the National Register under Criterion C of the National Register Criteria.

2. Parklane Apartments

The additional documentation provided was helpful in determining that this property, whose boundaries are the legally recorded lot lines, is eligible for inclusion in the National Register under Criterion C as a good example of Bryant's work in this eclectic style.

3. Nicholas Priester Building

The additional documentation provided was helpful in determining that this property, whose boundaries are the legally recorded lot lines, is eligible for inclusion in the National Register under Criterion C as a good example of Weston and Weston's work.

4. El Cadiz Apartments

This nicely executed Spanish Colonial Revival design by Milton Black has considerable integrity and is eligible for inclusion in the National Register under Criterion C. The legally recorded lot lines are the historic property boundary.

5. Harry Gordon Residence

Not enough of the 1904 property's original integrity survives to qualify this structure for inclusion in the National Register under either Criterion B or C; nor do successive alterations create an entity distinguished enough in its own right to qualify for inclusion in the Register.

6. Atkinson/Farnum/Swain Residence

This property is eligible for inclusion in the National Register under Criterion C as a fine local example of Mediterranean Revival architecture. The property might also qualify under Criterion B if it is the surviving resource most closely associated with William Farnum's importance as a silent motion picture star. Further research would be needed to establish such importance. The legally recorded lot lines are the historic property boundaries.

7. Durfee Residence

This property is eligible for inclusion in the National Register under Criterion C as a rather rare and good example of a Shingle Style inspired residence in the local context. It appears to have good integrity and might also qualify for inclusion in the Register under Criterion B if the association with Farnum described in #6, above, could be established. The property's boundaries are the legally recorded lot lines.

Effects

Section VI of the MOA executed for this undertaking stipulates that "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. The standard established to achieve this is 35 dB(A). As an added precaution, SCRTD is inspecting the condition of properties within

the LPA APE and where necessary, will install underpinning for greater support and stability.

Based on the use by SCRTD of these standards and precautionary measures, I concur in your determination that the following historic properties will not be affected by the LPA: Korean Philadelphia Church; Parklane Apartments; Barnsdall Park and A & C Building; Hollyhock House; Atkinson/Farnum/Swain Residence; Durfee Residence.

Based upon my review of the construction proposals for MacArthur Park, I concur in your determination that the preferred alternative will not adversely affect this historic property. Disruptions and impacts to the Park will be temporary and are reversible. Affected vegetation as well as furniture and fixtures will be restored and the present condition of the lake improved. If carried out as proposed, the preferred alternative will not jeopardize the Park's National Register status. I would suggest, however, that if they do not already exist in sufficient quantity and quality, that HABS-acceptable photos of affected portions of the Park be taken prior to the start of construction.

Assuming that your intended use of a floating slab trackbed and soft fasteners will successfully meet the 35 dB standard, I concur in your determination that the LPA will not adversely affect either the United Church of Religious Science or the El Cadiz Apartments. Since the Harry Gordon residence does not appear to be historic, an effect determination is not necessary.

I also concur in your determination that neither the planned optional station entrance 300 feet south of the Priester Building nor station construction within the Hollywood Boulevard Historic District will adversely affect these historic properties so long as applicable sections (IV A, B) of the project MOA are observed.

Finally, I concur in your finding that owing to the manner in which effects of the LPA on historic properties will be taken into account, there is no need to amend the project MOA.

You must now notify the Advisory Council on Historic Preservation about the foregoing determinations of no adverse affect and supply the Council with appropriate summary documentation in accordance with 36 CFR 800.5(1)(i). Be sure to include a copy of this letter in your submittal to the Council.

If you have any questions concerning this response to your request for comments or require additional assistance with this matter, please call Hans Kreutzberg at (916) 322-9621.

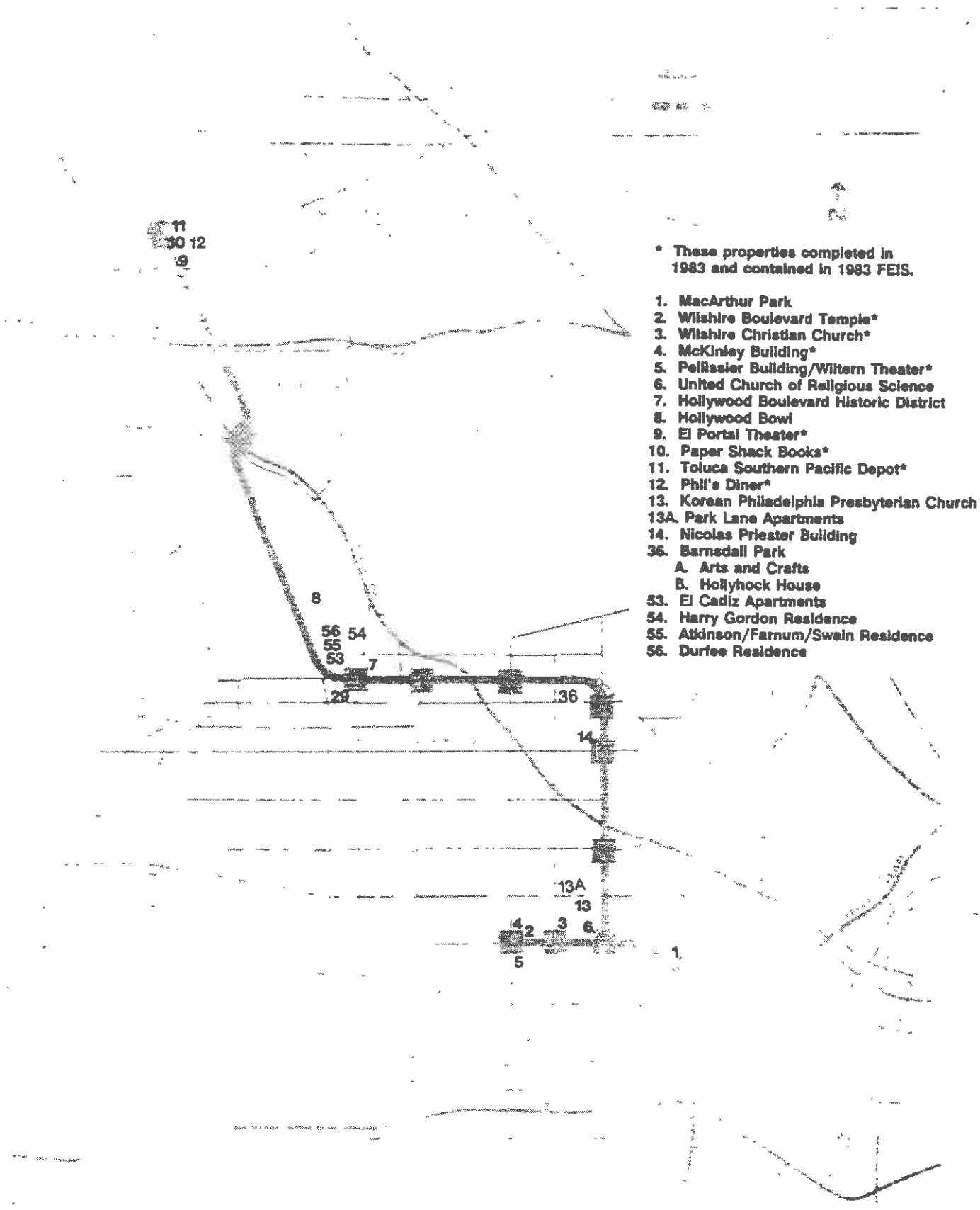
Sincerely,

Kathryn Gualtieri
State Historic Preservation Officer

cc: ACHP

FIGURE 3-18

CORE STUDY AREA AFFECTED CULTURAL RESOURCES
NEW LOCALLY PREFERRED ALTERNATIVE



The ACHP has established guidelines to assist agencies in determining whether a historic property will be affected by a project and whether this effect is adverse. As cited in 36 CFR 800.9(a):

> An undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of a property's location, setting or use may be relevant depending on a property's significant characteristics and should be considered.

Based on the Criteria of Effect, the District found that there would be "No Effect" on six properties as shown in Table 3-46 for the reasons listed.

- Korean Philadelphia Presbyterian Church, 407 South New Hampshire Ave. The alignment passes under the street in front of the church, at least 60 feet away from and 65 feet down. The Project noise and vibration criteria of 35 dB(A) will be met.

- Parklane Apartments, 3333 West Fourth Street. The alignment passes directly under the apartments at a depth of 60 feet, with projected noise levels of 34 to 39 dB(A). This is within the project noise and vibration criteria of 40 dB(A) for multifamily dwellings. A subsurface easement will be acquired.

- Barnsdall Park and the Arts and Crafts Building, 4800 Hollywood Boulevard. The New LPA will tunnel under the northeast corner of Barnsdall Park where a parking lot is located (see Figure 3-19). It will pass about 50 feet north of and 90 feet below the Arts and Craft building, where the noise and vibration levels would be within the criteria of 35 dB(A). A subsurface easement will be acquired.

- The Hollyhock House, 4808 Hollywood Boulevard. This building is in Barnsdall Park but southwest of the Arts and Crafts Building. The New LPA will be about 450 feet north of and 105 feet below Hollyhock House. Noise and vibration levels will be within the criteria of 35 dB(A).

- Atkinson/Farnum/Swain Residence, 2003 La Brea Terrace. The alignment will tunnel under this property at a depth of some 180 feet. A subsurface easement will be acquired, however noise and vibration levels will be less than the criteria of 35 dB(A) for single family residences.

- Durfee Residence, 2003 1/2 La Brea Terrace. The alignment will tunnel under this property at a depth of some 180 feet. A subsurface easement will be acquired, and noise and vibration levels will be less than the criteria of 35 dB(A) for single family residences.

TABLE 3-46

HISTORIC PROPERTIES FOR WHICH METRO RAIL NEW LPA WILL CAUSE NO EFFECT, NO ADVERSE EFFECT, AND ADVERSE EFFECTS

Historic Resource	Location	Level of Eligibility (See Notes)	Type of Effect: No Effect	No Adverse Effect	Adverse Effects
1 MacArthur Park	Wilshire at Alvaredo	2		X	
6 United Church of Religious Science	3251 6th Street	2		X	
7 Hollywood Blvd Historical District	6223-7501 Hollywood Bl.	1		X	
13 Korean Philadelphia Presbyterian Church	407 S. New Hampshire	4	X		
Parklane Apts.	333 W. 4th Street	4	X		
14 Nicholas Priester Bldg.	1101 N. Vermont	4		X	
36 Barnsdall Park, Arts & Crafts Building	4800 Hollywood Bl.	1	X		
Barnsdall Park, Hollyhock House	4808 Hollywood Bl.	1	X		
53 El Cadiz Apts.	1725 N. Sycamore Av.	3		X	
55 Atkinson/Farnum/Swain Residence	2003 N. La Brea Terr.	3	X		
56 Durfee Residence	2003 1/2 N. La Brea Terr.	3	X		

Notes: This table does not include properties along Wilshire Boulevard or north of Universal City for which Determinations of Eligibility or Effect have been made in the 1983 FEIS.

The designation of eligibility is determined through field survey, research, and the following criteria established for use on the State of California Historic Resources Inventory Form (DPR 523):

1. Individually listed on the National Register of Historic Places.
1D Listed on the National Register as part of a district.
2. Determined individually eligible to the Register by the U.S. Department of Interior.
2D. Determined eligible only as part of a district.
3. Appears eligible for individual listing.
3D Appears eligible for listing only as a contributor to a potential National Register District.
4. May become eligible for listing when:
   a) more historical or architectural research is performed;
   b) the property is restored to an earlier appearance;
   c) more significant examples of the property's architectural style are demolished;
   d) the property becomes old enough to meet the Register's 50-year requirement;
4D May become eligible (as above) only as a contributor to a district.

By letter dated November 16, 1988, reproduced in Figure 3-17, the SHPO agreed with this determination of "No Effect" for the Korean Philadelphia Presbyterian Church, Parklane Apartments, Barnsdall Park, Hollyhock House, Atkinson/Farnum/Swain Residence and Durfee Residence.

16.2.4 DETERMINATION OF NO ADVERSE EFFECT

The ACHP has developed criteria to determine whether a proposed project will have an adverse effect on a property included in, eligible for, or potentially eligible for the National Register. These Criteria of Adverse Effect are described in 36 CFR 800.9(b). The SCRTD has applied the Criteria of Adverse Effect to the six remaining properties, and has determined that there will be no adverse effect on these properties for the following reasons:

- o No part of any of the properties will be altered or destroyed.

- o The proposed project will not isolate the properties from or alter the existing surrounding environment. A more detailed discussion of this issue is contained below.

- o The project will not produce visible, audible, or atmospheric elements that are out of character with the property or alter its setting. A discussion of this point as it relates to individual properties is presented below.

- o The proposed project will not contribute to neglect of these properties resulting in the property's destruction or deterioration.

- o Implementation of the project does not require the transfer, lease, or sale of these properties.

6.2.4.1 Discussion of Cultural Properties Affected

Each cultural property for which a Determination of No Adverse Effect was made is discussed below.

MacArthur Park, Wilshire Boulevard/Alvarado Street

During construction of the Project, it will be necessary to install a pocket track for storage of trains west of the Wilshire/Alvarado Station. It is also necessary to drain the MacArthur Park lake and prepare the lake bottom in order to construct a tunnel across the Park, either by cut-and-cover or tunneling machinery. The SCRTD has prepared an engineering study of construction alternatives, which indicates that the most feasible location for placement of a pocket track is under the MacArthur Park lake. This study was incorporated into the May 1988 Addendum to the Draft SEIS/SEIR and is summarized in Section 3.15.2.1 of the Addendum and Section 15.3 of this chapter. Other alternatives would cost considerably more or would require extensive disruption to nearby traffic on Wilshire Boulevard.

The chosen Construction Option B calls for a cut-and-cover subway tunnel with a pocket track through the lake bed at a cost of up to $23.6 million. The lake will be drained for 24 months, and its bottom will be cleaned, restored with a permanent lining, and covered with sand or asphalt. The water aeration and fountain system will be rehabilitated. On the east side of the park, the subway will be constructed in a cut from Alvarado to the lake shore with the sidewalk area decked to allow pedestrian traffic. Pedestrian circulation along the park's east side will be rerouted via the sidewalks. After construction, the park will be restored to its original condition through reuse of furniture and fixtures, and replacement of landscaping features.

Construction through MacArthur Park will take 24 months during which at lease 90 percent of the land area of the park will remain open to use. The park's boating concession will be idle during the 24 months that the lake is drained.

Presently, approximately 250 people use the boats on peak summer holidays and weekends while 50 people use the boats on weekdays and during the winter months.

Mitigation measures for this temporary use of land from MacArthur Park include the restoration mentioned above, lease of the parkland occupied by construction activities, payment for a subsurface easement, and compensation for the loss of business by concessionaires. If desired, SCRTD will investigate scheduling construction, for an additional $1.8 million, so that the lake would be drained for only one peak summer season.

Because of the temporary nature of the impacts on the park and the mitigation measures to be applied, the SCRTD believes there will be no permanent adverse effects to the property and recommends a finding of "No Adverse Effect".

United Church of Religious Science, 3251 6th Street

In action unrelated to the Metro Rail Project, the United Church of Religious Science has demolished an administrative building on the northwest corner of 6th Street and New Hampshire Ave. This building was the only portion of the religious complex that was eligible for listing on the National Register. The church has also demolished some outbuildings and apartments on its property. The remaining church buildings were constructed in the 1960's and are not historic. The Church plans to build a new administration building to replace the old building.

The New LPA will tunnel under the remaining church building at a depth of 35 to 40 feet, potentially introducing an element of noise. The projected noise level in the church from trains operating at 45 miles per hour is 43 to 48 dB(A), which is above the established criterion of 35 dB(A) for a church. With the use of a floating slab trackbed, the noise level would be reduced to 26 to 31 dB(A), which meets the project criteria. A subsurface easement would be acquired. Since the remaining church buildings are not historic and therefore ineligible for the National Register, this impact is only of interest from the point of view of the noise level in the church facility and is not of concern in the Section 106 process. This impact is fully described and mitigation measures adopted in Section 8, Noise and Vibration, of this chapter.

Nicholas Priester Building, 1101 North Vermont Avenue

An optional station entrance is planned approximately 300 feet south of the building and in its view. The design of the station entrance will be in character with and compatible with surrounding urban environment. The Locally Preferred Alternative would not introduce visual, audible, or atmospheric elements that would be out of character with the property.

Hollywood Boulevard Historic District, 6223-7501 Hollywood Boulevard

The New LPA would tunnel under Hollywood Boulevard through the Hollywood Boulevard Historic District with stations constructed by cut-and-cover at Hollywood/Argyle and at Hollywood/Highland. The entrances of these stations will be visible from historic buildings that contribute to the Historic District,

introducing the potential for atmospheric elements that will be out of character with the property of alter its setting.

At the Hollywood/Argyle station, the visual environment of the Taft Building at 6264 Hollywood Boulevard on the south side of Hollywood Boulevard, will be affected by planned station entrances on the south side of Hollywood Boulevard just east of Gilbert's Books and on the north side of Hollywood Boulevard between Argyle and Vista del Mar Avenues. The Pantages Theatre at 6233 Hollywood Boulevard will be affected by the planned station entrance on the south side of Hollywood Boulevard just east of Gilbert's Books.

At Highland Avenue station, the entrance will be on the north side of Hollywood Boulevard, east of Mann's Chinese Theatre and separated by an intervening building. The entrance will not be visible from the Chinese Theatre's facade, but will be visible from the El Capitan/Paramount Theatre at 6834 Hollywood Boulevard and from the Masonic Temple at 6840 Hollywood Boulevard on the south side of Hollywood Boulevard.

At both stations the design of the entrances will be compatible with the existing urban environment. The alignment would not introduce visual, audible, or atmospheric elements that are out of character with or that would cause the neglect, transfer, or sale of the Hollywood Boulevard Historic District. As requested by the SHPO and in accordance with Section IV.A and IV.B of the Memorandum of Agreement for the Metro Rail Project, SCRTD will develop design guidelines to insure compatibility, develop the plans for the station entrances in consultation with SHPO, and will provide copies of correspondence and the agreed-on plans to interested local agencies.

El Cadiz Apartments, 1725 North Sycamore Avenue

The New LPA will tunnel directly under the El Cadiz Apartments at a depth of approximately 60 feet. The projected noise levels will be from 37 to 42 dB(A), slightly over the project criteria of 40 dB(A) for multifamily dwellings. With the application of soft fasteners the levels will be reduced to 30 or 35 dB(A), within the project criteria. A subsurface easement will be acquired. The alignment will not introduce any other elements that are out of character with or that would cause the neglect, transfer, or sale of the resource.

By letter dated November 16, 1988, reproduced in Figure 3-17, the SHPO agreed with the determination of "No Adverse Effect" for MacArthur Park, United Church of Religious Science, Nocholas Priester Building, Hollywood Boulevard Historic District and the El Cadiz Apartments.

16.2.5 DETERMINATION OF ADVERSE EFFECT

After applying the criteria of Effect, SCRTD found that the New LPA would not cause an adverse effect on any historic properties within the APE for the New LPA. In a letter dated November 16, 1988 (refer to Figure 3-17), SHPO concurred with this finding.

16.2.6 CONCURRENCE OF ACHP

The ACHP, by December 30, 1988 endorsement of an UMTA letter dated December 16, 1988, subject: "Section 106 Process, Los Angeles Metro Rail, Phase 2", concurred with the project efforts to document the eligibility of properties involved, and the effects of the project on historic and cultural resources along the New LPA alignment. The UMTA letter, with ACHP endorsement, is shown in Figure 3-20.

16.3 ARCHAEOLOGICAL RESOURCES

For a discussion of the archaeological resources affected by the MOS-1 segment and the Valley segment of Metro Rail, see the 1983 FEIS (Chapter 4), the 1984 MOS-1 EA, and the Archaeological Resources Technical Report (SCRTD, 1983). As noted in Section 1 of this chapter, the Null Alternative, being a "no-build" alternative, would have no direct effect on archeological resources.

In preparation for the construction of MOS-1, the SCRTD published a "Treatment Plan for Potential Cultural Resources Within Proposed Metro Rail Subway Station Locations in Metropolitan Los Angeles, California, November, 1985." This Plan established general procedures to be followed in protecting cultural resources encountered during construction, specific procedures for the protection of resources anticipated at individual station areas, and procedures for handling the discovery of unanticipated resources.

Although SCRTD does not anticipate finding any archaeological resources during construction of the New LPA, it will follow the provisions of the mentioned Treatment Plan for handling unanticipated discovery of cultural resources.

16.3.1 EXISTING CONDITIONS

For the CORE Study, the SCRTD searched available maps and literature to determine if the Metro Rail Project would affect prehistoric or historic cultural remains or buildings. The research revealed that the stations are located in highly urbanized areas, where several waves of development have removed, destroyed, or disturbed archaeological remains. The detailed findings of the study are contained in the "CORE Study Archaeological Technical Report, October, 1987."

16.3.2 IMPACT ASSESSMENT AND MITIGATION

Review of historical documents resulted in the identification of one property with the potential to contain significant cultural resources which, if they should be found to retain their integrity, may be eligible for inclusion in the National Register.

16.3.2.1 Vermont/Santa Monica

An area known as "Two Springs" was located near the southeast corner of Santa Monica and Vermont in 1873. And, immediately to the south, on the west side of Vermont, the house of M. Sullivan was located. While these locations appear to be outside of the direct station impact area, it is not possible to correlate the locations accurately with the present road alignment, and outbuildings or

U.S. Department of Transportation
Urban Mass Transportation Administration

CONCUR

DEC 3 0, 1988

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY

Western Area Office

211 Main Street
Room 1160
San Francisco, California 94105

DEC 16 1988

RECEIVED
1989 JAN -5

DEC 23 1988

Mr. Robert Fink, Director
Western Office of Project Review
Advisory Council on Historic Preservation
730 Simms Street, Room 450
Golden, Colorado 80401

Re: Section 106 Process
Los Angeles Metro Rail
Phase II

Attention: Lee Keating

Dear Mr. Fink:

The purpose of this letter is to notify the Advisory Council on Historic Preservation of the completion of the Determination of Elgibility and Determination of Effect for Phase II of the Los Angeles Metro Rail Project. The SHPO, in a letter dated November 16, 1988, has concurred that the Metro Rail Project will have No Adverse Effect on the involved historic properties.

Section 106 Process

Section 106 of the National Historic Preservation Act directs Federal agencies to assess the effects of their projects on any district, site, structure, or object included in or eligible for the National Register of Historic Places. The Council has established guidelines to assist agencies in determining whether a historic property will be affected by a project and whether this effect is adverse.

In connection with the Los Angeles Metro Rail Project, the Southern California Rapid Transit District (SCRTD) on behalf of the Urban Mass Transportation Administration (UMTA), requested the SHPO to make Determinations of Eligibility and Effect on historic properties that are within the Areas of Potential Effect (APE) of the second phase of the project. Attachment 1 contains a copy of the SHPO's response, which found that there are eleven properties eligible for listing on the National Register. The SHPO concurred with the District and UMTA that the project would have No Effect on six of the properties, and No Adverse Effect on the remaining five properties.

Finding of No Adverse Effect

According to 36 CFR 800.5(d), the Federal Agency shall notify the Council of the SHPO's concurrence in a finding of No Adverse Effect and submit to the Council summary documentation supporting the finding. That documentation required in the Council's pamphlet entitled, "Section 106, Step-by-Step" is attached to this letter and is described briefly in the following paragraphs.

Maps of the project area are provided through a schematic drawing of the Locally Preferred Alternative (LPA) in Attachment 2, profile maps of the LPA in Attachment 3, and maps of the APE's containing the affected properties in Attachment 4.

The name of the project is the Los Angeles Rail Rapid Transit (Metro Rail) Project. The affected properties lie within the second phase of the project. A brief description of the project is contained in Attachment 5. This new preferred alignment differs from the previously approved alignment in the 1983 FEIS in the middle portion from Wilshire/Vermont to Universal City. The section from Union Station to Alvarado, now under construction, and the alignment from Universal City to North Hollywood remain the same.

Attachment 6 contains copies of California Historic Resources Inventory Forms or other descriptions of the historic properties subject to effect. These forms identify the properties and describe their significance.

The District and UMTA have applied the Criteria of Adverse Effect to those properties for which an effect was found. Attachment 7 explains why the project will have no adverse effect on the properties involved. It also indicates what mitigation measures are to be applied for each property and where the District commits to these mitigation measures in the SEIS/SEIR.

The written concurrence of the SHPO in a November 16, 1988 letter is included as Attachment 1.

Interested persons and agencies have commented on the project's impact on cultural resources. These comments and the District's responses are found in the Cultural Resources section of Chapter 7 of the proposed final SEIS/SEIR under CR 3, 6, 10 and 11. Extracts from the pertinent comments are in Attachment 8.

Memorandum of Agreement (MOA)

The original 1983 FEIS contained the overall project MOA which was signed by the Council, UMTA, the California SHPO, and the District. A copy of the MOA is enclosed for your information as Attachment 9. This MOA is still in effect and will continue to apply to Phase II. Therefore, we do not feel that a revised or new MOA is needed.

Please review the enclosed documentation and let us know whether you object to the determination of No Adverse Impact for the five subject properties. If we do not hear from you within 30 days, we will proceed with the final supplemental environmental finding for the project per 36 CFR 800.5(d)(2).

If you have any questions concerning the project, please contact Ms. Carmen Clark at (415) 974-7317.

Sincerely

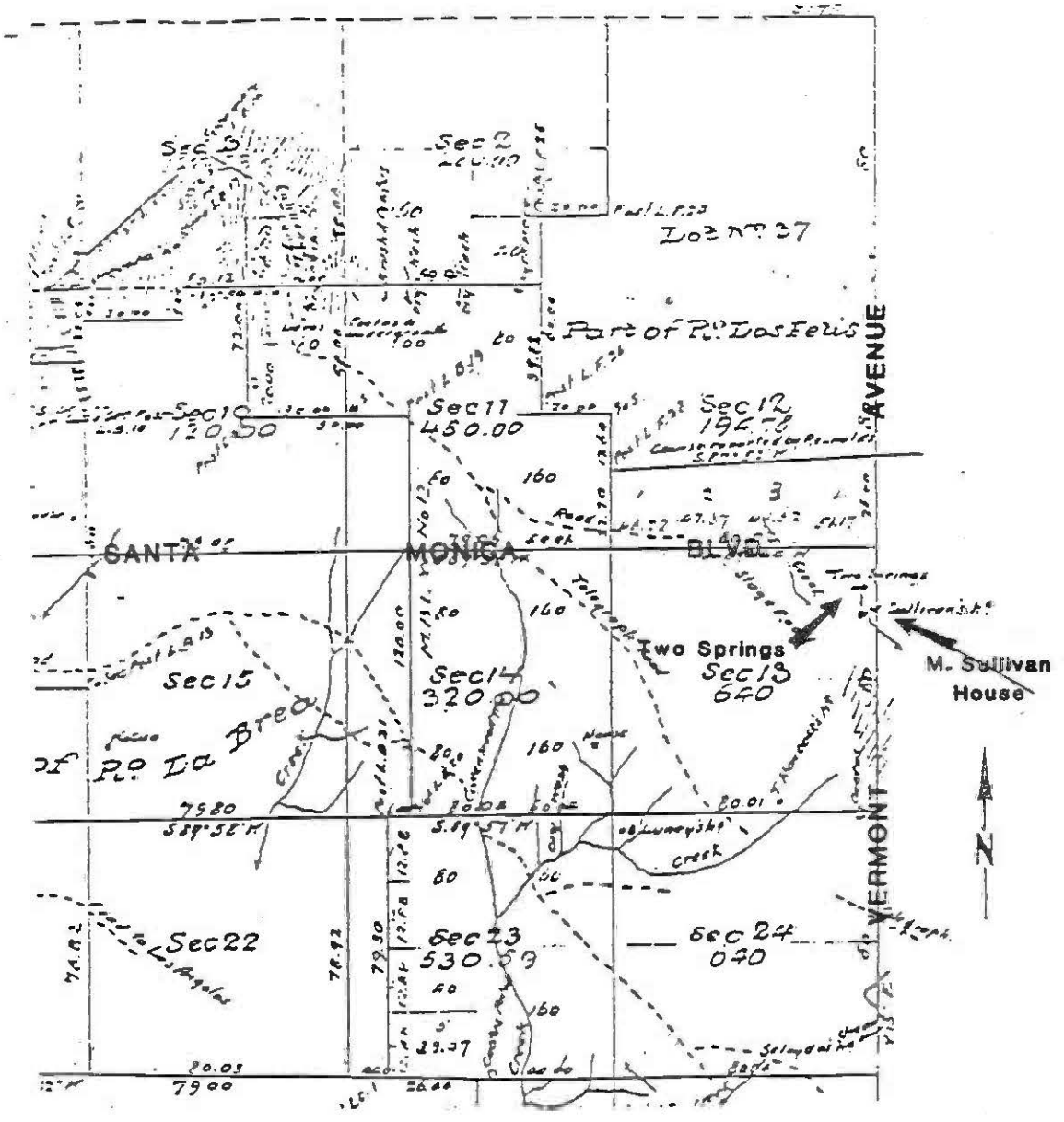
Brigid Hynes-Cherin
Western Area Director

Attachments

cc: Gualtieri, SHPO
Pegg, SCRTD
Taylor, LACTC

FIGURE 3-21

ARCHAEOLOGICAL RESOURCES AT VERMONT/SANTA MONICA



SOURCE: U. S. Land Office Survey, 1873. On file, Bureau of Engineering, Map No. 499.

(Emphasis added)

facilities of an isolated homestead of this early date could occur for some distance away from the house. The springs and the State Road depicted on Figure 3-21 suggest a node on an early transportation corridor.

There is further potential for prehistoric remains originating from Indian use of the springs. Any intact resources have potential significance for the study of Indian sites in an area which was never surveyed prior to development, and for the historical archaeology of travel and settlement in an outlying area remote at the time from central Los Angeles. Only a few isolated wood frame houses existed on either side of Vermont as late as 1919, and only a brick market and bakery, without basement, had been added by 1942.

Mitigation

It cannot be determined without field testing whether prehistoric or Nineteenth Century resources may be present. During construction, mitigation will follow the Treatment Plan as indicated above. A Project Archaeologist will be contracted and will monitor construction near Vermont Avenue and Santa Monica Boulevard as determined appropriate during final design and similar to the procedure followed for MOS-1.

16.3.2.2 Null Alternative

No rail construction beyond MOS-1 activity is associated with the Null Alternative; therefore, no disturbances of archaeological resources except those found in MOS-1 are anticipated.

16.4 PALEONTOLOGICAL RESOURCES

A discussion of paleontological resources potentially affected by the Metro Rail Project may be found in the FEIS, Chapter 4, pages 43 to 49. Additional information is provided in the Paleontological Resources Technical Report for the CORE Study.

16.4.1 EXISTING CONDITIONS

The New LPA alignment has been divided into four segments to facilitate a review of the subsurface stratigraphy and to allow an assessment of the potential for encountering fossil remains during project excavations. Fossiliferous marine and nonmarine sedimentary rock units of middle Miocene to Holocene Age are virtually ubiquitous in the Los Angeles basin. All of these units, except the younger (Holocene) alluvium, alluvial fan deposits, and igneous rock within the Topanga Group, are considered to have moderate to high potential for yielding fossil remains. The paleontologic resources of the units that would be encountered in each segment of the New LPA as well as additional information on the resources not included in the FEIS, are summarized below and described in greater detail in the 1987 Paleontological Resources Technical Report.

16.4.1.1 Mid-Wilshire Segment (Wilshire/Alvarado to Wilshire/Western)

The Puente Formation will be encountered from the Wilshire/Alvarado Station to the Wilshire/Normandie station at depths greater than thirty to forty feet.

Older (Pleistocene) alluvium occurs at shallower depths. Bivalve mollusks have been found in bore hole samples from the Puente Formation. Additional mollusks were found during excavation of the Fifth/Hill Station and a shark tooth was recovered from this unit during excavation of the Wilshire/Alvarado Station. Elsewhere, this formation has produced other marine vertebrates, as well as continental vertebrate and plant remains. The lower part of the Quaternary alluvium (Palos Verdes Sand) has yielded marine bivalve mollusks in the MOS-1 area. Continental vertebrate remains are commonly found in the upper part of the alluvium in this area. These occurrences indicate that a diversity of fossil remains may be encountered in the Puente Formation between the Wilshire/Alvarado and Wilshire/Normandie Stations. Between the Wilshire/Normandie and Wilshire/Western Stations, older alluvium would be encountered from the surface to depths of fifty to sixty feet. Deeper tunneling would reach the San Pedro, Puente, and Fernando Formations, which have yielded marine vertebrate and invertebrate fossils, as well as continental vertebrate fossils in the case of the San Pedro Formation. Although no known fossil sites occur along this portion of the segment, a moderate potential for uncovering a diversity of fossils during excavation exists.

16.4.1.2 North Segment (Wilshire Boulevard to Hollywood Boulevard)

Excavation of the segment north of Wilshire Boulevard along Vermont Avenue will encounter older alluvium and the Puente Formation and has a moderate potential for encountering a diversity of fossils (see Section 16.4.1.1, Mid-Wilshire Segment).

16.4.1.3 Hollywood Segment (Vermont Avenue to Highland Avenue)

Excavation of this segment will encounter mostly alluvial fan deposits and younger alluvium, which will have only a low potential for yielding fossils. Just west of Vermont Avenue, the Puente Formation, which has a moderate potential for yielding a diversity of fossils, will be encountered (see Section 16.4.1.1, Mid-Wilshire Segment).

16.4.1.4 Valley Segment (Cahuenga Pass to Lankershim/Chandler)

Most of this segment will be constructed in the Topanga Group. Sedimentary rock of the Topanga Group occurs in the southern portion of the segment between the Hollywood/Vine and Hollywood/Highland Stations, and in the northern portion beyond Cahuenga Pass. There is no known fossil site along this part of the proposed route, but the occurrence of numerous marine invertebrates and some continental vertebrate and plant fossil sites from exposures of this unit within the Santa Monica Mountains indicates that there would be at least a moderate potential for encountering a diversity of fossils during excavation of sedimentary rock within the Topanga Group. The central portion of the segment from the Hollywood/Highland Station to west of Cahuenga Pass will cross unfossiliferous igneous rock within the Topanga Group.

Between the Universal City and North Hollywood Stations, younger alluvium, which has only a low potential for containing fossil remains, will be encountered to depths of about fifty to eighty feet. Older alluvium underlies the younger alluvium. There exists a moderate potential for uncovering continental

vertebrate remains during excavation of this segment, if the older alluvium is encountered at depth.

16.4.2 IMPACT ASSESSMENT AND MITIGATION

The sensitivity of paleontologic resources to the adverse impacts of excavation reflects an assessment of the potential for disturbing fossil remains. This assessment is based on the rock unit that would be encountered and the number of fossils and sites that unit has produced in the local area. There are no known highly significant and sensitive paleontological resources along the New LPA alignment. However, potentially fossiliferous rock would be disturbed in all segments considered. During tunneling activities, any fossils encountered would be so disturbed that no useful information could be obtained. Monitoring will not be done during tunneling.

All paleontologic mitigation work conducted to alleviate the adverse impacts of excavation will be done following the guidelines in the Treatment Plan referred to in Section 16.3 above.

16.4.2.1 Mid-Wilshire Segment (Wilshire/Alvarado to Wilshire/Western)

Impact: There exists a moderate potential in the middle segment for disturbing a diversity of fossils in the Puente and Fernando Formations and the older alluvium.

Mitigation: SCRTD will contract with a Project Archaeologist, who will provide paleontological monitoring of the excavation of stations at Vermont, Normandie, and Western Avenues. Investigations will begin when the older alluvium or an underlying unit was reached. Excavation of younger alluvium will only be spot checked. If widely varied or highly significant fossils were found in any unit, monitoring may be extended to cover excavation of that unit on a full-time basis.

16.4.2.2 Northern Segment (Wilshire Boulevard to Hollywood Boulevard)

Impact: There exists a moderate potential for disturbing a diversity of fossils from the Puente Formation and older alluvium.

Mitigation: Monitoring of the excavation for stations at Beverly Boulevard, Santa Monica Boulevard, and Sunset Boulevard will be on a part-time or as-needed basis. Monitoring will be conducted in the manner described for the Mid-Wilshire Segment (see Section 16.4.2.1).

16.4.2.3 Hollywood Segment (Vermont Avenue to Highland Avenue)

Impact: There exists a moderate potential for disturbing a diversity of fossils from the Puente Formation in the area just west of Vermont Avenue. A low potential for disturbing fossils in the alluvial fan deposits and younger alluvium exists.

Mitigation: Excavation of these units at the Hollywood/Western and Hollywood/Vine Stations and the Hollywood/Bronson Transition will be spot checked. Monitoring

will be conducted in the manner described for the Mid-Wilshire Segment (see Section 16.4.2.1).

16.4.2.4 Valley Segment (Cahuenga Pass to Lankershim/Chandler)

Impact: Excavation of sedimentary pack within the Topanga Group may have the potential for disturbing a diversity of fossils. Excavation of older alluvium may have a moderate potential for disturbing vertebrate fossils.

Mitigation: Deeper excavation of the Universal City and North Hollywood Stations will be monitored on a part-time or as-needed basis if sedimentary rock or older alluvium, respectively, is encountered. Monitoring will be conducted in a manner similar to the Mid-Wilshire Segment (see Section 16.4.2.1).

16.5 MEMORANDUM OF AGREEMENT

The Memorandum of Agreement executed for the Metro Rail Project in November 1983 by the SHPO, Advisory Council on Historic Preservation, UMTA, and SCRTD is still in effect and is governing the actions of SCRTD as it constructs the first phase of the Project, Minimum Operable Segment (MOS-1). Since there is no "Adverse Effect" by the Metro Rail Project on any historic properties, there is no need for a revision to the Memorandum of Agreement for the Project. In a letter dated November 16, 1988, (Figure 3-17) the SHPO concurred with SCRTD that no revisions to the MOA would be needed.

16.6 SECTION 4(f) EVALUATION

16.6.1 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 waterflow 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.

There are two parks affected by the Locally Preferred Alternative. These are MacArthur Park at Wilshire Boulevard and Alvarado Street and Barnsdall Park at Hollywood Boulevard and Vermont Avenue. These are discussed in the following sections. In compliance with Section 4(f) requirements, a study was undertaken to examine construction alternatives and impacts on MacArthur Park. Section 15.3.1 of this chapter discusses this study and its conclusions. Other parks in the Regional Core, not affected by the New LPA, are listed and discussed in the 1983 FEIS, Chapter 4, Section 5.2, and the 1980 Final Alternatives Analysis/Environmental Impact Statement/Review, Chapter VII, Section D.

16.6.2 USE OF PARKS LANDS AND RECREATION AREAS

16.6.2.1 MacArthur Park

Description and Significance

MacArthur Park is a landscaped city park of approximately 32 acres bounded by Sixth Street, Parkview Street, Seventh Street and Alvarado Avenue. It is bisected by Wilshire Boulevard and contains an eight and one-half acre lake in its south half. A map of the park is shown in Figure 3-13, pg. 3-15-4.

Acquired January 6, 1886 in exchange for other city lands, the park was originally called Westlake Park and renamed in 1942 in honor of General Douglas MacArthur. Determined unusable for commercial purposes because of its swamp-like character, Mayor Workman matched citizen and city funds to convert it into a park. By the 1890's, the lake was enlarged and pathways established. There was boating and a bandstand to attract visitors. Trolleys provided transportation to the park and gradually, major pieces of art were erected in the park. The sculpture by Nina Saemundsson (1935), Paul Troubetskoy (1920), and the contributions of H.L. Chapin (Sundial and Triton on Dolphin, 1936) and a statue financed and constructed by the Hungarian community in 1969 all contribute to the community's cultural awareness through time and art. In support of this, the park was designated an historical cultural monument (#1000) by the City of Los Angeles in 1972.

Wilshire Boulevard was cut through the middle of the park in 1934. The gateways at the northwest and southwest corners are zig-zag Moderne with two massive, stepped, concrete pillars on either side of the entry path. Solid concrete balustrades with bench ledges connect each pillar to smaller posts beside the sidewalk. The boulevard through the park is bordered on both sides by a low cut-out concrete wall with bas-relief ornamentation. The bridge over the connecting path is in the same style as the wall and the gateway, with Moderne elements. At the eastern entrance is an eight-foot tall black cast concrete statue of Prometheus. This was constructed in 1935 for the Federal Art Project by Nina Saemundsson. Another piece of artwork located at the western entrance is a statue of Harrison Gray Otis, designed by Paul Troubetzky. A statue of Hayn Solomon was moved from Hollenbeck Park to MacArthur Park in 1953. Street furniture includes Nineteenth Century style carriage lamps designed by King Lighting. A statue of General Douglas MacArthur was erected in 1955. A new bandshell was constructed in 1957. In 1973, MacArthur Park received extensive remodeling and facelifting with a new boathouse. Other features of the park include a playground, a small amphitheater, a recreation center, and lake. Landscaping incorporates palm, eucalyptus, pine and jacaranda trees as well as small plants and shrubs.

Proposed Use

The New LPA will be in tunnel under MacArthur Park from east to west. The Metro Rail Project requires temporary cut-and-cover construction along the west lakeshore, through the lake, and through the east side of MacArthur Park to emplace a pocket track for storing disabled and out-of-service subway trains.

During final design this plan will be refined and may include access to the lake from Seventh Street.

Alternatives

The alternatives to using MacArthur Park for temporary construction are summarized below. A full discussion is in the February 1988 Technical Report prepared by SCRTD consultants.

The alternatives are not to build the next phase of the Metro Rail Project, to move the route alignment to miss the park, and to delete or move the pocket track.

It is not feasible to forego building the next phase of the project. The 1983 FEIS and the draft SEIS/SEIR showed that there would be more impacts on the environment if the next phase were not built. Categories that would benefit from construction of the next phase are community mobility and accessibility, land use and development of city centers, and regional air quality.It is not feasible to move the tunnel to avoid traversing MacArthur Park. The end of MOS-1 is on the east side of Alvarado Street, about 100 feet from the east edge of MacArthur Park. The absolute minimum horizontal curve allowed for the project is a 750 foot radius, which would require encroachment on MacArthur Park and the lake regardless of any realignment. The absolute maximum vertical slope allowed is 4% for sustained grades and 6% for short segments. In order to pass under the soft muck and weathered siltstone that would have to be removed from the bottom of the lake to reach competent rock that would support a tunnel, the alignment would have to drop at 6.1% for 390 feet. This distance is considered a sustained grade; therefore the required slope exceeds the maximum slope allowed for either a sustained grade or for a short segment of track. This means that under any other alternatives the lake bottom must be drained and the lake bottom prepared for tunneling.

It is not feasible or prudent to delete the pocket track. A pocket track is required to remove stalled or unsafe trains from mainline service during operating hours. It must be strategically located so that trains can be quickly removed from the mainline to reduce the potential for hazardous operating conditions. The preferred location is on the trunk line before the branch, in this case between the Wilshire/Alvarado and Wilshire/Vermont stations. A pocket track for a subway system can be emplaced by cut-and-cover, tunneling, or mining. Of these methods the least expensive is cut-and-cover, while mining could be several times more expensive.

It is not feasible or prudent to move the pocket track. If the pocket track is not placed on the trunk line, it must be placed on one of the branch lines. On a branch line, a pocket track will be unable to quickly and safely accept trains that fail on the other branch line, leading to disruptive and potentially dangerous train delays. Pocket tracks could be placed on both of the branch lines, but at double the cost. If the pocket track is placed on the trunk line it must be placed either under Wilshire Boulevard adjacent to the Wilshire/Vermont Station or in MacArthur Park. On Wilshire Boulevard the required cut-and-cover construction would disrupt traffic for from 20 to 26 months, causing delays for tens of thousands of motorists daily and disrupting

retail and commercial businesses along Wilshire. Adjacent to Wilshire/Vermont Station the cut-and-cover would lie along Wilshire Boulevard and would but through and remove several commercial buildings, causing both traffic and business disruptions. Since the bottom of MacArthur Lake must be prepared for tunneling or for cut-and-cover construction with the lake drained it is most prudent and feasible to emplace the required pocket track under MacArthur Lake at the same time.

Three options involving tunneling under MacArthur Park and emplacing the pocket track under Wilshire Boulevard were examined. Three more options for emplacing the pocket track under MacArthur Lake were examined.

The preferred option is Option B, under which the lake would be drained and fenced off, muck removed, pocket track excavated and emplaced, lake bottom restored, and lake refilled. Portions of the park and lake will be out of service for 24 months. Option B was chosen for the following reasons:

- At $23.6 million, it is less expensive than any of the tunneling options (A, A-1, or A-2), or the other cut-and-cover options, B-1 or B-2.
- As a cut-and-cover option, it avoids the traffic disruptions that would be associated with tunnel in the park and pocket track in Wilshire Boulevard, and
- The 24 month construction period is the shortest of the cut-and-cover options and shorter than all but one of the tunneling options.

Mitigation

Mitigation measures are discussed in Section 16.6.2.1, Mitigation of this chapter.

- Overall mitigation measures will consist of community involvement and awareness as an integral part of the construction activities to minimize construction impacts.
- The current hotline number used for MOS-1 construction will be retained for the New LPA construction and will be prominently posted and disseminated in a number of locations at or near the construction staging area.
- Public information activities begun under MOS-1 will be continued and will include meetings with the MacArthur Park Community Council Los Angeles, individual meetings with merchants, community residents, organizations and City Council Members. Dissemination of publications such as "Metrogram" will be made by mail or personal deliveries.
- SCRTD will refine its construction program to minimize the period of time that the Wilshire/Alvarado Station serves as an interim terminal. The SCRTD is committed to advancing the opening of the

Wilshire/Vermont Station to lessen the short-term impact on MacArthur Park and to improve system access to bus patrons.

The following additional mitigation measures associated with the cut-and-cover options will be implemented.

- After construction, the park and lake will be restored to its original condition through the use of furniture and fixtures and replacement of landscaping features.

- The lake bottom will be entirely cleaned, regraded, restored with a permanent lining and bottomed with a sand or an asphalt cover. The lake will be filled with fresh water. These improvements, at a cost of approximately $2 million, will result in fewer and shorter maintenance cycles for cleaning the lake in the future.

- Access to and use of the entire park area north of Wilshire Boulevard will be maintained, and construction activities on the south side of Wilshire will be restricted to the smallest practicable area.

- Park visitors will be allowed to continue using the area surrounding the lake with the exception of the narrow access areas over the tunnel segments on the east and west sides of the lake.

- An estimated $1.2 million will be provided for a temporary construction easement through the park and lake. The actual amount is subject to negotiations with City of Los Angeles agencies.

- In response to community concerns, SCRTD will pay special attention to aesthetics, cleanliness, and security of the construction site.

- The lake's aeration and filtration system will be refurbished or replaced.

- The concessionaires disrupted by the project will be compensated as authorized by law.

- Incentive clauses in construction contracts will be investigated so that the total scheduled construction time will be lessened.

- To provide additional mitigation, a shorter construction schedule will be considered so that only one peak summer period would be impacted by the drained lake, at an additional cost of $1.8 million (Alternative B-2).

Coordination

The member of the Los Angeles City Council for the MacArthur Park area and the Department of Recreation and Parks have been consulted throughout the CORE Study and Preliminary Engineering. They will review the final design for the construction and will participate in negotiations for the leases and easements needed for construction and operations.

In letters to UMTA, dated February 8 and June 15, 1988, the Office of Environmental Project Review, U.S. Department of Interior concurred that there is no feasible and prudent alternative to the (temporary construction) use of MacArthur Park and concurred with all measures to minimize harm to the property. See Figures 3-22 and 3-23.

16.6.2.2 Barnsdall Park

Description and Significance

Barnsdall Park is a landscaped outdoor park at the southwest corner of Vermont Avenue and Hollywood Boulevard. The park is on a hilltop and consists of approximately 14 acres of lawns, trees, roadways and buildings. Several of the buildings, including the Arts and Crafts Building and Hollyhock House were designed by Frank Lloyd Wright. The park also contains an art gallery and associated cultural facilities and activities.

Proposed Use

The New LPA will be in tunnel under the northeast corner of Barnsdall Park, 50 feet away from and 90 feet below the nearest of the historic buildings (see Figure 3-24). Noise and vibration levels would be below the Project criteria. Acquisition of subsurface easement is necessary. Because the Metro Rail Project will be completely underground in the vicinity of Barnsdall Park, and the level of ground-borne noise generated in buildings of the park by the operation of trains will be within the project criteria, SCRTD finds that there is no "use" of the property as contemplated by Section 4(f) of the DOT Act. This finding is supported by the finding of the SHPO in consideration of the effects the Metro Rail Project would have on the properties under the provisions of Section 106 of the National Historic Preservation Act. In a letter to SCRTD dated November 16, 1988, the SHPO concurred with SCRTD that there would be "No Effect" on Barnsdall Park from the Metro Rail Project.

Alternatives

The New LPA was chosen in part to avoid adverse impacts associated with other alternatives that had aerial rail structures crossing the northeast corner of Barnsdall Park. These alternatives would have introduced visual and audible elements into the park's setting which could have detracted from its character. These other alternatives are described in the November 1987 Draft SEIS/SEIR and in its May 1988 Addendum. Since the all-subway New LPA will cause "No Effect" on the park, SCRTD does not consider further study of alternatives to be necessary.

FIGURE 3-22

February 8, 1988
Letter from U.S. DOI acceptance 4(f) alternatives and mitigation measures for MacArthur Park.

FIGURE 3-23

United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
WASHINGTON, D.C. 20240

ER 87/1277

JUN 15 1988

RECEIVED
SCRTD - TSD
TRANSIT FACILITIES

JUN 17 1988

ITEM # 3025

FILE #

Ms. Carmen C. Clark
Urban Mass Transportation Administration
Region IX
211 Main Street, Suite 1160
San Francisco, California 94105

Dear Ms. Clark:

This responds to your request for the Department of the Interior's comments on the addendum to the draft supplemental environmental statement for the **Los Angeles Rapid Rail Transit** project, Los Angeles County, California.

The newly proposed Alternative 6, a combination of Alternatives 3 and 4, produces no new impacts to Section 4(f) resources, or other resources of concern to this Department. Consequently, our previous comments on Alternatives 3 and 4 are also applicable to Alternative 6.

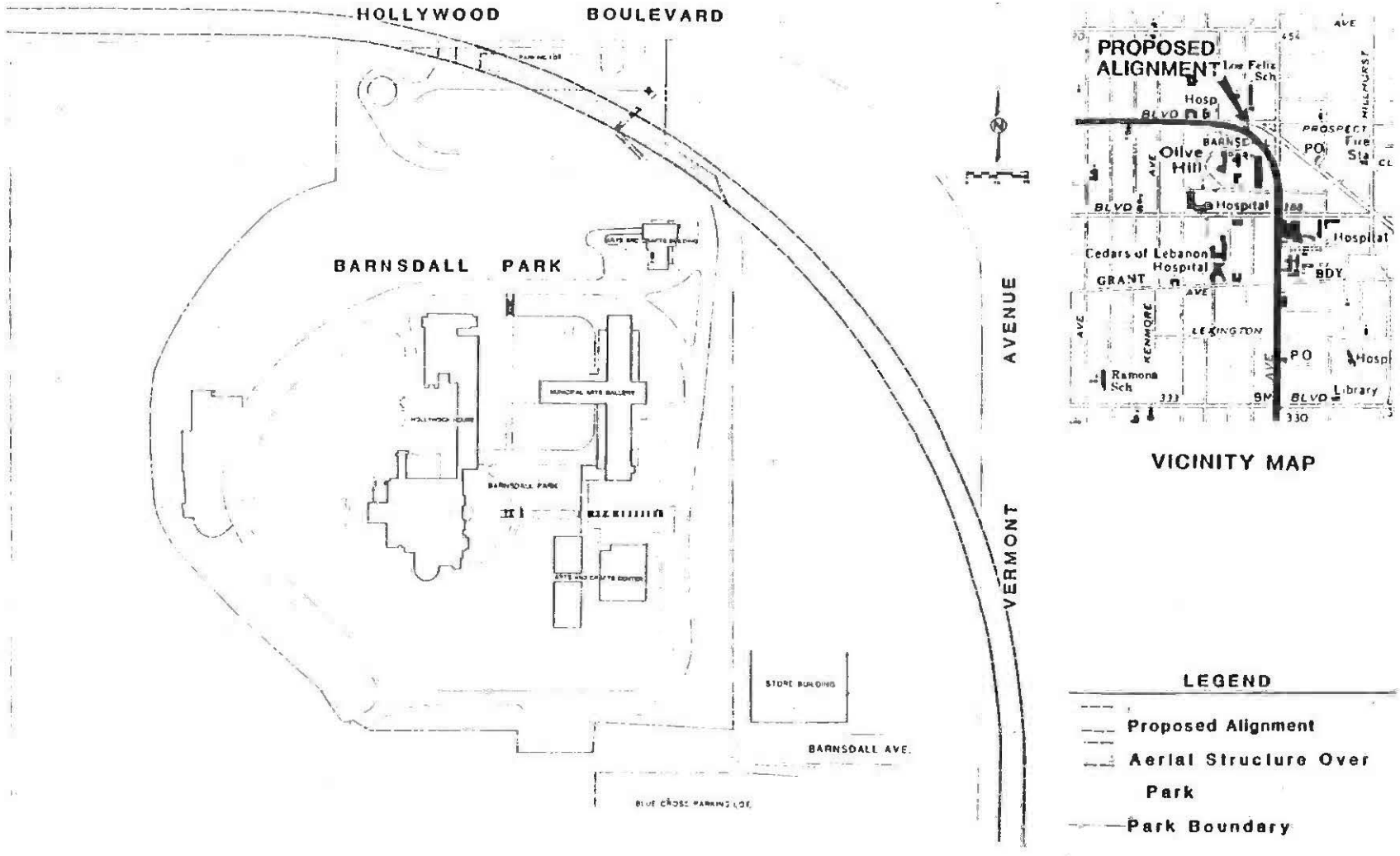
The Department of the Interior has no preference with regard to the various construction options for the project's involvement with McArthur Park. Our major concern here is that the park be restored to pre-project condition after construction, and that any incidental damages (for adverse impacts such as the temporary restriction of park access) are paid to the satisfaction of the Los Angeles Department of Recreation and Parks.

Thank you for the opportunity to provide these comments.

Sincerely,

Bruce Blanchard, Director

cc: Mr. Nadeem Tahir
Manager, Environmental Engineering
Southern California Rapid Transit District
425 South Main Street
Los Angeles, CA 90013



BARNSDALL PARK

SOURCE: Southern California Rapid Transit District

FIGURE 3-24

3-16-29

Mitigation

The New LPA will not affect the park, so no mitigation measures are necessary.

Coordination

SCRTD has consulted with the City of Los Angeles Department of Recreation and Parks throughout the CORE Study.

16.6.3 Use of Historic Properties

The New LPA will have "No Effect" or "No Adverse Effect" on eleven historic properties as described in Sections 16.2.3 and 16.2.4 of this chapter. Therefore, there is no use of historic properties as defined in Section 4(f) of the D.O.T. Act.

CHAPTER 4: COST ANALYSIS OF PROJECT OPTIONS

SECTION 1. CAPITAL COSTS

1.1 INTRODUCTION

Operating costs, capital costs, and bus and rail patronage data for the bus and rail modes are presented in this chapter. Capital costs have been annualized and combined with annual operating costs to determine total annual costs, based on a 30-year life for rail facilities, a 100-year life for right-of-way, a 25-year life for rail cars, and a 12-year life for buses (as defined in "Procedures and Technical Methods For Transit Project Planning," UMTA, February 1986). The annualized capital costs are calculated with a discount rate of ten percent as recommended by the U.S. Department of Transportation. Cost efficiencies are calculated to provide a means of comparing the performance of project options. Additionally, a marginal cost analysis was performed to define the incremental financial burden associated with the construction and operation of an extended rapid rail system beyond that provided by MOS-1 under the Null Alternative (Phase I).

Four alternative operable segments are identified as project options for MOS-2, the second construction segment of the New Locally Preferred Alternative for Metro Rail. These options are listed here:

- Case 1: Temporary terminal stations at Wilshire/Western and Hollywood/Vine;
- Case 2: Temporary terminal stations at Wilshire/Western and Universal City;
- Case 3: Temporary terminal stations at Wilshire/Vermont and Universal City;
- Phase II: The full alignment with terminal stations at Wilshire/Western and North Hollywood.

1.2 CAPITAL COST ESTIMATES

All capital cost estimates have been revised extensively since publication of the Draft SEIS/SEIR. Current estimates are based on specific construction and procurement bid experience on MOS-1. Unit costs for tunneling, aerial guideway, and stations have been revised to reflect recent bid experience and, in some cases, more stringent guidelines related to safety and the maintenance of traffic during construction. Capital cost data for the alternative operable segments of Phase II of the New LPA are presented in Table 4-1 for the following cost categories: construction and procurement; contingencies, design and construction management; right-of-way; and insurance and agency costs. The components of each cost category are described briefly.

1.2.1 CONSTRUCTION AND PROCUREMENT

Contracts that have been let for projects on MOS-1 have a favorable bid experience relative to cost estimates. The experience gained on MOS-1

TABLE 4-1
CAPITAL COSTS:
NEW LPA AND ALTERNATIVE OPERABLE SEGMENTS
(Millions of 1985 Dollars)

Alignments & Segments	Construction and Procurement	Contingency, Design and Construction Management	Right-of-Way	Insurance Agency And Other	Total
MOS-1: Null	$ 586	287	91	187	$1,151
MOS-2: Case 1 (Wilshire/Western & Hollywood/Vine)	700	194	51	122	1,067
MOS-2: Case 2 (Wilshire/Western & Universal City)	974	259	94	182	1,509
MOS-2: Case 3 (Wilshire/Vermont & Universal City)	864	227	85	170	1,346
Phase II	1,088	288	125	197	1,698
New LPA Alignment	1,674	575	216	384	2,849

Source: SCRTD

construction has resulted in refined, more accurate cost estimates for all facility and system components of capital costs.

Construction and procurement costs are based on unit costs per linear foot of tunnel and cut-and-cover construction and applied to lengths taken off current plan and profile sheets. Average costs are used for each station, with special costs for three of the stations (North Hollywood, Universal City, and the over-under station at Wilshire/Vermont). Other costs for tail tracks, crossovers, systems, rights-of-way, etc. were derived from earlier cost estimates based on specific quantities.

1.2.2 DESIGN AND CONSTRUCTION MANAGEMENT

Specifications, typical sections, and a variety of design standards have been developed for MOS-1, and only minor modifications are anticipated for the next phase of Metro Rail design. Consequently, the design and construction management fee is estimated at 15% of facility cost for subway alignment. With regard to systems components, the design and construction management fees are estimated

at 10% of cost for trackwork and fans and air handling equipment. A significant level of development for all other system components during MOS-1 resulted in selection of a fee of 5% of costs for these systems.

1.2.3 AGENCY FEE

SCRTD estimated the annual man-years of effort to be expended on the next phase of Metro Rail by each of 19 Divisions. A total of 688.5 man-years of effort are projected. The addition of overhead yields the cost of labor. Other costs to be added include supplies, telephone, travel and related costs. Professional consulting fees for planning, design, and geotechnical studies are included in agency fees. A contingency fee of 15% of costs is added to yield total agency fees.

1.2.4 INSURANCE FEES

The SCRTD estimated the many aspects of the insurance program for the next phase of Metro Rail including Workman's Compensation, deductible, liability premiums, and administrative costs.

1.2.5 RIGHT-OF-WAY COSTS

SCRTD has prepared detailed estimates of the New LPA's right-of-way requirements and, with up-to-date cost information, developed cost estimates for right-of-way purchases and easements. The right-of-way cost includes a 30% add-on for contingency purposes.

1.2.6 CONTINGENCY FEES

A contingency fee is included in all cost estimates to account for unexpected design modifications and other factors which may result in a higher cost. Contingency fees are specifically included in several cost elements such as right-of-way and agency fees and indirectly in cost elements such as insurance fees and the design and construction management fees. SCRTD has included a contingency for facilities and system components amounting to 15% of costs. However, passenger vehicle design is complete and a fixed price procurement contract for vehicles has been awarded. Thus, no contingency fee is charged to vehicles.

1.2.7 OPERATING AND MAINTENANCE COSTS

Annual bus and rail operating costs of the New LPA in the Year 2000 are presented in Table 4-2 for MOS-1 plus options for Phase II.

TABLE 4-2
YEAR 2000 BUS AND RAIL OPERATING COSTS
FOR PHASE I AN
ALTERNATIVE OPERABLE SEGMENTS OF PHASE II
(Millions of 1985 Dollars)

Alignment and Segments		Bus System	Metro Rail	Total Cost
MOS-1:	Null	$542.6	15.4	$558.0
MOS-2:	Case 1 (Wilshire/Western & Hollywood/Vine)	535.3	27.8	563.1
MOS-2:	Case 2 (Wilshire/Western & Universal City)	534.0	31.6	565.6
MOS-2:	Case 3 (Wilshire/Vermont & Universal City)	539.9	33.8	573.7
New LPA Full Alignment:		532.0	34.1	566.1

Source: SCRTD.

SECTION 2. ANALYSIS OF ANNUAL COSTS OF MOS-2 OPTIONS FOR PHASE II

The capital and operating costs associated with the Null Alternative and MOS-2 options for Phase II of the New LPA are presented in Table 4-3. The basis for these cost estimates is presented in the cost sections of the preceding section. A summary of the costs associated with each project option is presented below.

Upon the publication of the Final SEIS/SEIR, UMTA will be negotiating with the SCRTD to amend the existing MOS-1 full funding contract in order to include the construction of the selected MOS-2 option for Phase II. The costs of the New LPA must be validated prior to that negotiation.

2.1 NULL ALTERNATIVE

The annualized construction cost associated with the Null Alternative is zero, because no construction would take place. However, annualized replacement costs for the regional bus fleet are estimated to be $29.1 million. The analysis of costs yields an average annual cost per passenger boarding of $1.39 in December 1985 dollars. The Null Alternative has no incremental development beyond the MOS-1 system; therefore, the marginal analysis is not applicable.

2.2 NEW LPA MOS-2: CASE 1

The annualized rail construction costs of Case 1 (to the Wilshire/Western and Hollywood/Vine stations) for MOS-2 is $113.1 million. Annualized bus replacement costs for the bus fleet are estimated to be $29.1 million. The analysis of average costs indicates that the sum of total annual operating costs and total annualized capital costs produces an average annual cost per passenger boarding of $1.24 in December 1985 dollars.

The marginal cost of providing rail service to the Regional Core would be $2.03 per year per passenger over the 30-year life of the system. The marginal cost for the regional rail/bus transit system would be $0.81. The marginal operating efficiency or operating cost per passenger per day would be 20 cents for the rail system and 3 cents for the combined rail/bus system.

2.3 NEW LPA MOS-2: CASE 2

The annualized rail construction costs of Case 2 (to the Wilshire/Western and Universal City stations) for MOS-2 is $159.8 million. Annualized bus replacement costs for the bus fleet are estimated to be $28.8 million. The analysis of average costs indicates that the sum of total annual operating costs and total annualized capital costs produces an average annual cost per passenger boarding of $1.32 in December 1985 dollars.

The marginal cost of providing rail service to the Regional Core would be $2.50 per year per passenger over the 30-year life of the system. The marginal cost for the regional rail/bus transit system would be $1.10. The marginal operating

TABLE 4-3

COST EVALUATION OF THE LOCALLY PREFERRED ALTERNATIVE
AND ALTERNATIVE OPERABLE SEGMENTS

SYSTEM COSTS (1) (Millions of Dec 1985 Dollars)	MOS-1 Rail	PHASE II Case 1 (W/W & H/V)	PHASE II Case 2 (W/W & UC)	PHASE II Case 3 (W/V & UC)	FULL LPA
Capital Costs					
o Bus Replacement	348.7	348.7	345.3	350.7	344.9
o Rail Construction	0	1,067.1	1,508.7	1,345.6	1,661.9
Annualized Capital Costs (2)					
o Bus Replacement	28.1	28.1	28.8	28.2	28.7
o Rail Construction	0	113.1	159.8	142.6	176.0
o Total	28.1	142.2	188.6	171.8	204.7
Annual Operating Costs					
o Bus	542.6	535.3	534.0	534.0	532.0
o Rail	15.4	27.8	31.6	31.6	34.1
o Total	558.0	563.1	565.6	565.6	566.1
Total Annual Costs					
o Bus	571.7	564.4	562.8	562.8	560.7
o Rail	15.4	140.9	191.4	191.4	210.1
o Total	587.1	705.3	754.2	754.2	770.8
AVERAGE COST ANALYSIS					
Passengers					
o Bus	405.1	489.2	486.2	498.1	486.0
o Rail	17.0	78.8	87.3	84.2	90.3
o Total	422.1	568.0	573.5	582.3	576.3
Annual Cost Per Passenger					
o Rail	.91	1.79	2.19	2.09	2.37
o Rail + Bus	1.39	1.24	1.32	1.28	1.34
Operating Efficiency (3)					
o Rail	.91	.35	.36	.40	.38
o Rail + Bus	1.32	.99	.99	.99	.98
MARGINAL COST ANALYSIS (4)					
Marginal Annual Cost Per Marginal Passenger					
o Rail	N/A	2.03	2.50	2.40	2.71
o Rail + Bus	N/A	.81	1.10	.99	1.22
Marginal Operating Efficiency					
o Rail	N/A	.20	.23	.27	.26
o Rail + Bus	N/A	.03	.05	.10	.05

(1) All System Costs exclude MOS-1 rail construction costs. MOS-1 has approved funding and is under construction operating costs are system-wide estimates.
(2) Capital Costs are annualized using a 10% discount rate with an economic life of 30 years for the rail component and 12 years for buses.
(3) Operating cost divided by passengers.
(4) Marginal analysis is based on the incremental change in costs and passengers compared with the Null Alternative.

W/W = Wilshire/Western Station
H/V = Hollywood/Vine Station
UC = Universal City Station
W/V = Wilshire/Vermont Station

Source: SCRTD and General Planning Consultant.

efficiency or operating cost per passenger per day would be 23 cents for the rail system and 5 cents for the combined rail/bus system.

2.4 NEW LPA MOS-2: CASE 3

The annualized rail construction cost of Case 3 (to the Wilshire/Vermont and Universal City stations) for MOS-2 is $142.6 million. Annualized bus replacement costs for the bus fleet are estimated to be $29.2 million. The analysis of average costs indicates that the sum of total annual operating costs and total annualized capital costs produces an average annual cost per passenger boarding of $1.28 in December 1985 dollars.

The marginal cost of providing rail service to the Regional Core would be $2.40 per year per passenger over the 30-year life of the system. The marginal cost for the regional rail/bus transit system would be $0.99. The marginal operating efficiency or operating cost per passenger per day would be 27 cents for the rail system and 10 cents for the combined rail/bus system.

2.5 PHASE II OF THE NEW LPA

The annualized rail construction cost of the New LPA is $179.7 million. Annualized bus replacement costs for the bus fleet are estimated to be $28.7 million. The analysis of average costs indicates that the sum of total annual operating costs and total annualized capital costs produces an average annual cost per passenger boarding of $1.34 in December 1985 dollars.

The marginal cost of providing rail service to the Regional Core would be $2.71 per year per passenger over the 30-year life of the system. The marginal cost for the regional transit system (rail plus bus) would be $1.22. The marginal operating efficiency or operating cost per passenger per day would be 26 cents for the rail system and 5 cents for the combined rail/bus system.

SECTION 3. PRELIMINARY FINANCIAL PLANNING

Anticipated sources for capital funds for construction of Metro Rail are:

- o UMTA Section 3 and Section 9 grants
- o State Guideway Fund
- o City of Los Angeles
- o Local private sources (i.e., Benefit Assessment Districts), and
- o Proceeds of the one-half cent sales tax in Los Angeles County, as administered by the Los Angeles County Transportation Commission.

The Full Funding Contract for the construction of MOS-1 provided for the authorization of $401,648,114 as the Federal share of construction cost, while acknowledging a shortfall of $203,651,886 in the proposed $605,300,000 Federal Section 3 requirement for MOS-1. The 1987 Highway Bill (H.R.2) was passed by Congress and included an authorization of $870,000,000 for Metro Rail. About $666.3 million will be available for the second construction segment of Phase II. The remaining portion of Phase II construction costs is to be funded by State, local and private sources. Details relative to the financial commitments of the funding partners to Phase II construction will be finalized during the negotiations for the Full Funding Contract.

The SCRTD has developed Financial Plans for the construction of MOS-2 options of Phase II of Metro Rail. Table 4-4 shows the proposed funding plans as well as historical data related to Metro Rail funding. The 1984 funding levels are shown for the Original LPA as agreed to by the various funding partners shortly after the publication of the 1983 FEIS. However, the UMTA was not able to provide this level of funding but did agree to a commitment of $605.3 million for MOS-1. The second column shows the levels of participation by each funding partner as agreed to in the Full Funding Contract of 1986 for the construction of MOS-1.

The total cost listed in Table 4.4 for each Phase II alternative is expressed in current dollars. A construction project schedule for Phase II was developed by the SCRTD and the December 1985 cost estimate was escalated at an annual rate of 4%. The summation of escalated project contract costs amounted to $2,243 million based on a starting date of October 1, 1988 and a completion date of October 1, 1995. These dates will be revised and new construction schedules developed for the second operable segment of Metro Rail, Case 1, and for the third operable segment of Metro Rail, the balance of Phase II. Thus, the current dollar cost of operable segment alternatives as tentatively defined in Table 4.4 will increase when a revised construction schedule is developed due to increased escalation costs.

Negotiations proceeding to the development of a full funding contract for an extension to MOS-1 are continuing with all funding partners.

TABLE 4-4

PROPOSED METRO RAIL FINANCING PLANS
FUNDING LEVELS BY SOURCE
(in millions)

SOURCE	Original LPA 1984 FUNDING LEVEL	NEW LPA 1986 FFC MOS-1	NEW LPA RECOMMENDED FUNDING LEVELS - PHASE II CASE 1 W/W & H/V	CASE 2 W/W & UC	CASE 3 W/V & UC	PHASE II PHASE II	FULL LPA
State Guideway Fund	$400	$213.1	$186.9	$267.4	$237.7	$301.9	$515.0
LACTC	412	176.6	419.8	611.0	540.5	693.0	869.6
City of Los Angeles	69	34.0	84.0	112.0	101.7	124.0	158.0
Benefit Assessment	185	130.3	53.0	68.5	47.1	75.0	205.3
UMTA-Sect 9	215	90.6	0.0	0.0	0.0	0.0	90.6
UMTA-Sect 3	2,099	605.3	666.3	666.3	666.3	666.3	1,271.6
Other Funds	0	0.0	0.0	267.8	184.7	382.8	382.8
Total	$3,380	$1,249.9	$1,410.0	$1,983.0	$1,778.0	$2,243.0	$3,492.0

W/W = Wilshire/Western Station
H/V = Hollywood/Vine Station
UC = Universal City Station
W/V = Wilshire/Vermont Station

Source: SCRTD; General Planning Consultant

2203
1993
250

CHAPTER 5: LONG-TERM AND CUMULATIVE IMPACTS

SECTION 1. UNAVOIDABLE ADVERSE IMPACTS

Most construction impacts associated with Metro Rail would be temporary and could be mitigated by SCRTD. Most long-term operational impacts associated with the Project also can be mitigated. However, the Metro Rail Project would result in some adverse impacts which could not be completely avoided or mitigated. Long-term unavoidable adverse impacts are identified below. Unavoidable, short-term construction impacts are identified in Section 15 of Chapter 3.

- Additional traffic is projected on local arterial and collector streets near Metro Rail stations. Metro Rail patrons looking for parking may "spillover" into adjacent residential areas or use parking normally available for customers or employees of businesses near stations.

- Displacements would occur in some station areas. 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 would not be relocated within the same station area. Also, some businesses may elect to terminate operations altogether.

- There is a small possibility that ground-borne noise from subway train operations could not be mitigated at some locations for economic or technical reasons.

- In the vicinity of the Vermont/Santa Monica Station, the archaeological remains of "Two Springs" and an early homestead may be affected by construction. To ensure protection of these potential resources, a qualified archaeologist will monitor construction activities and will implement data recovery programs, as necessary, according to the provisions of the Treatment Plan described in Section 16.3.3 of Chapter 3.

- The New LPA project option would require energy to construct and operate.

SECTION 2. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Construction of the New LPA would require the use and commitment of resources which must be weighed against the long-term benefits of building the system. Because the Null Alternative does not involve construction, only the resources used during operation would be committed. Uses of resources would include the following:

- Acquisition of commercial, industrial, and residential land for Metro Rail right-of-way;
- Displacement of residents and businesses;
- Potentially adverse effect on archaeological sites;
- Increased use of electricity.

The use of these resources is a recognized expenditure worth the investment when weighed against the benefits of transportation services provided by the system. By improving transit service and efficiency, the candidate alignments will achieve the following:

- Increased accessibility to employment, commercial, and recreational centers within the Regional Core;
- Improved travel time throughout the Regional Core by providing more efficient means of transportation between certain areas;
- Decreased total vehicle miles traveled (VMT) throughout the Regional Core;
- Accommodation of more concentrated yet regulated growth and development, satisfying regional growth goals;
- Aid in meeting land use and environmental goals and objectives in local and regional plans; and,
- Increases in the supply of residential and commercial units, through transit-induced development.

Benefits in these areas would not be as significant under the Null Alternative, because rail service would end at the Wilshire/Alvarado Station.

SECTION 3. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Construction of the New LPA would require the irreversible and irretrievable commitment of various resources, including land, manpower, energy, construction materials, and money.

Even though the vast majority of the Metro Rail will be located underground, land takings would be required at some locations to accommodate station entrances, mechanical systems, and ancillary functions. This 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.

Construction and operation of the New LPA would require the use of electricity and petroleum products. Energy for system operation primarily would be electricity supplied by the City of Los Angeles Department of Water and Power. Energy also would be used in construction of the rail vehicles.

Construction of the New LPA involves consumption of materials such as asphalt, cement, steel, lumber, and fabricated metals, a commitment of natural resources that would not otherwise occur. The commitment of materials to the options involving construction 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 Metro Rail Project would absorb some funding that might be used for other transportation projects in Los Angeles.

SECTION 4. CUMULATIVE IMPACTS

According to Section 15130 of the "Guidelines for the California Environmental Quality Act," analysis of cumulative impacts can be based on (1) a list of other local projects (list-based approach) that are under construction, approved, or under formal review (i.e., projects that are "reasonably foreseeable"), or (2) overall growth projections for the general planning area containing the project (planning-area approach). For specific development proposals, the list-based approach is adequate to identify potentially significant cumulative impacts. For an environmental impact report addressing a project area as large as the Regional Core, the planning area approach permits more thorough consideration of long-term cumulative impacts.

As described in Section 2 of Chapter 3, growth impacts in the Regional Core were projected by utilization of the SCAG 82 Modified Forecast, which was defined as the Dispersed Growth Condition for the Year 2000 reflecting the Null Alternative. The SCAG 82B Forecast was defined as a Maximum Impact Condition for the Year 2000 and is considered to reflect the concentration of growth impacts for the project options. The Dispersed Growth and the Maximum Impact Conditions are based upon differing sets of assumptions regarding the distribution of growth in the Regional Core in the Year 2000. The Dispersed Growth Condition assumes that expected growth would be distributed evenly throughout the Regional Core. The assumptions utilized for the Maximum Impact condition differ from the Dispersed Growth Condition in two ways: (1) the Regional Core would receive a slightly higher share of total regional growth, and (2) Regional Core growth would be more concentrated in designated City Center areas.

Environmental effects of the project options that would contribute to cumulative adverse impacts include localized traffic congestion, parking spillover impacts at certain station locations, influences on the location of new growth, and increases in localized air pollutant emissions and noise levels. The analyses of these issues below are based on anticipated area-wide growth as described above. More information on the environmental impacts of projected growth in the Regional Core can be found in the Draft and Final EIS/EIR prepared for the SCAG 82 Growth Forecast Policy (Southern California Association of Governments, 1982), which is incorporated herein by reference. Following is a description of the methodologies utilized to predict cumulative adverse environmental effects which would be produced by the project in conjunction with anticipated growth by the Year 2000.

4.1 TRAFFIC

Section 1 of Chapter 3 describes both existing and projected traffic conditions for the Null Alternative. The traffic conditions under the Null Alternative were derived by incorporating SCAG projections of new development and traffic loads for the Year 2000 traffic model. The model generated potential traffic situations to reveal the cumulative impacts under each project option. Section 1 of Chapter 3 analyzes the cumulative impacts at intersections critical to station access. Although localized increases in traffic are expected with the

operation of Metro Rail, a decrease in overall traffic volumes would be expected in the Regional Core due to Metro Rail.

4.2 PARKING

Existing parking conditions also are discussed in Section 1 of Chapter 3. This information and the land use projections contained in Section 2 of Chapter 3 were included in a parking model to derive the parking conditions for the Null Alternative. Parking demand information for the New LPA was incorporated in the model to obtain cumulative impacts. These impacts are discussed in Section 1 of Chapter 3. As with traffic, localized parking impacts will occur, although overall parking demand in the Regional Core should increase at a reduced rate with the Metro Rail project. The Null Alternative would not produce such a reduction in parking demand and would have limited effect on parking in the Los Angeles CBD and Westlake areas.

4.3 ECONOMIC AND FISCAL IMPACTS

Cumulative economic and fiscal impacts predicted for the Regional Core by the Year 2000 can be expressed in terms of employment and gross domestic product. The SCAG 82 Modified Forecast indicates that Los Angeles County will have over 5,000,000 jobs by the Year 2000. The SCAG input/output model provides an estimate of $141 billion for the 1984 gross domestic product for the six-county SCAG region. If this figure is inflated by the historic rate of approximately 6.5 percent, it will yield $386 billion for the Year 2000's gross domestic product. Section 3 of Chapter 3 indicates that the New LPA would contribute 3,000 to 5,000 jobs annually to the region during the period of construction. Operation of the New LPA would have a $34 to $68 million annual impact, while the Null Alternative would generate less than $30 million in secondary economic benefits. These figures, although welcome additions to the region's economy in absolute terms, represent a relatively small 0.01 percent of the overall level.

4.4 SOCIAL AND COMMUNITY IMPACTS

The impacts of the New LPA are described in terms of effects on community cohesion and accessibility. The effects on community cohesion, in turn, are made up of impacts on land use changes and displacements, traffic and congestion, aesthetics, and noise and vibration.

The discussion of Land Use in Section 2 of Chapter 3 is, in essence, the discussion of cumulative impacts of the growth and changes in the region around the Metro Rail stations. This zone is the principal area wherein impacts related to or influenced by Metro Rail will occur.

Cumulative impacts of Aesthetics are largely governed by the collective taste of the population and by such planning or zoning tools as Specific Plans. The potential changes in the aesthetic environment of the Regional Core caused by Metro Rail are not considered significant.

Cumulative impacts of Noise and Vibration are found in Section 8 of Chapter 3. The other social and community issues is Accessibility. Section 5 of Chapter 3 discusses the changes in mobility and accessibility that would occur as a

consequence of each project option. The transportation models used for these predictions contain the projected Year 2000 highway and transit networks and therefore reflect the cumulative accessibility for the Regional Core.

4.5 DISPLACEMENTS

During the normal course of business in any community, property sales occur constantly. These transactions are driven by market forces and occur between relatively willing sellers and buyers. These sales occasionally result in displacement of tenants. When the sales result from condemnation or the threat of condemnation by a public agency, displacements of owners and tenants occur, but the sellers are not as willing as in a market-induced transaction. The impacts of the Metro Rail project in the displacement category are significant only as part of the total of condemnation actions by government agencies.

4.6 NOISE AND VIBRATION

The cumulative impacts of noise and vibration in the Regional Core will be the total noise and vibration load resulting from all sources in the Year 2000. The overall impact of the Metro Rail project on Regional CORE Noise levels is negligible when compared to overall existing ambient levels. As growth occurs in the Regional Core, the ambient levels are expected to increase slightly. The increases would be generated, in part, by an increase in traffic, which is the primary component of urban noise levels. Because it takes a 100 percent increase in traffic volume to make a noticeable increase in noise, the anticipated increase in noise level from this growth probably would not be noticeable. In fact, Section 1 of Chapter 3 indicates that the change in the critical volume of traffic at intersections affected by local traffic access to Metro Rail stations is approximately eleven percent. This localized increase is more than offset by a projected 1.6 percent decrease in auto trips throughout the Regional Core as a whole. These changes are not enough to have a noticeable impact on noise levels.

Groundborne noise and vibration from subway operations are restricted in their effect to a radius of approximately 200 feet from the nearest rail. Accordingly, these effects are not included in the cumulative impacts for the Regional Core.

4.7 AIR QUALITY

The cumulative effects of the project on air quality will be a measurable but insignificant reduction in regional air quality.

4.8 ENERGY

Construction and operation of the New LPA would result in a significant regional energy savings when compared to the Null Alternative. Section 10 of Chapter 3 indicates that the New LPA would create savings due to decreases in energy otherwise utilized in bus and automobile manufacture, maintenance, and operations.

4.9 CULTURAL RESOURCES

Cumulative impacts resulting from concurrent development affecting the same historic and cultural properties as Metro Rail are most likely to occur at station areas where major growth is already predicted. As measured by the amount of commercial reinvestment allowed by zoning, the areas most susceptible to greater amounts of development pressure during Metro Rail implementation are Westlake (Wilshire/Alvarado station), Wilshire/Vermont, Hollywood Redevelopment Project area (Hollywood/Vine and Hollywood/Highland stations) and North Hollywood. The specific cultural resources in these areas are described in Section 16 of Chapter 3.

Development pressures could extend to the cultural properties listed in Chapter 3 within and around station areas, leading to alteration or destruction of a property or, more likely, changing the character of its environment. This type of effect would impact more often on smaller or isolated structures which tend to be less economically viable in their original form. Larger properties would be more adaptable to higher-intensity development or redevelopment.

The effects of construction and traffic, as well as increased access to certain areas, may have a cumulative impact leading to the deterioration of cultural resources. Repetitions of minor construction impacts (of the actual physically hitting-the-building variety) can cause irreversible effects on a structure, and properties can be damaged directly by other construction activities.

SECTION 5. CUMULATIVE IMPACTS AT HOLLYWOOD/HIGHLAND STATION FOR HOLLYWOOD BOWL CONNECTOR

5.1 INTRODUCTION

Segments of the community have expressed a desire to provide a connection between Metro Rail and the Hollywood Bowl. The New LPA does not provide direct service to the Hollywood Bowl, so the potential for providing a transit link between the Hollywood/Highland Station and the Hollywood Bowl has been investigated. A detailed analysis of this connector is provided in the Addendum to the Draft SEIS/SEIR.

The Connector has been evaluated to satisfy the Council on Environmental Quality requirement that the secondary and cumulative impacts resulting from the Federal project and other reasonably foreseeable future projects (Federal or non-Federal) be assessed. Future decisions regarding the implementation of a Connector would involve preparation of additional, separate environmental documentation. The construction of Hollywood Bowl Connector would not involve the use of UMTA funds.

5.2 PROJECT OPTIONS

The "Hollywood Bowl Connector Study," (Metro Rail Transit Consultants, March, 1988) presents preliminary system information for the following construction options: an elevated moving walkway, an elevated people mover, an underground moving sidewalk and an underground people mover. This study is incorporated herein by reference. A bus shuttle system is also under review.

5.3 SUMMARY OF INITIAL CONCLUSIONS

Several conclusions can be drawn from the initial analysis in the Draft SEIS/SEIR. The physical presence of an aerial Connector would cause visual and aesthetic impacts. It would take a lane from one of the busiest arterials in Los Angeles and either introduce undesirable operating conditions on Highland Avenue in the form of contraflow operations, or prevent the preferred directional usage of Highland Avenue during peak periods. It would also require consultation with the State Historic Preservation Officer and compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and Section 4(f) of the National Transportation Act of 1966, as amended. A subsurface alignment also would require compliance with these acts for the Hollywood Bowl. (These acts essentially require a finding that no prudent and feasible alternative exists to use of a National Register property and that all possible planning is done to minimize harm.) If an aerial guideway were constructed, it would probably be necessary to prohibit left turns to and from mid-block locations. An elevated guideway would require property acquisition at the south end of the Connector to allow transition from the elevated guideway to the mezzanine level of the Hollywood/Highland Metro Rail Station. An elevated guideway also would introduce a major new visual element to the street scape. Subsurface Connector options present fewer environmental impacts, but are more costly to construct.

These impacts for the Connector are in addition to the impacts associated with the New LPA as described in this document. Inasmuch as connector operations

would most likely occur during Metro Rail off-peak periods, the patronage impacts should not require any resizing of the Hollywood/Highland Metro Rail Station.

SECTION 6. GROWTH-INDUCING IMPACTS

The information on growth-inducing impacts contained in Section 14.4 of Chapter 3 of the 1983 FEIS is still largely applicable to this project and is hereby incorporated by reference. This section discusses the growth-inducing impacts of the project options. In addition, Table 5-1 is provided at the end of this section to indicate where the specific discussions in the growth inducing effects may be found in this document.

Potential growth-inducing impacts of the project stem from three basic factors:

- Metro Rail will help alleviate the congestion and accessibility constraints imposed by an overcrowded transportation system.
- Metro Rail, as a substantial public investment, will serve as a catalyst in reinvestment in currently underutilized areas and as a stimulus to the local economy.
- Metro Rail will represent, from an individual developer's perspective, an opportunity to realize financial benefits from increased, lower-cost transportation access.

The Regional Core served by Metro Rail is already very highly developed. Significant additional growth will take place under the Null Alternative with or without the expansion of the Metro Rail Project beyond MOS-1. However, projections indicate that there are likely to be measurable increments of additional growth in the Regional Core associated with the candidate alignments.

Metro Rail will help to concentrate development at some desired locations and will aid the implementation of the City Centers concept fundamental to the Los Angeles County and City plans. Under the City Centers concept, growth will be encouraged in designated centers in order to help maintain surrounding low-density residential areas and to avoid development in sensitive undeveloped areas.

The growth-inducing potential of Metro Rail can affect land use, economic activities, transportation systems, and other public services in the Regional Core. More information on the impacts of the projected growth can be found in the Draft and Final EIS/EIR on the SCAG 82 Growth Forecast Policy (Southern California Association of Governments, 1982).

TABLE 5-1

SEIS/SEIR AND FEIS REFERENCES TO GROWTH-INDUCING IMPACTS

Document	Section Number	Description
SEIS/SEIR Chapter 3	2.2.2.2	Increased commercial and residential development accommodated by Metro Rail in Regional Core.
SEIS/SEIR Chapter 3	2.2.3.1	Consistency of growth accommodation with local development policies.
SEIS/SEIR Chapter 3	2.2.3.1	Consistency of growth accommodation with regional development policies.
SEIS/SEIR Chapter 3	2.2.3.1	Increased commercial and residential development accommodated by Metro Rail in station areas.
SEIS/SEIR Chapter 3	2.2.3.1	Increased population and employment accommodated by Metro Rail in station areas.
SEIS/SEIR Chapter 3	2.2.3.2	Acres of parcel area required to accommodate growth.
SEIS/SEIR Chapter 3	3.1.1	Increased construction-related employment.
SEIS/SEIR Chapter 3	3.1.2	Stimulate regional economy.
SEIS/SEIR Chapter 3	3.1.3	Enhance opportunities for minority business enterprises.
SEIS/SEIR Chapter 3	3.2.2	Increased property and sales tax revenues generated development associated with Metro Rail.
SEIS/SEIR Chapter 3	5.2.2	Improved mobility, particularly for transit-dependent user groups.

Source: General Planning Consultant.

CHAPTER 6: COMMUNITY PARTICIPATION

SECTION 1. PUBLIC CONSULTATION AND INPUT

The SCRTD believes that the most reliable method for achieving public satisfaction with a service or project is to include the public in the decision-making process. To ensure Metro Rail meets the needs and desires of the communities it will serve, the SCRTD has solicited public input for key decisions throughout each phase of development over the past decade. The SCRTD has implemented three major programs designed to maximize public output: (1) the Public Consultation Plan; (2) the Interagency Management Committee; and (3) the CORE Study Forum. For an in-depth discussion of the SCRTD's public consultation program, including locations, dates, participants, and synopses of public meetings, the reader is referred to Chapter Six of the November 1987 Draft SEIS/SEIR.

On May 20, 1987, the District released an Addendum to the Draft SEIS/SEIR which included an environmental evaluation of the new Candidate Alignment 6. This alignment was developed in response to public concern with the impacts of Candidate Alignment 4. A public hearing on the Addendum to the Draft SEIS/SEIR was held at the SCRTD on June 21, 1988. Comments were received from more than 50 persons composed of residents and representatives of various public officials, agencies, institutions, businesses, advocacy groups, and religious organizations. The substantive comments received at this public hearing have been incorporated into the appropriate category of Chapter 7, Section 2.

SECTION 2. PUBLIC AGENCY INVOLVEMENT

The following public agencies participated in the consultation process:

- City of Los Angeles

  Mayor's Office
  Department of City Planning
  Department of Transportation
  Chief Administrative Officer
  Chief Legislative Analyst
  Community Redevelopment Agency
  Engineering
  Metro Rail Liaison

- County of Los Angeles

  County of Los Angeles Regional Planning Department
  County of Los Angeles Transportation Commission

SECTION 3. PUBLIC INFORMATION AND COMMUNICATION

Keeping the public informed at each step of the CORE Study's development was facilitated through several means of communication. The District published a bimonthly newsletter, Metro News Bulletin, that contained articles on the CORE Study and major decisions as they were made. This publication generated more comments on CORE Study issues, which were reviewed by staff. For the bus-riding constituency, the District incorporated CORE Study news in the SCRTD Transit Reader, which was distributed among the SCRTD fleet of 2,500 buses. This publication is targeted at the SCRTD's 1.5 million daily riders.

The SCRTD Speaker's Bureau provided another channel of public communication. With the aid of audio-visual and printed media, District speakers made weekly presentations to business, service, and homeowner groups within the CORE area.

Public communication on the CORE Study was also made through direct written correspondence and telecommunications. Information was distributed to the public at conventions, community functions, and other exhibitions where SCRTD established information booths during the course of the CORE Study.

SECTION 4. INTERAGENCY COORDINATION

To coordinate input and recommendations from the public agencies participating in Metro Rail's development, the District established the Interagency Management Committee (IMC). The IMC is composed of representatives from the City of Los Angeles' Planning and Transportation Departments, the Los Angeles Community Redevelopment Agency (LACRA), the City of Los Angeles Chief Legislative Analyst's Office, the Southern California Association of Governments (SCAG), the Los Angeles County Transportation Commission (LACTC), and the Los Angeles County Department of Regional Planning. This technical committee met at least twice monthly to discuss major issues and impacts relative to the alignments. The IMC provided key input for the development and evaluation of candidate alignments over the course of the CORE Study.

CHAPTER 7: COMMENTS AND RESPONSES ON THE DRAFT SEIR, DRAFT SEIS/SEIR, AND DRAFT ADDENDUM

SECTION 1. ORGANIZATION OF THE COMMENTS AND RESPONSES

All letters, 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 and UMTA. Also available are copies of the complete transcripts of the Draft SEIS/SEIR public hearings. The 21 subject areas covered in this chapter include:

ALTERNATIVES (AL)
AERIAL ALIGNMENT (AA)
AESTHETICS (AS)
AIR QUALITY (AQ)
COMMUNITY AND SOCIAL CONCERNS (CS)
CONSTRUCTION (CN)
COSTS AND FINANCING (CF)
CULTURAL RESOURCES (CR)
ECONOMIC IMPACTS (EI)
SUBSURFACE CONDITIONS (SC)
NOISE, VIBRATION AND ELECTROMAGNETIC (NV)
PARKING AND TRAFFIC (PT)
PATRONAGE AND COST EFFECTIVENESS (CE)
LAND USE (LU)
PUBLIC PARTICIPATION (PP)
RELOCATION AND BUSINESS OPERATIONS (BO)
SAFETY AND SECURITY (SY)
STATIONS/ALIGNMENT PHASING (SP)
TRANSPORTATION (TR)
WATER RESOURCES AND FLOODING (WR)
MISCELLANEOUS (M)

Table 7-1 identifies all commentors who provided testimony or written comments on the Draft SEIS/SEIR. Each commentor has been classified into one of three groups: public agencies and officials; businesses, corporations and civic organizations; and private citizens. Within each of these classifications, the commentors have been alphabetized. Where agencies or organizations are listed, the spokesperson is also indicated.

TABLE 7-1

LIST OF COMMENTORS	COMMENTS
PUBLIC AGENCIES AND OFFICIALS	
California Regional Water Quality Control Board Dennis Dasker, Supervising Water Resource Control Engineer	WR4
California State Senator and President Pro Tem David Roberti, David Kim, representing	AA12
City of Los Angeles Council, Planning and Environment and Transportation and Traffic Committees	AL9
City of Los Angeles Councilman Michael Woo	OS13
City of Los Angeles Councilwoman Gloria Molina Susan Cloak, representing	CS1, CN1, OS4
City of Los Angeles, Cultural Heritage Commission, Jay Oren, A.I.A., Architect	CR6
City of Los Angeles, Department of Planning, Kenneth C. Topping	AL1, AS7, CS11, CR3, NV4, NV7, PT25, PT32, CE2, LU1, LU2, LU6, LU7, LU8, LU10, LU11, LU12, LU13, LU14, LU18, LU19, LU20, LU21, LU22, LU23, LU24, LU25, LU26, LU27, LU28, M1, M7, M8
City of Los Angeles, Department of Transportation, Don Howery, Director	AL1, AL25, AL35, AA16, AA17, AS5, AQ2, CF7, CF10, SC1, PT7, PT8, PT10, PT11, PT12, PT15, PT16, PT17, PT18, PT19, PT26, PT27, PT28, PT29, PT30, PT31 PT33, CE4, CE6, CE11, OS21, TR3, TR5, TR8, TR11
City of Los Angeles, Department of Water and Power, Edward Karapetian, Engineer of Environmental and Governmental Affairs	CN4
City of West Hollywood, City Council, Stephen E. Schulte, Mayor; Alan Viterbi, Mayor Pro-Tempore; Helen F. Albert, Councilor; John Heilman, Councilor; Abbe Land, Councilor	AL27, AA6, OS9
Community Redevelopment Agency of Los Angeles, John J. Tuite, Administrator Frankie Banerjee, Transportation Planning Manager	AL1

TABLE 7-1
(continued)

Los Angeles County Transportation Commission, Paul C. Taylor, Acting Executive Director Rick Richmond, Executive Director	AL18, AL38, AA14, AS6, AQ1, CF1, CF5, CF6, CF8, CF13, CF21, CR8, PT21, PT24, PT34, CE1, CE7, OS15, OS18, TR7, M5, M6, M15
Los Angeles Unified School District, Jackie Goldberg, District #3 Board Member	AL16, CS8
Los Angeles Unified School District, Robert J. Niccum, Director of Real Estate	AL16, AQ1, CS8, CS12, CN6, CR7, NV6, PT2 SY4, SY5
Resource Agency of California, Dennis J. O'Bryant, Environmental Program Coordinator	SC4, SC5, SC9
U.S. Department of the Interior, Bruce Blanchard, Director, Office of Environmental Project Review	CR18, CS13
U.S. Representative Julian Dixon, Pat Miller, representing	AA9
BUSINESSES, CORPORATIONS AND CIVIC ORGANIZATIONS	
Beverly-Angeles Homeowners Association, Charles B. Pyke	AL8, AL30, AL37, AA8, CE10
Beverly-Wilshire Homeowners Association, Diane Plotkin, Vice President	AL8
Blind Veterans of Southern California, Inc., Michael March	AA1
Braille Institute, Dale Gasteiger	M4
Braille Institute, Russell W. Kirbey, Executive Director	AA9
Braille Institute, Les Stocker, Assistant Executive Director	CS3, NV12
Cal Fed, Inc., Robert R. Dockson, Chairman of the Board	AA8
Cal Fed, Inc., Mike Mayer	AL23, AA8, CS2, CR1
California Federal, William L. Callender, President and Chief Executive Officer	AA8
Carthay Circle Homeowners Association, Charles Rosin, President, Henrietta Mirell-Meadows	AL20, AL22, PT6, CE9, LU4, LU16, OS5, OS16,OS17
CBS, Inc., Bruce J. Teicher, Broadcast Counsel	NV1, PP1

TABLE 7-1
(continued)

Christian Release Time Education, Jim Bray, Director	AL13
Church of Scientology of Los Angeles, Richard Shelley, Legal Officer	AL47, CN5, NV11
Coalition for Rapid Transit, Abraham Falick, PhD, Chairman	AL27, AL28, AA5, AA9, AA10, CF14, SC8, OS10, OS12, OS14
Concerned Citizens League, Z. Macadah, President	AL42, SC2
Dearborne Drive Homeowners Association, Tom Nelson	AL34, OS11, OS12
Dixon Cadillac, Jack Goodman	AL12, AA9
Dunes Motel and Restaurant, John Juknavorian	AL12
Dunes Motel and Restaurant, Martin Juknavorian	AA9
Dunes Motel and Restaurant, Michael Juknavorian	AA9
Edwards, Denise Rausch, Public Relations Representative	OS3
First Baptist Church, Reverand Gary Tibbs, Pastor	AL13
First Southern Baptist Church of Hollywood, Joseph Barronco	AL42
First Southern Baptist Church of Hollywood, James Campoccio, Assistant to the Pastor	AL13
First Southern Baptist Church of Hollywood, Perry Combs	AL42
First Southern Baptist Church of Hollywood, Beverly Galvao	AL13
First Southern Baptist Church of Hollywood, David Glaser	CS6
First Southern Baptist Church of Hollywood, Ms. Cheryiko Ishiki	CS6
First Southern Baptist Church of Hollywood, Charles McClung, Director of Admissions, San Fernando Valley Southern Baptist Association	CS6
First Southern Baptist Church of Hollywood, John Medford	AL13
First Southern Baptist Church of Hollywood, Thomas Pitts, Security Warden	SC10, SY3, M11
Foundation for Early Childhood Education, Inc. Martha Rinaldo, Director	AL13, CS6
Fox Television Station, Inc., Richard Anderson, Vice President and Director of Engineering	CF12, BO3

TABLE 7-1
(continued)

Fox Television Stations Inc, Daphne Gronich, Litigation Counsel	AL6, NV1, PP1, BO1
Friends of Hollywood, Ruth Goulet	AL42
Golden West Broadcaster, Michael M. Schreter, Executive Vice President	NV1
Hancock Park Homeowners Association, Peter Gates	AA8
Harriscope of Los Angeles, Inc., 22 KWHY-TV, Burt I. Harris, Vice President/General Manager	NV1
Hillside Federation, Geology, Hydrology and Infrastructure Committee, Barbara A. Fine, Chairperson	AL11, AA3, CF9, SC6, PT9, CE8, WR3
Hollywood Better Government Association, David Morgan, Director	AA9, CS6, CF15, CF17, EI3, SY8
Hollywood Cedars, Samuel Kim	AL4, AL12, AA9
Hollywood Chamber Of Commerce, Bill Welch, President	AL14,AL31, BO2
Hollywood Heights Association, Steve Bangs, Recording Secretary	AA5, CR5, NV1, LU5, WR2
Home Mission Board of the Southern Baptist Convention, Terry Chang,	CS6
Hospital of the Good Samaritan, Paul Kells	OS2
Inner City-L.A. Chapter of the National Organization for Women, Pat Moser	AL4, AA2, AA9, AS4, CN2, SY1, OS12
Kaiser Permanente, Larry Bernhardt, Area Architect	AL32
Kaiser Permanente, Karen Constin, Director of Public Affairs	AL32
Kaiser Permanente, Lelend Wong, Director of Government Relations	AL32, AA12
KTLA Inc., Steven A. Bell, Senior Vice President and General Manager	AL29, AL39, CF3, EI2, NV1, NV3, PP1
KTLA Inc., Brenda L. Young, Director of Business Affairs and Legal Counsel	CN3, NV1, PP1
Los Angeles Conservancy, Ruthann Lehrer, Executive Director	AL2, AA8, AA9, AS3, CR2
Los Angeles West Chamber of Commerce, Transportation and Planning Committee, Harold L. Katz, Chairman	AL19, AA1
MacArthur Park Foundation, George Hearns, Chairman Peter Daniels, Kathleen, and a supporting	CS1

TABLE 7-1
(continued)

Petition signed by 122 persons

Mann Theatres, William F. Hertz, Director of Marketing and Public Relations	AA5
Mid City Chamber of Commerce, Berry, Neil, President	
Miracle Mile Residential Association, Bill Christopher, Vice President	AA4, AA8, AL3, AL17, AS2, CF3, CF4, CR1, CR2, NV5, Lu3, PP2, PT2, PT4, PT6, SC7, OS5
No El On Wilshire, Bill Christopher	AL3, AL17, AA8, CF4, CR2, SC7, PT2, PP2, OS5
Ocean Recording Studios, Alan Sides	AL15
Project Area Committee, Hollywood Redevelopment Project, Edward Villareal Hunt, Chairman	AL46
Property Owners' Coalition, Allen Sieroty	AA7, TR9
Royal Development Company, Laurence Kaplan	PT3, WR3
Self Realization Fellowship Church, Charles Woll	AL4, AL33
Shell Oil Company, S. J. Charley, Manager, Los Angeles West District	EI4
Sierra Club, Stanley Hart, Chairman Transportation Committee	CF18
Southern Baptist General Convention of California, C. B. Hogue, Executive Director-Treasurer, Fresno	CS6
Sunset Boulevard Coalition, Paul Clarke, Representative	AL36, CF3, CF11, EI1, BO2
Sunset Boulevard Coalition, Michael Eigner	AL15, AL29, AL39, CF3, EI12, NV3, NV8, PP1
Sunset Boulevard Coalition, Michael Tobey	AL31
Sunset Shell Gas Station, Andy Hindoyan	AL12, M12
Sunset Sound Recorders, Inc., Paul Camarata, President	NV1, BO1
The Studio Coalition, Colin Gordon	NV2
Western Exchange, Abraham Lutfi, Chief Executive Officer	AL4
Whitley Heights Civic Association, John Vigran	CR4
Windsor Square Association, Michael Cornwell, Vice President	AA8, PT5, PP3

TABLE 7-1
(continued)

Windsor Village Association, Richard Workman, Chairman	AL8, AL26
Windsor Village Association, Tom Vandveer	AL8, AA8
Young Men's Christian Association of Metropolitan Los Angeles, Norris D. Lineweaver, Executive Director	AL10, AA6
CITIZENS	
Aidlin, Joseph W., Los Angeles	AA9, CS10, CF20, NV9, NV10
Alcan, R.	TR10
Allan, Margarita, Hollywood	OS20
Allen, Aulette A.	AA8
Allen, Bryan, Los Angeles	AL41, AA15, LU15, TR1, TR4
Arslanian, Oscar P., Hollywood	AA5
Arth, Michael E.	AA8
Aryel, Ron M., Los Angeles	OS19
Babich, Sylvia	AA8
Babick, Tom, Los Angeles	AA8
Bagley, Ray, Los Angeles	AL44
Baird, Jeanne, Los Angeles	AA5
Bates, Richard	AL13
Bump, Milan R.,Los Angeles	AA8, SC8, SY6
Chaldise, Mrs. John	AA8
Compoccio, Susan	CS7
De Milo, Venus	CS6
Edwards, Samuel, Pasadena	AL8
Fiesta, Pablo	CF19
Fondevila, Carol, Los Angeles	AA8
Goodwin, Mary Ann	CS8, PT1

TABLE 7-1
(continued)

Havens, Alan D., PhD	TR2
Heavey, Francis J.	PT1
Hernandez, Agapito	AL43, PP4
Hill, Rosemary B.	WR1
Hollywood Project Area Committee, John S. Walsh	M13
Horii, Robert S.	SC11, SC12
Hunter, Bill	AL4, SC3
Jimenez,Salvador, Monrovia	AA9
Johnson, Arland "Buzz"	BO4
Jones, Leroy	AA9
Joseph, Sam	AL7
Keating, Richard, Los Angeles	AS3
Kennedy, J. Christopher, Los Angeles	AA8
Krisel, William, Los Angeles	SC7
Makadau, Z.	M10
Malak, Michael, North Hollywood	CF16
Marble, Timm, Chino	M3
McQuiston, J. H., Los Angeles	AL45, AA13, CS4, CS5, CF2, NV12, PT20, LU9, SY2, OS7, TR6
Michelson, Alan B.	AL48
Medley, H. Anthony, Santa Monica	AA8
Nelson, T.A., P.E., Los Angeles	AL10, AL19, AS1, CS9, CN3, CE3, CE5, PT13, PT14, PT22, OS1, OS8, OS22, OS23, OS24, M2, M9
Odell, Al	CS1
Petition signed by 717 citizens	M14
Reed, Stefan, Los Angeles	OS12

TABLE 7-1
(continued)

Richardson, Warren	SC8, OS6
Roberts, Greg	AL21
Rofman, Rick	SY7
Rosen Sheila G., Los Angeles	AL24
Saltzman, Robert M., Los Angeles	AL8
Shedlow, Susan	AL4
Solomon, Leon	AA9
Stinson, Charles, Hollywood	AL5, AL19, AL27, AL30
Sweda, Robert	M11
Tucker, James W.	SC8
Walsh, John	AA9
Walter, Sheldon	AL40, AA9, OS12
Watts, Howard O.	AL16
Weinberg, Michael Aron, Los Angeles	LU17

SECTION 2. RESPONSE TO COMMENTS

The following comments were provided in response to the public distribution of and public hearings held for three environmental documents: (1) February 1987 Draft SEIR, (2) November 1987 Draft SEIS/SEIR, and (3) May 1988 Addendum to the Draft SEIS/SEIR. The comments are summarized and categorized by subject area. Responses are provided for all substantive comments.

It is important to note that several changes were made to the documents during the time between production and distribution of the three documents. For example, a number of discussions were held with City of Los Angeles Departments regarding their comments on the Draft SEIR, and numerous revisions were made consistent with these discussions, prior to distribution of the Draft SEIS/SEIR. These City Department comments (Los Angeles Department of Planning, Los Angeles Department of Transportation, Los Angeles Community Redevelopment Agency) are included in this chapter, however, consistent with NEPA and CEQA laws and regulations.

2.1 ALTERNATIVES

AL1 **COMMENT:** Modified Alignment 1 is preferable. The 17.7 mile, all-subway alignment would provide service to the Wilshire and Vermont corridors and to the Hollywood, Universal City, and North Hollywood communities, with a total of 16 stations. Recent extensive review has highlighted negative impacts of Alignment 4 and has introduced revised cost estimates, which now show the all-subway alignment only slightly more costly than an aerial alignment. That portion of the Locally Preferred Alternative (LPA) that connects the Wilshire/Alvarado and Universal City stations should be designated as the next minimum operable segment (MOS-2). The essential modification made to SCRTD's Alignment 1 is the addition of the unfunded Hollywood Boulevard/Highland Avenue station. Modified Alignment 1 provides the most effective level of service and responds to problems incurred by other options, such as those presented by the broadcasting industry, Kaiser Permanente, property-owners, residents, school administrators and various organizations. All appropriate mitigation measures should be taken, including, but not limited to, location of station portals to protect cultural and historic resources on Hollywood Boulevard, appropriate construction scheduling programs, temporary traffic routing, construction noise and vibration control measures and community information programs. (Los Angeles Department of Planning; Los Angeles Department of Transportation; Los Angeles Community Redevelopment Agency)

> **ANSWER:** Candidate Alignment 1, with minor modifications in the number and location of stations, was selected as the "New Locally Preferred Alternative" (New LPA) by the SCRTD Board of Directors on July 14, 1988. This selection followed a comprehensive evaluation of costs, benefits, adverse impacts, and local coordination considerations associated with six project options.

The Los Angeles City Council recommended that the next construction segment be the full LPA. Several construction segments are under review for the New LPA as the funding plan for Phase II of the New LPA is finalized. Appropriate mitigation measures are defined in Chapter 3 of this Final SEIS/SEIR.

AL2 **COMMENT:** Alignment 1 has no significant impacts on historic resources and is, therefore, the environmentally preferable candidate. Alignment 2 has the greatest negative impacts on the greatest number of historic resources and is, therefore, the environmentally worst alternative. The other alternatives have varying degrees of problems. (Ruthann Lehrer, Los Angeles Conservancy)

ANSWER: The selected New LPA consists of Candidate Alignment 1, with minor modifications to the number and location of stations. Six candidate alignments were screened carefully with respect to numerous environmental factors, including cultural and historic resources.

AL3 **COMMENT:** Alignment 1 deserves more consideration because it better serves Hollywood interests. (Bill Christopher, No El on Wilshire)

ANSWER: Candidate Alignment 1, with minor modifications to the number and location of stations, was selected as the New LPA.

AL4 **COMMENT:** Alignment 1 is the best because it puts all of the MOS-2 segment underground. (Charles Woll, Self Realization Fellowship; Abraham Lutfi; Samuel Kim; Susan Shedlow; Pat Moser, NOW; Bill Hunter)

ANSWER: See responses to AL1 and AL3.

AL5 **COMMENT:** A combination of alignments 1 and 2 is the best. (Charles Stinson)

ANSWER: See responses to AL1 and AL6.

AL6 **COMMENT:** Alignment 2 is preferable from the studios' standpoint. (Daphne Gronich, Fox Television Stations)

ANSWER: The selected New LPA should correspond with the studios's preferences, given that this alignment is not on Sunset Boulevard. The New LPA follows much the same route as Candidate Alignment 2, but in a subway configuration.

AL7 **COMMENT:** Alignments 2, 4 and 5 are the worst. (Sam Joseph)

ANSWER: See responses to AL1 and AL3.

AL8 **COMMENT:** Alignment 3 is the best proposed. (Charles B. Pyke, Beverly-Angeles Homeowners Assn.; Richard Workman, Windsor Village Assn.; Diane Plotkin, Beverly-Wilshire Home Assn.; Tom Vandeveer, Windsor Village Assn.; Samuel Edwards; Robert M. Saltzman)

ANSWER: The New LPA is equivalent to Candidate Alignment 3, except that it is an all-subway system and its west branch terminates along Wilshire Boulevard at Western Avenue. Selection of the New LPA defers the decision on the profile and route for the extension of Metro Rail west of the Wilshire/ Western Station until proposed additional study can be performed for this extension. A new Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) will be initiated should federal involvement be anticipated in this extension.

AL9 **COMMENT:** Alignment 4, with aerial segments on Vermont Avenue, Sunset Boulevard and Wilshire Boulevard, should be supported. However, a decision on the profile of the Wilshire portion west of Western Avenue should be deferred pending the results of an additional study. The Vermont and Sunset routes should continue to be supported, even if aerial is inappropriate and subway must be substituted. (Los Angeles City Council Planning and Environment and Transportation and Traffic Committees)

ANSWER: This past comment has been superseded by the recent support from the City of Los Angeles for the New LPA. Significant problems were perceived regarding an alignment along Sunset Boulevard, particularly with respect to the sound and recording studios. See also response to AL8.

AL10 **COMMENT:** Alignment 4 is the best. (Norris D. Lineweaver, YMCA; T.A. Nelson, consulting engineer)

ANSWER: See responses to AL1 and AL9.

AL11 **COMMENT:** Alignment 4 without the Hollywood Bowl station appears to be the best alternative. However, because of public opposition to the Wilshire aerial, SCRTD should consider the more southerly alternative to a Pico Boulevard/La Brea Avenue terminus. (Barbara A. Fine, Federation of Hillside and Canyon Associations)

ANSWER: See responses to AL1 and AL9.

AL12 **COMMENT:** Alignment 6 would negatively impact businesses. (John Juknavorian, Jack Goodman, Samuel Kim, Andy Hindoyan)

ANSWER: Selection of the New LPA mitigates these concerns.

AL13 **COMMENT:** Alignment 6 is unacceptable because it incompletely assesses the impact on the First Southern Baptist Church of Hollywood, gives no guarantee that the Church can relocate in Hollywood and gives insufficient attention to impacts on the community. (Rev. Gary Tibbs, First Southern Baptist Church of Hollywood; Martha Rinaldo; Jim Bray; James Campoccio; Beverly Galvao; Richard Bates; John Medford)

> **ANSWER:** Selection of the New LPA mitigates these concerns.

AL14 **COMMENT:** Alignment 6 is preferable with one exception -- the Sunset aerial segment should be made subway. (Bill Welch, Hollywood Chamber of Commerce)

> **ANSWER:** The impacts associated with an aerial alignment along Sunset Boulevard constituted one of several reasons for rejection of Candidate Alignment 6 and the selection of the Hollywood Boulevard subway alignment as the New LPA.

AL15 **COMMENT:** Alignment 6 eliminates our concerns about Metro Rail's damaging impacts on the entertainment industry. Alignment 4 would damage the industry to an unprecedented degree. (Alan Sides, Oceanside Recording Studios; Michael Eigner, Sunset Boulevard Coalition)

> **ANSWER:** The perception that alignment along Sunset Boulevard could have adverse impacts on the sound and recording studios was a major reason for the development and analysis of Candidate Alignment 6.

AL16 **COMMENT:** Alignment 6 should not be implemented because of the negative impacts on Grant Elementary School. Major construction would be taking place within 50 yards of the school. The siting of a transitional portal and a descending subway in close proximity to an elementary school is an adverse impact not present in the other alignments. (Jackie Goldberg, Los Angeles Board of Education; Robert J. Niccum, Los Angeles Unified School District, Howard Watts)

> **ANSWER:** Selection of the New LPA mitigates these issues. Impacts and costs associated with the transitions from subway to aerial off-street in this area were important elements for not selecting Candidate Alignment 6 as the New LPA.

AL17 **COMMENT:** There are no specific plans for extending the Wilshire line beyond Fairfax; the ultimate destination should be decided now. (Bill Christopher, No El on Wilshire)

> **ANSWER:** See response to AL8.

AL18 **COMMENT:** The northern branches of the alignments compare well with the former Locally Preferred Alternative, which Congress ordered to be re-engineered. For the western branch, the Wilshire Boulevard alignment is superior to the Pico/San Vicente branch (Alternative 3) in providing service to the Wilshire Boulevard activity center. (Rick Richmond, Los Angeles County Transportation Commission)

ANSWER: See response to AL8.

AL19 **COMMENT:** Wilshire is a key transit and cultural corridor. (Charles Stinson; Harold L. Katz, Los Angeles West Chamber of Commerce; T.A. Nelson, consulting engineer)

ANSWER: See response to AL8.

AL20 **COMMENT:** No "western segment" should be adopted until a specific route containing specific locations for stations are taken into consideration as part of a comprehensive plan. (Charles Rosin, Carthay Circle Homeowners Assn.)

ANSWER: See response to AL8.

AL21 **COMMENT:** Instead of putting the line on Wilshire, why not put it on Sixth or Seventh and run it adjacent to Wilshire? (Greg Roberts)

ANSWER: See response to AL8.

AL22 **COMMENT:** Because of the CORE boundary restrictions, consolidate the available money to complete the Valley/Hollywood segment; then reassess the westside segment. (Charles Rosin, Carthay Circle Homeowners Assn.)

ANSWER: The selection of the New LPA conforms to this comment. See also response to AL8.

AL23 **COMMENT:** A Wilshire alternative south on Pico would be capable of adequately handling current and future traffic from developments along the Miracle Mile. (Mike Mayer, Cal Fed.)

ANSWER: See response to AL8.

AL24 **COMMENT:** Any Wilshire alignment should be avoided. (Sheila G. Rosen)

ANSWER: See response to AL8.

AL25 **COMMENT:** The Draft SEIR continues to indicate a Wilshire Boulevard alignment as a high ridership link. Options for extending Metro Rail westerly through the Wilshire corridor should be retained. (City of Los Angeles Department of Transportation)

ANSWER: See response to AL8.

AL26 **COMMENT:** Pages 2-108 and 1-110 of the Draft SEIR support the argument that a Wilshire aerial alignment creates unmitigable adverse impacts. (Richard Workman, Windsor Village Assn.)

> **ANSWER:** Selection of the New LPA mitigates this concern. An aerial guideway in the center of Wilshire Boulevard would have significant impacts that could not be mitigated.

AL27 **COMMENT:** A Vermont alignment will service medical and educational facilities and will insure a large ridership on that portion of the line. (City Council of West Hollywood; Abraham Falick, Coalition for Rapid Transit; Charles Stinson)

> **ANSWER:** Metro Rail service on Vermont Avenue will be beneficial to the community facilities located in this corridor. The New LPA serves Vermont Avenue.

AL28 **COMMENT:** The omission of a Selma Avenue routing is curious, since this street provides equidistant access to both the Sunset high-rise cluster and the very active Hollywood strip of retail stores and theaters. (Abraham Falick, Coalition for Rapid Transit)

> **ANSWER:** Selma Avenue was investigated as an option early in the CORE Study along with over thirty other candidate alignments. Based on a public outreach program and various technical analyses, the Selma route was not selected for inclusion in the Draft SEIS/SEIR.

AL29 **COMMENT:** Since the route along Hollywood Boulevard is clearly the preferable route, the SEIS/SEIR should include a thorough examination of why it was not chosen. (Steven A. Bell, KTLA; Michael Eigner, Sunset Boulevard Coalition)

> **ANSWER:** Since circulation of the Draft SEIS/SEIR, additional analyses and community discussions have occurred leading to the selection of the Hollywood Boulevard alignment as the New LPA, consistent with this comment.

AL30 **COMMENT:** The Sunset Boulevard route is preferable to Hollywood Boulevard. (Charles B. Pyke, Beverly-Angeles Homeowners Assn.; Charles Stinson)

> **ANSWER:** Candidate Alignments 4 and 6 on Sunset Boulevard were deemed as less preferable to the selected New LPA, particularly given the environmental and community impacts associated with Alignments 4 and 6.

AL31 **COMMENT:** Any Sunset Boulevard alignment would be damaging for environmental, business and aesthetic reasons. Hollywood Boulevard is the preferred alignment; Harold Way and Selma Avenue should be examined. (Michael Toby, Sunset Boulevard Coalition; Bill Welsh, Hollywood Chamber of Commerce)

> **ANSWER:** The selected New LPA is on Hollywood Boulevard, consistent with this comment. See response to AL28 regarding Selma Avenue.

AL32 **COMMENT:** The Sunset Boulevard alignment would require demolition of Kaiser Permanente's 4760 Sunset hospital. This would severely impact Kaiser's master plan, to which $300 million has already been committed. Further, Proposition U restricts Kaiser to the 4760 site for future construction. (Leland Wong, Larry Bernhardt and Karen Constine, Kaiser Permanente)

> **ANSWER:** Selection of the LPA mitigates the impacts presented in this comment.

AL33 **COMMENT:** A Sunset Boulevard alignment will interfere with worship at the Self Realization Fellowship. (Charles Woll, Self Realization Fellowship)

> **ANSWER:** The New LPA, which follows Vermont Avenue and Hollywood Boulevard rather than Sunset Boulevard, mitigates these concerns.

AL34 **COMMENT:** The alignment through downtown Hollywood should be underground and should not disrupt the studios along Sunset. (Tom Nelson, Dearborne Homeowners Assn.)

> **ANSWER:** The selected New LPA is entirely subway, and the selection of a Hollywood Boulevard alignment mitigates any disruption to the studios along Sunset Boulevard.

AL35 **COMMENT:** The Draft SEIR indicates that Sunset, rather than Hollywood Boulevard, is the focus of new office and retail development in Hollywood. This trend is likely to continue at several nodes along Sunset, while future development on Hollywood Boulevard is likely to be concentrated in the western end of the Hollywood core. The Sunset alignment serves those nodes on Sunset and areas likely to be redeveloped in the Hollywood core, while the Hollywood Boulevard alignment would offer poor service to the Sunset employment nodes. Because of the superiority of the Sunset alignment, it is critical that cost and environmental data be prepared for a subway alternative along Sunset to supplement data presented for the aerial Sunset alternative. (City of Los Angeles Department of Transportation)

> **ANSWER:** This past comment has been superceded by the more recent City of Los Angeles recommendation for selection of the Hollywood Boulevard alignment as the

New LPA. As part of the CORE Study, a subway alternative along Sunset Boulevard (known as Alignment A3) was analyzed. The studios along Sunset Boulevard expressed concern not only for air-borne but also for ground-borne noise associated with the construction and operation of a Metro Rail alignment along Sunset Boulevard.

AL36 **COMMENT:** Mitigation costs for the Sunset Boulevard route are not adequately reflected in the draft and should be updated. (Paul Clarke, Sunset Boulevard Coalition)

ANSWER: A Sunset Boulevard alignment was not selected for inclusion in the New LPA. Cost estimates for the candidate alignments include costs for mitigation of Metro Rail impacts. The impacts and mitigation costs along Sunset Boulevard were major reasons for the development and review of Candidate Alignment 6 and the ultimate selection of the New LPA on Hollywood Boulevard.

AL37 **COMMENT:** Why not bring back the old red cars that ran down the streets of Santa Monica Boulevard and San Vicente Boulevard? Light rail should be considered as a supplement or alternative to Metro Rail. We could use median strips for light rail. (Charles B. Pyke, Beverly-Angeles Homeowners Assn.)

ANSWER: Transportation agencies in the region are conducting comprehensive investigations of possible routes for rail transit service, consistent with corridors identified in Proposition A. Various alternatives are being evaluated for these corridors, including busways, light rail, heavy rail and High Occupancy Vehicle lanes. Metro Rail service passes through the highly urbanized Core area of Los Angeles, leading to the selection of the grade-separated, heavy-rail technology for this area. Metro Rail is the backbone of the larger 150-mile rail system proposed for the region, and will link a number of corridors utilizing various transit technologies.

AL38 **COMMENT:** The Draft SEIS/SEIR would be more complete if it mentioned the three guidelines LACTC adopted for all alternatives. (Los Angeles County Transportation Commission)

ANSWER: The three LACTC guidelines are presented in the Appendix to the November, 1987 Draft SEIS/SEIR.

AL39 **COMMENT:** The lowest cost alternative should be designated the Locally Preferred Alternative. (Steven A. Bell, KTLA; Michael Eigner, Sunset Boulevard Coalition)

> **ANSWER:** Selection of an LPA should be based on an assessment of expected impacts (positive and negative) along with estimated project costs. A number of factors, including costs, were weighed in the selection of the New LPA.

AL40 **COMMENT:** Any Metro Rail alignment is better than double-decking the freeways. (Sheldon Walter)

> **ANSWER:** This support for Metro Rail is acknowledged.

AL41 **COMMENT:** Although it is financially infeasible, retain Alternative 1, but make substantial station, alignment and design revisions (these revisions are included in a written document). Some changes are necessary to conform to the General Plan and to patronage requirements. Delete Alternatives 2 and 5; consolidate them by restoring a modified Alternative 4 (five modifications are detailed). Replace Alternative 2 with a new alternative, which would include light rail that would extend from Wilshire Center's south edge to North Hollywood, replacing Metro Rail's north branch. Modify Alternative 3 (detailed changes are outlined in a written document). (Bryan Allen)

> **ANSWER:** Over thirty candidate alignments were evaluated during the course of the CORE Study, and Mr. Allen's comments were appreciated during this effort. Alignments in the Draft SEIS/SEIR and the Addendum best met the objectives of the CORE Study and were responsive to the major public outreach efforts of this Study.

AL42 **COMMENT:** No alignment should be built because of the negative impacts. (Ruth Goulet, Friends of Hollywood; Z. Machadah, Perry Combs, Joseph Barranco)

> **ANSWER:** The Los Angeles Metropolitan area exhibits a major need for a rapid transit system to service the urgent mobility needs of the community. Rail transit systems will generate impacts; but careful planning and coordination with the community and public officials should assure that benefits exceed the negative impacts associated with such projects.

AL43 **COMMENT:** A La Brea aerial alignment is preferable. (Agapito Hernandez)

> **ANSWER:** A La Brea Avenue alternative was examined early in the CORE Study. The alignment was in an aerial configuration due to the Congressional ban on tunneling in the "risk areas." In response to technical analyses and public participation during the CORE Study, the La Brea option was eliminated from consideration.

AL44 **COMMENT:** Since an expansion of the first phase of Metro Rail will not occur in the near-term, why not build a loop: Start at La Brea and Santa Monica Boulevard; go south through La Brea to Pico Boulevard; go east on Pico to Crenshaw Boulevard; go north on Crenshaw to Olympic Boulevard; go east on Olympic to Vermont Avenue; go north on Vermont to Beverly Boulevard; go west on Beverly to Western Avenue; go north on Western to Santa Monica Boulevard; go west on Santa Monica to La Brea. (Ray Bagley)

> **ANSWER:** See response to AL41.

AL45 **COMMENT:** An Alignment combining elements of alternatives 1, 3, 4, and 6 is preferable. Several stations should be relocated slightly, and some should be omitted as not cost-effective. (A 14-point redesign proposal was included with this comment.) (J.H. McQuiston)

> **ANSWER:** The selected New LPA, to some degree, is a combination of Candidate Alignments 1, 3, 4, and 6. See also response to AL41.

AL46 **COMMENT:** The MM1 route would destroy, through RTD's power of eminent domain, the First Southern Baptist Church of Hollywood, the Self Realization Fellowship, the Headstart School for Children, the Dunes Motel, Leoretti Cinema Rentals, several other businesses and several homes. RTD should not use its eminent domain power on the Hollywood Redevelopment Project Area block bounded by Wilton Place, Sunset Boulevard, Harold Way and Saint Andrews Place. (Hollywood Redevelopment Project)

> **ANSWER:** The selected New LPA removes these potential impacts to properties identified in this comment.

AL47 **COMMENT:** The Church of Scientology in general is in favor of Metro Rail being built in Hollywood, but Alignment 6 causes a variety of problems for the church. It would take about 1,600 square feet of the church's parking lot at Sunset and Berendo. The church is expanding and needs all of its parking spaces. Also, the view of our buildings would be obstructed by the elevated structure. (Richard Shelly, Church of Scientology)

> **ANSWER:** Selection of the New LPA mitigates the impacts discussed in this comment.

AL48 **COMMENT:** I wonder why speed ramps (such as the ones used at the Disney Land Monorail and Los Angeles Greyhound stations) are not used to provide pedestrian access to Metro Rail Stations. It seems that since speed ramps go a great distance like a moving walkway that they can be used as a combination escalator and moving walkway. (Alan B. Mitchelson)

> **ANSWER:** Speed ramps can not safely operate at as great an angle as the escalators typically adopted for station use by modern transit systems, including Metro Rail. Therefore, the substitution of speed ramps for escalators in subway stations would require the purchase of more land, increasing system capital costs. Speed ramps or similar devices could be considered during the anticipated "Transit Connector Study," which will review options for a direct transit connector between the Hollywood Bowl and the Hollywood/Highland Metro Rail Station.

2.2 AERIAL ALIGNMENT

AA1 **COMMENT:** The entire system should be aerial; that's what people voted for, and it will maximize the area covered. (Michael March, Blinded Veterans of Southern Calif.; Harold L. Katz, Los Angeles West Chamber of Commerce)

> **ANSWER:** The vote on Proposition A authorizing the development of a regional rapid transit system did not specify the vertical (i.e., aerial, at-grade, or subway) profile. A standard planning process has been followed to determine the most desirable physical configuration for the system along various routes that would satisfy regional travel demand.

AA2 **COMMENT:** The Wilshire aerial alignment would be a fine structure that wouldn't bother anyone, but the entire system should be a subway mode since it will all be that eventually anyway. (Pat Moser, NOW)

> **ANSWER:** The selected New LPA is an all-subway alternative. See also response to AL8.

AA3 **COMMENT:** Community resistance to aerial alignments should be taken into account. Gradually increasing sound levels will probably occur as the elevated lines age. (Barbara A. Fine, Federation of Hillside and Canyon Associations)

> **ANSWER:** The selected New LPA is entirely subway, mitigating future noise problems from an aerial guideway.

AA4 **COMMENT:** Page 2-49 of the Draft SEIR plays down the problems of accommodating an aerial guideway down the middle of Wilshire Boulevard. A 12-foot right-of-way would mean that: on-street parking would be eliminated; left turn lanes would be eliminated or restricted, with visibility reduced significantly; "saddle bents," doubling the number of required supports, would be used at many locations; and the pedestrian sidewalk would be dramatically reduced, particularly where bus turnouts would be required. (Bill Christopher, Miracle Mile Residential Assn.)

ANSWER: An aerial guideway in the center of Wilshire Boulevard will have negative impacts on the streetscape. Aesthetic problems posed by an aerial guideway are evaluated in detail in the Draft SEIS/SEIR. These problems played an important part in the selection of an all-subway alignment for the New LPA. See also response to AL8.

AA5 **COMMENT:** Whether Sunset or Hollywood is chosen, the alignment should be subway, not aerial. (Abraham Falick, Coalition for Rapid Transit; Jeanne Baird; Steve Bangs, Hollywood Heights Assn.; William F. Hertz, Mann Theatres; Oscar P. Arslanian, Arslanian and Associates)

ANSWER: The selected New LPA is consistent with this comment.

AA6 **COMMENT:** While more expensive initially, a subway will prove ultimately to be more beneficial aesthetically and economically than an aerial structure. (City Council of West Hollywood; Norris D. Lineweaver, YMCA)

ANSWER: The selected New LPA is consistent with this comment.

AA7 **COMMENT:** Wilshire Boulevard is essential to the system, but it should not be aerial. (Allen Sieroty, Property Owners Coalition)

ANSWER: The selected New LPA is all-subway, including that portion on Wilshire to Western Avenue. See response to AL8.

AA8 **COMMENT:** The Wilshire aerial alignment would be destructive from an aesthetic, noise and traffic standpoint. (Mike Mayer, Cal Fed, Inc.; Peter Gates, Hancock Park Homeowners Assn.; Bill Christopher, No El on Wilshire; Mrs. John Chaldise; Sylvia Babich; Charles B. Pyke, Beverly-Angeles Homeowners Assn.; Michael Cornwell, Windsor Square Assn.; Tom Vandeveer, Windsor Village Assn.; Robert R. Dockson, Cal Fed, Inc.; Paulette A. Allen; Milan R. Bump; H. Anthony Medley; Carol Fondevila; Tom Babick; William L. Callender, California Federal; Michael E. Arth; Sam Joseph; J. Christopher Kennedy; Ruthann Lehrer, Los Angeles Conservancy)

ANSWER: The selected New LPA is all-subway, including that portion on Wilshire Boulevard to Western Avenue. See response to AL8.

AA9 **COMMENT:** The entire system should be subway to minimize disruption and damage to communities. A modern system will be all-subway. Aerial is an unacceptable compromise. (Martin Juknavorian, Michael Juknavorian; Pat Miller for Cong. Julian Dixon; Jack Goodman; Samuel Kim; David Morgan, Hollywood Better Government Association; Salvador Jimenez; Leon Solomon; Sheldon Walter; Pat Moser, NOW; Abraham Falick, Coalition for Rapid Transit; John Walsh; Russell W. Kirby, Braille Institute; Joseph W. Aidlin)

ANSWER: The selected New LPA is an all-subway system, consistent with the comment.

AA10 **COMMENT:** An aerial alignment up Vermont into Hollywood defies logic. (Abraham Falick, Coalition for Rapid Transit)

ANSWER: See response to AA9.

AA11 **COMMENT:** Aerial alignments have the most serious impacts on cultural resources because they visually obscure the structures and alter the environment and setting of cultural resources. (Ruthann Lehrer, Los Angeles Conservancy)

ANSWER: See response to AA9.

AA12 **COMMENT:** Metro Rail should be an all-subway system from Los Angeles to Universal City. (David Kim for Senator David Roberti; Leland Wong, Kaiser Permanente)

ANSWER: See response to AA9.

AA13 **COMMENT:** An all-subway system is preferable, but the aerial-versus-subway controversy will not be resolved unless a short segment of aerial is built so that people can actually look at it. A short aerial segment along Vermont Avenue between Clinton and Fountain Avenues, involving one aerial station, should be built to gauge citizen reaction. (J.H. McQuiston)

ANSWER: A number of alternatives were reviewed during the course of the CORE Study, including candidate alignments with short segments of aerial guideway. The SCRTD Board opted not to select even a short aerial segment as a test, but rather designated an all-subway system as the New LPA. This decision was based on a major public outreach program and an extensive analysis of a number of aerial and subway alternatives with varying impacts.

AA14 **COMMENT:** The aerial segment presented in the Draft SEIS/SEIR is a very expensive design. It should be considered as a possibility only with the final structural design an optimization of visual and cost considerations. (Rick Richmond, Los Angeles County Transportation Commission)

ANSWER: Selection of an all-subway New LPA mitigates the need for additional review of aerial design features.

AA15 **COMMENT:** Wilshire/La Brea and Vermont/Sunset should be sensitively designed aerial structures. (Bryan Allen)

ANSWER: See response to AA14.

AA16 **COMMENT:** During meetings with SCRTD, two errors in the report were noted: (1) discussion of an aerial alignment on Cahuenga Boulevard; and (2) discussion of a one-way couplet on east-west streets in the Hollywood area.

ANSWER: These errors were corrected prior to publication of the Draft SEIS/SEIR.

AA17 **COMMENT:** Identify in greater detail the site-specific impacts of portal segments, including necessary right-of-way purchases, resultant roadway widths, street realignments and cross-streets treatment. (LADOT)

ANSWER: The selected New LPA is entirely subway, eliminating the need for transition portals from aerial to subway.

2.3 AESTHETICS

AS1 **COMMENT:** The Draft SEIR covers the visual impacts of an aerial guideway from the standpoint of an observer external to the structure. Mention should be made of the visual enhancement to the thousands of passengers who are afforded views of the surrounding landscape. It can add off-peak patronage because of its sightseeing value. (T.A. Nelson, consulting engineer)

ANSWER: The Draft SEIS/SEIR mentions the visual perspective of rail transit patrons in the Aesthetics Section of Chapter 3.

AS2 **COMMENT:** Renderings in the Draft SEIR do not adequately portray the visual impact of large noise barriers; these are totally unacceptable to the Wilshire community. The assessment is correct that the portal will have strong visual impacts and will be aesthetically incompatible with the Wilshire Boulevard streetscape. (Bill Christopher, Miracle Mile Residential Assn.)

ANSWER: Selection of the all-subway New LPA mitigates these concerns regarding aerial alignment impacts. See response to AL8.

AS3 **COMMENT:** The heritage of Wilshire as a famous street is dependent on the visual quality of rich architectural elements and spaces along its path. An aerial alignment will destroy the visual understanding of these important monuments. (Richard Keating, Skidmore, Owings & Merrill; Ruthann Lehrer, Los Angeles Conservancy)

ANSWER: See responses to AL8 and AS2.

AS4 **COMMENT:** The loss of Royal Palms on Wilshire Boulevard would be a small loss aesthetically. (Pat Moser, NOW)

ANSWER: These Royal Palms are located in the Wilshire Corridor beyond the proposed Wilshire/Western Station. See response to AL8.

AS5 **COMMENT:** The sheer physical size of the aerial guideway structure in relation to the adjacent buildings is not addressed in the Draft SEIR. On Hollywood Boulevard, a street with an eighty-foot right-of-way, the minimum distance between the edge of the guideway, with the guideway located on the centerline of the street, and the fronting properties would be 25 feet (with the guideway offset from the centerline of the street, as required to provide for adequate traffic flow, the guideway edge would be approximately twenty feet from building fronts). (City of Los Angeles Department of Transportation)

ANSWER: See response to AS2.

AS6 **COMMENT:** The aerial sections designated in the Draft SEIS/SEIR may well be 10-15% less cost-effective than other more standard designs. There is some doubt whether any aesthetic value is gained by this design. The design may not prove to be optimal. In any case, the words "Subject to Change During Final Design" should be added to the figures. (Los Angeles County Transportation Commission)

ANSWER: See response to AS2.

AS7 **COMMENT:** The City is concerned that aerial guideway facilities be carefully and attractively designed to reduce visual intrusion and incompatibility with the neighborhood contexts. We would like to work closely with SCRTD staff to refine the general design details and site improvements. (City of Los Angeles Planning Department)

ANSWER: See response to AS2.

2.4 AIR QUALITY

AQ1 **COMMENT:** Increased traffic and spillover parking problems will produce increased levels of carbon monoxide at schools near terminus stations. The planning process should identify additional measures to specifically assist the impacted schools. (Robert J. Niccum, Los Angeles Unified School District)

ANSWER: Potential interim terminus stations for the New LPA are located at Hollywood/Vine, Vermont/Wilshire, Western/Wilshire, Universal City and North Hollywood. The closest public school is located in the vicinity of the North Hollywood station and is approximately 800-1000 feet away from the station entrance and the proposed parking lot. See responses to CS7 and CS8.

AQ2 **COMMENT:** Construction of aerial guideways will necessitate substantial traffic rerouting and diversions, particularly during construction. The inconvenience and additional travel time and distance will not only incrementally worsen air quality but will also involve the expenditure of gas and oil energy resources. Analysis of these impacts should be included. (City of Los Angeles Department of Transportation)

ANSWER: The New LPA is an all-subway system, mitigating the impacts associated with construction of an aerial guideway.

2.5 COMMUNITY AND SOCIAL CONCERNS

CS1 **COMMENT:** MacArthur Park plays a particularly important role in neighborhood cohesion for that area. Most people have no front or back yards, and MacArthur Park fills that need. For the last 10 years, people have worked to turn this formerly blighted area into a community asset. The original EIR did not understand this importance. To minimize impacts on the park, construction should be reduced to a total of 17 months; of that total, 11 months would be for construction of the track and the pocket track, and during that time the lake would be drained. After that, 6 months would be allowed for construction of the lake bottom, the aeration system and so forth to put the lake back the way it was. RTD should pay the Department of Recreation and Parks for an easement, with that money being returned to MacArthur Park. (Susan Cloke, for Councilwoman Gloria Molina; George Hearns; Al Odell; Kathleen McGuire;

Peter Daniels; petitions submitted in support of this comment by 122 citizens)

ANSWER: The Final SEIS/SEIR includes an updated analysis of impacts and mitigation measures for construction of Metro Rail through this area. See Section 15.3 of Chapter 3.

CS2 **COMMENT:** Since there are no firm plans for the western extension past Fairfax, there is reason to be concerned about the effects on the community around the terminus at Fairfax. (Mike Mayer, Cal Fed, Inc.)

ANSWER: See response to AL8.

CS3 **COMMENT:** Quality of life and our neighborhoods, especially for the handicapped, would be negatively impacted by the congestion from an aerial system. (Les Stocker, Braille Institute)

ANSWER: The selected New LPA is entirely underground, mitigating any impacts associated with an aerial guideway.

CS4 **COMMENT:** The "problem curve" at Sunset and Vermont can be resolved by placing the station below the curve, not on Sunset. At this point, between Fountain and Lexington, the station easily serves both Santa Monica and Sunset. Once rid of the Edgemont station, there is a definite momentum to place the "Sunset" portal on the curve. This position means that the various church and hospital-related properties will not have to be acquired. (J.H. McQuiston)

ANSWER: This comment concerns Candidate Alignment 4, which was not selected as the New LPA. The problems associated with this curve from Vermont Avenue to Sunset Boulevard constituted one of the reasons for rejection of Candidate Alignment 4 and the selection of the all-subway New LPA.

CS5 **COMMENT:** A Western Avenue station may condemn Hollywood to become a permanent slum. The community is badly unbalanced (job-rich). For every job to be filled, large numbers of people would have to come in from outside the area. Currently, the buildings on Hollywood and Western near the Metro Rail routes are commercial, and the Metro Rail EIR projects intensive commercial redevelopment up to about 6.0 FAR near such stations. However, the current belief of planners is that the Western properties must be strictly held to R5 or lesser R-zoning in order to provide minimal working population. The Western Avenue Station threatens the redevelopment of Hollywood; it must not be allowed as long as this area is planned for residences. (J.H. McQuiston)

ANSWER: Commercial development in the Hollywood/Western station area is not, on its face, inappropriate for this Station area. Mixed residential development combined

with quality commercial development under a carefully guided redevelopment plan should improve the quality of an area. The Station area is in the Community Redevelopment Agency Hollywood Redevelopment Plan, which designates the northwest and southwest quadrants for high density residential use, with community commercial designations in the northeast and southeast quadrants.

CS6 **COMMENT:** The First Southern Baptist Church of Hollywood on Wilton Place has provided ministry to all classes and many races and creeds. Any alignment should take care to avoid disruption of the church and its ministry. (C.B. Hogue, Southern Baptist General Convention of California; Charles McClung, San Fernando Valley Southern Baptist Convention; Terry Chang; David Morgan, Hollywood Better Government Association; Martha Rinaldo; Chryiko Ishiki; David Glaser; Venus DeMilo)

ANSWER: Selection of the New LPA mitigates these issues. The First Southern Baptist Church will not be affected.

CS7 **COMMENT:** There has been inadequate attention given to Metro Rail's impact on schools, especially at the stations. (Susan Campoccio)

ANSWER: No public schools appear to be directly impacted by the selected New LPA.

CS8 **COMMENT:** There is no mention of Alignment 6's impacts on Grant Elementary School. Major construction will be taking place within 50 yards of this school, and it will be permanently affected by the transition tunnel. (Jackie Goldberg, District #3, Board of Education; Robert J. Niccum, Los Angeles Unified School District)

ANSWER: Grant Elementary school is located near the transition portal between Sunset and Hollywood Boulevard for Candidate Alignment 6. This alignment was not selected as the New LPA, so no impacts are expected on the school from Metro Rail construction. See also response to CS7.

CS9 **COMMENT:** The conversion of Franklin to a one-way street would be disastrous for residents living north of Franklin. Traffic would increase on remaining access streets as drivers circled several blocks. (T.A. Nelson, Consulting Engineer)

ANSWER: Conversion of Franklin to a one-way street is not under consideration.

CS10 **COMMENT:** The problem of relocating dispossessed residents is treated much too lightly in the Addendum. The experience with the Century Freeway should give pause to consideration of any system that increases the problem of relocating the dispossessed. (Joseph W. Aidlin)

> **ANSWER:** With the selection of the all-subway New LPA, the number of residents to be relocated is minimized by comparison with the aerial alternatives. The LPA has been designed to minimize, to the extent possible, the relocations associated with its construction and operation. The New LPA is being constructed through a highly urbanized area and will involve displacements, although considerably fewer than those associated with the Century Freeway, for example. Compensation and assistance for persons to be relocated is detailed in the Final SEIS/SEIR, Section 4, Chapter 3.

CS11 **COMMENT:** Aerial segments would impact community cohesion. Additional review of the change in pedestrian and vehicular travel patterns necessitated by an aerial structure is needed. (City of Los Angeles Planning Department)

> **ANSWER:** The all-subway New LPA avoids these impacts associated with aerial segments.

CS12 **COMMENT:** Metro Rail will increase population and density, a significant adverse impact on the already-overcrowded schools. From the perspective of the School District, which is struggling to accommodate a growing student population, this population growth and density seems to be less a potential benefit than an unavoidable adverse impact and should be so noted. (Robert J. Niccum, Los Angeles Unified School District)

> **ANSWER:** Density in areas around Metro Rail stations is expected to increase in many cases. Metro Rail is designed to focus the anticipated growth in population for Los Angeles County into areas that are most suitable for such growth, rather than promote the regional sprawl of such growth. These changes in the population would be expected to occur over many years, providing an opportunity for the Los Angeles Unified School District to plan for new students. Additionally, Metro Rail will provide an additional means of access for students going to and from schools.

CS13 **COMMENT:** The Department of Interior has no preference with regard to the various construction options for the project's involvement with MacArthur Park. Our main concern is that the park be restored to pre-project condition after construction and that any incidental damages (for adverse impacts such as the temporary restriction of park access) are paid to the satisfaction of the Los Angeles Department of Recreation and Parks (U.S. Department of Interior, Bruce Blanchard, Director, Office of Environmental Project Review)

> **ANSWER:** MacArthur Park will be restored to pre-project condition after construction of the Metro Rail Project. Preliminary indications suggest that compensation for the use of the Park will be based on prevailing lease rates for similar property and will be determined by an independent appraiser. SCRTD has begun negotiations with the Los Angeles Department of Recreation and Parks. These negotiations will result in an agreement on the method of compensation and the detailed methods for applying the adopted mitigation measures.

2.6 CONSTRUCTION

CN1 **COMMENT:** RTD's special study of construction options and impacts on MacArthur Park is appropriate for two reasons. First, there must be a way to avoid cut-and-cover construction that would close the lake for two years; second, it is preferable and technically feasible to tunnel under the lake, which is less disruptive than the cut-and-cover option. Reconstruction and sealing of the lake bottom should be included as a mitigation measure. (Susan Cloke, for Councilwoman Gloria Molina)

> **ANSWER:** Section 15, "Construction Impacts," of Chapter 3 provides a detailed discussion of the options, impacts and mitigation measures evaluated for Metro Rail construction through the MacArthur Park area. Reconstruction and sealing of the lake bottom is included as a mitigation measure.

CN2 **COMMENT:** The cut-and-cover construction method is safest in the methane area. (Pat Moser, NOW)

> **ANSWER:** The selected LPA does not intersect with the defined methane "risk areas." See response to AL8.

CN3 **COMMENT:** Major disruptions to the studios will occur during construction (e.g., traffic problems, power outages). (Brenda L. Young, KTLA; T.A. Nelson, consulting engineer)

> **ANSWER:** The selection of the LPA along Hollywood Boulevard obviates the concerns raised by the Studios on Sunset Boulevard regarding Metro Rail construction.

CN4 **COMMENT:** All alignments will impact water and power facilities, but the greatest impact will result from subway construction. (Edward Karapetian, Los Angeles Department of Water and Power)

> **ANSWER:** Construction of a subway will require relocation of underground utilities. This is an unavoidable impact, which will be mitigated to the greatest extent possible through careful planning, coordination with the utility companies and construction management.

CN5 **COMMENT:** Any construction along Sunset Boulevard on the Church of Scientology's property would inconvenience parishioners, snarl traffic and interfere with the church's expansion plans. (Richard Shelley, Church of Scientology)

> **ANSWER:** The selected New LPA will be entirely underground and will remain on Vermont Avenue to Hollywood Boulevard. Therefore, the Church of Scientology will not be adversely affected.

CN6 **COMMENT:** Details were not provided in the Addendum on the duration of construction activity at the portal site at Grant Elementary School. If this site is selected, school children will bear the brunt of the adverse impacts of the earthboring activity. One mitigating measure would be to limit construction activities to hours when school is not is session. (Robert J. Niccum, Los Angeles Unified School District)

> **ANSWER:** See response to CS8.

2.7 COSTS AND FINANCING

CF1 **COMMENT:** Alternative 1, which is all in subway, is substantially more costly than the 1983 Locally Preferred Alternative and does not appear feasible to implement. All other alternatives generally conform to the cost of the Locally Preferred Alternative, although cost reduction measures and/or additional sources of funding will be required as engineering advances. (Rick Richmond, Los Angeles County Transportation Commission)

> **ANSWER:** The section of Metro Rail extending from Wilshire/Western to Wilshire/Fairfax was deleted from Alignment 1 as presented in the draft document under review by the LACTC. This change reduced the length and the cost of Candidate Alignment 1.

CF2 **COMMENT:** Several of the cost figures have escalated in the Addendum over the original SEIS and over the original estimates. The construction costs have gone down, and the engineering and management costs have gone up. Calculations in the Addendum appear to violate the Competition in Contracting Act (CICA). Since the federal government looks very carefully at those trends, RTD should try to keep those numbers under control. CICA requires that competition, not sole source contracting, apply any time an existing contract or grant exceeds a statutory amount. Metro Rail work has now been broken into various tasks, and for some tasks the cost estimates have risen by an amount that far exceeds the CICA trigger. (J.H. McQuiston)

> **ANSWER:** Metro Rail contracts have been and will continue to be awarded in accordance with UMTA guidelines. These include both competitive negotiations and low bid contracts. The SCRTD is investigating the effects of new UMTA regulations requiring periodic recompetition of negotiated contracts and will comply with those regulations.

CF3 **COMMENT:** The use of December, 1985, dollars to make cost projections should be updated. (Paul Clarke, Sunset Boulevard Coalition; Steven A. Bell, KTLA; Michael Eigner, Sunset Boulevard Coalition; Bill Christopher, Miracle Mile Residential Assn.)

> **ANSWER:** The 1985 base was established at the beginning of the CORE study. The practice of using an analysis base of 1985 constant dollars is consistent with the policies of the Urban Mass Transportation Administration. The Financial Operating Plan presented in Chapter 4 is the basis for SCRTD Board decisions, and costs are presented in current dollars in this Chapter.

CF4 **COMMENT:** Since there are cost data varying up to $1.2 million in the CORE Forum report and the Draft SEIR, it calls into question all the data presented in various reports. (Bill Christopher, No El on Wilshire)

> **ANSWER:** Considerable progress has been made in refining the capital cost estimates for each of the candidate alignments and the New LPA, since the issuance of the Draft SEIR. Refined cost estimates are included in Chapters 2 and 4 of this Final SEIS/SEIR. See response to CF5.

CF5 **COMMENT:** The costs of potential MOS-2 (Phase II) segments have been under-estimated and need to be reevaluated. The 10-15% for Design, Engineering, and Construction management should be 20%, and the 5% estimate for Agency cost at least 10%. These figures are based on our calculation of past experience on MOS-1 and other similar projects. Due to the conceptual level of engineering on any Phase II segment, a contingency of at least 20% on all cost elements would be necessary. The Construction and Procurement estimates appear to be reasonable, but these

are being independently checked. The cost estimates do not include costs for 8,500 parking spaces; but for only 2,000 or so spaces. Finally, we wonder why all costs are in 1985 dollars when many of the costs should be derived from 1987 experience? (Los Angeles County Transportation Commission)

ANSWER: The cost estimates included in the Final SEIS/SEIR are based on the latest data available including bid experience on MOS-1 with regard to the cost of guideway, station, and system components. The add-on percentages have been revised. The percentage for design and construction management is 15% for subway facilities and 20% for aerial guideway facilities. Agency fees have been increased to levels in the area of 9% of facility and system costs. Contingency fees include levels of 15% for Agency fees, 30% for Right-of-Way, and 15% for facilities including guideways and stations. At Universal City, the area around the station is scheduled for some roadway improvements including a 6-lane bridge and a parking structure. The constant dollar cost of those roadway improvements total $60.7 million of which $35.3 million is the cost for all rights-of-way and $13.0 million is the parking cost. Costs for parking at the North Hollywood Station include the acquisition of surface spaces. As the system matures, added parking will be made available. Several extensions are planned within the same time period, reducing the cost requirements for associated parking structures. See also response to CF3.

CF6 **COMMENT:** We do not agree with the statement that "all five Candidate Alignments, as currently configured, can be constructed within the funding levels available to the Los Angeles region for Metro Rail construction." In fact, none of them can fully and many alternative operable segments most probably cannot be either. LACTC took strong exception to the methodology employed in earlier versions of this work, and would have to agree in detail to any discussion made part of the SEIS. (Los Angeles County Transportation Commission)

ANSWER: Per agreement with the Los Angeles County Transportation Commission, this statement has been removed from the Final SEIS/SEIR. Discussions regarding the financing of the next construction segment of Metro Rail are continuing among the various funding partners.

CF7 **COMMENT:** Use of the same 15% contingency allowance for subway and aerial alignments does not reflect the high degree of uncertainty that difficult soil types, abandoned oil wells, gas pockets and utility infrastructure may be encountered in subway tunneling. In comparison, the unpredictable elements of aerial constructions are slight. (City of Los Angeles Department of Transportation)

ANSWER: The difficulties associated with tunneling operations has been carefully considered. Specific cost items for these tunneling operations include the following:

- o Removal of contaminated soil,
- o Compaction grouting to stabilize soil near adjacent structures,
- o Utility relocation, as necessary,
- o Magnetometer probes in advance of drilling to locate abandoned oil wells,
- o Use of higher unit cost figures when tunneling under the Santa Monica Mountains (due to many unknowns related to soil conditions, rock formations and geologic features.

These precautions and the special costs, as included in the current cost estimates, are reflective of the difficulties encountered in tunneling. These costs are included in the scheduled construction program rather than as contingency items.

CF8 **COMMENT:** It is not clear why Alignment 4 has the highest annual operating cost when its annual rail car miles is low compared to other alternatives. (Los Angeles County Transportation Commission)

ANSWER: As presented in the November 1987 Draft SEIS/SEIR, Candidate Alignment 4 does exhibit the highest annual anticipated operating and maintenance costs. The annual rail car miles figure for Alignment 4 is a misprint. Annual rail car miles figures have been updated for all alignments.

CF9 **COMMENT:** If numerous unacknowledged problems cause further cost escalations, the question arises as to whether the citizens of Los Angeles can afford Metro Rail. It will absorb financial resources needed for sewers, storm drains, freeways and the cleanup of the drinking water supply. Future costs increases can be expected because of extensive design and route changes. Current financing plans are also questionable because of scarce federal funding and rosy bond ratings. (Barbara A. Fine, Federation of Hillside and Canyon Associations)

> **ANSWER:** Careful planning and environmental analyses can minimize, but not fully eliminate, the "surprises" associated with a complex public works project such as Metro Rail. The long-term benefits of a regional rapid transit system appear to justify continuing efforts to secure adequate resources and funding. This does not preclude the continuing assessment of goals and objectives of the community and adjustments to the program direction as system development proceeds.

CF10 **COMMENT:** The Draft SEIR is not clear as to which mitigation measures are included in project cost estimates. (City of Los Angeles Department of Transportation)

> **ANSWER:** This Final SEIS/SEIR provides a list of mitigation measures that can be applied under the designated conditions. Many mitigation measures have direct Project-related cost components and include those related to subsurface gas, noise and vibration, provision of safety and security systems, land acquisition (accompanied by aggressive relocation assistance), and construction impacts. Mitigation measures related to these impacts are included in the estimated costs for the candidate alignments. A monitoring program is in place for the 161 mitigation measures adopted for MOS-1 construction and operation. The SCRTD makes a quarterly report to UMTA regarding the mitigation measure, the reference requiring the measure, the documents that implement the measure and the progress made in implementation to date. This monitoring approach is expected also for Phase II.

CF11 **COMMENT:** The final document must show contingency local share income projections that would be operative if legal actions currently being taken against the benefit assessment process are successful. (Paul Clarke, Sunset Boulevard Coalition)

> **ANSWER:** Use of benefit assessments clearly is a legitimate and acceptable method of funding a portion of the capital cost of the Metro Rail system. Recent court decisions have been in favor of the SCRTD; therefore, there does not appear to be a paramount need to define contingency funding.

CF12 **COMMENT:** There seems to be a major difference between what RTD believes mitigation costs to be and what the studios believe them to be if the Sunset alignment is chosen. (Richard Anderson, Fox Television Stations)

> **ANSWER:** Selection of the New LPA located on Hollywood Boulevard avoids impacts on the studios located along Sunset Boulevard.

CF13 **COMMENT:** Alternatives 3 and 4 both add a second station - not counting the potential Hollywood Bowl station - in Hollywood. This second station will cost $70 million in today's dollars, all costs considered. Yet it appears to attract only 3,500-5,000 new daily riders compared with the 18,500 daily riders attracted by the average station. With such a low cost-effectiveness in an area already served by another station, the added station does not appear to be justified. (Rick Richmond, Los Angeles County Transportation Commission)

> **ANSWER:** Patronage projections do not include the development proposed by CRA for the Hollywood Redevelopment area or tourist activity. CRA is proposing a tourist commercial complex for this area and this station is located in a high tourist activity center. The Hollywood/Highland station likely will perform far better than patronage forecasts in the document due to these two factors.

CF14 **COMMENT:** RTD should more carefully examine the prospect of self-financing of stations. About a billion dollars of extra funding could come from that source. Construction of Metro Rail gives value to certain locations, and that value should be utilized by Metro Rail. The public is not getting full value for its Metro Rail investment if it does not participate in the gain induced by this $4 billion construction project, with its 3-4 times capital multiplier effect. Most of these stations can use high-rise development. Joint-development sites should be planned and implemented at the following locations: 1) Union Station (U.S. Post Office), 2) Alvarado/Wilshire, 3) Vermont/Wilshire, 4) Western/Wilshire, 5) Santa Monica/Vermont, 6) Sunset/Vermont, 7) Sunset/Western, 8) Vine/Selma, 9) Hollywood/Las Palmas, 10) Hollywood Bowl/Park & Ride, 11) North Hollywood Terminal, 12) Olympic/Crenshaw, 13) Pico/San Vicente, 14) Olympic/Fairfax. (Abraham Falick, Coalition for Rapid Transit)

> **ANSWER:** The SCRTD has prepared a paper entitled Self Financing Stations, and this concept will be pursued aggressively as it appears to be applicable to any of the Phase II Metro Rail stations. The SCRTD will be recovering $75 million in private sector funds through the benefit assessment program currently under development for Phase II of Metro Rail. As discussed in Section 2 of Chapter 3, the SCRTD also will be preparing station plans for the Phase II stations in conformance with City-adopted Specific, Community and

Redevelopment Plans as applicable. The actual joint development potential will be affected by the current market for the type of proposed development, the amount of land available for re-use, and the available development bonuses through the City process. To the extent possible, station development projects will be used to offset capital facility costs or to provide enhancements to the basic rail transit system.

CF15 **COMMENT:** Alternative financing mechanisms to special assessments are available, such as joint ventures with private companies at station locations. Projected benefit assessment revenues are unrealistic. (David Morgan, Hollywood Better Government Assn.)

ANSWER: See response to CF14, above.

CF16 **COMMENT:** The federal government should not certify Metro Rail because of non-compliance with SB 1995. The law calls for actual construction, not a trust fund or other device. (Michael Malak, Malak & Malak)

ANSWER: Full compliance with the requirements of SB 1995 is anticipated.

CF17 **COMMENT:** The Metro Rail project lacks a proper budget, including who pays for what and the financial impacts on individuals and businesses. (David Morgan, Hollywood Better Government Assn.)

ANSWER: A Financial Operating Plan has been prepared for the Metro Rail project. The plan identifies sources of funds, key cost items, and scheduled expenditures. This Plan is available to key decision-makers and constantly is updated and revised in accordance with policy direction from the SCRTD Board of Directors and other funding partners.

CF18 **COMMENT:** Many hidden costs have been overlooked in the aerial alignment, including additional traffic problems, safety, aesthetic damage and noise. (Stanley Hart, Sierra Club)

ANSWER: Selection of the all-subway New LPA mitigates the issues raised by this comment. A careful effort was made to define in the Draft SEIS/SEIR the character and magnitude of impacts that would be associated with an aerial guideway, along with the costs to mitigate such impacts.

CF19 **COMMENT:** An excessive amount of tax money is being used on Metro Rail. Businesses are being hurt. An overhead system would reduce the disruption and cost. (Pablo Fiesta)

> **ANSWER:** The expenditure of tax money for a public improvement like Metro Rail is intended to bring about long-term benefits, although disruptions will occur in implementing the improvement. Businesses are already acting to take advantage of the accessibility provided by Metro Rail and the greater pedestrian traffic that will come with it. Considerable analyses of the impacts of both aerial and subway configurations have been completed and are reported in the Draft SEIS/SEIR. Construction of an aerial guideway would be disruptive to commercial activity along the streets affected, which is one of the reasons for selection of an all-subway New LPA.

CF20 **COMMENT:** It is ironic that certain property owners in areas where stations are contemplated will be required to pay special assessments on the theory that the properties will be benefitted by elevated installations. In fact, such elevated installations will be seriously detrimental. (Joseph W. Aidlin)

> **ANSWER:** Selection of the all-subway New LPA mitigates the impacts associated with an aerial system. It has been demonstrated, however, that the enhanced accessibility provided by systems like Metro Rail, whether in the aerial or subway configuration, will result in increased monetary benefits for property owners near the stations.

CF21 **COMMENT:** The cost of 8,500 parking spaces in Table S-2 is not included in the project cost estimates. These estimates should be increased to reflect the cost of providing this parking or the parking space count reduced to the 2,000 spaces or so contemplated. MOS-1 parking spaces, for example, are at best 300. (LACTC)

> **ANSWER:** See response to CF5.

2.8 CULTURAL RESOURCES

CR1 **COMMENT:** Buildings of historic value would be overwhelmed by an aerial structure along Wilshire Boulevard. (Mike Mayer, Cal Fed, Inc.; Bill Christopher, Miracle Mile Residential Assn.)

> **ANSWER:** Selection of all-subway New LPA, which terminates on Wilshire Boulevard at Western Avenue, mitigates the impacts described in this comment. See also response to AL8.

CR2 **COMMENT:** Aerial guideways on Wilshire would tower over art deco buildings in the Miracle Mile and run within 25 feet of the new museum's facade. (Bill Christopher, No El on Wilshire; Ruthann Lehrer, Los Angeles Conservancy)

ANSWER: See response to comment CR1.

CR3 **COMMENT:** In the Draft SEIR, the Hollywood core area is cited as having large amounts and concentrations of commercially-zoned redevelopable sites, yet the area's Historic District status (as evaluated in Chapter 3, Cultural Resources) does not seem to be taken into account. (City of Los Angeles Planning Department)

ANSWER: The presence of the Historic District in the Hollywood Core area will not, on its face, preclude redevelopment in this area. Upgrading of an historic area through redevelopment often can improve the economic prospects of the historic properties. In the Hollywood area, the Community Redevelopment Agency (CRA) is responsible for implementing the Redevelopment Plan, which contains provisions for protecting historic properties. The CRA is authorized to delay demolition of historic properties for up to 360 days to allow time to explore alternatives to demolition. In addition, the CRA is preparing an Urban Design Plan to encourage preservation and insure that new development is sympathetic to and complements the scale of existing development. Developers must comply with these plans and CRA procedures in any proposals which would affect historic properties.

CR4 **COMMENT:** Whitley Heights and Whitley Park comprise a National Historic District. Although there appears to be no immediate problem, some of the alignments are close to the district, and future references should recognize its status as a National Historic District. There are a number of historic structures along the alignment which are adjacent to or in close proximity to areas where the Metro Rail Project will be altering the environment. Resources such as east side Highland Avenue, Whitley Heights, Hollywood Heights and Outpost Estates neighborhoods, buildings surrounding MacArthur Park, and the Hancock Park neighborhood are not addressed in this study. (John Vigran, Whitley Heights Civic Association; Christy Johnson McAvoy, Los Angeles Conservancy)

ANSWER: Whitley Heights, Whitley Park, the east side of Highland Avenue, Hollywood Heights and Outpost Estates neighborhoods, buildings near MacArthur Park and the Hancock Park neighborhood are important historic neighborhoods which deserve proper recognition from any public works project. These neighborhoods lie outside the Areas of Potential Effect (APE) of the Metro Rail Project. The all-subway Metro Rail Project should not negatively effect these neighborhoods, and they are not

referred to in this Final SEIS/SEIR. See also the response to Comment CR6.

CR5 **COMMENT:** The Highland/Camrose Bungalow Village has been declared eligible for inclusion in the National Register of Historic Places, and this should be recognized in the document. (Steve Bangs, Hollywood Heights Assn.)

ANSWER: The New LPA will not affect the subject property. Detail on the Highland/Camrose Bungalow Village is contained in the Addendum to the November 1987 Cultural Resources Technical Report. The Highland/Camrose Bungalow Village is included in the No Adverse Effect section of the Technical Report, because the Metro Rail alignment passes under the Village area at sufficient depth that the noise levels experienced at the Bungalows are within the Project noise and vibration criteria.

CR6 **COMMENT:** The Draft SEIR is a rather narrow survey; also, Metro Rail will adversely affect the economic vitality of some Cultural Heritage Monuments. (Jay Oren, Los Angeles Cultural Affairs Department)

ANSWER: An Area of Potential Effect has been defined which includes the area within which direct impacts on cultural resources can be expected from the Project. As in previous environmental studies, an area was defined as one parcel deep around all cut-and-cover portions of the alignments and along aerial structures. In addition, properties that sit directly over the subway tunnels are included if they are within 200 feet of the top of the rail. Cultural resources have been carefully reviewed in the CORE Study Project area and, except for two cases where demolition could be required, there is no instance where the economic vitality of Cultural Heritage Monuments will be affected except during construction.

CR7 **COMMENT:** Grant School, which was built in 1910, has been designated by the Community Redevelopment Agency as eligible for listing under a local landmark ordinance. Alignment 6 would cause serious adverse effects on the building and its activities. (Richard J. Niccum, Los Angeles Unified School District)

ANSWER: Selection of the all-subway alignment along Hollywood Boulevard as the New LPA mitigates the impacts discussed in this comment.

CR8 **COMMENT:** The Cultural Heritage Commission considered and rejected a request for declaration of the Temple Beth-El at 1508 N. Wilton Place as a Historic-Cultural Monument worthy of preservation. (Nancy Fernandez, L.A. Cultural Heritage Commission)

> **ANSWER:** The Temple Beth-El at 1508 N. Wilton Place has been included in the Cultural Resources Technical Report as a building considered by the Metro Rail Project.

CR9 **COMMENT:** The Los Angeles Conservancy favors a subway system because it believes that an aerial alignment would have substantial negative effects on the environment by compromising the view and appreciation of the built environment. Elevated segments appear to have an unmitigable impact on the surrounding residential and business community. (Christy Johnson McAvoy, Los Angeles Conservancy)

> **ANSWER:** The selection of the all-subway New LPA avoids the adverse impacts associated with an aerial system. Section 16.2 of Chapter 3 discusses the identification of cultural resources, the application of the criteria of effect, and the determination of adverse effects. The Section and its supporting Cultural Resources Technical Report and addendum conclude that there will be no adverse effects associated with the New LPA.

CR10 **COMMENT:** THe LPA on Hollywood Boulevard would have severe impacts on the Hollywood Boulevard National Register District. What measures will the project take to minimize these effects? Will there be federal review under Section 106 and 4(f) processes with opportunity for public comment? The issue is what safeguards will be in place to mitigate the impacts of construction on the Historic District. Did the SCRTD study a Selma Avenue alignment which could serve both Sunset and Hollywood Boulevards yet impact fewer cultural resources? (Christy Johnson McAvoy, Los Angeles Conservancy)

> **ANSWER:** Of the Hollywood Boulevard National Register District properties affected by the LPA, none are slated for demolition due to Metro Rail. Properties facing Hollywood Boulevard will be affected during the construction period as cut-and-cover construction occurs on Hollywood Boulevard. Specific mitigation measures have been defined to reduce construction related noise, vibration, dust, and traffic congestion and to maintain access to buildings affected by construction of MOS-1. The same requirements will be included in the specifications for construction of Phase II of Metro Rail. Circulation of the Draft SEIS/SEIR and Addendum to the Draft SEIS/SEIR with the public comments that have been received constitute the federal review and public comment opportunity under Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act. A Selma Avenue

alignment was considered and rejected early in the CORE Study effort. See response to AL28.

CR11 **COMMENT:** The Hollywood Boulevard National register District contains 102 buildings between Argyle and La Brea. Table 11 on page 3-59 of the Addendum to the Draft SEIS/SEIR appears to indicate that the entire district is treated as one building. A more accurate representation of the total number of resources impacted by the proposed project in Alignments 3 and 6 would be 113 and 114 respectively. This table is extremely misleading and should be corrected in the final SEIR. The same analogy applies to the Miracle Mile Historic District, which should not be analyzed as a single entity. (Christy Johnson McAvoy, Los Angeles Conservancy; Hillary Gitelman, Hollywood Heritage, Inc.)

ANSWER: As discussed in the response to Comment CR10, the Hollywood Boulevard National Register District will be temporarily impacted during construction because of the cut-and-cover excavation along Hollywood Boulevard between Vine Street and Wilcox Avenue and at Highland Avenue. This is explained in Section 15 of Chapter 3 of this Final SEIS/SEIR. SCRTD has chosen to describe these impacts once for all the included buildings rather than repeat the same material for each building.

CR12 **COMMENT:** The paragraph on preservation of historic and cultural resources within the land use section (Sub-section 3.2.6, of the May 1988 Addendum) does not identify significant historic structures or assess any impacts arising directly from the alignment (not from "growth induced by the Metro Rail Project"). Although the paragraph refers to Sub-section 3.16, there are land use issues (including the placement of rail stations) which could directly impact historic structures and should be assessed in this sub-section. (Hillary Gitelman, Hollywood Heritage, Inc.)

ANSWER: The referenced section 3.2.6 of the Addendum to the Draft SEIS/SEIR deals only with the general impacts of growth induced by the Metro Rail Project. Section 3.16 of the Addendum and Section 16.2 of Chapter 3 of the Draft SEIS/SEIR discuss the direct impacts of the project options on historic structures, including the location of station entrances in or near historic buildings. The primary land use issue driving station placement is that of "Growth Centers" described in Los Angeles "Centers Concept." The Hollywood stations for the New LPA are located at Sunset/Vermont, Hollywood/Western, Hollywood/Vine and Hollywood/Highland, which, except for Hollywood/Western, coincide with the Regional Centers and Redevelopment Projects depicted in Figure 3-4 of this Final SEIS/SEIR.

CR13 **COMMENT:** The mitigation measures associated with the land use section (Subsection 3.2.10, page 3-23 of the Addendum to the Draft SEIS/SEIR) are inadequate given the deficiencies of Subsection 3.2.6. Will stations be located in or near historic buildings? If yes, what guidelines or provisions could mitigate potential negative impacts? (Hillary Gitelman, Hollywood Heritage, Inc.)

> **ANSWER:** Candidate Alignment 6 is the subject of the Addendum to the Draft SEIS/SEIR and was not selected as the New LPA. The land use section of the Addendum was not intended to answer questions about the placement of stations in or near historic buildings. Section 3.16 of the Addendum to the Draft SEIS/SEIR and Section 16.2 of Chapter 3 of this Final SEIS/SEIR address mitigation measures involved with placement of stations in or near historic properties. See also responses to Comments CR10, CR11 and CR12.

CR14 **COMMENT:** The section on displacements (Sub-section 3.4.1, page 3.25 of the Addendum to the Draft SEIS/SEIR) should include assessments of historic, cultural, and architectural significance for each property, particularly since several of the properties might be deemed significant if historical research were completed or existing research acknowledged. (Hillary Gitelman, Hollywood Heritage, Inc.)

> **ANSWER:** Candidate Alignment 6 is the subject of the Addendum to the Draft SEIS/SEIR and was not selected as the New LPA. Section 16.2.2 of Chapter 3 describes the process whereby Areas of Potential Effect were established for the various Project alternatives. Properties within this area were inventoried to determine if they were listed as significant cultural resources on Federal, State, or local registers. As discussed in Section 16.2.1.2 of Chapter 3, local agencies and organizations, including Hollywood Heritage, were consulted to obtain valuable materials on eligible and potentially eligible properties and their recommendations as to additional properties to include in the process. The SHPO was consulted to determine if the properties involved were eligible for listing on the National Register and assisted in evaluating the impact that the Project would have on the property. Results of this methodology for the New LPA are found in Sections 16.2.3 and 16.2.4 of Chapter 3.

CR15 **COMMENT:** Assessment of construction impacts (Section 3.15.1 of the Addendum to the Draft SEIS/SEIR) should include a discussion of the effect of above- and below-ground construction on un-reinforced masonry buildings since many significant historic buildings have yet to be brought up to current code standards. (Hillary Gitelman, Hollywood Heritage, Inc.)

> **ANSWER:** Section 13.9.1 of Chapter 3 of the December 1983 FEIS describes the potential for ground subsidence during tunneling or station excavation and Section 13.9.5 of Chapter 3 describes mitigation measures that will be used to avoid ground subsidence and building damage. These measures have been used during the construction of MOS-1 in the Downtown area of Los Angeles without any damage to historic buildings nearby and will be used for Phase II of Metro Rail.

CR16 **COMMENT:** The identification of historic properties and existing conditions in Section 3.16.1.1 of the Addendum to the Draft SEIS/SEIR only includes properties on or eligible for the National Register. In fairness to the community, SCRTD should identify all structures in every category of significance identified by the Hollywood Historic and Architectural Resource Survey done for the CRA in 1984. The National Register is not the absolute or sole listing of significant properties and can not be used as such; CEQA clearly applies to properties of local significance. The assessment of project impacts in Section 3.16.1.2 of the Addendum to the Draft SEIS/SEIR is inadequate given the deficiencies of identification listed above. (Hillary Gitelman, Hollywood Heritage Inc.)

> **ANSWER:** See the response to Comment CR14. Urban Mass Transportation Administration guidelines were followed for evaluating cultural resources. These guidelines require evaluations to be based on the quality of significance in cultural resources that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that are associated with significant events of lives, or embody distinctive characteristics, or yield important information. These guidelines may be used to evaluate cultural resources that are of national, state or local significance. The November 1987 Cultural Resources Technical Report and its Addendum contain listings of all properties considered during the Metro Rail Project and identification sheets on the properties that were not deemed to have the necessary significance or integrity.

CR17 **COMMENT:** The procedures under Section 106 of the National Historic Preservation Act of 1966 and the regulations codified thereunder at 36 CFR Part 800 should be adhered to. (Hillary Gitelman, Hollywood Heritage, Inc.)

> **ANSWER:** The procedures and regulations listed in the comment have been followed. Section 13 of Chapter 3 reviews Cultural Resources impacts and describes the framework followed for this Metro Rail Project.

CR18 **COMMENT:** The newly proposed Alternative 6 produces no new impacts to section 4(f) resources, or other resources of concern to the U.S. Department of Interior. Consequently, our previous comments on Alternatives 3 and 4 are also applicable to Alternative 6. (U.S. Department of Interior, Bruce Blanchard, Director, Office of Environmental Project Review)

> **ANSWER:** The Department of Interior's comments are noted.

2.9 ECONOMIC IMPACTS

EI1 **COMMENT:** Many members of the Coalition already are considering leaving Hollywood because of the economic and social impacts of Metro Rail. (Paul Clarke, Sunset Boulevard Coalition)

> **ANSWER:** Selection of the New LPA on Hollywood Boulevard should mitigate the concerns raised by members of the Coalition regarding impacts from Metro Rail on the studios.

EI2 **COMMENT:** Any benefit assessment levy on the studios would far outweigh any conceivable benefit, even if the noise and vibration problems could be mitigated. (Steven A. Bell, KTLA; Michael Eigner, Sunset Boulevard Coalition)

> **ANSWER:** Studies throughout North America demonstrate that owners of properties in proximity of rail rapid transit systems receive monetary benefits from the provision of such service. Selection of the New LPA along Hollywood Boulevard mitigates the studio's concerns regarding noise impacts along Sunset Boulevard. The benefit assessment program for the next segment of Metro Rail is being developed in concert with area businesses, as was the case for the first segment of Metro Rail.

EI3 **COMMENT:** The benefit assessment portion of the Metro Rail project is poorly developed and will fall heaviest on customers, small businesses and small property owners. Economic and social effects of the program are not known, and there are no maps indicating which property will be assessed under each alternative and for how much. There has been no study of the cumulative effects of special assessments in conjunction with the redevelopment agencies in Hollywood. This omission should be corrected. (David Morgan, Hollywood Better Government Assn.)

> **ANSWER:** Similar to the first segment of Metro Rail, a Benefit Assessment Task Force has been formed to study benefit assessments for Phase II and to make recommendations to the SCRTD Board of Directors. This Task Force is currently reviewing anticipated benefits, district boundaries, types of land uses to be assessed, the amounts of assessment and related issues. The Task Force is composed of public officials and private business owners representing the interests of the local businesses. A determination of area to be assessed and the amount will not be made until the Task Force has completed its recommendations.

EI4 **COMMENT:** Any property taking (as proposed in Alignment 6) will deprive Shell Oil Co. of one of its most valuable pieces of service station real estate in Southern California. The property that would be taken is at 5657 Sunset Blvd. (S.J. Charley, Shell Oil Co.)

> **ANSWER:** The New LPA is located on Hollywood Boulevard and the subject property will not be impacted.

2.10 SUBSURFACE CONDITIONS

SC1 **COMMENT:** The methane gas risk along the Pico-San Vicente subway alignment appears to be similar to that predicted for a Wilshire Boulevard subway (Alternative 3). Therefore, the Pico-San Vicente subway may be affected by an expansion of the Congressional restrictions that bar subway tunneling within high risk methane gas areas. (City of Los Angeles Department of Transportation)

> **ANSWER:** The possible expansion of the Congressional restrictions to include the Pico-San Vicente subway is an unknown at this point. See also Response to AL8.

SC2 **COMMENT:** The area around Fairfax and Third is not "potentially" dangerous -- it is just dangerous. (Z. Machadah)

> **ANSWER:** Dangers associated with the defined subsurface risk areas are acknowledged.

SC3 **COMMENT**: Why not dig a trench down Wilshire and leave grates over it to allow the gases to escape naturally? It's been done in Boston. (Bill Hunter)

> **ANSWER**: This option was briefly discussed. It was determined that such an approach would violate the intent if not the actual Congressional ban on tunneling in the "risk areas." See also response to AL8.

SC4 **COMMENT**: The chance of encountering subsurface gas along the Vermont Avenue or Western Avenue routes is probably the same as the Wilshire Avenue route from Western to Fairfax. Both routes travel through areas that contain old oil wells. (Maps were included with the memorandum.) (Dennis J. O'Bryant, Resources Agency of Calif.)

> **ANSWER**: Extensive studies have been conducted of the subsurface gas conditions in the Los Angeles Core. Results of these studies are summarized in this document and indicate that the potential for encountering dangerous concentrations of gas in the Vermont Avenue corridor is less than that in the defined "risk areas."

SC5 **COMMENT**: RTD did not include in the Draft Subsequent Environmental Impact Report (DSEIR) a contingency plan for abandonment of oil wells that might be encountered during construction. (Dennis J. O'Bryant, Resources Agency of Calif.)

> **ANSWER**: A Mitigation Plan to detect abandoned oil wells prior to contact with the tunneling machine has been developed and is described in Section 11 of Chapter 3.

SC6 **COMMENT**: A combination of difficult geologic subsurface conditions south of the Santa Monica Mountains indicates a need for more cut-and-cover tunnel construction than shown. This will make the project more costly than anticipated and more disruptive to surface activities. Those subsurface difficulties include methane gas, hydrogen sulfide groundwater contamination, extensive oil fields and improperly capped old wells. (Barbara A. Fine, Federation of Hillside and Canyon Associations)

> **ANSWER**: See response to SC5. Subsurface conditions for each of the candidate alignments and the New LPA have been reviewed extensively, as presented in the Section 11, Chapter 3 in the Draft SEIS/SEIR. Additional cut-and-cover tunnel construction is not anticipated beyond that shown in this document for the New LPA. SCRTD will dewater or cleanse water if sulfur is encountered.

SC7 **COMMENT:** Any kind of tunneling, including cut-and-cover, is unsafe; the methane situation is extremely unsafe and should not be played around with. (Bill Christopher, No El on Wilshire; William Krisel)

> **ANSWER:** Extensive studies have been performed to determine the subsurface conditions in the corridors contemplated for Metro Rail. Proven techniques exist for constructing facilities underground in areas where gas is present, and it does not appear to be necessary to abandon plans to develop the Metro Rail system in the Los Angeles Metropolitan area.

SC8 **COMMENT:** The methane danger has been exaggerated. (Warren Richardson; Mary Ann Goodwin; Abraham Falick, Coalition for Rapid Transit; James W. Tucker, registered geologist; Milan R. Bump)

> **ANSWER:** The Methane gas situation has been dealt with in a cautious and conservative manner, recognizing that there clearly is a danger associated with tunneling in subsurface areas where gas exists. Proven methods for tunneling and building facilities in such areas do exist, and careful planning, proper management, and high quality materials should minimize the potential for problems.

SC9 **COMMENT:** A potential methane gas accumulation problem could develop around proposed station areas that will be located in residential neighborhoods with known methane gas problems. Covering formerly undeveloped areas with concrete, asphalt, etc., could prevent the methane gas from escaping to the atmosphere, thereby causing a potentially explosive environment if the area is not properly vented. (Dennis J. O'Bryant, Resources Agency of Calif.)

> **ANSWER:** See response to SC7 and SC8.

SC10 **COMMENT:** Subway alignments are too dangerous because of earthquake potential. (Thomas Pitts)

> **ANSWER:** Historical evidence from areas where earthquakes have occurred indicates that subsurface structures are affected the least, because seismic events are manifested as lateral forces at the surface, and these lateral forces are greatly exaggerated with height above the surface. The subway system in Mexico City suffered only minor damage during the large earthquake a few years ago, for example.

SC11 **COMMENT:** Page 3-47 of the Addendum refers to "faults and folds" within the study area. In seismic connotation, fold has no relationship to fault, and should be eliminated or defined within the document. (Robert S. Horii, Los Angeles City Engineer)

> **ANSWER:** This is correct. The Final SEIS/SEIR has been changed accordingly.

SC12 **COMMENT:** On page 3-47 (of the May 1988 Addendum to the Draft SEIS/SEIR), the statement is made that the Hollywood fault is considered active. The State Geologist does not classify the Hollywood fault as active. (Robert S. Horii, Los Angeles City Engineer)

> **ANSWER:** Mr. Horii is correct. The State Geologist does not classify the Hollywood fault as active.

2.11 NOISE, VIBRATION, AND ELECTROMAGNETIC

NV1 **COMMENT:** Unmitigable noise and vibration problems would severely impact the studios with alignments 4 and 5. (Daphne Gronich, Fox Television Stations; Paul Camarata, Sunset Sound; Michael M. Schreter, Golden West Broadcasters; Steven A. Bell, KTLA; Bruce J. Teicher, CBS; Michael Eigner, Sunset Boulevard Coalition; Bert I. Harris, Jr., KWHY-TV; Brenda L. Young, KTLA; Steve Bangs, Hollywood Heights Assn.)

> **ANSWER:** Selection of the New LPA along Hollywood Boulevard mitigates noise impacts on the studios along Sunset.

NV2 **COMMENT:** Groundborne noise, once created, cannot be attenuated without major redesign either at the source or at the receiver. This would impact more than 100 studio spaces within a distance of 50 to 100 feet from the center of Sunset Boulevard between Vermont and Highland Avenue. The noise criteria of 25 dB(A) used by Wilson, Ihrig is not adequate for studio use; a level between PNC 10 and 15 is more suitable for studio use. There is considerable doubt that PNC 15 can be achieved. (Colin Gordon, Beranek & Newman, for the Studio Coalition)

> **ANSWER:** Selection of the New LPA avoids these impacts on the studios along Sunset.

NV3 **COMMENT:** Electromagnetic or electrostatic emissions from the propulsion system of trains are likely to interfere with normal studio operations. (Steven A. Bell, KTLA; Michael Eigner, Sunset Boulevard Coalition)

> **ANSWER:** See response to NV2.

NV4 **COMMENT:** Entertainment and media-related industries are crucial to Hollywood. Noise and vibration impacts on the studio facilities, and on other noise-sensitive activities (residences, medical facilities, schools and parks) are one of the greatest public concerns of an aerial system.

A clearer delineation of noise wall mitigation alternatives (i.e. along the guideway versus modifying the affected structures), the effectiveness of these alternatives, detailed location maps or listings for siting such walls, financial and implementation responsibility for wall construction, and similar information should augment the text. (City of Los Angeles Planning Department)

ANSWER: See response to NV2.

NV5 **COMMENT:** Table 3-39 of the Draft SEIR demonstrates a miraculous success rate in making the noise go away. First, the number of impacted structures is greatly under-reported. Second, no data are presented to establish the sound impacts without the sound barrier mitigation, since dB(A) readings are only shown for structures with sound walls. No mention is made of off-hour noise impacts, particularly at night when the background noise is much lower. (William Christopher, Miracle Mile Residential Assn.)

ANSWER: Selection of the all-subway LPA mitigates airborne noise issues.

NV6 **COMMENT:** Page S-15 of the Draft SEIR advises that, even with mitigating sound barriers, noise levels from aerial structure operations on alignments 2, 3 and 4 would be above criteria at several schools. It is hoped that for all schools affected, additional acoustical insulation or other mitigating measures will be taken during final design and construction to achieve acceptable noise and vibration levels. The Addendum on page 3-44 indicates that once constructed, Metro Rail will create no over-criteria noise impacts on Grant School. Since the subway at Harold Way and Wilton Place will be only about 20 feet deep and 40 feet from the school building, it appears likely there will be substantial noise and vibration. (Robert J. Niccum, Los Angeles Unified School District)

ANSWER: See responses to NV5, CS7, and CS8.

NV7 **COMMENT:** Discussion should be given relative to "functional noise equivalents" of train noise levels, so that non-technicians can better evaluate the potential impact. The chapter could also include noise impact assessments for construction activities, along with relevant mitigation measures. (City of Los Angeles Planning Department)

ANSWER: A thermometer-type scale of typical noise levels is shown in Section 8, Chapter 3 of the Draft SEIS/SEIR. This figure depicts a range of noise levels in terms of everyday noises, and shows noise levels from rail transit systems. A detailed discussion of construction noise and vibration levels is contained in Section 15.6 of Chapter 3.

NV8 **COMMENT:** An aerial, cut-and-cover subway, or a bored subway of less than 60 feet in depth is totally unacceptable to members of the coalition. It would precipitate a mass exodus of our members because of noise problems. (Michael Eigner, Sunset Boulevard Coalition)

> **ANSWER:** The selected New LPA avoids noise impacts of Metro Rail construction and operation on the studios along Sunset Boulevard.

NV9 **COMMENT:** RTD would install sound barrier walls along the entire aerial segment and the transition areas to reduce noise levels as much as possible. This type of approach to a serious problem is an "Alice in Wonderland" approach. No major public project should be based on this kind of cavalier and theoretical approach to a major problem. (Joseph W. Aidlin)

> **ANSWER:** Selection of the all-subway New LPA eliminates the need for sound barrier walls.

NV10 **COMMENT:** Because of sound studio opposition, part of the Sunset Boulevard aerial segment was abandoned. That was a good decision. However, there are many other activities that need to be protected from the aerial noise and disruption - elderly care centers, hospitals, medical facilities, etc. (Joseph W. Aidlin)

> **ANSWER:** Selection of the all-subway New LPA mitigates the concerns raised in this comment.

NV11 **COMMENT:** The Church of Scientology has ministers in training using classrooms close to the parking lot, and the noise and vibration from the elevated people mover would be a distraction to them. (Richard Shelley, Church of Scientology)

> **ANSWER:** Selection of the all-subway New LPA along Vermont Avenue avoids the impacts described in the comment.

NV12 **COMMENT:** The noise analysis is incompetent because it neither applies to the environment of "Year 2000," which is the basis of the draft, nor relies on appropriate scientific data. The sitings do not accurately measure or indicate the presence of noise barriers such as parked cars, noise generators such as traffic signals and heavy trucks and buses (elevated exhausts, poor mufflers), geometry and tread characteristics. Moreover, noise levels conflict with vibration remedies, and none of the remedies is germane to a built-up (6 to 12 F.A.R.) frontage, which the draft assumes for the Year 2000. The "tunnel effect" as a noise amplifier is completely overlooked. Street noise that is in any way enhanced by the project must be addressed and included as an environmental impact of the project. There are examples of increased noise levels caused by an elevated roadway adjacent to the Braille Institute Youth Center facility on the Hollywood Freeway. Traffic noise is reflected off the hard concrete under surfaces, and this completely disrupts the Center's

activities. An aerial alignment would cause similar problems. (J. H. McQuiston; Les Stocker, Braille Institute)

ANSWER: Selection of the all-subway LPA eliminates reflected noise as an issue. Noise and vibration criteria are determined by existing measured noise levels in addition to the actual use of a building or area. Thus, the existing conditions, i.e., cars, trucks, etc. are used to establish a basis for determining impact. The existing conditions plus projected changes establish the environment for the year 2000.

2.12 PARKING AND TRAFFIC

PT1 **COMMENT:** The Wilshire alignment should be subway to relieve some of the traffic and parking problems. (Francis J. Heavey; Mary Ann Goodwin)

ANSWER: The selected New LPA includes a Wilshire alignment that is subway along Wilshire to Western Avenue. See also response to AL8.

PT2 **COMMENT:** In using either subway or aerial to mitigate traffic or traffic access to the Wilshire area, the cure can be worse than the disease. (Bill Christopher, No El on Wilshire)

ANSWER: See response to AL8.

PT3 **COMMENT:** In the Wilshire/Vermont area, the Metro Rail project will remove parking without replacing it. The project will dump traffic onto Wilshire without adequate parking. (Lawrence Kaplan, Royal Development Co.)

ANSWER: Parking impacts at the Wilshire/Vermont Station are described in Section 1 of Chapter 3 in the Final SEIS/SEIR. Metro Rail is designed to reduce traffic congestion by encouraging alternative means of travel to stations including walk-rail and bus-rail rather than use of the automobile.

PT4 **COMMENT:** A number of critical intersections were not analyzed as a part of the study. Fairfax/Third and Wilshire/Highland are two of the most critical. No intersections on La Cienega near Wilshire were included. To indicate that the traffic impact of the Wilshire/La Brea station where it is intended to terminate all of the Santa Monica Freeway bus lines as moderate is a gross understatement. That calls into question the reliability of the projections used to make the comparisons. (Bill Christopher, Miracle Mile Residential Assn.)

ANSWER: Intersections that could intercept traffic going to or from Metro Rail stations for the selected New LPA are analyzed in Section 1, Chapter 3 of this

Final SEIS/SEIR. Determination of these intersections was based on an analysis of origin and destination studies. See also response to AL8.

PT5 **COMMENT:** Parking in Park La Brea will be a disaster if the Fairfax Station is the end of the line. (Michael Cornwell, Windsor Square Assn.)

ANSWER: See response to AL8.

PT6 **COMMENT:** If the Fairfax station is at the end of the line, 2,400 spaces of spillover parking will have to be absorbed. This will be a substantially negative impact. (Charles Rosin, Carthay Circle Homeowners Assn.; Bill Christopher, Miracle Mile Residential Assn.)

ANSWER: The selected New LPA terminates at the Wilshire/Western Station. See response to AL8.

PT7 **COMMENT:** Parking costs used in the model for Vermont and Western Avenue are not consistent and appear high for the area. Staff at SCAG and SCRTD indicate the parking costs used in the model were derived from employment densities rather than a projection of existing parking cost rates verified by a survey. Field observation indicates that the assumed parking costs being used in the ridership forecasting process are too high, particularly on Western Avenue, and should be verified for the areas through which the various alternatives pass. (City of Los Angeles Department of Transportation)

ANSWER: The SCRTD conducted a statistical analysis comparing the magnitude and the distribution of all independent variables between Year 1980 and Year 2000 used in the travel forecasting models. The report shows that the distribution of parking costs is predicted to be unchanged between the years 1980 and 2000, and the value of parking costs is expected to increase consistently over the Regional Core. Since parking costs in the base Year 1980 network were derived from employment densities, it is desirable to develop the parking costs in the future Year 2000 networks based on the same set of assumptions so that consistency among networks is maintained.

PT8 **COMMENT:** Several measures are mentioned to reduce the impacts of the aerial guideway support structure on traffic flow, including offsetting the columns at signalized intersections to improve visibility (requires additional structural and foundation work, reducing lateral clearance to the columns at intersections -- an acceptable measure), constructing bus and loading bays (an acceptable measure, but on Hollywood Boulevard few opportunities exist with the current right-of-way), adding a traffic signal phase to protect left-turn movements (results in a net reduction of intersection capacity), and using saddle bents to support the guideway at intersections to improve sight distance and facilitate left turns (viable from a traffic standpoint, but not aesthetically satisfactory and

could interfere with pedestrian movements without additional right-of-way acquisition). (City of Los Angeles Department of Transportation)

> **ANSWER:** The selected New LPA is an all-subway alignment. No aerial guideway structures are involved.

PT9 **COMMENT:** Discussion of parking facilities around Metro Rail stations is woefully inadequate. Within the Hollywood area, the lack of existing and future parking is noted, but the mitigation consists solely of working with the Community Redevelopment Agency to develop future parking. Considering that the Redevelopment Plan is only in the first year of its proposed 30-year existence, a quarter century or more could elapse until increased parking plans might be finalized. (Barbara A. Fine, Federation of Hillside and Canyon Associations)

> **ANSWER:** The parking supply and demand studies for the Hollywood area show an adequate parking supply adjacent to the proposed Metro Rail Stations. Additionally, the "Hollywood Redevelopment Plan" recommends a strategy to address the long-term parking needs of Hollywood Boulevard.

PT10 **COMMENT:** The addition of an aerial guideway, with its accompanying raised median, to a street results in a loss of width available for traffic flow. The report discusses the reduction in the number of through lanes to two in each direction on Hollywood Boulevard, and correctly notes that in reality it would not function as two lanes. In order to provide two lanes, particularly on Hollywood Boulevard, the prohibition of parking would be necessary, but the need for on-street loading and bus stops would effectively reduce the number of through lanes to one in each direction. The number of through lanes would also be effectively reduced by conflicts between pedestrians and right-turning vehicles at intersections or driveways. It does not appear that this significant reduction in capacity has been adequately addressed in the analyses of intersection impacts. (City of Los Angeles Department of Transportation)

> **ANSWER:** The selected New LPA is entirely subway. Aerial structures creating these surface traffic conflicts along Hollywood Boulevard are not proposed.

PT11 **COMMENT:** The prohibition of parking would be required to fit the aerial guideway and raised median into Hollywood Boulevard. The impacts of the prohibition on fronting properties, especially commercial establishments, is not addressed in the Draft SEIR. Very few alleys for off-street loading exist parallel to Hollywood Boulevard. The use of widened sections of roadway to provide a stopping zone for bus and other loading is mentioned, but the locations along Hollywood Boulevard where the opportunity for such treatment exists with current rights-of-way are few. (City of Los Angeles Department of Transportation)

> **ANSWER:** Businesses that rely on street parking and loading would be effected by an aerial guideway on Hollywood Boulevard. See response to PT10.

PT12 **COMMENT:** The area required for the transit system to transition from a subway to an aerial configuration is referred to as a "portal" in the Draft SEIR. The report mentions that the retaining walls and other infrastructure will interfere with traffic circulation from cross streets, but the amount of right-of-way required to maintain a constant number of traffic lanes and to route them around the portal is not discussed. The length of the transition zone is not specified other than in general limits (between two streets) nor is the overall width and land area of the zone. On the Hollywood Boulevard alignment, the existing right-of-way width at the portal between Bronson and Gower Streets is specified as eighty feet; the actual dimension is 90 to 100 feet. The impacts of the approximately 35-foot wide portal on street width, traffic lanes and parking in the transition zone is not addressed in the Draft SEIR. (City of Los Angeles Department of Transportation.)

> **ANSWER:** The selected New LPA is entirely subway. A transition from subway to aerial will not be utilized.

PT13 **COMMENT:** Certainly an agreement between publicly-owned facilities (Hollywood Bowl and Metro Rail) could be worked out for daytime use of Hollywood parking. The parking spaces could be increased by construction of garages. With parking available, Metro Rail patronage at a future Bowl station would be greatly increased. (T.A. Nelson, Consulting Engineer)

> **ANSWER:** Use of the Hollywood Bowl parking facility likely will be reviewed during the anticipated Transit Connector Study, which will review options for direct transit connections between the Metro Rail Hollywood/Highland Station and the Hollywood Bowl.

PT14 **COMMENT:** Why not add joint development to the list of parking mitigation measures to provide parking garage and commercial space with direct pedestrian access to stations? (T.A. Nelson, Consulting Engineer)

> **ANSWER:** The opportunity to provide parking for transit users is implied in the concept of joint development, and clearly is an additional parking mitigation option. As discussed in Section 2 of Chapter 3, the SCRTD will

be preparing station plans for the Phase II stations in conformance with City adopted Specific, Community and Redevelopment Plans as applicable. The actual joint development potential will be affected by the current market for the type of proposed development, the amount of land available for re-use, and the available development bonuses through the City process. Possible use of station development projects to provide additional parking for Metro Rail patrons will be evaluated as part of this process.

PT15 **COMMENTS:** Discussion of mitigation measures pertaining to detours and traffic control in the Draft SEIR appears to be adequate, with two exceptions. Contractors will not be allowed to "control" traffic, but rather be required to "follow" the WTCP. In addition, LADOT Traffic Officers should be deployed at intersections affected by construction, as a Project responsibility. (City of Los Angeles Department of Transportation)

ANSWER: These provisions have been incorporated into Section 15 of Chapter 3 in this Final SEIS/SEIR.

PT16 **COMMENT:** The Draft SEIR addresses increased parking demands at stations used as temporary terminals, but states that no additional parking will be provided at these locations. Since the temporary termini may be in operation for a significant period of time, the lack of at least a temporary supply of additional parking could be a serious impact, and should be addressed. (City of Los Angeles Department of Transportation)

ANSWER: The Final SEIS/SEIR identifies that there may be a shortage of parking at temporary terminals and parking impacts are likely. The estimated number of deficient spaces is identified in Section 1, Chapter 3. The deficiencies are based on a worst-case situation where the computer models determine a parking demand assuming no constraints for parking supply or cost. Actual impacts are predicted to be less. Moreover, Metro Rail is designed to discourage use of single occupant vehicles, and a feeder bus system has been designed for patrons to use the buses to access the system.

PT17 **COMMENT:** Several methods of mitigating the impacts of the transit system on traffic capacity are mentioned in the Draft SEIR, but the scope does not match the impacts. Parking restrictions along the aerial segments and at intersections are mentioned, but the total prohibition of parking is not a reliable capacity-increasing measure and creates an impact of its own on abutting properties. Restriping intersection approaches is also suggested, but the additional width required to accommodate the added lanes is provided by reducing the sidewalks to an unacceptable width. The prohibition/restriction of left turns is proposed, a measure that is viable at some locations. At many of the intersections, however,

prohibition of left turns only transfers the problem to adjacent intersections. The opportunities for left turns will be severely limited by the raised median required for an aerial alignment, and the imposition of additional turn restrictions would be another impact on motorists. The additional left-turn traffic signal phases is not a viable capacity-increasing measure in most cases since the time required for the phase must be taken from the through traffic. Intersection approach widening would be an effective mitigation measure to increase capacity, but the amount of widening must be adequate to have a positive impact, and the cost of such widening must be identified as a responsibility of SCRTD. The provision of reversible lanes is not feasible on a street with a raised median, where the extra traffic-carrying capacity is most needed. Reversible lanes are cost-intensive to operate either automatically or manually. (City of Los Angeles Department of Transportation)

ANSWER: With the selection of an all-subway LPA, the mitigation of traffic impacts associated with an aerial guideway is no longer an issue. Traffic mitigation measures for specific locations are discussed in Section 1, Chapter 3 of the Final SEIS/SEIR. Additional site specific mitigation measures may be determined during the design phase.

PT18 **COMMENT:** Parking is not supplied at most stations, and is inadequate at those stations where parking facilities are provided. Under the various alignments, the parking deficiencies vary from 24,000 to 29,000 spaces. "Spillover" parking into adjoining neighborhoods is a serious impact, similar to the conditions which exist in residential areas near commercial development lacking adequate parking facilities. The patronage and mode split forecasts should be adjusted to reflect the deficiency. (City of Los Angeles Department of Transportation)

ANSWER: Projected parking deficiencies range as high as 4,419 spaces for the New LPA. Patronage forecasts for the auto-transit split take into account only those parking spaces to be provided by the Metro Rail Project. See also response to PT16.

PT19 **COMMENT:** Mitigation measures cited as means to reduce parking impacts are unacceptably general in nature, such as ridesharing programs, preferential parking districts, feeder bus lines, bicycle parking at stations, etc. The only viable and effective measures mentioned is the provision of additional parking at stations. Although the report acknowledges that this is a responsibility of SCRTD, the report states that funding sources appear to be inadequate for this parking to be provided by the Metro Rail project. (City of Los Angeles Department of Transportation)

ANSWER: The City of Los Angeles in combination with the SCRTD will need to jointly identify opportunities to provide additional parking. The $3+ billion investment to improve mobility in the Los Angeles Core

will have to be augmented by joint development and City parking requirements for developers. Methods have been suggested for the creation of parking districts to support the added requirements brought about by land use development in station areas. Metro Rail is a parking mitigation measure in its own right, by encouraging walk and transit trips rather than the use of automobiles.

PT20 **COMMENT:** The project does not comply with the laws regarding parking for buildings and structures. The draft implies that parking for other buildings will be applied to parking required for the stations; the draft also assumes that subleases in project structures will not have the required parking spaces. (J. H. McQuiston)

ANSWER: The Traffic and Parking Analysis in the Final SEIS/SEIR indicates that there is sufficient available public parking at all stations except the Wilshire/Vermont, Wilshire/Western, Union Station and Wilshire/Alvarado stations. Public parking would include on-street parking and off-street commercial parking. Private restricted parking areas were not included in this analysis. See also response to PT16 and PT19.

PT21 **COMMENT:** For each alternative, the sentence "The drop-off and pick-up of kiss-ride passengers will be accommodated at all stations outside the CBD" appears under Parking. We can find no physical justification for this statement although we support the concept due to the high kiss-ride use projected. (Los Angeles County Transportation Commission)

ANSWER: Kiss-and-ride access would be accommodated either off-street or on-street at all non-CBD stations. Chapter 2 has been modified to reflect this clarification.

PT22 **COMMENT:** Additional traffic in station vicinities will be offset by reduced traffic in other areas due to transit riders not driving their vehicles beyond their boarding stations. (T.A. Nelson, Consulting Engineer)

ANSWER: This is a principal benefit of Metro Rail.

PT23 **COMMENT:** Metro Rail planners should work closely with School District planners to mitigate parking and traffic problems around schools. (Robert J. Niccum, Los Angeles Unified School District)

ANSWER: During the design phase, the SCRTD will consult with any nearby schools in the formulation of traffic management plans, especially the routing of construction equipment to/from work sites.

PT24 **COMMENT:** The sentence on Page S-14 in the Preliminary Draft SEIS/SEIR that "Overall, each CORE Candidate Alignment would have sufficient parking supply to meet the total demand and to accommodate the additional demand created by the presence of Metro Rail stations" is not supported by Table S-2. In fact, except for some parking at terminal stations, no parking really exists. (Los Angeles County Transportation Commission)

ANSWER: The sentence in question has been deleted from the Final SEIS/SEIR.

PT25 **COMMENT:** Notes (2) and (3) of Table 2-19 in the Draft SEIR seem quite specific relative to assigning public versus code-required categories to parking facilities; the appearance may not reflect an accurate status of such parking (e.g., parking provided under covenants and agreements), hence the accuracy is uncertain. (City of Los Angeles Planning Department)

ANSWER: All the notes, including notes (2) and (3) referred to in this comment, were deleted from this table, which was renumbered to Table 2-1 and is located in the Appendix to the Draft SEIS/SEIR.

PT26 **COMMENT:** Parking impacts at interim terminal points along each alternative route are identified, but mitigation measures are incomplete or may not be sufficient. Preferential parking districts are not an acceptable mitigation measure. They will ensure that parking does not occur on a given street without a permit, but by restricting the supply of parking, they will promote increased cruising for available parking. The placement of a new parking district is an imposition on the affected residents and the cost of imposing such districts must be borne by the Metro Rail projects. Therefore, SCRTD should be added to the list of implementing agencies on page 2-174, #6 of the Draft SEIR. The terminal points will have significant interim parking impacts. Provision of temporary park-and-ride lots should be considered and the costs determined. (City of Los Angeles Department of Transportation)

ANSWER: The present policy position is that parking will not be provided at temporary terminal stations, since these terminals will be temporary. Should funding shortfalls result in a temporary terminus becoming permanent, additional mitigation measures may need to be implemented, as described in Section 1, Chapter 3. Other suggestions from the City of Los Angeles to mitigate temporary parking impacts clearly would be considered. Parking impacts identified in the Final SEIS/SEIR include the temporary loss of ridership. Preferential parking districts appear to be acceptable mitigation measures, although not in every instance. This approach would have to be worked out with the communities and agencies involved. Finally, a primary purpose of Metro Rail is to encourage walk-rail and bus-rail trips, thereby reducing dependency on automobiles.

PT27 **COMMENT:** The time required for cut- and-cover construction is estimated as equal to or less than that for aerial construction, according to the Draft Subsequent Environmental Impact Report (pages 2-256 and 2-258). The Draft SEIR also calls for two twelve-foot lanes in each direction during peak hours, with a wider work area at other times, but does not quantify the impacts on traffic. (City of Los Angeles Department of Transportation)

> **ANSWER:** Cut-and-cover construction impacts are described in Section 15, Chapter 3 of the Final SEIS/SEIR. As design of the system proceeds, the cut-and-cover construction schedule will be developed so as to minimize the time that any street surface is disrupted.

PT28 **COMMENT:** The Draft SEIR calls for a minimum clearance of 16 feet for the guideway over the street. The support columns are joined to the guideway by a tapering "cap" seven feet in height. The tapering section of the cap does not allow traffic, particularly trucks or buses, to travel next to the columns, as might be required in a left-turn lane. It would appear that the minimum clearance would be 23 feet (16 + 7), with a rail elevation of approximately 35 feet, if the proposed column-and-cap configuration is used to support the guideway. (City of Los Angeles Department of Transportation)

> **ANSWER:** The selected New LPA will be entirely subway, and there will be no guideways over the street.

PT29 **COMMENT:** The Draft SEIR calls for a raised median to provide for column placement. This median, continuous except at signalized intersections, would interfere with traffic circulation and preclude left turns except at traffic signals. The attraction of left turns to signalized intersections is addressed in the report, but the analysis of the number of vehicles attracted seems to be weighted to minimize the impacts. No analysis of the impact on driveways is included, nor is there any indication of the existence or number of major driveways impacted. (City of Los Angeles Department of Transportation)

> **ANSWER:** These impacts are avoided by the selected New LPA, which is an all-subway system.

PT30 **COMMENT:** The Draft SEIR states that the columns supporting the aerial guideway will be located within a twelve-foot wide median. In most cases, the columns would be centered on the median, and the median centerline would coincide with that of the street. In order to provide for left-turn lanes at signalized intersections, a "bulb" would be added to the twelve-foot median width, and the through traffic lanes would be directed around the bulb and past the left-turn storage area. This design results in a curvilinear path for through motorists. The additional street width required for this offset in through traffic lanes would be obtained by a reduction in sidewalk width. The report does not illustrate how this

could be accomplished within the various rights-of-way. (City of Los Angeles Department of Transportation)

ANSWER: The selected New LPA is an all-subway system.

PT31 **COMMENT:** The opposing left-turn lanes provided by the bulb channelization of the raised median would be offset from each other at signalized intersections. Because of this offset and the interference to visibility created by the guideway columns, it would be necessary to provide left-turn signal phases at each intersection. The addition of these signal phases would result in loss of traffic-carrying capacity at each traffic signal, a subject not adequately addressed in the Draft SEIR. (City of Los Angeles Department of Transportation)

ANSWER: The selected New LPA is an all-subway system, avoiding the impacts discussed in this comment.

PT32 **COMMENT:** The Addendum appears to accurately and thoroughly address the impacts of Alignment 6 with the possible exception of parking demands at one of the temporary stations. Section 3.1 on page 3-14 states that, "For MOS-2, no deficiency (of parking spaces) is expected at the Hollywood/Vine terminus." In addition, Table 3 on page 3-5 shows no passenger boarding by parking and riding. However, because MOS-2 in contrast with 2A or 2B, ends at the Hollywood and Vine Station, the likelihood is that a sizeable number of passengers will be driving into downtown Hollywood from the Valley and points west of Hollywood to park and ride the subway to downtown Los Angeles or Wilshire Boulevard. This could overload the capacity of on- and off-street parking spaces, congest local streets and result in spillover of parking into adjoining residential neighborhoods. An estimate should be made of the likely park and ride demand at the Hollywood/Vine Station if it is used as a temporary terminal station. In addition, parking facilities should be discussed in the Final EIS/EIR as a mitigation measure. (Kenneth C. Topping, Los Angeles Department of City Planning)

ANSWER: Alignment 6 is no longer an alternative under consideration, although the New LPA does have a station at Hollywood/Vine which could become a temporary terminal. A comparison of total parking demand, unconstrained by price or supply, indicates that the Hollywood/Vine Station would have adequate parking to accommodate the Metro Rail park-and-ride patrons. See also response to PT26.

PT33 **COMMENT:** Evaluate traffic circulation and other impacts of the Department of Transportation-prepared alignment cross sections:

(a) For the Hollywood Boulevard aerial alignment (without right-of-way purchase), shown on Attachment 2.

(b) For the Hollywood Boulevard aerial alignment (with right-of-way purchase), shown in Attachment 3.

(c) For the Vermont Avenue, Sunset Boulevard and Wilshire Boulevard aerial alignments (without right-of-way purchase), shown on Attachment 4. (LADOT)

ANSWER: The additional analysis suggested will not be required, because the selected New LPA is entirely subway.

PT34 COMMENT: For explainable reasons (primarily the cost of real estate), most Metro Rail stations have little, if any, off-street access facilities. Their absence is particularly unfortunate at stations with significant bus transferring where on-street loading makes pedestrian circulation more difficult and vehicle congestion worse.

LACTC staff also feels that the stations closest to the Hollywood Freeway would be good places to intercept in-bound automobiles. To do this, however, park-and-ride lots will have to be built at considerable expense. The addition of these lots should be seriously considered. (LACTC)

ANSWER: The Metro Rail stations for the LPA that could intercept automobile traffic from the Hollywood Freeway are at Hollywood/Vine and Hollywood/Western. A comparison of total parking demand, unconstrained by price or supply, to total parking supply indicates that no deficiency is anticipated due to the addition of Metro Rail patrons at either of these locations. This condition should be monitored closely as part of the Hollywood redevelopment efforts of the City of Los Angeles. For example, the City could work with local developers, much as they have done in the Central Business District, to provide off-site a portion of a building's parking needs. With the investment of Metro Rail in place, developers would not, for example, be required to pay for shuttle services in addition to providing off-site parking at these locations. It is the goal of transit to increase the number of walk-rail and bus-rail users and reduce the use of low occupancy automobiles, thus reducing congestion in an already congested area. While it is much more likely that in-bound automobiles on the Hollywood Freeway will exit at Universal City where provisions have already been made to accommodate large numbers of park-and-ride Metro Rail patrons, the SCRTD in concert with appropriate City of Los Angeles agencies will examine parking at the Hollywood Bowl as part of the "Transit Connector Study," in addition to future considerations of additional parking at other stations in Hollywood.

2.13 PATRONAGE AND COST EFFECTIVENESS

CE1 **COMMENT:** It should be made clear that the MOS-1 patronage estimate of 55,000 patrons/day is for the Year 2000, not at start-up. (Los Angeles County Transportation Commission)

> **ANSWER:** The Final SEIS/SEIR notes in the Summary that the MOS-1 patronage estimates are for the Year 2000.

CE2 **COMMENT:** In the Draft SEIR, why does Alignment 2 show 139,000 (or 11%) greater annual VMT than #4, given that boardings are very similar, the routes vary only between Hollywood and Sunset, and the latter route has one additional station? (City of Los Angeles Planning Department)

> **ANSWER:** A network coding error was discovered for Alignment 2. The correct rail car VMTs differ only by one percent.

CE3 **COMMENT:** The statement that there will be higher patronage due to shorter travel time gives unwarranted advantage to the Western Avenue route. Potential riders between the San Fernando Valley and downtown Los Angeles will not be influenced just because travel time is one minute more via Vermont out of a total trip time of 30 minutes. (T.A. Nelson, Consulting Engineer)

> **ANSWER:** Sophisticated mathematical computer models were used to estimate Metro Rail ridership. A key variable in these models is travel time. All other variables being equal, the model predicts that a person will choose to take the route that requires the least amount of time. Although the Western Avenue route did receive the highest patronage estimate, the selected LPA is along Vermont Avenue.

CE4 **COMMENT:** Daily patronage west of the Wilshire/Western Station is projected to be 38,160 for the Pico-San Vicente alignment, compared with 66,970 along the western portion of the Wilshire Boulevard alignment. Further consideration of a Pico-San Vicente alignment in subway does not appear to be cost effective in view of the limited patronage. (City of Los Angeles Department of Transportation)

> **ANSWER:** See response to AL8.

CE5 **COMMENT:** Passenger boarding tables on pages 1-38 and 1-45 of the Draft Subsequent Environmental Impact Report shows a difference of 3,365 boardings between Alignments 3 and 4 at the Hollywood/Highland station. This is difficult to understand since the boardings at the Hollywood Bowl station in Alignment 4 do not account for the difference. (T.A. Nelson, Consulting Engineer)

> **ANSWER:** The difference in the patronage between the two stations is attributable to differences in the way the computerized simulation networks were coded. Due to these coding inconsistencies, the higher volume for the Hollywood/Highland Station now appears to be appropriate for both alignments.

CE6 **COMMENT:** Alternative 5 gives less overall service to high employment density areas in Hollywood, yet figures show higher boardings. This does not appear logical. (City of Los Angeles Department of Transportation)

> **ANSWER:** Candidate Alignment 5 provides the fastest service for the riders coming out of the San Fernando Valley going to downtown. The higher residential density, higher parking costs, and faster access to patronage generators along Wilshire Boulevard to/from the San Fernando Valley associated with this alignment also contribute to this patronage estimate. See also response to CE3.

CE7 **COMMENT:** The document should make clear that a San Fernando Valley light rail line has not been assumed in the patronage forecasts. Its inclusion should have a pronounced effect on patronage levels expected. (Rick Richmond, Los Angeles County Transportation Commission)

> **ANSWER:** Linkage of Metro Rail to the San Fernando Light Rail Line would have a pronounced effect on Metro Rail patronage. UMTA guidelines for performing analyses in support of transit improvements do not permit the inclusion of riders from a system that is not operating. The cost-effectiveness methodology also limits patronage to the segment under consideration.

CE8 **COMMENT:** Usage of Metro Rail will be limited until the proposed 150-mile light rail lines supplementing Metro Rail are completed. This appears to be decades away and will be complicated by the fact that transfers will be necessary to Metro Rail trains because they are not compatible with light rail. (Barbara A. Fine, Federation of Hillside and Canyon Associations)

> **ANSWER:** Patronage modeling procedures indicate that the patronage levels on Metro Rail are not dependent on completion of the full 150-mile regional rail system.

CE9 **COMMENT:** RTD fails to recognize the impact of Proposition U in making its patronage and density forecasts. (Charles Rosin, Carthay Circle Homeowners Assn.)

> **ANSWER:** Proposition U impacts are included and discussed in the Land Use Section of Chapter 3 in the Final SEIS/SEIR. Patronage estimates may be underestimated, given that tourist patrons are not included in the prediction models and current employment counts may not be fully reflected.

CE10 **COMMENT:** To get maximum ridership, RTD has to clean up its image regarding safety, especially with the RTD drivers. You have to clean up the crime problem. (Charles B. Pyke, Beverly-Angeles Homeowners Assn.)

> **ANSWER:** SCRTD acknowledges the need to maintain a strong and positive image throughout the Los Angeles Metropolitan Area.

CE11 **COMMENT:** The methodology for ridership projections is acceptable technically and is consistent with methodology used nationally and regionally. The ridership projections were made on the UTPS computer software developed by FHWA/UMTA of the U.S. Department of Transportation. The "mode choice" component of the model was calibrated at the regional level under previous work efforts of the SCAG. However, assumptions being used for input to the model favor high ridership estimates. Specifically:

- Existing bus lines are assumed to be rerouted to transfer riders to the rail lines. Over 60 percent of rail riders are expected to arrive by bus. But SCRTD may not actually be able to reroute as extensively as proposed. (EXAMPLE: All Santa Monica Freeway Express Buses are proposed to terminate at the westerly stub on Wilshire Boulevard instead of continuing into downtown. Bus riders may prefer a direct link to downtown without a mode change). It may be necessary to continue providing direct service to maintain bus ridership.

- The assumed automobile operating costs appear to be high. Gasoline is assumed to cost $1.30 (1983 dollars), a level set during a period when fuel supplies were curtailed. (City of L. A. Department of Transportation)

> **ANSWER:** Integration of bus and rail service into an efficient transit system that does not provide duplicative or competing service is a primary goal for developing future transit (see Supporting Services Plan Milestone 9, SCRTD, May 1983; and Transit Network and Year 2000 Patronage Forecast Documentation, SCA, February, 1987). Competition between existing buses and future rail services has, therefore, been deliberately eliminated for the patronage simulations. Because rail

is grade-separated to alleviate traffic congestion and because operating costs per passenger for rail are lower, it would be unrealistic and uneconomical to maintain a full scale parallel bus service in competition with Metro Rail. Such integration has been implemented successfully elsewhere. For instance, bus routes originally going into downtown Atlanta were removed from the CBD after its rail system was constructed. These buses now are used to feed riders to the rail system. To satisfy demand for local service between adjacent rail stations in Los Angeles, some existing bus lines are maintained that provide parallel operation with Metro Rail, but with a reduced service frequency.

The assumed gasoline price of $1.30 (1983 dollars) was determined via discussions among local transportation agencies such as SCAG, CALTRANS, and others. It would be informative to assume other gasoline price levels and examine the degree to which ridership is affected, but recent forecasts of traffic congestion as reported by SCAG and others clearly demonstrate the need for separate guideway systems. The loss of traffic speed in the future and the traffic delays from congestion will add to fuel consumption and cost and should narrow the relative differences, should fuel prices be lowered for the year 2000.

2.14 LAND USE

LU1 **COMMENT:** Despite Union Station's National Register designation, there is a large amount of land available for commercial development. Various site plan alternatives have been undergoing intensive study for many months by the CRA and consultant with suggested multi-million square foot projects. (City of Los Angeles Planning Department)

ANSWER: A large amount of land is available for commercial growth at Union Station. The document states that "...inadequate land exists to accommodate residential or commercial growth..." in the stations listed on page 2-108 of the February 1987 SEIR document. Union Station does not have adequate land for residential growth.

LU2 **COMMENT:** The CRA has three redevelopment areas in the downtown area: the Bunker Hill, Little Tokyo and CBD project areas. Figure 2-7 in the Draft SEIR should include the Little Tokyo CRA area. Other pending and adopted specific plans (Ventura Boulevard, Park La Brea, Koreatown and Westlake) could be added. (City of Los Angeles Planning Department)

> **ANSWER:** Figure 2-7 (now Figure 3-3 of the Final SEIS/SEIR) has been changed to include these areas in addition to the CBD Project area.

LU3 **COMMENT:** The Draft SEIR says that the project may result in pressure on land values in the station areas, which is termed an unmitigable impact. Land use in the station areas MUST be strictly controlled through specific plans to mitigate those impacts. The aerial alignment through the Park Mile is in conflict with the Park Mile Specific Plan. (Bill Christopher, Miracle Mile Residential Assn.)

> **ANSWER:** Land uses around station areas are controlled by the adopted Community Plan and zoning. SCRTD will work with the City of Los Angeles and community organizations in the development of a specific plan for each station area. The selected New LPA does not include rail transit service along Wilshire Boulevard west of the Wilshire/Western station. See response to AL8.

LU4 **COMMENT:** Negative land use impacts would result around the Wilshire/Fairfax end-of-the-line station. The supply of land would potentially be inadequate to support projected commercial growth, which is in the area of predominantly residential use. (Charles Rosin, Carthay Circle Homeowners Assn.)

> **ANSWER:** The selected New LPA does not include rail transit service along Wilshire Boulevard west of the Wilshire/Western station. See response to AL8.

LU5 **COMMENT:** Alignments 1, 2, 4 and 5 would induce development in the Hollywood Heights Community, which would be contrary to local development plans. (Steve Bangs, Hollywood Heights Assn.)

> **ANSWER:** A need exists to provide enhanced transportation services in the Los Angeles Core in conformance with the General Plan and the City Centers Plan. Metro Rail could create impetus to develop in station areas. The SCRTD will work with the City of Los Angeles and community organizations to develop Specific Plans for each station area.

LU6 **COMMENT:** A number of land use impact mitigation measures in the Draft SEIR should be considered to have moderately low feasibility. Most measures involve diversions of anticipated commercial and/or residential development. The degree to which such diversion would constitute

effective mitigation is uncertain. Given that there are several approaches to mitigation (i.e., modify the project, restore/preserve the impacted environment, compensate for the impacts) and given the greater regional benefits of the system, additional consideration should be given to other techniques which might reduce any need to mitigate the impacts. (City of Los Angeles Planning Department)

ANSWER: Implementation of the measures listed in Chapter 3, Section 2.3 of the Final SEIS/SEIR by the various designated agencies, including the Los Angeles Department of Planning, should be effective in reducing land use and development impacts. Many of the impacts discussed in the Draft SEIR, Draft SEIS/SEIR and Addendum to the Draft SEIS/SEIR have been mitigated through the selection of the New LPA. Other means and techniques suggested by the City of Los Angeles to further reduce such impacts certainly would be considered.

LU7 **COMMENT:** While it is important to assess the potential development impacts on station areas, the approach taken here attempts to reduce the complex, lengthy and often subjective process of land development to hinge on only two factors; land values in excess of improvement value, and vacant parcel status. Given the number of station areas and parcels associated with each one, it is understandable that a simple method would be preferred. (City of Los Angeles Planning Department)

ANSWER: The methodologies utilized in the Draft SEIR and Draft SEIS/SEIR for assessing potential development impacts (which also were used for the 1983 FEIS) appear to be sufficient in that they allow for a uniform comparative analysis of the impacts associated with each candidate alignment.

LU8 **COMMENT:** The City's General Plan - zoning consistency effort is anticipated to be completed in late 1988. Metro Rail station areas for the original LPA have not been included in the consistency effort to date, because a Station Area Specific Plan was prepared for the entire 1983 corridor which would have fulfilled the dual purposes of planning for intense development at station areas, while reducing intensities in outlying areas. Complementary Community Plan amendments were also prepared to assure full internal consistency between the Plans and zoning. When the CORE Study resolves the revised route that Metro Rail will follow, associated planning efforts will proceed for the relevant corridors and station areas. (City of Los Angeles Planning Department)

ANSWER: These comments are noted.

LU9 **COMMENT:** Numerous statements in the draft cannot be reconciled. For example, in one place it says that Metro Rail "cannot by itself create growth," while in another it implies that extensive "reinvestment" will occur along the route solely due to the project. Perhaps this is the result of multiple authorship. (J. H. McQuiston)

> **ANSWER:** It is expected that Metro Rail will not, by itself, create growth but is an important factor that will promote development or redevelopment in areas that exhibit other supporting market factors. Metro Rail could serve to strengthen markets that today are not supportive of development or redevelopment by improving accessibility.

LU10 **COMMENT:** The estimation and geographic allocation of mid- to long-range population growth and development projections is a complex, inexact, subjective and often highly political process. Demographic, economic and other assumptions and "givens" which have long been used are now substantially altered to better reflect societal dynamics. Beginning in August, 1986, SCAG began publishing its pending 1987 forecasts which are continuing to be refined. The new projections indicate substantially higher figures for regional population and employment growth. These new numbers suggest that, political considerations aside, the "Year 2000 maximum impact condition" may more closely approximate or reflect the SCAG-87 projected scenario than the "base condition" figures. (City of Los Angeles Planning Department)

> **ANSWER:** The Draft SCAG 1987 forecasts were not used in the Land Use analysis for two reasons: 1) it was not available at the time the analysis was conducted; and 2) information in SCAG 87 is still being refined and has not been released as a final report.

LU11 **COMMENT:** The public is increasingly unwilling to tolerate the effects of additional development. The City's present political climate is strongly low- or no-growth as evidenced by the heavy voter support for Proposition U last November. In many areas of the City, building moratoria are in place, pending preparation and adoption of development and density controls. Mechanisms are also pending and in use which assess developers for anticipated circulation improvements necessitated by project-related traffic. (City of Los Angeles Planning Department)

> **ANSWER:** These comments regarding the dynamic state of land use/planning controls in the City of Los Angeles are acknowledged.

LU12 **COMMENT:** Table 2-21 in the Draft SEIR should be corrected. Because of the zoning consistency effort and the prohibition of development in excess of plan-permitted densities, retaining reference to the zoning-permitted floor area ratios of 10:1 and 13:1 is inaccurate. Only in particular instances, in some Redevelopment Project Areas (including the CBD) and in the Proposed Metro Rail Transit Corridor Specific Plan, do provisions

allow the transfer of development rights between parcels meeting prescribed criteria. In this way, some sites can achieve higher levels of intensity than those in the general vicinity, but this approach is the exception rather than the rule. (City of Los Angeles Planning Department)

ANSWER: The column showing maximum FAR permitted by zoning has been deleted from the subject table. For this table, "Maximum FAR" now refers to the maximum permitted by Community, District or Specific Plan. The Table 2-21 was renumbered as Table 3-1 and relocated to page D-43 in the Appendix to the Draft SEIS/SEIR (November, 1987).

LU13 **COMMENT:** Note (1) of Table 2-21 in the Draft SEIR should be clarified to include "...floor area of building and ...storage, to buildable area of lot," since some zones have setback requirements which are deducted from a parcel's net area. (City of Los Angeles Planning Department)

ANSWER: The suggested revision has been made. The subject Table 2-21 was renumbered as Table 3-1 and is located on page D-43 in the Appendix to the November 1987 Draft SEIS/SEIR.

LU14 **COMMENT:** Unsubstantiated generalities and inconsistencies are peppered throughout the Land Use Chapter of the Draft SEIR, at the cost of accuracy and credibility. The content and organization of this chapter, like most in the report, is more narrative than analytic. Key issues of potential adverse impacts and mitigation are obscured by the volume and sequence of the material. (City of Los Angeles Planning Department)

ANSWER: See responses to previous Land Use comments by the Planning Department. The data and conclusions presented in the Land Use section are consistent, accurate, and supportable.

LU15 **COMMENT:** Land use and land use plans have to be the starting points for Metro Rail planning. (Bryan Allen)

ANSWER: Land use patterns and plans were carefully considered during the development of alternative alignments and stations. The selected New LPA is fully consistent with and supportive of the General Plan and the City Center Plan for Los Angeles.

LU16 **COMMENT:** No Metro Rail station should intersect any residential area zoned R-1/R-2, and no station should fall within 500 feet of a residential area zoned R-1/R-2. (Charles Rosin, Carthay Circle Homeowners Assn.)

> **ANSWER:** Numerous criteria appear to be relevant to the selection of an alignment for Metro Rail. Because Metro Rail will enhance accessibility throughout the Regional Core, including access to residential areas, it does not appear practical nor reasonable to restrict Metro Rail service in the manner suggested.

LU17 **COMMENT:** Metro Rail is no substitute for more efficient land use. (Michael Aron Weinberg)

> **ANSWER:** Metro Rail cannot substitute for good land use planning. It can, however, support and promote efficient land use patterns and principles. The SCRTD will work with the Los Angeles Department of Planning and the local areas to develop appropriate land use and development plans associated with the selected New LPA station areas.

LU18 **COMMENT:** For Section 2.1.1 in the Draft SEIR, use of a "quarter-mile station impact area to ensure consistency" makes data collection more manageable, but patterns of ownership parcelization and development can have major effects on parcel "developability," and the resulting lack of refinement of the data in this table renders its usefulness suspect. (City of Los Angeles Planning Department)

> **ANSWER:** Use of a "quarter-mile station impact area" did aid in the creation of consistency and the manageability of data collection. The comment regarding a parcel's developability is acknowledged. The land use data collection methodologies utilized for the Draft SEIR and Draft SEIS/SEIR are consistent with those used for the 1983 FEIS, and the data obtained for this analysis can be considered appropriate for the required level of analysis needed for comparison among the various alternatives.

LU19 **COMMENT:** Per Note (1) in Table 2-19 of the Draft SEIR, why should a quarter-mile radius in each station area yield a range of "90 to 150 acres," excluding right-of-way? Discrepancies such as widely varying acreage amounts for proposed stations suggest further skepticism of the accuracy of the tables and subsequent conclusions and other material in the Land Use chapter. Areas in Table 2-21 of the Draft SEIR vary from a low station acreage of about 64 acres (for the Sunset/Western Station) to 118 acres (Hollywood/Highland) and 150 acres (Hollywood Bowl) with the average at about 73 acres. This contrasts with Table 2-19 which states a station area acreage range of 90 to 150 acres. (City of Los Angeles Planning Department)

> **ANSWER:** The acreage calculations are correct. Each station impact area consists of 125 gross acres, of which approximately 75 percent generally is developable land. The low acreage for the Sunset/Western Station is the result of the large amount of acreage associated with the Hollywood Freeway and other rights-of-way deducted from the gross acreage, with a net result of 64 acres. The Hollywood Bowl station area, by contrast, has no right-of-way within the 1/4 mile radius, resulting in a net area of 125 acres. When the original stations were evaluated in the 1983 FEIS, the range of area was 90 to 150 net acres. When the stations were recalculated, a consistent 1/4 mile radius (for gross acreage) was used, resulting in a range of 64 to 125 net acres.

LU20 **COMMENT:** The inclusion of even simple map delineations would be helpful. (City of Los Angeles Planning Department)

> **ANSWER:** Land use maps outlining the one-quarter mile impact area are included in the November 1987 Appendix to the Draft SEIS/SEIR on pages D-18 through D-41.

LU21 **COMMENT:** Categorization of the land use data in the Draft SEIR raises concerns on the discretion necessarily involved in such cases as quasi-commercial/quasi-industrial activities, or in the instances of multi-story, mixed-use buildings. Unless consistency throughout the data collection process has been maintained, all the data become suspect. (City of Los Angeles Planning Department)

> **ANSWER:** The categorization of land use data is consistent throughout the land use analysis, enabling a uniform comparison of the alignments. This categorization is believed to be sufficient vis-a-vis the type and level of the analysis required for the Final SEIS/SEIR.

LU22 **COMMENT:** Zoning data should be readily quantifiable followed by Community Plan information. Yet the latter contains inaccuracies in the Draft SEIR (e.g., Wilshire/Western, where the nearest single-family area is nearly one-half mile away, or Sunset/Western where it is well over one-half mile from the station). (City of Los Angeles Planning Department)

> **ANSWER:** The Community Plan data in the table for this station has been changed to 71 percent multi-family (from 63%) and zero percent for single-family. The data in the table for the Wilshire/Western Station is correct, however, indicating that no single-family residences exist in the area.

LU23 **COMMENT:** The "Development in Regional Core, Year 1980" title of Table 2-20 in the Draft SEIR is misleading for it suggests that the figures represent regional core area totals, allocated to the City's Community and District Plan areas. Clarification (via maps, etc.) would aid in evaluating this data. Nowhere are the geographic boundaries given to which this data applies. For the Planning Department survey cited as Note (3) of the table, for example, the explicit station area boundaries (defined by Planning and accepted by SCRTD) are somewhat irregular and do incorporate considerations of ownership, parcelization and existing development. Also it appears that (1) on Table 2-20 of the Draft SEIR should be broken into a second note addressing employees per square footage by use in building area. Note (4) uses the assumption of "0.75 FAR unless high-rise in area." In the low-intensity station areas cited on page 2-71, of the Draft SEIR, the average FAR is probably closer to 0.4 or 0.5 because of surface parking (which may occupy half of the lot area on small parcels) and predominant one-story development. (City of Los Angeles Planning Department)

> **ANSWER:** The title for this table has been changed to "Commercial and Residential Development in Regional Core by Station Area." Data for this table were derived from a commercial and office land use survey conducted by the SCRTD in 1985-1986. An FAR of 0.75 was applied to most station areas to generate a commercial (defined as office and retail uses) square footage to the nearest 100,000 square feet. In station areas with medium- to high-rise office structures, an average height was assumed. Commercial space projection techniques consisted of retail space projections, driven by population change, and the office space projections, driven by historical absorption rates. Accordingly, the amount of commercial space in 1980 has little direct bearing on the future land use projections and is used only to describe general conditions in the Regional Core. The assumed FAR could be modified without altering the resulting impact analysis. Land use maps delineating the impact area are in the November 1987 Appendix to the Draft SEIS/SEIR on pages D-18 through D-41.

LU24 **COMMENT:** Regarding Figure 2-8 in the Draft SEIR, a review of current Community Plan-permitted densities and uses reveals that nearly all areas indicated for FAR 13:1 on the map permit only a 6:1 development level, while most shown for 10:1 and 6:1 allow levels only up to 3:1. Much of the area of the Santa Monica Mountains in Hollywood and Studio City shown as open space is designated for low density residential use. (City of Los Angeles Planning Department)

ANSWER: Figure 2-8 has been revised using data from the City of Los Angeles Municipal Code (Zoning Code), the CBD Redevelopment Plan, the Wilshire District Plan, the Park Mile Specific Plan, the Westlake Community Plan and the North Hollywood Community Plan. The FAR data used in the land use analysis was taken from Table 3-1 (page D-43 in the Appendix to the Draft SEIS/SEIR) and not from Figure 2-8.

LU25 **COMMENT:** At the bottom of page 2-77, and also as Note (4) on Table 2-20 of the Draft SEIR, it should be restated that "the CRA and District Plans must, by State law, conform to adopted Community and District Plans, including their land use and intensity components. The City's zoning code does permit residential development on commercially-zoned properties throughout the City as a matter of right. No special CRA authority is necessary." (City of Los Angeles Planning Department)

ANSWER: In the Final SEIS/SEIR, a Note has been added to Table 3-20 in accordance with the suggested language. In the Final SEIS/SEIR, Chapter 3, Section 2.1.4, the text has been changed to state that the "zoning code does permit residential development on commercially zoned properties ... "

LU26 **COMMENT:** Discrepancies suggest further skepticism of the accuracy, even relevance of the tables and subsequent conclusions are accurate and sufficient to provide an adequate analysis of land use and development impacts. (Los Angeles Planning Department)

ANSWER: The data and subsequent conclusions are believed to be accurate and sufficient to provide an adequate analysis of land use and development impact associated with each of the candidate options.

LU27 **COMMENT:** The land use and development impact evaluation approach is not only naive, but inferences drawn from the data generated are used to build tenuous "conclusions" about the ability of various stations to "accommodate" anticipated commercial and residential development (pgs. 2-97 to 2-104, 2-107 to 2-119, and 2-121 to 2-122). (Los Angeles Department of Planning)

ANSWER: The land use and development impact methodologies utilized in this analysis are consistent with those developed and used in the FEIS, and are

considered sufficient for comparative analysis of the candidate alignments as well as for examining impacts unique to each alignment.

LU28 **COMMENT**: The Land Use section (and other sections) in Chapter 2 of the Draft SEIR obscure key impacts, trade-offs and distinctions between alignments. The volume of text buries important aspects particular to individual alignments. Means should be used to better illuminate significant differences between alignments and to increase the usefulness of the material. Less verbiage, bullet-type statements, simple summary charts and similar approaches would be superior. (e.g., Avoids Park Mile aerial impacts -- Yes - Routes 1 and 3, No - Routes 2, 4, and 5.) (City of Los Angeles Planning Department)

ANSWER: The section entitled "Mitigation of Potential Adverse Land Use and Development Impacts" was revised with bullet-type summaries to make it easier to read and understand. The Section entitled "Summary of Land Use Impacts by Alignment" was also revised and a standardized format was used so that any alignment could be compared to another. A table entitled "Summary of Evaluation Data for Project Options" was developed which lists comparative data by alignment. This table is located in the Summary of the November 1987 Draft SEIS/SEIR. Overall comparisons of impacts, trade-offs, and distinctions between alignments are presented in the Summary Section of the Draft SEIS/SEIR.

2.15 PUBLIC PARTICIPATION

PP1 **COMMENT**: The studios were not adequately informed or involved in hearings and meetings preceding the SEIR. (Daphne Gronich, Fox Television Stations; Steven A. Bell, KTLA; Bruce J. Teicher, CBS; Michael Eigner, Sunset Boulevard Coalition; Brenda L. Young, KTLA)

ANSWER: The studios were not provided notice other than through the news media and via public notices of CORE Study meetings. As a result, the SCRTD gave special attention to the studio's concerns subsequent to circulation of the Draft SEIS/SEIR. Candidate Alignment 6 was defined as a result of consultations with studio interests. Perceived impacts on the studios associated with a Sunset Boulevard alignment played a role in the selection of the New LPA on Hollywood Boulevard.

PP2 **COMMENT:** The list of participants published in the CORE Forum report is misleading. Many of the people did not participate either in person or through correspondence. It is improper for them to be listed as participants. (Bill Christopher, No El on Wilshire)

> **ANSWER:** All CORE Forum participants were provided written notice of meetings and were called regarding upcoming meetings. A very high percentage of the Forum members attended each of the meetings, due to the high level of interest in the Metro Rail Project. The list of members is provided to show who was invited to participate in this forum.

PP3 **COMMENT:** Holding a public hearing the Friday before Christmas discourages public participation. (Mike Cornwell, Windsor Square Assn.)

> **ANSWER:** Unfortunately, the rigid schedule adopted for completion of critical elements of the Metro Rail CORE Study and Project made this hearing date necessary prior to the holiday period.

PP4 **COMMENT:** In the future, RTD should communicate more with the Spanish-speaking community. (Agapito Hernandez)

> **ANSWER:** This is a valid suggestion that will be considered by the SCRTD during the course of future planning activities.

2.16 RELOCATION AND BUSINESS OPERATIONS

BO1 **COMMENT:** Studios would move and jobs would be lost if the alignment goes down Sunset Boulevard. (Daphne Gronich, Fox Television Stations; Paul Camarata, Sunset Sound)

> **ANSWER:** Selection of the all-subway LPA on Hollywood Boulevard should obviate the concerns of the studios along Sunset Boulevard.

BO2 **COMMENT:** Broadcasters in the Sunset Boulevard area are already looking for alternative locations outside of Los Angeles because of the Sunset Boulevard alternative. Also, the Hollywood Christmas Parade, which brings more than a million people into Hollywood, is threatened by Metro Rail. (Bill Welsh, Hollywood Chamber of Commerce; Paul Clarke, Sunset Boulevard Coalition)

> **ANSWER:** See response to BO1.

BO3 **COMMENT**: RTD cannot complete construction of a Sunset Boulevard alignment without several studios having to shut down and relocate. (Richard Anderson, Fox Television Stations)

ANSWER: See response to BO1, above.

BO4 **COMMENT**: Businesses in the Hollywood area will suffer great hardship during the construction of Metro Rail. It would help if Metro Rail were constructed off the major streets. Selma would be ideal since it is convenient to both Hollywood and Sunset Boulevards and would not have a major impact on the businesses in Hollywood. Highland and Cahuenga should never be closed during the construction of Metro Rail. (Arland "Buzz" Johnson)

ANSWER: Expected construction impacts are reviewed in Section 15 of Chapter 3 in the Final SEIS/SEIR. There would major disruption to the community of Hollywood if an off-street alignment were selected. A Selma alignment was one of over 30 alignments reviewed during the CORE Study process, but was not ultimately selected as the LPA. A Maintenance of Traffic Plan will be formulated along with a Construction Management Plan. These plans will focus on procedures and schedules to minimize the negative effects of construction. Some businesses will be adversely affected by disruption of traffic in some areas.

2.17 SAFETY AND SECURITY

SY1 **COMMENT**: Subway stations are more safe than the streets themselves. (Pat Moser, NOW)

ANSWER: The subway stations, with appropriate safety and security elements in place, can be made reasonably safe.

SY2 **COMMENT**: Alignment 4 crosses the Hollywood Freeway twice, raising the image of 785,000 pounds of train falling from 50 feet onto the freeway. (J.H. McQuiston, McQuiston Associates)

ANSWER: The LPA is an all-subway alignment, obviating this concern.

SY3 **COMMENT**: Subway stations will invite crime. (Thomas Pitts)

ANSWER: Security mechanisms and procedures have been incorporated into the Project to minimize the potential for crime.

SY4 **COMMENT:** The school community has concerns about the siting of a station at Sunset and Western, just one block from Grant School. The area already attracts transients, who are seen as a potential threat to school children walking to and from school. (Robert J. Niccum, Los Angeles Unified School District)

> **ANSWER:** Selection of the LPA on Hollywood Boulevard avoids concerns raised regarding Grant School.

SY5 **COMMENT:** The School District has prepared a list of 27 safety factors that should be observed during construction and operation of Metro Rail. Also, school officials are concerned about safety during tunnelling, especially in the methane area, and would like notification when such tunnelling is to occur. The 27 safety factors include: (1) conflicts of rights of way for pedestrians and motorists; (2) security of rights of way; (3) time schedules for operation (changes of routes and movements for school buses and motorists need coordination); (4) trespass attractions and security issues; (5) off-street walking along routes (access versus isolation for the area); (6) overhead security of power sources; (7) noise control; (8) station location and provisions for protection of individual users; (9) station lighting; (10) station parking arrangements; (11) overhead bridges or separations as necessary to facilitate complex traffic mixes; (12) at construction stages: equipment movements; (13) at construction stages: disruption of existing traffic patterns; (14) at construction stages: material storage and security; (15) at construction stages: noise abatement; (16) at construction stages: disruption of parking patterns at nearby sites; (17) vandalism security; (18) control of speed of rail units when they are in service; (19) provisions for warning signs and barriers; (20) interfacing with L.A. City Traffic Engineer's plans; (21) effects on pedestrian routes to schools; (22) police activities; (23) plans for emergency services and access to facilities; (24) handicap access; (25) social attractions and strangers; (26) public telephones at key points; (27) weather factors. (Robert J. Niccum, Los Angeles Unified School District)

> **ANSWER:** The SCRTD will work with the Los Angeles Unified School District, the Los Angeles Department of Transportation and the Los Angles Police Department to the greatest degree practicable in developing the Construction Management and Traffic Maintenance Plans. The twenty-seven safety factors identified by the District will be incorporated as appropriate into these plans.

SY6 **COMMENT:** A subway is safer than an aerial structure in a seismic area. (Milan R. Bump)

> **ANSWER:** This comment is noted. See response to SC10.

SY7 **COMMENT**: Both subway and aerial systems are unsafe in an earthquake-prone area. Light rail would be more appropriate. (Rick Rofman)

> **ANSWER**: Damage caused by an earthquake is dependent on a number of conditions. Generally, subsurface and surface operations rather than aerial operations would be more secure during a seismic event.

SY8 **COMMENT**: There has been no examination of the cumulative effects of the high vibration levels of the system on earth movements and earthquakes. (David Morgan, Hollywood Better Government Assn.)

> **ANSWER**: The levels of vibration created by moving trains is far less than the cumulative effects of a busy freeway or surface traffic. Seismic events are related to large scale movements of the earth's crust and not to activities on the surface.

2.18 STATIONS/ALIGNMENT PHASING

SP1 **COMMENT**: The statement that parking impacts at downtown stations would be very small is puzzling. (T.A. Nelson, Consulting Engineer)

> **ANSWER**: Stations in the core of the CBD (excluding the Union Station) typically will not be an origin but a destination. Parking impacts at these stations are therefore expected to be minimal.

SP2 **COMMENT**: The Witmer Street station deleted from the original MOS-1 section should be reconsidered. (Paul Kells, Hospital of the Good Samaritan)

> **ANSWER**: A Witmer Station is being studied by a private consortium and by the Los Angeles County Transportation Commission. The station would be extremely deep and costly to construct. Private funding would have to be secured to construct the station. The reasons for eliminating the Witmer Station are defined in the Environmental Assessment for MOS-1 and in the adopted FEIS published in 1983.

SP3 **COMMENT:** Parking at the MacArthur Park station must be seriously addressed. One way is to incorporate park-and-ride for parking by the station, whereby parking would be included in the price of the passenger's ticket. The land would be made available by purchase of old structures in the neighborhood, demolishing them and converting the space to parking. (Denise Rausch)

> **ANSWER:** The numbers listed for parking deficiencies at Wilshire/Alvarado in Table 3-15 of the Draft SEIS/SEIR were incorrect. The expected parking deficiency ranges from 1,236 spaces to 1,785 spaces in the corrected table. It is the SCRTD Board of Directors' policy that parking would only be provided at terminus stations of the full alignment in order to encourage alternate modes of travel (i.e., buses) to Metro Rail stations. Joint development could serve to aid in the provision of additional parking, and a joint development agreement currently is being pursued in this area.

SP4 **COMMENT:** RTD should pursue any actions necessary to open both the Wilshire/Alvarado and Vermont/Wilshire stations simultaneously, or to at least minimize the length of time that Wilshire/Alvarado remains an interim terminus for MOS-1. (Susan Cloke, for Councilwoman Gloria Molina)

> **ANSWER:** The SCRTD will pursue the timely completion of the Wilshire/Vermont station so as to minimize the length of time that Wilshire/Alvarado remains an interim terminus for MOS-1.

SP5 **COMMENT:** Because of traffic, noise and development, Wilshire/Fairfax is not an appropriate location for an interim end-of-the-line station. (Bill Christopher, No El on Wilshire; Charles Rosin, Carthay Circle Homeowners Assn.)

> **ANSWER:** The New LPA terminates service at the Wilshire/Western station along Wilshire Boulevard. See response AL8.

SP6 **COMMENT:** The station at Wilshire and Fairfax should be underground to better preserve the area. (Warren Richardson)

> **ANSWER:** See response to AL8.

SP7 **COMMENT:** The draft clearly indicates that the station at Sunset/Western is unwarranted and deleterious to the immediate area. Removing this station frees funding to complete the subway leg down Sunset between Wilton and Vermont. (J. H. McQuiston)

> **ANSWER:** The selected New LPA does not include a station at Sunset/Western.

SP8 **COMMENT**: Two stations in downtown Hollywood make sense, and the alignment should provide for a future Hollywood Bowl station. (T.A. Nelson, Consulting Engineer)

> **ANSWER**: The selected New LPA incorporates two stations in Hollywood, at Hollywood/Vine and Hollywood/Highland. The geometrics of rail operating facilities preclude a Hollywood Bowl station, when these two stations are part of the system. Methods to provide a direct transit connector between the Metro Rail Hollywood/Highland Station and the Hollywood Bowl will be the subject of a future study.

SP9 **COMMENT**: Station access for the Hollywood Boulevard alignment should be provided from both Sunset and Hollywood Boulevards. (City Council of West Hollywood)

> **ANSWER**: Due to a number of factors detailed throughout the SEIR/SEIS, the Hollywood Boulevard alignment was selected as the New LPA. This selection precludes direct service to Sunset Boulevard (except at Sunset/Vermont), although walking distances are not substantial between the two streets.

SP10 **COMMENT**: There should be two major stations in the central business district of Hollywood. (Abraham Falick, Coalition for Rapid Transit)

> **ANSWER**: See response to SP8, above.

SP11 **COMMENT**: Two stations should be built in the downtown Hollywood area, one in the vicinity of Vine and another in the vicinity of Highland. (Tom Nelson, Dearborne Drive Homeowners Assn.)

> **ANSWER**: The LPA includes stations at Hollywood/Vine and Hollywood/Highland.

SP12 **COMMENT**: A station at the Hollywood Bowl is justified. (Tom Nelson, Dearborne Drive Homeowners Assn.; Pat Moser, NOW; Abraham Falick, Coalition for Rapid Transit; Stefan Reed; Sheldon H. Walter)

> **ANSWER**: See response to SP8.

SP13 **COMMENT**: City and RTD representatives should discuss as early as possible various options for providing service to the Hollywood Bowl. The development of these alternatives could be formulated more effectively if the work were undertaken jointly by the City and RTD staffs. (Councilman Michael Woo)

> **ANSWER**: See response to SP8, above.

SP14 **COMMENT**: Both North Hollywood and Universal City stations should include park-and-ride structures, but space for this purpose will be difficult to acquire, especially since Universal City is reputedly opposed to such a function near its property. (Abraham Falick, Coalition for Rapid Transit)

> **ANSWER**: Parking facilities are anticipated at both the North Hollywood and Universal City stations as defined in Chapter 2 and in the Station Plans and Profiles.

SP15 **COMMENT**: Until the magnitude of federal and other funding available to the area is known, designation of interim terminals should not be made. At a later date, interim terminals should be designated after weighing considerations of available funding, cost-effectiveness and environmental impacts. (Rick Richmond, Los Angeles County Transportation Commission)

> **ANSWER**: Consistent with this comment, the Final SEIS/SEIR states that interim terminal locations for the next construction segment of the New LPA should be identified as funding for this segment is finalized. Three possible sets of interim terminal station locations are identified for consideration, and the impacts associated with the terminus stations are described in the Final SEIS/SEIR.

SP16 **COMMENT**: Because of land use and transportation problems, no interim end-of-the-line station should be considered for San Vicente and Wilshire. (Charles Rosin, Carthay Circle Homeowners Assn.)

> **ANSWER**: See response to AL8.

SP17 **COMMENTS**: No interim end-of-the-line station for the "western segment" should be decided until a comprehensive transportation plan for the west side is determined. (Charles Rosin, Carthay Circle Homeowners Assn.)

> **ANSWER**: See response to AL8.

SP18 **COMMENT**: A list of stations which might operate as interim terminals needs to be added to the Draft SEIS/SEIR. We understand this is already being done. We would suggest at a minimum that the Universal City and Vermont/Wilshire station be considered candidate interim terminals for Alternative 4 and the Wilshire/Normandie station for Alternative 5. Discussions of associated impacts for all interim terminals need to be complete, especially with regard to traffic/bus circulation. (Los Angeles County Transportation Commission)

> **ANSWER**: See response to SP15.

SP19 **COMMENT:** Build as many stations as possible; it will increase ridership and serve more people. From this standpoint, the best alignments are 2 and 4. (Ron M. Aryel)

> **ANSWER:** Support for the Metro Rail program is noted. The LPA will have sixteen stations serving the Los Angeles Core area.

SP20 **COMMENT:** No one will occupy the stations except the homeless and transients. (Margarita Allen)

> **ANSWER:** A safety and security program has been identified for Metro Rail to respond to the concerns raised by this comment.

SP21 **COMMENT:** The attraction of automobile and bus trips to stations may result in congestion in the area surrounding the stations. The loading/unloading operations of feeder bus lines and kiss-and-ride passengers will result in interference with other traffic flows unless turnouts or off-street facilities are provided. This potentially serious impact is not adequately addressed. (City of Los Angeles Department of Transportation)

> **ANSWER:** Chapter 2 contains station footprints for each of the Metro Rail Phase II stations, showing the kiss-and-ride, park-and-ride and bus layover facilities. Section 1.3.1.3 of Chapter 2 provides a description of off-street bus layover facilities for those stations that may operate as temporary terminals. Section 1 of Chapter 3 evaluates predicted increases in traffic activity at the terminal stations due to park-and-ride, kiss-and-ride, and feeder buses. As final design continues, additional bus/rail, park-and-ride and kiss-and-ride interface requirements will be reviewed to assure adequate connection of all modes with Metro Rail.

SP22 **COMMENT:** Even if an all-underground alignment along Hollywood Boulevard is chosen, the Vermont and Sunset Station should be moved north to have one entrance at the Barnsdall Shopping Center. (T.A. Nelson)

> **ANSWER:** The current location for the Sunset/Vermont station has been selected to provide maximum access for the hospital complex in this area. The proposed relocation of this station entrance will be reviewed as part of Metro Rail final design.

SP23 **COMMENT:** The distance on Vermont Avenue between the near ends of the station at Fountain and Santa Monica Boulevard, about 1,800 feet, is not consistent with RTD's objections to placing a station east of Highland on Hollywood Boulevard for Alignment 1. RTD claims it would be too close to the Vine Street station. A station could be placed two blocks closer to Highland by starting the curve north at Las Palmas and by the alignment continuing parallel to Highland about a block west at Franklin. (T.A. Nelson)

ANSWER: This possible station location will be reviewed in detail during final design to optimize the use of the Project.

SP24 **COMMENT:** An elevated people mover at Hollywood Bowl is preferable because of the views afforded passengers. (T.A. Nelson)

ANSWER: This preference will be taken into consideration during the Transit Connector Study. See response to AL48 and AS1.

2.19 TRANSPORTATION

TR1 **COMMENT:** An automated light rapid transit system should be a feeder to Metro Rail in Wilshire Center. (Bryan Allen)

ANSWER: See response to AL37.

TR2 **COMMENT:** The western extension of Metro Rail should be routed to Mid-Town Center. Here, it would connect to a 10-mile light rail feeder line utilizing portions of the Southern Pacific Santa Monica Branch and Venice Boulevard. Vehicles with high performance, including a top speed of 55 mph, would be utilized. The trip between Santa Monica Place and the Los Angeles CBD would take about 30 minutes. The feeder line could be constructed for about $297 million, including six intermediate grade separations to minimize traffic impacts. (Alan D. Havens, transportation analyst - Dr. Havens provided a more detailed explanation of this proposal, including line configurations, performance tables and capital cost projections)

ANSWER: See response to AL8.

TR3 **COMMENT:** Suggesting that mitigation improvements could be done with the City's Transportation CIP program is inappropriate, given the changing nature of the program which may be affected by City Council priorities, levels of funding, safety improvement requirements, etc. Inclusion of a project in the current CIP is not a guarantee of construction. The designs of a CIP project which happens to be located in the vicinity of a Metro Rail station do not include the marginal additional impacts of Metro Rail. Therefore, if mitigation of Metro Rail's impacts is dependent upon these projects, the portion of the project cost related to Metro Rail

mitigation should be borne by Metro Rail. (City of Los Angeles Department of Transportation)

> **ANSWER:** The Final SEIS/SEIR states that implementation of such measures would be subject to availability of adequate City capital improvement funds (See Section 1 of Chapter 3). The CIP changes over time, and inclusion of a project is not a guarantee of construction.

TR4 **COMMENT:** RTD should approach the Metro Rail Project by envisioning a master system plan that meets all needs of the region's centers and nodes, then select elements of that master plan that can realistically be implemented in the short term. (Bryan Allen)

> **ANSWER:** See response to AL37. The "master system plan" is the regional rail rapid transit network approved by the voters in Proposition A. The first segment of Metro Rail and the Los Angeles/Long Beach light rail lines are the first increments of that system.

TR5 **COMMENT:** Overall, the measures mentioned in the Draft SEIR are inadequate to mitigate the impacts of the transit system, particularly in the aerial alignment reach of portal segments, including necessary right-of-way purchases, resultant roadway widths, street realignments and cross-streets treatment. (City of Los Angeles Department of Transportation)

> **ANSWER:** The selected LPA is an all-subway alignment, which obviates the concerns raised in this comment.

TR6 **COMMENT:** The analysis should treat the whole area of impact, including competing modes, not just alternative alignments. (J.H. McQuiston)

> **ANSWER:** The environmental impacts assessment process followed guidelines adopted by the Urban Mass Transportation Administration (UMTA). The focus of the assessment was consistent with the Congressional mandate to realign the Metro Rail project and not tunnel in the risk areas.

TR7 **COMMENT:** For explainable reasons (primarily the cost of real estate), most stations have little, if any, off-street access facilities. Their absence is particularly unfortunate at stations with significant bus transferring where on-street loading makes pedestrian circulation more difficult and vehicular congestion worse. At key stations, more attention should be paid to this issue. Few of the station site plans have any off-street bus or park-and-ride provisions indicated. More attention needs to be paid to those provisions. In particular, interim terminal stations, stations at "elbow" segments of the alignment and stations near the Hollywood Freeway should try to provide off-site bus loading areas conveniently located to entrances. The costs and impacts of these facilities need to be noted in the document. All station drawings should

also have a "Subject to Change During Final Design" note individually attached. (Rick Richmond, Los Angeles County Transportation Commission)

ANSWER: See response to SP21.

TR8 **COMMENT:** Evaluate in greater detail the impacts of providing appropriate change-of-mode facilities at all stations, including bus bays, off-street bus loading, park-and-ride and kiss-and-ride spaces sufficient to meet projected demand. (City of Los Angeles Department of Transportation)

ANSWER: See response to SP21.

TR9 **COMMENT:** RTD's responsibility is to develop a system of transportation to serve this community in the long run, to look at the long range, to look at the total picture and to serve the greatest number of people. (Allen Sieroty, Property Owners Coalition)

ANSWER: Development of the Metro Rail system is consistent with the charge given when the voters approved construction of the regional rapid rail system. Integration of Metro Rail with the regional bus system and the light rail system under development will create a system of transportation services for the long-term future.

TR10 **COMMENT:** Build the subway corridors wide enough to accommodate buses as well. (R. Alcan)

ANSWER: Metro Rail is designed to supplant linehaul bus service in the corridors served. It would be poor policy to operate two different transit services in the same corridor for the same purpose.

TR11 **COMMENT:** Regionally accepted assumptions on costs associated with automobile use were not disaggregated to match the more detailed traffic analysis zones used by SCRTD. (EXAMPLE: Parking costs for Sunset Boulevard because uniform cost assumptions are used throughout several smaller zones that make up a larger SCAG zone containing both streets). (City of Los Angeles Department of Transportation)

ANSWER: Policies related to the automobile mode are under the authority of the City of Los Angeles, SCAG and CALTRANS. Auto mode attributes are provided by these agencies for use in mode choice forecasting by SCAG. Metro Rail patronage forecasts did not alter these assumptions or policies. Detailed disaggregation of auto costs was not performed by the SCRTD for the patronage forecasts, since SCRTD's interests are focused upon the detailed impacts of transit usage rather than automobiles.

2.20 WATER RESOURCES AND FLOODING

WR1 **COMMENT**: There are dangers of underground water in the Highland-Wilshire-Olympic area. There is a stream that runs north and south on the west side of Longwood from Wilshire to 8th; on the east side of Longwood from 8th to 9th; on the west side again from 9th to Olympic; and on the west side south of Olympic. The source of the stream is somewhere around or on Wilshire Country Club property. (Rosemary B. Hill)

> **ANSWER**: A detailed survey of subsurface conditions was conducted by the SCRTD, including a review of gas and water resources. Sections 3-11 and 3-12 of the Final SEIS/SEIR summarize and refer to the specific studies on which the findings are based. Engineers for the system will be informed of the referenced water source.

WR2 **COMMENT**: Hydrology studies are inadequate and incomplete. There is no mention or consideration of the Cahuenga River, which runs underground along the same route and depth as alignments 1, 2, 4 and 5. (Steve Bangs, Hollywood Heights Assn.)

> **ANSWER**: See response to WR1.

WR3 **COMMENT**: Groundwater levels are well above tunnel depths all along the various subway segments. Little or no discussion exists in any of the background material and environmental reports published so far about how dewatering would take place in cut-and-cover construction. In the Wilshire/Vermont area, the water table is about 20 feet. In the Vermont area, there are serious underground river problems. These issues have not been adequately explored. (Barbara A. Fine, Federation of Hillside and Canyon Associations; Lawrence Kaplan, Royal Development Co.)

> **ANSWER**: See response to WR4.

WR4 **COMMENT:** Water quality impacts (e.g., potential for flooding, soil erosion and groundwater contamination) should be investigated for alternative alignments, and mitigation measures should be included. Also, there should be discussion of how surface runoff will be controlled and silt-laden water prevented from entering storm drains during construction. (Dennis Dasker, Regional Water Quality Control Board)

ANSWER: Water Quality Impacts are discussed in Chapter 3, Section 12 of this Final SEIS/SEIR and in Section 11.3.7 and 11.3.8 of Chapter 3 of the 1983 FEIS. These discussions are summarized as follows:

To avoid the engineering and environmental problems associated with excavating or tunneling in soils below the perched or permanent water table, water will be removed (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 dewatering activities occur, they will be limited to the immediate excavation area by utilizing such methods as compressed air, chemical grouting, freezing, slurry shields or earth pressure balance shields where local geologic or other constraints dictate, thus avoiding potential ground subsidence or differential settlement of adjacent structures. 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.

Wastewater discharge from excavation water removal may 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 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, Metro Rail construction contractors will 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 will be required to regularly remove the more nominal, day-to-day operational spills.

An NPDES Permit was obtained for MOS-1. The RWQCB transmitted tentative waste discharge requirements to the SCRTD on December 28 and 29, 1986. These included levels of permissible pollutants, treatment of water, monitoring, and sampling at various locations during the dewatering and construction operations. The SCRTD generally agreed with these requirements, but in a letter of January 8, 1987, asked for certain modifications and clarifications. This request was resolved and the RWQCB issued NPDES Permit No. CA 0059714 to the SCRTD in January 1987.

The permit includes requirements on effluent limitations, receiving water limitations, standard provisions, and monitoring and reporting requirements. The SCRTD will comply with all requirements of the permit, and a similar process will be followed for Phase II.

Pollution Control Specifications 01566, Section 3.4 are included under all contract segments for MOS-1 and contain the following directives for the construction contractor:

1. Treat wastewater from dewatering, storm run-off or any other actions of the construction operation to remove suspended particles and hydrocarbons through settling basins or hydrocarbon separators. Criteria for solids in the water are set by state and local water agencies.

2. Obtain a NPDES permit and other necessary permits from appropriate local agencies for water discharge where required. (Note: The District has obtained NPDES, No. CA 0059714, and other permits required in connection with disposing of water produced during dewatering of the construction sites.)

3. Monitor wastewater discharge to ensure it meets standards set by appropriate laws, codes, regulations, ordinances, and permits. Records of measurements shall be retained for inspection by the District or its designee.

4. Do not discharge pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, or other harmful wastes into or alongside rivers, streams, and impoundments, nor into channels leading thereto.

5. Control the use of lubricating oils, hydraulic fluids, greases, and other such products. Promptly clean up and properly dispose of materials contaminated by spillage or leakage of these products.

More specific instructions are contained in the Technical Specifications for contracts where dewatering must be done. For example, in Contract A141, Specification Section 02140 (Dewatering, dated March 20, 1987) requires the contractor to design, furnish, locate, install, maintain, operate, and remove dewatering systems and water treatment plants as necessary. Similar specifications will be included for Phase II.

The disposal of wastewater containing oil and gas will require a National Pollutant Discharge Elimination System (NPDES) permit. The permit will be issued by the Regional Water Quality Control Board (RWQCB) and is 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-I disposal site which are presently available. Wastewater from the maintenance yard cleaning facility will be treated before disposal. Treated discharge water will be monitored and periodic water quality monitoring reports will be prepared to help ensure the continued effectiveness of wastewater treatment procedures and equipment.

2.21 MISCELLANEOUS

M1 **COMMENT:** The City is concerned with the apparent magnitude of mitigation measures for which various City agencies are cited as "responsible" or "implementing." The spirit of CEQA suggests that a project's lead agency assume major responsibility for implementing impacts arising from its project. The City will cooperate with the SCRTD, but the nature of the cooperation and funding for mitigation should be clarified in some form of "mitigation master agreement." (City of Los Angeles Planning Department)

ANSWER: See response to CF10. If needed, a "Master Agreement" will be developed as part of the Full Funding Contract negotiations.

M2 **COMMENT:** The more positive aspects of Metro Rail should receive attention. Perhaps the more negative aspects could be counter-balanced in some tabular manner, showing long-range benefits (T.A. Nelson, Consulting Engineer)

> **ANSWER:** This document is designed to comprehensively describe the impacts associated with the Metro Rail Project (both positive and negative) along with necessary mitigation measures. The provision of rail service, patronage, improved regional accessibility, interface with other transit facilities, decreases in auto usage, reduced increases in traffic congestion, air quality improvements, support for local land use plans and other positive features of the Metro Rail Project can certainly be highlighted.

M3 **COMMENT:** Money being spent on Metro Rail could better be spent for human services. (Timm Marble)

> **ANSWER:** A major problem in the provision of human services is the lack of individual resources to access the services provided. People need to take advantage of the services provided by various city, county, state, and Federal agencies and non-profit community organizations; but a large number do not have the means to travel to the place where these services are available. Transit plays an essential role in the community in this regard. Transit provides a level of accessibility for people who cannot afford to, or opt not to, own an automobile or some other form of individual transportation.

M4 **COMMENT:** Metro Rail should have state-of-the-art facilities for handicapped riders. (Dale Gasteiger, Braille Institute)

> **ANSWER:** The Metro Rail system will be fully accessible to handicapped or disabled persons.

M5 **COMMENT:** Minor corrections to information conveyed in the second paragraph of the SUMMARY of the Draft preliminary SEIS/SEIR should be made. Forty-one miles of light rail transit are under construction, with the first segment to open in 1990. The El Monte Busway is part of the 150-mile Proposition A rail system to be converted to rail, not as a busway. (Los Angeles County Transportation Commission)

> **ANSWER:** The suggested corrections have been incorporated into the Summary of this Final SEIS/SEIR.

M6 **COMMENT:** The legend in Figure 3-8 in the Draft SEIS/SEIR may be in error and should be checked. (Los Angeles County Transportation Commission)

> **ANSWER:** The legend in Figure 3-8 has been corrected in this Final SEIS/SEIR.

M7 **COMMENT:** In the Draft SEIR, the Park Mile and Wilshire/Western areas are termed "declining or stagnant areas" that would benefit from Metro Rail-generated commercial development; by what measures were these two areas so evaluated? Should other stations in redevelopment areas also be so classified. (City of Los Angeles Planning Department)

> **ANSWER:** The Final SEIS/SEIR has been revised to designate only those stations located in CRA Redevelopment areas as economically stagnant or declining. These stations include Hollywood/Highland, Hollywood/Vine, Hollywood/Western, and North Hollywood.

M8 **COMMENT:** Significant distinctions between impacts of the alignments can only be ascertained by skimming, page-turning, note-taking and good powers of recall. EIRs are intended to provide the reader with a clear understanding of what is proposed, what alternatives exist, what impacts are likely to occur, and what mitigation measures can be implemented. The lead agency should assure that this is achieved. We would be happy to work with you to enhance the report's usefulness. (City of Los Angeles Planning Department)

> **ANSWER:** The Draft and Final SEIS/SEIR incorporate a large amount of information relating to seven alternatives evaluated with respect to more than twenty areas of concern. Every effort has been made to respond to requests for information from city, county, state, and Federal agencies. The Executive Summary provides a condensed discussion of the LPA.

M9 **COMMENT:** The reduction of sidewalk width on Hollywood Boulevard between Vermont and Bronson would have negligible adverse impact because pedestrian traffic in the area is extremely light. (T.A. Nelson, Consulting Engineer)

> **ANSWER:** This is no longer a relevant concern, because the selected New LPA is entirely subway.

M10 **COMMENT:** RTD is confiscating property for Metro Rail. There's no concern for people. It's like Russia. (Z. Makadau)

> **ANSWER:** The SCRTD must follow strict guidelines established under the Uniform Relocation and Assistance Act passed by Congress in 1972 to ensure that property owners receive adequate compensation and assistance from government agencies.

M11 **COMMENT**: RTD should keep fares down. (Thomas Pitts; Robert Sweda)

> **ANSWER**: RTD fares have not been arbitrarily increased. RTD has made substantial efforts to increase service efficiency while maintaining the lowest fares possible.

M12 **COMMENT**: Owner of Shell gas station at 5657 Sunset Boulevard did not receive notification that property was going to be taken under Alignment 6. (Andy Hindoyan)

> **ANSWER**: Selection of the Hollywood alignment for the New LPA obviates the concerns raised in this comment.

M13 **COMMENT**: The emphasis of the draft is wrong. For example, it examines the impact on the San Diego Horned Lizards, but not on school children. (John Walsh)

> **ANSWER**: The SCRTD is sensitive to school children and will make every effort to coordinate construction activities and subsequent operations with persons charged with the welfare of the community's children. See response to SY5.

M14 **COMMENT**: RTD must reject Alignment MM1: it must not use eminent domain to take homes, apartments, churches and business properties; ordinances and regulations must be avoided to delete eminent domain; churches must not be condemned for Metro Rail; no land and buildings on the block bound by Sunset Boulevard, N. Wilton Place, Harold Way and St. Andrews Place must be taken for Metro Rail. (Petition submitted at public hearing on June 21, 1988, with 717 signatures)

> **ANSWER**: The selected New LPA will follow Hollywood Boulevard rather than Sunset Boulevard. Alignment MM1 (subsequently referred to as Candidate Alignment 6) was defined in response to concerns raised by the sound and recording studios on Sunset Boulevard west of the Hollywood Freeway. The expected impacts of Candidate Alignment 6 were reported in the Addendum to the Draft SEIS/SEIR. Subsequent review of all six candidate alignments and the Null Alternative led to the conclusion that the MM1 alignment was not a cost effective solution.

M15 **COMMENT:** The scheduled headways shown are quite long for rapid transit which should be running very frequent service. The numbers should be changed or at least labelled preliminary. (LACTC)

> **ANSWER:** Headways shown in this prior document were for the branches of each candidate alignment. System headways have been changed, and Table 2-3 in Chapter 2 now shows headways for the branches of the system (i.e., north branch from the branching point to the North Hollywood and west branch from the branching point west to the Wilshire/Western Station) and headways for that section of line common to both branches (from the branching point to Union Station).

CHAPTER 8: REFERENCES

SECTION 1: SUPPORT DOCUMENTS

Technical reports on virtually all subjects covered in the Final SEIS/SEIR were developed as an integral part of the SEIS/SEIR 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 material used during the process.

All documents incorporated by reference in the Final SEIS/SEIR are available for public inspection at the following locations:

SCRTD
(Monday-Friday)
425 South Main Street
Los Angeles, CA 90013
Metro Rail Department:
Phone: (213)972-6439
Library/Information Center
Phone: (213)972-6467

Southern California Association of Governments
(Monday-Friday)
600 South Commonwealth Avenue
Los Angeles, CA 90005
Phone: (213)385-1000

State Clearinghouse, Room 121
(Monday-Friday)
State of California
1400 Tenth Street
Sacramento, CA 95814
Phone: (213)485-0613

The technical analyses in this Draft SEIS/SEIR are based on the following reports, which are incorporated herein by reference.

1.1 FEIS/FEIR PROCESS

Los Angeles Department of Transportation, "Working Paper, Revised 2000 Base Condition Traffic Volumes," October 1982.

Southern California Rapid Transit District, "Archaeological Resources Technical Report," 1983.

_____."Final Environmental Impact Report, Los Angeles Rail Rapid Transit Project," November 1983.

_____."Milestone 5 Report: Right-of-Way Acquisition and Relocation Policies and Procedures," September 1982.

_____."Milestone 6 Report: Land Use Development Policies," November 1982.

_____."Milestone 7 Report: Safety, Fire/Life Safety, Security and Systems Assurance," 1983.

_____."Milestone 9 Report: Supporting Services Plan," 1983.

_____."Technical Report: Land Use and Development Impacts," 1983.

_____."Technical Report on Existing Conditions - Regional and Community Settings," 1982.

_____. "Technical Report - Regional Accessibility and Travel Time Analysis," 1983.

_____.Technical Report: Summary of Public Policies and the Impact Assessment Methodology," 1982.

Urban Mass Transportation Administration and the SCRTD,"Final Environmental Impact Statement, Los Angeles Rail Rapid Transit Project," December 1983.

Westec Inc.,"Technical Report on Noise and Vibration," January, 1983.

1.2 ENVIRONMENTAL ASSESSMENT, MOS-1

Urban Mass Transportation Administration and the SCRTD, "Environmental Assessment, Los Angeles Rail Rapid Transit Project, Union Station to Wilshire/Alvarado (MOS-1)," August 1984.

1.3 CORE STUDY

City of Los Angeles Task Force, "Report on the March 24, 1985 Methane Gas Explosion and Fire in Fairfax Area," June 10, 1985.

Engineering-Science, "CORE Study Subsurface Conditions Report," April 1986.

_____."CORE Study Subsurface Conditions Report: An Evaluation of Methane Gas Potential Along Candidate Alignments of the Los Angeles Metro Rail Project," May 1986.

"Report of the Independent Technical Review Committee Evaluation of the MOS-1 Portion of the Los Angeles Metro Rail Project," January 3, 1986.

Southern California Rapid Transit District, "CORE Study Archaeological Technical Report," 1987.

_____."CORE Study Milestone 1 Report: Public Consultation Plan," February 1986.

_____."CORE Study Milestone 2 Report: Subsurface Conditions Study," April 1986.

_____."CORE Study Milestone 3 Draft Report: Candidate Alignments and Stations for Further Study," March 1986.

_____."CORE Study Milestone 3 Draft Interim Report Number 2: Initial Ranking of Candidate Alignments," May 1986.

_____."CORE Study Milestone 3 Draft Summary Report: Public Consultation on Second-Level Evaluation of Candidate Alignments and Stations," April 1986.

_____."CORE Study Milestone 3 Interim Report, Public Consultation on Candidate Alignments and Stations for Further Study," March 1986.

_____."CORE Study Milestone 4 Draft Interim Report Number 1: Operable Segments Analysis," June 1986.

_____."CORE Study Milestone 4 Draft Interim Report Number 1: Public Consultation on Operable Segments Analysis," June 1986.

_____."Public Consultation Plan," January 1986.

Southern California Rapid Transit District Board of Review, "Construction and Operation in Gaseous Areas," September 5, 1985.

Southern California Rapid Transit District Independent Review Board "Designs, Construction, and Operation in Gaseous Areas," October 31, 1985.

1.4 SEIS/SEIR PROCESS

Bolt, Beranek and Newman Laboratories, "A Study of Metro Rail as it Might Affect Studios on or Close to Sunset Boulevard," October, 1987.

LODESTAR, IBM-PC Version

Los Angeles County, "Solid Waste Management Plan Triennial Review," August 1985.

Southern California Association of Governments, "Final EIS/EIR, SCAG 82 Growth Forecast Policy," 1982.

Southern California Rapid Transit District, "Cultural Resources Technical Report," 1987.

_____."Status of Environmental Mitigation Measures for Los Angeles Metro Rail Project, Minimum Operable Segment One (MOS-1)," Third Edition, October 1987.

_____."Technical Report on Land Acquisition and Displacement," 1987.

Southern California Rapid Transit District General Planning Consultant, "Patronage Technical Report," 1987.

_____."Special Analysis of Traffic Impacts of Vermont Aerial Alignment," 1987.

_____."Technical Report on Land Use and Development Impacts," 1987

_____."Traffic and Parking Technical Report," 1987.

Wilson, Irhig & Associates, Inc., "(Draft) An Assessment of existing and Projected Noise and Vibration Levels Near Studios and Other Sensitive Facilities on Sunset Boulevard," October 1987.

_____."Noise and Vibration Analysis for the Metro Rail Project CORE Study," March, 1987.

_____."Noise and Vibration Survey for the Metro Rail Project CORE Study," August, 1987.

1.5 ENVIRONMENTAL ASSESSMENT, MOS-1 STATION RELOCATION

Urban Mass Transportation Administration and the SCRTD, "Environmental Assessment, Metro Rail Project, Minimum Operable Segment 1, Realignment Between the Civic Center Station and the Yard and Shops," July 1987.

SECTION 2. AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONSULTED

The following agencies, organizations, and individuals were consulted in preparing this Draft SEIR:

1. The Interagency Management Committee

   a. City of Los Angeles - Planning Department
   b. City of Los Angeles - Transportation Department
   c. City of Los Angeles Community Redevelopment Agency (LACRA)
   d. City of Los Angeles - Chief Legislative Analyst's Office
   e. Southern California Association of Governments (SCAG)
   f. Los Angeles County Transportation Commission (LACTC)
   g. Los Angeles County Department of Regional Planning
   h. Chief Administrator's Office
   i. California Department of Transportation

2. The CORE Forum (see Appendix E of the Appendix to the Draft SEIS/SEIR, Section 4).

SECTION 3. LIST OF PREPARERS

1. Urban Mass Transportation Administration -- Brigid Hynes-Cherin, Western Area Director; Carmen Clark, Joe Ossi.

2. SCRTD General Manager -- Alan F. Pegg.

3. SCRTD Assistant General Manager for Planning and Public Affairs -- Albert H. Perdon.

4. SCRTD Assistant General Manager for Transit Systems Development -- William J. Rhine.

5. Project Manager -- G. Spivack, SCRTD.

6. Development of the Alignment, Plan and Profiles for the MM1 Alignment, Station Footprints of Subway and Aerial Stations including the Sunset/Vermont Station and the Sunset/Western Station, Construction Impacts -- N. Tahir, P.E., Senior Engineer - Environmental Engineering, TSD and Z, MRTC.

7. Capital Cost Estimates of MM1 and other candidate alignments -- J. Kirinich, Program Control, TSD.

8. Real Estate Cost Estimates -- D. Holman, Real Estate Department, TSD.

9. Land Acquisitions and Displacements and Impacts on Cultural Resources for MM1 and all other candidate alignments -- N. Tahir, J. Sowell, Environmental Engineering, TSD.

10. Noise & Vibration Impacts -- N. Tahir, J. Sowell, TSD and S. Wolfe - Wilson, Ihrig & Associates.

11. Concept Development of the Transportation Link between the Hollywood Bowl and the Highland Avenue Station on Alignment MM1 -- B. Bramen, MRTC.

12. Patronage Forecasts -- K. Killough, SCRTD; C. Chu, General Planning Consultant.

13. Traffic and Parking -- D. Henderson and T. Stone, General Planning Consultant.

14. Land Use and Development -- C. Ketz, C. Fajnor, D. Ripple and L. Shillito, General Planning Consultant.

15. Cost and Financial -- W. Vodrazka, General Planning Consultant.

16. Other Impacts -- T. Stone, L. Shillito and F. McNeil, General Planning Consultant

17. Introduction and Managing Editor -- D. Mansen, General Planning Consultant.

18. Graphics Production -- S. Chapman, SCRTD; A. Acosta, General Planning Consultant.

19. Report Production -- M. Ryan, L. Kelly, J. Reiss and W. Vodrazka, Jr., General Planning Consultant.

SECTION 4: DISTRIBUTION LIST

4.1 PARTIAL LIST OF AGENCIES

A number of governmental agencies, businesses, professional groups, and community organizations have been sent copies of the Final SEIS/SEIR. Others interested in obtaining copies of this document 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.

4.1.1 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

4.1.2 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

4.1.3 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

4.2 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.

4.3 AVAILABILITY TO PUBLIC

In addition to the distribution listed above, copies of this Final SEIS/SEIR are available for review at the locations identified below.

4.3.1 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

4.3.2 SCHOOL LIBRARIES

15. University of Southern California
Architecture and Fine Arts Library
Watt Hall, University Park
Los Angeles, CA 90007

16. California State University, Los Angeles
John F. Kennedy Memorial Library
5151 State College Drive
Los Angeles, CA 90032

17. University of California Los Angeles
Public Affairs Service/
Local, University Research Library
Los Angeles, CA 90024

18. California State University
Northridge Library
18111 Nordhoff Street
Northridge, CA 91324

19. Institute for Transportation Studies
University of California
Irvine, CA 92717

20. American Public Transit Association Library
1225 Connecticut Avenue, N.W.
Washington, D.C. 20036

21. Southwestern University School of Law Library
675 South Westmoreland Avenue
Los Angeles, CA 90020

22. West Coast University Library
440 Shatto Place
Los Angeles, CA 90020

23. Otis/Parsons Art Institute Library
2401 Wilshire Boulevard
Los Angeles, CA

24. Woodbury University Library
1027 Wilshire Boulevard
Los Angeles, CA 90017

25. Los Angeles Valley College
Reference Library
5800 Fulton Avenue
Van Nuys, CA 91401

26. Los Angeles, City College
Reference Library
855 North Vermont Avenue
Los Angeles, CA 90029

27. Fairfax High School Library
7850 Melrose Avenue
Los Angeles, CA 90036

28. Hollywood High School Library
1521 North Highland Avenue
Los Angeles, CA 90028

Comments on the Draft SEIS/SEIR were received in written form and verbally at the public hearings. This Final SEIS/SEIR is being sent to all persons and agencies commenting on the Draft
SEIS/SEIR (see Table for complete list).

DEIS/R DISTRIBUTION LIST

Number Sent	
14	City Libraries
2	State Clearinghouse
2	SCAG Southern California Association of Governments
24	City Hall - Mayor Bradley & City Council
1	CRA California Redevelopment Agency
31	Press/Media
99	State & Federal Legislators/L.A. County Supervisors
321	All Other
7	Chambers of Commerce:
	Wilshire Mid-Cities L.A. Western Central City North Hollywood Los Angeles Hollywood Century City Van Nuys Barbizon
49	City Departments

Note: Some groups listed above may have members in common.

CASE U.S.C.32

MTA LIBRARY

S.C.R.T.D. LIBRARY