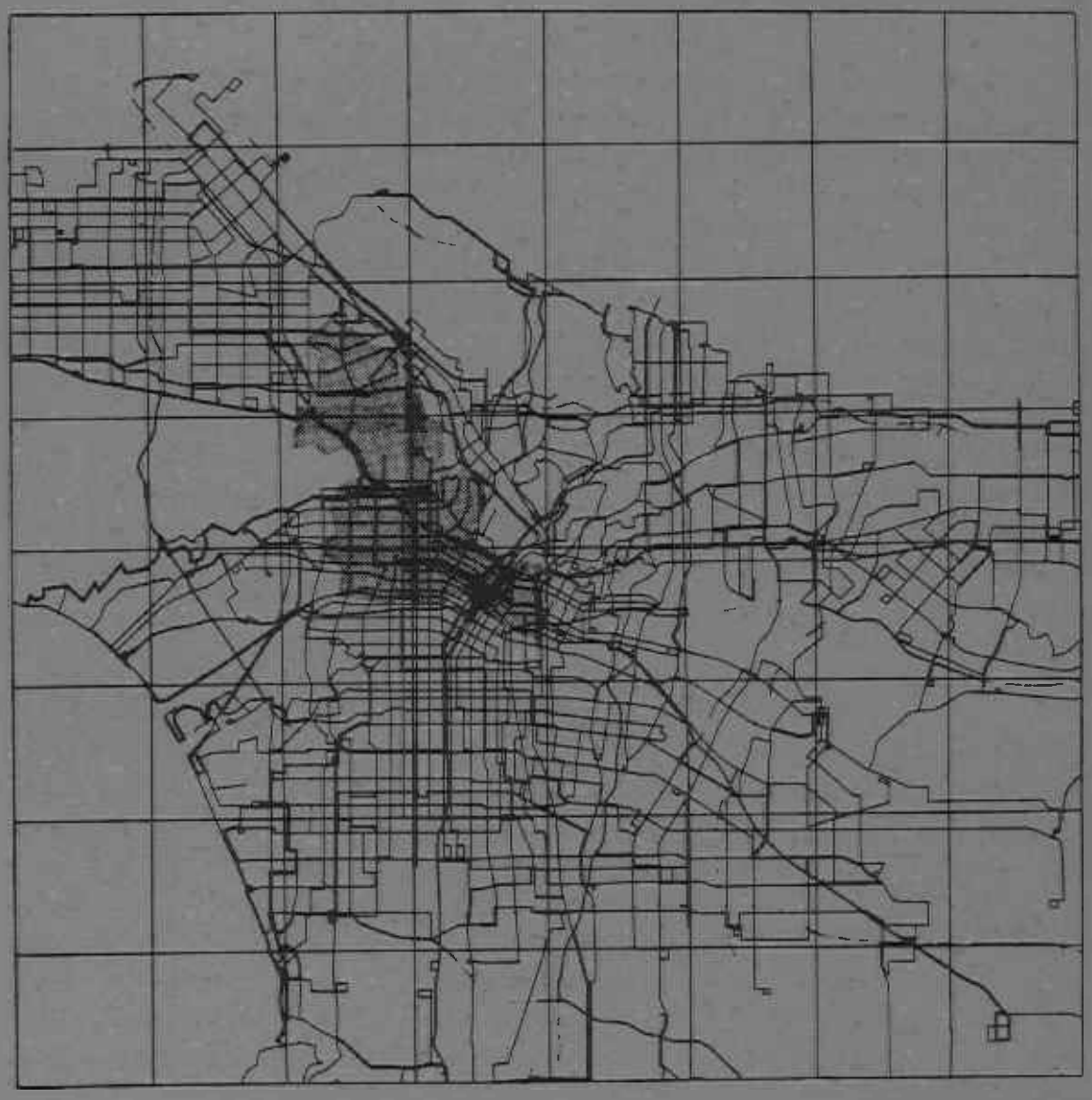
DRAFT ADDENDUM TO THE

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
SUBSQUENT 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

RTD

FEBRUARY, 1988

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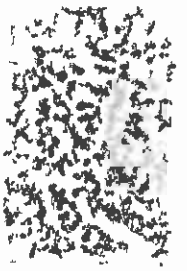

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CHAPTER 1. INTRODUCTION

This report is an Addendum to the Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) for the Los Angeles Rail Rapid Transit Project (November 1987), Metro Rail. The purpose of this report is to analyze a hybrid alignment, Candidate Alignment 6, which essentially combines two previously evaluated alignments. Candidate Alignment 6, also called mix-and-match Alignment 1 (MM1), was designed to mitigate impacts of earlier rail alignments evaluated in the Draft SEIS/SEIR. A brief history of the Metro Rail Project follows. (A more detailed history is offered in the Summary of the Draft SEIS/SEIR).

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. In compliance with the requirements of the California Environmental Quality Act (CEQA), 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 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 the voters of Los Angeles County in November 1980, authorized a retail sales tax to fund the improvement of public transit in the County.

The Original LPA, an 18.6-mile subway, was adopted in 1983. A capital grant application was submitted to UMTA, but UMTA 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. Construction of MOS-1 was initiated in September 1986.

In March 1985, a fire occurred near Wilshire Boulevard at Third and Ogden Streets. 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 the Fairfax Area" (June 10, 1985) identified specific zones where subsurface conditions indicated a "potential risk" or "potential high-risk" of encountering methane gas during subsurface excavations. The U.S. Congress attached to Public Law No. 99-1980 (December 19, 1985) the stipulation that the SCRTD could not tunnel in any risk zone.

In compliance with the Congressional mandate, the SCRTD initiated the Congressionally Ordered Re-Engineering (CORE) Study to identify an appropriate alignment to link the San Fernando Valley, the Wilshire Corridor, and the Central Business District (MOS-1), while avoiding tunneling through any portion of the risk zones.

At the outset of the CORE Study, an initial set of candidate alignments was developed to avoid the defined risk zones. These alignments were the subject of extensive discussions at public meetings held throughout the Regional Core with groups representing affected and interested neighborhoods, businesses, elected officials and public agencies.

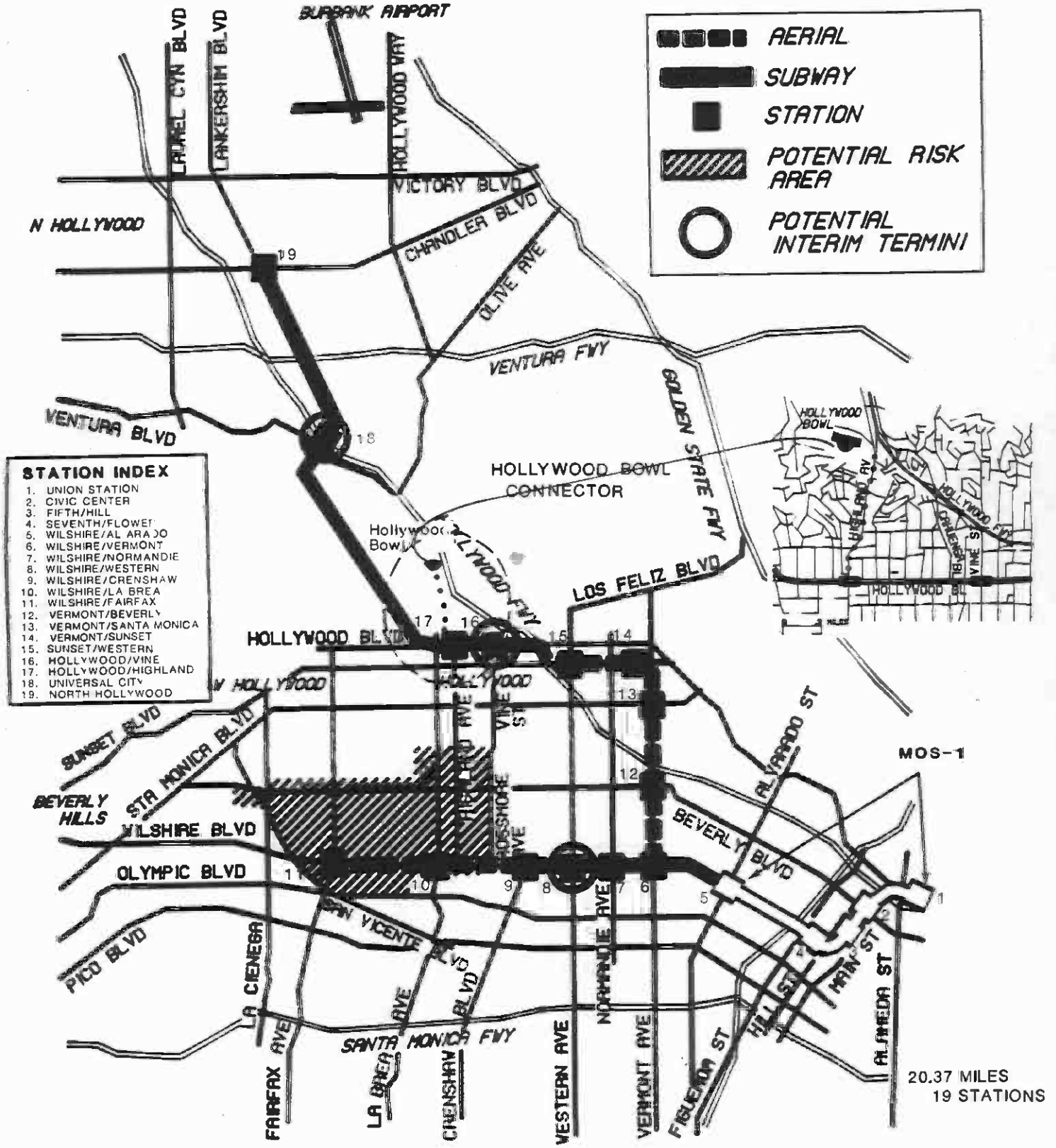
A California State Draft Subsequent Environmental Impact Report (SEIR) was completed and circulated in February 1987. Following circulation of this report, the SCRTD Board of Directors adopted Candidate Alignment 4 as the locally preferred alignment for purposes of this California SEIR. This SEIR was re-issued in November 1987 as a joint Draft SEIS/SEIR. The Draft SEIS/SEIR reflected changes to one of the candidate alignments and additional data developed between February and November 1987. The Draft SEIS/SEIR discusses the anticipated impacts of five candidate alignments and MOS-1 (the Null Alternative). All candidate alignments included two unchanged segments of the Original LPA: (1) the MOS-1 segment from the Metro Rail yard and shop site near Union Station to the Wilshire/Alvarado Station, and (2) the San Fernando Valley segment (See the FEIS or the EA for discussion of these segments). Because of the continuing possibility of funding constraints, potential operable segments (called MOS's to be consistent with the MOS-1 designation) were identified for all candidate alignments. The operable segments permit assessment of worst-case impacts at potential temporary terminal stations as development of the system proceeds. A public hearing was held on this Draft SEIS/SEIR on December 18, 1987.

Significant discussion occurred during this Public Hearing regarding Candidate Alignment 4, particularly concerning potential impacts of the aerial segment of this alignment on the broadcast and recording studios along Sunset Boulevard. Representatives of these recording studios stated that the operations of Candidate Alignment 4 would negatively impact the abilities of these studios to continue their business operations. Prior to the December 18 hearing, the Los Angeles Mayor and City Council appointed an Independent Technical Review Panel to evaluate the impacts that Metro Rail noise and vibration would have on the broadcast and recording industry along Sunset Boulevard. The panel received documents and testimony from industry representatives and from the SCRTD. The panel produced a report dated November 13, 1987, entitled "Report of the Independent Technical Review Panel on Noise, Vibration and Electro-magnetic Interference Impacts of the Metro Rail Project (MOS-2)" that recommended measures to mitigate impacts from Metro Rail construction and operation.

Candidate Alignment 6 (Figure 1) would mitigate the concerns raised by the broadcast industry along Sunset Boulevard in that it would transition to a subway outside of street right-of-way northwest of the Western/Sunset station, pass under the Hollywood Freeway, and remain in subway along Hollywood Boulevard with Metro Rail stations at Hollywood/Vine and Hollywood/Highland. From there, the alignment would traverse north to North Hollywood. Candidate Alignment 6, therefore, avoids the potential noise, vibration and electromagnetic impacts on the TV stations, radio stations, and sound studios along Sunset Boulevard from the Hollywood Freeway to Highland Avenue. Candidate Alignment 6 would also avoid traffic impacts on Sunset Boulevard that would otherwise have resulted from reconstruction of the bridge over the Hollywood Freeway and construction of the transition portal on Sunset Boulevard between Gower Street and Argyle Avenue. Finally, it would avoid displacements and relocations that would otherwise have

FIGURE 1

CORE STUDY AREA
CANDIDATE ALIGNMENT 6
VERMONT/SUNSET AERIAL, WILSHIRE/HOLLYWOOD SUBWAY



SOURCE: SCRTD/GENERAL PLANNING CONSULTANT

resulted from property acquisitions along Sunset Boulevard (for the transition portal) and would maintain the existing number of traffic lanes on Sunset Boulevard.

This Addendum to the Draft SEIS/SEIR contains a discussion of the anticipated impacts associated with Candidate Alignment 6. It incorporates by reference sections of the Draft SEIS/SEIR and the 1983 FEIS. An additional public hearing is scheduled for this Addendum on March 29, 1988, at 10:00 a.m., in the Southern California Rapid Transit District headquarters building. Comments will be received by the SCRTD until March 28, 1988. Following the close of the circulation comment period, the SCRTD Board of Directors will select a locally preferred alternative to be incorporated into a final SEIS/SEIR. After publication of this final SEIS/SEIR, the SCRTD Board of Directors will certify the document, adopt a project, issue findings, and adopt a statement of overriding considerations so that the UMTA can sign the final record of decision.

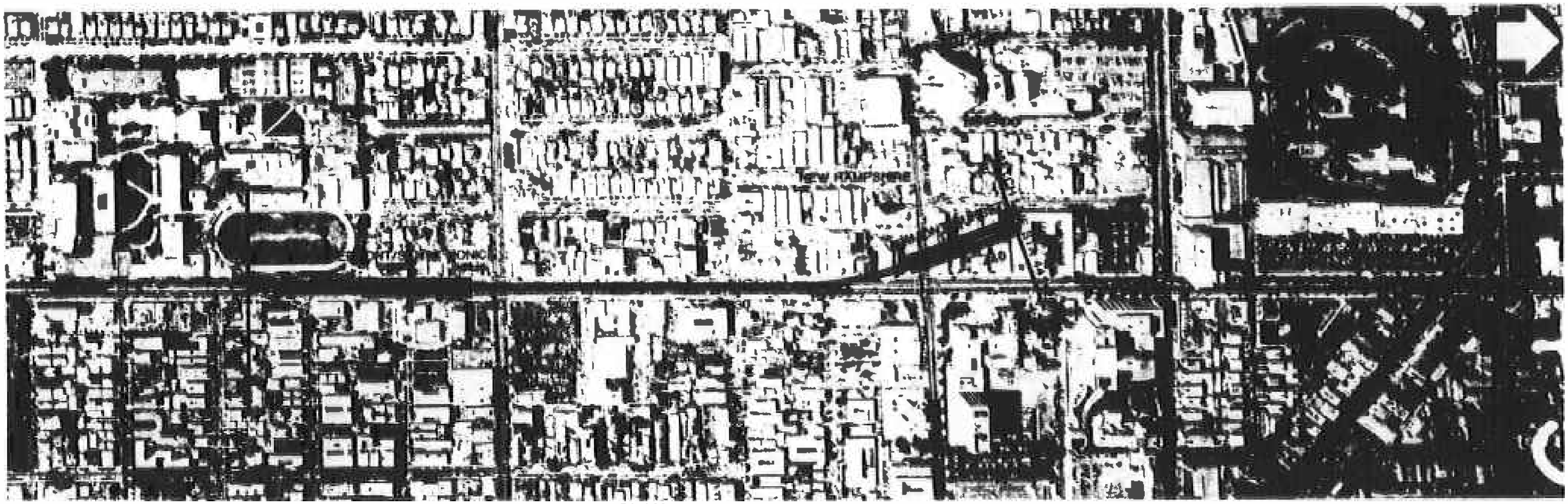
CHAPTER 2. DESCRIPTION OF CANDIDATE ALIGNMENT 6

When MOS-1 is included, Candidate Alignment 6 is a 20.4-mile aerial and subway line with nineteen stations (Figure 1). Full plans and profiles of Candidate Alignment 6 may be examined by refering to relevant segments of Candidate Alignments 3 and 4 in Appendix A to the Draft SEIS/SEIR. Plans and profiles for the segment that would transition between these two alignments east of the Hollywood Freeway are presented in Figures 2 through 6.

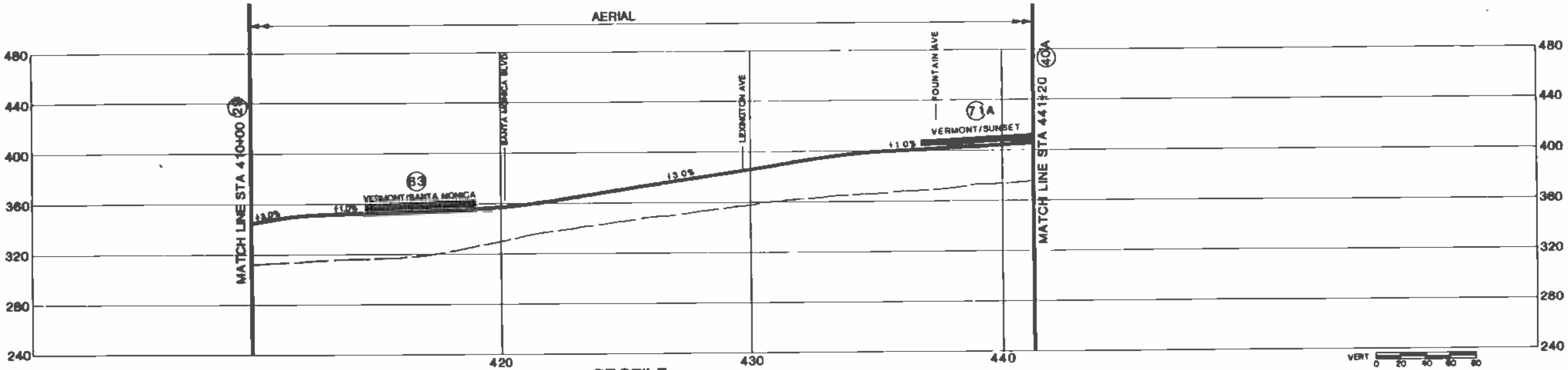
Leaving the Wilshire/Alvarado Station, which is common to all alignments, Candidate Alignment 6 would proceed west, passing under MacArthur Park Lake to Wilshire Boulevard at Park View. It would follow Wilshire Boulevard to Virgil Avenue, where it would turn northwest to the Wilshire/Vermont Station, 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, 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 would be the same as for Candidate Alignment 4, described in Section 1.2.1 of Chapter 2 of the Draft SEIS/SEIR.

The alignment for the Valley branch would leave the Wilshire/Vermont Station headed northwest and curve back under Vermont Avenue at Third Street. The alignment would transition 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 north. It then would curve west onto Sunset Boulevard, passing through the Sunset/Vermont Station, located in the block directly west of Vermont Avenue and south of Sunset Boulevard. The aerial alignment would proceed west along Sunset Boulevard to the Sunset/Western Station. It would then transition to subway in the block north of Sunset Boulevard between St. Andrews Place and Wilton Place. The alignment would continue in subway under the Hollywood Freeway and then head due west beneath Hollywood Boulevard, with stations at Hollywood/Vine and Hollywood/Highland. West of Hollywood/Highland, the alignment would curve northwest through the Santa Monica mountains to the Universal City and North Hollywood Stations.

In summary, Candidate Alignment 6 is a hybrid of Candidate Alignments 3 and 4, following Sunset Boulevard and then Hollywood Boulevard. Candidate Alignment 6 is similar to Candidate Alignment 4 except for the Hollywood/Vine station, which replaces the Sunset/Vine station, and the Hollywood Bowl station which is present in Candidate Alignment 4 but would not be included in Candidate Alignment 6. Additionally, two stations have undergone shifts in location from previous locations: (1) the station in the vicinity of the Sunset/Vermont intersection, and (2) the station in the vicinity of Sunset and Western. Figures 5 and 6 show these new station locations.



PLAN



PROFILE

THE PREPARATION OF THIS DRAWING HAS BEEN FINANCED IN PART THROUGH A GRANT FROM THE U. S. DEPARTMENT OF TRANSPORTATION, URBAN MASS TRANSPORTATION ADMINISTRATION, UNDER THE URBAN MASS TRANSPORTATION ACT OF 1964, AS AMENDED, AND IN PART BY THE TAXES OF THE CITIZENS OF LOS ANGELES COUNTY AND OF THE STATE OF CALIFORNIA

DATE 14 JAN 88

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT

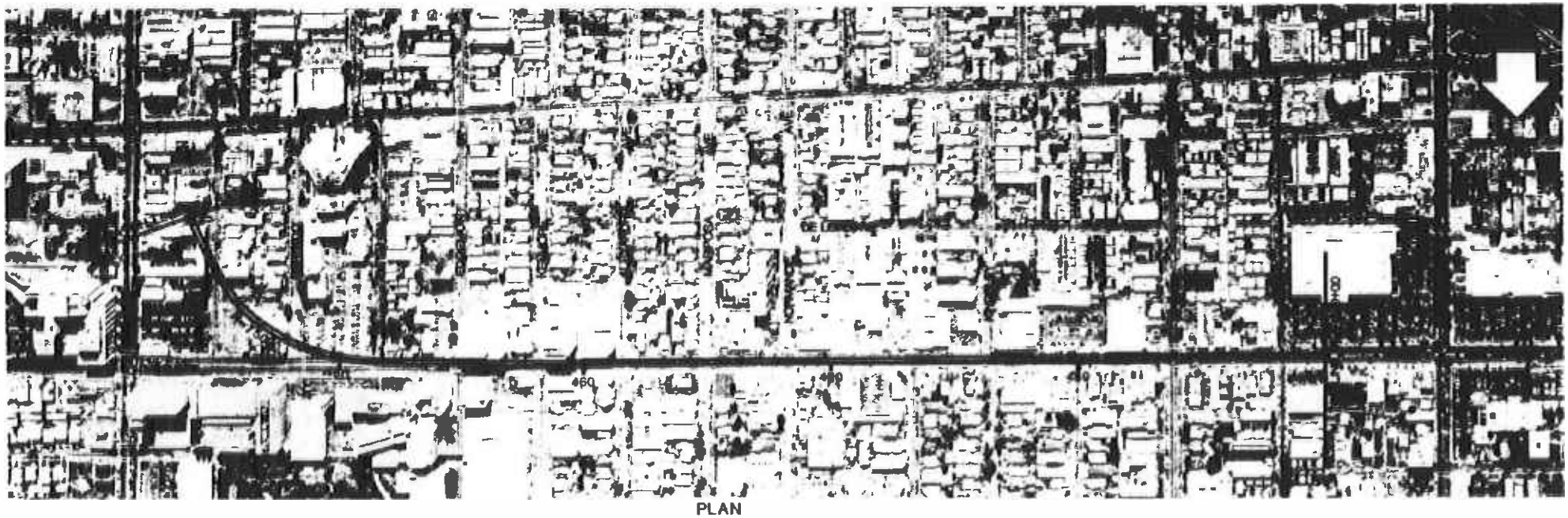
DMJM/PBQD-KE/HWA
GENERAL CONSULTANTS

CORE STUDY
CANDIDATE ALIGNMENT 6

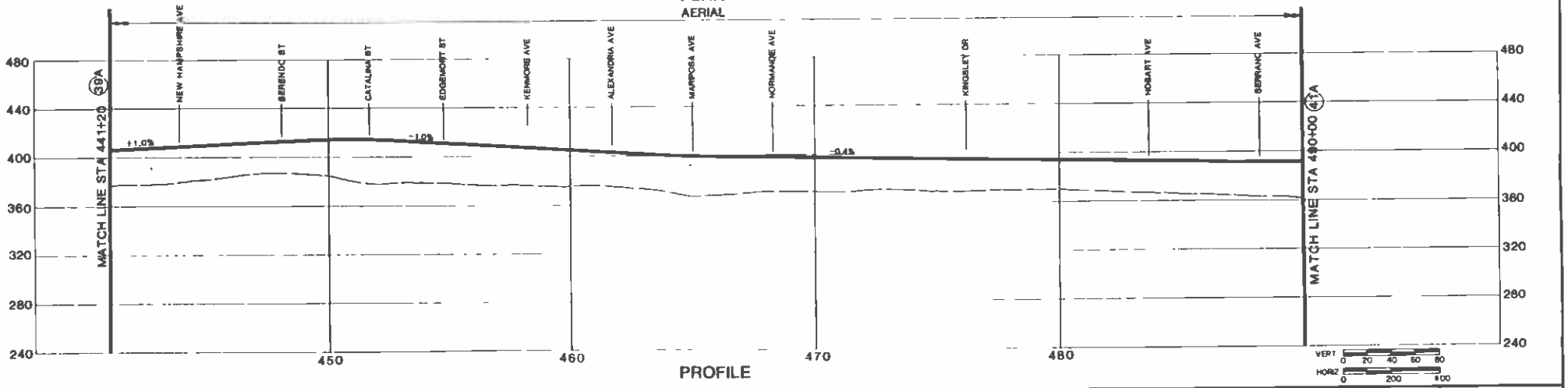
PLAN AND PROFILE
STATION 410+00 TO STATION 441+20

DRAWING NO 12J/A3
SCALE AS SHOWN
SHEET NO 79 39A

FIGURE 2



PLAN
AERIAL



PROFILE

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DESIGNED BY
DRAWN BY
CHECKED BY
IN CHARGE
DATE 14 JAN 88

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD

DMJM PBOD KE/HWA
GENERAL CONSULTANTS

SUBMITTED

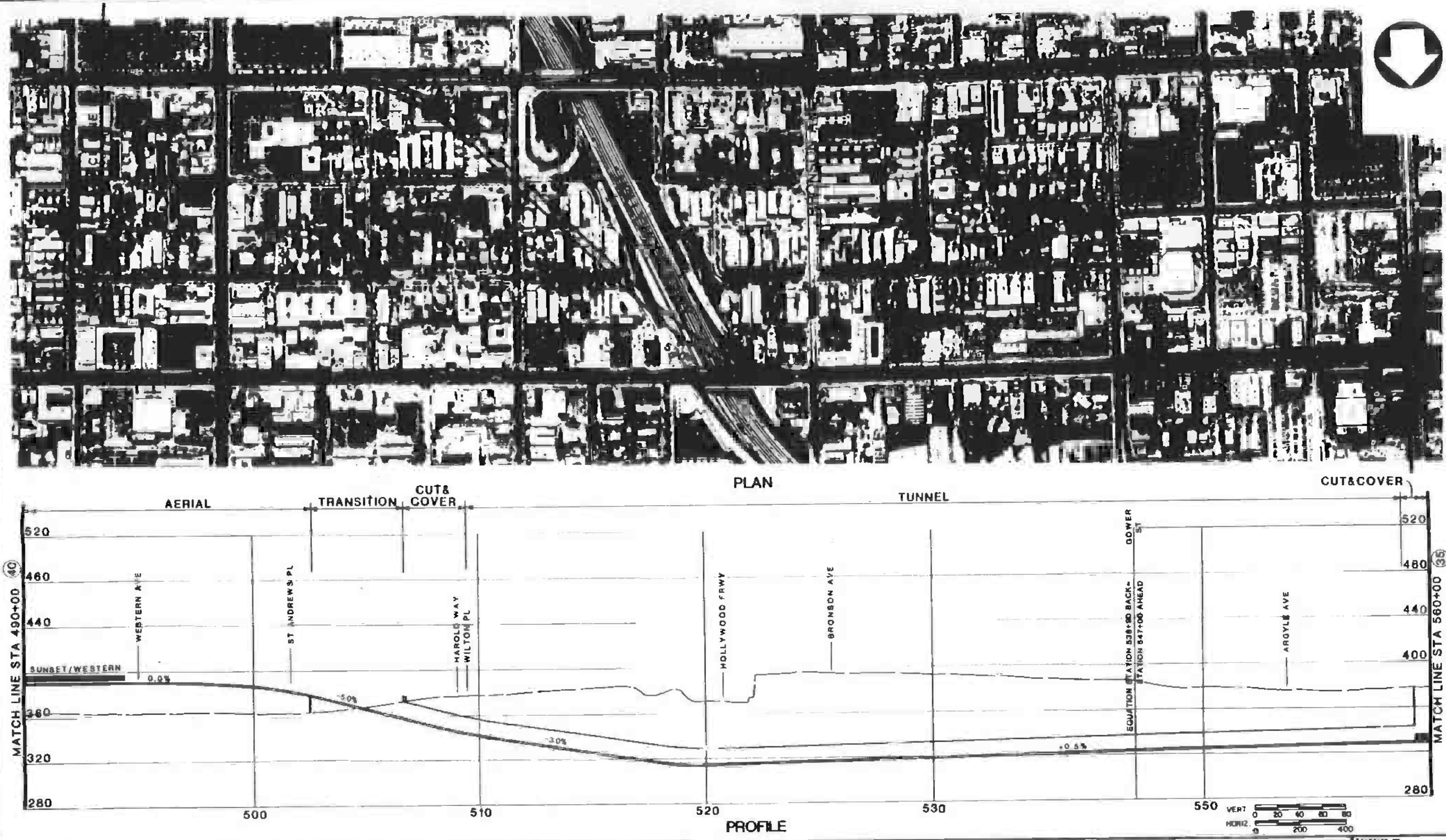
APPROVED

CORE STUDY
CANDIDATE ALIGNMENT 6

PLAN AND PROFILE
STATION 441+20 TO STATION 490+00

CONTRACT NO
DRAWING NO 13J/A3 REV
SCALE AS SHOWN
SHEET NO 80 40A

FIGURE 3



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CHECKED BY

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DATE

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT

RTD

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GENERAL CONSULTANTS

APPROVED

CORE STUDY
CANDIDATE ALIGNMENT 6

PLAN AND PROFILE
STA 490+00 TO STA 538+90 BACK=
STA 547+00 TO STA 560+00 AHEAD

CONTRACT NO

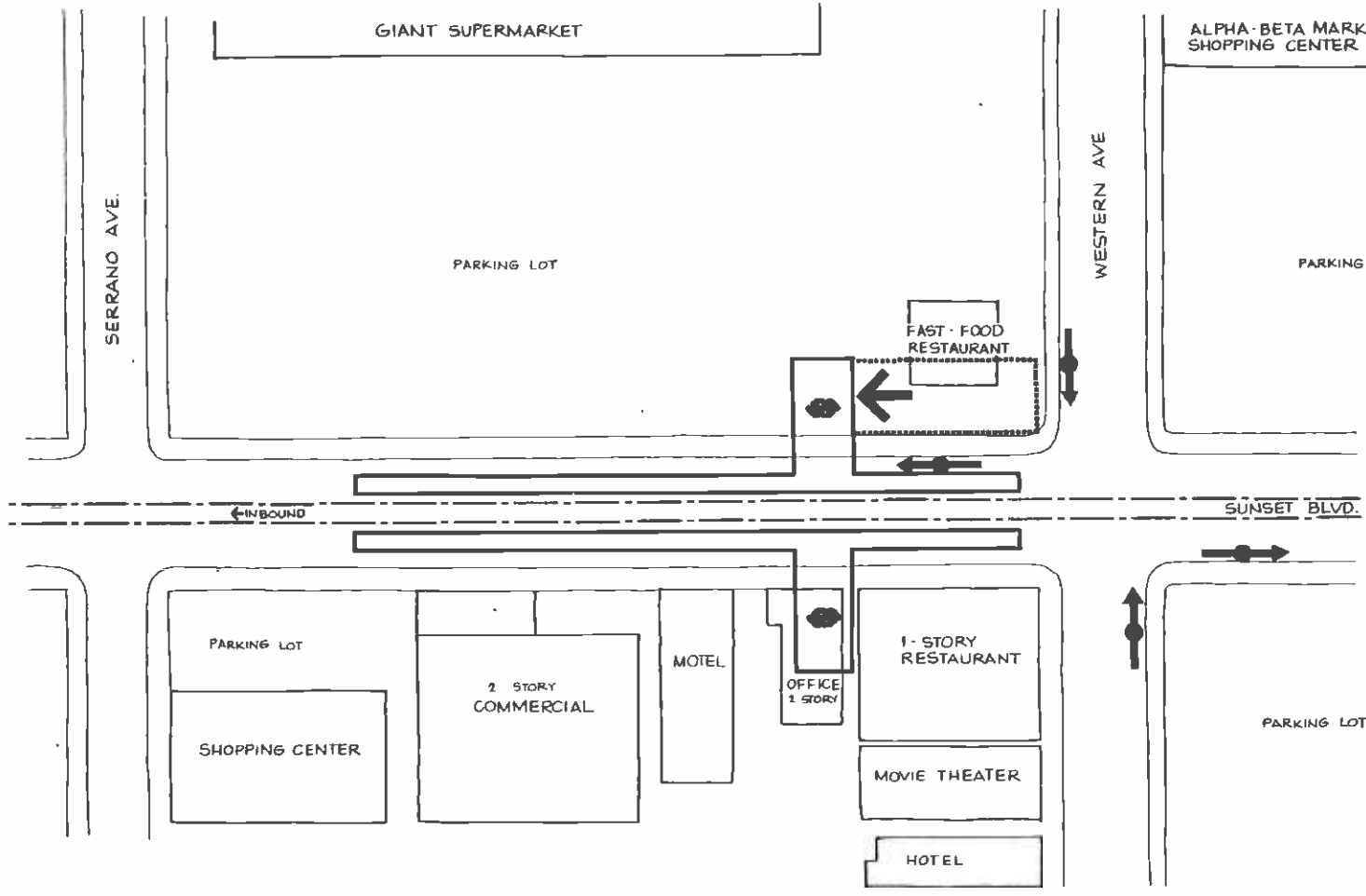
DRAWING NO

REV

SCALE AS SHOWN

SHEET NO 41A

FIGURE 4



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DESIGNED BY
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IN CHARGE
DATE 11 JAN 88

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
RTD

DMJM-PBQD KE-HWA
GENERAL CONSULTANTS

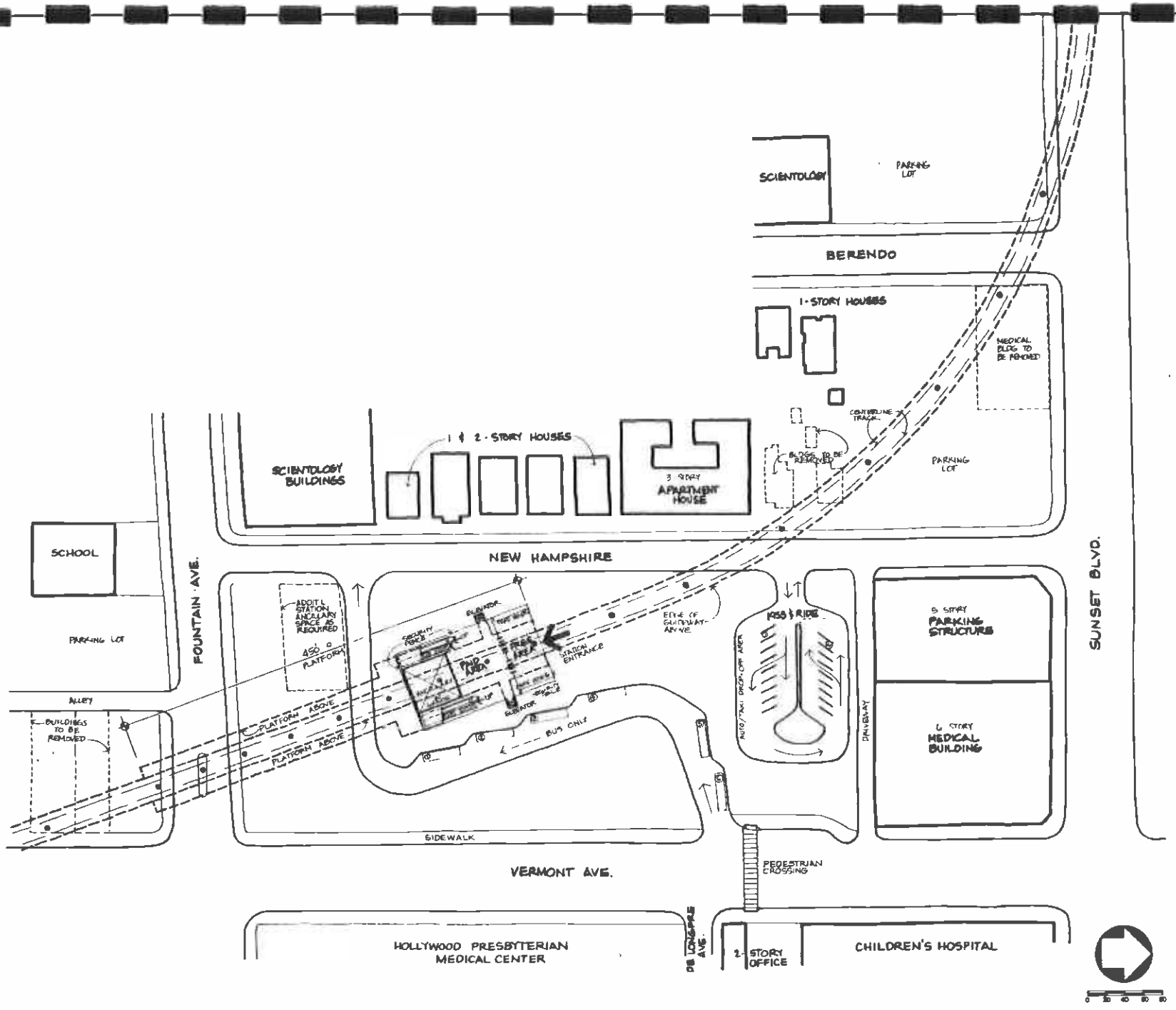
SUBMITTED

APPROVED

CORE STUDY
SUNSET / WESTERN STATION LOCATION PLAN CANDIDATE ALIGHNMENT 6
AERIAL STATION

CONTRACT NO
DRAWING NO A 27A
REV
SCALE AS NOTED
SHEET NO

FIGURE 5



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT METRO RAIL PROJECT	RTD	CORE STUDY VERMONT/SUNSET PRELIMINARY STATION FOOTPRINT	A-178 AS NOTED

FIGURE 6

The Hollywood Bowl is located approximately 3,500 feet directly north of Hollywood/Highland Station. It would not be possible to turn the alignment sharply enough to provide a station at the Hollywood Bowl. However, it would be possible to make a direct transit connection between the Hollywood Bowl and the Hollywood/Highland Station to provide a linkage to the Bowl for special events. The Connector could take the form of a shuttle bus system, a moving walkway or a people mover. It could be either subsurface or elevated. A discussion of this Connector and its impacts is provided in Chapter 5.

In addition to MOS-1, two operable segments have been identified for Alignment 6 (refer to Figure 1):

- MOS-2, with temporary terminals at the Wilshire/Western and Hollywood/Vine Stations.
- MOS-3, the final increment to complete the full alignment with an interim west terminal at the Wilshire/Fairfax Station and north terminal at the North Hollywood Station.

For purposes of reviewing impacts of alternative operable segments, two additional alternative operable segments have been identified for Alignment 6. These alternatives would have temporary terminals at the following stations:

- MOS-2A: Wilshire/Western Station paired with Universal City Station.
- MOS-2B: Wilshire/Vermont station paired with Universal City Station.

Key system characteristics of Candidate Alignment 6, including MOS-1, are presented in Table 1, together with data for other candidate alignments for comparison. Patronage for Candidate Alignment 6 is projected at 342,000 rail boardings per day. This compares to a low of 296,000 rail boardings for Candidate Alignment 1, and falls in the range for Alignments 2 through 5 (324,000 to 354,000 boardings per day).

Rail capital costs for Alignment 6 are estimated to be $3,014 million in December 1985 dollars. (This does not include the Connector between the Hollywood/Highland Station and the Hollywood Bowl; see Chapter 5). Rail capital costs for the other candidate alignments range from $2,949 million for Candidate Alignment 1 to $3,101 million for Candidate Alignment 3. Annual rail operating costs for Candidate Alignment 6 in the year 2000 would total $40.2 million (this does not include operation of the Hollywood Bowl Connector). Rail operating costs would differ only slightly (approximately $2 million) among those candidate alignments serving the Wilshire Corridor west of Western Avenue (Alignments 2 through 6).

TABLE 1

SYSTEM CHARACTERISTICS OF OPTIONS EVALUATED

System Characteristics	Candidate Alignments (Includes MOS-1) 1	2	3	4	5	6	Null Alt.
SCRTD Rail System							
o Length (Miles)	17.6	20.4	19.9	20.5	19.7	20.4	4.4
o Alignment (Miles)							
- Subway	All	14	16.2	14.1	16.9	14.6	All
- Aerial	--	6.4	3.7	6.4	2.8	5.8	--
o No. of Stations	16	19	18	20	17	19	5
o Daily Boardings*	296,000	337,000	324,000	344,000	354,000	342,000	55,000
o Fleet Size (Cars)	110	116	116	116	116	116	30
o Total Capital Costs (1985$ Millions)	$2,949	$2,971	$3,101	$3,108	$3,011	3014	$1,151
o Annual Operating & Maint. Costs (1985$ Millions)	$34	$39	$39	$40	$38	40	$15
o Annual Rail Car Miles of Travel (in 1,000's)	6,300	7,593	7,352	6,779	7,162	7,500	865
SCRTD Bus System							
o Peak Buses Reqd	2,025	1,918	1,917	1,899	1,897	1,886	2,051
o Daily Boardings (1,000's)	1,633	1,569	1,537	1,552	1,584	1548	1,357
o Annual Operating & Maint. Costs (1985$ Millions)	$532	$517	$516	$514	$520	513	$543
o Annual Vehicle Miles of Travel (VMT in 1,000's)	103,642	100,865	101,094	100,320	102,283	100,296	110,928
Automobile							
o Regional Daily Vehicle Miles of Travel (VMT in 1,000's)	259,013	259,008	259,057	259,036	258,964	259,031	260,425

* UMTA considers the SCRTD patronage forecasts to be at the high end of the range of reasonable expectations.

**This total includes an allowance of $50 million for a connector between the Hollywood/Highland Station and Hollywood Bowl.

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

CHAPTER 3. IMPACTS OF CANDIDATE ALIGNMENT 6

The following chapter summarize the impacts associated with Candidate Alignment 6 compared to the other alignments. Key evaluation data for these options are presented in Table 2.

3.1 TRANSPORTATION

3.1.1 Bus/Rail

Consideration of the candidate alignments has required reassessment of the Supporting Services Plan, which establishes feeder bus routes. For Candidate Alignment 6, projected peak vehicle requirements total 1,886 buses, compared to a range of 1,897 (Alignment 5) to 2,025 (Alignment 1) buses for the other five candidate alignments.

The SCRTD expects daily rail boardings for Candidate Alignment 6 and the operable segments (including MOS-1) to be:

- MOS-1 + MOS-2: 267,000
- MOS-1 + MOS-2A: 295,000
- MOS-1 + MOS-2B: 290,000
- Full System: 342,000

Total daily regional SCRTD transit system boardings would be 1,890,000, of which 1,548,000 would be on the bus system. Daily rail boardings by mode-of-access are shown in Table 3. The greatest number of rail boardings would arrive on feeder buses. Figure 7 shows the average daily rail boardings at stations in the Year 2000, as well as patronage along the various line sections or "links" of the alignment. The highest link volume is expected to occur between the Seventh/Flower Station and the Wilshire/Alvarado Station, where about 90,000 patrons would be accommodated daily in each direction. The federal Urban Mass Transportation Administration (UMTA) considers the SCRTD patronage forecasts to be on the high end of the range of reasonable expectations.

Bus access to and from stations would be provided at either off-street bus facilities or on-street bus bays. Bus access facilities are shown in the station layouts in Appendix B of the Draft SEIS/SEIR and Figure 6 of this Addendum. Kiss-and-Ride access would be accommodated either off-street or on-street at all non-CBD stations. Park-and-Ride access is planned at the Union Station, Wilshire/Fairfax, Universal City and North Hollywood stations. Table 4 provides a summary of station access features for Candidate Alignment 6.

Rail service operations of Candidate Alignment 6 would consist of trains running alternately on the Union Station to Wilshire/Fairfax branch and on the Union Station to North Hollywood branch. On each of these branches, trains would operate every ten minutes for most of each weekday and every 7-8 minutes during peak periods (refer to Table 2-3, Chapter 2 of the Draft SEIS/SEIR). Because trains on both branches would operate over the section of line from Union

TABLE 2

SUMMARY OF EVALUATION DATA FOR PROJECT OPTIONS

EVALUATION AREA	ALTERNATIVE: CANDIDATE ALIGNMENT 1	CANDIDATE ALIGNMENT 2	CANDIDATE ALIGNMENT 3	CANDIDATE ALIGNMENT 4	CANDIDATE ALIGNMENT 5	CANDIDATE ALIGNMENT 6	NULL ALTERNATIVE
1. SERVICE							
a. # OF STATIONS	16	19	18	20	17	19	5
b. LENGTH IN MILES							
o Subway	17.6	14	16.2	14.1	16.9	14.6	4.4
o Aerial	0	6.4	3.7	6.4	2.8	5.8	0
o Total	17.6	20.4	19.9	20.5	19.7	20.4	4.4
c. METRO RAIL							
	296,000	337,000	324,000	344,000	354,000	342,000	55,000
o Fleet Size	110 CARS	116 CARS	116 CARS	116 CARS	116 CARS	116 CARS	30 CARS
o Annual Rail Car Miles Traveled (1,000s)	6,300	7,593	7,352	6,779	7,162	7,500	865
d. SCRTD BUS SYSTEM							
o Daily Boardings	1,633,000	1,569,000	1,537,000	1,552,000	1,584,000		
o Peak Buses Req'd	2,025	1,918	1,917	1,899	1,897	1,886	
o Annual Vehicle Miles Traveled (1,000s)	103,642	100,865	101,094	100,320	102,283	100,296	110,928
2. COST							
a. CAPITAL COST (MILLIONS OF 12/85 $s)**/***							
o Construction and Procurement	$1,057	$1,010	$1,109	$1,052	$1,073	$1,061	$586
o Contingency, Design, Construction Management	$446	$440	$476	$454	$457	$455	$287
o Right-of-Way	$67	$154	$126	$136	$98	$118	$91
o Insurance Agency	$227	$217	$238	$226	$231	$229	$187
SUBTOTAL	$1,797	$1,821	$1,949	$1,868	$1,859	$1,863	
MOS-1	$1,151	$1,151	$1,151	$1,151	$1,151	$1,151	$1,151
TOTAL	$2,948	$2,972	$3,100	$3,019	$3,010	$3,014	1151
b. ANNUAL OPERATING COST (MILLIONS OF 12/85 $s)							
o Rail	$34.3	$39.4	$39.0	$40.2	$37.6	$40.2	$15.4
o Bus	$531.9	$517.3	$515.8	$514.0	$520.3	$513.0	$542.6
Total	$566.2	$556.7	$554.8	$554.2	$557.9	$553.2	558
3. LAND USE AND DEVELOPMENT							
a. CITY CENTERS							
o # of Centers Served	7	8	7	8	7	13	2
o # of Stations in Centers	12	14	13	15	13	15	5
b. REDEVELOPMENT PROJECTS							
o # of Projects Served	3	3	3	3	3	3	1
o # of Stations in Proj Area	6	6	7	7	6	7	4

-- continued

TABLE 2 (CONTINUED)

SUMMARY OF EVALUATION DATA FOR PROJECT OPTIONS

EVALUATION AREA	ALTERNATIVE: CANDIDATE ALIGNMENT 1	CANDIDATE ALIGNMENT 2	CANDIDATE ALIGNMENT 3	CANDIDATE ALIGNMENT 4	CANDIDATE ALIGNMENT 5	CANDIDATE ALIGNMENT 6	NULL ALTERNATIVE
c. ACCOMODATION OF COMMERCIAL GROWTH* (NUMBER OF STATION AREAS)							
o Beneficial Impacts ****	9	9	9	11	9	10	
o Adverse Impacts ****	4	6	5	6	5	6	
d. ACCOMODATION OF RESIDENTIAL GROWTH** (NUMBER OF STATION AREAS)							
o Beneficial Impacts ****	2	2	3	2	2	3	
o Adverse Impacts ****	8	10	10	11	9	11	
e. DISPLACEMENTS							
o Commercial Enterprises	87	137	124	118	64	127	0
o Residential Units	150	204	171	232	183	366	0
o Nonprofit Enterprises	2	6	5	3	3	6	0
o Total Displacements	239	347	300	353	250	499	0
o Employees Displacements	1,178	2,633	1,712	2,497	1,489	2,566	0
4. ENVIRONMENT							
a. TRANSPORTATION							
o Traffic (Flow at Critical Intersections)							
-Minor Impacts ***	22	24	20	23	18	20	--
-Moderate Impacts ***	5	8	6	10	19	10	--
-Major Impacts ***	6	9	12	9	11	9	--
o Parking (in Spaces)							
-Expected Deficiency ***	4,419	3,687	2,957	3,513	3,973	3,382	0
-Park-N-Ride	7,500	8,500	8,500	8,500	8,500	2,500	2,500
-Kiss-N-Ride	170	235	195	220	220	245	20
b. SOCIAL AND COMMUNITY (By Stations)							
o Minority Communities (33% or More Minority Pop.)	12 OF 16 Stat. (75%)	14 OF 19 Stat. (74%)	14 OF 18 Stat. (78%)	13 OF 20 Stat. (65%)	13 OF 17 Stat. (76%)	14 OF 19 Stat. (74%)	5 OF 5 STNS (100%)
o Youth Populations (10% or More Age 5-19 Yrs.)	13 OF 16 (81%)	15 OF 19 (79%)	16 OF 18 (89%)	16 OF 20 (80%)	13 OF 17 (76%)	16 OF 19 (84%)	4 OF 5 (80%)
o Elder Populations (15% or More Age 65 & Older)	8 OF 16 (50%)	11 OF 19 (58%)	10 OF 18 (56%)	11 OF 20 (55%)	10 OF 17 (59%)	12 OF 19 (63%)	
o Zero-Auto Households (33% or More W/O Autos)	13 OF 16 (81%)	14 OF 19 (74%)	14 OF 18 (78%)	15 OF 20 (75%)	11 OF 17 (65%)	15 OF 19 (79%)	5 OF 5 (100%)
c. ACCESSIBILITY *****							
o All LA County Households	12.98	13.32	13.03	13.11	13.30	13.22	12.02
o Majority Transit Users	10.40	10.67	10.45	10.51	10.68	10.60	9.61
o Minority Transit Users							
-Asians	14.80	15.19	14.86	14.92	15.14	15.06	13.63
-Blacks	18.78	19.13	18.74	18.83	18.93	18.93	17.93
-Hispanics	16.57	16.91	16.56	16.71	16.92	16.84	15.39
o Zero-Auto Households	18.52	19.00	18.55	18.72	18.96	18.89	17.03
o Poverty Level Households	16.75	17.07	16.71	16.85	17.04	16.97	15.62

-- continued

TABLE 2 (CONTINUED)

SUMMARY OF EVALUATION DATA FOR PROJECT OPTIONS

EVALUATION AREA	ALTERNATIVE: CANDIDATE ALIGNMENT 1	CANDIDATE ALIGNMENT 2	CANDIDATE ALIGNMENT 3	CANDIDATE ALIGNMENT 4	CANDIDATE ALIGNMENT 5	CANDIDATE ALIGNMENT 6	NULL ALTERNATIVE
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 ALIGNMENT	LOW (AERIAL)	HIGH ALONG CRENSHAW/ PICO ALIGNMENT	LOW (AERIAL)	MODERATE ALONG WESTERN & SUNSET ALIGNMENT	LOW (AERIAL)	--
e. NOISE AND VIBRATION							
o Subway							
-Impacts With Mitigation Measures	39	25	107	40	47	15	3
-Length of Mitigation Measures (in Feet)							
{Soft Fasteners	9,850	8,400	18,500	8,900	16,300	10,900	0
{Resiliently Supported Ties	600	0	0	400	1,200	0	0
{Floating Slab Trackbed	10,868	10,068	14,500	9,268	12,518	7,868	4,768
o Aerial							
-Impacts With Mitigation Measures	N.A.	34	13	46	22	44	N.A.
-Length of Mitigation Measures (in Feet)							
{Sound Walls	N.A.	32,415	18,100	33,300	15,050	28,990	N.A.
f. AIR QUALITY							
o Intersections With Significant CO Increase ****	13	14	19	16	15	15	0
o Reductions of Major Airborne Pollutants (Tons Per Day)	8.29	9.44	9.08	9.64	9.91	9.55	1.54
g. ENERGY USAGE							
o Annual YR2000 Regional Transportation Energy Demand (Billions of BTUs)	640,877	640,787	640,863	640,852	640,696	640,802	643,635
h. CULTURAL/HISTORIC							
o Properties Potentially Adversely Affected	0	18	11	15	8	16	--

* UMTA considers the SCRTD patronage forecasts to be at the high end of the range of reasonable expectations.

** UMTA has requested the Project Management Oversight (PMO) contractor for the MOS-1 Project to evaluate the capital for the candidate alignments. A preliminary report was submitted to UMTA on October 30, 1987. This report is cur review by UMTA and further refinement of these costs may be developed, especially with respect to the alignment which is chosen as the final alignment. Since after the selection of the publication of the FEIS, UMTA will be negotiating with the SCRTD to amend the existing MOS-1 full funding contract include the construction of the MOS-2 alternative, these costs must be validated prior to that negotiation.

*** Excluding information on MOS-1

**** Year 2000 Maximum Condition

***** % of total L.A. County jobs w/in 60 minutes door-to-door transit travel time.

TABLE 3

SCRTD PREDICTED DAILY RAIL TRANSIT BOARDINGS BY MODE OF ACCESS*:
CANDIDATE ALIGNMENT 6
(Including MOS-1)

Station	Walk	Park-n-Ride	Kiss-n-Ride	Bus	Total
Union Station	4,210	3,746	1,415	22,289	31,660
Civic Center	13,868	0	0	12,359	26,227
Fifth/Hill	31,502	0	0	20,563	52,065
Seventh/Flower	10,037	0	0	24,931	34,968
Wilshire/Alvarado	18,103	0	3,606	8,069	29,778
Wilshire/Vermont	17,741	0	3,421	17,871	39,033
Wilshire/Normandie	3,078	0	1,791	755	5,624
Wilshire/Western	3,221	0	2,158	7,973	13,352
Wilshire/Crenshaw	1,572	0	2,304	3,024	6,900
Wilshire/La Brea	1,589	0	1,292	4,812	7,693
Wilshire/Fairfax	2,425	1,892	965	12,362	17,644
Universal City	1,296	2,530	447	12,438	16,711
North Hollywood	245	2,218	365	7,576	10,404
Hollywood/Vine	1,917	0	207	4,055	6,179
Vermont/Beverly	3,258	0	279	4,253	7,790
Vermont/Santa Monica	1,779	0	349	3,594	5,722
Sunset/Vermont	3,534	0	632	7,363	11,529
Sunset/Western	3,389	0	834	3,150	7,373
Hollywood/Highland	5,510	0	356	5,639	11,505
TOTAL	128,274	10,386	20,421	183,076	342,157
When Operating As A Terminal:					
MOS-2:					
o Wilshire/Western	3,440	0	2,727	10,660	16,827
o Hollywood/Vine	6,393	0	1,512	14,626	22,531
MOS-2A:					
o Wilshire/Western	3,437	0	2,706	10,906	17,049
o Universal City	893	3,241	712	18,069	22,915
MOS-2B					
o Wilshire/Vermont	16,835	0	2,925	27,738	47,498
o Universal City	881	3,217	708	14,738	19,544

*UMTA considers the SCRTD patronage forecasts to be at the high end of the range of reasonable expectations.

Source: General Planning Consultant.

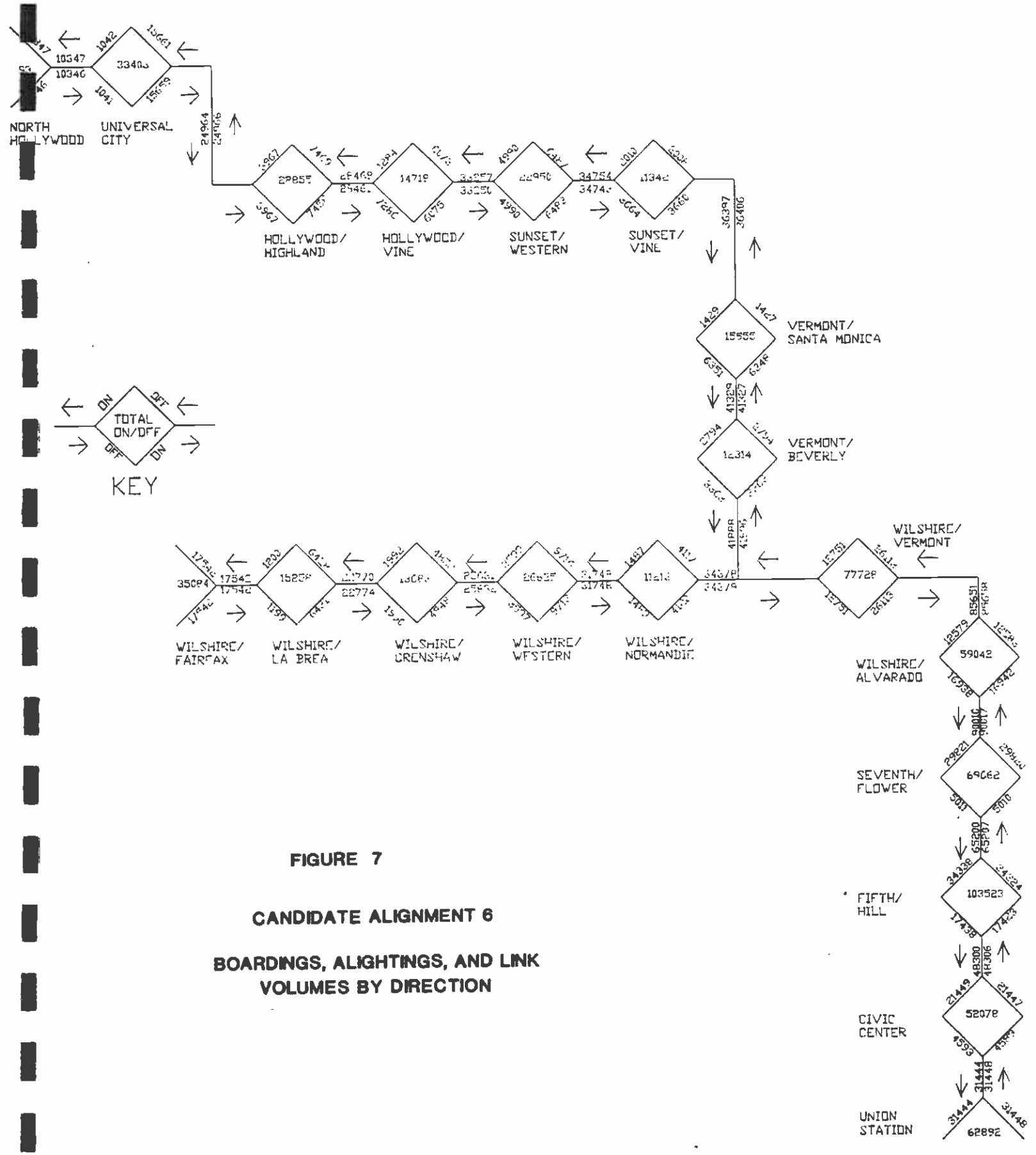


FIGURE 7

CANDIDATE ALIGNMENT 6

BOARDINGS, ALIGHTINGS, AND LINK VOLUMES BY DIRECTION

TABLE 4

SUMMARY OF STATION ACCESS FEATURES:
CANDIDATE ALIGNMENT 6

Station	Right-of Way Location	Bus Facilities Bays(1)	Bus Facilities Turnout	Off-Street Auto Facilities (Spaces) Park-n-Ride (2)	Off-Street Auto Facilities (Spaces) Kiss-n-Ride
Union Station(3)(5)	Off-Street	27/20	--	300/2,500	--
Civic Center(4)(5)	Hill	--	Hill	--	--
Fifth/Hill(4)(5)	--	--	--	--	--
Seventh/Flower(4)(5)	Seventh	--	--	--	--
Wilshire/Alvarado	Off-Street	--	Alvarado	--	20
Wilshire/Vermont	Off-Street	3/4	--	--	20
Wilshire/Normandie(4)(5)	Wilshire	0	Normandie	--	--
Wilshire/Western(3)(5)	Wilshire	0/12	Western	--	--
Wilshire/Crenshaw	Wilshire	--	--	--	--
Wilshire/La Brea	Wilshire	TBD	--	--	50
Wilshire/Fairfax	Wilshire	2/10	--	250/1,000	25
Vermont/Beverly	Vermont	--	--	--	--
Vermont/Santa Monica	Vermont	--	--	--	--
Vermont/Sunset(3)	Vermont	--	--	--	--
Hollywood/Vine	Hollywood	--	--	--	25
Universal City(5)	Off-Street	8/10	--	1,175/2,500	40
Hollywood/Highland	--	--	--	--	--
North Hollywood(5)	Lankershim	6/6	Chandler	1,800/2,500	65
Sunset/Western	Sunset	--	--	--	--

(1) Bus facilities identified are boarding/alighting and layover bays, respectively.
(2) Park-and-ride capacities shown are surface-only and surface + structure(s) spaces, respectively.
(3) Temporary terminus for operable segment of specified candidate alignments.
(4) Bicycle racks or lockers will be provided at stations except the three CBD stations and Wilshire/Normandie.
(5) Source: December 1983 FEIS.

Source: SCRTD.

Station to Wilshire/Vermont, this section of line would have a service frequency of five minutes for most of each weekday and 3-1/2 to 4 minutes in the peak periods. In the late evening, trains would operate on each branch at twenty-minute intervals, giving a combined headway on the downtown section of ten minutes. On weekends, service on each branch would be operated at fifteen-to-twenty minute intervals, giving a downtown service interval of 7-1/2 to 10 minutes.

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 for each operable segment are the same as those shown for Candidate Alignment 4 in Table 2-4, Chapter 2 of the Draft SEIS/SEIR.

Trains would consist of either four or six cars, depending upon the capacity required to satisfy ridership levels. For MOS-1 + MOS-2 operations, all trains would consist of four cars. For the full alignment, peak period trains would have six cars and off-peak trains would have four cars.

A fleet of 72 cars would be required for the MOS-1 and MOS-2 system, increasing to 116 for full system operation. Service frequency and train size have been set to ensure that a peak load of 169 passengers per car is not exceeded. This loading standard provides for 59 seated passengers, one patron in a wheelchair, and 109 standees with 3.3 square feet of standing room per passenger. During the off-peak periods, it is expected that the number of passengers in each car would not exceed 100.

3.1.2 Traffic

For Candidate Alignment 6, traffic impacts would occur at stations and along the aerial sections of the alignment on Wilshire Boulevard, Vermont Avenue, and Sunset Boulevard. Placement of aerial guideway columns in the center of these streets would produce changes in traffic patterns. Travel diverted to transit would reduce the number of auto trips in the region. There would be localized increases in traffic volumes at stations, resulting from automobile trips by park-and-ride and kiss-and-ride patrons. Table 5 summarizes the results of the analysis of impacts of this "station access traffic" on critical volumes and the level of service at critical intersections. The degree of traffic impact (i.e., minor, moderate, and major) for these intersections is shown in Figure 8.

Traffic generated by Candidate Alignment 6 would result in a decrease to level-of-service F at three intersections, while station traffic impacts are rated as major on nine critical intersections of 39 analyzed (See Table 5). For the other candidate alignments, the number of intersections experiencing a decrease in the level of service to F ranged from three to five, while the number of intersections with traffic impacts rated as major ranged from six to twelve.

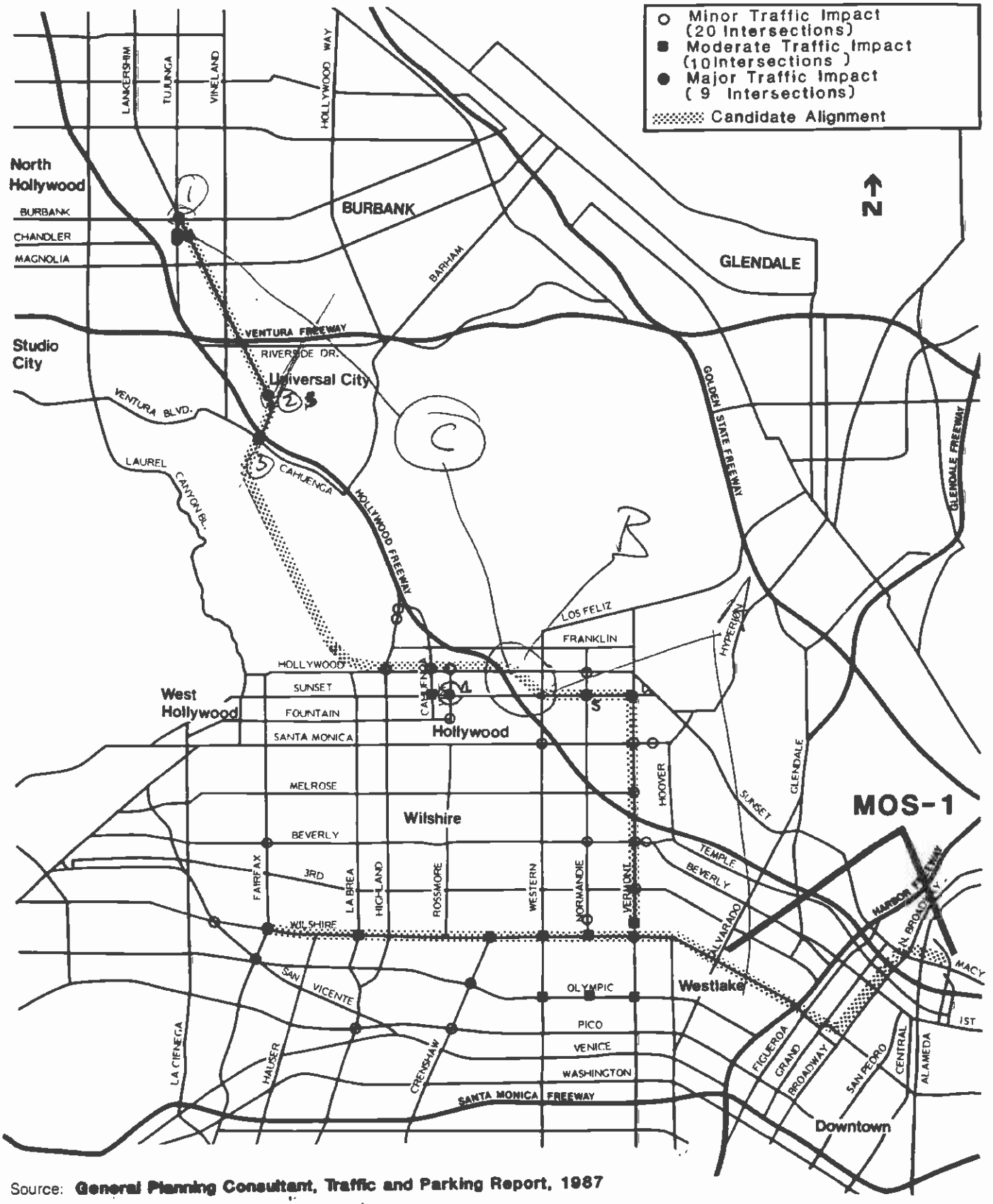
TABLE 5
IMPACT OF STATION ACCESS TRAFFIC: CANDIDATE ALIGNMENT 6
(YEAR 2000, WITHOUT MITIGATION MEASURES)

	NULL ALTERNATIVE		ALIGNMENT 6		Absolute Change in	
Intersection	Critical Volume (Vehicle Per Hour)	LOS	Critical Volume (Vehicle Per Hour)	LOS	Critical Volume	Expected Impact
Beverly @ Normandie	2,208	F	2,208	F	0	Minor
Hollywood @ Highland	1,401	E	1,412	E	11	Minor
Vermont @ Third	2,564	F	2,569	F	5	Minor
Santa Monica @ Virgil	1,343	D	1,349	E	6	Minor
Chandler @ Tujunga (S)	476	A	487	A	11	Minor
Vermont @ Melrose	1,303	D	1,316	D	13	Minor
Western @ Santa Monica	1,588	F	1,602	F	14	Minor
Vermont @ Beverly	1,499	F	1,519	F	20	Minor
Santa Monica @ Vermont	1,351	E	1,372	E	21	Minor
San Vicente @ Wilshire	2,222	F	2,249	F	27	Minor
Hollywood @ Cahuenga	1,712	F	1,768	F	56	Minor
Fairfax @ Beverly	1,558	F	1,586	F	28	Minor
Crenshaw @ Pico	2,532	F	2,560	F	28	Minor
Western @ Hollywood	1,546	F	1,573	F	27	Minor
Beverly @ Virgil	1,975	F	2,004	F	29	Minor
La Brea @ Pico	1,698	F	1,729	F	31	Minor
Chandler @ Tujunga (N)	678	A	718	A	41	Minor
Sunset @ Western	1,737	F	1,782	F	45	Minor
Normandie @ Sixth	1,816	F	1,876	F	60	Minor
Sunset @ Vermont	1,515	F	1,582	F	67	Minor
Vermont @ Sixth	1,609	F	1,693	F	84	Moderate
Normandie @ Olympic	1,484	E	1,568	F	84	Moderate
Western @ Olympic	1,668	F	1,769	F	101	Moderate
Lankershim @ Chandler	797	A	903	B	106	Moderate
Wilshire @ La Brea	1,496	F	1,602	F	106	Moderate
Sunset @ Cahuenga	1,179	C	1,315	E	136	Moderate
Hollywood @ Vine	1,271	D	1,291	E	20	Moderate
Wilshire @ Normandie	1,102	D	1,238	E	136	Moderate
Vermont @ Olympic	1,616	F	1,758	F	142	Moderate
Wilshire @ Western	1,809	F	1,954	F	145	Moderate
Crenshaw @ Olympic	1,595	F	1,783	F	188	Major
Wilshire @ Fairfax	1,687	F	1,956	F	269	Major
Lankershim @ Cahuenga	1,170	C	1,431	E	261	Major
Fairfax @ Olympic	1,799	F	2,095	F	296	Major
Lankershim @ Ventura/ Cahuenga	1,320	E	1,642	F	322	Major
Vermont @ Wilshire	1,483	F	1,833	F	350	Major
Sunset @ Vine	1,634	F	1,930	F	296	Major
Wilshire @ Crenshaw	1,553	F	2,033	F	480	Major
Lankershim @ Burbank	1,168	D	1,769	F	601	Major

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

FIGURE 8

IMPACT OF STATION ACCESS TRAFFIC: CANDIDATE ALIGNMENT 6



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

Candidate Alignment 6 would cause changes in traffic flow due to placement of aerial guideway columns in the center of several streets. The character of these traffic changes and the types of impacts anticipated are discussed in Section 1.2, Chapter 3 of the Draft SEIS/SEIR.

Traffic impacts for the operable segments of Candidate Alignment 6 would not be significantly different from the full system, except at temporary terminal stations. Terminal stations for Operable Segment MOS-2 would be located at Wilshire/Western and Hollywood/Vine. Operable segment MOS-2A would have terminal stations at Wilshire/Western and Universal City. Terminal stations for operable segment MOS-2B would be located at Wilshire/Vermont and Universal City. Table 6 summarizes the impacts of station access traffic on critical volumes and levels of service at intersections in the vicinity of these temporary terminal stations.

The analysis of traffic impacts of Candidate Alignment 6 and its operable segments indicates that certain traffic mitigation measures would be needed in the vicinity of Metro Rail stations, particularly those expected to be major points of access for park-and-ride and kiss-and-ride patrons. Mitigation measures are described in the Draft SEIS/SEIR. They include parking restrictions, pavement restriping, left-turn restrictions, additional lanes, traffic signal changes, and bus turnout lanes.

Intersections potentially requiring mitigation under Candidate Alignment 6 include: (1) Fairfax/Olympic, (2) Crenshaw/Olympic, (3) Vermont/Wilshire, (4) Lankershim/Ventura, (5) Lankershim/Burbank, (6) Wilshire/Fairfax, (7) Wilshire/Crenshaw, and (8) ~~Hollywood~~/Vine. The specific mitigation measure to be applied at each intersection would be identified during final design of the Metro Rail Project. Additional measures may be needed to mitigate the impacts of the aerial segments of Alignment 6. These measures are described in the Draft SEIS/SEIR.

3.1.3 Parking

Metro Rail patrons who drive to stations will increase demand for parking in those station areas. This demand can result in a "spillover" of rail patron parking into the surrounding neighborhood. Spillover would result from a shortage of parking at stations and/or elimination of existing on-street parking by aerial guideway support columns and transition portals.

Parking impacts discussed below represent a "worst case" scenario. Estimates of parking demand from the travel simulation models produced for this analysis did not include constraints on park-and-ride access relative to available parking spaces. Additionally, estimated parking demand does not include the positive effect of Metro Rail in converting auto users to transit users. Therefore, parking impacts presented here are greater than those that would actually occur.

TABLE 6
IMPACT OF STATION ACCESS TRAFFIC: CANDIDATE ALIGNMENT 6:
MINIMAL OPERABLE SEGMENTS
(YEAR 2000 WITHOUT MITIGATION MEASURES)

Intersection	NULL ALTERNATIVE Critical Volume (Vehicle Per Hour)	LOS	ALIGNMENT 6 Critical Volume (Vehicle Per Hour)	LOS	Absolute Change In Critical Volume	Expected Impact
MOS-2						
Wilshire/Western						
Western @ Third	1,909	F	1,945	F	37	Minor
Western @ Olympic	1,668	F	1,814	F	146	Moderate
Wilshire @ Crenshaw	1,553	F	1,764	F	211	Major
Wilshire @ Western	1,809	F	2,148	F	339	Major
Hollywood/Vine						
Fountain @ Vine	1,705	F	1,748	F	43	Minor
Hollywood @ Highland	1,401	E	1,443	F	42	Minor
Hollywood @ Cahuenga	1,712	F	1,778	F	76	Moderate
Cahuenga @ Sunset	1,179	C	1,288	E	109	Moderate
Hollywood @ Vine	1,271	D	1,457	E	186	Major
Sunset @ Vine	1,634	F	1,840	F	206	Major
MOS-2A						
Wilshire/Western						
Western @ Third	1,909	F	1,945	F	37	Minor
Western @ Olympic	1,668	F	1 814	F	146	Moderate
Wilshire @ Crenshaw	1,553	F	1,764	F	211	Major
Wilshire @ Western	1,809	F	2,148	F	339	Major
Universal City						
Lankershim @ Ventura/ Cahuenga	1,320	E	1,412	E	92	Moderate
Lankershim @ Cahuenga Tujunga	1,170	C	1,566	E	396	Major
MOS-2B						
Universal City						
Western @ Third	1,909	F	1,945	F	37	Minor
Western @ Olympic	1,668	F	1,814	F	146	Moderate
Wilshire @ Crenshaw	1,553	F	1,764	F	211	Major
Wilshire @ Western	1,809	F	2,148	F	339	Major
Wilshire/Vermont						
Vermont @ Sixth	1,609	F	1,705	F	96	Moderate
Vermont @ Olympic	1,616	F	1,789	F	173	Major
Wilshire @ Western	1,809	F	2,173	F	364	Major
Wilshire @ Normandie	1,102	D	1,272	E	170	Major
Wilshire @ Vermont	1,483	F	1,876	F	393	Major

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

Under this worst-case scenario, parking demand for Alignment 6 may exceed the total available parking supply, including RTD facilities, in four station areas: Union Station (1,182 spaces), Wilshire/Alvarado (1,623 spaces), Wilshire/Vermont (757 spaces), and Wilshire/Crenshaw (411 spaces). This total deficiency of 3,973 spaces compares to a range of 2,957 for Candidate Alignment 3 to 4,419 spaces for Candidate Alignment 1.

Spillover parking is anticipated at several stations where SCRTD would provide parking facilities. Under the worst-case scenario, spillover parking could occur for Candidate Alignment 6 at Union Station (3,580 spaces) and at Wilshire/Fairfax (2,450 spaces). This impact is expected to be more significant for the Wilshire/Fairfax station area, which is characterized as nearly one-quarter single-family residences.

If parking demand for the Candidate Alignment 6 is lower than this worst-case scenario, the parking impacts described above would be less significant. Thus, mitigation measures may not be necessary in all instances.

Parking impacts of operable segments defined for Candidate Alignment 6 would not be significantly different from the full system, except at temporary terminal stations. For MOS-2, a deficiency is expected at the Wilshire/Western temporary terminus station (1,652 spaces). No deficiency is expected at the Hollywood/Vine terminus. For MOS-2A, a deficiency of 1,655 spaces may be anticipated at the Wilshire/Western station, while Universal City would exhibit no deficiency. For MOS-2B, Wilshire/Vermont and Universal City could anticipate parking deficiencies of 1,424 and 739 spaces, respectively.

3.2 LAND USE AND DEVELOPMENT

As with the other five candidate alignments, Candidate Alignment 6 would provide rail transit service to "Community Centers" and "Redevelopment Projects" within the Regional Core. Candidate Alignment 6 would promote the concentration of development in designated Centers (consistent with the City Centers Concept), help maintain surrounding low-density residential areas and reduce development pressures on sensitive undeveloped areas outside the Regional Core.

Table 2 shows the number of Centers and Redevelopment Projects served and the number of stations in Centers and Project areas. Candidate Alignment 6 would serve 13 City Centers with 15 stations located in these Centers. Along with Candidate Alignment 4, these numbers represent the most Centers served and the most stations in Centers among the alignments. Candidate Alignment 6 also would serve three Redevelopment Project areas, with 7 stations in these areas.

Land use impacts of Candidate Alignment 6 are described in the Draft SEIS/SEIR inasmuch as these impacts are evaluated on a station-by-station basis for each of the alignments. Candidate Alignment 6 includes no station areas that were not previously evaluated for either Candidate Alignment 4 or Candidate Alignment 3 in the Draft SEIS/SEIR. In terms of station areas, Candidate Alignment 6 is virtually equivalent to Candidate Alignment 4 except that the Hollywood Bowl Station is not included and the Hollywood/Vine station replaces the Sunset/Vine station. In general, land use impacts of Metro Rail on the Hollywood Bowl Station were considered minimal for Candidate Alignment 4, so the exclusion of this station from Metro Rail Alignment 6 should not significantly affect the

land use impacts. Moreover, Chapter 5 of this document describes the impacts associated with a transit connector between the Hollywood/Highland Station and the Hollywood Bowl to enhance transit accessibility to the Bowl.

Comparisons between the Hollywood/Vine and Sunset/Vine station areas show that land use impacts for these locations would be generally equivalent. In both cases, a Metro Rail station would produce beneficial impacts in terms of consistency with land use plans and policies and accommodation of station area growth without adverse impacts (as shown in Table 3-23, Page 3-2-16 of the Draft SEIS/SEIR). The Sunset Vine Station exhibits a marginally higher capacity for growth than does the Hollywood/Vine Station in terms of a year 2000 maximum impact condition. Overall, the land use impacts associated with Candidate Alignment 6 are similar to those associated with Candidate Alignment 4.

3.3 ECONOMIC AND FISCAL IMPACTS

Construction of Candidate Alignment 6 would 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 with implementation of a particular alternative.

3.3.1 Changes In Economic Activity

The number of construction jobs associated with Candidate Alignment 6 and the other candidate alignments is expected to be in the 3,000 to 5,000 range, as was the case for the original LPA described in the 1983 FEIS. 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. Applying this relationship, Candidate Alignment 6 together with Alignment 4 would have the greatest potential economic impact, estimated to be between $40 million and $80 million per year.

SCRTD will pursue establishment of benefit assessment districts in the vicinity of any stations added to the Metro Rail system. To provide a preliminary indication of the general financial impact of assessment districts, an estimated assessment rate of 30 cents per square foot for property improvements used as offices, commercial, retail and hotel/motels was applied. The projected floor space within one-quarter mile of Metro Rail station areas would generate approximately $13.5-$15 million annually for Candidate Alignment 6.

SCRTD would need to acquire certain parcels of property for stations, train yards, parking lots, bus facilities, and auxiliary equipment. Careful design of these facilities can sometimes permit "joint" use of the property by private development. Assuming a simple ground lease rate of nine percent of land value, the potential annual lease income of Candidate Alignment 6 in December 1985 dollars to SCRTD would be $1,863,000. This is based on a gross land value of $20,695,000. The potential lease income of other alignments ranges from $1,591,000 for Candidate Alignment 5 to $2,104,000 for Candidate Alignment 3. Over a representative 65-year lease life, the income-generating potential of

these leases (in 1985 undiscounted dollars) is estimated to total $121 million for Candidate Alignment 6. This compares to a range of $103-$137 million for the other alignments.

3.3.2 Fiscal Impacts

Fiscal impacts can be both direct and indirect. Direct impacts include public service costs associated with the construction and operation of the Metro Rail system. Indirect impacts result from changes in tax receipts from changes in land use stimulated by Metro Rail.

The estimated annual loss of property taxes of acquired property is estimated to total $0.93 million for Alignment 6 (based on an 1986 assessed valuation of $92.6 million). Other alignments range from $0.27 million for Alignment 1 to $0.84 million for Alignment 4. Joint development projects and concentration of growth in the Regional Core would offset the reductions in the tax base.

3.4 LAND ACQUISITION AND DISPLACEMENT

Table 7 presents information on the type and extent of displacements that would occur under Candidate Alignment 6. Primary impact areas would be the Vermont portal transition, the Vermont/Sunset aerial curve (data for two configurations are shown), the Sunset portal transition, the Wilshire portal transition and the Universal City and North Hollywood stations.

Displacements unique to Alignment 6 would occur at the off-street portal in the block bounded by Sunset Boulevard, Harold Way, St. Andrews Place, and Wilton Place. These displacements would be as follows: the Southern Baptist Church; the Korean Baptist Church; a gas station/food mart at the corner of Harold Way and Wilton Place; an auto repair shop and Glass Shop on Sunset Boulevard; about fifty rooms of the Dunes Motel; two businesses at the corner of Sunset and St. Andrews Place that deal in camera equipment; two single-story and one two-story single-family residences on St. Andrews Place; and, five two-story apartment buildings (10-12 units each), a single-family residence, five one-story cottage rentals, and a small business, all on Harold Way.

Service and retail businesses account for the majority of displaced commercial establishments. Most of those displaced are small- to medium-sized businesses. Overall, Candidate Alignment 6 would result in 499 displacements, more than any other alignment.

3.5 SOCIAL AND COMMUNITY IMPACTS

The following discussion examines existing social and community characteristics of stations incorporated in Candidate Alignment 6 that vary from earlier alignments. Other stations are discussed in Chapter 3, Section 5, of the FEIS, 1983.

Candidate Alignment 6, like all proposed alignments discussed in the Draft SEIS/SEIR, would serve the mixed, retail-office-residential community of Hollywood. It is in this area the Candidate Alignment would differ from other candidate alignments. The Hollywood community 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

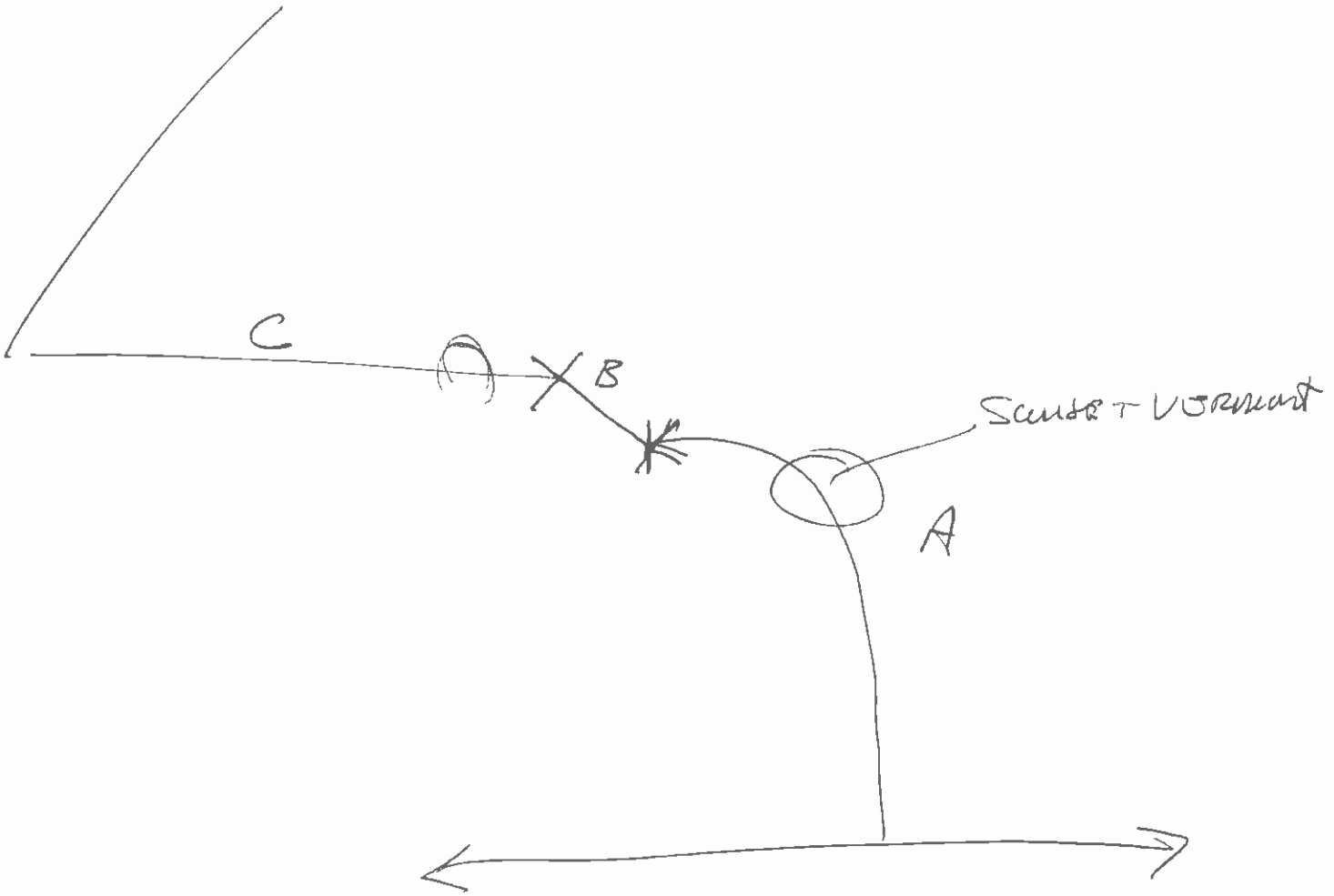

C
B
A

TABLE 7

DISPLACEMENTS: CANDIDATE ALIGNMENT 6

PART

Affected Areas		Parking (Spaces)	Commercial Establishments: Retail	Restaurant	Office	Total	Preliminary Estimate of Total Employment	Total Non-Profit	Total Residential Units
~~MOS-2~~									
o Wilshire/Vermont	A	0(211)	1	1	4	6	356	0	0*
o Wilshire/Western	A	0(106)	1	0	0	1	38	0	0*
o Vermont Transition	A	0(50)	13	4	0	17	221	0	6
o Vermont/Beverly	A	0(0)	3	1	0	4	37	0	0
o Vermont/Santa Monica	A	0(13)	1	1	0	2	20	0	0
o Vermont/Sunset Curve	A	0(121)	6	2	0	8	128	0	40
Alt. Vermt/Snst Curve	A	0(338)	5	3	9	17	113	1	59
o Sunset/Western	A	0(65)	1	0	1	2	84	0	0
o Sunset Transition	B	0(100)	2	1	3	6	119	2	0
o Hollywood/Vine	B	0(0)	6	1	0	7	49	0	0
~~MOS-3~~									
o Wilshire Transition	C	0(78)	2	1	5	8	885	1	25
o Wilshire/Crenshaw	C	0(9)	0	0	0	0	0	0	0
o Wilshire/La Brea	C	1(51)	1	0	0	2	21	0	0
o Wilshire/Fairfax	C	0(205)	4	2	0	6	75	0	8
o Hollywood/Highland	C	0(0)	1	0	0	1	50	0	0
o Universal City	C	0(362)	0	24	0	24	276	0	136*
o North Hollywood*	C	0(0)	6	18	0	24	222	2	14*
Total Alignment 6		1(1371)	48	56	13	118	2581	5	232
Alt. Align. 6 Total		1(1588)	47	57	22	127	2566	6	251

Subtotals

*Does not include displacements due to parking structures or tail tracks.

Source: SCRTD.

experience slight increases in minority and immigrant populations. New residential development, however, is likely to be oriented to higher-income families and individuals. The four stations of Candidate Alignment 6 in Hollywood are Vermont/Sunset, Sunset/Western, Hollywood/Vine, and Hollywood/Highland.

The Metro Rail project could be a major, positive force in the Hollywood Area, eliminating existing blight and stimulating redevelopment efforts. Developed in conjunction with implementation of the Community Redevelopment Agency's Hollywood Redevelopment Project, Metro Rail could be a 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 enhancing community cohesion in Hollywood. Two stations have shifted locations from those shown in the Draft SEIR/SEIR. They are discussed below.

The Vermont/Sunset Station would provide increased access to the designated East Hollywood City Center. This station would be designed in accordance with adopted SCRTD noise and vibration standards to avoid intrusive impacts on the adjacent hospitals. The curve and station for Candidate Alignment 6 would require displacement of 59 residences and 17 businesses. Alignment 1 would require the direct displacement of seven businesses in this station area. Alignments 2, 3, and 4 would not result in displacements in this station area.

The number of existing large parcels in the Sunset/Western station area should allow major redevelopment without encroachment on the surrounding residential neighborhood. Candidate Alignment 6 would require the displacement of two businesses in this station area. The transition zone of Candidate Alignment 6, west of this station on the east side of the Hollywood Freeway, would require the displacement of 6 businesses and 118 residential units. (This figure includes 50 units of a motel.) By comparison, the transition zone of Candidate Alignment 4 to the west of Gower Avenue on Sunset Boulevard (west of the Hollywood Freeway) would require the displacement of eight businesses.

3.5.1 Accessibility

One major social benefit 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 new transit services provided by Metro Rail. Table 2 summarizes the attributes of proposed Metro Rail service relative to six segments of the community generally considered to be transit-dependent: minority groups, youths (ages 5 to 19 years), the elderly (ages 65 years and older), transit-disabled persons, households without private transportation, and low-income families. Table 3-31 of the Draft SEIS/SEIR shows the representation of each of these groups within a one-half mile impact area of all stations proposed for the various candidate alignments. Metro Rail is expected to improve accessibility significantly throughout the Regional Core for persons in these special user groups.

Table 2 also shows the percentage of various groups that would be within a sixty-minute door-to-door transit travel time of potential employment. Overall, Candidate Alignment 6 tends to serve a higher proportion of these transit groups than the other alignments.

3.6 SAFETY AND SECURITY

Safety and security are addressed in Section 6 of Chapter 3 of the FEIS, 1983. The FEIS provides an overview of the safety, fire/life safety, security, and system assurance requirements established to ensure the design, construction, and operation of a safe, secure, and reliable rapid transit system. The safety, fire/life safety, security and system assurance requirements in the FEIS are applicable to Candidate Alignment 6.

To ensure that the operation of Metro Rail will equal or exceed the safety of systems currently in operation, SCRTD has developed safety design criteria and a System Safety Program Plan based on the policies and guidelines established in the "Milestone 7 Report: Safety, Fire/Life Safety, Security, and Systems Assurance." The System Safety Program Plan provides for a systematic approach to an overall and comprehensive safety program.

3.7. AESTHETICS

Because the identification of visual impacts depends on the individual observer's perspective and sense of aesthetics, an analysis of aesthetic impacts can be extremely subjective. Experience shows that the construction of either a subway or aerial alignment will alter, to varying degrees, the visual setting of the community through which the system passes. However, an aerial transit alignment will have a greater visual impact on the existing streetscape than a subway. Depending on the design of the guideway structure, stations, and ancillary facilities, an elevated system could either enhance or impair the visual qualities of the streetscape.

Due to the potential for an aerial alignment to create significant visual impacts, this section concentrates on the aerial segments of Candidate Alignment 6. Section 7, Chapter 3 of the Draft SEIS/SEIR should be referenced for a discussion of impacts associated with the aerial segments of Candidate Alignments 2, 3, 4, and 5. Impacts related to subsurface segments of the candidate alignments are fully addressed in the FEIS, 1983.

3.7.1 Vermont Aerial Alignment

Candidate Alignment 6, like Candidate Alignments 2, 3, and 4, would include an aerial guideway in the center of Vermont Avenue between Third Street and Sunset Boulevard. The expected aesthetic impacts of this guideway are discussed in Section 7.2.2.2, Chapter 3 of the Draft SEIS/SEIR to which the reader is referred. At Sunset Boulevard, the aerial guideway of Candidate Alignment 6 would transition from Vermont Avenue to Sunset Boulevard, curving behind the new Medical Arts Building near New Hampshire Avenue (refer to Figures 2, and 3, and 6). A station would be situated in the block immediately south of the Medical Arts Building, between Vermont Avenue and New Hampshire Avenue. Directly to the west and south of the proposed station and guideway location are several buildings of the Church of Scientology of Los Angeles. Both the medical and church buildings are at least six stories high. The guideway structure may create an undesirable impact on the viewing perspective of the Church of Scientology from Sunset Boulevard. Also, a "new" perspective of the church

buildings would be opened from Vermont Avenue. Similar to Alignments 2, 3, and 4, the privacy of these tall buildings may be compromised wherever windows face the Metro Rail facility.

3.7.2 Sunset Aerial Alignment

Like Candidate Alignment 4, Candidate Alignment 6 includes an aerial guideway in the center of Sunset Boulevard (Figure 3). Due to the wide (approximately 100-feet) right-of-way, the scale and type of land uses along each side, and the vertical dimension created by the tall palm trees lining each side of the corridor, it is expected that an aerial guideway in the street centerline would result in significant negative visual impacts on the vista.

3.7.3 Sunset Transition

The environs of the Candidate Alignment 6 aerial-to-subway transition at Sunset Boulevard east of the Hollywood Freeway are characterized by a mixture of land uses, including commercial enterprises, multifamily and single-family housing, religious and educational institutions, and parking lots (Figure 9). To the east and north of the transition and portal is a predominantly residential neighborhood with some single-family residences interspersed with garden apartments, generally 2 stories in height. There are three major apartment complexes with 3 or more stories in the immediate vicinity of the transition area. One, to the northwest, is under construction. To the south and southwest are commercial enterprises, notably the Fox Studios across the Hollywood Freeway.

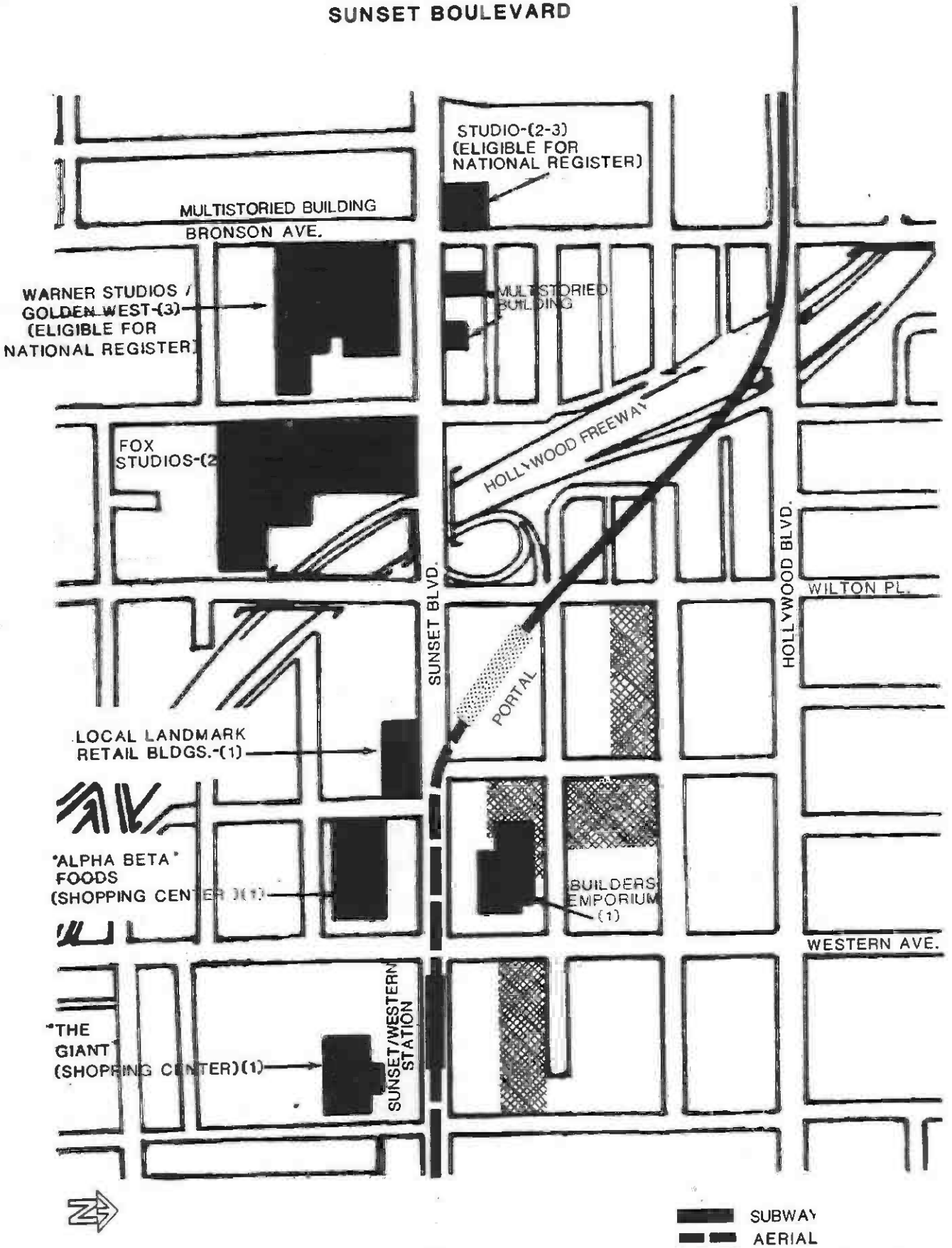
The aerial-to-subway transition on the Sunset segment of Candidate Alignment 6 would occur in the block defined by Wilton Place, Harold Way, St. Andrews Place, and Sunset Boulevard (Figure 4). All structures would be cleared from this block. Extensive landscaping with integrated design elements would be used to minimize the visual impact of the transition, and this landscaping should be an enhancement of the area.

Special attention has been given to the design of the aerial guideway to minimize visual conflicts with the existing characteristics of each of the three areas discussed above. Landscaping accents would be provided in areas where the introduction of the heavy rail facilities would create a discontinuity of the environment (e.g., the Medical Arts area and the area around the portals). The combination of the smooth forms of the guideway and landscaping should soften some of the negative impacts of the guideway mass and structural configurations. The SCRTD will refine the design of the aerial guideway structure during the final design phase of the project in accordance with the criteria identified in the Draft SEIS/SEIR.

Extensive evaluation of materials, textures, colors, and massing would be conducted to ensure an integrated design solution for aerial stations, especially in the Medial Arts area. Common design motifs would be utilized to create systemwide continuity. Extensive use of landscaping and planted pedestrian areas would be incorporated to mitigate the size and mass of aerial stations. Strict attention would be paid to ensure that station layout and design are compatible with existing buildings and spaces in the immediate

FIGURE 9

SIGNIFICANT LAND USES & BUILDING HEIGHTS
SUNSET BOULEVARD



SOURCE: SCRTD/GENERAL PLANNING CONSULTANT

vicinity of the station. Trees and other plantings would be installed to provide a buffer between nearby residential areas and the transition and portal facility at the Hollywood Freeway. Smooth forms and "soft" design features would be incorporated to the maximum extent feasible to reduce visual conflicts/distractions for motorists and pedestrians.

3.8 NOISE AND VIBRATION

This section presents the impacts of noise and vibration expected from Metro Rail operations along Candidate Alignment 6. Locations are identified where the noise and vibration criteria for the Metro Rail Project are exceeded by predicted passby levels, and measures are recommended to mitigate these noise levels. Section 8, Chapter 3 of the Draft SEIS/SEIR should be referenced for specific information regarding the source of information and methodology employed in analyzing impacts.

In 1981 and 1982, the SCRTD made noise and vibration measurements along Wilshire Boulevard, Sunset Boulevard, Lankershim Boulevard, and other streets in the Metro Rail Project study area. In 1987, noise and vibration measurements were made in the CORE Study area along Vermont, Western, and Crenshaw Avenues, Sunset, Hollywood, and San Vicente Boulevards. These measurements were used to establish typical noise and vibration levels in the study area. The Draft SEIS/SEIR describes a study by BBN Laboratories commissioned by the broadcast and recording industry, and the Preferred Noise Criterion (PNC) curve proposed as the criteria for studios.

Table 8 summarizes the anticipated impacts of and mitigation for ground-borne noise and vibration from subway operations of Candidate Alignment 6. During final design, SCRTD would conduct detailed surveys of the selected alignment and determine the use and characteristics of all buildings. This survey would allow selection of the mitigation measures needed to reduce noise impacts to the level of adopted criteria.

For the subway portion of Candidate Alignment 6, if standard design features are assumed, impacts would be expected at eight commercial/office buildings, 32 apartment buildings, 22 single-family residences, one church, three theaters, and four radio/TV/recording studios. With recommended mitigation measures, these impacts would be reduced to seven apartment buildings and eight residences. These impacts would occur on the curve from the Wilshire/Vermont Station onto Vermont, in Hollywood, and near Universal City. The criteria would be exceeded by only one to two db(A), which is generally considered an imperceptible deviation. For Candidate Alignment 6, the approximate length of recommended mitigation measures for both tunnel bores is 10,900 feet of "soft" fasteners and 3100 feet of floating slab trackbed.

TABLE 8

SUMMARY OF ANTICIPATED IMPACT OF NOISE AND VIBRATION: CANDIDATE ALIGNMENT 6

A. Impacts Without Recommended Mitigation Measures

Structure Type	Groundborne Noise & Vibration-Subway	Airborne Noise & Vibration-Aerial
Commercial/Office	8	271
Apartment Buildings	32	27
Residences	22	24
Motel	0	1
Church	1	4
School	0	4
Hospital	0	6
Theater and Museum	3	7
Radio/Recording/TV Studios	4	0

B. Impacts With Recommended Mitigation Measures

Structure Type	Groundborne Noise & Vibration-Subway	Airborne Noise & Vibration-Aerial
Apartment Buildings	7	6
Residences	8	19
Motel	0	1
Church	0	3
School	0	4
Hospital	0	4
Theater and Museum	0	7
Radio/Recording/TV Studios	0	0

C. Approximate Length of Recommended Mitigation Measures

Recommended Mitigation	Length in feet both tunnel bores	Length in feet both side of guideway
Resiliently Supported Ties	0	NA
"Soft" Fasteners	10,900	NA
Floating Slab Trackbed	3,100	NA
Sound Walls	NA	28,990

Note: Impacts shown are for noise levels three or more dB(A) above the system criteria. According to industry-wide guidelines, a change of less than three dB(A) is imperceptible to the human observer. For this reason, noise levels up to two dB(A) above the system criteria are not considered significant impacts.

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

The results of analysis in the March 1987 Technical Report on Noise and Vibration for the Core Study indicate that virtually the entire aerial section along Wilshire Boulevard and much along Vermont Avenue would require the use of sound barrier walls to meet design criteria. Sound barrier walls would also be required along the Sunset Boulevard section of Candidate Alignment 6. Therefore, the SCRTD would install sound barrier walls along the entire aerial alignment to reduce noise levels as much as possible. Specific impacts associated with the aerial portions of Candidate Alignment 6 are summarized in Table 8. These data reflect an analysis of single event passby noise.

On Wilshire Boulevard, impacts would be the same as for other alignments. The Vermont Avenue aerial section of Alignment 6 would result in noise level increases of three to five dB(A) over criteria at two buildings of Virgil Junior High School and at a theater near Willowbrook Avenue. Significant adverse noise increases (more than five dB(A) above criteria) would occur at two buildings of Los Angeles City College.

On Sunset Boulevard, three to five dB(A) increases above criteria would occur at four buildings of the Kaiser Permanente Hospital, at five residences and one church near Alexandria Avenue, and at six residences near Kingsley Street. A detailed analysis of noise and vibration impacts for studios along Sunset Boulevard is contained in the Draft SEIS/SEIR. A special study of existing conditions on Sunset Boulevard and the potential impacts of Metro Rail operations resulted in the definition of Candidate Alignment 6 to avoid adverse effects on the sound and recording industry along Sunset.

At the Self-Realization Fellowship, intrusive noise levels from Sunset Boulevard traffic are relatively high inside the meeting room and on the grounds. Inside the Temple, noise levels are much lower, although traffic is audible at times. With mitigation, train passby noise levels would be less than the ambient levels in the meeting room and in the Temple and would meet the 75 db(A) criterion. Sound barrier walls are recommended for the entire 28,990-foot aerial portion of Alignment 6. Additional mitigation measures are discussed in Section 8.3, Chapter 3 of the Draft SEIS/SEIR.

3.9 AIR QUALITY

Background information on the South Coast Air Basin (SOCAB) and air quality relative to Metro Rail construction is presented in Section 9, Chapter 3 of the Draft SEIS/SEIR.

Impacts on air quality have been assessed from three perspectives: consistency with air quality management and regional transportation planning; a subregional analysis; and a microscale 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 microscale analysis, examining carbon monoxide (CO) concentrations, used a screening procedure based on idle-time and emission changes related to speed changes. Carbon monoxide concentrations pertinent to both the federal one-hour and eight-hour standards were assessed.

To the extent that Metro Rail reduces automobile VMT, trip generation, and/or congestion by diverting trips to transit, Candidate Alignment 6 would be consistent with the long-range strategies of the AQMP and, therefore, the Clean Air Act.

A subregional pollutant burden analysis was undertaken to determine areawide vehicular emissions with and 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. For purposes of impact analysis, a comparison was made between the regional pollutant burden and Metro Rail's expected pollutant burden. The analysis indicates Candidate Alignment 6 would have the third-highest air quality benefits with a reduction in pollutant burden of 9.55 tons daily. Only Alignments 5 (9.91 tons daily) and 4 (9.64 tons daily) rank higher in air quality benefits. While the savings in pollutant burden resulting from each of the candidate alignments may be considered significant compared to the Null Alternative, the difference among candidate alignments in terms of regional pollutant burden is negligible, less than two hundredths of one percent.

A screening methodology was used to determine which intersections would experience the greatest increase in carbon monoxide (CO) assuming that negative impacts would be limited to those intersections identified in the traffic analysis as "critical," i.e., because of the addition of station access traffic.

A total of fifteen intersections listed below potentially would be susceptible to significant CO increases. This compares to a high of nineteen intersections under Alignment 3 and a low of thirteen intersections under Alignment 1.

- Normandie/Olympic
- Vermont/Olympic
- Wilshire/Western
- Crenshaw/Olympic
- Lankershim/Cahuenga
- Vermont/Wilshire
- Wilshire/Fairfax
- Sunset/Vine
- Fairfax/Olympic
- Lankershim/Ventura
- Lankershim/Chandler
- Wilshire/Crenshaw
- Lankershim/Burbank
- Wilshire/Normandie
- Sunset/Cahuenga

These impacts essentially represent shifts in CO from other locations. The Metro Rail project would yield an overall air quality benefit for the region.

3.10 ENERGY

The assessment of energy impacts is based on vehicle miles of travel by auto, bus, and rail in the six-county Los Angeles region. Energy uses include construction of rail facilities, vehicle manufacture, vehicle maintenance and propulsion, and station operation. The principal difference in energy

consumption among the candidate alignments would be directly related to the method of construction (i.e., subway versus aerial guideway) and projected operating levels. Aerial guideway construction requires only about one-half the energy of subway construction because of the reduced amount of materials and earth-moving involved. Aerial guideway requires less energy for operations, because less energy is needed to operate heating, ventilation, lighting, and air conditioning.

Operation of each alignment generally would require the same amount of energy. From the construction standpoint, Candidate Alignment 6 would require two percent more energy than Candidate Alignment 2, which would require the least amount of energy. However, the lower energy usage for construction and station operation under Candidate Alignment 2 would be offset by higher energy use for auto propulsion, due to the expectation of lower rail patronage for Candidate Alignment 2. Candidate Alignment 5 would perform best overall, because it would have the highest rail patronage, resulting in the lowest demand for auto manufacturing, maintenance, and propulsion energy. The difference among the candidate alignments on an annualized basis is negligible -- less than three one-hundredths of one percent.

3.11 SUBSURFACE CONDITIONS

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. All of the candidate 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 Sunset Boulevard, the chances would be reduced still further.

None of the candidate alignments would completely avoid the possibility of encountering subsurface gas. However, the risk would be greatly reduced if an aerial configuration is employed in areas of highest potential hazard. Where a subway configuration is unavoidable (or most desirable), 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.

The potential for significant seismic effects on Metro Rail has been thoroughly examined. Twelve known faults and folds have been identified in the study area. Two of the twelve are considered "active" or "potentially active." The Hollywood fault is considered active; the Santa Monica fault is 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.

Six intersections of faults or folds with Candidate Alignment 6 are evident. The segment of the alignment along Wilshire Boulevard between Alvarado Street and Vermont Avenue intersects the MacArthur Park Fault and another unnamed fault. The Vermont Avenue segment of Alignment 6 intersects the Los Angles Anticline south of Beverly Boulevard. The Sunset Boulevard segment intersects the Santa Monica Fault just east of the Hollywood Freeway and the Hollywood Syncline west of Vine. The Hollywood Fault is crossed by Candidate Alignment 6 just north of Hollywood Boulevard.

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 flood control facilities, nor is it expected that Metro Rail service and operations would be significantly affected by a 100-year flood in the Regional Core.

3.12 BIOLOGICAL RESOURCES

Like the other project options, Candidate Alignment 6 would not adversely affect unique or endangered biological resources.

3.13 ELECTROMAGNETIC EMISSIONS

Electromagnetic emissions would be associated with Metro Rail operations. Of the possible modes of electromagnetic emissions, only radiated emissions are of concern. Conducted and induced emissions do not extend beyond the rail and vehicle structure, and therefore, would have no impact upon neighboring operations.

Electromagnetic emissions from operations of trains in subway are attenuated by the tunnel structure and the earth cover to a level of insignificance. The operation of Metro Rail on elevated guideway is not expected to affect adversely other electronic installations operating in the electromagnetic environment. The alignment of Candidate Alignment 6 has been designed in part to avoid sensitive receivers such as recording studios. The Metro Rail system design specifications would result in a system that radiates electromagnetic emissions below the ambient level.

This conclusion is based upon recent measurements of the radiated ambient environment in the Sunset Boulevard area of concern, 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 for Metro Rail. The results of this assessment indicate that radiated emissions would be unlikely to affect neighboring operations. The Draft SEIS/SEIR contains further information on criteria, the existing environment, and mitigating design features for Metro Rail Project vehicles and equipment.

3.14 CONSTRUCTION IMPACTS

This section describes the methods for line and station construction under Candidate Alignment 6 and potential impacts during construction. It should be noted that these impacts would be temporary.

3.14.1 Construction Methods

Construction methods are described in Chapter 3, Section 13 of the FEIS and Section 14, Chapter 3 of the Draft SEIS/SEIR. All alternatives with an aerial alignment on Wilshire Boulevard, Vermont Avenue, or Sunset Boulevard would require a transition portal, where the guideway profile changes from aerial to subway. Portals usually require 30-40 of right-of-way and are 600-800 feet long. On Wilshire and Vermont, the portals would be constructed within street right-of-way. Candidate Alignment 6 would have an off-street portal just north

of Sunset. Alignment 4 would have the portal within Sunset Boulevard. An in-street portal for Alignment 4 would require right-of-way acquisition to maintain the same number of traffic lanes on Sunset Boulevard in the future. Moving the portal out of Sunset Boulevard with Alignment 6 would reduce traffic impacts during construction.

3.14.2 Community Impacts

Community impacts include temporary disruption of normal community activities and access to local facilities. Refer to the discussion on pages 3-159 to 3-160 of the FEIS (1983) and Section 14.3, Chapter 3 of the Draft SEIS/SEIR for a discussion of construction impacts on MacArthur Park. Additional analysis of impacts to MacArthur Park has been performed since publication of the Draft SEIS/SEIR and is presented here.

3.14.2.1 MacArthur Park

Impacts to MacArthur Park and MacArthur Lake would depend on the type of construction used through the park and whether a "pocket" track is constructed within the confines of the park. Metro Rail operations require storage or "pocket" tracks for storage of vehicles during emergencies or under special operating situations. About 1000 feet of cut-and-cover construction is required to build the pocket track, which is usually a third track provided between the main inbound and outbound tracks. A pocket track is required west of the Wilshire/Alvarado Station and east of the Wilshire/Vermont Station on the trunkline portion of the alignment, prior to its branching into west and north lines. Because of the branching, the Wilshire/Vermont Station is an "over/under" station and a pocket track cannot be incorporated into the station itself, as would normally be the case. If the pocket track were not constructed in MacArthur Park, it would have to be constructed in Wilshire Boulevard. Impacts of these options are discussed below.

Cut-and-Cover Tunnel Construction at MacArthur Park

With cut-and-cover construction, excavation is performed from above, a temporary deck is put in place, the concrete tunnel structure is completed (in this case a three cell box for inbound, pocket, and outbound tracks), and the area above the box is refilled up to ground level and permanently covered.

Cut-and-cover construction at the park would extend from the Wilshire/Alvarado Station to a point east of Parkview Street. It involves "decking" of Alvarado Street to maintain traffic flow, temporary side supports to minimize excavation through the lake, and excavation through the lake bed. The lake would be drained, unsuitable soil removed, a permanent watertight lining installed on the lake bottom to prevent the water from seeping through the lake bed, and the lake restored to its present use. Also included is reconstruction of the total lake bottom because a large section of the lake bottom would be excavated. The total time required for this cut-and-cover construction likely would be 24 months. The cost of construction for this section using the cut-and-cover method is $23.6 million.

Bored Excavation Tunnel Construction at MacArthur Park and Cut-and-Cover Construction on Wilshire Boulevard

Bored excavation tunneling consists of excavation beneath the ground, using tunnel boring machines, without cutting the ground from the top. However, soil tests show that soil under the lake is soft and silty and is unsuitable for typical bored tunnel construction. To use a bored construction technique, the soil under the lake would first have to be removed by excavation from the top and replaced with a competent material. Then the tunnelling would be done through this hard stable material. The construction steps would involve additional excavation of soils, replacing them with concrete, draining the lake, boring the tunnel, and repairing the lake bottom. The time needed for completion using this bored tunnel construction method is about 20 months. Since the pocket track cannot be constructed by boring, it would have to be constructed on Wilshire Boulevard. This means cut-and-cover construction for 1000 feet in Wilshire Boulevard from MacArthur Park to Vermont Avenue. The total cost of construction under this alternative is approximately $27.9 million, some $4 million more than cut-and-cover construction.

Impact of Cut-and-Cover Construction on the Park

The construction of an open cut through the park would impact the lake and some park land. On the east side of the park, a supported, decked-over cut 70 feet wide would cross Alvarado Street and sidewalks from the Alvarado Station. At the edge of the park, a 70-foot wide supported, open cut would continue into the lake. To provide access to the lake bed construction site, one 35-foot wide roadway would parallel each side of the open cut from Alvarado Street into the lake bed, requiring a strip of land roughly 140 feet by 230 feet, or just under three-quarters of an acre. On the west side of the lake, a supported cut 70 feet by 100 feet would be needed to complete the pocket track structure. An additional 10 feet would be needed around the supported cut to allow installation of the support system and fencing, for a total of nearly one-quarter acre. The total parkland occupied by construction would be approximately one acre out of the net land area of 21 acres (4.7 percent).

There would be several impacts on park facilities. The boating concession would be closed for the duration of construction, resulting in a loss of $2,600 in revenues to the City Department of Recreation and Parks and a loss of $19,400 for the concessionaire. Only two of the three food concessions in the park are operating. The third, in the boathouse, is expected to reopen in the near future. If reopened before construction of Metro Rail, the loss of business during construction would depend on the level of business at that time. Several trees and other landscaping would be removed to accommodate the construction cut and lake bed access roadway. These would be replaced with similar trees and landscape material upon completion of construction. The lake aeration system would be removed during construction and restored upon completion. Some furniture such as benches, tables, and trash cans would be removed and stored during construction.

The lake bed would be completely mucked for this construction alternative. Upon completion of construction, the lake bed would be backfilled and regraded to its original contours. An impermeable lining would then be installed on the lake bed and protected with a covering of gravel or asphalt. Finally, the lake would

be refilled with fresh water. These improvements to the lake would make it more enjoyable and would assist the City Department of Recreation and Parks in future maintenance activities in the lake.

Impact of Cut-and-Cover Construction on the Community

Most of the usable land area of the park (about 95 percent) would remain open for public use during construction. The major impact on the public would be that the lake would be drained for the duration of construction. No boating or fountains would be available.

Several walkways would be removed or interrupted during construction. These include the lake shore walk on the west side of the lake, the walk from the Parkview and 7th Streets entrance to the western passenger viaduct under Wilshire Boulevard, and the walk from mid-block on Alvarado Street between Wilshire Boulevard and 7th Street to the boathouse on the east side of the lake. The sidewalk along Alvarado Street would remain open to pedestrian traffic, affording a convenient bypass to reach the food concession, the boathouse, and the underpass to the north section of the park.

The lake access roadway would cross the sidewalk of Alvarado Street. The construction contractor would ensure pedestrian safety by providing a flagger to control traffic and pedestrians at the crossing.

The cut-and-cover method of construction provides major long-term improvements to MacArthur Park Lake:

- Complete removal of present muck on lake bottom;
- Regrading of the lake bottom;
- Installation of a water-proof lining;
- Placement of sand or asphalt cover over lining;
- Refilling of the lake with clean water.

These improvements would enhance the overall quality of the lake and assist the efficiency of any future maintenance activities in the lake.

Impact of Bored Tunnel Construction on the Park

The construction of tunnels through the park would involve the lake and some of the parkland. A lake bed access road would cross the east side of the park on a strip of land 50 feet by 230 feet from the Alvarado Street sidewalk into the lake. A portion of the east shore of the lake south of the boathouse would be excavated to remove soft soil from the alignment. A piling support structure would be placed on the west and south sides of the boathouse to prevent its foundation from being undermined. The total area required for construction activities is less than one-half acre compared to 21 total acres of parkland, (about 2.4 percent). Impacts to the park concessions and facilities would generally be to same as with cut-and-cover construction.

The lake bed will be backfilled and restored. The tunnel alternative does not include any improvements to the lake or the park.

Impact of Bored Tunnel Construction on the Community

Most of the usable land area of the park (about 97 percent) would remain open for public use during bored tunnel construction. The major impact on the public would be that the lake would be drained for the 20-month duration of construction. No boating or fountains would be available.

Several walkways would be removed or interrupted during bored tunnel construction. These include the walk from the Alvarado and 7th Street entrance to the boathouse, and the lake shore walk on the east side of the lake. The sidewalk along Alvarado Street would remain open to pedestrian traffic, affording a convenient bypass to reach the north section of the park.

The lake access roadway would cross the Alvarado Street sidewalk. The construction contractor would be required to ensure pedestrian safety by providing a flag person to control traffic and pedestrians at the crossing.

There would be traffic impacts to the community because of the open cut construction of the pocket track on Wilshire just west of MacArthur Park. While one lane of traffic would be kept open in both directions, the 100 feet of open cut construction would result in limited access to residences, businesses, and MacArthur Park.

3.14.3 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.

3.14.3.1 Physical Impacts

Physical impacts from transit construction usually are confined to one block from of the construction site and include modification of pedestrian and vehicular movements, temporary disturbances from noise and dust, reduced visibility for storefronts and signs, and reduced on-street parking. Additional information on the physical impacts of Metro Rail construction applicable to Candidate Alignment 6 is presented in Section 14, Chapter 3 of the Draft SEIS/SEIR.

3.14.3.2 Economic Impacts

The potential economic impacts resulting from construction of Metro Rail are difficult to estimate, but their significance can be estimated from the linear feet of cut-and-cover construction, the linear feet of commercial space abutting this construction, the ratio of linear feet of commercial space to linear feet of cut-and-cover construction and streets intersecting cut-and-cover construction. Economic impacts of aerial guideway construction are much less significant than the impacts of cut-and-cover construction.

Cut-and-cover construction along Candidate Alignment 6 would total 9,050 linear feet, second lowest among the candidate alignments. Alignment 5 would require 11,500 linear feet. Alignment 3 follows closely behind with 11,150 linear feet. Candidate Alignment 4 would have the third greatest impact at 9,900 linear feet, followed by Alignments 2 and 1, each with 9,750 and 8,900 linear feet, respectively.

Alignment 6 has 7,900 linear feet of commercial frontage abutting cut-and-cover construction, the least of any of the candidate alignments. Alignment 2, with 9,300 linear feet, and Alignment 4, with 9,200 linear feet, affect more commercial frontage during construction than any other alignment. Alignment 5 has the potential for disrupting 9,150 linear feet of commercial frontage (more than half of that at the Wilshire/Western and Wilshire/Normandie Stations). Alignment 3 has 8,850 linear feet of potential disruption, and Alignment 1 would have the least affect with 8,200 linear feet of commercial frontage.

The ratio of commercial frontage abutting cut-and-cover construction to the full length of such construction for Candidate Alignment 6 would fall in the midrange of values for other alignments.

Vehicular circulation would be impaired whenever cut-and-cover construction crosses a street, occurs along a street, or removes traffic or parking lanes. This, in turn, would impede access to business and could 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. The construction of the Hollywood/Vine Station would affect eight streets. Seven streets would be affected by construction of the Wilshire/Western Station. Construction of the remaining stations would intersect four or fewer streets. Alignment 6 would not be substantially different from other alignments with regard to impacts to streets.

3.14.4 Other Impacts

Construction impacts associated with Candidate Alignment 6 on utilities, air quality, noise levels, energy, geology, and hydrology would not differ significantly from impacts presented for the other five candidate alignments. The analysis and mitigation measures would apply as presented in Section 14, Chapter 3 of the Draft SEIR/SEIS and Section 13 of the FEIS.

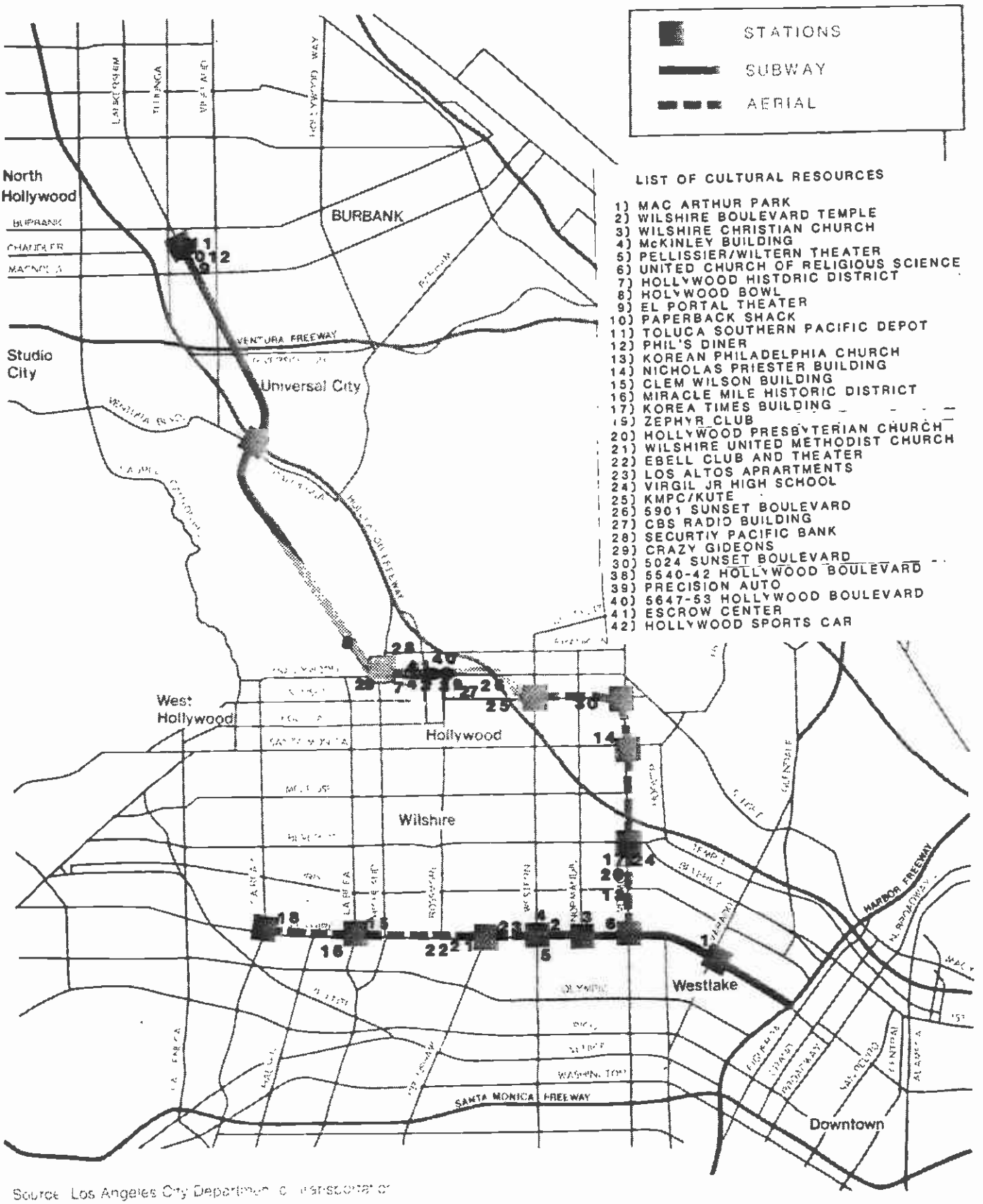
3.15 CULTURAL RESOURCES

Candidate Alignment 6 has been developed by combining a section of Candidate Alignment 4 with Candidate Alignment 3. The impacts to cultural resources for Candidate Alignment 6 consist of resources applicable to that portion of Candidate Alignment 4 and that portion of Alignment 3 combined to form Candidate Alignment 6
. Figure 10 shows the cultural resources and historic properties which will be affected by Candidate Alignment 6.

The transition zone on Sunset Boulevard where Alignment 6 portals into an off-street subway configuration is the only area unique to Alignment 6. This area does not contain any culturally significant properties.

FIGURE 10

CORE STUDY AREA AFFECTED CULTURAL RESOURCES
CANDIDATE ALIGNMENT 6



Source: Los Angeles City Department of Transportation

CHAPTER 4. COST ANALYSIS OF CANDIDATE ALIGNMENTS

Operating costs, capital costs, and bus and rail patronage data for the bus and rail modes are presented in this chapter. Data are also included for the operable segments defined for each project option. Capital costs have been annualized and combined with annual operating costs to determine real 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. 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.

Capital cost data have been revised since the November 1987 Draft SEIS/SEIR and hence are included here for comparison with Candidate Alignment 6. Capital costs for each alignment are presented in Table 9 for: construction and procurement; contingencies and design; right-of-way; and, insurance and other agency costs.

Costs are based on unit costs per linear foot of tunnel, aerial, and cut-and-cover construction and applied to lengths taken off current plan and profile sheets. Average costs are used for each station, with estimates of $36 million for subway stations and $9 million for aerial stations, and special costs for three of the stations (North Hollywood, Universal City, and the over-under Station at Wilshire/Normandie). Other costs for tail tracks, crossovers, systems, sound barrier walls, right-of-way, etc. were derived from earlier cost estimates based on specific quantities.

Annual bus and rail operating costs of the Candidate Alignments in the year 2000 are presented in Table 10 for MOS-1 plus MOS-2 and the full alignments.

4.1 ANALYSIS OF ANNUAL COSTS OF PROJECT OPTIONS

Table 11 shows a relatively small variation in total capital costs among the candidate alignments, ranging from a low of 1,797.8 million for the truncated version of Candidate Alignment 1 to a high of 1,949.6 million for Candidate Alignment 3. Although unit construction costs for subway alternatives range higher than for aerial alternatives, the all subway alternative (Alignment 1) is the lower priced alternative, due to its much shorter length. This is a range of 151.8 million or about 8 percent of the total estimated capital cost. A summary of the costs associated with each project option is presented below.

TABLE 9

CAPITAL COSTS:
CANDIDATE ALIGNMENTS AND OPERABLE SEGMENTS
(Millions of 1985 Dollars)

Alignments & Segments	Construction & Procurement	Contingency, Design & Construction Management	Right-of-Way	Insurance & Agency	Total
MOS-1	586	287	91	187	1,151
Alignment 1					
MOS-2	499	209	18	107	833
Cost to Complete	558	237	49	120	964
Total	1,057	446	67	227	1,797
Alignment 2					
MOS-2	507	220	72	109	908
Cost to Complete	503	220	82	108	913
Total	1,010	440	154	217	1,821
Alignment 3					
MOS-2	507	220	72	109	908
Cost to Complete	602	256	54	129	1,041
Total	1,109	476	126	238	1,949
Alignment 4					
MOS-2	501	214	50	108	873
Cost to Complete	551	240	86	118	995
Total	1,052	454	136	226	1,868
Alignment 5					
MOS-2	561	234	16	121	932
Cost to Complete	512	223	82	110	927
Total	1,073	457	98	231	1,859
Alignment 6					
MOS-2	514	221	61	111	907
Cost to Complete	547	234	57	118	956
Total	1,061	455	118	229	1,863

TABLE 10

YEAR 2000 BUS AND RAIL OPERATING COSTS
(Millions of 1985 Dollars)

Alignment & Segments	Bus	Rail	Total Cost
MOS-1	542.6	15.4	558.0
Alignment 1			
MOS-1 + MOS-2	537.2	24.2	561.4
Full Alignment	531.9	34.3	566.2
Alignment 2			
MOS-1 + MOS-2	535.3	27.8	563.1
Full Alignment	517.3	39.4	556.7
Alignment 3			
MOS-1 + MOS-2	535.3	27.8	563.1
Full Alignment	515.8	39.0	554.8
Alignment 4			
MOS-1 + MOS-2	531.0	27.6	558.6
Full Alignment	514.0	40.2	554.2
Alignment 5			
MOS-1 + MOS-2	533.4	25.7	559.1
Full Alignment	520.3	37.6	557.9
Alignment 6			
MOS-1 + MOS-2	532.6	27.6	560.2
Full Alignment	513.0	40.2	553.2

TABLE 11

COST EVALUATION OF PROJECT OPTIONS

	CANDIDATE ALIGNMENTS						
	CA1	CA2	CA3	CA4	CA5	CA6	Null Alt.
SYSTEM COSTS (1) (Millions of 1985 Dollars)							
Capital Costs							
o Bus Replacement	344.3	326.1	325.9	322.8	320.1	320.6	348.7
o Rail Construction	1797.8	1820.3	1949.6	1867.4	1860.1	1862.7	0.0
Annualized Capital Costs (2)							
o Bus Replacement	28.7	27.2	27.2	26.9	26.7	26.7	29.1
o Rail Construction	190.9	192.7	206.6	197.8	197.3	197.5	0.0
o Total	219.6	219.9	233.8	224.7	224.0	224.2	29.1
Annual Operating Costs							
o Bus	531.9	517.3	515.8	514.0	520.3	513.0	542.6
o Rail	34.3	39.4	39.0	40.2	37.6	40.2	15.4
o Total	566.2	556.7	554.8	554.2	557.9	553.2	558.0
Total Annual Costs							
o Bus	560.6	544.5	543.0	540.9	547.0	539.7	571.7
o Rail	225.2	232.1	245.6	238.0	234.9	237.7	15.4
o Total	785.8	776.6	788.6	778.9	781.0	777.4	587.1
AVERGE COST ANALYSIS							
Passengers							
o Bus	487.9	469.0	459.6	464.0	473.3	464.9	405.1
o Rail	89.6	103.6	98.5	105.1	107.7	104.2	17.0
o Total	577.5	572.6	558.1	569.1	581.0	569.1	422.1
Annual Cost Per Passenger							
o Rail	2.51	2.24	2.49	2.26	2.18	2.28	.91
o Rail + Bus	1.36	1.36	1.41	1.37	1.35	1.37	1.39
Operating Efficiency (3)							
o Rail	0.38	0.38	0.40	0.38	0.35	0.39	.91
o Rail + Bus	0.98	0.97	0.99	0.97	0.96	0.97	1.32
MARGINAL COST ANALYSIS (4)							
Marginal Annual Cost Per Marginal Passenger							
Marginal Passenger							
o Rail	2.89	2.50	2.82	2.53	2.42	2.55	N/A
o Rail + Bus	1.28	1.26	1.48	1.30	1.23	1.29	N/A
Marginal Operating Efficiency							
o Rail	0.26	2.28	0.29	0.28	0.24	0.28	N/A
o Rail + Bus	0.05	0.01	0.02	0.03	0.00	0.03	N/A

(1) All System Costs exclude MOS-1 rail construction costs. MOS-1 has approved funding and is under construction.

(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.

NOTE: This data has not been validated for the purposes of UMTA cost effectiveness determinations.

Source: SCRTD and General Planning Consultant.

UMTA has requested that the Project Management Oversight (PMO) contractor for the MOS-1 project evaluate the capital cost estimates for the candidate alignments. A preliminary report was submitted to UMTA on October 30, 1987. This report is currently under review by UMTA and costs may be further refined, particularly with respect to the alignment which is chosen as the final locally preferred alignment. After the selection of the Final LPA and publication of the Final SEIR, UMTA will be negotiating with the SCRTD to amend the existing MOS-1 full funding contract to include the construction of the MOS-2 alternative. These costs must be validated prior to that negotiation.

4.2 COST ANALYSIS OF OPERABLE SEGMENTS

The estimated costs for the various operable segments (MOS-2's) of Candidate Alignment 6 are shown in Table 12. The respective costs of MOS-2, MOS-2A, and MOS-2B for Alignment 6 are $907 million, $1.286 million, and $1,080 million. These costs are all within the range of costs associated with the MOS-2's of other Candidate Alignments. The costs range from a low of $739 million for MOS-2A on Candidate Alignment 1 to a high of $1,308 million for MOS-2B on Candidate Alignment 1.

The average costs and marginal costs shown in Table 13 are cost indices expressed in terms of dollars per passenger boarding. The sum of annualized capital cost and annual operating cost is divided by annual passenger boardings to produce average costs for the rail system alone and for the combined rail and bus system. The marginal cost analysis is based on the incremental change in costs and passengers relative to the Null Alternative (see Section 2, Chapter 5 of the Draft SEIS/SEIR). A brief discussion of the average cost and marginal cost indices for MOS-2 is presented below for candidate alignment 6. No information on operable segments is provided for the Null Alternative, because it represents MOS-1 only, with no further rail construction.

For MOS-2, the annualized capital costs of Candidate Alignment 6 are $96.1 million for rail construction and $29.2 million for bus replacement. The calculation of annual cost per passenger for the rail and bus system yields indices of $1.21, $1.27, and $1.22 million for MOS-2, MOS-2A, and MOS-2B, respectively. MOS-2A extends the rail line to Universal City and has an annualized construction cost of $136.3 million. MOS-2B also extends the rail line to Universal City but stops at Wilshire/Vermont rather than at Wilshire/Western and has an annualized construction cost of $114.4 million.

The marginal cost of providing rail service with the implementation of MOS-2 would be $1.69 per year per passenger over the 30 year life of the system. The marginal cost for the regional transit system (rail and bus) would be $0.68. The marginal operating efficiency of rail service (or operating cost per passenger per day) would be 19_cents for the rail system and 2_cents for the combined rail/bus system. Comparable marginal costs for MOS-2B are $1.81 per year per passenger for rail alone and $0.78 for the rail and bus system.

TABLE 12.

COST EVALUATION OF ALTERNATIVE OPERABLE SEGMENTS

SYSTEM COSTS (1)	CANDIDATE ALIGNMENTS 1 MOS-2	1 MOS-2A	1 MOS-2B	2 MOS-2	2 MOS-2A	2 MOS-2B	3 MOS-2	3 MOS-2A	4 MOS-2	4 MOS-2A	4 MOS-2B	5 MOS-2	5 MOS-2A	6 MOS-2	6 MOS-2A	6 MOS-2B	NULL ALT.
Capital Costs																	
o Bus Replacement	$348.5	$353.1	$350.7	$348.7	$339.5	$350.7	$348.7	$350.7	$347.3	$342.0	$350.7	$345.5	$348.3	$348.9	$340.7	$351.7	$348.7
o Rail Construction	$833.2	$739.3	$1,307.9	$907.7	$1,245.9	$1,030.7	$907.7	$1,170.8	$872.7	$1,293.1	$1,077.8	$932.2	$778.2	$806.9	$1,286.2	$1,079.9	$.0
Annualized Capital Costs (2)																	
o Bus Replacement	$28.9	$29.4	$29.2	$29.1	$28.3	$29.2	$29.1	$29.2	$28.9	$28.5	$29.2	$28.9	$29.8	$29.2	$28.4	$29.3	$29.1
o Rail Construction	$88.5	$78.6	$139.0	$96.1	$131.9	$109.2	$98.1	$124.0	$92.8	$137.1	$114.3	$99.1	$82.8	$96.1	$136.3	$114.4	$.0
o Total	$117.4	$108.0	$168.2	$125.2	$160.2	$138.4	$125.2	$153.2	$121.5	$165.6	$143.5	$128.0	$112.6	$125.3	$164.7	$143.7	$29.1
Annual Operating Costs																	
o Bus	$537.2	$544.9	$539.9	$535.3	$529.3	$539.9	$535.3	$539.9	$531.0	$528.9	$539.9	$533.4	$538.3	$532.6	$528.5	$541.5	$542.6
o Rail	$24.2	$22.1	$29.4	$27.8	$32.7	$30.8	$27.8	$30.9	$27.6	$32.8	$30.9	$25.7	$23.4	$27.6	$32.8	$30.9	$15.4
o Total	$561.4	$567.0	$569.3	$563.1	$562.0	$570.7	$563.1	$570.8	$558.6	$561.7	$570.8	$559.1	$561.7	$560.2	$561.3	$572.4	$558.0
Total Annual Costs																	
o Bus	$566.1	$574.3	$569.1	$564.4	$557.6	$569.1	$564.4	$569.1	$559.9	$557.4	$569.1	$562.3	$568.1	$561.8	$556.9	$570.8	$571.7
o Rail	$112.7	$100.7	$168.4	$123.9	$164.6	$140.0	$123.9	$154.9	$120.2	$169.9	$145.2	$124.8	$106.2	$123.7	$169.1	$145.3	$15.4
o Total	$678.8	$675.0	$737.5	$688.3	$722.2	$709.1	$688.3	$724.0	$680.1	$727.3	$714.3	$687.1	$674.3	$685.5	$726.0	$716.1	$587.1
AVERAGE COST ANALYSIS																	
Passengers																	
o Bus	493.3	500.5	498.1	489.2	492.4	498.1	489.2	498.1	488.4	486.1	496.1	491.5	498.4	488.1	484.8	498.7	405.1
o Rail	73.0	72.4	84.2	78.8	87.6	84.2	78.8	84.2	81.2	89.7	86.5	83.9	80.3	81.0	88.2	86.8	17.0
o Total	566.3	572.9	582.3	568.0	580.0	582.3	568.0	582.3	567.6	575.8	586.6	575.4	578.7	567.1	573.0	567.5	422.1
Annual Cost Per Passenger																	
o Rail	$1.54	$1.39	$2.00	$1.57	$1.88	$1.66	$1.57	$1.84	$1.46	$1.89	$1.64	$1.49	$1.32	$1.53	$1.92	$1.84	$.91
o Rail + Bus	$1.20	$1.18	$1.27	$1.21	$1.25	$1.22	$1.21	$1.24	$1.20	$1.26	$1.22	$1.19	$1.17	$1.21	$1.27	$1.22	$1.39
Operating Efficiency (3)																	
o Rail	$.33	$.31	$.35	$.35	$.37	$.37	$.35	$.37	$.34	$.37	$.35	$.31	$.29	$.34	$.37	$.35	$.91
o Rail + Bus	$.99	$.99	$.98	$.99	$.97	$.98	$.99	$.98	$.96	$.98	$.97	$.97	$.97	$.99	$.98	$.97	$1.32
MARGINAL COST ANALYSIS (4)																	
Marginal Annual Cost Per Marginal Passenger																	
o Rail	$1.74	$1.54	$2.28	$1.76	$2.11	$1.85	$1.76	$2.08	$1.63	$2.13	$1.82	$1.84	$1.43	$1.89	$2.16	$1.81	N/A
o Rail + Bus	$.64	$.58	$.94	$.69	$.86	$.78	$.69	$.85	$.64	$.91	$.77	$.65	$.56	$.88	$.92	$.78	N/A
Marginal Operating Efficiency																	
o Rail	$.18	$.12	$.21	$.20	$.25	$.23	$.20	$.23	$.19	$.24	$.22	$.15	$.13	$.19	$.24	$.22	N/A
o Rail + Bus	$.02	$.06	$.07	$.03	$.03	$.08	$.03	$.08	$.00	$.02	$.08	$.01	$.02	$.02	$.02	$.09	N/A

(1) All System Costs represented in Millions of 1985 Dollars. All System Costs exclude MOS-1 rail construction costs. MOS-1 has approved funding and is under construction.
(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
(3) Operating cost divided by passengers.
(4) Marginal analysis is based on the incremental change in costs and passengers relative to the Null Alternative.
NOTE: This data has not been validated for the purposes of UMTA cost effectiveness determinations.
Source: SCRTD and General Planning Consultant.

4.3 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 construction of MOS-2, the second construction segment of Metro Rail (Table 13). The remaining portion of MOS-2 construction costs is to be funded by State, local and private sources mentioned above. Additional funding from UMTA Section 9 grants may be authorized as well. The commitments of the funding partners to MOS-2 construction are being finalized at this time.

TABLE 13

METRO RAIL PROPOSED FUNDING SUMMARY FOR OPERABLE SEGMENTS
(Millions of Dollars)

	Construction Cost (12/85 $'s)	Construction Cost (Escalated $'s)	Funding Sources UMTA Sec.3	UMTA Sec.9	Non-Federal
MOS-1	1151	1250	605	91	554
Alignment 1					
MOS-2	833	1043	666	0	377
MOS-2A	739	925	666	0	259
MOS-2B	1308	1637	666	60	911
Alignment 2					
MOS-2	908	1136	666	0	470
MOS-2A	1246	1559	666	60	833
MOS-2B	1031	1290	666	0	624
Alignment 3					
MOS-2	908	1136	666	0	470
MOS-2A	1171	1465	666	0	799
Alignment 4					
MOS-2	873	1092	666	0	426
MOS-2A	1293	1618	666	60	892
MOS-2B	1078	1349	666	0	683
Alignment 5					
MOS-2	932	1167	666	0	501
MOS-2A	778	974	666	0	308
Alignment 6					
MOS-2	907	1135	666	0	469
MOS-2A	1286	1610	666	60	884
MOS-2B	1080	1352	666	0	686

CHAPTER 5: HOLLYWOOD BOWL CONNECTOR TO HOLLYWOOD/HIGHLAND STATION

Segments of the community have expressed a desire to provide a connection between Metro Rail and the Hollywood Bowl. As Candidate Alignment 6 evolved, it became evident that with a subway configuration under Hollywood Boulevard and a station at Hollywood/Highland, it would not be possible to curve the alignment sharply enough to serve the Hollywood Bowl. Consequently, the potential for providing a transit link between the Hollywood/Highland Station and the Hollywood Bowl has been investigated. Such a Connector is considered part of Candidate Alignment 6, but probably would be funded through local sources.

5.1 PURPOSE OF AND NEED FOR CONNECTOR

The primary purpose of the Connector would be to allow use of Metro Rail by persons attending events at the Hollywood Bowl, enhancing both use of the Bowl and off-peak use of Metro Rail. Provision of a Connector to the Hollywood/Highland Station would increase the accessibility to the Bowl from the region. It should reduce congestion in the vicinity of Highland and Odin and other nearby intersections. By decreasing congestion, travel times would be reduced. Improved access would put the Hollywood Bowl in a more competitive position for attracting special event patrons. Increased use of the Bowl would enhance the viability of this National Register eligible property.

In addition to serving special events, provision of the Connector would provide for potential use of Hollywood Bowl parking by Metro Rail park-and-ride patrons.

5.2 PROJECT OPTIONS

The "Hollywood Bowl Connector Preliminary Feasibility Study," (February, 1988) presents basic system information for four construction options: an elevated moving walkway, an elevated people mover, an underground moving sidewalk, and an underground people mover. A bus shuttle system is also under consideration. System characteristics are shown in Table 14.

A bus shuttle system would operate from te Hollywood Bowl. This sevice would operate during summer performances to Hollywood Bowl and commences operation at approximately 6:00 P.M. The shuttle would load passengers at the Hollywood/Highland station and operate non-stop to the Hollywood Bowl. Inbound passengers would disembark directly in front of the Bowl ticket offices. Passengers returning after performances would load buses in the median area of Highland Avenue similar to existing District Hollywood Bowl operation. In the event special service is required other than during regular Bowl dates, a shuttle service would be provided.

Costs for this daily operation which is capable of transporting 4,000 passengers/hour are $11,000 per day. Regular all day service to the Bowl area will also be available on SCRTD Line 212 which operates seven days and serves both the Hollywood Bowl and the Hollywood/Highland station.

For the aerial alternatives, preliminary analysis indicates that an aerial guideway could be accommodated within the street right-of-way of Highland Avenue. Figures 11 and 12 show possible cross sections for aerial guidways, either for a people-mover or a moving sidewalk. Possible alignments for these elevated connectors are shown in Figures 13 and 14.

Highland Avenue has a right-of-way of 100 feet through most of its length between Hollywood Boulevard and the Hollywood Bowl. This accommodates seven traffic lanes each about ten feet wide, plus fifteen foot sidewalks on each side. Placement of the guideway in the street center would require street widening and reduction of sidewalk widths to retain current traffic and parking lanes along Highland Avenue.

TABLE 14

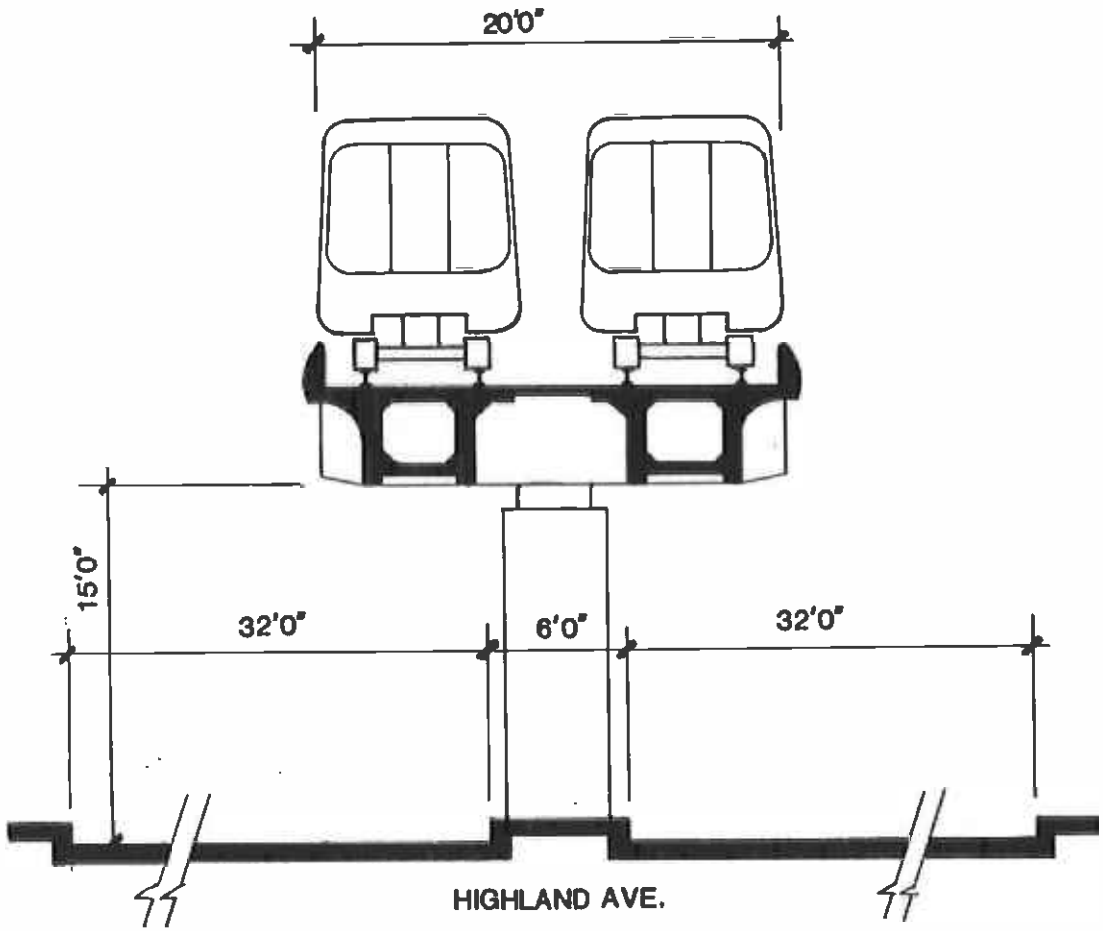
SYSTEM CHARACTERISTICS OF ALTERNATIVES

	Elevated Moving Walkway	Underground Moving Walkway (1)	Elevated People Mover	Underground People Mover	Bus Shuttle
1. Approx. Capital Costs (In millions, 1988 $)					
1.1 Guideway/Stations	9-13.5	13.5-20.5	20-28	32-42	
1.2 Moving Walkways	9-13	9-13	-	-	
1.3 Vehicles	-	-	4.5-6.5	4.5-6.5	4.9-7.0
1.4 Power Communication	3-3.5	2-2.5	1.5-2.0	1.5-2.0	
1.5 Support Facilities	4.5-8.5	7-8.5	13-18	16-20	
Total	25.5-38.5	31.5-44.5	39-54.5	54-70.5	4.9-7.0
2. Approximate Annual Operating Costs (In Millions, 1988 $	1.8-2.7	2.2-3.3	1.5-2.0	1.5-2.0	(2) 0.61-0.66
3. Event Exiting Time (In Minutes; assuming 4,000 passengers)	15	15	27	27	70
4. Travel Time (Hollywood/Highland Station to Hollywood Bowl Station)	21	21	6	6	7.5
5. Average Speed (MPH)	1.9	1.9	7.5	7.5	6

(1) Costs represent reinforced concrete box and cut and cover construction at Stations (Approx. 250 feet - 0 inches in length at each end); remaining section to be standard Metro Rail Tunnel section(s).

(2) Costs assumed for 60 Bowl performances during regular Bowl season.

ELEVATED PEOPLE MOVER



TYP. SECTION

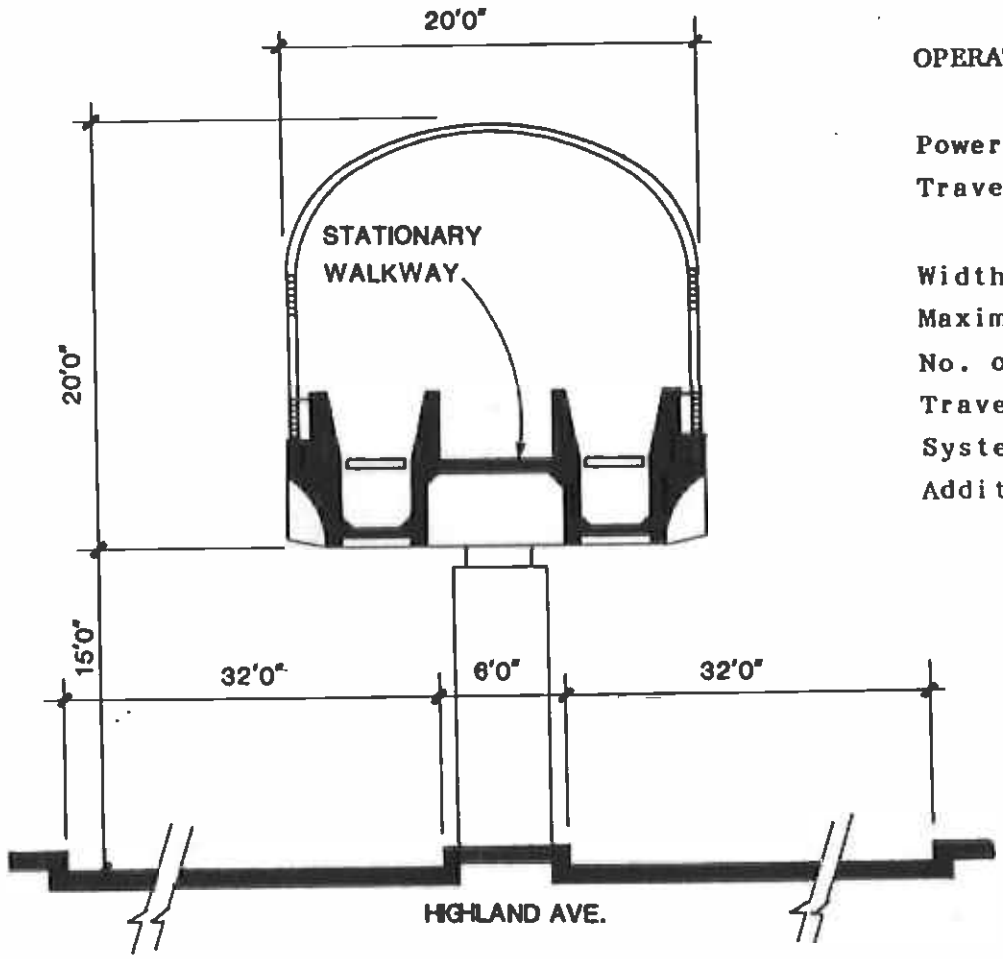
SOURCE: PARSONS BINKERHOFF QUADE & DOUGLAS , Inc.

OPERATION CHARACTERISTICS

Power: Electric
Traveling Unit: 2-Car Train
Vehicle Design Capacity: 72
Vehicle Crush Capacity: 120
System Capacity: 8800 passengers/hour
No. of Trains: 2
Headway: 2 Minutes
Average System Speed: 32 mph

FIGURE 11

ELEVATED MOVING WALKWAY



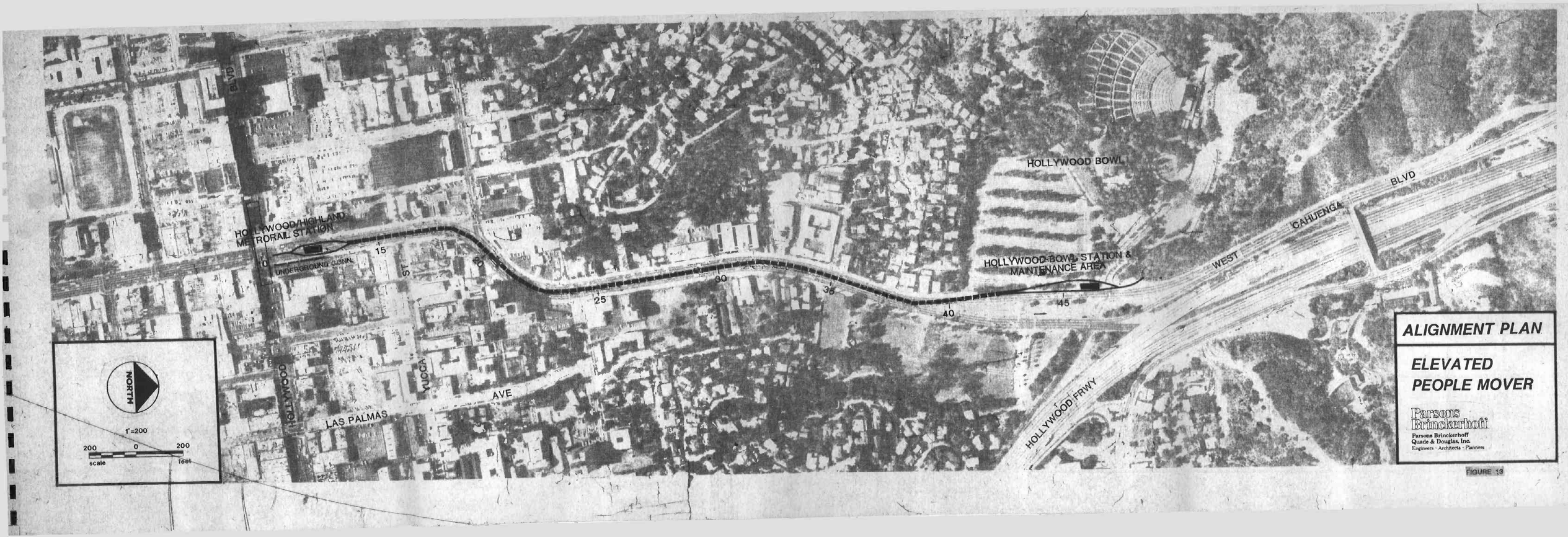
TYP. SECTION

OPERATION CHARACTERISTICS

Power: Electric
Travelling Unit: Motor-driven, continuous loop belt with reversible direction travel
Width of Unit: 3'-4" (inside clear)
Maximum Length of Unit: 425'-0"
No. of Units: 7
Travel Speed: 120 fpm
System Capacity: 10,000 passengers/hour
Additional: Moving Sidewalk Units are broken by walkable 50'-0" long landings

SOURE: PARSONS BINKERHOFF QUADE & DOUGLAS,Inc.

FIGURE 12


BLVD
HOLLYWOOD/HIGHLAND METRORAIL STATION
UNDERGROUND CONN.
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ST
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40
45
HOLLYWOOD BOWL
HOLLYWOOD BOWL STATION & MAINTENANCE AREA
WEST
CAHUENGA
BLVD
HOLLYWOOD
YUCCA
LAS PALMAS
AVE
HOLLYWOOD FRWY
NORTH
1"=200
200
0
200
scale
feet
ALIGNMENT PLAN
ELEVATED PEOPLE MOVER
Parsons Brinckerhoff
Parsons Brinckerhoff Quade & Douglas, Inc.
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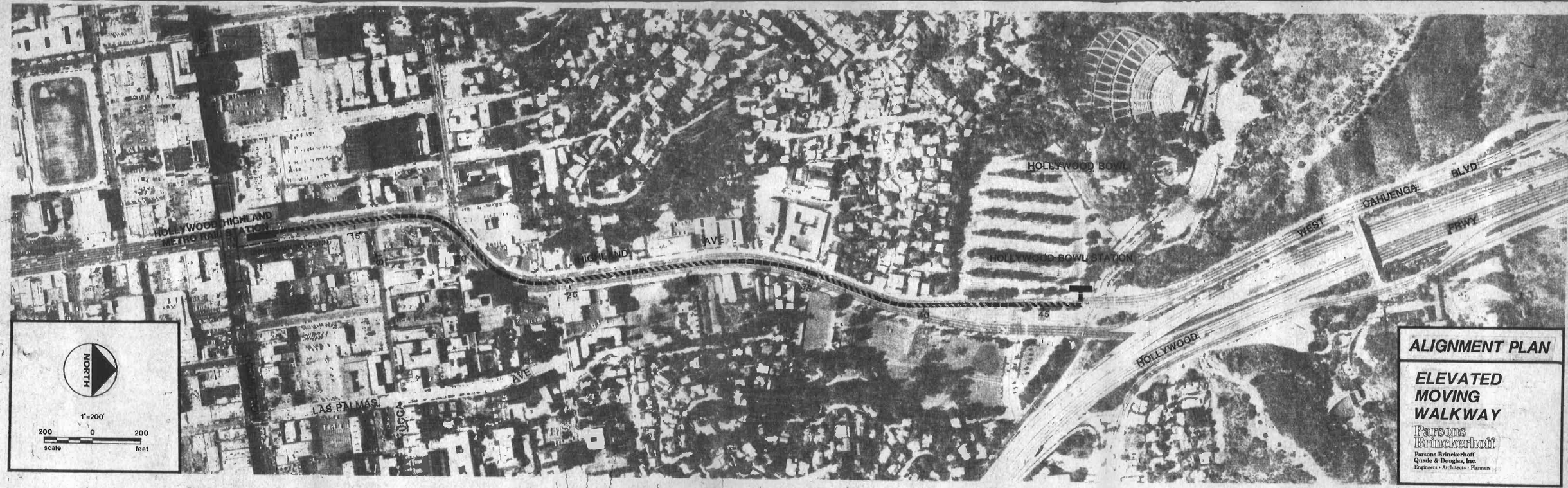
FIGURE 13


HOLLYWOOD HIGHLAND METRO RAIL STATION
HIGHLAND AVE
HOLLYWOOD BOWL
HOLLYWOOD BOWL STATION
WEST CAHUENGA BLVD
FRWY
HOLLYWOOD
LAS PALMAS AVE
NORTH
1"=200'
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scale feet
ALIGNMENT PLAN
ELEVATED MOVING WALKWAY
Parsons Brinckerhoff
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Engineers • Architects • Planners
MOVING WALKWAYS
WALKING AREAS

FIGURE 14

The aerial guideway would be supported by piers that would have to be protected by New Jersey type barriers or the equivalent. Taken together, the piers and barriers would require no more than five to six feet from the centerline of the roadway. It may be possible to take sidewalk from only one side in some locations, but taking from both sides should be anticipated. This would require replacement of utilities (principally light poles and signal masts) and relocation of sewer inverts.

A subsurface guideway could be constructed using tunneling construction. Figures 15 and 16 show possible cross sections for the underground options. Figures 17 and 18 show alignments for these options. Figure 20 shows the profile for subsurface connectors. These options would require use of cut-and-cover construction on Highland Avenue from Hollywood Boulevard to a point just south of the Highland/Franklin intersection.

At the Hollywood/Highland Station, there would be a direct tie between the subsurface Metro Rail station and a subsurface Connector. Surface access at the Hollywood/Highland Metro Rail Station was previously planned on the southwest corner of Highland and Hollywood. This configuration has been reevaluated for the Hollywood Bowl surface connector options, and a connection to the surface in the northeast quadrant of the intersection is proposed (See Figures 13 and 14). This allows for a more direct connection between an aerial Connector and the subsurface Metro Rail Station.

Costs for the proposed construction connectors range from $25 to $70 million. An elevated moving walkway would be least expensive of the options, followed by an underground moving walkway. An underground people mover would be most expensive because of subsurface construction of two tunnels. The shuttle bus option would involve capital costs between $4.9 and $7 million for purchase of buses.

5.3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Highland Avenue between Hollywood Boulevard and Odin is characterized by low rise commercial land uses with heavy through traffic on Highland Avenue. This section describes impacts related to that area. For additional information see the Draft SEIS/SEIR.

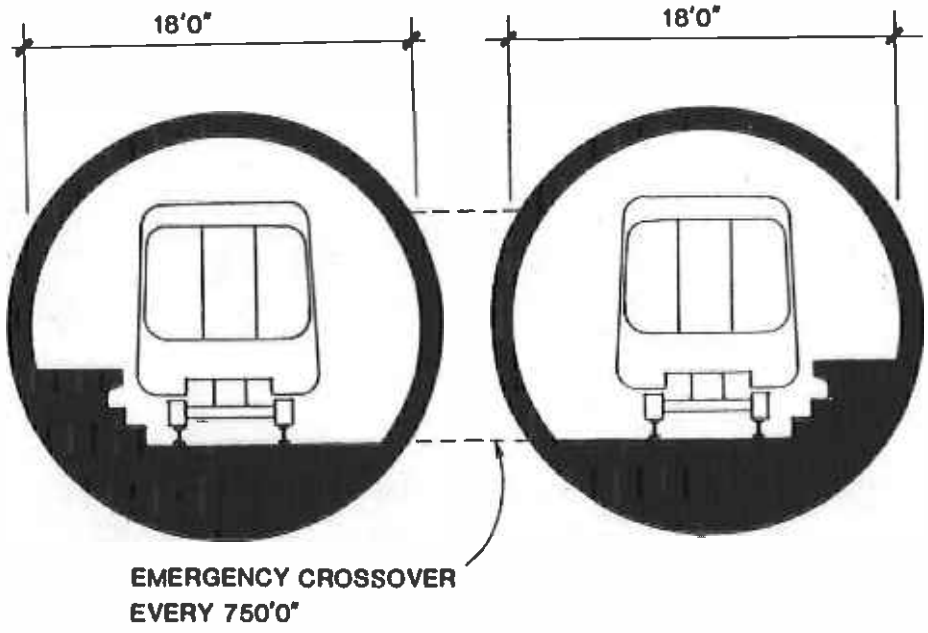
5.3.1 Transportation

SCRTD provides bus service along Highland Avenue, but such service is not designed for special events. The connector would provide a direct link to Metro Rail, minimizing transfer and loading times between modes.

For an aerial guideway, pier supports could be located along the street centerline of Highland Avenue. Highland Avenue would have to be widened by reducing sidewalk widths by several feet to retain current traffic and parking lanes. There would be no impacts to existing SCRTD bus service on Highland Avenue.

A subsurface guideway would provide long term benefits to traffic and circulation. Metro Rail/Connector access to the Hollywood Bowl would reduce auto trips to special events and would compete with service now provided by charter buses to the Bowl. While it is anticipated that latent demand would

UNDERGROUND PEOPLE MOVER



TYP. SECTION
THRU BORED TUNNELS

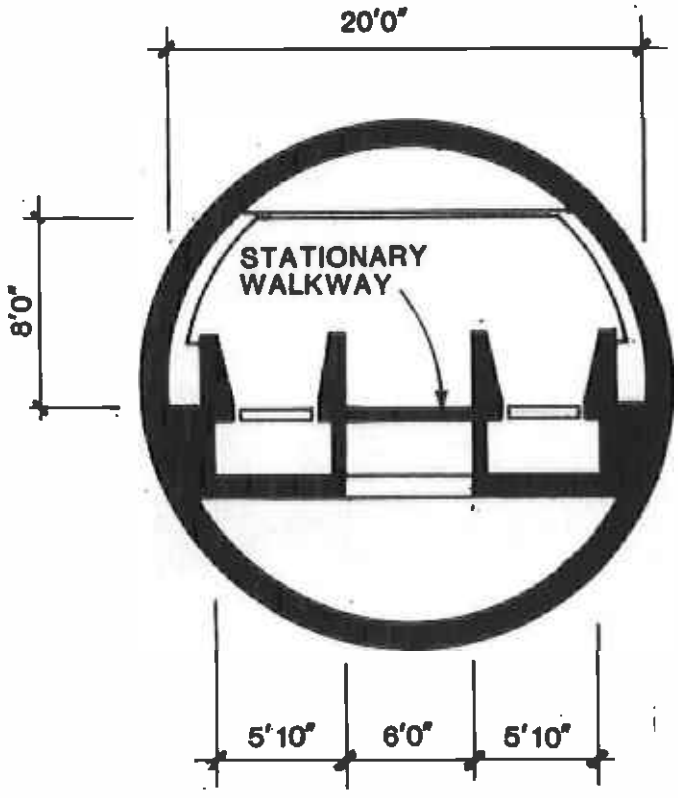
OPERATION CHARACTERISTICS

Power: Electric
Travelling Unit: 2-Car Train
Vehicle Design Capacity: 72
Vehicle Crush Capacity: 120
System Capacity: 8800 passengers/hour
No. of Trains: 2
Headway: 2 Minutes
Average System Speed: 32 mph

SOURCE: PARSONS BINKRHOFF QUADE & DOUGLAS ,Inc.

FIGURE 15

UNDERGROUND MOVING WALKWAY



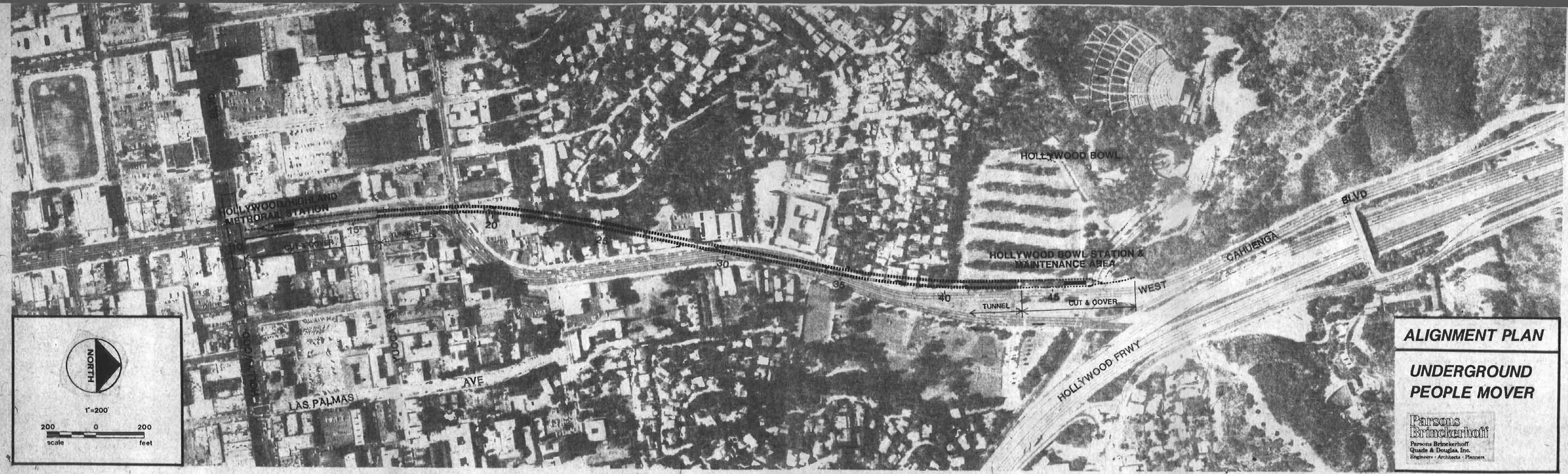
TYP. SECTION
THRU BORED TUNNEL

OPERATION CHARACTERISTICS

Power: Electric
Travelling Unit: Motor-driven, continuous loop belt, with reversible direction travel
Width of Unit: 3'-4" (inside clear)
Maximum Length of Unit: 425'-0"
No. of Units: 7
Travel Speed: 120 fpm
System Capacity: 10,000 passengers/hour
Additional: Moving Sidewalk Units are broken by walkable 50'-0" long landings

SOURCE: PARSONS BINKERHOFF QUADE & DOUGLAS, Inc.

FIGURE 16


HOLLYWOOD HIGHLAND METRORAIL STATION
CUT & COVER
TUNNEL
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HOLLYWOOD BOWL
HOLLYWOOD BOWL STATION & MAINTENANCE AREA
TUNNEL
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CUT & COVER
WEST
CAHUENGA
BLVD
HOLLYWOOD FRWY
LAS PALMAS
AVE
NORTH
1"=200'
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scale feet
ALIGNMENT PLAN
UNDERGROUND PEOPLE MOVER
Parsons Brinckerhoff
Parsons Brinckerhoff Quade & Douglas, Inc.
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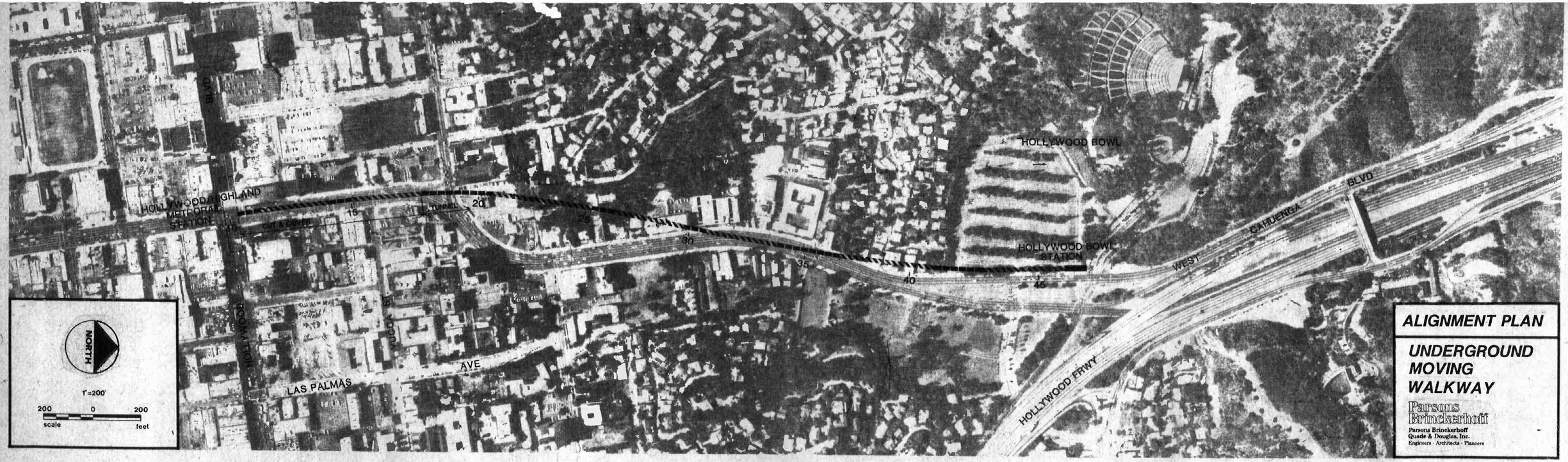
FIGURE 17


HOLLYWOOD/HIGHLAND METRORAIL STATION
CUT & COVER
TUNNEL
HOLLYWOOD BOWL
HOLLYWOOD BOWL STATION
WEST
CAHUENGA
BLVD
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LAS PALMAS
AVE
NORTH
1"=200'
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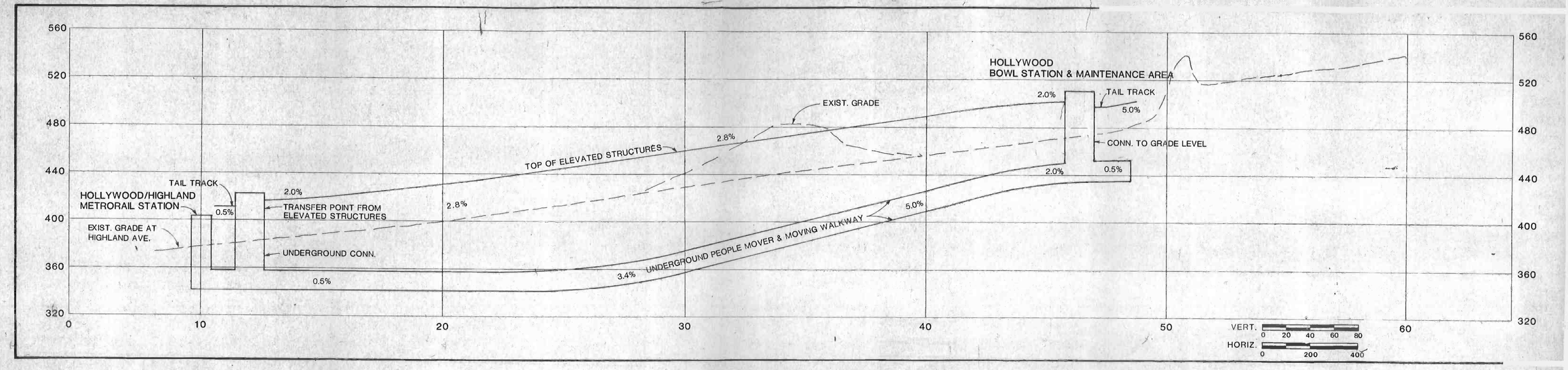
scale feet
ALIGNMENT PLAN
UNDERGROUND MOVING WALKWAY
Parsons Brinckerhoff
Parsons Brinckerhoff Quade & Douglas, Inc.
Engineers · Architects · Planners
MOVING WALKWAYS
WALKING AREAS

FIGURE 19



PROFILE PLAN

Parsons Brinckerhoff

FIGURE 19

continue to fill the Hollywood Bowl and Museum parking lots for large events, provision of a Connector could reduce spillover parking in the neighborhood and reduce the traffic serving these events.

An aerial guideway would have these same long term effects, but also would have negative impacts on local traffic circulation. An aerial guideway could be built within available right-of-way such that virtually all traffic lanes and lane usage were maintained as it is today. The primary difference in the future would be that left turns would no longer be possible from the center turn lane to midblock driveways. The piers supporting the elevated guideway would have to be protected by a New Jersey type barrier or equivalent design. Such a barrier would be more or less continuous except for breaks at cross streets and for pedestrians. This would mean reduced access to businesses and housing along Highland Avenue. Drivers would have to use parallel roadways or would go past their destinations and double back, using U-turns or a series of right turns rather than a single left turn. Potential impacts of the placement of a barrier are discussed below in sequence extending north from Hollywood Boulevard.

Just north of Hollywood Boulevard, Highland Avenue is seven lanes wide. The southbound approach to Hollywood Boulevard consists of three southbound through lanes and a left turn lane. There are three northbound lanes. Just to the north, the left turn lane is a center turn lane. If an aerial guideway originated on the north side of Hollywood Boulevard there would be minimal impact to the left turn lane on the southbound approach to Hollywood Boulevard. The next signalized intersection to the north on Highland Avenue is Franklin Avenue. This intersection actually consists of Franklin Avenue from the west and Franklin Place , a minor street, from the east. Franklin Avenue intersects Highland Avenue from the east at a point further north. Currently, no left turns are allowed northbound at Franklin. Therefore, in the block between Hollywood Boulevard and Franklin Avenue, the only impacts to left turns would be at midblock locations. The Holiday Inn and Burger King in this block are significant trip generators whose access would be reduced. Yucca Street meets Highland Avenue at a "T" intersection from the east, between Hollywood Boulevard and Franklin Avenue. This intersection is unsignalized. The barrier would be continuous through this section so that left turns to and from Yucca Street would be prohibited. Left turn movements to and from this street are minimal today. Eliminating these movements would cause minor shifts in traffic to parallel streets.

Available right-of-way is most restrictive through the curve on Highland Avenue at Franklin Avenue. Here the sidewalks reduce to about ten feet. Building an aerial guideway through this section would require special design, possibly including especially long spans and/or cantilevered construction to maintain traffic lanes.

Left turns are not allowed northbound on Highland Avenue at Franklin, and Southbound left turn volumes are negligible. Consequently, there would be no impacts on left turns at this intersection.

The next intersection to the north is a "T" intersection formed by Highland Avenue and Franklin Avenue from the east. This intersection would be the first location where impacts to left turns would require special consideration. Placement of pier supports and the New Jersey barrier in the center of a roadway impedes sight distance. Long beam or cantilevered construction may be necessary

Preliminary essay! → S[illegible]

to accommodate southbound left turn storage, or a separate, protected left turn phase might have to be added. In the latter case, there would be an overall reduction in intersection capacity as green time is reduced for other movements.

The final intersection that would be affected by the center street placement of an aerial guideway would be at Camrose Drive (west leg) and Milner Road (east leg). Turning movements at this intersection are light, serving local residential neighborhoods. Provision of left turn storage lanes of sufficient length to satisfy demand at this location is not anticipated to be a problem. A problem could arise if northbound vehicles attempting to access motels on the west side of Highland Avenue attempt to turn left at Camrose Drive, or make U-turns, or turn right onto Milner Road in an attempt to double back to the south. These potential problems could be mitigated if a U-turn channel were provided south of Odin Street using the broad median in Highland Avenue.

5.3.2 Land Use And Development

The corridor is mostly commercial on the east side, except for apartment development north of Franklin Avenue. On the west side of Highland Avenue, land use is more mixed. There are a number of motels concentrated south of Camrose Drive. The First Methodist Church is on the northwest corner of Highland and Franklin Avenue.

Midway between Franklin Avenue and Camrose Drive on the west side is the American Legion Highland Post. There are a number of single family residences fronting onto Highland Avenue, north of Franklin Avenue and also south of Camrose Drive.

Because the proposed Connector would p ovide point-to-point service with no intermediate access, there would be minimal effects on land use except for the visual presence of an aerial guideway.

If the station connection at Hollywood/Highland were not self-contained, and had street level entry directly to the Connector, it is possible that the pattern of commercial use in the immediate Hollywood/Highland station area could change as local merchants receive more exposure during special events. Much of this activity would be at night or on weekends. Significant development pressures would not be anticipated near the Hollywood Bowl and of the guideway in that it would be confined to the Hollywood Bowl site, and patrons would not likely leave the site during special events.

5.3.3 Economic And Fiscal Impacts

Preliminary indications are that no right-of-way acquisitions would be required for the Connector. No change in the tax base would be expected, therefore. A number of business along Highland would experience reduced access if an aerial guideway were constructed, because of the placement of a barrier along the street centerlane.

5.3.4 Land Acquisition And Displacement

No land acquisition or displacements are anticipated at this time, although this could change as preliminary design proceeds.

5.3.5 Social And Community Concerns

Social and community impacts would be primarily visual and aesthetic, if an aerial guideway were constructed. Residential development is located on the east side of Highland Avenue north of Franklin Avenue (apartments) and on the west side of Highland Avenue in two locations, opposite the point where Franklin Avenue meets Highland Avenue from the west and the block north of Camrose Drive.

5.3.6 Safety And Security

Design of walkways and people movers is well established as are associated safety criteria. Apart from differences in technology, safety and security issues for the Connector would be similar to those for Metro Rail. See Section 6, Chapter 3 of the 1983 FEIS.

5.3.7 Aesthetics

There would be only limited aesthetic impacts if the Connector were subsurface. Possible subsurface designs are shown in Figures 20 and 21. Connector entrances would have to be constructed at the Hollywood Bowl, changing the landscape.

There would be visual impacts with an aerial guideway. These impacts could be partially mitigated through use of aesthetically pleasing design, integrated with plantings and landscaping, as possible (See Figures 22 and 23).

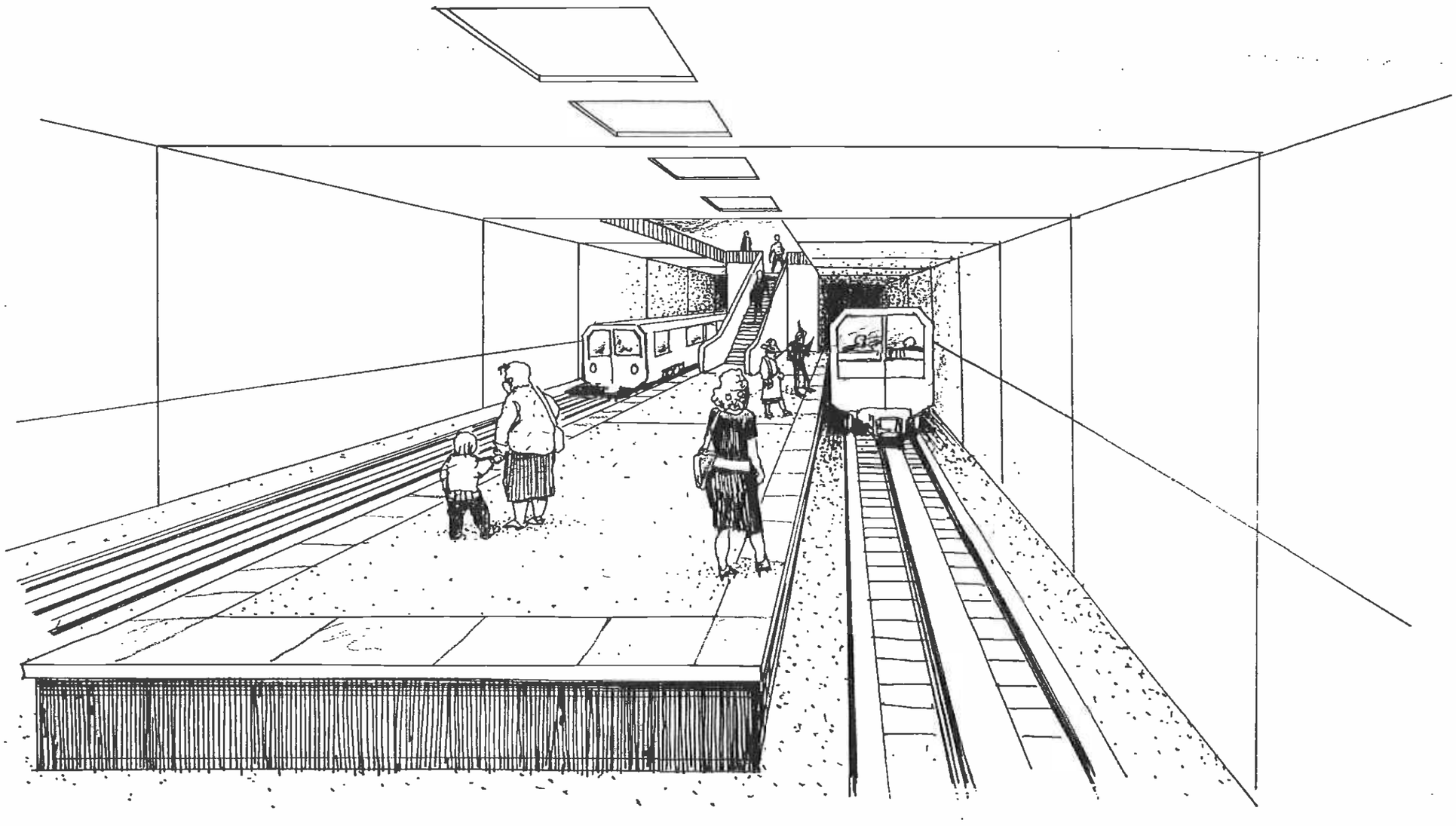
Dimensionally, the guideway would be approximately 20 feet wide. The base of the guideway would be about fifteen feet above the street and the guideway itself would be three to four feet high for a people mover or as much as fifteen feet high with a full canopy over a moving walkway. An aerial guideway can be relatively light in form and ribbonlike, but clearly introduces a new and obvious element into the visual setting. Besides being viewed from the street, an aerial guideway would be visible from surrounding hillsides, especially Whitley Heights to the east and the hill above Camrose Drive on the west.

5.3.8 Noise And Vibration

Vibration would not be significant from either the elevated or the subsurface guideway. Noise from the elevated guideway would at most times be imperceptible, and given the location of the guideway in the street center. A walkway would produce a low level continuous noise that would not be perceptible over background traffic noise. Passby noise from an elevated people mover is lower than passby noise from typical passenger vehicles. Skirting on the guideway further reduces this noise. Given the presence of trucks and buses and motorcycles in the vehicle street, it is anticipated that passby noise from a people mover would be less than or comparable to levels generated by vehicles on Highland Avenue as received at the apartments.

5.3.9 Air Quality

The Connector would have a positive, but almost negligible impact on air quality, as transit trips substitute for auto trips.

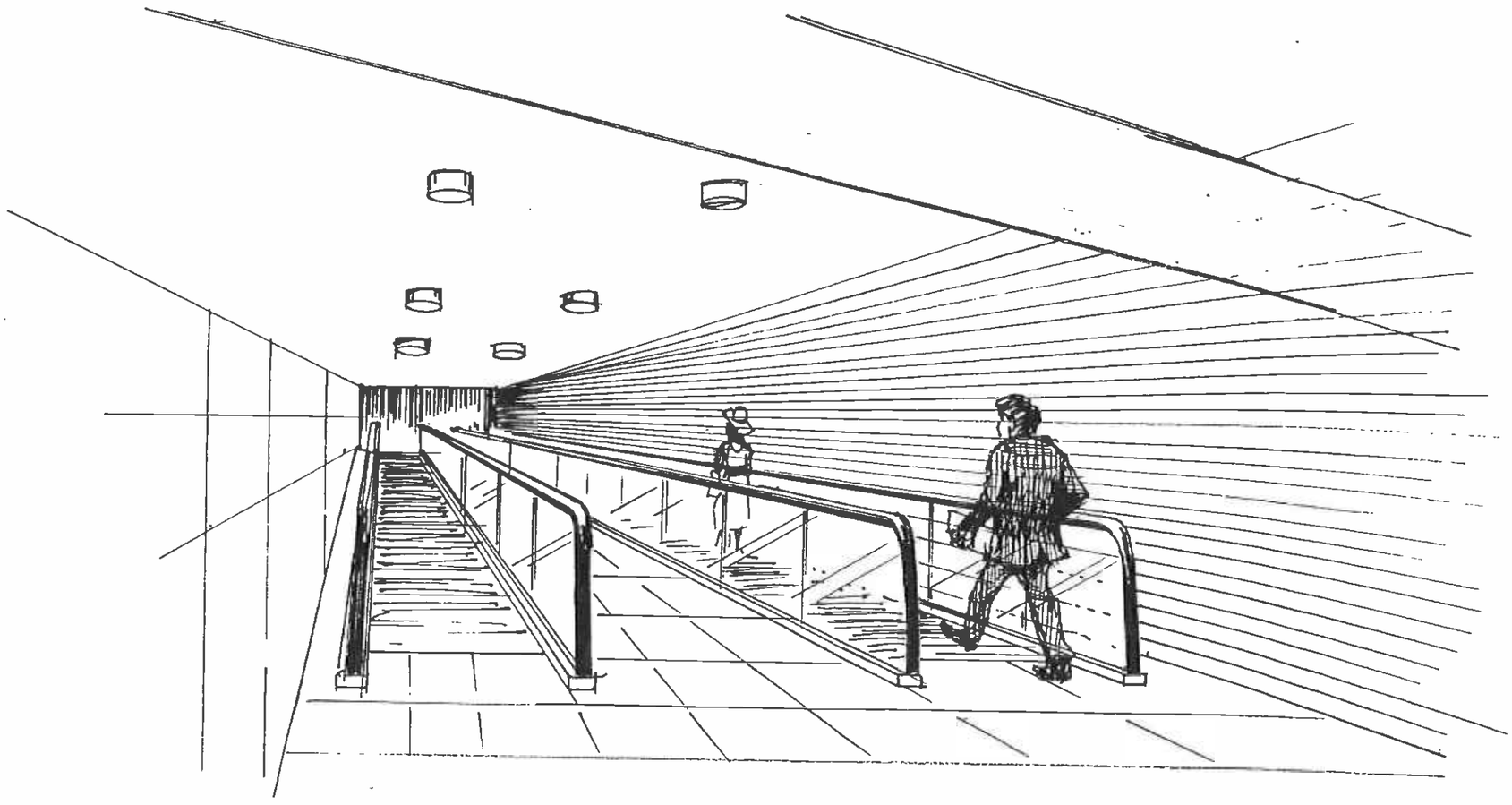


Parsons Brinckerhoff

Underground People Mover

TYP. STATION

FIGURE 20

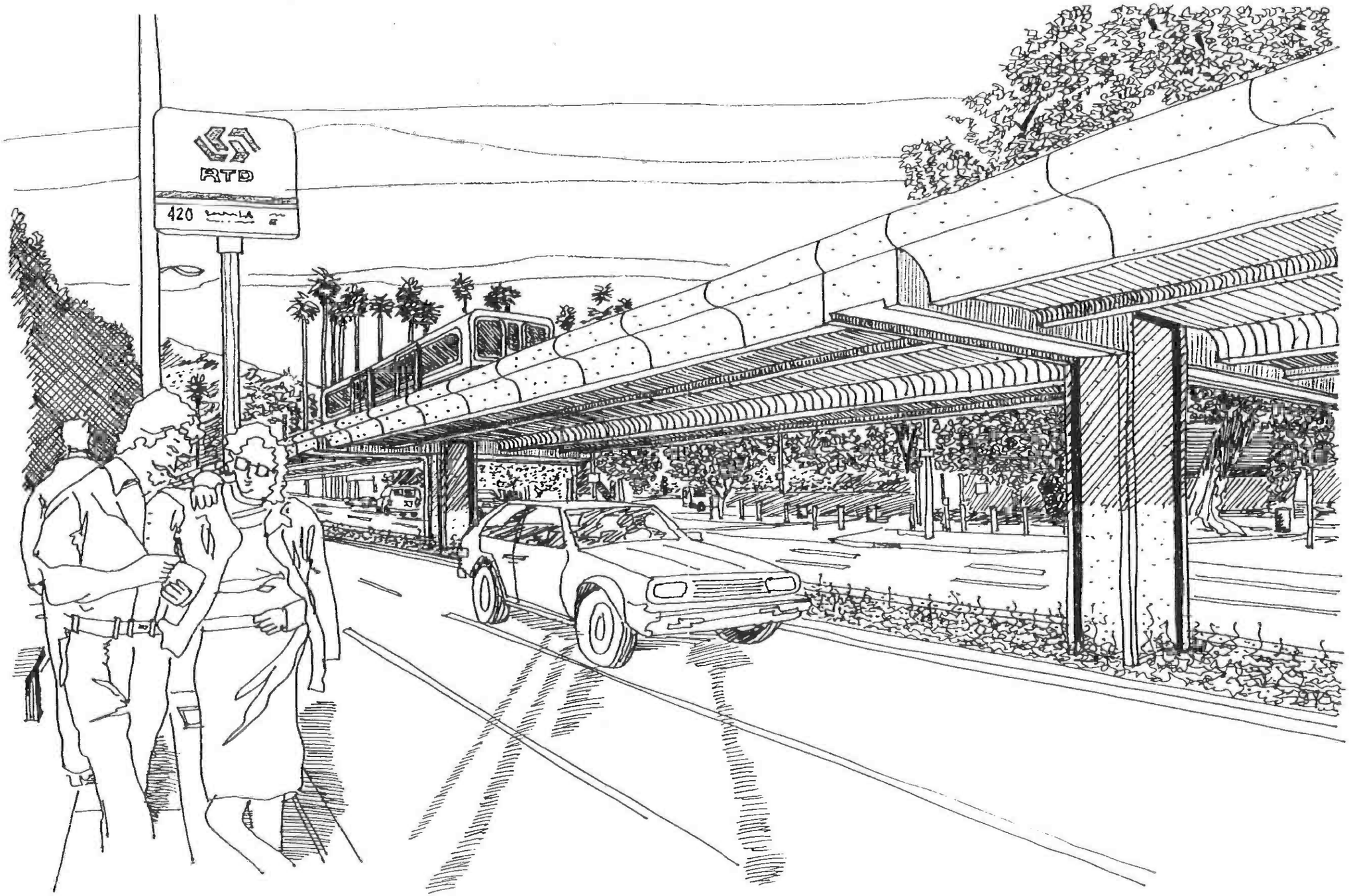


Parsons Brinckerhoff

Underground Moving Walkway

(AT CUT & COVER SECTION)

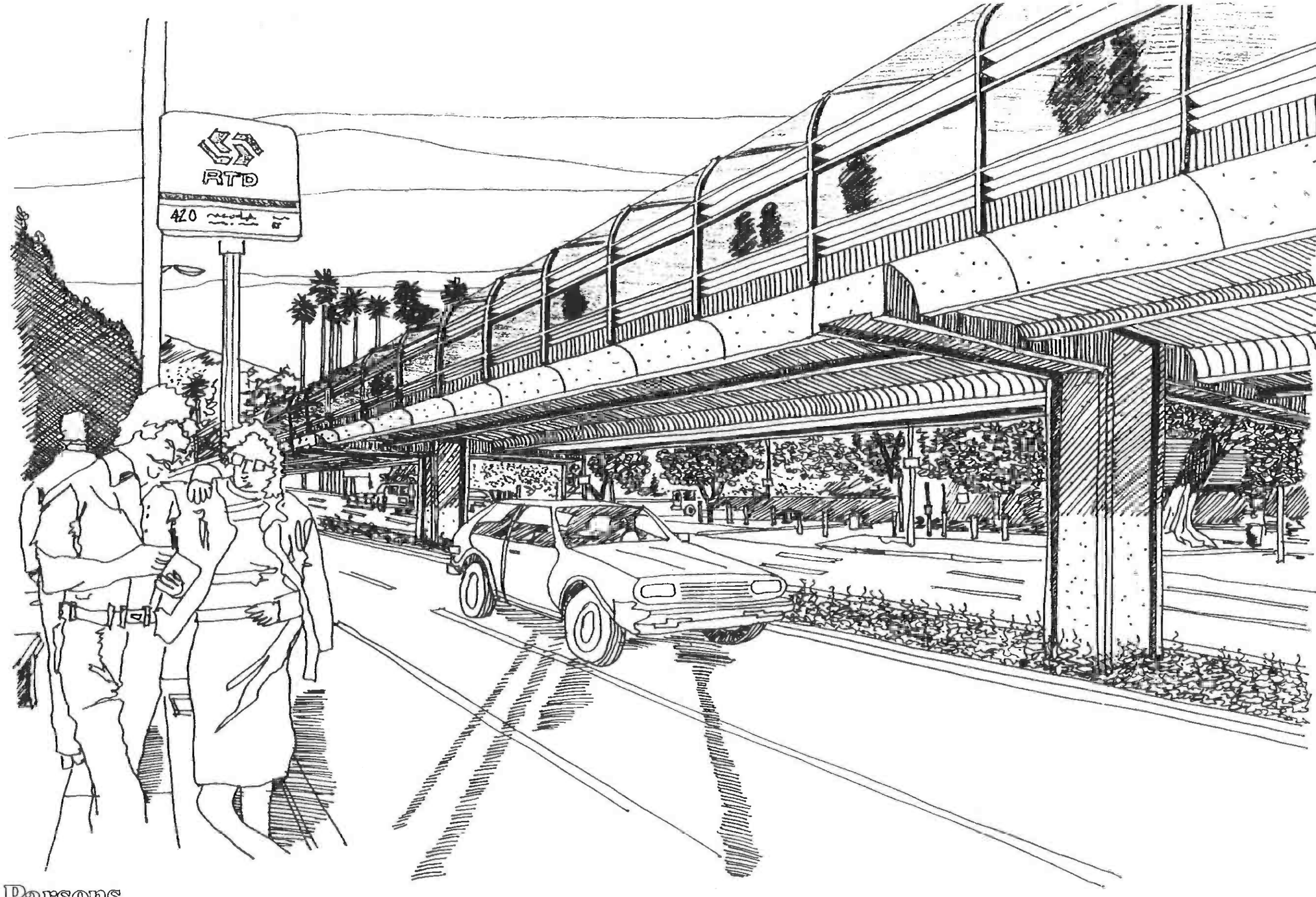
FIGURE 21



Parsons Brinckerhoff

Elevated People Mover

FIGURE 22



Parsons
Brinckerhoff

Elevated Moving Walkway

FIGURE 23

5.3.10 Energy

The Connector would have a positive, but almost negligible effect on energy use.

5.3.11 Subsurface Conditions

Figure 3-34 in the Draft SEIS/SEIR indicates that the area near the Hollywood/Highland Station is within Group 2 in terms of the likelihood of encountering subsurface gas (Group 1 is most likely, Group 4 is least likely). Figure 3-33 of the Draft SEIS/SEIR indicates that the Connector would cross the Hollywood Fault. Design of any guideway, subsurface or aerial would take this fault into consideration.

5.3.12 Biological Resources

The Connector would not have any impacts on biological resources.

5.3.13 Electromagnetic Emissions

Radiated emissions from a people mover would be lower than from a heavy rail system such as Metro Rail. For this reason, no significant electromagnetic emissions are anticipated.

5.3.14 Construction Impacts

Construction impacts would depend upon the kind of guideway constructed. Using a bored tunnel technique, a subsurface guideway would have the least long term impacts, because disruption at the surface would be limited to excavation portals and cut and cover construction, which would occur in the Highland Avenue street right-of-way between Hollywood Boulevard and a point just south of the Highland/Franklin intersection. Traffic and pedestrian circulation would be disrupted for specific periods of time, although traffic would operate once the trench was recovered. Though traffic would be maintained although, at reduced capacity. Haul vehicles would have almost immediate access to the Hollywood Freeway. Mitigation measures for this form of construction are identified in Section 14.2.2 of Chapter 3 of the Draft SEIS/SEIR. Cut-and-cover construction would also have the greatest impact on utilities.

Construction of the aerial guideway can be accomplished with relatively little impacts to traffic if girders are lifted into place on pre-cast piers. There would, however, be temporary restrictions in pedestrian access to businesses during utility relocation, pier construction, and girder placement. These impacts would be greatest to those whose sole access for customers is directly from the street (no side entrances). This is the case for the businesses in the block immediately north of Hollywood Boulevard.

5.4 CULTURAL RESOURCES

Four locations fronting onto Highland Avenue between Hollywood Boulevard and the Hollywood Freeway have been determined by the State Historic Preservation Officer (SHPO) to be potentially eligible for the National Register of Historic Places: The First Methodist Church at 6807 Franklin Avenue, the American Legion Hollywood Post at 2035 Highland, the Highland/Camrose Bungalow Village (6809-19 Camrose and 2103-2115 1/2 Highland), and the Hollywood Bowl. Other structures

of historic merit, but that have not had a determination of eligibility from the SHPO include the Dekeyser Duplex at 1911 Highland and the Dekeyser Residence at 1913 Highland.

A subsurface guideway would almost certainly have "no effect" on these resources except the Hollywood Bowl. There would be an "effect" on these resources, if an aerial guideway were constructed. All the resources listed are on the west side of Highland Avenue, and with the possible exception of the Dekeyser properties and some of the bungalows, all would have visual exposure to an aerial alignment. A determination of whether the effects were adverse would have to be made in conjunction with the State Historic Preservation Office. Clearly there would be an effect on the Hollywood Bowl under any Connector option because even subsurface alignments would require a station within the Bowl property. An aerial configuration would be substantially more intrusive because of its visual presence in Highland Avenue, and possibly immediately in front of the Bowl entrance and markee. Nevertheless, a primary stimulus for providing the Connector is to enhance the viability of the Bowl in support of its historic status and use. The Connector would make the Bowl more competitive in maintaining its traditional role in serving special events in the community. This would maintain the integrity of the characteristics which make it eligible for the National Register.

5.5 COST ANALYSIS

Preliminary cost data for potential connector options is presented in Table 14. No patronage data are yet available for this Connector, which is designed to serve special events.

5.6 CONCLUSIONS

The physical presence of an aerial guideway would cause unmitigable visual and aesthetic impacts. 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 for the Hollywood Bowl. These acts essentially require 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 be necessary to prohibit left turns to and from midblock locations, because of the placement of a barrier in the middle of the street to protect guideway support piers. The actual traffic circulation impacts of the change would be relatively minor, but individual businesses would have reduced access. Whether the barrier would have to be continuous and/or locations where gaps could be provided would require further engineering analysis.