DRAFT ENVIRONMENTAL IMPACT REPORT

The Los Angeles Downtown People Mover Program

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The Los Angeles Downtown People Mover Program

September 1978

Prepared by
the Community Redevelopment Agency
of the City of Los Angeles for the City of Los Angeles

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The Downtown People Mover is a City of Los Angeles Project administered by the Community Redevelopment Agency, funded by the Department of Transportation, Urban Mass Transportation Administration, under Contract No. CA-06-0012 and CA-03-0131, by the California Department of Transportation, and by the City of Los Angeles.

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CHAPTER

I-000 OVERVIEW AND PLANNING HISTORY

This chapter presents an overview of the Los Angeles downtown circulation/distribution program. A summary of development within downtown, the relationship of those developments to regional transportation planning programs, and a short history of the planning studies that led to the proposal for a Downtown People Mover are briefly summarized in this chapter. Detailed planning studies are listed in the Technical Appendix and briefly referenced here.

I-100 DEVELOPMENTS IN DOWNTOWN LOS ANGELES

Downtown Los Angeles was the core of the metropolitan area from the turn of the century until the 1930s. After World War II the central city went through a period of almost continuous decline, primarily because of the development of regional shopping centers and the construction of a regional freeway system. In the 1960s the central city began a cycle of development and redevelopment that reasserted the dominant role of Central Business District in the region.

Early in the 1960s large areas of the west side of downtown Los Angeles were cleared for the Bunker Hill Redevelopment Project. At the same time, banks and financial institutions that needed to expand or to build headquarters buildings were looking for an area on which to build highrise office towers (now possible because the 13-story height limit in downtown Los Angeles had been waived). Also, auto accessibility to downtown from other parts of the region had been significantly improved with the completion of the Harbor and Santa Monica Freeways, joining the Pasadena, Hollywood/Santa Ana and San Bernardino Freeways. Between 1960 and 1978, over 30 highrise buildings were built in downtown Los Agneles, most of them west of Pershing Square. At the same time, the north end of downtown became the focus of government office building. With the construction of numerous city, state, and federal buildings, the Civic Center area has become the largest concentration of government employees outside of Washington, D.C. The southwestern portion of the CBD did not develop at the same rate as the western and northern portions, but public and private sector development efforts were visible with the completion of the Convention Center and the Occidental Center

Regional Transportation and the CBD. Although the regional transportation system provided good access to downtown, it became evident that the capability of that system and the circulation/distribution system within downtown to handle the projected numbers of people, cars, and buses would be severely limited unless some improvements were made. Reigonal transportation improvements were being studied by the California Department of Transportation (CALTRANS), the Southern California Rapid Transit District (SCRTD), and the Southern California Association of Governments (SCAG). None of these studies addressed the circulation/distribution problems within downtown. The Community Redevelopment Agency (CRA) agreed to participate with the other agencies in an analysis of downtown transportation problems.

In 1974 and 1975 a number of interagency planning groups were formed to guide this downtown transportation study. The first step was to identify the numbers of people who would need to get to and around in downtown. The various study groups and planning agencies settled on 1990 as the planning year and on a series of "mid-range" projections for CBD population and employment in that year. For planning purposes, employment in 1990 was projected at 230,000 in the CBD, and a residential population of 25,000 was forecast. These estimates assumed a moderate rate of private development in downtown, continuing office and residential development in the redevelopment areas (Bunker Hill, Little Tokyo, and the CBD redevelopment area), and construction of an initial segment of a mass rapid transit line along the Wilshire corridor. These studies are summarized in Phase I Technical Reports (see the Technical Appendix for listings).

As part of the cooperative transportation planning effort, the 4-Part Regional Transportation Development Program was defined in 1976. This program, which is currently underway, coordinated the efforts of several agencies in the attempt to improve regional and local transportation services. SCRTD is responsible for development of a line-haul regional rapid transit system (Starter Line); CALTRANS is responsible for encouraging high occupancy vehicles (HOV) and the Bus-on-Freeway program; SCRTD and SCAG are responsible for the Transportation Systems Management (TSM) program; and the Community Redevleopment Agency is responsible for developing a downtown circulation/distribution program. Details of the other parts of the 4-Part Program are discussed in Section II-400, Related Projects.

I-200 DOWNTOWN TRANSPORTATION STUDIES

The Community Redevelopment Agency had been studying the traffic and transportation needs that would be generated because of the downtown redevelopment projects, since 1969. In 1974 and 1975, CRA cooperated with regional transportation agencies and expanded these studies to include the entire downtown area. Table I-20A gives an overview of the major analytical tasks and the program milestones that have occured between 1975 and the present.

I-210 PHASE I GOALS AND OBJECTIVES

One of the first tasks of the CRA planning effort in 1975 was to establish the goals and objectives for a downtown circulation/distribution system. The goals and objectives developed in that task are fully reported in the Circulation/Distribution Program Phase One report (CRA, 1975) and are summarized here.

The goals enunciated in Phase I fall into several categories: transportation service, economics, planning and environment, social, and cost/implementation. The first objective was to meet the transportation needs of the people who would be living and working in the downtown area. These transportation needs should be met within the framework of regional transportation planning (later called the 4-Part Program), and within the framework of the adopted plans for the central city area. Economic goals included maximizing employment, productivity, and the level of business activity compatible with adopted land use plans, and maximizing net tax revenues. Social goals included maximizing accessibility to jobs, services, social and recreational activities to people dependent on transit, and minimizing the costs of a circulation system to people who could least afford it. The cost/implementation goals included minimizing the life cycle costs of the C/D system, establishing a sound financial program for operating and capital costs, minimizing the adverse impacts of construction, insuring flexibility so that future technological developments could be incorporated, and coordinating the phasing of the C/D system with Bunker Hill and other downtown or regional developments.

Setting the goals, defining the key population and employment assumptions, and identifying the need for a circulation/distribution system were all accomplished by 1976 and constituted Phase I of the Major Analytical Tasks shown on Table I-20A. Detailed reports on each of these areas are referenced in the Phase I studies bibliography in the Technical Appendix.

TABLE I-20A

OVERVIEW OF MAJOR ANALYTICAL TASKS	PROGRAM MILESTONES
1975 90-Day Interagency Study 1. Definition of study purpose, scope and area 2. Establishment of Study Review Group Phase I: Goals, Objectives and Key Assumptions 1. Definition of transportation goals and objectives 2. Identification of Central City Community Plan Comprehensive Goals and Objectives 3. Definition of key assumptions a. employment b. residential c. future transportation assumptions 4. Assessment of needs	1975 1. Local agencies form group to study downtown transportation needs 2. CRA Board acts on recommendation of interagency group and expands scope of study 3. Interagency Study and Review Group and Public Involvement Program initiated 4. Interagency review and consensus on downtown growth trends and transportation assumptions
1976 Phase II: Alternatives Analysis 1. Design of alternatives a. Analysis leading to design of alternatives 1) evaluation of parking needs 2) evaluation of transit operations 3) evaluation of transit technologies 4) location of intercepts and initial segment of guideway b. Comparative evaluation of system alternatives c. Recommendation for further study	1976 1. CRA Board review of system level alternative analyses study 2. CRA recommendation that the City pursue opportunities for implementing a downtown people mover (DPM) 3. City Council approval of submitting a letter of interest to Urban Mass Transportation Administration (UMTA) re: Downtown People Mover (DPM) Demonstration program 4. City Council approval to submit Downtown People Mover (DPM) proposal to UMTA 5. SCAG inclusion of DPM in the Regional Transportation Improvement Program

continued

			6. SCRTD endorsement of DPM proposal 7. LA County Board of Supervisors approval of DPM proposal 8. Project receives CEQA clearance for completion of systems analysis requirements 9. State of California allocation of monies to fund preliminary engineering and project level environmental studies of DPM 10. Public hearing on the federal grant application for the Downtown People Mover 11. U.S. DOT award selecting Los Angeles as one of four DPM demonstration cities
1977		1977	1. Allocation of local monies to fund preliminary engineering of the people mover 2. City Council approval of 13-c resolutions required by UMTA: Agreements with affected labor unions signed
1978	Phase III: Preliminary Engineering Studies on Downtown People Mover Service 1. Definition of route refinement options 2. Comparative evaluation of route refinement options 3. Detailed engineering and environmental studies of specific alignment	1978	1. City Council approval of detailed engineering and project level environmental studies for specific alignment 2. SCRTD design of a bus plan to complement DPM operations

I-220 PHASE II STUDIES

Phase II studies concentrated on identifying and evaluating alternatives that would meet the goals identified in Phase I. A number of studies were carried on concurrently that identified:

- parking options: on-site parking, fringe parking
- bus options: bus-to-bus intercepts, self-distribute bus, paratransit, preferential streets
- technology options: bus technologies, guideway technologies, and other forms of pedestrian assistance
- possible intercept locations: size, location, impact on adjoining land uses, and availability
- alternative sites for guideways: east side, west side, central core loop

A complete list of these studies is presented under Phase II Studies in the Technical Studies appendix.

The result of these studies was definition of two systems alternatives to meet the circulation/distribution needs of downtown: an "Improved Bus Alternative" and an "Improved Bus/People Mover Alternative." These alternatives were compared with a no project alternative (the "Null" Alternative) on a number of measures including transportation service, economic benefits, conformance with adopted regional and local plans, cost, environmental impact, and engineering feasibility. The results of these studies are summarized in Chapter VII of this report, Alternatives, and documented in detail in Moving People In Los Angeles: A Summary Report of the Los Angeles Circulation/Distribution Program. Additionally, a Summary Draft Environmental Assessment of these alternatives was prepared and released (CRA, 1977).

I-230 RELATED ACTIVITIES

In April, 1976, the U.S. Department of Transportation (DOT) announced funding for a Congressionally mandated demonstration people mover program and issued a call for letters of interest. The City Council approved submittal of a letter from the Mayor to the Urban Mass Transportation Administration, notifying UMTA that the City of Los Angeles would be interested in participating in the competition for funding. The letter of interest and the proposal that followed several months later allowed the City Council to keep funding options open while they analyzed the results of the systems level Alternatives Analysis prepared by CRA.

In December, 1976, the U.S. Department of Transportation announced that Los Angeles and three other cities--Houston, Cleveland, and St.Paul--had been selected as demonstration cities for people mover funding. Los Angeles received $1.3 million in federal funds for preliminary engineering and environmental studies and a commitment of $125 million for construction, pending final local approval.

In February, 1977, the Council voted to allow the Mayor to submit a formal Capital Grant Application to UMTA specifically for preliminary engineering and environmental analysis of the Los Angeles People Mover Project. The information generated in the preliminary engineering and environmental studies would increase the level of information available to Council prior to making a decision whether to proceed with the Downtown People Mover Program.

In addition to this Draft Environmental Impact Report, a Draft Environmental Impact Statement will be prepared by the Urban Mass Transportation Administration and circulated prior to final federal approval of the project.

CHAPTER

II-000 DESCRIPTION OF THE RECOMMENDED SYSTEM

II-100 INTRODUCTION

Preliminary studies, conducted between January and August 1978, resulted in a system description which is of sufficient detail that reasonably certain costs can be determined and reasonably complete impacts can be identified. However, the system manufacturer will not be selected until the environmental process is complete, and therefore the system which is finally selected may differ in some respects from the description in this chapter. What changes do occur will be made during the final design phase of the program. To understand this potential for change, it is useful to outline how the studies of Phase II (see Section VII) of the program evolved through the completion of preliminary engineering.

Transportation analysis, conducted during Phase II, estimated system ridership. This figure, refined by preliminary engineering studies, provided the basis for the development of certain operational criteria (such as station on and off volumes, maximum link volumes, desired service frequency, operating speeds, and headways). Any candidate system, to be considered, would have to meet these criteria.

The technology assessment, also conducted during Phase II, imposed the criterion that a candidate system must be presently operating with demonstrated reliability. A design envelope was defined using the characteristics of all the systems that met the criteria and preliminary engineering. The design envelope defined station size (including width and length of platforms), guideway width, allowable grades and curves, required guideway support systems, allowable turning radii, and other parameters.

New data from additional transportation studies resulted in refined patronage analysis and parking requirements. The preliminary engineering phase used these data and parameters to establish a reference system design.

The result of these activities is a system design of sufficient detail to allow reasonably close estimates of the system's detailed alignment, physical characteristics, operating characteristics, and capital and operating costs. The reference system is representative of the final system design and configuration. However, certain minor changes could take place which may affect the size of the guideway and stations, the number of vehicles required, and other aspects of the system. The system description that follows is a reasonable description based on currently available technologies and the results of Phase II studies. In general, the final system facilities will be described here.

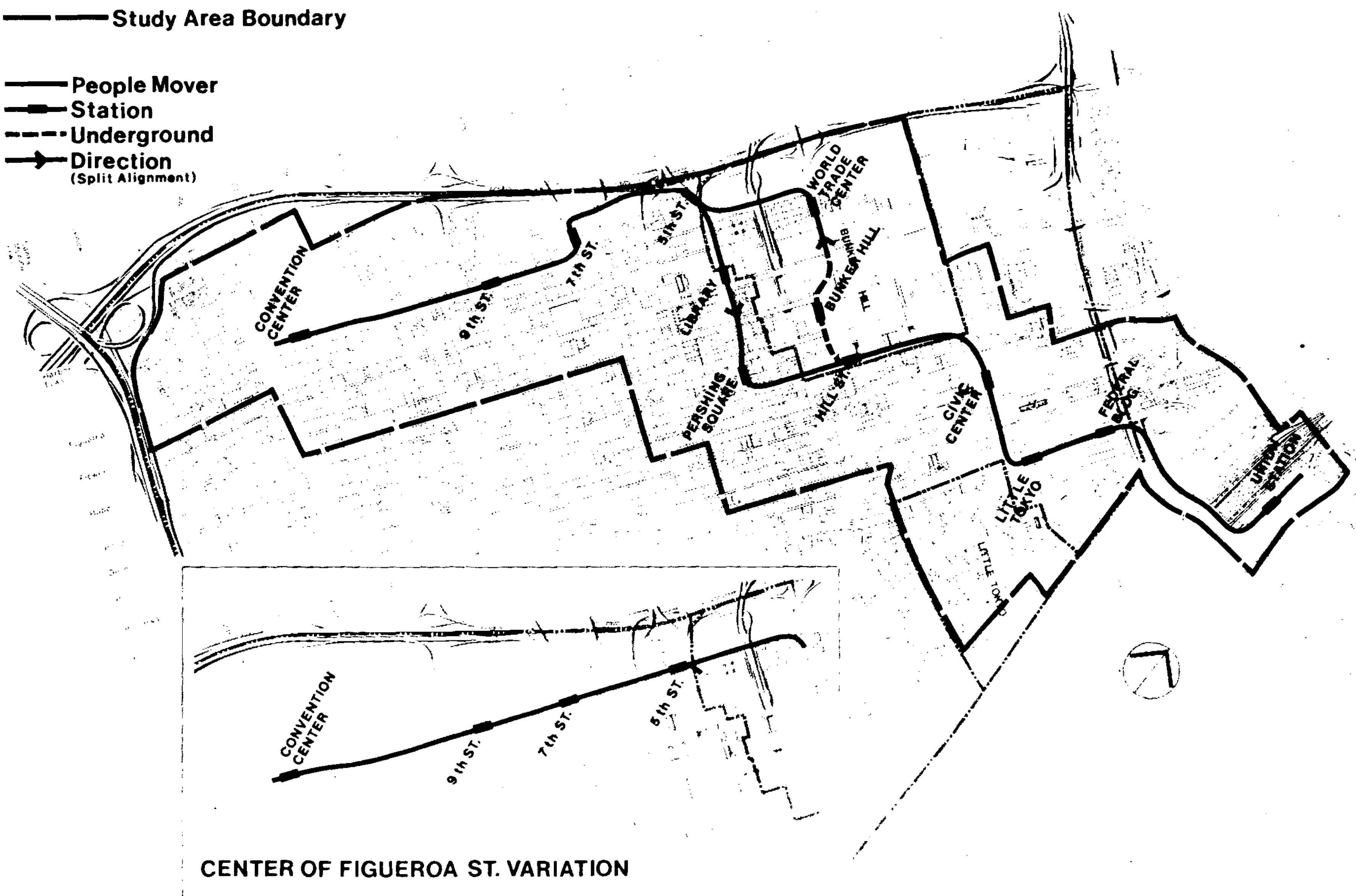
II-110 GENERAL DESCRIPTION OF THE SYSTEM

The Los Angeles Downtown People Mover has been planned as a circulation/distribution system for the central business district. It will run approximately three miles through the north and west sides of the CBD, between Union Station on the north and the Convention Center on the south (see Figure II-11A). Total trip time between Union Station and the Convention Center will be less than 15 minutes. The DPM is planned as a grade-separated facility with automated vehicles providing service to 13 stations along the proposed route. The vehicles, operating singly or in trains, will operate over an elevated guideway except for a short underground segment under Bunker Hill.

Of the 13 stations, ten will be aerial, two (Union Station and Convention Center) will be directly connected to intercept and parking structures, and one (Bunker Hill) will be underground. Additional improvements will provide 1000 parking spaces at the Union Station and 1750 at the Convention Center intercepts. Preferential access and parking will be afforded to carpools in both locations. It will be possible to transfer to and from regional and

FIGURE II-11A:

ALIGNMENT USED FOR DETAILED ENGINEERING AND ENVIORNMENTAL STUDIES



CENTER OF FIGUEROA ST. VARIATION

local buses at the two intercepts and at some stations along the route. The DPM system will cross the route of the proposed Regional Core Rapid Transit (Starter) Line at several locations, thus providing additional transfer points for circulation/distribution.

II-120 LOCAL AND REGIONAL BUSES

Local and regional buses from the Southern California Rapid Transit District (SCRTD) and other municipal and regional systems will continue to provide service to and within downtown. Some bus routes may be modified to complement the DPM system, particularly the minibus route that currently provides some circulation/distribution service to the west side of downtown. Curbside bus transfers will be possible at other stations along the system, such as the 7th and Figueroa and Hill Street stations, to minimize duplication of bus routes.

Buses from the east and southeast areas of the region will be able to use Union Station as either a terminus or transfer point. The Union Station intercept will be linked with the planned El Monte busway extension, allowing buses going in either direction to be routed through the intercept for passenger transfer to the DPM. Regional buses not terminating at the intercept could enter the CBD for distribution of passengers and to continue routes beyond the CBD. Local buses would also be able to use the intercept as either a transfer or terminal point. The Union Station intercept will also provide connections to intercity buses and Amtrak service.

Buses from the west and southwest will be able to use the Convention Center as either a terminus or transfer point. The Convention Center intercept will include facilities for curbside unloading of local and regional buses.

II-200 DESCRIPTION OF THE DPM

The Los Angeles Downtown People Mover is an automated, grade separated circulation/distribution transportation system. The system described in this chapter will consist of approximately 1.9 miles of dual-lane aerial guide-way, 2.2 miles of single-lane aerial guideway, and 0.4 miles of single guideway in a tunnel along the alignment shown in Figure II-11A. All but four of the 13 stations will have side platforms. The center platform stations will be located at the intercepts (Union Station and Convention Center) and at the transfer stations for the Bunker Hill loop (the Hill Street and the 5th/Figueroa Street stations).

The system will operate on a scheduled basis with service frequency ranging from approximately 1.5 to 5 minutes depending on the time of day. Operating hours are expected to be from 6 am to 12 m on weekdays and 8 am to 12 m on weekends. Vehicles would operate in train consists during the peak periods to provide capacities of about 3500 passengers an hour.

II-210 ALIGNMENT

The guideway alignment that has been recommended for final design is shown in detail on plan and profile drawings Figures II-21A through II-21K. A one-way loop system operates through the Bunker Hill area. The drawings show the recommended alignment, elevation above the ground, and approximate column locations. Both directions of the loop terminate at transfer stations to be located at 5th/Fremont and Hill Streets. The west-to-southbound portion of the loop uses a cut-and-cover tunnel to the west of Hill Street, an existing tunnel beneath Hope Street, and an existing easement through the Security Pacific Plaza Building. Stations are provided across from the Central Library and at Pershing Square. All other portions of the guideway are aerial, ranging in height above street level from 17 to 57 feet, but generally at 28 feet to clear the city's existing and planned pedway system.

Along Figueroa Street, south of 7th Street, columns will be placed on the western edge of existing sidewalks and the guideway will use airspace over existing property lines at several locations. Existing ordinances require dedication of a ten-foot frontage for street widening when any new building takes place. When and if the street is widened, the guideway columns will be at the edge of the newly created curbline.

Figures II-21L M and N show an alternative alignment located along the center of Figueroa from 5th Street to the Convention Center with stations near 5th, 7th, and 9th Streets over the street and connected to each side with short pedways.

This alignment is included as an alternative because of its lower capital cost for both construction and right-of-way and for the improved operating and service characteristics associated with the shorter alignment.

FIGURE II-21A:

PLAN AND PROFILE Key Plan

GENERAL NOTES

1. THESE PLANS ARE PREPARED IN ACCORDANCE WITH THE GEOMETRIC DESIGN CRITERIA AND ALIGNMENT ALTERNATIVE SELECTED BY THE CITY OF LOS ANGELES. SIGNIFICANT DEVIATION FROM THESE PLANS AS A RESULT OF REFINEMENT OR CONCEPTUAL CHANGE SHALL BE APPROVED BY THE CITY OF LOS ANGELES PRIOR TO IMPLEMENTATION.
2. ALIGNMENT DATA ARE APPROXIMATE; CURVE RADII AND SPIRALS SHOULD BE OPTIMIZED TO PERMIT MAXIMUM OPERATING SPEEDS WHERE PRACTICABLE
3. PROFILE ELEMENTS ARE DENOTED FOR BOTH TRACKS UNLESS OTHERWISE INDICATED.
4. SEE UTILITY AND PUBLIC FACILITY RELOCATION PLANS FOR RECORDED UTILITY INFORMATION
5. SEE ARCHITECTURAL PLANS FOR ARCHITECTURAL DESIGN AND FINISHES
6. REFER TO DPM DESIGN CRITERIA FOR DETAILS OF DESIGN ELEMENTS
7. STREET CENTER LINES ARE DESCRIBED IN THE DOWNTOWN PEOPLE MOVER SYSTEM-CONTROL SURVEY.
8. STRUCTURAL ADEQUACY OF EXISTING STRUCTURES AFFECTED BY CONSTRUCTION OF THE DPM ARE TO BE VERIFIED BY THE SYSTEM ENGINEER.
9. LOCATIONS OF CURBS, GUTTERS, DRIVEWAYS, BUILDING ENTRANCES, STREET FURNITURE, UTILITIES, AND BASEMENTS ARE TO BE VERIFIED IN THE FIELD BY THE SYSTEM ENGINEER
10. COLUMN LOCATIONS ARE APPROXIMATE AND MAY BE VARIED BY THE SYSTEM ENGINEER COLUMNS SHALL NOT BLOCK BUILDING ENTRANCES OR DRIVEWAYS
11. TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE WORK AREA TRAFFIC CONTROL MANUAL (1976 EDITION) PREPARED BY THE CITY OF LOS ANGELES TRAFFIC CONTROL PLANS SHALL BE PREPARED BY THE SYSTEM ENGINEER AND APPROVED BY THE CITY OF LOS ANGELES.

LEGEND

- APPROXIMATE LOCATION OF COLUMNS
- STATION PLATFORM
- EXISTING BUILDING TO REMAIN IN PLACE (DPM TO BE CONSTRUCTED OVERHEAD)
- LOCATION OF EXISTING STRUCTURES THAT MAY CONTROL HORIZONTAL ALIGNMENT. MINIMUM CLEARANCE TO DYNAMIC ENVELOPE OF DPM MUST BE MAINTAINED.
- BENT COLUMNS

CIVIL ABBREVIATIONS

V.C.	Vertical Curve length
T.C.	Tangent to Curve
C.S.	Curve to Spiral
S.C.S.	Spiral to Spiral
S.C.	Spiral to Curve
C.T.	Curve to Tangent
T.S.	Tangent to Spiral
S.T.	Spiral to Tangent
Δ	Intersection angle of alignment tangents
Ls	Length of Spiral (feet)
P.V.I.	Point of Intersection of two profile tangents
R	Radius of curvature (feet)
ΔPT.	Point of intersection of alignment tangents
℄	Center Line
STA.	Station
EL.	Elevation
HORIZ	Horizontal
VERT.	Vertical
R/W	Right of Way

SHT. Nº	INDEX TO SHEETS	
1	KEY MAP AND GENERAL NOTES	
	PLAN AND PROFILE OF DPM	
2	STA. 10 + 00	TO STA. 31 + 08
3	STA. 31 + 08	TO STA. 54 + 65
4	STA. 54 + 65 STA. 55 + 05 (NE)	TO STA. 75 + 00 (SW) TO STA. 67 + 60 (NE)
5	STA. 67 + 60 (NE)	TO STA. 88 + 77 (NE)
6	STA. 75 + 00 (SW)	TO STA. 98 + 58 (SW)
7	STA. 88 + 77 (NE) STA. 98 + 58 (SW)	TO STA. 111 + 27 TO STA. 102 + 42 (SW)
8	STA. 111 + 27	TO STA. 130 + 63
9	STA. 130 + 63	TO STA. 146 + 53
10	STA. 146 + 53 STA. 160 + 11 (SW)	TO STA. 162 + 93 (NE) TO STA. 162 + 47 (SW)
11	STA. 162 + 93 (NE) STA. 162 + 47 (SW)	TO STA. 183 + 30 (NE) TO STA. 175 + 34 (SW)

CONTRACTOR/AGENCY: CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING	Los Angeles Downtown People Mover Project COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF LOS ANGELES	CRA Approval / Date Revised	SHEET TITLE: PLAN AND PROFILE KEY PLAN	Drawing Number 3.12-CE Sheet Number 1 of 11
Prepared by / Approved by Checked by / Date				

FIGURE II-21B:

PLAN AND PROFILE Sheet 2 of 11

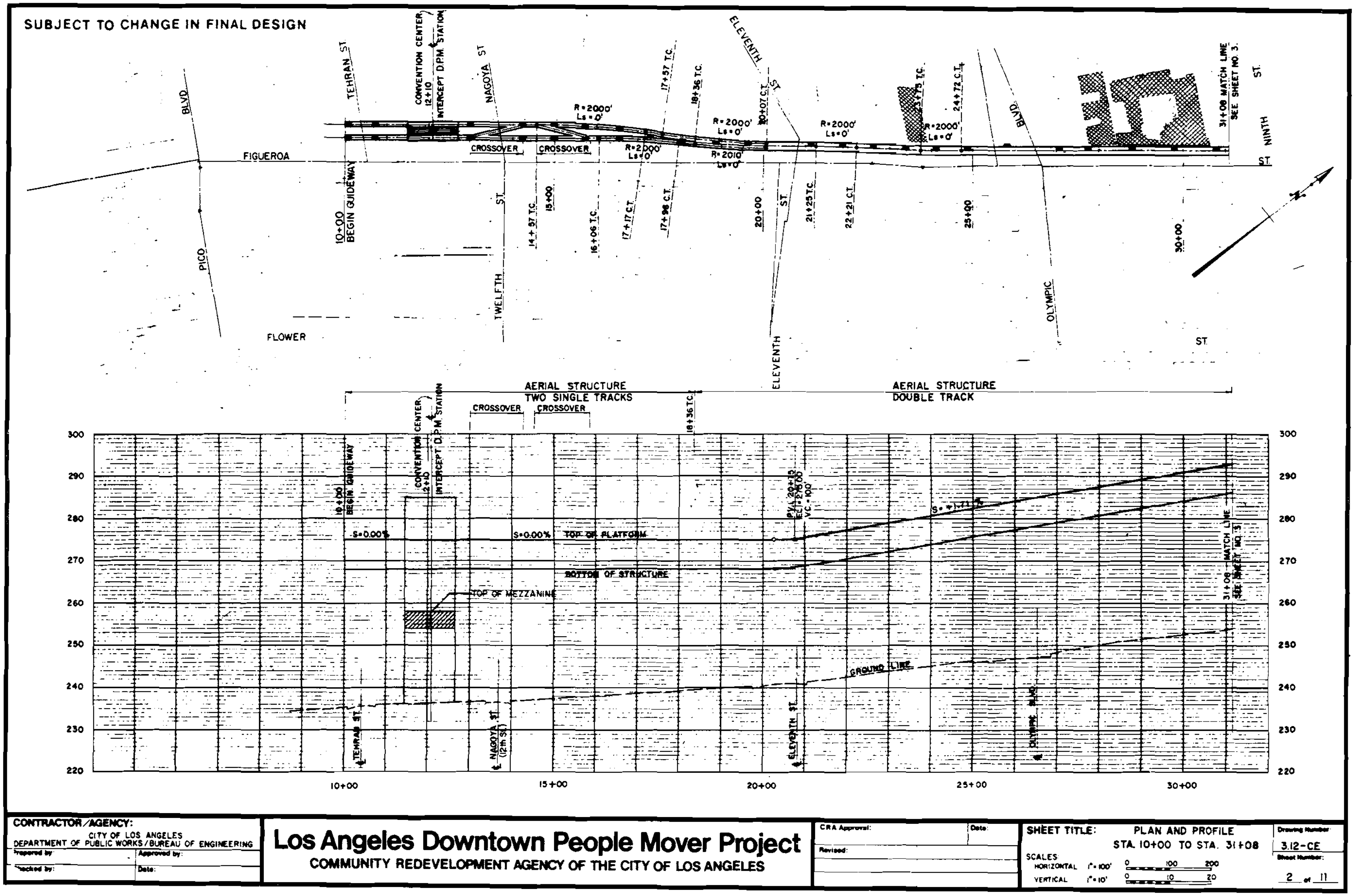
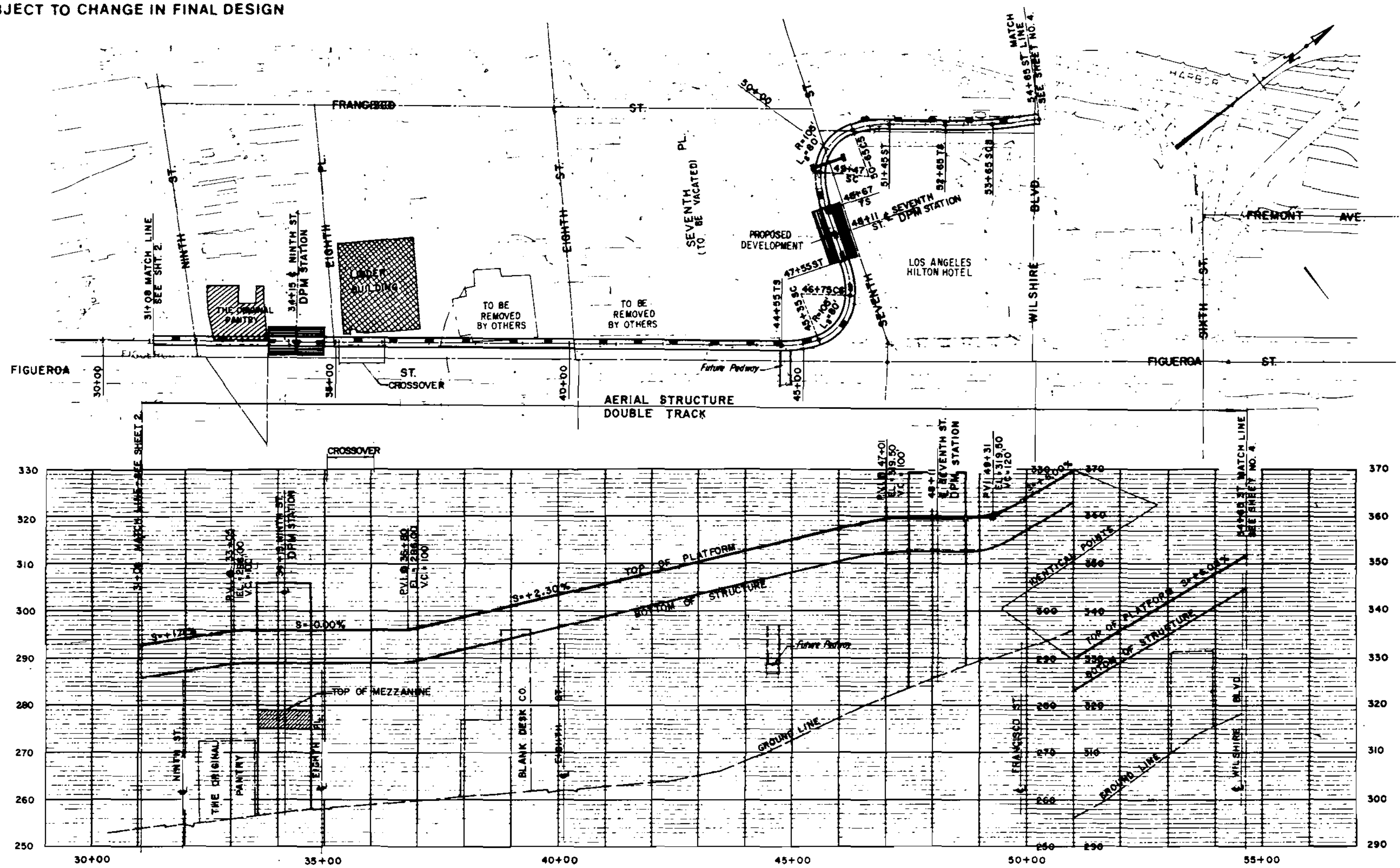


FIGURE II-21C:

PLAN AND PROFILE Sheet 3 of 11

SUBJECT TO CHANGE IN FINAL DESIGN



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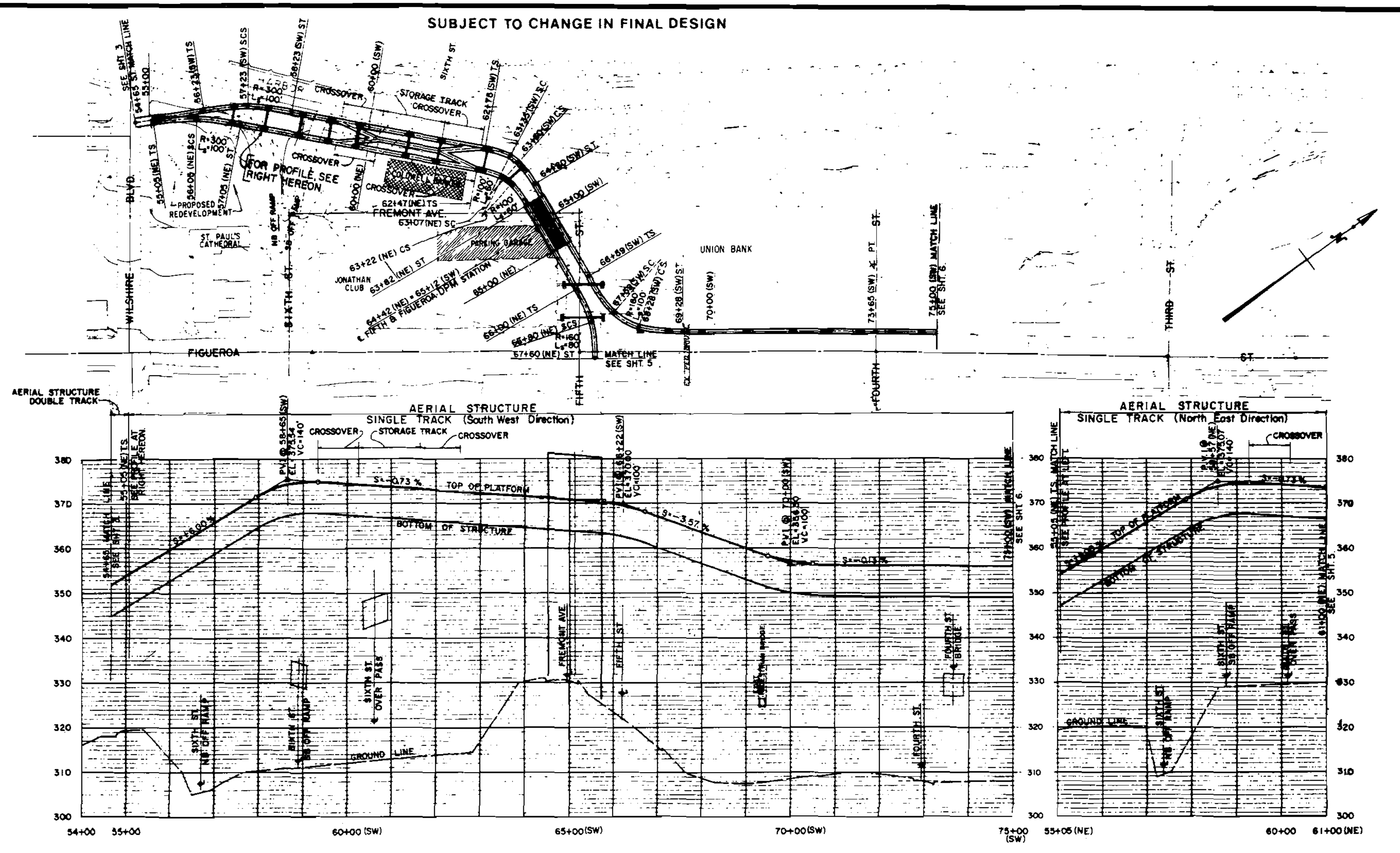
Prepared by: / Approved by: / Checked by: / Date:				

FIGURE II-21D:

PLAN AND PROFILE Sheet 4 of 11



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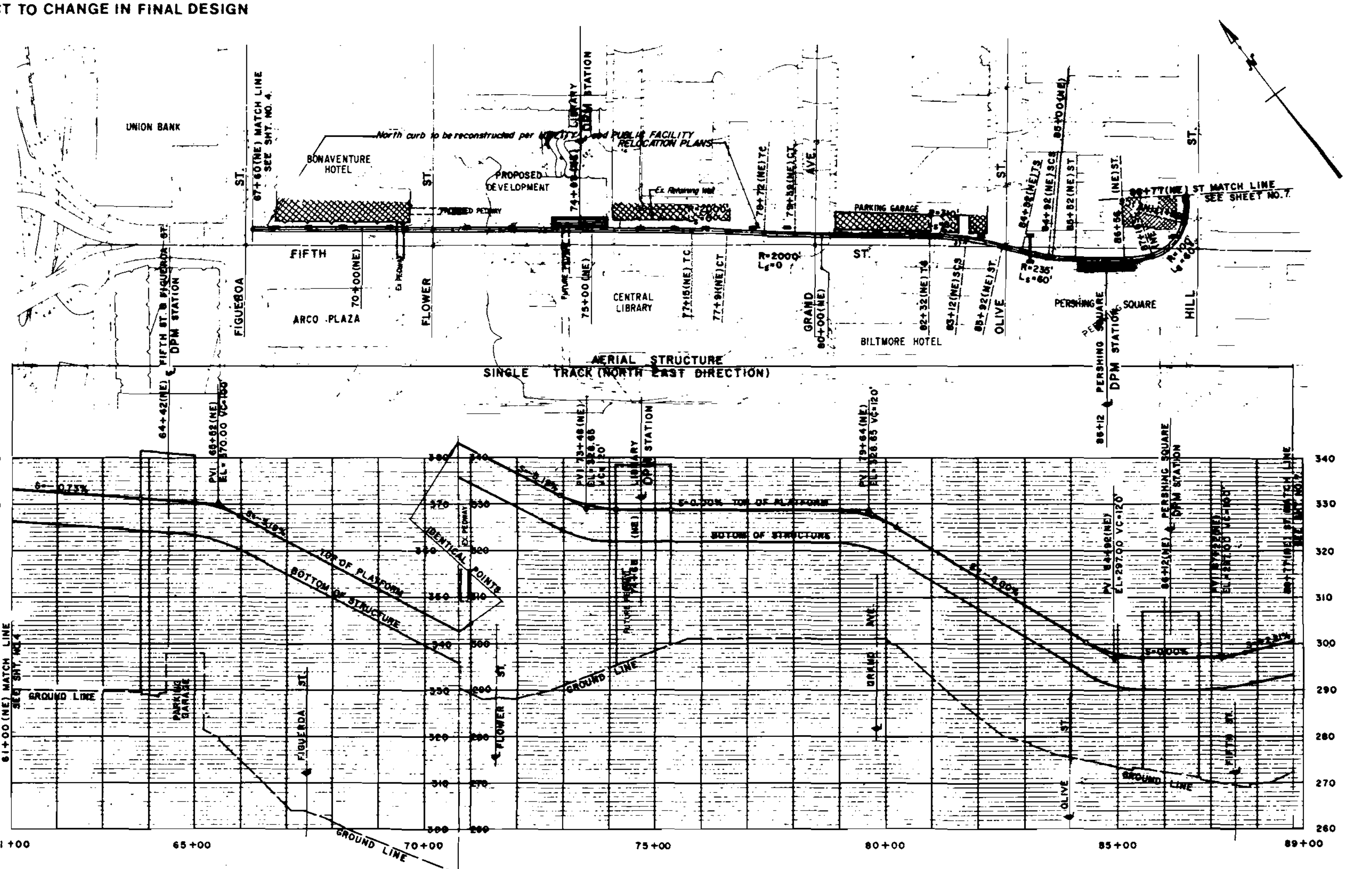
Prepared by: / Approved by: / Checked by: / Date:		SCALES: HORIZONTAL 1"=100' VERTICAL 1"=10'	Sheet Number: 4 of 11

FIGURE II-21E:

PLAN AND PROFILE Sheet 5 of 11

SUBJECT TO CHANGE IN FINAL DESIGN



CONTRACTOR/AGENCY: CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING	Los Angeles Downtown People Mover Project COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF LOS ANGELES	CRA Approval:	SHEET TITLE: PLAN AND PROFILE STA. 67+60 (NE) TO 88+77(NE)	Drawing Number: 3.12-CE
Prepared by: / Approved by:		Date:	SCALES HORIZONTAL 1" = 100' VERTICAL 1" = 10'	Sheet Number: 5 of 11
Checked by: / Date:		Revised:		

FIGURE II-21F:

PLAN AND PROFILE Sheet 6 of 11

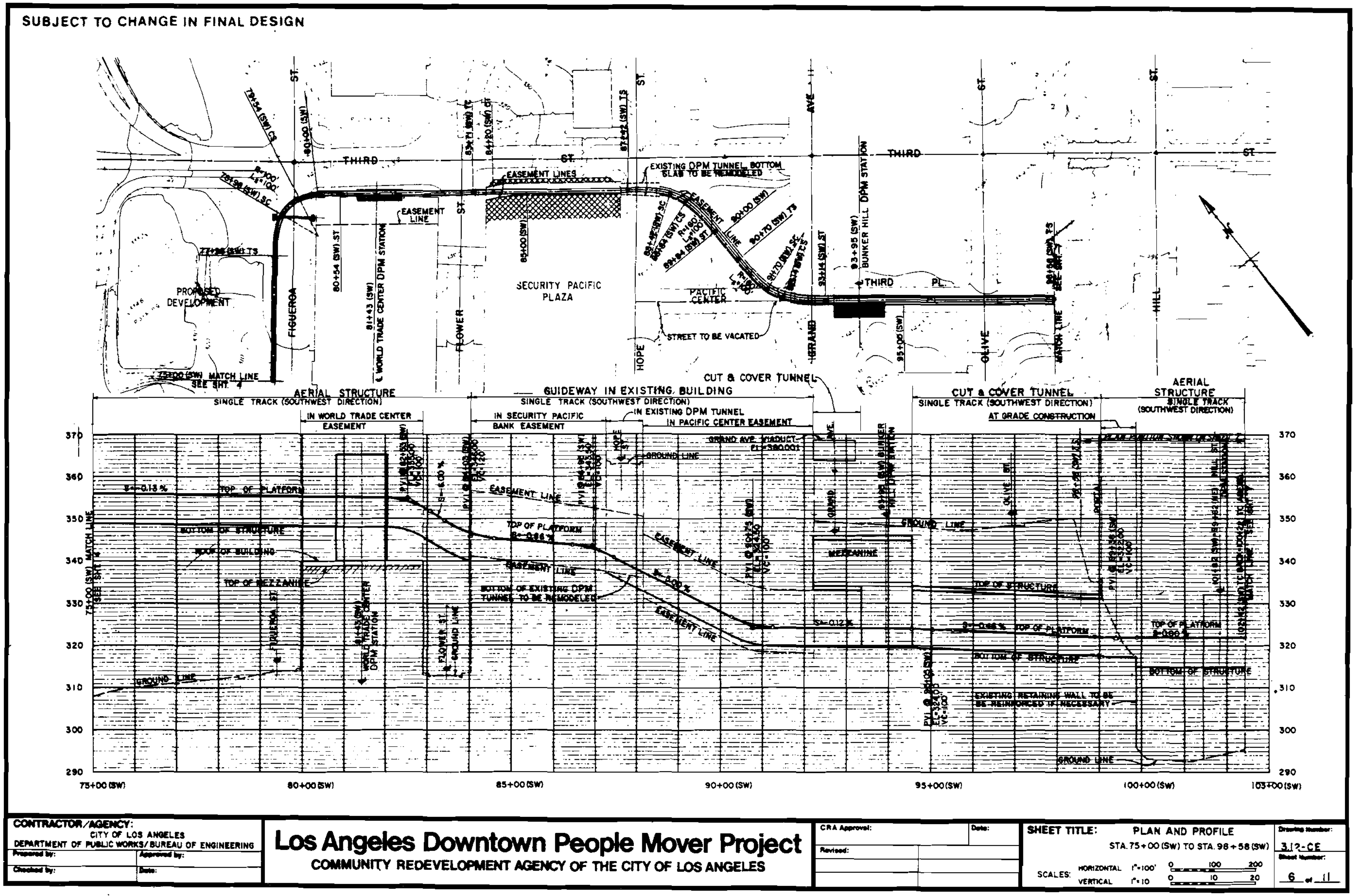
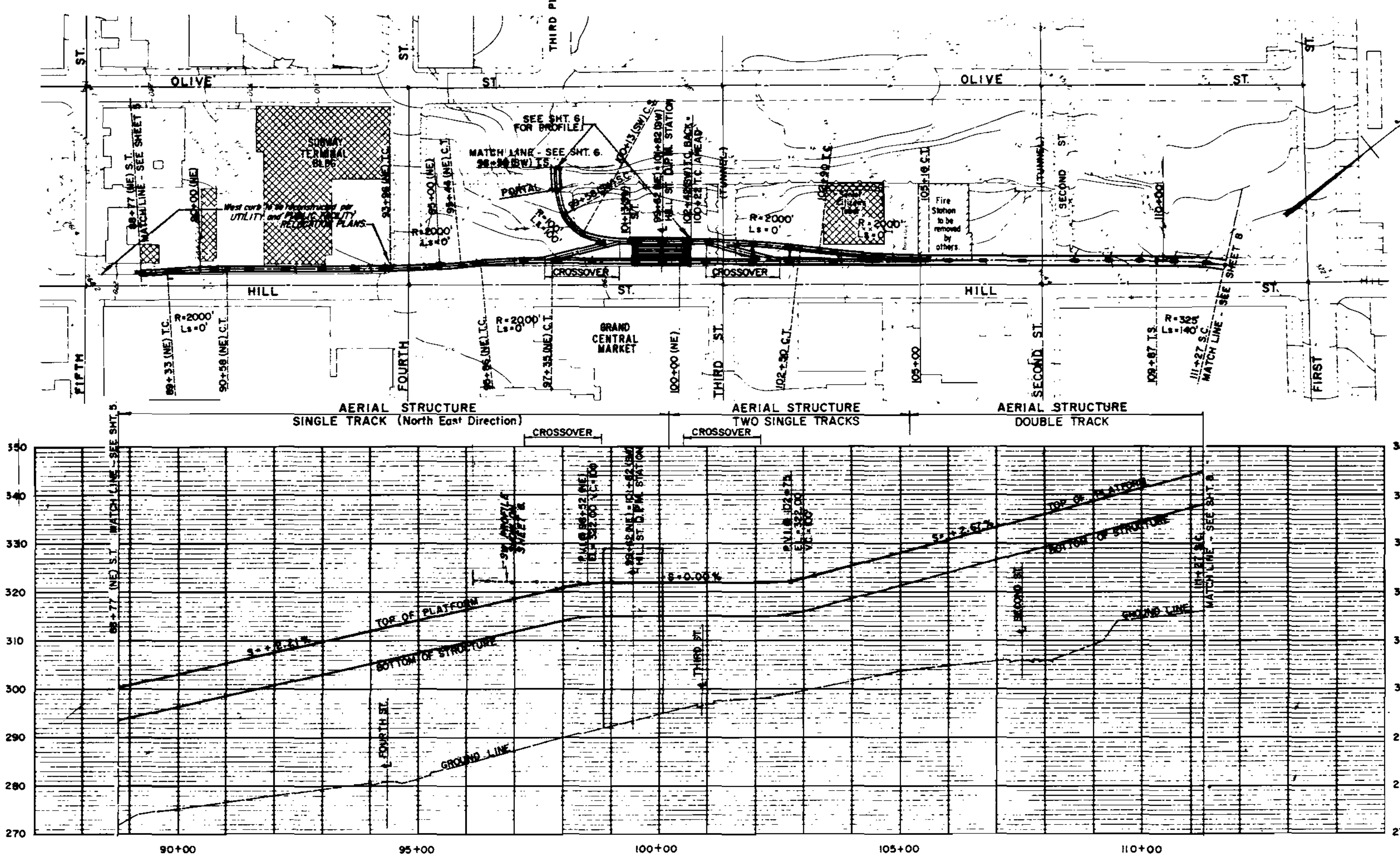


FIGURE II-21G:

PLAN AND PROFILE Sheet 7 of 11

SUBJECT TO CHANGE IN FINAL DESIGN



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Prepared by: / Approved by: / Checked by: / Date:			SCALES: HORIZONTAL 1"=100' VERTICAL 1"=10'	Sheet Number: 7 of 11

FIGURE II-21H:

PLAN AND PROFILE Sheet 8 of 11

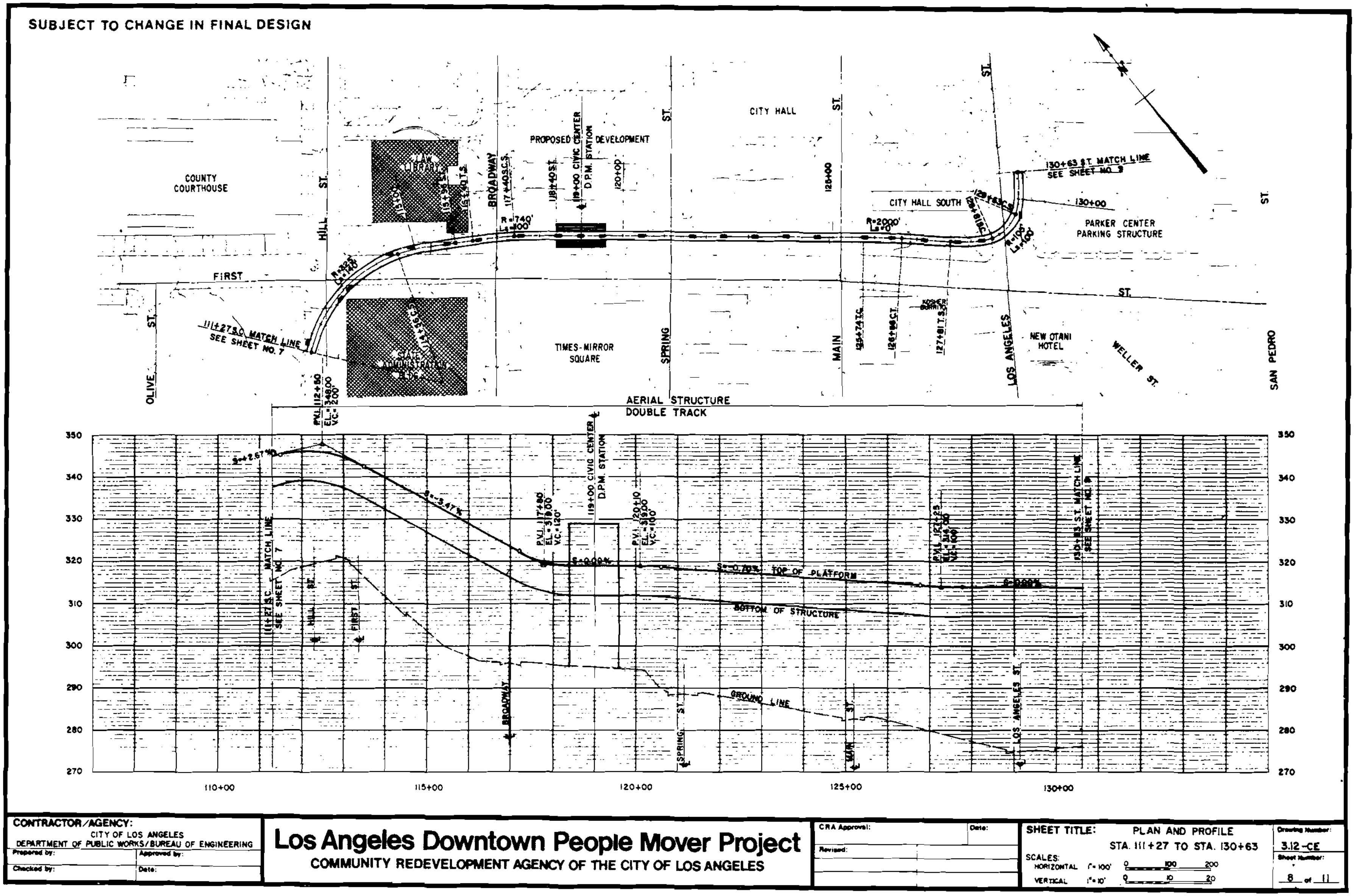


FIGURE II-21I:

PLAN AND PROFILE Sheet 9 of 11

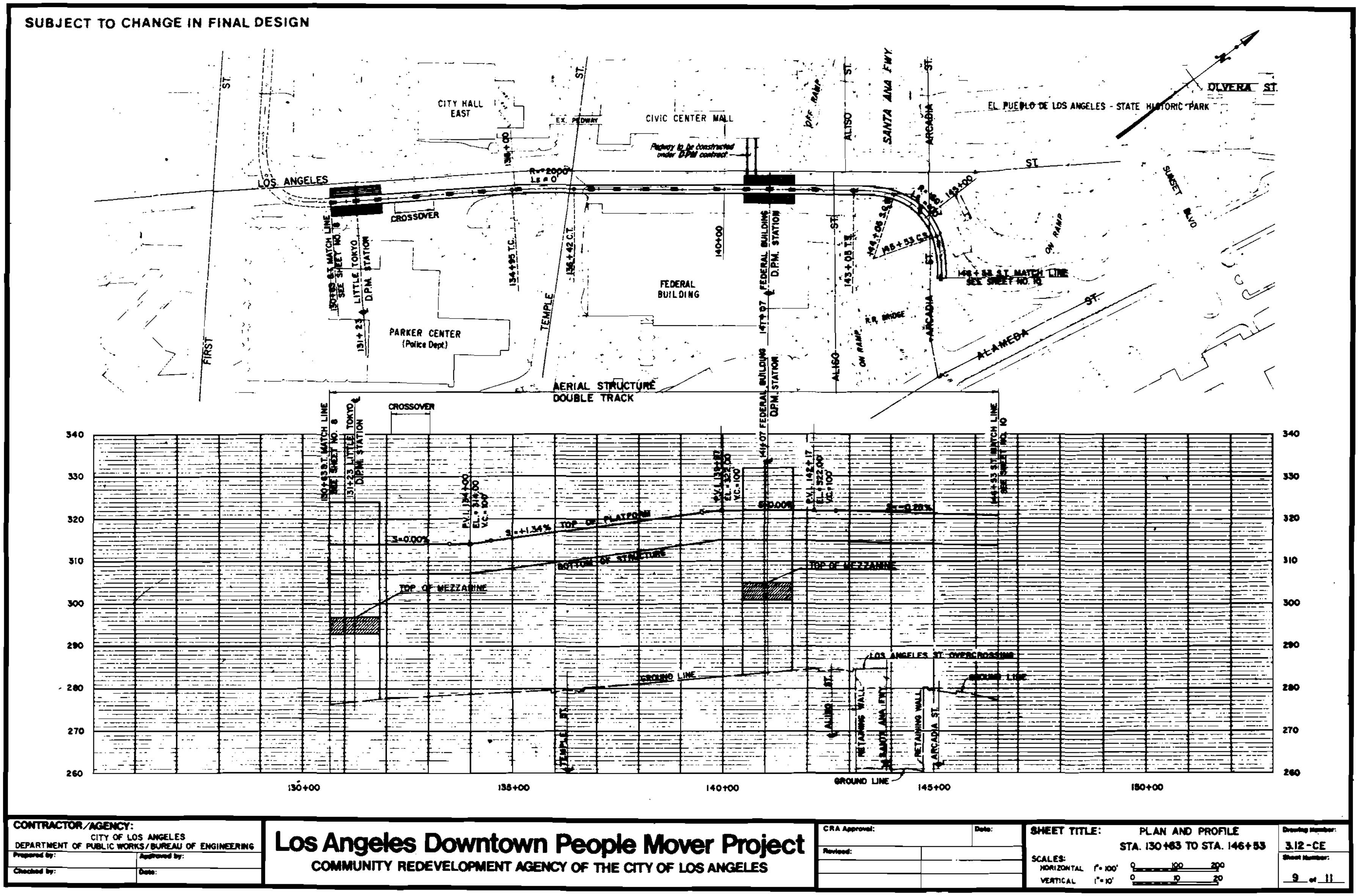
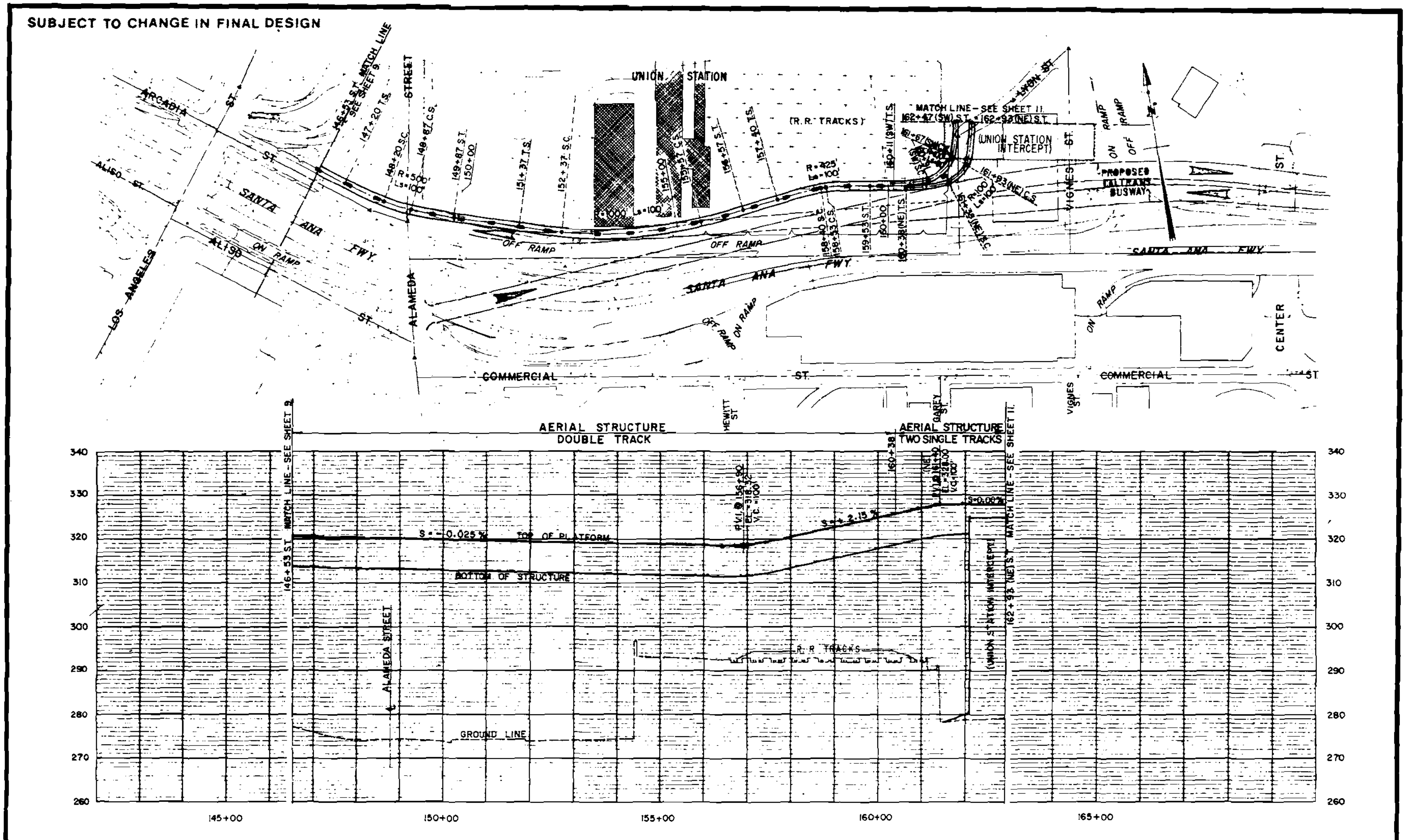


FIGURE II-21J

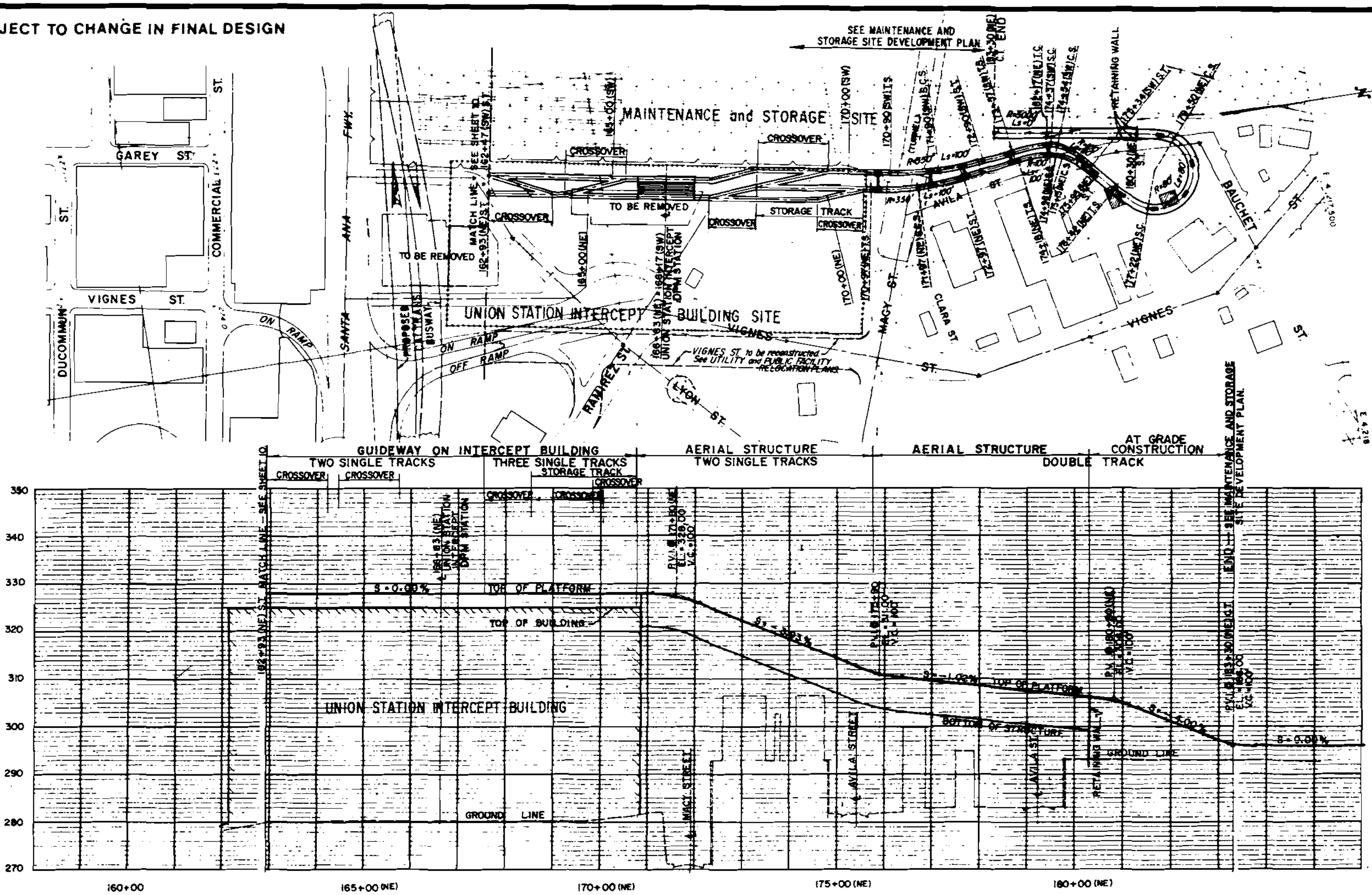
PLAN AND PROFILE Sheet 10 of 11



CONTRACTOR/AGENCY: CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING	Los Angeles Downtown People Mover Project	CRA Approval:	SHEET TITLE: PLAN AND PROFILE STA. 146+53 TO STA. 162+93 (NE) STA. 160+11 (SW) TO STA. 162+47 (SW)	Drawing Number: 3.12-CE
Prepared by: / Approved by:	COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF LOS ANGELES	Revised:	SCALES: HORIZONTAL 1"=100' VERTICAL 1"=10'	Sheet Number: 10 of 11
Checked by: / Date:				

FIGURE II-21K:

PLAN AND PROFILE Sheet 11 of 11



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Prepared by: / Approved by:		Revised:		SCALES HORIZONTAL 1"=100' VERTICAL 1"=10'	Sheet Number: 11 of 11
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FIGURE II-21L

PLAN AND PROFILE Sheet 2 of 11 (Center of Figueroa Variation)

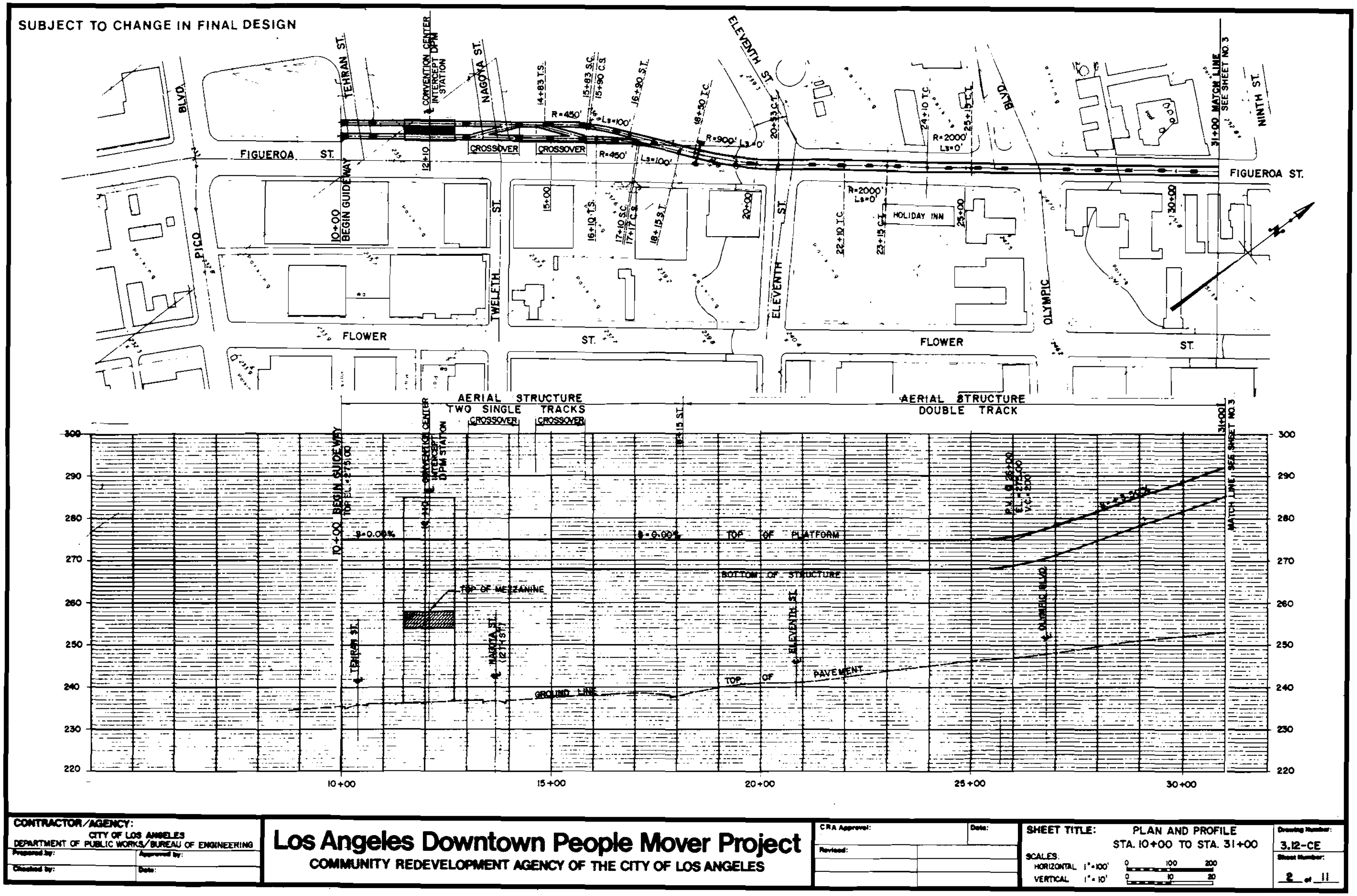

FIGURE II-21M

PLAN AND PROFILE Sheet 3 of 11
(Center of Figueroa Variation)

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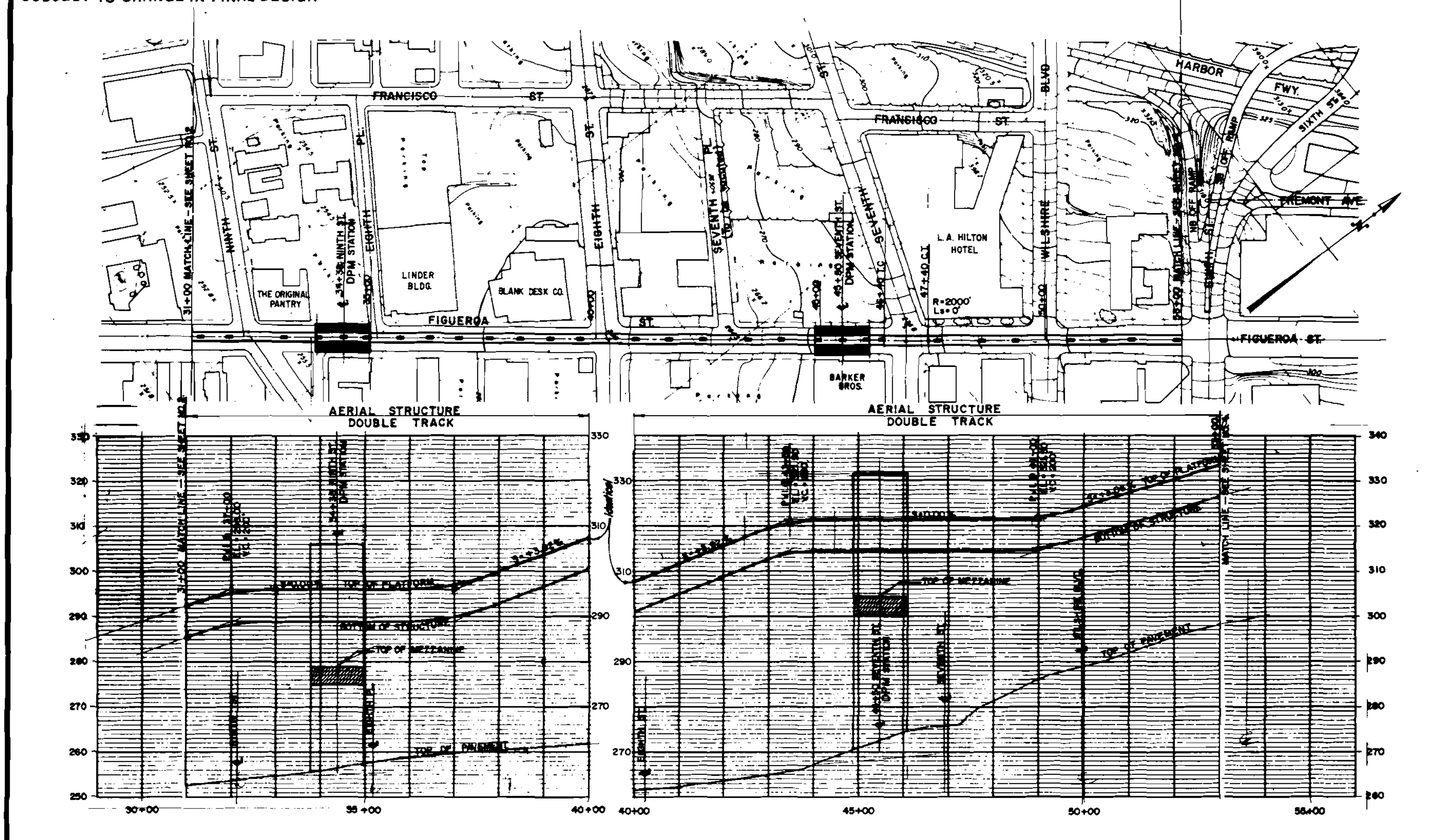

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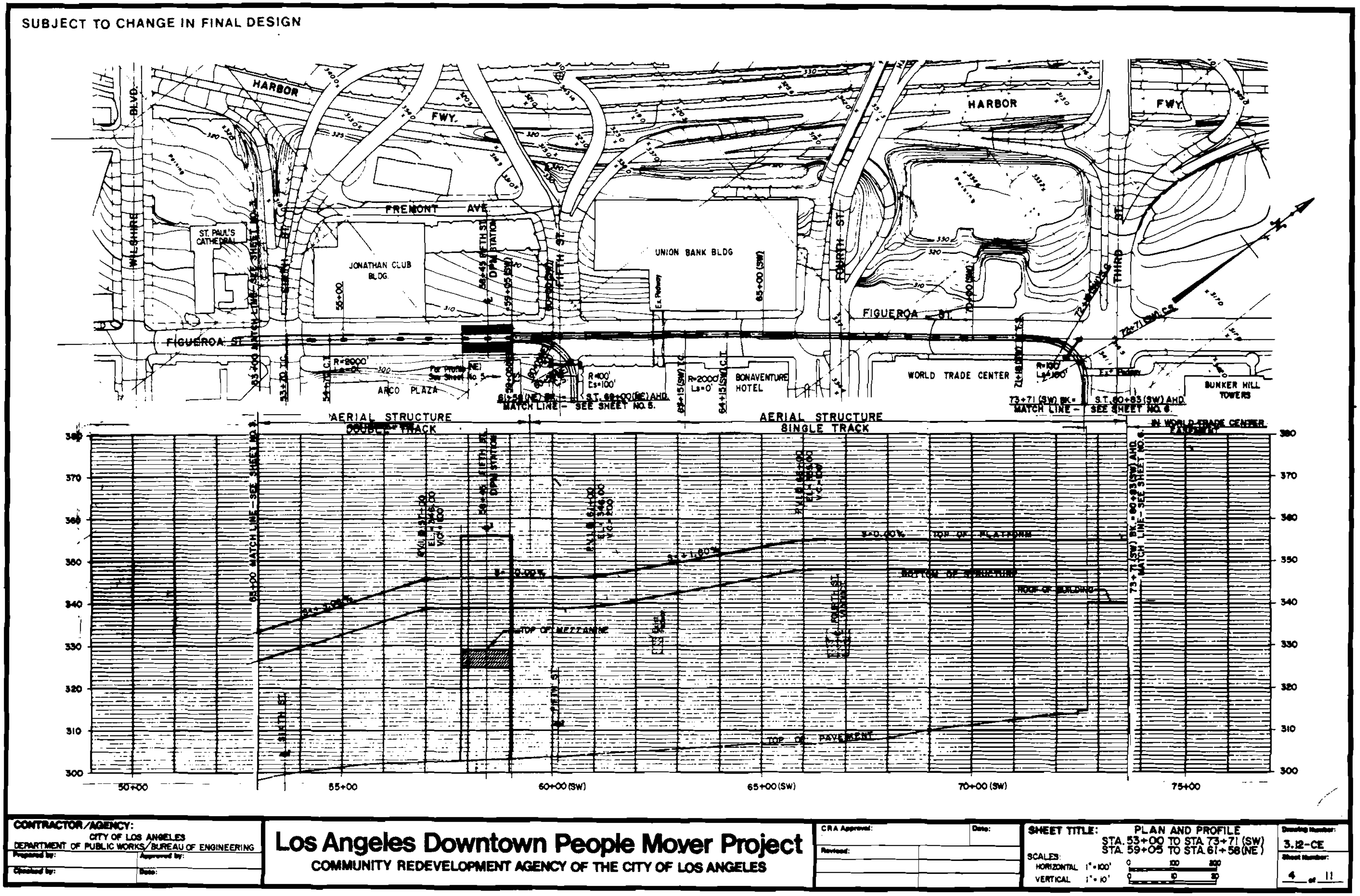
FIGURE II-21N

PLAN AND PROFILE Sheet 4 of 11 (Center of Figueroa Variation)



II-211 Right-of-Way Requirements

The proposed route alignment takes advantage of public rights of way along city streets and sidewalks wherever possible. Existing easements through Bunker Hill are also utilized and additional redevelopment easements will have to be negotiated.

II-220 STATIONS

DPM stations are designed to provide safe and convenient access to DPM vehicles from city streets, pedways, and adjacent buildings. Although station configurations vary, sizes are generally the same because they are based on passenger volumes expected during the peak hours and the length of the longest train. All station platforms will be approximately 120 feet long. Single guideway stations will be approximately 20 feet wide and double guideway stations will be about 54 feet wide.

Every station will be equipped with elevators, escalators, and stairs. Each station will also be equipped with information about the DPM route, bus routes, and other operating information. Special phones will be provided at each level of each station to report emergencies and to obtain information. Aerial stations will probably be of open design with protective rails on the sides. The platform edge will be separated from the guideway by protective screens, with doors that automatically open when the vehicle is ready for boarding.

Elevators, escalators, and stairs lead directly from the paid area at street level to the platform level at single level stations. In other places where fares cannot be collected at street level or in adjacent buildings and where there are pedway connections, a mezzanine level is provided in the station itself. Preliminary plans call for all the aboveground stations except Civic Center and Pershing Square to have mezzanine levels. The mezzanine provides access from the pedway system and serves as an area for fare collection. The mezzanine level is approximately 21 feet above ground and the platform level is approximately 38 feet above ground. The one-level station will have fare gates at ground level with patron access directly to the platforms. The platforms, mezzanines, fare gates, and elevator areas will be under closed circuit television surveillance for patron security. Special consideration will be given to station layout and lighting to avoid dark areas. The stations will be closed by security gates at the fare barriers when the system is closed for the night. Only the intercept buildings will have public restrooms and water fountains. Each station will have a small nonpublic area for operation and maintenance supplies and equipment. All stations will have full accessibility to the handicapped and braille aids for the visually impaired.

Representative site plans for each station are shown in Figures II-22A through II-22M. Site plans for the middle of the Figueroa alignment are shown on Figures II-22 J1, K1, L1. Typical station plans for aerial stations are shown in Figure II-22N. The site plans are preliminary. Final dimensions and locations of items such as vertical circulation elements and transformer substations will be determined during final design in coordination with the adjacent development.

Union Station (Figures II-22A) This station is a center-platform type with crossover tracks ahead of the station to allow operation with alternating operation allows one vehicle to unload or load while the other is entering the station, thus allowing faster service. The station is located on top of the intercept building with access through the building from the parking area or the busways. The guideway line extends beyond the station to the maintenance and storage yards.

Federal Center Station (Figure II-22B). This is a side-platform, two-level station with a mezzanine beneath the platform level. Access is provided directly to the Los Angeles Mall area via pedway, with a future link to an Olvera Street pedway. Planned access from the east side is from the sidewalk in front of the Federal Building.

Little Tokyo (Figure II-22C). This is also a side-platform, two-level station, located adjacent to the parking structure at Parker Center. A future connection to Little Tokyo could be made via pedway across 1st Street and to the City Hall area via pedway across Los Angeles Street. Direct access to the mezzanine level will be provided by escalators from the sidewalk area.

Civic Center Station (Figure II-22D). This station is located in front of the proposed state office building with access near the ends of the block to City Hall and County buildings. It is a one-level station with the fare area located at ground level.

Hill Street Station (Figure II-22E). This station is located south of 3rd Street, adjacent to a proposed retirement housing development. Direct access will be provided at one end of the station to a proposed tunnel shopping arcade under Hill Street connecting with Grand Central Market. The station is a center platform type to provide direct transfer across the platform to northbound and southbound trains.

Bunker Hill Station (Figure II-22F). This is a one-direction, single-platform subterranean station under Grand Street. The station will have direct escalator connection with new office complex planned for parcels between Grand and Hope Streets as well as a direct connection to Grand Street.

World Trade Center (Figure II-22G). This station is located on an existing easement on top of the World Trade Center. It is a one-way station that will provide connections to the existing Bunker Hill pedway system, the Bunker Hill Towers, World Trade Center, Bonaventure Hotel, and Arco Plaza. Future connections will be made to a new hotel planned on the west side of Figueroa. Additional access to the station is through the World Trade Center building by elevator or stairs.

Pershing Square (Figure II-22H). This one-level single-guideway station is located on the northern edge of Pershing Square above the parking garage entrance. The fare gate area will be located on the ground and protected by fencing. Access to the platform will be by means of escalators and elevator.

Library Station (Figure II-22I). This station is located on the northbound one-way segment and is to be integrated with the new Wells-Fargo Bank building. It is a side-platform aerial station with a mezzanine. The Station is accessible from the bank building, from the sidewalk along 5th Street, and from the upper level at Hope Street. A future pedway connection is planned across 5th Street to the Library.

5th and Figueroa (Figure II-22J). This station is a center-platform type to facilitate easy transfer across the platform for patrons wishing to travel on the leg of the loop operating in the opposite direction. Primary access to the station will be near Figueroa. Pedway connections could be made across 5th Street to the Union Bank building and to potential development at 5th and Figueroa. An alternative location in the center of Figueroa is shown in Figure II-22J1.

FIGURE II-22A:

UNION STATION INTERCEPT STATION MEZZANINE AND PLATFORM LEVEL PLAN

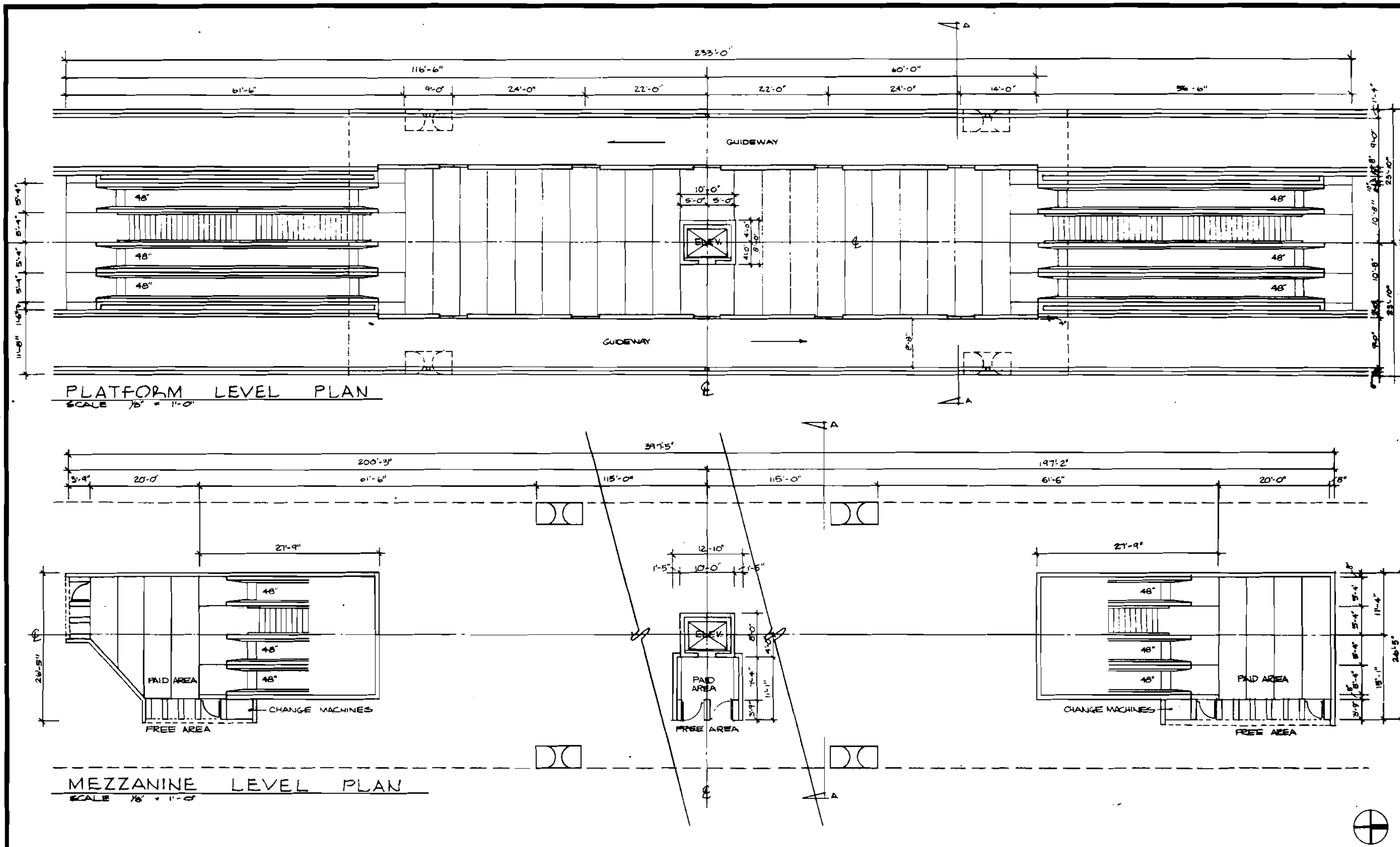


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FIGURE II-22B:

FEDERAL BUILDING STATION SITE PLAN

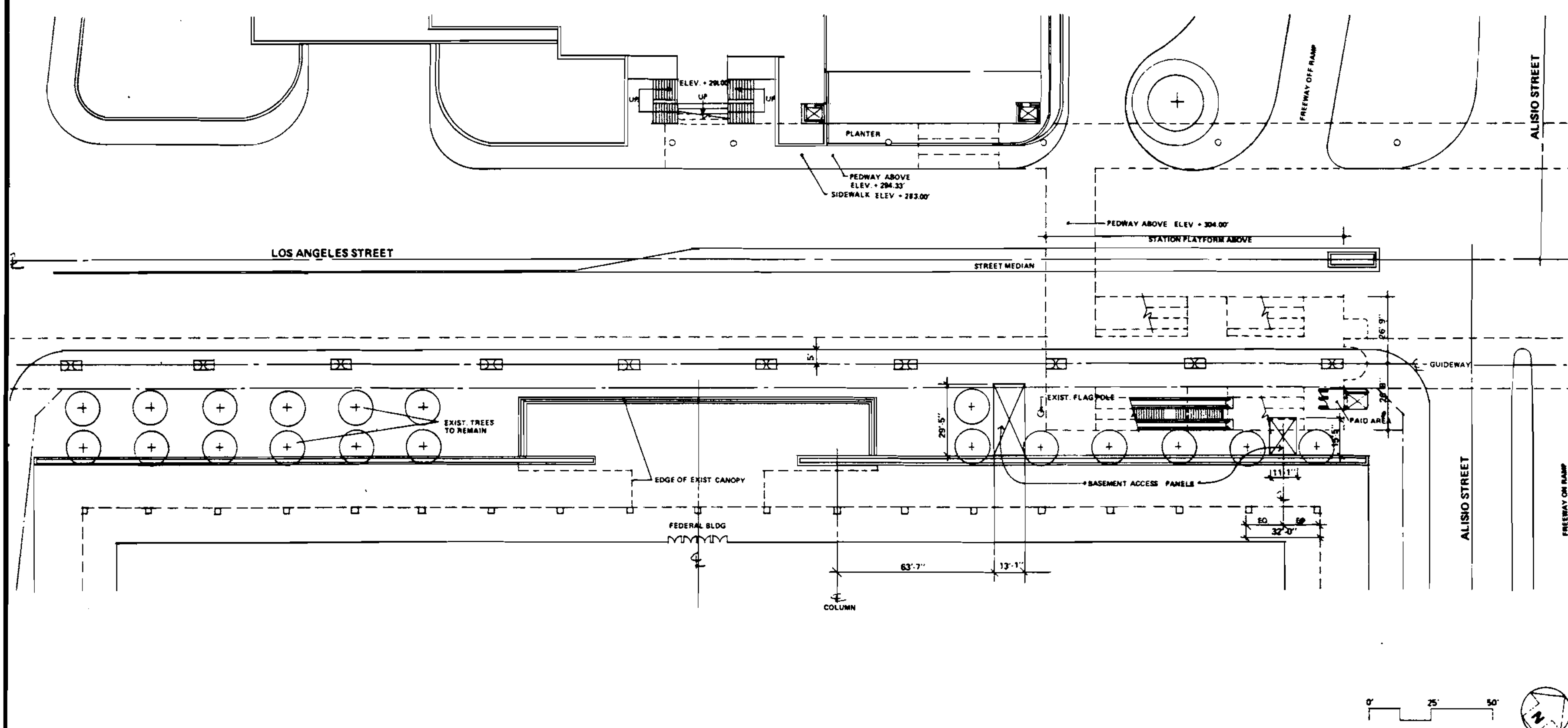

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FIGURE II-22C:

LITTLE TOKYO STATION SITE PLAN

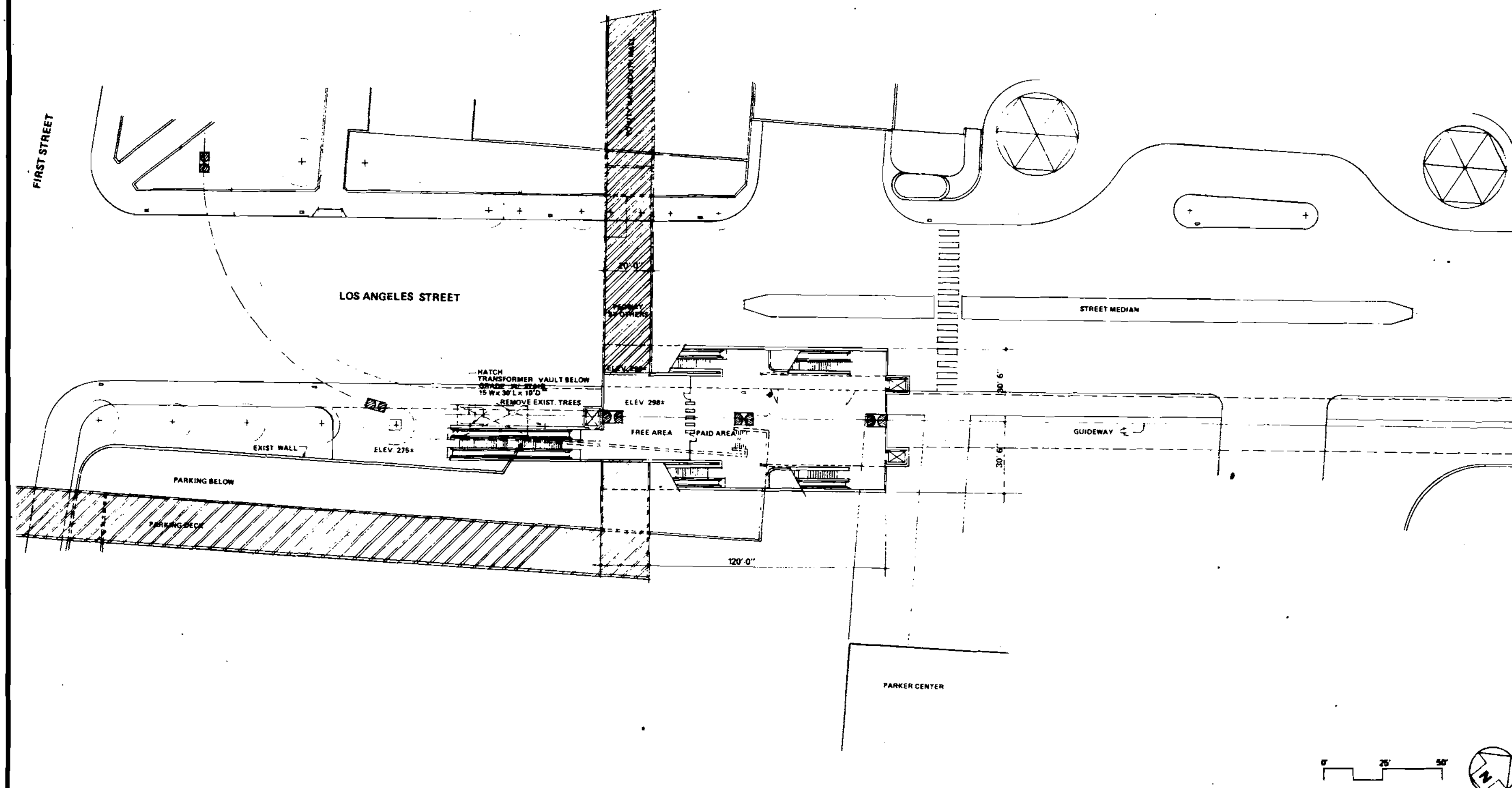

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FIGURE II-22D:

CIVIC CENTER STATION SITE PLAN

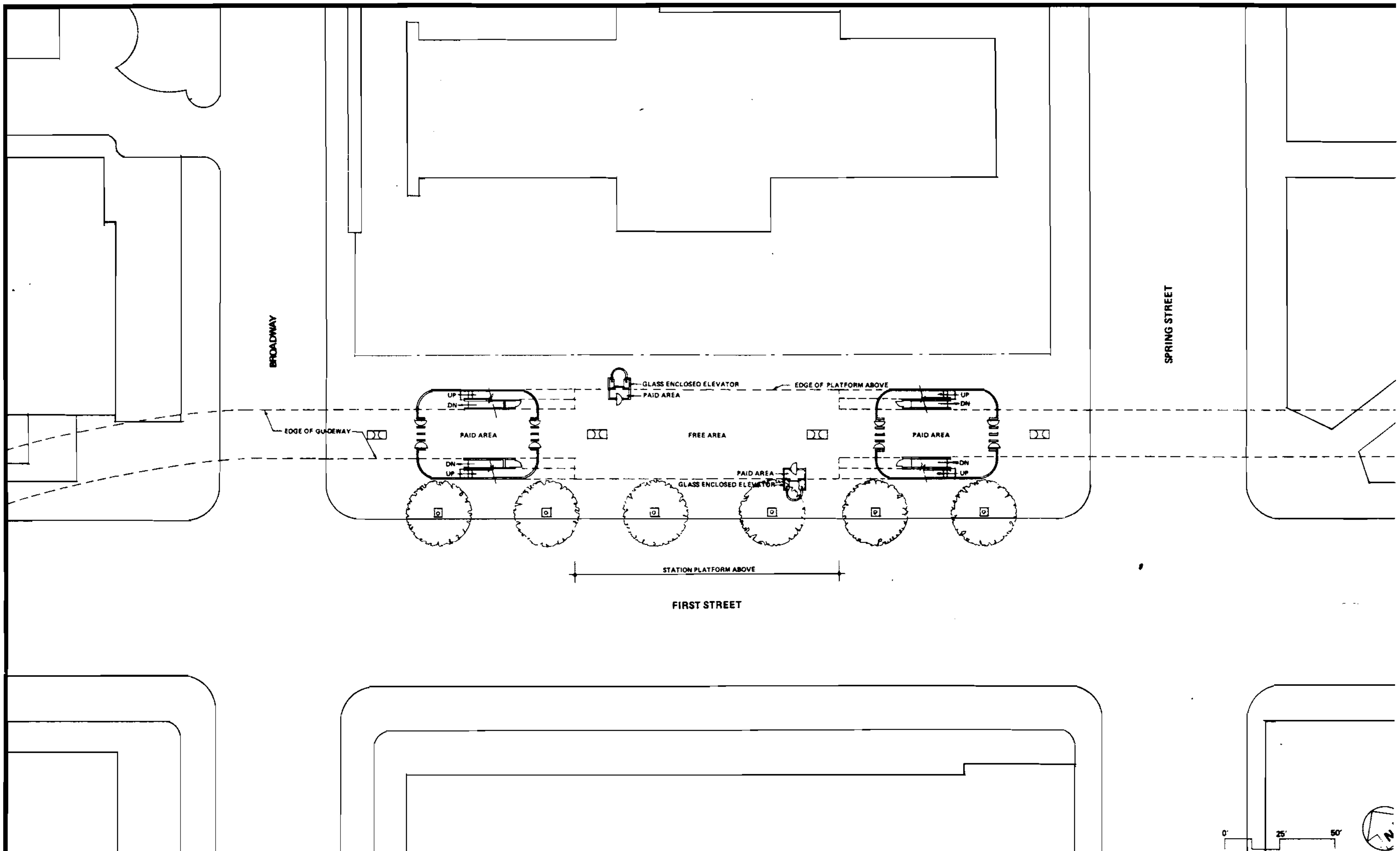

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FIGURE II-22E:

HILL ST. STATION SITE PLAN

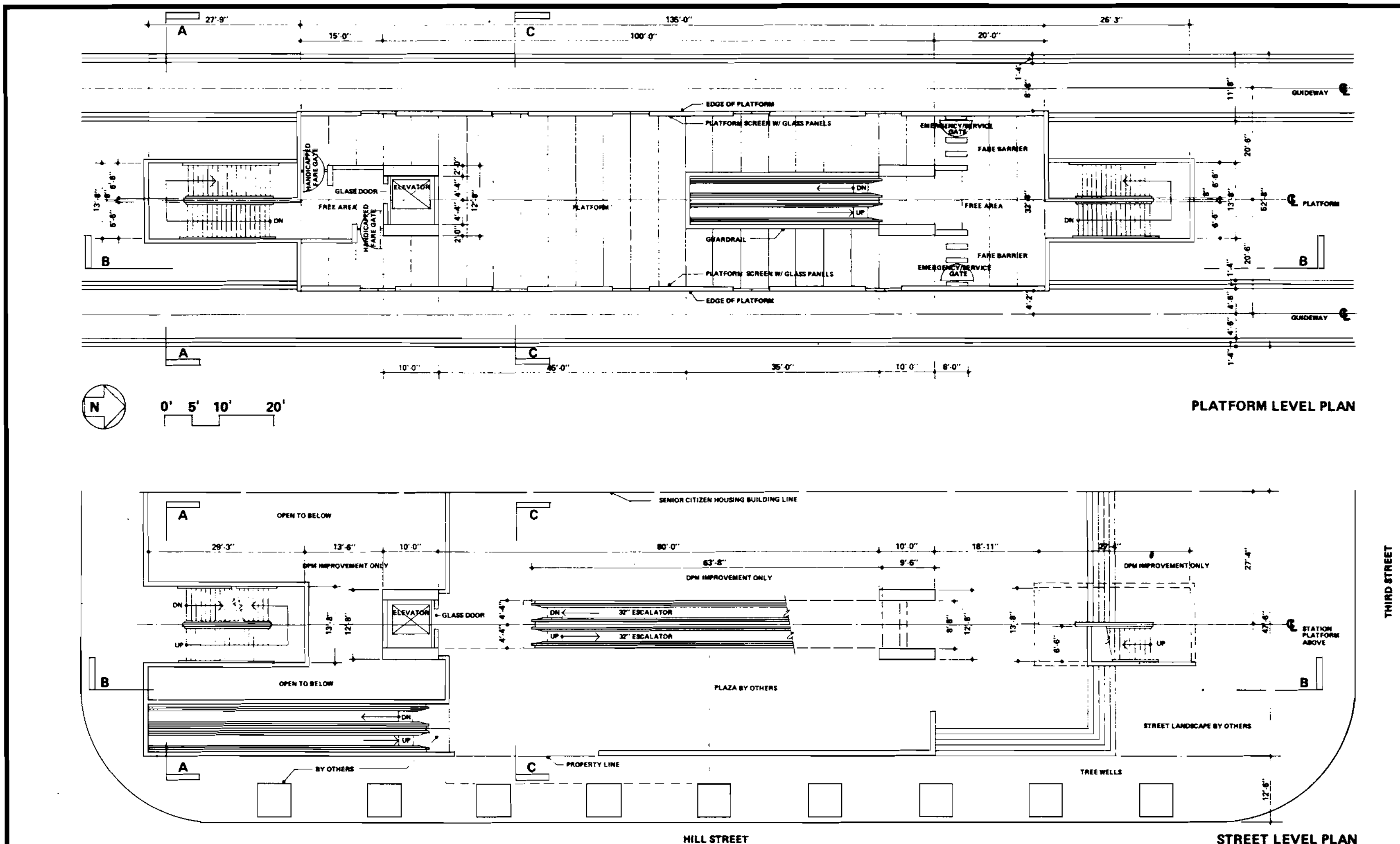

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FIGURE II-22F:

BUNKER HILL STATION MEZZANINE LEVEL PLAN

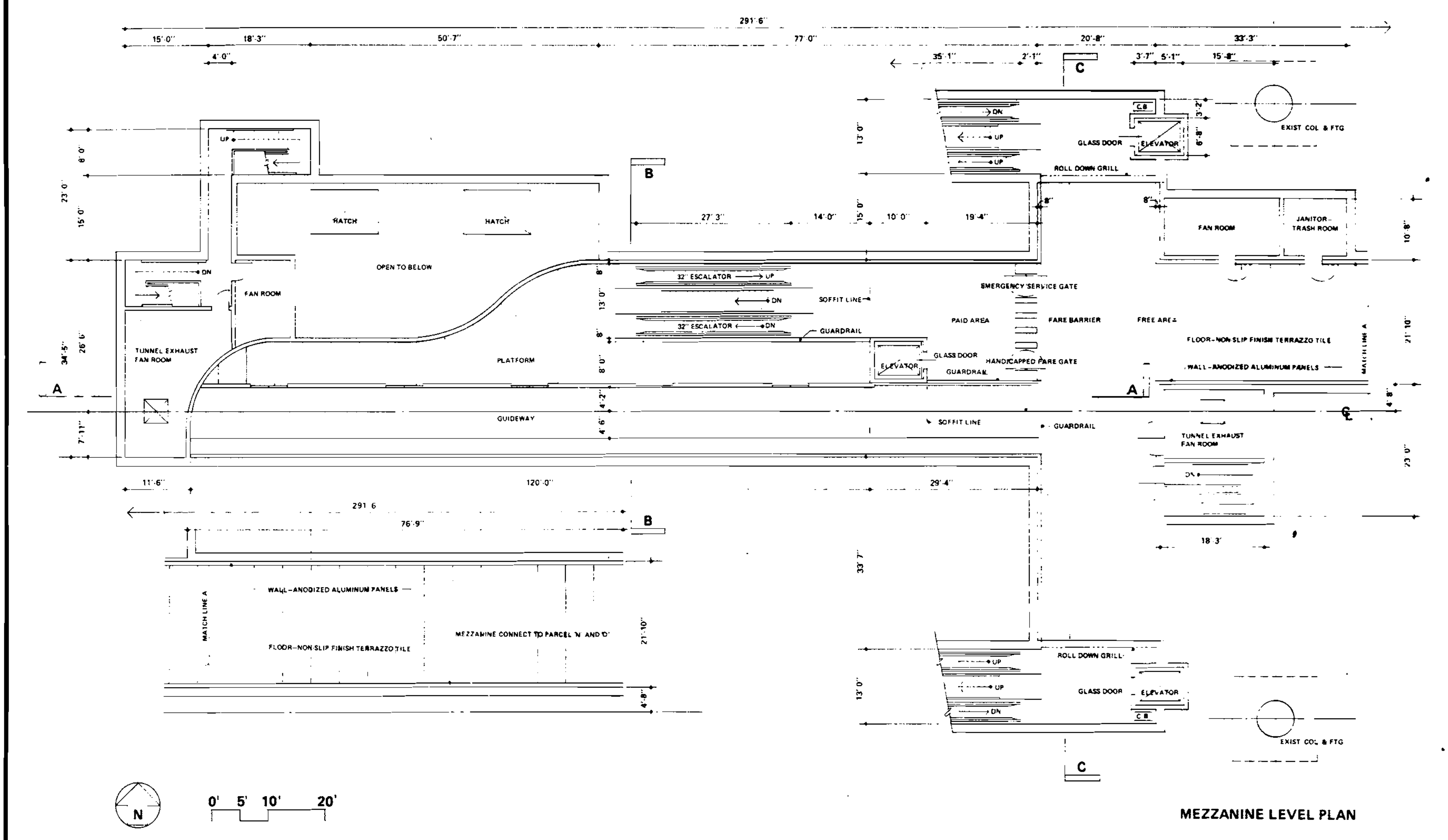

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FIGURE II-22G:

WORLD TRADE CENTER STATION SITE PLAN

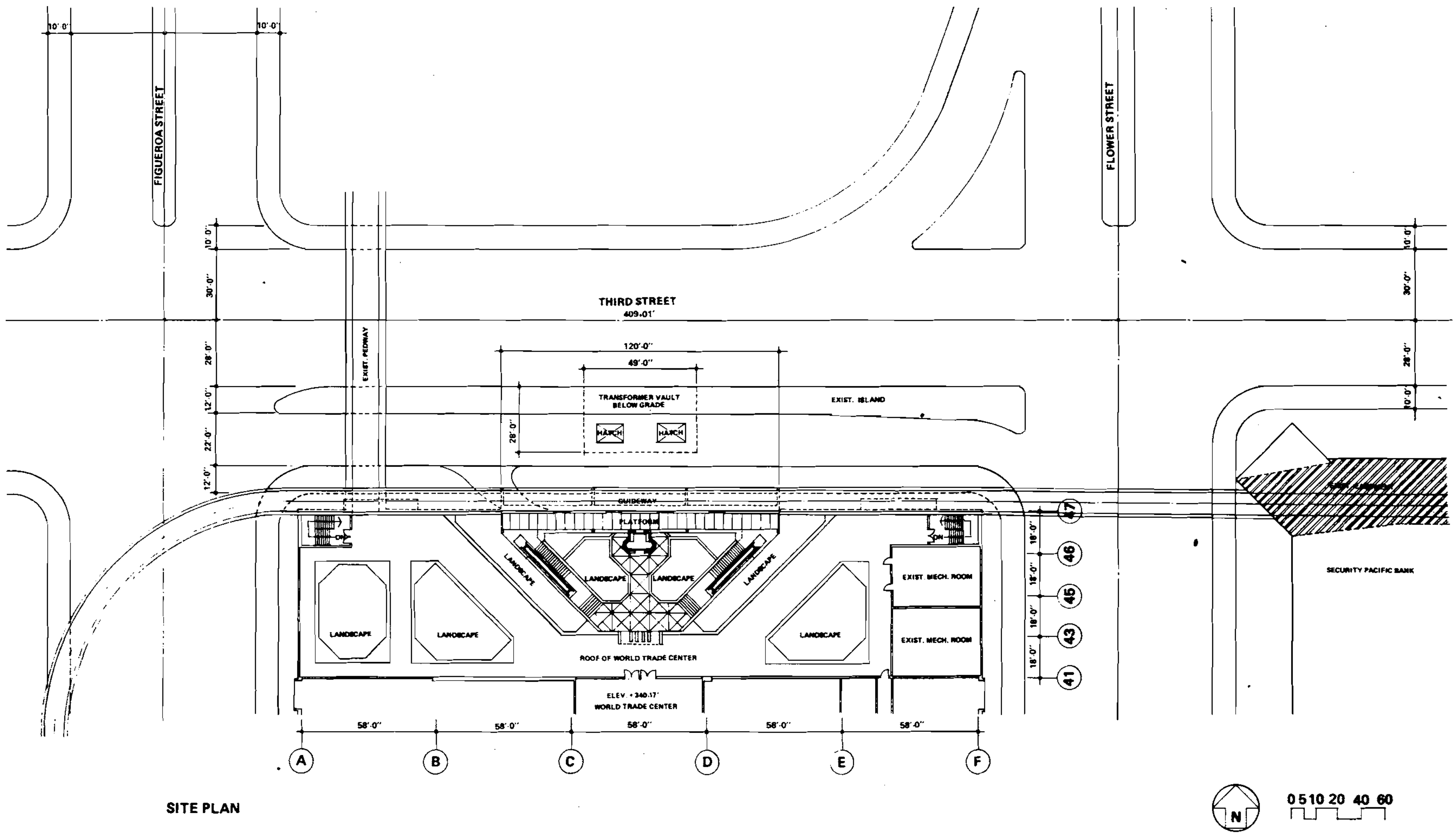

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FIGURE II-22H:

PERSHING SQUARE STATION SITE PLAN

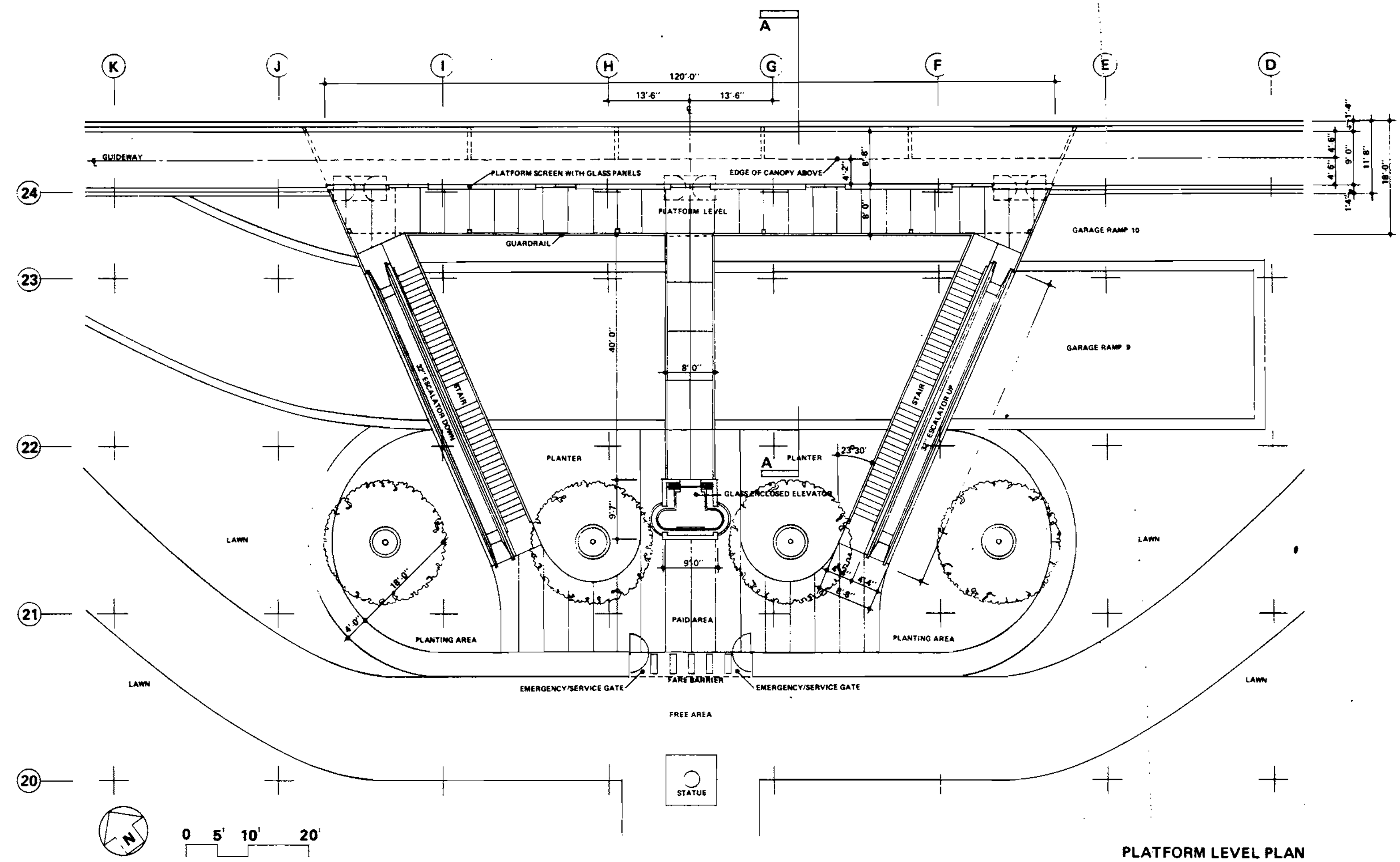

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FIGURE II-22I:

LIBRARY STATION SITE PLAN

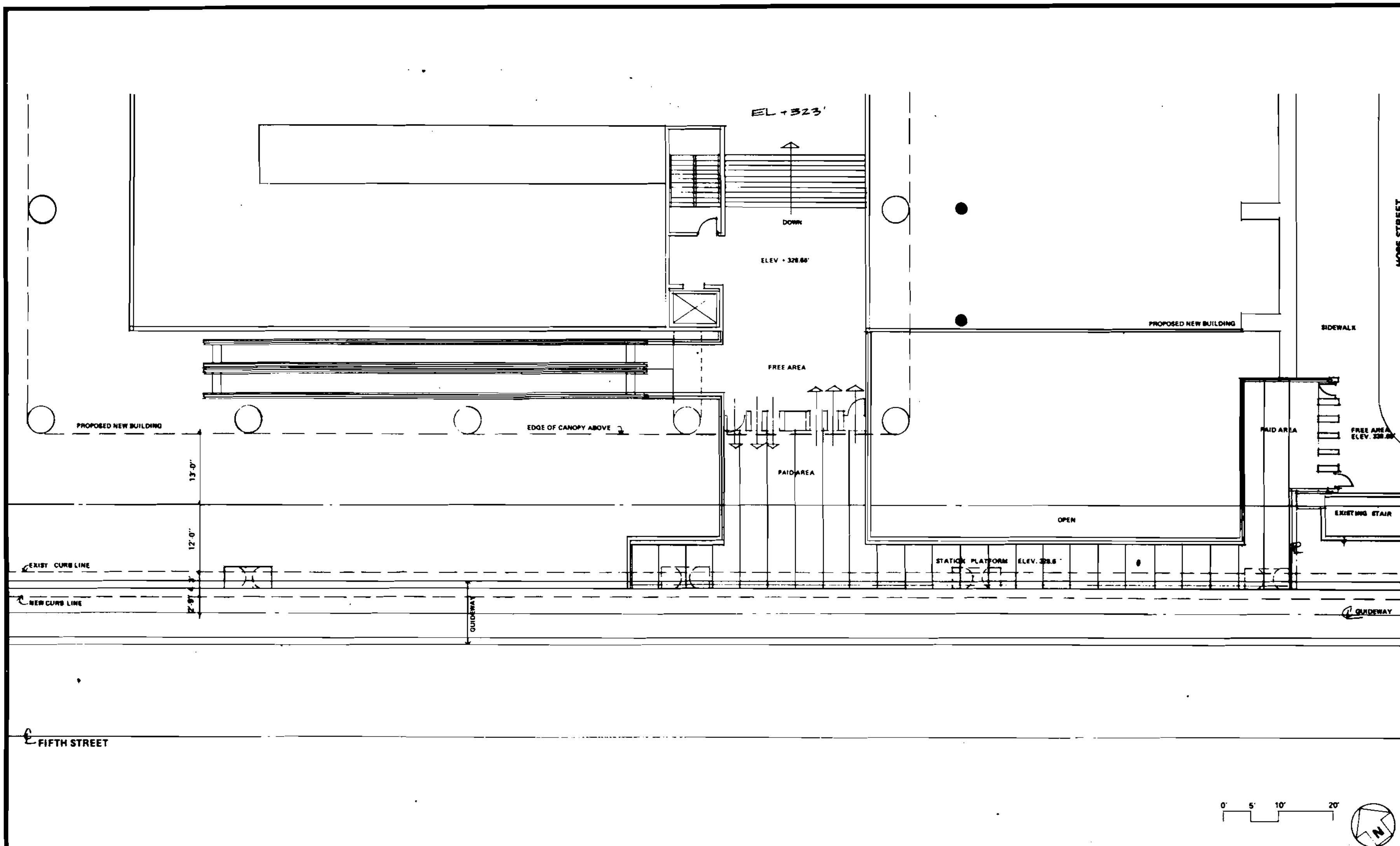

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FIGURE II-22J:

5th AND FIGUEROA STATION SITE PLAN

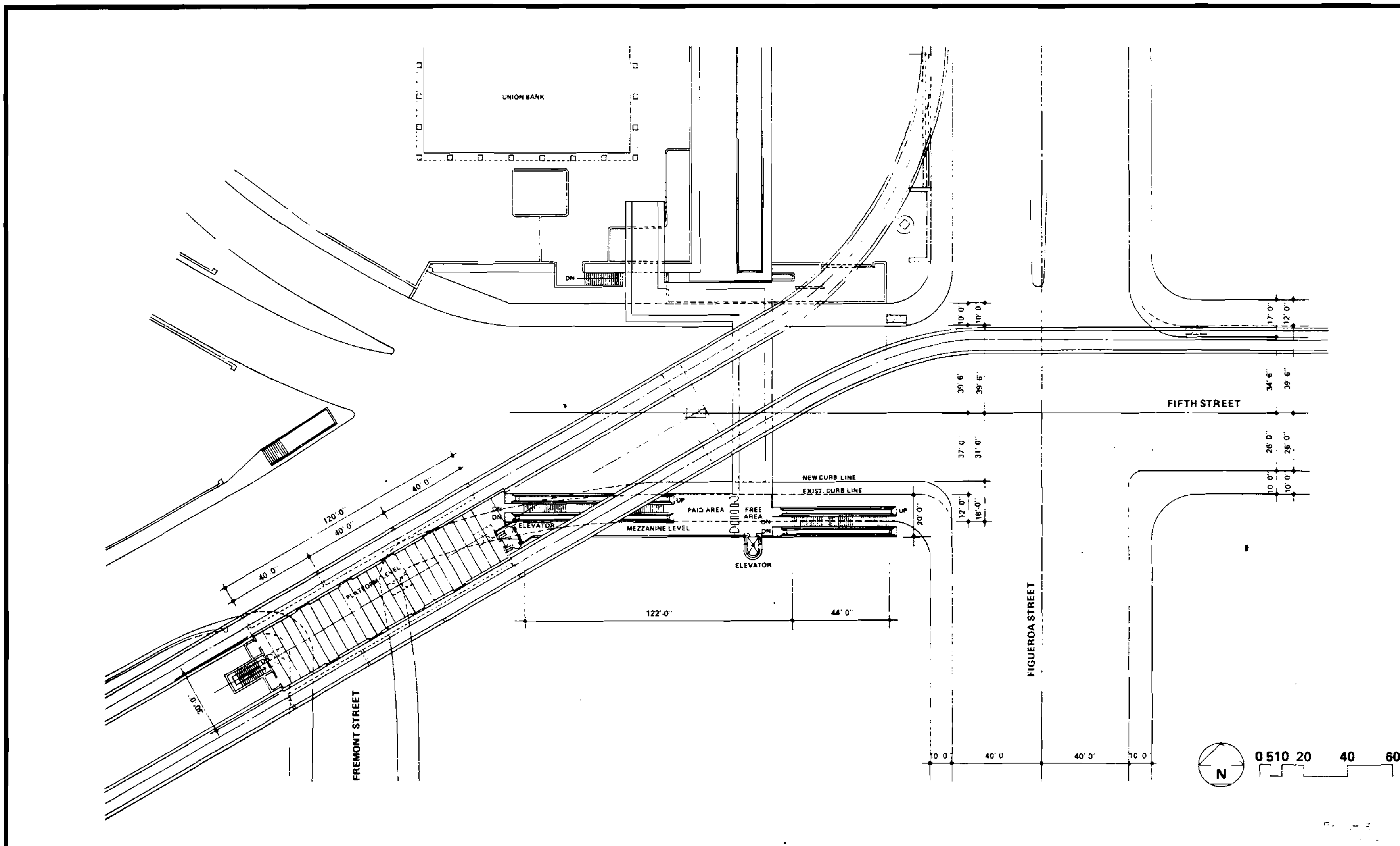

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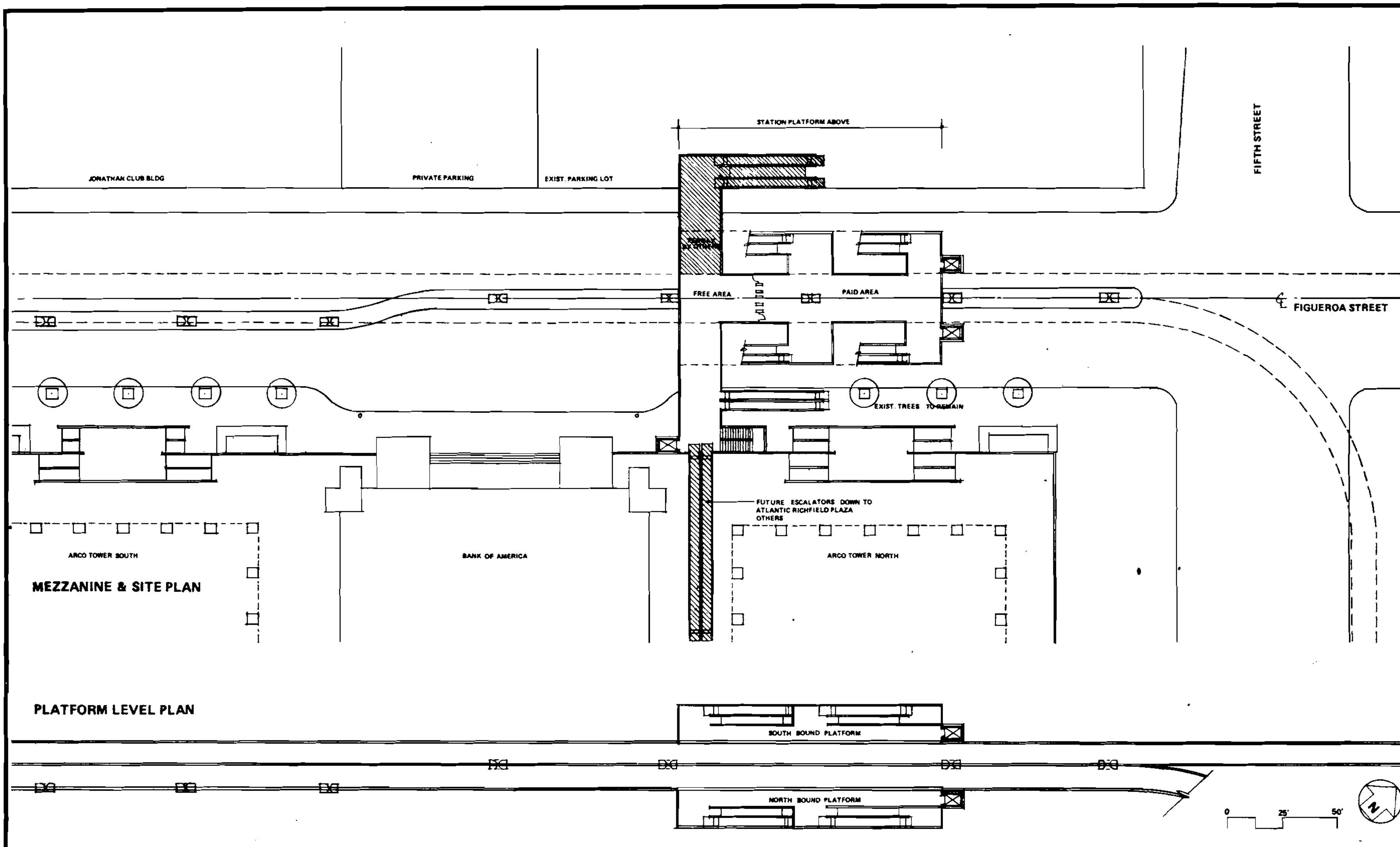
FIGURE II-22J1:

5 th AND FIGUEROA STATION ALTERNATE 2A: CENTER LINE OF FIGUEROA ST. MEZZANINE AND SITE PLAN



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7th and Figueroa (Figure II-22K). This station is located adjacent to a new mixed-use development planned for the southwest corner of this intersection. Access will be integrated with the building design as well as future pedway extensions toward Barker Brothers and the Broadway Plaza. The station will be a side-platform, double-guideway type with mezzanine. An alternative location in the center of Figueroa is shown in Figure II-22K1.

9th and Figueroa (Figure II-22L). The station will be located partially over the sidewalk and partially over an existing parking lot. A portion of private property will be acquired for vertical circulation and access. The station is designed to provide a connection at the mezzanine level to a future pedway into the planned South Park housing development. An alternative location in the center of Figueroa is shown in Figure II-22L1.

Convention Center (Figure II-22M). This is a center-platform station located in front of the Convention Center. There will be a mezzanine with pedway connections to a parking structure on the east side of Figueroa. Future pedway connections directly to the Convention Center are also possible. The tracks immediately north of the station will be arranged in a crossover pattern (similar to the arrangement south of the Union Station intercept) to allow flexible operation. Bus patrons disembarking at curbside on Figueroa Street will have access to the DPM either at the base of the station or by means of the pedway on the east side of Figueroa. A pedway connection will be provided to the parking structure located on the east side of Figueroa.

FIGURE II-22K:

7th AND FIGUEROA STATION SITE PLAN

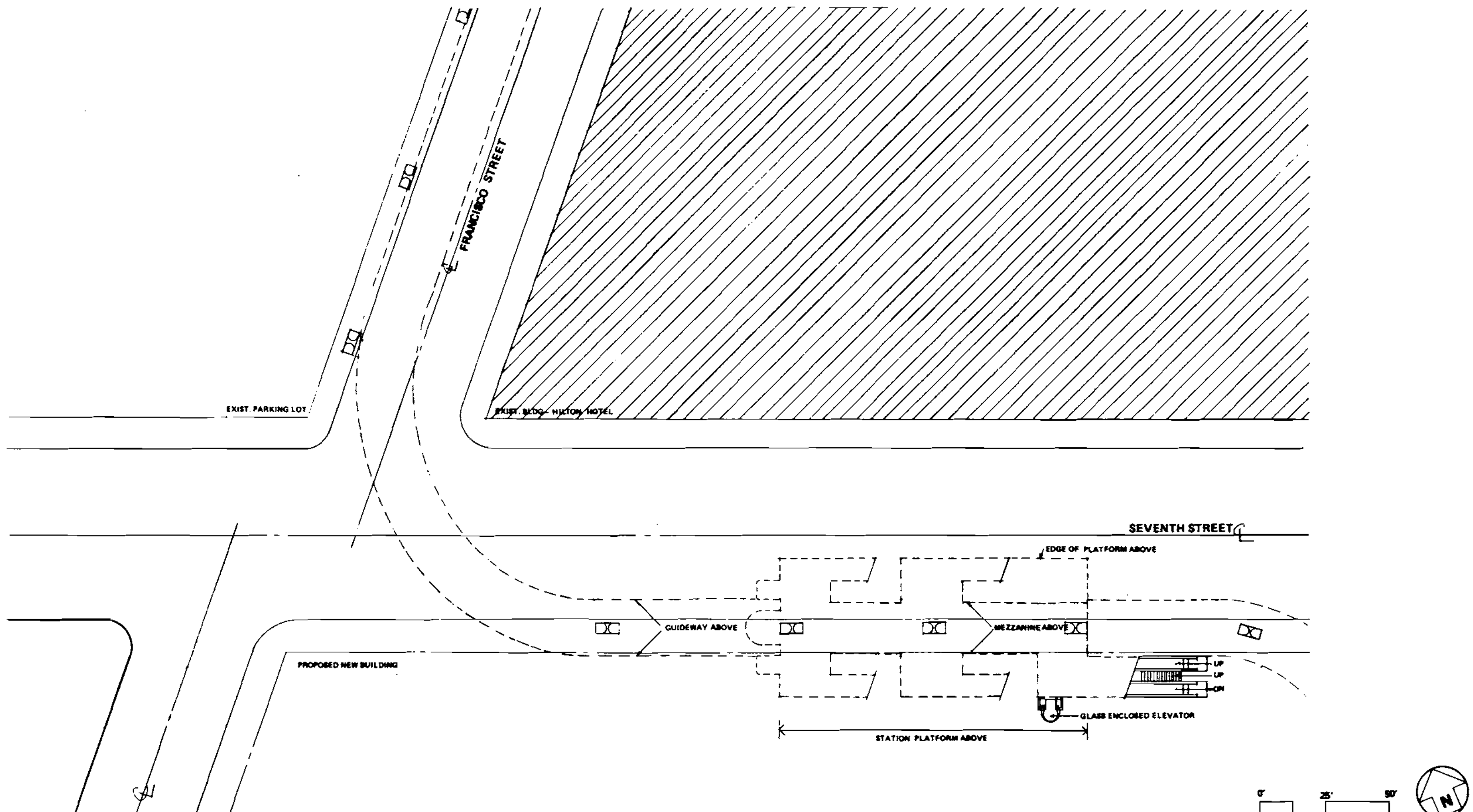

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FIGURE II-22K1:

7th AND FIGUEROA STATION ALTERNATE: CENTER LINE OF FIGUEROA ST. SITE PLAN

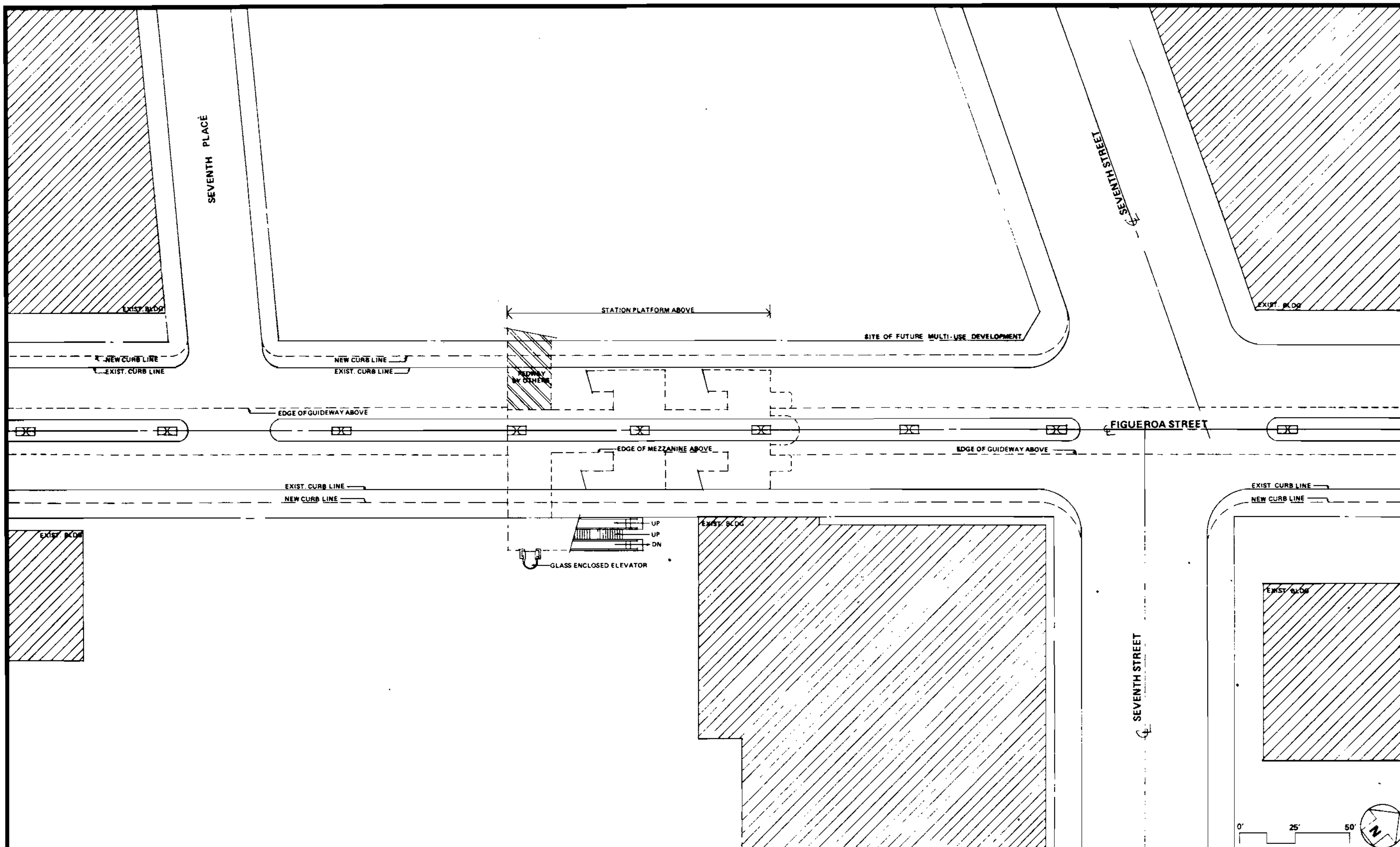

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FIGURE II-22L:

9th ST. STATION SITE PLAN

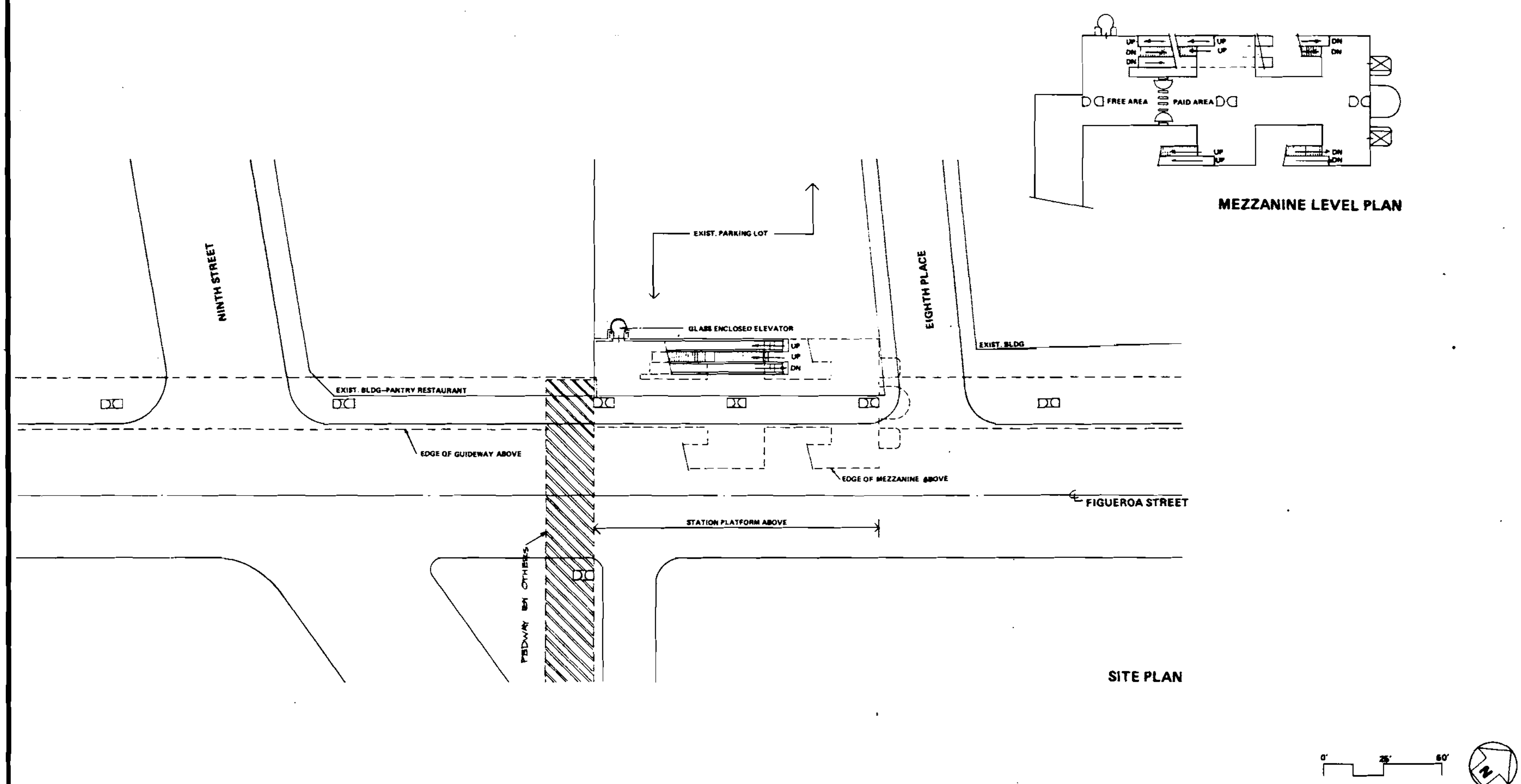

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FIGURE II-22L1:

9th ST. STATION ALTERNATE: CENTER LINE OF FIGUEROA ST. SITE PLAN

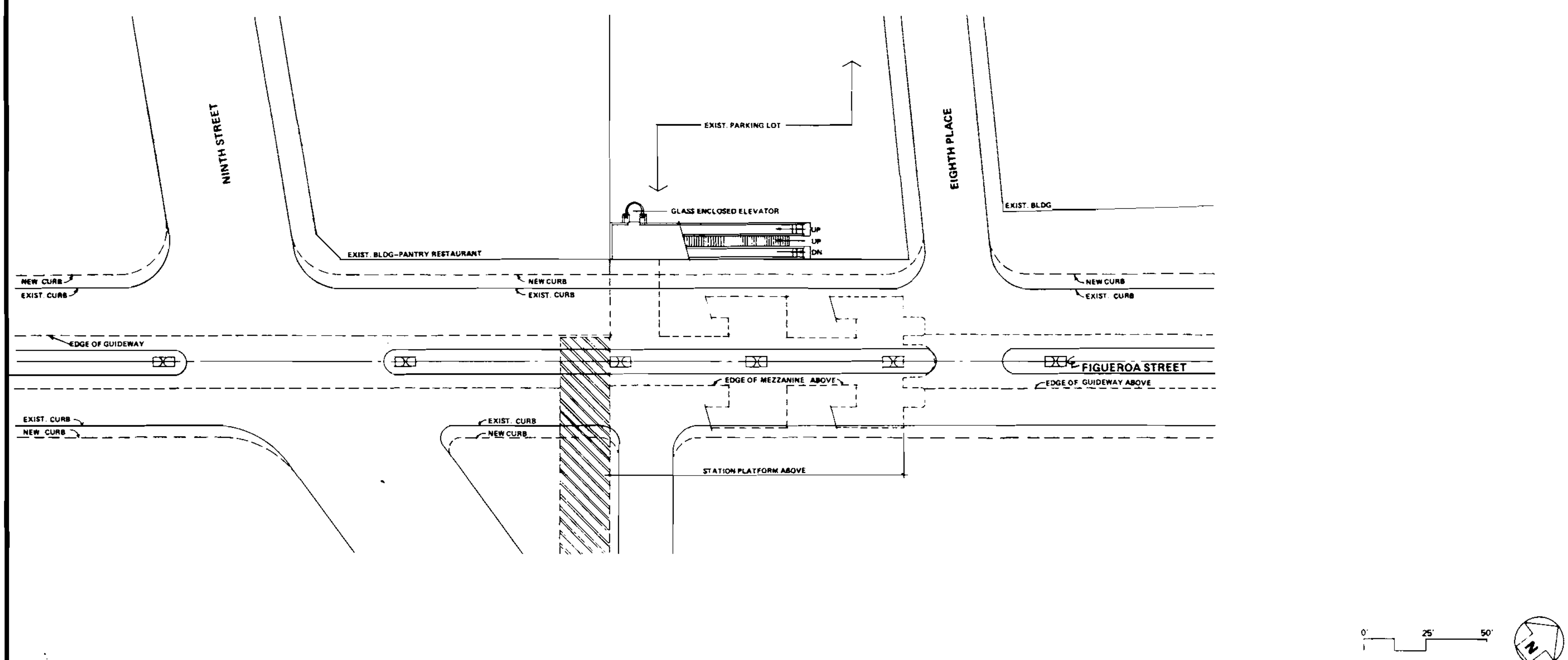

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FIGURE II-22M:

CONVENTION CENTER PLATFORM AND MEZZANINE LEVEL PLAN

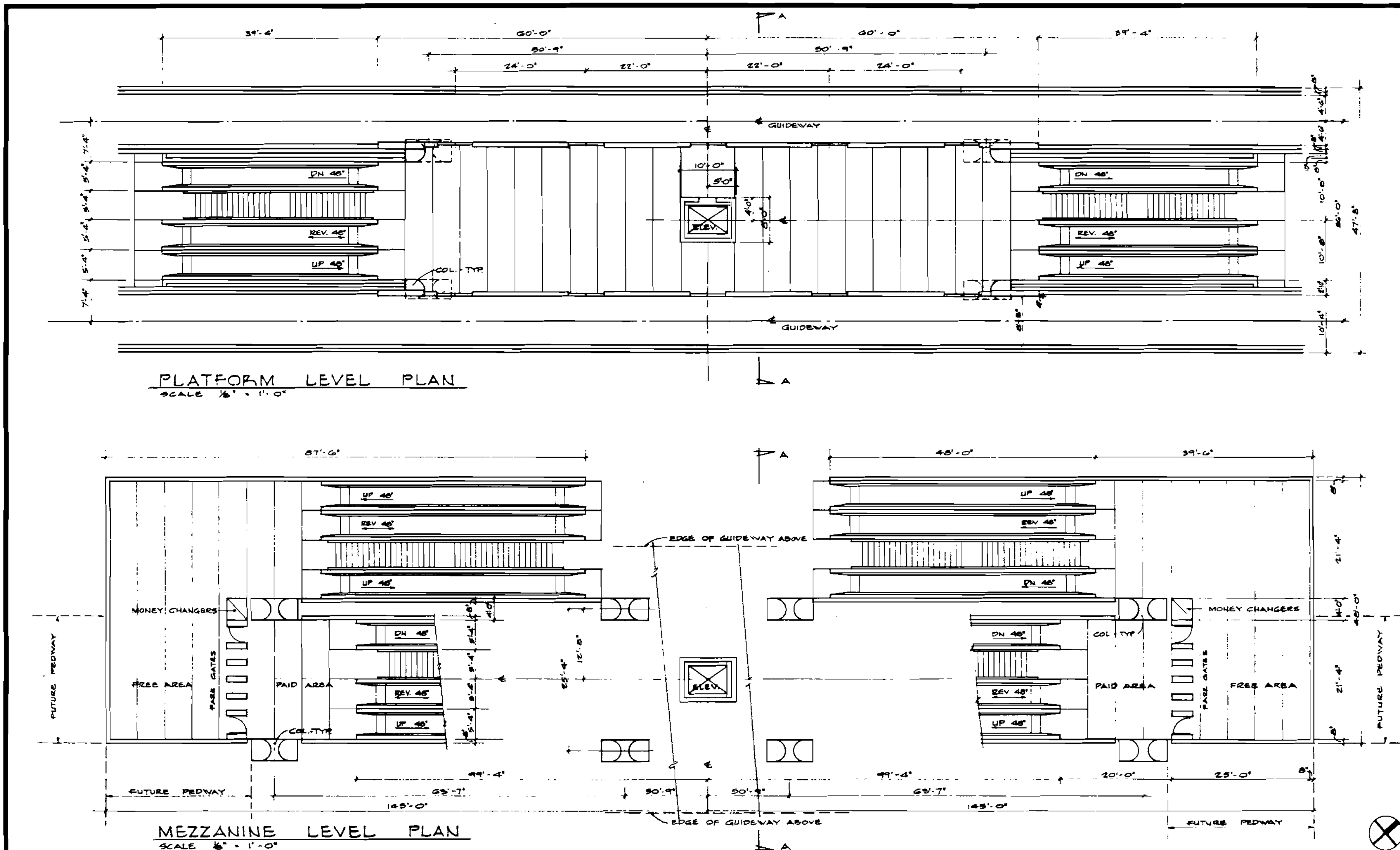

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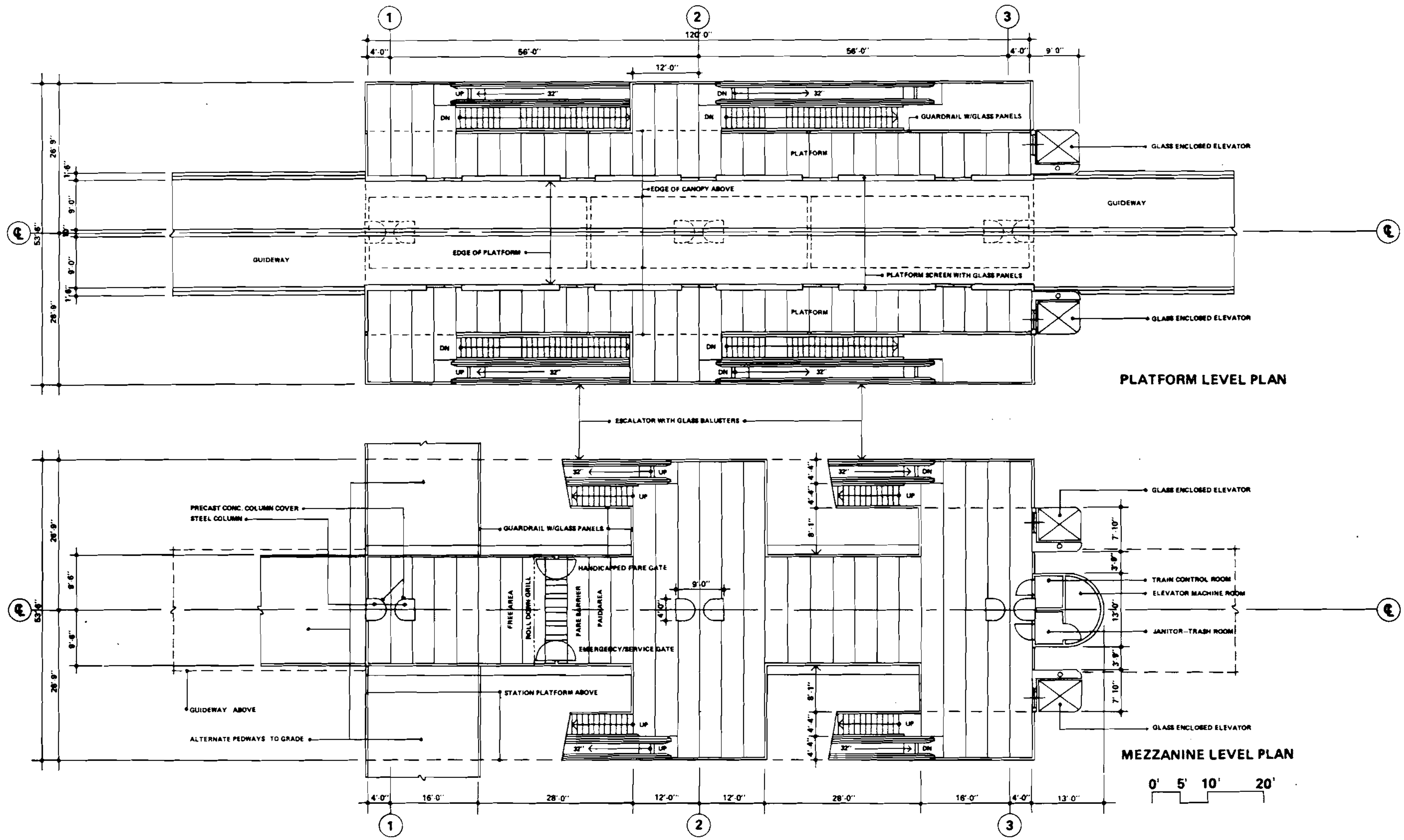
FIGURE II-22N:

TYPICAL AERIAL STATION SEVENTH ST., NINTH ST., LITTLE TOKYO & FEDERAL BUILDING



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II-230 GUIDEWAY

Guideway designs considered for the DPM system may be categorized by the manner in which they support the vehicle. For the DPM system these guideway options are: bottom-supported roadway, bottom-supported monorail beam, and top-supported monorail beam. Of the candidate systems which are presently available, only one uses a top-supported monorail beam. This system does not meet the study criterior of being currently in revenue service and the design presents further difficulties for emergency evacuation. For these reasons, the bottom-supported roadway and bottom-supported monorail beam are the most likely candidates for use in the Los Angeles DPM system. Figures II-23A-C show typical guideway cross sections for single-and double-lane bottom-supported roadway configurations. The dimensions shown are approximate and may vary, depending upon vehicle systems and the length of the span between columns. Figure II-23D shows a typical guideway cross section for a monorail beam.

If a roadway surface guideway is used, both sidewall and center guidance systems are possible. Figure II-23B shows a typical arrangement for a system using center guidance and Figures II-23 A and C show a typical sidewall guidance arrangement. On a monorail beam system, guidance is achieved by the vehicle straddling the beam, with guide wheels bearing against the sides of the beam.

The shape and finish of the guideway exterior can be varied to some extent, within the limits of basic vehicle operating requirements, to provide improvements in aesthetic appearance over a basic structural design which may appear bulky. Guideway shapes which are quite large can have their visual appearance enhanced by emphasizing the linear quality of the guideway. This can be done in several ways:

- o Paying careful attention to structural requirements to produce a design which is not larger than necessary.
- o Breaking large surfaces into a number of smaller ones.
- o Providing accent to structural lines which parallel the length of the guideway by means of optical devices such as color.

Concrete is the preferred material for the DPM guideway and columns because of its cost advantage over steel. (A typical steel guideway section is shown in Figure II-23E) Either prestressed or post-tensioned concrete sections will be used. A steel structure with a concrete running surface has some economic advantages over all concrete, especially for long, straight, and curved spans. However, the use of steel generally requires additional visual treatment that increses cost. For a monorail beam guideway, a basic-box, cross section is normally used and can be made from either concrete or steel.

The length of spans between columns will be determined in final design but will generally vary between 70 and 100 feet. Some street crossings will have spans on the order of 120 feet to minimize traffic disruption. Local building code seismic design requirements may result in a column cross section that could be quite heavy in appearance. Consequently, some form of optical refinement must be used to avoid a column design which would look like those used to support freeway structures. Various column shapes can be used, as illustrated in the figures. These shapes can vary from a simple cylinder and rectangular cross section to more complex geometric shapes, including coupled columns.

The use of longer spans reduces the number of columns required which results in columns of larger size. While fewer columns lessen visual impact, the increased size of the column requires the taking of a wider space at the sidewalk level. Conversely, increasing the number of columns to achieve a lighter cross section and more graceful slenderness ratio increases both the foundation and column costs and also tends to produce a "picket fence" appearance. The structural cross section of the column can be arranged so that the column would be narrower in one dimension to take less sidewalk width. With this approach, a reduction in width can be achieved by dividing the width into two coupled columns.

Column sizes can vary. For square columns they may vary from 3 feet 3 inches to 4 feet 6 inches on a side. For coupled rectangular columns size may vary from 3 feet by 7 feet 6 inches to 3 feet 9 inches by 9 feet. Larger-sized columns would be used where either the guideway is offset to one side or where very long spans would be required.

An item of major importance in the design of the guideway structure is the juncture of the top of the column with the vehicle guideway. A careful marriage of form is required in order to enhance the linear quality of the guideway. In the final design of the guideway structure, corresponding with a selected vehicle system, sensitive design detailing of the column capital will be used to achieve the most beneficial optical effect possible.

FIGURE II-23A

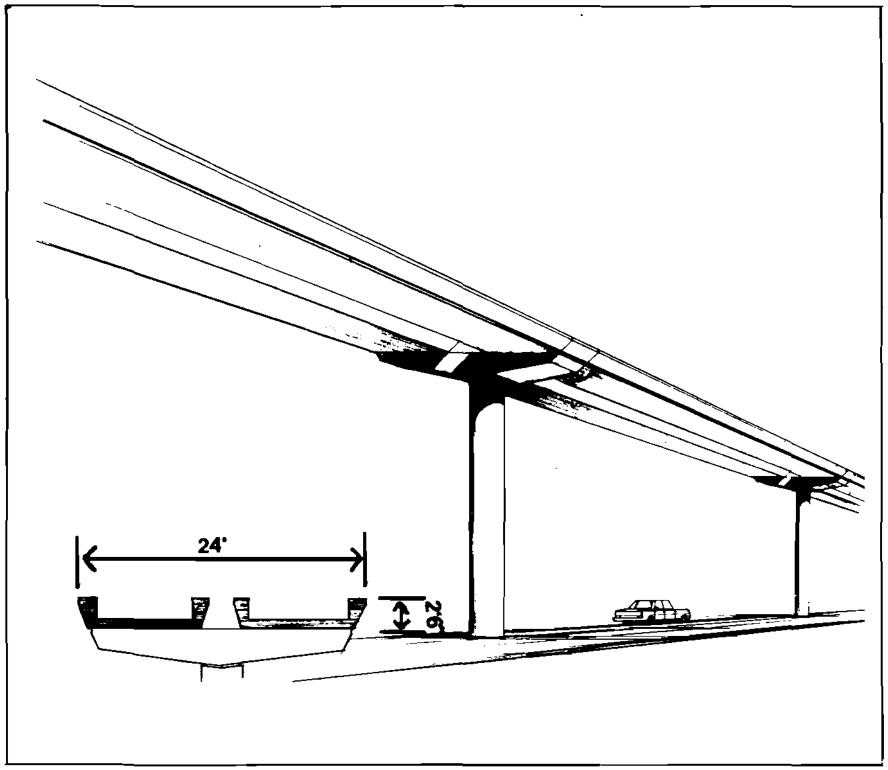


FIGURE II-23B

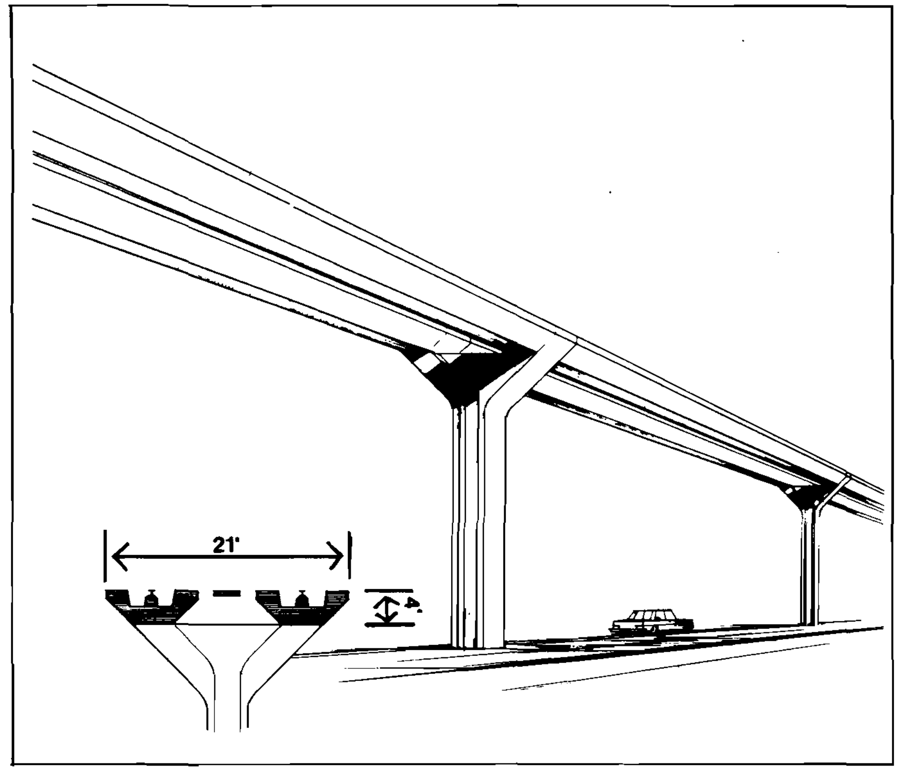


FIGURE II-23C

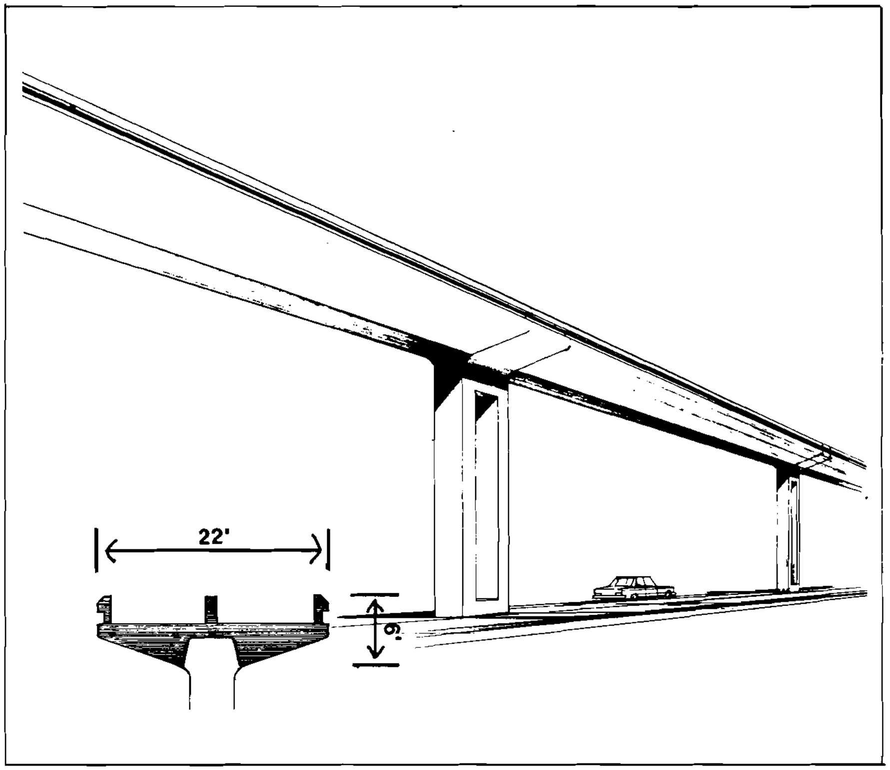


FIGURE II-23D

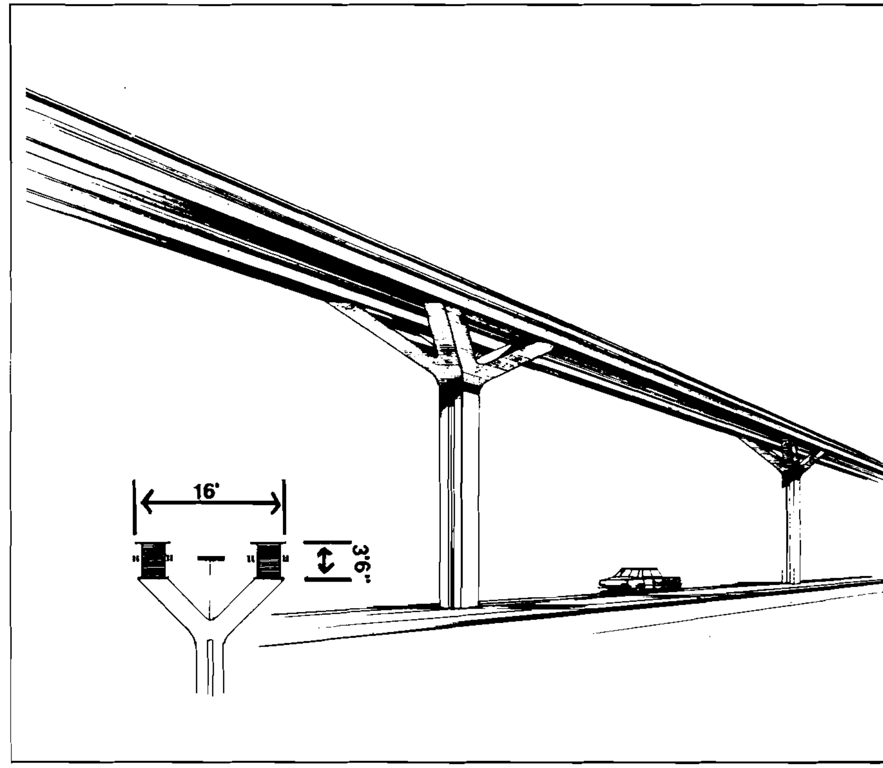
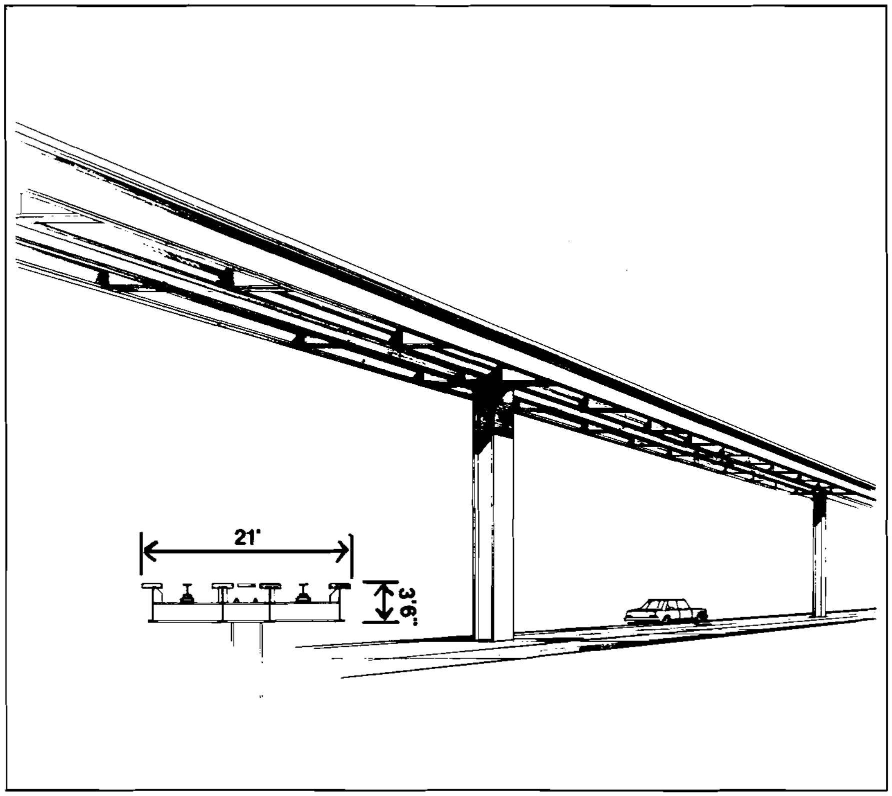


FIGURE II-23E



II-240 MAINTENANCE AND STORAGE FACILITIES

Maintenance activities for the DPM include both periodic and unscheduled servicing of vehicles and equipment. A maintenance and storage facility is proposed to be located in the vicinity of the Union Station intercept station. A general site plan of the maintenance and intercept facilities at Union Station is shown in Figure II-24A. This area, comprising approximately 0.35 acre, is adequate for maintenance of the vehicle fleet currently projected for 1990, with room for expansion, if necessary.

The maintenance and storage facility would consist of a maintenance shop building, vehicle storage tracks (approximately 1300 feet in length), yard tracks, car washer, dispatch area, access roads, and miscellaneous yard facilities. The general layout of the maintenance facility is shown in Figure II-24B.

Daily inspection and interior cleaning of vehicles would be performed in the storage area and paved aisles would be provided along both sides of the storage tracks to facilitate these activities. Exterior car washing would be performed in a car wash facility adjacent to the storage area.

FIGURE II-24A:

UNION STATION DPM FACILITIES LAYOUT

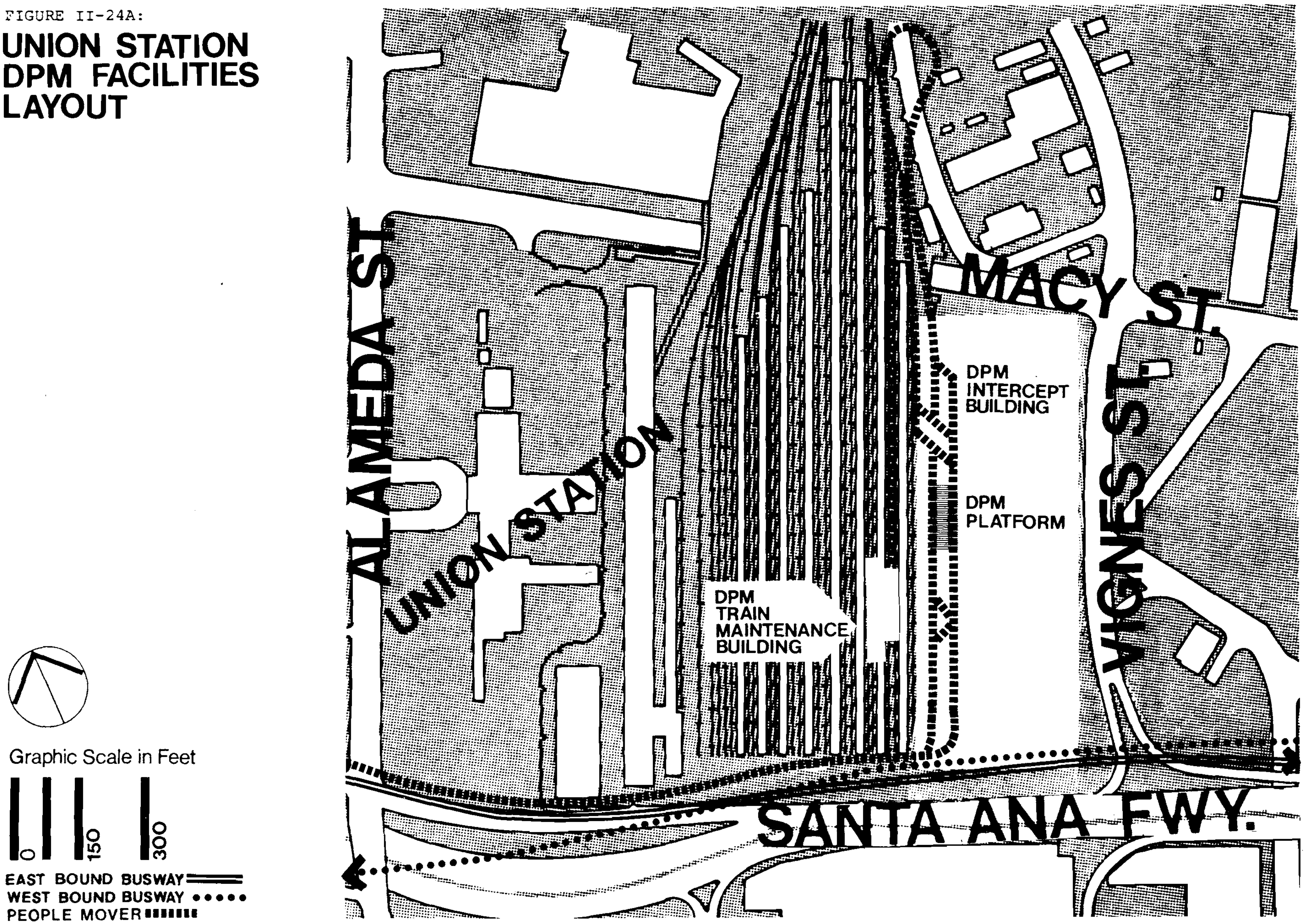
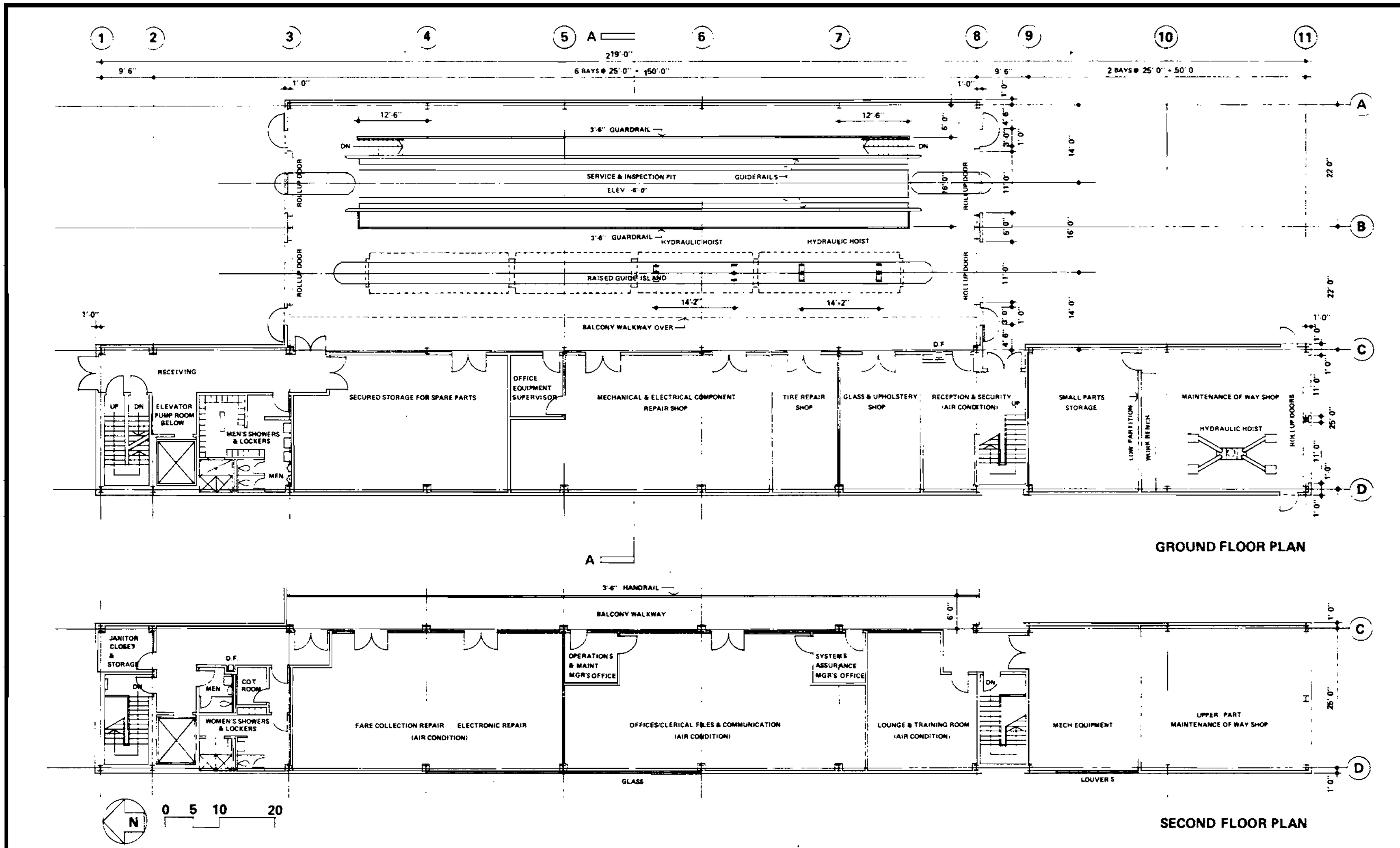


FIGURE II-24B:

TRAIN MAINTENANCE BUILDING PLAN



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Checked by: Date:

Los Angeles Downtown People Mover Project

COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF LOS ANGELES

SUBJECT TO CHANGE IN FINAL DESIGN

II-250 VEHICLE DESCRIPTION

Los Angeles Downtown People Mover vehicles will operate during peak periods as trains, capable of carrying approximately 50 seated passengers and up to 120 standees. Trains will be approximately 100 to 120 feet in length and, depending upon the manufacturer selected, may consist of as few as two or as many as six vehicles during the peak periods of operation.

There is a wide range of currently available vehicle sizes. People Mover vehicles are as long as 39 feet and as short as 18 feet. The smaller vehicles requiring longer consists to provide the same line capacity. Those most suitable for use in Los Angeles range from 24 to 39 feet long. Vehicles range in height from 8 feet 3 inches to 11 feet 3 inches and in width from 6-1/2 feet to just over 9 feet.

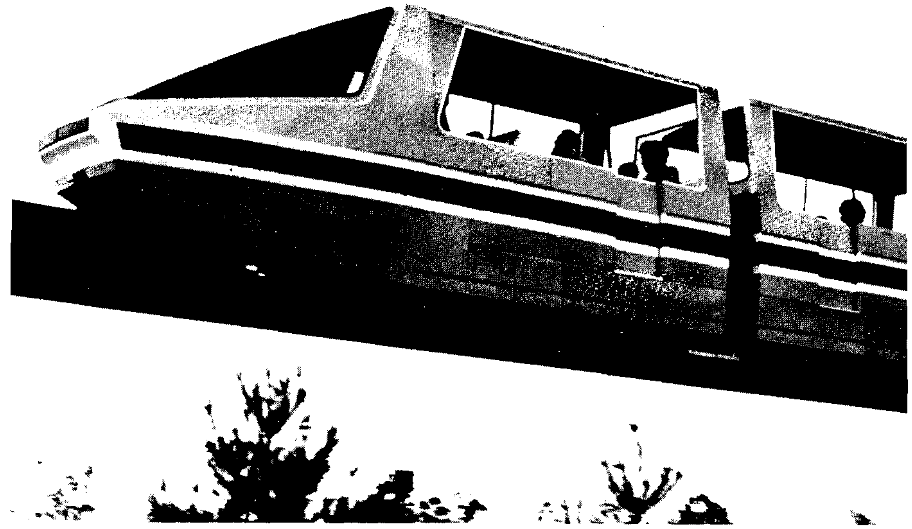
A majority of the candidate Los Angeles DPM vehicles are supported by rubber tires on concrete guideways, such as the vehicles pictured in Figures II-25A & B. Another system features a vehicle suspended on an air cushion and uses a linear-induction motor (Figure II-25C); still another vehicle operates on a monorail guideway beam (Figure II-25D). Figures on following page are placed counterclockwise starting with A in upper left hand corner.

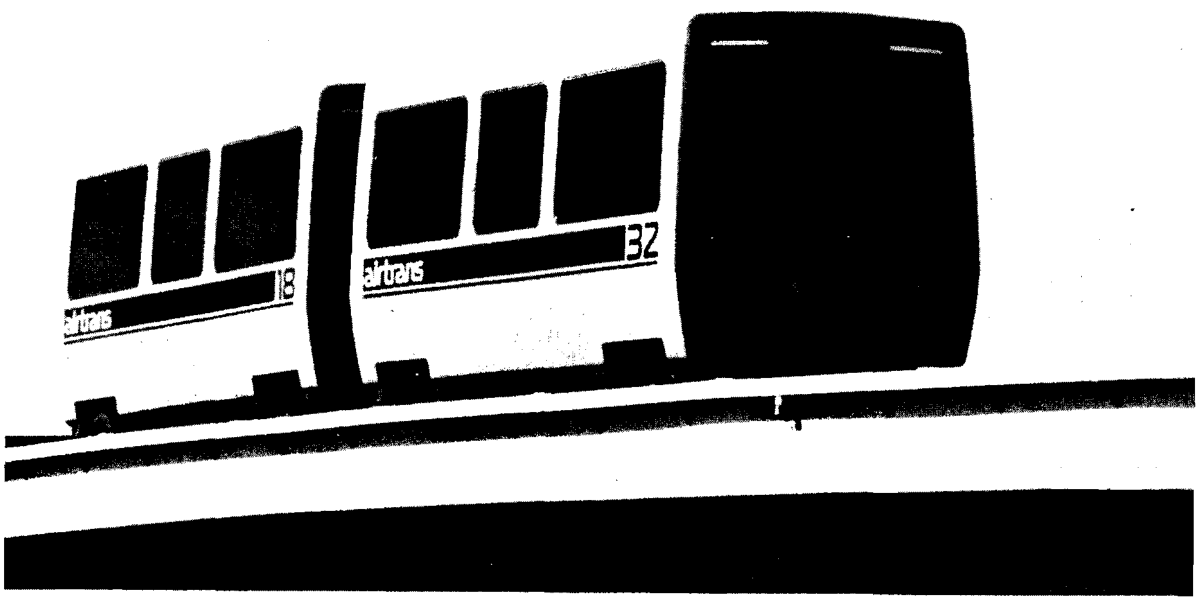
All of the vehicle systems being considered are electrically powered. Regenerative braking can be used as an energy conservation measure, which means that some portion of the energy generated by the vehicle braking system will be retained. Loading and unloading will be accomplished through doors located on either side of the vehicle. The doors adjacent to the platform will be automatically opened and operation will be synchronized with platform door opening.

The vehicle will have a bright, highly visible interior to assure the security of both passengers and equipment. The interior of the vehicle will be designed to provide a comfortable ride, while minimizing the effects of both normal wear and tear and vandalism.

Each vehicle will be equipped with a public-address system and a two-way intercommunications system. The public-address system will allow general announcements to the passengers, including identification of stations and instructions during an emergency. The intercom system will allow the individual passenger to communicate with the control center if necessary.

Special consideration has been and will be given to the needs of the elderly and the handicapped in the design of vehicles and stations. The floor of the vehicle will be at the same height as the station platform. Each car will be equipped with accommodations for wheelchairs.

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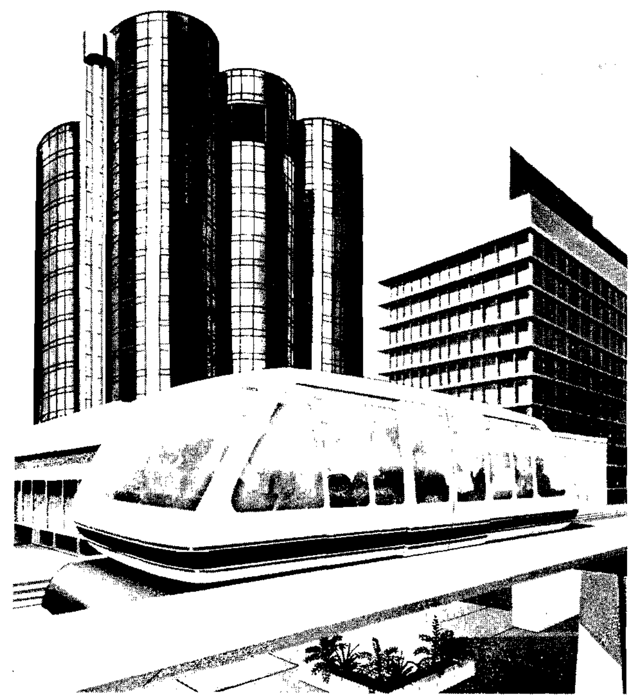


II-260 RELATED FACILITIES

II-261 Power Supply System

The Los Angeles Downtown People Mover will receive power from the Los Angeles Department of Water and Power. Power will be distributed to the secondary substations, located in the passenger stations. Here, the power will be transformed to the required service levels and fed to the station service panels and to the guideway power rails.

Power transformers and distribution equipment will be housed in special vaults, located in the passenger stations. This equipment will control the 480, volt, 3 phase traction power and the 120-volt single-phase power used for equipment and lighting.

The power distribution system will be designed such that the secondary substations can be fed from either of two sources. This provides required safety of redundancy in the event of failure of one of the sources.

The power distribution system will be monitored and controlled from the control center. Special safety switches will be located along the system to allow removal of power along the guideway in an emergency.

II-262 Other Utilities

The two intercept stations, at the Convention Center and at Union Station, will have rest rooms and drinking fountains.

Water service will, therefore, be required at these stations, as well as a minimal amount of gas service for water heaters. The remaining stations will require water only at the janitor closets for station maintenance.

The maintenance facilities will require both gas and water service for rest rooms, locker rooms, water fountains, vehicle wash facilities, and water and environmental heating.

II-263 Operations Control Center

Management and supervision of the Los Angeles DPM will be accomplished from an operations control center located at the Union Station intercept. Display and control equipment will enable operating personnel to monitor and control the operation of system equipment. In addition, closed circuit television monitors will allow visual observation of station platform and mezzanine areas.

Operation of the trains will be fully automatic. Equipment incorporating fail-safe mechanisms will assure operation of the trains within safe limits, maintaining proper speeds and train separation, as well as safe switch and interlocked door operation. The system will be continuously supervised by control personnel.

Assistance to passengers in the use of the system will come primarily from the control center. Using closed circuit television, the public address, and passenger intercom systems, operations personnel will be able to meet the needs of most of the people requesting assistance.

The control center will be the focal point for all responses to emergency conditions. Fire, police, ambulance, or maintenance personnel, as appropriate, will be contacted by operating personnel in response to alarms and communications located in the control center. Radio, public address, closed circuit television, and intercoms will be used as required, to coordinate evacuation and to reassure patrons.

II-264 Fare Collection System

Riders will be able to enter the DPM system by using exact change or tokens for single rides, by using a free transfer from an SCRTD or other public bus (subject to agreement with the bus operating agencies), or by using a pass. Passes will be valid for an unlimited number of rides during a stated period (typically one month). Both tokens and passes will be available at numerous outlets and the intercept parking areas. Reduced fare passes or tokens will be available at these outlets for the elderly and handicapped.

Access to the station paid area will be through standard fare gates capable of accepting exact change, tokens, passes, or transfers. Swing gates will be provided for the handicapped.

II-300 OPERATION OF THE SYSTEM

II-310 SERVICE

A DPM operating plan has been prepared based on 1990 patronage estimates and a baseline system which has a capacity of 42 passengers per vehicle. This operating plan is shown on Table II-31A. Table II-31B shows typical travel times between DPM stations. A trip from Union Station to Convention Center would require about 15 minutes. Average station dwell times would be about 25 seconds.

II-320 PATRONAGE

An estimated 72,400 trips would be made on the DPM during an average workday in 1990.

DPM trips can be divided into two major categories:

- Distribution trips are trips which have one end in the downtown, either an origin or destination; for example, a peak-hour trip from office to home.
- Circulation trips are trips which begin and end in the downtown; for example, a noon-hour trip from office to restaurant.

Table II-32A shows the split of daily trips among regional bus transfers, auto transfers, and circulation trips throughout the operating day.

Figure II-32A shows the estimated DPM ridership by hour of the day and by major category. Two prominent peaks are expected in the morning and early evening, reflecting rush hour demand. Another modest peak occurs during the midday period, when circulation trips reach their maximum.

Demand for the DPM is expected to be greatest during the afternoon peak hour (4:30 - 5:30 p.m.) with a total of 9,221 trips.

Figure II-32B shows estimated station volumes and link volumes for the afternoon peak hour. Station volumes refer to total ONS and OFFS in both the northbound and southbound directions. The four stations with the heaviest peak-hour usage would be Union Station, Convention Center, Civic Center, and 7th and Figueroa Streets.

Link volumes represent the total number of passengers riding the DPM between adjacent stations. The maximum one-way link volume would occur between Pershing Square and Hill Street (3509 passengers/hour).

TABLE II-31A
1990 DPM OPERATING PLAN

Weekday	Nominal Headway	Consist
6:00 a.m. - 9:00 a.m.	1.5 min.	4-car train
9:00 a.m. - 3:30 p.m.	3.0 min.	4-car train
3:30 p.m. - 6:30 p.m.	1.5 min.	4-car train
6:30 p.m. -12:00 P.M.	4.5 min.	2-car train
Saturday		
6:00 a.m. - 8:30 a.m.	4.5 min.	2-car train
8:30 a.m. - 6:00 p.m.	3.0 min.	2-car train
6:00 p.m. -12:00 p.m.	4.5 min.	2-car train
Sundays & Holidays		
8:00 a.m. - 12:00 m	4.5 min.	2-car train

TABLE II-31B
APPROXIMATE STATION-TO-STATION RUN TIMES
(in minutes)

Station	Southbound	Northbound	
Union Station			
	1.0	1.4	
Federal Building			
	0.6	0.6	
Little Tokyo			
	0.8	0.8	
Civic Center			
	0.9	0.9	
Hill Street			
	0.6	0.8	
Bunker Hill			Pershing Square
	0.8	0.7	
World Trade Center			Library
	1.0	0.7	
5th & Figueroa			
	0.9	0.8	
7th & Figueroa			
	1.0	1.0	
9th & Figueroa			
	1.1	1.0	
Convention Center			

TOTAL ROUND-TRIP TIME about 27 minutes

AVERAGE STATION DWELL TIME = 25 seconds

TABLE II-32A

DAILY DPM RIDERSHIP, 1990	
Distribution Trips	
Trips to/from transit stops	34,159
Trips to/from parking lots	12,529
Circulation Trips	25,720
TOTAL DPM RIDERSHIP	72,408

AFTERNOON PEAK-HOUR RIDERSHIP, 1990	
Distribution Trips	
Trips to/from transit stops	5,062
Trips to/from parking lots	2,382
Circulation Trips	1,777
TOTAL PEAK-HOUR RIDERSHIP	9,221

FIGURE II-32A:

ESTIMATED DPM RIDERSHIP BY HOUR OF THE DAY, 1990
Distribution and Circulation Trips

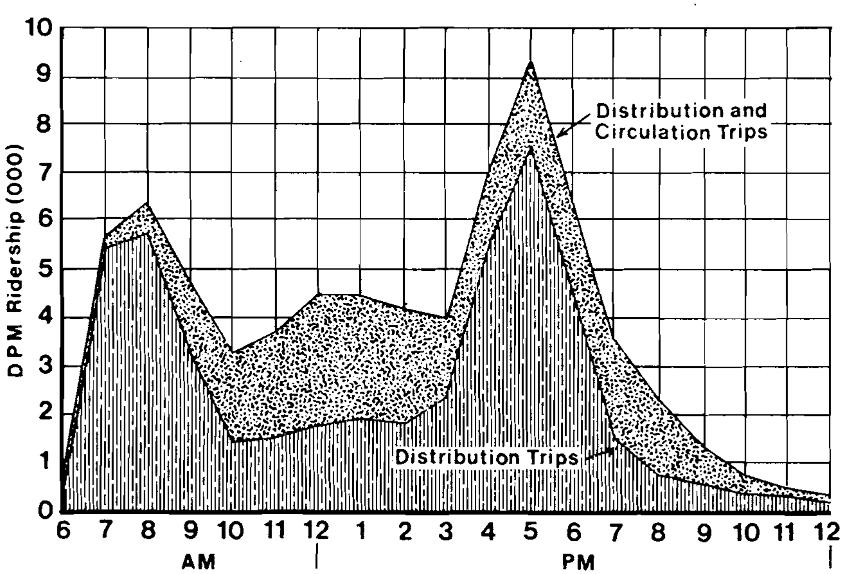
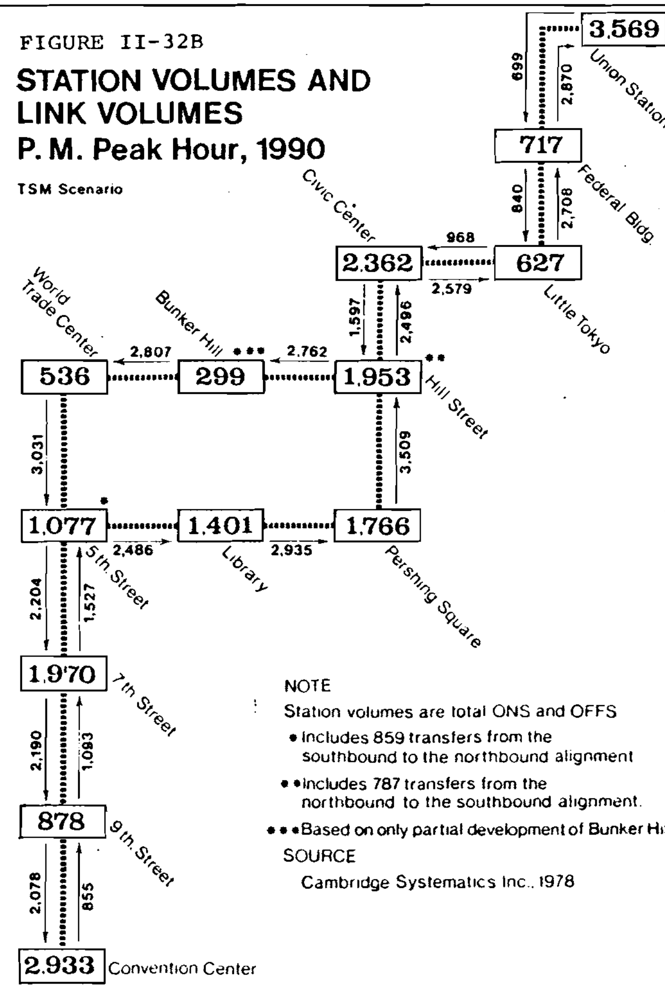


FIGURE II-32B

STATION VOLUMES AND LINK VOLUMES
P. M. Peak Hour, 1990

TSM Scenario



NOTE

Station volumes are total ONS and OFFS

• Includes 859 transfers from the southbound to the northbound alignment

• • Includes 787 transfers from the northbound to the southbound alignment.

• • • Based on only partial development of Bunker Hill

SOURCE

Cambridge Systematics Inc., 1978

II-330 ASSOCIATED TRANSPORTATION IMPROVEMENTS

Proposed improvements that would be constructed in conjunction with the DPM include:

- A 2,000-car parking garage and bus loading/unloading facility as part of an auto/bus intercept near Union Station.
- A 1,750-car parking garage and bus loading/unloading areas as part of an auto/bus intercept near the Convention Center.
- Ramp modifications and a new off-ramp from eastbound Santa Monica Freeway to the auto/bus intercept.

The proposed improvements provide buses and carpools with improved accessibility to the CBD and reduce congestion on CBD streets and approaching freeways. The improvements would be constructed in conjunction with construction of the Los Angeles Downtown People Mover.

II-331 Proposed Improvements at Union Station

Assuming that the San Bernardino Busway will be extended to Alameda Street, the Caltrans design will accommodate connections with the Union Station bus/auto intercept proposed as part of the people mover project. This intercept would be located adjacent to and north of the Busway/Santa Ana Freeway and adjacent to and east of the Union Station platform area. It would be bounded on the north by Macy Street and on the east by Vignes Street. The intercept facility would consist of a six-level structure. It would include 2,000 parking spaces; people mover station; bus loading/unloading platforms; Amtrak ticketing/baggage facilities; intercity, tour, and airport bus facilities; and limited retail facilities.

The connection of the intercept to the Busway is designed to provide direct and congestion-free access to the carpool parking and bus/loading/unloading areas, therby minimizing delay for buses and carpools. Inbound traffic from the Busway would be able to continue to Alameda Street or turn into the intercept. Buses and carpools have separate access to the building. Outbound traffic from the intercept would merge with other outbound traffic entering the Busway at Aliso Street and Alameda Street.

II-332 Proposed Improvements at the Convention Center

The Convention Center Station would be located on City property in front of the Convention Center along Figueroa Street. Carpool and auto parking would be provided for 1,750 vehicles on a parcel which is now private property on the east side of Figueroa Street, between Pico Boulevard and Twelfth Street.

Additional improvements call for reconstructing the ramp connections from the Santa Monica Freeway to the northbound Harbor Freeway and to Pico Boulevard. A new ramp would be constructed from the existing eastbound Santa Monica Freeway to the northbound Harbor Freeway to Pico Boulevard off-ramp. This ramp would enable direct access to the Convention Center area for eastbound Santa Monica traffic. A new ramp would be constructed from the westbound Santa Monica Freeway; it would bridge over the exit ramps to Pico Boulevard and join the northbound Harbor Freeway. These ramp modifications will not eliminate or significantly change existing traffic patterns. For the most part, the construction will require acquisition of very little right-of-way. The surrounding area is residential. No relocation would be involved.

II-340 INTERFACE WITH OTHER MODES

To achieve a well-integrated circulation/distribution system for downtown Los Angeles, a number of decisions and cooperative agreements will be required of participating agencies, including CRA, SCRTD, and Caltrans. Progress has already been made to this end, in terms of integrating plans for the El Monte Busway extension with plans for the Union Station bus/DPM terminal, as well as providing for direct passenger transfer to or from a future rapid rail starter line. Similar progress has been made in terms of anticipating the types of logical service changes that would be required. Continued efforts will be required in planning the location and frequency of downtown bus service.

CRA, Caltrans, and the SCRTD have developed plans for coordinating DPM, bus, and rail service under three alternative 1990 scenarios:

- Transportation Systems Management (TSM) consists of an 11% increase in local bus frequency, together with a 30% increase in express bus frequency.
- Freeway Transit assumes implementation of the Caltrans freeway transit program. Five-minute, peak-hour headways would be provided on each of ten different freeway routes. Local bus frequencies would be the same as in the TSM case.
- Starter Line includes the Wilshire/La Brea alignment of the rapid transit starter line, and the freeway transit program, with the exception of the Hollywood busway. Local and express bus frequencies would be reduced.

The DPM system will connect other modes of transit for each of the three scenarios in one of two ways. First, some bus routes would be "intercepted" at the Convention Center and Union Station. (Illustrations of proposed intercept facilities are shown in Figures II-34A thru II-34D.) The alternative is a bus that continues on downtown after stopping at the DPM Station. These buses that stop near DPM stations are designated as interface buses.

An example of an intercepted bus would be an inbound El Monte freeway flyer that would terminate its route at the Union Station Bus/DPM terminal. This is in contrast to an interface bus that would continue on downtown after stopping at Union Station. Similarly, an outbound freeway bus which begins its route at Union Station can also be called "intercepted."

In both the freeway transit and starter line cases, a total of 42 outbound buses per hour would be intercepted in the peak hour. In the TSM case, 43 buses per hour would be intercepted. In each of these cases, the primary source of intercepted buses would be the corridors served by the Harbor, Santa Monica, and San Bernardino Freeways. In terms of interface, between 69 percent and 73 percent of all regional buses would have a DPM transfer capability to at least one of four major DPM stations: Union Station, Civic Center, 7th and Figueroa, and the Convention Center. All approach corridors except that served by the Santa Ana Freeway will interface heavily with the DPM. A total of from 459 to 586 buses per peak hour would thus have a transfer capability to the DPM.

In the freeway transit case, although there would be considerably more express bus service, new freeway transit routes operate on a "through routing" basis, and therefore the level of intercept is not increased. Both the starter line and Freeway Transit programs, however, would increase the level of transit "interface" with the DPM.

FIGURE II-34A:

UNION STATION INTERCEPT LEVEL 1 PLAN

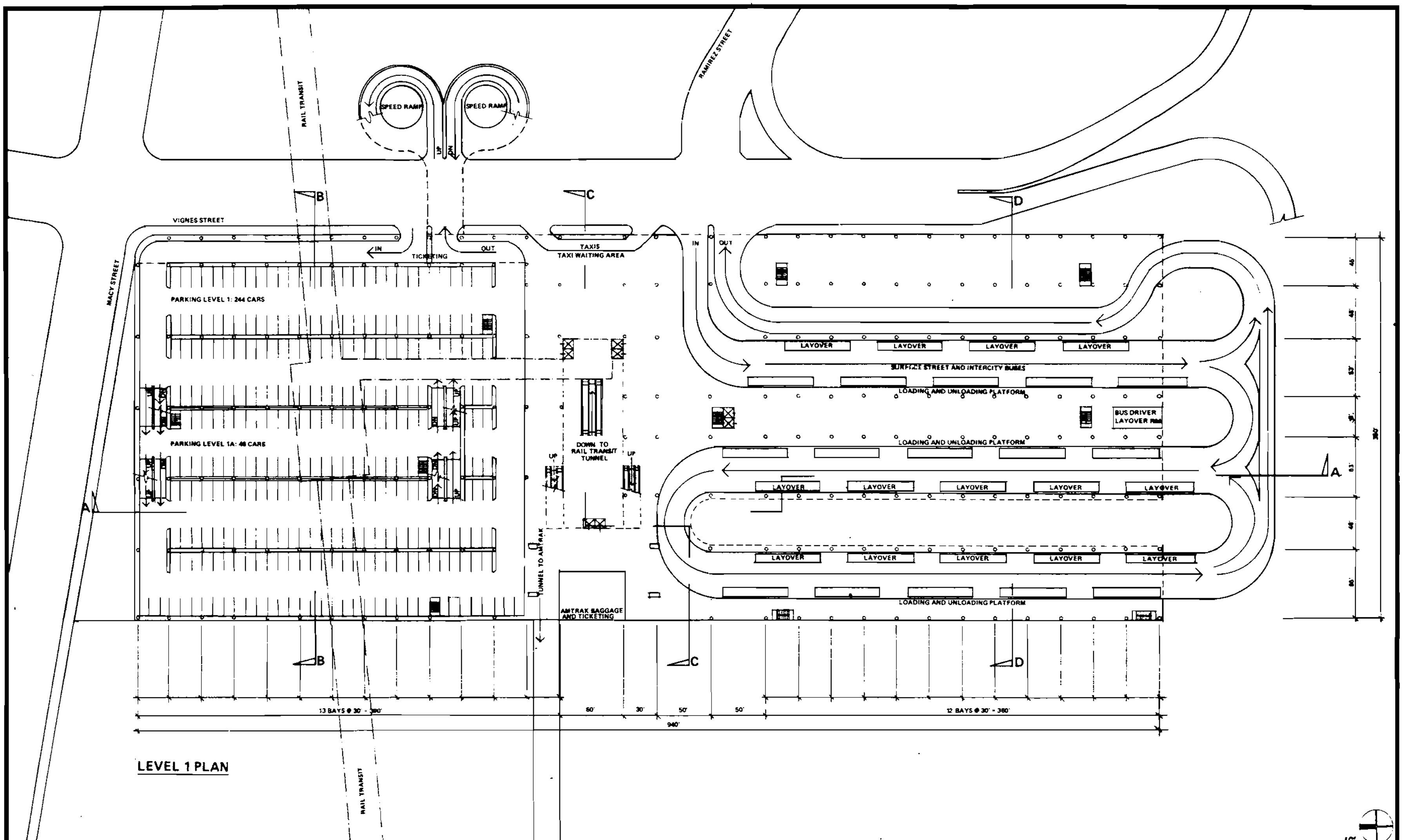


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FIGURE II-34B:

UNION STATION INTERCEPT LEVEL 3 PLAN

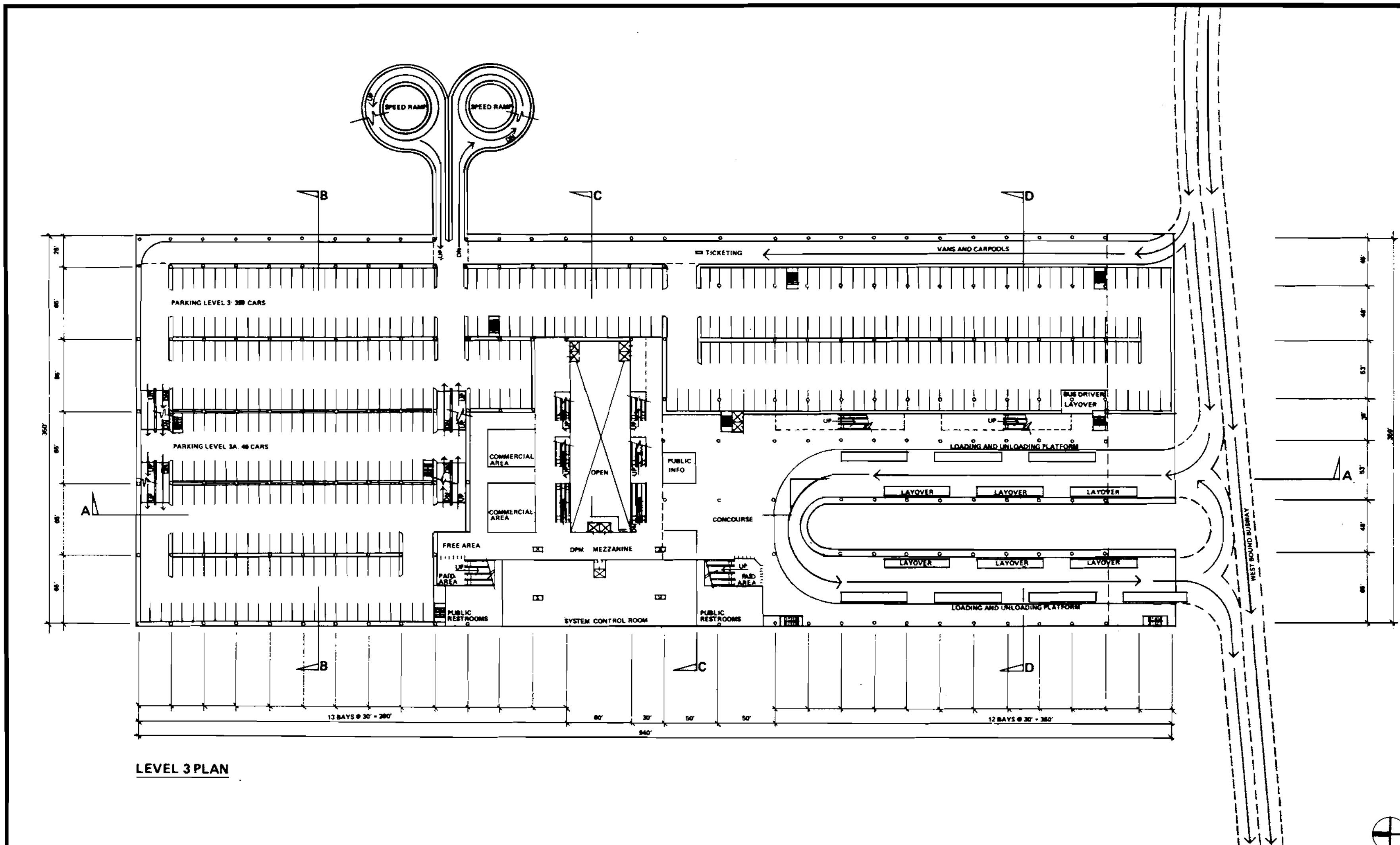

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FIGURE II-34C:

UNION STATION INTERCEPT LEVEL 5 PLAN

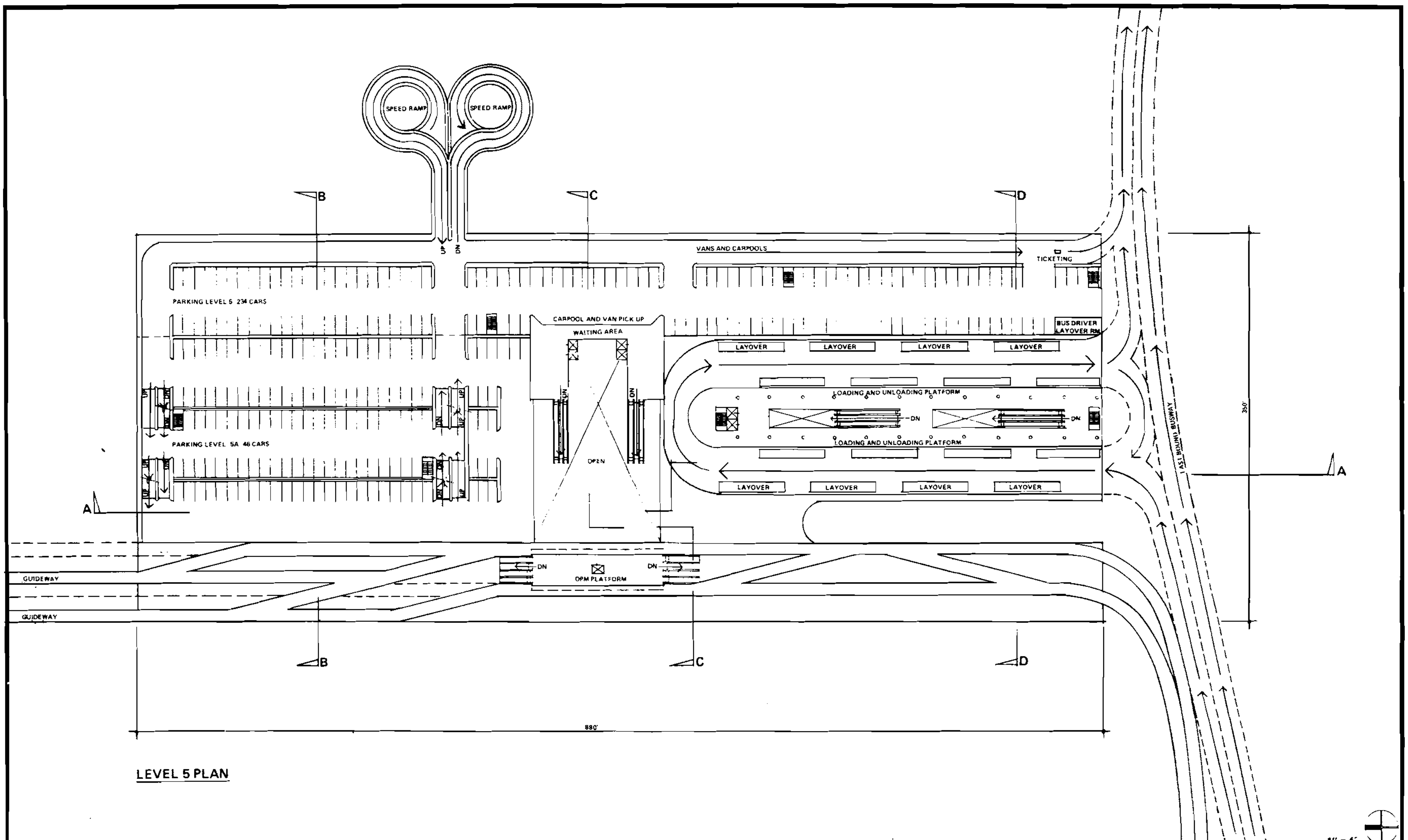

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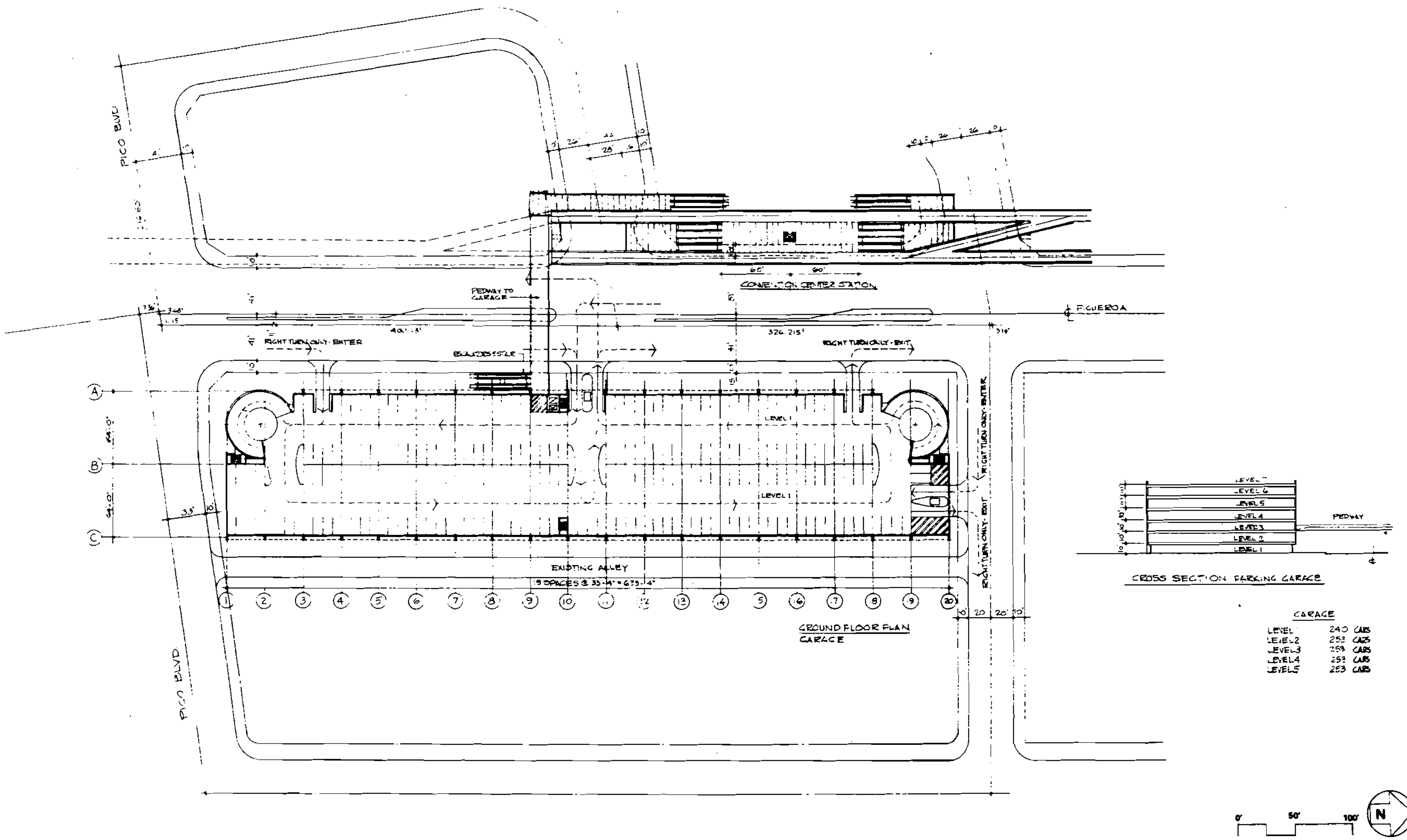
FIGURE II-34D:

CONVENTION CENTER STATION PARKING GARAGE



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Los Angeles Downtown People Mover Project

COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF LOS ANGELES

SUBJECT TO CHANGE IN FINAL DESIGN

Downtown rapid transit stations located at 7th and Flower, 5th and Broadway, 1st and Broadway, and Union Station would allow transfer to the DPM. Headways are expected to be four minutes in the peak hour and six minutes during the noon hour.

Interface with the minibus system is also made possible under an alternative 1990 routing which would provide DPM transfer capability at Union Station, Little Tokyo, and the Convention Center.

Interface of the DPM system with the automobile is possible at the intercept facilities located at both Union Station and the Convention Center. At Union Station a total of 2,000 auto parking spaces will be provided, of which 750 will be allocated to carpools. At the Convention Center, 1,750 parking spaces will be provided, of which 750 will be reserved for carpools.

The DPM station at Union Station also provides for a connection to Amtrak intercity rail service. Currently, Amtrak operates six round-trip trains to San Diego per day, one outbound and one inbound to Chicago, the same to Seattle, and a three-times weekly train to New Orleans.

II-350 PROVISIONS FOR ELDERLY AND HANDICAPPED

DPM policies and concepts have been developed to ensure that the DPM vehicles and facilities will be fully accessible to elderly and handicapped persons. These policies and concepts are in compliance with American National Standards Institute standards and Section 504 of the Rehabilitation Act of 1973. During final system design, these policies and concepts will be fully implemented.

Stations and intercept facilities, as well as DPM vehicles, will be clean, attractive, and well-lighted, and will be planned so that, as much as possible, elderly and physically handicapped patrons can move unassisted through them with a minimum of crowding and a maximum of safety. Stations, intercept facilities, operations control center, and yard and shop areas will also be planned to enable physically handicapped persons full access to working areas so they may be given nondiscriminatory consideration for employment. DPM facilities will incorporate suitable signing and use of color, sound, and light to enable elderly and physically handicapped patrons to know where they are and where they are going. A public address system will function in the stations and on the trains. Graphics will be bilingual (English and Spanish) and will be in braille. International symbols will be used wherever appropriate.

Preferential parking spaces will be provided to handicapped patrons at the intercepts. Where provided, public rest rooms, drinking fountains, and telephones will be accessible to physically disabled people.

At the stations, elevators will be provided for the physically handicapped. Special fare gates will be provided. Platform screens will be used to prevent guideway access unless a vehicle is present. Emergency and assistance phones will be available to patrons, as well as a public address system for announcements. There will be closed circuit television monitoring platform areas and mezzanines.

In the vehicles, a specific area will be set aside for individuals in wheelchairs. The height of the vehicle floor and the station platform will be the same, with a horizontal gap not to exceed 1.5 inches. There will be an intercom in each vehicle and a public address system for announcements.

In both the operations control center and the yards and shops, complete access will be provided to the physically handicapped employees, including office areas, rest rooms, drinking fountains and telephones.

II-360 SAFETY AND SECURITY

Both the general public and the federal and local transportation regulatory bodies require levels of safety and security in new transportation systems which are sufficiently high as to permit virtually no incidents. The following is a summary of these requirements and considerations.

II-361 Safety

The DPM system will be designed and operated in such a way as to equal or exceed the safety of currently operating systems in the United States, using existing and currently acceptable practices and procedures. Safety system design will be achieved by eliminating all single points of potential hazard and controlling combinations of events which could result in injuries, fatalities, major system damage, or system loss.

A primary criterion in designing the DPM safety system is to anticipate every possibility of failure of a system element or combination of elements or events that could result in injuries, fatalities, or system damage. System dynamic elements will be designed to fail in a safe manner.

The supplier selected to implement the system will be required to develop a safety program which addresses safety, fire protection, security, and human factors. This program will: (1) establish appropriate goals and criteria and implement them early in the design phase; (2) continually review the design against the goals and criteria; (3) identify and assess hazards early in the design phase; (4) take appropriate action to eliminate or minimize these hazards; and (5) verify the systems to be safe before opening for service. All of these aspects will be addressed and documented in a Systems Safety Program Plan, which will describe all safety activity of both a technical and management nature.

In terms of fire protection, the DPM system will be designed and implemented so as to achieve a level of protection at least equivalent to that which is currently being provided through the local building code. Requirements will include: noncombustible station designs fire and smoke retardant vehicle interiors emergency exits emergency alarm systems.

II-362 Security

A Patron Personal Security plan has been developed in conjunction with the Los Angeles Police department. Personal Security will involve the use of closed circuit television, security communication systems, public address systems, romote assistance devices (such as warning lights), intrusion detection alarms, and special assistance techniques for handicapped patrons. Some or all of these techniques and methods will be employed throughout the system to maintain security for both patrons and DPM personnel. Although the operating vehicles and stations are unattended, the system will have highly visible and well lighted areas and vehicles, together with remote visual and audio monitoring, and roving patrols to maintain security.

II-370 OPERATING EMPLOYEES

The DPM system would employ a staff of about 80 people distributed among three shifts. Operation of the system would require 11 managers/administrators, 25 operations personnel and 44 maintenance personnel.

II-380 PROJECTED ENERGY REQUIREMENTS

The DPM system will consume operating energy in terms of both traction power and power to operate various subsystems. Traction power required by the DPM system is based on an assumed unit consumption of 4.6 kwh/vehicle mile. This figure represents current operational experience. Table II-38A shows total 1990 annual DPM system power consumption, inclusive of traction, escalators, lighting, control and yard operations, and maintenance. This table reveals that in 1990, the DPM system as a whole will consume some 20.7 million kilowatt hours of electrical energy. A similar estimate for 1983 (initial system revenue operation) would be approximately 19.7 million kwh.

TABLE II-38A
1990 ANNUAL DPM POWER CONSUMPTION
(in kwh)

Traction Power[1]	12,249,600
Escalators[2]	2,811,800
Station Lighting[3]	1,483,500
Maintenance Building[4]	525,600
Control Center[5]	91,800
Miscellaneous[6]	14,300
SUBTOTAL	17,176,600
10% Contingency	1,717,600
TOTAL	18,894,200

(1) Based on vehicle consumption rate of 4.6 kwh/vehicle mile. Includes 8% line losses.

(2) Based on 58 escalators, operating at a rate of 7.5 kwh/hour.

(3) Based on power consumption ranging from 5-11 kwh/hour for a total of 13 stations

(4) Based on a consumption rate of 60 kwh/hour.

(5) Based on a consumption rate of 12 kwh/hour.

(6) Includes subway ventilation requirements.

II-390 PROJECTED OPERATING COSTS

Table II-39A presents operating costs for initial system operation and 1990. These projected costs are based on the reference system design and the operating plan of Section II-300.

Table II-39B lists proposed sources of operating funds.

TABLE II-39A
ESTIMATED OPERATING COSTS
(All costs in 1978 dollars)

	West Side of Figueroa Street Alignment		Center of Figueroa Street Alignment	
	1983	1990	1983	1990
Cost Elements:				
Labor (including overhead)	$2,626,000	$2,626,000	$2,626,000	$2,626,000
Power	529,000	568,000	524,000	563,000
Materials & spare parts	253,000	272,000	251,000	269,000
Contract services	323,000	323,000	323,000	323,000
Liability fund	226.000	254,000	226,000	254,000
Intercepts	600,000	600,000	600,000	600,000
TOTAL	$4,557,000	$4,643,000	$4,550,000	$4,635,000

TABLE II-39B

PROPOSED SOURCES OF OPERATING FUNDS*

	1983	1990
	(millions of 1978 dollars)	
DPM Passenger Revenue	2.2	2.3
(10 cents average fare 1976 dollars)		
Private Sector Contributions	1.4	1.4
Ads and rental Station retail leases Joint development leases Maintenance and security fees Retail override assessments		
Parking Revenues	1.0	1.0
TOTAL OPERATING FUNDS	4.6	4.7

*Information in this table applies to both the west side of Figueroa Street alignment and the center of Figueroa Street alignment.

II-400 CONSTRUCTION

II-410 DESIGN AND CONSTRUCTION SCHEDULE

It is estimated that a 39-month time period would be required to complete design, construction, and testing of the DPM system and all of its major components. An estimated schedule has been prepared of events which would take place during this time period. Figure II-41A represents a reasonable estimate of task duration and sequencing, based on current information. The duration indicated for each task represents the total time required to complete that phase of construction activity. The time at any one location will be considerably shorter than the time indicated.

Construction of the DPM system is concerned with four major areas: aerial guideway, cut and cover subterranean guideway/ station, aerial stations, and intercept/maintenance facilities. Construction of the aerial guideway and aerial station portions of the system will constitute the major construction effort. In order to complete construction of the aerial guideway within a 39-month schedule, it will be necessary for work to begin in a number of locations at the same time. This means that a number of locations along the route will be in various stages of completion at the same time, as the "wave" moves along the route. This approach to construction scheduling is designed to minimize construction related disruption. Table II-41A shows a typical construction cycle for a section.

Construction of the aerial stations will require the same type of construction activities as for construction of the aerial guideway. In station locations, construction of both the stations and guideway sections will occur at the same time, to minimize the disruption and increase efficiency of the construction process. Aerial stations will require additional interior equipment finishing work that the aerial guideway will not require. Most of this work will take place after the station structure has been completed and therefore will produce minimal disruption to businesses or surface traffic.

For the cut-and-cover guideway and station in Bunker Hill, the work differs from other areas in that the degree of excavation and heavy equipment employed will be much greater. These areas are currently undeveloped and therefore, construction disruption will be minimal. The site of the maintenance facility will be cleared early in the overall construction process to provide for storage and security of construction equipment. The maintenance facility itself will be partially completed before the arrival of the vehicles, in order to conduct tests and check-out there and to provide storage space.

FIGURE II-41A:

ESTIMATED DPM DESIGN AND CONSTRUCTION SCHEDULE

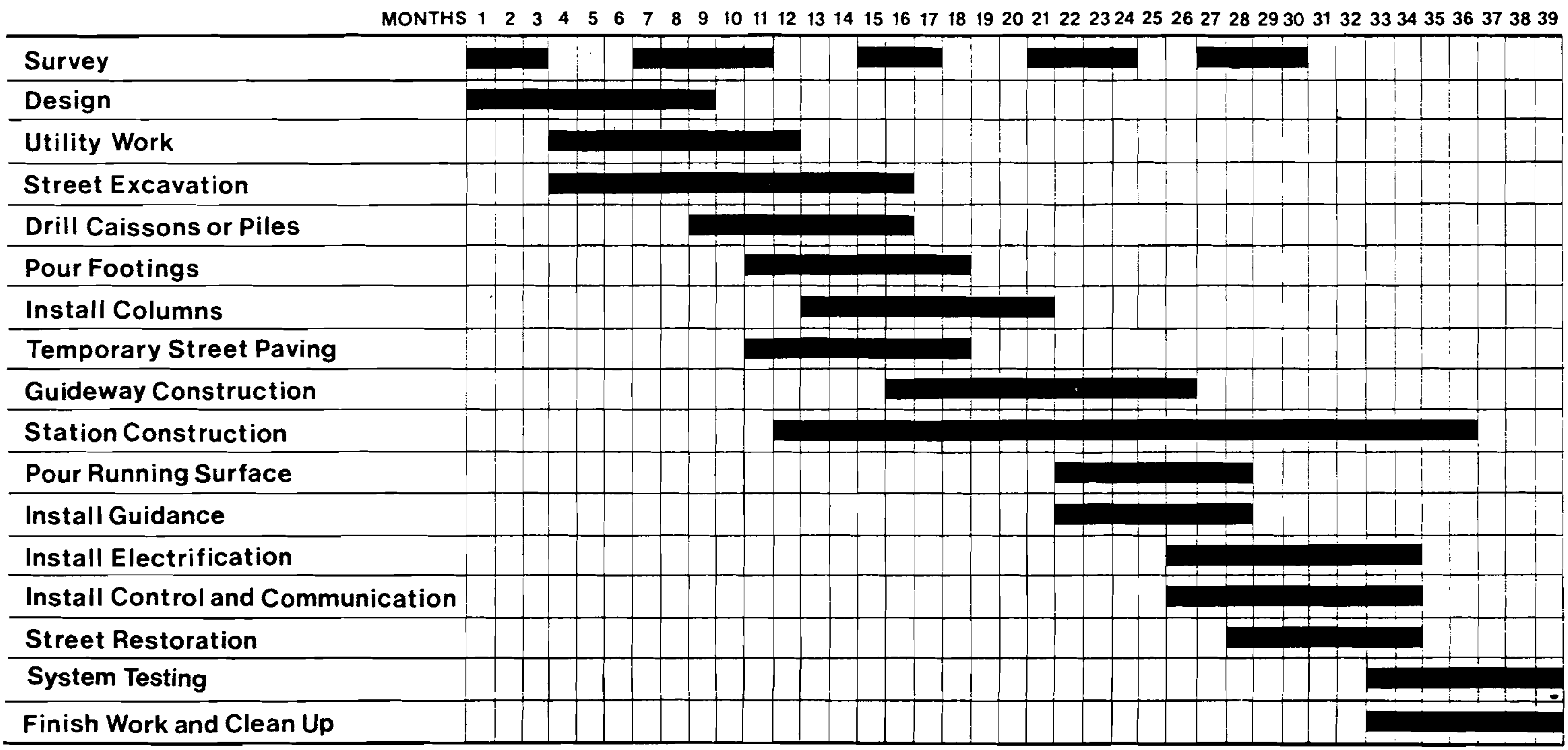


TABLE II-41A

TYPICAL CONSTRUCTION SEQUENCE AND DURATION (two variations)

PHASE 1 - FOUNDATIONS

Construction Steps (west side Figueroa alignment)	Time
1. Restripe street	
2. Close curb lane	
3. Excavate footings	2 weeks
4. Drill piles & pour footing	2 weeks
5. Temporary cover excavation	

Construction Steps (center Figueroa variation)	
1. Close curb lane	
2. Cut sidewalk and install new curbing	2-4 weeks
3. Breakout old curb and install new base	
4. Restripe street	
5. Close centerlanes	2 weeks
6. Excavate footings	
7. Drill piles, pour footings, and install temporary covers	2 weeks
8. Complete center median curbing	2 weeks
	(2-4 week gap)

PHASE 2 - GUIDEWAY SUPPORTS

Construction Steps (either variation)	
1. Set Steel	1 week
2. Construct forms and pour	2 weeks
3. Strip forms	-
4. Restore sidewalk	2 weeks
	(2-4 week gap)

PHASE 3 - GUIDEWAY — 1 week

Street and Sidewalk Disruption

Phase 1 Approximately 10-15 feet from curb and curb access restricted during entire phase, at each column site. Temporary sidewalk disruption and detour.

Phase 2 Lane 1 and curb access restricted during entire phase. (Significantly reduced, if precast).

Phase 3 Complete sidewalk closure during guideway erection and complete or partial street closure, depending upon particular street involved.

TOTAL PERIOD (westside Figueroa alignment):	14-18 weeks
TOTAL PERIOD (center Figueroa variation):	18-24 weeks

II-420 GENERAL CONSTRUCTION METHODS

The following section describes typical construction practices which would be used during the construction of the DPM system. The section is divided according to the major sections discussed under Construction Schedule (Section II-410). The source of this information is Task 3.29, Construction Process Memorandum-Kaiser Engineers/DMJM, February 13, 1978.

II-421 Aerial Guideway

Surveying. Working intermittently throughout the construction process, crews of surveyors locate and mark the locations of foundations, support columns, and guideway sections.

Utility Work. At all sites where foundations will be located, existing utilities must be located and possibly relocated.

Street Excavation. Concurrent with the utility work, nearby areas will be excavated for column foundations. Street alignment modifications may also begin at this time.

Drill Caissons or Piles. Depending upon geology and other subsurface conditions, individual site decisions will be made to use either caissons or piles to support the column foundations. Caissons are concrete columns of relatively large cross section that extend to bedrock or clay depth. Holes for caissons are drilled with an auger, and a steel cylinder is used to line the hole. After the hole is drilled it is filled with concrete and the liner is removed. Reinforcing rods and steel beams are used to secure the foundation. Piles, on the other hand, are clusters of columns of smaller cross section, made of concrete or steel, that extending to a depth less than bedrock. The procedure for drilling piles is the same as for caissons, except that a smaller diameter auger is used.

Pour Footings. A concrete footing, or pile cap, is placed on top of each foundation location. Attached to these footings will be the guideway column supports.

Install Columns. Guideway support columns may be steel or precast concrete, or they may be poured in-place. In addition to single columns, bents (two single columns joined by a horizontal beam) will be required in selected locations. Where columns are to be precast or steel, they are brought to the site by flatbed truck, lifted onto the foundation with cranes, and bolted in place. "T" heads (wider section upon which the guideway rests) are similarly bolted to the columns. If columns are to be poured concrete, steel vertical reinforcing rods will be attached to the foundation. Wooden form work will be constructed, and the concrete will be poured.

Temporary Street Restoration. As soon as the guideway supports are in place, streets and sidewalks will be restored with temporary paving materials. Final restoration will take place after all street-level construction activities are completed.

Install Guideway Sections. Guideway sections may be precast concrete, steel, or poured in-place concrete. Selection of type will be dependent upon degree of fabrication difficulty, ease of installation, and disruption. For both precast or steel sections, it is assumed that installation will take place during late night hours to minimize disruption. Where precast or steel sections are used, they will be brought in by flatbed truck, hoisted into place by cranes, and secured to the T-heads. Where poured in-place sections are required, wooden forms are constructed, reinforcing rods installed, and the concrete poured. This method requires longer construction times than either steel or precast sections and would produce substantially more disruption.

Pour Running Surface. Depending upon the DPM technology selected, a running surface may be poured on top of the guide way already installed.

Install Guidance. Vehicles running on the guideway will be guided either from the center or the side of the guideway. Sections of guide beams, guide rails, or metal plates would be brought in on flatbed trucks, hoisted up to the guideway by cranes, aligned and bolted down.

Install Power Rail. The power rail, which supplies motor power to the vehicles, would be hoisted up to the guideway, aligned, and bolted in place. The power rail would be connected to electrical substations by means of cables.

Install Control and Communication. The connections for train control and communications are either mounted on brackets and installed by the same process as the power rail are embedded in the guideway concrete.

Street Restoration. After the guideway is in place and work requiring surface street access has been completed, streets and sidewalks can be permanently improved. New curbs, gutters, sidewalks, and permanent pouring will be installed. Traffic and street lights can be moved or installed.

Finish Work and Cleanup. Various activities will complete the guideway construction process, including landscaping, guideway lighting, and other guideway finish work, as well as general cleanup of the construction site.

II-422 Aerial Stations

Surveying. See Surveying, aerial guideway.

Utility Work. See Utility Work, aerial guideway.

Street Excavation. See Street Excavation, aerial guideway.

Drill Caisssons or Piles. See Drill Caissons or Piles, aerial guideway.

Pour Footings. See Pour Footings, aerial guideway.

Install Columns. See Install Columns, aerial guideway.

Platform Installation. After the station supports have been installed, precast concrete or steel plates will be hoisted up and laid down to form the platform and the joints between sections filled. If the station platform is poured in place, temporary shoring and forms will be put up, reinforcing added, and the concrete poured.

Install Stairs, Escalators, Elevators. Stairs either will be precast concrete units or poured in place by the same process as other concrete work. Escalators and elevators are assembled, installed and tested on each site.

Interior and Equipment Finishing. Once the station structure is completed, station systems are installed. These include conduit and wiring for the electrical system, station lighting and communications, fare collection equipment, train control, heating, ventilation, air conditioning, and plumbing.

Finish Work and Cleanup. After the station system connections are in place, interior surfaces can be finished, including panelling, painting, etc. The final process is to install all station graphics, including maps and signs, and station equipment, including change machines, turnstiles, water fountains, light fixtures, etc.

II-423 Cut-and-Cover Guideway and Station

Surveying. See Surveying, aerial guideway.

Utility Work. See Utility Work, aerial guideway.

Install Shoring. Before extensive excavation begins, the site is enclosed by a temporary earth support structure and braced to withstand lateral pressure. The support structure is built of either steel beams or steel sheets. The shoring consists of horizontal or inclined steel beams that run from wall to wall or from floor to wall.

Street Decking or Detour. Because the construction site for the Bunker Hill station and guideway is expected to be vacant at the time of construction, it may be possible to detour traffic to one side during construction. If however, street decking is required, it would be accomplished as follows. Steel beams would be slung across the top of the retaining wall and a temporary street surface would be formed from timber panels.

Excavating. The required volume of earth would be excavated with cranes and digging equipment, and the excavated soil would be removed by dump truck.

Pour Floor, Walls, Roof. A process is used similar to that used for other concrete work. Wooden forms and reinforcing bars are installed, and concrete is poured and then cured.

Install Ventilation System. Vertical shafts will be constructed at both ends of the station, lined with concrete, and used as air vents with fans installed.

Waterproofing. The outside of the tunnel or station is waterproofed with tarlike material.

Install Guidance, Power Rail, Etc. See Install Guidance, Install Power Rail, and Install Control and Communication, aerial guideway.

Install Elevators and Escalators. See Install stairs escalators and elevators, aerial station.

Interior Work. See Interior and Equipment Finishing and Finish Work and Cleanup, aerial stations.

Backfill, Replace Utilities. After the tunnel is waterproofed and while guideway and station finish work is going on, backfilling is carried on. The space between the walls and the inside of the trench is filled with compacted soil and gravel. Utilities would also be relocated to their new positions.

Remove Deck, Detour. When backfilling reaches street level, the temporary decking (if used) would be removed. After the decking is removed, the street surface would be restored to its former use.

II-424 Maintenance/Storage Facility, Intercepts

Construction activities required for the maintenance facility, as well as the intercepts, include the general tasks of site clearance, grading, general structure work, and interior finishing. No unusual construction practices would be required. What does distinguish the maintenance facility from other aspects of system construction would be the installation of storage guideway and system repair facilities. Also to be constructed at the intercepts would be access ramps, parking facilities, and control devices for both automobiles and buses.

II-430 ENERGY REQUIREMENTS FOR CONSTRUCTION

Table II-43A shows the estimated consumption of energy required for the construction of the DPM system. The estimate is expressed in thermal units and is derived from information presented in a report prepared by the United States Congressional Budget Office. The unit energy consumption figures used, both for guideway and vehicles, reflect fabrication, assembly, transportation, and installation of these system components.

TABLE II-43A
ESTIMATED ENERGY REQUIRED FOR CONSTRUCTION OF THE DPM SYSTEM

GUIDEWAY

TOTAL ONE-WAY GUIDEWAY LENGTH = 33,900 feet

PORTION ELEVATED = 32,600 feet

PORTION IN SUBWAY = 1,300 feet

ENERGY UNITS: (1)

ELEVATED = 2160 KWH/ft.

SUBWAY = 4870 KWH/ft.

ENERGY REQUIRED TO CONSTRUCT GUIDEWAY:

ELEVATED = 2160 x 32,600 = 70.416×10^6 KWH

SUBWAY = 4870 x 1,300 = 6.331×10^6 KWH

TOTAL = 76.747×10^6 KWH

VEHICLE MANUFACTURE

TOTAL VEHICLES REQUIRED - 15 TRAINS at 4 CARS = 60 VEHICLES

ENERGY UNIT: 500,000 KWH/VEHICLE.(2)

VEHICLE MANUFACTURE ENERGY = 500,000 x 60 = 30×10^6 KWH

TOTAL CONSTRUCTION ENERGY REQUIRED = 106.747×10^6 KWH

(1) Source: "URBAN TRANSPORTATION AND ENERGY: THE POTENTIAL SAVINGS OF DIFFERENT MODES," prepared by the Congressional Budget Office, September 1977.

(2) Source: "INDIRECT ENERGY CONSUMPTION FOR TRANSPORTATION PROJECTS," prepared for California Department of Transportation, Division of Transportation Planning, by DeLeuw, Cather and Company, October 1975.

Vehicle manufacture energy reported in this document is for a group rapid transit vehicle of 12,000 pounds in weight, and has a value of 180,000 KWH/VEHICLE. The baseline vehicle for the analysis has weight of 20,000 pounds. Using a simple factoring yields a per vehicle manufacture energy of approximately 500,000 KWH.

II-500 CAPITAL COSTS AND PROPOSED SOURCE OF FUNDS

The following tables (see Table II-50A and II-50B) summarize capital cost estimates and proposed source of funds for the people mover. Estimates are provided for both the west side of Figueroa Street alignment and center of Figueroa Street variation. Proposed sources of funds for capital costs are shown in Table II-50C.

TABLE II - 50-A

People Mover Capital Cost Estimate Developed During Preliminary Engineering
(In thousands of 1978 dollars)

GUIDEWAYS (Direct Cost of People Mover)	Cost of Center of Figueroa Street Alignment	Cost of West Side Figueroa Street Alignment
Guideway Structures (Aerial)	$15,226	$16,137
Allcwance for environmental Treatment of Guideway	2,000	2,000
Guideway Structural (Subway)	2,062	2,062
Guideway Switches (45)	1,165	1,219
Street and facilities modifications	2,147	1,847
Utility Relocation (BY OTHERS - 190)	N/A	N/A
	SUBTOTAL $22,600	SUBTOTAL $23,265

TABLE II - 50-A (continued)

STATIONS		
Convention Center	1,561	1,561
9th Street	1,175	1,093
7th Street	1,040	1,015
5th Street	1,200	1,100
Library	889	889
Pershing Square	634	634
World Trade Center	727	727
Bunker Hill	1,792	1,792
Hill Street	828	828
Civic Center	943	943
Little Tokyo	1,097	1,097
Federal Building	1,109	1,109
Union Station	1,005	1,005
Fare Collection and Signing at Stations	700	700
	SUBTOTAL $14,700	SUBTOTAL $14,493

TABLE II - 50-A (continued)

ELECTRIFICATION		$ 7,760		$ 7,930
COMMUNICATIONS AND CONTROL		$ 4,550		$ 4,550
MAINTENANCE & STORAGE FACILITIES *		$ 3,400		$ 3,400
Vehicles (60 @ 350)		$ 21,000		$ 21,000
System Testing		600		600
Subtotal	SUBTOTAL	74,610	SUBTOTAL	75,238
Design & Management		18,030		18,109
Contingency 10% Vehicles & Agency Cost		12,193		12,296
15% Other Direct Cost				
Escalation to 1982		19,630		19,785
Right of Way				
Direct Acquisition		$ 2,296		$ 2,673
City County State Land (Available for local match)		2,516		2,517
CRA and Private Land and Associated Improvements		9,203		12,364
(Available for local match)	SUBTOTAL	14,015	SUBTOTAL	17,554
	TOTAL	$138,478	TOTAL	$142,982

TABLE II-50B

CAPITAL COST ESTIMATES FOR UNION STATION AND CONVENTION CENTER FACILITIES

(direct cost of facilities including right-of-way in thousands of escalated dollars)

Union Station	$ 25,000
Convention Center	$ 17,000
Total	$ 42,000

TABLE II-50C

Proposed Sources of Capital Funds (Millions of escalated dollars)

People Mover and Intercept Facilities

Federal:	Center of Figueroa Street Alignment	West Side of Figueroa Street Alignment
U.S. Department of Transportation Urban Mass Transportation Administration	$122.6	$126.1
Federal Highway Administration	25.0	25.0
Local:		
State of California		
Proposition 5 Funds	16.6	16.8
SB 1879	4.0	4.0
Los Angeles City and County	12.3	13.0
TOTAL FUNDS	$180.5	$184.9

CHAPTER

III-000 STUDY AREA SETTING

The study area for this report is the Los Angeles Central Business District, defined as the 4 square mile area bounded by the Santa Ana/Hollywood freeway on the north, Alameda Street on the east, the San Bernardino Freeway on the south and the Harbor Freeway on the west (see Figure III-00A). The following section presents a brief profile of the natural environment, land use and development, socio-economic environment, and transportation facilities. Data used to develop this section have been drawn from many sources and from this study program's analyses, particularly task reports prepared in this phase of the study program and environmental analysis prepared in previous phases (see Phase 2 and 3 task reports listings in the Technical Appendix).

III-100 NATURAL ENVIRONMENT

The aspects of the natural environment of the CBD that are affected by the proposed project include: vegetation and wildlife; air quality; noise and vibration; and energy. Other aspects of the natural environment which are not directly affected by the proposed project but were analyzed during the environmental study include: topography, geology, and soils characteristics; seismicity; flood plains; water quality; and meteorology and climate. Analysis of these aspects are documented in Task Termination Reports.

III-110 TOPOGRAPHY, GEOLOGY, AND SOIL CHARACTERISTICS

Topography, geology and soil characteristics are not directly affected by the proposed project. Task Termination Report 4.19 documents this analysis.

III-120 SEISMIC CONDITIONS IN DOWNTOWN LOS ANGELES

There are no known major fault zones in downtown Los Angeles although the area would be subject to ground shaking in the event of a major earthquake on fault zones in the region. Seismic activity in downtown Los Angeles is documented in Task Termination Report 4.17 and in the Environmental Impact Assessment, Sec. 3.2.7 (CRA 1977)

III-130 FLOOD PLAINS

The Drainage Plan (1968) and a Flood Hazard Boundary map prepared by the Department of Housing and Urban Development the Conservation Plan (1973), elements of the City General Plan, do not indicate any major inundation areas or special flood hazard zones within the CBD. Information on flood plains is documented in Task Termination Report 4.18.

III-140 WATER QUALITY

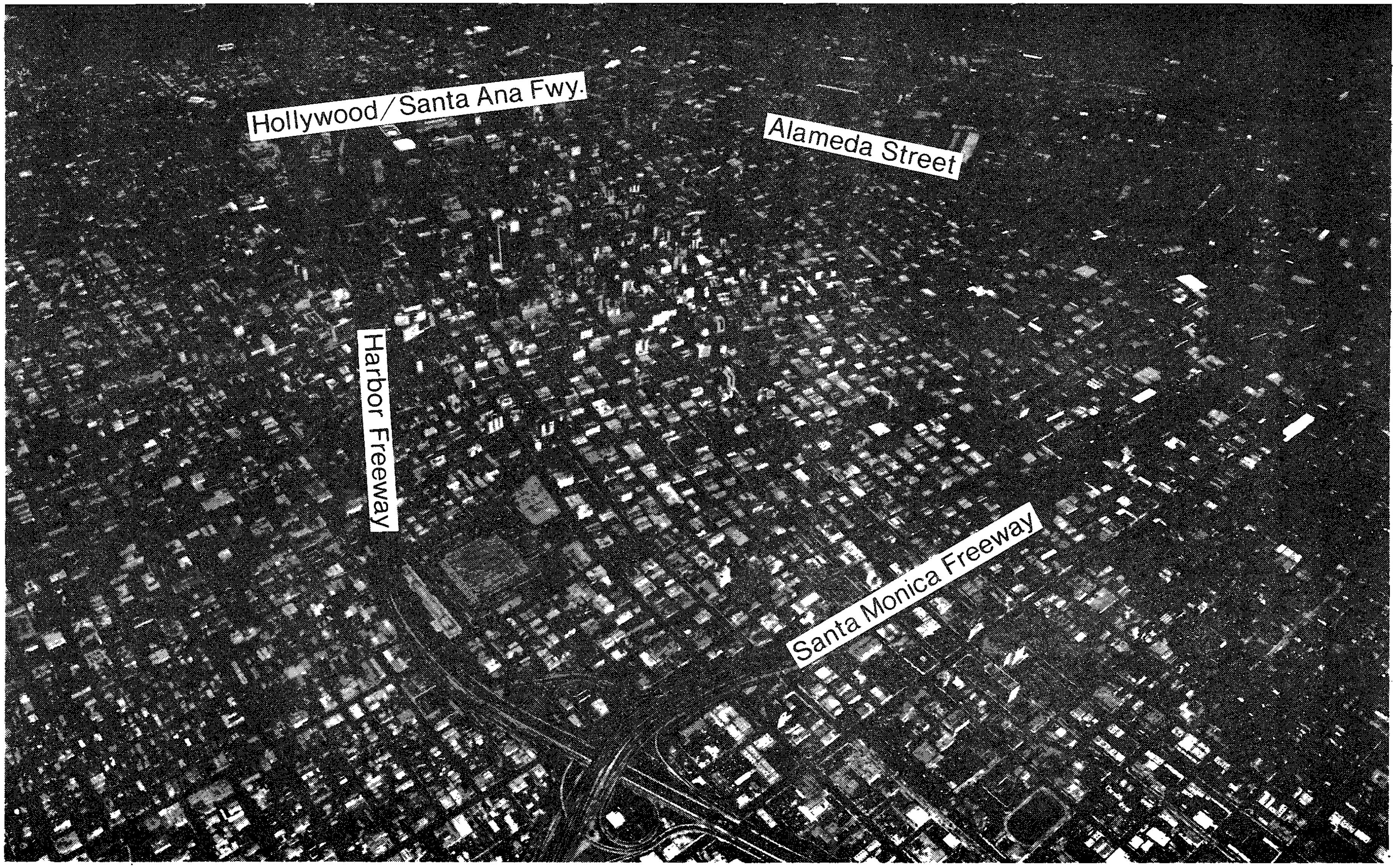
Upper limits of ground water found in the CBD are from 21 to 33 feet below the surface. Information on water quality is discussed in Task Termination Report 4.38.

III-150 VEGETATION AND WILDLIFE

The Central business district is a well-established urban area. Due to structural development, roads, and other manmade alterations, there is little or no native vegetation remaining. Existing vegetation consists of shade trees, shrubs, and some ground cover associated with the established developments in the area. There are no known rare or endangered species of plant material located within the CBD.

FIGURE III-30A

LOS ANGELES CENTRAL BUSINESS DISTRICT



Intensive urban development and a dearth of native vegetation have resulted in an essential absence of wildlife. The CBD, however, is inhabited by small rodents and birds which are normally found in urban areas and include:

Crow	House Sparrow
Domestic Dog	Mockingbird
Feral Cat	Pigeon
Gopher	Ring Neck Dove
House Finch	Scrub Jay
House Mice	Starling

There are no known rare or endangered species of animal life associated with the CBD, although it is understood that the Ring Neck Dove is a relatively rare inhabitant of the Los Angeles area.

III-160 METEOROLOGY AND CLIMATE

The Los Angeles climate is normally pleasant and mild, moderated by the Pacific Ocean, buffered from interim extremes by breezes, and balanced by hot and cold interim winds resulting in some weather variations.

III- 170 AIR QUALITY

The South Coast Air Basin (see figure III-17A), where smog first acquired national recognition, is an ideal environment for producing maximum concentrations of air pollutants. The basin is a natural air trap that is made even more effective by the presence of thermal inversions on an average of 300 days per year (Hines, 1973).

Through the efforts of pollution control agencies and since the adoption of federal and state air quality standards, significant progress has been made towards controlling sources of air pollution. However, air quality standards are frequently violated, although the level of emissions is steadily decreasing. For example, in Los Angeles County, by 1965-66, total emissions from both stationary and mobile sources had reached a level of 14,000 tons per day. In 1976, this figure had been reduced to 7,600 tons per day. Yet in 1975, the state standard for ozone had been violated on more than 200 days (Cobeil and Chass, 1977). (Ozone is one of the principal contributors to eye irritation.) The problem of air pollution is complicated by the many types of pollutants from many sources and the many different effects they produce.

III-171 Characteristics of Air Pollution

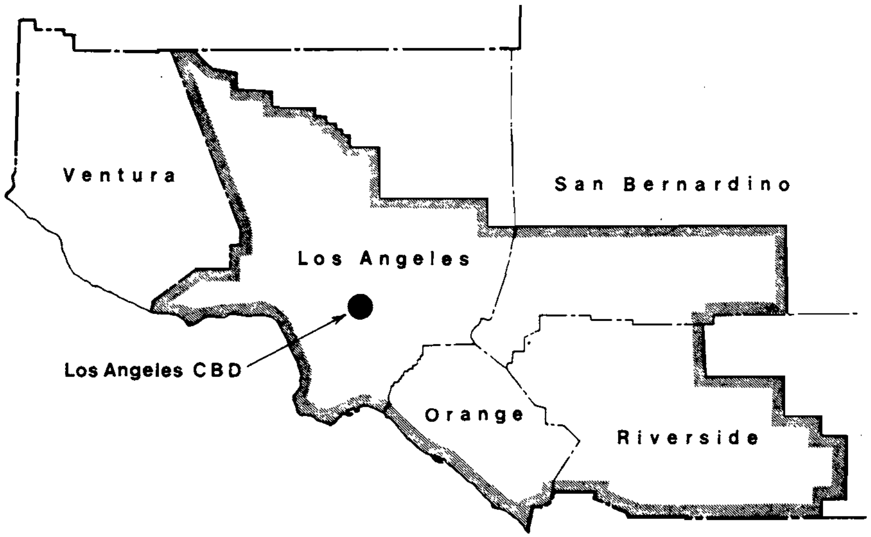
The South Coast Air Basin has two types of air pollution: (1) primary air pollutants, which include sulfur oxides, nitrogen oxides, carbon monoxide, organic gases, and particulates; and (2) photochemical smog which results when hydrocarbons and nitrogen oxides mix in the presence of sunlight. Because of the complexity of representing the photochemical process that produces smog, primary pollutants are typically used as a means to measure air pollution, expressed in terms of quantities of emissions produced. The primary pollutants which are most directly associated with transportation are: hydrocarbons (HC), nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), and particulates. It is these pollutants which will be used as a basis for air pollution analysis in this document. Ground transportation modes (primarily autos and buses) account for 82% of the hydrocarbons, 72% of the nitrogen oxides, and 98% of the carbon monoxide produced in the South Coast Air Basin. These same modes account for 39% of particulate matter and 13% of sulfur oxide production.

III-172 Air Quality Standards

Federal and state air quality standards have been established based on the effects of the pollutants on public health. U.S. Environmental Protection Agency (EPA) standards are statutory requirements to be achieved and maintained as required by the Clean Air Act of 1970; State of California standards are management objectives that represent goals of existing and planned air pollution control programs.

FIGURE III-17A

SOUTH COAST AIR BASIN



State air quality standards have been set for visibility, in addition to the classifications of contaminants having various bases of concentration and duration. National air quality standards were established in two categories: Primary standards to protect the public health and secondary standards to protect both the public welfare and the environment from known or anticipated adverse effects of a pollutant.

National primary and secondary air quality standards have been set for photochemical oxidants, CO, NO_2, SO_2, nonmethane hydrocarbons, and particulate matter. No national standards exist for visibility or lead in particulate matter. Table III - 17A summarizes both the state and federal air quality standards currently in effect.

III-173 Regional and Local Emissions

Although ambient air quality in the South Coast Air Basin has been steadily improving since 1967, both federal and state standards were violated on a number of days in 1976 (see Table III-17B). The most frequently violated standards are those relating to oxidants and carbon monoxide. Recent violations in the downtown area have also been frequent for particulates and hydrocarbons and for oxidants and carbon monoxide (see Table III-17C). Violations in downtown Los Angeles, however, appear to be somewhat less frequent than for the air basin as a whole. This is, in part, accounted for by meteorological effects which produce greater concentrations in the inland valleys.

Figure III-17B shows the air quality monitoring stations which have been established within the South Coast Air Quality Management District.

FIGURE III-17B

AIR QUALITY MONITORING STATIONS IN THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

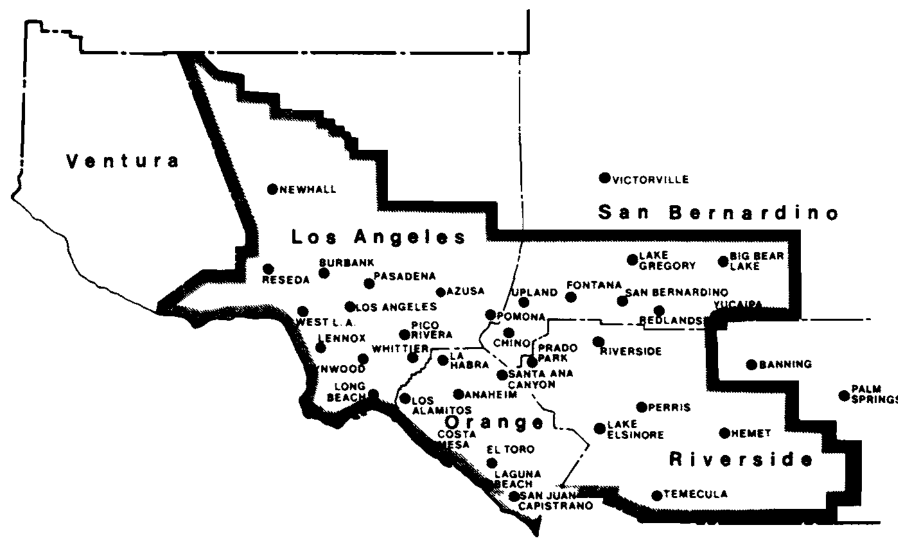


TABLE III-17A

AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Stds.[a]	National Stds.[b] Primary[c]	National Stds.[b] Secondary[d]
Oxidant (Ozone)	1 hour	.10 ppm[e] (200 ug/m^3)[f]	160 ug/m^3 (.08 ppm)	same as primary
Carbon Monoxide	12 hours	10 ppm (11 mg/m^3)[g]	---	---
	8 hours	---	10 mg/m^3 (9 ppm)	same as primary
	1 hour	40 ppm (46 mg/m^3)	40 mg/m^3 (35 ppm)	
Nitrogen Dioxide	Annual average	---	100 ug/m^3 (.05 ppm)	same as primary
	1 hour	.25 ppm (470 ug/m^3)	---	
Sulfur Dioxide	Annual average	---	80 ug/m^3 (.03 ppm)	---
	24 hours	.05 ppm (131 ug/m^3)[h]	365 ug/m^3 (.14 ppm)	---
	3 hours	---	---	1300 mg/m^3 (.5 ppm)
	1 hour	.5 ppm (1310 ug/m^3)	---	---
Suspended Particulate Matter	Annual geometric mean	60 ug/m^3	75 ug/m^3	60 ug/m^3
	24 hours	100 ug/m^3	260 ug/m^3	150 ug/m^3
Sulfates	24 hours	25 ug/m^3	---	---
Lead	30 day average	1.5 ug/m^3	---	---
Hydrogen Sulfide	1 hour	.03 ppm (42 ug/m^3)	---	---

Pollutant	Averaging Time	California Stds. (a)	National Stds. (b) Primary (c)	Secondary (d)
Hydrocarbons	3 hours (6-9 am)	--	160 ug/m³ (.24 ppm)	same as primary
Ethylene	8 hours	0.1 ppm	---	---
	1 hour	0.5 ppm		
Visibility Reducing Particles	1 Observation	Insufficient amount to reduce prevailing visibility to less than 10 miles when relative humidity is less than 75% (i)	---	---

NOTES:

(a) California standards are not to be equaled or exceeded.

(b) National standards, other than those based on annual averages or annual geometric means, are not to be exceeded more than once per year.

(c) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must meet the primary standards no later than three years after that state's implementation plan is approved by the Environmental Protection Agency (EPA). Preparation of California's implementation plan is underway; EPA approval is expected in July 1979.

(d) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must meet the secondary standards within a "reasonable time" after its implementation plan is approved by the EPA.

(e) ppm= parts per million.

(f) ug/m^3= micrograms per cubic meter

(g) mg/m^3= milligrams per cubic meter

(h) At locations where the state standards for oxidant and/or suspended particulate matter are violated. Federal standards apply elsewhere.

(i) Prevailing visibility is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

Source: California Air Resourse Board Fact Sheet (November 15, 1977.

TABLE III-17B

VIOLATIONS OF FEDERAL AND STATE AIR QUALITY STANDARDS IN THE SOUTH COAST AIR BASIN--1976

Pollutant (Standard)	Averaging Time	Days Exceeding Standards	Maximum Concentration
Oxidant			
Federal (.08 ppm)	1 hour	252	0.38 ppm
State (.10 ppm)	1 hour	238	0.38 ppm
Carbon Monoxide			
Federal (9 ppm)	8 hours	118	26.0 ppm
State (10 ppm)	12 hours	119	25.0 ppm
Nitrogen Dioxide			
State (.25 ppm)	1 hour	50	0.53 ppm
Sulfur Dioxide			
Federal (0.5 ppm)[a]	1 hour	0	.25 ppm
State (.05 ppm)[b]	24 hours	45	.138 ppm
Sulfates			
State (25 ug/m^3)	24 hours	52	48 ug/m^3
Particulates			
State (60 ugm/m^3)	Annual avg.	N/A	166 ug/m^3
Lead			
State (1.5 ug/m^3)	Monthly mean	12 mo.	10.04 ug/m^3

(a) The California Air Resources Board has determined that only the Los Angeles County portion of the SCAB is projected to violate the SO_2 standard more than once per year.

(b) This standard is considered violated when either the state's 24-hour particulate matter and/or the one-hour oxidant standard is violated.

Source: Southern California Association of Governments, 1978.

TABLE III-17C

VIOLATIONS OF FEDERAL AND STATE AIR QUALITY STANDARDS IN DOWNTOWN LOS ANGELES--1975

Pollutant (Standard)	Averaging Time	Days Exceeding Standards	Maximum Concen-trations	Annual Average Concentrations
Oxidant				
Federal (.08 ppm)	1 hour	157	.25 ppm	.030 ppm
State (.10 ppm)	1 hour	129	.25 ppm	.030 ppm
Carbon Monoxide				
Federal (9 ppm)	8 hour	77	21.9 ppm	4.64 ppm
State (10 ppm)	12 hour	55	21.3 ppm	4.64 ppm
Nitrogen Dioxide				
State (.25 ppm)	1 hour	30	.56 ppm	.067 ppm
Sulfur Dioxide				
Federal (.14 ppm)	24 hour	0	.061 ppm	.020 ppm
State (.05 ppm)	24 hour	19	.061 ppm	.020 ppm
Sulfates				
State (25 ug/m^3)	24 hour	30	36.3 ug/m^3	12.3 ug/m^3
Particulates				
State (100 ug/m^3)	24 hour	215	265 ug/m^3	100 ug/m^3
Lead				
State (1.5 ug/m^3)	30 day	N/A	6.84 ug/m^3	2.44 ug/m^3
Hydrocarbons				
Federal (.24 ppm)	3 hour	271	2.6 ppm	.41 ppm
Hydrogen Sulfide				
State (.03 ppm)	1 hour	0	.001 ppm	.002 ppm
Visibility				
State	---	185	N/A	N/A

Source: L.A. County Preliminary General Plan, Draft EIR, January 1978.

III-180 NOISE AND VIBRATION

In most urban areas, the major source of community noise and vibration is the transportation system. There are two basic kinds of identifiable intruding noises which increase the outdoor noise level above the existing noise levels: Steady or quasi steady-state constant level noise (ambient or background noise) and intermittent single-event noise (specific source noise). One of the best known examples of constant noise levels intrusion or ambient noise is the noise environment within a busy city like Los Angeles. The high daytime ambient noise levels within the city make it difficult to have an intelligible face-to-face conversation at normal voice levels on many streets. This noise level is typically the result of nearby freeways, street traffic, industrial activity, and air-conditioning units, among other things. Intermittent single-event noises such as a bus pulling away from the curb, an aircraft flying overhead, or a car passing raise the peak intensity noise level of an area, causing interference with speech and other activities for brief periods of time (U.S. Environmental Protection Agency, 1971a).

In downtown Los Angeles, the major source of noise is the transportation system. The Council of Environmental Quality has developed a standard in which the db (A) noise levels emitted by transportation systems can be compared to subjective human responses (see Table III-18A). As this comparison indicates, freeway traffic at 70 db (A) (50 feet away) can make telephone use difficult. This level, or higher, over continuous periods can produce loss of hearing. As a rule, the actual noise levels produced in the CBD by surface traffic is somewhat higher because of the "tunnel" effect created by high-rise buildings. In June 1978, the City of Los Angeles Bureau of Engineering conducted an ambient noise survey with readings at various locations in the central business district. The results of the survey are discussed in section III-210.

TABLE III-18A

A-WEIGHTED SOUND LEVELS AND HUMAN RESPONSES

	Noise Level dB(A)	Response	Hearing Effects
	150		
Carrier Deck Job Operation	140	Painfully Loud	CONTRIBUTIONS TO HEARING IMPAIRMENT BEGINS
	130	Limit Amplified Speech	
Jet Takeoff (200 feet)	120		
Discotheque		Maximum Vocal Effort	
Auto Horn (3 feet)			
Riveting Machine	110		
Jet Takeoff (2,000 feet)			
Garbage Truck	100		
New York Subway Station		Very Annoying	
Heavy Truck (50 feet)	90	Hearing Damage (8 hours)	
Pneumatic Drill (50 feet)			
Alarm Clock	80	Annoying	
Freight Train (50 feet)			
Freeway Traffic (50 feet)	70	Telephone Use Difficult	
		Intrusive	
Air Conditioning Unit (20 feet)	60	Normal Conversation Level	
Light Auto Traffic (100 feet)	50	Quiet	
Living Room			
Bedroom	40		
Library			
Soft Whisper (15 feet)	30	Very Quiet	
Broadcasting Studio	20		
	10	Just Audible	
	0	Threshold of Hearing	

III-190 ENERGY

More than 95% of California's energy comes from oil and natural gas. Most natural gas goes directly into final uses, but oil is processed by refineries that produce a number of fuels and other materials (SCAG, 1978). In 1975, energy was used by four major consuming sectors as shown in Table III-19A. The transportation sector is dependent exclusively upon petroleum products (jet and diesel fuel and gasoline).

The pattern of energy supply and demand in southern California is similar to that in the state as a whole. In 1973, regional crude oil production amounted to 51% of the state total. Crude oil for refining included 34% imports from overseas foreign sources and 8% from Alaska. Regional gas production was 25% of the state total, but only 12% of the regional total. Production of oil and gas are both decreasing in the region, as well as in the rest of the state (SCAG, 1978).

III-191 Transportation Energy

Transportation is the region's largest energy consuming sector, accounting for 47% of total energy use in 1975. In 1976, total transportation fuel used in Los Angeles County was approximately 4,900 million gallons. Of this, 71% was consumed in the highway sector, primarily by automobiles. Table III-19B shows 1976 consumption of transportation fuel in the county.

Table III-19C shows the existing resources for DWP power generation and Table III-19D shows the annual growth in electrical power consumption over the past several years. In 1976, nearly 18.5 billion kilowatt hours were consumed by DWP customers. The LADWP estimates that annual growth in power consumption since the Arab oil embargo of 1973 has been about 3% (LADWP, 1978). Extrapolating this to the year 1990 yields an estimated annual consumption of 23.3 billion kilowatt hours.

TABLE III-19A
CALIFORNIA ENERGY USE BY SOURCE--1975

	Residential	Commercial	Industrial	Transportation
Electricity	21%	42%	12%	---
Natural Gas	79%	58%	57%	---
Petroleum	---	---	31%	
Jet & Diesel Fuel	---	---	---	35%
Gasoline	---	---	---	65%

Source: Ahern, et al., 1975.

TABLE III-19B
1976 TRANSPORTATION FUEL USAGE--LOS ANGELES COUNTY

Type of Use	Millions of Gallons Consumed	Percentage of Transportation Energy Usage
Automobiles	3,218	65%
Transit buses	26	.5%
Commercial trucks	259	5%
Aircraft (Jet & Aviation Fuel)	761	15%
Harbors (Bunker Fuel)	545	11%
Railroads (Diesel Fuel)	160	3%

Source: L.A. County Preliminary General Plan, Draft EIR, January 1978.

III-192 Electrical Energy

Within southern California, electricity is generated by 25 terminal stations (oil and gas fired) and 16 hydroelectric plants, with a combined capacity of 14,040 megawatts (SCAG, 1978). Within Los Angeles County, the City of Los Angeles Department of Water and Power (which supplies the downtown area) supplied 39% of total electrical power consumed in 1975. The LADWP served a total population of 2.8 million, had a peak system load of 3,594 megawatts and had total sales in 1975 of 15.3 billion kilowatt-hours (Los Angeles County, 1978).

TABLE III-19C
DEPARTMENT OF WATER AND POWER -- EXISTING RESOURCES--1975

Type	Generating Unit	Location	No. of Units	Net Capability (MW)
Coal	Mohave	Arizona	2	316[a]
	Navajo	Arizona	2	318[b]
Distillate	Gas Turbines	City of Los Angeles (Harbor)	4	80
Hydroelectric	DWP Hydroelectric	Various Locations	22	193
	Hoover	Boulder City, Nev.	6	553
	Pacific Northwest Intertie	NW Territory & Canada	-	525
Oil/Gas	Harbor	City of Los Angeles	5	435
	Valley	City of Los Angeles	4	533
	Scattergood	City of Los Angeles	2	358
	Haynes	City of Seal Beach	6	1589
Pumped Storage	Castaic	NE Los Angeles County	3	535

a DWP Share (20% of 1580 MW)
b DWP Share (21.2% of 1500 MW)

Source: City of Los Angeles Department of Water and Power, 1976a

TABLE III-19D

LOS ANGELES DEPARTMENT OF WATER AND POWER

ANNUAL LOAD GROWTH--1970-1975

Year	Peak Demand (MW)[a]	Increase (MW)	Increase (%)	Energy Reqmts. (GWH)[b]	Increase (GWH)	Increase (%)
1970	3107	-	-	17049	-	-
1971	3439	332	10.69	17803	754	4.42
1972	3630	191	5.55	18800	997	5.60
1973	3679	49	1.35	18879	79	0.42
1974	3500	(179)	(4.87)	16846	(2033)	(10.77)
1975	3594	94	2.67	17652	806	4.78

MEGA WATTS

[b]GIGA WATT HOURS (One billion watts or 1 million kilowatts)

Source: City of Los Angeles Department of Water and Power 1976a.

III-200 LAND USE AND URBAN DEVELOPMENT

III-210 DEVELOPMENT TRENDS

Downtown Los Angeles was the regional business center up to the beginning of the Depression in 1929. By the turn of the century, Bunker Hill was the most prestigious residential area in the City. The business district shifted gradually from its origins to Main Street, and then to Spring Street and Broadway. The post-World War II period became one of continuous decline, exacerbated by the development of suburban regional shopping centers and construction of a regional freeway system (servicing suburban areas). A skid row surrounded the main office core on three sides and many business firms moved out, first along Wilshire Boulevard, and subsequently, to other regional sub-centers.

Critical decisions that were instrumental in accelerating a revitalization trend included the decision to build a government center which was to become the largest of its kind outside of Washington, D. C.; implementation of the 133-acre Bunker Hill Redevelopment Project; construction of the regional Music Center and the Los Angeles Convention Center; development of the regional freeway system from the center (downtown) out in a radial pattern to suburban growth areas; and removal of the historical 13-story height limitation in the 1950s. This revitalization trend is evidenced by the magnitude of development, particularly in office, hotel, and retail space, since the early 1960s. As shown in Figure III-21A, this more recent development has concentrated on the west side of the CBD. Although the west side has been the area of major office, hotel, and retail construction, the east side has also experienced a social and economic resurgence and continues to serve as an important center. The east side today contains a viable retail center including shopping facilities for residents and tourists. For example, Broadway, Olvera Street, and Little Tokyo are major shopping and cultural centers for the residential communities adjacent to downtown. On the south side, apparel, textile, and produce industries continue to flourish, although the area is generally characterized by obsolete and inefficient structures on uneconomically subdivided land.

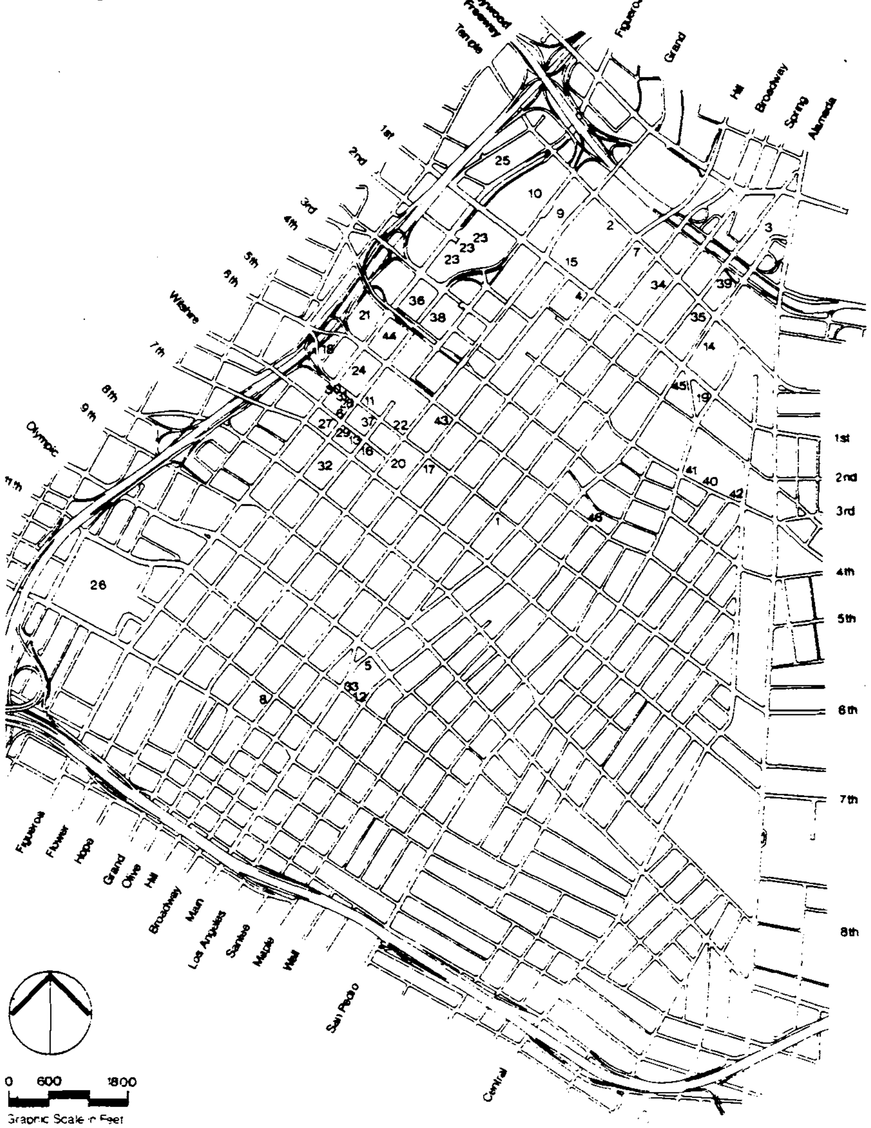
III-211 Current Land Use Patterns

Land use in the central business district is heavily dominated by the governmental, private office, retail commercial, and industrial sectors. This is in sharp contrast to the remainder of the City of Los Angeles, where commercial and industrial uses occupy a minor position and residential uses (particularly single-family units) predominate. For the purpose of describing current land uses within the CBD, the following classifications have been made: office; government; retail; service/hotel/institutional; manufacturing/wholesale; residential. Figure III-21B shows the distribution of land use for 1978 based on these classsifications; Table III-21A provides a breakdown of land use as of 1975 by estimated gross floor area and residential units. A major land use not identified in the table is that devoted to the street system which covers over 100 miles in the CBD.

Manufacturing and wholesale activities are concentrated in the southeastern portion of the CBD, as indicated in Figure III-21B. The produce center, garment manufacturing, and printing businesses with their associated suppliers, brokers, and vendors are located in this area. Government uses tend to be concentrated in the Civic Center area to the north of First Street. This complex contains local, state, and federal agencies and courts, and has been described as the largest government center outside of Washington, D.C., (with a 1975 employment of approximately 35,000 employees) (Wilbur Smith and Associates, 1978). Office activity is concentrated in the "new downtown" area west of Hill Street

FIGURE III-21A

EXISTING MAJOR PUBLIC & PRIVATE DEVELOPMENTS IN THE CBD: 1960-1977



MAP NO.	YEAR	BUILDING	STORIES/ UNITS
1	1960	United California Bank	22
2	1960	County Hall of Administration	8
3	1960-Present	El Pueblo de Los Angeles (Olvera St.)	NA
4	1961	State Office Building	9
5	1962	California Mart I	13
6	1962	Tishman Building	22
7	1962	County Hall of Records	15
8	1963-65	Occidental Center	32
9	1963-65	Music Center Complex	
10	1964	City Department of Water & Power	17
11	1965	Bank of California	12
12	1965	California Mart II	13
13	1965	Peck-Norman Building	8
14	1965	Federal Office Building	9
15	1965	County West Mall and Underground	NA
16	1966	State Mutual Building	12
17	1967	City National Bank	26
18	1967	Coldwell Banker	10
19	1967	Kajima International	15
20	1967	One Wilshire Building	30
21	1967	Union Bank Square	42
22	1968	Crocker Bank Plaza	42
23	1969	Bunker Hill Towers	714 Units
24	1971	ARCO/Bank of America Towers & Plaza	52
25	1971	County Health Services	13
26	1971	Los Angeles Convention Center	2
27	1972	800 Wilshire Building	16
28	1972	Pacific Financial Center	17
29	1973	Wells Fargo Bank	9
30	1973	Security Financial Center	17
31	1973	Linder Plaza	15
32	1973	Broadway Plaza & Hyatt Regency Hotel Complex	32
33	1973	California Mart III	13
34	1973	County Criminal Courts Building	15
35	1973-74	City Hall East	12
36	1974	Los Angeles World Trade Center	13
37	1974	United California Bank Headquarters	63
38	1974-75	Security Pacific Nat'l Bank Headquarters	55
39	1975	Los Angeles Mall	NA
40	1975	Little Tokyo Towers	301 Units
41	1976	Union Church	
42	1976	Higashi Hongwanji Buddhist Temple	
43	1976-1977	Biltmore Hotel (refurbishing)	11
44	1977	Bonaventure Hotel	35
45	1977	New Otani Hotel	22
46	1977	Central Area Police Station & Parking Structure	3-5

FIGURE III-21B

1978 COMPOSITE LAND USE
(Zones Greater Than 50% by Type)

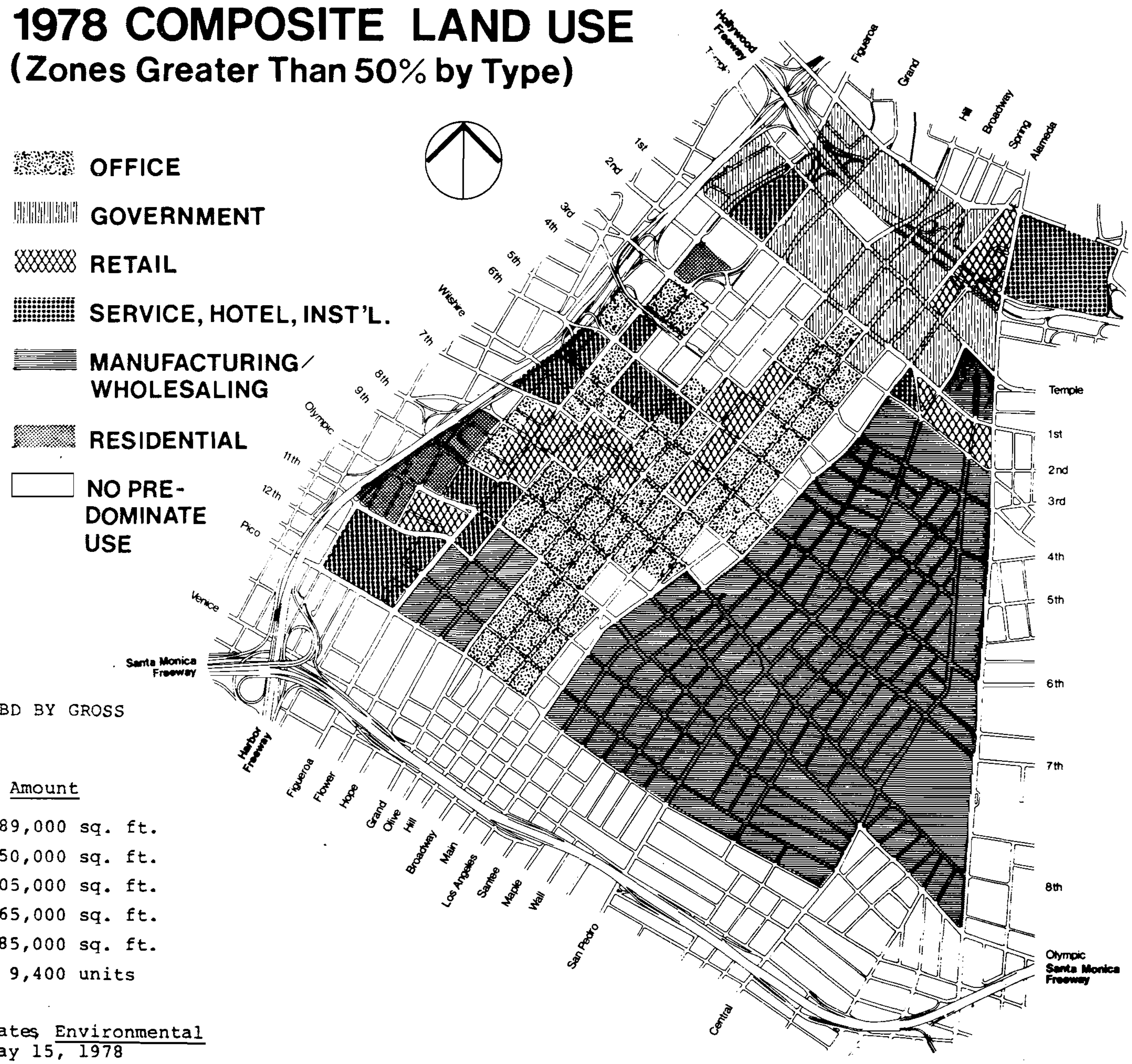


TABLE III-21A

ESTIMATED 1975 LAND USE IN THE CBD BY GROSS FLOOR AREA/UNITS

Land Use Categories	Amount
Private Office	27,189,000 sq. ft.
Government Office	9,550,000 sq. ft.
Retail/Commercial	5,305,000 sq. ft.
Service, Hotel, Inst'l.	5,365,000 sq. ft.
Manufacturing/Wholesale	18,485,000 sq. ft.
Residential	9,400 units

Source: Wilbur Smith and Associates, Environmental Baseline Data Update, May 15, 1978 to the Harbor Freeway. Between Hill and Figueroa Streets the highest densities occur between 5th and 7th Streets; along Figueroa Street they are concentrated between 3rd and 6th Streets. Estimates for 1975 indicate that approximately 10.5 million square feet of office space were concentrated in the west side of the CBD (Wilbur Smith and Associates, 1978).

The highest concentrations of businesses are along 7th Street between Figueroa Street and Broadway, in the Little Tokyo area, and along Broadway from 3rd to 7th Streets. Historically, Broadway has been the retail center of the CBD and continues to occupy a prominent retail position serving as an important shopping and entertainment resource for the Latino Community. Another strong retail area has been developed on the west side of downtown, north of 8th Street. Located here are the new Broadway Plaza, ARCO Plaza, Barker Bros., J.W. Robinsons, and many specialty shops and restaurants integrated with office uses. To the east of Los Angeles Street, between 7th and 9th Streets, is a concentrated retail garment sales area.

Parcels devoted to service, hotel, and institutional functions are scattered throughout the CBD. However, a few areas of concentration are the larger hotel sites such as the Biltmore, Bonaventure, Hilton, and Figueroa on the west side, the Clark Hotel on Hill Street in the center, and the New Otani Hotel in Little Tokyo to the north. Lesser concentrations of service use are the Main Library and private clubs in the CBD.

Residential units are also scattered throughout the CBD, with concentrations in the Bunker Hill area, for upper-middle-income residents, and in the area north of the Convention Center to 8th Street between Figueroa Street and the Harbor Freeway, for lower-income residents. The eastern central city (skid row), generally located between Main and Central Streets from 3rd to 7th Street, also has large concentrations of low-income residents (see Section III-300).

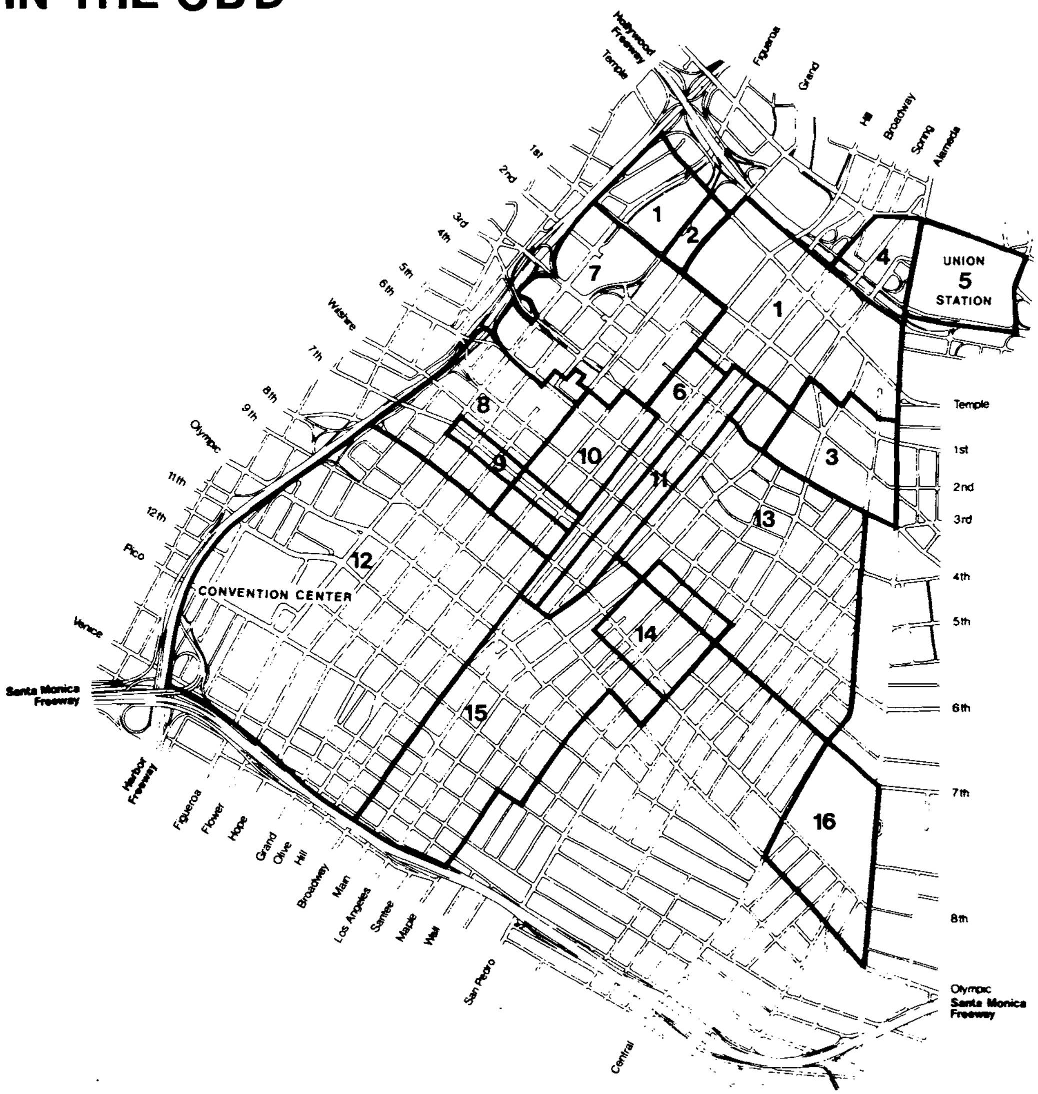
These land use patterns have resulted in the concentration of various activities or functions in specific areas in the CBD. Such concentrations or "activity areas" are where people work, shop, sight-see and/or participate in civic, cultural and recreational events. To the degree that functional interdependencies exist among these activity areas, transportation systems become a critical factor for providing appropriate linkages. Figure III-21C shows the geographical location and provides a brief description of the major activity areas in the CBD. As this figure indicates, activity areas in the CBD tend to be spread out and are, to a large degree, isolated.

III-212 Goals, Plans, Policies, and Responsible Agencies

Major development decisions and land use changes in the Los Angeles CBD are guided by the long-range goals and objectives of the Citywide Plan, the intermediate policies and objectives of the Central City Community Plan, and the short-term plans of the City Council-approved redevelopment plans. All are elements of the City of Los Angeles General Plan. The Citywide Plan was adopted by the City Council on April 3, 1974; the Central City Community Plan, on May 2, 1974; the Bunker Hill Urban Renewal Project Redevelopment Plan, in 1959 and revised in 1973; the Little Tokyo Redevelopment Project: The Redevelopment Plan, in 1970; and the Central Business District Redevelopment Project, in 1975. (Transportation plans and policies for the CBD and the region are discussed in Section III-400 of this report.) All proposed changes in land use that require City Council approval are reviewed for conformance with the above plans and the various elements of the General Plan.

FIGURE III-21C

MAJOR ACTIVITY CENTERS IN THE CBD



Source: Community Redevelopment Agency of the City of Los Angeles 1977a.

MAJOR ACTIVITY AREAS IN THE CBD

1. CIVIC CENTER: This area contains the major city, county, state and federal administrative agencies and court buildings. With nearly 35,000 government employees, it is the largest government center outside of Washington D. C.

2. MUSIC CENTER COMPLEX: This cultural and entertainment complex is composed of the Dorothy Chandler Pavillion, The Mark Taper Forum and The Ahmanson Theatre. Activity at the Center occurs during the afternoons and evenings and draws people from many parts of the Los Angeles Region.

3. LITTLE TOKYO: Little Tokyo, a redevelopment area since 1970, functions as the cultural and commercial center for Japanese-Americans living in Southern California.

4. EL PUEBLO DE LOS ANGELES/OLVERA STREET: This area, the "birthplace" of the City of Los Angeles, contains many historic buildings as well as a shopping area for tourists and the Mexican-American community in Los Angeles. This area attracts over 1.5 million visitors annually.

5. UNION STATION: Union Station is a designated cultural/historical landmark of the City of Los Angeles, and serves as a major Amtrak terminal for trans-continental, regional and commuter travel.

6. BROADWAY RETAIL: This retail area is the major commercial, shopping and entertainment center for the Los Angeles region's Mexican-American community. It is also the major local shopping area for communities adjacent to downtown.

7. BUNKER HILL: The Bunker Hill area, the first redevelopment project in downtown, rapidly is becoming a new community of office, hotel and residential structures. Major existing developments include Bunker Hill Towers, World Trade Center, Bonaventure Hotel, Union Bank Plaza, and Security Pacific Plaza.

8. WESTSIDE FINANCIAL DISTRICT: This area has the highest concentration of major banks and corporate headquarters, including ARCO/Bank of America Towers, United California Bank, Crocker Bank and Mobil Oil. The Central Library, The Jonathan Club and the California Club are also in this district.

9. SEVENTH STREET RETAIL: Seventh Street contains major department stores--the Broadway, Robinsons, Barker Bros.--as well as financial institutions, and a variety of commercial enterprises, specialty shops, and medium-priced "fast food" restaurants. Two major Hotels, The Hilton and The Hyatt Regency, are located at the west end of this street.

10. OLDER OFFICE CORE: This area is characterized by medium rise, office buildings which were constructed in the 1920's and 1930's, (the Oviatt Building, The Equitable Building, among others). The recently restored Biltmore Hotel is also in this area.

11. SPRING STREET: Until the mid 1960's Spring Street was the financial center of the Los Angeles region. Today, of the approxmately 3.5 million square feet available office space, only 1.5 million is occupied. However, many of the buildings along this street have architectural and historic distinction, reflecting their former importance.

12. CONVENTION CENTER/SOUTH PARK AREA: This area is largely a wholesale/warehousing area. With the exception of the Los Angeles Convention Center, this area is largely underutilized.

13. CENTRAL CITY EAST/SKID ROW: Skid Row, located in the eastern industrial portion of the CBD, is one of the least hospitable residential areas in Los Angeles. Many of its elderly, poor, unskilled, and alcohol-dependent residents coexist in this expanding light industrial/warehousing area.

14. FLOWER MARKET: The Los Angeles wholesale cut flower market occupies this area; current plans are to revitalize its generally inadequate facilities.

15. APPAREL INDUSTRY: This is the third largest apparel district in the nation, employing over 20,000 people. It attracts tourists as well as industry sales and buying representatives from other parts of the world.

16. PRODUCE MARKET: The Produce Market Industry, one of the major employers in the CBD, is the central distribution point for fruits and vegetables in the Southern California region.

Citywide Plan

The goals and objectives of the Citywide Plan support a "Centers Concept" of high intensity development in activity centers throughout the city. The Plan defines the Centers Concept as follows:

> The Concept provides a long-range view of the City, characterized by: (1) Centers having a high intensity of development and activity; and (2) low density suburban areas. Centers will include commercial, residential and appropriate industrial development, such as research facilities. Centers will also include recreational, cultural, educational and other public facilities. Suburbs will be predominantly residential in character but will include local businesses, public service facilities, schools and parks. Centers and suburbs throughout the City will be tied together by a comprehensive transportation system and interlaced with parks and open spaces. (City of Los Angeles, 1974a)

Downtown is recognized as one major center along with Wilshire, Miracle Mile, Hollywood and Century City centers which make up the core of the metropolitan region. The Citywide Plan states:

> The Regional Core, comprised of the Downtown, Wilshire, Miracle Mile, Hollywood and Century City Centers, together with intervening and peripheral areas, is designated for higher densities of population and employment than are proposed elsewhere. It will remain the dominant nucleus of the Los Angeles Metropolitan Region. The Plan provides the necessary residential and commercial capacities in the Core. (City of Los Angeles, 1974a)

Within the larger centers, local auxiliary transit systems are proposed to accommodate 1990 travel requirements.

Central City Community Plan

The Central City Community Plan, adopted by the City Council in 1974, is based on the Citywide Plan. One objective of the Central City Community Plan is to make the central city the major center of the Los Angeles metropolitan region. The central city is seen as the proper locale for:

- business, especially financial institutions and corporate headquarters;
- the largest employment concentration;
- the major concentration of governmental administrative services; and
- one-of-a-kind cultural, recreational and tourist facilities.

The Plan proposes achievement of its objectives by joining isolated areas by new transportation systems; stabilizing the various functional areas by stemming deterioration; establishing a positive, aesthetic image for the central city which can be enhanced by future growth and change; establishing a land use mix, including housing; and providing access to concentrated developments by means of rapid transit stations and people movers. A major objective is to rebuild much of the CBD. (City of Los Angeles, 1974a).

The Plan identifies seven planning areas within the central city (see Figure III-21D). Two of these areas, Bunker Hill and Little Tokyo, are well established redevelopment project areas. These two areas will be described later in this section. The other five are the Central Commercial Core, Central City East, East Side Industrial Park, South Park, and Civic Center.

The Central Commercial Core--bounded generally by 8th, Main, and 1st Streets; the Harbor Freeway; and Bunker Hill--contains a large amount of office and retail space and accounts for more than half of the total downtown employment. With Bunker Hill, it serves as the financial center of Southern California, as well as the retail center for a broad population base of people of all income levels. According to the Plan, commercial office space should remain predominant in this area. The northern end of the core should emphasize those uses related to Civic Center activities, while the southern portion should continue to have financial and corporate tenants.

FIGURE III-21D

PLANNING AREAS OF THE CENTRAL CITY COMMUNITY PLAN

SOURCE: City of Los Angeles, 1974 Central City Community Plan

The Plan calls for additional hotel rooms, retail shops, restaurants, and service establishments to serve large employee concentrations that are an essential element of future redevelopment. Broadway and 7th Streets are to be reinforced as important retail streets. Providing more public services to these streets would guarantee their functioning as a regional shopping center for residents of communities surrounding downtown Los Angeles.

The Council-approved document states that the Central Commercial Core should continue to receive high intensity use with a maximum floor area ratio (FAR) of six to one (6:1). A FAR of up to 13 to one (13:1) is suggested for parcels with reasonable proximity to a rapid transit or people mover station if a transfer of development rights (TDR) can be negotiated by the private developer. Transportation plans for the Central Commercial Core include peripheral parking lots, a people mover system, and supporting urban design improvements.

The Central City East Planning Area is bounded by Main, 3rd, Alameda and 7th Streets. It suffers from outmoded land use patterns, inefficient and uneconomically subdivided land, and a skid row. These factors, plus the general instability of the east side, have made it impossible for the area to compete successfully in upgrading its facilities through the normal market place. Rehabilitation of the area depends upon finding solutions for the problems of the skid row population. A diagnostic/detoxification center is proposed as one solution. The western portion of Central City East is designated for alternative uses, including high to medium-density housing, neighborhood retail/commercial use, parking and/or open space.

The eastern portion of Central City East is designated for light industrial uses. While development of new housing is not encouraged in this part of the area, rehabilitation and maintenance of sound existing housing is proposed. A maximum

FAR of 3:1 is specified, with a FAR of up to 6:1 for parcels with reasonable access to a rapid transit or people mover station. Such use would depend upon the successful negotiation of a TDR by the private developer.

In the East Side Industrial Park Planning Area, bounded by Main, 7th, and Alameda Streets and the S.M. Freeway, industrial activities, especially food processing and distribution, are being rehabilitated and expanded . Other rehabilitation is proposed that would strengthen the apparel manufacturing industry, printing, flower marketing, and general wholesaling. A maximum FAR of 3:1 is also specified for this area.

The South Park Area, bounded by Main and 8th Streets and the Harbor and the Santa Monica Freeways, is characterized by manufacturing and wholesaling uses, with approximately 30 percent of the land vacant or used for parking. There are approximately 3,000 dwelling units, the majority of which are substandard and generally in a state of deterioration. The Convention Center is located in the southwest corner of the area, adjacent to the Harbor Freeway. The Central City Community Plan described this area as one of opportunity for:

> ...a new community with all its associated land uses. South Park should be thought as a commercial-residential complex with a significant amount of open space; recreational, cultural and civic uses; retail activities; community buildings; and restaurants. New housing units, designed for various income groups and family sizes, are intended to be a major feature of land use in South Park...Another important feature is...a park system or multiple use open space within the planned area. (City of Los Angeles, 1974b)

The area in South Park closest to the Central Commercial Core is designated mainly for high-density housing, regional center commerce/parking, and/or open space with a FAR of 6:1. A FAR of up to 13:1 is to be allowed for parcels with access to rapid transit or people mover stations if TDR's can be negotiated by the private developer. The area south of Pico Boulevard is designated mainly for high and medium density housing, community commerce/parking, and open space with a maximum FAR of 3:1.

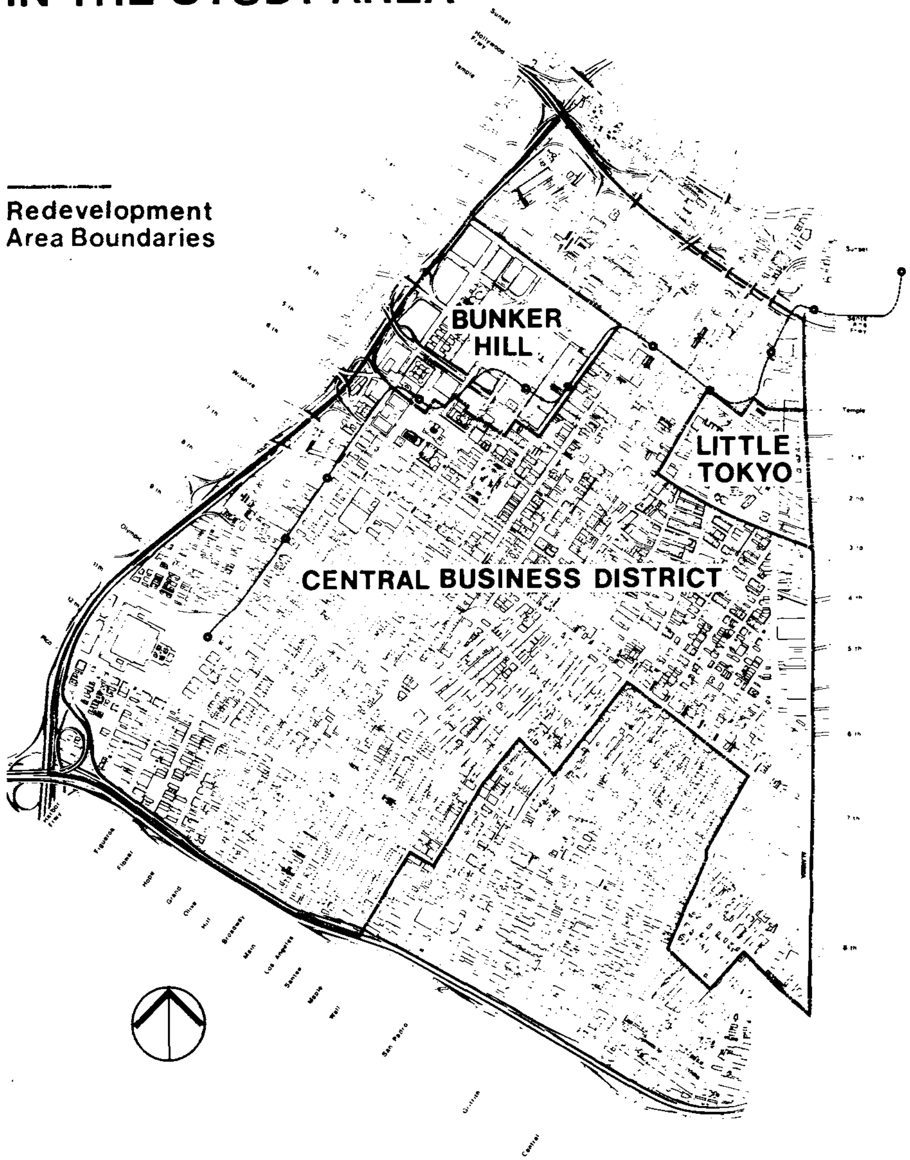
The Civic Center Planning Area is the primary seat of government for the City and County of Los Angeles. It includes a 27-block area bounded by 1st Street, Sunset Boulevard, Alameda Street, and the Harbor Freeway. In addition to the city and county, many state and federal agencies have offices at the Civic Center. The Civic Center also contains the Music Center, a subterranean retail mall at City Hall, and a landscaped pedestrian area between the county administration buildings. The Plan specifies the continuation of these governmental activities complemented by private office space, retail stores, restaurants, clubs, etc. The maximum FAR specified in the Plan is 3:1, with a FAR of up to 6:1 for parcels in proximity to a rapid transit or people mover station if a Transferrable Development Right can be negotiated by the private developer.

Redevelopment Areas in the CBD

Most of the central business district lies within three redevelopment projects: Bunker Hill, Little Tokyo and the Central Business District (See Figure III-21E). The Community Redevelopment Agency of the City of Los Angeles, the administrative agency for these projects, has broad powers to implement City Council-approved redevelopment plans for these project areas. These powers include (1) specification of study boundaries and general uses; (2) acquisition of property; (3) relocation of displaced property and/or persons; (4) demolition, clearance, public improvements, and site preparation; (5) property disposition and development; (6) establishment of general controls and limitations on land such as floor area ratios (FAR's) and specific parcel uses; (7) provision of public improvements,utilities and facilities such as streets, bridges, parks, transportation systems, etc.;and (8) the financing of projects with city, state, and federal assistance; property

FIGURE III-21D

REDEVELOPMENT PROJECTS IN THE STUDY AREA



Source: Community Redevelopment Agency, 1977

tax increments; interest income; agency boards; and other sources.

In the cases of Bunker Hill and Little Tokyo, projects in which the Agency owns land, these controls can be and are fully exercised. In the case of the Central Business District Redevelopment Project, where the Agency owns none of the land, the exercise of these powers is limited at present to the establishment of goals, policies, and general land use criteria; the establishment of general controls and limitations; and the financing of specific projects using the sources described above. Following is a brief description of these three redevelopment projects; a more detailed description of development proposed within the DPM corridor is contained in Section IV-200.

Bunker Hill

The Bunker Hill Redevelopment Project comprises 133 acres in the northwest corner of downtown, bounded by 1st, Hill, 4th, and 5th Streets and the Harbor Freeway (see Figure III-21E). The project was approved by the City Council in 1959, and only 11 acres of the land now remain to be sold for development. Before redevelopment, the area, covered with deteriorating dwelling units and substandard commercial facilities, had a declining tax base. Today, 714 apartment units have been constructed, as well as the Union Bank Plaza, the Security Pacific National Bank building, the World Trade Center, the Central Heating Plant facility, and the 1554-room Los Angeles Bonaventure Hotel.

As a result, the assessed value of land and improvements on Bunker Hill rose from $6 million in 1959 to approximately $86 million in 1976-77 (CRA, 1977). When completed in accordance with the Bunker Hill Redevelopment Plan and the Design for Development-Bunker Hill approved by City Council in 1971, the area is intended to be a key element in the CBD's role as a major regional center.

TABLE III-21B

BUNKER HILL DESIGN FOR DEVELOPMENT

	LAND USE					
	Residential Units	Hotel Rooms	Retail Space (Sq.Ft.)	Office Space (Sq.Ft.)	Industrial Space (Sq.Ft.)	Cultural Space (Sq.Ft.)
1978	714	1,554	45,000	2,300,000	65,000	---
Maximum Allowable[a]	3,750	3,000	550,000	12,340,000	65,000	125,000

a) This maximum allowable development is used as a guideline for future development and is consistant with the Bunker Hill Redevelopment Plan.

Source: Community Redevelopment Agency, 1971.

TABLE III-21C

LITTLE TOKYO PLANNED DEVELOPMENT--1990

	LAND USE			
	Residential Units	Hotel/Motel Rooms	Office Space (Sq.Ft.)	Retail Space (Sq.Ft.)
Current	500	450	300,000	300,000
1990	600	750	600,000	550,000

Source: Community Redevelopment Agency, 1976b.

Land use and building area permitted by the Plan include multiple-unit residences (with necessary parking facilities and neighborhood commercial facilities); office space; retail shopping, dining, entertainment, cultural, recreational, and hotel facilities; streets; pedestrian ways; plazas and open spaces; and other public uses. (CRA, 1973) Table III-21B represents the maximum land use development allowed in the Design for Development-Bunker Hill and indicates the status of the program to date.

Plans for Bunker Hill emphasize that developments be tied together through a well-designed system of landscaped plazas, activity areas, pedways, and careful placement and massing of buildings. Circulation/distribution guideway improvements linked to a regional transportation system are also viewed as essential to this development program. The ultimate goal of the project is to establish an attractive urban environment with a multitude of uses to encourage both day and evening-time activities--the latter now almost nonexistent in downtown Los Angeles.

Little Tokyo

Little Tokyo is the second redevelopment area within downtown (See Figure III-21E). It is bounded by 1st, Los Angeles, 3rd, and Alameda Streets. The Redevelopment Plan-Little Tokyo Redevelopment Project, as adopted by City Council in 1970, provides for the development of a "unique commercial and cultural complex" to complement downtown and Civic Center growth (Community Redevelopment Agency, 1970). As such, the Plan specifies the provision of land for commercial office and retail, institutional, community, cultural, and residential use (particularly low to moderate income and senior citizen).

To date, land has been acquired and developed for a Japanese Village Plaza and shopping center, the New Otani Hotel, a senior citizen housing project (Little Tokyo Towers), and two religious centers--the Higashi Hongwanji Buddhist Temple and the Union Church. Projected developments, as outlined in Table III-21C, include more retail and office space, a trade and cultural market center, and low to moderate income housing (particularly for those under 62 years of age), and additional hotel rooms. These developments will be described in more detail in Section IV-210. Pedestrian connections are planned to link current and proposed developments in the project area.

Central Business District

The third redevelopment area in the CBD--the Central Business District Redevelopment Project--was initiated in 1975 by City Council and comprises most of the downtown area not included within the Bunker Hill and Little Tokyo redevelopment projects (see Figure III-21E) or about 1,550 acres. The proposed redevelopment actions specified in The Redevelopment Plan for the Central Business District Redevelopment Project are directly related to the development objectives set forth in the Central City Community Plan for the five planning areas. The proposed redevelopment actions directly relate to the reuse intended in each area by the Central City Community Plan (see above). These proposed actions include:

- Density. The Redevelopment Plan implements the maximum development densities (FAR) contained in the Central City Community Plan, including the provisions for transferring development rights (TDR) by private developers. Such TDRs must be approved by the City Planning Commission and can only be transferred from parcels within 1500 feet of the proposed project.

- Housing. The Redevelopment Plan designates areas in the South Park and Central City East sectors of the CBD for use as high-medium and high-density housing. Such housing would be for a mix of housing types, purchase prices, and rental rates for families and individuals of all income ranges and age groups. This plan specifies that there will be approximately 20,000 dwelling units in these sectors when the project is completed.

- Commerce. The Redevelopment Plan calls for the regulation of private development by the CRA to ensure conformance with the Redevelopment Plan. The plan also calls for direct Agency stimulation of such development land assembly and relocation assistance where needs exist and opportunities arise.

- Industry. The overall objective as specified in the Redevelopment Plan for the industrial areas of Central City East and East Side Industrial Park is the preservation and expansion of existing employment opportunities.

- Public and Open Space Land. The Redevelopment Plan proposes, as a prerequisite to major physical redevelopment of the Central City East area, that a solution to the social and medical problems of the skid row population be found. The plan calls for the implementation of a detoxification center and a referral system to offer help to these residents.

- Circulation and Parking. The plan proposes that the development of the area be coordinated with the development of a regional transit system as proposed by the Southern California Rapid Transit District (SCRTD) and with a people mover system to be developed throughout the CBD. The plan also specifies the development of pedways and pedestrian bridges throughout the area to improve pedestrian circulation. Finally, the plan proposes that, to the extent feasible, parking facilities be located on the periphery of the Project area. The plan permits developers to provide a portion of their required parking in these peripheral facilities.

A more detailed description of specific near-term projects proposed for the CBD is contained in Section IV-210

III-213 PROJECTED LAND USE IN THE CBD

Based on planned developments, economic trends and adopted land use and redevelopment plans for the CBD study area, projections of floor area by land use type were made for 1990. These projections indicate that major changes are expected in office, retail/commercial, institutional/ hotel/service and residential uses (see Table III-21D).

Office use is expected to intensify in the areas west of Olive Street between 3rd and 8th streets. Major renovation activities are anticipated in the Olive/Hill Street area between 5th and 8th Streets; new office space will be concentrated primarily in the Bunker Hill Redevelopment Project area (the location of new and renovated office use projects will be discussed in greater detail in Section IV-221.2). Hotel/Service/Institutional uses will increase in the west side of the CBD, particularly along Figueroa and Flower Streets. This concentration of high employment office and hotel/tourist oriented development on the west side will be reflected in the modernization and concentration of major retail activities for this area of the CBD. Major land use changes are also expected in residential use, particularly in Little Tokyo, Bunker Hill and South Park. Few changes in gross floor area or location of government and manufacturing uses are anticipated. Figure IV-21F shows the location of projected land use changes in the CBD.

Table III-21D

COMPARATIVE 1975 AND PROJECTED 1990 LAND USE IN THE CBD BY GROSS FLOOR AREA/UNITS

Land Use Categories	1975 Amount (Sq. Ft.)	1990 Amount (Sq. Ft.)	Difference (Sq. Ft.)	% Change
Private Office	27,189,000	32,824,000	+5,626,000	21.0
Government Office	9,550,000	10,260,000	+710,000	7.4
Retail/Commercial	5,305,000	6,410,000	+1,105,000	21.0
Service, Hotel, Inst'l	5,365,000	7,893,000	+2,528,000	47.0
Manufacturing/Wholesale	18,485,000	19,300,000	+815,000	4.4
Residential	9,400 units	13,700 units	4,300 units	46.0

Source: Wilbur Smith and Associates, Environmental Baseline Data Update, May 15, 1978.

FIGURE III-21F

PROJECTED 1990 COMPOSITE LAND USE
(Zones Greater Than 50% by Type)

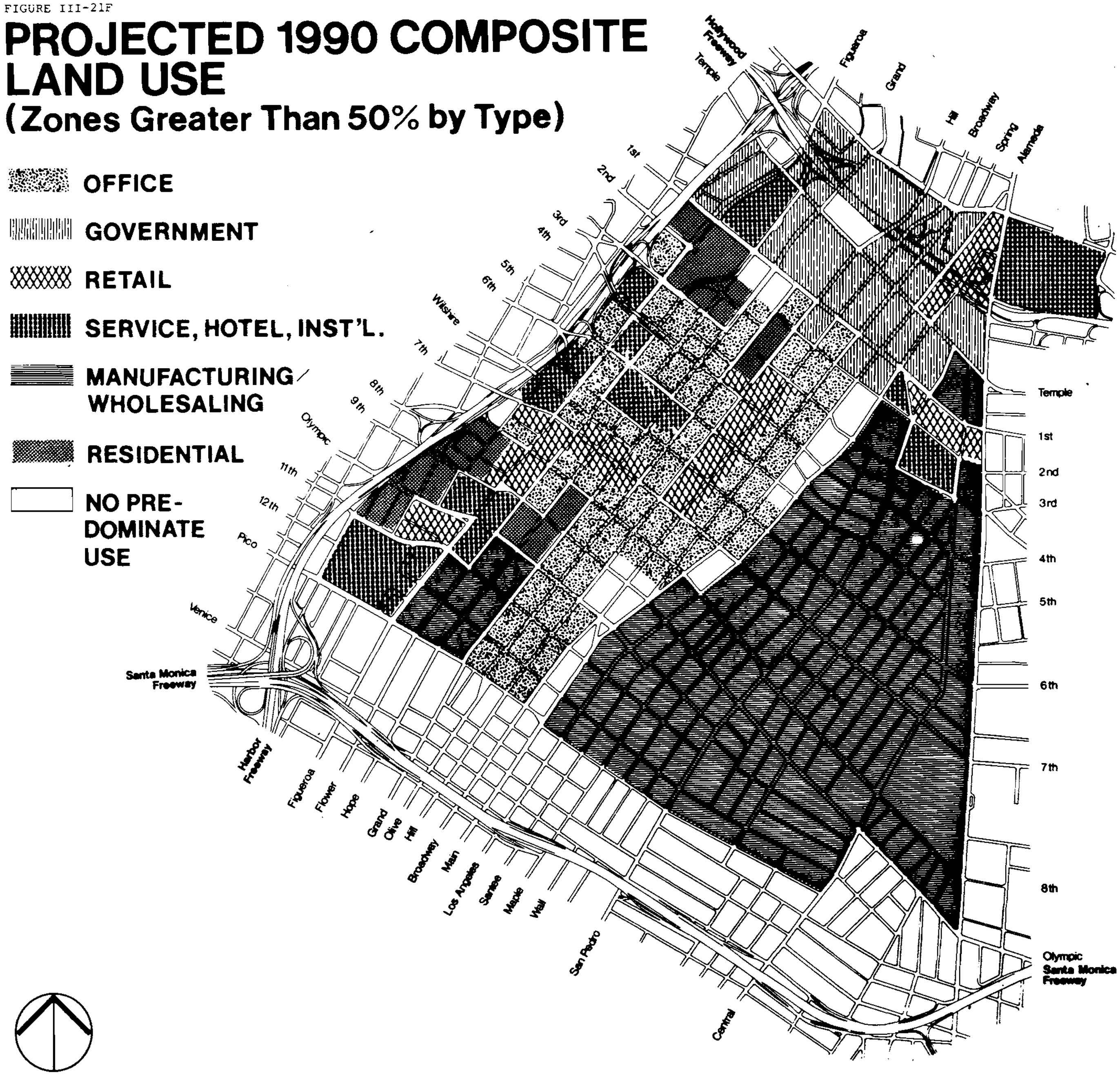


FIGURE III-22A

MUNICIPAL AND SOCIAL SERVICES IN THE CBD

Source: Community Redevelopment Agency, 1978.

1 Terminal Annex (P.O.)
2 Union Station
3 Board of Education
4 County Hall of Justice
5 Federal Court
6 Federal Building and P.O.
7 County Health Center
8 Dept. of Water and Power
9 Music Center
10 County Hall of Admin.
11 County Court House
12 County Hall of Records
13 Law Library
14 County Criminal Courts
15 Future State Building
16 City Hall
17 City Hall East
18 City Hall South
19 Parker Center (Police)
20 State Office Building
21 Fire Station #3
22 St. Vibiana's Cathedral
23 St. Paul's Cathedral
24 Post Office (Arco)
25 Central Library
26 Central Police Facil.
27 Fire Station #9
28 Municipal Court
29 1st Methodist Church
30 Univ. of Calif. Exten.
31 Convention Center
32 Police Station (Georgia)
33 California Hospital
34 Fire Station #10
35 California High School
36 State Employment Office
37 Fire Station #30
38 Police Station (Newton)
39 Metro Post Office

III- 220 Community Services

There are many community services offered within the study area. They are divided into two major categories: municipal services and social services. Municipal services described within this section include law enforcement and fire protection. Water supply, waste water, and solid waste treatment and disposal information was collected and documented in Task Termination Report 4.24. The social services described focus on public assistance programs available to residents of the central city east and skid row areas. Figure III-22A lists all the community services, and illustrates their location within the CBD.

LAW ENFORCEMENT AND FIRE PROTECTION

III-221 Law Enforcement

Police protection in the study area is provided by both the Central Division and the Newton Division, with the Central Division responsible for most of the CBD. Wide variation in land use poses different problems in providing law enforcement. Commercial and industrial activities, congested housing, and a daily influx of large numbers of workers and visitors are characteristics of the CBD that affect crime rates.

In 1977 Central Division reported 11,577 arrests for homicide, rape, and aggravated assault, while crimes against property numbered 10,638. These latter crimes were dominated by thefts (6,215) and auto thefts (1,708).

III-222 Fire Protection

Six fire engine companies, 3, 4, 9, 10, 17, and 30, consider the CBD as part of their service area, although engine companies number 4 and 17 are located at 800 North Main Street and 719 South Santa Fe Street, respectively. (See Figure III-22A) All of them are considered task force companies except 30, which is referred to as a single engine company. Task force companies usually have a two-piece engine and a ladder truck. Some task force companies may also have a single engine and/or a rescue ambulance.

All of the fire companies supporting the CBD area experience accessibility problems due to rush hour traffic, parked cars, and general traffic flow malfunctions such as delivery trucks blocking alleyways.

Downtown has a higher rate of structure fires than the city norm. Many of these fires occur in hotels housing a transient population and are caused by careless use of matches and cigarettes. There seem to be no effective preventive measures for reducing the incidences of this kind of fire. Non-structure fires are largely attributable to rubbish and auto fires. The numbers of malicious false alarms is high. Increases in false alarms have been experienced in low income, high unemployment, and generally blighted areas of the CBD.

III-223 Social Services

Los Angeles provides many traditional social services within the CBD. This section, however, focuses on three nontraditional programs available to residents of the central city east and skid row areas. The population in these areas is comprised largely of low-income or unemployed residents living on welfare or pension checks.

There are at least 20 rescue missions in the central city east area. Most of the present mission support comes from private individuals, although in the past some of the groups have received United Fund or Community Chest support. The rescue missions provide housing and meals for men and serve as employment centers.

Several of the missions also provide alchoholic rehabilitation programs providing work opportunities, usually on the grounds, along with extensive religious instruction. Others are anxious to broaden their programs to include less traditional assistance and vocational rehabilitation. Although the number of missions is large, only 10% of the area's residents use their services.

The Los Angeles County Department of Public Social Services operates an unattached Men's Center located just east of Alameda on East Fourth Place. The center's services are generally short-term in nature and are offered while a man is actively seeking employment. Approximately 10,000 to 15,000 requests for aid are received annually. Eighty percent of these are for meals and lodging. Payment for this assistance is provided by the center directly to the vendor, and applicants receive meal and lodging tickets. Other needs met by the center include job referral, transportation, clothing, and subsidized medical care under the Medi-Cal program.

Treatment and rehabilitation services for skid row alchoholics are provided by the L.A. County Health Department, the L.A. County Department of Hospitals, and some rescue missions. Proposals for improving the delivery of social services in the east side area are part of the CBD redevelopment plan discussed in section III-211.

III-230 Parks and Open Spaces

The CBD has been a highly urbanized area for quite some time. Consequently, open space is very limited.

There are four main open space sites in the CBD with several additional areas of lesser size. These four are: Olvera Street--Pueblo de Los Angeles Cultural site; Pershing Square; Los Angeles Civic Center Mall; and the City Hall Mall.

Olvera Street--Pueblo de Los Angeles is located just west of Alameda and north of the Hollywood Freeway. This is the site of the original settlement and has been preserved as a historical and cultural monument by the State of California. The historical park contains some early buildings of Los Angeles which are in the process of restoration, the site of the original Plaza, and Olvera Street, which contains small shops and restaurants commemorating the Mexican heritage of the early Pueblo.

Pershing Square is one of the oldest and presently the largest park site within the CBD bounded by 5th, 6th, Hill, and Olive Streets. Pedestrian walkways criss-cross the park among beds of low evergreen shrubs and flowers, and benches provide seating for tourists, employees, and residents of the area. Underground parking is provided beneath the park itself.

The Los Angeles Civic Center Mall is the largest open space within the CBD. Large areas of well manicured lawns are interrupted by several large fountain displays and pedestrian walkways lined with park benches. Its boundaries extend north/south between 1st and Temple Streets and east/west between Spring Street and Grand Avenue. Underground parking is provided beneath this site also.

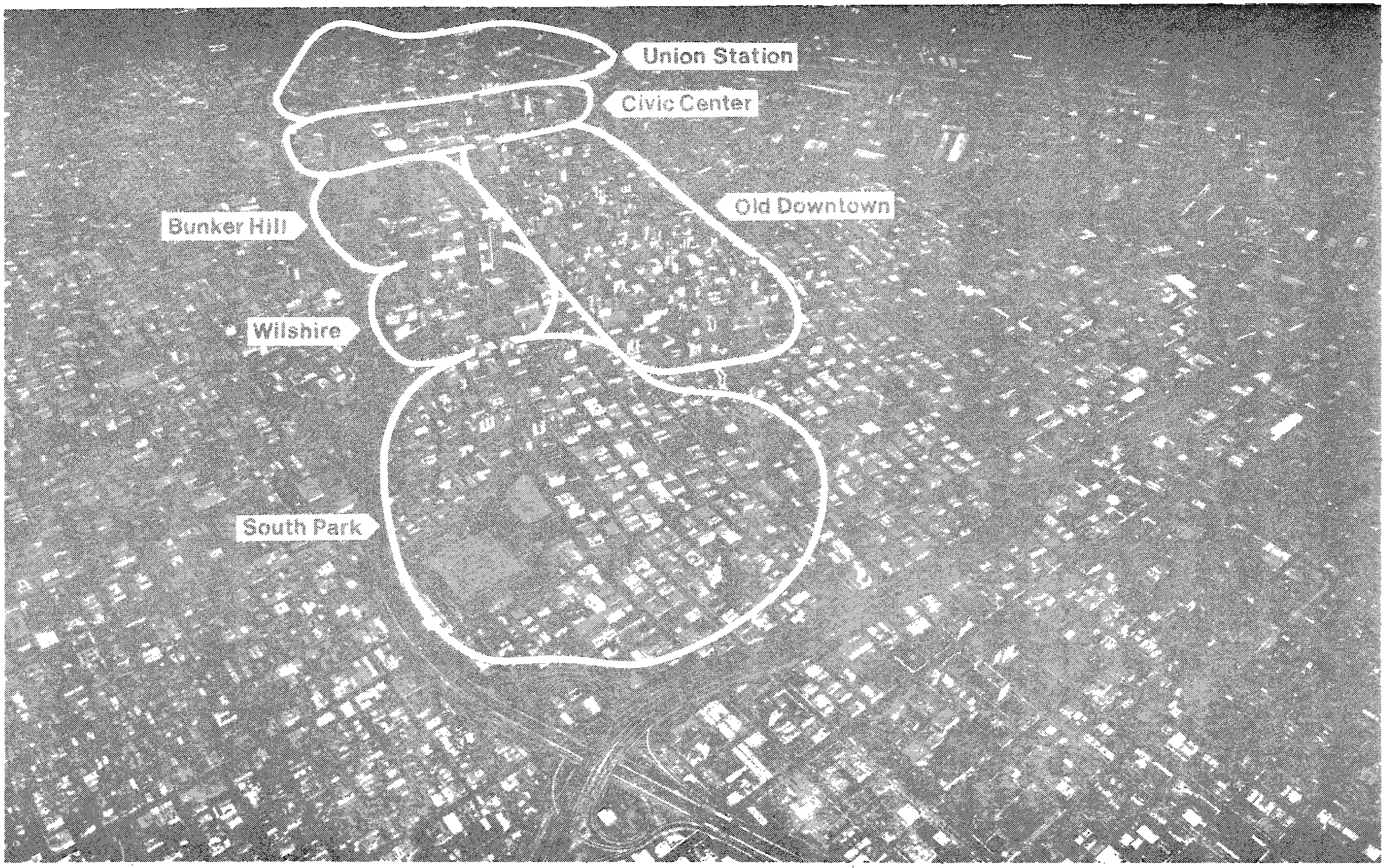
The fourth major open space site is the City Hall Mall, bounded by 1st, Main, Temple, and Los Angeles Streets. The mall has a triforium, park-like setting with pedestrian walkways and benches at street level. Below street level are several shops, restaurants, and parking facilities.

FIGURE III-24A

AERIAL VIEW OF DOWNTOWN

III-240 AESTHETIC AND VISUAL SETTING

The visual and aesthetic setting of downtown Los Angeles can be broken down into six general areas; South Park, Wilshire, Bunker Hill, Old Downtown, Civic Center, and Union Station.



South Park

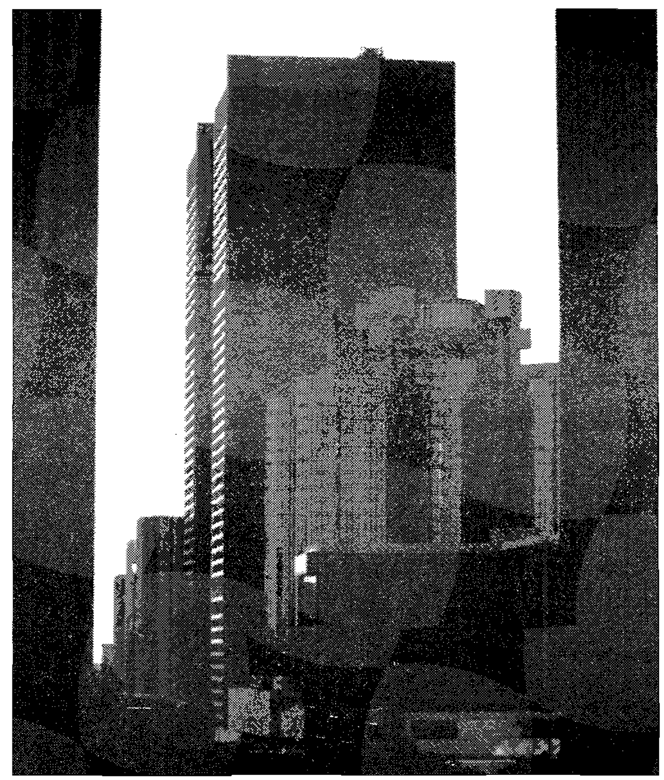
The visual aspect of this area is broad, low, flat, and frequently sunbaked, with mixed uses and older buildings. Retail and automotive shops, motels, small manufacturing companies and older residences are mixed throughout the area without apparent plan or purpose. The Convention Center, with its identifiable form and wide surrounding open space buffer provides a point of orientation; and linear definition is provided by the Harbor Freeway, and, to some extent, by Figueroa Street.

Convention Center

Wilshire

This is the new high-rise area of downtown. The United California Bank (the tallest building) and the Arco/Bank Of America (the most massive complex) stand out among the many other new and interesting medium and high-rise buildings that have come to predominate in this section of Los Angeles during the last decade. Several older and stately structures including the Central Library, the California Club, the Jonathan Club, and St. Paul's Cathedral provide architectural interest and a contrast in scale to the towers rising around them. Pedestrian traffic is brisk and a cosmopolitan ambience characterizes the area.

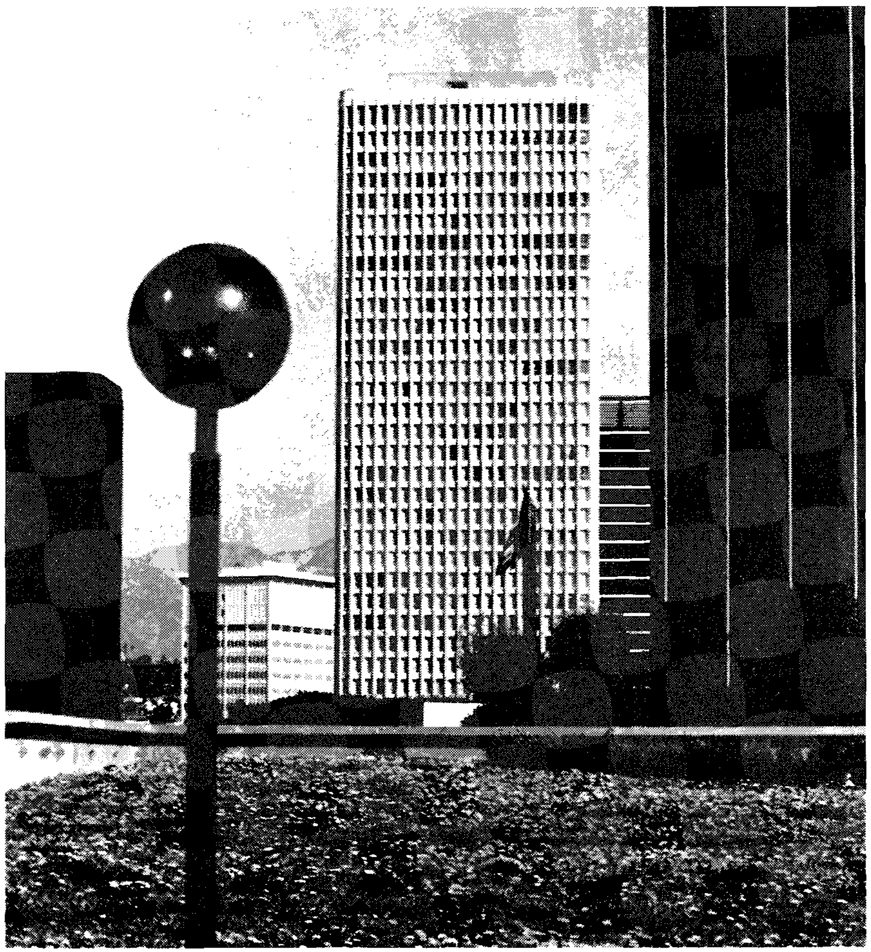
West Side Financial District



Bunker Hill

Like the Wilshire area, Bunker Hill is developed with very new structures, with more to come on the still vacant parcels, but at a somewhat lower density and a lesser level of urban activity than the Wilshire core. The present pattern of medium and high-rise buildings with considerable open space will continue to guide future developments.

Bunker Hill Towers



Old Downtown

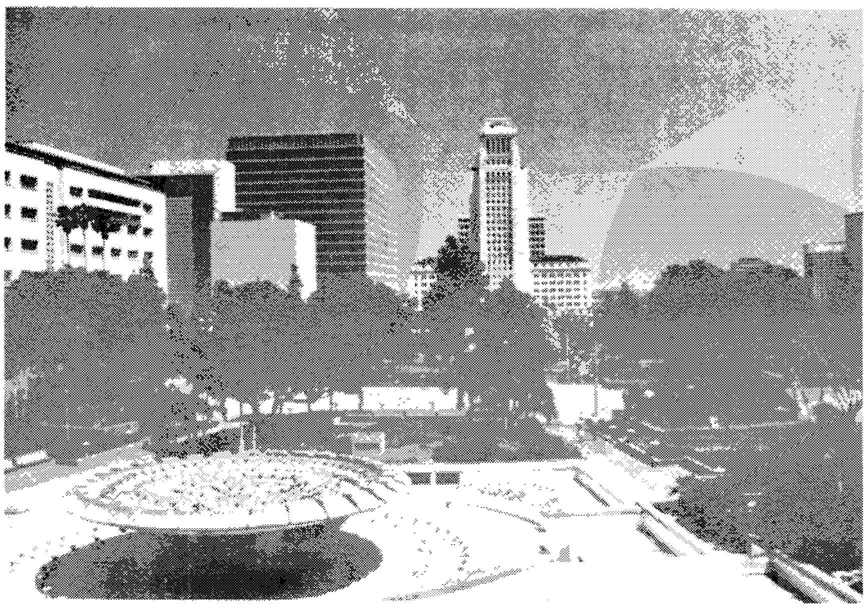
This section, from 1st Street to 8th Street and along Spring, Broadway, and Hill Streets comprises the old downtown and is characterized by low, multi-story structures of varying ages and predominantly commercial uses. The upper floors of older, formerly prestigious office structures are often vacant. At street level, small inexpensive shops attract large crowds of pedestrians on weekdays and week-ends. Many of the signs are in Spanish and snatches of over-heard conversation are most likely to be in that language. The ambiance is reminiscent of a paseo, despite the heavy use of the street by cars, trucks and buses. There is a significant population of elderly in this area. At the Grand Central Market and Pershing Square the poor, elderly, and occassional citizens from the east side skid row area are seen mingling with office workers and professionals. Pershing Square is the demarcation between this older mixed area and the newer crisp urbanity of the west side, with the elegant Biltmore Hotel standing vigil on the edge. Despite its decline, old downtown remains one of the most interesting and diverse sections of the city.

Grand Central Market

CIVIC CENTER

This is the largest governmental center outside of Washington, D.C. Grids of windows punctuate the white granite walls of soaring monoliths, rising above manicured lawns and broad sidewalks. There are no signs; the trees and shrubs are all carefully pruned. First Street marks the southern edge of the Civic Center, dividing it from the commercial district to the south. The Hollywood/Santa Ana Freeway separates it from Chinatown and Union Station to the north.

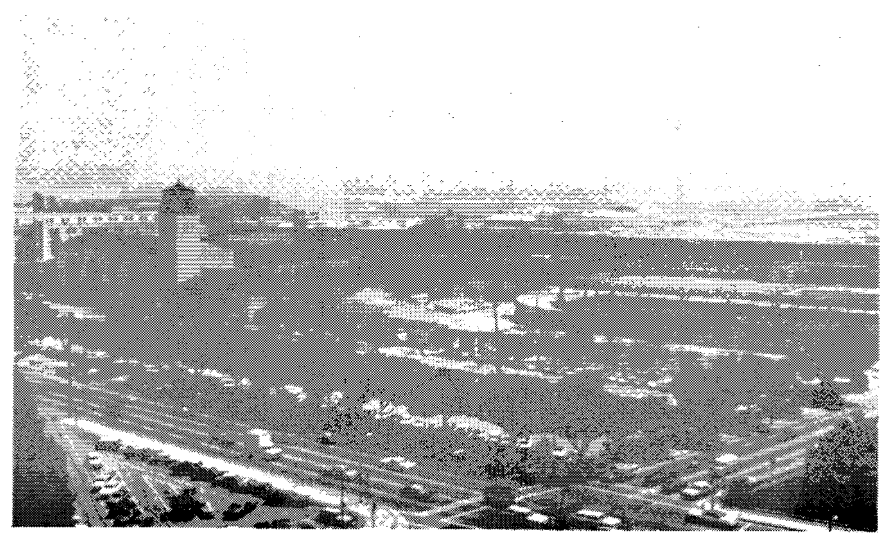
Civic Center Mall



UNION STATION

The area north of the freeway is generally wide and low. The interesting old structures of Union Station and Terminal Annex rise above the surrounding palms and undifferentiated lower buildings against a backdrop of the San Gabriel Mountains to the north. The historic Plaza and Olvera Street provide the primary social and visual focus in the area. Except for the Plaza, where automobiles were recently excluded, the area tends to be auto dominated, whether due to freeway and ramp traffic, surface street movements, or the numerous parking lots which dot the area.

Union Station



III-250 Historic Sites and Cultural Facilities

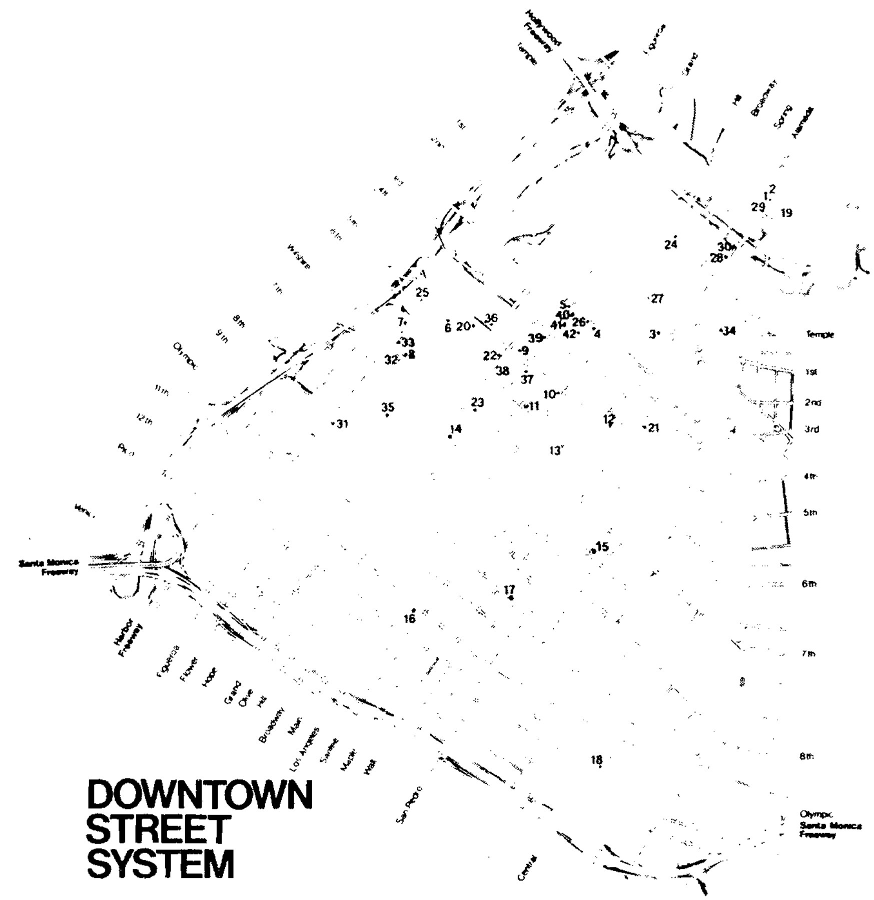
A number of historic sites exist within the CBD; Figure III-25A illustrates many of them and identifies those designated on National, State, and local registers. In addition to these recognized monuments and historical sites, the Music Center Complex, located within the Civic Center Mall, is a cultural resource which is unique to southern California.

There are no known archeological sites within the CBD. However, a Chinese dump was excavated by Dr. Clement Meighan of UCLA during construction of the Hollywood Freeway in the early 1950's. The site was recorded as being near the intersection of Alameda Street and the Santa Ana/Hollywood Freeway across from Alameda Street from Union Station (Archeological Survey, 1978, p. 136).

Historic sites within the transit corridor are further reviewed under Impacts on Land Use and Urban Development in section IV-220.

FIGURE III-25A

HISTORIC AND CULTURAL SITES WITHIN THE CBD



See following page for listing of site in this figure.

Source: Community Redevelopment Agency, 1978.

Key to FIGURE III-25
HISTORIC AND CULTURAL
RESOURCES SITES WITHIN
THE CBD

\+ 1. Plaza Church
Sunset Blvd. & North Main

\+ 2. El Pueblo de Los Angeles
State Park

3. St. Vibiana's Cathedral
114 E. Second Street

* 4. Bradbury Building
304 S. Broadway

o 5. "Angel's Flight" Site
Third and Hill Streets

o 6. California Club
538 S. Flower

o 7. St. Paul's Cathedral
615 S. Figueroa

o 8. Global Marine Building
811 W. Seventh Street

o 9. Philharmonic Auditorium
427 W. Fifth Street

o 10. Alexandria Hotel (Palm Ct.)
501 South Spring Street

11. Finney's Cafeteria
217 W. Sixth Street

12. Fire Station No. 23
225 E. Fifth Street

13. Cole's P.E. Buffet
118 E. Sixth Street

14. Garfield Building Lby.
403 W. Eighth Street

15. Cast Iron Comm. Bldg.
San Pedro and Agatha

16. St. Joseph's Church
218 E. Twelfth Street

17. Cohn-Goldwater Bldg.
Eleventh & San Julian

18. Coca-Cola Building
1334 S. Central Avenue

o 19. Union Station & Grounds
800 S. Alameda

* 20. Central Library & Grnds.
630 W. Fifth Street

21. Wolfer Printing Co.
416 Wall Street

o 22. Biltmore Hotel
515 S. Olive Street

23. Los Angeles Athletic Cl.
431 W. Seventh Street

24. Los Angeles City Hall
200 N. Spring Street

25. Johnathan Club Bldg.
545 S. Figueroa Street

26. Million Dollar Theater
307 S. Broadway

\+ o 27. Butterfield Station Site
(Mirror Building)
145 S. Spring Street

\+ 28. Bella Union Hotel Site
314 N. Main Street

* + o 29. Los Angeles Plaza
Historical District
Spring/Macy/Alameda/Arcadia

\+ o 30. The Los Angeles Star Site
N. Main & Commercial Sts.

o 31. Friday Morning Club
940 S. Figueroa St.

32. Barker Bros. Building
818 W. Seventh Street

33. Engine Company No. 28
644 S. Figueroa Street

34. Japanese Union Church
120 N. San Pedro St.

35. First Methodist Church
813 S. Hope Street

36. Edison Building
601 W. Fifth Street

37. Albert L. Bath Bldg.
500 S. Hill Street

38. Pershing Square Bldg.
448 S. Hill Street

o 39. Subway Terminal Bldg.
417-425 S. Hill Street

40. The Aldine (Myrick Hotel)
324 1/2 S. Hill Street

41. The Markham Hotel
(The Whipple)
326 1/2 S. Hill Street

42. Homer Laughlin Bldg.
(Grand Central Market)
315 S. Broadway

Source:
* National Register Sites
\+ State of California Historic Sites
o Locally Designated Historic Sites
(as designated by the City of Los
Angeles Cultural Heritage Board)

III-300 SOCIAL-ECONOMIC ENVIRONMENT

III-310 SOCIAL CHARACTERISTICS OF RESIDENT POPULATION

The total resident population in the CBD in 1970 was approximately 18,400. By 1975, it was estimated that this had decreased to 17,800 (City Planning Dept. 1975 Population Estimate and Housing Inventory).

In 1970, the CBD's population was ethnically diverse with 48% white, 29% Spanish, 12% black, 6% Chinese, 2.4% Japanese, and 1% American Indian. City Planning Department estimates for 1975 indicate that the CBD is becoming even more ethnically diverse and that the white proportion of the population is declining. Over two thirds of the downtown residents in 1970 were men, and almost 45% of those men were between the ages of 25 and 54. Downtown also had a substantial elderly population in 1970 with slightly over 20% of the residents aged 60 years or older; almost twice the city average.

Estimates of the number of handicapped persons are difficult to make because of varying definitions. The Urban Mass Transportation Administration Regulations on Transportation for Elderly and Handicapped Persons define elderly and handicapped persons as:

> ...those individuals who, by reason of illness, injury, age, congenital malfunction, including those who are nonabulatory wheelchair-bound and those with semi-ambulatory capabilities, are unable without special facilities or special planning or design to utilize mass transportation facilities and services as effectively as persons who are not so affected.

From the SCRTD survey, City Planning Department Staff has estimated that approximately 300-400 handicapped were probably resident downtown (SCRTD, 1978, Paratransit in Los Angeles County, p. 39). Secondly, 70,000 to 100,000 people in Los Angeles County would probably meet this definition.

In general terms, income levels of CBD residents were quite low in 1970, with 28% being at the federally defined poverty level; in some areas the percentage ranged as high as 67%. Approximately 13% of all families and unrelated individuals received public assistance in 1970. Median annual income for families and unrelated individuals who resided in the CBD was $4,127. For families the highest income was found in the high rise Bunker Hill residential development, where the median family income in 1970 was over $24,000. The lowest median income levels for individuals occurred on the east side of downtown, east of Los Angeles Street, with the skid row area around 3rd and San Pedro Streets recording the lowest income of $1,984.

Accurate information on CBD income levels for more recent years is not available, although at least one survey has confirmed the continued high income levels in the Bunker Hill area.

In 1970 there were 7600 CBD residents in the labor force, although how many worked in downtown is unclear. Of the 7600 residents, over three-quarters (almost 5900) were men. The unemployment rate among CBD residents was 12.9% compared to a city-wide unemployment rate of 7% in 1970. Unemployment among male residents of the CBD was 14.4%, over twice as high as the city-wide average. The occupational distribution of CBD residents was predominantly concentrated in blue collar rather than white collar occupations by an approximate two-thirds to one-third ratio. Employed women residents were more likely to be found in white collar occupations than employed male residents; almost 60% of the women were so categorized in the 1970 census.

The 1970 census reported journey to work information for employed CBD residents. Mode of transportation appears to have been fairly evenly divided among automobiles (either driver or passenger), bus, and walking; each accounted for about 30% of home to work travel for CBD residents, (U.S. Census, 1970, Census of Population and Housing).

Since 1960, the 714-unit Bunker Hill Towers has been the only major residential complex constructed in downtown Los Angeles. A smaller 301-unit high-rise complex for the elderly was completed in Little Tokyo in 1975. The remaining CBD housing stock consists of older residence hotels, some single family and duplex housing units, and a few deteriorating apartment buildings. In 1970, there were 10,200 housing units in the CBD; this number declined slightly to 9,900 in 1975. Although most of these units were scattered throughout the CBD, the major population clusters occur in three areas: Central City East (skid row), Convention Center/ South Park area, and Bunker Hill.

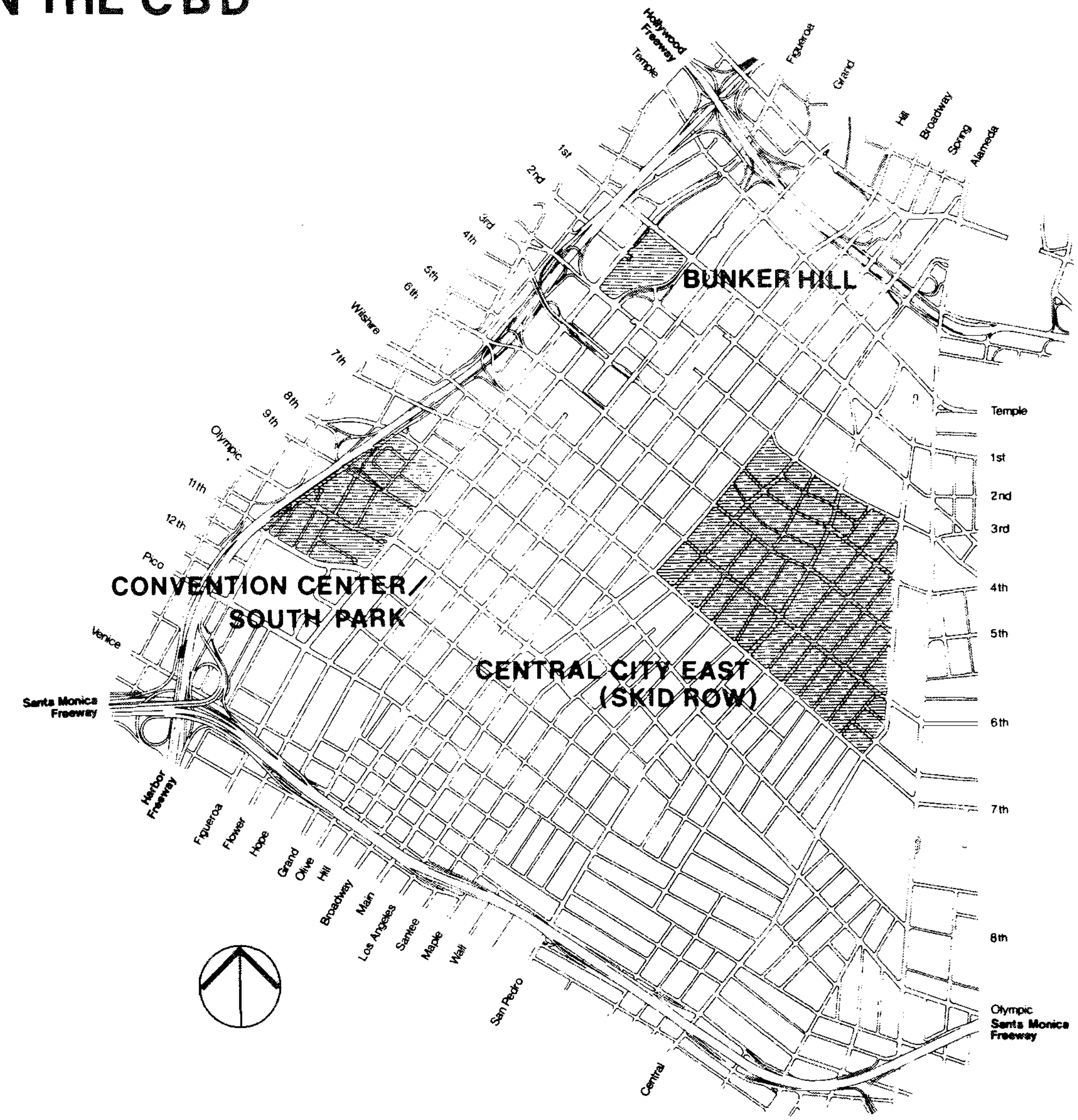
The Central City East (skid row) comprises an area from Third Street to Seventh Street between Main and Central Streets. There are an estimated 9,000 residents in the area (including 5,000-7,000 single men), many living in modified transient commercial buildings: hotels, apartment buildings, and rescue missions. The second major cluster of housing units--Convention Center/South Park--is north of the Convention Center and west of Figueroa Street. In 1975, an estimated 1400 low income residents lived in this area, primarily in deteriorating single family and duplex units and hotel/apartment buildings.

In contrast with other housing areas within the central city, Bunker Hill Towers offers the only high quality housing in the CBD for middle and upper income groups.

A 1974 survey of the socioeconomic characteristics of the 1040 Bunker Hill residents indicated that 70% of the households had incomes ranging from $20,000 to $35,000 per year, with a small percent ranging from $60,000 to $100,000. The majority of the residents were in professional occupations, primarily law and business management. 90% of the Towers' residents worked in downtown Los Angeles. The average household size was approximately 1.7 persons, indicating that the CBD has an attractiveness for small family households. Nearly 75% of the residents were over 35 years of age and 50% were single (Property Evaluation Services, 1977).

FIGURE III-31A

MAJOR RESIDENTIAL CLUSTERS IN THE CBD



Source: Community Redevelopment Agency, 1978.

III-320 Social Characteristics of the Employed Population

Most of the information that follows is drawn from four special studies that have been prepared about downtown employees. The first two studies were prepared by Wilbur Smith Associates (WSA) for the Southern California Rapid Transit District (SCRTD) in 1975 and 1976. The third was also prepared by WSA in 1978 for the DPM Program and concentrated on refining employment estimates. The fourth study was prepared by Property Evaluation Services in 1977 for the Community Redevelopment Agency. Although the studies were prepared at different times and covered slightly different study areas, they do give the best summary of the social characteristics of the downtown working population available.

In 1975 there were approximately 203,000 employees in the downtown study area (Task Termination Report 4.01). This represented a slight increase over the 1971 estimate of approximately 185,000 for a slightly different study area (PES, 1977, pp. 11-12, 11-13). The changes in the absolute numbers of downtown employees in the last 10 years have been less significant than the changes in the locations of these employees.

In 1975, over half (53.7%) of CBD employees were women. The majority of downtown employees (52.2%) were between the ages of 25 and 44, and less than one percent were over age 65. The average age of the female working population was 35 years while the average male age was almost 40 (WSA, 1975, p. 119). A description of the ethnic distribution of downtown employees is not available, nor are any specific estimates of the number of handicapped.

The income levels of downtown employees are generally higher than downtown residents. Table III-32A is a summary of the average income levels of CBD employees in 1977. Average income levels shown for residents were based on the 1970 census and the average income levels reported here for employees are based on 1977 surveys: family incomes in this table may also include the salaries of more than one wage earner.

Table III-32A

SUMMARY OF MEAN PERSONAL INCOMES
PRIMARY MARKET AREA SECTORS

	Families	Unrelated Individuals
Non-Governmental Employees:		
Government Center	$18,419	$ 9,606
West CBD	20,325	10,414
East CBD--Little Tokyo	19,665	10,000
South Park	18,754	9,673
East Side Industrial	18,964	9,838
Government Employees	$19,300	$15,285[a]

(a) The mean income of single persons working in government is higher than for private industry in the LACBD due to greater concentration of incomes in lower ranges and the almost total absence of incomes below $6,000.

Source: Property Evaluation Services, 1977, pp. 11-32.

The occupational distribution of CBD employees is predominantly "white collar"--managers, professionals, sales workers -- as shown in Table III-32B. In 1977 these occupational categories accounted for 67.9% of all the downtown employees surveyed in the PES report. The percentage may be overstated slightly because of the inclusion of an area west of the Harbor Freeway to Lucas Street, between 3rd and 7th Streets in the PES study area. PES estimated that a total of 10,000 employees worked in this area (PES, 1977, p. 11-16). Even if these are subtracted from the total shown on Table III-32B, over 65% of the downtown employees would be included in white collar occupational categories shown here.

The most current information about the residences of CBD employees is contained in the 1976 WSA study. Based on 1975 employee surveys, the WSA study identified the San Gabriel Valley as the area accounting for the highest percentage of employee residences. The Wilshire-Hollywood area was second, while Glendale/Burbank and East/Northeast Los Angeles (stretching as far as Montebello), ranked third and fourth respectively. Together the areas east and northeast of the CBD accounted for over 37% of the residences of downtown employees. As Table III-32C shows, the central city area accounted for fewer employees than did other counties in the Los Angeles region. The most important limitation of the WSA study is that their study area excluded a large portion of the manufacturing areas in the southeastern portion of the CBD, east of San Pedro Street.

Table III-32B

OCCUPATIONAL DISTRIBUTION OF CBD EMPLOYEES, 1977

	Number	Percent
Managers, Administrators	33,858	15.9
Professional, Technical, Sales	44,995	21.1
Stenographic, Clerical, Sales Clerks	65,824	30.9
Craft and Kindred Workers	15,325	7.2
Manufacturing Equipment Operators	17,569	8.2
Transportation Equipment Operators	1,772	0.8
Service Workers	26,290	12.3
Non-Farm Laborers	7,417	3.5
Other		
TOTAL	213,050	99.9[a1]

Source: Property Evaluation Services, 1977, Tables 9 and 12, Market Analysis Reuse Appraisal of Parcels A, E-3, E-4, L and M; CRA staff

a1 Percentages do not equal 100 because of rounding

Table III-32C

RESIDENCES OF CBD EMPLOYEES, 1975

Area of Residence	Percent	Number
San Gabriel Valley	17.6	31,699
Wilshire/Hollywood	14.0	25,131
Glendale/Burbank	10.2	18,435
East/Northeast	9.5	17,107
South Bay	9.1	16,445
West Central L.A.	8.7	15,585
San Fernando Valley	8.6	15,523
South Central L.A.	5.5	9,899
Mid-Cities	4.9	16,445
West L.A.	4.8	8,724
Other Counties	3.8	6,907
Central City	3.2	5,802
	99.9	180,052

Source: Wilbur Smith Associates, Feb., 1976, Los Angeles Central Business District Transit Plan, Table 14, p. 40.

In 1975, the average downtown employee commuted about 7.5 miles to work, with over 70% commuting less than 10 miles. The automobile was used for about 62% of the home to work trips. Almost 32% of downtown employees used buses to access jobs and the remainder (about 6%) used some other form of transportation (WSA, 1975, Table 24, p. 93).

III-330 ECONOMIC BASE

The downtown economic base is comprised of all of the activities that occur in downtown. In this section attention will focus on CBD employment, retail activity and tax base.

III-331 Employment Distribution, Growth Rates and Unemployment Levels

Latest estimates of employed population in downtown by Wilbur Smith and Associates (May 1978) estimate the 1975 work force at 203,180. The map in Figure III-33A shows the distribution of those employees per acre. In terms of primary economic sectors, office employment dominates the center of the CBD, flanked by manufacturing and wholesale activities to the southeast, and service, hotel and institutional activities to the southwest. Major retail areas dot the center of the CBD surrounded by office employees. Government is the major employer to the north.

Table III-33A shows the actual distribution of jobs by major economic sector for the years 1966, 1971 and 1975. In 1975 private office employment dominated the downtown area with 84,410 employees, while government and industrial-wholesale nearly equaled each other for second place with 42,340 and 43,140 respectively. In comparing the three time periods shown in this table, it can be seen that private office employment has increased slightly in its percent of dominance of the market. More noteworthy, however, has been the increase in government office/institutional employment and the decline in industrial/wholesale employment.

While not evident from the data in Table III-33A, there has been a geographical shift in the location of employees in the CBD along with the change in the nature of that employment. As private office employment has increased and manufacturing and wholesaling have decreased, there has been a shift in the center of CBD employment westward from the Spring Street area to the Flower Street area. This geographical shift is best documented by the increase in office structures over eight stories in height built in downtown since 1965 (Western Economic Research Co).

TABLE III-33A

COMPARISON OF CBD EMPLOYMENT BY MAJOR ECONOMIC SECTOR

Economic Sector	1966[1]	%	1971[2]	%	1975[3]	%
Private Office	67,159	38.3	80,882	40.6	84,410	41.4
Government Office/ Institutional	24,683	14.1	38,486	19.3	42,340	20.8
Retail/Commercial	10,241	5.8	12,201	6.1	10,770	5.2
Hotels/Service	21,310	12.2	15,050	7.5	8,375	4.1
Industrial/ Wholesale	51,883	29.6	52,586	26.4	43,140	21.2
Area south of Pico Boulevard	n/a[4]		n/a[4]		14,700	7.2
TOTAL	175,276		199,205		203,735	

[1]Source: Development Research Associates, Market Analysis Upper Bunker Hill, Table 5. Estimated Employment Los Angeles CBD 1966 (1971).

[2]Estimated: Wallace, McHarg, Roberts and Todd, LA/CBD General Development Plan Study, Table Square Footage and Employee Summary by Land Use (1971).

[3]Wilbur Smith and Associates Task 4.01 CRA, 1978.

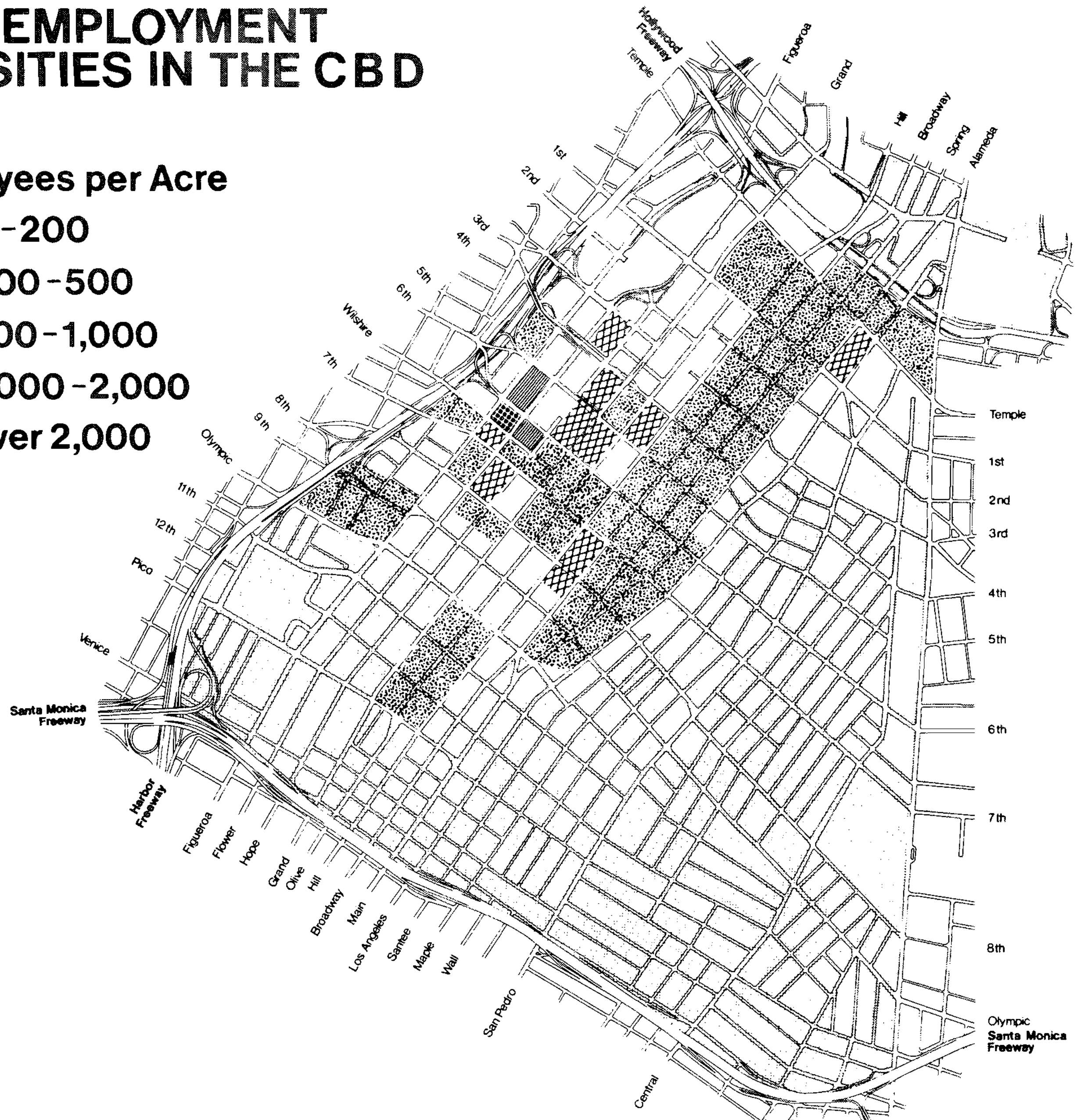
[4]Data for the area south of Pico Boulevard is included in the economic sector distribution for 1966 and 1971.

FIGURE III-33A

1975 EMPLOYMENT DENSITIES IN THE CBD

Employees per Acre

- 0-200
- 200-500
- 500-1,000
- 1,000-2,000
- over 2,000



Source: Wilbur Smith & Associates, 1978.

Table III-33B shows current and projected employment for the CBD in 1990. The trend of increasing office employment on the west side is expected to continue, manufacturing and wholesaling are expected to remain stable, and government employment should increase slightly.

TABLE III-33B

1975-1990 EMPLOYMENT

Study Area	1975	1990	% Change 1975-1990
Private Office	84,410	106,895	26.6
Retail	10,770	11,707	8.7
Institutional/Service/ Hotel	8,375	11,520	37.6
Government	42,340	46,670	10.2
Industrial/Wholesale	43,140	46,060	6.8
South of Pico	14,700	14,060	(4.4)
TOTALS	203,735	236,912	16.3

Source: Wilbur Smith & Associates, 1978 (Task 4.01).

Figure III-33B shows 1990 employment densities based on the anticipated land use changes discussed in Section III-213.

The Caliornia State Department of Employment Development reported that the Los Angeles--Long Beach area had a seasonally adjusted unemployment rate of 7.5% for May 1978.

It was estimated by the Community Redevelopment Agency that the 1977 CBD annual payroll approached $3 billion, with the West CBD leading all other parts of downtown by almost a two to one margin for both family and single person income. Table III-33C illustrates the average family and single person income earned in the various areas of downtown for 1977 as well as the total amount of dollars earned by persons working in those areas.

III-332 Retail Sales

Although primary patronage for CBD retail activity is provided by downtown employees, business visitors, and tourists, it has been observed that considerable support also comes from surrounding residents, many of whom come from ethnic communities to the east. Table III-33C shows that estimated downtown retail expenditures for 1977 total almost $540 million, a 51% increase over the 1972 sales volume. Of the seven expenditure categories shown, three have increased more than 40% and one has attained an increase of 120%. This large gain in business is basically in restaurants.

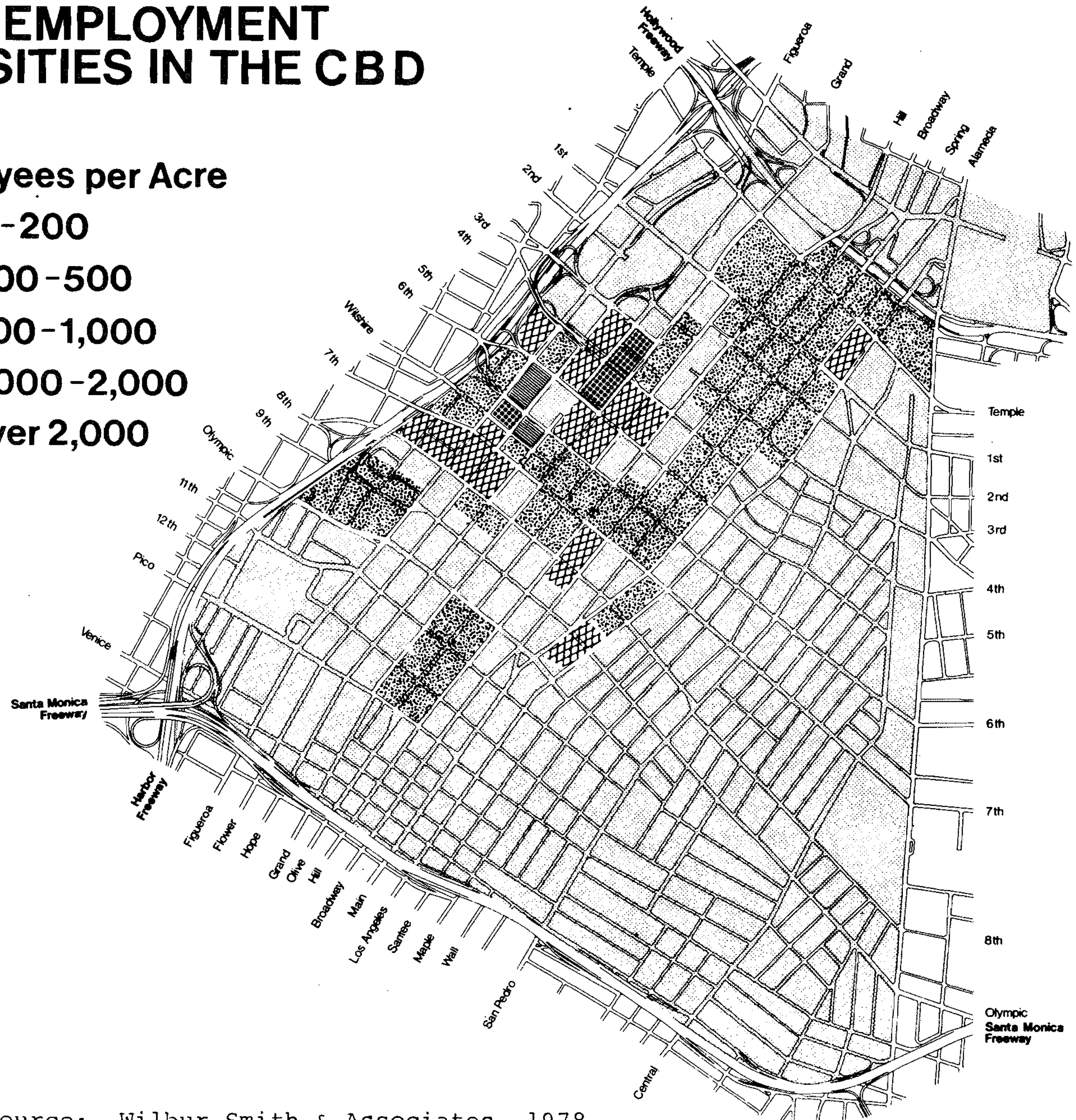
A CBD employee survey conducted in 1975 showed employees are expected to spend about $825 per capita in the CBD, of which (55%) is for food and drink. Hotel guest spending is estimated at $22 per day in the downtown area, mostly for food. Resident spending based on California state average per capita levels, adjusted for differences in income yielded spending of almost $2,600 for residents of Bunker Hill Towers and other upper-middle income housing residents; and about $1,344 for residents of the proposed retirement housing units.

FIGURE III-33B

1990 EMPLOYMENT DENSITIES IN THE CBD

Employees per Acre

- 0-200
- 200-500
- 500-1,000
- 1,000-2,000
- over 2,000



Source: Wilbur Smith & Associates, 1978.

TABLE III-33C

ESTIMATED ANNUAL PAYROLL LOS ANGELES CBD, 1977

CBD Sub-Area	No. Family Payrolls	Average Payroll	Total Payroll in 000's
Government Center	30,151	$14,168	$ 427,179
West CBD	54,610	$15,634	$ 853,773
East CBD	28,487	$15,125	$ 430,894
South Park	17,060	$14,425	$ 246,091
East Side Industrial	25,755	$14,587	$ 375,688
			$2,333,625
CBD Sub-Area	No. Single Payrolls	Average Payroll	Total Payroll in 000's
Government Center	11,649	$9,149	$106,577
West CBD	19,690	$9,917	$195,266
East CBD	10,263	$9,523	$ 97,735
South Park	6,140	$9,212	$ 56,562
East Side Industrial	9,245	$9,369	$ 86,617
			$542,757
Total CBD 1977 Payroll in 000's			$2,876,382

Notes: Average incomes calculated from Table 13 and methodology outlined in Appendix A-2 as found in the PES report of 1977. Government Center salaries calculated on basis of non-governmental salaries.

TABLE III-33D

DOWNTOWN RETAIL EXPENDITURES
1972-1977 (THOUSANDS)

Type of Retail Outlet	Total 1972 1/	1972-77 Estimated Percentage Growth	Total	Employees	Visitors	Local Residents 2/	Other Residents 3/
General Merchandise	$127,605	35%	$172,267	$ 20,376	$ -	$ 563	$151,328
Apparel	75,543	35	101,983	9,938	1,104	238	90,703
Specialty	43,938	65	72,498	10,563	4,416	404	57,115
Furniture/Appliance	28,864	40	40,410	4,053	-	181	36,176
Drug	10,919	45	14,777	3,522	1,104	100	10,051
Grocery/Packaged Liquor	25,396	45	36,824	3,736	1,104	985	30,999
Eating/Drinking	46,456	120	102,203	72,154	16,560	489	13,000
TOTAL Primary Outlets	$375,993	51%	$540,962	$124,342	$24,288	$2,960	$389,372
Percentage Distribution			100%	22.9%	4.5%	0.6%	72.0%

1/ Data from 1972 U.S. Census of Retail Trade

2/ Bunker Hill Towers residents

3/ Living outside the downtown area

Source: U.S. Bureau of Census
Taylor Dark and Company

III-333 Tax Base

The tax base of the CBD includes property taxes, sales taxes, and hotel taxes. Other taxes are collected directly and indirectly because of activities in the downtown (for example, income taxes on employees and business incomes, excise taxes, unsecured property and inventory taxes), but this discussion will focus on property, sales and hotel taxes, because they are important sources of revenue to the city and the county.

III-333.1 Property Taxes

Property taxes are based on the market value of the land and improvements on a given parcel. The assessor is required by law to assess property at 25% of the market value. Changes in market value have a direct effect on the changes in assessed value. This effect will be emphasized with the passage of Proposition 13 because changes in market value through transfer or development of property will be reflected immediately on the assessor's roll. In the absence of the development or land transfers, the market value of a parcel can only be increased 2% a year.

Excluding the Bunker Hill and Little Tokyo Redevelopment, assessed valuation of secured CBD land an improvements (assessed at 25% of market value) for the 1977/78 fiscal year is 376 million. With the addition of unsecured improvements and personal property valued at $115 million the total 1977/78 assessed value for the CBD is some $490 million (including public utility properties of some $40 million).

The 1977/78 tax rate applicable to the CBD was $13.7861 per $1000 of assessed valuation. This is composed of the following:

Table III-33E
Property Tax Rates, 1977

Taxing Agency	Rate	% of the Rate
Los Angeles City	$2.8807	20.90
Los Angeles County	4.2544	30.86
L.A. Unified School Dist.	5.4325	39.41
Other (including community colleges, flood control & Water Dist., etc.	1.2185	8.84
	$13.7861	

Source: Los Angeles County Assessor's Office, Robert J. Harmon Associates.

Application of this rate to the assessed valuation yields property tax revenues for the CBD of some $67.55 million. In addition, the Bunker Hill and Little Tokyo Redevelopment Districts provide $6 million annually in tax revenue which is apportioned in the manner shown above, and $15.2 million (in 1977/78) in tax increment revenues. This latter revenue reverts to the Community Redevelopment Angency of the City of Los Angeles and is used to finance its redevelopment and revitalization activities.

For 1977/78, the City's share of net general revenue from CBD property taxes (including the $6 million from redevelopment projects) thus amounted to $15.4 million.

The 1978-79 property tax levy translates to 1.0612 of this market value; i.e. the basic levy of one percent of market value plus the two percent annual rate of increase in that levy as stipulated in Proposition 13, compunded over the three year period. The 1978-79 property tax levy for the CBD thus becomes $20.4 million. This is equivalent to only 30% of the previous year's property tax revenues. Applying this factor to the city share of such revenues and allowing for a 7% increase in sales and hotel tax revenues (primarily as a result of inflation), the anticipated 1978/79 City tax revenues derived from the CBD would total $13,34 million (56% of the previous year's total). In addition, the Community Redevelopment Agency of the City of Los Angeles anticipates the loss of $10-11 million in tax increment revenue between 1977/78 and 1978/79 as a result of the changes in property tax levies.

III-333.2 Sales and Hotel Taxes

The City's tax revenues from the CBD also include: a share of sales tax revenues equal to one percent of taxable sales; the proceeds of the six percent tax on hotel room charges; and miscellaneous business taxes and fees. Based on estimated 1977 taxable retail sales in the CBD totalling $500 million, the City's share of the CBD retail sales tax in 1977 was $5 million. The County's portion of CBD retail sales tax was $1.25 million and the state's $23.75 million (Robert J. Harmon & Associates estimate, 1978).

The total of 1977/78 general tax revenues directly accruing to the city from the CBD thus is estimated to be $23.9 million. This consists of the following:

Table III-33F
Distribution of Tax Revenues from the CBD
1977

City Revenues from CBD property taxes:	$15.4 million
City share of CBD retail sales taxes:	5.0 million
City Revenues from CBD hotel room sales tax:	3.3 million
City Revenues from CBD-generated misc. business taxes and fees	.3 million
Total 1977/78	$23.9 million

Source: Robert J. Harmon & Associates, 1978

III-333.3 Summary

Starting with the current fiscal year (1978/9), property tax revenues will drop sharply throughout the State as a result of Proposition 13 and the resultant change in tax levy computation. The 1975 base year assessed property valuation for the CBD (excluding Public Utility Facilities) was $440.457 million. If $40 million is added for utility property this figure translates into a market value of 1.922 billion (L.A. County Assessor, letter June, 1976).

III-400 TRANSPORTATION

This section describes regional and study area transportation facilities and the basic travel demand characteristics affecting downtown including level of service.

III-410 TRANSPORTATION FACILITIES IN THE REGION

Southern California has one of the most extensive highway networks in the nation, with over 1,400 miles of freeway and nearly 2,300 miles of state highway. The freeway mileage in Los Angeles County amounts to nearly 34% of the regional total. Within the six-county SCAG region, there are over 39,000 miles of county roads and city streets. Los Angeles County accounts for 47% of this total. Figure III-41A illustrates the extent of the freeway system in Los Angeles County. This freeway system surrounds the downtown area providing good regional access to the central city.

Transit service in the region is also quite extensive. There are more than thirty transit operators in the SCAG region providing 132 million revenue bus-miles per year. Los Angeles County's share of this total is 110 million revenue bus-miles. Most of this service in Los Angeles County is provided by the Southern California Rapid Transit District.

Southern California also offers a variety of supplemental "paratransit" services, including taxis, Dial- a-Ride, Vanpools, and subscription buses. In most cases, paratransit services are privately operated.

III-420 REGIONAL TRAVEL DEMANDS

On an average weekday, over one million riders use the region's transit systems, with the Southern California Rapid Transit District accounting for approximately 850,000 of this total. Transit trips are still a small percentage of person trips (approximately 3.36%). The goal of the Southern California Association of Governments, however, is to increase the transit share to 6% by 1990 (SCAG, 1978a, pp.4-6).

On a regional basis, there are currently more than 370 million transit passengers per year. The transit systems in Los Angeles County alone account for slightly more than 90% of the regional total. Paratransit services in the region attract approximately 4,000 passengers per day and about 1.1 million per year.

III-430 TRANSPORTATION IN THE STUDY AREA

III-431 Volume of Travel to Downtown

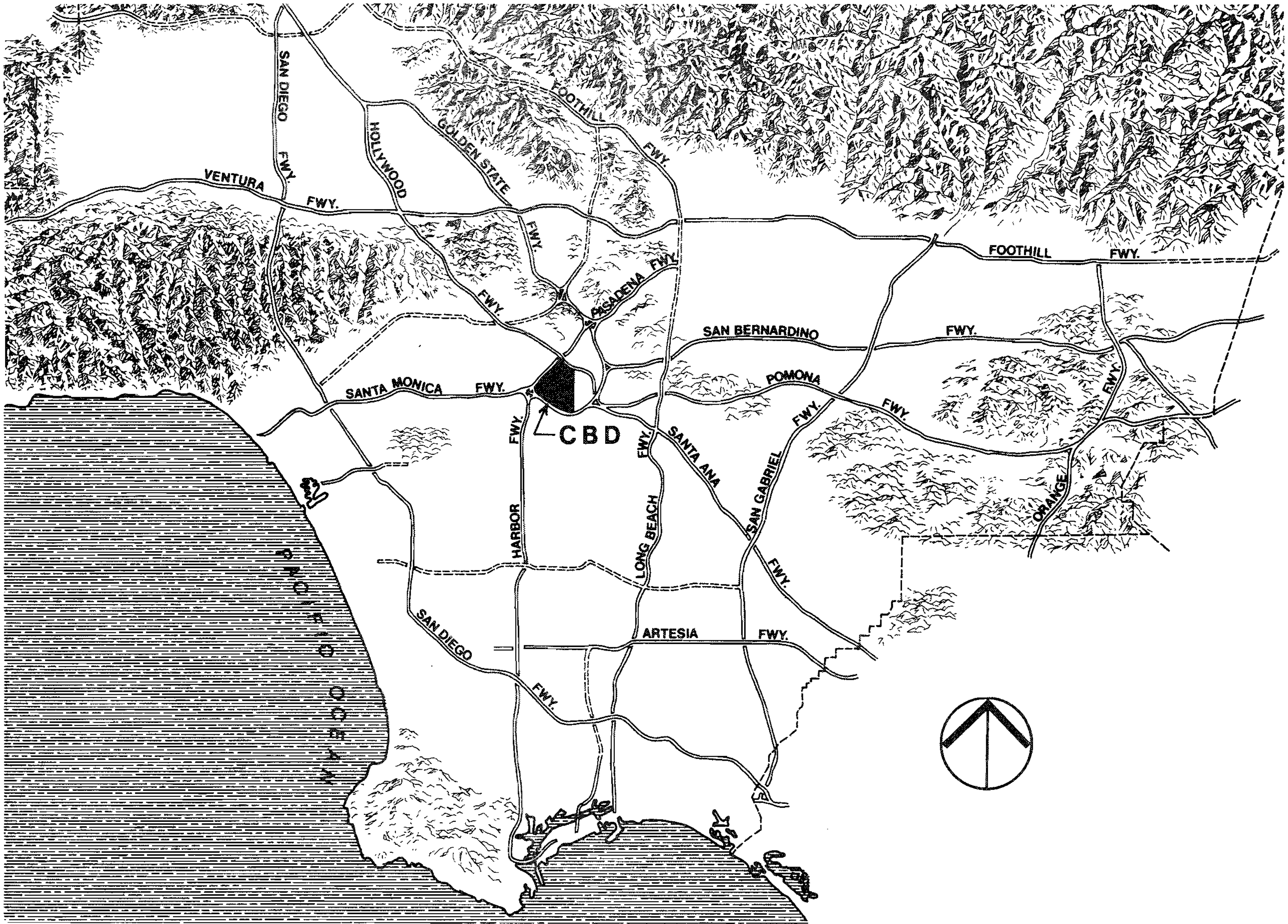
Of particular concern to the study area is the number of regional travelers who enter or leave the central business district. A total of 630,000 persons enter the cordon area during the 16-hour period from 6:00 a.m. to 10:00 p.m. on an average weekday (1976 Department of Traffic Cordon Counts).

This results in over 1.2 million daily cordon crossings. (Department of Traffic's cordon area is bordered by Figueroa, Pico, Los Angeles, and Temple Streets). Of the total persons entering the downtown area, 64% arrive in automobiles, 26% in buses, 4% in commercial vehicles, and 6% on foot (see Figure III-43A). It has been estimated that 20% of the transit crossings and 58% of the automobile cordon crossings are through trips, i.e., trips which neither end nor begin within the downtown area (CRA, Internal CBD Travel Demand Modeling, February, 1976. Excluding through trips, transit person crossings represent approximately 52% of the total during the p.m. peak hour.

The number of bus passengers entering and leaving the downtown is shown in Table III-43A. Approximately 256,000 passengers use local buses and about 33,000 ride interurban express buses.

FIGURE III-41A

FREEWAY SYSTEM PROVIDING REGIONAL ACCESS TO THE CBD



Between 1976 and 1977 there was a 4.6% reduction in transit ridership to and from the central business district.

Travelers approach the CBD from nine major corridors, as shown in Table III-43B. Some shifts in the travel patterns are expected between now and 1990. It is estimated that the number of trips to the central city along the Wilshire, Harbor, Santa Ana, and San Bernardino Freeway corridors will increase, and those along the other corridors will decrease.

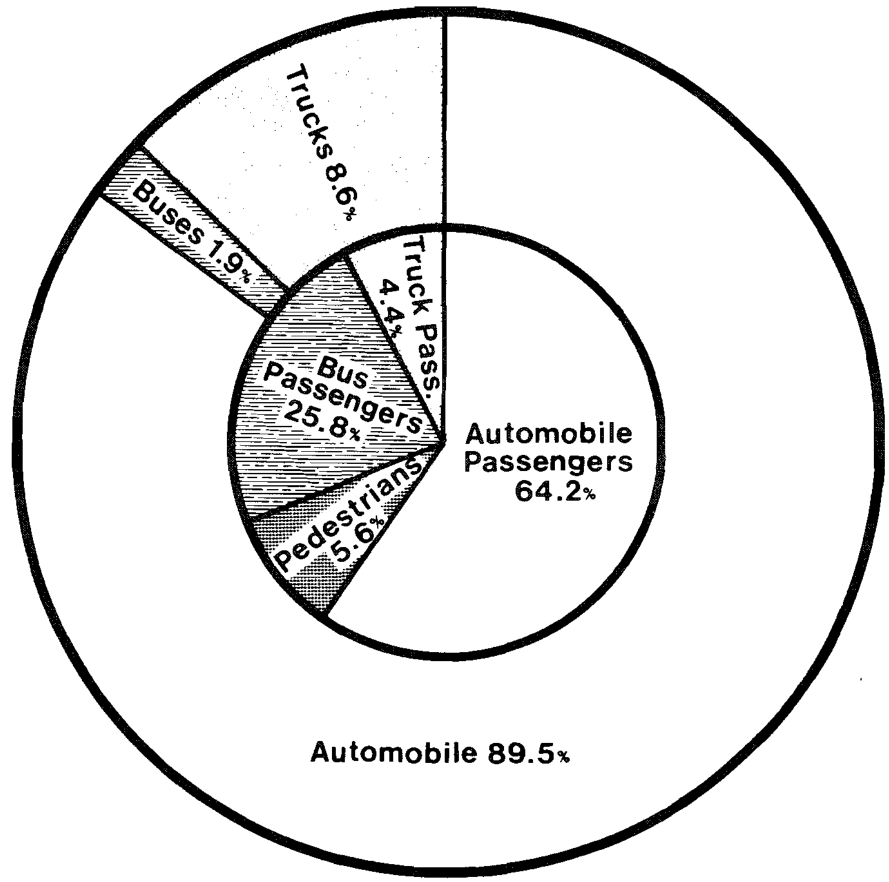
III-432 Bus Service

The Southern California Rapid Transit District provides most of the bus transit service in the downtown area. With 91 different routes serving downtown Los Angeles, RTD provides a total of 628 outbound buses to all corridors during the p.m. peak hour (4:30-5:30). As shown in Table III-43C, 207 of these are express buses operating on the regional freeway system. Three municipal bus operators (Torrance, Gardena, and Santa Monica) also serve the downtown area with a total of 12 express buses outbound in the p.m. peak hour.

Figures III-43B shows estimated bus volumes on the downtown streets during the afternoon peak hour (based on 1975 counts). The highest volumes are on Hill Street, northbound between 8th and 5th Street. This segment of Hill has 147 buses per hour. Other high volume locations within downtown include Broadway southbound between First and 8th Streets--90 buses per hour; Spring Street northbound, north of First Street--117 buses per hour; and Temple Street, westbound between Hill and Grand--110 buses per hour.

FIGURE III-43A

CLASSIFICATION OF VEHICLES AND MODE OF TRANSPORTATION ENTERING CORDON AREA



MAY 1976

Source: Los Angeles City Department of Traffic. Cordon Counts, 1976.

TABLE III-43A
NUMBER OF BUS PASSENGERS PER DAY
ENTERING AND LEAVING DOWNTOWN
1976 AND 1977

	1977	1976	Percent Change
Park-n-Ride Passengers	6,089	7,182	- 15.2%
Subscription Passengers	784	1,000	- 21.6%
Interurban Passengers	33,079	33,100	- 0.2%
Airport Service Passengers	918	--	+100.0%
Local Passengers	256,151	270,172	- 5.2%
TOTALS	297,021	311,454	- 4.6%

Source: SCRTD, 1977 Summary Report of Los Angeles Central Business District Cordon Check.

TABLE III 43-B
EXTERNAL DIRECTIONS OF APPROACH TO CBD

Corridor	1967 O-D Survey	1990 LARTS Forecasts
Hollywood Freeway	16.0	13.0
Wilshire/Olympic	12.5	17.3
Santa Monica Freeway	13.5	10.5
Harbor Freeway	12.5	14.5
San Pedro/ Alameda	5.5	2.8
San Ana Freeway	12.5	14.1
San Bernardino Freeway	8.0	13.1
Pasadena Freeway	8.0	7.1
Golden State Freeway	11.5	7.6
TOTALS	100.0%	100.0%

TABLE III-43C
TRANSIT SERVICE FROM CBD
TO REGIONAL CORRIDORS
Buses Per Hour, Outbound,
P.M. Peak Hour

Corridor	RTD Service (Dec. 1977) Local	Express
1. Hollywood Freeway	57	40
2. Wilshire/Olympic	83	--
3. Santa Monica Freeway	51	19[a]
4. Harbor Freeway	42	25[b]
5. San Pedro/Alameda	43	--
6. Santa Ana Freeway	22	39
7. San Bernardino Freeway	58	52
8. Pasadena Freeway	36	15
9. Golden State Freeway	29	17
TOTAL	421	207

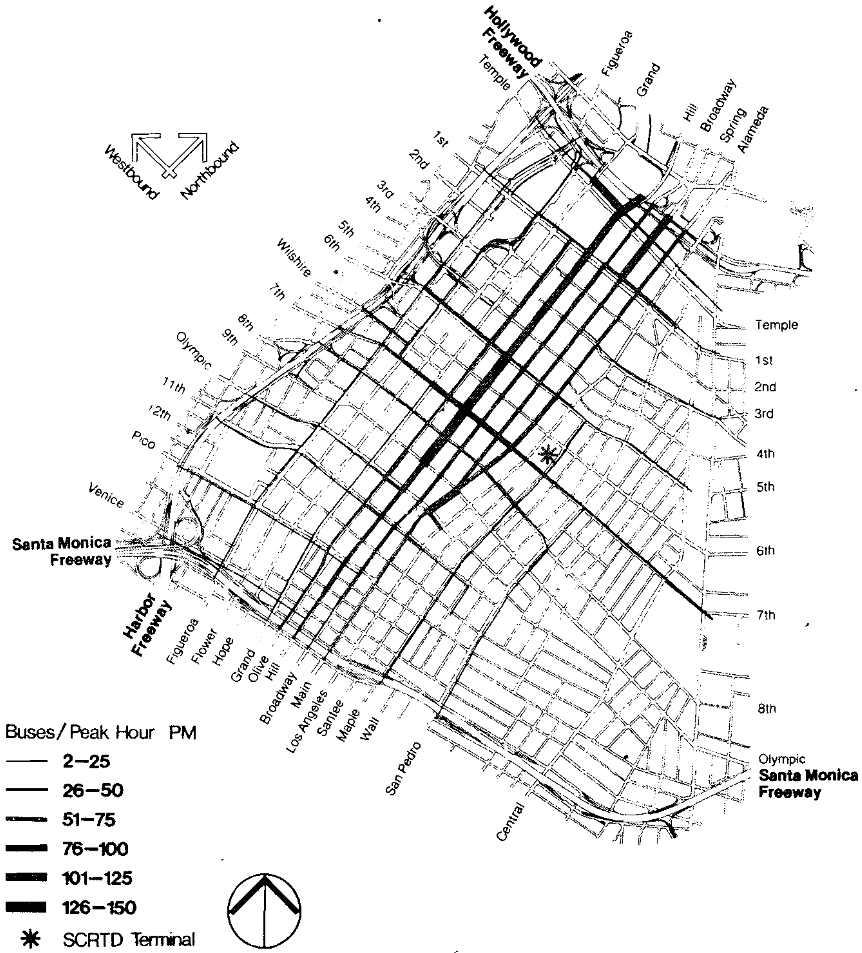
[a] Does not include 6 buses per hour provided by Santa Monica Municipal Bus Lines

[b] Does not include 4 buses per hous provided by the City of Gardena and 2 by the City of Torrance.

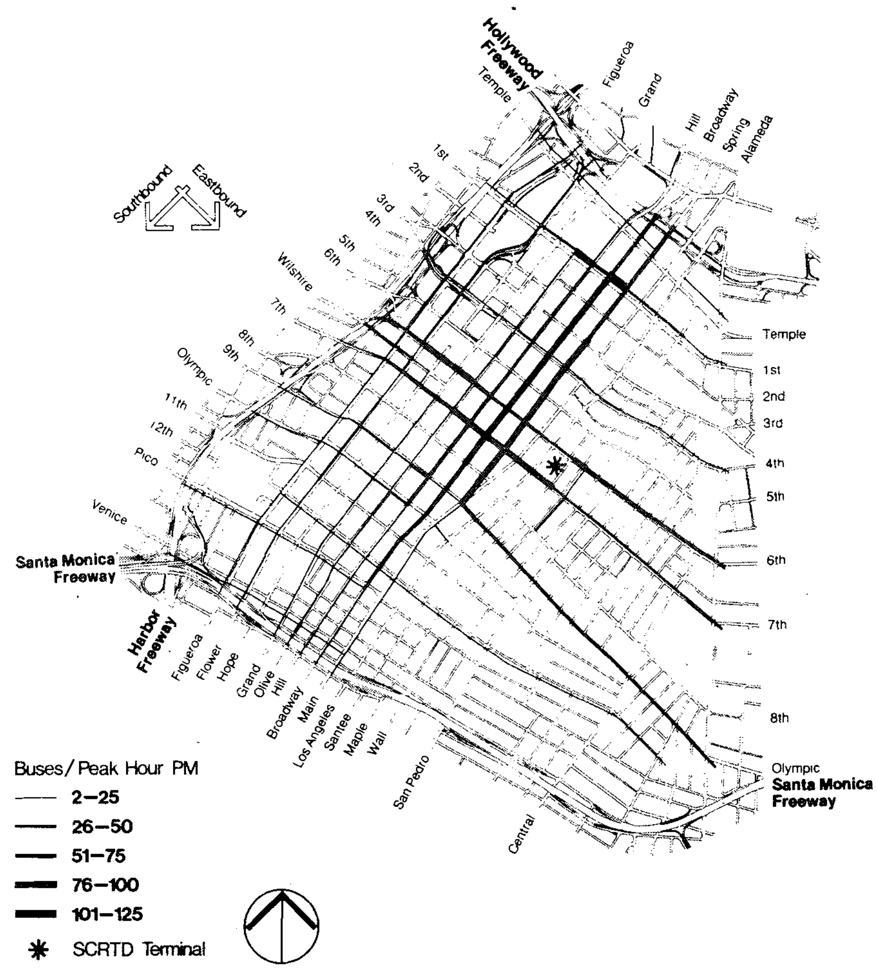
Source: Community Redevelopment Agency and Southern California Rapid Transit District, June, 1978.

FIGURE III-43B

BUS VOLUMES, 1975
Local Bus/Freeway Bus



BUS VOLUMES, 1975
Local Bus/Freeway Bus



Source: Community Redevelopment Agency, 1976. <u>Moving People in Los Angeles</u>.

III-433 Minibus Service

Downtown minibus service was established in October 1971. The minibus route is shown in Figure III-43C. This service was made possible with subsidies provided by the City of Los Angeles, the County of Los Angeles, and the Los Angeles Community Redevelopment Agency. During the past few years, there have been numerous fare changes; the current fare is 15 cents. The service operates from 7:00 a.m. to 7:00 p.m., Monday through Friday, and from 9:00 a.m. to 4:00 p.m. on Saturday. Weekday headways are 8 minutes in the p.m. peak hour and 5 minutes during the midday. As shown in Table III-43D, the minibus attracts approximately 6,000 riders per day, with a peak of about 1,100 riders during the noon hour. Patronage in May 1978 reached 6,142 persons, a doubling of ridership since January 1977.

III-434 Other Transit Into and Within Downtown

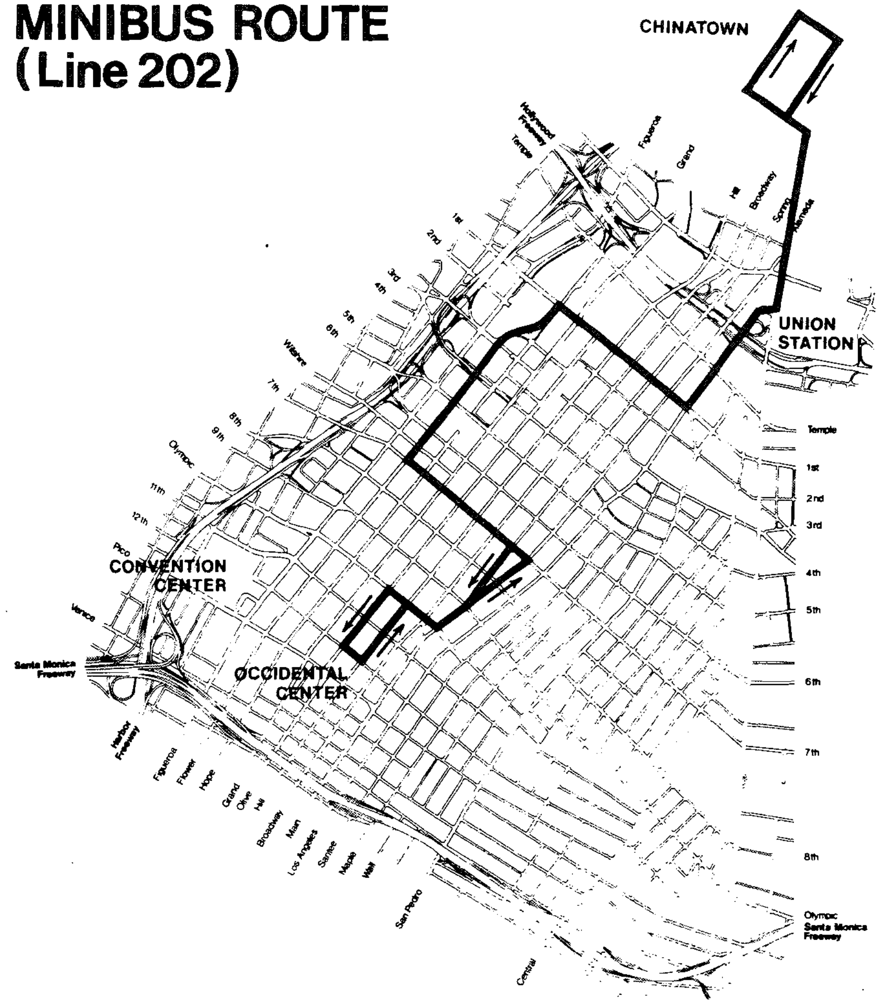
Other forms of transit operate both to and within downtown. In addition to the bus and minibus operations, downtown transportation service is also provided by taxis.

Greyhound and Continental Trailways provide intercity bus service to downtown Los Angeles. Greyhound operates from a terminal located on Los Angeles Street between 6th and 7th Streets. The Continental terminal is located at Main and 6th Streets.

Intercity rail service is provided by Amtrak, which operates 6 round-trip trains per day between San Diego and Union Station. Approximately 700,000 trips per year, or about 2,700 trips per weekday, are made on the San Diego line alone.

FIGURE III-43C

MINIBUS ROUTE (Line 202)



Source: Southern California Rapid Transit District, 1978.

Amtrak also offers daily service to San Francisco, Seattle, and Chicago. Service to New Orleans operates three times a week. About 450,000 trips are made each year on the Seattle-Los Angeles line. The San Francisco-Los Angeles line carries about 90,000 passengers annually.

The locations of terminals for these services are shown in Figure III-43D.

TABLE III-43D
TRENDS IN MINIBUS
RIDERSHIP (LINE 202)

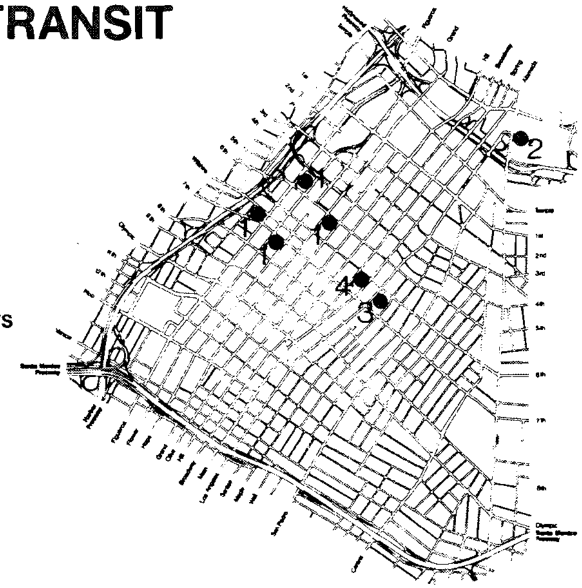
	Average Daily Ridership During:	Weekday	Saturday
1977	January-June	3,024	584
	July-December	4,806	1,052
1978	January	4,782	1,044
	February	4,821	827
	March	5,418	1,012
	April	5,764	819
	May	6,142	1,321

Source: SCRTD Planning Department, 1978 Downtown Minibus Passenger Summary.

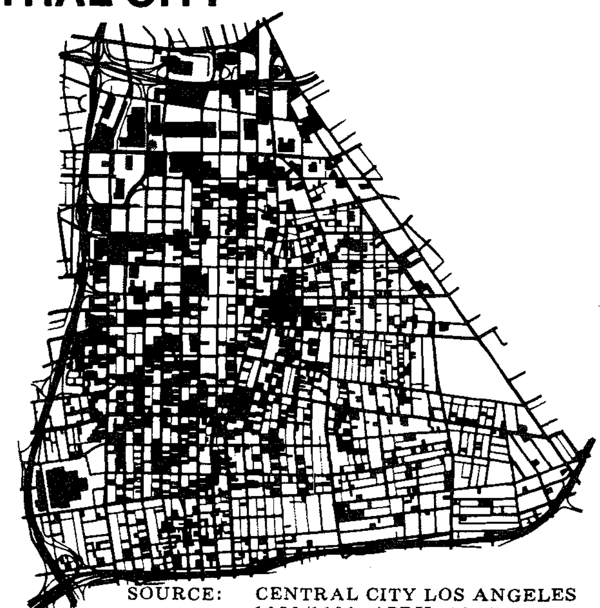
FIGURE III-43D

INTERCITY TRANSIT TERMINALS

1. Airport Bus
2. Amtrack
3. RTD/Greyhound Bus Terminal
4. Continental Trailways Bus Terminal



AUTO RELATED LAND IN THE CENTRAL CITY

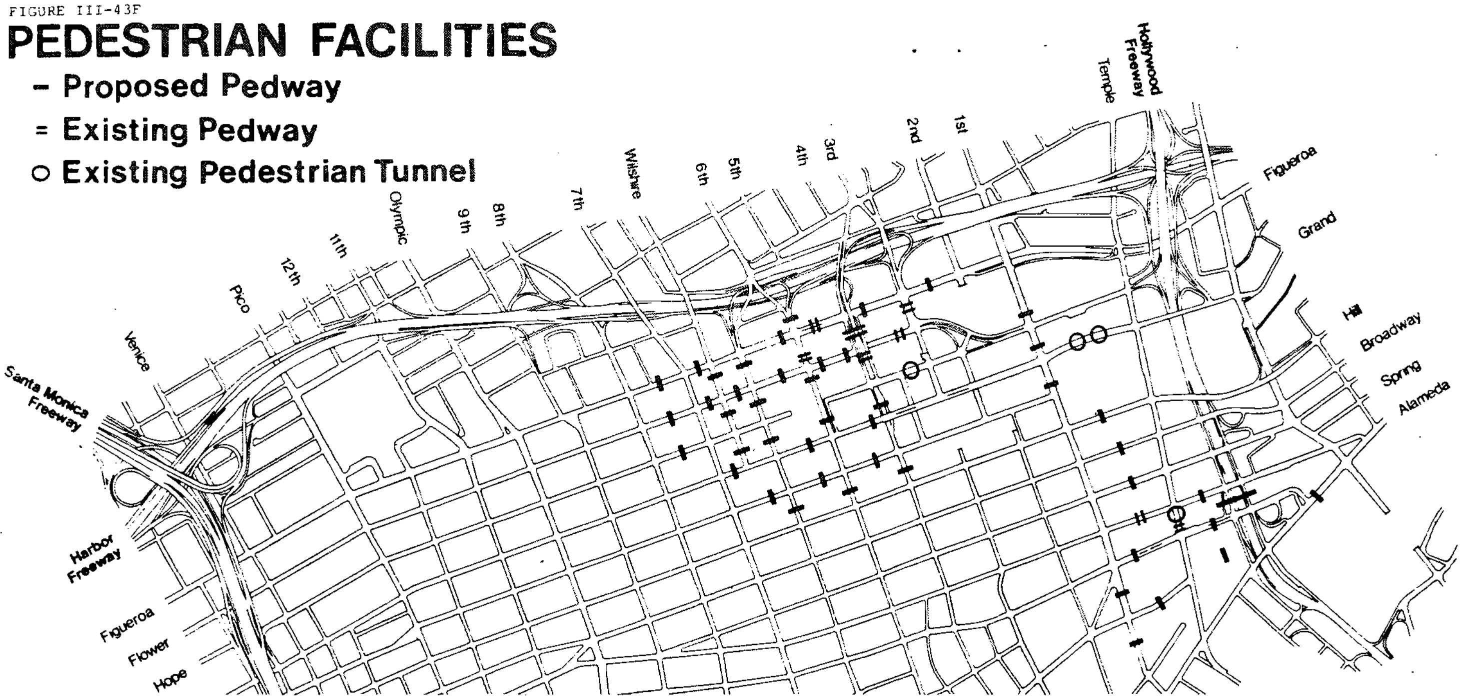


SOURCE: CENTRAL CITY LOS ANGELES 1972/1990, APRIL, 1972.

FIGURE III-43F

PEDESTRIAN FACILITIES

- Proposed Pedway
= Existing Pedway
o Existing Pedestrian Tunnel



Source: Los Angeles City Department of Engineering, 1978.

III-435 <u>The Automobile in the CBD</u>

The automobile has a major impact on the downtown area, as shown in part by the amount of land devoted to the automobile (see Figure III-43E). The shaded portions of the chart include parking lots and structures, city streets, freeways, and service stations. During an average workday, 570,000 automobiles cross the CBD cordon, representing 90% of the total vehicular traffic. The peak accumulation of automobiles reaches nearly 60,000 cars during the day, approximately 6,000 more than in 1972 (Department of Traffic, City of Los Angeles, 1976).

Traffic congestion partly due to the physical characteristics of the downtown street network occurs in the peak hours. Downtown surface streets form a basic grid pattern. However, this grid is obstructed on the west side by several dead ends and steep hills on major streets, making through bus service difficult. The elevation of Bunker Hill requires two major east-west through streets to be located in tunnels, while north-south access on the hill is severely restricted.

Many downtown streets already experience congestion during peak hour operations. The Department of Traffic has forecasted an increase of 15 to 20% in vehicular volumes from 1975 to 1990 within the Los Angeles CBD (Department of Traffic, City of Los Angeles, 1977). Obviously, any increase in an already congested street system will result in more congestion if other improvements are not made.

III-436 Pedestrian Systems

The Los Angeles downtown has an extensive network of sidewalks and grade-separated pedways. There are currently eight aerial pedways, and four pedestrian tunnels. Forty-six additional locations for pedways have been proposed (see Figure III-4F). As measured in 1973, the heaviest downtown pedestrian traffic occurs along Broadway between 6th and 7th Streets (2,610 pedestrians during the noon hour). Traffic on the west side is relatively low. For example, the number of walkers on Figueroa Street reaches a maximum of 430 per hour at lunch time (Department of Traffic, City of Los Angeles, 1973).

- Fixed Guideway Rapid Transit is proposed for the Wilshire corridor connecting downtown with the San Fernando Valley.

III-442 Local Policies

The City of Los Angeles General Plan includes major policies and objectives for transportation improvements in the City. The City of Los Angeles General Plan, the Central City Community Plan and redevelopment plans for the downtown area are discussed in detail in section III-212. The following section discusses only the transportation goals and policies of those plans.

The "Circulation Element" of the Citywide Plan (a portion of the General Plan, adopted April 3, 1974) emphasizes the interrelationship of land use and transportation. The first major objective in the Circulation Element is "to provide an integrated transportation system coordinated with land use which adequately accomodates the total travel needs of the community." The Citywide Plan calls for a primary rapid transit system which supports the centers concept of land use as discussed in section III-111.

> The rapid transit system shall be in the form of a network connecting Centers with other Centers. It is to operate on its own grade separated right of way, either above or below ground depending upon local conditions. "Park-and-ride" stations are to be located outside Centers and include facilities for the parking of automobiles and bicycles and facilities for transfer between local and rapid transit.

(Department of City Planning, 1974. Citywide Plan, p. 17).

The Citywide Plan's support of auxiliary transit and peripheral parking facilities is of particular relevance to transportation planning for downtown Los Angeles:

- Auxiliary transit systems, compatible with the primary system should be developed on unobstructed rights-of-way within the principal Centers. Where there is sufficient demand, the auxiliary systems should be built before the primary system, otherwise the two systems should be built simultaneously.
- Additional parking in centers for automobiles and bicycles should be located at the periphery of the most intensively developed areas convenient to freeway access and interconnected with such areas by auxiliary transit or other public transportation facilities.

(Department of City Planning, 1974. Citywide Plan, pp.17,18)

These policies are generally reflected in the Central City Community Plan, the portion of the General Plan which focuses on downtown Los Angeles. The Central City Community Plan is concerned with all facets of transportation in the downtown area, including parking, carpooling, public transit, pedways, and highways. Challenging the problems of air pollution and energy consumption, the plan calls for a reduction in vehicle-miles of travel. The following four policies illustrate the Plan's concern for environmental quality:

- While the proportion of trips to the central city carried by public transportation is expected to increase, demand for parking in the central city will also continue to increase as employment and other activities grow. Street system capacity, air quality, and land utilization considerations indicate that a continually greater proportion of the longer term parking, chiefly for employees, should be located on the periphery of the more intensively developed areas. Parking within the intensively developed areas is intended for use by residents and short time use by business patrons.
- Parking facilities should be encouraged to provide reduced rated and preferential locations to higher

occupancy private automobiles.

- A vastly improved public transportation system, including rapid transit between central city and other centers as well as better bus service between central city and other areas, must be provided to reduce the environmental impact of the present transportation system which is based chiefly on the private automobile.
- People movers (auxiliary grade separated transit systems) shall be constructed to connect major central nodes with each other, with rapid transit stations, and with peripheral parking facilities. People movers must be aesthetically and functionally integrated with development and are generally proposed where this can occur. They also must be phased to accomodate new concentrations of development as they take place.

(Department of City Planning, 1974. Los Angeles Central City Community Plan, p. 6).

Transportation decisions in downtown Los Angeles are also guided by City Council-approved redevelopment plans, including the Central Business District Redevelopment Project (CRA,1975) and the Bunker Hill Design for Development (CRA, 1971) (see section III-212). Both of these plans support the peripheral parking facilities, pedways, and coordinated rapid transit/ people mover systems. For example, the Bunker Hill Plan includes the following statement on transit:

> The existing bus route system will be significantly modified to provide maximum service to the Project. The plans for the Project and the Southern California Rapid Transit District mass transit system proposes a station within the hilltop to directly serve the high high population concentration of Bunker Hill. A secondary transit network or "People Mover" will be developed to connect the Project with the peripheral parking facilities and designed for ultimate integration into a downtown system.

(CRA, 1971. Design for Development, Bunker Hill. p. 3)

Section 424 of the Redevelopment Plan for the Central Business District Redevelopment Project offers additional support to people mover systems, rapid transit, and associated facilities:

> It is proposed that the Project area be developed within central city rapid transit facilities as part of a metropolitan-wide transit system. It is also proposed that the People Mover system planned to serve the Bunker Hill Urban Renewal Project be expanded throughout the Central City area as feasible. It is further proposed that as feasible pedways, including pedestrian bridges, be developed in the Central City.

(CRA, 1975, p. 33).

The Plan also reiterates the importance of reducing vehicle miles of travel:

> The Agency shall seek to accomplish a reduction in vehicle miles traveled by encouraging an immediate and a long-term increase in the proportion of Project area employees, shoppers, and visitors who utilize public transportation. The Agency shall prepare a transportation plan as part of the development plan for the Project area. This plan shall explore more effective utilization of the existing transportation system, using techniques like carpooling, subscription buses and park-and-ride buses, as well as new and/or additional transportation systems.

(CRA, 1975, p.33).

IV CHAPTER

IV-000 ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

The environmental impacts of constructing and operating the Downtown People Mover are outlined in this chapter. The preceding chapter described the setting of the Los Angeles Central Business District in 1975. This chapter will describe the construction impacts which are expected to occur between 1980 and 1983, and the operational impacts of the system, in 1990.

The basic study area for impact analysis is the DPM Corridor, defined as a five-minute walking distance on either side of the proposed route (See Figure IV-00A). In some instances, the impact study area is defined differently. For example, the air quality analysis considered an area somewhat larger than this, and the historic survey concentrated on a smaller area. Negative impacts tend to occur directly on or adjacent to the route and positive impacts occur both along the route and throughout the corridor.

The DPM Corridor includes twelve of the sixteen activity areas in downtown Los Angeles and has been the focus of recent development. In 1975, it accounted for 60 percent of downtown employment north of Pico Boulevard. It also included:

- 70 percent of office employment
- 94 percent of government employment
- 60 percent of the retail square footage
- 55 percent of retail employment
- 75 percent of service and hotel square footage
- 80 percent of Class A hotel rooms
- 3000 of the approximately 9400 dwelling units in downtown

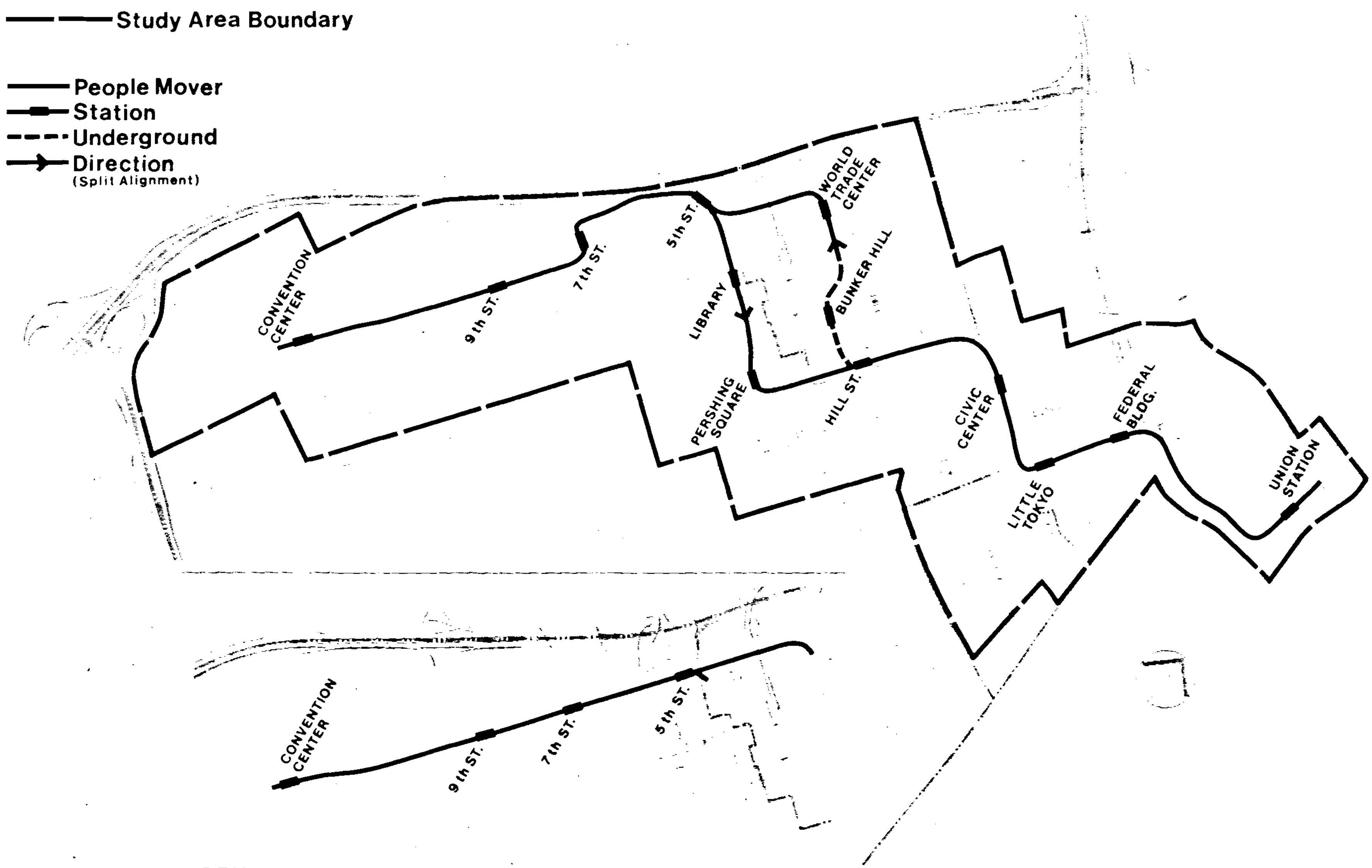
In 1990, without the DPM, the corridor will account for 79 percent of the new CBD employment, projected for the period 1975 to 1990. It will also include:

- approximately 80 percent of office employment and square footage
- 64 percent of retail square footage
- 84 percent of government employment
- 83 percent of service andhotel square footage
- approximately 12,000 of the projected 20,000 residents

The impact sections that follow outline the likely changes that would occur with implementation of the DPM. Impacts are organized by construction and operation. Construction impacts are discussed in Section IV-100 and operational impacts are discussed in Section IV-200. Each of these sections is introduced by a matrix that summarizes major and minor impacts and identifies where they can be found in the text. The matrices were developed by applying the City of Los Angeles Initial Study Checklist (see Appendix 5) to identify potential impacts. Only those subject areas where potential impacts are anticipated are discussed in this document. Information about other impact areas studied, but not discussed in this document, can be found in the task termination reports listed in Appendix 3, Phase II Technical Studies.

FIGURE IV-00A

DPM CORRIDOR STUDY AREA



CENTER OF FIGUEROA ST. VARIATION

Source: CRA, 1978

IV-100 CONSTRUCTION IMPACTS AND MITIGATION

It is estimated that 39 months would be required to complete construction of the DPM system, including utility relocation, street improvements, guideway and supports, stations, intercept facilities, installation of operating components and vehicles, and system testing. For a complete description of the construction schedule, see Section II-400.

Utility relocations would take place early, after project start and well ahead of actual guideway construction. The only two areas of significant utility relocation are along 5th Street and portions of Figueroa if the guideway is located over the sidewalk.

For a typical city block, construction tasks are expected to take approximately 14 to 18 weeks, with construction taking place in three phases: preparing for and installing foundations; installing guideway supports; and installing guideway sections. The first two of these phases would require about five weeks and the third would take about one week. There would be gaps in time between the phases of about two-four weeks each. Thus, the disruptive effects are expected to be of moderate duration and temporary, as construction moves from one location to the next. If the center Figueroa variation is selected, blocks along Figueroa would experience an increase in Phase I work, due to street widening activities. The total time frame for one block would be increased to about 18-24 weeks.

Anticipated construction impacts are summarized on the matrices: Major Impacts of Construction and Minor Impacts of Construction (Tables IV-10A and IV-10B). These primary impacts apply to both the west side of Figueroa alignment and the center of the street variation shown in Figure IV-10A. Each impact on the matrix is keyed to a specific section in the pages that follow. That section is identified on the matrix in the next to the last column. Impacts and discussions are organized in the following categories:

Impacts on the Natural Environment
Impacts on Land Use and Urban Development
Impacts on Socio-Economic Environment
Impacts on Transportation

FIGURE 10A Alignment Used For Preliminary Engineering and Environmental Analysis

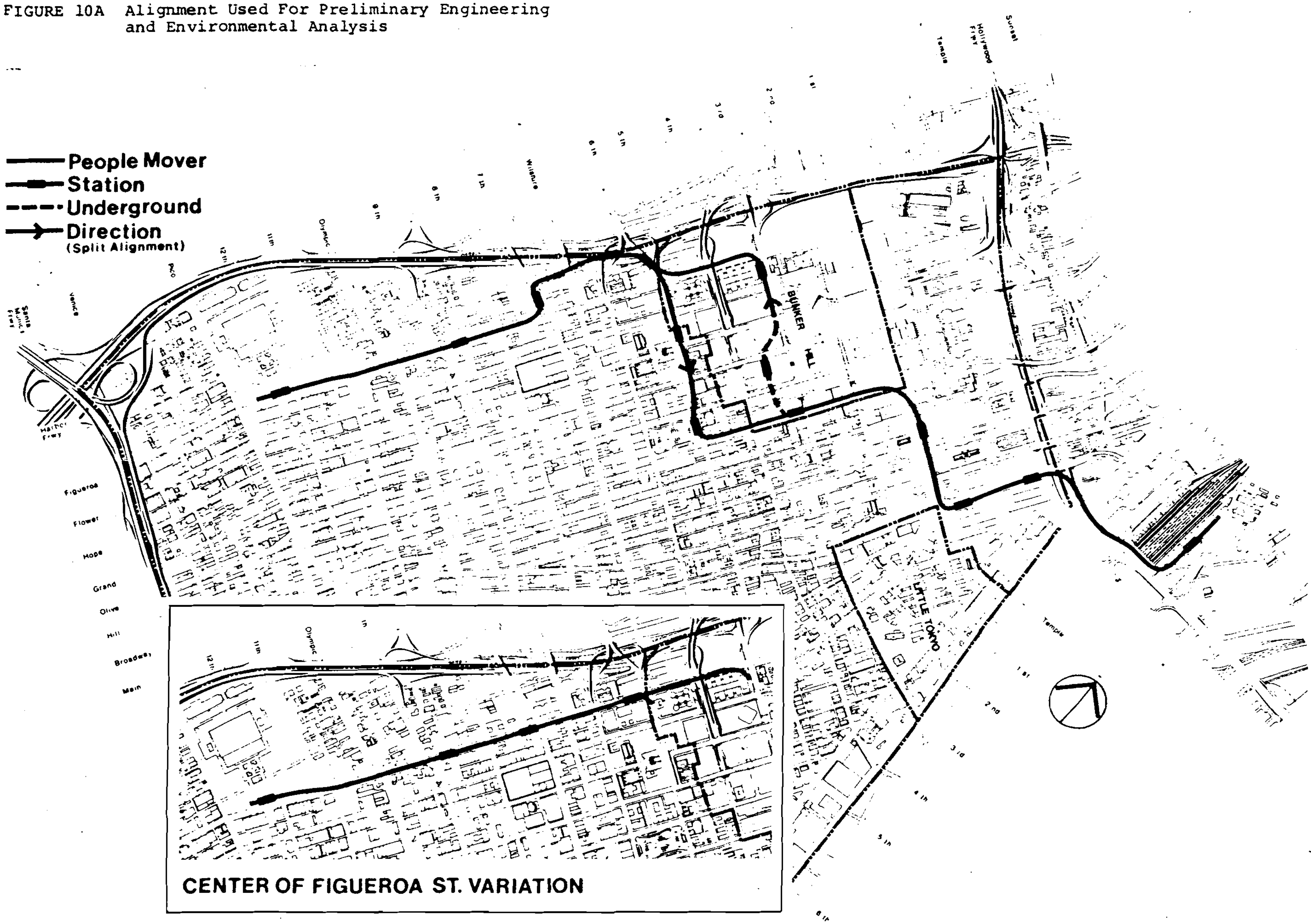


TABLE IV-10A
MATRIX OF MAJOR IMPACTS OF CONSTRUCTION 1/

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Traffic	Streets adjacent to route	Congestion	Adverse	Reduced capacity Lower speeds	Partial	IV-140	4.12
	Streets parallel to route	Diversion					
Noise and Vibration	Project sites & adjacent	Violation of legal standards/health and annoyance criteria	Adverse	Increased noise levels at noise sensitive receptors	Partial	IV-111	4.03
		Increased noise levels		Increased noise levels adjacent to construction sites			
Regional Economics	Southern California region	Increased activity in regional economic sectors	Beneficial	Construction workers' payroll spent in region increases economic activity	None required	IV-131	4.08
Visual & Asthetics	Project site & vicinity	Perceived disorder	Adverse	Construction equipment & barriers perceived as unsightly	Partial	IV-121	4.14
Business Displacement	1200 Block, South Figueroa Street	Number of businesses displaced	Adverse	Three businesses will have to move	Partial	IV-121	4.09

1/ Information in this matrix applies to both the west side of Figueroa Street alignment and the center of Figueroa Street variation (see Figure 10A).

TABLE IV-10A Continued

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
				Two vacant parcels will not be available for alternative uses			
Residential Disruption	Residential buildings adjacent to construction	Number of residents & hotel guests	Adverse	Noise, dust, vibration, visual annoyances Impaired access	Partial	IV-131	4.33
Safety	Project site & vicinity	Potential for accidents	Adverse	Pedestrians and motorists exposure to accidents increased	Partial	IV-131	4.10

Source: CRA, 1978

TABLE IV-10B

MATRIX OF MINOR IMPACTS OF CONSTRUCTION 1/

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Archaelogical/ Historical	Construction sites	Disturbance of possible historic remains	Potentially adverse	Potential for disturbing historic remains if they are present	Full	IV-122	4.31
Labor Force	Southern California Region	Number and types of workers	Beneficial	Increased employment of construction workers	None required	IV-132	4.08
Utility Disruption	Construction sites	Relocation	Adverse	Relocation of utilities for construction will not affect service to customers	Full	IV-122	4.04 3.09
Air Quality	Construction sites	Amounts of pollutants	Very minor adverse	Slight increase in auto emissions from construction equipment and workers vehicles Slight increase in fugitive dust	Partial	IV-112	4.22

1/ Information in this matrix applies to both the west side of Figueora Street alignment and the center of Figueora Street variation (see Figure 10A).

TABLE IV-10B Continued

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Solid Waste	Los Angeles County	Quantities of waste produced & capacity of landfills	Very minor adverse	74,500 cubic yards is a minimal percentage of remaining solid waste landfill capacity in the county	None	IV-122	4.28
Business Disruption	Adjacent to sites	Decrease in sales	Adverse	Temporary traffic congestion & diversions could result in decreased sales	Partial	IV-132	4.09
Community Services Fire/Police	Construction sites & vicinity	Constraints on emergency access Additional potential for accidents	Adverse	Construction equipment & traffic diversions could impede emergency vehicles	Partial	IV-122	4.24
Vegetation	Construction sites	Removal, relocation, or alteration of existing vegetation	Adverse	None of vegetation is rare Some mature trees will be removed permanently Other trees will be relocated or pruned	Partial	IV-112	4.29

TABLE IV-10B Continued

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Wildlife	Construction sites	Dislocation of habitat	Very minor Adverse	Temporary dislocation of habitat No endangered species	None	IV-112	4.29
Pedestrian movements	Sidewalks adjacent to construction sites	Congestion Diversion Number of pedestrians	Adverse	Reduced capacity of sidewalks Slower walk times Barriers to normal patterns of movement	Partial	IV-142	4.12

Source: CRA, 1978

While the general construction impacts of the west side of Figueroa alignment and the center of the street variation are essentially the same, there are site-specific impact variations. These differences, outlined below, are discussed in Section IV-110.

Traffic: Construction of the guideway and stations in the center of Figueroa would have a more disruptive effect on traffic conditions, because of additional street widening activities required, and also because of construction activities in the median affecting traffic flow in both directions.

Visual: Constructing the DPM in the center of Figueroa will have different visual impacts. Views of major places that would be partially obstructed include St. Paul's Cathedral, the Hilton Hotel, and the Jonathan Club. Additionally, construction of the project in the middle of the street will be more visible.

Noise: Differences exist such that, with the center Figueroa variation, certain noise sensitive land uses on the west side of Figueroa experience decreased noise levels, whereas other noise sensitive land uses on the east side experience increased noise levels.

Residential Disruption: In addition to noise differences which affect residential locations, the center Figueroa variation would result in additional access problems during street widening activities.

Safety: Construction of the center Figueroa alignment variation would produce some additional traffic safety hazards, because of street widening activities and construction activities in the median, affecting the flow of traffic in both directions.

Utility Disruption: Construction of the center Figueroa variation will have a lesser impact on utilities on Figueroa between Olympic Boulevard and 6th Street.

Business Disruption: Disruption to business activity during the construction of the center Figueroa variation may be somewhat greater because of construction activities affecting access to both sides of the street.

Community Services: Exterior accessibility by firefighting units to second and third stories of buildings on the west side of Figueroa would be improved.

Pedestrian Movements: Pedestrian activities will be limited from 6th Street to Olympic if the street is widened during construction.

IV-110 IMPACTS OF CONSTRUCTION ON THE NATURAL ENVIRONMENT

IV-111 MAJOR IMPACTS OF CONSTRUCTION ON THE NATURAL ENVIRONMENT: NOISE AND VIBRATION

Methodology. Noise impacts resulting from DPM construction were evaluated using the following methodology:

- The Task 3.29 Construction Process Memorandum, KE/DMJM, Feb. 13, 1978, identified several activity categories expected to produce significant adverse construction noise.

- Each category was analyzed with respect to the numbers and types of equipment involved and the length of time required to complete the activity for an average block-long segment of the DPM system. Typically, the construction sequence will involve a block-by-block approach.

- Equipment noise sources were viewed as essentially stationary points, since the equipment will be used in the immediate vicinity of a given activity, such as utility relocation, column foundation preparation, and street/sidewalk monification.

- Noise level ranges for the various equipment types as listed in Table IV-11A were used to estimate composite L_{10} and L_{eq} noise levels anticipated during construction. The composite noise levels were calculated by super-imposing noise source contributions, a method discussed in detail in Chapter 1 of the FHWA report "Fundamentals and Abatement of Highway Traffic Noise," June 1973.

Construction Noise Analysis. The seven construction activity categories which may produce significant adverse noise impacts are listed in Table IV-11B, together with equipment used, the L_{10} and L_{eq} noise levels measured 50 feed from the source, and the estimated time needed to complete an activity along a

TABLE IV-11A

CONSTRUCTION EQUIPMENT NOISE RANGES

EQUIPMENT	NOISE LEVEL RANGE (dBA AT 50 FEET)	% OF ON-SITE TIME OPERATING AT PEAK LOAD
Earth moving:		
Compactors	72-74	50%
Front Loaders	72-84	80%
Backhoes	72-93	80%
Tractors	77-96	80%
Graders	80-93	30%
Pavers	87-89	50%
Trucks	82-93	20%
Materials handling:		
Concrete Mixers	75-88	70%
Light Cranes	75-88	25%
Derrick Cranes	87-89	25%
Stationary:		
Generators	71-81	35%
Compressors	75-87	35%
Impact:		
Pneumatic Wrenches	83-88	50%
Jackhammers/Rock Drills	81-98	20%

Sources: U. S. Environmental Protection Agency, 1971
Kaiser Engineers/DMJM, 1978

TABLE IV-11B

CONSTRUCTION ACTIVITY NOISE LEVELS AND DURATION
(Noise Level, dBA @ 50 Feet)

Activity	Equipment	L_{10}	L_{eq}	Cumulative days of Activity Per Typical Block
1. Locating/Relocating Utilities	Jackhammer/ Pavement breaker	98	84	13
	Backhoe	93	89	
	Truck	93	84	
	Composite	100	91	
2. Preparing Column Foundations	Jackhammer	98	84	5
	Backhoe	93	89	
	Truck	93	84	
	Compressor	87	79	
	Composite	100	91	
3. Modificating/Restoring Streets and Sidewalks	Jackhammer	98	84	13
	Front Loader	84	82	
	Truck	93	84	
	Light Crane	88	78	
	Paver	89	88	
	Composite	100	91	
4. Demolishing Structures	Front Loader	84	82	10/SITE
	Truck	93	84	
	Composite	94	86	
5. Clearing and Grading	Tractor	96	92	10/SITE
	Grader	93	84	
	Front Loader	84	82	
	Backhoe	93	89	
	Truck	93	84	
	Composite	100	95	
6. Mobilizing Equipment at Excavations	Crane	88	78	10/SITE
	Truck	93	84	
	Generator	81	75	
	Compressor	87	79	
	Composite	95	86	

Source: Kaiser Engineers/DMJM, 1978; City of Los Angeles Department of Engineering standard 660-foot city block.

On the basis of the composite noise levels given in Table IV-11B, utility work, foundation preparation, and street restoration activities will all have about the same noise impacts, and all could be significant. These three activities will be conducted along the entire DPM route during various phases of aerial guideway construction. Activities 4 and 5 will occur only at the Union Station and Convention Center Intercept sites. Considering activity duration and noise levels, it can generally be stated that unless mitigation measures are enforced, construction L_{10} noise levels of 100dB(A) will be emitted for an average of 6 weeks at each point along the DPM route.

According to a November 1970 study prepared for the U.S. Department of Health, Education and Welfare, the maximum suggested non-occupational exposure to noise level of 100dBA is 15 minutes per day. The permissible occupational noise exposure time set by the OSHA'S Occupational Safety and Health Act of 1970 for a 100dBA noise level is two hours per day. Clearly, mitigation measures will be required to ensure the audiometric health both equipment operators and the general public. Potential measures are outlined in the next section.

Particular attention must be given to the noise sensitive land uses along the DPM route listed in Table IV-13B and Task 4.20. Site-specific attenuation measures may be required to reduce interior noise to allowable maximums. The most severe impacts will be experienced at those sensitive land uses directly fronting the DPM route, including: The Hotel Figueroa, the Inn-Towne Motel, The Hilton Hotel, St. Paul's Cathedral, the Jonathan Club, the Bonaventure Hotel, the Biltmore Hotel, the Grace Baptist Church, and the County Law Library. Possible mitigation measures for these land uses are discussed later in this section.

Noise Mitigation Measures. Mitigation measures recommended for the DPM construction period are divided into three categories: measures to reduce noise impact upon the general public both indoors and outdoors, and measures to ensure the health and safety of the construction workers. Noise impact on the general public may be reduced by:

- providing acoustical enclosures around stationary construction equipment;
- scheduling equipment operations to maintain the lowest possible overall noise levels, i.e. perform high-noise-level operations during peak ambient noise periods, and maintain uniform operating noise levels;
- modifying pedestrian access routes to provide a maximum possible distance between pedestrians and construction operations with high-noise-levels. Noise impact on interior noise levels at sensitive locations may be reduced by:
- replacing certain high-noise-generating equipment, such as jackhammers, with power noise equipment such as concrete saws and pavement breakers.
- placing exterior and/or interior noise barriers near doors and windows of particularly sensitive buildings;
- scheduling construction activities to avoid high noise levels during high use periods for individual buildings.

The mitigation measures available for reducing occupational noise levels are generally easier to enforce than for the private sector, and include:

- substituting low-noise generating construction equipment whenever possible;
- using prefabricated structures instead of assembling on-site;

- o using machinery with flexible mountings and shaft couplings;
- o including noise-level specifications when ordering new equipment;
- o providing personal protective equipment, i.e. ear protectors and sound isolation booths, and
- o arranging work schedule to correspond to OSHA allowable occupational noise-level duration limits.

The contractor will also be required to adhere to the provisions and regulations of Los Angeles Municipal Code Chapter IV, Section 41.40 and Chapter XL, and City Ordinance Nos. 144, 331 and 148, 594.

Unmitigated Construction Noise Impacts. The degree of disturbance or annoyance result from construction of the DPM system will be extremely difficult to mitigate to the satisfaction of every affected CBD resident or employee. Adverse impacts on speech communication, telephone usage, and even mental concentration cannot be completely avoided. Every effort will be made, however, to keep adverse impacts to a minimum. Cooperation between the City government, contractors, and the private sector will help greatly in keeping unmitigatable construction noise impacts to a minimum. If the center Figueroa variation is selected, certain noise sensitive land use on the west side of Figueroa will experience decreased noise levels, whereas other noise sensitive land use on the east side will experience increased noise levels.

Vibration Methodology. Vibration impacts resulting from DPM construction depend on many variable, including soil types, soil-bearing values, building-foundation designs, proximity to vibration sources, presence of absence of overburden, natural frequency of vibration for affected structures, and the measures used to reduce vibration sources and intensities. Since these variables are numerous, difficult to document, and will require individual monitoring during construction, this discussion will focus on potential vibration sources, impacts, and mitigation measures.

Construction Vibration Sources. The main source of vibration associated with DPM construction will be the operation of heavy equipment, such as dump trucks, caterpillar tractors, and pavement breakers. No high-vibration-level generating operations such as pile driving or blasting are planned. Buildings planned for demolition are not adjacent to occupied structures.

There is a difference between the west side of Figueora Street and the center of Figueora Street with respect to construction noise. If the center street option is selected, certain noise sensitive land uses on the west side of Figueora Street experience decreased noise levels, whereas other noise sensitive land uses on the east side experience increased noise levels.

IV-112 MINOR IMPACTS OF CONSTRUCTION ON THE NATURAL ENVIRONMENT

IV-112.1 Construction Dust and Air Quality Impacts

Dust Impacts. Dust will be produced during most all phases of construction. Street excavation and restoration earth hauling, cut-and-cover operations in the Bunker Hill area, erection of the aerial guideway, and construction of aerial stations and the intercepts will all subject adjacent areas to increased dust levels. Of these construction activities, the cut-and-cover operations in the Bunker Hill area will result in the most severe dust impacts. Dust will also be produced where guideway columns will be installed, although the amounts of dust produced are expected to be small, because of the smaller excavations required for this purpose.

Dust will also be generated at each of the station locations. Of these, the most dust production will occur at Union Station and the Convention Center, primarily because the area of construction at each of these sites is greater than at any of the aerial station sites. Because both of these locations currently have far less pedestrian and automotive traffic than is the case in the areas of the aerial stations, the impacts are expected to be minimal.

Expected adverse dust impacts during construction will be controlled to a great extent by the strict enforcement of dust abatement requirements through all construction contracts. The following quotation from the Standard Specifications for Public Works Construction illustrates the types of dust abatement measures which will be enforced throughout the construction phase:

> Throughout all phases of construction, including suspension of work and until final acceptance of the project, the contractor shall keep the work site clean and free from rubbish and debris. The contractor shall also abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary.
>
> When required by the plans for Special Provisions, the contractor shall furnish and operate a self-loading motor sweeper with spray nozzles at least once each working day to keep paved areas acceptably clean wherever construction, including restoration, is in progress.
>
> Materials and equipment shall be removed from the site as soon as they are no longer necessary.
>
> Care shall be taken to prevent spillage shall be removed immediately and the area cleaned.
>
> Failure of the contractor to comply with the engineer's cleanup orders may result in an order to suspend work until the condition is corrected.
> (Building News, 1976)

Although dust abatement measures will be required of all contractors, construction activities will still produce some quantity of dust. Therefore, some tolerance will be required from affected residents, business owners, pedestrians, and motorists during the construction phase.

Air Quality Impacts. Air quality impacts during the construction phase would result from both the operation of construction equipment and from construction workers' automobiles, going to and from the construction site. These impacts are generally expected to be minor and of short duration.

Emissions due to construction workers' automobiles can be described as follows. An estimated 1700 person-years of labor will be expended during the 39 months of construction. This translates into an average monthly labor force (during peak construction activity) of approximately 530 persons. The actual daily labor force may vary, but 530 is a reasonable daily figure.

Assuming that construction workers have a typical auto occupancy of 1.38 persons per auto, applying this figure to construction employment yields an additional 475 autos both entering and leaving the CBD each day during the peak construction period, or a daily increase of 950 vehicle trips. Comparing this with a daily total for the CBD of about 633,000 vehicle trips, the daily contribution to emissions from construction worker' vehicles would be on the order of 0.1 percent and, thus, can be considered insignificant.

Daily emissions resulting from the operation of construction equipment have been estimated using recent emission factors for heavy duty diesel-powered vehicles. The factors shown on Table IV-11C were derived using emissions factors for 1976 and 1990 (EPA, 1978), interpolated for 1980, and an assumed speed of 10 miles per hour.

Applying these emissions factors to estimated fuel consumption by construction equipment yeilds the estimates of emissions shown on Table IV-11D. Reference to this table demonstrates that emissions producted by construction equipment is a very small proportion of regional estimates and, therefore, may be considered negligible.

TABLE IV-11C

1980 EMISSIONS FACTORS FOR DIESEL-POWERED VEHICLES[1]

Pollutant Type	Emissions Factor (grams/mile)	Emissions Factor (pounds/gallon)[2]
Carbon monoxide	42.17	0.46
Total hydrocarbons	6.11	0.07
Nitrogen oxides	25.26	0.28
Sulfur oxides	2.80	0.09
Particulates	1.96	0.02

(1) Source: Mobile Source Emissions Factors, Environmental Protection Agency, Office of Transportation and Land Use Policy, January 1978.

(2) Calculated by assuming a fuel consumption rate of 5 miles per gallon.

The effects of emissions on a project scale (immediately surrounding the construction site) would be somewhat greater than those effects experienced at either the CBD or regional level. However, existing traffic volumes in this area are such that these effects would also be minimal.

Construction dust and air quality impacts are the same for both the west side of Figueroa Street alignment and the center of Figueroa Street variation.

TABLE IV-11D

1980 DAILY EMISSIONS FOR CONSTRUCTION EQUIPMENT[1]

	CO	THC	NO_x	SO_x	Particulates
Construction equipment emissions in pounds per day	2944	488	1792	576	128
Regional emissions[2] in tons per day	6273.4	692.9	625.3	39.1	86.3
Construction emissions as a percentage of regional emissions	0.02	0.03	0.14	0.74	0.07

[1] Estimates of fuel consumption for construction equipment are about 6400 gallons per day

[2] Interpolated from 1976 and 1990 estimates for the South Coast Air Basin (SCAG, 1978), for mobile sources.

Source: CRA, 1978

IV-112.2 MINOR IMPACTS OF CONSTRUCTION ON THE NATURAL ENVIRONMENT: Vegetation and Wildlife

The vegetation within the Central Business District that will be impacted during the construction phase of the DPM will be mainly trees and bushes along the alignment. Existing street trees that will be affected during the construction are as follows:

1. At the Convention Center, four Ficus Retusa along Figueroa will be transplanted if in way of station.
2. Along Figueroa Street, trees will clear guideway with some pruning.
3. At Freemont Street and the 6th Street ramp, trees in island will clear guideway with pruning.
4. Behind Coldwell Banker office building at Fifth Street ramp four Sycamore trees may be affected and, if possible, will be relocated.
5. At Pershing Square station, two hollies require boxing for replanting in the park.
6. At corner of Hill Street and 1st Street, a large Ficus Nitida may be saved by pruning to clear guideway.
7. At Civic Center Station(1st Street and Broadway), two large Magnolias will have to be destroyed or relocated on State Property.
8. On City Hall lawn, a large Jacaranda must be relocated and a Littleleaf Fig tree must be pruned for clearance.
9. At Parker Center, three small Laurel Fig trees must be boxed or transplanted and a Littleleaf Fig must be trimmed to clear.
10. At the Federal Building, several shrubs and young trees may be damaged during construction of the station and pedway to the mall.
11. On Aliso Street at Union Station seven Littleleaf Fig trees will need pruning,several may be lost depending on column location.

The animal life present along the route consists primarily of common birds and rodents. These animals are expected to migrate to other areas during construction when existing vegetation would be removed. Similar species are expected to populate the site upon completion of construction and installation of new vegetation.

The construction impacts on vegetation and wildlife are essentially the same for both the west side of Figueroa Street alignment and the center of Figueroa Street variation.

IV-120 IMPACTS OF CONSTRUCTION ON LAND USE AND URBAN DEVELOPMENT

IV-121.1 MAJOR IMPACTS OF CONSTRUCTION ON LAND USE: Visual Impacts

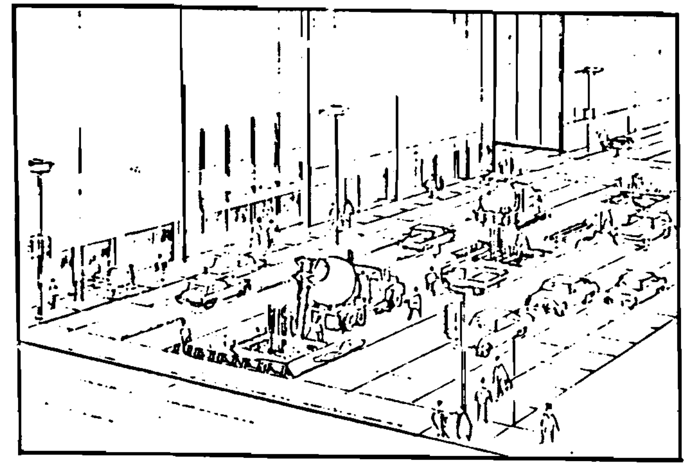
Compared to the visual impacts of the system in operation, visual impacts during construction are of short duration but high intensity.

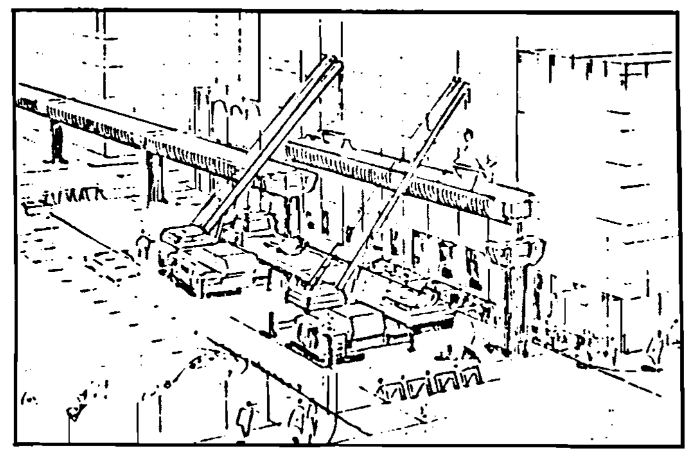
Negative impacts include the unsightliness of torn up streets, exposed utility conduits, uprooted or damaged trees and shrubs, temporary plywood barriers, and the general visual disorder that accompanies heavy construction. Trucks rumbling through downtown streets have a jarring aesthetic impact. Temporary street closures may cause visual disorientation, particularly when circulation detours are involved.

Mitigating measures. These negative impacts are offset to some degree by the fact that, for most people, heavy construction is inherently fascinating. People like to watch earth-moving machines, stations coming together, columns going up, cranes lifting giant guideway spans. This inherent mitigating factor can be augmented by providing windows and peepholes in construction screens and planning pedestrian circulation to take advantage of interesting views (Figure IV-12A). Attractive signs announcing the purpose of the work in progress and expected completion date should be placed at the construction sites. Good directional signing can also help to reduce visual disorientation and traffic confusion at congested areas and detour points. In some areas eight-foot plywood walls can be used to create a visual barrier screening unsightly construction activities, materials, and equipment. In those cases where such walls are required as a matter of safety or security, they can be made wither opaque or with view openings depending on the location. In areas where there is relative freedom from visual chaos and disorientation, these walls can be improved by attractive graphics. Separate panels decorated by volunteer community artists can

FIGURE IV-12A

Typical Activities During Construction





Source: Kaiser Engineers/DMJM, 1978

be effective if properly coordinated and supervised.

The number of people visually impacted by construction activities can be reduced by performing the more disruptive activities during off hours and by scheduling the work in a manner that will shorten the construction period at any given location.

Constructing the DPM in the center of Figueroa will have different visual impacts. Views of major structures that would be partially obstructed include St. Paul's Cathedral, the Hilton Hotel, and the Jonathan Club. Additionally, construction of the project in the middle of the street will be more visible.

IV-121.2 MAJOR CONSTRUCTION IMPACTS ON LAND USE AND URBAN DEVELOPMENT: Business Displacement

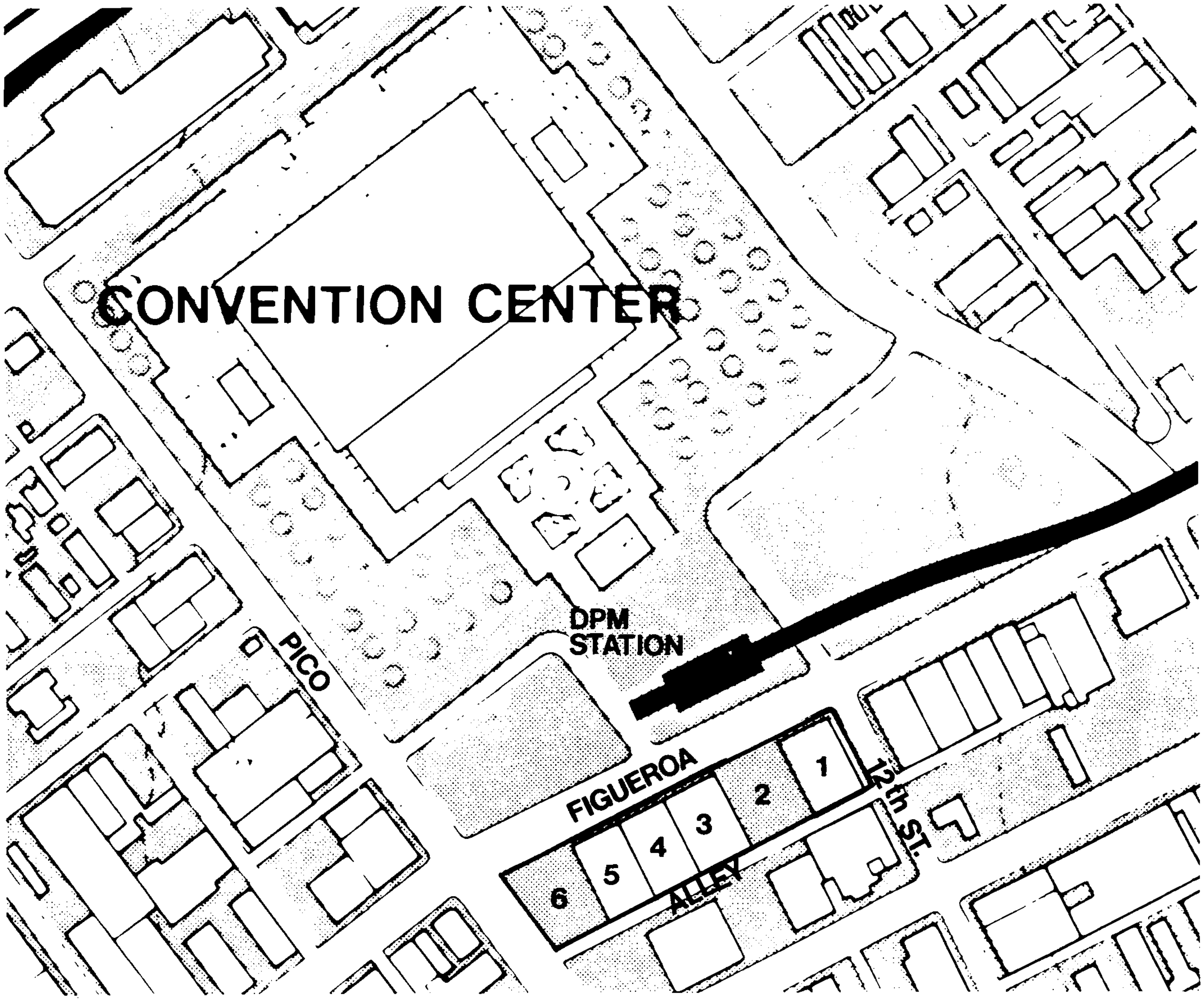
As discussed in Chapter II, the proposed DPM system would require the construction of a 7 level, 1750 space parking structure on Figueroa Street, east of the Convention Center. The construction of this parking structure would require the acquisition of one vacant parcel, and the acquisition and removal of three businesses located on the proposed site. This business displacement is expected to have a substantial impact on the businesses involved (see Figure IV-12B). A summary of the acreage and businesses to be displaced is shown on Table IV-12A. The vacant parcel on the corner of Pico Boulevard and Figueroa Street on the map is owned by the City of Los Angeles and, therefore, does not require acquisition and displacement of a current tenant. The use of these parcels for the proposed parking facility would pre-empt other long-term uses of this area. Business displacement impacts are the same for the west side of Figueroa alignment and the center of Figueroa Street variation (see Figure IV-10A).

Mitigation. The displacement of the businesses located on the proposed DPM parking facility site will be partially mitigated by the payment of fair market land and building value to individual property owners as well as the payment of business relocation costs to the tenants occupying the land and buildings. Relocation assistance will also involve the identification of potential relocation sites in the vicinity of the displaced business. Fair market values and relocation costs would be determined during Phase IV, Final Design of the DPM Program.

Disruption to business activity during the construction of the center of Figueora variation may be somewhat greater because of construction activities affecting both sides of the street.

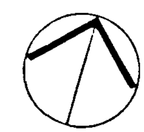
FIGURE IV-12B

BUSINESSES AND VACANT LAND TO BE DISPLACED BY SYSTEM CONSTRUCTION



Parcel No	Business
1	Sid Ostrow's Office Equipment
1	Keiser Poster
2	Charter Auto Parks
2	Pacific Outdoor Poster
3	Sid Ostrow's Furniture Storage
4	Kraus Original Shoes
5	Kerman's Wholesale Furniture
6	Vacant (City of Los Angeles)

Source: CRA, 1978



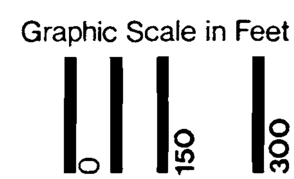


TABLE IV-12A

BUSINESSES AND VACANT LAND TO BE DISPLACED

Map Key Parcel No.	Business	Address	Building Sq. Feet	Acreage
1	Sid Ostrow's Office Equipment	1200 Figueroa St.	59,246	.37
1	Keiser Poster	(Top of building 12th and Figueroa)	N.A.	N.A.
2	Charter Auto Parks		Vacant	.34
2	Pacific Outdoor Poster		N.A.	N.A.
3	Sid Ostrow's Furniture Storage	1228 Figueroa St.	15,000	.447
4	Kraus Original Shoes	1240 Figueroa St.	35,486	.34
5	Kerman's Wholesale Furniture Company	1248 Figueroa St.	31,278	.36
TOTALS			141,000 sq. ft.	1.9 acres

Source: CRA, 1978

IV-122 MINOR IMPACTS OF CONSTRUCTION ON LAND USE AND URBAN DEVELOPMENT

IV-122.1 MINOR IMPACTS ON LAND USE: Archaeology

An Archaeological Survey was prepared in June, 1978, as part of the environmental planning for the DPM program (see Task Termination Report). There are no known archaeological sites in the CBD except the Chinese dump excavated during construction of the Hollywood Freeway. However, there are areas of potential archaeological significance. Based on map and literature research, the archaeological survey identified the area roughly from the Union Station intercept to Pershing Square (along Hill Street) as areas that contain "possibly significant archaeological resources..." and recommended additional research to further determine the potential for significant remains. The area from Pershing Square south to the Convention Center intercept is considered to have less potential for archaeological remains. (Archaeological Survey, 1978, pp 109-113).

This report and the Architectural Survey were forwarded to the California State Historic Preservation Office (SHPO) in July, 1978, for review according to the requirements of the National Historic Preservation Act of 1966, as amended, the National Environmental Protection Act, and the Federal Highway Act of 1965. SHPO will make a determination of eligibility and the Urban Mass Transportation Administration (UMTA) will make a finding of effect. Specific mitigation measures will then be agreed to by UMTA and SHPO to minimize adverse effects on existing or potentially significant archaeological resources. The Draft and Final Environmental Impact Statements prepared by UMTA will fully document that process. Until those determinations are made, it is only possible to identify the potential for affecting significant resources.

IV-122.2 MINOR CONSTRUCTION IMPACTS ON LAND USE: Utilities

Table IV-12B summarizes the effects of DPM construction on utilities. Information is shown for both the west side of Figueroa alignment and the center of Figueroa Street variation.

TABLE IV-12B

IMPACTS ON UTILITIES

Relocation	West Side Figueroa St.	Center Figueroa St.
Type	Amount	Amount
Telephone cable and conduit	1500 feet	1160 feet
DWP power system cable and conduit	860 feet	825 feet
DWP water system pipe	790 feet	690 feet
Southern California Gas Co. gas lines	120 feet	—
Sewer system pipe	1020 feet	1020 feet
Storm drain lines	630 feet	565 feet
Storm drain catch basins	5	5
Fire hydrants	4	3
Gasoline storage tanks	2	2
Support Across Excavation		
Type	Number of Locations	Number of Locations
Telephone lines	26	16
DWP power system lines	13	8
Storm drain pipes	6	4
Natural gas lines	5	1
DWP water system lines	1	1
Fire alarm conduit	1	1
Blanket sewer lines	120 feet	6
Remove & replace sewer lines	—	490 feet
Fill abandoned sewer lines	—	1

IV-122.3 MINOR CONSTRUCTION IMPACT ON LAND USE: Solid waste from construction

Construction of the DPM system will result in an estimated 74,500 cubic yards of soil and debris from the project site. (see Table IV-12C). When compared to annual solid waste production in Los Angeles County, this is an insignificant amount. Further, there is sufficient capacity at any of the 54 land fill sites in the County of Los Angeles to accept this amount of solid waste. The soil and solid waste material is generally desirable for fill at other construction sites. Therefore, only a portion of the solid waste produced by construction will be disposed of at designated land fill sites.

This impact is the same for the west side of Figueroa Street alignment and the center of Figueroa Street variation.

IV-122.4 MINOR CONSTRUCTION IMPACTS ON LAND USE: Law Enforcement and Fire Protection

During the approximately 39-month construction schedule, construction activities may temporarily impair vehicular access on certain street, which could effect the delivery of both police and fire services. In both the west side and center Figueroa Street alignments, some temporary street closures and lane reductions could delay emergency services unless appropriate scheduling and planning is arranged. Therefore, close coordination with both police and fire authoritites will be required. Some of the construction impacts can be mitigated by scheduling some portion of the construction activity for nights and weekends, thus lessening the impact on traffic congestion.

The center of Figueroa Street variation would allow better exterior accessibility by firefighting units to second and third stories of buildings on the west side of Figueroa.

TABLE IV-12C

ESTIMATED SOLID WASTE GENERATED DURING CONSTRUCTION

DPM System Component	Excavation (Cu. Yds.)
Stations:	
Foundations for DPM Aerial stations	8,000
Foundation for DPM Subway station	21,500
Union Station Intercept Facility	15,000
Convention Center Intercept Facility	17,000
Total Station	53,500
DPM Guideway:	
Foundations for Aerial guideway	12,000
Subway tunnel excavation	9,000
Total DPM Guideway Waste	21,000
TOTAL DPM SYSTEM WASTE	74,500

Source: Kaiser Engineers, 1978

IV-130 IMPACTS OF CONSTRUCTION ON THE SOCIO ECONOMIC ENVIRONMENT

IV-131 MAJOR IMPACTS OF CONSTRUCTION ON THE SOCIO ECONOMIC ENVIRONMENT

IV-131.1 Regional Economic Impacts of DPM System Construction

Introduction

Construction of any large transportation or public works project with federal funds provides an economic stimulus to the local economy. The dollar expenditures for local purchases of materials and labor/engineering represent "outside money" invested in the local economy. The direct income and employment gains from the initial construction expenditures, in turn, cause additional employment and business activity.

The cumulative regional impact of the new investment or expenditure in a local economy is measured by a set of economic indices called multipliers. The term "multiplier" refers to the fact that the cumulative increase in output, employment, and household income is greater than the direct gain attributable to the initial purchases of labor and material required to construct the project.

For example, the retail purchase of groceries and household items by the construction workers produces wages and income to retail clerks. These retail employees, in turn, make purchases with their wages derived from sales from the construction workers. To the extent a local economy is more "self sufficient" (meaning produces a higher percentage of materials and products itself), the greater the multiplier effect of "outside" investments in the local economy. Whenever a portion of the material or final product costs of a commodity that is purchased locally is imported from other regions, "leakage" occurs. This reduces the amount of money available in the successive round of purchases generated by new investment or "net" sales gains by the local economy.

In a large sophisticated regional economy such as Los Angeles, new investments for "net sales" gains to the region stimulate 10 to 12 successive rounds of purchases or transactions before the effect of the new "outside" money is completely diminished. (Source: The Economic Base of U.S. Cities, University of Washington Press, 1969). Under these circumstances $1,000 of new investment generates approximately $2,500 in total direct and indirect business activity. In economic terms, this represents a 2.5 (i.e., $2,500/$1,000) business activity or output multiplier. Since between 60 to 70% of this new business activity occurs in the form of wages/salaries, the multiplier effect on household income and employment is lower. In this example the household income multiplier would be approximately 1.5 times the initial investment (i.e. $1,000 x 1.5 = $1,500). Similarly, 1 year of new construction employment would therefore generate the wages to pay for 1 to 1½ additional years of employment in other sectors of the economy. In this analysis of the regional economic impacts of the Los Angeles DPM, estimates have been made of three types of economic multipliers. These include: (1) the business activity or output multiplier, (2) the household income multiplier and (3) the employment multiplier.

Step 1. Determination of the Geographic Distribution of DPM Related Construction Expenditures.

The initial step in this regional economic impact evaluation was to determine the distribution of the expenditures associated with the construction of the Los Angeles DPM by labor and material category as well as geographic areas. In order to be conservative, no credit was taken for right-of-way (i.e., land) purchases, or the costs of the intercept parking facilities. Either because these transactions may involve dedication of property (not sales), or the funds utilized could be spent on projects in the region other than the intercepts, these elements of the DPM system's capital costs do not represent sources of "new money" to the local economy.

The total capital costs of the DPM project are estimated to be $181 million. Right-of-way costs for the DPM guideway are expected to be about $14 million, and the capital costs for the intercept facilities are expected to be about $42 million. Deducting these costs from the total of $181 million yields a total of $125 million. (See Table IV-13A).

Results

Based on an examination of (1) the expenditure profile of other large scale fixed guideway projects throughout the United States and (2) after provision for a higher proportion of outside purchases of system hardware, it is estimated that $79 million (i.e. 63%) of the total of $125 million in DPM system construction costs would take place in the Los Angeles Metropolitan area economy. The breakdown of this local expenditure by category is as follows:

$34 million for construction labor
$18 million for materials and supplies
$19 million for engineering and management
$8 million reserved as contingencies

A complete breakdown of the total $125 million in DPM construction expenditures that represent potential "new money" to the local economy are presented in table IV-13A. For the purposes of estimating the regional economic effect of the Los Angeles DPM system, only $73.5 million (i.e. 93%) of the $79 million in local expenditures could be considered "net" gains. The 7% reduction represents the portion of local "share" costs of the system that would be paid for by the city/county of Los Angeles.

Step 2. Estimate the Total Business Activity Multiplier Effects of the Los Angeles DPM System.

The evaluation of the economic impact of the Los Angeles DPM must include the analysis of the successive round of expenditures of goods, materials and services and the reinvestment and savings by local firms, employed individuals and governmental agencies receiving direct income from the initial construction expenditure. The economic multiplier effect (measured in GNP terms) of new income infused into all sectors of a regional economy such as the Los Angeles Metropolitan area, is calculated through the application of a self-

TABLE IV-13A
Geographic Distribution of the
Los Angeles DPM Construction Expenditures a/
(Millions of dollars)

Geographic Data	Construction Labor	Materials & Supplies	Engineering & Management	Contingency c/	Total
Los Angeles Metropolitan Area	34	18	19	8	79 (63%)
Outside of L.A. within California	3	4	1	1	9 (7%)
Outside California	15	16	2	4	37 (30%)
Total	52	38	22	13	125 b/

a/ Estimates based on expenditure profiles of large scale fixed guideway systems constructed throughout the United States, modified to reflect a higher proportion of imported system hardware costs. All estimates are rounded to the nearest $1 million and stated in 1981 dollars.

b/ Excludes approximately $13 million in guideway right-of-way acquisition costs and $42 million in intercept facility costs.

c/ Represents approximately 10 to 11% of total estimated construction costs.

Source: Robert J. Harmon & Associates, Inc., 1978

sufficiency index. (The index is measured in terms of the percentage of goods that are purchased within the local economy. A 100% self-sufficiency index implies a completely self-contained economy). In 1960, the Los Angeles self-sufficiency factor was calculated to be approximately 70%, which was about the median for the twenty largest metropolitan areas in the United States. (Source: The Economic Base of U.S. Cities, University of Washington Press, 1969). At this level of regional economic self-sufficiency, new income is recycled through twelve separate repurchases of goods, material and services before the net income available for repurchase is effectively diminished. The cumulative sum of the total expenditures (i.e., direct, indirect and induced new income) generated by the original expenditure (i.e., regional investment) is compared in a ratio termed an output multiplier. For example, if the total direct, indirect and induced expenditures associated with a $1 billion project were $2.4 billion, then the output multiplier would be 2.4 .

In the case of the Los Angeles Metropolitan Area, the output multiplier for "net" sales or investment in the local economy was estimated to be approximately 3.0 in 1970. More recent estimates by the University of California and the Los Angeles Planning Council indicate that, in 1975, the Los Angeles region's multiplier is between 2.4 and 2.5 .

Results

To maintain a conservative posture in the overall economic evaluation, an output multiplier of approximately 2.5 (not 3.0) was applied for both the Los Angeles Metropolitan Area and the State of California to the estimates of the Los Angeles DPM system. The results of this analysis which are presented in Table IV-13B indicated that:

TABLE IV-13B
Total Economic Impact of the
Los Angeles DPM System Construction Expenditures
($ Millions)

Geographic Area a/	Direct Impact	Indirect & Induced Impact c/	Total Impact
Los Angeles Metropolitan Area	74 b/	111.0	185.0
Outside of Los Angeles within California	9	13.5	22.5
TOTAL	83	124.5	207.5

a/ See distribution of construction expenditures, Table IV-13A. Total impact would occur between 1980-1984.

b/ Reduced from total of $79 million to represent a deduction of 7% for the local share.

c/ Estimate based on an output multiplier of 2.5 for the Los Angeles Metropolitan Area and the State of California. (It should be noted that a 2.8 multiplier was estimated from the self-sufficiency analysis of the Metropolitan Area, but the lower multiplier was utilized to be conservative.)

Source: Robert J. Harmon & Associates, Inc., 1978

- The economy of the State of California will receive nearly 8 times (i.e. $207 million) of an original investment amounting to 20% of the total costs of $125 million in cumulative economic activity, measured in GNP terms.
- Approximately 90%, or approximately $185 million, of the economic activity gains generated directly or indirectly by the system construction expenditures will occur in the Los Angeles Metropolitan Area.
- In dollar ratios this means that nearly $20 in new economic activity will be generated in Southern California for every $1 invested by a 7% local support of the total capital costs of the system.

The foregoing analysis outlines the positive economic gains to the State of California and the Los Angeles Metropolitan Area if the City proceeds with the decision to build the Los Angeles DPM system. Conversely, if the City would decide not to build the Los Angeles DPM system, these potential economic benefits would be lost and from an economic standpoint, should be viewed as "opportunity costs". In other words, the Federal money is only available to the City of Los Angeles for the sole purpose of constructing a DPM system. Furthermore, the opportunity to receive additional economic benefits from the future receipt of the discretionary funds for economic development would be considerably delayed or diverted to other metropolitan areas of the United States.

Step 3. Calculate the Household Income Multiplier Effect of the Los Angeles DPM System

Of the $79 million in direct local purchases for the construction of the Los Angeles DPM, approximately $59 million would be in the form of wages, salaries and fringe benefits paid to individuals. This total includes: (1) $34 million for labor, (2) $19 million for engineering and management, and (3) $6 million allocated from the contingency budget. In order to estimate the direct household income gain, this total of $59 million was reduced to $47 million to represent the 20% of non-income fringe benefit included in the total salary and wage payments.

In the previous output multiplier analysis, it was estimated that 111 million of indirect and induced business activity would occur in the Los Angeles metropolitan region as a result of the "new" money expenditures related to the Los Angeles DPM. Approximately 70% of these purchases, or $78 million, would be in the form of wages or salary payments to individuals. (The figure of 70% is based on the most recent results of the econometric models of the University of Michigan and the Wharton School of Business/Finance). Due to the lower proportion of fringe benefits included in the average wage earner's salary, this total was only reduced by 15% to reflect "true" household income. On this basis, $66 million of indirect and induced household income would be created by the construction of the Los Angeles DPM system.

Results

Based on the foregoing analysis, the investment of $74 million in local expenditure for DPM construction would generate $113 million in new household income in the economy of the Los Angeles metropolitan area. The household income multiplier for this project is therefore estimated to be 1.53 (i.e., $113 million divided by $74 million). This result compares favorably with the household income multiplier estimated for other large scale construction projects in the Los Angeles Metropolitan Area. (See for example, Measuring Development in Southern California, Pasadena Research Institute, 1975.)

Another way of expressing the income multiplier is to take the ratio of the total income effect to the direct income effect. The total effect is $113 million, and the direct is $47 million. The income multiplier is therefore 2.4, which means for every $1 of new income directly generated by the project, a total of $2.40 will be generated in the regional economy.

Step 4. Calculate the Employment Multiplier Effect of the Los Angeles DPM System

The local DPM system expenditures for labor, engineering and management including contingency will generate $59 million in wages and salaries. These estimates of payroll and management expenditure take into account the cost inflation during the construction period. On this basis, by 1981 (the midyear of construction) the average hourly construction wage and salary rate (i.e., including fringe benefits) would be $21.50 (Source: Kaiser Engineers). Utilizing this average hourly wage and salary rate, the DPM system would directly generate nearly 1,400 man years of employment during its four year construction period.

In the previous analysis of "household income" multiplier effects of the DPM system, it was estimated that the induced/indirect business activity generated by local expenditures would create $66 million of additional "household income". Assuming a median Southern Californian wage/salary rate of $22,000 in 1981 it is estimated that this $66 million in new wages/salaries would produce at least 3,000 additional man years of employment in the Los Angeles metropolitan area.

Results

Based on the foregoing analysis the construction of the Los Angeles DPM would produce a total of 4,400 man years of employment (1,400 direct and 3,000 indirect and induced). These employment gains would be generated by $74 million of new local construction expenditure supported by non-local funding sources. When measured on this standard basis of $100 million in expenditures, the Los Angeles DPM would generate the equivalent of 5,500 total man years of work. This estimate of the "employment multiplier" of Los Angeles DPM compares favorably to estimates made by other economists in the Los Angeles area (see for example, Measuring Development in Southern California, Pasadena Research Institute, 1975).

Summary

The results of the regional economic impact analysis of DPM construction are summarized in Table IV-13C. With an initial investment in the local area of $74 million, the total effects on the region's output of goods and services would be $185 million. An increase of $47 million in household income leads to a $113 million total increase in regional household income. 1,400 person years of work would be created as a direct consequence of DPM construction expenditures. The multiplier effect would create an additional 3,000 jobs in the regional economy, for a total effect of 4,400 jobs.

These findings apply to both the west side of Figueora S Street and the center of Figueora Street alignments.

TABLE IV-13C

Direct, Indirect, and Induced Effects of DPM Construction on the Economy of the Los Angeles Metropolitan Area, 1980-1984

	Direct Effect	Indirect & Induced Effect	Total Effect	Total Effect ÷ Direct Effect
Regional Output (sales in millions of dollars)	74	111	185	2.5
Household Income (salaries and wages in millions of dollars)	47	66	113	2.4
Employment (person years)	1,400	3,000	4,400	3.1

Source: Robert J. Harmon and Associates, Inc., 1978

IV-131.2 MAJOR CONSTRUCTION IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT: Residential Disruption.

Residential buildings in the study area are shown in Figure IV-13A and their characteristics are identified in Table IV-13D. The apartments and some hotels in the table are used as permanent residences, whereas the motels and larger hotels are used by businessmen, tour groups, vacationers, and other visitors on a short-term basis. In general, the least expensive residential units are rented on a long-term basis, and some of them are occupied by elderly and handicapped individuals. Some residential buildings have cooking facilities in all their units. These are used primarily by families with children. There are few of these types of units, and all are located in older structures.

Construction of the DPM system will result in varying degrees of impact on nearby residents. Increased noise and dust levels, visual unsightliness and imparied accessibility during certain times of the day are the types of impacts that can be expected. No residential structures will be physically affected and no relocation of residents will be required.

The most severe construction impact is the increased noise level which will be felt by downtown residents. Construction noise is expected to range from 86 to 95 dB(A)s, in terms of L_{eq} values measured at 50 feet from the construction site. Interior noise levels will be 10 to 35 dB(A)s lower, depending upon distance from the construction site, structural characteristics of the building, the presence of landscaping or walls, and whether windows are open or closed. For a detailed discussion of construction noise impacts, see Section IV-111.

The following discussion summarizes the expected construction noise impacts on residential locations along the route. The analysis considered an average building attenuation value of 25 dB(A)s, and the impacts are referenced to a federally recommeded interior maximum Leq value of 52 dB(A) for residential land uses.

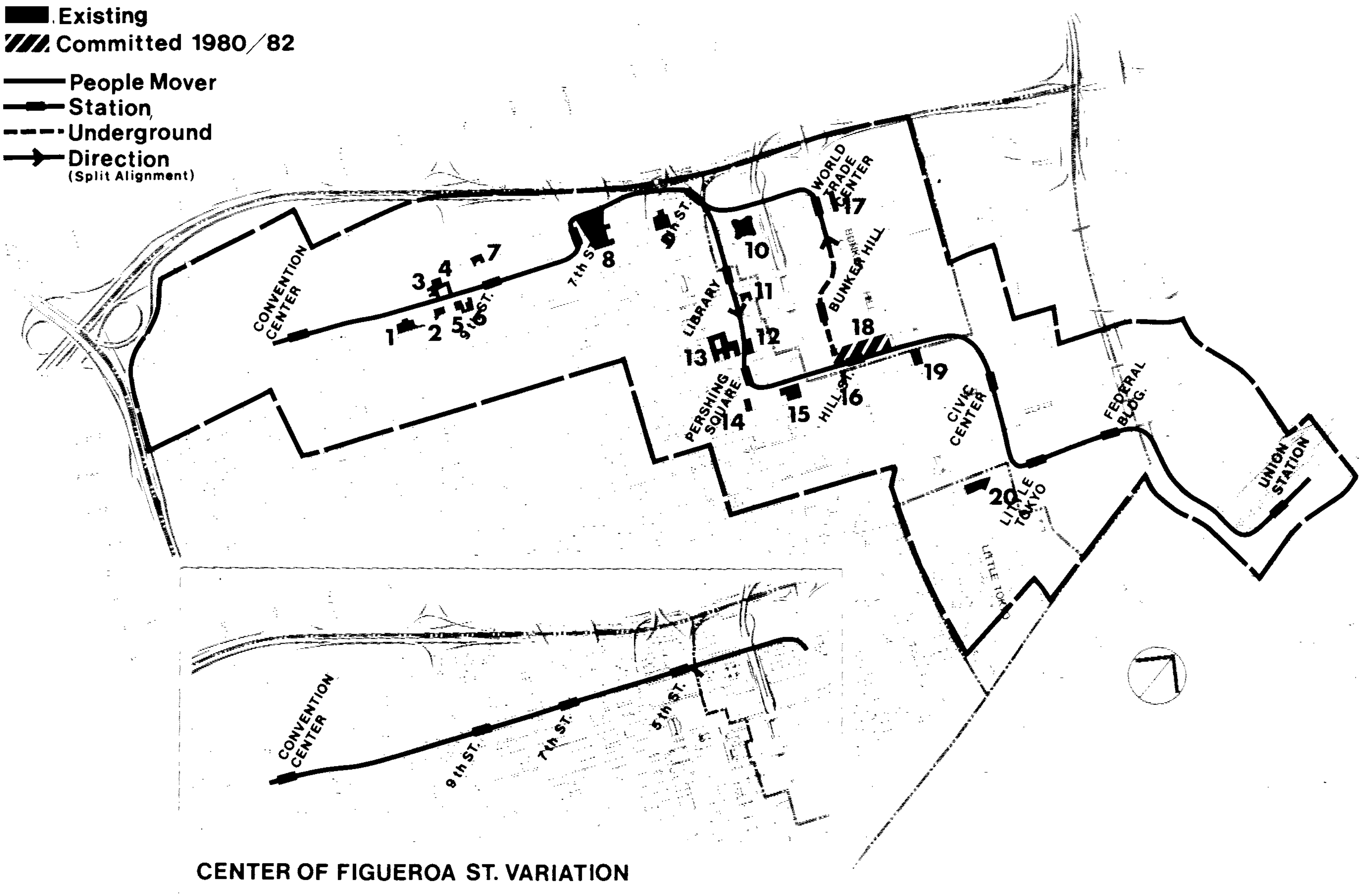
Fourteen permanent and temporary residential locations would experience a significant increase in interior noise levels during construction of the DPM. These locations would have interior noise levels increased to beyond a recommended maximum. Of these, the most significant increases would occur at the Hotel Figueroa, Inn-Towne Motor Hotel, Hilton Hotel, Bonaventure Hotel (exterior swimming pool deck), Clark Hotel, and the Hill Street Elderly Housing Project. The remaining locations would experience a moderate increase in perceived interior noise. An additional four residential locations would experience increased noise levels, but not to a degree that they would be readily perceived. Three locations would not experience a perceptible increase. If the center Figueroa alternative is selected, the residential locations on the west side of Figueroa would not be effected to the same degree, but the impact would remain significant. Residential locations on the east side of Figueroa would experience a further increase in perceived interior noise. In some cases, the increase at these locations would be to a significant level. Table IV-13E summarizes the construction noise impacts on residential land uses for both the west side of Figueroa Street alignment and the Center of Figueroa Street variation.

Increased noise levels will not be continuous throughout the day, and construction activities will be scheduled to minimize the increases to the greatest degree practicable. Further, the greatest noise producing activities will not be conducted during evening hours in locations near residences.

Residents will also be disrupted during construction by additional dust, visual unsightliness, and impaired accessi-

FIGURE IV-13A

SURVEY OF RESIDENTIAL UNITS ADJACENT TO THE PREFERRED D P M ALIGNMENT



Source: CRA, 1978

TABLE IV-13D

SURVEY OF RESIDENTIAL UNITS ADJACENT TO THE DPM SYSTEM

MAP NO.	NAME OF BLDG.	NR. OF UNITS	EST. RESIDENTS	Families	Handicapped	Elderly	Permanent	WITH COOKING	PRIVATE BATHS
1.	Holiday Inn	192	202					No	All
2.	Belmont Apartments	85	186	X		X	X	All	All
3.	Figueroa Hotel	350	476		1	X	X	No	Some
4.	Gala Inn-Towne	170	179					No	All
5.	Kent Inn Motel	92	110					3	All
6.	Finkle Arms Apts	50	88	X			X	All	All
7.	Clifton Hotel	162	191			X	X	No	Most
8.	Hilton Hotel	1206	1435					No	All
9.	Jonathan Club	78	56					No	All
10.	Bonaventure Hotel	1500	1785					No	All
11.	Engstrum Apts	96	109		1	X	X	Most	All
12.	San Carlos Hotel	135	101			X	X	No	Some
13.	Biltmore Hotel	1072	1276					2	All
14.	Hill Street Hotel	18	22					No	Some
15.	Clark Hotel	507	690		5	X	X	No	Most
16.	Myrick Hotel	48	43			X	X	No	Few
17.	Bunker Hill Towers (So)	244	358				X	All	All
18.	Sr. Citizen Housing	1100	1525	180 200		X	X	Most	All
19.	Astor Apartments	116	125		3	X	X	No	Some
20.	New Otani Hotel	448	533					No	All

Permanent = Over 25% of units rented to permanent resident (6 mos.).
Elderly = More than 20% of residents are over 65 years of age.
Handicapped = Number of handicapped persons in building.
Families = More than 50% of families with children.

Source: CRA, June 1978

TABLE IV-13E

EFFECTS OF DPM CONSTRUCTION ON PERCEIVED INTERIOR NOISE LEVELS AT RESIDENTIAL LOCATIONS

LOCATION	West Side Figueroa Alternative		Center Figueroa Alternative	
	Distance to Nearest Construction Site (feet)	Increast in Perceived Interior Noise	Distance to Nearest Construction Site (feet)	Increase in Perceived Interior Noise
Holiday Inn	150	Minor	80	Significant
Belmont Apartments	90	Moderate	50	Significant
Hotel Figueroa	10	Most Significant	50	Significant
Inn-Towne Motor Hotel	10	Most Significant	50	Significant
Kent Inn	90	Moderate	60	Significant
Finkle Arms	120	Moderate	40	Significant
Clifton Hotel	270	No Increase	310	No Increase
Hilton Hotel	60	Significant	50	Significant
Johathan Club	150	Minor	50	Significant
Bonaventure Hotel (swimming pool deck)	40	Significant		
Engstrom Apartments	70	Significant		
Biltmore Hotel	70	Significant		
San Carlos Hotel	10	Most Significant		
Hill Street Hotel	150	Minor		
Clark Hotel	80	Significant		
Bunker Hill Towers	240	No Increase		
Myrick Hotel	90	Moderate		
Hill St. Elderly Housing	40	Significant		
Astor Apartments	90	Moderate		
New Otani Hotel	250	No Increase		

Note: The following perceived noise level increases correspond to the above criteria:

Minor: increase of 5 dB(A), or less
Moderate: increase of 6-10 dB(A)
Significant: increase of 11-15 dB(A)
Most Significant: increase of greater than 16 dB(A)

bility during certain times of the day. In addition to noise differences which affect residential locations, the center of Figueroa variation would result in additional access problems during street widening activities. Particular attention will be paid to these impacts, and contractors will be required to reduce them to the minimum degree practicable. Also, the following mitigating measures have already been employed: the use of multiple crews to reduce the length of time that a disruptive impact is occurring, off-site prefabrication of guideway sections, joint coordination of construction activities for the DPM Hill Street guideway station and the Elderly Housing Project, and the enforcement of other general criteria to assure the use of mitigation techniques by contractors.

IV-131.3 MAJOR IMPACTS OF CONSTRUCTION ON THE SOCIO-ECONOMIC ENVIRONMENT: Safety and Security

Public safety is of major concern during construction due to the possibility of personal injury from the malfunction of heavy equipment, either by mechanical or human cause. The movement of construction vehicles such as dump trucks, concrete mixers, large transporter trucks, and cranes into and out of the construction site(s) poses potential problems for motorists and other vehicular traffic. Public safety is also of concern for pedestrians and workers at all sites where the ground is being opened.

To lessen the safety and security impacts, the contractor(s) will be required to meet all of the requirements of, and to establish construction procedures in accordance with, the regulations of the Occupational Safety and Health Act (OSHA), the State of California, Los Angeles County, and the City of Los Angeles. These regulations include but are not limited to: safe storage of equipment so as not to cause an obstruction, provision of appropriate signs, lights, flares, construction barricades and other facilities for the safe guidance of public traffic through or around the work area(s), and assignment of flagmen and guards for traffic control as necessary.

Construction of the center Figueroa alignment variation would produce some additional traffic safety hazards, because of street widening activities and construction activities in the median, affecting the flow of traffic in both directions.
A more detailed site-specific analysis of safety and security impacts and appropriate regulation will be conducted during the final engineering phase.

IV-132.1 MINOR CONSTRUCTION IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT:

IV-132.1 Labor Force

Construction activities for the DPM are expected to generate over $74 million in local wages during the 39-month construction period. A labor force of about 1700 person-years would be required for the project. Construction of the guideway, stations, and other elements would require a labor force of about 1220 person-years, and construction of the intercepts and maintenance facility would require about 480 person-years, over an estimated 15-month period.

Estimates of wage costs are based on recent experience in transportation construction projects. Table IV-13F presents estimated DPM construction labor costs by craft unions.

Increased construction employment because of the DPM would partially offset the current 7.5% unemployment rate in the Los Angeles-Long Beach area. In the construction trades, this figure may be even higher. Currently, it is estimated that 80% - 85% of all union members in the twelve major construction crafts are currently employed, with about 100,000 of these in contract construction activities. (Calif. Dept. of Employment Development, July, 1978.)

Extent of labor force participation is the same for both the west side of Figueroa Street alternative and the center of Figueroa Street variation.

TABLE IV-13F

ESTIMATED DPM LOCAL CONSTRUCTION LABOR REQUIREMENTS

(All costs escalated to the midpoint of construction)

	Guideway, Stations, etc. (39 months)	Intercepts, Maintenance Facility (15 months)	Total
Total labor cost (1)	$53,080,000	$21,000,000	$74,080,000
Person-years (2)	1,220	480	1,700
Craft Union Wages: (3)			
Common labor (46%)	24,420,000	9,660,000	34,080,000
Operating Engineers (17%)	9,020,000	3,570,000	12,590,000
Teamsters (9%)	4,780,000	1,890,000	6,670,000
Electricians (12%)	6,370,000	2,520,000	8,890,000
Other crafts (16%)	8,490,000	3,360,000	11,850,000

(1) Figures derived from estimates of DPM construction costs, CRA Task 3.27.

(2) Manpower requirements were derived assuming an average hourly wage rate of $21.75, including contractor's profit. This wage rate is escalated to the midpoint of construction and therefore corresponds to a current rate of $17.50 per hour. Actual wages will vary according to prevailing rates for various craft unions.

(3) Allocation of wages by craft union is based on estimates developed during Phase II. (CRA, Summary EIA, 1977, page 24.)

IV-132.2 MINOR CONSTRUCTION IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT: Business Disruption

Overview

Construction of the DPM system carries with it the potential for adverse impacts on existing businesses in the vicinity of the guideway, stations and/or construction staging areas. The nature and severity of such impacts is a function of the alignment, the timing and duration of construction and the construction techniques employed. The potential for disruption during construction is based on the possible occurrence of a number of conditions which inhibit or degrade normal business activities, deliveries of goods, and access (vehicular, pedestrian and visual) by customers, employees, clients or vendors.

The major factors of concern include:

- Loss of parking - due to elimination of off-street parking or temporary blockage of entrances to parking lots/structures
- Loss of pedestrian access (physical and visual) - due to sidewalk closures, construction barriers, etc.
- Degradation of vehicle access - due to land or street closures, detours, temporary pavement covers, etc.
- Degradation of goods movement (shipments and deliveries) - due to re-routing of traffic, blockage of loading ramps, etc.
- Potential for damage to storefronts or inventories due to dust, vibration
- General inconvenience to customers, clients, and hotel guests as a result of noise, traffic re-routing and perceptions of confusion, clutter, congestion, uncertainty, etc.
- Disruption of businesses relocated as a result of right-of-way property acquisitions

Individual commercial enterprises will vary in their susceptibility to temporary disruption. The highest degree of sensitivity would probably be: small convenience stores which offer non-unique products and rely heavily on walk-in trade; small specialty stores which rely on window displays and impulse shoppers; moderate-priced luncheon facilities; and hotels. The first three of these types of establishments tend to have low customer loyalty and customers can easily shift their patronage to similar establishments not affected by construction. Therefore such establishments would be most likely to experience temporary loss of business if the construction impacts on them are significant. Hotels would probably suffer less financial loss from temporary impacts, but would be subjected to higher levels of guest complaints or dissatisfaction if mitigating measures as to hours of construction activity are not implemented.

Office buildings, professional service establishments and quality stores selling "unique" merchandise typically are least sensitive to disruptive influence, although those that rely heavily upon customers not residing or employed in the western CBD may experience lower activity levels if parking and traffic disruptions are severe and prolonged.

In general, the time period of disruption on any single block along the route (4-5 months) is sufficiently short to preclude the likelihood of any permanent adverse impacts on any established business operations.

Potential Impacts Within DPM Corridor

The alignment from Union Station to 1st Street traverses an area of government office buildings. The commercial activity in this segment is located underground at the Los Angeles Mall and should not be subject to any significant disruptive influences. There does exist a potential for disruption of pedestrian access from the various government complexes to the Olvera Street commercial and restaurant area. This could entail a temporary loss of business volume for these establishments, possibly with a partially off-setting increase in activity at the Mall.

The alignment follows the north side of 1st Street between Los Angeles and Hill Streets. The numerous small retail businesses, oriented to CBD employees and residents, located on this segment of 1st Street are on the south side of the street and therefore should face minimal impacts during construction. Physical and visual access to these stores will not be disturbed and on-street traffic congestion will be minimal. Closure of the north lane of 1st Street could require the temporary elimination of short-term parking and loading spaces along this section of the street and this may have adverse impacts on local establishments. However, there is sufficient off-street parking in the area.

The section of alignment along the west side of Hill Street between 1st and 3rd Streets is located within parcels of land that are vacant or used as parking lots, and construction would not have any disruptive business impacts. Similarly, the tunnel section, from 3rd to Flower Streets, likewise would not disrupt existing commercial activities in the immediate vicinity. If development occurs in that area prior to construction, 3rd Place would be decked after excavation rather than closed.

The alignment on the west side of Figueroa Street from 3rd to 5th Street passes by the Union Bank Building, World Trade Center and Bonaventure Hotel. The last is the most susceptible to disruption from the noise and access re-routing caused by construction activity. The elevated pedestrian passageway linking the Bonaventure with ARCO Plaza may mitigate much of the adverse impacts on pedestrian access. ARCO Plaza stores may actually experience an increase in trade as more employees shop "inside". Noise, sidewalk closings, congestion and general clutter will still cause some disruptions. Further, the plans to undertake much of the guideway and support erection in the evening hours to minimize overall CBD impacts may have to be modified in the vicinity of the Bonaventure and other on-route hotels in order to minimize problems for guests and hotel functions.

The one-way linkage along Hill and 5th Streets may yield disruptions to a number of the small neighborhood businesses on Hill Street (from 3rd to 5th). The sidewalks in this area are narrow and access could be affected during the construction period. Most of the businesses on Hill Street are on the east side of the street. Parking lots on the west side of the street would not be available to patrons, but most of this parking would be lost in any case due to construction of the retirement housing project and reconstruction of Angels' Flight. In the section along 5th Street, temporary disruption could occur to the small businesses north of Pershing Square and some problem might also arise at the Biltmore Hotel. This is the segment where some of the worst vehicular and traffic congestion impacts are anticipated due to construction on both sides of the street plus the guideway's traversal of 5th Street.

The alignment section west of Figueroa between 5th and Figueroa crosses a number of vacant parcels and parking lots. It comes quite near to a few small retail establishments and a drive-in fast-food operation. It is also across the street from the Hilton Hotel. All of these establishments could be subject to some form of disruption due to noise, sidewalk closures and traffic re-routing.

The segment along Figueroa Street from 7th to 9th Streets is characterized by parking lots and several large office structures, none of which would appear to be sensitive to disruption. However, as the alignment continues south to the Convention Center it passes by the Pantry Restaurant, some residential buildings and a number of motels and hotels including the Holiday Inn and Hotel Figueroa. The Hotel Figueroa, several other smaller motels and the Pantry are all on the west side of the street and would suffer from noise and access disruption if that side of the street is used. The Pantry would also be impacted by its proximity to the 9th Street station; construction of the station would increase the level and duration of construction in that area.

An alternative alignment would bring the DPM guideway down a median created along the middle of Figueroa Street. This would reduce the adverse noise effects on the establishments on the west side of the street but would create a number of additional disruptive elements. The median-alignment would entail a widening of Figueroa Street. This would require the reconstruction and narrowing of sidewalks on both sides of the street and add an additional month to the construction period along each block. The extension of the construction period together with a partial sidewalk closing would yield an increase in temporary disruption. This would be especially true for the northern portions of Figueroa where pedestrian activity is heavier.

Use of a median alignment also would cause some permanent problems for establishments on Figueroa. First of all, the median would serve to restrict left-turn movements and make vehicular access to these establishments more difficult. Secondly, curbside parking, which is now permitted south of 8th Street would be eliminated permanently. This elimination could have some negative effects on the activity of area businesses; however, off-street parking is available.

Quantification of Impacts

While individual retail stores and businesses may experience a temporary loss in customer and sales volume, the net effect on the CBD will be reduced by internal transfers of sales. The losses incurred by one establishment will yield gains to other establishments not subject to disruption. The shift will be virtually complete for eating establishments and others catering primarily to downtown employees; employees will not stop eating lunch because of DPM construction. Retail specialty and department stores with clientele composed primarily of non-CBD residents or employees could suffer temporary losses. These losses plus some short-term decline in hotel guests may yield net losses to the CBD sales volume. Given the small magnitude of expected revenue losses and the short time period involved, it is not anticipated that any employment loss in continuing businesses would arise from the disruptions caused by construction or that any business (other than the three to be relocated) would move or cease to operate because of disruption impacts.

The probable dollar volume of net CBD business losses has been estimated by Robert J. Harmon & Associates based on case studies of Metro construction in Washington, D.C., transit construction in Baltimore, Md., and Market Street reconstruction in San Francisco, Ca

Total 1982 CBD sales were estimated at $573 million based on expenditures in the following categories:

TABLE IV-13G
1982 CBD Expenditures

Category	Total	CBD Employees Total	Visitors Total	CBD Residents	Other
Eating/Drinking	$110	$ 78	$20	$1	$ 11
General Merchandise	370	45	5	1	319
Convenience Goods	56	10	2	1	43
Other	37	4	-	1	32
Total	$573	$137	$27	$4	$405

Source: Robert J. Harmon & Associates, 1978; CRA Task 4.09

Approximately 60% of the CBD employment was in the DPM Corridor in 1975, and this figure will be used as an approximation for the expenditure pattern. Assuming a five month construction period (14-18 weeks) at each location for 60% of the CBD yields a factor of .25 to be applied to annual expenditures that could be affected by DPM construction (or $143.8 million).

Of the people who normally buy goods and services, some would be more likely than others to shift their purchases outside the CBD and the city during the construction period. People who live and work outside the CBD would be most likely to avoid shopping there during a period of perceived disruption. CBD employees, visitors and residents are less likely to shift their purchases. Even if they were shifted temporarily, the bulk of the expenditures would probably still occur in the city, although outside the CBD.

The proportion of sales that would shift outside the CBD during construction ranges from one to five percent for the various shoppers and goods. The highest shifts are assumed for non-CBD employees, visitors or residents eating and drinking expenditures (see Task 4.09 for specific percentages).

Applying the .25 factor described above for expenditures that would be shifted during the five month construction period yields the following:

o Convenience retail expenditures 1% of CBD employees and visitors 3% of other (millions of $)	$0.3525
o General Merchandise expenditures 2% of CBD employees, residents and others 1% of visitors (millions of $)	$1.8375
o Eating/Drinking expenditures 1% of CBD employees and visitors 2% of CBD residents 5% of other (millions of $)	$0.3875
	$2.5775

Source: Robert J. Harmon & Associates, 1978

Of the potential $2.58 million sales shift, approximately 40% ($1.03 million) could shift to merchants outside the city. (Robert J. Harmon estimate based on residences of CBD employees reported in Wilbur Smith Associates 1976 CBD employee survey).

A $1.03 million sales shift would result in a $10,300 loss in sales tax receipts to the city.

In addition to retail sales losses there could also be losses in hotel revenues and hotel tax receipts to the city (at 6%). Three Class A hotels are adjacent to the route (Bonaventure, Biltmore and Hilton) with a combined total of 3,800 rooms. Over a five month period 571,800 room nights could be affected at $40 a night. There are also approximately 1,000 rooms at lesser priced hotels (e.g., Holiday Inn) for a total of 150,000 room nights at $25 per night. Assuming a 1% shift outside the CBD for each type of hotel results in an expenditure shift of $265,500; 10% of these revenues could shift out of the city for a loss in hotel tax receipts to the city of $1,600.

<u>Mitigation Measures to Reduce the Length of the Construction Period</u>

- o Multiple crews working simultaneously at several critical locations throughout the system.
- o Careful scheduling to minimize time on location and attention to reducing noise and dust impacts near fast-food restaurants, small businesses and service stores.
- o Particular scheduling to minimize or limit the restricting of pedestrian access to the guideway side of the street.
- o Merchant and media programs to indicate alternate parking and approaches, special sales and events to attract customers.
- o Scheduling to reduce uncertainties so that retailers' plans for special sales, advertising or alternate parking arrangements are coordinated effectively with the construction schedule.

IV-140 CONSTRUCTION IMPACTS ON TRANSPORTATION

IV-141 MAJOR CONSTRUCTION IMPACTS ON TRANSPORTATION: TRAFFIC

Maintenance of normal traffic movement is of concern to the DPM construction program. Even with careful planning, it is anticipated that traffic congestion will be created at various points along the DPM route. In this section, the street segments most affected by DPM construction are identified. The construction activities that will have the greatest impact on traffic are discussed as are possible mitigation measures.

To analyze traffic impacts caused by construction, the project has been divided into four segments, as follows:

1. The elevated guideway from Union Station to the tunnel section.
2. The tunnel section through Bunker Hill.
3. The remainder of the elevated guideway to the Convention Center.
4. The stations.

The first portion of the route is constructed, for the most part, within private rights-of-way along the east side of Los Angeles Street, the north side of 1st Street, and the west side of Hill Street. Therefore, utility relocations are minimized and column placement or other construction activities are removed from the traveled way. Disruption of traffic along this portion of the route will, therefore, be minimal.

An exception occurs as the guideway passes over the Santa Ana Freeway at Los Angeles Street. Three columns will be placed close to the freeway, two near the northbound and southbound on ramps and one in the median. Although most of the column placement work can be performed from the surfact street level, it may be necessary to close one freeway lane southbound and one freeway lane northbound for the column foundation placement. The median column foundation placement may require closure of one lane in each direction. Each column placement will require approximately three to four weeks. Precast columns will be used at these locations to minimize traffic disruption. The column setting will take less than one day. The median column setting will require freeway closure in both directions for a few hours one night to ensure traffic safety. Hoisting the guideway sections into place over the freeway will also require temporary closure of the freeway. The closure will be staged so that the northbound lanes will be closed for a few hours one night and the southbound lanes will be closed the next night. Guideway finishing activity will no affect freeway traffic.

The tunnel section through Bunker Hill extends from Hill Street along 3rd Place, turns northward crossing Olive Street, Grand Avenue, and Hope Street to the portal in the Security Pacific Bank at Flower Street. Since the Hope Street portion of the tunnel is already built, construction of this segment will affect only Olive Street, 3rd Place, and lower Grand Avenue. These streets currently have low volumes of auto traffic.

From a construction standpoint, it is most desirable to close 3rd Place between Olive Street and Grand Avenue for the 9-12 month period during construction. If developments on the adjacent lots eliminate this possibility, the street can be decked over after excavation. Two lanes at a time on lower Grand Avenue will be closed for approximately one week, for excavation and covering. Temporary marking would be provided for two-way traffic flow on the remaining half of the street.

The construction activity associated with both the Union Station and Convention Center intercept stations will be conducted on vacant land away from the street and will cause negligible traffic impacts. The traffic impacts during construction of the other stations will depend on location. As with construction of the guideway, those stations located furthest from the roadway will have a minimum impact while those that extend over the roadway will result in maximum traffic disruption.

Critical Construction Procedures

Those steps involving erecting and pouring guideway supports, placing of guideway and similar activities associated with aerial-station construction will have the greatest impact on traffic. These activities require large cranes, flatbed trucks, and other heavy equipment that have large turning radii and slow speeds. The equipment sometimes requires full street width. These steps are also some of the most time consuming (see construction schedule in Section II-400).

The minimum impact for these construction steps would be the closure of the curb lane during construction, while the worst case would be complete street closure during guideway placement at night. Intermediate steps might include the installation of detour striping or extensive use of traffic cones.

Critical Street Segments

The critical street segments affected by the DPM construction are 5th Street from Hill Street to Figueroa Street, Figueroa Street from 3rd to 5th, and from 7th Street to Olumpic Blvd. on the west side of Figueroa alignment. The center variation is discussed in the next section.

Utilities along 5th Street will be relocated from the curb area to the center of the street over a period of one-to-two months per block. During this period, one-to-two lanes will be closed in each block with the resulting traffic rerouting and increasing congestion. A similar traffic disruption for utility relocation will occur along Figueroa Street on the alignment with the guideway on the west side of Figueroa Street.

Placement of column foundations where the guideway is over the sidewalk will require excavations of up to six feet beyond the curb line along 5th Street between Olive Street and Grand Avenue, ten to fifteen feet beyond the curb between Olive Street and Figueroa Street, and up to six feet along Figueroa Street when the guideway is over the sidewalk.

These foundation excavations will cause a temporary loss of one or two traffic lanes for a period of about four weeks per block. Along 5th Street between Hill Street and Olive Street, the station and guideway are located to the south of 5th. To minimize congestion, simultaneous work on both sides of 5th Street will not be scheduled in the same time period.

5th Street is one-way westbound varying in width from 46 to 66 feet and is striped to accommodate four and five lanes of traffic. The roadway provides direct access to the northbound and southbound Harbor Freeway on-ramps and carries almost 2,000 vehicles during the p.m. peak hour. Volumes exceeding 23,000 vehicles a day have been recorded, indicating constant demand throughout most of the day.

The worst condition on 5th Street would occur between Grand Avenue and Hill Street where the roadway is narrow and the guideway shifts from the north to the south side of the street towards the Pershing Square station. On 5th the erection of guideway column supports will require the closure of at least one lane of traffic during construction, thereby reducing the through movement of traffic to a maximum of three lanes. Impacts on traffic may be increased by the construction of the Pershing Square station, which will require closing one lane on the south side of the street.

Figueroa Street is 56 feet wide from 7th Street to Olumpic Blvd. and is striped for three lanes of traffic in each direction during the peak hours. Traffic volumes on this segment approach 25,000 vehicles a day and operating speeds are less than 10 mph for peak traffic periods.

The guideway construction of this section along Figueroa Street would create severe impacts because of the high traffic volumes on Figueroa and its narrow lane widths. The placement of supports, the placement of elevated guideway and construction of the 9th Street station will necessitate closure of one and possibly two southbound lanes.

Between 3rd and 5th Streets, the roadway widens to 80 feet, therefore construction activity in the west sidewalk would not be as critical because of the wider lane widths. However, average daily traffic and peak hour through and turning movements are greater in volume for this section, indicating that traffic would be sensitive to delays necessitated by construction activities.

The closure of traffic lanes on both 5th and Figueroa Streets will cause traffic to seek out alternative routes, particularly during the p.m. peak hour when the impacts are most severe. To quantify those diversions, it was necessary to project traffic volumes to the 1981 construction year. These projections were determined by comparing 1975 volumes and 1990 projections contained in the Department of Traffic's Central Area Transportation Study 1975-1990 to establish growth rates for each street. Peak-hour volumes for 1981 were obtained from 1977 traffic count data expanded by the appropriate growth rate and modified slightly to reflect a continuing tendency towards "spreading" of the peak hour. Table IV-14A gives these 1981 projections for Average Daily Traffic (ADT) and for the afternoon peak direction.

The overall traffic congestion is also influenced by the estimated 1981 travel speeds. Department of Traffic Travel Speeds Studies for 1978, 1977, and 1976 were used to predict 1981 speeds in the peak hour considering traffic volume growth rates, improvements in level of traffic controls, potential increased vehicle occupancy rate and spreading of peak-hour demands. Based on these data, an estimation was made of 1981 p.m. peak-hour speeds on 5th and Figueroa Streets and on the streets on which diversion would likely occur. Speeds on most of Figueroa Street, on 5th Street between Hill Street and Grand Avenue, and on some of the heavily traveled diversion routes would be less than 10 mph. Traffic speeds on other roadways along and adjacent to the route would vary from 10 mph to 20 mph. It is reasonable to assume that diversion will occur on all nearby roadways since block lengths are short and density of development is high.

It was assumed that the worst case situation would be the closure of a critical street segment during the p.m. peak hour and the assignment of the projected 1981 p.m. peak-hour volumes to parallel streets. This assignment does not consider those trips that would not be made at all because of construction congestion. The results of the diversion analysis are given in Table IV-14B.

TABLE IV-14A

PROJECTED TRAFFIC VOLUMES, 1981

Street	Street Segment	ADT	PM Peak Hour
5th	Harbor Freeway to Figueroa	33,800	2,740
	Figueroa to Flower	24,100	2,160
	Flower to Grand	20,800	1,900
	Grand to Olive	18,200	1,670
	Olive to Hill	16,500	1,320
Figueroa	11th to Olumpic	21,300	1,200
	Olympic to 9th	23,500	1,430
	9th to 8th	21,800	1,240
	8th to 7th	20,300	1,170
	7th to Wilshire	22,400	1,290
	Wilshire to 6th	25,500	1,610
	6th to 5th	26,200	1,670
	5th to 4th	28,100	1,820
	4th to 3rd	29,200	2,200

Source: Department of Traffic, Central Area Transportation Study, 1975-1990, June, 1977.
Department of Traffic, 1977 Traffic Flow Maps, July, 1978.
Department of Traffic, Traffic Counts 1977, 1978.

TABLE IV-14B
ANALYSIS OF TRAFFIC DIVERSION DURING DPM CONSTRUCTION

Street	Critical Segment	Direction of Travel	Principal Diversion Routes	Diverted Volumes
5th	Olive to Grand	Westbound	1st	100
			2nd	100
			3rd	500
			7th	370
			8th	400
			Olympic	100
			11th	100
				1,670
Figueroa	9th to Olympic	Southbound	Union	100
			Harbor Fwy	500
			Flower	430
			Hope	150
			Grand	150
			Olive	100
				1,430
Figueroa	3rd to 5th	Northbound	Beaudry/ Boylston/ Lucas	300
			Harbor Fwy	800
			Flower	500
			Grand	400
			Olive	100
				2,100

The addition of diverted volumes from 5th Street would seriously affect traffic flow on 3rd, 7th and 8th Streets since these roadways will each carry approximately 1,500 vehicles during the 1981 p.m. peak. A ripple effect may occur as traffic is diverted from one parallel street to the next. The most critical avenues would be those leading to the Harbor Freeway ramps at 3rd, 5th and 8th Streets, and possibly at 11th Street.

Vehicles diverted from the southerly section of Figueroa Street to the Harbor Freeway would increase the peak hour congestion on the freeway. The streets to the east of Figueroa Street (e.g. Flower, Hope, Olive), on the other hand, could accommodate the projected diversions without exceeding capacity limitations if diversion occurs south of 7th Street. Northbound vehicles diverted from Figueroa Street between 3rd Street and 5th Street would cause excessive congestion on the northbound Harbor Freeway and on northbound Flower Street and could result in diversion to Beaudry Avenue, Boylston Street, and Lucas Avenue to the west and Grand Avenue and Olive Street to the east. It would appear that the disruption of traffic on Figueroa Street would be greater than on 5th Street since Figueroa Street traffic is two-directional and is the prime diversion route when the Harbor Freeway is congested.

Curb parking is permitted on both sides of Figueroa Street from 8th Street to Olympic Blvd. during the hours of 9 a.m. to 4 p.m. Parking meters have also been installed along this segment.

Construction activities in the west sidewalk would require the elimination of parking on the west side of Figueroa Street. No interference with parking on the east side of the street is anticipated. There are sufficient off-street facilities to accommodate the increased demand, although increased walking distances can be expected.

Mitigation Measures

There are a number of measures that can mitigate the disruption to traffic flow. First, there should be no construction activity in the moving traffic lanes during the hours of 7-9 a.m. and 4-6 p.m. Second, night and weekend construction should be encouraged wherever feasible, particularly for those activities that require full street width. Third, construction can be expedited by the use of precast guideway sections. Fourth, organization of the activities and the staging of the construction equipment should be coordinated to minimize the time between opening an excavation and closing it on installating a temporary cover.

Any mitigating measure employed should conform to local standards and codes.

In the vicinity of the Santa Ana Freeway, Aliso and Arcadia Streets can be used as alternative bypass routes during periods of freeway closure. Southbound traffic could exit on Broadway, continue on Aliso Street, and re-enter the freeway via Los Angeles Street. Northbound traffic could enter the freeway on Broadway. Impacts would be reduced if the majority of the work were conducted during night and early morning hours.

Mitigation measures for 5th and Figueroa Streets are more difficult, especially on 5th. Traffic signs should be used to alert motorists to the location and duration of construction activities on 5th Street, Figueroa Street, and others, as necessary. Specific detour routes are not anticipated due to the number of nearby parallel streets to which traffic can be diverted.

Since Figueroa Street is two-way, the roadway could be used with reversible lanes providing preferential flow northbound in the morning and southbound in the evening peak. This could be accomplished by restriping the pavement and/or the use of traffic cones.

Traffic Impacts: Center of Figueroa Street Variation

Constructing the DPM alignment in the center of Figueroa Street from 3rd Street to 12th Street would result in severe disruption to traffic. This section of Figueroa Street provides access to and from the Harbor Freeway at a number of locations, the most critical of which are 3rd, 5th and 6th Streets, where ramp access is available directly west of Figueroa Street. Therefore, there is a constant demand on both Figueroa Street and these east-west streets. Any impedance to turning movements from Figueroa Street or through movements on the other roadways would not only disrupt traffic on those arteries, but would also impair circulation throughout the west side of the CBD.

Due to changes in roadway geometry, an analysis of various sections of Figueroa Street will be necessary. Included in this discussion are current data regarding traffic volumes and speeds based on Department of Traffic circulation distribution studies (1978), traffic flow maps (1977), and 1977 traffic counts (1978). Proposed mitigation measures are listed at the end of this section.

Between 3rd and 4th Streets, Figueroa Street is 80 feet wide. Except for a 100-foot long island north of 4th Street, there is no existing, raised median. South of 3rd Street, the roadway is striped to provide three through lanes in each direction

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[1] a. Dept. of Traffic, L.A. CBD Circulation & Distribution System, July 1978.
b. Dept. of Traffic, 1977 Traffic Flow Maps, July 1978.
c. Dept. of Traffic, Traffic Counts--1977, 1978.

during the peak hours, plus two northbound left-turn lanes, which accommodate the heavy left-turn demand to the Harbor Freeway ramps. The construction of the DPM would require the installation of a continuous eight-foot raised median in this block. Since the street is not being widened, there would be a significant reduction in the number of existing lanes and a concomitant loss of capacity. The most disruptive construction activities would be the excavation for footings and the drilling of piles, since these activities require the greatest width for a period of about four weeks per block. One left-turn lane and possibly both left-turn lanes would be closed during construction in addition to one through lane in each direction. This section of roadway carries 24,500 vehicles daily with a northbound p.m. peak-hour volume of 2,103 including 420 left turners. The northbound p.m. peak hour speed was measured as 12.9 mph in 1978. Southbound traffic is also heavy during the a.m. peak with 1,662 vehicles operating at a speed of 12.3 mph. Construction disruption would: cause considerable congestion at 3rd Street; impede access to the Harbor Freeway; divert vehicle trips to Flower Street, Grand Avenue, 5th Street, and Temple Street; and restrict access to the World Trade Center parking facility for southbound motorists.

A raised median varying from four feet to fourteen feet in width has been installed on Figueroa Street from 5th Street to approximately 300 feet north of 5th Street where there is a break of 100 feet before a 14-foot island resumes for 125 feet to 4th Street and 5th Street since these roadways operate as one-way eastbound and westbound, respectively. However, the through-number and right-turning movements approach 2,000 vehicles per hour during the a.m. and p.m. peaks for southbound and northbound traffic and those motorists would be adversely affected by the closure of one through lane in each direction while foundations and footings were constructed. Also affected would be northbound motorists desiring to turn left into the Union Bank parking garage, which would no longer be accessible from the south. Southbound vehicle speeds are currently less than 10 mph for both peaks and these values would be expected to deteriorate during construction.

The next segment to discuss extends from 5th Street to 6th Street. The roadway is 80 feet wide and is striped for peak hour use of three through lanes of traffic and one left turn lane north of 6th Street and three through lanes southbound, two through lanes northbound, one left turn lane, and one optional left turn/through lane south of 5th Street. The striping would be modified to maintain the existing number of lanes plus an eight-foot median without any street width modifications. Disruption would be most critical for northbound motorists endeavoring to reach the Harbor Freeway ramps. The ADT is almost 26,000 vehicles with a p.m. peak hour volume of 1,920 vehicles. Northbound traffic during the a.m. peak and midday periods exceeds 1,000 vehicles per hour, an indication of the importance of this access route. Northbound vehicle speeds range from 7 mph during the p.m. peak to 14 mph during the a.m. peak. Again it is anticipated that these speeds would be reduced and congestion would increase in the area with diversion routes, including discontinous local streets west of the Harbor Freeway being used by some motorists. Also impacted on this segment would be left turners to and from the Jonathan Club and Hotel Clarion parking facilities.

From south of 6th Street to Olympic Boulevard the roadway width of Figueroa Street is 56 feet with the exception of the block between Wilshire Boulevard and 7th Street where there is an additional 10 feet of roadway west of the center line of the street. Peak striping provides three lanes of traffic in each direction. To maintain a 56-foot minimum roadway, a four-foot width of sidewalk would be converted to roadway use by street modification and an eight-foot median would be installed. Additional street modifications would be required on the west side of Figueroa Street south of 6th Street to provide an adequate transition for southbound striping through the intersection.

The widening process will be accomplished first, using doweled curbing and breaking out the sidewalk, then the old curb, installing the new base. Since a portion of the work can be accomplished behind the old curb, traffic will be disrupted only for about one month per block. After completion of the street widening, construction will begin on the column foundations and center median. Six to eight weeks will be required to complete the foundation work and median construction for each block. An additional two weeks will be required for major structural work at the stations. During these periods traffic will be restricted to two lanes in each direction.

As along other sections, installation of precast guideway sections and pedways will be accomplished in the evening and night-time hours and will require closing of at least one side of the street to provide access to the site and maneuvering room.

Station finishing will be completed on site and the only other activities that could require temporary lane closure would be installation of major equipment items such as escalators. These would occur primarily in non-peak hours.

Prohibition of left turns for both directions at Wilshire Blvd. & 7th Street would probably be required during peak traffic periods. Other turning prohibitions would be installed for northbound traffic at 8th Street, southbound traffic at 9th Street, and southbound traffic at Olympic Boulevard. These street sections currently are used by approximately 20,000 vehicles each day with typical peak hour volumes of 1,100 vehicles. The average p.m. peak hour speed is less than 10 mph in each direction, an indication of the traffic sensitivity to narrow lanes, turning movements, and heavy vehicular volumes. After the street modification, four feet of additional roadway would be available on each side of the street. However, it would appear that the excavation and drilling stages would require retention of turning prohibitions and a maximum of two lanes of traffic in each direction. Disruption would be intense and motorists would use diversion routes east of Figueroa Street that currently provide relatively unimpeded flow south of 7th Street.

Once the existing curb is removed, parking will be prohibited. Local businesses will experience some disruption, although there are sufficient off-street facilities to accommodate the increased demand. Dependent on the final striping scheme, the parking prohibition could continue through the remainder of the construction phase and during operation of the DPM.

The final section for consideration extends from Olympic Boulevard to the Convention Center intercept site south of 12th Street. The roadway width is a constant 82 feet and peak hour striping accommodates three through lanes in each direction plus a continuous left-turn lane commencing approximately 100 feet south of Olympic Boulevard. By narrowing the existing lanes, the eight-foot median can be installed without widening the roadway. It is anticipated that a minimum of one through lane in each direction would be closed udring excavation and pile drilling. The longer block lengths, wider lanes, and lower volumes (less than 20,00 ADT) are generally responsible for the increased vehicle speeds although the northbound approach to Olympic Blvd. is still less than 10 mph during the p.m. peak. In general, the disruption in this section would be an order-of-magnitude less than the preceding sections provided that access to the Harbor Freeway via 11th Street is not impaired and congestion for northbound traffic north of Olympic Boulevard does not extend for a considerable distance.

Mitigation: Center of Figueroa Street Variation

The traffic construction disruption can be somewhat mitigated by the following techniques: night and weekend construction; precasting of columns and guideway sections; modification of traffic cignal timing for predominate demand; striping alterations; deployment of traffic-control officers; and appropriate installation of construction signing and barriers. Efforts would be necessary to minimize disruption to guests at the hotels and motels along this reach which would preclude late night construction activities at those locations.

IV-142 MINOR CONSTRUCTION IMPACTS ON TRANSPORTATION: PEDESTRIAN MOVEMENT

Construction Impacts on Pedestrian Movement.

The construction impact on pedestrian flow along the DPM route would be most noticeable during the excavation and pouring of the guideway footings. This construction step would typically take four weeks per block and could require some sidewalk closure during that period.

The guideway-column foundations range from 9 feet by 9 feet to 14 feet by 14 feet, depending upon the guideway height and degree of eccentric loading. At those locations where sidewalk widths are narrow and building are located on the property line, the entire sidewalk area would be used during construction. Each column and foundation will be specifically located during the final design phase so that access to doorways can be maintained during construction. Portions of the sidewalk in the area of the foundation will be closed during excavation (approximately one day at each foundation). After the excavation is completed, temporary walk ways will be erected to allow pedestrian movement around the excavations and to the doorways.

Those locations where pedestrian access would be most affected are: Hill Street between 4th and 5th Streets; 5th Street between Olive Street and Grand Avenue; and Figueroa Street between 4th and 5th Streets and between 7th and 11th Streets, if the alignment is placed in the west side of Figueroa. The center of Figueroa variation will require sidewalk modification from 6th Street to Olympic Boulevard on both sides of the street.

During periods of closure, appropriate warning and regulatory signs would be installed and pedestrians would be diverted. The impact of these closures would be mitigated by scheduling excavation along each block in one period and bridging excavation sites to provide access.

Sidewalk closure would also be necessary while the guideway is erected along each block, or while pedway connections at the 5th, 7th, and 9th Street stations are installed. Since this construction will be accomplished at night, this closure should have minimal impact.

Pedestrian activities will be limited from 6th Street to Olympic if the street is widened in the center of Figueora Street alignment option.

IV-200 OPERATIONAL IMPACTS AND MITIGATION

The operating plan of the DPM is discussed in Section II-300, Project Description. The base operational year used in the following analysis is 1990. Although the system would be in operation by 1983, the full effects of the system on ridership and downtown development will not be felt for several years. 1990 was chosen as the plan year because it represented a good range for analysis and because it was the target year for employment and population projections used in the transportation needs analysis (see discussion of Phase I studies in Chapter I of this report).

Matrices showing the major and minor impacts of DPM operation are presented in Tables IV-20 A and B. These summary impacts apply to both the west side of Figueroa alignment and the center of the street variation shown in Figure IV-10A. On the matrices a brief description of each impact is provided along with references to this report and the Task Termination Report providing background documentation.

TABLE IV-20 A
MAJOR IMPACTS OF OPERATION 1/

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Visual/Aesthetics	DPM route and adjacent	New vista for DPM passengers Change in cityscape View obstructions, vista obstructions, potential visual incompatibilities	Potentially Beneficial/ Adverse	Improved visual access to DPM corridor;	Partial	IV-221	4.06 4.14
Transportation Service	Central Business District	Bus miles, transit ridership, parking	Beneficial	Reduced bus miles downtown	None	IV-241	4.23
	DPM Corridor	Travel time, costs, access to and linkages between activity centers, auto trip miles	Beneficial	Potential for improving CBD and minibus service Increased transit ridership Reduced need for additional parking facilities in CBD Reduced travel time for C/D trips Increased access to activity centers Reduced auto trip miles in CBD because of intercept parking			
Land Use Changes	Central Business District DPM Corridor	Conformance with adopted plans	Beneficial	Increased probability adopted plans will be realized	None	IV-221	4.15, 4.30 4.30
Office	DPM Corridor	Floor space, occupancy rates, timing of development	Beneficial	1.0-1.1 million sq. ft. of internally generated commercial office space	None		4.15

1/ Information in this matrix applies to both the west side of Figueora Street alignment and the center of Figueora Street variation (see Figure 10A).

TABLE IV-20 A Continued
MAJOR IMPACTS OF OPERATION

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Residential Population	DPM Corridor	Number of people	Beneficial	Approximately 3,000 additional residents by 1990 Change in demographic and social mix of downtown residents	None	IV-231	4.15

TABLE IV-20 B
MINOR IMPACTS OF OPERATION [1/]

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Air Quality	Air quality study area	Emissions, tons/day	Beneficial	Slight decline in total emmissions in study area	Emmissions not mitig-able	IV-212	4.22
	Intercepts	CO concentrations, PPM	Adverse	CO concentrations slightly higher at parking intercepts	CO partially mitigable		
Noise	DPM Corridor	L_{10} and L_{eq} values at 82 reading points	Probably very minor bene-ficial	DPM noise spectra are quieter than buses	Partial	IV-212	4.21
		Violation of local and federal standards		Noise levels will still exceed federal standards			4.21
Historic Sites and Parks	DPM Corridor	Right of Way (ROW) acquisition at certain sites	Potentially adverse	Acquisition of ROW at potential historic landmarks	Partial	IV-222	4.31, 4.32
		Visual obstruction of certain sites	Potentially adverse	Partial obstruction of views of some buildings	Partial		
		New views of some sites	Beneficial	Increased visibility and new views of some sites	None		
		Accessibility	Beneficial	Increased accessi-bility to some landmarks	None		
				Acquisition of .06 acres at Pershing Square and .123 acres of Father Serra Park	Partial		

1/ Information in this matrix applies to both the west side of Figueora Street alignment and the center of Figueora Street variation (see Figure 10A).

TABLE IV-20 B Continued

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
				700,000-800,000 sq. ft. of regional office head-quarters			
				accelerated development 3-5 planned projects			
Hotel	DPM Corridor	CBD capture of room night demand, occupancy rates, timing and location of development	Beneficial	160,000 hotel room night demand increase	None	IV-221	4.15 4.30
				One additional 500-600 room hotel			
				Increased occupancy rates at existing hotels			
Residential	DPM Corridor	Numbers of units, adsorption rate, timing, and location of development	Beneficial	Additional 630 units of market rate housing in Bunker Hill by 1990	None	IV-221	4.15
				Additional 1300 to 1500 units or market rate housing in South Park by 1990			
				Increased absorption rate of housing units in Bunker Hill and South Park			
Retail	DPM Corridor	Total dollar volume, number of square feet	Beneficial	Approximately $90,000,000 annual net increase in sales volume	None	IV-221	4.15, 4.30
				100,000 sq. ft. net in-crease in retail space			
				50,000 sq. ft. net in-crease in restaurant space			
Tax Base	DPM Corridor	Increases in value	Beneficial	Increases in land and improvement values	None	IV-231	4.16
				Increase in payrolls			
				Increase in per capital expenditures			

TABLE IV-20 B Continued

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Open Space	DPM Corridor	Accessibility	Beneficial	Increased accessibility to some sites	None	IV-222	4.32
		New views	Beneficial	Increased visibility and new views of some sites	None		
		Visual obstruction	Potentially adverse	Partial obstruction of views	Partial		
Community Services Fire/Police	DPM Corridor	Number of personnel	Very minor	Additional foot patrols for parking structures	Partial	IV-222	4.29
		Emergency acess	Adverse	Guideway could limit emergency access to certain buildings	Partial		
Social Services	DPM Corridor	Access	Beneficial	Improved access to civic center and other municipal/social services along corridor	None	IV-222	4.24
Energy	Department of Water & Power area	Annual KWH	Very minor	DPM energy requirements would constitute .02% of DWP demand in 1990	Partial	IV-212	4.25
Traffic	DPM Corridor	Congestion	Beneficial	Decrease in ADT on streets in corridor	None	IV-242	4.23
Safety	DPM System	Accident potential	Probably beneficial	Vehicle and systems safety should be of high quality	Partial	IV-232	4.26
Security	DPM System	Crime potential	Very minor adverse	Vehicles, stations, parking areas provide opportunities for crimes	Partial	IV-232	4.26
Regional Transportation	Region	Connections with other modes	Beneficial	Increase connections with other modes	None	IV-242	4.23

TABLE IV-20 B Concluded

CATEGORY OF IMPACT	PRIMARY IMPACT AREA	MEASURES	IMPACT DETERMINATION	DESCRIPTION	LEVEL OF MITIGATION	SECTION IN REPORT	TASK ORDER #
Tax Revenues	City, County, state, federal taxing jurisdictions	Dollar taxes collected	Beneficial	Approximately $800,000 annual 1990 increase in sales tax receipts to the City of Los Angeles Approximately $500,000 annual 1990 increases in property tax receipts to the City of Los Angeles Approximately $300,000 annual 1990 increase in hotel tax receipts to City of Los Angeles	None	IV-231	4.16
Employed Population	DPM Corridor	Numbers of employees	Beneficial	8200 new employees in DPM corridor.	None	IV-231	4.13
Elderly/Handicapped Social Services	DPM Corridor	Access to specialized services	Beneficial	Increased access to special services at Bunker Hill elderly housing project Improved access to other governmental and social services	None	IV-231	4.24

Source: CRA, 1978

While the general operational impacts of the west side of Figueroa alignment and the center of the street variation are essentially the same, there are site-specific impact variations. These site-specific differences are discussed in Section IV-210.

Both the west side of Figueroa Street alignment and the center of Figueroa Street variation have the same general operational impacts. However, differences exist in the areas of transportation services, traffic, visual, historic properties, security, and community services. A brief summary of these differences follows.

Transportation Services: Travel time between 7th and 5th streets could be improved. A station on Figueroa could be more visible and easier to access.

Traffic: Operating the DPM in the center of Figueroa could have different impacts on traffic operations. To some extent turning movements could be restricted. To maintain the same number of through traffic lanes as exists today, the street would have to be widened between 6th and Olympic.

Traffic Safety: The raised median along Figueroa and obstruction of certain views by columns will likely cause some traffic accidents. On the other hand restriction of left turns from driveways will eliminate other accidents.

Visual: Operating the DPM in the center of Figueroa would result in differing visual impacts. Views of major places that would be partially obstructed include St. Paul's Cathedral, the Hilton Hotel, and the Jonathan Club. On the other hand, locating the guideway in the center of Figueroa Street was judged less visually obtrusive in an overall sense than locating it immediately adjacent to buildings.

Historic Properties: If the system were routed along the center of Figueroa it would pass St. Paul's Cathedral and Fire Station 23. Both of these places are on the local register of historic properties.

Community Services: External accessibility by fire fighting units to second and third stories of buildings on the west side of Figueroa Street would be improved.

Security: A station in the center of Figueroa could probably be perceived as safer than one at 5th and Fremont Streets.

IV-210 OPERATIONAL IMPACTS ON THE NATURAL ENVIRONMENT

IV-211 Major Operational Impacts on the Natural Environment

An initial screening of environmental impacts (see The Initial Study, Appendix 5) and the environmental studies performed in this phase and previous phases (see Technical Appendix for listings) determined that there were no major operational impacts on the natural enviroment that would result from implementation of this project.

IV-212 Minor Operational Impacts on the Natural Environment

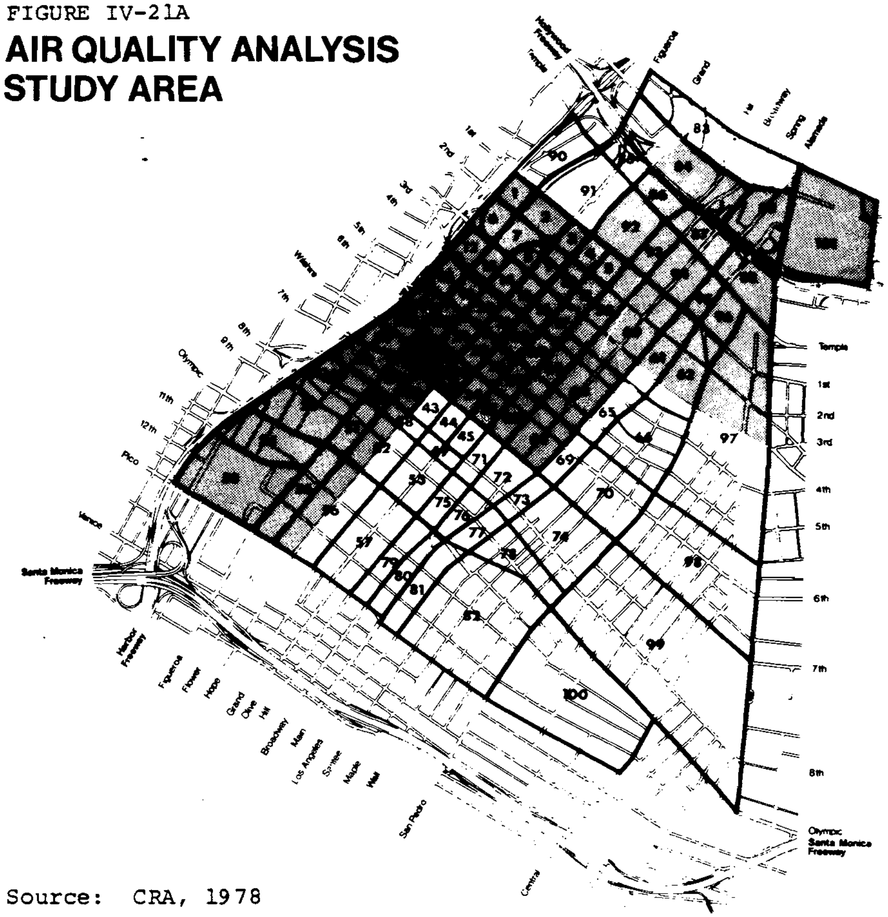
IV-212.1 Air Quality

The air quality analysis conducted for purposes of this document consisted of two parts: (1) a burden analysis of air pollution increments produced within the study area and (2) a microscale analysis of carbon monoxide concentration in the vicinity of each of the two proposed intercept facilities. No attempt was made to quantify the potential effects on secondary pollutants due to the complexity of photochemical processes which produce such pollutants, and the uncertainty of available estimation methods. The results of the analysis demonstrate that incremental changes in emissions resulting from implementation of a DPM are nearly insignificant at the regional scale and only minor at a more local scale. Carbon monoxide concentrations at each of two proposed intercept locations were found to be minor-to-insignificant, depending upon receptor location. The following sections describe briefly the methodology used and results of the analysis. For a more detailed account of the analysis procedures, the reader is referred to the appropriate technical appendix to this report.

Emissions analysis. For purposes of estimating the potential effects of a DPM system on emissions, a study area was chosen to fairly represent the extent of the potential measurable effect upon transportation performance. Since the automobile is the major source of emissions in a downtown area, a study area was defined beyond which the potential changes in automobile use would not be noticeable. Figure IV-21A shows the air quality analysis study area, based on estimated potential changes in traffic volumes by the Department of Traffic.

FIGURE IV-21A

AIR QUALITY ANALYSIS STUDY AREA



Source: CRA, 1978

Individual 16 hour link volumes and 24 hour average speeds were supplied by the Department of Traffic, for light duty automobiles, for three conditions: 1977 (representing existing conditions), 1990 no project, and 1990 with DPM system in place. The link volumes and speeds were used to calculate total daily vehicle miles of travel (VMT) and emissions for light duty vehicles in the study area. Truck volumes were excluded as operation of the DPM would not affect them, and bus volumes were considered separately. Total daily VMT for each of the three cases were adjusted to correspond with cordon count information prepared by the Department of Traffic.

Bus volume information for 1978 was obtained from the SCRTD Planning Department for the CBD. Study area bus-miles were obtained by summing the SCRTD data according to census tract totals. 1990 bus-miles were obtained by factoring 1978 data by SCRTD expansion factors, which were based on anticipated employment growth. 1990 bus-miles for the DPM case were obtained using expected savings resulting from DPM usage and intercept information. (See Section IV-240.)

Emissions factors used were obtained from composite emissions factor calculations conducted by the Southern California Association of Governments, which in turn were derived from factor data presented in Mobile Source Emission Factors, U.S. Environmental Protection Agency, January 1978.

Emissions were calculated using the following procedure: (1) Hot stabilized emissions were first calculated using daily VMT figures. (2) Cold start emissions were calculated by assuming that all outbound trips in the afternoon peak period were operating in the cold start mode, as were a proportion of all other types which corresponded to the regional average. (3) Hot start emissions were calculated assuming the regional proportion of all trips. (4) Hot soak emissions were calculated for all inbound distribution trips. (5) Diurnal emissions were calculated for all autos parked in the CBD throughout the course of the day.

For the DPM system itself, emissions would be produced by the electrical generation facility which produced its power. Emissions factors for this were obtained from the EIR Manual for Private Projects, City of Los Angeles, 1978.

The results of the emissions analysis are displayed in Table IV-21A, for each of the three cases. Several conclusions can be drawn from this table. A dramatic improvement in emissions results in 1990, irrespective of transportation system, due to improvements in the technology of automobile emissions control. Carbon monoxide emissions improve by 53% between 1977 and 1990 null, for example. Secondly, 1990 DPM shows a slight improvement over the null case for every pollutant type, except sulfur oxides. Thirdly, the emissions produced by the DPM electrical power source does not have a significant effect on total emissions production, with the exception of sulfur oxides. As noted in the table, however, these emissions would not be experienced within the downtown area. At the regional scale, none of the three cases produces emissions that can be considered more than a minor proportion. Table IV-21B compares study area emissions estimates with estimates for the South Coast Air Basin. Data for the air basin estimates were obtained from the Southern California Association of Governments.

TABLE IV-21A

STUDY AREA EMISSIONS ESTIMATES, BY STAGE OF PRODUCTION
(Expressed in Tons per Day)

	Carbon Monoxide	Total Hydro-carbons	Nitrogen Oxides	Sulfur Oxides	Particulates
Automotive Emissions					
1977					
Hot Stabilized	12.569	1.116	0.865	0.063	0.137
Cold Start	38.278	3.217	1.804	0.065	0.227
Hot Start	2.682	0.305	0.284	0.009	0.034
Hot Soak		0.921			
Diurnal		0.338			
TOTAL	53.529	5.897	2.953	0.137	0.398
Automotive Emissions					
1990 NULL					
Hot Stabilized	3.267	0.303	0.539	0.079	0.110
Cold Start	20.740	1.608	1.120	0.087	0.168
Hot Start	0.893	0.152	0.134	0.013	0.025
Hot Soak		0.372			
Diurnal		0.045			
TOTAL	24.900	2.480	1.793	0.179	0.303
Automotive Emissions					
1990 DPM					
Hot Stabilized	2.972	0.275	0.508	0.073	0.104
Cold Start	19.626	1.521	1.059	0.082	0.159
Hot Start	0.834	0.142	0.125	0.012	0.023
Hot Soak		0.360			
Diurnal		0.048			
DPM Emissions (1)	0.006	0.005	0.065	0.151	0.011
TOTAL	23.438	2.351	1.757	0.318	0.297

(1) These emissions are actually produced outside the region, but are included here to represent the total quantity of emissions produced by the system

Source: CRA, 1978

TABLE IV-21B

COMPARISON OF SOUTH COAST AIR BASIN (SCAB) AND STUDY AREA MOBILE EMISSIONS
(Tons per Day)

	Carbon Monoxide	Total Hydro-carbons	Nitrogen Oxides	Sulfur Oxides	Particulates
SCAB (1976)	7692.8	844.0	693.6	37.1	93.9
STUDY AREA (1977)	53.5	5.9	2.9	0.1	0.4
STUDY AREA AS PORTION OF SCAB	0.7%	0.7%	0.4%	0.3%	0.4%
SCAB (1990)	1594	215	267	23	45
STUDY AREA (1990 NULL)	24.9	2.5	1.8	0.2	0.3
STUDY AREA (1990 DPM)	23.4	2.3	1.8	0.3	0.3
STUDY AREA (1990 DPM) AS PORTION OF SCAB	1.5%	1.1%	0.7%	0.8%	0.7%

Source of South Coast Air Basin data - Southern California Association of Governments, 1978.

Microscale analysis. Microscale air quality analysis generally refers to the estimation of emissions within close proximity of a specific site or facility. Implementation of the DPM system, as proposed, would result in two intercept/ parking facilities- one at Union Station and the other at the Convention Center. At each of the facilities there would be parking spaces for a large number of automobiles; 2000 at Union Station and 1750 at the Convention Center. In addition, at the Union Station facility there would be provisions for substantial bus activity from the El Monte busway. The presence of these large numbers of vehicles is initially cause for concern, in terms of potential exposure to high concentrations of pollutants, particularly carbon monoxide. Therefore, a microscale CO dispersion analysis was conducted at each facility.

To analyze the effects of carbon monoxide, a dispersion model, developed by Caltrans and accepted by EPA, known as CALINE 2 was used. CALINE 2 is based on the generalized Gaussian dispersion of carbon monoxide from a uniform line source. To apply the model to the problem at hand requires the representation of vehicular activity at the parking facilities as line sources. This is a simplifying, but reasonable assumption, as vehicular activity can be related to movements into or out of the facilities via aisles located within each structure.

The parking facility at the Convention Center would accommodate approximately 1750 vehicles. Of these, 1500 are estimated as of long term use and 250 of short term use. The parking structure is approximately 600 feet by 130 feet in size and would have approximately twelve parking levels. The structure would be located on the east side of Figueroa Street, between Pico Boulevard and Twelfth Street. In addition to the parking garage contribution would be vehicular activity on Figueroa, which is immediately adjacent to the west.

Receptor locations for the Convention Center facility (see Figure IV-21B) corresponding to points of continued human exposure were as follows:

1. Middle of sidewalk on east side of Figueroa

2. Mid point of parking garage interior

3. Middle of alley to the east of parking garage

4. Mid point of block between alley and Flower Street

5. Middle of sidewalk on west side of Flower Street

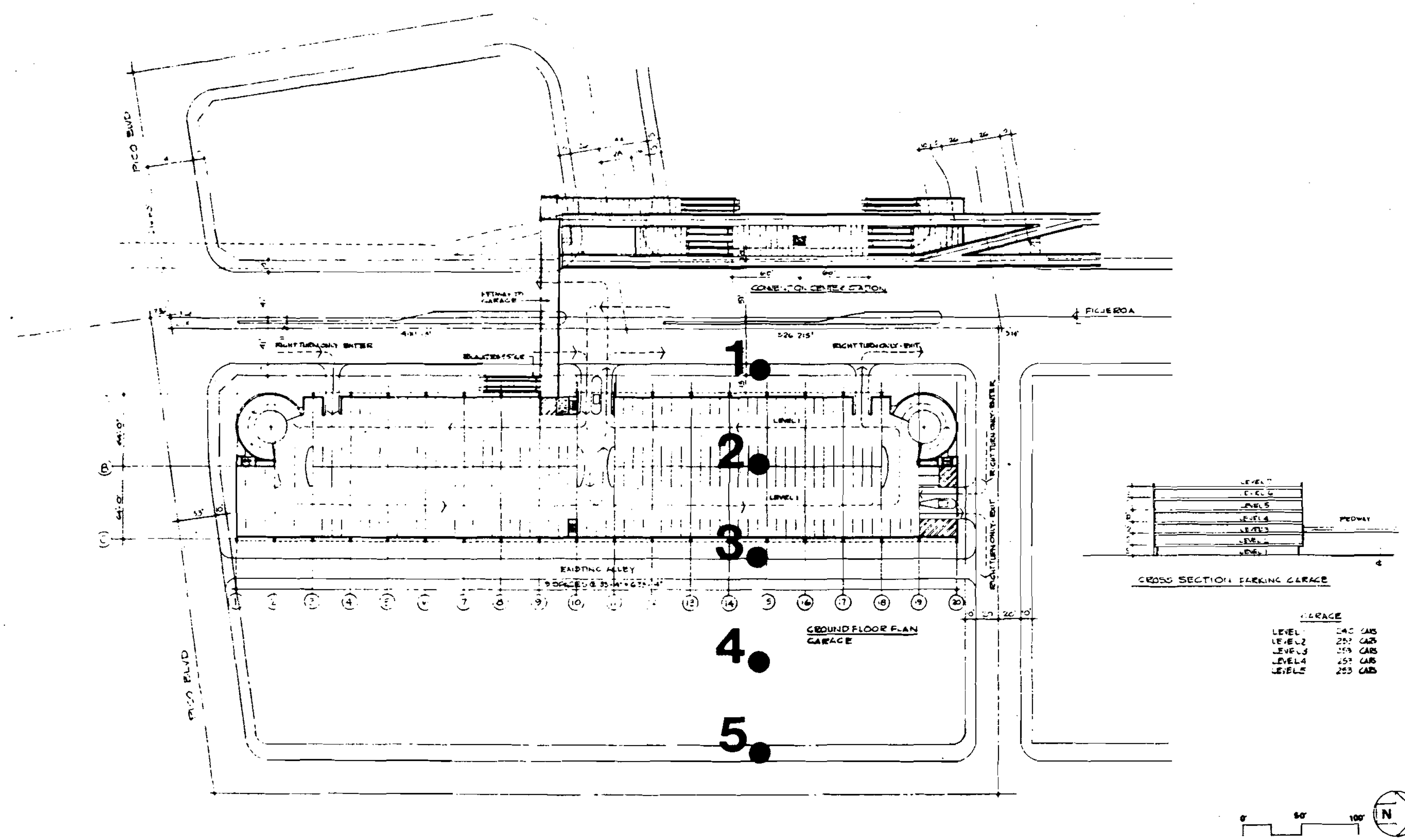
The Union Station parking facility lies in an area to the east of the existing track area and to the north of the Santa Ana freeway. Sources contributing to increased carbon monoxide include the freeway, the proposed extension of the El Monte busway, and the automobile/bus intercept. For purposes of modelling, the intercept was geographically divided in half, with automobile activity apportioned between the two halves on the basis of capacity. Capacity for the entire facility, which comprises six levels, is approximately 2000 spaces, 1500 of which are expected to be of long term use and 500 of short term use. Also, bus service extends to the intercept, in terms of both local and express routes both discharging and accepting passengers at bays within the structure. This was not modelled, however, because it would result in a duplication of the busway representation and because of small volumes in comparison with automobile activity.

Receptor locations for the Union Station facility (see Figure IV-21C) were selected as follows:

1. Mid point at the concourse level, representing waiting bus patrons

CARBON MONOXIDE MICROSCALE ANALYSIS CONVENTION CENTER RECEPTER LOCATIONS

FIGURE IV-21B



CONTRACTOR/AGENCY: DMJM

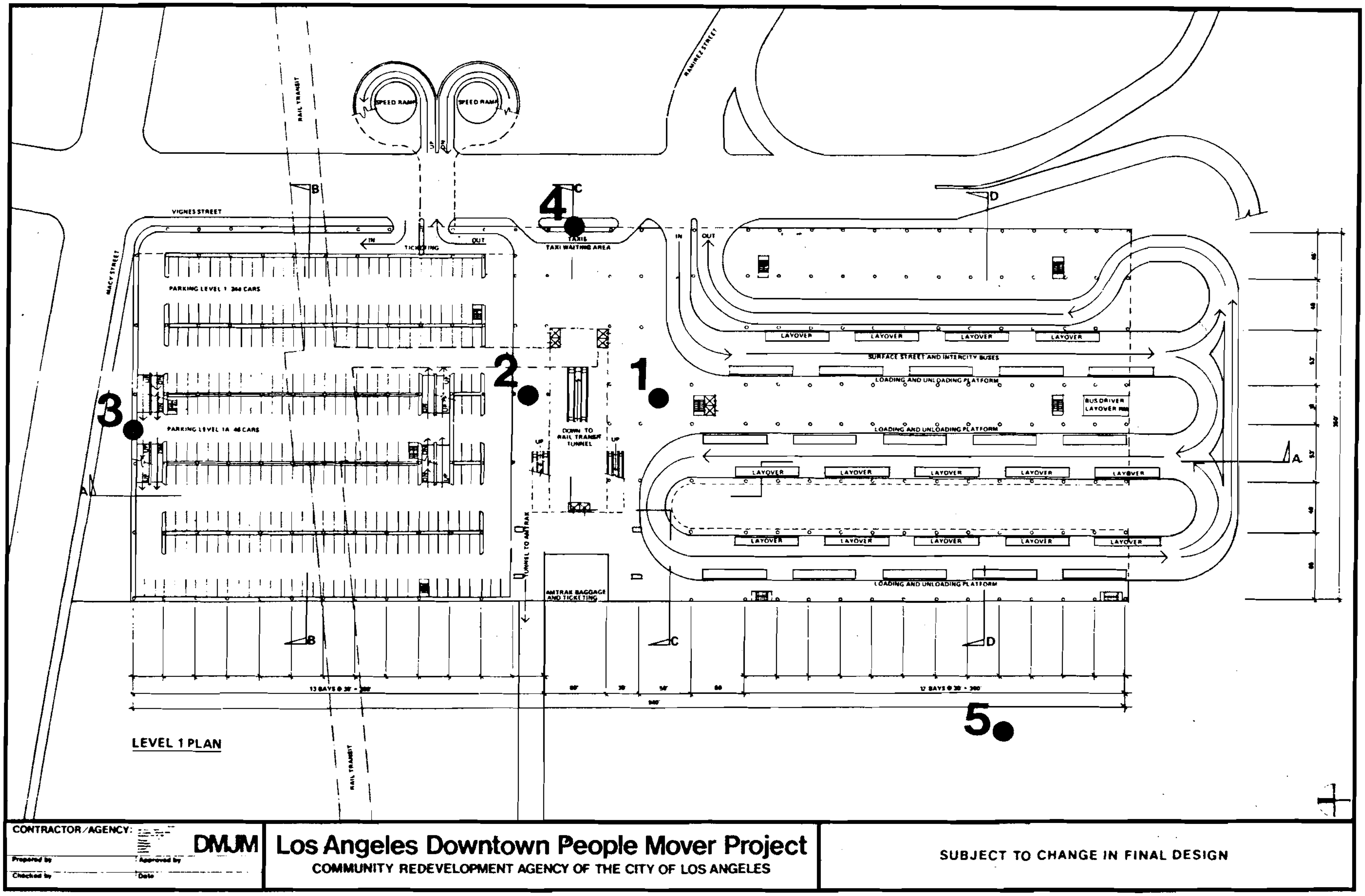
Los Angeles Downtown People Mover Project

COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF LOS ANGELES

SUBJECT TO CHANGE IN FINAL DESIGN

CARBON MONOXIDE MICROSCALE ANALYSIS
UNION STATION RECEPTER LOCATIONS

FIGURE IV-21C



2. Center of proposed commercial area, located approximately at the mid point of the structure

3. Middle of sidewalk, north building exterior

4. Midpoint of taxi waiting area, east building exterior

5. Midpoint of maintenance yard employee/visitor parking lot, west building exterior

To apply the CALINE 2 model, several assumptions are needed regarding meteorology, emissions factors and volume of vehicular activity. In terms of meteorology, a prevailing wind direction from the west was assumed at both Union Station and the Convention Center. An additional analysis was done at Union Station using a wind direction from the south, because of sources oriented in both directions. Wind speed was assumed to be 2 miles per hour and air stability was assumed to be Pasquill Class D. Both of these are worst case assumptions.

Vehicular traffic on roadways adjacent to each facility were obtained for 1977, 1990 no project, and 1990 DPM, for both peak hour and 8-hour average conditions. Both existing and projected volumes for Figueroa Street were obtained from the Department of Traffic. Traffic volumes for the Santa Ana freeway were obtained from CALTRANS, with 8 hour averages being calculated using cordon count information. Bus activity on the El Monte busway was obtained from the SCRTD Planning Department.

Results of the carbon monoxide dispersion modelling are displayed in Tables IV-21C,D, & E. Bearing in mind that the Federal peak hour and 8 hour standards are 35 ppm and 9 ppm, respectively, the following conclusions may be drawn

- o Between 1977 and 1990, technological improvements in automobile emissions characteristics are such that significant reductions in carbon monoxide concentrations result at both intercept facilities.

- o Neither peak hour nor 8-hour federal standards are violated under any conditions.

- o At the Convention Center intercept, between the 1990 null and DPM cases, peak-hour CO concentrations are improved at receptor 1. CO concentrations are increased at all other receptors.

- o At the Convention Center intercept, between the 1990 null and DPM cases, 8-hour CO concentrations remain the same at receptor 2. Improvements result at all other receptors.

- o At the Union Station intercept, with the wind direction from the west, between the 1990 null and DPM cases, peak hour CO concentrations increase at all receptors, with the increase at receptor 5 being very slight.

- o At the Union Station intercept, with the wind direction from the west, between the 1990 null and DPM cases, 8-hour CO concentrations increase at all but receptor 5, although the increases are minor.

- o At the Union Station intercept, with the wind direction from the south, between the 1990 null and DPM cases, peak hour CO concentrations are slightly increased at receptors 2,3, and 4. Concentrations remain the same at receptors 1 and 5.

TABLE IV-21C

CARBON MONOXIDE CONCENTRATION ANALYSIS CONVENTION CENTER INTERCEPT

Source Contribution	CO at Receptors (parts per million) 1	2	3	4	5
1977					
Figueroa Street - Peak Hour	2.0	1.5	1.4	1.3	1.2
Figueroa Street - 8-Hr. Avg.	1.2	0.9	0.8	0.8	0.7
1990 Null					
Figueroa Street - Peak Hour	0.8	0.6	0.5	0.5	0.5
Figueroa Street - 8-Hr. Avg.	0.7	0.6	0.5	0.5	0.4
1990 DPM/Peak Hr.					
Figueroa	0.4	0.4	0.3	0.3	0.3
Parking Garage	--	1.0	0.5	0.5	0.3
Total	0.4	1.4	0.8	0.8	0.3
1990 DPM/8-Hr. Avg.					
Figueroa	0.4	0.3	0.3	0.3	0.3
Parking Garage	--	0.3	0.1	0.1	0.1
Total	0.4	0.6	0.4	0.4	0.4

Source:

TABLE IV-21D

C .BON MONOXIDE CONCENTRATION ANALYSIS UNION STATION INTERCEPT - WIND FROM DUE WEST

Source Contribution	CO at Receptors (parts per million)				
	1	2	3	4	5
1977					
Santa Ana Freeway - Peak Hour	0.2	0	0	0.1	3.3
Santa Ana Freeway - 8-Hour Avg.	0.2	0	0	0.1	3.1
1990 NULL/Peak Hour					
Santa Ana Freeway	0.1	0	0	0	1.0
El Monte busway	0	0	0	0	0
Total	0.1	0	0	0	1.0
1990 NULL/8-Hour Avg.					
Santa Ana Freeway	0.1	0	0	0	0.9
El Monte busway	0	0	0	0	0
Total	0.1	0	0	0	0.9
1990 DPM/Peak Hour					
Santa Ana Freeway	0.1	0	0	0	1.0
El Monte busway	0	0	0	0	0
Pkg. garage - South side	0.2	0.2	0.3	0.3	0.1
Pkg. garage - North side	0.5	1.7	0.2	1.0	0
Total	0.8	1.9	0.5	1.3	1.1
1990 DPM/ 8-Hour Avg.					
Santa Ana Freeway	0.1	0	0	0	0.9
El Monte busway	0	0	0	0	0
Pkg. garage - South side	0.1	0	0.1	0.1	0
Pkg. garage - North side	0.1	0.4	0	0.2	0
Total	0.3	0.4	0.1	0.3	0.9

TABLE IV-21E

CARBON MONOXIDE CONCENTRATION ANALYSIS UNION STATION INTERCEPT - WIND FROM DUE SOUTH

Source Contribution	CO at Receptors (parts per million) 1	2	3	4	5
1977					
Santa Ana Freeway - Peak Hr.	2.7	2.4	2.1	2.6	3.2
Santa Ana Freeway - 8-Hour Avg.	2.5	2.2	2.0	2.4	3.0
1990 NULL/Peak Hour					
Santa Ana Freeway	0.8	0.7	0.6	0.7	0.9
El Monte busway	0	0	0	0	0
Total	0.8	0.7	0.6	0.7	0.9
1990 NULL - 8-Hour Avg.					
Santa Ana Freeway	0.7	0.6	0.6	0.7	0.8
El Monte busway	0	0	0	0	0
Total	0.7	0.6	0.6	0.7	0.8
1990 DPM - Peak Hour					
Santa Ana Freeway	0.8	0.7	0.6	0.7	0.9
El Monte busway	0	0	0	0	0
Pkg. garage - South side	--	--	--	0.1	--
Pkg. garage - North side	--	0.7	0.2	--	--
Total	0.8	1.4	0.8	0.8	0.9
1990 DPM - 8-Hour Avg.					
˜anta Ana Freeway	0.7	0.6	0.6	0.7	0.8
El Monte busway	0	0	0	0	0
Pkg. garage - South side	--	--	--	0	--
Pkg. garage - North side	--	0.2	0.1	--	--
Total	0.7	0.8	0.7	0.7	0.8

- At the Union Station intercept, with the wind direction from the south, between the 1990 null and DPM cases, 8-hour CO concentrations are increased very slightly at receptors 2 and 3. Concentrations remain the same at all other receptors.

It should be noted that background concentrations have not been added to the totals in the tables. A bag sampling analysis was not conducted for this document, but reasonable background levels can be established from other sources. In a study conducted for the proposed Central Los Angeles Parking Facility (Aero Vironment, 1977), bag sampling was conducted revealing an all day background CO level of 2 ppm for the general downtown area.

In guidelines prepared by the U.S.E.P.A. for analysis similar to the present problem (EPA, 1975), it is suggested that, in the absence of other data, general background levels of 5 ppm and 2 ppm, for the peak and 8-hour periods respectively, may be used for urbanized areas similar to a downtown.

To obtain 1990 background levels, it is necessary to factor present day values by the ratio of 1990 to 1977 emission factors. Performing this yields estimated 1990 CO background levels of 1.67 (peak-hour) and 0.67 (8-hour), respectively. Addition of these background levels would not alter the analysis conclusions.

The air quality analysis for system operation applies to both the west side of Figueora Street alignment and the center of Figueora Street variation.

IV-212.2 NOISE

Noise Analysis Methodology. Noise impacts resulting from DPM operation were evaluated using the following methodology:

- A study area was defined as that portion of downtown where DPM operation could have a direct and measurable noise impact. This area is a corridor centered along the DPM alignment and extending one-half block on each side of the route

- An ambient noise survey was conducted for the purposes of describing existing conditions and providing a known reference for calibrating the noise prediction computer model Ambient noise survey measurement locations are shown in Figure IV-21D Survey data is on file in the office of the Community Redevelopment Agency.

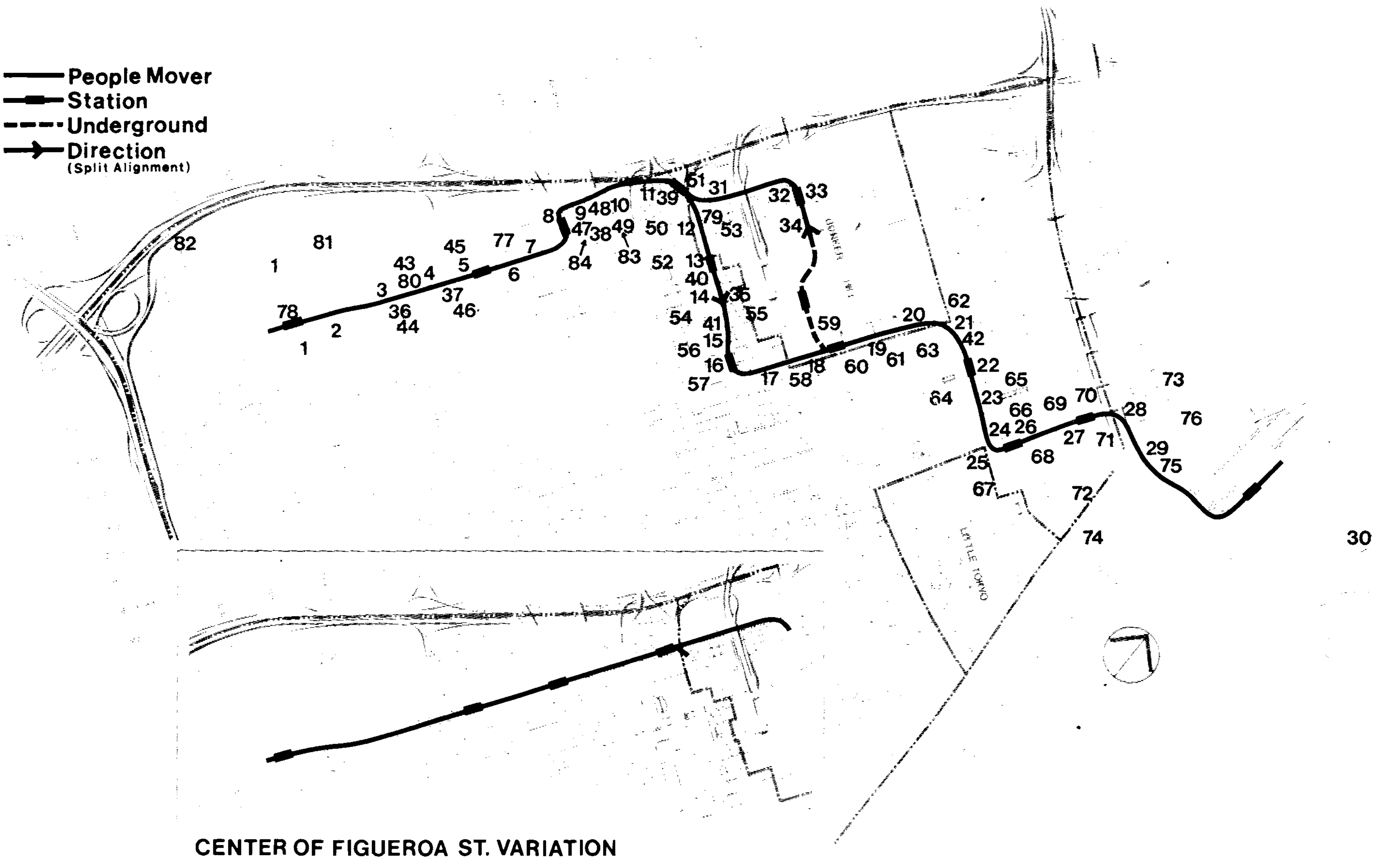
- 1978 p.m. peak hour noise levels were calculated and then checked against the ambient noise survey readings. The model was calibrated so that calculated levels compared with measured levels.

- The model was used to predict L_{10} and L_{eq} noise levels for midday, p.m. peak hour, and nighttime during 1978, 1990 Nul and 1990 with the DPM. Observer locations modelled in the computer program corresponded to measurement locations in the noise survey.

- The results of the model were evaluated against allowable federal L_{10} and L_{eq} noise level standards. Interior noise levels at noise sensitive locations were calculated and the compared with allowable levels.

FIGURE IV-21D

DPM AMBIENT NOISE SURVEY LOCATIONS



Source: CRA, 1978/ City of Los Angeles Dept. of Engineering

TABLE IV-21F

P.M. PEAK HOUR NOISE LEVELS

#	OBSERVER LOCATION	DESCRIPTION	1978 L_{10}	1978 L_{EQ}	1990 NULL L_{10}	1990 NULL L_{EQ}	1990 DPM L_{10}	1990 DPM L_{EQ}
78	FIGUEROA ST	W/S Between 12th St. & Tehran St.	72	71	73	72	77	76
2	FIGUEROA ST	E/S Between 11th St. & 12th St.	71	67	72	68	75	71
3	FIGUEROA ST	W/S Between Olympic Bl. & 11th St.	72	68	73	69	77	74
36	FIGUEROA ST	E/S Between Olympic Bl. & 11th St.	72	71	73	72	76	75
4	FIGUEROA ST	W/S Between 9th St. & Olympic Bl.	76	73	77	74	80	76
37	FIGUEROA ST	E/S Between 9th St. & Olympic Bl.	73	69	75	71	77	73
5	FIGUEROA ST	W/S Between 8th Pl. & 9th St.	74	72	75	73	78	76
6	FIGUEROA ST	E/S Between 8th St. & 9th St.	73	71	74	73	76	75
7	FIGUEROA ST	W/S Between 7th St. & 8th St.	72	69	73	71	75	73
8	Center of Proposed Mixed Use Dvlpmnt.		64	62	66	63	66	63
9	Francisco St. E/S Bet. 7th St. & Wilshire Bl.		74	75	75	76	83	83
10	6th St. S/S Bet. Figueroa St. & Harbor Frwy.		72	70	73	71	73	72
11	Fremont St. W/S Bet. 5th St. & 6th St.		68	67	70	68	78	75
51	5th St. N/S Bet. Figueroa St. & Harbor Frwy.		75	73	76	75	77	75
31	Figueroa St. W/S Bet. 4th St. & 5th St.		73	72	75	74	75	73
32	Figueroa St. E/S Bet. 3rd St. & 4th St.		75	73	76	74	77	76
33	3rd St. N/S Bet. Flower & Figueroa Sts.		72	68	73	69	73	69
34	3rd St. S/S Bet. Hope St.- & Flower St.		74	72	74	72	77	75
12	5th ST	S/S Between Flower & Figueroa Sts.	79	75	81	76	81	76
13	5th ST	S/S Between Grand Ave. & Flower St.	74	71	75	72	77	74
14	5th ST	S/S Between Grand Ave. & Flower St.	77	79	77	80	78	80
15	5th ST	At S-W Corner of Olive St.	80	77	82	79	79	76
16	5th ST	S/S Between Hill St. & Olive St.	77	74	78	75	78	75
17	HILL ST	E/S Between 4th St. & 5th St.	80	78	81	79	80	77
18	HILL ST	E/S Between 3rd St. & 4th St.	79	76	80	78	80	77
19	HILL ST	E/S Between 2nd St. & 3rd St.	74	73	75	73	75	74
20	HILL ST	W/S Between 1st St. & 2nd St.	73	71	74	72	74	72
21	1st ST	N/S Between Broadway & Hill St.	77	75	78	76	77	75
22	1st ST	N/S Between Spring St. & Broadway	73	72	74	73	74	73
23	1st ST	N/S Between main St. & Spring St.	73	73	74	74	75	75
24	1st ST	N/S Between Los Angeles & Main Sts.	71	69	72	71	73	71
25	1st ST	At S-E Corner of Los Angeles St.	74	72	76	73	76	73
26	Los Angeles St. W/S Bet. Temple & 1st Sts.		73	70	74	71	75	72
27	Los Angeles St. E/S Bet. Aliso & Temple Sts.		73	71	73	72	76	74
28	At N-E Corner of Los Angeles & Arcadia Sts.		75	74	76	76	75	74
29	Aliso St. N/S Bet. Alameda St. & Vignes St.		70	68	72	69	72	70
		AVERAGE =	74	72	75	73	76	74

Source: City of Los Angeles, Dept. of Engineering

Analysis Results. The p.m. peak-hour noise levels predicted with the computer model are listed in Table IV-21F, and include observer locations directly adjacent to the DPM route. Midday, p.m. peak hour, and nighttime noise levels for all observer locations are included in the Task 4.37 Termination Report. Table IV-21F shows p.m. peak-hour L10 and Leq levels for 1978, 1990 Null, and 1990 DPM cases.

Noise Impacts. The data clearly indicate that the DPM will have no significant impact on noise levels. About 12% of the observer locations currently experience peak-hour noise levels several decibels higher than allowable design noise limits. This condition does not appreciably change for the 1990 Null and 1990 DPM cases. The DPM, however, will have a minor beneficial noise impact in most of the study area because automobile volumes will decrease slightly after system implementation. Noise levels for each scenario and for each time of day change about one or two decibels, an imperceptible amount.

The Federal-Aid Highway Program Manual Transmittal 205, July 28, 1976 defines allowable L_{10} and L_{eq} design noise levels on the basis of five activity categories. The noise-sensitive land uses listed in Table IV-21G are included in activity category B; the remainder of land uses in the study area are included in category C. Table IV-21G lists the predicted interior attenuated noise levels at noise-sensitive locations during peak traffic hours for the 1990 Null and 1990 DPM scenarios.

Mitigation Measures. Measures to mitigate DPM noise are not required since its operation does not cause any adverse noise impacts. The noise levels presented in Table IV-21F result from the high volumes of autos, buses, and trucks using the downtown streets. The DPM system itself will serve as a mitigation measure to reduce noise because it reduces automobile volumes.

Findings of the noise analysis applies to both the west side of Figueora Street alignment and the center of Figueora Street variation (see Figure IV-10A).

TABLE IV-21G 1990 DPM PEAK HOUR NOISE LEVELS AT NOISE-SENSITIVE LOCATIONS

LAND USE	DISTANCE TO GUIDEWAY (ft.)	OPERATING L_{EQ} NOISE LEVEL AT BUILDING EXTERIOR (dBA)	ATTENUATED INTERIOR L_{EQ} NOISE LEVEL (dBA)
Holiday Inn	120	72	47
Belmont Apartments	80	73	48
Hotel Figueroa	10	76	50
Inn-Towne Hotel	10	76	51
Variety Arts Center	90	73	48
Kent Inn	90	72	47
Finkle Arms Hotel	80	73	48
Hilton Hotel	40	83	52
St. Paul's Cathedral	220	70	45
Jonathan Club	150	75	50
Bonaventure Hotel	20	73	48
Central Library	90	74	49
Ergstrom Apartments	70	75	50
Biltmore Hotel	60	76	51
San Carlos Hotel	10	76	51
Grace Baptist Church	60	75	50
Hill St. Hotel	150	67	42
Clark Hotel	80	77	52
Bunker Hill Towers	230	69	44
Myrick Hotel	90	77	52
Elderly Housing Project	10	74	49
Astor Apartments	90	74	49
County Law Library	20	75	50
New Otani Hotel	250	73	48

Source: City of Los Angeles, Dept. of Engineering

IV-212:3 ENERGY

The DPM system will consume operating energy in terms of both traction power and power to operate various subsystems. Table IV-21H shows total 1990 annual DPM system power consumption, inclusive of traction, escalators, lighting, control and yard operations, and maintenance. This table reveals that in 1990, the DPM system as a whole will consume some million kilowatt hours of electrical energy.

In 1976, the City of Los Angeles Department of Water and Power estimated its annual load at 18,548 x 10^6 kwh. Before the Arab oil embargo of 1973, the Department reports that growth in power consumption had been doubling every 10-12 years. Since that time, through various mandatory and voluntary conservation measures, the growth rate has been reduced to approximately 3 percent per year. Applying this growth rate to the 1976 load yields a 1990 load of approximately 26,300 x 10^6 kwh. The DPM system would require 23 x 10^6 kwh in 1990, or 0.087% of the total demand, which is a very small proportion and therefore would not produce a significant impact. Communication with DWP staff has confirmed this conclusion, as well as the local availability of such power through one of several downtown distribution stations.

TABLE IV-21H

1990 ANNUAL DPM POWER CONSUMPTION
(in kwh)

Traction Power (1)	=	12,249,600
Escalators (2)	=	2,811,840
Station Lighting (3)	=	1,483,500
Maintenance Building (4)	=	525,600
Control Center (5)	=	91,800
Miscellaneous (6)	=	14,300
SUB TOTAL	=	17,176,600
10% Contingency	=	1,717,600
TOTAL	=	18,894,200

(1) Based on vehicle consumption rate of 4.6khw/vehicle mile. Includes 8% line losses.

(2) Based on 58 escalators, operating at a rate of 7.5 kwh/hour.

(3) Based on power consumption ranging from 5-11 kwh/hour for a total of 13 stations.

(4) Based on consumption rate of 60 kwh/hour.

(5) Based on consumption rate of 12 kwh/hour.

(6) Includes subway ventilation requirements.

Source: CRA, 1978

IV-220 IMPACTS ON LAND USE AND URBAN DEVELOPMENT

IV-221.1 Major Operational Impacts on Land Use and Urban Development: Visual and Aesthetics

The overall impact of the DPM, visually and aesthetically, will depend upon the manner in which the system is designed and integrated into the environment. Also, to some extent it will depend upon the taste and attitudes of the observer.

The following pages discuss the DPM from both perspectives. First there is a generalized discussion of the visual and aesthetic considerations that were applied in analyzing the downtown visual environment, the design responses to that environment, and a more detailed description of tradeoffs found in guideway, column and station design. This general impact assessment is followed by a segment by segment analysis of visual impacts the guideway and stations are likely to have at specific points along the route.

221.11 General Visual Impact

221.111 Urban Environment

There are several identifiable aspects of the urban environment which have a bearing on the design of the people mover system.

- Architectural environment. The service area of the DPM system is mostly composed of buildings, streets, viaducts, and other facilities characterized by hard geometry and have been constructed of hard, durable materials. Although Los Angeles began with a Spanish motif in architecture and during the early decades of this century changed to an Art Nouveau, in recent years the downtown architectural "explosion" is distinguished by buildings in the contemporary manner, many of which are tall high rise structures.
- Landscape. A second aspect of the urban environment is its soft landscaped quality. The DPM service area contains several parks and tree planted streets and avenues.
- New development. The people mover corridor is in a constant state of development and change. On balance, the character of new developments is accelerating a change to a more contemporary look.
- Pedway system. Provision of second-story pedway facilities is a distinguishing mark of this accelerating change. The first stages of the pedway system are in place, and many additional pedways are being planned.
- Historical Associations. Downtown Los Angeles had a people mover system above ground for many years; today steps are being taken to reinstall the famous "Angels' Flight" on Bunker Hill.

221.112 Design Response to the Urban Environment

- The architectural response. The recommended guideway and station locations have been selected with great care to enable a blending of the architectonic quality of those facilities with the adjacent architectural and engineering structures. Preliminary designs of guideway types, the rhythm of supporting elements, the concept of open station structures, and the integration of stations with proposed buildings along the route are all of a continuing design response to the architectural environment.
- Response to landscape. The planning of route location for guideway and station areas with soft landscaping, trees, and parks has been handled to preserve as much of the environment as possible. The following considerations have been incorporated into the designs: replacement of disturbed plant material; the provision for additional landscaped areas to complement existing "soft" areas; creation of new landscaped station plazas; and careful threading

of the guideway structure through existing trees so that an aesthetic contrast between soft plants and hard structure can enhance the urban scene.

- Integration into new development. Architectural drawings, perspectives and sketches were reviewed wherever possible for all proposed developments in downtown. The quality of the built environment, when all of these buildings are completed, will be much more architecturally defined than it has been in the past. Wherever possible efforts have been made to integrate station and building design.
- Integration with existing development. Existing structures were also analyzed in an attempt to integrate their geometry with that of the guideway and stations.
- Integration with pedway system. Alternative alignments were assessed in the context of existing and proposed pedways to effect maximum mutual utilization. Existing and future pedways were taken into consideration during design of the station access plans.
- Historical Associations. The DPM will be adjacent to the refurnished Angels' Flight on the west side of Hill Street. Connections between the two systems will be possible; but the visual juxtaposition of the Angels' Flight funicular and the contemporary lines of the DPM will provide an exciting visual contrast between traditional and modern ways of moving people in Los Angeles.

A Unifying Visual Element

A visual system with linear, continuous character, rhythmical structural elements, attractive moving vehicles, architecturally designed stations can bring a unifying thread of civic beauty to downtown.

Final Design

The general elements of the DPM system are designed to produce totally integrated transit system. However, due to variations in specific form and the requirements of the candidate transit systems, exact visual content can be developed only after the bidder for final design and construction of the DPM system is selected. For purposes of illustration, a baseline system was defined, and visual design principles were applied. The same design principles will be carefully, applied in the final design of all visual elements of the DPM system to ensure maximum positive impact.

221.113 Design Development of Vehicles, Guideway Structure and Stations

The Downtown People Mover system consists of three major physical elements: (1) The vehicle system; (2) The guideway structure; (3) The stations

The Vehicle System

Several vehicle systems can comply with the requirements of the Los Angeles DPM, and the system suppliers will be given the opportunity to furnish the vehicles. Candidate vehicles are illustrated in Figures II-25A-D. Prior to final design, manufacturers of these vehicles will bid on provision of service. Consequently, it is not possible at this time to identify the exact vehicle (which may be modified slightly) to be used. The exterior and interior color of the vehicle will be selected to coordinate with comprehensive color scheme for the entire system. The color of guideway and stations will be designed to harmonize with the urban envirnment.

The Guideway Structure

The guideway structure consists of three elements: (1) guideway foundations: (2) supporting columns: (3) vehicle guideway.

It should be observed that Los Angeles is potentially subject to severe seismic activity. Because of this, all structures in downtown must reflect the same design requirements. There will be no difficulty in relating the structural proportions of the DPM system with adjacent buildings. (These heavier proportions can be observed in the lower columns of the Arco Towers and other larger downtown structures.)

- Guideway foundations. In order to reduce the impact on street traffic during construction, the location of column foundations was carefully considered, along with other factors such as interference with underground utilities. The basic concept of structural design was to keep all foundations elements below grade, so that the foundations would have no visual impact.

- Supporting columns - Trade-off studies. Column location planning and design involved a study of the trade-offs among the number of columns, length of guideway span, proximity of column locations to adjacent structures, the division of city blocks into reasonable uniform spans, and finally cost trade-offs between uniformity in guideway beam lengths and variations to accommodate minor elements of urban design.

Basically, fewer columns and longer spans yield larger columns and greater guideway beam depths. While the reduction in number of columns reduces the visual impact, the size of the columns requires the taking of a wider space at the sidewalk level. Conversely, increasing the number of columns to achieve a lighter cross section and a more graceful slenderness ratio, both increases the foundation and column costs and tends to produce a "picket fence" appearance. One solution was to design the structural cross section so that the column would be thinner in one dimension to take less of the sidewalk width and wider in the dimension paralleling the sidewalk length. To reduce the width of two columns as seen from the street, it was divided into two coupled columns.

Seismic design requirements result in making the columns heavier in cross section. Consequently, many optical refinements were considered and can be applied in final design to increase the slenderness effect. Various column shapes were considered. See Figure II-23 A-E.

Column capitals. An item of major importance in the design of the guideway structure is the juncture of the top of the column with the vehicle guideway. A careful transition of form is required in order to enhance the linear quality of the guideway.

Final design. In the final design of the guideway structure sensitive design detailing of the column capital will be necessary to achieve maximum beneficial optical effect. Of equal importance is the design of the vehicle guideway itself.

Vehicle guideway - Guideway types. Of the many candidate vehicle systems which could be selected for the DPM system most are supported from the bottom. The dimensional and technical requirements of the systems vary widely. Some guidance systems require low sidewalls to give guidance to the guidance to the vehicles. Others require no sidewalls but a steel beam on top of the guideway to secure and guide the vehicles. Still others provide both support and guidance for the vehicles by a single beam. Typical guideways for these varied vehicle systems are illustrated in Figure II-23 A-E

Guideway arrangements. Vehicle guideways are arranged with double guideways--one for each direction--or as single guideways, separately supported. Both arrangements are proposed for the Los Angeles DPM system.

Design refinements. All guideways other than the single-beam type can be reduced in visual impact by accenting the linear quality of the member. This can be achieved by: careful attention to structural requirements; breaking large surfaces into smaller faces; accenting structural lines paralleling the guideway length, and other optical devices.

In additon, as mentioned above, the form integration of the top of the supporting columns with the guideway will maintain, without visual interruption, a continuous smooth flow of form along the entire guideway. These mitigating measures, illustrated in the preliminary baseline guideway structure design, can be applied in the final design of the selected guideway structure.

- Materials and color. Materials will be selected for the guideway and columns that are permanent, structurally efficient, and in harmony with the architectural environment. The color of the guideway structure will be part of the color scheme of the entire DPM system and will be selected to be an integral part of the urban scene.

STATIONS

Architectural and Urban Design Environment

At each potential station location, an exhaustive investigation and analysis was made of architectural and urban design aspects before a definite location was selected. Particular attention was given to preserving existing trees and landscaping. Careful study was also given to locating the station to preserve the integrity of both the existing architetural facades and to preserve maximum options where future development was possible.

Station Types

Three transportation station types were designed: (1) On line; (2) Transfer; (3) Terminal.

On-line stations were designed as side platforms. This enabled the guideway to be kept straight, so that the impact of the guideway on the corridor would be kept to a minimum.

Transfer stations were designed as center platforms, for ease of transfer, but options were kept open for the side platform type to reduce impact in a major traffic corridor.

Terminal stations were designed to be center platform types, and at the Union Station intercept the station was located both vertically and horizontally so that the impact of the station and guideways leading to it would present minimum impact on the existing environment. At Convention Center, after many concepts were investigated and presented to Convention Center authorities, the station was moved from the initially recommended location to a position farther from the main entrance to the Convention Center, to lessen the impact on both existing and future convention facilities.

Architectural Integration with New Developments

The proposed DPM alignment and station locations allowed more than one-half of the stations to be designed in conjunction with development projects.

Pedway System Integration

There is a unique opportunity to integrate the DPM system with the expanding pedway system in downtown Los Angeles. Some of the stations were planned to use the present pedways for access to the station mezzanines. Other stations were planned to take advantage of pedways scheduled to be built in the future. In some cases slight relocations of future pedways were suggested to serve the mutual requirements of the DPM and pedways more efficiently. Visually, the integration of stations and pedways simply used the pedway's escalator and stair system for approximately the first 20 feet, and the station's escalator and stair system extended the vertical movement another 12 feet.

Light, "Transparent" Stations

A major design goal in the design of DPM stations was to achieve a light weight look. A transparent effect in the appearance of the station. Could be schieved by supporting stations on a minimum of columns; opening mezzanines; glazing elevator cars; and keeping elevator shafts open. Surfaces could be illuminated by using light colored materials. These measures would minimize the visual intrusion of one structure on the surrounding environment.

Landscape Design

Stations have been carefully planned and located to extend the existing landscape environment and, where applicable, to create new areas of landscape design. Most of these areas are at the ground level, but landscape features will give visual attractiveness to the World Trade Center station atop that building.

The Los Angeles DPM at Night

At night the stations and areas around the stations will be illuminated but shielded to prevent glare to neighboring areas by careful final lighting design. The lighted stations and vehicle system will provide a bright new element of light to the downtown Los Angeles night scene.

221.12 OPERATIONAL VISUAL IMPACTS SEGMENT ANALYSIS:

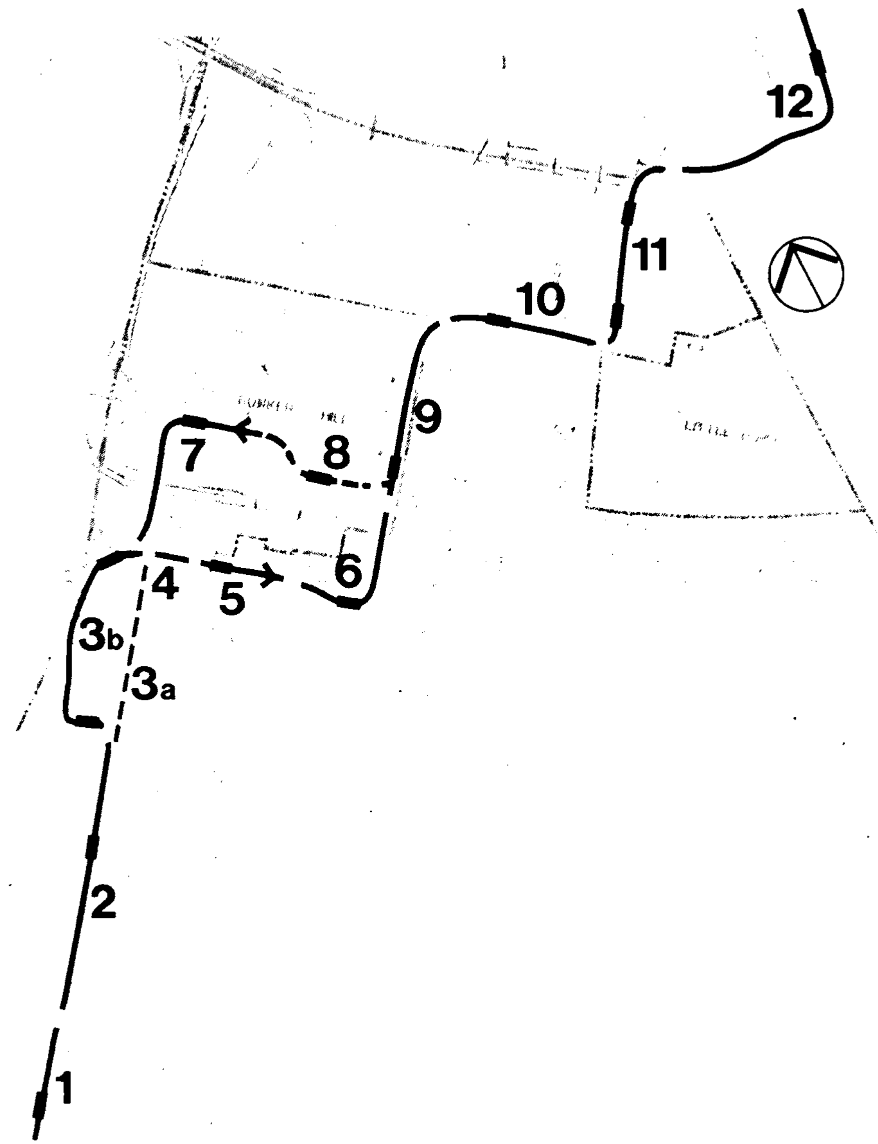
The environmental setting of the DPM is defined, for purposes of this section, as a corridor one-half block deep, on either side of the alignment. Also considered are short and significant long-distance views which the DPM would affect. The viewpoints considered are those of the pedestrian on the street and the observer from adjacent structures at the first, second, and third level. Also considered is the quality and nature of the city view to DPM passengers.

For purposes of analysis, the alignment has been divided into segments, as shown in Figure IV-22A. The following factors were determined to be relevant in analyzing the visual setting for DPM facilities:

- o general and unique visual characteristics; factual and impressionistic aspects
- o short, medium and long-range views: panoramic, corridor, transitory
- o the visual definition of the segment, in terms of edges, nodes, paths, landmarks, and legibility
- o predominant building types and uses
- o anticipated future development
- o structures of historic or other interest or importance
- o predominant building heights
- o proximity of buildings, landscaping, and setbacks from projected guideway
- o landscape characteristics, including major available and potential open spaces
- o visibility from adjacent building first, second and third stories.
- o activity centers and areas of high pedestrian usage

FIGURE IV - 22A

DPM SEGMENTS DEFINED FOR VISUAL IMPACT ANALYSIS



Source: City of Los Angeles, Planning Dept.

TABLE IV-22A

VISUAL AND AESTHETIC IMPACTS OF THE DPM

Source: City of Los Angeles, Planning Dept.

+ Beneficial-creates or enhances aesthetic experience
− Detrimental-view obstruction or incompatible element
X Depends on treatment and/or subjective judgement
Little or no impact

				SEGMENT NUMBERS AND IDENTIFICATIONS												
				1	2	3a[1]	3b[1]	4	5	6	7	8	9	10	11	12
			OVERALL IMPACT	Convention Center	South Figueroa	St. Paul's Area	Behind the Hilton	High Rise Link (5 th)	Library Area	Pershing Square	Bunker Hill (WTC)	Tunneled Portion	North Hill St.	First Street	Los Angeles Street	Union Station
IMPACT CONSIDERATIONS	DPM ELEMENTS	Stations	+	++	+	+	−		+	x	+	x	+	++	x	+
		Guideway	x	+	−	+	+	+	−	−	+		−		+	+
		Columns	−		−		−		−	−			−			
		Vehicles	+	+			−	−	−	−	+					+
	POINT OF VIEW	Pedestrians: Street Level	+	+	+			+	x	x	+		x	x	+	+
		Pedestrians on Pedways	++					++	+	+	+			+	+	
		Users of Open Space	−						x	x	x		x	x	x	
		Surface Street Motorists	+		+			x	x	x	+					+
		Freeway Motorists	+			++	++									+
		DPM Riders in Vehicles	++	+			−	++	+	++	++	++		+	++	+
		DPM Users in Stations	+	+	+		−		+	++	++	xx			+	
		Users of Adjacent Bldgs.	−		−	−	−						−			
	TYPE OF VIEW	Close-up	x		+			+				x	+	+		
		Transitory	x			+	+									
		Corridor	+		+			+	+	+			+	+		
		Medium Range	+	+		−	−	++		+	+	++			+	x
		Panoramic	+	+			+			+	+					+
	COMPATABILITY WITH DEVELOPMENT	Activity Centers	+	+				+								+
		Building Materials	x	+	−	−			−	−	+		−	+	+	
		Architectural Forms	x	+		−		+	−		+		−	x	+	
		Cast Shadows	−		−	−				−		x	−	−		
		Landscaping	x	+	−				−	−				−		+
		Predominant Bldg. Heights	x		−	−	−	+	−	−	+		−	+	+	
		Architecturally Significant	−						xx					x		−
		Proposed Development	+	+	+		+		+		+		+			+
	SPATIAL RELATIONS	Street and Sidewalk Widths	−		−	−			−	−			−			
		Setbacks from Street	x	+	−	−	+		−	−	+		x	+	+	
		Available Open Space	+	+					+	+				+	+	
		Potential Open Space	+		+				+		+		+			+
		Building Density	x	+	−		+	+		−	+		−			+
	URBAN LEGIBILITY	Edges	+		++	−	+			+	+		++	+		
		Paths	x		+		−	x	x	x				+	+	
		Nodes	+	+								+				+
		Landmarks	+						++	+				+		
		OVERALL DPM AESTHETIC IMPACT	+	++	x	−	−	++	x	x	++	++	−	+	++	++

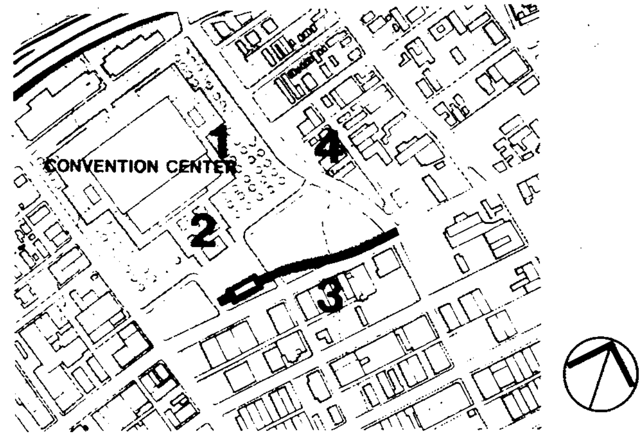
1/ These columns distinguish between the west side of Figueora Street alignment and the center of Figueora Street variation.

- street design: width, number of lanes, sidewalk width
- shadow characteristics: e.g., sunny vs. dark sides of the street, existing shadow coverage
- present and potential view obstructions: pedways and guideways

Table IV - 22A summarizes the visual impact on each segment according to these criteria. This matrix is discussed in more detail and key elements of the environment that are affected by the DPM are referenced on Figure IV - 22B. Numbers in that text refer to numbers in the figures.

FIGURE IV-22B

DPM VISUAL IMPACT ANALYSIS Segment 1



<u>Segment 1: 11th and Figueroa to Convention Center Station</u>

This segment is characterized by broad, flat spaces and low structures. The Convention Center dominates the visual aspect of the area, with its rectilinear modern architectural forms, wide low profile, and deep setback. (1) In front of the Convention Center is a pedestrian plaza and fountain (2). On the east side of Figueroa are small commercial uses in low structures (3). To the northwest is an area composed of narrow streets, considerable open parking, and marginal structures (4). The DPM Station planned for this location could be integrated easily into the existing formal, modern design of the Convention Center.

The impact of the DPM station, guideway and vehicles on the Convention Center environment would be positive due to the nature of the activity there, the compatible building materials and architectural forms, and the deep setbacks and generous open spaces which would provide medium-range and panoramic views both of and from the DPM.

The station would strengthen the general perception of the area as an important node of activity, thus enhancing urban legibility, or "imageability" of the downtown. Provided the station design is symmetrical and on the same axis as the Convention Center and is constructed of modern compatible materials, no mitigating measures will be necessary; the overall aesthetic and visual impact will be positive.

If a centerline alignment is selected for the DPM, then a short portion of this segment will remain on centerline before it swings back onto the side of the street to enter the Convention Center Station. Because the entire space between points (2) and (3) is vacant, there are no engineering, aesthetic or spatial constraints on side-street placement, and in the event of future development of this open area, the guideway can be attractively integrated.

Segment 2: Figueroa Street from 11th Street to 7th Place

Figueroa Street is both an important traffic artery and part of the western visual edge of downtown. It is bounded by a mixture of low and medium-rise buildings with considerable open parking.

The west side of Figueroa (1) is at times baked with strong sunlight, while the east side (2) is in shadow until late afternoon. The major open spaces at the Convention Center (3) and to a much lesser degree at Ninth Street, only tend to dilute the visual definition and legibility of the Street.

The Convention Center is a monumental structure, but set so far back from Figueroa as to appear low and wide, contributing little to the spatial definition of the corridor. (3) The other notable structure on the segment is of social but not visual importance: the Pantry Cafe at Ninth Street is a family-style restaurant which has been a landmark in Los Angeles for decades.

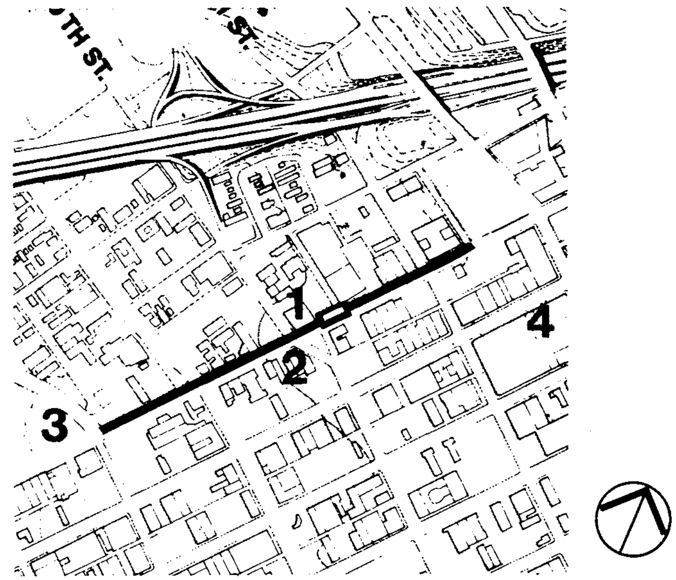
To the north can be seen the Broadway Plaza high-rise complex (4) and major new high-rise structures.

Traversing Segment 2, the dominant impression is of a wide, long and noisy street with a jagged spatial definition, strong contrasts of light and dark, and an approximately four-story building height along much of the street, with many gaps due to empty lots, lower buildings, and intersecting arterials.

This segment will benefit from the visual reinforcement and definition provided by the DPM guideway which will create a unifying visual element serving to strengthen the function of the street.

FIGURE IV-22C

DPM VISUAL IMPACT ANALYSIS Segment 2



While the DPM stations along this segment would serve to provide visual focal points and upgrade the architectural mix, guideways and columns would, at least initially, be out of keeping and visually incompatible in scale, form and materials with the existing small, older buildings. This is an instance where the DPM would at first be somewhat incompatible with its surroundings but would later integrate well with the new development which it can be expected to stimulate. Along most of this segment the narrow sidewalks and shallow setbacks present a tight setting which would be further crowded by the DPM guideway. In a high-rise setting this can be tolerated more easily, as close-up and corridor views become more dramatic, but in this segment of lower buildings and tight streetscape, the column impingement, presence of the guideway and case shadows would seem constricting and awkward. Because

Figueroa Street, in this segment, has no strong sense of corridor, and little lateral differentiation (both sides are about the same) the placement of the guideway in the center of the street rather than along the side would be a mitigating measure, serving to reinforce linearity and lateral symmetry, both now and as future development occurs.

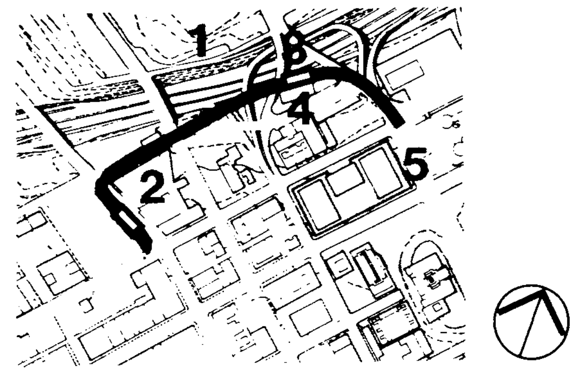
In the center of Figueroa variations, the stations at Fifth, Seventh and Ninth Streets would become very prominent visual elements. These stations would be 120 feet long and 53.5 feet in width, located over a roadway which will measure 56-72 feet from curb to curb after street widening. Suspended 20 to 25 feet above and nearly as wide as the roadway these stations will create significant shadows and a quasi-tunnel effect for motorists and pedestrians beneath. While some may find this intriguing, it is possible that others will consider these stations as out-of-place, too large, and oppressive. In any event, they will present downtown areas with an entirely new experience. Mitigating measures include the planned connecting pedways, escalators, and the use of design materials that will soften the stations and blend them into the surrounding buildings.

Segment 3b: From 7th Place to 5th Street via Francisco Street

This segment has something of a service environment, and was selected as a possible mitigating measure to the impact the DPM might have on the facades of buildings fronting on Figueroa Street. From this area one can see the older 6-story apartment building on the west side of the Harbor Freeway, interspersed with some occasional newer medium-rise development (1) The segment traverses an area of parking lots, and the service area of the Hilton Hotel. (2) This segment, with its informal, service character and

FIGURE IV-22D

DPM VISUAL IMPACT ANALYSIS Segment 3b



domination by the proximity of the freeway, would be little affected by the introduction of a DPM.

In a northerly direction the DPM rider would be provided an interesting view, passing between the Coldwell Banker Building (3) and the Jonathan Club Building (4) and then suddenly opening onto 5th Street to see the immense Arco Towers and the gleaming Bonaventure Hotel (5) This dramatic portal compensates for the fact that the route offers few views of the downtown core.

Visually, the alignment in this segment would have the least impact on the environment, but also offers the least interesting experience for riders of the DPM. It is a freeway dominated environment with parking facilities, service roads, and development less grand and interesting than that along Figueroa and Flower Streets. It should be noted that this is the only area that presents views of the DPM to motorists on the freeway. This feature could be considered positive, both in terms of providing an intriguing and interesting view for freeway travellers and by advertising modern rail transit. If the guideway were high enough, it would command a view of the Hilton Garden and pool area. This might be interesting for riders, but would probably be resented by hotel guests. Mitigating measures could be in the form of heavy landscaping or other visual screens.

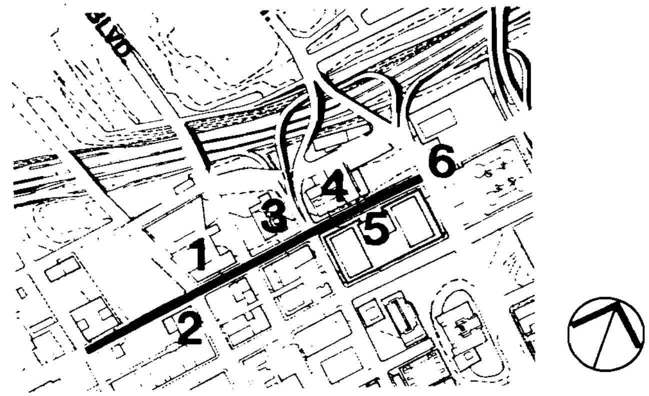
The aesthetic experience of DPM users in the station would be neutral, which, in comparison to exciting nearby opportunities that would be missed, represents a negative impact. In terms of urban legibility, this detour has mixed effects: it would help define the western edge of the downtown by making riders aware of the freeway barrier, but it would muddle the perception of Figueroa which would have guideway to the north and south.

Segment 3a: Figueroa Street from 7th Place to 5th Street

If the guideway were located in the center of Figueroa Street (see figure IV-22E) this segment would pass through the most dense and highly developed area in the Central Business District, the new financial district. Adjacent buildings include: the 14-story, 1200 room Hilton Hotel with office tower (1); Barker Brothers, a major multi-story quality furniture store (2); Saint Paul's Cathedral, a designated historic and cultural site which includes several courtyards which are always open to the public and are used as meeting and relaxation areas (3); The Jonathan Club, one of the major private clubs of Los Angeles, an older, ornate, brick building (4); and the Bank of America Towers, a 2-1/2 million square foot twin tower office complex with a major subterranean multi-level shopping center, generating considerable pedestrian traffic, (5).

FIGURE IV-22E

DPM VISUAL IMPACT ANALYSIS Segment 3a



Trees are planted along the length of Figueroa on both sides of the street. The south sun at certain times of the year casts long shadows that reach over Figueroa Street to the west side. However, the buildings on the west side (4) are generally much lower than those on the east (5), and present lower and less uniform visual definition. Projected development on the west side of the street at 7th, Wilshire, and 5th Streets may create more of a canyon-like visual character. However, it is likely that Figueroa from 5th to 7th Streets will continue to have a spatial and light-filled openness, in contrast to the typical core-city "canyons" created by high-rise buildings lining both sides of Flower Street.

The view north on Figueroa leads to the mountains, but is interrupted by a recently constructed pedestrian bridge between the Bonaventure Hotel and Union Bank (6) and by the 4th Street viaduct, further to the north.

At the northern end of this segment, the DPM would have a positive impact. With three of the four corners at Fifth and Figueroa Streets developed with impressive high-rise buildings, and with the fourth likely for similar development in the near future, merging guideways at a mid-street aerial station over Figueroa Street would present a striking complex of aerial lines and forms, complementing the rising towers and existing and future pedways. With the views of the freeway ramp system to the west, this could well be regarded as the most visually exciting intersection in the city. Farther to the south the impacts are more adverse. The guideway is apt to be in marked contrast with both the semi-ornate brick Jonathan Club or the modest neo-gothic St. Paul's Cathedral. Users of the Cathedral courtyard would find the passing vehicles distracting, as may the occupants. Placement of the guideway in the Street centerline will mitigate the impact on building occupants almost completely, and it will do much to lessen the visual impact upon the facades of the buildings themselves. For motorists, however, it may be somewhat distracting to have a row of columns down the centerline; which may obscure visibility when sighting along the length of the guideway.

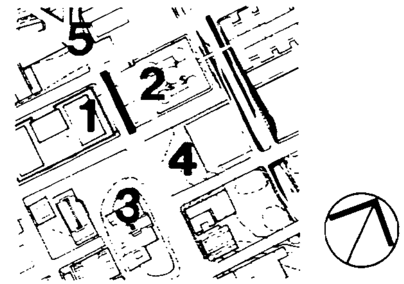
The presence of the guideway and columns, however, will strengthen the image of Figueroa as a major path of circulation, and will perhaps help to orient drivers. In general, it must be conceded that the southern portion of this segment is the most sensitive area that would be visually impacted by the DPM.

<u>Segment 4: Fifth Street between Figueroa and Flower</u>
This is the shortest segment in the analysis but the most intense in terms of density of development and traffic and pedestrian activity.

To the south is the massive, black granite and glass 52-story north tower of the Arco complex (1). A pedestrian bridge, over which the DPM would pass, connects this area with the

FIGURE IV-22F

DPM VISUAL IMPACT ANALYSIS Segment 4



sparkling silver glass towers of the Bonaventure Hotel (2).

To the east, the vista is presently open, with the parking and yard areas of the Central Library (3) and a vacant parcel (4) providing sharp contrast to the high-rise office and hotel uses at (1) and (2).

The view to the west (5) is broad, expansive, and dynamic, owing to the freeway ramp activity, as traffic pours westerly along 5th Street, onto and over the Harbor Freeway. The DPM would serve to complement and intensify the modern, even futuristic, urban character of this area.

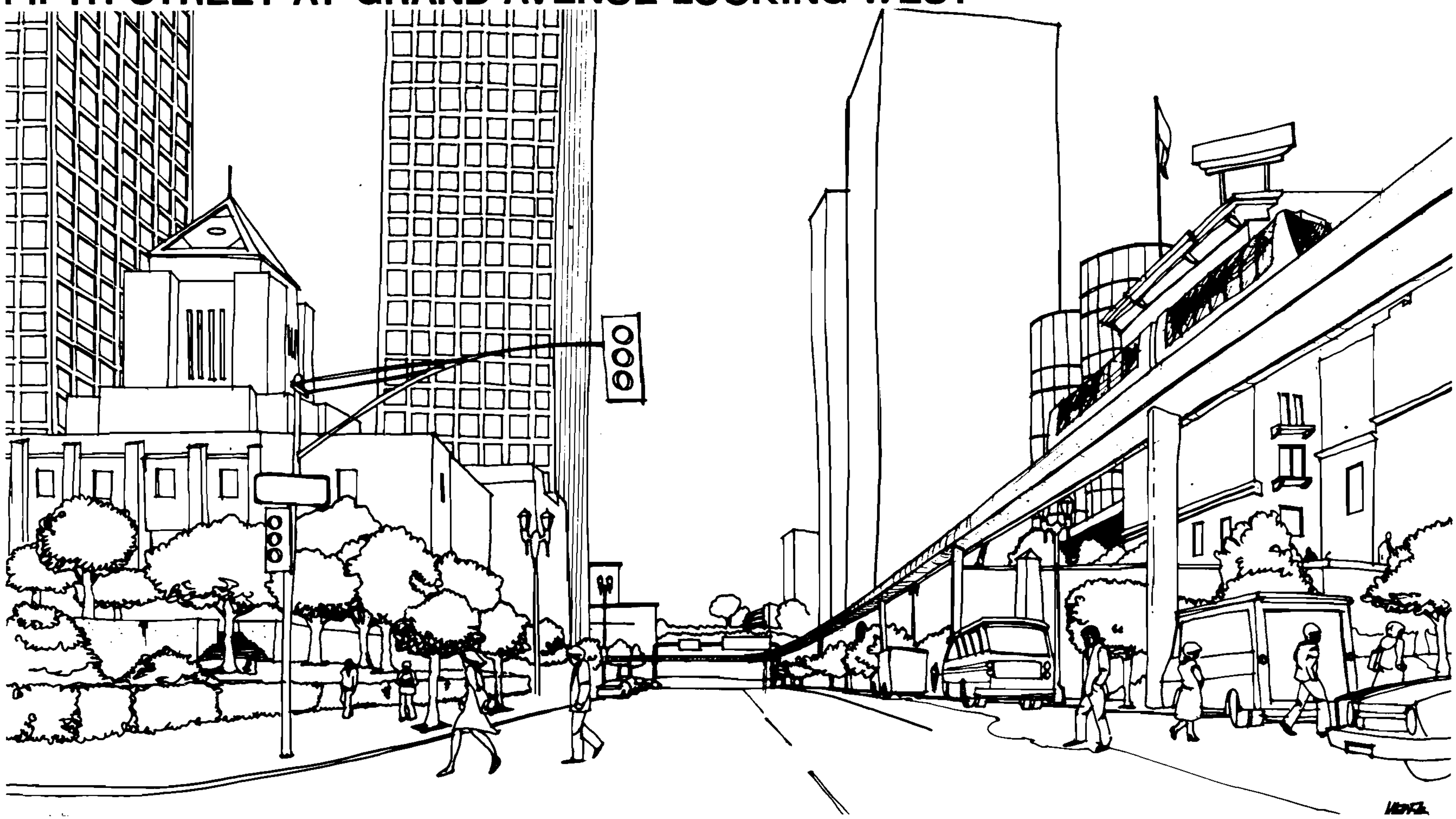
While the impacts of the DPM on this segment are positive, two possible negative effects should be mentioned. One is the possible confusion to motorists approaching and turning onto Fifth Street, who, seeing a DPM vehicle moving eastward, might attempt an eastward turn, and encounter the rush of oncoming traffic that continuously pours westerly along this major one-way artery. Even if it does not represent a danger, it could tend to confuse the perceived function of this circulation path. The other negative impact is the possible visual intrusion upon the users of the open space on the elevated terrace of the Bonaventure Hotel. Until final design determines the height and lateral placement of the guideway relative to this terrace, it cannot be said whether mitigation measures will be necessary, such as heavy landscaping or screening. It may even be discovered that the periodically passing DPM vehicles introduce a charming atmosphere of urbanity and modernity quite in keeping with outdoor lounging at the foot of the gleaming glass towers.

Segment 5: Fifth Street from Flower to Grand

Looking westerly from this segment toward the Bonaventure and Arco towers, the view is interrupted by a connecting pedestrian bridge spanning Fifth Street (1) The DPM guideway would pass over this bridge at a higher elevation, and would modify this view condition. The view of the freeway signs from 5th Street to the west could be obstructed, depending

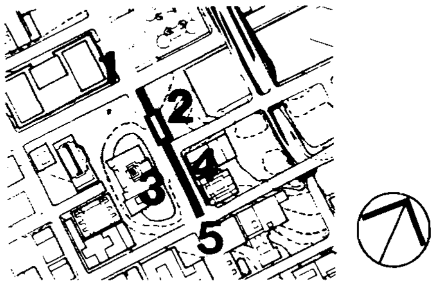
FIGURE IV-22G

FIFTH STREET AT GRAND AVENUE LOOKING WEST



Source: Archiplan, 1978

FIGURE IV-22H
DPM VISUAL IMPACT ANALYSIS Segment 5



upon the size and location of the guideway. If this is the case, the freeway signs could be moved to a more visible location.

The lateral view along this segment is largely open, the vacant parcel at (2) and the Library at (3) with its parking and landscaped yard areas providing a low elevation frontage.

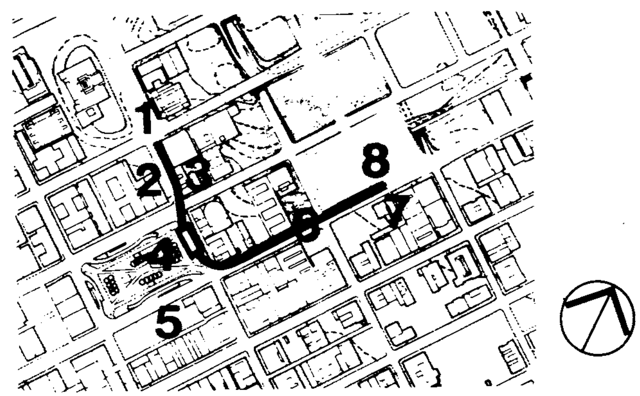
Portions of the library site may be used for expanded library facilities; and designs for a high-rise office structure on the vacant parcel integrate the DPM station into the design of the building. The site reuses would yield more shadow and landscaping than presently exist. The DPM guideway and station would intensify this visual impression.

The area at (4) is defined by an imposing buttressed earth-colored concrete retaining wall approximately 30 feet in height with a concealed staircase leading up to Hope Street. Between the wall and the street is a narrow landscaped area (approximately 3 feet wide). The area above this retaining wall is not visible from the street, but consists of a narrow ramping street from Grand up to the continuation of Hope Street and the paved, partially landscaped front reception area of an older hotel. These unique features will be visible from the guideway, enhancing the visual experience for the rider of the People Mover.

The proposed station is located across 5th Street from the historic Los Angeles Library (3) limiting the negative visual impact. A proposed pedestrian bridge from the station to the Library across 5th Street would facilitate access and patronage from the Library to the DPM, with the least visual impact.

Pedestrian connections from the station to 5th Street incorporate the historic staircase retaining wall on the north side of 5th Street.

FIGURE IV-22I
DPM VISUAL IMPACT ANALYSIS Segment 6



<u>Segment 6: Fifth Street and Grand Avenue to Hill and Third Streets</u>

There is a slight jog in the alignment of Fifth Street at Grand Avenue (1) which creates visual discontinuity as one approaches this intersection from either direction.

The historic, brick Biltmore Hotel at (2) and the lower six to ten story stores and offices on the north side of Fifth Street (3) create a somewhat narrow passage both visually and physically. This narrow slice of space connects the more spacious areas around the Central Library and at Pershing Square. There are narrow sidewalks in this passage, approximately 8 to 10 feet, and there are some young street trees in portable planters.

Pershing Square (4) is a large open area developed with walks, statuary and landscaping and is a popular spot for gathering, relaxing, and listening to the orations of informal, self-ordained urban philosophers. The Square is flanked on three sides by substantial medium and high-rise structures. When the marginal 3 and 4 story commercial uses on the east side of the Square are redeveloped (5) to more appropriate densities, the spatial enclosure and definition of Pershing Square will be complete. There is relatively complete sign control around Pershing Square except along the eastern frontage (5).

Moving north along Hill Street, one traverses a minor "canyon" of older 8 to 10-story office and hotel buildings (6) with the vista widening at Fourth Street where low structures and open space predominate.

Continuing northward, the structures are smaller and of marginal quality (7) on the east side of the street. The west side is primarily vacant, along an embankment of Bunker Hill (8). This area, too, will change dramatically in the forseeable future with the completion of the retirement housing project and the proposed development at the Angel's Flight site.

The introduction of a DPM station in Pershing Square unquestionably alters the visual environment. The location of the station along the northern edge of the Square over a vehicular ramp reduces the amount of land devoted to the station. The station has been designed without a mezzanine to present a minimum profile. This limits the visual impact of the station on the row of buildings along the north side of 5th Street. However, because the station does not have a mezzanine, about 500 square feet of the park would be used for the paid area. The overall visual design of Pershing Square, as well as the statuary and existing trees will remain undisturbed. The important and historically significant east facade of the Biltmore Hotel will remain unobstructed to public view from Pershing Square. The view of the north facade will not be affected from the perspective of a pedestrian on 5th Street, but the visual experience for riders (patrons) of the DPM will be an extraordinary one. The opportunity to view the Central Library from above the street, then pass through a narrow slot of space which opens dramatically to views of the Biltmore Hotel and Pershing Square, will provide DPM riders with a unique visual experience.

In general, this segment along 5th Street, through Pershing Square, and up Hill Street will be the most difficult area of the entire DPM route in which to achieve aesthetic compatibility. The age of structures, their low heights, their small scale detailing, their varied materials and closeness to the streets are all inharmonious with the sleek, modern forms of the DPM system. Short of tailoring the structural designs to the scale and variety of the environment, little other than landscaping can be done to mitigate the aesthetic incompatibilities.

Segment 7: Fifth and Figueroa to Grand and 3rd Place

Between the Union Bank tower (1) and the Bonaventure Hotel (2) a second story pedway spans Figueroa Street. The Union Bank has a 2-story landscaped parking structure at its base and the Bonaventure Hotel has a 3-story entrance structure flanking the street, creating a defined rectangular slot of space.

The DPM guideway would integrate easily into this contemporary architectural environment and would be high enough to afford good views to the riders. The streamlined, modern character at (1) and (2) is reinforced by the 4th Street viaduct at (3) and then is immediately dissipated by the expanse of open space to the north of (3). A planned hotel of contemporary design for this site would significantly alter the environmental setting, blocking the view of the freeway and completing the structural definition of Figueroa Street.

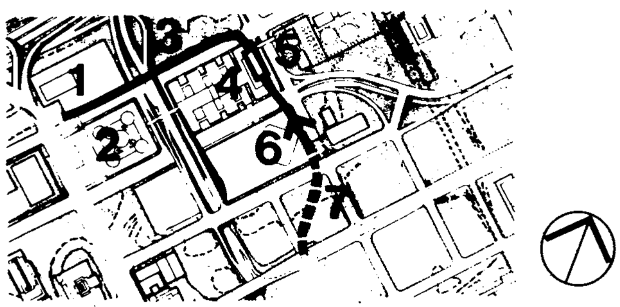
Rounding the corner at 3rd Street one views the new, low (approximately 3 and 4 story) World Trade Center on the right (4) and the Bunker Hill Towers development on the left (5). The ample landscaping and modern architecture with generous setbacks, enhanced by gently rounded pedestrian bridges gives a quiet but cosmopolitan feeling to 3rd Street. Sign control is evident in the area. Passing Flower Street and looking south (between 4 and 6) one briefly glimpses multiple pedways and viaducts and the high rise urban canyon of Flower Street.

The segment then enters the right-of way through the base of the 55-story Security Pacific Tower (6) and goes into tunnel at Hope Street to the underground DPM station at Grand Avenue (7).

The streamlined architectural forms, soaring pedways and viaducts, and generally cosmopolitan character of this segment render it perhaps the most suitable of all the segments in the corridor for the construction of a DPM guideway. Such a guideway could be easily integrated into the existing urbanscape, and far from being detrimental, would serve to reinforce the emerging futuristic lines and forms of the district. The portion of this segment on Figueroa Street could be either side-street or centerline, depending upon which alignment is selected for Segment 3. Because of the deep setback of the Union Bank building, a side-street alignment would work well, and, other things being equal, would be slightly preferable to the more intrusive centerline alignment, therefore, this side-street option should probably be used if alignment 3b (behind the Hilton) is selected to the south. However, if 3a is selected, (the Figueroa center of variation) then the guideway should probably be continued along the centerline in this segment to reinforce the centerline statement and to avoid an awkward visual discontinuity. The centerline option is more visually intrusive than a side-street placement, but it does have certain advantages of symmetry if there is to be any portion in centerline, then it would seem preferable to make a bold statement of it, particularly in this segment where it works as well, visually, as a side-street alignment.

FIGURE IV-22J

DPM VISUAL IMPACT ANALYSIS Segment 7



Segment 8: Tunnel from Grand and 3rd Place to Hill Street

This segment would be in a tunnel, continuing from the underground DPM station at (2) and portaling through the embankment on the west side of Hill Street just south of the existing 3rd Street tunnel at point (3).

While the DPM could have no impact on the existing underground, the tunnel environment thus created would be a significant aesthetic and visual factor in the perception of the riders who would use the DPM. For some people, tunnels are dramatic and exciting; for others, they are threatening or oppressive. Probably one of the most exciting visual experiences for DPM riders will be the ride from the relatively low-density historical environment of Hill Street through the dark tunnel portaling out over the top of the World Trade Center with dramatic views of the new Bunker Hill contemporary architecture.

FIGURE IV-22K

DPM VISUAL IMPACT ANALYSIS Segment 8

Segment 9: Hill Street Subway Portal to First Street

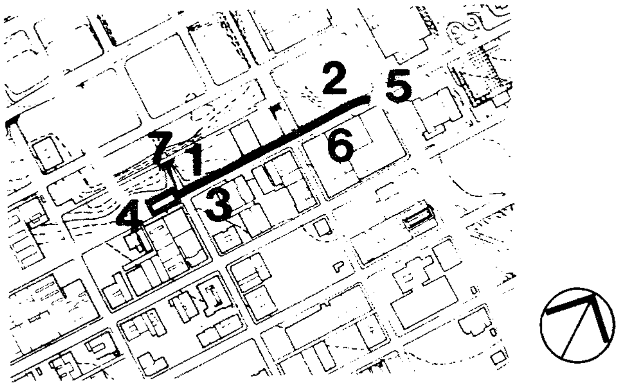
The western side of Hill Street skirts a steep slope which forms the eastern edge of Bunker Hill (1) A substantial portion of this side of Hill Street is currently used for parking, but is slated for a major 1200 unit complex for the elderly. An existing fire station, of some historical importance, located on the site will be removed for the housing development. County property, at the intersection of First and Hill Streets on the west side of Hill Street, is currently empty and slated for eventual office uses (2). With the exception of the very active Grand Central Market (3), the entire length of the east side of Hill Street, from Fourth to Second Streets, is deteriorating. Sites are either empty or contain one- to four-story buildings occupied by such marginal uses as small food stores, bars and old apartments. There is little landscaping on the empty lots; the back side of the buildings facing Broadway can be seen. The overall impression is of litter and decay.

Looking west, the Security Pacific Tower and the Pacific Telephone Microwave facility loom above the crest of Bunker Hill. The view south towards Fifth Street (4) is of more intense and substantial development, with correspondingly greater shadows and landscaping. To the north, the fully grown landscaping of First Street, and the mountains beyond, are visible (5).

Between the older downtown uses of the east side of the street and the newer (to-be-built) developments on Bunker Hill, the DPM can and will serve as an important visual "edge". It will provide a visual and psychological demarcation between the old and the new, between the low and the elevated, between the minor buildings crowding the street on the east and the soaring towers among green space to the west. The general impact will be enhancing. (See Figure IV-22H).

FIGURE IV-22L

DPM VISUAL IMPACT ANALYSIS Segment 9



The view south towards Fifth Street (4) is of more intense and substantial development, with correspondingly greater shadows and landscaping. To the north, the fully grown landscaping of First Street and the mountains beyond, are visible (5).

The block between Second and First Streets on the east side of Hill Street (6) constitutes a major change in the character of Hill Street, and signals the southern border of the Civic Center. Here is the State office building, a governmental structure of high-quality materials with appropriate landscaping. As one moves north toward First Street, the landscaping becomes more intense, and the quality and maintenance of the buildings and sidewalks improves noticeably.

The turn of the guideway at this corner will signal this shift in the character of the urban environment.

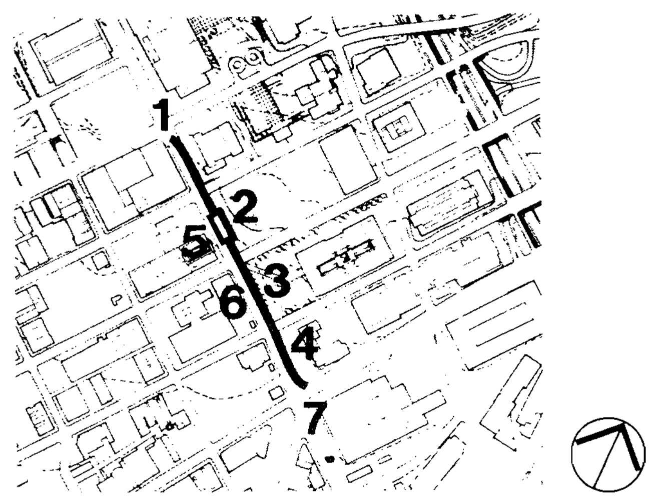
Segment 10: First Street from Hill Street to Los Angeles Street

This segment is qualitatively different from all other sections of the alignment. It is located along the southern boundary of the governmental center of the Los Angeles region, with its many major buildings and highly developed landscaping and open space.

Turning east on First Street from Hill Street (1) the environment suddenly becomes lush with wide-spreading and fully grown trees, modulating sunlight against a variety of elegant surface materials of governmental buildings. The many pedestrian and waiting transit users contribute to the overall impression of an attractive and busy urban scene. To the west (1) up the hill, can be seen the Court House, Music Center, and the Water and Power building. Moving east on First Street, the view suddenly widens at Broadway into two full blocks of open space

FIGURE IV-22M

DPM VISUAL IMPACT ANALYSIS Segment 10



bordering the north side of the street. Here are located the temporary park replacing the old State building (2), the lawn area which serves as a setting for City Hall (3) and the landscaping area in front of City Hall South (4). The northern edge of First Street is defined by two rows of mature trees. The visual impact of the Civic Center station will be minimized by locating the guideway and the station itself north of the rows of trees along First Street. The government buildings north of the station are set back so as not to be adversely affected by the station itself. This open space tends to attract the eye diagonally north from the narrow corridor defined between Broadway and Hill Streets. The south side of First Street is essentially a flat facade, which serves as a visual foil to the open space opposite. This fa-

FIGURE IV-22N

FIRST STREET AND MAIN STREET LOOKING EAST

Source: Archiplan

cade is defined by the Times/Mirror buildings (5), a series of low buildings which contain various businesses and coffee shops, and an open parking lot (6). These buildings, other than the Times/Mirror complex, are not of the same visual quality as the governmental buildings, nor do they have significant landscaping.

The area is never entirely in shadow, due to the extensive open space. It sustains a moderately intense level of pedestrian activity, due to the many governmental center employees and users, as well as the proximity to Little Tokyo (7). The view east on First Street ends in a rather visually undefined mound of reddish structures in the far distance--industrial buildings of the eastern portion of the Central Business District.

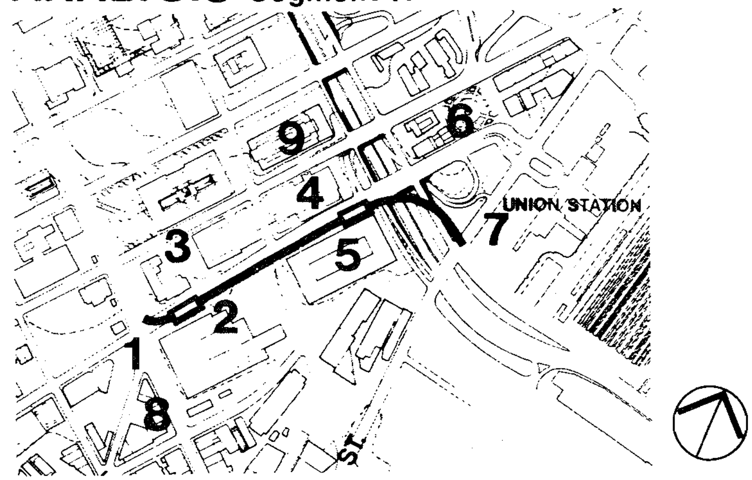
Also in this area (7) are Parker Center, the New Otani Hotel, and Weller Street, the gateway to Little Tokyo, with its many two-and three-story buildings.

The guideway and the Civic Center station will be set between rows of trees on the north side of the street, thereby minimizing visual intrusion on the streetscape. However, the presence of the guideway will also create a visual band in front of the civic buildings, including City Hall. Views of these buildings are now intermittently available through the trees; some close up and medium views of these buildings could be affected. The architecture of the guideway and the Civic Center station will be complementary to each other, and the futuristic moderne of the 1930's City Hall will be echoed in the ambience of the guideway design.

The opportunity to integrate the station at the site of the new State Building into the designs for that structure should take into consideration the need to tie the DPM and its rider-

FIGURE IV-220

DPM VISUAL IMPACT ANALYSIS Segment 11



ship into the presently under-utilized County Mall.

In general this is one of the better segments along the route from the standpoint of potential for aesthetic enhancement via the DPM system.

<u>Segment 11: First and Los Angeles Streets to Alameda Street at the Hollywood Freeway (In front of the Federal Building)</u>
From the New Otani Hotel (1) the route proceeds northerly between Parker Center (2) with its two-story parking structure, main building, and attractive open space with landscaping and memorial fountain on the east side, and the City Hall complex on the west side with its white granite theme.

Crossing Temple Street, it passes between the City Hall Mall (4) and the Federal Building (5) which present a modern, streamlined appearance. With the exception of a sign announcing the entrance to the public parking beneath the Mall, the area is free of signs.

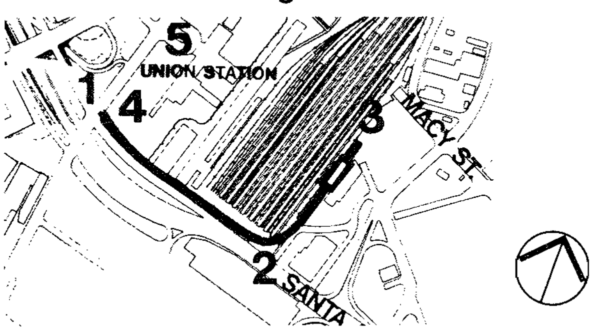
From this segment, looking northward across the Freeway, the vista is generally broad and flat, but not unattractive, the towers of Union Station (7) and Terminal Annex rise charmingly above the surrounding lush landscaping and palms, and, on clear days, the San Gabriel Mountains provide a backdrop in the distance. To the left are the restored three-story brick buildings of the historic old plaza (6).

In general, it would appear that the DPM guideway will integrate well into the environmental setting of this segment, with its freeway and open space character at the northern end and the modern, monumental structures flanking the portion south of the Freeway to First Street.

This is one of the few segments in the corridor which appears relatively set; that is, no environmental changes are likely in the forseeable future. The perception of the setting will be appreciably altered for an assumed DPM rider: at a height of thirty feet or more above the street level, the Mall (4) and Triforium in particular become much more evident. People using the Mall area would see the guideway as a slender spine floating high above the street.

FIGURE IV-22P

DPM VISUAL IMPACT ANALYSIS Segment 12



The DPM rider travelling southbound from Arcadia Street would view the seven-story New Federal Building (5) and the sixteen-story Federal Court Building (9). These buildings appear equal in height, owing to the differential distances, and as one approaches the curve at Los Angeles Street, they part to reveal a dramatic view of the 26-story City Hall. The Arco Towers are visible in the distance, hinting at the downtown core yet to come. Travelling in this direction would provide an interesting portal to the central city for commuters beginning their ride at Union Station.

The station at Parker Center will be integrated with the second level pedestrian environment via a future pedway bridge linking the station on the east side of Los Angeles Street with the City Hall South pedestrian plaza and the City Mall. The station at the Federal Building should be rectilinear in form, reflecting the lines of the massive building it will flank, and perhaps, adorn. At the proposed location, opportunity exists to tie in with the Plaza via a landscaped deck which could be constructed over the freeway.

<u>Segment 12: Alameda Street to the Union Station Intercept</u>

This segment proceeds from Alameda Street (1) to a station at the eastern boundary of Union Station (2) terminating at the Union Station bus-auto intercept and parking facility, behind the rail yards (3).

This is a segment lacking in visual definition and clarity and dominated by the automobile, whether in the depressed freeway and its approaches, or in the large parking areas in front of Union Station (4). Beyond the intense green of the street landscaping bordering the freeway and the entry parking lots of Union Station, the colors seem washed out. Union Station (5) is a tan color which seems to merge with the sky and the parking at its base. Pedestrian and auto access to the station is not visually clear, as the station is set back behind a moat of green trees and cars. Farther in the distance appear the Terminal Annex and the low buildings of Chinatown, which also are visually indistinct.

The view south, back over the freeway, has much more definition and strength. The intense development of the downtown creates a skyline of great interest and drama, silhouetted against the sky in comparison with the weaker visual contrast of Union Station with its sky and ground planes.

Once beyond Union Station, a visual path is defined by the high blank boundary wall of the Union Station yards, and the freeway. Behind Union Station (3) are tracks, train sheds, unused loading docks, and various other low utility and industrial structures of functional but not architectural or visual importance.

Due to the freeway environment, it would not seem that the DPM system would have an especially noticable impact on the surroundings, although rider views would be interesting, especially rounding the corner from Aliso street onto Los Angeles Street. At this location, the government buildings seem to part to reveal distant views of the downtown core high-rise buildings, presaging the highlights of the journey yet to come.

The wall adjacent to Union Station is discussed in Section 221.2.

As the system would run parallel to the freeway, any negative impacts on Union Station would be mitigated to the point of being negligible, particularly when one considers the effects of intervening landscaping, most of which already exists.

Medium range views of Union Station and other historic buildings in the area could be created by selective view cutting through this landscaping.

In general, the impact on this area would be positive, most particularly at the site of the station.

IV-221.2 MAJOR IMPACTS ON LAND USE AND DEVELOPMENT:

Land Use Changes

Implementation of the proposed DPM system is expected to produce changes in the nature and rate of land development within the CBD. The primary and major impact area of these changes will be within the 5 minute walkshed of the DPM system or the "DPM Corridor" as defined in Section IV-000. The major existing, committed, and proposed developments within this corridor are shown in Figure IV-221.2A; a brief description of these developments is presented in Table 222.1A.

Projected DPM-induced land use changes are expected to be in (1) the continuing viability and activity levels of existing uses and facilities and (2) the rate, mix, density, timing, and geographic distribution of new development. (The significance of both of these with regard to tax base, employment, and land value terms are discussed in Section IV-231.) These changes will occur primarily because the DPM will:

- Improve the absolute and/or relative access to activity areas in the DPM corridor. (See Figure IV-221.2B)
- Increase the volumes and concentrations of people moving past or through specific CBD locations. (See Table IV-221.2 B)
- Improve the physical integration of a circulation/distribution transportation system with existing and proposed developments. (See examples in Figures IV-221.2 C-F)

Changes in these parameters will in turn affect demand, market conditions, comparative advantages of sites, and perceived risk to alter development plans and activity patterns. Specifically, induced land use and development changes can take the form of:

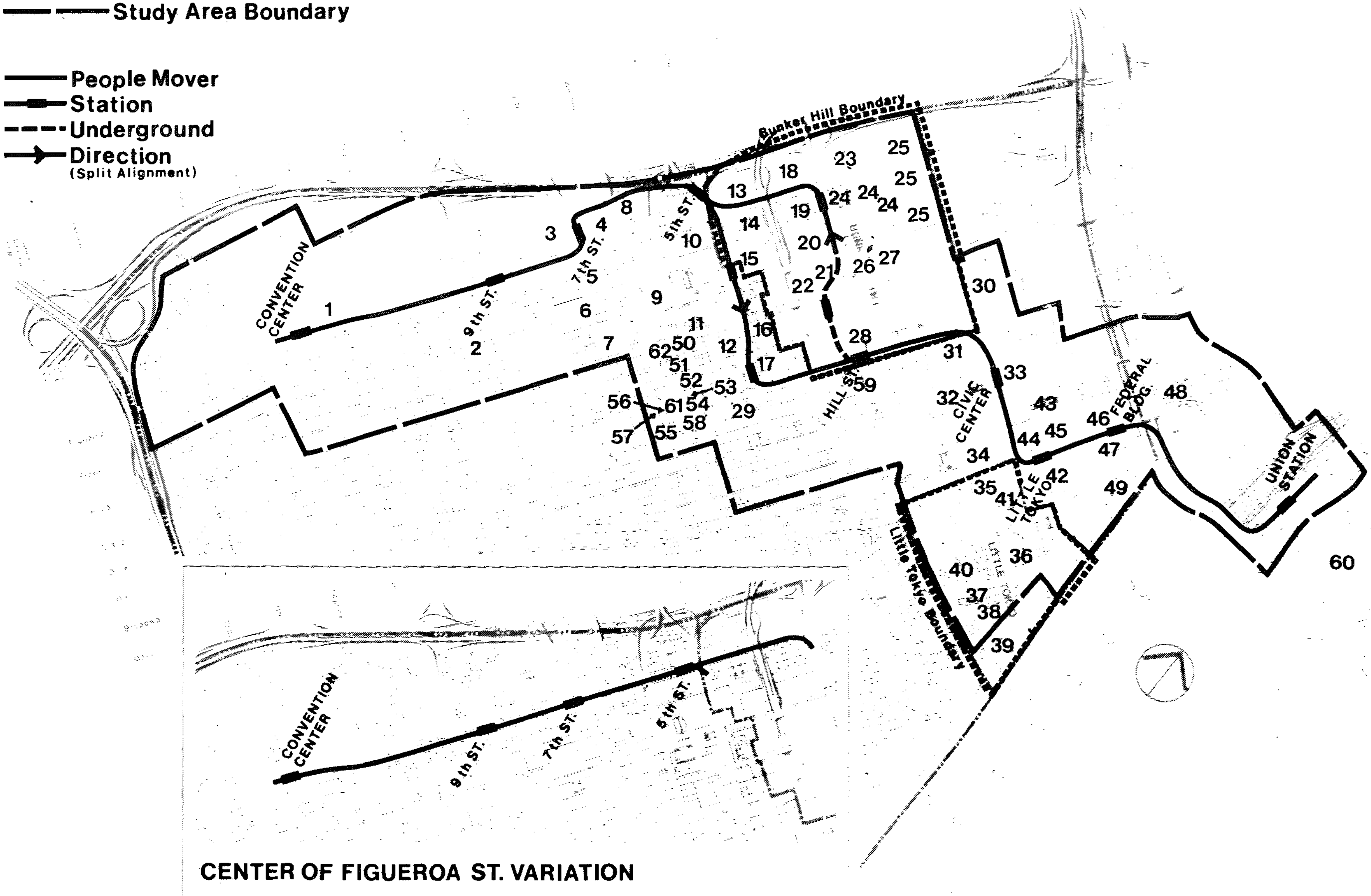
- Creation of new projects not otherwise contemplated.
- Alteration in the timing and/or pace of development.
- Changes in the size and/or density of individual projects.
- Changes in the type/mix/configuration of projects.
- Changes in the geographic location of specific development/redevelopment/rehabilitation for specific sites.
- Changes in the relative growth, distribution, and market share of land use. Changes that occur within the CBD in relationship to other areas in the region.

These factors in turn will affect land supplies, activity levels, (retail sales, hotel occupancy and employment), and tenant expansion/relocation decisions. They also will affect developer-perceived risk which is a combination of anticipated rental and occupancy rates, and reductions in non-rentable space (e.g. parking); the ability to obtain competitive financing; and the time period over which a development project can retain its prestigious market position. All of these factors combine to create alterations in development feasibility.

The nature of these potential impacts and the factors which induce such effects are a function of the specific land use under consideration. The impact analyses which follow are categorized in terms of office, hotel, residential, and retail activity.

Figure IV - 221.2A

MAJOR EXISTING, COMMITTED AND PROPOSED DEVELOPMENTS WITHIN THE DPM CORRIDOR :1978



Source: CRA, 1978

TABLE IV-221.2A

MAJOR EXISTING, COMMITTED AND PROPOSED DEVELOPMENTS WITHIN THE DPM CORRIDOR: 1978

MAJOR EXISTING DEVELOPMENTS

Map No.	Development	Description
4	Hilton Hotel	• 1,230 hotel rooms • 132,500 sq. ft. office
5	Barker Brothers Furniture Store	• 270,000 sq. ft. retail
6	Broadway Plaza/ Hyatt Regency Hotel	• 620,000 sq. ft. office • 330,000 sq. ft. retail • 487 hotel rooms
7	Robinson's Dept. Store	• 250,000 sq. ft. retail
9	United California Bank	• 1 million sq. ft. office
10	ARCO/Bank of America Towers ARCO Plaza	• 2.2 million sq. ft. office • 200,000 sq. ft. retail
11	Crocker Bank	• 550,000 sq. ft. office
12	Biltmore Hotel	• 1,072 hotel rooms
62	One Wilshire Bldg.	• 550,000 sq. ft. office
55	Bullocks Dept. Store	• 800,000 sq. ft. retail
30	County Court House	
31	State of California Building	
32	Times Mirror Square	
42	Parker Center	• Police Headquarters

TABLE IV-221.2A (continued)

MAJOR EXISTING DEVELOPMENTS (continued)

Map No.	Development	Description
59	Grand Central Market	• 50,000 sq. ft. retail
43	City Hall	
44	Cith Hall South	
45	City Hall East	
60	Plaza Technical Center	• 1.3 million sq. ft. City Technical/Support Services
Bunker Hill		
13	Union Bank	• 700,000 sq. ft. office • 10,000 sq. ft. retail
14	Bonaventure Hotel	• 1,500 hotel rooms • 145,000 sq. ft. retail
16	Pacific Telephone and Telegraph	• 350,000 sq. ft. office
19	World Trade Center	• 200,000 sq. ft. office • 100,000 sq. ft. retail
20	Security Pacific National Bank	• 1.6 million sq. ft. • office • 20,000 sq. ft. retail
23	Exchange Square (under construction)	• 260,000 sq. ft. office • 10,000 sq. ft. retail
24	Bunker Hill Towers	• 714 market-rate rental housing units
46	Los Angeles Mall	• 115,000 sq. ft. retail

TABLE IV-221.2A (continued)

MAJOR EXISTING DEVELOPMENTS (continued)

Map No.	Development	Description
47	Federal Building	
48	El Pueblo de Los Angeles/Olvera St.	
Little Tokyo		
35	New Otani Hotel	• 448 hotel rooms
36	Japanese Village Plaza (under construction)	• 90,000 sq. ft. commercial/retail
37	Little Tokyo Towers	• 301 housing units
41	Kajima Building	• 100,000 sq. ft. office

MAJOR COMMITTED DEVELOPMENTS

Map No.	Development	Description	Year
8	Cabot, Cabot and Forbes Office Building	• 420,000 sq. ft. office	1980
Bunker Hill			
15	Wells Fargo Office Building	• 1 million sq. ft. office • 20,000 sq. ft. retail	1980
25	Market-rate Condonimiums	• 450 units • 20,000 sq. ft. retail	1979-1981
28	Senior Citizen Housing/Social Services Center	• 1,100 rental units • 20,000 sq. ft. retail	1980 Phase 1 1982 Phase 2
49	GSA Parking Structure	• 1,300 parking spaces	1979
Little Tokyo			
38	Little Tokyo Gardens	• 100 low-to-moderate income rental units	1979
39	Market-Rate Housing	• 200 units	1982
40	Japanese-American Cultural and Community Center	• Cultural Center • 840 seat Theatre • Gymnasium • 50,000 sq. ft. retail	1979

TABLE IV-221.2A (continued)

MAJOR PROPOSED DEVELOPMENTS

Map No.	Development	Description	Year
1	Convention Center Hotel	• 500-750 room hotel Ancillary retail use	No date
2	1st Phase South Park Housing	• 400 units of sub-sidized market-rate housing	Est. 1980/ 1981
3	Mixed Use Project	• 600,000 sq. ft. office • 400,000 sq. ft. retail • 600 room hotel	Est. early 1980's
29	Jewelry Mart	• 400,000 sq. ft. manufacturing/ wholesale • 150,000 commercial space	Est. 1981
33	State Office Building	• 350,000 sq. ft. office	Est. 1981
34	State Office Building	• 460,000 sq. ft. office	Est. 1982
Bunker Hill			
18	MAT Associates Hotel	• 500 hotel rooms • 50,000 sq. ft. office • 50,000 sq. ft. retail	Est. 1981/ 1982
21	Office Building	• 720,000 sq. ft. office • 80,000 sq. ft. retail	Est. 1980
22	Office Building	• 680,000 sq. ft. office	Est. 1982
26 27	Market-Rate Condonimums	• 355 units • 100,000 sq. ft. retail	Est. 1983

Source: CRA, 1978

TABLE IV-221.2A (continued)

MAJOR COMMITTED AND PROPOSED REFURBISHMENT

Committed

Map No.	Development	Description	Year
Olive/Hill Streets			
50	Douglas Oil Bldg.	• 165,000 sq. ft. office	1978
51	Oviatt Building	• 102,300 sq. ft. office	1978

Proposed

Map No.	Development	Description	Year
Olive/Hill Streets			
52	City National Bank	• 300,000 sq. ft. office	N/A*
53	Park Central Bldg.	• 70,600 sq. ft. office	N/A
54	California Jewelry Mart	• 146,000 sq. ft. wholesale/retail	N/A
61	Los Angeles Jewelry Center	• 71,500 sq. ft. wholesale/retail	N/A
56	633 South Hall	• 100,000 sq. ft. office	N/A
57	Warner Bros. Theatre Building	• 84,700 sq. ft. office	N/A
58	Fox Building	• 59,000 sq. ft. office	N/A

* Not available

TABLE IV-221.2B

DAILY PASSENGER VOLUMES AT DPM STATIONS, 1990
6:00 a.m. - 12.00 midnight

Convention Center	23,023
9th and Figueroa	6,950
7th and Figueroa	15,493
5th and Figueroa	8,483 [1]
Library	11,005
Pershing Square	13,866
Hill Street	15,301 [2]
Bunker Hill	2,352
World Trade Center	4,199
Civic Center	18,534
Little Tokyo	4,923
Federal Building	5,503
Union Station	28,092
	157,724

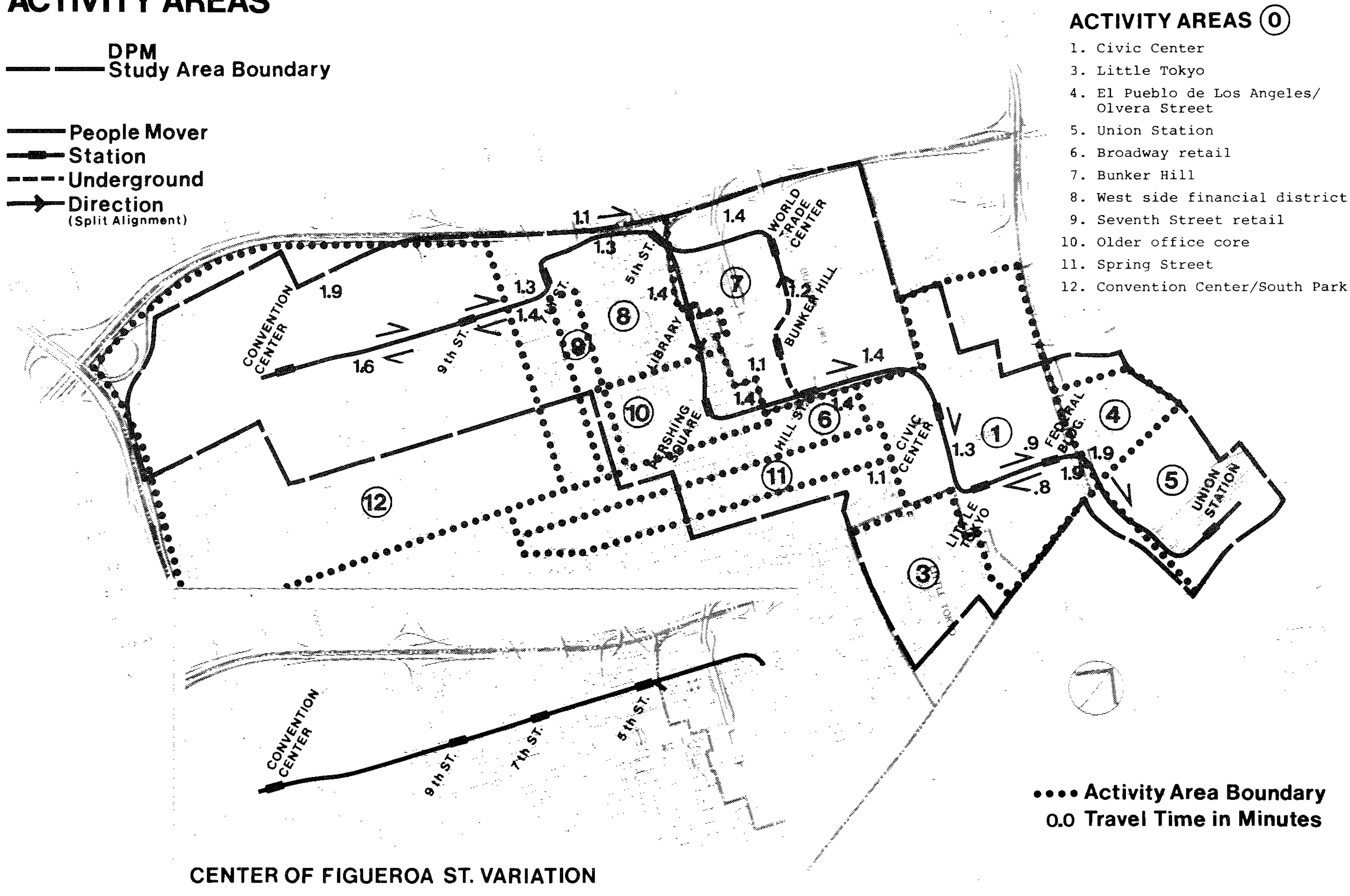
[1] Includes 6,745 transfers from the southbound alignment to the northbound alignment

[2] Includes 6,179 transfers from the northbound alignment to the southbound alignment

Source: CRA, 1978

Figure IV - 221.2B

TRAVEL TIMES BETWEEN DPM CORRIDOR ACTIVITY AREAS

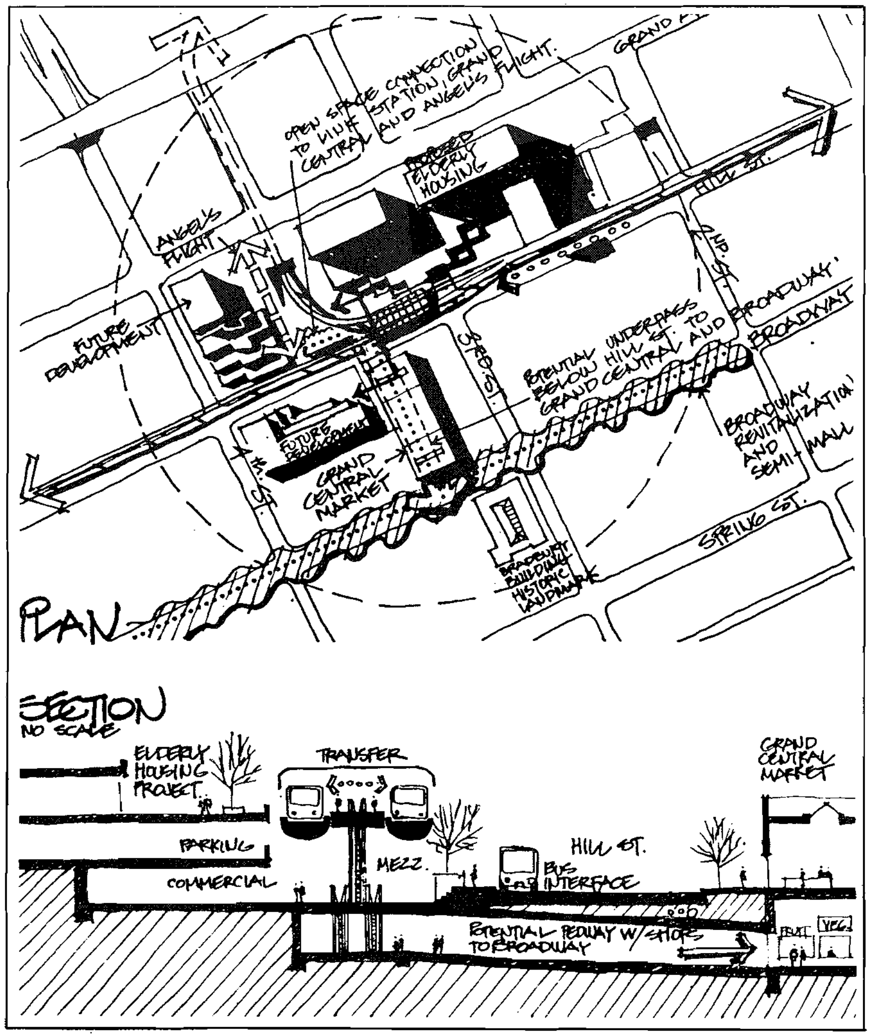


Source: CRA, 1978

FIGURE IV-221.2C

HILL ST. STATION

At this station the system would be physically integrated with the elderly housing project to be constructed on Hill Street. Elevations, pedways and paths would provide direct connection among housing, retail and social services.

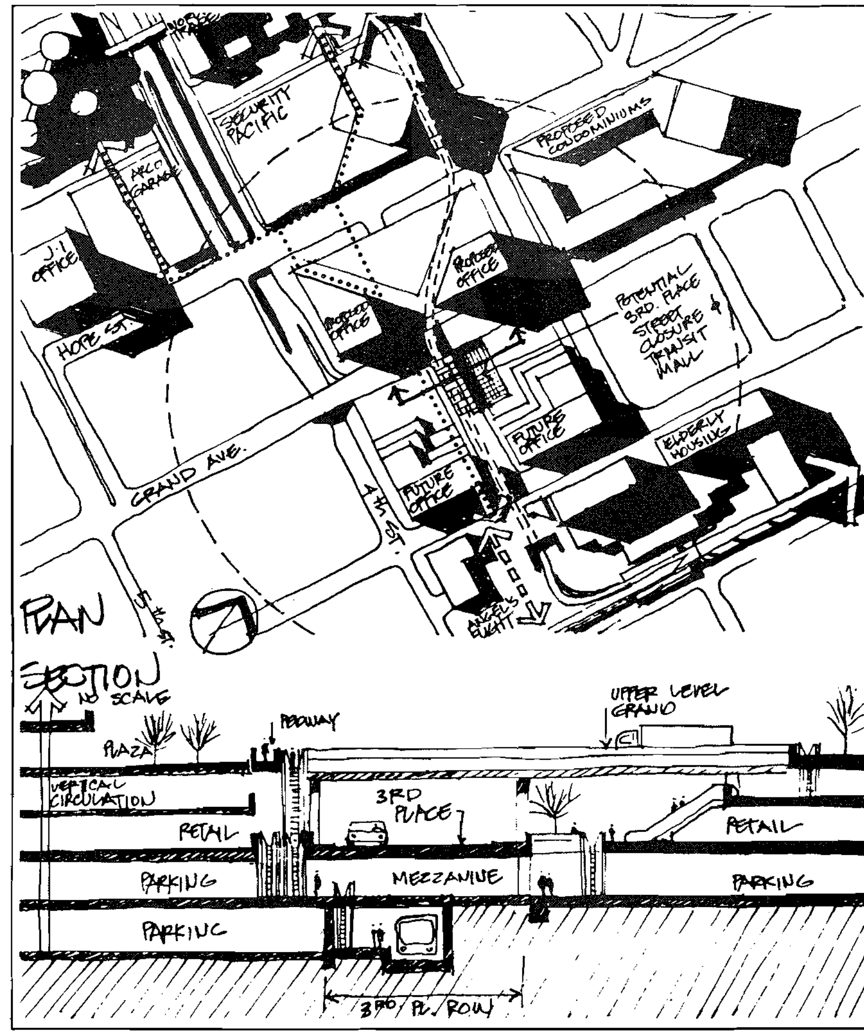


Source: Archiplan, 1978

FIGURE IV-221.2D

BUNKER HILL STATION

This underground station would be linked directly with office buildings and residential development currently being planned for Bunker Hill.

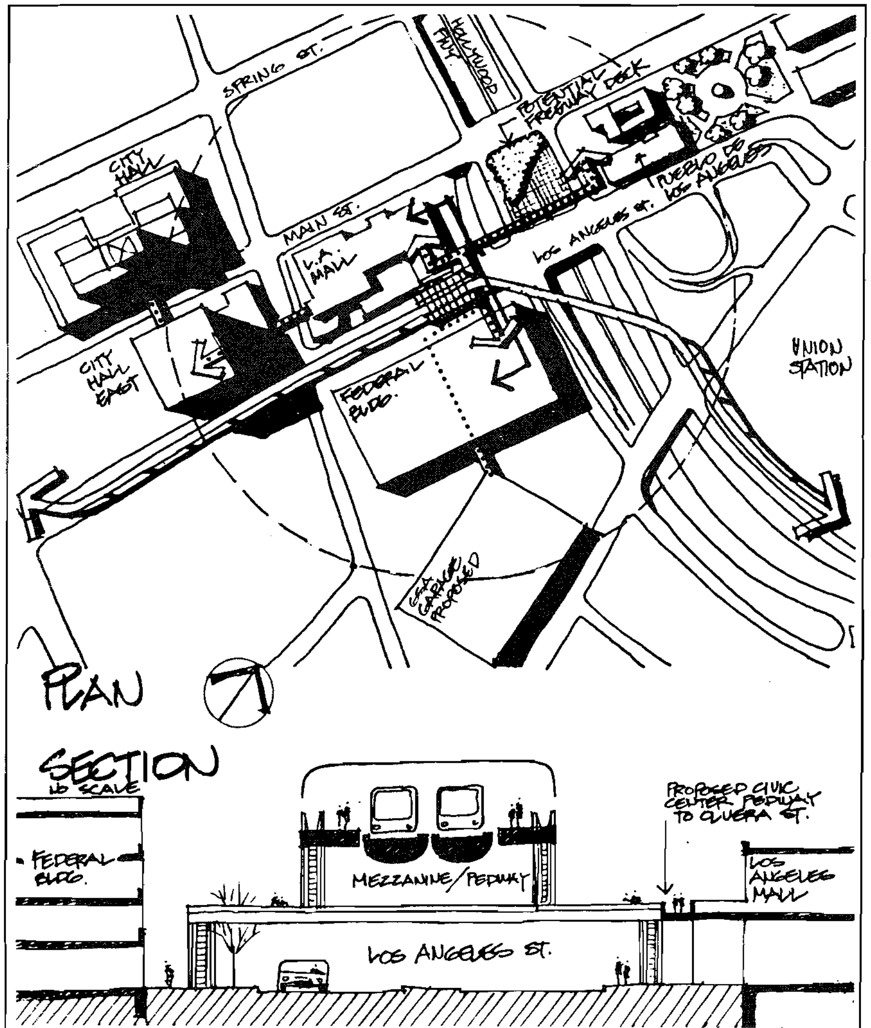


Source: Archiplan, 1978

FIGURE IV-221.2E

FEDERAL BLDG. STATION

Pedways and paths would link this station with the Los Angeles Mall and Federal office building. This is a good potential for improving direct pedestrian access from the station to Pueblo/Los Angeles Street.

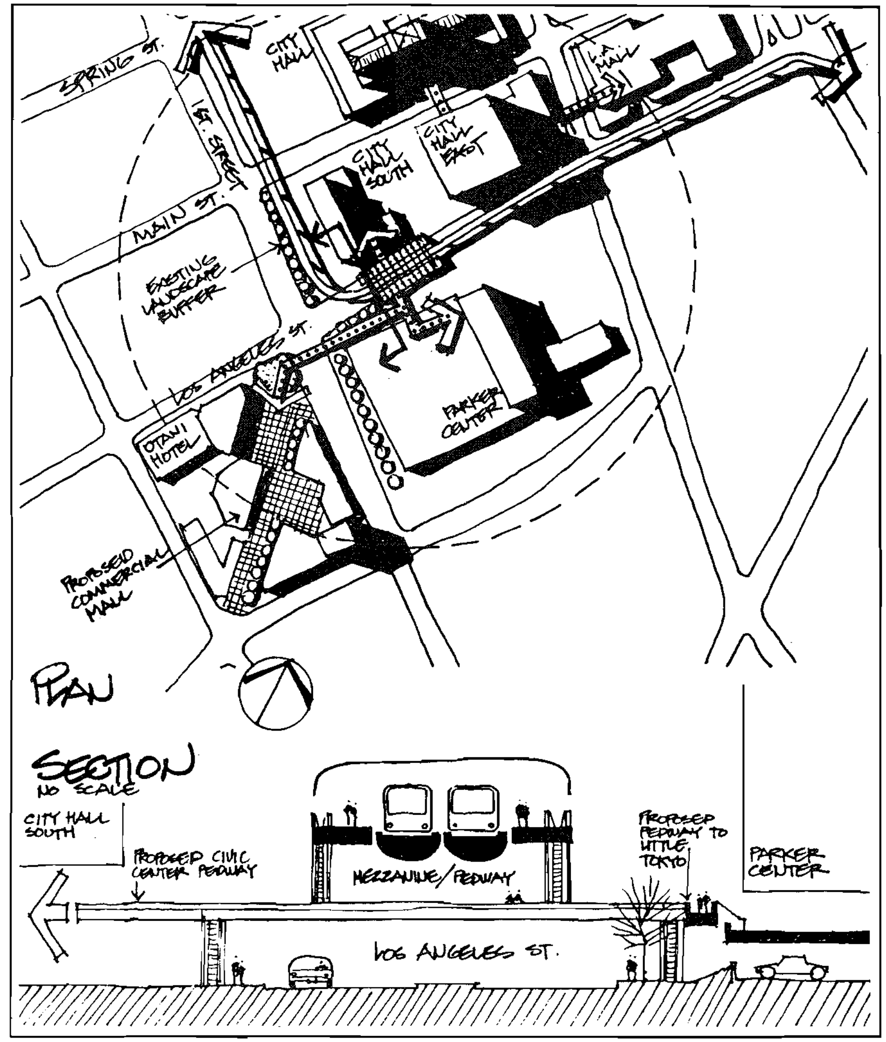


Source: Archiplan, 1978

FIGURE IV-221.2F

LITTLE TOKYO STATION

The Little Tokyo station could be connected with City Hall East, Parker Center and the planned Little Tokyo Weller Street Mall by means of pedways.



Source: Archiplan, 1978

IV-221.21 OFFICE SPACE IMPACTS

As discussed in Section III-200, commercial office space has been the dominant factor in new CBD development. Representing nearly 85% of all CBD construction since 1965, it constitutes the largest category of building use in the CBD (see Table III-21A). In the past 30 years, 53 high-rise (8 or more stories) commercial office buildings, with from 20 to 21 million net square feet of rentable space have been constructed in the CBD. (Western Economic Research Inc; 1976). This represents 35% of the total high-rise office space erected in Los Angeles and Orange Counties during that period, 55% of this CBD space (almost 11 million net square feet) has been constructed since 1966. This represented a capture of 10 of the 21 office buildings (48%) over 500,000 square feet which have been constructed in the Los Angeles region since 1966.

In spite of the significant increases in the CBD's office growth, its share of the Los Angeles/Orange Counties Office market has been declining. Whereas the CBD accounted for 45% of this region, new high-rise office construction in the 1947-1965 period, this share dropped to 29% for the 1966-76 period. Over all, the CBD's share of the region's office demand in 1975 was estimated to be 32% (Urban Development Group, 1976). The region's average annual absorption for major new office space over the past decade has been at a rate of 3.8 million net suqare feet. CBD absorption has accounted for about 30% of this, yielding a CBD average annual absorption rate of 1.1 million net square feet. In the 1970-1975 period, for example, commercial office absorption in the CBD averaged 1,065,000 square feet per year.

The existing commercial office inventory in the CBD is estimated at 23 million net rentable square feet. Of this total, some 16.2 million square feet (70%) are located in prime high-rise structures. The remainder is scattered throughout the CBD, especially in smaller, older, and deteriorating buildings in the eastern sections of the CBD (i.e., along Spring Street). Approximately 10 million of the 16.2 million prime square footage (62%) is located in the western section of the CBD, the focal point of new CBD development. An additional 9.5 million square feet of CBD government office space is located primarily in the Civic Center complex at the northern end of the CBD.

The vacancy rate for non-prime space is high, reaching 60% for some sections of Spring Street. This contrasts with the tight prime-space vacancy rates which, in recent months, have ranged from 4.5% to 6.0% in areas west of Grand Avenue. The current low vacancy rates, even in newer prime buildings, averaged over 18%. Rental rates in the CBD have increased significantly in the past two years as a reflection of the tightening market. In 1975, prime space was available in the $8.00 to $8.50 per square foot range (with inducements added). By 1977, these rates had risen to a $12 to $14 range (without inducements) and currently prime space (where it is available) is going for $14 to $16 per square foot. (Turpin, 1978).

TABLE IV 221.2C
MAJOR COMMITTED AND PROPOSED COMMERCIAL OFFICE DEVELOPMENT WITHIN THE CBD: 1978-1982

COMMITTED

Map Key Figure 221.2A	Project	Location	Estimated Completion Date	Net Leasable Square Feet	
8	Cabot, Cabot & Forbes	911 Wilshire Bl.	1979	310,000	
15	Wells Fargo Office Bldg.	5th & Flower St. (Parcel J-1 Bunker Hill)	1980	850,000	
23	Exchange Square (under construction)	3rd & Figueroa St.	1979	224,000	
50	Douglas Oil Bldg. (re-furbishment)	6th & Grand Ave.	1978	140,000	
51	Oviatt Bldg. (refurbishment)	Olive between 6th & 7th	1978	87,000	
			TOTAL COMMITTED	1,611,000	
			PROPOSED		
3	Mixed Use	7th & Figueroa St.	early 1980's	255,000 255,000	(Phase I) (Phase II)
17	Old Auditorium Office Bldg. (Refurbishment)	Olive & 5th St.	1980	59,500	
21	Office Bldg. Complex	Grand & 3rd Place (Parcel N/O Bunker Hill)	1980	612,000	
22	Office Bldg Complex	Grand & 3rd Place (Parcel N/O Bunker Hill)	1982	578,000	
			TOTAL PROPOSED	1,759,000	

Baseline Forecasts

Between 1975 and 1985, the market demand for commercial office space in the Los Angeles CBD is estimated to range between a low of 200,000 square feet a year to a high of 950,000 square feet a year (Property Evaluation Services, 1976). During this time period, about 450,000 square feet of new commercial office space is expected to be constructed per year in the Los Angeles CBD for a total of four to five million square feet. This average annual rate of market absorption of commercial office space is expected to be less than half (i.e. 42%) of that experienced during the 1970-75 period .

Major office development, committed for development and refurbishment by 1980, will result in approximately 1.6 million feet of net leasable area being added to the 1975 supply of approximately 23.0 million net leasable square feet. Planned development could add another 1.8 million net leasable square feet to this total by the early 1980's (See Table IV-221.2C). This approximately 1.6 million square feet of committed net leasable space combined with the 1.8 million square feet of net leasable space planned for 1982 construction is close to the 1976-1982 baseline forecast of approximately 3.0 million to 3.2 million.

Similar to the 1970-1975 experience, the estimated annual construction cycle indicates that the pace of construction will slow down after the peak estimated for 1985, and will increase to another peak in 1990. The complete annual baseline forecast for commercial office space demand for the Los Angeles CBD is show in Table IV-221.2D.

TABLE IV-221.2D
LOS ANGELES CBD
SPACE DEMAND PROJECTIONS
1976 - 1990

Year	Office Space Demand (Leasable Square Feet): Range	Average
1976[a]	300,000 - 400,000	350,000
1977	750,000 - 950,000	850,000
1978	500,000 - 600,000	550,000
1979	300,000 - 400,000	350,000
1980	200,000 - 250,000	225,000
1981	300,000 - 350,000	325,000
1982	300,000 - 400,000	350,000
1983	200,000 - 250,000	225,000
1984	250,000 - 300,000	275,000
1985	900,000 - 1,100,000	1,000,000
1986[b]	500,000 - 600,000	550,000
1987	300,000 - 400,000	350,000
1988	200,000 - 300,000	250,000
1989	300,000 400,000	350,000
1990	700,000 - 800,000	750,000
Total	6,000,000 - 7,500,000	6,750,000
Average Annual	400,000 - 500,000	450,000

a) 1976-1985 projections by Property Evaluation Services, 1977.

b) 1986-1990 projections by Robert J. Harmon and Associates, Inc., 1978.

DPM Impact Measurement Parameters

The implementation of the Los Angeles DPM would reinforce the existing concentration of high-use commercial office space, most of which is concentrated in the western portion of the Los Angeles CBD. By 1990, approximately 26 million square feet of prime office space will be within the DPM Corridor under Baseline conditions. Within this Corridor, over 85,000 office employees will be within a ten-minute travel time to the major retailing, dining, entertainment, and government centers in downtown Los Angeles.

The net result of this expanded pedestrian domain is that both employees and executives and, thereby, firms are more satisfied with their CBD location. The face to face meeting opportunities between executives, clients, etc., are more convenient and the variety and quality of the shopping and luncheon opportunities for employees are greatly increased. In essence, the full advantages of a downtown location can be realized with the system.

It is expected that the higher level satisfaction of firms with a downtown location will increase the capture rate of office demand generated by firms already located in the Los Angeles CBD (internally generated demand). At its present scale of over 16 million square feet of prime office space, the firms within the Los Angeles CBD generate between 640,000 and 800,000 square feet of additional office space demand per year simply to meet their own needs for expansion. Due to relocations of labor intensive clerical or data processing operations to suburban locations the CBD net capture rate of this internal market is only about 50% of this total. With the DPM, it is estimated that the CBD will gradually increase this capture rate to 60%. Over the 1978-1990 time period the cumulative effort of this 10% increase in CBD retention of expansion demand means that approximately 1.0 to 1.1 million incremental square feet of internally generated commercial office space demand would be captured by the Los Angeles CBD as a result of DPM implementation.

In addition to the potential for the increased captured rate of its internally generated office market, the Los Angeles CBD area would benefit from a second type of influence from the DPM system. Because each station would provide direct pedestrian access to the city's financial, retail, and entertainment centers, the DPM system would create additional sites for prestige headquarters office locations. The permanent nature of the guideway system provides greater assurance of sustaining the unique image value sought by firms making such headquarters facility decisions. The baseline (without DPM) office demand forecasts presented in the previous section of this chapter indicates that by 1990 the Los Angeles CBD's cumulative share of the regional office space will decline to 28%. Due to the greater appeal of the CBD to regional headquarters/professional firms, it is estimated that the Los Angeles downtown will increase its cumulation capture rate of this market from 28 to 30%. In terms of leasable office space, this increased office market demand for the CBD would equal 700,000 to 800,000 square feet by 1990.

A summary comparison of baseline and "with DPM" office space projections is shown on Table IV-221.2E. As this table indicates, the peak demand years will be in 1985 and 1990; the average annual net increase, approximately 120,000 net square feet. Demand for approximately 43% or 750,000 square feet of DPM-induced office space will occur between 1980-1985; in the 1986-1990 period, demand is expected to occur for about 58% or 1,000,000 square feet.

TABLE IV-221.2E

COMPARISON OF BASELINE AND "WITH DPM" OFFICE SPACE PROJECTIONS FOR THE LOS ANGELES CBD (1976-1990).

		Office Space Demand (Square Feet)	
Year	Base Line	With DPM	Net Change
1976	350,000	350,000	--
1977	850,000	850,000	--
1978	550,000	550,000	--
1979	350,000	350,000	--
1980*	225,000	300,000 - 325,000	+ 75,000- 100,000
1981	325,000	400,000 - 425,000	+ 75,000- 100,000
1982	350,000	450,000 - 475,000	+ 100,000- 125,000
1983	225,000	325,000 - 350,000	+ 100,000- 125,000
1984	275,000	375,000 - 425,000	+ 100,000- 150,000
1985	1,000,000	1,200,000 - 1,250,000	+ 200,000- 250,000
1986	550,000	650,000 - 675,000	+ 100,000- 125,000
1987	350,000	475,000 - 500,000	+ 125,000- 150,000
1988	250,000	375,000 - 400,000	+ 125,000- 150,000
1989	350,000	475,000 - 500,000	+ 125,000- 150,000
1990	750,000	1,200,000 - 1,250,000	+ 450,000- 500,000
TOTAL	6,750,000	8,325,000 - 8,650,000	+1,575,000-1,900,000
Average Annual Increase	450,000	555,000 - 576,000	+ 116,000

* Note: Construction begins in 1980, following formal approval

Source: Robert J. Harmon and Associates, Inc., 1978

Effects of the DPM on Office Space

Based on the DPM impact measurement parameters described in the previous section, the following impacts on office space in the CBD are expected to occur.

Internally Generated Office Market

The largest portion of the estimated 1.0 to 1.1 million square feet of DPM-induced office demand will occur at or adjacent to DPM station sites. Initially, it is expected that projects still being planned would expand to meet this additional demand. The subsequent scale of future commercial office project plans, particularly those at/adjacent to DPM station sites would continue to take this market into account. The areas of the Los Angeles CBD which are expected to realize most of this induced office demand include planned development at 7th and Figueroa Streets, and planned/proposed older office building refurbishment in the Olive/Hill Streets area between 5th and 7th Streets. The types of tenants requiring additional space in these areas will be lawyers, accountants, management consultants (i.e. client-oriented businesses). Secondary effects of DPM-induced office demand in the Olive/Hill area would be to enhance peripheral office areas such as Spring Street.

Based on the foregoing assumptions, it is expected that:

o In the Olive/Hill Street between 5th and 7th Streets, approximately 10% or 100,000 to 110,000 net square feet of office space will be absorbed between 1980 and 1985. This space will be located in refurbished buildings in the area.

The remaining demand (900,000 to 990,000 net square feet) will result in an increase in the number of gross square feet of office space in the Bunker Hill and Figueroa/Flower Street area south of 8th Street. Based on the assumption that office space occupancies will range from between 90-95% and that 85% of the gross area of a commercial office building is leasable, this internally generated office space demand will result in an addition of approximately .95 to 1.05 million gross square feet of office space in these areas. The following allocation of this predicted gross square footage increase is expected:

o In the Bunker Hill area, about 60% or 600,000 gross square feet will be added to projected baseline office space between 1980 and 1985.

o In the Figueroa/Flower Street area south of 8th Street, approximately 40% or 400,000 gross square feet will be added between 1985 and 1990 (Robert J. Harmon and Associates, 1978).

Regional Office Space Demand

Conservatively, it is estimated that there will be a demand in the west side of the Los Angeles CBD for about 700,000 to 800,000 square feet regional office headquarters space. This would be the equivalent level for incremental DPM-induced office space demand from national firms seeking a prestige location in Southern California. The major tenant of this building would be a single firm involved in financial insurance, international trade, etc. Based upon similar assumptions made for internally generated office space demand (i.e. a 90% to 95% office space occupancy rate and 85% gross leaseable square feet for commercial office space), it is estimated that:

TABLE IV-221.2F
INDUCED OFFICE DEVELOPMENT:
MEASUREMENT PARAMETERS AND EFFECTS
BY 1990

Critical Parameters	Base Case Conditions 1975-80	Base Case Conditions 1981-85	Base Case Conditions 1986-1990	With DPM 1975-80	With DPM 1981-85	With DPM 1986-90	Magnitude of Induced Demand 1990 (millions/net sq. ft.)	Magnitude of Induced Supply 1990 (millions/gross sq. ft.)
1. Capture rate of internally generated office demand (a)	50%	50%	50%	52%	55%	60%	1.0-1.1 (100,000-110,000 net sq. ft. absorbed in Olive/Hill area)	.95-1.05
2. Cumulative capture rate of regional office demand	32.0%	30.0%	28.0%	32.0%	31.0%	30.0%	.7- .8	.74- .87(c)
						Subtotal	1.7-1.9	1.69-1.92
3. Acceleration of committed projects (d)	No change in development plans			1-2 year acceleration of 3-5 projects prior to 1985			0	0
4. DPM induced effects				Total net increase net sq. ft. of demand		Approx.	1.8	Total net increase in Gross sq. ft. of space 1.69-1.92
5. Baseline 1990 Projections								Total increase in gross sq. ft. of space 32.8
6. 1990 Gross sq. ft. of Office Space with DPM								34.5-34.7
7. Percentage Increase with DPM								5.5%

(a) Equivalent average of 57.5% during 1980-1990. Approximately 400,00-450,000 square feet of this incremental demand would occur between 1978-1985, 600,000-650,000 square feet of incremental demand would be generated between 1985-1990.

(b) Measured as a percentage of total prime regional office space (i.e., structures over eight stories). Estimates rounded to nearest whole percentage.

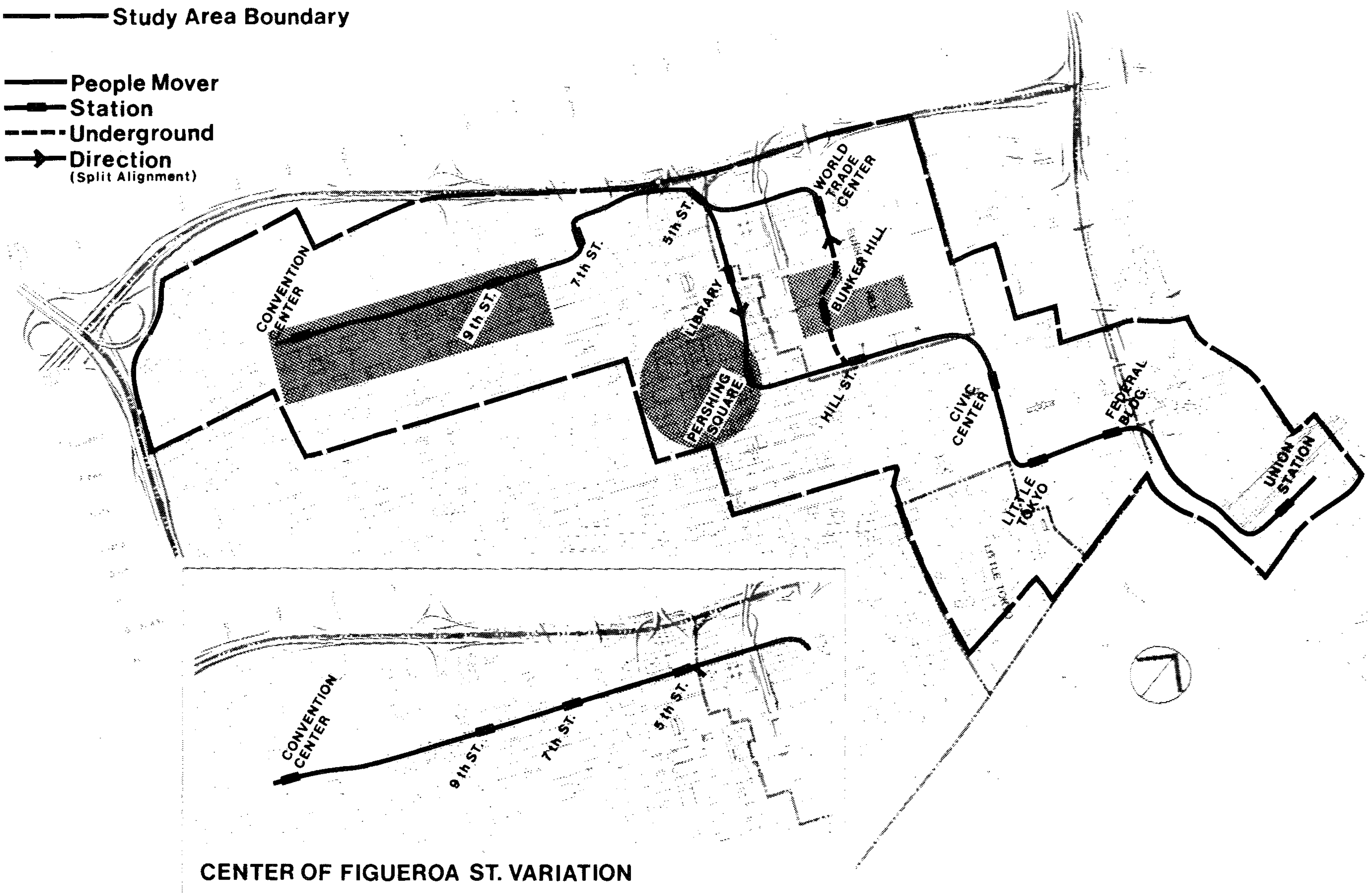
(c) Reflects the equivalent capture of one headquarters building during 1985-1990

(d) Not significant in terms of ultimate 1990 development, however it is important to potential 1985 ridership market.

Source: Robert J. Harmon & Associates, Inc., 1978

FIGURE IV-221.2G

PROBABLE LOCATION OF DPM-INDUCED OFFICE GROWTH IN THE CBD



Source: Robert J. Harmon and Associates, 1978

Section IV-221.22 Hotel Facility Impacts

Since 1970, nearly 2500 new hotel rooms considered competitive (Class A) for business, convention, and tourist travelers have been constructed in the Los Angeles CBD. This new construction consists of three new facilities: the Hyatt Regency completed in 1973 (487 rooms); the New Otani completed in 1976 (448 rooms), and the Bonaventure completed in 1977 (1544 rooms). All three hotels are located in the DPM Corridor. (See Figure IV-221.2A.)

This hotel facility expansion represented a 65% net increase in the supply of regionally competitive overnight accommodations. In addition, the Biltmore Hotel has undergone major remodeling. When completed in 1978, the facility will include 1072 rooms, a net reduction of nearly 400 rooms due to suite expansion and standard room modernization. Currently there are approximately 6100 guest rooms located in the Los Angeles Central Business District that are classified as Class A accommodations. A complete inventory of these competitive hotel facilities is listed in Table IV-221.2G.

Prior to the opening of the Bonaventure Hotel in 1977, the over-all occupancy of competitive hotel facilities within downtown Los Angeles had improved from 53.3% in 1974 to approximately 62.0% in 1976. These occupancy levels were below those experienced by other regionally competitive hotel facility clusters (i.e., the Wilshire District, Beverly Hills, Westwood, Century City) during the same period. Between 1970-1976, annual demand for competitive hotel accommodations within the CBD area increased at an average rate of only 2-3%. From 1976 to 1977, the annual room nights of CBD hotel demand increased by 12%. This increased demand, however, did not keep pace with the 1544 room increase represented by the Bonaventure. The result was that over-all hotel occupancy levels within the Los Angeles CBD declined to 57%.

Table IV-221.2G

INVENTORY OF CLASS A HOTEL FACILITIES[1] IN LOS ANGELES CBD: 1978

Facility	Location	Number of Rooms
Los Angeles Bonaventure	5th/Figueroa	1,544
Los Angeles Hilton	Wilshire/Figueroa	1,206
Biltmore Hotel	5th/Olive	1,072[2]
Alexandria Hotel	5th/Spring	500
Hyatt Regency Hotel	7th/Hope	487
New Otani Hotel	1st/Los Angeles	448
Mayflower Hotel	5th/Grand	350
Holiday Inn	10th/Figueroa	192
Gala Motel	9th/Figueroa	170
Kent Inn	9th/Figueroa	92
		6,061

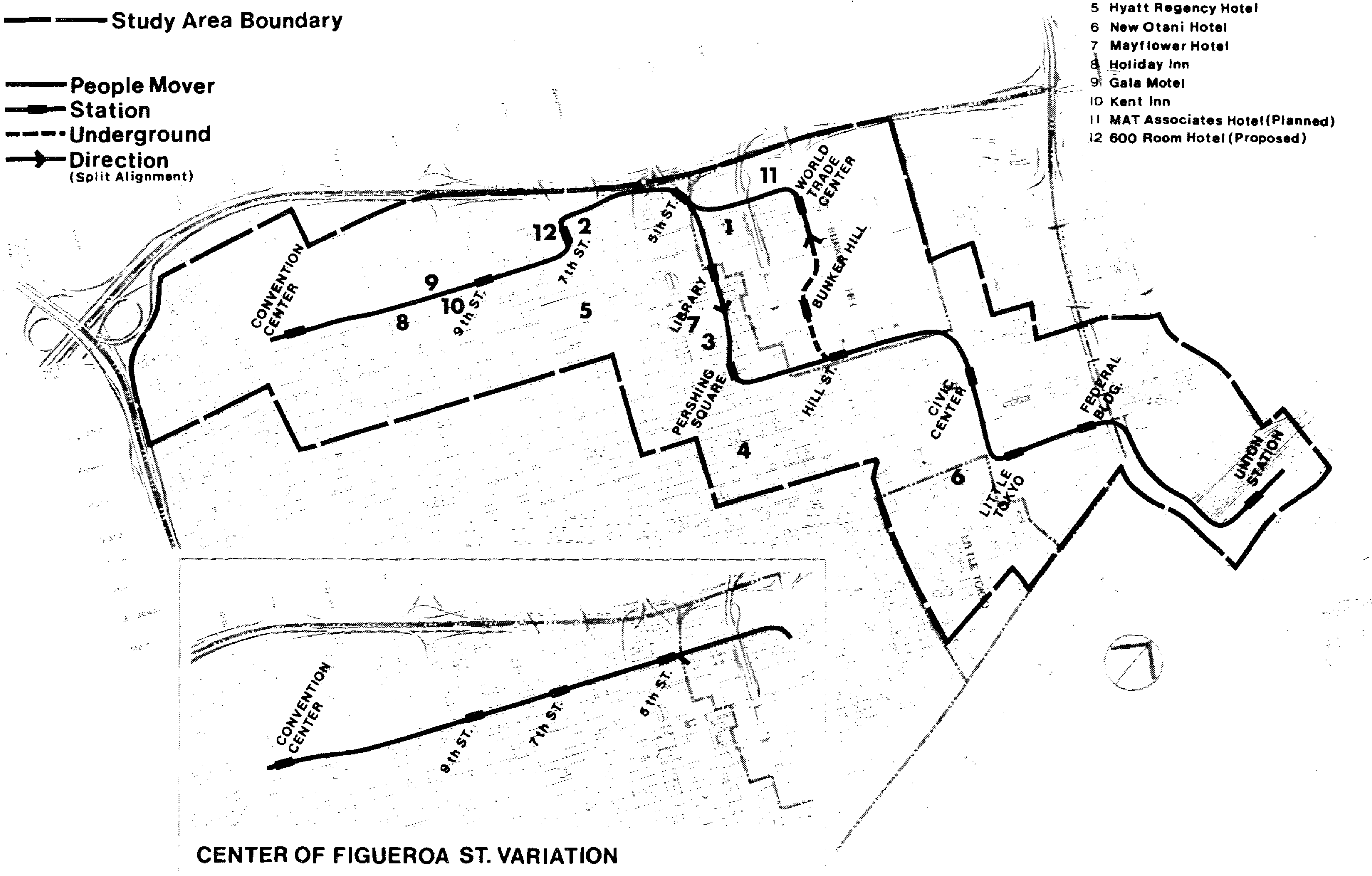
[1] Considered competitive for business, convention, and tourist travelers.

[2] As remodeled.

Source: Dark and Higginbotham, 1978.

Figure IV-221.2H

MAJOR CLASS A EXISTING, PLANNED AND PROPOSED HOTELS IN THE CBD



Source: CRA, 1978

In 1978, the Los Angeles CBD captured approximately 19% of the total metropolitan area room night demand or 1,190,700 room nights. Of this CBD room night capture, tourists made up the smallest segment of the market or 10.3%. Business and government visitors accounted for 65% and conventions/groups, approximately 25% (Dark and Higginbotham, 1978).

Baseline Forecasts 1990

From 1975 to 1985, hotel room demand in the Los Angeles CBD is expected to increase from 961,400 room nights to 1,692,550 room nights. This expected increase reflects a higher predicted CBD capture rate of Los Angeles County room night demand--16.8% in 1975 increasing to 21.5% in 1985 (Dark and Higginbotham, 1978). During this period, the percentage of demand from convention/groups is expected to rise from 25% to 43%. This expected growth level takes into account:

- Increased supply of quality rooms and banquet facilities of the Bonaventure, New Otani, and the planned MAT Associates Hotel to be completed in 1980 (at 3rd and Figueroa Streets).
- Los Angeles Convention Center improvements such as:
  1. The expanded and revitalized marketing program represented by a $250,000 to $650,000 budget increase.
  2. Establishment of a competitive rate structure (i.e., $0.08 per net square foot).
  3. Correction of physical limitations inherent to the facility's original design.
- A stable economic outlook for the Southern California economy.

During this period, the Los Angeles CBD is expected to maintain its existing share of the regional (Los Angeles County) hotel market for business/government visitors (i.e., 25%) and tourists (i.e., 5%). The predominant portion (over 60%) of new demand is expected to come from convention/groups. In absolute terms, convention/groups will increase from approximately 12% to over 18% of the total 1985 hotel room demand.

In order to establish base line forecasts through the year 1990, the existing 1985 forecasts and relevant market trends were extrapolated for the 1985-1990 time period. In this analysis, each segment of the regional hotel market demand was assumed to increase at compound annual growth rates established for the 1975-1985 time period (i.e., 3.2% for convention delegates; 3.0% for business/government visitors; 1.0% for tourists). The estimated capture rate that would be achieved by the Los Angeles CBD in relation to each defined market segment was held constant at the 1985 levels. Because no other improvements in the Convention Center are planned to be undertaken between 1985 and 1990, these assumptions were considered valid.

The results of the 1990 baseline forecasts (shown in Table IV-221.2H) indicate that there would be an annual demand for nearly 2 million room nights for Los Angeles CBD visitor accommodations. This represents a net increase of approximately 265,000 room nights of demand between 1985-1990. Because of the overbuilt existing Los Angeles CBD hotel market (i.e., 57%), the planned addition of the 500-room MAT Associates Hotel (3rd and Figueroa), and the proposed 600-room hotel at 7th and Figueroa, it is estimated that there would only be sufficient market demand to support the construction of 100 additional luxury hotel rooms in the Los Angeles CBD between 1985 and 1990. This analysis assumes an average annual occupancy rate of 75% for new hotels and 65% for older hotels, the break-even occupancy for a major luxury hotel.

Table IV-221.2H

GUEST ROOM DEMAND SUMMARY
LOS ANGELES COUNTY AND CENTRAL BUSINESS DISTRICT
1975 - 1990

Year	Demand Source	Los Angeles County Room Night Demand: Room Nights	Los Angeles County Room Night Demand: Percent	CBD Capture Rate of County Demand (Percent)	Downtown Capture: Room Nights	Downtown Capture: Percent of Total CBD
1975	Conventions/Groups	666,000	11.6	25.0	166,500	17.3
	Business/Government Visitors	2,707,000	47.2	25.0	676,750	70.4
	Tourists	2,363,000	41.2	5.0	118,150	12.3
	Total/Average	5,736,000	100.0	16.8	961,400	100.0
1976	Conventions/Groups	533,000	9.1	25.0	133,250	13.6
	Business/Government Visitors	2,927,000	50.0	25.0	731,750	74.3
	Tourists	2,390,000	40.9	5.0	119,500	12.1
	Total/Average	5,850,000	100.0	16.8	984,500	100.0
1977	Conventions/Groups	733,000	11.8	30.0	219,900	19.9
	Business/Government Visitors	3,049,000	49.0	25.0	762,250	69.1
	Tourists	2,437,000	39.0	5.0	121,850	11.0
	Total/Average	6,219,000	100.0	17.8	1,104,000	100.0
1978	Conventions/Groups	839,000	13.1	35.0	293,650	24.7
	Business/Government Visitors	3,097,000	48.5	25.0	774,250	65.0
	Tourists	2,456,000	38.4	5.0	122,800	10.3
	Total/Average	6,392,000	100.0	18.6	1,190,700	100.0
1979	Conventions/Groups	1,006,000	15.2	40.0	402,400	30.7
	Business/Government Visitors	3,144,000	47.4	25.0	786,000	59.9
	Tourists	2,476,000	37.4	5.0	123,800	9.4
	Total/Average	6,626,000	100.0	19.8	1,312,200	100.0

Table IV-221.2H (continued)

1980[a]	Conventions/Groups	1,261,000	18.2	42.5	535,900	36.7
	Business/Government Visitors	3,190,000	45.9	25.0	797,500	54.7
	Tourists	2,497,000	35.9	5.0	124,850	3.6
	Total/Average	6,948,000	100.0	21.0	1,458,250	100.0
1985[b]	Convention/Groups	1,457,000	18.5	42.5	619,200	36.6
	Business/Government Visitors	3,763,000	47.8	25.0	940,750	55.6
	Tourists	2,652,000	33.7	5.0	132,600	7.8
	Total/Average	7,872,000	100.0	21.5	1,692,550	100.0
1990[c]	Convention/Groups	1,718,000	19.3	42.5	730,150	37.3
	Business/Government Visitors	4,348,000	49.0	25.0	1,087,000	55.5
	Tourists	2,817,000	31.7	5.0	140,850	7.2
	Total/Average	8,883,000	100.0	22.0	1,958,000	100.0

a) Property Evaluation Services, 1976. Hotel Facilities Market Analysis, Parcel C; prepared for the Community Redevelopment Agency of the City of Los Angeles.

b) Taylor Dark and Val Higginbotham, 1978. Market Analysis of Bunker Hill Renewal Project (DRAFT); prepared for the Community Redevelopment Agency of the City of Los Angeles.

c) Robert J. Harmon and Associates, 1978.

DPM Impact Measurement Parameters

The implementation of the Los Angeles DPM would generate positive effects on three major sources of hotel patronage: (1) the convention and convention delegate market; (2) the tourist market; and (3) the business and government visitors market.

Convention/Convention Delegate Market

The implementation of the Los Angeles DPM would connect 80% of the existing or planned Class A hotels in the CBD to the recently revitalized Los Angeles Convention Center providing direct physical access as well as reduced travel times among the geographically dispersed major hotels, visitor attractions, restaurants, and the Convention Center (see Figure IV-221.2H). It would also improve visitor orientation to the CBD and provide inexpensive transportation services for destinations within the CBD.

The combination of these factors would result in the increased "packageability" of the Los Angeles CBD for future convention activities, particularly those with over 2500 delegates. For example, major hotels with their combined hotel room accommodations, banquet/meeting rooms and restaurants could "package" the necessary facilities for a large convention--either at one of the hotels or at the Convention Center

Tourist Market

From the viewpoint of tourists, the drawing power or appeal of the visitor attractions/tour packages of the Los Angeles CBD would be enhanced. For example, trips from the Hilton Hotel to Little Tokyo could be made in only 7 minutes with a minimum need for directions and orientation for visitors, especially foreign visitors with language barriers. Tourists would need only to remember the DPM station which is nearest to their hotel destination. The enhanced ability of visitors to orient themselves to destinations in the Los Angeles CBD and to move through the area via an inexpensive, easily retraceable mode of transportation would improve the overall quality of the visitor experience. Improved tourist satisfaction with stays in the Los Angeles CBD, in turn, increases the incidence of "return visits" and the volume of new trade from "word of mouth" advertising to friends and relatives.

Business/Government Market

In the case of business and government visitors, which compose over 50% of the forecasted 1990 hotel market demand for the Los Angeles CBD (see Table IV-221.2H), the DPM would exert three types of positive influences. First, through the provision of direct pedestrian linkage to other hotels and entertainment facilities, the DPM system would provide the business/government visitor with expanded opportunities for dining and entertainment. The increased hotel market demand for large conventions/foreign tourists would also have positive effects on the feasibility of expanded high quality dining and entertainment facilities in the Los Angeles CBD. Second, the DPM system would reduce the taxi cab or car rental costs related to commuting from a major hotel to a client's office. These potential transportation costs saving and the entertainment advantages will improve the competitive standing of the Los Angeles CBD hotels relative to Century City, the LAX airport, and Mid-Wilshire district facilities. Finally the 6% increase in prestige office construction expected to occur by 1990 as a result of DPM system implementation (see Table IV-221.2E) would expand the overall market for business and government visitors to Los Angeles CBD.

The measurement parameters for DPM-induced hotel demand on each segment of the CBD hotel market is shown in Table IV-221.2I. The results of this analysis indicate that the convention/group portion of the hotel market will be positively affected by:

Table IV-221.2I

"INDUCED" HOTEL DEMAND
MEASUREMENT PARAMETERS

CRITICAL PARAMETER	BASECASE CONDITION	WITH DPM	SIGNIFICANCE
Convention/Group Market			
Packageable Convention Capacity[1]	3,000-4,000	4,000-5,000	Increased appeal to large convention market
Capture rate of regional convention market	42.5%	44%-45%	Eight to ten more regional conventions annually
Attraction of large conventions (i.e., over 2500 delegates)	5-6	10%-12%	Net increase of 15,000 - 20,000 delegates
Business/Government Market			
Capture rate of regional market	25%	26%-27%	Between 60,000-70,000 annual room nights of demand
Tourist/Visitors Market			
Capture rate of regional market	5%	6%[2]	Between 25,000 - 30,000 annual room nights of demand

[1] The packageable capacity is based on a standard of 70%-75% of total Class A room supply in the area.

[2] Primary source of market for increased demand would be foreign pleasure travelers.

SOURCE: Robert J. Harmon and Associates, Inc., 1978.

(1) a higher capture rate for the CBD (i.e., an increase of 1% to 2% from 44%-45% to 46%) of the regional convention market; and (2) the attraction of five to six large conventions (those with 2500 or more delegates) that otherwise would not have been held in the Southern California region. In case of future business/government visitor and tourist trade, the annual 1990 volumes are expected to increase by 1% to 2% over the regional capture rates forecasted under basecase conditions, from 25% to 26%-27% and 5% to 6% respectively.

Effects of the DPM on Hotel Facilities

Based on the impact measurement parameters outlined above, the "net" cumulative impact of the DPM system on each hotel market segment was estimated. The results of the market segment impact analysis, measured in terms of occupancy levels, net room night demand, and construction, is shown in Table 221.2J. Compared with the 1990 baseline conditions (i.e., without DPM), the following "net" cumulative changes are expected to occur:

o The annual 1990 room nights of hotel demand generated by business/government visitors is expected to increase from 1,087,000 to 1,152,220, representing a 6% DPM induced growth.

o The annual convention/group market demand for hotel room nights is expected to increase by 9.5%, from 730,150 to 806,742.

o The tourism segment of the Los Angeles CBD's annual 1990 hotel room night demand is expected to increase from 140,850 to 159,120, representing a 13% DPM induced growth.

In total, the implementation of the DPM system is expected to increase the annual 1990 Los Angeles CBD hotel room night demand by approximately 8%.

This annual DPM-induced room night demand, estimated to be approximately 160,000 would support the construction of one additional major 500-600 room hotel facility. This estimate assumes that new hotel rooms are not constructed until the annual demand generally supports break-even occupancy levels (i.e., 65% for older hotels and 75% for new hotels) for the entire CBD. The demand for this 500-600 room hotel facility would provide the necessary market support for the hotel facility proposed for the Convention Center area (see Figure IV-221.2I).

Mitigation/Enhancement Measures

In order to ensure that the potential hotel market benefits related to the DPM system are realized by Los Angeles CBD, careful attention must first be given to the urban integration aspects of the system design. Specifically, direct pedestrian interfaces from the stations to the planned MAT Associates hotel (World Trade Center Station); the Hilton Hotel and proposed hotel at Mixed Use (7th Street Station); the Bonaventure Hotel (Library Station), and the proposed hotel at the Convention Center (Convention Center Station) should be incorporated into the final station designs. Also efforts should be made to encourage completion of a pedway facility from the 7th Street Station to the Hyatt Regency Hotel at 7th and Flower Streets, one from the Biltmore Hotel to the Pershing Square Station, and one from the Little Tokyo Station to the New Otani Hotel at 1st and Los Angeles Streets

In addition to these urban integration aspects, other related public information and promotional efforts need to be undertaken cooperatively with the Los Angeles Convention Center and Visitors Bureau. In this regard, both consumer information booklets and convention/tourism promotional packages need to be formulated in advance of the system "opening". Cooperative promotional efforts should be initiated with the hotel facility owners and tourist center/entertainment facility operators.

Through successful implementation of the urban integration and promotional efforts outlined above, the Los Angeles CBD hotel market could realize the maximum level of economic benefit from the DPM system.

Analysis and findings relating to impacts on residential land uses are the same for the west side of Figueora Street alignment and the center of Figueora Street variation (See Figure IV-10A).

TABLE IV-221.2J

Net Effects of the Los Angeles DPM
On Hotel Demand and Construction: 1990

ALTERNATIVE SCENARIOS	ROOM NIGHT MARKET DEMAND IN THE CBD Segment	Annual Demand	NET ROOM DEMAND	
1. Basecase	Business/ Government	1,087,000	Total demand for break-even occupancy	1,930,904
	Convention/ Groups	730,150	Excess Room Night Demand	27,096
	Tourists/ Visitors	140,850		
	TOTAL	1,958,000	Net Supportable Rooms[d]	100
2. With DPM	Business/ Government	1,152,220[a]	Total demand for[c] break-even occupancy	1,930,904
	Convention/ Groups	806,742[b]	Excess Room Night Demand	187,178
	Tourists/ Visitors	156,120[c]		
	TOTAL	2,118,082	Net Supportable Rooms	680 - 700
NET DIFFERENCE	Business/ Government	+ 65,220	Total demand for[d] break-even occupancy	1,930,904
	Convention/ Groups	+ 76,592	Excess Room Night Demand	+ 166,082
	Tourists/ Visitors	+ 18,270		
	TOTAL	+ 160,082	TOTAL Net Supportable Rooms	+580 - 600

[a]Forecasted increase from 25% to 26-27% of the estimated 1990 regional (i.e., Los Angeles County) market, does not assume.

[b]Forecasted increase from 42.5% to 44-45% of the 1990 regional (i.e., Los Angeles County) market. In addition 5-6 additional 2500 + delegate conventions averaging 4.3 visitor nights and 2.4 room occupancy will be attracted to the Los Angeles CBD.

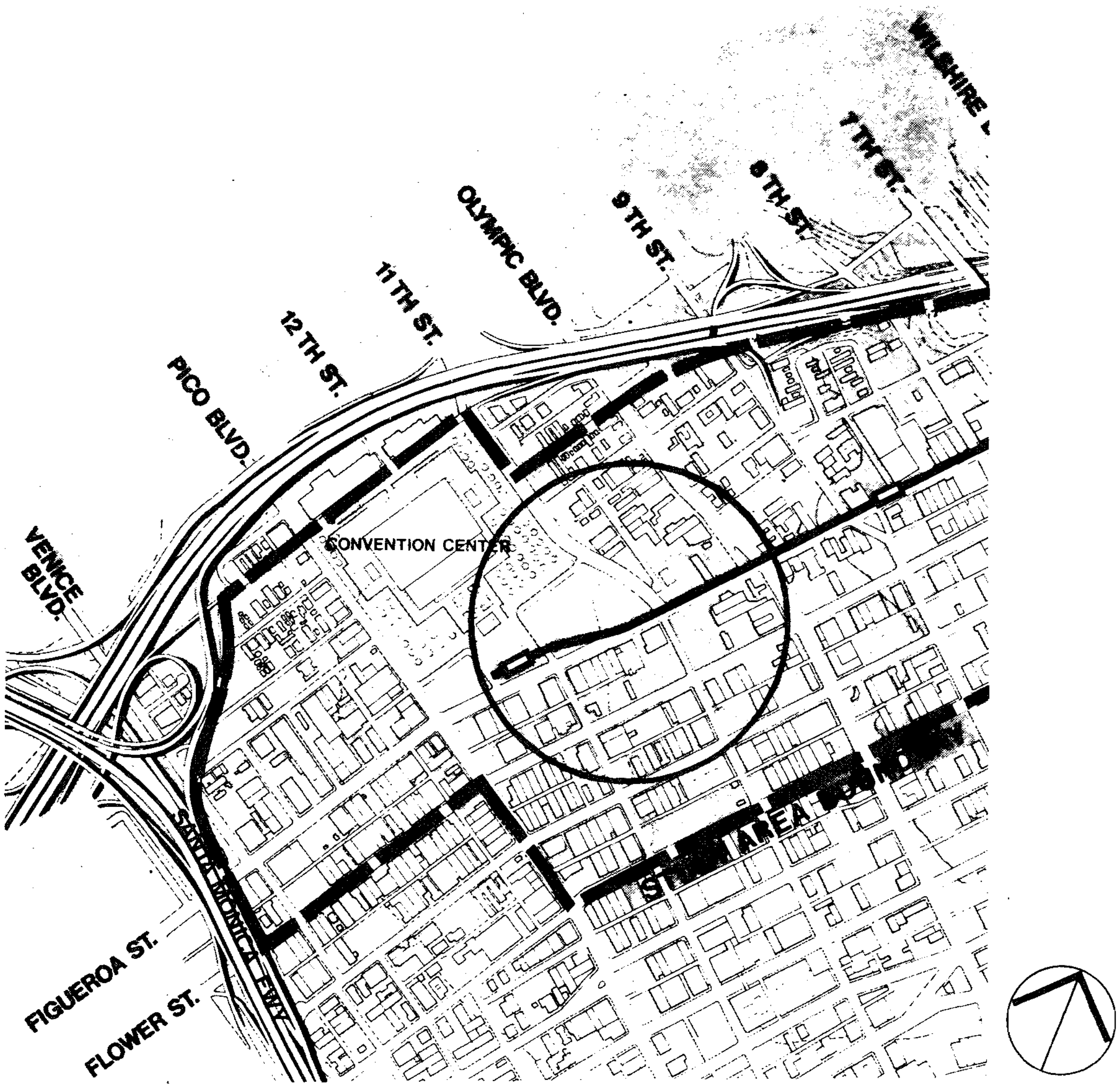
[c]Forecasted increase from 5-6% of the estimated 1990 regional (i.e., Los Angeles County) market.

[d]Net Supportable rooms is defined as 7% of excess room night demand.

[e]Assumes 65% occupancy requirement for older Class A hotels representing 4,571 rooms in 1978 and 3,092 new Class A hotel rooms which include the Bonaventure, planned MAT Associates, Hyatt Regency and 75% proposed Mixed Use Hotels.

SOURCE: Robert J. Harmon and Associates, Inc.

Figure IV-221.2I
PROBABLE LOCATION OF DPM-INDUCED HOTEL FACILITY IN THE CBD



IV-221.23 RESIDENTIAL LAND USE IMPACTS

Since 1960, the 714-unit Bunker Hill Towers and the 301-unit Little Tokyo Towers have been the only major residential complexes constructed in downtown Los Angeles. The remaining CBD housing stock consists of older residential hotels, some single-family and duplex housing units and a few aging apartment buildings. Initial acceptance of downtown residential development has been slow, even after the completion of the 714-unit Bunker Hill Towers in 1969. Prior to 1974, the Bunker Hill Towers project experienced vacancy rates ranging between 15 and 25 percent. This historical trend is changing, with current rates exceeding 95%. Nearly 90% of the Towers' 1200 residents working downtown are in professional fields and have median incomes above $20,000 (Property Evaluation Services, 1977).

Two additional CBD housing projects are planned for the Bunker Hill Redevelopment Project Area. The first is an elderly and handicapped housing project to be developed by the Retirement Housing Foundation. It will be located on Hill Street between 2nd and 4th Streets (Bunker Hill Parcels X/Y--see Figure IV-221.2I later in this section) which will include 1100 studio, one-bedroom, and two-bedroom units. It is scheduled for occupancy in 1980. The second residential project is planned by Shapell Government Housing, Inc. and will be located on 1st Street between Hope and the Harbor Freeway and on Grand Avenue between 2nd and 3rd Streets (Bunker Hill Parcels A, E-3, E-4, L, and M--see Figure IV-221.1I). The project will consist of a minimum of 800 studio, one-bedroom, and two-bedroom comdominium units.

There is a positive overall outlook for downtown residential development. Several factors have influenced this change in attitudes:

- Energy Conservation: As gasoline prices increase, housing closer to the place of work becomes more attractive to downtown employers. Energy restrictions are expected to continue, providing additional impetus to live closer to the central city.
- Changing Life-Styles: Household sizes are declining as families have fewer children or wait longer before having them. Also, the number of household formations are increasing because of later marriages, a rising divorce rate, and young people leaving home earlier. These factors in addition to goals of more leisure time and less home care and maintenance are conducive to high-density downtown living within walking distance of work and recreational opportunities.
- Single-Famly Housing Costs: The high price of single-family housing in the Los Angeles area also has created a high demand for condominiums which provide home ownership opportunities at a lower price.
- General Housing Shortage: A final element in the increased interest in downtown living is the general housing shortage in Los Angeles, especially in rental units. Apartment demand levels are high and the construction of rental units have not kept pace. The downtown area will become a viable option for at least certain segments of this market.

In summary, the demand for housing in the Los Angeles CBD is expected to increase in the short term. A full discussion of forecasted demand levels for both condominium and rental housing is presented in the section that follows.

Baseline 1990 Residential Development Forecasts

To evaluate the demand for future "market rate" CBD residential development, it is important to distinguish among: (1) effective sub-area market demand, (2) the supply of suitable and available parcels, and (3) feasible construction schedules/absorption rates. In terms of effective market demand, total potential demand for market rate "in-city" housing is almost solely derived from a small segment of CBD employees with both compatible life-style needs and adequate income levels. This segment generally defined as single households and "empty nesters", (i.e., those without school-age children), with annual incomes of about $15,000; corporate executive quarters, foreign residents, and the regional housing market comprise the remainder.

The effective housing market demand is measured as the small percentage of this total CBD employee-housing demand which could be attracted to the type of residential environment that could be provided in a sub-area of the CBD. Due to competition with other land uses (such as office and hotel facilities) which can provide higher returns on investments, the supply of land suitable for near-term residential development is usually limited by zoning ordinances and/or the market place. Therefore, only a portion of the effective market will be met through actual project construction. Finally, even with the provision for the proper physical amenities and close proximity/access to the desired types of life-style opportunities, the absorption rate (i.e., purchase or leasing rate) for new "in-city" residential development can be extremely slow.

To establish a baseline 1990 residential development forecast for the Los Angeles CBD, it is necessary to consider each of these factors. The result of the final stage of the CBD residential analysis--estimating the actual sub-area construction/absorption rates--is the basis for comparing "net differences" between the "with" and the "without" DPM system conditions.

EFFECTIVE MARKET DEMAND

Market rate residential development is defined as unsubsidized housing renting for $250 or more per month or in the case of condominiums, those units selling for more than $30,000. There are two sub-areas of the Los Angeles CBD where such development is expected to occur. These areas are Bunker Hill and The Convention Center/South Park area.

Baseline 1990 estimates of effective demand for new housing development in these two sub-areas are discussed below:

BUNKER HILL SUB-AREA

Bunker Hill is the only sub-area of Los Angeles CBD that has an established market image and the existing urban amenities and infrastructure to support large scale market rate residential development in the near tern. The existin Bunker Hill Tower apartments are now maintaining full occupancy (Property Evaluation Services, 1977). Nearly 800+ market-rate condominiums are scheduled for construction at Parcels A, E-3, E-4, L, and M between 1979 and 1983. In addition, nearly 1,100 housing units for the elderly and handicapped in combination with a social services center are scheduled for construction on Parcels X-1, X-2, and Y-2--Phase 1 of 760 units in 1980 and the remainder by 1982.

Recent forecasts for market rate residential developments indicate that between 1978 and 1985, there will be an effective demand for approximately 2,600 units (i.e., 1,960 rentals and 656 condominiums) in the Bunker Hill area. Taking into account the expanded amenities for and the desirability of "in-city" living, critical "massing" of supply, the urban setting, continued trend toward small household life-style changes, and continued increased in commuting costs, it is anticipated that by 1990 there will be an effective market demand for nearly 4,500 units (i.e., 3,355 apartments and 1,131 condominiums) of residential development in the Bunker Hill area. (Property Evaluation Services, 1977; Dark and Higginbotham, 1978; Robert J. Harmon and Associates, 1978).

Demand versus Supply

The supply of available and suitable land is a major constraint to future residential development in the Bunker Hill area. The current baseline 1990 market demand forecasts, for apartments and condominium units development at Bunker Hill, equal or exceed the "holding capacity" of the vacant or underdeveloped parcels that are now designated for residential development in this area. Beyond increasing the minimum number of units scheduled for development on Parcels A, E-3, E-4, L and M (800+ units), the future residential holding capacity of Bunker Hill is limited to the future development potential of Parcels U and T, which together have a maximum allowable development of 400 units (all other vacant parcels remaining to be marketed in Bunker Hill are designated for commercial/hotel use). Assuming that the maximum allowable residential development occurs on all seven parcels (A, E-3, E-4, L and M, U, T), Bunker Hill can accommodate up to 2,000 additional units of new market rate apartment or condominium development. (The Design for Development--Bunker Hill calls for a maximum total dwelling unit capacity of 3,750 for Bunker Hill. This number, less 714 units in Bunker Hill Towers and the committed 1,100 elderly housing units, equals 1,936 units.) This means that if comparable amenities including: open space/recreational facilities; security; pedestrian access to work/shopping and quality entertainment facilities, could be provided elsewhere in the CBD, there is a potential excess 1990 demand for approximately 2,500 (as compared to a baseline 1990 demand of 4,500 units vs. a maximum additional holding capacity of 2,000 units) units of market rate housing.

Construction Schedule/Absorption Rate

The construction schedule and absorption rate of new residential development is the critical result of the above analysis. The initial market response, available financing, etc. affect the 1990 baseline residential project implementation schedule for Bunker Hill.

The minimum 800+ units of market rate condominiums now planned for construction by 1983 on Parcels A (1981), E-3 (1979), E-4 (1980), and L and M (1983) are expected to require at least three to five years to be completely sold (Dark and Higginbotham, 1978). If relatively high rates of absorption are achieved, these units could be fully occupied by 1985. Also under baseline conditions, approximately 250 of market rate residential development would be constructed after 1985. Because of the expected increased retail and entertainment facilities planned in Bunker Hill and the expansion of nearby employment centers (see Table IV-221.2C), it is reasonable to expect that all residential development now planned on Bunker Hill will be fully occupied no later than 1990.

In summary, even with allowances for slow absorption rates and staggered construction (under baseline 1990--i.e., without DPM conditions), between 1,050 new market-rate residential units will be constructed and occupied between 1978-1990 in the Bunker Hill area. A complete breakdown of this estimate is presented in Table IV-221.2K. In terms of 1990 supply-and-demand conditions for market-rate housing in Bunker Hill, there would be an excess demand for about 3,350 to 3,450 market rate housing units.

TABLE IV-221.2K

ESTIMATED PACE OF MARKET RATE RESIDENTIAL DEVELOPMENT IN BUNKER HILL: 1990 BASELINE CONDITIONS

Time Period	Construction	Absorption Rate	
		Low	High
1978 - 1980	300*		
1981 - 1985	500-550	550	800
1986 - 1990	250-300	500	350
TOTAL	1,050 - 1,150	1,050+ - 1,150	

* Does not include 1,100 units of committed elderly housing development.

SOURCE: Robert J. Harmon and Associates, Inc.

South Park Sub-Area

South Park is the other sub-area of the Los Angeles CBD where new market-rate residential development is planned. This area, located near the Convention Center, does not have an established "market image" for residential development. An initial first increment of a "new town in-town"--approximately 400 units--is in the final planning stages. Ultimately, up to 4,000 units of market-rate and subsidized housing are planned for this area (see Section III-200).

Considerable capital investments in schools, open space, recreational facilities, and landscaping will be required to successfully implement the family-oriented new town concept now under consideration. Two factors, the limited availability of public funds and the fact that the acceptance of new housing in this area has not been market tested, restrict the pace at which this project will evolve. Recent forecasts for market rate residential development in the Los Angeles CBD indicate that by 1980 there will be an effective demand for approximately 360 units in the South Park area (Property Evaluation Services, 1977).

Assuming the successful implementation of the first stage projection now in planning and that the required public and private investments in physical amenities and facilities take place, it is expected that the effective annual market demand will gradually increase from 90 to 135 units. This means that under the 1990 baseline (i.e., without DPM) conditions, there will be an effective cumulative demand for approximately 1,600 condominium and apartment units. The total demand for subsidized and market-rate housing for households without school-age children exceeds 5,000 units in the South Park area (Property Evaluation Services, 1977; Robert J. Harmon and Associates, 1978).

Demand Versus Supply

Because of the extensive supply of underdeveloped parcels and fully depreciated buildings in the South Park area, supply versus demand is not a critical factor. The lack of physical amenities--self-contained shopping facilities, etc.--and a relatively low market image and concerns regarding security is the major constraint to large scale residential development in this area.

To the extent that the initial residential projects developed in this area are successful, the packaging of future sites for residential expansion could become more difficult for the private sector due to outside speculation and price hold outs for exorbitant prices on last parcel properties. Public sector support in future "site-packaging" could therefore be necessary to increase the supply of contiguous/available parcels. Since all properties contained in the Bunker Hill area are publicly owned, this supply problem does not exist there.

Construction Schedule/Absorption Rate

The 400 units of "market rate" residential development planned for by the early 1980's in the Convention Center/ South Park area (near 9th & Flower Streets) will require a minimum of three years and possibly as long as five years to be fully occupied. (Although these units are "market rate," the market rate price would be reduced by interest and land write-down subsidies.) Assuming adequate public funds and private capital are obtained for physical infrastructure and facility improvements, 500-600 units of below market rate (elderly, Section 8, or other types of subsidized housing) and a second stage (i.e., 300-400 units) of market rate residential units would be constructed in the South Park area by 1985.

The market absorption rate of the second stage of residential development in the Convention Center/South Park area would be higher than the first stage. Both the improved physical amenities and increased "market draw" of a critical mass of residential development will change the existing market image of the area. This market transition should allow a third stage of market rate residential development to be constructed between 1985-1990. Similar to the first two stages, this increment would include approximately 300 units of market rate condominium or apartment development.

In summary, under baseline (i.e., without DPM) conditions, it is expected that between 1,000-1,200 units of market rate residential development would be constructed by 1990 in the South Park area of the CBD. Assuming all planned public and private infrastructure and facility investments take place, it reasonable to expect that these units would also be fully occupied by 1990.

Given the untested nature of the market, the difficulties of overcoming the areas' existing market image and the current lack of complementary facilities, this estimate of 1990 market rate residential development and absorption rates should be considered optimistic. However, it also represents a conservative baseline to estimate the potential impact of the proposed DPM system. A complete breakdown of the 1990 baseline estimates of the construction schedules and absorption rates of the potential new market rate residential development in the South Park area of the CBD is presented in Table IV-221.2L.

DPM Impact Measurement Parameters

The implementation of the DPM will affect the number of automobiles per residential unit and the overall attractiveness of CBD "in-city" residential living. In effect, residents of either the Bunker Hill or South Park area will be able to arrive to work, shop, dine, or take advantage of a multitude of entertainment opportunities (e.g., The Music Center, Variety Arts Center vaudeville theater in South Park, planned movie theaters, etc.) which would be within a ten-minute/DPM pedestrian trip from their homes. Because the need for an automobile for weekday activities could be nearly eliminated, the potential savings of $1,000 to $1,200 in annual second-car ownership costs (National Highway Users Federation, 1977), of CBD residents could be used to pay for more recreational/entertainment activities or a larger or more expensive residence. Under these market parameters, it is assumed that the average CBD resident household will not own more than one car and will use that car or rent one for weekend activities. This means that the effective market-rate renter or condominium owner could afford to pay $50 to $100 more a month for basic household/residential expenses without a corresponding increase in income.

These DPM-induced changes in (1) household budget needs, (2) density of allowable residential development, and (3) attractiveness of CBD residential living will combine to expand both the market potential and design options for future residential development in the CBD. It is estimated that the effective market capture rate of one- and two-person family households (i.e. those without children) would increase from 5-7% to 7-10% (estimate includes both primary and secondary CBD residential market areas). This would translate into an effective market demand for between 5,300-5,500 market-rate residential units in Bunker Hill. Assuming the development of 1,050-1,150 market-rate housing units under baseline conditions, excess demand with the DPM would be 4,250-4,350. This compares to an excess demand under baseline for 2800-3000 units.

TABLE IV-221.2L

ESTIMATED PACE OF MARKET-RATE RESIDENTIAL DEVELOPMENT IN SOUTH PARK: 1990 BASELINE CONDITION

Time Period	Construction[a]	Absorption Rate Low	Absorption Rate High
1978 - 1982	400		
1983 - 1985	300 - 400	300	400
1986 - 1990	300 - 400	700	800
TOTAL	1,000 - 1,200	1,000 - 1,200	

(a) Does not include below-market-rate units defined as Section 8, elderly, or other types of subsidized housing.

Source: Robert J. Harmon and Associates, Inc.

Net Effect of DPM System on Residential Development

The net effect of the proposed DPM system on residential units in the CBD will be in terms of the location, absorption rates, and number of market-rate units that would be developed in Bunker Hill and South Park. These overall estimates of the "net change" resulting from the implementation of the DPM system take into account known financial/market conditions (both public and private) and the anticipated market response time needed to convert a warehouse, economy/resident hotel area to a market-rate in-city residential area.

Bunker Hill Sub-Area

If the proposed DPM is implemented, increased market-rate residential development will first occur on Bunker Hill. The number of market-rate residential units which would be feasible to market and develop would increase by 80 units from 170 to 250 on Parcel A. As shown in Figure IV 221.2J, this parcel is approximately one block from the proposed DPM station at the World Trade Center. In addition to increased development on Parcel A, the number of market-rate units is expected to nearly double on parcels L and M from 355 to 655, an increase of 300 units. These two parcels are approximately one to two blocks from the proposed Bunker Hill station. This would mean that, with expected increases resulting from a decision to build the DPM, a total of up to 1185 market-rate condominiums could be developed on Parcels A, E-3, E-4, and L and M by 1983. Under DPM conditions, the magnitude of future residential development activity in Parcels U and T, which are adjacent to the proposed Bunker Hill Station, would be increased. For these parcels, it is expected that the number of market rate units would increase from 250 to 300 units under baseline conditions to about 500-550 units by 1990, an increase of approximately 250 units.

The net result of this expected DPM-induced residential development activity on Bunker Hill would be the addition of 630 market rate units to be constructed and occupied by 1990. Estimates of the construction/market adsorption of market rate residential development on Bunker Hill, under the "with DPM" condition, is presented in Table IV-221.2M. Under "with DPM" conditions, there would be a resulting excess 1990 demand for between 3,800-4,000 market rate residential units in the CBD.

TABLE IV-221.2M

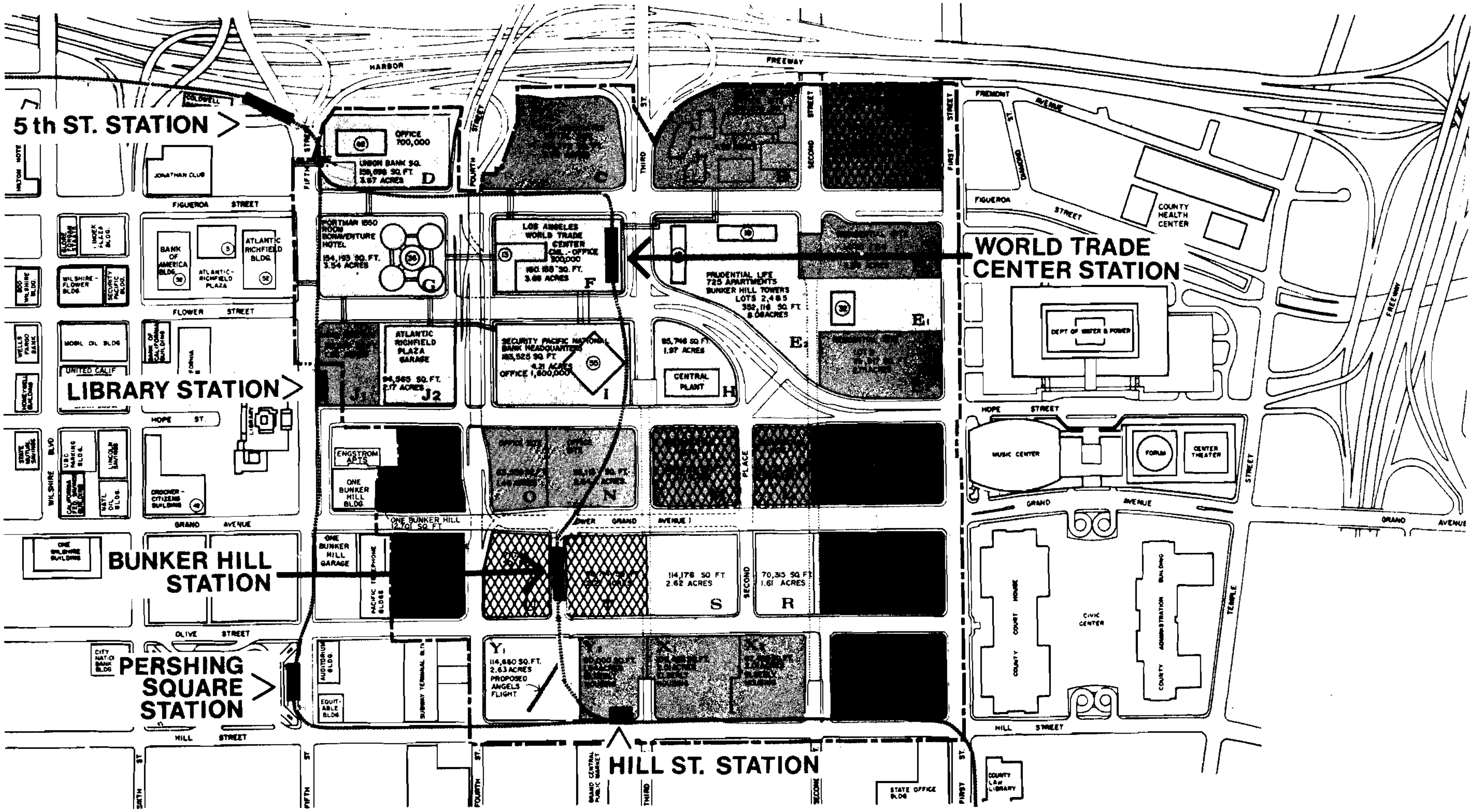
ESTIMATED PACE OF MARKET-RATE RESIDENTIAL DEVELOPMENT IN BUNKER HILL WITH DPM--1990

Time Period	Construction Units			Absorption Rate	
	Baseline	Increment	Total w/DPM	Low	High
1978-1980	300	0	300		
1981-1985	500-550	380	880-930	850	930
1986-1990	250-300	250	500-550	830	850
Total	1050-1150	630	1680-1780	1680	1780

Source: Robert J. Harmon and Associates, Inc., 1978

Figure IV-221.2J

PROBABLE AREAS FOR DPM-INDUCED RESIDENTIAL UNITS IN THE BUNKER HILL REDEVELOPMENT PROJECT



- LAND SOLD AND DEVELOPED
- LAND UNDER CONTRACT OR NEGOTIATION
- LAND OWNED BY OTHERS (PARTICIPANTS)
- LAND REMAINING TO BE MARKETED
- PARCELS WITH DPM-INDUCED MARKET-RATE HOUSING

0 150 300 600 900 1500 FEET

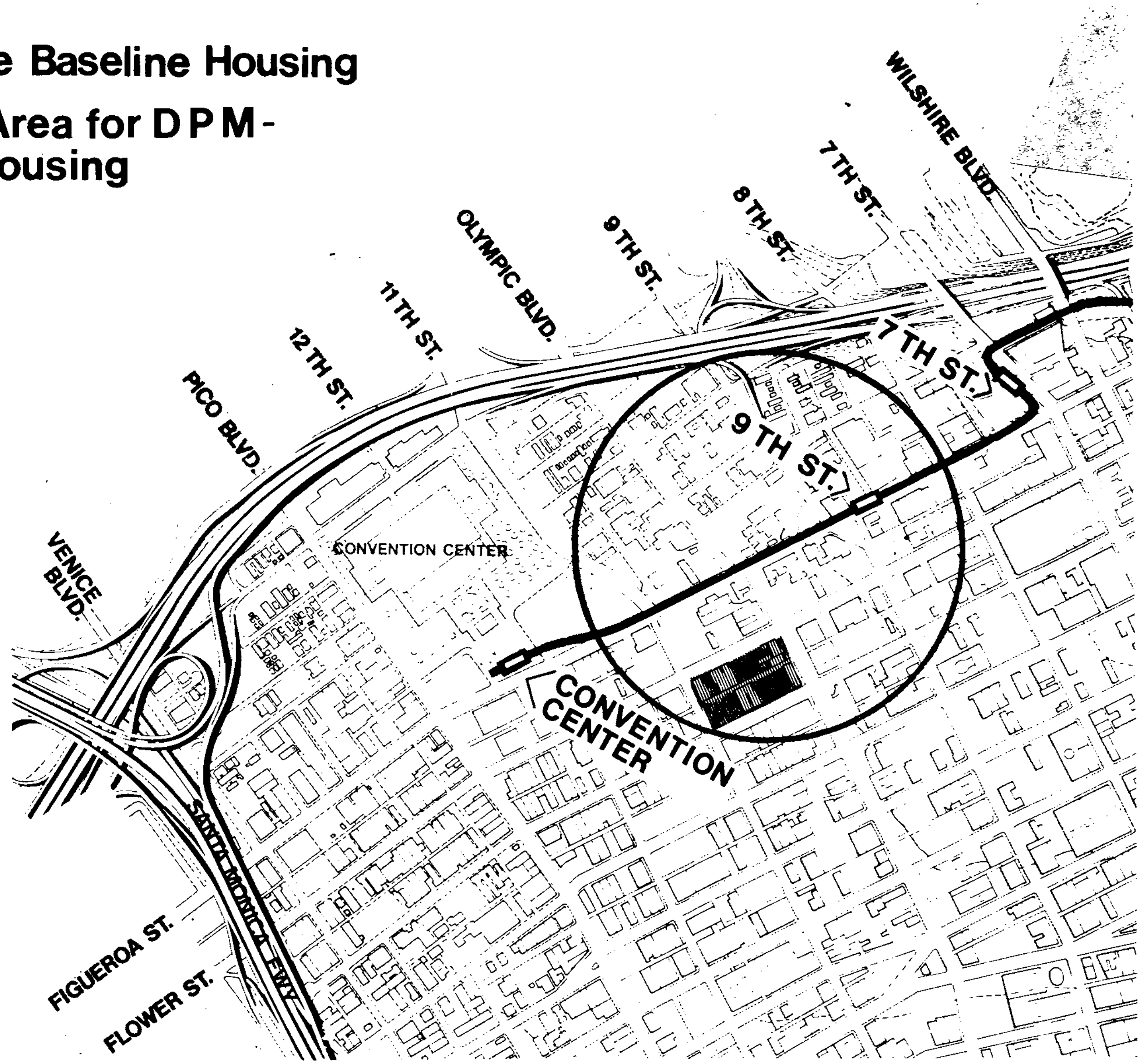
Source: CRA, 1978

Figure IV-221-2K

DPM-INDUCED RESIDENTIAL USE IN THE CONVENTION CENTER/SOUTH PARK AREA

First Phase Baseline Housing

Probable Area for DPM-Induced Housing



0 300 900

Graphic Scale in Feet

PEOPLE MOVER

STATION

South Park Sub-Area

Implementation of the DPM system would not affect the baseline 1983 construction schedule for new residential units in the South Park area. The pre-1983 influence of the DPM system would be only to affect the absorption rate of planned or committed residential development in this area. Conservatively speaking, it would ensure that the 400 market-rate units planned for this area are fully occupied by 1985. Assuming the anticipated levels of public and private sector investment in physical amenities and facilities anticipated in the baseline forecasts occur before 1985, it is expected that "with DPM" conditions, an additional 200-300 units of market-rate residential units would be constructed between 1983 and 1985 in the South Park area east of Figueroa Street, for a total of 600-700 market rate units.

Because of the unmet excess demand for in-city residential units, even by an expanded density of development in Bunker Hill and South Park, it is estimated that an additional 1,000-1,200 market rate residential development units would be constructed between 1985-1990 near the 9th Street Station. In all likelihood, the geographic location of this DPM-induced market-rate residential development activity will occur west of Figueroa between the Convention Center and 9th Street (see Figure IV-221-2K. These units could either represent a professional village or family new-town center. In either case, if properly packaged and marketed, it is estimated that 1,100-1,200 additional market rate residential units will be constructed and occupied in the South Park area by 1990 under the "with DPM" situation. A summary of this estimate of "with DPM" residential construction and occupancy in the South Park area is presented in Table IV-221.2N.

TABLE IV-221.2N
ESTIMATED PACE OF MARKET-RATE RESIDENTIAL DEVELOPMENT WITH DPM IN THE SOUTH PARK AREA--1990

Time Period	Construction Units			Absorption Rate	
	Baseline	DPM Increment	Total	Low	High
1978-1982	400	0	400		
1983-1985	300-400	200-300	500-700	400	550
1986-1990	300-400	1100-1200	1400-1600	1900	2150
TOTAL	1000-1200	1300-1500	2300-2700	2300	2700

Source: Robert J. Harmon and Associates, Inc., 1978.

Summary of Residential Land Use Changes.

A summary of the key parameters for predicting DPM-induced residential land use changes as well as the significance of these parameters to total CBD residential development is shown on Table IV-221.2O. Table IV-221.2P provides the total number of DPM-induced residential units and absorption rates for the combined areas of Bunker Hill and South Park. As these summary tables show, the DPM is expected to induce the construction of an additional 1930--2130 residential units in the CBD.

Enhancement or Mitigating Measures. An increase in the allowable dwelling units on Parcels U and T, and a reduction in the parking requirements are necessary in Bunker Hill if the increased levels of potential DPM-induced residential developments are to be achieved. In the case of South Park, a majority of the local and federal public sector residential infrastructure/facility funds must be expended to ensure that the proper transition of this segment of the South Park/ Convention Center area to a residential neighborhood occurs. This expenditure of public funds would not represent an increase generated by the DPM system; rather, such funds would be necessary to achieve the baseline 1990 forecasts of new market-rate residential development estimated to occur in the South Park/ Convention Center area.

From an urban design integration perspective, a secured second-story pedestrian walkway system from the 9th Street Station to the new residential development is very important. From a systems operation stand point, in-city residents should be able to use the DPM system between 6 or 7 a.m. and 12 midnight if pedestrian access advantages, especially to South Park, are not to be limited. Generally every aspect of urban design intergration recommended for office, hotel retail development along the DPM route would enhance the residential development potential of Bunker Hill and the South Park/Convention Center area.

Analysis and findings relating to impacts on residential land uses are the same for the west side of Figueora Street alignment and the center of Figueora Street variation (See Figure IV-10A).

TABLE IV-221.2P
ESTIMATED PACE OF MARKET RATE RESIDENTAIL DEVELOPMENT IN THE CBD WITH DPM: 1978-1990

Time Period	Baseline	Construction Units		Absorption Rate	
		DPM Increment	Total	Low	High
1978-1985	1500-1650	580-680	2080 -2330	1250	1480
1986-1990	550-700	1350-1450	1990 -2150	2730	3000
TOTALS	2050-2350	1930-2130	3980 -4480	3980	4480

Source: Robert J. Harmon and Associates, Inc., 1978.

TABLE IV-221-2 O
SUMMARY OF RESIDENTIAL DPM IMPACTS IN LOS ANGELES CBD--1990

	Sub-Area	Key Market/Development Parameter	DPM Induced Change in 1990	Significance to Total CBD Residential Development
1.	Bunker Hill	o Reduced parking requirements	o Increase in development densities of Parcels A, L & M, U, T	o Increased construction of 630 units[a]
		o Enhanced level of effective market rate residential demand	o Increased 1983-1990 absorption rate	o Increased cumulative absorption of 630 units by 1990[b]
2.	South Park	o Disposable income available for housing expense	o At same income level potential "market rate" tenants or owners can afford $100 more per month	o Increase in effective 1985-1990 market demand by 500-600 units[c]
		o Market image and life style opportunities	o Increased market capture of excess Bunker Hill "market rate" housing demand	o Increased cumulative absorption in 1990 and construction of 1300 to 1500 units by 1990[d]

a) Due to both increased effective market demand and allowable development densities under reduced parking facility requirements.

b) Normally, effective market demand must be 1.5 times the supply of market rate units to assure normal absorption. Under DPM conditions, "effective" market demand would be 2.5 to 3 times the supply of market rate residential units available for lease or purchase on Bunker Hill.

c) Measured by increase in households who could affort $250 a month or more measured in 1978 prices.

d) Assumes a conservative capture rate of only 55-60% of the excess "effective" demand for "market rate" residential units at Bunker Hill.

Source: Robert J. Harmon and Associates, Inc., 1978

IV-221.24 Retail Activity Impacts

Total retail sales in the CBD for 1977 have been estimated at $ 540 million, a 51% increase in current dollars over the 1972 level of $ 358 million (Dark and Higginbotham, 1978). General merchandise and apparel have increased by 35% in this five-year period; furniture and appliances, drugs, and grocery-packaged liquor have increased more than 40%; and specialty purchases, 65%. Eating/drinking expenditures, primarily restaurants, had the largest gain in business volume - 120% (Dark and Higginbotham, 1978).

Estimates made for 1977 retail expenditures indicate that of the total $ 540 million expended, general merchandise accounted for 31%, eating/drinking for 19%, and apparel for 19%. These estimates also indicated that 23% of retail sales were made by CBD employees, 4.5% by visitors, and less than 1% by local residents (Bunker Hill). The largest percentage of retail purchases were made by residents living outside of downtown, an estimated 72%. Table IV-221.2Q provides a more detailed breakdown of these retail expenditure patterns.

The current retail space inventory is estimated at slightly more than 5 million square feet. Occupancy rates vary from 80-90% in newer retail complexes to less than 50% in some of the older buildings in the Broadway area. Retail sales per square foot averages range from $ 70-80 in the Broadway area to $ 90-100 or higher in the newer successful CBD retail areas and tourist areas such as Olvera Street. Department store sales in the older stores range from $ 50-70 per square foot.

Retail activity since 1970 has been increasing in the western CBD, with new complexes such as the Broadway and ARCO Plazas and retail outlets in new hotels and office buildings capturing the bulk of this increase. The DPM Corridor accounts for about 60 percent of the 1975 retail space inventory and 55 percent of its retail employment (Wilbur Smith, 1978). About one-third of the total CBD retail space inventory and 45% of sales are now concentrated in the newer (post-1970) developments in the west CBD.

Baseline Forecast: 1990

A recent estimate of future retail sales in the western CBD projects an annual growth rate of 1.6 percent (in constant dollars), which would yield an increase in that segment of the CBD from the current (1977) level of $247.5 million to a 1985 level of $ 281.3 million (Dark and Higginbotham, 1978). No quantitative estimates of future activity for the eastern CBD, including the Broadway shopping area, have been made. However, the economic vitality of this area, based primarily on ethnic establishments to service the large Spanish-American community in the Los Angeles area, is expected to continue.

The 1990 baseline (without DPM) projections anticipate that the retail sales volume in the DPM Corridor will approximate $ 330-350 million. This would represent a constant dollar increase of one-third (2.2 percent annual growth rate) over current levels (Robert J. Harmon & Associates, 1978). This projection assumes that there would be an increase of about 30% or about 1.0 million square feet of additional retail space in the DPM Corridor by 1990. On this basis, total retail square feet in the DPM Corridor is estimated to be 4.1 million. This additional million square feet will be located as follows:

Table IV-221.2Q

DOWNTOWN RETAIL EXPENDITURES
1972 - 1977
(thousands)

Type of Retail Outlet	Total 1972 1/	1972-77 Estimated Percentage Growth	Total	Employees	Visitors	Local Residents 2/	Other Residents 3/
General Merchandise	$127,605	35%	$172,267	$ 20,376	$ -	$ 563	$151,328
Apparel	75,543	35	101,983	9,938	1,104	238	90,703
Specialty	43,948	65	72,498	10,563	4,416	404	57,115
Furniture/Appliance	28,864	40	40,410	4,053	-	181	36,176
Drug	10,191	45	14,777	3,522	1,104	100	10,051
Grocery/Packaged Liquor	25,396	45	36,824	3,736	1,104	985	30,999
Eating/Drinking	46,456	120	102,203	72,154	16,560	489	13,000
TOTAL Primary Outlets	$357,993	51%	$540,962	$124,342	$24,288	$ 2,960	$389,372
Percentage Distribution	-	-	100%	22.9%	4.5%	0.6%	72.0%

1/ Data from 1972 U.S. Census of Retail Trade

2/ Bunker Hill Towers residents

3/ Living outside the downtown area

Source: Dark and Higginbotham, 1978. Market Analysis of Bunker Hill Urban Renewal Project.

Development	Gross Square Feet
Retail in Mixed-Use Project	400,000 (new)
Retail in Bunker Hill Office Buildings	180,000 (new)
Retail in MAT Hotel	50,000 (new)
Retail in Bonaventure Hotel	50,000 (expansion)
Retail in other office buildings	50,000 (new)
Retail in Little Tokyo	380,000
	1,110,000

Under baseline 1990 conditions, retail employment in the DPM Corridor is estimated to be about 6,700 , or a 14% increase over 1975 levels. These employees in addition to employees from other sectors - a projected DPM Corridor total of 147,000 - would account for 35-40% (about $ 125 million) of retail sales being expended at eating and drinking establishments. Overall, eating and drinking would account for 15-20% of western CBD retail sales, while shoppers goods would comprise 70-75% of such sales (Robert J. Harmon & Associates, 1978).

DPM Impact Measurement Parameters

Implementation of the DPM would generate increases in CBD retail sales activity from three major sources of patronage: (1) the downtown employee market; (2) the local resident market; and (3) the CBD visitor market. In each of these markets, the DPM-induced sales growth would result from increases in the patronage base (i.e., the additional numbers of people present in the CBD) and in the per capita expenditures of the baseline markets.

The increase in retail sales volume attributable to the DPM will translate into:

- Additional retail space demand;
- Changes in the baseline patterns of retail sales per square foot;
- Additional employment in the retail sector;
- Increases in the City's tax revenues derived from its share of the sales tax.

The rationale and basis for estimation of retail sales impacts and the nature and magnitude of such impacts are set forth below. Employment and tax revenue impacts are discussed in Section IV-231.

Downtown Employee Market

In 1975, the annual per capita expenditure of all Los Angeles CBD employees is estimated to be $ 825 (based on Dark and Higginbotham, 1978). Also, it is estimated that the per capita expenditures for office employees was approximately $ 880 vs. $ 600 for non-office employees (Robert J. Harmon & Associates, Inc., 1978). Under the baseline (without DPM) conditions, it is anticipated that the "market draw" of planned retail facilities as well as the "net" increase in normal income will generate increased retail shopping expenditures by employees in the western CBD. This increase is estimated to range from $100 to $125 per capita (15%) for office employees and $ 50-75 per capita (10%) for non-office employees (Dark and Higginbotham, 1978).

The DPM system would provide a rapid, dependable and economical internal circulation system, linking private and government offices with retail facilities, Little Tokyo, and other activity centers. Employees in the DPM Corridor could move between any of these points in 10 minutes or less. The resulting improvement in mobility would yield an increase in noontime shopping and dining expenditures. Such expansion in the range and magnitude of noontime activity has been a major impact of the new Washington, D.C. rapid transit system (Washington Metropolitan Area Transportation Authority, 1977-1978) and of the skyway system in Minneapolis, Minnesota (James B. McComb and Associates, 1976-1977). Similarly, downtown employees using the intercept parking garages will be able to stop conveniently along the route after working hours, thereby encouraging further shopping and dining activity. The expansion of noontime and afterwork shopping and dining opportunities will yield a DPM-induced increase in the per capita retail expenditures by CBD employees in the DPM Corridor.

By 1990, the per capita increases in retail sales attributable to the DPM system are expected to be 25-30% for office workers ($1100 versus $1400) and 15-20% for non-office employees in the DPM corridor ($750 versus $900) (Robert J. Harmon & Associates, Inc., 1978). Most of this increase is expected to be in the purchase of shoppers goods and convenience goods, especially for the non-office workers whose lunch expenditures are normally closely budgeted. The higher per capita expenditures would apply equally to baseline employees as well as to the added employment induced by the DPM.

Local Resident Market

Currently, CBD retail expenditures by upper and middle-income residents in the downtown area (i.e., those residing in the Bunker Hill area) are $ 2,597 per capita. Most of this (83%) is expended on shoppers and convenience goods (Dark and Higginbotham, 1978). By 1985, additional retail development in the western CBD will provide additional shopping incentives and opportunities for the expanding resident population in Bunker Hill and South Park (see Section IV-221.23). It is estimated that the effect of baseline retail development will increase 1990 resident per capita expenditures by 5-10 % (from $2,597 to $2,800) (Robert J. Harmon & Assoc., 1978).

Retail expenditures in the CBD by upper and middle income downtown residents would increase even more if the DPM system is implemented. Residents of market-rate rental and condominium units in Bunker Hill and South Park would have rapid and convenient access to the entire range of major downtown retail facilities. This would translate into a higher capture rate of their total retail/entertainment by stores within the CBD. The amount of this DPM-induced increase in per capita spending in the CBD is projected at an additional 5-10% above the 1990 baseline level ($2,800 versus $3,000) (Robert J. Harmon & Associates, 1978). This higher expenditure level would apply equally to the 1990 baseline residents as well as to the additional residents attracted to Bunker Hill and the South Park area by the presence of the DPM system.

Residents of subsidized units and in older existing housing within the corridor have lower income levels and thus less discretionary income. Their per capita expenditures in the CBD are about 50% that of upper and middle income residents. Because this level of expenditure represents a much higher proportion of their disposable income, expansion of their retail spending would be extremely limited. Any impacts relating to the DPM system would be limited to possible redistribution of spending within the CBD, not an increase. Therefore, the DPM has not been credited with any increased activity from this segment of the resident population.

About 70% of current CBD retail sales are generated by residents of the surrounding metropolitan area, day-trip visitors to downtown, guests at non-CBD hotels and others in the CBD market area. With the anticipated baseline development, the CBD should be able to retain and possibly expand its share of such expenditures. However, in order to remain conservative in estimating the DPM-related retail benefits, no credit is taken for increased expenditures by retail customers not residing, employed or staying in the CBD.

CBD Visitor Market

The DPM system would connect about 80% of the existing and planned Class A hotels in the CBD to such dispersed tourist attractions as Little Tokyo and the Olvera Street retail area as well as with retail restaurant complexes at the ARCO Plaza, Broadway Plaza and the planned retail facility at 7th and Figueroa Street. Also, the DPM itself would constitute a major tourist attraction in the region.

As a result of these advantages and the direct integration of significant retail shops with DPM stations (about 770,000 square feet in 1983), it is expected that the CBD will experience an increase in the daily per capita retail/entertainment expenditures of CBD hotel guests, especially tourist and convention visitors. This increase would be on the order of 25-30% above the baseline per capita level of $24-25 to $32 per day (Robert J. Harmon & Associates, 1978; Dark and Higginbotham, 1978). In addition to an increase in per capita sales from baseline hotel guests, the DPM will also yield an expansion of the hotel market (see Section IV-221.22) and the number of guests who would patronize CBD retail facilities described above.

Estimated Size of Market Segments

The estimated size of each market is based on the projections of future development, with and without the DPM, for commercial office space (see Section IV-221.21), hotel room demand (see Section IV-221.22), and market-rate residential units (see Section IV-221.23). These projections indicate that the net DPM-induced increase over baseline would be 2,850 public and private office employees in 1985 and 6,600 in 1990.

Total non-office DPM-induced employment is estimated to increase by 270 in 1985 and by 1,615 in 1990 (see Section IV-231.2 for employment impact analysis). Annual hotel room night demand is expected to increase by 107,450 in 1985 and by 160,082 in 1990. The DPM Corridor residential population increases induced by the DPM are expected to number 564 in 1985 and 2,840 in 1990.

Table IV-221.2R provides a summary of the estimated per capita expenditures as well as the estimated size of the market segments described above. Based on these baseline and "with DPM" measurement parameters, the net effects of the DPM on retail activity were estimated.

Net Effects of DPM on Retail Activity

The incremental retail sales volume generated by each market sector and the total impacts of the DPM are shown in Table IV-221.2S. In each case, the dollar volume is obtained by multiplying the per capita expenditure for each market segment by the number of individuals in that segment. The totals, as shown in Table IV-221.2T, indicate that the DPM system would yield a net increase in annual retail and sales volume of $ 93.024 million in 1990 as compared with the baseline for that year. This annual net impact of the DPM would constitute a 30% increase over the baseline conditions in that year. In terms of growth of retail sales from 1985 - 1990, the project growth rate with DPM would be 28%; over the same period under baseline conditions, the growth rate would be 21%. In addition, the cumulative sales impact between 1983 and 1990 would be about $ 515 million (see Table IV-221.2T).

This expected 1990 net DPM-induced annual retail sales volume will translate into additional retail space and changes in the baseline patterns of sales per square foot for (1) eating

TABLE IV-221.2R

DPM-INDUCED RETAIL ACTIVITY--MEASUREMENT PARAMETERS

CRITICAL PARAMETERS	BASE CONDITIONS[a] 1975	1985	1990	WITH DPM[b] 1985	1990
	1977 Dollars			1977 Dollars	
1. CBD Office Employees in DPM Corridor (Private & Public)					
A. Annual per capita CBD retail expenditures	$880	$1,000	$1,100	$1,250	$1,400
B. Number of employees	94,100	113,075	125,700	115,925	132,300
C. Eating/drinking as percent of retail expenditures	55%	50%	45%	46%	43%
D. Shoppers Goods " " " " "	40%	45%	50%	49%	52%
E. Convenience Goods " " " "	5%	5%	5%	5%	5%
2. CBD Non-Office Employees in DPM Corridor					
A. Annual per capita CBD retail expenditures	$600	$675	$750	$800	$900
B. Number of employees	16,900	20,000	21,500	20,270	23,115
C. Eating/drinking as percent of retail expenditures	50%	48%	44%	44%	42%
D. Shoppers Goods " " " " "	45%	47%	51%	51%	53%
E. Convenience Goods " " " "	5%	5%	5%	5%	5%
3. CBD Residents--Upper/Middle Income in DPM Corridor					
A. Annual per capita CBD retail expenditures	$2,597	$2,800	$2,800	$3,000	$3,000
B. Number of residents	1,050	2,415	4,060	2,961	6,900
C. Eating/drinking as percent of retail expenditures	17%	17%	17%	18%	18%
D. Shoppers Goods " " " " "	47%	47%	47%	46%	46%
E. Convenience Goods " " " "	36%	36%	36%	36%	36%
4. Hotel Guests					
A. Annual room nights (1.4 occupants/room)	961,400	1,692,550	1,958,000	1,800,000	2,118,082
B. Daily per capita retail expenditures of business, convention and tourist visitors	$22	$24	$25	$30	$32
C. Eating/drinking as percent of retail expenditures	68%	68%	64%	60%	60%
D. Shoppers Goods " " " " "	23%	23%	27%	31%	31%
E. Convenience Goods " " " "	9%	9%	9%	9%	9%

a Wilbur Smith & Associates, 1978; Robert J. Harmon & Associates, 1978; Dark and Higginbotham, 1978.
b Robert J. Harmon & Associates, 1978.

TABLE IV-221.2S
DPM-INDUCED IMPACTS ON
RETAIL SALES VOLUME
(In Thousands of 1977 Dollars)

I. Annual Retail Sales Volume:[a]

Retail Sales Components	Baseline 1985	Baseline 1990	With DPM 1985	With DPM 1990	Net Effect of DPM 1985	Net Effect of DPM 1990
Retail Sales from CBD Office Employees	$113,075	$138,270	$144,906	$185,220	$31,831	$46,950
Retail Sales from CBD Non-Office Employees	13,500	16,125	16,216	20,804	2,716	4,679
Retail Sales from CBD Residents	6,762	11,368	8,883	20,000	2,121	8,632
Retail Sales from CBD Hotel Guests	56,870	68,530	75,600	94,890	18,730	26,360
Hotel Room Rental Charges[b]	67,702	78,320	72,000	84,723	4,298	6,403
Total Annual Retail Sales	$257,909	$312,613	$317,605	$405,637	$59,696	$93,024

[a] Computations based on data from Table IV-221.2 (per capita expenditures multiplied by size of market sector) and as noted below.

[b] Based on constant average room rate of $40 per night. This is lower than average current published rates ($45), but the lower value is used to reflect discounts offered to tour groups, conventions, government employees, businessmen, etc.

Source: Robert J. Harmon & Associates, 1978.

and drinking establishments; (2) convenience goods stores; and (3) shoppers goods stores.

Eating and Drinking Establishments

Based on the differences in the per capita expenditures, percentage spent on eating/drinking and the number of individuals in each market segment (see Table IV-221.2R), the DPM system would yield a total increase of nearly $ 34,000,000 in eating and drinking expenditures in 1990. This represents about 37% of the DPM retail impact. Based on data for Los Angeles and other cities, meal expenditures by market segment were applied to DPM-induced eating/drinking sales volume estimates (see Task Termination Report 4.15). This analysis yielded the following distribution by meal:

Meal Type	Annual Expend.	% of Total
Breakfast	$ 3,001,800	9
Lunch - Fast Food	5,841,140	17
Lunch - Restaurant	12,147,120	36
Cocktails & Dinner	12,943,950	38
TOTAL	$33,934,010	100 %

- Breakfast Trade: $ 3.0 million
  The modest breakfast demand will not be sufficient by itself to generate or strongly reinforce expansion of CBD restaurants. The breakfast impacts may only be sufficient to induce a larger percentage of restaurants near DPM stations to open for breakfast.

- Lunch - Fast Food Trade: $ 5.8 million
  The anticipated increase in fast-food expenditures attributable to the DPM would yield sufficient added gross revenue to support two major fast-food operations plus increased trade at existing facilities. The most likely location(s) for any new fast-food operations would

TABLE IV-221.2T

DPM-INDUCED IMPACTS ON RETAIL SALES VOLUME

(1977 Dollars)

1983-1990 Cumulative Net Effect on Sales Increase[a]	
Year End	Annual Net of DPM
1983	$ 19,185,000
1984	37,877,000
1985	59,696,000
1986	66,362,000
1987	73,028,000
1988	79,694,000
1989	86,360,000
1990	93,024,000
1983-1990 Cumulative Total Impact	$515,226,000

[a] Assumes linear growth from 1983-1985 (at 20% of 1990 level) and from 1985-1990 (at 6.6% of 1990 level).

Source: Robert J. Harmon & Associates, 1978.

be adjacent to/near stations in the center of the DPM system.

- Lunch - Restaurant: $ 12.1 million
  Noontime CBD restaurant expenditures, primarily by office workers and hotel guests, constitute a significant demand for new space. These DPM-induced expenditures equate to a demand of approximately 5,200 seats per day by 1990.

- Cocktails/Dinner - Lounges and Restaurants: $ 12.9 million

  The induced cocktail and evening eating/drinking demand is generated primarily (i.e., nearly 72%) from the hotel guest and CBD resident segments; their average daily 1990 expenditure is estimated to be approximately $ 40,000 (Task Termination Report 4.16). Based on studies in other cities, about 20% of this total or about $ 8,000 would be expended in cocktail lounges and the remainder in restaurants. This level of expenditure would support 400-410 cocktail lounge seats. The remaining $ 32,000 per day would translate into a demand for 1,780 - 1,800 restaurant seats.

Although no precise information on the occupancy rates of existing restaurants is available, it appears reasonable to assume that the inventory of restaurants and cocktail lounges under 1990 baseline conditions would have sufficient excess capacity to absorb about 33% of the DPM-induced demand and about 40% of the dinner demand. Based on these assumptions, the DPM impacts on restaurant facilities would be (1) an increase of approximately $ 9-9.5 million in gross sales for restaurants existing under the 1990 baseline conditions and (2) creation of demand for about 3,400 additional luncheon seats, about 1,100 additional dinner restaurant seats and about 250 additional cocktail lounge seats in new facilities.

This added demand would be equivalent to 6-10 new restaurants, depending on their size and price range. Based on the entire spectrum of development, employment and activity changes anticipated as a result of the DPM system, the most profitable new restaurant facilities would include:

- Restaurant and coffee shop facilities at the hotel projected near the Convention Center under "DPM conditions" (200-250 seats or about 7,500 square feet)
- Additional moderately-priced restaurant at the Mixed Use Project (7th and Figueroa) (300 seats or about 6,000 sq ft)
- A moderately-priced restaurant in the vicinity of the South Park housing complex and the 9th Street DPM station (200 seats or about 5,500 sq ft)
- An additional quality ethnic restaurant near the DPM station in Little Tokyo (150-200 seats or about 7,500 sq ft)
- An additional ethnic (Latin American) restaurant in the immediate vicinity of the Hill Street or Pershing Square stations (150 seats or about 6,000 sq ft)
- Two additional quality restaurants in (possibly atop) new office building developments on Bunker Hill (especially Parcels J-1, N or O) (200-300 seats each; about 18,000 sq ft)
- An additional coffee shop - type restaurant in one of these two buildings (100 seats or about 2,000 sq ft)

(Robert J. Harmon and Associates, 1978)

<u>Convenience and Shoppers Goods Establishments</u>

The DPM-induced impact on convenience and shoppers goods retail in 1990 is projected at $ 60,000,000 per year. Of this total, convenience goods demand is estimated to be approximately $ 9 million; shoppers goods, $ 51 million,

- Convenience Goods: $ 9 million

It is assumed that 60% (or $ 5.4 million) of the DPM-induced increment in convenience goods sales (defined as drugs and sundries, cigarettes, grocery items, magazines, packaged liquor, etc.) would be absorbed by 1990 baseline stores in the DPM Corridor. Assuming that such conveniences would consist of 450,000-500,000 square feet under the baseline condition, the DPM impact on these would yield an increase in sales volume amounting to some $ 10 to $ 11 per square foot. The remaining $ 3.6 million in increased convenience goods sales would occur at new facilities. Based on these assumptions, the following new facilities are anticipated:

- By 1990, a total of 22,000 square feet of new convenience outlets would be developed at the two terminal stations of the DPM system. Such operations typically generate sales of between $ 50 and $ 100 per square foot. Taking an average value of $ 75 per square foot, the facilities at these two locations would account for $ 1.7 million of the new demand.
- The remaining $ 1.9 million would be sufficient to generate development of an additional 20,000 square feet of convenience stores at other stations along the route. The most likely candidates appear to be the 9th Street, Pershing Square, Hill Street and Bunker Hill Stations.

- Shoppers Goods: $ 51 million

Of the nearly $ 51 million in 1990 annual net DPM - induced shoppers goods sales (defined as apparel, households goods and furnishings, appliances, jewelry, specialty goods and general merchandise), it is estimated that 75% or $ 38 million would accrue to 1990 baseline stores in the DPM Corridor; 25% or $ 13 million would create enough demand to support additional or DPM-induced square footage.

Of the $ 38 million which would accrue to 1990 baseline stores in the DPM Corridor, it is estimated that $ 28-30 million (75%) would be spent at the major new retail complexes in the western CBD including ARCO and Broadway Plazas, and the substantial amounts of such space planned as part of developments to be completed prior to 1990 (e.g., MAT Associates Hotel, the proposed Mixed Use complex (7th and Figueroa) and in the existing and planned Bunker Hill office towers). Such projects would represent about 1 million square feet of retail space. Based on this estimate, the DPM increment would amount to some $ 28-30 per square foot for these establishments. This would constitute a significant increase in sales volume, ensuring profitability and stability for these establishments. In most cases, this would require the hiring of additional sales support and administrative personnel.

The older individual stores in the DPM Corridor (such as J. W. Robinson and Bullock's department stores) would receive less benefit from the DPM due to their greater distance from stations. These facilities constitute some 1.5 million square feet of active retail space and would share an added $ 9-10 million annually in added sales. If this were spread evenly across all stores, the result is an increase in sales per square foot of $ 6.00-7.00. Such amounts are not sufficient to generate major renovation or significant increases in employment, but would serve to improve the profit margin, stability and operational efficience of these establishments.

At $ 125 per square foot, the demand for new shoppers goods would translate into an additional 104,000 square feet of supportable specialty/shoppers establishments within the DPM Corridor. Possible locations for such additional facilities would be:

- An increase in density at the Mixed Use complex (7th and Figueroa) - 25-30,000 square feet above that under baseline conditions
- Additions to the retail facilities currently planned in the office developments on Parcels J1 and N/O in Bunker Hill (20-30,000 square feet in each)
- Creation of retail space (± 20,000 square feet) in refurbished buildings in the Pershing Square area
- Development of automotive-oriented retail and service facilities in the vicinity of the two terminal stations

Mitigation/Enhancement Measures

The proposed station locations have been chosen in order to maximize the opportunity for integration with future office or mixed use complexes which have significant retail space or proximity to existing retail complexes. In virtually all cases, access between stores/hotels and stations is relatively direct and should pose a minimum of problems. The discussion of retail impacts has assumed the integration of DPM stations into these major existing and planned retail and hotel complexes, either directly or via accessible, secure and attractive pedestrian linkages. One major example is the potential connection of the 7th Street Station to the Broadway Plaza. This Plaza, which contains about 366,000 square feet of retail space (including the Broadway department store and several dozen specialty shops), the Hyatt Regency Hotel and an office tower, is separated from the 7th and Figueroa DPM Station by the block-square Barker Bros. building. A direct second-level covered passageway with interior storefronts and other interesting spaces would be a possible solution to this direct access problem. Failure to provide such connections and to maintain their cleanliness and security could degrade significantly the magnitude of retail impacts.

IV-221.25 Conformance With Adopted Land Use Plans

Based on the DPM-induced land use impacts predicted for office, hotel, residential and retail use in the CBD, the DPM is expected to increase the probability that the goals and objectives outline in the adopted land use plan for the CBD will be realized. As discussed in Section III-212, land use plans for the CBD consist of the long-range policies and objectives as set forth in the Citywide Plan, the intermediate policy and objectives of the Central City Community Plan, and the short-range objectives and development plans as specified in the Bunker Hill Urban Renewal Project Redevelopment Plan, the Little Tokyo Redevelopment Project: The Redevelopment Plan, and the Central Business District Redevelopment Project.

A detailed analysis of the expected DPM-induced land use impacts and their conformance with adopted plans is shown in Table 221.2U.

TABLE 221.2U

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
1. Citywide Plan (1974)	• The Regional Core, comprised of Downtown, Wilshire, Miracle Mile Hollywood and Century City Center, together with intervening and peripheral areas, is designated for higher densities of population and employment than are proposed elsewhere.	• Yes	• DPM would increase CBD regional capture rate for office, hotel, residential and retail uses.
	• Centers are to contain concentrations of office, retail and entertainment facilities, as well as high density housing.	• Yes	• The DPM would induce increased concentrations of office, retail entertainment facilities and housing units within CBD activity centers.
2. Central City Community Plan (1974)	General		
	• Joining isolated components by new circulation linkages and transsitional public and private development.	• Yes	• DPM would connect 12 of the 16 major activity centers in the CBD.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Central City Community Plan (1974) (con't)	• Stabilizing the various functional areas by correcting the negative influences of deteriorating development and social problems in adjacent areas.	• Yes	• DPM would contribute to revitalization of Pershing Square area.
	• Utilizing public investments as catalysts to reverse blight and attract new development.	• Yes	• DPM would contribute to economic vitality of CBD, thereby attracting new public/private investment.
	• Establishing a viable land use mix, including environmental amenities compatible with residential uses.	• Yes	• DPM would reinforce land use mix within DPM corridor and promote CBD as a 24-hour living/working environment.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Central City Community Plan (1974) (con't)	• Establishing a positive, aesthetic image for Central City which can be enhanced by future growth and change.	• Yes	• DPM would enhance image of downtown to potential employers, employees, residents and visitors/ tourists.
	• Encouraging excellence in urban design.	• Yes	• Joint public/private sector station development would provide opportunity for building/ station integration and enhancement.
	• Providing ready access to concentrated development by means of rapid transit stations and people movers.	• Yes	• DPM stations would be located in major areas of current and future development in the CBD.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Central City Community Plan	Planning Areas in the CBD		
(1974) (con't)	• South Park: The predominant land use in the South Park Planning Area, excluding streets, is to be high medium and high density housing, while the remaining land in this planning area is to be occupied by a significant amount of open space and by commercial land uses. Also a people mover system is specified as part of the development plan for this area.	• Yes	• DPM would link South Park to major centers of employment and entertainment/culture in CBD, making it a more viable residential/commercial area. Also additional retail use, a hotel and possibly a commercial office building is expected with a DPM.
	• Little Tokyo: This area is envisioned to remain an authentic Japanese community. Developments to include open space, a trade and cultural center, additional retail	• Yes	• Little Tokyo DPM station would provide this area with more efficient connections to other parts of CBD and to peripheral

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Central City Community Plan (1974) (con't)	facilities and additional housing. Pedways should connect with Central City East and the Civic Center, giving access to rapid transit stations and people movers.		parking at intercepts. Also, DPM-induced retail activity is expected.
	• Bunker Hill: The Bunker Hill urban renewal site is proposed to be developed with major new commercial, office, residential and hotel uses. Pedways are planned in order to link major developments; people mover system is specified as part of Bunker Hill development.	• Yes	• DPM reinforces planned/projected Bunker Hill development of office, retail, hotel and residential uses, and connects the area to peripheral, intercept parking facilities.
	• Civic Center: The Plan specifies the continuation of government use complemented by private office	• Yes	• People Mover service connecting Civic Center with Bunker Hill to the

TABLE 221.2U (CON'T)
EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Central City Community Plan (1974) (con't)	space, retail stores, restaurants, etc. and provision of people mover service to the area.		south and with DPM peripheral parking garages are provisions of the plan.
	• Central Commercial Core: The Plan states that the Central Commercial Core should continue to receive high intensity uses. The Plan proposes that Seventh Street continue to function as a high-quality retail row, serving both employees and the general public. The Plan also proposes further development of the Broadway shopping area, which currently functions as a regional shopping center for the Latino community.	• Yes	• Additional office space and retail use as well as increased sales per square foot in existing retail establishments are expected with the DPM.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Central City Community Plan (1974) (con't)	• East Side Industrial Park: This area features the rehabilitation and expansion of industrial activities, especially food processing and distribution. The Industrial Park would also involve the rehabilitation and strengthening of other established industries: apparel manufacturing, printing, flower marketing and general wholesaling.	• Yes - Secondary	• An improved bus system, complementary to the DPM, would improve circulation to the east CBD, thus supporting future development.
	• Central City East: For the social and medial problems of the Skid Row population, a diagnostic/detoxification center is proposed, jointly sponsored by public agencies and private institutions. The western portion of Central City	• Yes - Secondary	• An improved bus system, complementary to the DPM, would improve circulation to the east CBD, thus supporting future development.

TABLE 221.2U (CON'T)
EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Central City Community Plan (1974) (con't)	East is designated for alternate uses, including high-medium density housing, community commerce/ parking, and/or open space. The eastern portion of Central City East is designated for high industrial uses.		
3. Bunker Hill Redevelopment Plan (1973)	General		
	• Establish a 24-hour urban environment with residential, retail, commercial office, hotel and cultural use. Circulation/ distribution guideway improvements linked to a regional transportation system are part of this Plan.	• Yes- DPM would increase the probability that development objectives would be realized.	• DPM would support/reinforce development of Bunker Hill as a 24-hour working and living environment. DPM would also provide improved Circulation/distributions service to this area with

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Bunker Hill Redevelopment Plan (1973) (con't)			links to existing and planned regional transportation systems.
4. Design for Development--Bunker Hill (1971)	Specific Maximum Approved Development		
	• 12.3 million gross square feet of retail space.	• Yes	• Existing and planned office development would equal 5.6 million sq. ft. by 1985 and 8.2 million sq. ft. by 1990. At most, the DPM would induce about 600,000 additional sq. ft. by 1985 and about 800,000 sq. ft. by 1990.
	• 550,000 gross square feet of retail space.	• Yes	• Existing and planned retail is expected to be 485,000 sq. ft. by

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Design for Development-- Bunker Hill (1971) (con't)			1983; the DPM would induce an additional 160,000 sq. ft. for a total of 545,000 sq. ft.
	• 3,000 hotel/motel units	• Yes	• Although the DPM is not expected to induce additional hotel rooms in Bunker Hill, it is expected to improve occupancy rates in the Bonaventure and planned MAT Associates hotels.
	• 3,700 dwelling units	• Yes	• Approximately 1100 units would be added to the 1814 existing and planned units for a total 1990 baseline of 2914. The

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
Design for Development--Bunker Hill (1971) (con't)			DPM would induce an additional 630, for a total of approximately 3000.
5. The Redevelopment Plan--Little Tokyo (1970)	General • The Plan provides for the development of a "unique commercial and cultural complex" to complement downtown and Civic Center growth.	• Yes- DPM would increase the probability that development objectives would be realized.	• The DPM would provide a faster, more direct link to hotels and places of employment in the west CBD, thereby increasing the number of people who could gain access to the Little Tokyo area.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
The Redevelopment Plan--Little Tokyo (1970) (con't)	Specific • Planned development for 1990 includes: (1) 600 residential units. (2) 750 hotel/motel rooms. (3) 600,000 sq. ft. office space. (4) 550,000 sq. ft. retail space.	• Yes	• An additional restaurant and higher sales volumes are expected as a result of DPM implementation.
6. The Redevelopment Plan for the Central Business District Redevelopment Project (1975)	General • Rejuvenation of the Project area into a viable commercial office, industrial and residential center	• Yes-DPM would increase the probability that de-	• DPM provides substantially improved linkages in major portions of the Project area, thus joining isolated activity areas.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
The Redevelopment Plan for the Central Business District Redevelopment Project (1975) (con't)		velopment objectives would be realized.	
	Specific		
	• South Park: Proposed development includes a primarily self-sufficient residential-commercial complex. An ultimate goal of up to 4000 dwelling units is proposed; commercial uses are to be developed adjacent to and/or with residential uses.	• Yes	• DPM would induce an additional 1300-1500 dwelling units above baseline projections of 1000-1200 by 1990. • DPM would make the proposed hotel at the Convention Center more viable because of linkage to other parts of the CBD.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
The Redevelopment Plan for the Central Business District Redevelopment Project (1975) (con't)	• South Park (cont.)		• DPM would induce two additional restaurants as well as an automotive-oriented retail and service facility in the vicinity of the Convention Center. • DPM would induce the development of 400,000 square feet of office space and may induce the development of a 800,000 sq. ft. regional headquarters office building between 1985-1990.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
The Redevelopment Plan for the Central Business District Redevelopment Project (1975) (con't)	• Central Commercial Core: Proposed development in this area would feature high-intensity land uses, including services, office, hotel/motel, retail, recreational and other appropriate uses.	• Yes	• DPM would induce an additional 100, 000 net sq. ft. of demand for office space in the Olive/ Hill area between 5th and 7th St. • DPM would induce two additional restaurants, approximately 50,000 sq. ft. of additional retail space, and increase sales volume at existing and planned retail outlets,

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
The Redevelopment Plan for the Central Business District Redevelopment Project (1975) (con't)			including the Broadway activity area.
	• Civic Center/Music Center: Government and cultural land uses are proposed for this area as well as related activities and uses such as office space, retail stores, restaurants, clubs, etc.	• Yes	• DPM would induce higher sales volumes at existing retail outlets and would provide government employees with substantially improved access to other areas in the CBD. It would also provide improved public access to government offices/services.

TABLE 221.2U (CON'T)

EXPECTED DPM-INDUCED LAND USE CHANGES: CONFORMANCE WITH ADOPTED PLANS

Plan	Goal/Objective	Conformance	Description
The Redevelopment Plan for the Central Business District Redevelopment Project (1975) (con't)	• Central City East and Eastside Industrial Park	• Yes (see above under Central City Community Plan)	• No direct land use impacts.

IV-222 MINOR OPERATION IMPACTS ON LAND USE AND URBAN DEVELOPMENT

IV-222.1 MINOR OPERATIONAL IMPACTS ON LAND USE AND URBAN DEVELOPMENT: Historic Sites and Cultural Facilities

Overview of Impacts on Historic Sites

The basic impacts of the proposed DPM on the Los Angeles downtown area will be increased mobility for the entire downtown population, increased accessibility to interesting cultural and civic facilities, and an overall strengthening of the urban form. The DPM will serve as a link between major downtown areas. Increased accessibility to historic areas and sites will likely increase the economic vaibility of historic buildings currently in a state of underuse or disrepair. Increased economic activity will also lead to speculative pressures that may result in alteration or removal of older uneconomical structures. A more detailed analysis of the economic inducements that will occur as a result of the DPM can be found in Section IV-221.2 of this report.

Historic landmarks and cultural facilities will be more visible to more people who will perceive the city from an entirely new vantage point.

The location of the DPM will offer users a view of the city from approximately 25 feet to 35 feet above grade, creating much greater visibility for such important historic landmarks as the Central Library and the Biltmore Hotel, and for vital cultural districts such as Little Tokyo and Pershing Square.

In May and June 1978, a historic survey was taken of every building adjacent to the proposed DPM route. In July 1978, the survey was published by the CRA and sent to the California State Historic Preservation Office (SHPO) for review. The SHPO will identify buildings and sites that are eligible for nomination to the National Register of Historic Places. Identification of such eligible sites, determination of effect, and mitigation of adverse effect are required procedures under the National Environmental Protection Act, The National Historic Preservation Act of 1966 as amended, and the Federal Highway Act of 1965

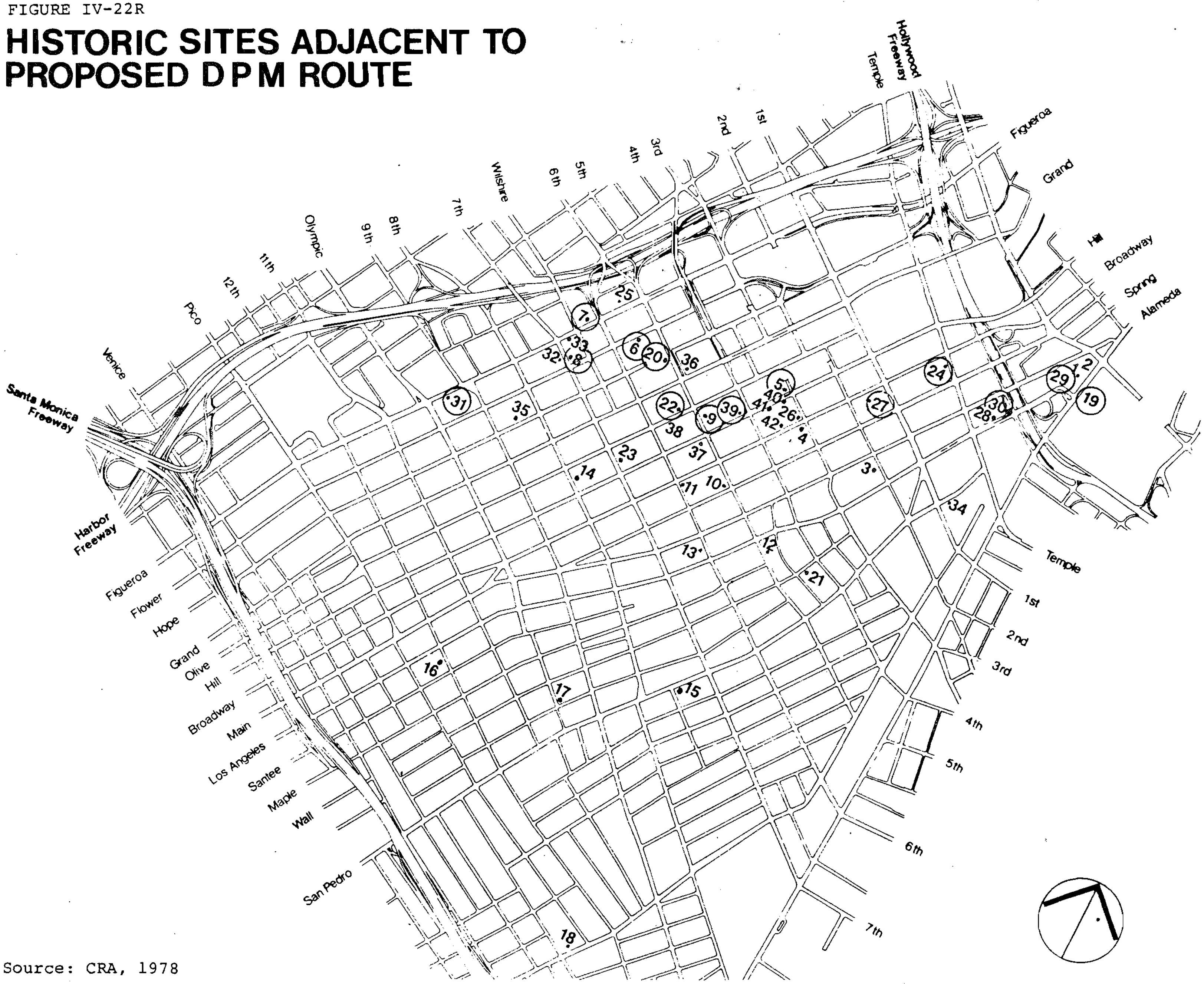
The results of those activites will be reported in the Draft Environmental Impact Statement prepared for this project by the Urban Mass Transportation Administration. Until that report is made, this document will discuss only the possible impacts of the DPM on sites or buildings that have already been nominated to a local, state or federal register.

The historic sites in the CBD, registered by federal, state, and local agencies, are numbered and described in Figure IV-22R. A description of each and the impacts of the DPM on it follows:

Los Angeles Plaza Historical District (Site 29). This historical district (Olvera Street Environs and El Pueblo De Los Angeles) is defined by Spring, Alameda, Aliso and Macy Streets. It marks the first settlement in the city and is also a pedestrian shopping area, featuring Mexican-American arts and crafts.

FIGURE IV-22R

HISTORIC SITES ADJACENT TO PROPOSED DPM ROUTE



Source: CRA, 1978

LIST OF PROPERTIES ON NATIONAL, STATE, AND LOCAL HISTORIC REGISTERS ADJACENT TO THE PROPOSED DPM ROUTE

	SITES*	REGISTER**
National Register and State Historical Sites:		
20	L.A. Central Library	NR, LA
29	L.A. Plaza Hist. Dist.	CH, LA, NR
30	L.A. Star Site	CH
27	Butterfield Stage Site	CH
L.A. Cultural Heritage Board Sites:		
5	Angels' Flight Site	LA #4
6	California Club	LA #43
22	Biltmore Hotel	LA #60
9	Philharmonic Auditorium	LA #61
7	St. Paul's Cathedral	LA #66
19	Union Station	LA #101, NR (s)
8	Global Marine Building	LA #125
24	L.A. City Hall	LA #150
39	Subway Terminal Building	LA #177
31	Friday Morning Club	LA #196

*Numbers refer to locations shown in Figure IV-22R

** CH - California State Historical Monument
LA - Los Angeles Cultural Heritage Board Monument
NR - National Register Property
(s) - Submitted

SOURCE: National Register of Historic Places, Annual Listing of Historis Properties (Federal Register, Feb 7, 1978)

State Historic Preservation Office, Department of Parks and Recreation, State of California (personal communication, Feb 27, 1978)

Los Angeles Cultural Heritage Board (personal communication, June 27, 1978)

The impacts on this National Register site have been kept to a minimum by locating the guideway at the periphery of the district, behind existing trees.

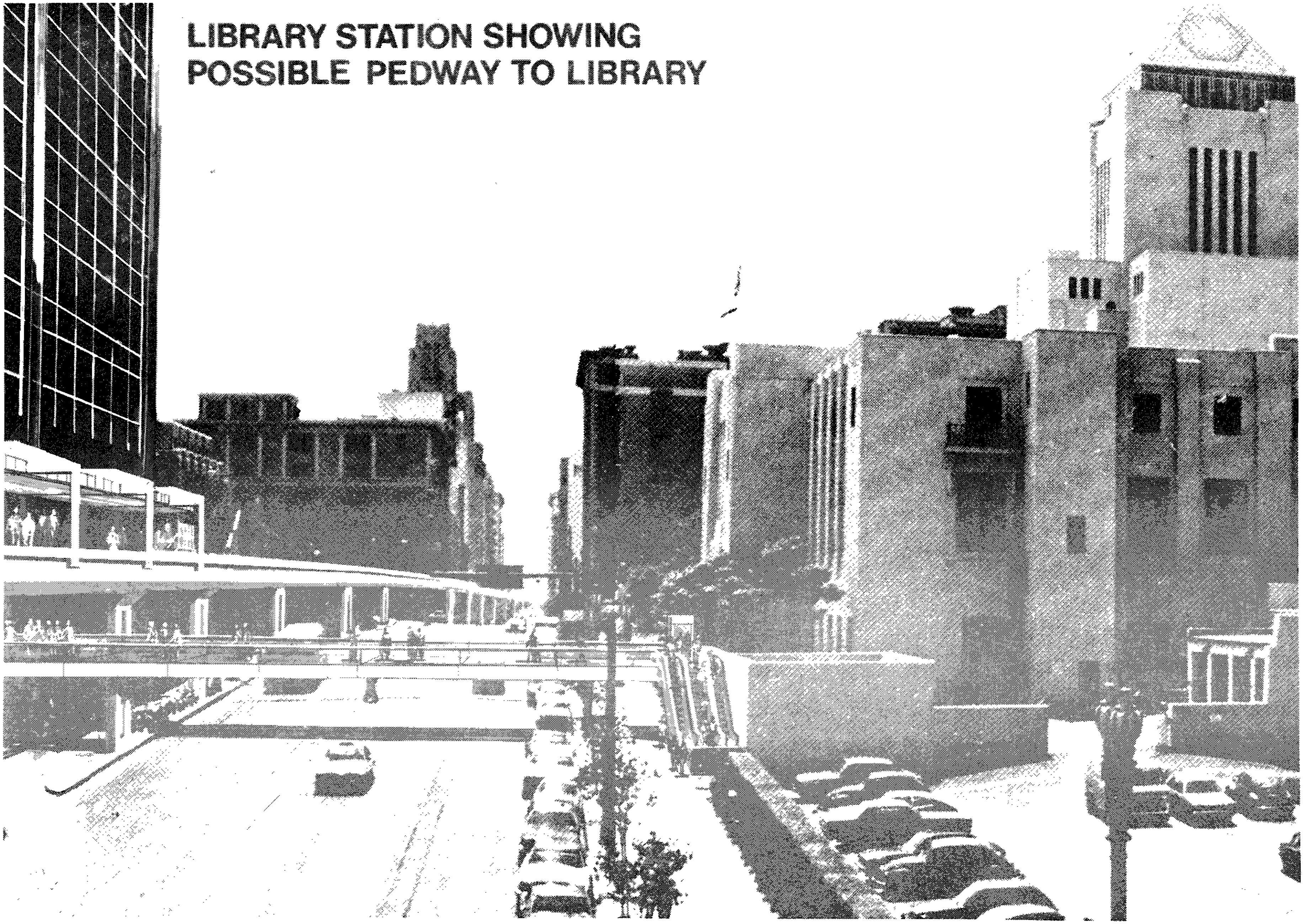
Access to this important cultural site will be increased via two DPM stations located within a three-minute walk from Olvera Street proper. These are the Federal Building Station on Los Angeles Street and the Union Station Intercept Terminal. An unobstructed view of the traditional architecture will be afforded to DPM riders when crossing over the Hollywood/Santa Ana Freeway toward the Olvera Street area.

Los Angeles Central Library (Site 20). A National Historical Monument representative of the 1920's, this Bertram-Goodhue building is an example of a period when international style and decorative arts merged. The impact of the DPM on this structure was thoroughly studied during the design phase. An attempt was made to refrain from disturbing the form of the building and simultaneously to increase its visual accessibility (see Figure IV-22S).

By locating the guideway and station on the north side of Fifth Street, the library facade and grounds will be unaltered. Because the guideway will be below the top of the retaining wall on the north side of Fifth Street, the view of the Library from Hope Street will remain unobstructed. In addition, a good view of the library may be had from the DPM. The location of the DPM station in close proximity to the library should increase its usage and convenience for present patrons. Not only the Library's books but its gardens as well will reap greater activity.

FIGURE IV-22S

LIBRARY STATION SHOWING POSSIBLE PEDWAY TO LIBRARY



Source: CRA, 1978

L.A. Star Site and Butterfield Stage Site (Sites 27 & 30)

The structures on these sites have been razed, therefore as sites only, they will not be affected by the DPM.

Angels Flight (Site 5)

As one of the earliest and most aesthetic efforts in public transportation, it seems appropriate that Los Angeles' newest form of moving people touches down at the base of this historic site. The original site and general surrounding environment have been demolished, and housing for the elderly is being constructed in its place. However, a replica of the original Angels Flight system is to be built less than a block away, and will be accessible from this station. The replica of the orginal Angels Flight train will climb to the top of Bunker Hill.

California Club (Site 6) The DPM line presents no visual handicap to the enjoyment of this cultural landmark as it is approximately 3000 feet from the club. Visual enjoyment may be enhanced for the pedestrian/commuter on the DPM because of its elevated position along 5th Street.

Biltmore Hotel (Site 22) The most important and impressive view of the Biltmore Hotel is its east elevation best seen from across Pershing Square. This is essentually undisturbed by the presence of the DPM. The guideway traces a line on the north side of 5th Street across from the Biltmore until it crosses Olive. At this point the line curves to a station that touches the northern edge of Pershing Square.

Philharmonic Auditorium (Site 9) The Auditorium itself faces Olive Street and has little reference to 5th Street and Pershing Square. The Auditorium office building faces Pershing Square. The shape of the building is unchanged, but the facade was altered dramatically in the late 1930's in such a way as to destroy the original character of the building.

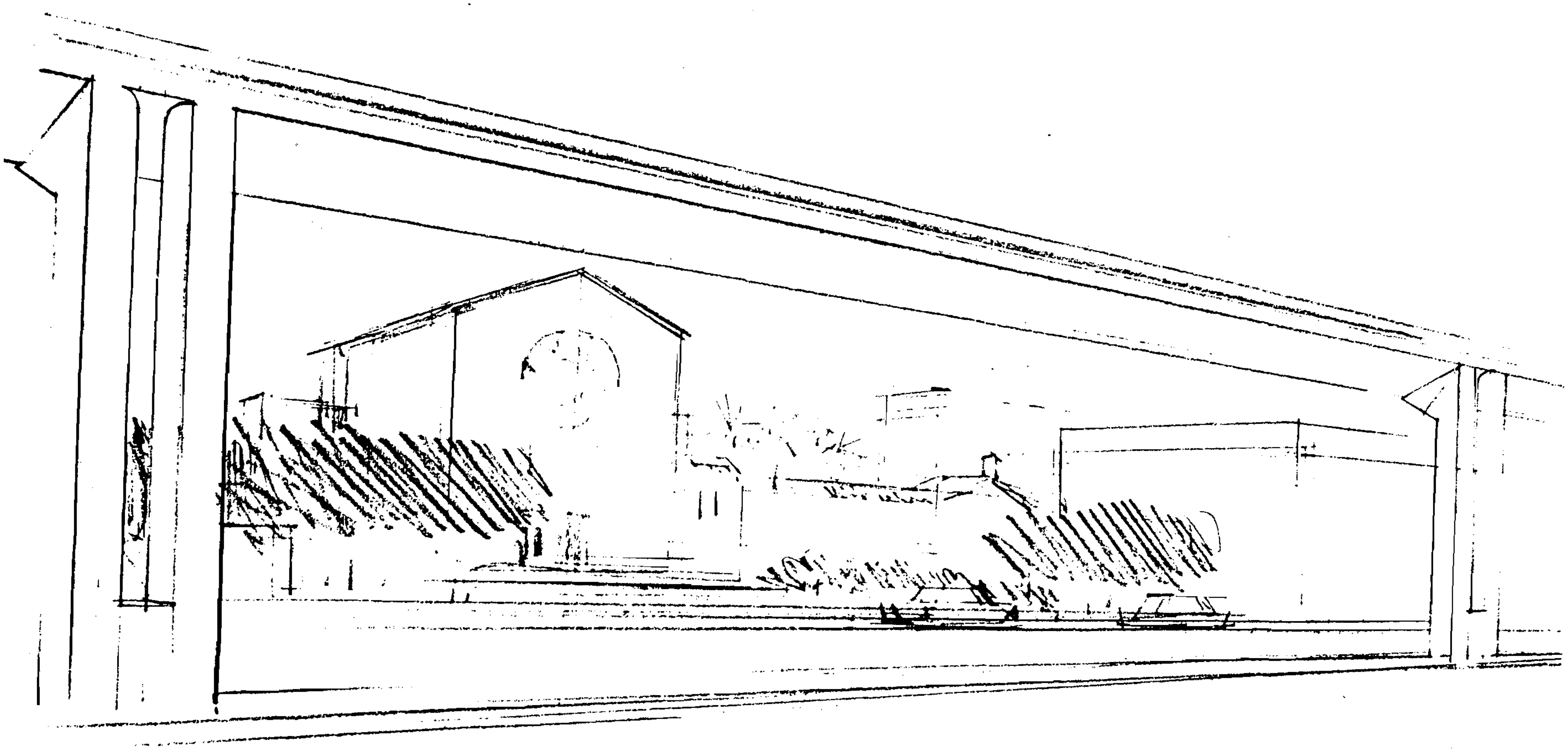
Views from the second floor offices will be partially obstructed by the guideway and the station in Pershing Square.

St. Paul' Cathedral (Site 7). This mixture of Gothic and Colonial Revival styles is a nice example of 1923 religious architecture, and possibly the major significant religious structure in downtown Los Angeles. With the west and Figueroa alignment, the DPM guideway is situated to the rear of Saint Paul's Cathedral between the Church grounds and the Harbor Freeway. Saint Paul's with its rose window (the major exterior feature), faces Figueroa Street and therefore would not be substantially affected. (See Figure IV-22T). The center of Figueroa variation would have much more effect on the view of Saint Paul's. In assessing the potential DPM impact, height relationships and pedestrian viewing angles were studied. With the guideway in place, there would be a clear view of the facade from either side of Figueroa because the guideway is sufficiently high. Though the DPM is above the rose window, a southbound passenger could still get a bird's eye view of this leaded glass work.

Union Station (Site 19). This 1930 Spanish Colonial Revival structure represents a historical and cultural focal point in the growth of Los Angeles. To preserve the view of the simple geometric massing of the main terminal building, designed by John and Donald Parkinson, the DPM guideway has been located as far as possible from the main terminal building. The guideway skirts the edge of this historic property between the parking lot and the adjacent freeway off ramp.

FIGURE IV-22T

VIEW OF ST. PAULS CATHEDRAL FROM FIGUEROA STREET



Source: DMJM, 1978

FIGURE IV-22U

UNION STATION MAIN ENTRANCE DPM GUIDEWAY IN BACKGROUND

Source: DMJM, 1978

Set behind an existing row of trees, the guideway has very little visual impact on the main terminal building. (See Figure IV-22U)

The retaining wall which runs along the south edge of the site separates the tracts from the Santa Ana Freeway off ramp. Because of a row of lights running atop this retaining wall, the guideway has been set back, behind the wall and above the existing structure, thereby having the least possible impact on this historic building and its environs.

The DPM intercept terminal is located behind the main Union Station terminal building and the existing railroad tracts. An extension of the existing tunnel from Union Station to the intercept terminal will provide access from Olvera Street district through the terminal building to the DPM intercept building.

A complete appreciation of Union Station requires a sensitivity to its architectural merits as well as instilling it with new life. The DPM intercept terminal will do both. It will promote the use of the historic landmark as a major urban place for people to see and experience as they use the DPM, which is located sufficiently far enough away from the station building so as not to compete with it architecturally.

Global Marine Building (Site 8) This building faces 7th Street at least one-half city block east of either DPM guideway alignment. Therefore, impacts on the Global Marine Building are negligible except that the DPM may provide increased pedestrian accessibility to the building.

Los Angeles City Hall (Site 24) This steel-reinforced concrete tower epitomizes the geometric symmetry typical of civic monuments of the 1920's. Set back from the street, the broad staircases provide a monumental entrance to this important Los Angeles landmark.

The DPM guideway, located on the north side of 1st Street, is set behind an existing row of trees. The columns supporting the guideway are located on either side of pedestrian paths leading to City Hall. From the south side of First Street, the guideway will form a horizontal band at the base of the City Hall Tower. The major portions of the building will rise high above the guideway. Since this historic landmark is set back from the street and is built atop a high mound, its prestige and visual prominence in the area will remain unimpaired.

The visibility of the City Hall from the raised platform of the DPM will offer people the opportunity to view the symmetrical stepped-back massing of the building as the people mover passes by it. The experience of moving by the City Hall will be visually more interesting than seeing it from one vantage point only.

Subway Terminal Building (Site 39) This building, though of minor architectural significance, is a symbol of Los Angeles early tradition of public transportation. The DPM will continue this tradition as it passes by the "piano nobile" of this Italian Renaissance style building.

Running above the existing awnings, the guideway will obstruct the view from some windows within. However, the view to the east does not presently offer much attraction. Obstruction to the view of the edifice will be at a minimum since it is only a single guideway that is to be strung across the building's face.

Friday Morning Club (Site 31) The cultural-social connections of the Friday Morning Club are more important than the architectural significance.

The DPM guideway is approximately 32 feet above Figueroa Street which reduces the visual impact on pedestrian and vehicular traffic.

The scale of the Friday Morning Club is so great that a pedestrian would relate to little more than the building's ground floor and an automobile passing by at 35 mph would have little opportunity to appreciate anything more than its color. The DPM, on the other hand, will provide passengers with a unique vantage point from which to observe the facade.

Overview of Impacts on Cultural Facilities
The major cultural facility immediately adjacent to the DPM route is the Convention Center, discussed below. The Music Center is the other major cultural facility in downtown, but the DPM is expected to have little or no impact on this facility beyond a marginal improvement in access.

Convention Center This major Los Angeles cultural facility serves the entire metropolitan area. Its accessibility by freeways and surface streets is improved by the addition of a DPM station which will establish a much-needed link between the Convention Center and the remainder of downtown. In addition, planned parking garages will provide a park-and-ride opportunity for people employed in the downtown area, thus significantly reducing the congestion on the already overburdened streets.

The DPM station is located on the west side of Figueroa Street, in a large open space facing the main entry of the Convention Center, establishing a strong pedestrian and visual orientation between the two elements; therefore the impact of the DPM station on the Convention Center is diminished.

The DPM station will substantially increase the use of the Convention Center by creating a strong physical connection between the facility and other downtown activity centers.

IV 222.2 MINOR OPERATIONAL IMPACTS ON LANDUSE AND URBAN DEVELOPMENT:

PARKS AND OPEN SPACES

Present and planned parks and open spaces in downtown Los Angeles are shown and described in Figure IV-22V. The area and uses of each one is given. The most important of these open spaces are those which are available now and readily accessible to pedestrians. Nineteen of the 44 areas totaling 33.2 acres, meet these criteria. Total open space comprises 70.3 acres. This total includes land that is purely decorative in function as well as rough estimates for planned and proposed open spaces. Approximately 40 acres of open space are within relatively easy pedestrian access from the DPM.

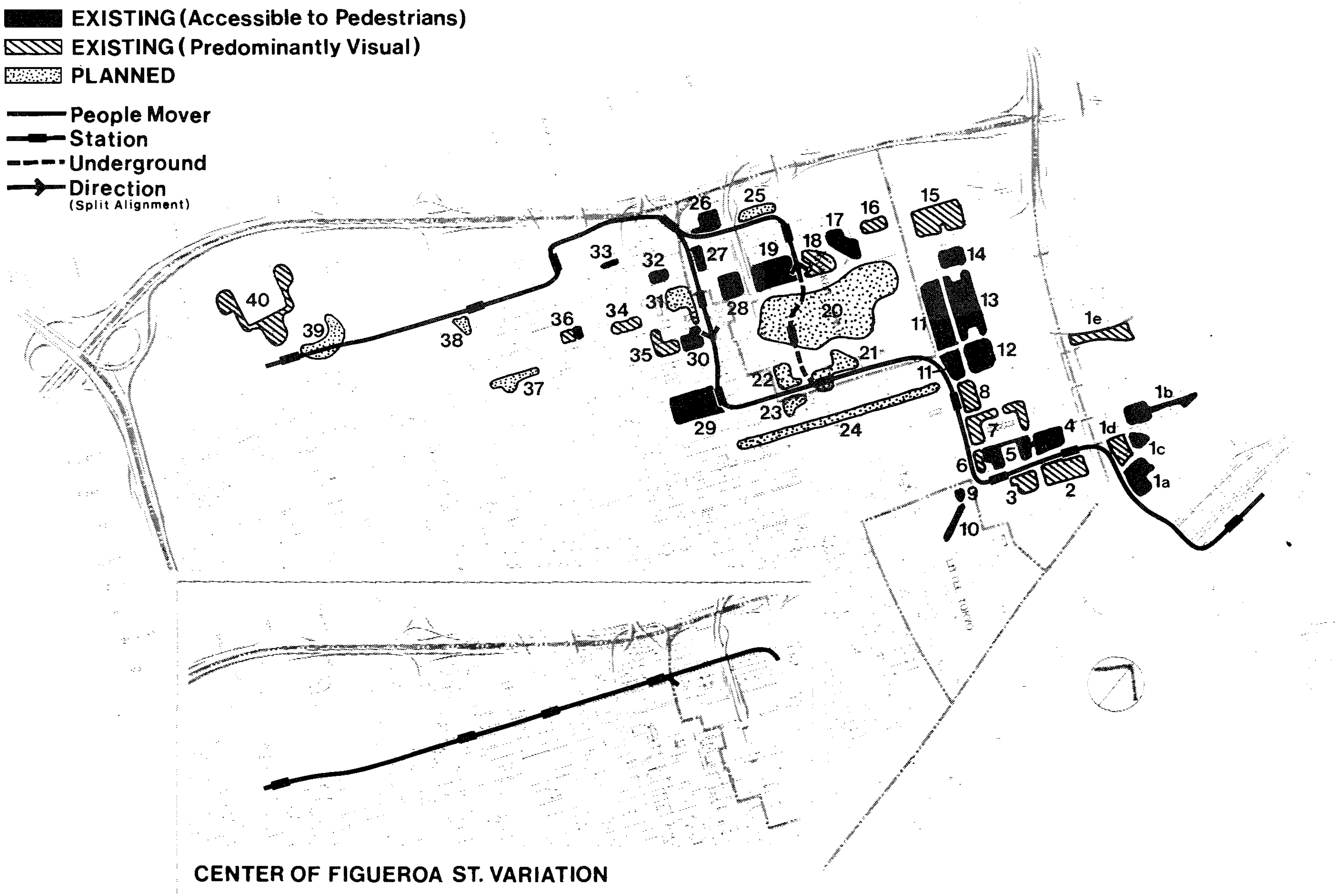
In general, open spaces in downtown Los Angeles will experience the beneficial impact of improved accessibility. This will be more true for those areas within a short distance from DPM stations, and this should result in increased or extended use of open space areas. Open space areas which woul be most directly affected include: Olvera Street and the Pueblo de Los Angeles Park, City Hall Mall, Civic Center Mall, the Music Center area, Pershing Square, the Central Library grounds, and selected plaza areas in the financial district.

The DPM system may present some degree of visual intrusion on open space areas. However, with careful design, the DPM guideway and stations could be made compatible with and even enhance the appearance of adjacent open space.

The open space most sensitive to visual impacts is Pershing Square Park. The aerial station to be located on the northern edge of the park would be located approximately 18 feet above ground. A small portion of the park would be needed for ground level access to two escalators and one

FIGURE IV-22v

OPEN SPACE, EXISTING AND PROPOSED



key to Figure IV-22V

STATUS, USE CHARACTERISTICS AND ACREAGE OF OPEN SPACES

	EXISTING	PLANNED	PROPOSED	Predominantly VISUAL	ACCESSIBLE to pedestrians	LUNCH TIME	WEEK DAYS	WEEKENDS	COMM'L OR CULTURAL	SPECIAL EVENTS	ESTIMATED ACREAGE
1a Union Station	X				X				X		.5
1b Plaza/Olvera St.	X				X		X	X	X	X	1.5
1c Plaza lawn	X				X	X					.7
1d City Parking			X	X							1.0
1e Fort Moore	X			X							2.8
2 Federal Bldg.	X			X							.3
3 Parker Center	X			X							.5
4 Mall/Triforium	X				X	X				X	2.3
5 City Hall mall	X				X	X	X		X		2.0
6 Lawn, City Hall South	X			X							2.0
7 Lawn, Main City Hall	X			X		X				X	3.0
8 State Bldg. Site			X	X	X						1.0
9 New Otani	X				X	X					.5
10 Weller Street		X			X		X	X	X		n/a
11 County Bldgs.	X			X							.5
12 County Mall, lower	X				X	X					2.5
13 County Mall, upper	X				X	X					5.5
14 Music Center	X				X		X	X	X	X	1.4
15 Dept. Water & Power	X			X							2.0
16 B.H. Tower Access	X			X							.5
17 B.H. Tennis Courts	X				X		X	X			2.0
18 Central Power Plant	X			X							1.0
19 Security Pacific	X				X	X			X		2.8

	EXISTING	PLANNED	PROPOSED	Predominantly VISUAL	ACCESSIBLE to pedestrians	LUNCH TIME	WEEK DAYS	WEEKENDS	COMM'L OR CULTURAL	SPECIAL EVENTS	ESTIMATED ACREAGE
20 Bunker Hill			X	X	X						3.0
21 Retirement Housing		X			X		X	X		X	1.0
22 Angel's Flight			X		X		X	X	X	X	.5
23 Public Plaza Site			X		X		X	X	X	X	.5
24 Broadway			X		X		X	X	X	X	n/a
25 MAT Hotel Site		X			X		X	X	X	X	1.0
26 Union Bank	X				X		X				1.0
27 Bonaventure Hotel	X				X		X	X	X	X	.5
28 Arco Garage (Roof)	X				X					X	2.2
29 Pershing Square	X				X		X	X			3.0
30 Library Lawn	X				X		X				2.0
31 Library parking		X			X						2.0
32 Arco Plaza	X				X		X				1.8
33 St. Paul's Courtyard	X				X		X				.5
34 Union Bank	X			X							.5
35 Crocker Bank	X			X							.5
36 Broadway Plaza	X			X	X		X	X	X	X	.5
37 South Park "park"			X		X		X	X			1.0
38 9th Street Triangle			X		X	X					.5
39 Hotel site			X	X							2.0
40 Convention Center	X			X							10.0

elevator, providing access to the station platform above. The presence of the aerial structure will produce some shadows in the morning hours near the north-west corner of the park. (See Figure IV 22-W)

Mitigating Measures

There are several potential mitigating measure relating to the impacts of the DPM system at Pershing Square.

Relocate the station. This is not a practical solution, as buildings on the north side of the street have very small setbacks, resulting in too little clearance for an aerial station. A station is needed in this vicinity to afford patron access before the guideway turns northward on Hill Street.

Minimize the use of park land. This has already been considered in the site layout of the station and will continue to be stressed during final design. The present station design (see Figure IV-22X) uses the northernmost portion of the park, with the station being located over the ramps leading to underground parking. Support columns for the station and guideway do not impinge on the useable park area.

Improve landscaping amenities. No trees or shrubs will be removed and plans call for planting four new trees and additional shrubs in the area of the elevator and escalator.

Minimize pedestrian inconvenience. It will be necessary to relocate the sidewalk at the north end of the square. This will be accomplished using a design that will conform to existing peripheral sidewalks.

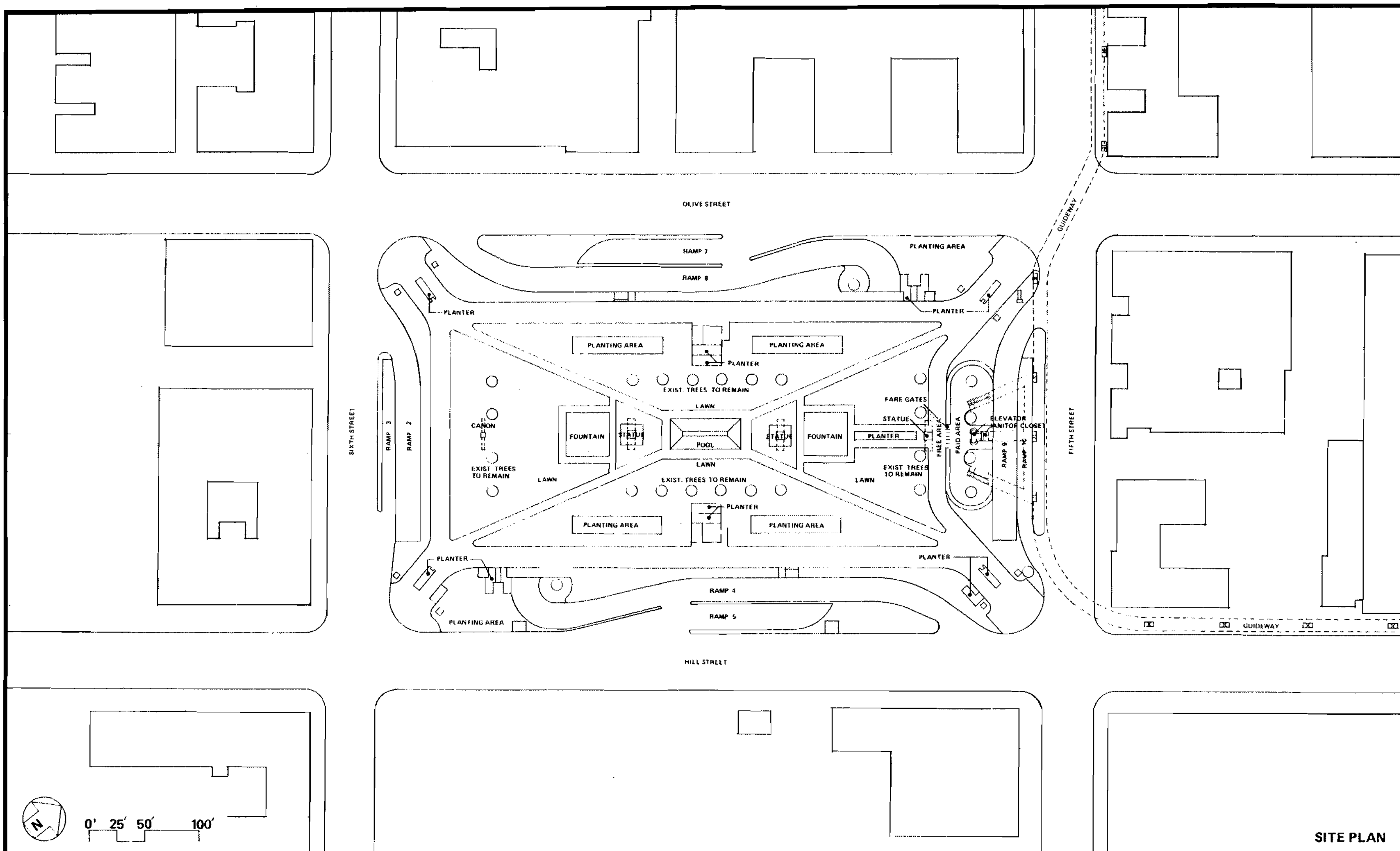
The only other designated park along the route is Father Serra Park on the corner of Alameda and Arcadia Streets, part of the State Historic Park associated with the Pueblo de Los Angeles. The western portion of Father Serra Park is a Hollywood Freeway onramp. The DPM guideway is planned to skirt the park; column footings are shown along the sidewalk edge in Figure IV-22Y. This mitigation measure minimizes the need for park taking and should be incorporated into final design. Care should also be taken during construction to preserve the trees along the edge of the park. Operation of the DPM should have no effect on the park. If the center of Figueroa Street variation is selected, there would be no change in the impacts on parks and open spaces.

FIGURE IV-22W

PERSHING SQUARE LOOKING NORTH FROM SIXTH STREET

FIGURE IV-22X

PERSHING SQUARE STATION SITE PLAN



CONTRACTOR/AGENCY: DMJM

Prepared by: R. DAY

Checked by:

Approved by:

Date:

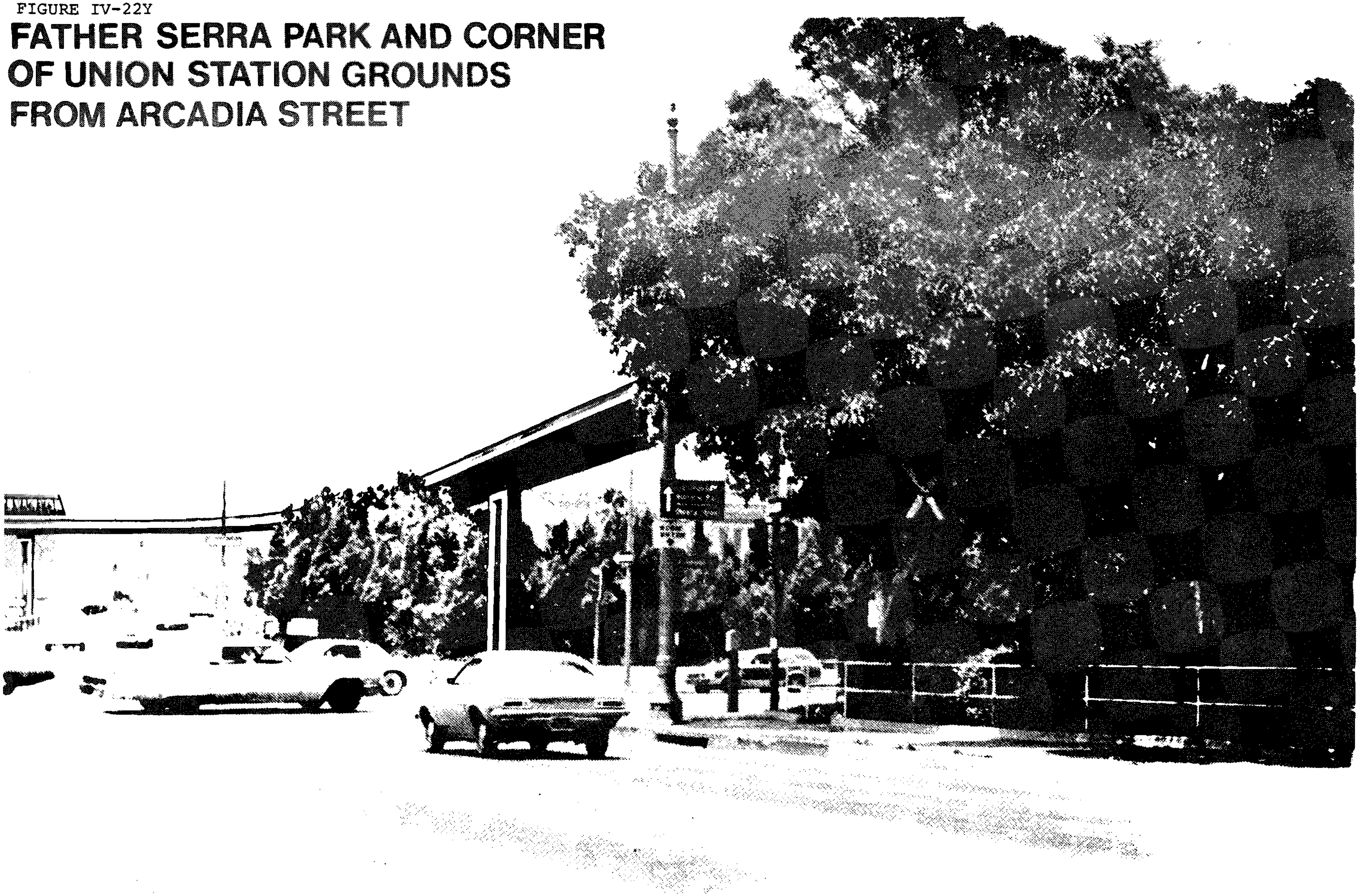
Los Angeles Downtown People Mover Project

COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF LOS ANGELES

SUBJECT TO CHANGE IN FINAL DESIGN

FIGURE IV-22Y

FATHER SERRA PARK AND CORNER OF UNION STATION GROUNDS FROM ARCADIA STREET



Source: DMJM, 1978

IV-222.3 MINOR OPERATIONAL IMPACTS ON LAND USE AND URBAN DEVELOPMENT: Community Services

Major facilities providing social, public, community, or municipal services are shown in Figure IV-22z. With some exceptions, the DPM system will generally have a positive impact on community and social services by providing improved access.

For those services which have a relatively elastic demand, that is, where users have a great deal of choice as to whether to use the services, the DPM is likely to produce an increase in the amount of use. These include: the Terminal Annex, the Music Center, the Law Library and the Central Library, the 3 major churches (St. Vibiana's Cathedral, St. Paul's Cathedral and the First United Methodist Church), the Post Office in Arco Plaza, the University of California extension, and the Convention Center. Other facilities which would benefit from improved ease of access, but not necessarily significant increases in levels of use, are: Union Station, most of the government buildings in the Civic Center, and California Hospital. Remaining services would not benefit directly from the DPM because they are outside the convenient DPM walkshed or they have little or no public visitor use.

Impacts on Police Protection Services

Because the DPM intercept facilities will have high volumes of automobiles, which may be unattended for some length of time during the day, representatives of the Los Angeles Police Department have suggested that additional foot patrols may be desirable at both Union Station and the Convention Center.

Impacts on Fire Protection Services

The desire to serve certain sites and mitigate other types of impacts has resulted in a recommended route alignment that provides a minimum horizontal clearance of three feet to the fronts of certain buildings. This situation interferes with the use of external fire escapes in older buildings, and presents the potential for limiting fire department capabilities to gain external access by means of ladder to rooms and/or roofs, or to rescue occupants.

The sites of particular concern are those older unsealed buildings which lack the modern internal pressurized smoke proof stairs, and where the fire department is forced to rely on external means for access and rescue operations, e.g. those with only openable windows and/or external fire escapes. These sites have been reviewed and discussed with fire department personnel. There appear to be alternatives for each of the sites that can ameliorate the potential accessibility restrictions and afford satisfactory life, safety, and fire protection capabilities. These alternatives include the consideration of smoke towers in certain sites, enclosing external fire escapes, storing aerial ladders on guideway, hydraulic aerial ladder turntable on guideway, enclosing certain internal stairs, etc., and will require coordination with the Los Angeles Fire Prevention Bureau in the final design phase, as for obtaining approvals and/or the proper variances.

Alternatives have been selected for each of the sites of concern to the department, consistent with the conceptual level design of this phase, and included in the cost estimates.

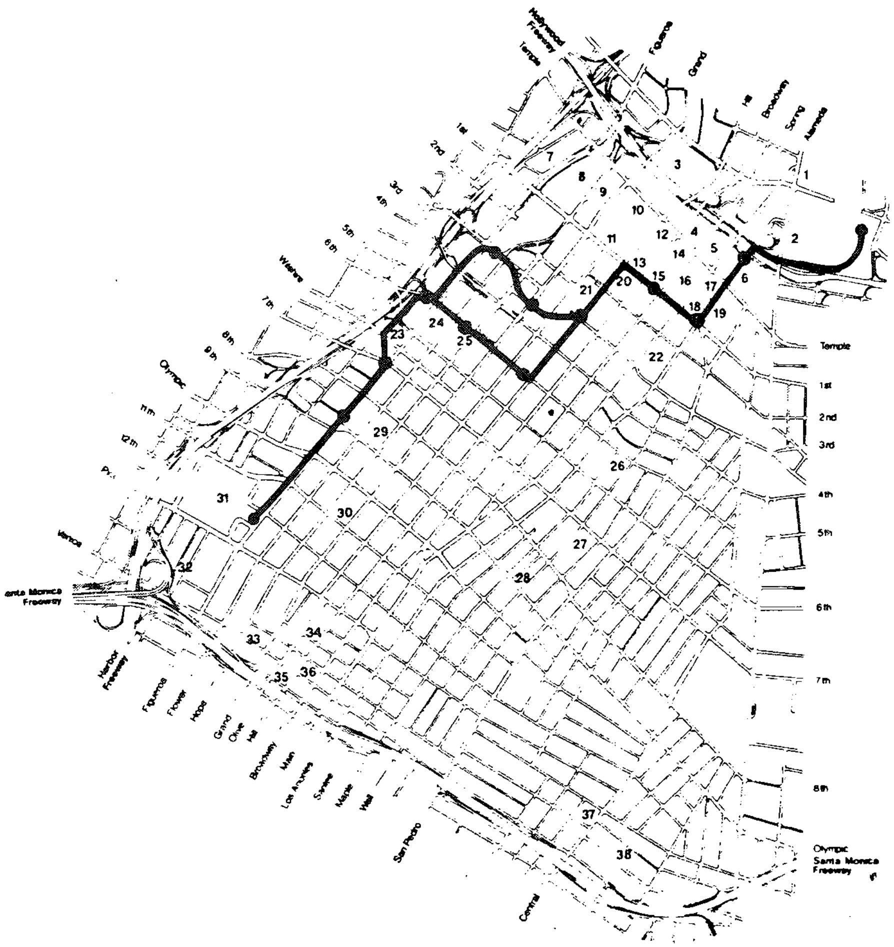
The following summarizes Fire Department findings regarding six major problem buildings along the DPM route. The modifications suggested must meet the standards of the Los Angeles Municipal Code before they can be considered feasible.

Figueroa Hotel - Olympic Boulevard and Figueroa Street

The present fire escape system is required. An enclosed

FIGURE IV-22z

PUBLIC AND SOCIAL SERVICES IN THE CBD



Source: Community Redevelopment Agency, 1978.

NUMBER ON MAP	FACILITY PROVIDING SOCIAL, PUBLIC, COMMUNITY OR MUNICIPAL SERVICE	AMOUNT OF USE BY PUBLIC (Line indicates lit-tle or no public use)	ACCESSIBILITY TO DPM STATION *** <3 min.walk ** <5 min.walk * <10 min.walk	POSITIVE SOCIAL SERVICE IMPACTS DUE TO DPM: INCREASED AMOUNT OF USE	POSITIVE SOCIAL SERVICE IMPACTS DUE TO DPM: INCREASED EASE OF USE	NEGATIVE SOCIAL SERVICE IMPACTS DUE TO DPM
1	Terminal Annex (P.O.)	X	*	X	X	
2	Union Station	XXX	**		XX	
3	Board of Education	X	*			
4	County Hall of Justice	XX	**		X	
5	Federal Court	XX	***		XX	
6	Federal Bldg. & P.O.	XXX	***		XXX	
7	County Health Center	XX				
8	Dept. Water & Power	XX	*			
9	Music Center	XXX	*	X	X	
10	County Hall of Admin.	XXX	**		XX	
11	County Court House	XXX	**		XX	
12	County Hall of Records	XXX	***		XX	
13	Law Library	XXX	***	XX	XXX	
14	County Criminal Courts	XX	***		XX	
15	Future State Building	XXX	***		XXX	
16	City Hall	XXXX	***		XXX	
17	City Hall East	XX	***		XXX	
18	City Hall South	XXX	***		XXX	
19	Parker Center (Police)	XX	***		XXX	NONE
20	State Office Building	XX	***		XXX	
21	Fire Station #3	—	—			
22	St. Vibiana's Cathedral	X	**	X	X	
23	St. Paul's Cathedral	X	***	X	X	
24	Post Office (Arco)	XXX	***	X	XX	
25	Central Library	XXX	***	XXX	XXX	
26	Central Police Facil.	—	—	—	—	
27	Fire Station #9	—	—	—	—	
28	Municipal Court	XXX				
29	1st Methodist Church	X	***	X	X	
30	Univ. of Calif. Exten.	XX	**	X	X	
31	Convention Center	XXXX	***	XXX	XXX	
32	Police Station (Georgia)	—	—	—	—	
33	California Hospital	XX	*		X	
34	Fire Station #10	—	—	—	—	
35	California High School	XX				
36	State Employment Office	XX				
37	Fire Station #30	—	—	—	—	
38	Police Station (Newton)	—	—	—	—	

smoke tower from the roof to the ground level may be provided as an alternate fire escape system.

Title Guarantee Building - Fifth and Hill Streets
The fire escape system is required. However, an enclosed access from the second floor to the ground level may be incorporated into the structure and may eliminate the requirement for the exterior fire escape between the second and first floors.

Federal Title Building - 437 South Hill Street
Same requirements as Title Guarantee Building.

Subway Terminal Building - 415 South Hill Street
Fire Department accessibility for aerial and ground ladders is required for the front of this structure. It appears at this time that there are mo mitigating factors that could be applied. (It may be possible to store an aerial ladder on the DPM guideway and provide access by means of a hydraulic aerial ladder turntable.)

San Carlos Hotel - 501 West Fifth Street
Same requirements as Subway Terminal Building.

Bunker Hill Garage - 525 West Fifth Street
Same requirements as Figueroa Hotel.
All buildings along the proposed route should be evaluated to ensure that the proposed Downtown People Mover will not impede access to roofs and fronts of structures for life safety and fire protection purposes.

(Los Angeles Fire Department, 1978).

With the center of Figueroa variation, potential negative impacts on the Hotel Figueroa are eliminated. However, because of the continuous median, access routes for fire engines may have to be adjusted.

IV-230 OPERATIONAL IMPACTS ON THE SOCIO ECONOMIC ENVIRONMENT

IV-231.1 MAJOR OPERATIONAL IMPACTS ON THE SOCIO ECONOMIC ENVIRONMENT: RESIDENTIAL POPULATION

The land use analysis in Section IV-221.2 identified an increase of 630 housing units in Bunker Hill and 1300-1500 units in South Park because of DPM-induced market activity. The resulting population increases would range from 2500-3300 additional CBD residents assuming 1.4 persons per unit in Bunker Hill and 1.6 per unit in South Park. (The household sizes differ slightly because more families are assumed for South Park).

The original 1990 midrange population forecast projected a CBD residential population of 25,000 (CRA, Task 19, 1975). That forecast has been revised to approximately 20,000; later analysis of the 1990 Bunker Hill population indicated that the 1975 figure was about 4500 people too high (CRA, Task 4.01, 1978). The incremental population growth projected with the DPM would constitute a 12 percent increase over the revised 1990 baseline without the DPM. However, residential development would still be concentrated in the areas previously predicted -- Bunker Hill, South Park and Little Tokyo.

More important, perhaps, than the actual numbers is the likely change in the social and economic characteristics of the population. Section III-310 outlined the characteristics of the 1970 population -- a dominance of the elderly, the poor and single men. In 1990 there will be a shift toward more middle and upper-middle income people because of projected developments in Bunker Hill, and South Park. DPM-induced development will reinforce that shift. Housing development in Bunker Hill will be oriented to upper income professionals and households without children. The South Park development, although market rate, is anticipated to be lower priced housing than Bunker Hill. Increased development in this area will give middle-income people an opportunity to live downtown, thereby increasing the diversity of downtown population.

It is also likely that a higher percentage of CBD residents will work in the CBD in 1990. In 1970 about 40 percent of CBD residents were employed, almost two-thirds of them in the CBD. The 1990 figure is likely to be higher because CBD employment opportunities will be greater and because of proximity to work.

The proportion of children in the CBD could increase slightly. In 1970, people under 18 accounted for seven percent of the CBD population. By 1990 this percentage could increase to 10 or 12 percent, again depending on the number of family units in South Park.

Increased population growth normally requires an increase in public services -- fire, police, schools, etc. The population growth projected for Bunker Hill and South Park is within the growth levels projected by the adopted plans. It is likely that the new buildings will be more fireproof than the buildings currently there and that the new population will pose fewer police control problems than the old. The numbers of children could increase slightly, depending on the number of family units planned for South Park but that will not be known until the South Park development is more clearly defined.

There is no difference between the west side of Figurora Street and the center of Figueora Street options with respect to impact on the residential population.

IV-231.2 MAJOR OPERATIONAL IMPACTS ON THE SOCIO ECONOMIC ENVIRONMENT: SOCIAL SERVICES FOR ELDERLY AND HANDICAPPED

The numbers of elderly residents in the CBD in 1990 will increase by almost 2000 whether or not the DPM is built. The 1100-unit retirement housing development on Hill Street and the 300-unit elderly housing development in Little Tokyo will increase an already substantial elderly population in the CBD (Section III-310 reported almost 4000 persons residing in the CBD in 1970 to be over the age of 62). The Hill Street project also contains 180 units specifically designed for handicapped persons. With direct DPM connections to this development, significant improvement in access will accrue to the elderly and handicapped people residing in the DPM corridor. A significant improvement in access will also benefit those residing elsewhere who wish to use the Hill Street facilities or other social, governmental, medical, or commercial services along the corridor. The Hill Street DPM station could also be linked with an underground tunnel to Grand Central Market on the east side of Hill Street.

There is no difference between the west side of Figueora Street and the center of Figueora Street route options with respect to impact on social services for the elderly and handicapped.

IV-231.3 MAJOR OPERATIONAL IMPACTS ON THE SOCIO ECONOMIC ENVIRONMENT: Employed Population

The western section of the CBD (west of Hill Street) and the northeastern section around the government/Civic Center complex are the focal points of recent office development, and are generally in the DPM corridor. The 1975 employment in this corridor was 110,995, a level which represents some 54 percent of the total CBD employment and 59 percent of the employment in the 101 Zone area (CRA, Task 4.01, 1978). The distribution by employment sector within the DPM corridor is shown in Table IV-23A.

TABLE IV-23A
DISTRIBUTION OF EMPLOYMENT, BY SECTOR, IN DPM CORRIDOR, 1975

Sector	Number of Employees	% of DPM Corridor Employment	DPM Corridor As % of CBD Employment
Private Office	59,160	53	70
Government Office	34,940	31	83
Retail	5,915	5	55
Serv., Hotel, Inst'l	5,430	5	65
Manuf./wholesale	5,550	5	13
TOTAL	110,995	99	54

Baseline Forecast 1990

The 1990 forecast of baseline employment (without DPM in the corridor) reflects the continuing concentration of high rise commercial office space in the western CBD. The anticipated growth is shown below by sector and reflects the new development activity described in Section IV-221.

TABLE IV-23B

DISTRIBUTION OF EMPLOYMENT BY SECTOR, IN THE DPM CORRIDOR, 1990

Sector	1990 Total in DPM Corridor	Increase Over 1975	% Increase	DPM Corridor Employment
Private Office	86,385	27,225	46	59
Government Office	39,270	4,330	12	27
Retail	6,717	802	14	5
Service, Hotel, Inst'l	8,480	3,050	56	6
Manuf./wholesale	6,340	790	14	4
TOTAL	147,192	36,197	33	101

The private office employment increase reflects projected expansion of operations of existing tenants and an influx of additional professional banking and commercial enterprises. It represents an increase in the occupancy rate and density of use of existing office structures and construction of new office space. The increase in government office employment is predicated upon construction of a major new state office building in the northern CBD during the 1985-1990 period. This project has been placed in an uncertain position by the recent passage of Proposition 13. If the new state office building is not constructed prior to 1990, the baseline government office employment would remain unchanged from the 1978 levels.

The projected increase in retail employment primarily reflects new retail development (including a major department store) at 7th and Figueroa (mixed-use project), retail components of the MAT Hotel and office towers at Bunker Hill and intensification of retail activity at ARCO Plaza. The increase in the service and hotel sector consists primarily of employment at the Bonaventure and New Otani Hotels (which have opened since 1975) and at the MAT Associates hotel scheduled to be open before 1985. The net employment increase in the manufacturing and wholesale sector is almost all associated with the planned revitalization of the Jewelry Mart in the Pershing Square area.

The importance of the DPM Corridor as the focus of CBD growth can be demonstrated by comparing the corridor growth projections with those of the remainder of CBD. By 1990, the DPM Corridor is expected to account for 62 percent of total CBD employment (versus 54 percent in 1975). Across all sectors except private office, the DPM Corridor accounts for 79 percent of the new CBD employment (8,972 out of 11,332 new jobs). In the private sector, the corridor area is projected to grow by 27,225 jobs, while office employment in the remainder of the CBD is expected to decline by about 4,700 jobs. In terms of overall totals, the DPM Corridor will grow by 36,200 jobs (33 percent).

DPM Impact Measurement Parameters

Implementation of the DPM will increase commercial, office, residential, hotel and retail development in the western CBD, as well as the pace of retail activity. The nature and magnitude of these impacts, as described in Section IV-221, will determine the growth of permanent employment in the impact areas. In addition, the employment impacts include permanent jobs directly associated with the DPM system operation and maintenance and the temporary employment associated with the system construction and component fabrication. The basis for calculation of each employment element is set forth below.

Office Employment

Assuming 95 percent occupancy of new office developments, the DPM-induced office employment impact is calculated by dividing net leasable square feet by 250 square feet per employee.

Service Employment-Residential

Specific building sizes and configurations of DPM-induced residential development are not defined and it is therefore estimated that one service job will be created for every 15 new apartment units (Robert J. Harmon & Associates, 1978).

Service Employment-Hotel

The current (1975) average employment at Class A hotels in the Los Angeles CBD ranges from .7 to .8 employees per room (Robert J. Harmon & Associates, 1978). Given the current low occupancy rates of these hotels and the projected increase in occupancy factors by 1990, it is assumed that the 1990 baseline value will be .8 to .9 employees per room. The proportional increment in room-nights for existing hotels attributable to the DPM system will not be sufficient to increase this factor. Therefore, the only DPM-induced impact on hotel service employment will be that created by the new hotel facility which is anticipated as a result of DPM implementation. The applicable factor would be .9 employees per room.

Service Employment--Food and Beverage Establishments

Employment in food service establishments is highly variable and depends upon the nature, quality, size and capacity of the facility, and the hours (number of shifts) of operation. For example, a cafeteria, eat-in fast food outlet or cocktail lounge requires one employee per shift for every 350-400 square feet of space. A quality restaurant with a diverse menu may require one employee for 220-250 square feet of space.

The average space per seat (including kitchen area) ranges from 15 square feet for cocktail lounges, counting restaurants, cafeterias, etc. to 35 square feet for quality restaurants. Using a composite base, it is estimated that a new cocktail lounge or family-style restaurant would require one employee per shift for every twenty seats and that a new quality restaurant would employ one per shift for every seven seats.

New fast food facilities would be sized at a target of $300 gross sales per square foot (including take-out) with employment at one employee per shift per 325 feet. Expansion of activity at eating facilities would generate employment at one-half of the rate associated with new facilities (Robert S. Harmon and Associates, 1978).

Retail Employment-Shoppers and Convenience Goods

Additional employment in the retail sector will be generated by the creation of new facilities attributable to the DPM and by increased activity at retail establishments existing under the baseline condition. The factor used f[illegible] establishments is one employee per 400-500 [illegible] leasable area (the current ratio in the DPM Corridor is one employee per 529 square feet (Robert J. Harmon & Associates, 1978) and several of the major establishments are operating at less than efficient rate volumes). At an average of $120 in sales per square foot, this translates into one employee per $48,000-$60,000 of gross sales.

The increased employment associated with additional sales volume in existing stores is difficult to estimate with any precision. For stores outside of the prime retail complexes and/or at some distance from the DPM stations, the projected DPM impact is some $6.00-$7.00 per square foot (see Section IV-221.24). This increase is not deemed sufficient to affect their employment to any significant degree. Specialty retail stores in major complexes at or near DPM stations and the convenience goods establishments in these areas and in hotels would experience a sufficient sales increase to indicate added employment. This requirement for additional staff would be generated at a lower rate than for a new store. The estimate (Robert J. Harmon and Associates,1978) is that one retail employee would be added for each $72,000-$90,000 of added gross sales in shopper or convenience goods.

DPM System Employment-Permanent

The operation and maintenance of the DPM system, including vehicles, guideways, stations, intercept garages and other facilities will create the equivalent of 80 permanent full-time jobs.

DPM Construction Employment

Temporary DPM construction employment is discussed in Section IV-132.1.

DPM Impa[illegible]

[illegible] -ts attributable to the DPM system are

TABLE IV-23C
SUMMARY OF DPM-INDUCED PERMANENT EMPLOYMENT, 1990

Office Employment:		6,603
Service Employment:		
Residential	140	
Office	40	
Hotel	450	
Existing Fast-Food Establishments	11	
New Fast-Food Establishments	39	
Existing Restaurants	45	
New Restaurants	160	
Existing Cocktail Lounges	6	
New Cocktail Lounges	18	
Total Service		909
Retail Employment:		
Existing Convenience Stores	88	
New Convenience Stores	138	
Existing Shoppers Goods Stores	191	
New Shoppers Goods Stores	194	
Total Retail		611
Total Private Employment		8,123
DPM System Employment:		80
Total New Permanent Employment		8,203

summarized in Table IV-23C. The calculations are based on the parameters described above.

Introduction of the DPM system would create over 8,200 new permanent jobs by 1990. About 80 percent of these would be in the private office employment sector. The added employment, all within the DPM Corridor, represents an overall increase of 5.6 percent above the 1990 baseline employment in the corridor (7.6 percent for the office, 10.7 percent for the services sectors, 9 percent for the retail sector, and no change in the government office and manufacturing/ wholesaling sectors).

The increase in DPM Corridor employment from 1975 to 1990 under the baseline case was 33 percent (36,197 jobs). With implementation of the DPM system, the increase from 1975 to 1990 would rise to 40 percent (44,400 jobs).

IV-231.4 MAJOR OPERATIONAL IMPACTS ON THE SOCIO ECONOMIC ENVIRONMENT: Tax Base and Revenues

Overview

Introduction of the DPM system into the CBD is expected to produce a number of changes in the economic base of the downtown area. The projected effects are the result of the increases in development activity and use density discussed in Section IV-221.2. These result in: (1) changes in property values, economic activity levels, and the tax base; (2) changes in the size, mix and growth rate of the CBD labor forces; and (3) the short-term impacts of DPM construction activity with respect to construction employment and disruption of the economic activity levels at existing retail facilities.

The tax base impacts will result from DPM-induced development. Such development typically yields:

- an acceleration and increase in new construction activity;
- an increase in the comparative advantages of developable land at "prime" locations resulting in increased land values at these sites;
- an extension of the geographic boundaries that define prime locations resulting in increased land values for parcels now considered to be on the periphery of the high-value sector of the CBD;
- an increased rate of rehabilitation for older, marginal buildings on the periphery of development zones;
- changes in the relative near-term value of property outside the immediate impact shed; either positive, if they can be reoriented toward specific functions (e.g. as lower-rent "incubator" space), or negative, if such demand cannot be generated;
- extension of the period of maximum economic value of new and existing facilities; that is, a slower rate of relative decline in assessed valuation for buildings in the 10 to 20 year period after construction;
- increases in retail sales activity levels (dollar volume per square foot) which produces: (1) a direct increase in the City's share of retail sales taxes and (2) increased property tax revenues (assessed valuation for retail facilities is tied to lease rates and gross dollar volume of sales);
- increases in hotel occupancy that produce direct increases in City revenues from the tax on hotel room tariffs and increases in hotel valuation based on higher occupancy factors.

The normal flow and interaction of the above factors to determine tax base changes is altered, in the present instance, by the recent passage of Proposition 13 in the State of California. This initiative, which became effective July 1, 1978, is still being interpreted by State officials and will almost certainly be the subject of court challenges. As it stands, the following constraints and conditions are imposed upon property valuations and tax increases:

- The 1975/76 tax year becomes the base valuation year. All property valuations are based on 1% of the full fair market value in that year. The maximum permissible increase in this valuation without property improvements or transfer of ownership is 2% per year.
- 1978/1979 tax valuations for properties which have not been improved or transferred since the 1975/76 tax year will be a maximum of 106% of the base-year market value.
- Property improvements since 1975/76 and in future years will be appraised at the current market value.
- Property transfers since 1975/76 and in future years will be assessed on the basis of the actual sale price (or the market value, if the sale price is demonstrably below this level).
- There is presently no provision for reductions in assessed valuation for depreciating property retained by the same owner.

One overall objective of Proposition 13 is the stimulation of private sector development. With reference to the DPM-induced impacts in the CBD, it is anticipated that the effects of Proposition 13 generally will be as follows:

- increases in the regional labor force and the consequent demand for office and other types of space;
- acceleration of development and rehabilitation timetables as developers attempt to minimize construction cost escalation, knowing that once the project is complete, it will be immune from major jumps in valuation;
- deceleration in the rate of office and retail rent increases--the amount of tax increases to be passed through to tenants will be reduced; impacts on the rental rates in new buildings will be minimal since these are determined primarily by construction and financing costs and market conditions;
- divergent impacts on land value-land speculation and turnover will decline, thereby dampening value increases, but developers faced with lower tax burdens can afford higher land prices without endangering the economic feasibility of projects;
- reduction in the turnover rate for existing properties with developers either retaining ownership of their projects for extended periods or selling almost immediately upon completion;
- postponement or cancellation of some future (1985 and beyond) rehabilitation projects--those that are marginal in terms of economic or market feasibility and that would be subject to a significant jump in valuation if major improvements were carried out;
- elimination of fluctuations in valuation reflecting declining relative market status of properties, deteriorating physical conditions, impacts of new development on nearby parcels and extensions in the period of highest economic value for commercial office structures.

The overall near-term and long-term effects of Proposition 13 on CBD property tax revenues will be minimal, except for Bunker Hill and Little Tokyo Redevelopment Areas. Except for a few individual parcels (the areas outside these two redevelopment areas) the growth in valuation of developed parcels in the CBD over the past three years has been less than the 2% per year, which is less than the maximum allowed under the new regulations.

Since the precise effects of Proposition 13 cannot be fully anticipated or predicted, the analysis of DPM-induced economic impacts and benefits must remain conservative. Therefore, the economic impacts discussed below do not include any credit for expansion of development or other benefits (e.g. accelerated construction schedules) attributable to Proposition 13. Similarly, potential benefits which appear to be negated by Proposition 13 are excluded from the analysis. This latter excluded category consists of tax-base benefits derived from (1) extension of the period of maximum value of a building, and (2) interim increases in land value induced by nearby DPM-related development (i.e. if a given project is developed as a result of DPM implementation, adjacent undeveloped parcels would normally increase in market value; however, under Proposition 13, this increase cannot be captured for tax purposes until development occurs or the property is transferred).

Property Valuation and Tax Base Trends

The total 1977/78 market value of all taxable secured properties (land and improvements) in the CBD was $1.863 billion, including $357 million for developed property on parcels in the Bunker Hill and Little Tokyo Redevelopment Projects. The CBD currently accounts for 5% of the Los Angeles City property valuation and almost 2% of that for Los Angeles County.

During the past decade, the market value of secured property in the City (expressed in current dollars) has risen by 51% and that of the County by 60% (equivalent to average compound rates of 4.2% and 4.8% a year, respectively). These rates of increase were below the rate of inflation over that period and would thus yield a negative growth rate in constant dollars. Over the same period, CBD valuations have doubled (an average compound rate of 7.2% a year).

Most of the recent (12% since 1974) and long-term increases in CBD property valuations have been due to extensive development of the Bunker Hill and Little Tokyo redevelopment areas. Exclusive of these project areas, the 1966-1977 increase in the CBD (in current dollars) was 49%, equivalent to a compound average annual rate of 3.7%. During the decade, the Bunker Hill and Little Tokyo areas grew from under $7 million to their present level of $357 million and accounted for 37% of the net increase in CBD values. The net growth rate of each Assessor's Map Book Area for the 1966-1976 period is shown in Figure IV-23A. The Bunker Hill and Little Tokyo redevelopment areas are shown separately because of their exceedingly high growth rates.

Aside from Bunker Hill and Little Tokyo, the 1966-76 growth in CBD market valuations (exclusive of public utility facilities) was some $425 million. Of this amount, $208 million took place in area #5151, the westside financial district. The commercial core area (#5144) accounted for an additional $158 million (37%) of the decade's growth. These two areas yielded 86% of the total CBD increase outside of the redevelopment areas. (Robert J. Harmon Assoc., Task 4.15, 1978).

Within the growth areas, most development was primarily in the form of commercial office space (70%), with the remainder including hotel, retail, high-rise residential and parking structures. The total 1977 market value of all major 1966-76 developments throughout the CBD was approximately $850 million, or 91% of the $934 million net growth in CBD values during that period.

Market values for properties and areas in the DPM walkshed that did not match the growth rates in the CBD or the west side were also studied. This analysis has been documented in Task 4.15 and will be summarized here. Assessor's Map Book data were analyzed to identify properties where improvement values were less than land values. These properties generally fell into two categories: vacant land (or land being used for parking) and properties where the building is old enough that it has depreciated below land cost. Two areas in the walkshed qualified as underutilized according to this definition: the area south of 8th Street on both sides of Figueroa Street and the Hill Street/Spring Street area between 2nd and 7th Streets. Land values in the areas south of 8th Street ranged from $1 to $25 per square foot. Land values in the Hill Street/Spring Street area ranged from $25 to $70 per square foot. By comparison, land values in the area bounded by the Harbor Freeway, Grand Ave., 6th and 7th Streets ranged from $70 to over $100 per square foot. (CRA Task 4.15, 1978).

CBD property taxes accounted for over 60% of all of the revenues collected in the CBD in 1977. Of the total $23.9 million, the City received $15.4 million in property taxes, $5 million in retail sales taxes, $3.2 million in hotel taxes, and $.3 million in miscellaneous taxes (see Section III-333.2). With the passage of Proposition 13, other sources of revenue become more important to taxing jurisdictions formerly reliant on the property tax.

Baseline Forecast - 1990

The precise ramifications of Proposition 13 on the growth of property values and tax revenues are yet to be determined. Properties in the CBD will continue to undergo changes in "inherent" market value over the next several years with newer properties, especially in the western CBD growing in value while the older, unimproved properties in the eastern CBD decline. The lowering of tax levies will enhance these market values but, in terms of tax revenues, the changes in value are shadow effects which do not become manifest until a property changes ownership.

It is not possible, at this time, to forecast the impacts of Proposition 13 on the turnover rate of properties or to estimate the legality of certain steps, such as syndication, holding companies, etc., which might be employed to permit a *de facto* change in ownership without a raise in tax levies. The most straightforward approach to forecasting the 1990 tax base under these circumstances is (1) to increase the valuation of existing properties at the 2% per year rate set forth in Proposition 13 and (2) to include new developments in the tax base as of the year they are expected to be completed, using land and construction cost as the basis for market value. All new developments are as described in Section IV-221.2, costs and revenue estimates are all in constant (1978) dollars.

Anticipated 1990 baseline property tax revenues are shown in Table IV-23D. For the year 1990 without DPM, the total annual CBD property tax levies would be $32.31 million, an increase of 58% over the 1978 level. The cumulative property tax revenues derived from the CBD between 1978 and 1990 would amount to $345.67 million. Assuming that the City's share of such revenues remains the same as at present (20.9%), the baseline case would yield $6.75 million in annual CBD property tax revenue to the City of Los Angeles in 1990 and cumulative revenues of $72.25 million from this source between 1978 and 1990. (Robert J. Harmon Assoc., 1978).

Adding other City sources of tax revenue to the property tax receipts, and eliminating intra-City transfers, yields a projected City tax revenue from the CBD of $18.47 million in 1990 (an increase of 38% over 1978 levels) and a cumulative 1978-1990 total of $208 million under the baseline condition. These other tax revenues include the City's share of CBD retail sales taxes, hotel room taxes, and miscellaneous business taxes and fees.

TABLE IV-23D

Projected CBD Baseline Property Tax Revenues, 1978-1990
(in millions of 1978 Constant Dollars)

Fiscal Yr. Beginning	Total CBD Property Tax Revenues	City Share (20.9%)
1978	$ 21.19	4.43
1979	21.98	4.59
1980	22.85	4.78
1981	23.63	4.94
1982	24.55	5.14
1983	25.35	5.30
1984	26.25	5.49
1985	27.76	5.80
1986	28.70	6.00
1987	29.55	6.17
1988	30.34	6.34
1989	31.21	6.52
1990	32.31	6.75
Cumulative Total	$ 345.67	72.25
Average Annual Value	26.59	5.56

Source: Robert J. Harmon & Associates, 1978

DPM Impact Measurement Parameters

As noted in previous sections, implementation of the DPM system would generate numerous economic effects on the City of Los Angeles and its CBD. Those that would affect City tax revenues include:

- additional private sector development (office, residential, hotel and retail)
- acceleration in the pace of planned development
- increases in annual retail sales volume
- increases in annual hotel room demand
- construction employment of City residents and local purchases of supplies and materials during construction.
- changes in the pattern of property value growth and decline

The long-term development and activity impacts resulting from the DPM have all been described in detail in Section IV-221.2. They are summarized below.

Office: An additional demand for some 1.725-1.750 million square feet of office space in the 1978-1990 period.

Residential: Additional demand for 2,000-2,100 market-rate dwelling units in the 1978-1990 period.

Hotel: Additional demand sufficient to justify an additional 500-600 room Class A hotel in the CBD and an increase of over 160,000 occupied room-nights in 1990.

Retail: Additional demand for 230-250,000 square feet of space by 1990 (84,000 specialty/shoppers retail; 55-62,000 convenience retail; 20,000-25,000 fast food; and 60-70,000 restaurant/cocktail lounge). An increase in annual retail sales which in 1990 would amount to $88.4 million (excluding intra-City transfers and hotel room charges.)

Construction Employment And Purchases: Localized direct expenditures for labor, materials, and engineering in the amount of $74 million and an additional $111 million as the multiplier effect of these expenditures upon the economy over the three-year construction period. (see Section IV-131.1)

DPM Impacts

The property tax revenues to be derived from the CBD with implementation of the DPM system are shown in Table IV-23E. The rationale and procedures used in this calculation are the same as those used for the baseline case, but the size and rate of DPM-induced demand/activity are added to the baseline levels.

These calculations indicate that, with a DPM system, the total annual property tax levy for the CBD in the year 1990 would be $34.74 million. This represents an increase of 70% over the 1978 level and of 7.5% over the 1990 baseline level. On a cumulative basis, the property tax revenues derived from the CBD with a DPM system between 1978 and 1990 would amount to $356.56 million. This represents a 3.1% increase over the cumulative baseline total for the same period. If the City's share of property tax revenues remains constant at its present level (20.9%) the with-DPM case would yield $7.26 million in CBD property tax revenues to the City in 1990 and cumulative revenues of $74.52 million over the 1978-1990 period.

The addition of retail sales, hotel room and other sources of tax revenues and deletion of transfer revenues indicates that, with the DPM, the City's total tax receipts from the CBD in 1990 would total $20.09 million. This reflects an increase in retail sales of approximately $90 million in sales volume (or about $800,000 in sales tax receipts to the City), an increase of over two million room nights (or about

TABLE IV-23E

Projected CBD Property Tax Revenues, with DPM, 1978-1990
(in millions of 1978 Constant Dollars)

Fiscal Yr. Beginning	Total CBD Projects Tax Revenues	City Share (20.9%)
1978	$ 21.19	$ 4.43
1979	21.99	4.60
1980	22.97	4.80
1981	23.79	4.97
1982	24.87	5.20
1983	25.82	5.40
1984	26.89	5.62
1985	28.63	5.98
1986	29.78	6.22
1987	30.84	6.45
1988	31.85	6.66
1989	33.20	6.94
1990	34.74	7.26
Cumulative Total	$ 356.56	$ 74.52
Average Annual Value	27.43	5.73

Source: Robert J. Harmon Assoc., 1978
CRA Task 4.15, 1978

$300,000 in hotel tax revenues to the City), and an increase in business taxes and fees collected by the City. (see Task 4.30 for calculations by Robert J. Harmon & Associates.)

Table IV-23F summarizes the impacts on City tax revenues for 1990 and cumulatively from 1978.

Tax Revenue Impacts on Other Major Taxing Jurisdictions

Los Angeles County

The County revenues from CBD activity currently include a 30.86% share of property taxes and 0.25% of the sales tax. Assuming that these values remain constant, and considering no new revenue sources, the DPM-induced tax benefits to the County are projected at $251,000 for the year 1990 and a cumulative total of some $1.5 million for the 1978-1990 period. The basis for this estimate is as follows:

Property Taxes:

1990 City Property Taxes Attributable to DPM (see above)	$510,000
Less: Estimated Intra-County Transfer of New Development	- X.70
New Development for County	$153,000
Ratio of County Share (30.86%) to City Share (20.9%)	X1.4769
Net Increase in County Revenues (rounded)	$226,000

Sales Taxes:

1990 City Sales Taxes Attributable to DPM (see above)	$500,000
Less: Intra-County Transfer of Retail Sales	- X.80
New Sales Tax in County	$100,000
Ratio of County Share (.25%) to City Share (1%)	X.25
Net Increase in County Revenues	$ 25,000

TABLE IV-23F

Summary of DPM Impacts on City Tax Revenues
(in millions of 1978 Constant Dollars)

	1978	1990 Baseline	1990 With DPM	Net DPM Impact vs 1990 Baseline $	Net DPM Impact vs 1990 Baseline % Change
Total Annual Net City Revenues From CBD	13.34	18.47	20.09	1.62	8.8%
Cumulative (1978-1990) Net City Revenues From CBD	N/A	208.0	216.6	8.6	4.1%
Annual City Property Tax Revenues From CBD	4.26	6.75	7.26	0.51	7.5%
Cumulative (1978-1990) Property Tax Revenues To City from CBD	N/A	72.25	74.52	2.27	3.1%
Annual City Tax Revenue From CBD Retail Sales Tax, Hotel Room Tax, and Misc. Business Taxes and Fees, less intra-City transfers	9.08	11.72	12.83	1.11	9.5%
Cumulative (1978-1990) Net City Revenues from CBD Sales Tax, Hotel Room Tax, Misc. Business Taxes and Fees, and Revenues From Construction Expenditures, less intra-City transfers	N/A	135.75	142.08	6.33	4.7%

Source: Robert J. Harmon & Associates, 1978.

Los Angeles Unified School District

The School District revenues derived from the CBD currently constitute a 39.41% share of property taxes. Application of this rate to the DPM-induced increase in this source of revenue yields an anticipated increase in 1990 annual revenue of $288,600 and a cumulative 1978-1990 increment of $1.6 million. The calculation is as follows:

Net Property Tax Increment for L. A. County (as per above)	$226,000
Ratio of School District to County Share of Tax Revenue:	X1.2777
Net School District Tax Benefit from DPM	$288,600

State of California

Virtually all of the incremental sales tax revenues attributable to the introduction of the DPM System represent intra-State transfers insofar as the State of California is concerned; i.e., the bulk of additional retail activity in the CBD represents a transfer of purchases which would have been made elsewhere in the State. The two exceptions are: (1) the one-time State revenues derived from sales tax on supplies and materials purchased in California as part of the DPM construction program and (2) the State's continuing share of CBD retail expenditures made by the increased number of convention visitors attributed to the DPM who would otherwise have attended conventions outside California.

The former consists of the State's share of the tax levies on an estimated $24 million of in-State construction material purchases. At the current State tax rate of 4.75%, this totals some $1,140,000. The latter is estimated to be $100,168 in 1990 and at a cumulative total of $500,000 for the 1978-1990 period. This is derived as follows:

DPM-Induced 1990 Retail Sales to Hotel Guests (as per Section IV-221.24)	$26,360,000
Estimated Proportion of Hotel Guests Derived From Conventions/Groups	X.40
DPM-Induced 1990 Retail Sales From Convention/ Group Visitors	$10,544,000
Proportion of Convention/Group Sales Which Represent State Increment	X.20
	$ 2,108,800
State Sales Tax Rate	X.0475
Net Incremental Tax Revenues to California	$ 100,168

IV-232 MINOR OPERATIONAL IMPACTS ON SOCIOECONOMIC ENVIRONMENT: Safety and Security

When the DPM system becomes operational, personal safety and security will be of major concern to patrons of the system. Design specifications are being formulated which attempt to minimize the potential for mishap, through security staff, audio-visual communication devices, visual surveillance by closed-circuit television, and system lighting and vehicle design to make all parts of the system highly visible.

IV-240 OPERATIONAL IMPACTS ON TRANSPORTATION
IV-241 MAJOR OPERATIONAL IMPACTS ON TRANSPORTATION REGIONAL, CBD, AND CORRIDOR SERVICE

The DPM will have a significant impact on the level of transportation service in the downtown area. DPM travel times and other service characteristics are discussed in section II-300.

The DPM will have a negligible impact on transportation facilities outside the downtown area. But the DPM will continue to be an important consideration in planning for the downtown portions of RTD and municipal bus lines, the Rapid Transit Starter Line, and the Freeway Transit Program.

To a large degree, the impacts of the DPM on transportation service will take the form of decisions and cooperative agreements by participating agencies, including CRA, SCRTD, Caltrans--the primary goal being to develop a well-integrated circulation/distribution system for downtown Los Angeles. Much progress has already been made, for example, in integrating the plans for the El Monte Busway Extension and the designs for the Union Station Bus/DPM terminal. (See section II-254 for a description of the proposed multimodal terminal).

In response to the DPM, decisions will be made regarding the location and frequencies of downtown bus routes, including the minibus line. SCRTD has worked closely with CRA in an attempt to anticipate the types of changes in bus service that would be beneficial to all concerned.

The purpose of the following sections is to describe potential changes to the transportation system, and to discuss the effects of those changes on travel patterns in the downtown area.

SENSITIVITY ANALYSIS--IMPACTS ON TRANSPORTATION IN THE STUDY AREA

A transportation impact analysis has been conducted for three alternative 1990 scenarios. The scenarios--labeled "TSM", "Freeway Transit", and "Starter Line"--are based on the various elements of the Regional Transit Development Program. (An overview of the RTDP can be found in the SCAG Draft 1978 Regional Transportation Plan). Assumptions regarding levels of transit service were first carefully defined for each scenario, and then put into a series of demand models for predicting mode choices within the CBD. (A complete description of the demand models is contained in Models and Estimates of Los Angeles DPM Demand, Cambridge Systematics, Inc. 1978).

In all cases, it was assumed that DPM headways would be 1.5 minutes in the p.m. peak hour, and the DPM fare would be 15¢ per ride (in 1978 dollars). Travel times on the DPM are shown in Table II-31B.

Assumptions have been made about the location of RTD bus stops, frequencies of service, bus fares, transfers, etc. Nearly all of the assumptions about 1990 bus service were developed by SCRTD staff, in support of the CRA modeling effort. These assumptions, however, do not necessarily reflect the official policies of the SCRTD. Major assumptions for the three scenarios are listed below:

TSM

This scenario assumes an 11% increase in local bus frequencies by 1990 relative to present service levels, plus a 30% increase in express bus frequencies.

Freeway Transit

This scenario includes the Caltrans Freeway Transit Program. Ten different freeway routes, shown in Figure IV-24A, would serve the CBD with 5-minute headways during the peak hours. Existing freeway flyers are assumed to operate also, but at 1978 service levels. Local bus frequencies are assumed to be the same as in the TSM case.

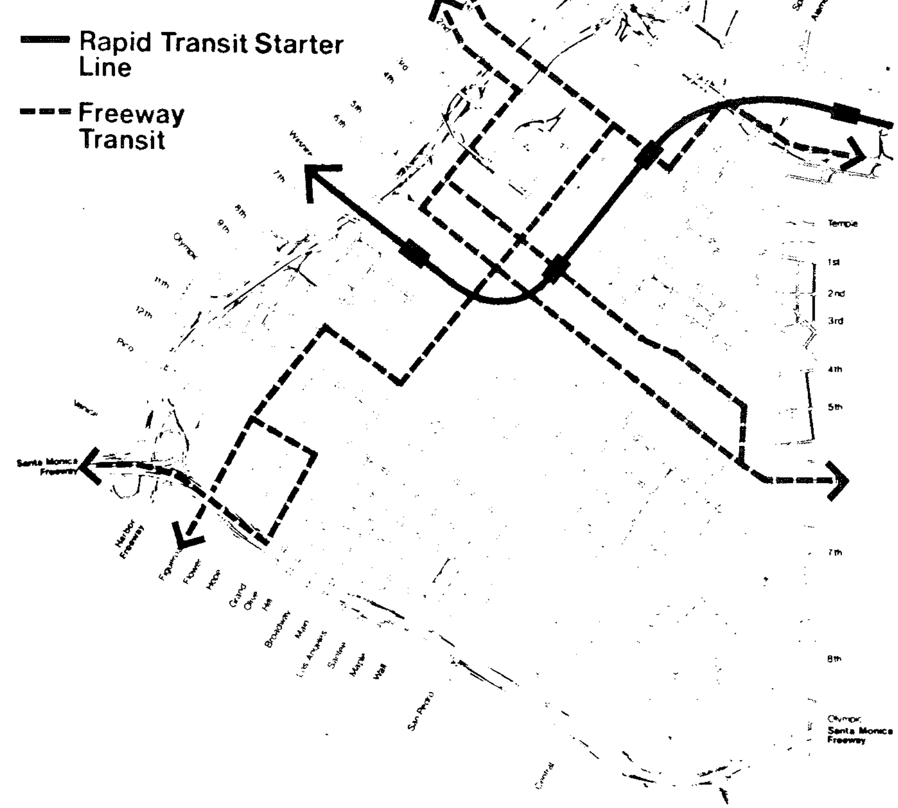
Starter Line

This scenario includes the Wilshire/La Brea alignment of the Rapid Transit Starter Line and the Freeway Transit Program--with the exception of the Hollywood Busway. Local and express bus frequencies have been reduced, especially on the west side. Rapid transit stations were assumed to be located at 7th and Flower, 5th and Broadway, 1st and Broadway and Union Station (see Figure IV-24A). Headways for the rail line were assumed to be four minutes in the peak hour.

IV-241.1 Impacts on Bus Service

Under each scenario it was assumed that a certain number of buses would be "intercepted" at the Convention Center and at Union Station. An example of an intercepted bus would be an inbound El Monte freeway flyer that would terminate its route at the Union Station Bus/DPM terminal. This is in contrast to a bus that would continue on downtown after stopping at Union Station. Similarly, an outbound freeway bus which begins its route at Union Station can also be called intercepted. For each scenario, Tables IV-24A and IV-24B indicate the number of buses serving each regional corridor in 1990, and the number of outbound buses that are assumed to be intercepted. Table IV-24A also shows the number of buses that would stop near DPM stations (excluding intercept buses). These buses are designated as "interface" .

FIGURE IV-24A
STARTER LINE AND FREEWAY TRANSIT ROUTES



Source: Southern California Rapid Transit District, 1978

TABLE IV-24A
TRANSIT SERVICE FROM CBD TO REGIONAL CORRIDORS
Buses Per Hour, Outbound, P.M. Peak Hour

Corridor	TSM (1990)			FREEWAY TRANSIT (1990)			STARTER LINE (1990)		
	Total Buses[1]	Interface[2]	Per Cent	Total Buses[1]	Interface[2]	Per Cent	Total Buses[1]	Interface[2]	Per Cent
1. Harbor Freeway	78	68	87.2	95	81	85.3	91	77	84.6
2. Santa Monica Freeway	83	70	84.3	101	85	84.2	89	74	83.0
3. Wilshire/Olympic	97	66	68.0	97	66	68.0	70	60	85.7
4. Hollywood Freeway	115	99	86.1	126	98	77.8	60	50	83.3
5. Golden State Freeway	57	46	80.7	63	53	84.1	53	34	64.2
6. Pasadena Freeway	60	60	100.0	55	55	100.0	54	54	100.0
7. San Bernadino Freeway	133	95	71.4	140	110	78.6	129	75	58.1
8. Santa Ana Freeway	75	14	18.7	75	14	18.7	70	12	17.1
9. South Central	48	24	50.0	48	24	50.0	45	23	51.1
TOTAL	746	542	72.7	800	586	73.3	661	459	69.4

Source: Community Redevelopment Agency and Southern California Rapid Transit District, June 1978.

[1] Total number of express and local buses serving the corridor.

[2] Number of buses which "interface" at least one of the following DPM stations: Union Station, Civic Center, 7th and Figueroa, Convention Center.

Note: PM Peak Hour is 4:30 - 5:30

TABLE IV-24B

TRANSIT SERVICE FROM CBD TO REGIONAL CORRIDORS
Buses Per Hour, Outbound, P.M. Peak Hour

Corridor	Null (Dec. 1977)		TSM (1990)			
	Local	Express	Local	Express	Intercept	%*
1. Harbor Freeway	42	25	46	32	6	18.8
2. Santa Monica Freeway	51	19	58	25	5	20.0
3. Wilshire/Olympic	83	0	97	0	0	0
4. Hollywood Freeway	57	40	62	53	0	0
5. Golden State Freeway	29	17	34	23	0	0
6. Pasadena Freeway	36	15	40	20	0	0
7. San Bernadino Freeway	58	52	64	69	32	46.3
8. Santa Ana Freeway	22	39	24	51	0	0
9. South Central	43	0	48	0	0	0
TOTAL	421	207	473	273	43	15.8

Source: Community Redevelopment Agency and Southern California Rapid Transit District, June 1978

Notes: Figures for express buses include intercept buses.
P.M. Peak Hour is 4:30 - 5:30.

* Intercept buses as % of express buses.

TABLE IV-24B (Continued)

TRANSIT SERVICE FROM CBD TO REGIONAL CORRIDORS
Buses per Hour, Outbound, P.M. Peak Hour

Corridor	Freeway Transit (1990)				Starter Line (1990)			
	Local	Express	Intercept	%*	Local	Express	Intercept	%*
1. Harbor Freeway	46	49	10	20.4	42	49	10	20.4
2. Santa Monica Freeway	58	43	8	18.6	46	43	8	18.6
3. Wilshire/Olympic	97	0	0	0	70	0	0	0
4. Hollywood Freeway	62	64	0	0	38	22	0	8
5. Golden State Freeway	34	29	0	0	28	25	0	0
6. Pasadena Freeway	40	15	0	0	39	15	0	0
7. San Bernadino Freeway	64	76	24	31.6	53	76	24	31.6
8. Santa Ana Freeway	24	51	0	0	19	51	0	0
9. South Central	48	0	0	0	45	0	0	0
TOTAL	473	327	42	12.8	380	281	42	13.5

Source: Community Redevelopment Agency and Southern California Rapid Transit District, June 1978

Notes: Figures for express buses include intercept buses.
P.M. Peak Hour is 4:30 - 5:30.

* Intercept buses as % of express buses.

As shown in Table IV-24B, it was assumed that about 43 outbound buses/hour would be intercepted. In the TSM case, this represents about 16% of all outbound express buses in the p.m. peak hour.

Table IV-24A shows that about 73% of all buses would stop close to at least one of four major DPM stations: Union Station, Civic Center, 7th and Figueroa, and the Convention Center. All corridors except the Santa Ana Freeway corridor show a high degree of interface between buses and the DPM. Only 17% to 19% of the Santa Ana buses would be routed close enough to DPM stations to allow transfers.

In the Freeway Transit case, it was assumed that there would be considerably more express bus service (327 outbound buses per hour, in contrast to 273 buses in the TSM case). It was also assumed, however, that all of the new Freeway Transit routes would be "through" routed; i.e., they would not be intercepted at the Convention Center or Union Station. The only buses that are assumed to be intercepted in the Freeway Transit case are 42 of the existing freeway flyer buses.

In all cases, some minor adjustments were made to certain bus routes in order to increase transfer opportunities at DPM stations. These adjustments usually involved adding stops, or shifting the route one block in order to connect with the DPM. Detailed maps of possible route and stop modifications have been developed by RTD staff.

In the p.m. peak hour, intercepting 43 outbound buses would result in a reduction of approximately 113 bus miles in the downtown. Inbound intercepts would save an additional 40 bus miles in the same time period. The total savings of 153 bus miles in the p.m. peak hour in 1990 represents a 9.7% reduction in bus miles in the study area. (A map of the study area is shown as Figure IV-21A).

Bus fares did not vary from one scenario to the next. It was assumed that the base RTD bus fare would be 40¢ (1978 dollars) and that bus transfers would be 10¢.

IV-241.2 Impacts on Minibus Service

The current minibus line (202) provides west side service between Occidental Center and Chinatown (see section III-400). SCRTD and CRA planners believe that it might be appropriate to shift the minibus line to the east side of the CBD after the DPM is built. Two alternate routing schemes are shown in Figure IV-24B. Alternate 2 was assumed for all three scenarios in the modeling analysis. The route operates between the Convention Center and Union Station via Broadway. Minibus headways were assumed to be three minutes in the p.m. peak hour and the fare was assumed to be 15¢ (in 1978 dollars).

IV-241.3 Impacts on Transit Patronage and Modal Shares

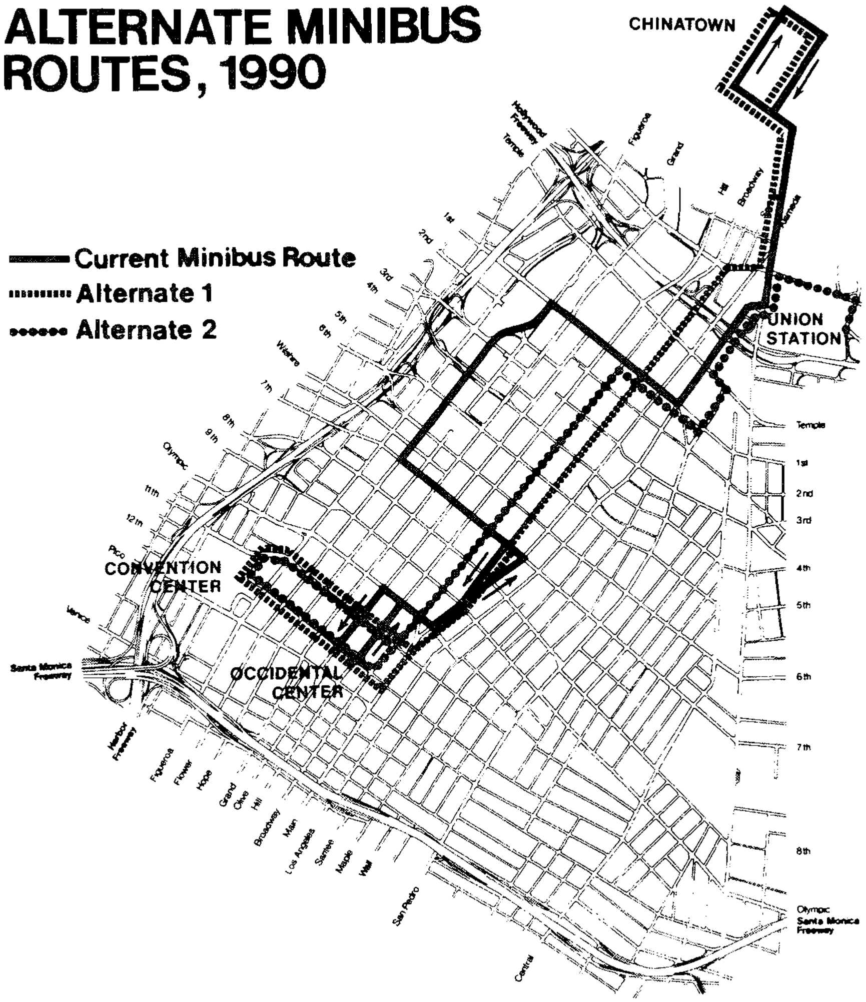
Once the assumptions about transit route location and levels of service were defined, all of the necessary data were coded into a series of computer models. The models predict mode choice for trips made within the CBD. Internal CBD trips can be divided into two major categories:

Distribution Trips

These are trips which have one end in the downtown, either an origin or destination; for example, a peak hour trip from office to home. The CRA demand models predict mode choice for the CBD portion of these trips.

FIGURE IV-24B

ALTERNATE MINIBUS ROUTES, 1990



Source: Community Redevelopment Agency and Southern California Rapid Transit District

Circulation Trips

These are trips which both begin and end in the downtown; for example, a noon hour trip from office to restaurant.

For distribution trips, available modes from CBD origin to parking lot or transit stop are assumed to be: walk, minibus, DPM, and RTD (bus and/or rail). For circulation trips, available modes are all of the above plus the automobile.

The results of the mode choice analysis for the TSM scenario are shown in Tables IV-24C and IV-24D. An estimated 4,151 people will board the DPM in the p.m. peak hour and then transfer to regional buses which will take them out of the downtown area. An additional 911 people will transfer to the DPM from inbound buses. Total bus/DPM transfers would amount to 5,062 in the p.m. peak hour. Approximately 2,382 people will ride the DPM to or from their parking lots in the p.m. peak hour. It is estimated that about 1,840 of these trips would be outbound.

Predictably, most of the trips to transit stops and parking lots are made on foot (82.1% and 95.5% respectively). The DPM attracts about 8.8% of all distribution trips by regional transit users and about 3.7% of all distribution trips by auto users. The average mode share for DPM in the p.m. peak hour is 6.1%

During the noon hour, 2,312 employees are predicted to board the DPM. These are primarily workers on their lunch hour. An additional 260 DPM trips are predicted for non-workers; i.e., shoppers, visitors, etc. The DPM share for noon hour trips by workers and non-workers is expected to be 5.4% and 1.3%, respectively. The average DPM share for noon hour circulation trips is 4.1%.

In the p.m. peak hour, it has been estimated that the DPM would attract 7,444 distribution trips, as shown in Table IV-24C. In the absence of the DPM, these trips would be made by a combination of walk, minibus, and RTD bus. Without the DPM, and with the minibus line on the west side, the average mode shares for 1990 distribution trips in the peak hour are 94.0% walk, 2.9% minibus, and 3.1% RTD bus. In the noon hour, mode shares for 1990 circulation trips without the DPM are 55.1% walk, 39.9% auto, 3.3% minibus, and 1.7% RTD bus.

If the center of Figueroa Street variation were selected, there would be a slight increase in DPM patronage, on the order of 1 to 2 percent. This increase would occur because of a slight decrease in travel time between stations on Figueroa and because the station at 5th Street would be more accessible.

The CBD demand models predict that both Starter Line and the Freeway Transit Program will have relatively insignificant impact on DPM patronage. As shown in Table IV-24E, daily DPM ridership for the Freeway Transit and Starter Line Scenarios would be 73,200 and 72,500 respectively. Internal mode shares for the two cases vary by only a few tenths of a percent from the TSM scenario shown in Table IV-24C.

In the p.m. peak hour a total of 300 to 350 transfers are expected between the Starter Line Station at 7th and Flower and the DPM station at 7th and Figueroa. The models predict that the vast majority of those passengers boarding the Starter Line at 7th and Flower will walk to the station. This station is strategically located, in that it is within walking distance of a great many employment opportunities in the financial district of Los Angeles. Thus, as shown in Table IV-24F, the Starter Line has a relatively insignificant effect on passenger volumes at DPM stations.

TABLE IV-24C
MODE SHARES FOR TSM SCENARIO
P.M. PEAK HOUR, 1990--DISTRIBUTION TRIPS

	Walk	Mini Bus	DPM	RTD Bus	TOTAL
Regional Transit Users	47,023 82.1%	1,985 3.5%	5,062* 8.8%	3,194 5.6%	57,264 100.0%
Regional Auto Users	62,145 95.5%	164 0.3%	2,382** 3.7%	341 0.5%	65,032 100.0%
Total Distribution Trips	109,168 89.3%	2,149 1.8%	7,444 6.1%	3,535 2.8%	122,296 100.0%

*Includes 4,151 DPM to bus transfers and 911 bus to DPM transfers.

**Includes 1,840 DPM to auto transfers and 542 auto to DPM transfers.

Source: Cambridge Systematics, Inc., 1978

TABLE IV-24D
MODE SHARES FOR TSM SCENARIO
NOON HOUR, 1990 - CIRCULATION TRIPS

Mode from CBD Origin to CBD Destination

	Walk	Auto	Mini-bus	DPM	RTD Bus	TOTAL
Workers	21,084 49.1%	17,456 40.7%	1,360 3.2%	2,312 5.4%	686 1.6%	42,898 100.0%
Non-Workers	13,059 64.4%	6,582 32.5%	114 0.6%	260 1.3%	251 1.2%	20,266 100.0%
TOTAL	34,143 54.1%	24,038 38.1%	1,474 2.3%	2,572 4.1%	937 1.4%	63,164 100.0%

Source: Cambridge Systematics, Inc., 1978

TABLE IV-24E
ESTIMATED DPM RIDERSHIP
1990

Distribution Trips	TSM	Freeway Transit	Starter Line
PM Peak Hour	7,444	7,546	7,440
Noon Hour	1,820	1,851	1,829
Daily*	46,688	47,486	46,923
Circulation Trips			
PM Peak Hour	1,777	1,777	1,762
Noon Hour	2,572	2,572	2,562
Daily*	25,720	25,720	25,620
Total Trips			
PM Peak Hour	9,221	9,323	9,202
Noon Hour	4,392	4,423	4,391
Daily*	72,408	73,206	72,543

* Defined as 6:00 a.m. to 12:00 midnight

Source: Cambridge Systematics, Inc., 1978

TABLE IV-24F
IMPACT OF STARTER LINE ON
DPM STATION VOLUMES*
P.M. PEAK HOUR, 1990

DPM Station	TSM Scenario	Starter Line Scenario	% Change
7th and Figueroa	1,970	2,068	+5.0
Civic Center	3,362	2,372	+0.4
Union Station	3,569	3,386	-5.1

Volumes are total ONS and OFFS

Source: Cambridge Systematics, Inc., 1978

IV-241.4 Impacts of a DPM Fare Increase

The DPM fare was assumed to be 15¢ (in 1978 dollars) for the three scenarios previously discussed. To test the effects of a fare increase, the TSM scenario was run again with a 25¢ DPM fare. The results are shown in Table IV-24G.

The models predict that daily DPM ridership would drop by 3.5% in response to the fare increase. The change in fare has a slightly greater impact on circulation trips than on distribution trips.

In general, the models indicate that demand for the DPM is relatively insensitive to an increase in fare. P.M. peak hour ridership drops by 3.0%. The 7,224 distribution trips in the p.m. peak hour are composed of 4,949 trips to or from transit stops, and 2,275 trips to/from parking lots, representing a 2.2% reduction in trips by regional transit users, and a 4.5% reduction in trips by auto users.

TABLE IV-24G
EFFECTS OF A DPM FARE INCREASE
ON DPM RIDERSHIP

	15¢ Fare	25¢ Fare	Percent Change
Distribution Trips			
P.M. Peak Hour	7,444	7,224	-3.0
Noon Hour	1,820	1,768	-2.9
Daily	46,688	45,363	-2.8
Circulation Trips			
P.M. Peak Hour	1,777	1,695	-4.6
Noon Hour	2,572	2,453	-4.6
Daily	25,720	24,530	-4.6
Total Trips			
P.M. Peak Hour	9,221	8,919	-3.3
Noon Hour	4,392	4,221	-3.9
Daily	72,408	69,893	-3.5

Source: Cambridge Systematics, Inc., 1978

IV-242 MINOR OPERATIONAL IMPACTS ON TRANSPORTATION: TRAFFIC

There are three types of impacts to traffic flow that would result from DPM operations. First, street capacity will be affected at specific locations due to the placement of DPM support columns. Second, during the peak periods, traffic volumes will be heavier in the general vicinity of the intercept parking facilities. Third, traffic volumes will be reduced somewhat because trips will be diverted from the automobile to the DPM.

Reductions in Street Capacity

With the DPM in place, the width of 5th Street between Grand Avenue and Figueroa Street would be reduced by approximately six feet. The intersections most affected are 5th Street at Flower Street and 5th Street at Figueroa Street. With the DPM in place, the right turn lanes at these intersections would be eliminated. Currently, these lanes have the important function of separating turning traffic from the through traffic destined to the southbound and northbound Harbor Freeway on ramps. The loss of capacity is somewhat mitigated by the diversion of auto trips to the DPM. However, under any possible scenario, congestion on 5th Street at Figueroa Street would be increased as a result of the DPM.

The DPM support columns are not expected to affect street capacity at any other location. Impacts of columns on pedestrians were analyzed in task 2.04.

Effects of Parking Demand for DPM Intercepts on the Adjacent Street System

As discussed in section II-340, 3,750 parking spaces would be provided for the DPM intercepts, 2,000 spaces at Union Station, and 1,750 spaces at the Convention Center. Each site would provide 750 spaces for carpools and 750 spaces for long-term parking. Union Station would also provide 500 short-term spaces and the Convention Center, 250 short-term spaces. Trips generated from these sites would have a significant impact on adjacent surface streets.

Union Station

Local street access would be located at driveways on Vignes Street at Ramirez Street and at speed ramps on Vignes Street north of Ramirez Street. Ramps to and from the El Monte Busway extension would be constructed for carpools and buses.

Today, the critical intersections exhibiting capacity restraints and congestion delays in the area are located along Alameda Street between Aliso Street/Arcadia Street and North Main Street and to the west. Specifically, the intersection of Alameda Street and Macy Street is most sensitive during the p.m. peak hour. The construction of the Plaza Technical Center and the DPM intercept would also impact the intersections of Macy Street and Vignes Street and Macy Street and Mission Road.

However, since most of the carpools would use the busway and motorists would access the speed ramps via right turning movements, it is anticipated that the street system would accommodate the increased demand without exceeding capacity under the following assumed conditions:

- o The westbound on-and-off ramps at Vignes Street will remain open.
- o The parking facility will be fully utilized.
- o 60 to 65% of trips from the facility will occur during the p.m. peak hour.
- o Direct connection to the El Monte Busway will be provided

and used by 90% of all carpools.

- Trips generated by the Plaza Technical Center are included, but no other development in the area has been considered.
- Trip distribution from the intersection of Vignes Street and Ramirez during the p.m. peak hour will have the following directional split: northbound--50%; southbound--35%; eastbound--15%.

Convention Center

Parking for this intercept would be located on the east side of Figueroa Street north of Pico Boulevard. Approximately 1,750 spaces would be provided.

In the morning peak, direct access to the Convention Center from the westbound Santa Monica Freeway and the northbound Harbor Freeway would be provided by off ramps to Pico Boulevard opposite Sentous Street. Southbound Harbor Freeway traffic would exit at a ramp labeled "Olympic Blvd." and proceed to 11th Street, which forms the northerly border of the Convention Center. These maneuvers would result in little interference with existing traffic and by themselves would have few impacts on the street system.

The eastbound Santa Monica Freeway currently has the most difficult access route to the intercept. Eastbound traffic has a choice of either taking the northbound Harbor Freeway and exiting at 9th Street or continuing east on the Santa Monica Freeway, exiting at Grand Avenue or Hoover Street and using surface streets to return to the intercept.

The Harbor Freeway option appears to be the worst because traffic exiting on 9th Street would have to traverse three lanes of traffic (carrying over 19,000 vehicles per day) to turn right at Figueroa Street, a difficult and dangerous series of lane changes. Traffic exiting at Grand Avenue or Hoover Street would encounter little opposition from traffic, but the maneuvering to the intercept would be time consuming.

This access difficulty would be mitigated by the construction of an off-ramp from the eastbound Santa Monica Freeway to join the other off-ramps opposite Sentous Street. The critical a.m. peak hour approach to the parking facility then would be eastbound Pico Boulevard at Figueroa Street. It is anticipated that a majority of the vehicles would be exiting the ramp from the northbound Harbor Freeway and the eastbound and westbound Santa Monica Freeway at Pico Boulevard, desiring to travel east to the intercept. Although the volume/capacity ratio only indicates a small capacity deficit, in reality, the high volume of left turns on Figueroa Street could result in a severe capacity problem.

The potential traffic difficulties for the p.m. peak hour would depend on the ability to minimize left turn exiting and to facilitate access to the freeway ramps at 11th Street and southbound Figueroa Street, which have been identified as the major demand routes.

The 44-foot width of 11th Street under the Harbor Freeway currently acts as a capacity constraint resulting in periods of severe congestion on this roadway. The addition of the intercept traffic would exacerbate this problem.

Diversion of Auto Trips to DPM

It is predicted that there will be sufficient demand to fill the intercept parking lots during the peak period (6:00-9:00 a.m.). This implies that 3,750 automobiles would be "intercepted" during the peak period, thus reducing traffic volumes on city streets. It is assumed that without the DPM and without the new parking structures, the 3,750 automobiles would drive further into downtown and park at other lots.

The CBD demand models predict that the average length of a trip made from the intercept parking lots to CBD destinations would be about 0.8 miles. It is assumed that without the DPM and without the intercept parking facilities, each of the 3,750 cars would have to travel an average of 0.8 miles further to reach a parking lot. This would imply that the DPM and the intercept parking facilities could result in a reduction of about 3,000 vehicle-miles-of-travel (VMT) in the downtown area during the 3-hour peak period.

It is also assumed that there would be a total of 1,500 spaces allocated to 3-person carpools and 1,500 to other all-day parkers. Each of these spaces are assumed to be used by one car during the day. The remaining 750 spaces are to be allocated to short-term parkers. It is assumed that the short-term spaces would be turned over 3 times a day.

As a result a daily total of 10,500 auto trips would not be made on city streets because of the intercept parking facilities (2 trips/day x # carpool spaces + 2 trips/day x # other all-day spaces + 6 trips/day x # short-term spaces).

Assuming a CBD trip length of 0.8 miles, the daily VMT reduction would be about 8,400. This represents a 2.6% reduction in daily VMT (a base case forecast for 1990 VMT within the study area is 318,437 per day).

The reduction of 8,400 VMT per day represents distribution trips only. It has been estimated that 45% of the DPM circulation trips during the noon hour represent diversions from the automobile. Assuming an average occupancy of 1.56(non-work trips) and an average circulation trip length of 1.2 miles, the DPM would result in a VMT savings of 900 miles during the noon hour. Over an entire day, VMT reduction could reach ten times this amount or about 9,000 miles, which represents a reduction of 2.8% of total downtown VMT.

The combined savings from distribution trips and circulation trips in 1990 would, therefore, be 17,400 auto VMT/day, a reduction of 5.4% from the base 1990 case.

Operational Impacts--Center of Figueroa Street Variation

The location of the DPM alignment in the center of Figueroa Street would result in reduced capacity, restricted visibility and limited driveway accessibility necessitated by the construction of a continuous 8 foot wide median from 3rd Street to 12th Street.

Construction of the median would result in widening Figueroa south of 6th Street. North of 6th Street the roadway would not be widened and construction of the median would result in an 8 foot reduction. This in turn would either eliminate a northbound through traffic lane between 3rd and 4th Streets or one of the double left turn lanes to the Harbor Freeway.

Between 5th and 6th Streets, the number of through and turning lanes would remain the same, although the width of the southbound lanes would be reduced. Except for this loss of lateral clearance, the roadway capacity would remain unchanged, including accessibility to the Harbor Freeway ramp at 5th Street, which is critical for efficient traffic operation. The continuous median would preclude left turns into or out of driveways along the remaining section of Figueroa Street, requiring a more circuitous travel pattern that would affect turning movements on Flower Street, the nearest parallel route, as well as intersecting east-west routes.

South of 6th Street to Olympic Boulevard the 12 foot sidewalks would be reduced 4 feet on each side of the street to provide a minimum roadway width of 56 feet, plus the 8 foot median. Previous studies contained in Task 4.12 have indicated that the 8 foot sidewalk width is sufficient for pedestrian flow in this area. The Department of Traffic has discussed two possible striping schemes for this section of roadway.

The first scheme alters the roadway striping from three lanes of traffic in each direction with no left turn channelization to two lanes of traffic in each direction with left turn lanes for: northbound traffic at 7th Street; northbound and southbound traffic at Wilshire Boulevard; and northbound traffic at 8th Street. This striping scheme would prohibit left turns for southbound traffic at 7th Street and for southbound traffic at 9th Street and, in general, would reduce theoretical roadway capacity from 15 to 20 percent (Highway Research Board, 1965).

This scheme would also require prohibiting all parking from 8th Street to Olympic Boulevard. Approximately 60 spaces used for local businesses would be affected. Off peak curbside parking would be reinstalled if the roadway were widened to major highway standards. Until that time, off-street facilities are sufficient to accommodate the increased demand, although some disruption to the businesses on Figueroa Street can be expected. However, the proposed striping scheme would remove left turning vehicles from through traffic and provide wider lanes, thereby improving the quality of traffic operation. Furthermore, the planned channelization would accommodate 3 lanes of traffic plus the left turn lanes if Figueroa Street were widened.

The other striping scheme would retain the existing roadway striping of three lanes of traffic in each direction during the peak periods. Curbside parking would therefore be retained between 8th Street and Olympic Boulevard from 9:00 a.m. to 4:00 p.m. However, left turns may be prohibited due to the restricted visibility caused by column locations. Future widening of the roadway would result in increased lane widths.

South of Olympic Boulevard the roadway is 82 feet wide and can accommodate the 8 foot median without any loss in the number of through or turning lanes.

As previously mentioned, a major consideration in discussing the operational impacts of the center of Figueroa Street alignment would be the restricted visibility to motorists caused by column locations wherever turns are permitted. The accident potential is especially increased in the first striping scheme when offset left turn lanes are installed, since the median would offset left turners 8 feet from the normal head-on position, reducing the angle of visibility downstream. Also, a Department of Traffic study has indicated that accident incidence is increased wherever fixed objects are installed within medians. As a result of that study, traffic signals and other objects have been removed from medians throughout the city. The DPM columns would increase the potential for fixed object accidents; at the same time the median could reduce midblock left turn accidents.

IV-243 CONFORMANCE TO REGIONAL AND LOCAL TRANSPORTATION PLANS

Section III-440 described the major transportation goals and policies that have been adopted by key regional and local agencies. The following plans were summarized in that section: the SCAG Regional Transportation Plan (1978), the Los Angeles Citywide Plan (1974), the Central City Community Plan (1974), the Redevelopment Plan for the Central Business District Redevelopment Project (1975), and the Bunker Hill Design for Development (1971).

All of these plans recognize the need for improved public transportation in the CBD, including rapid transit and "auxiliary" transit, or People Movers. They also call for additional parking capacity located at the periphery of downtown and other major developed areas. Reflecting a concern for environmental quality, the plans also support preferential treatment for high-occupancy vehicles, and other techniques for reducing vehicle-miles-of-travel. The construction of pedway systems is also encouraged.

The People Mover is a major component of SCAG's four-part Regional Transit Development Program. As such, the DPM becomes an integral part of a "balanced transportation system", involving coordinated service with buses, minibuses, automobiles, and rail transit. Plan conformance is therefore evident.

The project's conformance to adopted plans is clear with respect to policies on carpooling and peripheral parking. 3,750 peripheral parking spaces would be provided - 2,000 at Union Station and 1,750 at the Convention Center. In each of these facilities, 750 spaces would be reserved for carpools.

As described in Section IV-242 it is expected that the DPM will result in fewer vehicular miles of travel by both automobiles and buses, thus leading to reduced noise and emission levels in the downtown area. The project is therefore consistent with adopted transportation and environmental goals.

Conformance to adopted land use policies is discussed in Section IV-221.25 .

IV-300 PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The proposed project would result in some adverse environmental effects which cannot be completely avoided or mitigated. This applies to both the construction and operations phases of the project. It is the purpose of this section to summarize the nature and extent of these effects. A detailed description of individual impacts can be found in the corresponding impact sections of this report (See Chapter IV).

Most construction impacts will be temporary and limited to specific sites in the downtown area. Construction of the proposed project would result in:

- o the displacement of three businesses employing about 20-30 persons.
- o temporary increase in noise levels near construction sites.
- o reduced sidewalk and street capacity, increased traffic congestion, reduced travel speeds at certain locations.
- o presence of unsightly construction equipment, contributing to a general sense of disorder.
- o constraints on emergency vehicle access.
- o increased risk of traffic accidents
- o reduced accessibility to some residences and businesses along the proposed route, resulting in minor losses in retail sales.
- o a minor increase in solid waste from the construction program.
- o a minor increase in air pollution from construction vehicles.
- o removal of several mature trees, and the pruning or replacement of other trees and shrubs.

Selection of the center of Figueroa variation could increase the magnitude of these effects, particularly the traffic and congestion impacts associated with construction.

DPM operations would also result in some unavoidable adverse environmental impacts, including:

- o possible view obstructions and other visual incompatibilities due to the placement of the DPM guideway and stations.
- o increased traffic congestion in the general vicinity of the intercept parking sites.
- o minor increase in carbon monoxide emissions near the intercept parking facilities.
- o a slight increase in the demand for electrical energy.
- o potential for limiting emergency access and egress from certain buildings due to placement of the guideway.
- o acquisition of small amounts of open space and park land for right of way.

Selection of the center of Figueroa variation could intensify the potential negative visual impacts in some areas. It could also worsen traffic-related effects, including congestion, travel speeds, and accident potential. There would be more congestion and a higher accident potential than with the west side of Figueroa alignment.

IV-400 CUMULATIVE IMPACTS

This section includes a brief discussion of possible environmental effects of the project which are individually limited, but cumulatively may be considerable, when viewed in connection with the effects of past projects, other current projects, and probable future projects.

Other major projects within the DPM Corridor have been included in the description of the setting (Chapter III) and assumed in the discussions of construction impacts (Section IV-100) or operational impacts (Section IV-200). In the discussion of operational impacts, a distinction is made (where appropriate) between the baseline 1990 condition without the DPM and the development that would be induced by the DPM.

There are three other major transportation projects that would have important effects on travel patterns in the Los Angeles region. These are the TSM (Transportation Systems Management), Freeway Transit, and Starter Line projects, which, when combined with the DPM, make up the Four-Part Regional Transit Development Program (RTDP). The transportation impact of the RTDP as a whole is discussed in Sections IV-240. There it is shown that while the Starter Line and Freeway Transit routes may have a major impact on regional transportation patterns, they would not significantly affect mode choice for internal CBD trips. There is no significant difference in DPM patronage among the TSM, Freeway Transit, and Starter Line scenarios. This is partly because the Freeway Transit routes would operate with boarding restrictions; that is, a person could board a Freeway Transit bus in downtown only if his destination were outside the CBD. Consequently, Freeway Transit routes would be "through-routed", and therefore would not be intercepted at the Convention Center or Union Station. (Clearly, if some were intercepted, the DPM share of internal CBD trips would increase.)

Thus, from a transportation standpoint, the Freeway Transit and Starter Line projects will not have a considerable impact on travel patterns within downtown Los Angeles. In turn, the DPM, with its circulation and distribution functions, would complement the regional line haul service of the Freeway Transit and Starter Line Programs.

There are no differences between the west side of Figueora Street alignment and the center of Figueora Street variation with respect to cumulative impacts.

V

CHAPTER

V. MEASURES TO REDUCE ENERGY CONSUMPTION

As described in Section IV, the DPM will consume approximately 19 million KWH of electrical energy during the 1990 operating year. This represents about .02 percent of the projected 1990 demand for electricity from the City of Los Angeles Department of Water and Power.

A number of energy-conserving features have been integrated into the design of the system. Several of these features are made possible by the mild Southern California climate. For example, all stations will be open to the air, with the exception of the Bunker Hill Station, which will be underground. This means that air conditioning, heating, and ventilation will not be required. (The Bunker Hill Station will be ventilated, but not air conditioned.)

Since the stations will be open, the availability of sunlight will keep artificial lighting requirements to a minimum. For nighttime service, energy consumption will be kept low by the use of high-efficiency lighting.

The availability of natural sunlight also makes solar heating possible. Solar power will be studied for the water heating system in the maintenance building during the final design. It is estimated that this could save approximately twenty percent of the 525,000 KWH required for the maintenance building.

The largest component of the DPM energy demand is traction power (See Table II-38A.) The DPM propulsion system will be designed to be as energy-efficient as is technically possible.

Traction energy consumption is directly related to the number of vehicle miles traveled. The DPM will have a flexible operating plan, in which headways and train consists can be modified in response to changing ridership levels over the course of the day. This flexibility will reduce DPM vehicle miles of travel, keeping energy consumption to a minimum.

Another potential energy saving feature is "regenerative braking", which involves recapturing propulsion energy as the train decelerates. Essentially, the braking system can be used to generate additional power, which is stored and used for propulsion. This technology requires further testing before it can be considered feasible for near-term implementation. If it can be demonstrated that regenerative braking is technically and financially feasible, then it will be given serious consideration in the Los Angeles DPM program.

Since the DPM will be electrically powered, there is always the opportunity to conserve energy at the source-the power plant. Generating plants, on the average, have an efficiency rating of 33 percent; that is, for every 3 BTUs of fuel consumed, one BTU of electricity is generated. Energy for power plants can potentially be conserved by the use of alternate fuels and by improved technology. As the energy efficiency of the plants improves, so will the energy efficiency of the DPM.

CHAPTER VI

VI-100 THE RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The distinction between short- and long-term effects of the DPM is largely the distinction between its construction and operation. Short-term effects are primarily confined to the 39-month estimated construction schedule, whereas the effects of a more lasting nature occur as the system becomes operational. Throughout the environmental analysis, operational effects and conditions have been evaluated for the year 1990. This is sufficiently far into the future to assure that the long-term trends have been established.

The long-term effects of system operation will be to encourage implementation of the adopted plans for downtown Los Angeles, including the Central City Community Plan, the Central Business District Redevelopment Plan (particularly the South Park Plan), the Bunker Hill Redevelopment Plan, and the Little Tokyo Redevelopment Plan. The most significant long-term effects of DPM operation will be in the areas of economics, transportation, and aesthetics.

The long-range economic effects will be to encourage growth in previously undeveloped or underdeveloped areas. Growth will take the form of new building or increased use of older structures. The DPM system will thus encourage rehabilitation efforts currently underway.

The overall economic effect will be to reinforce the position of the central business district vis-a-vis the city and the region; to make downtown a place where more people live and work; and to increase the attraction of the downtown area to businesses, residents, and visitors. The long-term productivity of the area will thus be improved.

The major long-term transportation effect of DPM operation will be improved circulation/distribution service within downtown. Transit service will be faster, more predictable, and more reliable. Travel times will therefore be lower. The DPM system will encourage the use of peripheral parking facilities and will reduce the number of bus miles and auto miles of travel in the downtown area. Transit ridership as a whole will increase, and operating costs per rider will decrease. Thus, the downtown transportation system will be more productive.

Another important long-term effect of DPM operation is visual. The DPM guideway and stations will become an important architectural element in the downtown cityscape--an element that will influence the location and design of new buildings along the route. This is most likely in areas such as Figueroa Street, south of 7th, where the likelihood of new buildings replacing older structures is fairly high. Design opportunities for linking new structures visually and physically with the DPM will be a long-term influence on the shape and style of the cityscape. The visual effects will therefore contribute to the long-term productivity of the downtown area.

The treatment of short/long-term relationships presented in this Section differs from the type normally found in Environmental Impact Reports. Rather than using narrative, a summary chart has been prepared. This chart (Table VI-10A) identifies impact categories--the short-term effects which would be experienced during the DPM construction phase and the long-term effects which could be expected as the system becomes operational. This format clearly and concisely identifies short-term/long-term relationships of the DPM system.

TABLE VI-10A

THE RELATIONSHIP BETWEEN SHORT TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

	SHORT TERM EFFECTS OF CONSTRUCTION	LONG TERM EFFECTS OF OPERATION
Transportation: Regional transportation	o Slight decline in accessibility to certain CBD bus destinations o Some rerouting of CBD buses may be required o Some increase in internal CBD travel time	o Increased connection with other modes of travel o Improved CBD travel times for DPM and bus patrons o Enhanced capability of fostering carpools o Increased efficiency of busway service o Intercept concept fosters improved regional bus efficiency
Local traffic and transportation service	o Reduced capacity, slower speeds, and increased travel time for downtown streets affected by construction o Some rerouting of downtown trips may occur	o Reduced bus miles in downtown area o Potential for improving CBD bus and minibus service o Increased local transit ridership o Reduced need for additional CBD parking capacity o Reduced travel time for trips made in the CBD o Increased accessibility to CBD activity centers o Reduced auto trip miles in downtown area

TABLE VI-10A continued

	SHORT TERM EFFECTS OF CONSTRUCTION	LONG TERM EFFECTS OF OPERATION
Economic Effects: Regional economy	o Increased employment (1332 person-years) in construction trades o Increased sales to regional materials suppliers o Increased business activity resulting from multiplier effect	o Increase in permanent employment accruing to some regional residents o Increase in tax revenues for city, county, state, and federal jurisdictions o Increased employee spending induced by DPM results in regional multiplier effects
Local Economy	o Slight decline in local business activity resulting from disruption o Local employment increased in construction trades o CBD capture of some portion of construction worker spending o Three businesses displaced	o Increase of $90 million in annual retail sales o Increase of 100,000 sq. ft. in retail floor space o Increase in value of local land and improvements o Increases in payrolls and local per capita spending o Increases in sales, property, and hotel tax receipts o 8000 Additional employees in DPM corridor

TABLE VI-10A continued

Land Use Changes:	o Construction activities produce disruption which has minor negative effect on effective use of existing improvements along route	o Office space increased by 1.0-1.1 million sq. ft. o 700,000-800,000 sq. ft. of regional office headquarters induced o Accelerated development of several proposed projects o 160,000 hotel rooms per night demand increase annually o One additional 500-600 room hotel o Increased occupancy of existing hotels o Opportunities for physical link among buildings and activities o Additional 630 units of market rate housing in Bunker Hill by 1990 o Additional 1300-1500 units of market rate housing in South Park by 1990 o Increased absorption rate of housing in Bunker Hill and South Park o Two vacant parcels not available for alternative use

TABLE VI-10A continued

	SHORT TERM EFFECTS OF CONSTRUCTION	LONG TERM EFFECTS OF OPERATION
Effects on Local Residents:	o Some residential locations experience disruption, in terms of increased noise, visual intrusion, and reduced access (applies to both permanent residents and hotel guests)	o Additional residential units made available in Bunker Hill and South Park o Increased accessibility to activity centers o Additional 3300 permanent residents induced by 1990 o Change in demographic and social mix of down-town residents o Increased access for elderly and handicapped to special services at Bunker Hill elderly housing project o Barrier free system provides improved mobility to all elderly and handicapped residents
Visual and Aesthetics:	o Substantial visual intrusion from construction activities and equipment o Perceived sense of disorder	o Improved visual access to DPM corridor o Change in city scape - opportunity to use DPM as unifying architectural element as land uses are recycled o New vistas for DPM passengers o Some visual obstructions o Some visual incompatibilities

TABLE VI-10A — continued

	SHORT TERM EFFECTS OF CONSTRUCTION	LONG TERM EFFECTS OF OPERATION
Air Quality and Energy:	o Slight increase in emissions from construction equipment and worker's autos o Slight increase in fugitive dust o Minor energy consumption for manufacture and installation of DPM components	o Slight decrease in total daily emissions in study area o Carbon monoxide concentration slightly higher at parking intercepts o Slight increase in overall energy demand o DPM provides for flexible energy source, should shortages require shift to alternative fuel
Noise and Vibration:	o Significant increases in perceived noise levels during certain times of the day o Noise levels at sensitive receptors exceeding recommended maximum levels o Vibration not expected to be a problem	o Very minor decrease in ambient noise levels o No vibration impacts
Archaeological and Historic Sites:	o Potential for disturbing archaeological remains if they exist o Visual obstruction of certain historic sites	o Right of way required in vicinity of some potential landmarks o Partial view obstruction of some buildings o Increased visibility and new views of some sites o Increased accessibility to some sites

TABLE VI-10A concluded

	SHORT TERM EFFECTS OF CONSTRUCTION	LONG TERM EFFECTS OF OPERATION
Other Local Conditions: Community services	o Possible impedance to emergency vehicles	o Additional police service required. Some fire access problems
Parks and open space	o Some visual, noise and access problems	o Increased accessibility. Some visual intrusion
Safety and security	o Increased vehicular accident potential	o Minor increase in opportunity for crimes. Improved accident safety for DPM patrons
Vegetation and wildlife	o Some disturbance of plant life and annual habitats	o Additional tree and shrub plantings

VI-110 IMPACTS THAT NARROW THE RANGE OF BENEFICIAL USES OR POSE LONG-TERM RISKS TO HEALTH OR SAFETY

Impacts that narrow the range of beneficial uses are those involving the commitments of land, materials, and funding for the proposed project. Insofar as these resources are committed to the implementation of the DPM, they would not be available for other uses. Alternative uses of the project site are discussed in Section VII-130 and irreversible commitments of resources are discussed in Section VI-200. Funding that would be committed to this project by local and state agencies would not be available for other projects; however the federal funding for this project is committed by Congressional mandate to demonstrating people mover technology. If not used in Los Angeles, it would most likely be used for a people mover somewhere else.

The overall impact of this project would be to widen the range of beneficial uses of land and other resources in the long-urbanized core of downtown Los Angeles. Redevelopment of vacant parcels, more productive use of underutilized buildings or land, and a general intensification of urban uses in an area designed for those uses are the projected long-range effects of the project.

Operation of the system is not expected to pose long-term risks to health or safety. Safety mechanisms built into the project are described in Section II-360; safety and security impacts are discussed in Section IV-232.

VI-120 WHY THE PROJECT IS JUSTIFIED NOW RATHER THAN RESERVING OPTIONS FOR ALTERNATIVES THAT COULD BE FEASIBLE IN THE FUTURE

The proposed project would be part of a federally mandated demonstration program to assess the feasibility of downtown people movers to improve urban circulation/distribution systems. In that respect the proposed project represents an alternative whose feasibility has been demonstrated on limited basis in the past and which will be demonstrated for wider application if this project were implemented. The technology analysis reported in Section VII-200 identifies other technological alternatives that could be feasible in the future, and discusses why they were rejected for application for this project.

If the project were not implemented now, few options would be reserved and several would be lost. Postponing the project would result in narrowing the range of options for federal funding, joint development, and private sector contributions to operating costs. The impacts of postponing the project are discussed in more detail in section VII-140.

VI-200 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The development and construction of a people mover system in downtown Los Angeles represents the commitment of various types of resources by several levels of government and portions of the private sector. To the extent that these resources cannot be readily renewed, their commitment may be considered irretrievable. To the extent that the use of these resources results in a perceived permanent addition to the downtown, the commitment of these resources are irreversible. Neither term is entirely appropriate, however, because permanency is a relative term, and hence resources once committed may at least be partially recycled to other uses at some point in the future. Nevertheless, a commitment of some resources is required by the project, and it is the purpose of this section to briefly identify such commitments.

VI-210 LAND

A substantial portion of the proposed DPM system will be constructed in public rights of way, primarily some portions of the downtown street system. However, the taking of privately-owned land would be required for intercept facilities in the vicinity of the Convention Center and Union Station. Also, the use of a portion of certain other privately owned property would be required for guideway or station uses along the route. The proposed project therefore requires the commitment of a resource which is becoming more scarce, in a general sense. However, the use of land in a highly urbanized downtown area also represents the latest in a series of reuses. It may therefore be considered as part of the recycling process which affects all urbanized land.

VI-220 MONEY

The capital which would be committed to the construction of the proposed project cannot be retrieved. Although this commitment is substantial, the resulting public service produces benefits in terms of expanded employment, increased mobility for users of downtown, improved travel times for trips with downtown destinations, and monetary benefits in terms of increased local spending and tax revenues.

VI-230 CONSTRUCTION MATERIALS

Materials such as concrete aggregate, cement, lumber, steel, and fabricated metals are all resources that would be irretrievably committed with the construction of the proposed project. Some materials would be produced locally and others would be produced elsewhere. Although these materials are not necessarily in abundance, their use is in quantities which will have little effect on their overall availability.

VI-240 MANPOWER

Labor which is expanded in the design and construction of the DPM cannot be recovered. However, the requirement for this labor is, in itself, a benefit to members of the local construction trades. Secondary local and regional economic benefits also result from this expenditure of labor.

VI-250 ENERGY

Energy consumed both during construction and operation of the DPM system constitutes an irretrievable commitment of resources. Energy required for construction will be a combination of electrical energy and energy derived from petroleum products. Energy used for system operation will be primarily electrical, supplied by the City of Los Angeles Department of Water and Power.

Energy used during construction would be partially expended locally and partially expended outside the region, for the manufacture and transportation of certain systems components. Recent experience with other forms of transportation systems has demonstrated that the energy used for construction, when compared with the energy used during a system's useful lifetime, can be as much as 20 percent of the total energy consumed by the system. According to energy estimates for DPM construction and operation, this would appear not to be the case, with DPM construction energy accounting for only 10 percent of total system energy consumed over a fifty-year lifetime.

The greatest portion of energy consumed by DPM operation is used for traction, or that power which directly operates the vehicles. Far lesser portions of total energy consumption are required for other elements of the system. This being the case, the consumption of operation energy bears a direct relationship to actual use of the system. It should also be recognized that the DPM is powered by electricity, which may be generated by various fuels. The system therefore has the flexibility to adapt to changing fuel supply conditions, such that future changes in the technology of electrical power generation can be easily accommodated by the system.

VI-300 GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION

The growth-inducing impacts of the proposed Los Angeles Downtown People Mover can be broadly defined as the net changes in land use, employment, population and taxes collected between the 1990 baseline projections (i.e. without the project) and the 1990 "DPM build case" projections (i.e. with the project.) These growth-inducing impacts can be categorized as direct and indirect.

Direct Effects

The direct, growth inducing effects of the DPM can be summarized as follows:

- o During the 39-month construction phase, approximately 1700 person years of employment would be required with a payroll of about $74 million.
- o The construction of the DPM would require the purchase of about $68 million of materials and supplies.
- o The operation and maintenance of the DPM system would require the employment of 80 permanent workers and would generate an annual payroll of $2.6 million.
- o In terms of land use, the construction of the DPM would require the removal of three businesses, a parking lot and the use of a vacant lot on South Figueroa east of the Convention Center. It will also preempt the use of land dedicated to DPM stations along the route (see Section IV-121.2).

Indirect Effects

Although the direct growth-inducing effects of constructing and operating the DPM are expected to be minor, the indirect effects are expected to be substantial. The indirect effects of the DPM on land use, employment, population and taxes collected are discussed in Section VI-310 which follows; the indirect effects of the construction phase will be discussed in Section VI-320.

VI-310 INDIRECT EFFECTS OF THE DPM ON CBD LAND USE, EMPLOYMENT, POPULATION AND TAXES COLLECTED

It is anticipated that the implementation of the DPM would result in incremental changes in land use and retail sales. These changes are expected to take the form of (1) differences in the rate, level, timing, and geographic distribution; (2) the continuing viability and economic activity of existing facilities. These changes, in turn, will translate into increases in taxes accruing to various city, county and state taxing jurisdictions, and increased employment and population levels in the CBD. It should be noted that transit improvements are rarely sufficient in and of themselves to cause more than minimal increases in economic activity. Rather, such transportation improvements are one of many factors such as long-run economic trends, land availability, public policy and plans, image and financing practices that determine the course of urban development.

Land uses most susceptible to changes because of DPM implementation are office, hotel, residential and retail uses. These changes will be concentrated within the DPM corridor, defined as the 5-minute "walkshed" or access area from individual DPM stations (see Section IV-000). Table VI-31A provides a summary of the expected DPM growth-inducing impacts on land use and retail activity.

In terms of 1990 baseline projections, the most substantial DPM-induced land use impact will be the addition of approximately 2,000 market-rate residential units in the DPM corridor. As described in Section IV-221.23, this increase is expected to occur in South Park and Bunker Hill areas. This addition to the market-rate CBD housing stock will create a shift towards more middle and upper-middle income in-city residents (see Section IV-231.1). This induced middle and

TABLE VI-31A
SUMMARY OF INDUCED LAND USE CHANGES IN DPM CORRIDOR

Type	DPM-Induced Demand	Resulting DPM Growth-Inducing Effect			EIR Section
Office	(1) 1.0 - 1.1 million sq. ft. increase in internally generated office demand	(1) 100,000 - 110,000 net sq. ft. absorbed in Olive/Hill area by 1985	(2) 600,000 gross sq.ft. constructed in Bunker Hill by 1985	(3) 400,000 gross sq. ft. constructed in Figueroa/Flower Street area south of 8th Street by 1990	IV-221.21
	(2) .7 - .8 million sq. ft. increase in demand for regional headquarters office space	(1) One .74 - .87 gross sq. ft. regional headquarters building built either in Bunker Hill or Figueroa/Flower Street area south of 8th Street			
Hotel	160,000 annual DPM-induced room night demand	(1) Construction of a 500-600 room Class A hotel at or near the Convention Center (about 400,000 sq. ft.)	(2) Higher occupancy rates Class A hotels in DPM corridor		IV-221.22
Residential	DPM-induced excess demand for 4,250-4,350 units versus excess demand under baseline for 2800-3000 units	(1) In Bunker Hill an additional 630 market-rate residential units by 1990	(2) In the Convention Center/South Park area, an additional 1300-1500 market-rate residential units by 1990	(3) Increased absorption rate of residential units	IV-221.23
Retail	Cumulative 1983-1990 incremental demand of $515 million; annual retail expenditure increase of $93 million over projected 1990 annual baseline of $312.6 million.				IV-221.24
	(1) Eating and drinking expenditure increase of about $34 million would result in: (a) an increase of approximately $9 - $9.5 million in gross sales for 1990 baseline restaurants.	(1) Eating and drinking establishments: (a) 13,000 sq. ft. added in Convention Center/South Park area. (b) 6,000 sq.ft. added at mixed use project (7th & Figueroa) (c) 7,500 sq.ft. added in Little Tokyo. (d) 6,000 sq.ft. added on Hill Street or in Pershing Square area.			

TABLE VI-31A
SUMMARY OF INDUCED LAND USE CHANGES IN DPM CORRIDOR

Type	DPM-Induced Demand	Resulting DPM Growth-Inducing Effect	EIR Section
	(b) creation of demand for 3,400 additional luncheon seats, about 1,100 additional dinner restaurant seats, and about 250 additional cocktail lounge seats.	(e) 20,000 sq.ft. added in Bunker Hill area.	IV-221.24
	(2) Convenience goods expenditure increase of about $9 million would result in: (a) an increase of $11.00 - $12.00 per square foot for 1990 baseline convenience stores. (b) creation of demand for 42,000 sq.ft. of convenience goods stores space by 1990.	(2) Convenience goods establishments: (a) at two terminal DPM stations, total of 22,000 sq.ft. of convenience goods space would be developed. (b) development of an additional 20,000 sq. ft. convenience goods space at other DPM stations.	
	(3) Shoppers goods expenditures increase of about $51 million would result in: (a) an increase of $28 - 30 million per square foot for 1990 baseline stores along the DPM route. (b) an increase of $6 - 7 per square foot in 1990 for older stores farther from the DPM stations. (c) a demand for an additional 104,000 sq.ft. of shoppers goods establishments by 1990.	(3) Shoppers goods establishments: (a) at mixed use project (7th and Figueroa), an increase of 25 - 30,000 sq.ft. of shoppers. (b) at two planned office towers in Bunker Hill, an increase of 20 - 30,000 sq.ft. each. (c) creation of about 20,000 sq. ft. in refurbished buildings in Pershing Square area. (d) development of automotive-oriented retail and service facilities at two terminal DPM stations.	

upper-middle income in-city population would represent a 200% increase over the 1975 middle and upper-middle income population (estimated to be about 1,000) and a 25% increase over the projected 1990 DPM corridor population (estimated at 12,000.) As discussed in Section IV-221.24, this projected increase in South Park and Bunker Hill population is called for in adopted land use plans for the Bunker Hill Redevelopment Project (rev. 1973), and the Redevelopment Plan for the Central Business District (1975); a description of the environmental impacts of this increase on CBD service systems and community services is contained in the Final Environmental Impact Report for the Bunker Hill Urban Renewal Project (1973) and in the Final Environmental Impact Report for the Proposed Central Business District Redevelopment Project (1975).

Office and hotel/service space is expected to increase about 7% over the projected 1990 DPM corridor baseline, resulting in a 7.6% and 10.7% increase in employment respectively for these market segments. Retail space is expected to increase about 3.5% over 1990 baseline projections for the DPM corridor; the resulting retail employment increase would be about 9%. Table VI-31B provides a summary of DPM growth-inducing impacts as compared with the DPM Corridor and CBD Study Area 1990 projections.

The DPM would have a favorable impact on the tax revenues of the City of Los Angeles, the County of Los Angeles, the Los Angeles County Unified School District and the State of California (see Section IV-231.4 for a more detailed discussion).As a result of the growth-inducing impacts of the DPM, the net 1990 annual DPM-induced increase to the city is expected to be $1.6 million (8.8% increase over 1990 baseline); the cumulative (1978-1990) net increase is expected to be $8.6 million (a 4.1% increase over baseline cumulative projections). The DPM-induced annual tax benefit to the county is projected at $251,000 for 1990; the cumulative benefit (1978-1990) is projected to be about $1.5 million. The Los Angeles County Unified School District is expected to receive an additional annual $288,600 in revenue in 1990 and a cumulative 1978-1990 increment of $1.6 million; the State of California, an estimated $100,000 in 1990 and a cumulative 1978-1990 total of $500,000. The State would also receive a one-time sales tax on supplies and materials purchased in-state for construction of the DPM, this is discussed in the next section. (Property taxes accruing to various taxing jurisdictions are based on Proposition 13 taxing regulations (see Section IV-231.4).

TABLE VI-31B
DPM-INDUCED GROWTH OVER 1990 BASELINE PROJECTIONS

LAND USE	1990 BASELINE DPM Corridor (000's)	CBD Study Area (000's)	1990 DPM-Induced Development (000's)	% Change: DPM Corridor	% Change: CBD Study Area	EIR Section
Office	26,019 sq.ft.	32,824 sq.ft.	1,800 sq.ft.	6.9%	5.5%	
Hotel/Service*	6,568 sq.ft.	7,893 sq.ft.	450 sq.ft.	6.9%	5.7%	
Retail	4,130 sq.ft.	6,410 sq.ft.	145 sq.ft.	3.5%	2.3%	IV-221.2
Residential	7,000 units	13,700 units	2,000 units	28.6%	14.6%	

*Includes restaurants

EMPLOYMENT						
Office	86,385	106,895	6,603	7.6%	6.2%	
Hotel/Service	8,480	11,520	909	10.7%	7.9%	IV-231.3
Retail	6,717	11,707	611	9.1%	5.2%	

POPULATION						
	12,000	20,000	2,500 - 3,300	25%	15%	IV-231.1

VI-320 INDIRECT EFFECTS OF THE DPM ON THE REGIONAL ECONOMY

Construction of any large transportation or public works project with a large proportion of federal funds provides an economic stimulus to the local economy. The dollar expenditures for local purchases of materials and labor/engineering represents "outside money" invested in the local economy. Based upon the assumptions outlined in Section IV-131.1, $79 million will be spent in the Los Angeles metropolitan region, $9 million outside of the region within California, and $37 million outside the State for a total of $125 million. The remainder -- an estimated $56 million -- would be spent on right-of-way acquisition and intercept facilities. For the purposes of estimating the regional economic effect of the Los Angeles DPM system, only $73.5 million (93% of $79 million) could be considered a "net" gain because of local (city and county) share funding requirements.

Based upon the analysis performed in Section IV-131.1, the direct, indirect and induced effects of DPM construction on the total Los Angeles regional economy were estimated to be $185 million; for the rest of the State of California, $22.5 million. Table VI-32A breaks out these effects by type of impact and by geographic area. The one-time tax on supplies and materials purchased in-state to construct the DPM is estimated to be about $1.1 million (see Section IV-231.4).

In terms of the direct, indirect and induced effects on new household income and employment, the DPM construction phase would generate approximately $113 million and 4400 jobs respectively in the Los Angeles region. Table VI-32B provides a summary of these effects.

TABLE VI-32A
TOTAL ECONOMIC IMPACT OF THE DPM
CONSTRUCTION EXPENDITURES: 1980-1984
($million)

Geographic Area	Direct Impact	Indirect and Induced Impact	Total Impact	Ratio: Indirect and Induced to Direct
Los Angeles Metropolitan Region	$74	$ 111	$185	1.5
Rest of State of California	9	13.5	22.5	1.5
TOTAL	$83	$124.5	$207.5	1.5

TABLE VI-32B
DIRECT, INDIRECT AND INDUCED EFFECTS OF
DPM CONSTRUCTION ON HOUSEHOLD INCOME AND
EMPLOYMENT IN THE LOS ANGELES REGION: 1980-1984

Economic Sector	Direct Effect	Indirect and Induced Effect	Total Effect	Ratio of Indirect and Induced to Direct
Household Income (salaries and wages in $million)	$47	$66	$113	1.4
Employment (person years)	1400	3000	4400	2.1

CHAPTER VII

VII-100 ALTERNATIVES TO THE PROPOSED ACTION

A number of alternatives have been studied in the course of the planning activities associated with this project. As noted in the planning history section (Chapter I), planning studies have covered a variety of ways of meeting the goal of improving the circulation/distribution system in downtown Los Angeles in order to meet the needs of the 1990 population and employment levels. The Community Redevelopment Agency has issued a number of reports that document these analyses. They are listed in the Technical Appendix under Phase I and Phase II studies. This chapter is organized as follows:

VII-100 Reasonable alternatives to the project or location of the project
- VII-110 Alternative means of meeting the basic objectives of the project
- VII-120 Alternative sites for the project
- VII-130 Alternative uses for the sites
- VII-140 No project, or postponing the project

VII-200 Alternatives that appeared reasonable on their face, but were eliminated after further analysis.

VII-300 Reasons for selecting the proposed project

VII-400 Alternatives that would lessen the environmental impacts of the proposed project

VII-110 ALTERNATIVE MEANS OF MEETING THE BASIC OBJECTIVES OF THE PROJECT

Chapter I of this report summarized the goals and objectives of the Central City Community Plan as well as the goals and objectives of the Community Redevelopment Agency's Circulation/Distribution Study. Based on these goals and objectives, the following conclusive statements can be made regarding the Program's basic objectives:

- o the proposed improvements should enable downtown growth to increase moderately, i.e., meet a 230,000 employment level.
- o the proposed improvements should be coordinated with regional improvements providing access to downtown.
- o the proposed improvements should make travel to, from, and within the study area more efficient.
- o the proposed improvements should provide increased accessibility to a range of downtown opportunities and provide a fair distribution of impact and opportunities among different groups within affected communities.
- o the proposed improvements should be financially feasible in terms of capital and operating costs. Negative economic impacts should be minimized and economic opportunities should be maximized.

There are reasonable system and project-level alternatives to the proposed project. The people mover project, as described in Chapter II, was developed in conjunction with an improved bus system. (The report, Moving People in Los Angeles, contains an evaluation assessment of this system alternative compared to the do-nothing and improved bus alternatives. The patronage analysis of the people mover with an improved bus system is described in Section IV-240.) At a systems level, one reasonable alternative could be an improvement of bus service in downtown but with no people mover. Additionally, at a project level, there are reasonable route alternatives that could be implemented. This Section summarizes studies that were conducted on alternatives to the proposed action.

VII-111 SYSTEMS LEVEL ALTERNATIVE

An improved bus system could be implemented to meet the transportation capacity needs of downtown. Strong public commitment to this improved regional access would reinforce downtown's growth trends, enabling a projected 230,000 employment level for 1990 to be realized. Additionally, the downtown bus improvements could be coordinated with regionwide improvements, thereby providing more service for travel to, and from, and within the study area. Service would be throughout the downtown area providing, to the extent possible, a distribution of service proportional to volumes of activity. However, as mentioned in Chapter III, Bunker Hill transit needs may not be fully served due to topographical constraints and street design limitations.

The Improved Bus System Alternative was designed during Phase II of the study. A review of experiences in other cities indicated that transit improvements exist in Minneapolis (Nicollet Mall), Sacramento (K Street), Chicago (State Street and 63rd--Halstead), Portland, Ore. (5th and 6th Streets), and Philadelphia (Chestnut Street). The type of improvements varies; some cities such as Portland and Seattle initiated fare free zones in downtown. In most cases design improvements incorporating information and shelter areas were implemented. In other cities, bus/pedestrian improvements have been implemented. In Providence, Rhode Island; Eugene, Oregon; Sacramento and Pomona, California, portions of streets have been closed to vehicular traffic, reserving the space exclusively for pedestrians.

Design of the Improved Bus Alternative drew from experiences in other cities. This alternative incorporates transit marketing policies and bus-related design improvements along Broadway, Flower, First, and Seventh Streets. Recent opposition of the Broadway merchants to a proposal designating portions of Broadway as bus/pedestrian only reconfirm strong public opposition to restricting auto travel on major downtown streets. Consequently, bus improvements designed for downtown concentrate primarily on sidewalk amenities related to bus operation. Figure VII-11A illustrates bus-related improvements along Seventh Street.

From an operational perspective, the Improved Bus Alternative was designed according to numerous criteria including: minimize bus turning movements; minimize passenger access time; minimize transfer and waiting times; optimize use of existing facilities; avoid excessive bus volumes on streets; support regional and local bus movements; improve circulation to and within the Bunker Hill area.

The Improved Bus Alternative requires an additional 385 buses resulting in approximately 1,800 regular freeway and local buses providing service to downtown from surrounding areas.

In the near-term, bus service increases could be allocated to Broadway, Seventh, First, and Flower Streets, reinforcing these streets as major downtown bus streets. Subsequently, service would be increased along Spring, Hill, Figueroa, and Sixth Streets. The size of the existing minibus fleet would be increased by about 35 percent. Figure VII-11B illustrates directional volumes of the Improved Bus Alternative, and Table VII-11A summarizes the characteristics of the Improved Bus Alternative.

FIGURE VII-11A

7 TH. ST. AS AN EXAMPLE OF THE IMPROVED BUS ALTERNATIVE

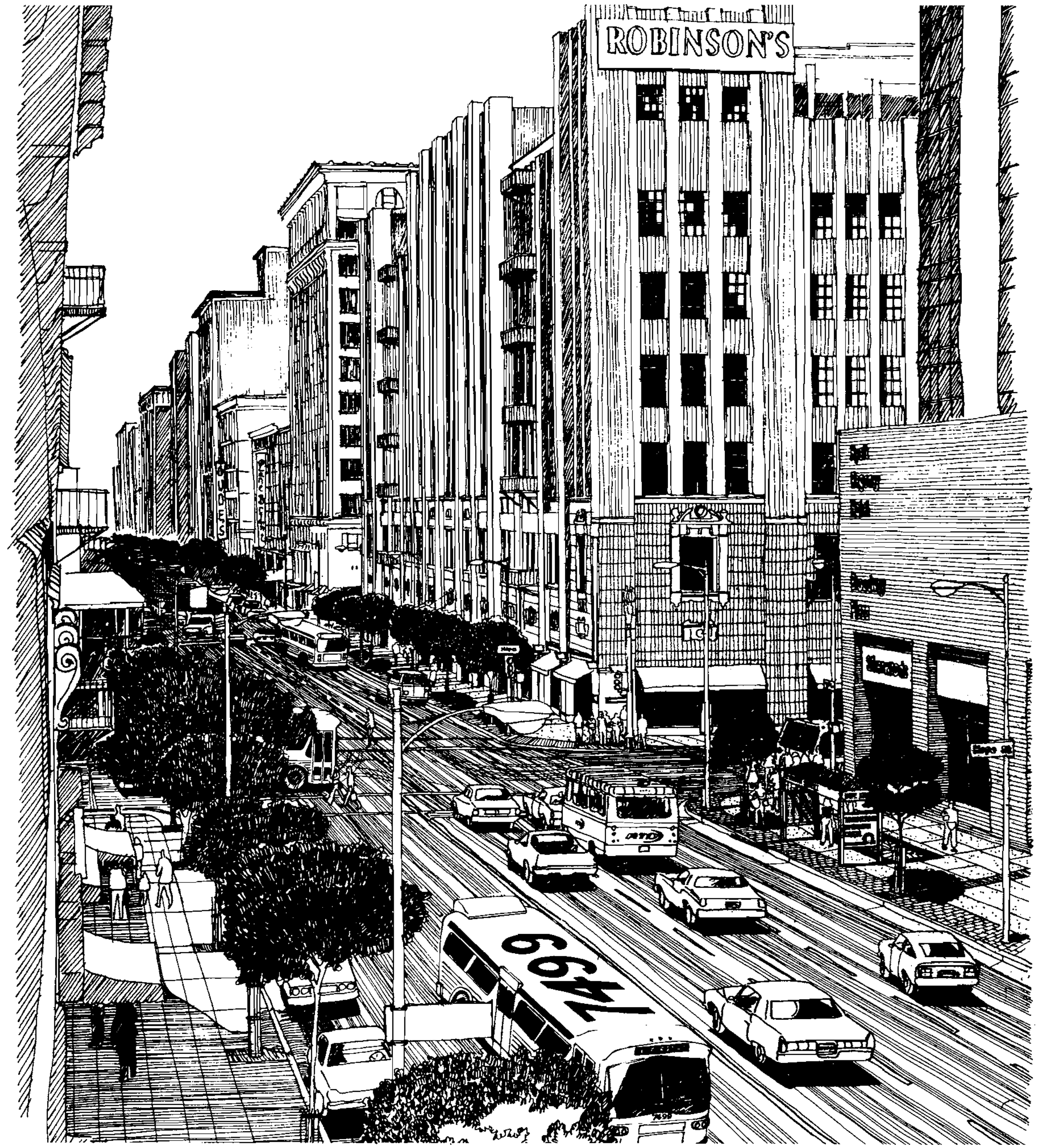
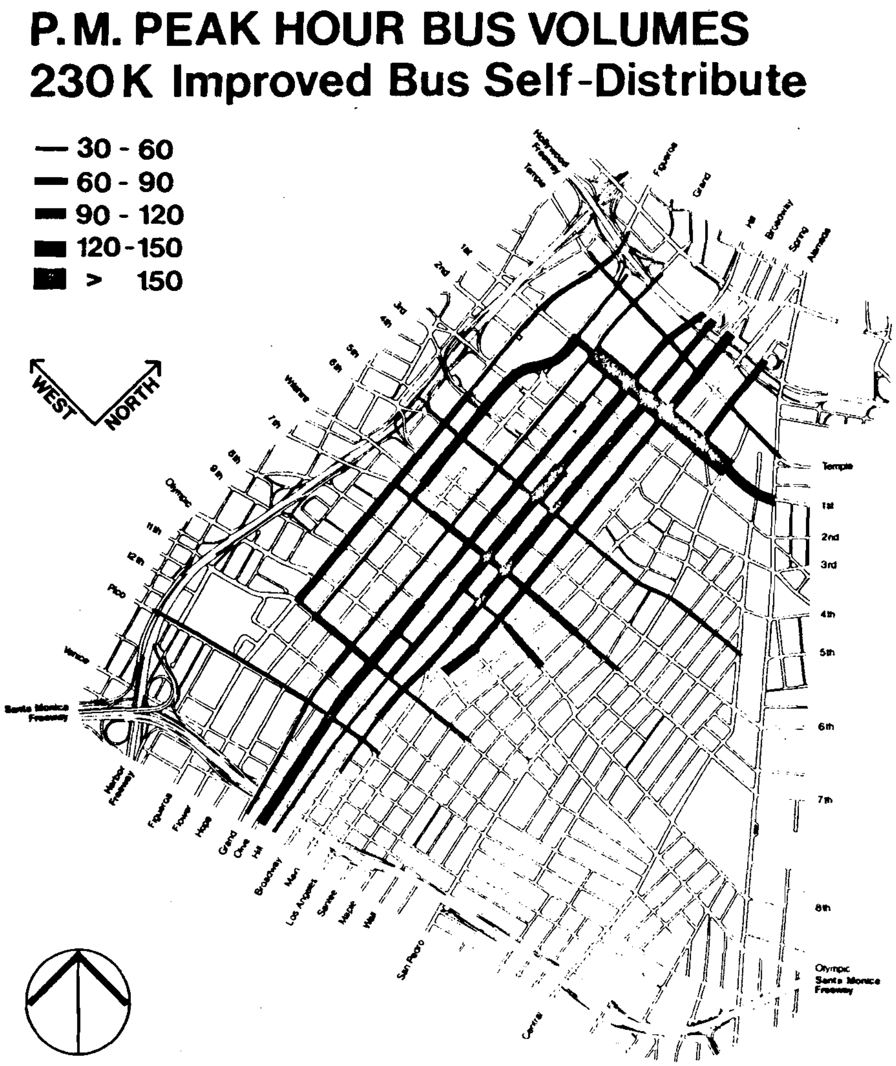
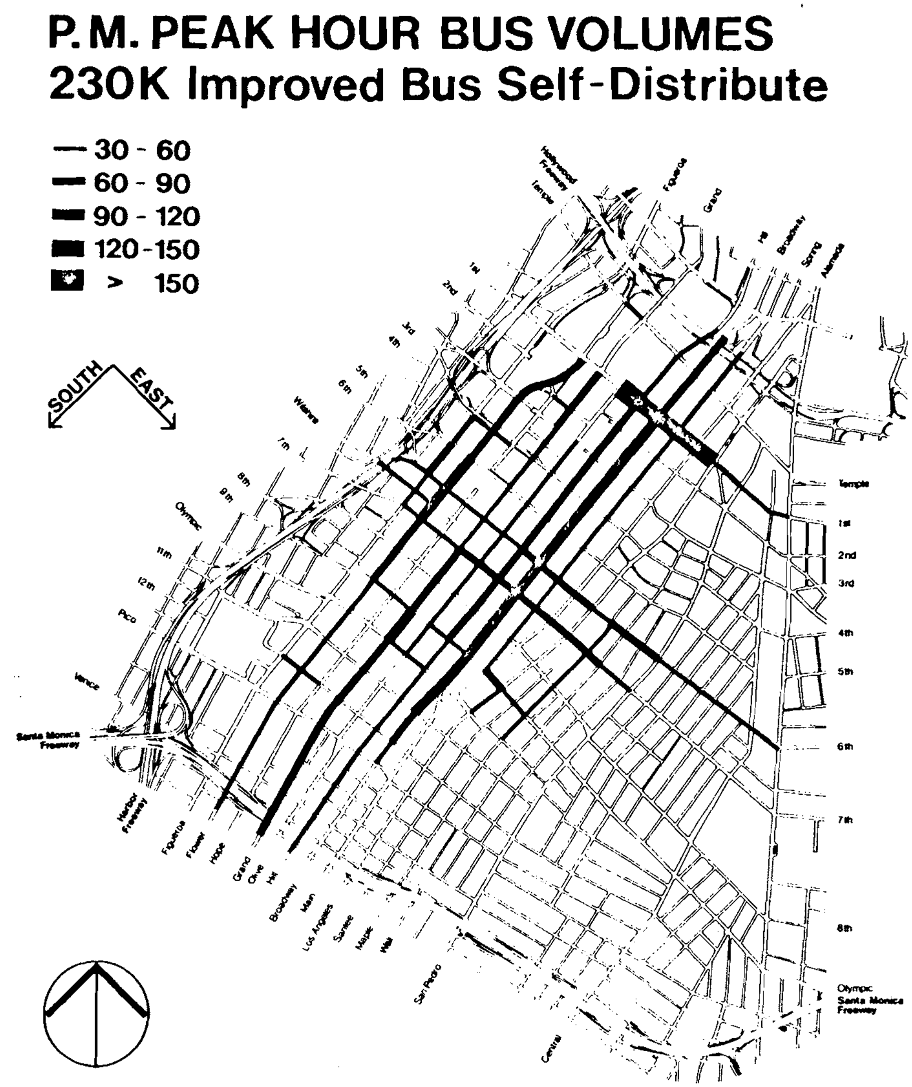


FIGURE VII-11B





Source: Community Redevelopment Agency, 1976.
Moving People in Los Angeles.

TABLE VII-11A

1990 CHARACTERISTICS OF THE IMPROVED BUS ALTERNATIVE

Number of Buses: 1800

Number of Minibuses: 50

Relation To El Monte Busway: This alternative assumes a self-distributing bus plan within downtown. Extension of the Busway would improve bus access to downtown from the San Gabriel Valley. However, the Improved Bus Alternative could be implemented whether or not the Busway was extended.

Fare: Bus 25¢, minibus 10¢ (these were the fares charged during the Phase II study period, 1975-76.)

Traffic Improvements: Minor to assist in turning movements.

Transit Marketing Information: Kiosks and other graphic aids would be placed conspicuously along Spring, Hill, Figueroa, and 6th Streets.

Bus/Pedestrian Design Improvements: Sidewalk improvements including benches, planting, and graphics would be implemented along Broadway, 1st, Flower, and 7th Streets.

Preferential Bus Lane: The Spring Street contraflow lane would remain in effect.

Local Transfer Point: Bus-to-bus transfers will continue to occur at major intersections throughout downtown. The downtown SCRTD terminal will remain the focal point for transfers.

Private Sector Funding: The successful "take the RTD to lunch" program wherein selected restaurants pay one way of a downtown round trip bus ride would be encouraged throughout the downtown area. Additionally, it is possible that the private sector could contribute to funding Bus/Pedestrian design improvements along major shopping areas.

TABLE VII-11A continued

P.M. Peak Hour Headway

Bus	1.3 minutes
Minibus	3.0 minutes

Daily Patronage

Distribution:	
Regional Bus	281,000
Auto/Park	457,000
Transfer to Minibus	17,000
Transfer to Local Bus	9,000
Total	764,000
Circulation:	
Minibus	14,000
Local Bus	18,000
Auto	198,000
Walk	321,000
Total	551,000

Capital Cost Above 1976-77 Level (1976 $)

Bus	$26,950,000
Minibus	520,000
Maintenance Facilities	13,000,000
Traffic Improvements	300,000
Urban Design Improvements	7,000,000
Total	$47,770,000

1990 Net Operating Costs Above 1976-77 Level (1976 $)

Bus	$1,840,000
Minibus	610,000
Total Increase	$2,450,000

This Improved Bus Alternative was analyzed according to performance and impact criteria. Tables VII-11B and C summarize the construction and operational impacts of the Improved Bus Alternative. Some of the major findings are reported here; Moving People in Los Angeles contains a more detailed analyses of the Improved Bus Alternative.

Compatibility with Regional Bus Service: This downtown bus system would be compatible with the regional bus system and would improve overall bus headways.

Traffic Congestion: The traffic conditions associated with the Improved Bus Alternative reflect an overall improvement in traffic flow given future growth trends. Figure VII-11C provides an illustration of these estimated traffic impacts.

Impact on Development: The Improved Bus Alternative would enable downtown to reach a 230,000 employment without any increase in congestion. However, it would not contribute significantly to reinforcing downtown growth.

Local Tax Revenues: Assuming tax rates in effect prior to enactment of Proposition 13, approximately an additional $3.0 million annually (in 1990) would be generated in downtown assuming an Improved Bus Alternative.

TABLE VII-11B

IMPROVED BUS ALTERNATIVE

Impact Summary: Construction

IMPACT CATEGORY	IMPACT AREA	MEASURE	DESCRIPTION
Air Quality	Project Site and Vicinity	Emissions, Dust	Minor adverse; partially mitigable
Noise & Vibration	Project Site and Vicinity	Legal standards/ health and annoyance criteria	Minor adverse: partially mitigable
Residential Disruption	Project Site and Vicinity	Dust, Noise, Dislocation, Access, etc.	No impact
Residential Displacement	Project Site and Vicinity	Removal of Residents	No impact
Business Disruption	Project Site and Vicinity	Dust, Noise, Access, etc.	Substantial adverse of a very short duration and mitigable
Business Displacement	Project Site and Vicinity	Removal of Businesses	None
Labor Force	Region, C/DS Study Area	Wages	Slight increases in wages due to urban design improvements
Materials Required	Region C/DS Study Area	Quantities	Construction materials committed without adverse impact
Traffic	Vicinity of Project Site	Congestion Disruption	No impact on vehicular traffic. Substantial adverse on pedestrian; partially mitigable
Community Services	Vicinity of Project Site	Access, Disruption, etc.	No impact
Historic Sites	Vicinity of Project Site	Access, Disruption, etc.	Five sites could be adversely impacted; partially mitigable
Visual and Aesthetics	Project Site and Vicinity	Perceived disorder	Minor adverse; partially mitigable
Energy Use	Region	Fuel consumption	Minor adverse; partially mitigable
Solid Waste	Region and Project Site	Cubic yards	Minor adverse: partially mitigable
Safety and Security	Project Site and Vicinity	Accidents	Minor adverse, partially mitigable
Topography, Geology, Soils	Project Site and Vicinity	Geologic and soil characteristics	No impact
Water Quality	Central Basin	Groundwater level and surface drainage	No impact

Source: CRA, 1977. Summary Environmental Impact Assessment and Responses to Issues

TABLE. VII-11C

IMPROVED BUS ALTERNATIVE

Impact Summary: Operation and Maintenance

IMPACT CATEGORY	IMPACT AREA	MEASURE	DESCRIPTION
Land Use	Region, C/DS Study Area	Central City Plan conformance	Minor beneficial; provision of increased capacity contributing minimally to achievement of land use objectives
Activity Centers	C/DS Study Area	Access, development opportunity	Minor beneficial; improvement of access among centers
Employment and its Distribution	Region, C/DS Study Area	Number and distribution of employees	Minor beneficial; assist in downtown's achievement of 230,000 employment
Business and Industry	Region, C/DS Study Area	Development and sales	Beneficial impacts on retail sales; $9.3 million annually in 1990 (1976 $)
Land, Property Values, Taxes	Region, C/DS Study Area	Dollars	Would provide incentive for business to locate in downtown
Transportation and Circulation	Region, C/DS Study Area	Congestion and travel time	Substantially increase supply of transportation services
Residential Disruption	Project Site and Vicinity	People disrupted	Would produce minor adverse noise levels that are partially mitigable
Residential Displacement	Project Site and Vicinity	People displaced	No
Noise	Selected Streets in C/DS Study Area	Legal standards/ health and annoyance criteria	Would have minor increases in noise levels along selected streets; partially mitigable
Parks and Open Space	C/DS Study Area	Access, etc.	Would improve access to open spaces in downtown
Historic Sites and Cultural Facilities	C/DS Study Area	Access, etc.	Would enhance visitation of historic sites
Visual and Aesthetics	C/DS Study Area	View obstruction, etc.	Volumes of 90+ buses per hour could have minor adverse visual impact on selected streets
Air Quality	Selected Streets in C/DS Study Area	Emissions	Minor negative impact
Energy Consumption	Region	Btu's	1990 energy assumed is 3,1135.5 x 10^6 Btu's
Seismic Conditions	DPM Route and Selected Streets	Richter/Mercalli	An earthquake could result in minor adverse impacts on operation
Municipal and Social Services	Region, C/DS Study Area	Access, etc.	Minor positive due to increased accessibility
Water Quality	Central Basin	Runoff	No impact
Vegetation and Wildlife	Project Site and Vicinity	Species affected	Landscaping would result in minor beneficial impacts
Topography, Geology, Soils	Project Site and Vicinity	Runoff, Erosion	No impact

* This is a summary of the material contained in the report

Source: CRA, 1977. <u>Summary Environmental Impact Assessment and Responses to Issues</u>

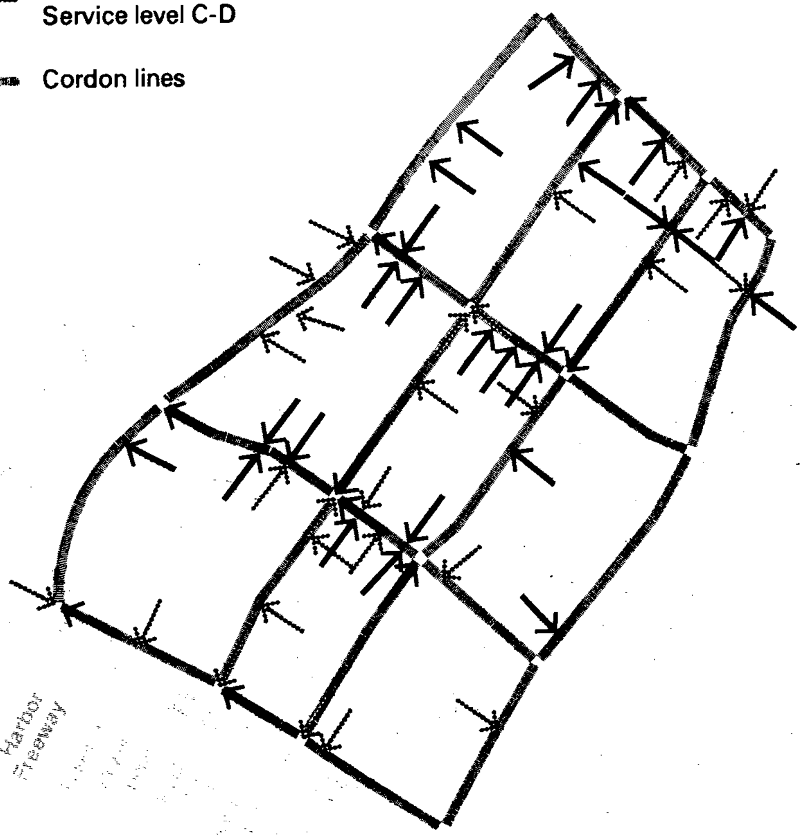
FIGURE VII-11C

TRAFFIC CONGESTION
Improved Bus Alternative
P.M. PEAK HOUR VOLUME/CAPACITY RATIO
(Capacity at Level of Service D)

← Over Capacity
Service level E

← At Capacity
Service level C-D

Cordon lines



Source: Community Redevelopment Agency, 1976. Moving People in Los Angeles.

Employment and Earnings: Because the Improved Bus Alternative is not a construction project, wages would be limited to drivers and maintenance staff associated with the function of the system.

Air Quality: The Improved Bus Alternative would tend to encourage somewhat greater use of the bus system, thus reducing the level of emissions. However, due to added auto usage resulting from downtown growth, the net effect would be minor.

Energy Consumption: The Improved Bus Alternative causes a slight modal shift from autos to buses, resulting in a small improvement in energy consumption.

Noise: Because the Improved Bus Alternative provides for the greatest increase in downtown bus operations, it would produce the most noise affecting downtown users.

Visual: The alternative would require an increased number of buses on the streets, and this would produce an intensification of the visual presence of bulky vehicles. However, this alternative includes preferential bus lanes and street improvements to accommodate some of the increase. In order to make this alternative functional, street improvements would include landscape elements and pedestrian amenities.

Economic Impact: Analysis indicated that there would be an annual increase in retail sales. However, these sales are due primarily to an increase in the number of employees shopping in the downtown area. During Preliminary Engineering studies, further assessment of the economic impact of an Improved Bus Alternative resulted in the following conclusion: The main value of the bus transit improvements would derive from a solid, long-range symbolic city commitment to transit priorities, rather than from the actual benefits to bus operation and bus users that might be achieved.

The impact of such transit and pedestrian preferences on surface streets will have a generally favorable environmental impact but only a limited economic impact. A small net increase in retail employment might be expected, but major developer commitments to office buildings or stores cannot be expected in the Los Angeles context.

The best potentials for such improvements appear to be mainly on the east side of LACBD, while the major development potentials are in Bunker Hill and along Flower and Figueroa Streets.

The history of transit-preference improvements in Southern California suggests that exclusive bus streets, which would reduce capacity for automobiles, will be approved only after thorough citizen participation and design compromises. See Section VII-330 for a further discussion of this system alternative.

VII-112 Project Level Alternatives

During preliminary engineering studies, route alternatives that could meet the basic objectives of the Program were identified. These route alternatives are illustrated in Figure VII-11D.

Each of these route alternatives meets the basic objectives of the Program. They would all represent a significant public sector commitment to improving downtown services and would reinforce downtown's growth trends. All variations of the route would utilize Convention Center and Union Station bus/parking facilities and in this respect would be coordinated with bus transit improvements. They are all within the same corridor (Section VII-120 discusses routes in alternative corridors) and so they would provide circulation/distribution services complementary to the current plan for regional transportation improvements. As in the case of the proposed project, they would make travel to, from, and within downtown more efficient. Any people mover project would be planned with a complementary bus system to ensure that all downtown activity centers would be served. All of the route alternatives provide good access to Bunker Hill, thus improving upon the levels of service associated with the Improved Bus Alternative. Each route alignment is financially feasible, results in positive economic impacts, and provides opportunities for the private sector to finance some of the operating costs.

When carefully assessed, however, there are differences among the route alternatives. An evaluation process reviewed each alternative according to performance, cost, and impact criteria. Differences that appeared to be significant include: access to activity centers; potential for design integration and private sector revenue; and capital costs. The following pages summarize a comparative assessment of route alternatives. Information in the summary Table VII-11D is presented according to service, impact, and financial measures. A more detailed documentation of this analysis is contained in the report, Route Refinement Analysis, CRA, March 1978. See Section VII-350 for a further discussion of route alignment options.

FIGURE VII-11D

ROUTE ALTERNATIVES TO THE PROPOSED PROJECT

Baseline A

ALIGNMENT PROPOSED AT COMPLETION OF PHASE II ALTERNATIVE ANALYSIS

Option B

FLOWER STREET (5th. Street to the Convention Center via Flower Street)

Option C

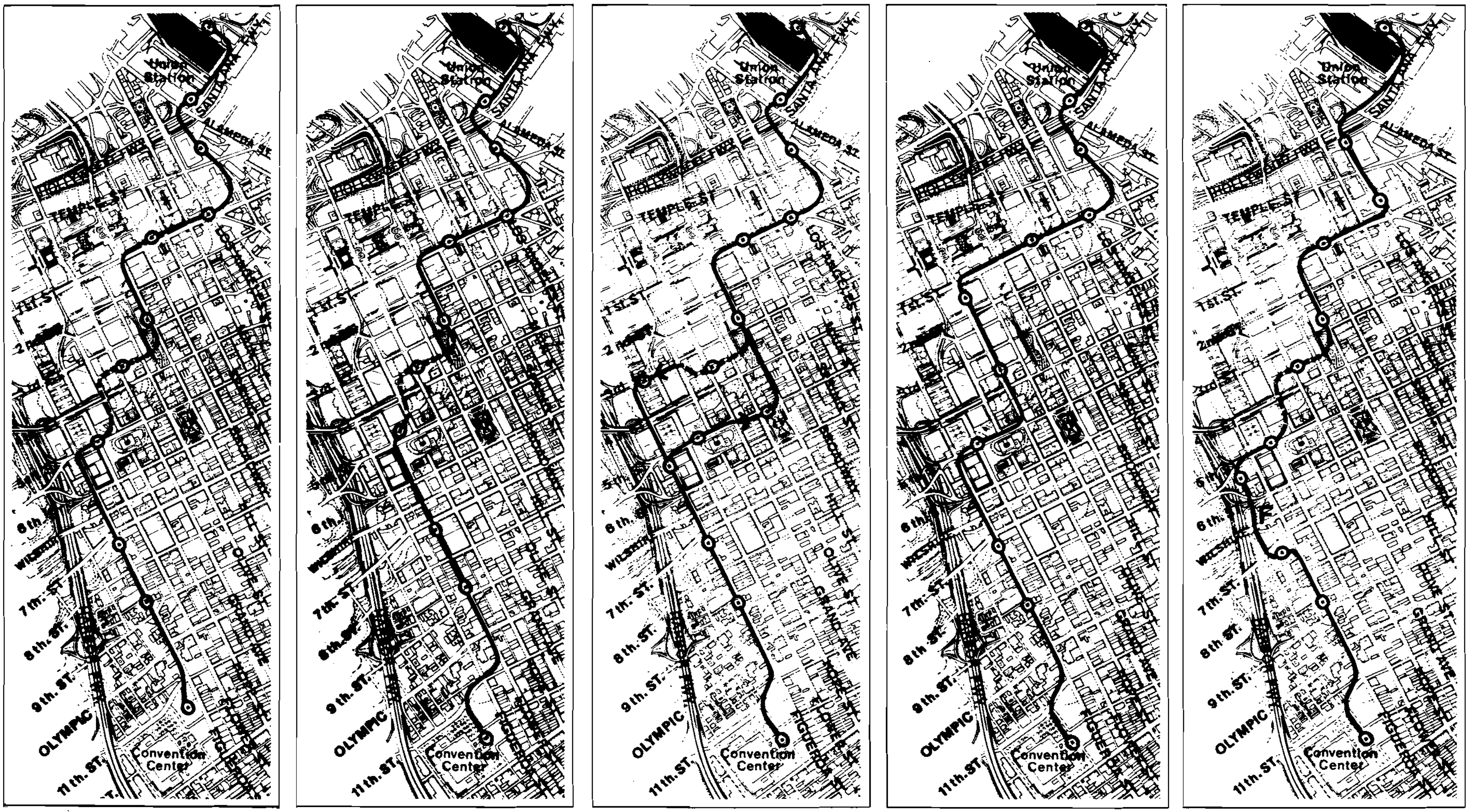
5TH. AND 3RD. ONE WAY SPLIT ALIGNMENT (Integrates Olive/Hill Streets and Bunker Hill)

Option D

GRAND AVENUE (Connects Bunker Hill with the Civic Center Mall)

Option E(F)

LOS ANGELES STREET (One station on Los Angeles Street serving the Federal Building and Olvera Street)



Source: CRA, Route Refinement Analysis, April, 1978.

F was designed to mitigate environmental impacts of A

TABLE VII-11D

EVALUATION OF ALTERNATIVE ROUTE ALIGNMENTS

MEASURE	Recommended Alignment	Baseline A	Route Options B	C	D	E	F	Significance
Service Measures								
Patronage estimates - daily total	84,200	78,300	79,500	84,700	81,000	79,300	78,300	◓
Typical Trip times - minutes								○
a) City Hall to Broadway Plaza	13.6	12.5	10.6	13.6	12.4	12.5	12.7	
b) Convention Center to Biltmore Hotel	8.2	11.1	11.5	8.2	11.1	11.1	11.3	
c) Convention Center to Security Plaza	12.6	9.9	10.3	12.6	9.3	9.9	10.1	
Street traffic loads								
Number of locations with V/C greater than .8	3	4	2	6	3	4	4	◓
Activity centers served								●
Maximum service	26	18	18	25	19	18	18	
Less than 3 minute walk		9	9	9	7	9	9	
3 minute walk		10	10	3	11	10	10	
Guideway curves and grades								
Normalized factor	125	100	106	99	89	96	125	○

Refinement Findings as a Determinance: ● Significant ◓ Moderatly Significant ○ Not Significant

Source: CRA, Route Refinement Analysis, April, 1978.

(continued)

MEASURE	Recommended Alignment	Baseline Route Options A	B	C	D	E	F	Significance
Impact Measures								
Minimize construction impacts								
Utility relocations - normalized factor	NA	100	65	143	109	113	90	○
Construction difficulties- normalized factor	NA	100	102	123	112	93	109	○
Business disruption during construction number of business parcels	NA	315	267	317	284	315	310	○
Environmental Areas								
Number of visually sensitive areas	1	2	1	3	2	1	0	◒
Number of/noise sensitive use areas	0	2	0	0	0	0	0	◒
Historic Sites and parks								◒
Federal register	1	1	1	1	1	1	1	
Local	5	4	3	7	4	4	3	
Conformance to adopted plans	Yes	Yes	Yes	Yes	Yes-better	Yes	Yes	
Expansion Flexibility	Yes	Yes	Yes-	Yes-better	Yes	Yes	Yes	○

N. A. Not available but approximately equal to C

(continued)

MEASURE	Recommended Alignment	Baseline A	Route Options B	C	D	E	F	Significance
Financial Measures								
Operating & Maint. Costs - normalized factor	N/A	100	101	105	101	99	101	○
Private Sector Revenue potential normalized factor	104	100	57.5	104	99	100	94.4	●
Parking substitution potential	122	100	82	101	100	100	100	●
Potential Developments Served								●
Retail/Commercial Million sq.ft.	4.8	3.75	2.25	3.55	3.75	3.75	4.0	
Hotel units	3770	2351	1305	3770	2851	2740	2851	
New Residential Units	1100	1100	1800	1100	256	1100	1100	
Operating Revenue to Cost ratios	108	100	101	108	103	100	100	◒
Capital Costs Normalized	97	100	99	95	87	99	101	●
Maximum Local Share Funding Saved		—	—	—	—	—	—	
City				.4M	1M			
County				.4M	1M			
State				.8M	2M			

Source: CRA, 1978. Route Refinement Analysis.

In addition to the factors summarized already, design solution to visual, noise, and historical site impacts were developed during the route refinement analysis. Routing the system either behind St. Paul's Cathedral or in the middle of Figueroa is one solution to the visual, noise, and historic impacts at that site. Providing a station at the Federal Building in a manner whereby El Pueblo de Los Angeles could be accessed would minimize impacts on that site while maintaining relatively good access. There are more local historic sites and parks along Option C.

VII-120 ALTERNATIVE SITES FOR THE PROPOSED PROJECT

VII-121 ALTERNATIVE INTERCEPTS

Evaluation focused on alternative locations for peripheral parking facilities and regional bus intercepts. The following pages describe assessment of parking and bus intercept locations conducted during Phase II and a more detailed site assessment conducted during Preliminary Engineering.

Peripheral Parking Facilities. The parking analysis included an extensive review of twenty-five potential parking sites. Evaluative criteria used to assess these sites include:

- o Site parking capacity
- o Adjoining land uses and potential community impact
- o Accessibility to freeways
- o Surface street access and capacity
- o Travel time to downtown activity centers
- o Access to community centers

Interviews were conducted in the communities surrounding these potential sites to determine:

- o Feasibility of intercept location
- o Transit needs of communities where parking may be located
- o Accessibility of potential facilities to the community

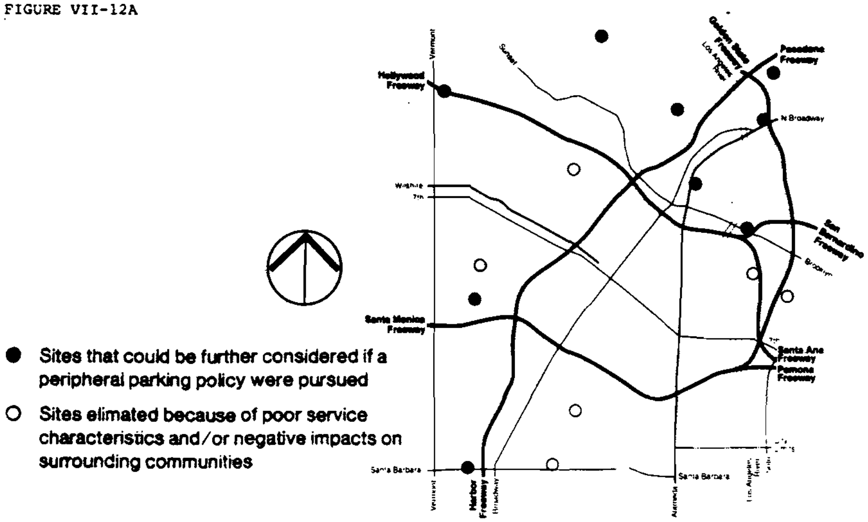
This study found that access to downtown was good; however, residents in communities adjacent to downtown expressed a need for improved transit service between communities. This study, documented under separate cover, was forwarded to the SCRTD for inclusion in the regional transit dependent study.

In general, the local citizen response was negative to the introduction of parking intercepts in residential communities.

This feedback information was used in an initial evaluation, eliminating sites which imposed a heavy traffic and land use impact on residential areas. A second evaluation eliminated additional peripheral sites due to excessive travel time necessary for transit interface with those sites. The policy option of placing parking facilities in any adjacent residential community was discarded because of perceived negative community impact. Of the twenty-five sites originally identified as possible parking locations, fifteen were rejected from further consideration. Sites eliminated are shown in Figure VII-12A. This figure also shows sites that have potential for incorporation into a coordinated parking system. They are located within the downtown area and its periphery, and cumulatively they would provide downtown with future parking facilities. The provision of transit from these sites to downtown is feasible, and their development would cause no significant negative impacts on residential areas.

POTENTIAL PERIPHERAL AUTO INTERCEPT LOCATIONS

FIGURE VII-12A



Source: CRA, 1977. Moving People in Los Angeles.

Subsequent analysis conducted for the transit guideway options reassessed these ten favorable sites (see Figure VII-12A) in terms of their additional use as bus intercept facilities.

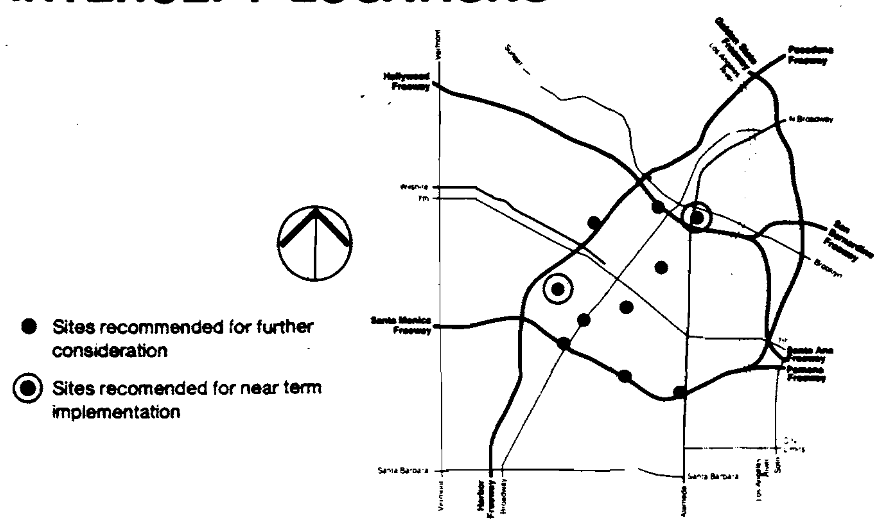
Bus Intercept Facilities. During the course of evaluation, the analysis focused on whether bus operations could be optimized by intercepting buses at the fringe of downtown and providing distribution/circulation service by means of a people mover system.

This concept as shown in Figure VII-12B requires strategic location of two types of facilities:

- o Bus/auto intercept facilities
- o Guideway transit.

Analysis of potential bus intercepts builds upon the parking analysis described earlier. Potential parking sites were

POTENTIAL FRINGE AUTO INTERCEPT LOCATIONS

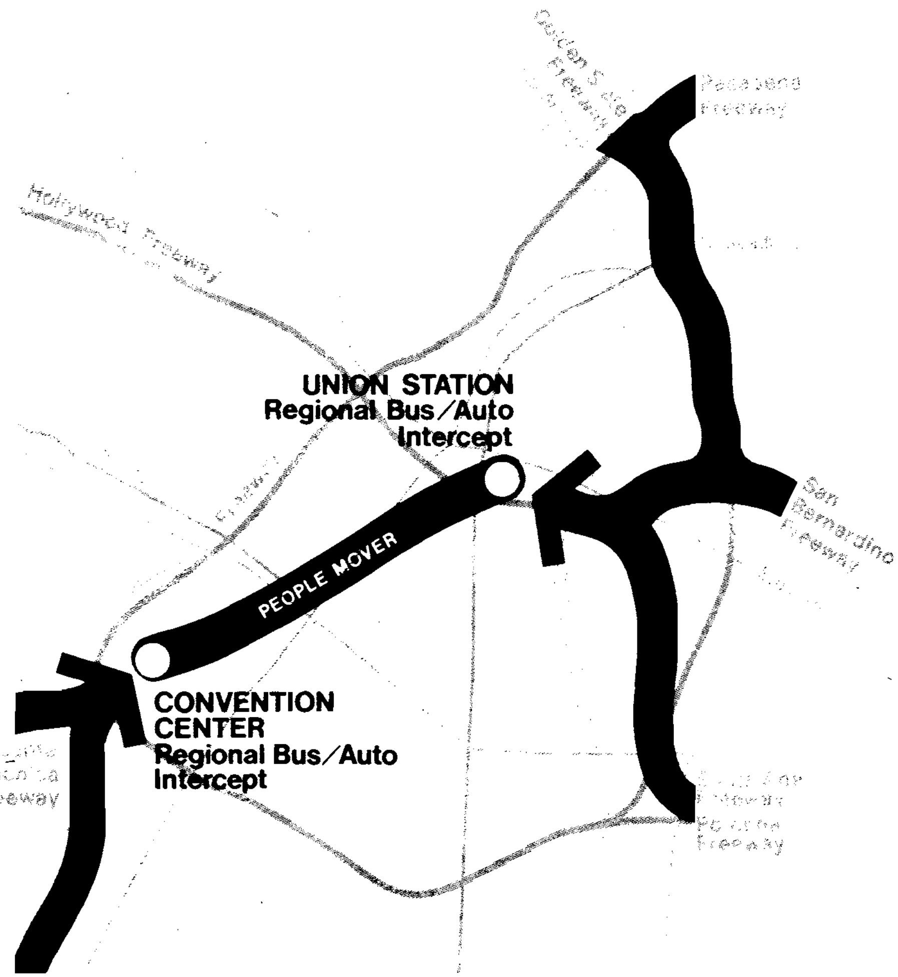


Source: CRA, 1977. Moving People in Los Angeles.

FIGURE VII-12B

PEOPLE MOVER CONCEPT

INTERCEPT REGIONAL BUSES AND AUTOS AT FRINGE AREAS AND PROVIDE DOWNTOWN SERVICE BY MEANS OF AUTOMATED TRANSIT



Source: CRA, 1977. Moving People in Los Angeles

again reviewed with the assistance of Caltrans to determine which could best accommodate buses as well as parking needs.

Criteria used to review these potential intercept sites included: access to freeway, impact upon community, capacity of adjacent streets, and acquisition considerations. Of all the sites assessed, those that appeared most feasible were: Beaudry, SCRTD Terminal, Convention Center, Union Station, Santa Monica Freeway/Hoover.

An assessment of the final candidate sites to service an initial segment of guideway indicated that the Convention Center and Union Station appeared most feasible for initial implementation. These are also shown in Figure VII-12A.

These two sites have good access to freeways; there would be no negative impact on residential communities; and the street capacity can be made adequate to accomodate the traffic volume resulting from operation of the intercepts.

Site Specific Locations for Intercept Facilities. As described above, it was determined that the Convention Center and Union Station were the best possible locations for the intercept facilities. The Department of City Planning recently conducted an analysis of 9 possible alternative sites for these two locations (see Figure VII-12C).

The alternative sites were evaluated with respect to their impacts on land use, urban design, and community disruption. The results of the analysis are shown in Table VII-12A. See Section VII-320 for a further discussion of intercept locations.

FIGURE VII-12C

	LAND USE IMPACTS	URBAN DESIGN IMPACTS	COMMUNITY DISRUPTION IMPACTS
A. Behind Union Station: (Main Intercept site)	Beneficial: Area underutilized, essentially vacant	Beneficial: Area is bleak and uninviting	Detrimental: Displacement of some existing marginal uses
B. Behind Union Station: (Additional on-freeway convenience station)	Neutral: Would utilize air rights and/or median	Beneficial: High visibility to slow-moving commuters	Neutral: Would utilize air rights and/or median
C. In front of Union Station (Possible MRT interface)	Detrimental: Would destroy portion of parklike area	Detrimental: Incompatible with historic setting	Neutral: No residential or commercial uses affected
D. Unspecified location south of Hollywood Freeway	Beneficial: Industrial buildings now vacant	Beneficial: Area could use focus	Detrimental: Costly to displace industry

TABLE VII-12A

SITE ALTERNATIVES EVALUATED AT EACH INTERCEPT LOCATION

Union Station - Possible Sites

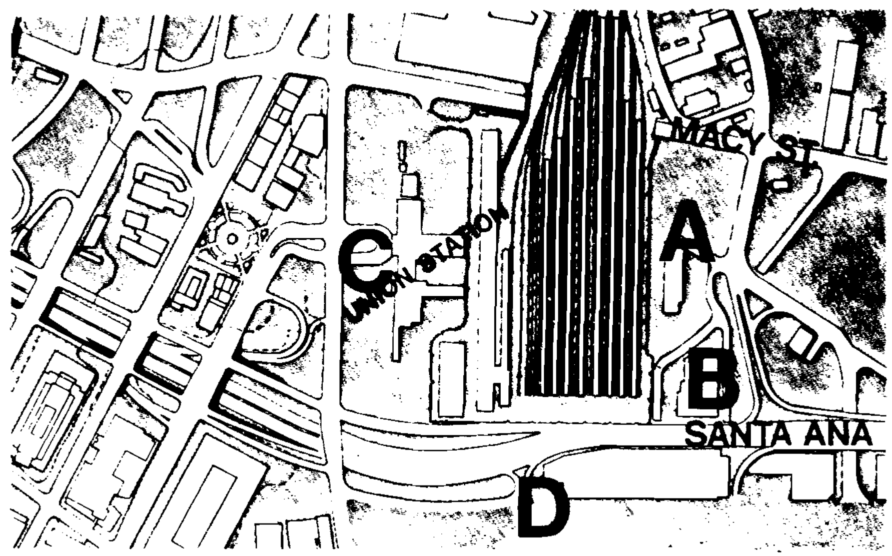


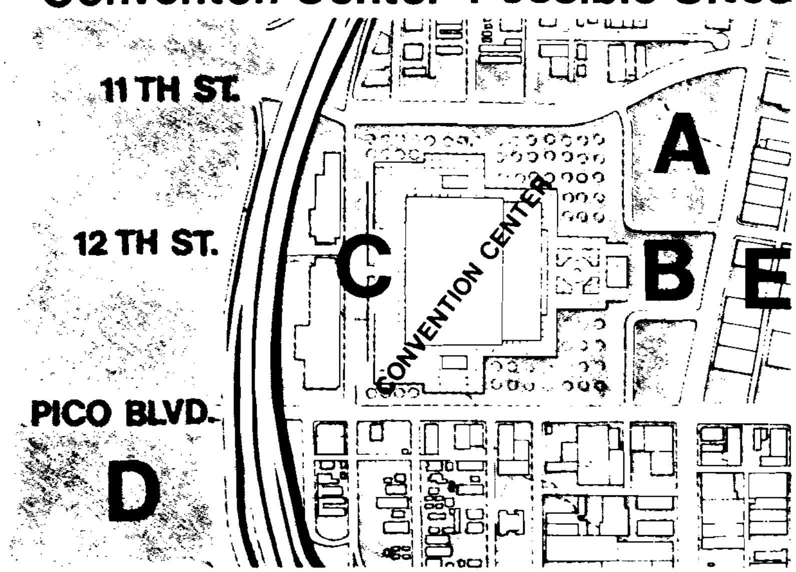
FIGURE VII-12C (continued)

	LAND USE IMPACTS	URBAN DESIGN IMPACTS	COMMUNITY DISRUPTION IMPACTS
A. Northeast corner of site ("baseline" location)	Detrimental: Would preclude hotel or other development	Beneficial: Compatible with architecture of Convention Cntr.	Neutral: No existing residences or businesses
B. Midblock on east side (in front of fountain)	Beneficial: Make existing public space more dynamic	Beneficial: Excellent visual relation to Convention Cntr.	Neutral: No existing residences or businesses
C. West side at heliport site	Beneficial: Some enhancement of public space dynamics	Beneficial: High visibility to slow-moving commuters	Neutral: No existing residences or businesses
D. Unspecified location west of Harbor Freeway	Beneficial: Area deteriorating; needs revitalization	Beneficial: Area could use a focus of new construction	Detrimental: Many low-income residents would be displaced
E. The east side was assessed for parking only. East side of Figueroa opposite the Convention Center	Beneficial: Would enable Convention Center land to be developed at best use	Beneficial: Compatible with architecture of Convention Cntr. area; would enable station to be of smaller scale	Detrimental: Would require displacement of three businesses

Source: Community Redevelopment Agency, 1978.

TABLE VII-12A (continued)

Conventon Center-Possible Sites

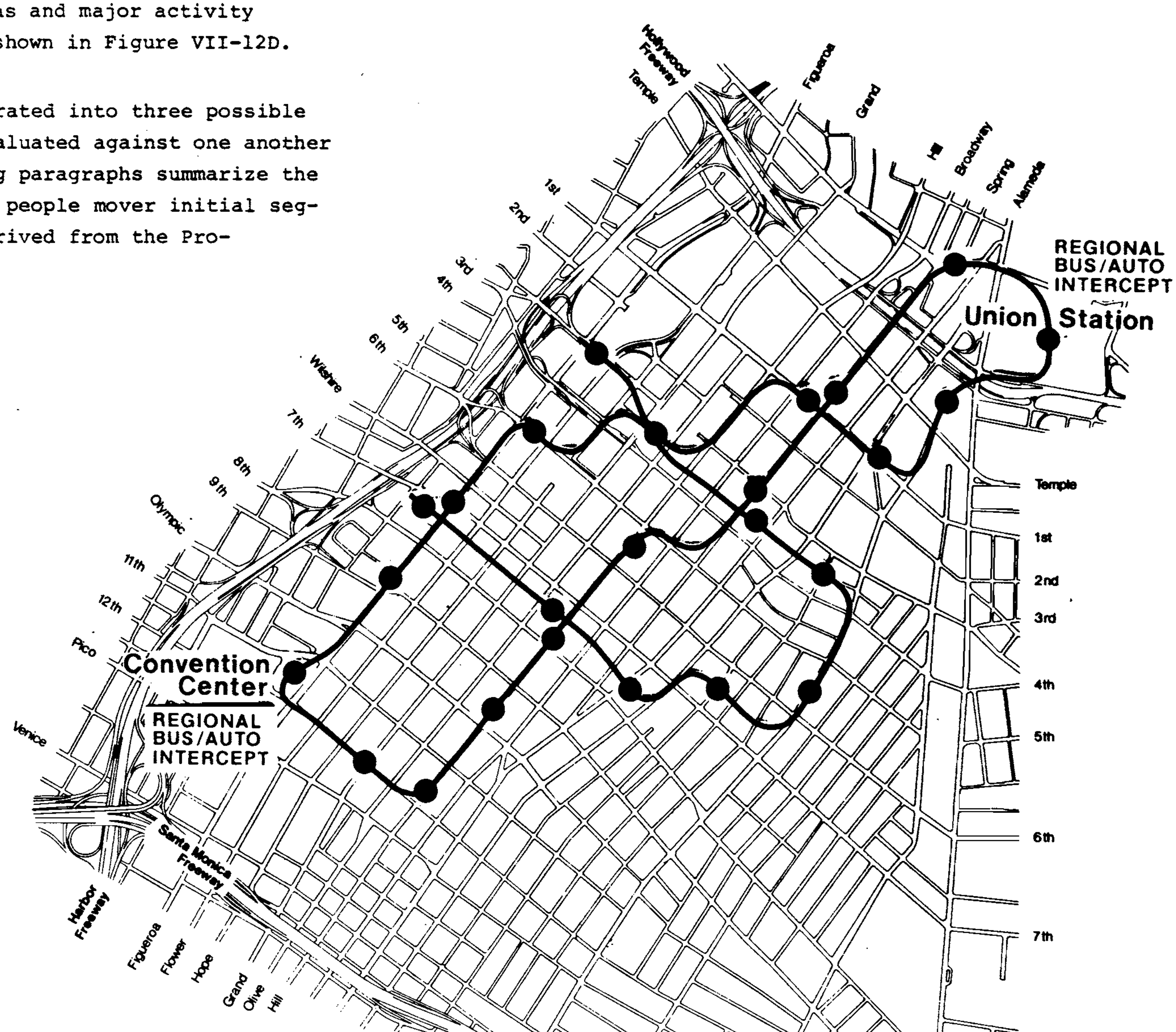


Source: CRA, 1978.

VII-122 Alternative Corridors
Phase II studies developed a complete people mover network designed to connect major activity centers within downtown. (Chapter III discusses planning areas and major activity center.) This complete network is shown in Figure VII-12D.

This complete network was then separated into three possible initial segments, and those were evaluated against one another (see Figure VII-12E). The following paragraphs summarize the comparative analysis of alternative people mover initial segments, according to the criteria derived from the Pro-

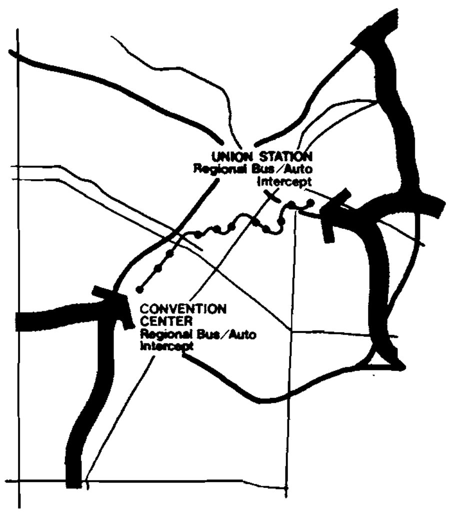
FIGURE VII-12C
COMPLETE DPM SYSTEM



Source: CRA, 1977.

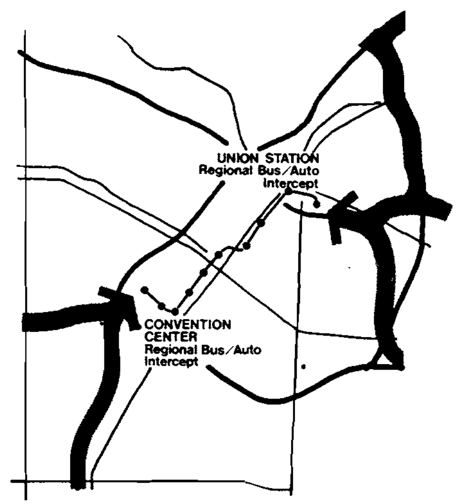
ˉIGURE VII-12.

ALTERNATIVE PEOPLE MOVER ALIGNMENTS EVALUATED IN PHASE II



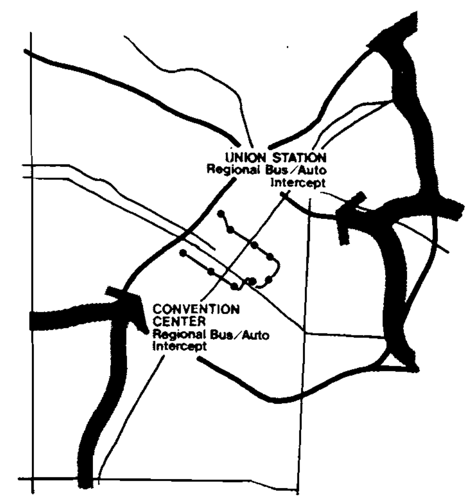
Alternative A

THIS ALTERNATIVE USES STRATEGICALLY LOCATED REGIONAL BUS INTERCEPTS TO EMPHASIZE COORDINATION WITH REGIONAL TRANSIT PLANS. WITHIN DOWNTOWN THE GUIDEWAY ROUTE REINFORCES EXISTING DEVELOPMENT TRENDS.



Alternative B

THIS ALTERNATIVE USES THE SAME STRATEGICALLY LOCATED BUS INTERCEPTS AS ALTERNATIVE A. WITHIN DOWNTOWN, IT PLACES EMPHASIS ON USING THE TRANSIT GUIDEWAY TO PROMOTE DEVELOPMENT IN DETERIORATING SECTIONS OF DOWNTOWN.



Alternative C

THIS ALTERNATIVE EMPHASIZES STRENGTHENING OF NOON HOUR ACTIVITY WITHIN THE CENTRAL CORE OF DOWNTOWN. MAJOR COORDINATION WITH REGIONAL SERVICES VIA BUS INTERCEPTS IS NOT A CONSIDERATION IN THIS ALTERNATIVE. IN THIS RESPECT, IT IS MORE LOCALIZED IN TERMS OF DESIGN AND EFFECT THAN THE OTHER TWO ALTERNATIVES.

Source: CRA, 1977. Moving People in Los Angeles.

System Connectivity. Alternative A provides the best overall linkage of activity centers within downtown; two of the linkages being between major hotels and the Convention Center and between the Civic Center and professional offices near Bunker Hill. Alternative A also provides the strongest link to the government office complex. Alternative C has the lowest rating from an overall linkage standpoint, although its strongest link is to the retail services along Broadway. Alternative B has no effective linkage to the redevelopment areas. Alternatives A and B provide connectivity to regional bus systems, automobile parking and the freeway system.

System Usage. Preliminary patronage estimates show that more people would use Alternative A than the other segments considered.

System Costs. System costs can be assessed from numerous standpoints. For example, although Alternative A has the greatest capital and operating costs on an absolute basis, it also exhibits better economies of scale and has lower operating costs on the basis of vehicle miles traveled. Annualized capital costs are fairly equivalent for all of the alternatives, although when compared on the basis of passengers carried, A and C appear more favorable than B.

Social Impacts. Alternatives A and B have no business relocation associated with their alignments and consequently have the least detrimental near-term impact on employment. Alternative C would result in the greatest amount of housing relocation, because of possible demolition of residential hotels. See Section VII-340 for additional discussion of alternative corridors.

Economic Opportunities: Alternative A offers the greatest potential for maintaining the economic viability of downtown. It provides service to major downtown office buildings and exhibits the greatest potential increase in real estate value, retail sales, and tax revenues. By 1990, implementation of Alternative A alone would produce significant increases in sales and tax revenues.

Alternative B has less potential for promoting growth of downtown. This alternative may positively impact the east side by potentially attracting governmental and quasi-governmental office users to that area. It would have only a small impact on the private office and residential markets, however, and would cause only a small increase in retail sales.

Alternative C has the least potential for enhancement of existing economic growth trends, although it would have some positive impact on retail sales.

Economic Impacts. In terms of loss of business sales during construction, Alternative A has the least impact and Alternative B has the greatest impact. The same pattern holds for long-range loss of sales.

Environmental Impacts. From an environmental standpoint, there is little difference among the three initial segments. Air quality and energy impacts are small for each of them, and neither will produce a significant change in emissions of primary pollutants. Similarly, there is little difference among the initial segment options in terms of energy consumption.

Visually, Alternative C emerges as the most favorable because it impacts no special buildings or historical sites and because it affects the least number of activity center and plazas. Alternatives A and B, on the other hand, have greater impact on these areas.

VII-130 ALTERNATIVE USES OF THE PROJECT SITE

For the purpose of analyzing alternative uses, the project site is defined in terms of three distinct categories: the intercepts, the intermediate stations, and the guideway.

Intercepts

If the DPM intercept and maintenance facilities were not built, the area behind Union Station would be available for other uses. The parcel in question is zoned for heavy industrial use with a maximum height of 13 stories. A variety of proposals have been made in the past for development of this area, although none of them have reached the planning stage. With or without the DPM, any developer would have to take into account the probable nomination of the Union Station site to the National Register, which could restrict the types of uses for the area.

The Convention Center parking facility site is on the east side of Figueroa Street, which is in multiple private ownership. Parcels on this site are currently being used for wholesaling. It is likely that the current uses would continue without the DPM.

Intermediate Stations

9th and Figueroa. The site for the 9th Street station is currently a parking lot. This parcel would continue to be available for development if the DPM were not built.

7th and Figueroa. The DPM station would be integrated with the proposed mixed use facility at this site. It is uncertain whether the developers would use the space if there were no DPM.

5th and Figueroa. It is unlikely that anything would be built over the intersection of Fremont and Fifth Street if the DPM station were not there.

Library Station. The Wells Fargo Building in Bunker Hill would be built even if the DPM were not implemented.

Pershing Square. Without the DPM, the park and parking ramps would remain as they are. It is unlikely that any alternative uses would be placed on the site.

World Trade Center. The easement for this station would either have to be renewed or it would lapse. It is unlikely that any other development would occur at this site.

Bunker Hill. The Bunker Hill Station would be underground. It is unlikely that any other development would occur here.

Hill Street. The retirement housing project would be built with or without the DPM. The terrace for the DPM station could become an open space.

Civic Center. The new State office building would be built in any case. Without a DPM station, the office building could cover more of the site, or the land could be used for open space.

Little Tokyo. There are no alternative uses of this site.

Federal Building. It is unlikely that anything would be built over the sidewalk on Los Angeles Street.

The Guideway

With the exception of the tunnel through Bunker Hill, the aerial guideway will use airspace that is unlikely to be developed for any other purpose. The guideway would be located over public right of way for most of the route.

With the DPM in place, the width of 5th Street between Grand Avenue and Figueroa Street would be reduced by approximately six feet. The intersections most affected are 5th Street at Flower Street and 5th Street at Figueroa Street. With the DPM in place, the right turn lanes at these intersections would be eliminated. Currently, these lanes separate turning traffic from the through traffic destined to the southbound and northbound Harbor Freeway on ramps. If the DPM were not built, this land would continue to be used as turning lanes.

The DPM support columns will reduce sidewalk width at specific locations. Without the DPM, this space would continue to be used by pedestrians.

If the guideway were routed down the center of Figueroa (see Chapter II for a description) from 5th Street to the Convention Center, it will require a median strip. Plans propose widening of the street by eight feet between 7th Street and 9th Street so that the same number of traffic lanes could be accommodated. Alternate uses of the median would be for vehicular traffic.

VII-140 NO PROJECT OR POSTPONING THE PROJECT

VII-141 No Project

In this section "No Project" is defined as the Null Alternative--the option of not making any transit improvements in downtown Los Angeles. This implies a continuation of current levels of bus and minibus service through at least 1990. Approximately 1400 freeway and local buses would continue to provide services to downtown from surrounding areas. The buses would distribute passengers throughout the downtown area, just as in today's system. Under this alternative almost all of the buses would operate in mixed traffic without added traffic improvements. The only downtown preferential treatment for bus service is the Spring Street contraflow lane which has been operating since 1975. The SCRTD downtown terminal at 7th and Grand Streets would remain the main point of transfer for those travelling through the downtown area.

Today's minibus fleet would continue to supplement normal bus operations by providing additional distribution/circulation service.

The Null Alternative does not provide additional public parking facilities in downtown. Most parking would be provided by the private sector. Table VII-14A summarizes the characteristics of the Null Alternative. Impacts of this alternative are summarized as follows:

Transit Ridership: Transit ridership would increase slightly; however, there are practical limitations on numbers of people that can be accommodated in peak hours without expanding service.

Comfort and Convenience: The Null Alternative would not offer any improvements either in vehicle design or operational improvements. In fact, with added street congestion and the likelihood of crush loads during peak hours, comfort and convenience aspects are likely to deteriorate.

Service to Transit Dependents: The Null Alternative assumes no increase in service to transit dependents.

Access to Bunker Hill: Bunker Hill will remain relatively inaccessible by transit. Future development in Bunker Hill will have to rely primarily on the auto as a means of access.

Compatability with Carpooling: The Null Alternative would be compatible with carpools only insofar as transit will not offer attractive levels of service.

Impact on Development: The Null Alternative would negatively affect downtown's competitiveness in attracting new development. To the extent that new development trends are slowed, so too the beneficial filtering effects on reutilization of older office buildings will be negatively affected. Collectively a slowing of new development and refurbishing of older structures will negatively affect local taxes including property taxes, sales taxes, and hotel room taxes.

Air Quality: The Null Alternative, because it does not alter automobile travel dependency, would produce emissions corresponding to the improvement of automobile technology expected by 1990.

TABLE VII-14A

SUMMARY CHARACTERISTICS OF THE NULL ALTERNATIVE

Number of Buses: 1415

Number of Minibuses: 37

Relation to El Monte Busway: This project which is outside the study area, could be implemented even if no related bus service improvements were made.

Fare: Bus 25¢, minibus 10¢ (these were the fares charged during the Phase II study period, 1975-76).

Transit Marketing Improvements: Marketing and advertising policies in downtown would remain the same.

Bus/Pedestrian Design Improvements: The Null Alternative assumes no further public sector investment in these facilities other than those required by city code.

Preferential Bus Lane: The Spring Street contraflow lane would remain in effect.

Local Transfer Point: Bus-to-bus transfers will continue to occur at major intersections throughout downtown. The downtown SCRTD terminal will remain the focus point for transfers.

Private Sector Funding: Continuation of the successful "take the RTD to lunch" program wherein selected restaurants pay one way of a downtown noon-hour round trip would be encouraged.

TABLE VII-14A continued

P.M. Peak Hour Headway

Bus	1.6 minutes
Minibus	4.0 minutes

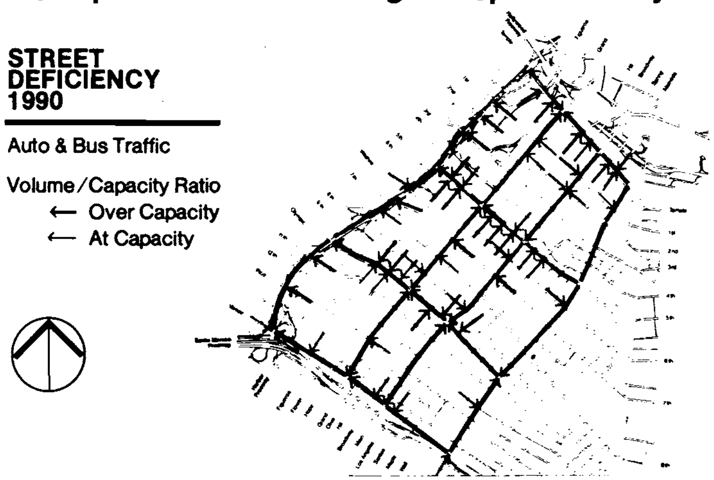
Daily Patronage

Distribution:	
Regional Bus	244,000
Auto/Park	503,000
Transfer to Minibus	9,000
Transfer to Local Bus	7,000
Total	763,000
Circulation:	
Minibus	13,000
Local Bus	18,000
Auto	198,000
Walk	321,000
Total	550,000

Transit Travel Time and Internal Street Congestion: Transit travel time will increase. Streets can accommodate a traffic increase resulting from moderate employment growth but only at the lowest level of performance. (See Figure VII-14A.)

FIGURE VII-14A

TRAFFIC CONGESTION
1990 230 K Employment
No Improvement in Existing Transportation System



Source: CRA, 1977. Moving People in Los Angeles.

Noise: The Null Alternative does not provide for the expansion of the bus system and may result in a relative increase in automobile use. Thus there may be a slight increase in ambient noise.

Visual Impacts: The visual appearance of the bus system operating in downtown in the Null Alternative would be essentially the same as today.

Construction Impacts: Because there is no construction associated with the Null Alternative, there are no resulting impacts in noise, dust, vibration, residential displacement, displacement of businesses and business disruption.

Energy Consumption: Because the Null Alternative does not encourage a further modal shift from automobile to transit, it is not effective in reducing the consumption of fuel energy. (See Table VII-14B)

TABLE VII-14B

PRELIMINARY ESTIMATES OF DAILY PROPULSION ENERGY BY: 1990

	DAILY VMT[1] BY MODE x 10^3		VEHICLE FUEL CONSUMPTION	ESTIMATED TOTAL ENERGY CONSUMPTION	BTU'S BY ALTERNATIVE[4] x 10^6
NULL	Auto:	707.1	20 mpg (gasoline)	35,355 gallons	4,730.5
	Bus:	13.0	4.6 mpg (diesel)	2,889 gallons	427.0
	Minibus:	2.7	4.7 mpg (gasoline)	574 gallons	76.8
	TOTAL:	722.8			TOTAL: 5,234.3

Conformance With the Central City Community Plan: The Null Alternative does not adequately support the Plan's provisions for strengthening downtown's future growth trends.

Cost: The Null Alternative has no capital costs for system expansion. Operation would require continuing government subsidies.

Private Sector Participation: It is likely that the private sector would continue to participate in programs such as "Ride A Bus to Lunch." However, substantial contributions toward financing any greater portion of bus operating costs are unlikely.

Impact on Activity Centers: If no transportation improvements were made in downtown, major activity centers would experience a reduction in regional accessibility. Since these major places of activity achieve success by attracting people from the region to downtown and by serving these working or visiting downtown, they would be negatively impacted.

VII-142 POSTPONING THE PROJECT

Postponing the project has implications for capital costs, project funding for both capital and operating costs, construction feasibility and other parts of the Regional Transit Development Program.

Capital Costs/Funding.

One of the most important impacts of postponing the project is increasing costs of construction. At current rates of inflation, it is estimated that the cost of the DPM would increase 0.6 percent per month or about $1,000,000 a month.

Another major impact in capital costs resulting from postponing the project would be the possible loss of federal funds to build the project. If the project were to be postponed indefinitely, it is possible that federal discretionary Downtown People Mover funds now earmarked for Los Angeles could be shifted to another candidate city.

Operating Revenues.

It is not clear what effect postponing the project would have on developer intentions. The momentum of developer commitments could slow, or even stop in some cases,if the DPM were postponed. The discussions of induced development in Chapter IV (Operational Impacts) and in Chapter VI (Growth Inducing Impacts) assume that the system would be operational in early 1983. Postponing the project indefinitely could seriously reduce developer interest at some sites and could slow down rehabilitation efforts at others.

The effects of postponing the project on developer participation directly effects operating revenues. If service contracts were used to establish developer contributions to operating costs, opportunities for negotiating such contracts with developers of proposed near-term office and retail space would be jeopardized. Parking substitution arrangements are also tied to the timing of development construction and the refurbishing of older structures. Postponing the DPM could affect these negotiations and consequently the operating revenues available to the system from this source.

Construction Feasibility.

Vacant parcels that are currently planned for a DPM station at 9th Street and the parking garage at the Convention Center could be developed in the interim for other uses if the project were postponed indefinitely. This could foreclose the opportunity of using those sites for the DPM, and therefore force consideration of other sites and/or routes.

Easements through the World Trade Center in Bunker Hill will expire in 1983. If they are not used by then they will either have to be renegotiated or allowed to lapse.

Postponing the project will increase the probability of construction problems with new buildings adjacent to the route. This is most likely in the underground guideway section where developer plans for Parcel N are well advanced. The proposed mixed use parcel at 7th and Figueroa, the planned Wells Fargo building on 5th and Flower, and the proposed State Office Building on 1st Street could also present some difficulties in coordinating design and construction if the DPM project were postponed. These problems could result in further capital cost increases.

Impacts on Related Projects

Other elements of the Regional Transit Development Program would probably be adversely affected by postponing the project. The Regional Core Starter Line, the Freeway Bus Program and TSM program could continue without the DPM, but supporting circulation/distribution service for major activity centers in downtown would be lost.

The Downtown Parking Management Program (which is part of a regional program to encourage ride sharing) will be adversely affected insofar as carpool spaces at the intercepts would not be available and the DPM's circulation/distribution services would not be in place enabling carpools to meet quickly and conveniently.

VII-200 ALTERNATIVES THAT APPEAR REASONABLE ON THEIR FACE BUT WERE ELIMINATED AFTER FURTHER ANALYSIS

Throughout the various stages of analyses, various proposals have been suggested and considered. Many of these warranted further consideration to insure that an innovative opportunity was not missed. Following is a discussion of the major proposals that warranted further consideration. An even wider range of possible but unlikely options is contained in the document Moving People in Los Angeles, and the technical paper, Technology Evaluations for the Los Angeles Bunker Hill and Central Business District Circulation/Distribution Program.

VII-210 JITNEYS

During the early phase of the project, citizens and public interest groups suggested the use of jitneys to solve downtown's transportation problems. Jitney service is a fixed route transportation service for public use at a standardized fare. The service is defined in Section 71.00 of the Municipal Code and City Ordinance No. 141,670 under the heading of "Motor Bus". Vehicle permits for jitney and other types of transportation services are issued by the Board of Public Utilities and Transportation in accordance with the procedures specified in Article I, Chapter VII of the Municipal Code as amended by City Ordinance No. 14,670. The provisions for public hearing, findings, and public liability insurance required of the Board are also given in the code.

Anyone interested in operating a jitney service may apply for the required "Motor Bus" permit. Before the Board can issue a permit it must determine that public convenience and necessity requires the operation of such a vehicle. Board policy for the past five years has been to encourage the establishment of alternate forms of transportation such as jitneys and dial-a-ride services. Several jitney permits have been issued to operators which have provided services for a limited period of time. Unfortunately, without government subsidy, jitney operations are not financially capable of competing successfully with the existing public transportation systems.

Public liability insurance costs are very high for jitney vehicles. Although the coverage required by City Code is not unusual (no more than the 50-100 carried by most private automobile owners) the cost has become extremely high in recent years, $4,000 per year per vehicle. This cost, together with high vehicle and maintenance costs, has made the costs of jitney operation nearly prohibitive.

These cost implications are one practical restriction to reliance on jitneys for downtown. A second consideration is the capacity of jitneys to provide the level of service needed in a major activity center such as downtown. From a system capacity standpoint, jitneys could be used as taxis to supplement public transportation; however, by themselves, they cannot be considered a viable alternative.

VII-220 MINIBUSES

The minibus system was assessed to determine whether it could adequately serve the circulation and distribution needs of downtown. Minibuses do supplement circulation/distribution functions, but they do not provide a high level of service. Because they must operate in mixed traffic, minibus speeds typically average 8 to 10 miles per hour. Because the DPM system would be grade separated, average speeds of 13 to 15 miles per hour are projected. Schedule adherence is an extremely important factor in attracting ridership. Problems of schedule adherence have kept ridership low.

Analysis of minibus service relative to other types of service in downtown indicated that:

- o Continued reliance on existing transit service in downtown, which includes minibus service, will result in congested traffic and increased air and noise pollution.
- o The existing transit system is not attractive to passengers because of slow travel time and inconvenience.
- o Planning programs of the Central City Community Plan will not be achieved unless a more substantial public sector commitment is made to transportation services in downtown.
- o Minibus service has high operating costs for the level of service provided. Costs of operating the present minibus system have risen over the past six years to a point where service alterations have become necessary on several occasions. These increasing costs are attributable to several causes:

  While the initial capital cost of a minibus is low, the amortized costs compared to a standard size bus is relatively high. This is because the useful lifetime is approximately one-half that of a standard bus.

  Minibus fuel costs are 28% higher than those of a standard bus on a per-mile basis because of low fuel economy.

  Minibus labor costs, which account for 80% of all operating costs, are high when compared to the carrying capacity of the minibus vehicle.

  Total operating costs of the minibus system, which take into account fuel, maintenance, labor, and other costs, are double that which occurs on the remainder of the SCRTD bus system.

  Annual required minibus subsidies are increasing. In FY76-77, $860,000 in subsidy was required to operate the downtown minibus system.

In conclusion, the minibus is not an attractive alternative for downtown circulation/distribution service. Additional information on the minibus is documented in the Technical Working Paper, Status of Minibus Operation in Downtown Los Angeles, 1977.

VII-230 GROUP RAPID TRANSIT (GRT) AND PERSONAL RAPID TRANSIT (PRT)

Group rapid transit (GRT) or personal rapid transit (PRT)--forms of automated guideway transit (AGT)-- may appear to be reasonable alternatives, but analysis has shown that they have little potential for implementation in downtown Los Angeles.

The recommended technology is the simplest form of AGT--Shuttle Loop Transit (SLT). This is a "proven" technology. SLT systems now exist and can be used in downtown areas with little or no further development other than adaptation to new sites. The systems in existence demonstrate that safe, reliable, quiet, emission-free, comfortable, convenient and dependable service can be achieved. Examples are the SLT systems at Tampa airport, Fairlane Shopping Center in Michigan, and Pearl Ridge, Hawaii.

SLT vehicles make little or no use of switches, and consequently, vehicles follow unvarying paths. Systems have been designed for top speeds up to 35 mph, and higher speeds are readily available if needed. Systems have also been designed for a wide range of capacities and can be tailored to fit almost any conceivable load.

SLT systems now in existence have demonstrated characteristics that are attractive for downtown circulation and distribution service. The qualities are safety, dependability, ease of boarding, frequency of service, travel times, and labor productivity.

Group Rapid Transit (GRT) systems are more complex and are considered "conditionally available." GRT systems exist in two places: at Morgantown, West Virginia, and at Dallas--Fort Worth Airport. Both of these systems are tailored to the needs of specific sites, and both have experienced considerable delay in achieving full operating status and have incurred extra costs. There is little doubt that both systems could be adapted for use in central business districts. However, a considerable amount of time, effort, and expense would be necessary to develop versions of the systems suitable for any specific central city use.

GRT systems use switches to place stations off the main line and to branch and remerge main lines. These features allow vehicles to bypass some stations and to be routed from main to branch lines and the opposite. In comparison with SLT systems, these features would benefit travelers in a downtown area by eliminating some delays. The benefits are partly offset by the requirement that the traveler must wait to board the correct car at the start of his journey and at each transfer. It remains to be shown that GRT systems will provide important advantages over SLT systems in downtown areas where routes and stations are closely spaced. Uncertainties regarding availability, cost, and dependability suggest that GRT systems should not be regarded as candidates for application in downtown Los Angeles at present.

In contrast to SLT and GRT, Personal Rapid Transit (PRT) systems exist only as concepts, models, and prototypes of rather limited scopes. There is no U.S. Government-funded development program and the task is far too costly for industry to do alone. Therefore, PRT systems are placed in the future class.

PRT involves very complex multiple routes actively responsive to demand. Switching is performed in response to destinations selected by the passengers. PRT does not meet the "availability" criterion and is therefore not considered a viable alternative to the project.

VII-240 REGIONAL RAIL SERVICE

Los Angeles has been studying regional rail service for many years, and it could therefore be suggested that rail service could serve the circulation and distribution needs of downtown.

The regional rail starter line, as other regional transit services (such as the El Monte Busway and the bus on freeway programs) will improve access to downtown, thereby enabling downtown to realize future growth plans. In this respect, the rail service provides significant benefits since it would upgrade line-haul service in an area not well-served by the freeway system.

However, as in the case of other regional line-haul services, the rail system cannot adequately function as a downtown circulation/distribution system without negatively impacting its overall performance and cost.

From the perspective of travel time, circulation/distribution services enable a regional rail system to function efficiently. An efficient spacing of stations for regional rail service contributes to reduced travel time because design speeds can be achieved. Just as busway service functions poorly if the bus leaves the freeway to pick up passengers, so too a rail system functions poorly if it tries to serve all major nodes of activity within downtown.

From an impact standpoint, providing numerous rail transit stations within the downtown would result in increased construction impact. Circulation/distribution technologies (including people movers) are such that construction impacts per individual site can be limited to relatively short periods of time. Thus an extensive circulation/distribution system can be placed within downtown with minimal construction impact. Thus, downtown and other centers could be provided excellent transit services without the construction traumas cited in other major cities. Rail systems in general have major construction impact of a disruptive nature. If downtown circulation/distributions systems were in operation fewer downtown rail stations would be needed to provide effective service.

Table VII-24A illustrates the relationship between community transit services, regional line-haul transit services, and activity center circulation/distribution services. Recognizing that these groups of service operate most effectively in concert, analysis focused on designing people mover and rail services in a complementary manner.

Figure VII-24A illustrates the relationship between proposed starter line and people mover stations. As this figure indicates, rail transit would provide some distribution service within downtown; however, it would require supplemental circulation/distribution services to serve downtown's major activity centers. Section IV-240 of this report documents the patronage implications of this more complete upgraded transit system serving downtown. (i.e., rail transit service with the DPM and expanded bus-on-freeway service with the DPM.

TABLE VII-24A

PERFORMANCE INTERDEPENDENCY OF TRANSIT SYSTEMS

COMMUNITY LEVEL

Local buses
Minibuses
Taxis
Paratransit
Community Services
Carpools/Vanpools
Bicycles

REGIONAL LINE-HAUL SERVICES

Bus-on-Freeway; El Monte Busway; Amtrak; Commuter Rail; Subscription Bus; Vanpool; Starter Line

ACTIVITY CENTER DISTRIBUTION/ CIRCULATION SERVICES

People movers, minibuses buses on preferential streets pedestrian malls elevators, escalators

PERFORMANCE CHARACTERISTICS

Providing service <u>within</u> communities throughout the metropolitan area

- many stops
- low volume
- use throughout day
- perhaps demand responsive

Providing service <u>among</u> major activity centers throughout the metropolitan area

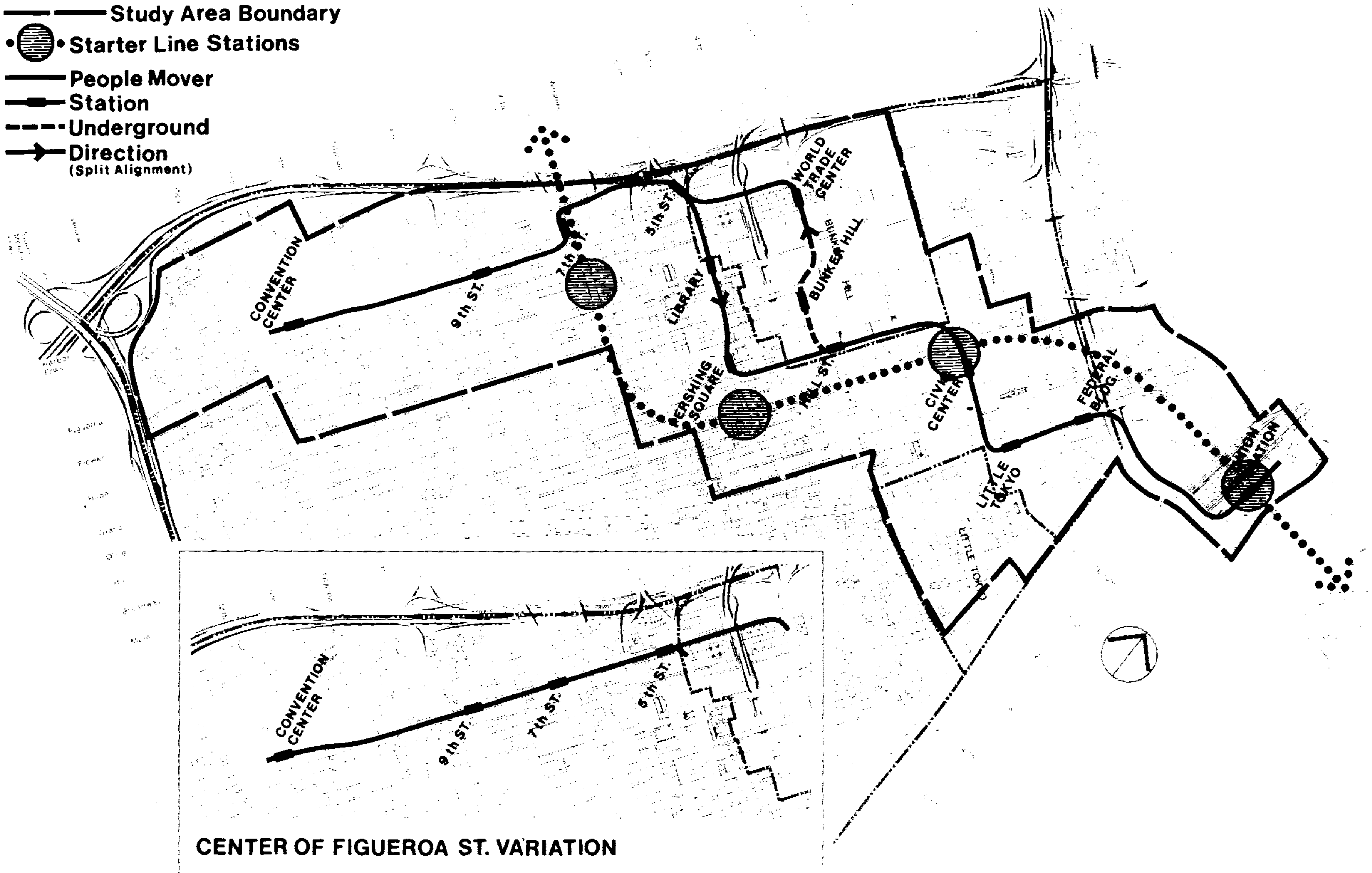
- few stops over longer distance
- high volume
- fast connections among regional centers
- AM,PM, Peaks
- 4-minute peak headways during periods of peak usage
- regularly scheduled service

Providing service <u>within</u> major activity centers throughout th metropolitan area

- many stops closely spaced
- high volume
- fast connections
- AM,PM, Noon peaks
- 90 second headway
- can operate in demand responsive mode in low usage hours

FIGURE VII-24A

PROPOSED STARTER LINE AND PEOPLE MOVER STATIONS IN DOWNTOWN LOS ANGELES



Source: Community Redevelopment Agency, 1978.

VII-250 ROUTE OPTIONS

In addition to the route options evaluated in depth (see Section VII-112), two additional options were evaluated for their feasibility. Both were subsequently rejected from further study. One option would vary the split directional route such that a northbound alignment would serve Hill Street and a southbound alignment would serve Grand Street. Patronage analysis indicated that there would be no significant differences compared to the Baseline Alternative A (see Figure VII-110). However, it would attract fewer passengers (approximately 5,000 fewer daily trips) than the recommended DPM alignment.

Also, this alignment does not maximize joint development opportunitites. It does not utilize reserved DPM right-of-way at the Security Pacific and World Trade buildings. It does not enable joint development opportunities with The Park development (formerly know as Exchange Square) or the hotel being constructed by MAT Associates. Also, the location of a switching facilities at the Library Station would place constraints on development at that site.

Because of the lost joint development opportunities and because the alignment would not result in significant patronage gains, it was not analyzed in greater detail.

Another option suggested during the route evaluation would utilize the existing Pacific Electric tunnel in the Bunker Hill area and place the route adjacent to the freeway from Fifth Street to the Convention Center. Both of these suggestions were made because it was thought that using existing rights-of-way might reduce overall project costs.

Use of the existing tunnel was not pursued, because the tunnel is blocked at points by Bunker Hill development. Also, extensive cut-and-cover tunnelling operations along Hill Street and First Street would be necessary in order to use 100 feet of existing tunnel.

The option of using rights-of-way adjacent to the freeway was not pursued. Implementation of this option would not enable people to easily access current and proposed places of activity between 5th Street and the Convention Center. Also, joint development opportunities at the 7th Street station could not be pursued.

VII-300 SUMMARY OF REASONS FOR SELECTING THE PROJECT

In this section are summarized the reasons for selecting the proposed project. First, the rationale for selecting the DPM technology and the Improved Bus/People Mover Alternative is described. Second, the reasons for selecting the Convention Center and Union Station intercepts are outlined. Finally, a brief rationale for selecting the west-side corridor and the recommended alignment within that corridor is presented.

VII-310 THE DPM TECHNOLOGY

A wide range of technologies applicable for downtown circulation/distribution services were reviewed. An initial screening indicated which technologies were available for immediate implementation and which needed additional design work prior to application in urban areas. Chapter III of the Draft Environmental Impact Assessment and Chapter IV of Moving People in Los Angeles describe these technological options and indicate which were reviewed more closely for use in downtown Los Angeles.

Of all the technologies evaluated, the people mover system appeared to offer the widest range of benefits for downtown. (As mentioned previously, the 1974 Bunker Hill Redevelopment Plan and the 1974 City Community Plan both proposed people mover service for downtown.)

Factors affecting selection of a people mover technology included:

- Operating costs: Since the people mover is automated, drivers are not required for every vehicle, offering significant long-term operating savings.
- Construction time and impacts: Techniques for constructing this system allow off-site manufacture of sections and require a relatively short time for on-site assembly. This in turn minimizes the negative impacts associated with construction.
- Funding sources: Announcement of a federally funded people mover demonstration program presented funding opportunities not available with other technologies.
- Adaptable technology: People mover service could be modified to accommodate advances in design of downtown circulation/distribution services.
- Conformance with approved City of Los Angeles Plans: Such a system is clearly identifed in the Central City Community Plan adopted by the City Council in 1974.
- Relation to other transit planning: A people mover system downtown would not preclude choice of line haul options such as busway, medium capacity rail, or high capacity rail. Rather it provides circulation/distribution levels of service needed to support these other regional services.

VII-320 THE INTERCEPT LOCATIONS

From a set of 25 candidate sites, the Convention Center and Union Station were selected as the best locations for auto/bus intercept facilities. (See section VII-121.) The major reasons for their selection are as follows:

- These sites offer convenient access to the freeway.
- These locations maximize connections with regional transit.
- Intercepts at these sites would cause no significant impacts on residential areas.
- Parking facilities can be located here without serious impacts on traffic congestion.

At a site specific level, judging only on the basis of the types of impacts considered, sites A and B were considered to be the best locations for the intercept DPM station at Union Station (see Figure VII-12C). Site C is the least desirable. Table VII-12A shows that site D has the same rating as site A. However, it is preferable to utilize vacant industrial land as in sites A and B than to convert or demolish existing industrial buildings which would be required at site D, even though the existing building may be underutilized or presently vacant. Taking the additional factor into account results in a lower rating for site D.

At the Convention Center, site B was considered to be the best location. Again, site C has the same rating as site B, but the land use benefits of B are stronger than for C, and whether design relationship is more important than commuter visibility is a matter of judgment. Sites A, D, and E appear less desirable than either B or C for the station.

VII-330 THE IMPROVED BUS/PEOPLE MOVER SYSTEM ALTERNATIVE

This alternative makes use of several "proven" technologies and operating policies: shuttle loop transit, buses, mini-buses, exclusive bus lines, auto/bus intercept facilities, and passenger amenities such as bus benches and graphic marketing information.

The Improved Bus/People Mover alternative was recommended for the following reasons:

- Compared to an Improved Bus Alternative, it would attract the highest level of transit ridership.
- Compared to an Improved Bus Alternative, it would offer long term opportunities to reduce net operating costs of transportation service in downtown.
- If planned with other ongoing private and public investment, the people mover would significantly reinforce existing development trends. Depending on market forces, it could be capable of inducing additional development (see Section VI-300.) The Improved Bus System has fewer economic benefits and no induced growth impact.
- Compared to the Improved Bus Alternative, the Improved Bus/People Mover alternative would result in reduced auto usage in the downtown. The Improved Bus/People Mover alternative offers the greatest potential for environmental benefits.

The comparative assessment of the Null, Improved Bus, and Improved Bus/DPM system alternatives is further documented in the report Moving People in Los Angeles.

An environmental assessment of the Null, Improved Bus and Improved Bus/People Mover systems alternatives was conducted during the Phase II studies. A draft environmental assessment on the people mover project was prepared and circulated. On October 28, 1976, a public hearing was held on the project in advance of the Los Angeles City Council's decision to allocate parking revenue monies for preliminary engineering and more detailed environmental studies of the Downtown People Mover. A summary of this environmental impact assessment is contained in a CRA document entitled Summary Environmental Impact Assessment and Responses to Issues, prepared in August, 1977.

VII-340 THE WEST-SIDE CORRIDOR

In Section VII-120 it was shown that three alternative corridors were considered for the DPM: A west-side corridor, an east-side corridor, and the central corridor. Corridor A is preferable to the alternative sites because it would:

o provide service to more transit users, particularly during the peak hour;

o offer the greatest potential for maintaining the economic vitality of the downtown;

o require no residential relocation;

o have the least negative economic impacts during construction;

o generate more substantial economic benefits, thus creating greater potential for private sector participation.

From an environmental impact standpoint, there is little difference among the three corridors. The potential for joint development offered in Corridor A was a more critical factor in its selection than the predicted environmental impacts.

VII-350 THE RECOMMENDED ALIGNMENT

As described in Section VII-120, the recommended alignment is a hybrid of alignments A,F,C, and E. The evaluation showed this alignment would be optimal from several perspectives.

From a Service Perspective:

o The recommended route alignment connects more employment, retail, and tourism activity centers than any of the other alignments. Service is further maximized with the addition of a station between Flower and Hope on 5th and the deletion of the station at the side of Union Station.

o The recommended route alignment offers greater operational flexibility in terms of scheduling due to the split guideway configuration.

o Since many of the activity centers such as Olvera Street, the Olive/Hill Street and Broadway areas are used on weekends, service along this recommended route alignment is likely to be used on weekends as well as weekdays.

o The 3700 parking spaces at the Convention Center and Union Station intercepts would be a direct benefit to merchants operating in the Olive/Hill Street area and would help contribute to stabilization of economic activity in this area.

o Routing the system in front of the Federal Building provides better access to those working and shopping in the Los Angeles City Mall area and offers the best access to historic Olvera Street without actually locating a station in the historic district.

From a Cost Perspective:

o The recommended route alignment offers cost savings over the baseline alignment developed during the previous stage of analysis. Compared to the baseline, there is no significant difference in the level of funds required to operate the system.

o Joint development analysis indicates that the recommended route alignment has the greatest opportunities for sharing of system operation and maintenance costs.

From an Impact Perspective:

o Direct linkage of more commercial, hotel and retail establishments afforded by the recommended route alignment is expected to yield relatively greater economic benefits.

o The recommended route alignment provides direct services (1 minute walk time) to 3770 hotel rooms as compared to 2850 rooms in the baseline alignment. It also serves 4.8 million sq. ft. of projected retail/commercial space compared to 3.75 million sq. ft. served in the baseline alignment.

o Significant visual and noise impacts would be mitigated in this recommended route alignment by routing the system either behind St. Paul's Cathedral or in the center of Figueroa (see Option F in figure 3-51A). Of the two, behind St. Paul's would be less intrusive.

o Impacts on major historical sites are mitigated by routing the system either behind St. Paul's Cathedral or in the center of Figueroa. Of the two, behind St. Paul's would be less intrusive. Impacts in El Pueblo de Los Angeles could be mitigated by providing a more aesthetically sensitive design solution to the station serving the El Pueblo State Historic Park (Olvera Street).

With Respect to Other Regional Transportation Services:

- The recommended route alignment serves the regional bus system more effectively by providing distribution service to more activity centers within downtown.

  The Southern California Rapid Transit District is designing a bus plan to complement downtown people mover service. Current estimates of the number of buses using each intercept point are: 84 buses in the DPM peak hour would be routed to Convention Center; 135 buses in the PM peak hour would be routed to Union Station. Other major points of interface between the DPM and bus service (both freeway and local) are: Seventh and Figueroa Streets and Hill and First Streets.

VII-400 ALTERNATIVES THAT WOULD LESSEN THE ENVIRONMENTAL IMPACTS OF THE PROJECT

Major adverse impacts of the proposed project are associated primarily with construction rather than operation. The discussion that follows outlines each of the major adverse impacts associated with construction and operation and identifies alternatives that could lessen the adverse impacts. Some marginal improvement could be made regarding contruction impacts if alternative route segments were substituted at various points. However, each alternative proposed to lessen some environmental impact has other environmental impacts of its own. A comparative analysis of all route segments, including the trade-off analysis among the segments, is contained in the Route Refinement Report.

Construction impacts are short-term, and measures to lessen those impacts should be viewed in the context of longer-term operational impacts. An analysis of the comparative operational impact of each of the route alternatives is also contained in the Route Refinement Report.

Following is a discussion of measures that could lessen the major construction and operational impacts identified in Chapter IV.

Construction

Any alternative that does not require construction would lessen the disruptive impacts of the project. The No Project and Improved Bus Alternatives are discussed in Section VII-100 and the reasons for recommending the proposed project are outlined in Section VII-350.

Traffic

- o The west side of Figueroa Street alignment would be less adverse from a traffic standpoint than the center of Figueroa Street variation because of the additional street widening and the lane closures associated with the center of the street option. (Chapter II describes these alignments in detail). A Flower Street alternative would be less disruptive to traffic than a Figueroa Street alternative, because of lower vehicle volumes on Flower.
- o Baseline A through Bunker Hill and the Grand St. alignment would lessen the traffic impacts on 5th Street.

Noise and Vibration

- o The west side of Figueroa Street alignment would affect fewer noise-sensitive land uses than the center of Figueroa Street variation. Location in the middle of the street brings construction noise and vibration closer to the east side of Figueroa.
- o The Flower Street Alternative (B) would affect fewer noise-sensitive land uses than a Figueroa alternative.
- o The Baseline (A) tunnel would affect fewer noise sensitive receptors than the proposed project.

Visual and Aesthetics

- o Perceived disruption of the center of Figueroa Street variation alignment would probably be greater than that of the west side of Figueroa alignment because it would be visible from both sides and because of the additional street widening required.
- o The tunnel construction of Baseline A would probably be visible to fewer people than the construction activities on 5th Street or Hill, although the cut-and-cover tunnel is probably more visually disruptive to those who do see it.
- o Baseline A behind Parker Center would be less visible than the E alignment on Los Angeles Street.

Business Displacement

The only instance where businesses would be displaced would be in locating parking on the east side of Figueroa. Placing the parking structure on the west side of Figueroa would require using both vacant parcels in front of the Convention Center. The northern parcel is being reserved for potential hotel development and southern parcel is not large enough to accommodate all of the required parking. The other alternative would be to put parking underground. Analysis of this alternative was conducted during preliminary engineering; at $13,000 to $15,000 per parking space it would be significantly more expensive.

Residential Disruption
Noise & Access:

- o The west side of Figueroa Street alternative would have fewer traffic impacts than the center of Figueroa Street variation alternative, and mid-block turning movements from the opposite side of the street would be possible with the west side of Figueroa Street alignment. Consequently there would be fewer access problems associated with the west side of Figueroa alignment.
- o A Flower Street segment, because there are fewer residential units or hotels, would involve less residential disruption than a Figueroa alignment.
- o The tunnel segment of Baseline A and Grand Street would also impact fewer existing residential units than the 5th Street/Hill Street or 3rd Street alignments.

Safety

- o Accident potential is greater where there are greater numbers of pedestrians and motorists. Consequently a Flower Street alignment would be better in some sections than a Figueroa alignment (e.g. south of 7th St.) The aligment through Bunker Hill and Grand Street would also be safer, as would putting the alignment behind Parker Center rather than in front of it.

OPERATION

As described in Section IV-?21-1 the DPM's major adverse impact could be visual. The DPM could be visually unappealing to some observers no matter how aesthetically designed. There are some segments of route, for example along 5th Street, where the modern lines of a DPM struture could be imcompatible with the older buildings adjacent to it. In other sections, for example near the World Trade Center and the Bonaventure Hotel, the DPM could complement the contemporary architectural environment. The best way to effectively mitigate negative visual impact of the DPM is to rely on a design process that has maximum sensitivity to the downtown environment.

APPENDICES

APPENDIX 1
PREPARER OF EIR

APPENDIX 1: PREPARER OF ENVIRONMENTAL IMPACT REPORT

This Draft Environmental Impact Report was prepared by the Transportation Division of the City of Los Angeles Community Redevelopment Agency (CRA), for the City Council of the City of Los Angeles, who is the lead agency. Daniel T. Townsend is Director of the Circulation/Distribution Program for CRA. Assisting CRA in preparing this report were the following agencies and consultants:

U.S. Department of Transportation, Urban Mass Transportation Administration

City of Los Angeles, Departments of Engineering, Planning, and Traffic

Consultants:

- Cambridge Systematics
- Daniel, Mann, Johnson and Mendenhall
  - Archiplan
  - Jenkins-Fleming
  - Peterson and Befu
- Kaiser Engineers
- Wilbur Smith and Associates
  - Robert Harmon and Associates

APPENDIX 2

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APPENDIX 3
TECHNICAL STUDIES

PHASE ONE REPORTS

Study Design

Goals and Objectives

Data Base

Community Participation Report

PHASE TWO TECHNICAL APPENDICES

Internal CBD Travel Demand Modelling

Comparative Evaluation of Bus Alternatives and Description of the Null Alternative

Comparative Evaluation of Alternative·DPM Initial Segments

System Description of the Downtown People Mover

Preliminary Environmental Analysis of Downtown People Mover Alternatives

Analysis of Future Parking Requirements of Downtown

Financial Analysis for the Downtown Circulation/ Distribution System

OTHER PHASE TWO DOCUMENTS

Phase Two Community Participation Report

Citizens Advisory Panel Report

Residents View Public Transportation

Endorsements of Downtown People Mover Proposal

Response to Citizens' Concerns

Draft Environmental Impact Assessment of Transportation System Alternatives

Bunker Hill Redevelopment Plan

Bunker Hill Environmental Impact Report

Traffic Studies for Bunker Hill

- o Preliminary Parking Program, Patronage and Revenues
- o Los Angeles CBD Parking Study
- o A Study of the Feasibility of Parking Facility on Parcel X of Bunker Hill
- o Suggested Program for Further Defining Parking and Transportation Aspects of Bunker Hill
- o Programs for Transportation and Parking for Bunker Hill
- o Proposed Parking Program for Bunker Hill
- o Proposed People Mover System Developed in Conjunction with Bunker Hill Satellite Parking Program
- o Bunker Hill People Mover/Peripheral Parking System
- o Bunker Hill People Mover and Satellite Parking Program
- o Peripheral Parking Program Traffic Study
- o A Peripheral Parking Program Central City - Los Angeles
- o The Impact of an Auxiliary Peripheral Parking System on Patronage of the Bunker Hill People Mover System
- o Central City Peripheral Parking Program, Patronage and Revenues
- o Traffic Feasibility Study
- o People Mover West Terminal Parking Site
- o Parking Terminal and/or Bus Intercept From Freeway

PHASE TWO TECHNICAL WORKING PAPERS
..Task Termination Reports..

Socio-Economic Characteristics of Downtown Los Angeles

Activity Centers (Task 20)

Community Plans/Land Use (Task 37)

Employment/Population Projections (Tasks 18, 19)

Land Economics (Task 42)

Study Area Land Use (Task 23)

Transportation System and Travel Demand Characteristics

AMTRAK Patronage at Union Station (Task 14)
Bus and Auto Intercepts (Task 12)
Bus Patronage within CBD (Task 15)
Bus Service within CBD (Task 16)
Internal Travel Demand Modelling (Task 45)
Internal Travel Survey (Task 45)
Other Transit into and within the CBD (Task 17)
Parking Policies (Task 21)
Parking Supply, Location, and Demand (Task 22)
Preliminary Level of Service Analysis (Task 26)
Traffic Engineering (Task 49)

Technology Evaluation

Apply Candidate Technologies (Task 27B)
Mass Rapid Transit/Light Rail Vehicle Considerations (Task 13)
People Mover Design, Engineering Constraints and Physical Description (Tasks 34, 36, 46)
Technology Evaluations (Task 27)

Design and Evaluation Factors

Community Factors (Task 39)
Environmental Factors (Task 41)
Impact Evaluation Factors (Tasks 29, 68)
Social Concerns (Task 38)
Urban Design Factors (Task 40)
Urban Design Proposals (Task 48)

Development and Evaluation of Alternatives

Development of Alternative Considerations (Tasks 28, 43)
Evaluation of Alternative Systems (Tasks 32, 45A, 60/61, 64, 74A)

Financial Evaluation

Capital Costs (Task 51)
Financial Plan (Tasks 58, 59)
Local Funding Sources (Task 55)
Non-Local Funding (Task 54)
Operating Costs (Task 50)
Private Sector Funding (Task 57)
Public Sector Funding (Task 56)
System Revenues (Task 53)
Total Life Cycle Costs (Task 52)

Environmental and Implementation Requirements

Environmental Requirements (Task 72)
Legal, Administrative, and Funding Analysis (Tasks 30, 31)

PHASE THREE DOCUMENTS

Moving People In Los Angeles
Route Refinement Analysis....Overview
Summary
Technical Appendix
Summary Environmental Impact Assessment and Responses to Issues

0. PROGRAM MANAGEMENT AND ADMINISTRATION

0.02 Program Control

Revised Deliverables List
Preliminary Engineering Work on DPM Program

0.03 Program Administration

Monitoring of MBE Program
Budget Status as of May 19, 1978
Preliminary Report on the LA DPM Provision for the Elderly and Physically Handicapped

0.05 Government Liaison

Conceptual Design Criteria for Intercept Facilities

City of Los Angeles Ad Hoc Technical Committee on Transportation Presentation on Route Refinement 3-5-78

Meeting with Jerry Leonard re Busway Extension

Meeting with Caltrans re Concept Design for Busway Extension

TAC Decision on TIP Submittal

Transportation Improvement Program

Regional Core Economic Analysis

1. PUBLIC INVOLVEMENT

1.01 Development of Citizen and User Participation Program

Los Angeles People Mover Citizens/User Participation

Develop Citizen and User Participation Program Task Termination Report

1.04 Implement Public Information Program

Financial Plan Summary for May 4 Public Meeting

2. PROJECT REFINEMENT AND DETAILED ANALYSIS

2.01 Conduct Surface Street Access Studies

Volume/Capacity Relationships

Alternative Route Analysis - Traffic

Convention Center Access Study

Bus Transit on Surface Streets - TSM Actions

Union Station Access Study III

Convention Center Parking Access

2.02 Analyze Parking Interfaces

Estimated Parking Intercept Potential from Proposed Developments

Summary of Parking Intercept Potential

Parking Intercepts

Additional Parking Efforts for Demand Analysis

Recent Survey of Parking Demand and Supply for Buildings Scheduled for Rehabilitation in the Pershing Square Area

Projection Data for Parking Intercepts

Parking Interfaces, Parking Requirements

Potential DPM Substitute Parking for Olive/Hill Revitalization

2.03 Analyze Interfaces with Bus Operations

Sensitivity Testing and Funding Requirements

Bus System Interface Costs

2.04 Analyze Interfaces with Pedestrian System

Interfaces with Pedestrian System

Analyze Interfaces with Pedestrian System

2.05 Refine System Ridership Estimates

Preliminary Analysis of Starter Line Cordon Crossings

Two-Way CBD Cordon Crossings (1990 Daily High Level Bus/DPM Scenario)

Transit Fares

Estimated DPM Ridership by Hour of the Day 1990 (Table 1)

Transit Service From CBD to Regional Corridors

Two-Way CBD Cordon Crossings 1990 - Daily Starter Line/Freeway Transit/DPM Scenario

Latest Patronage Estimates

DPM Passenger Loadings TSM Scenario PM Peak Hour, 1990

Transit Service from CBD to Regional Corridors (Buses per hour, Outbound, P.M. Peak Hour)

Comparative Patronage Estimates TSM, Freeway Transit, Starter Line

Bus to DPM Diversion Rates

Final Patronage Analysis (TSM, Freeway Transit and Starter Line Scenarios, plus 25¢ fare case)

2.06 Refine Guideway Alignment and Station Locations

Travel Times for Hypothetical Trips on each of the DPM Alternatives

Refine Guideway Alignment and Station Location

Alternative Analysis: Environmental Factors

Alignment Evaluation and Recommendation

Guideway and Station Locations

Alternative Analysis: Patronage & Travel Time Evaluations

Union Station Coordination

Patronage Analysis - Hypothetical Questions and Suggested Responses

Station Loadings Recommended Alignment 1990 - Southbound; Northbound, Southbound and Northbound

Station Loadings, Recommended Alignment

2.07 Conduct Preliminary System Sizing Analysis

Fleet Size, Consist and Train Length for Recommended Alignment

2.08 Develop R.O.W. Acquisition and Relocation Plans and Cost Estimates

Time Requirements for Proposed Acquisition of Land and Estimate of Just Compensation for Easement Pertaining to the People Mover System Development

2.09 Framework and Criteria for Alignment and Station Selection

Urban Design Integration (Draft)

DPM Service to Activity Centers Analysis

Urban Design Integration Analysis, DPM

Additional Visual Impact Analysis of Guideway at Critical Locations

Develop Framework and Criteria for Alignment and Station Location

Visual Analysis

Alternate Station Location: 5th & Figueroa

1990 Scenarios

Summary of Meetings to date with Potential Joint Developers

2.12 Determine Potentials for Private Sector Participation Through Value Capture and Other Mechanisms

Recommended Strategy for Defining and Negotiating Private Sector Financial Participation in Los Angeles DPM

Analysis of Alternative Alignment - Private Sector Revenue Potential

Private Revenue Potential for D

2.13 Complete Financial Analysis of C/DS Improvements and Funding Plan

Operating Surpluses of Alignment Alternatives - Interim

Funding Implications of Capital Costs of the Alignment Alternatives

Strategy for Funding Capital Costs

Financial Evaluation of D (Grand-Hill Pair) Alignment

Operating Funding Alternatives

Twenty Cent Base Fare Alternative

Ten Cent Initial Base Fare Alternative

Inflated Phase II Fare, Parking and Ad Revenues

Ten Cent Initial Base Fare Alternative with Traditional UMTA and TDA Funds

Ten Cent Base Fare Alternative with Tax Increment Financing (Phase III fares) Operating Fund Plan Analysis

Capital Funding Alternatives

Range of 1984 Revenues, Operating Funding Plan

State Proposition 5 Funding Issues

Interstate Legislation Impacts on Interstate Funding

3. ENGINEERING

3.01 Configuration Management

DPM Data Book

Configuration Management -Implementation Phase

Facility Design Review

3.02 Determine Fare Collection Equipment Requirements, Specifications, Design Criteria and Cost Estimates

LA DPM Fare Collection Options

Fare Collection System Design

LA DPM Deliverables

Revised Fare Collection Criteria

Fare Barriers for the DPM Stations

3.03 Determine Command, Control, and Communications Subsystem Requirements Specifications, Design Criteria, and Cost Estimates

Control System Criteria

Communications Criteria

Quantities for CCTV Cameras, Passenger Assistance Telephones, and Fire/Emergency Telephones

3.04 Determine Electrification Requirements, Specifications Design Criteria, and Cost Estimates

Summary Table of Propulsion Power Concepts of Potential System Suppliers

Baseline Electrification Design

Electrification Criteria

3.05 Determine People Mover Vehicle Requirements, Specifications, Design Criteria, and Cost Estimates

Vehicle System Data

DPM Design Reviews Tasks

Vehicle Criteria

Vehicle Procurement Schedule Data

3.07 Develop System Safety, Security and Assurance Requirements

Systems Assurance Framework Plan

Initial Hazards Analysis

Train (Platform) Screens Considerations

Guideway Service/Emergency Walkway Policy

Train/Platform Barriers

3.08 Develop Operation and Maintenance Requirements, Plans, and Cost Estimates

DPM Maintenance Requirements

Preliminary Failure Management Analysis

Recommended Crossover Location and Emergency Storage Locations and Capacities for Baseline Preliminary Design

Estimating Operating and Maintenance Budgets

Train Operations Report

Refinement of Train Operations Analysis

Final Train Operation Report

Operating Cost Estimates

3.09 Conduct Utility, Public Facility, Street, Sidewalk, and Traffic Control Relocation Studies

Traffic Control Relocation Studies

Utility and Public Facility Disruption

Column Location on Figueroa Street Between 7th and Olympic Boulevard

3.10 Determine Intercept Site Location

Determine Intercept Site Location

Union Station

3.12 Refine Guideway Alignment and Station Locations

Alignment Alternatives Evaluation

Alternatives Evaluation

Refine Guideway and Station Location

Adopted Alignment F.A.C.E.

People Mover Easement Through the Parcels O & N

Guideway Alignment

DPM Alignment Between 5th and 7th Streets

3.13 Prepare Intercept Facility Site Development Drawings

Intercepts - Program Definition

Draft Proposal for a Transportation Center at Union Station—Request for Approval of Recommendations

3.14 Prepare Maintenace, Storage, Administration, and Operations Center Site Development Drawings

Yard Layout (Union Station)

Maintenance Building Layout

Revised Maintenance Building and Yard Layouts

3.16 Prepare Station Site Development Drawings

Station Architecture Treatments

3.17 Develop R.O.W. Acquisition Requirements

Develop R.O.W. Acquisition Requirements

3.18 Develop Engineering, Architectural, and Urban Design Criteria and Standards

Engineering Criteria - Construction Code Survey

Preliminary Fire Department Requirements

Design Cirteria - Traffic

Architectural Criteria and Standards for DPM Sections 10 thru 16, Sections 18 thru 25.. Preliminary Submission

Preliminary Submission of Section 17, 21, 22, 24 and 26 Architectural Criteria and Standards for DPM

Revised Utility Criteria

Preliminary Submission of Sections 19 and 20 Architectural Criteria for DPM

Resolution to Open Alignment Questions and Action Requested from the Alignment Design Review of June 19

3.19 Geotechnical Analysis

DPM System

3.20 Conduct Control Surveys

Control Surveys

3.21 Conduct Guideway Structural Analysis and Develop Guideway Design Criteria

Guideway Types

DPM Guideway Design Criteria

Structural Division of Work

Conduct Guideway Structural Analysis and Develop Guideway Design Criteria

Aerial Guideway Locations

Station Foundation Loadings

Structural Design Criteria

3.23 Prepare Intercept Facility Plans, Specifications, and Cost Estimates

Retail Opportunities at Intercepts

Bus Turning Criteria

Intercept Facility Design Criteria

3.24 Prepare Plans, Specifications, and Cost Estimates for the Maintenance, Storage, Administration, and Operations Center Facilities

DPM Vehicle/Platform Door Operational Policy

3.25 Prepare Guideway and Station Foundation, Tunnel and Station Structures Plans, Specifications and Cost Estimates

DPM Underground Tunnel and Station Design Criteria

Foundation Design

Structural Design Criteria

3.26 Develop Subway Ventilation Plans, Specifications, and Cost Estimates

Preliminary Subway Ventilation Report

Subway Ventilation Criteria

3.27 Assemble Capital Cost Estimates

Segments for Costing Work

Escalation and Implementation Schedule

3.28 Assemble System and Subsystem Requirements, Specification, and Design Criteria

Future Extension and Modifications

DPM Vehicle/Platform Door Operation Policy

Review of Hardware Design Criteria

Load Policies

System Specification Outline

3.29 Develop Preliminary Construction Schedule

Construction Process

4. ENVIRONMENTAL IMPACT ANALYSIS

4.01 Update Environmental Baseline Data Base

Review and Update Environmental Setting

Historic Sites and Cultural Facilities

Environmental Baseline Data Update

Floor Area and Employment Data

DPM Analysis Zone and Census Block Correspondence

Boundary Review - Environmental Impact Zone

Distribution of Retail Floor Area by Zone

Visual and Aesthetics Portion of Environmental Setting of EIR

Activity Centers Portion of Environmental Setting of EIR

4.08 Analyze Construction Economic Impacts

Report - Construction Impacts, Economic

4.09 Analyze Construction Disruption and Displacement

Completion of Economic Assessment of Construction Impacts Field Evaluation Forms

4.12 Analyze Traffic and Circulation Disruption

Construction Impacts - Traffic and Circulation

4.15 Analyze Land Use Changes

System Impacts - Land Use

4.16 Analyze Impacts on Property Value and Taxation

Analyze Impacts on Property Value and Taxation

4.18 Estimate Flood Impacts

Flood Hazard Report

4.20 Conduct Ambient Noise Survey

Ambient Noise Survey

4.21 Analyze Noise Impacts

Noise Impacts/Computer Analysis

4.23 Analyze Impacts on Transportation and Circulation

CBD Through Trip Analysis

Traffic Input For Air and Noise Quality Analysis

4.29 Analyze Impacts on Wildlife and Vegetation

Vegetation Inventory

4.31 Analyze System Impacts on Historic Sites and Cultural Facilities

Historical/Architectural and Archaeological Survey

Historical Survey Products

Interim Historical Survey Products

4.32 Analyze Impacts on Parks and Open Spaces

Analyze Impacts on Parks and Open Spaces

4.33 Analyze Impacts on Disruption and Displacement of Residents

Residential Disruption and Displacement

4.37 Computer Network Analysis

Fleet Emission Factors

5. IMPLEMENTATION PROCESSING

5.01 Develop Contractor and Supplier Procurement and Acceptance Procedures

Procurement Package

Rationale for Dividing Project into Multiple Contracts for Procurement

Preliminary Outline for Procurement Bid Package

6. PROGRAM DOCUMENTATION

6.01 Prepare Program Interim and Final Reports

Program Director's Report

Monthly Progress Report

Quarterly Report

Draft Outline DEIR/DEIS LA DPM

Summary Report - Route Refinement Analysis

Overview - Route Refinement Analysis

Technical Appendix - Route Refinement Analysis

Scope of Services for Downtown People Mover Before/After Study

APPENDIX 4

ORGANIZATIONS AND INDIVIDUALS CONSULTED

LOCAL GOVERNMENT AGENCIES

City of Los Angeles

Attorney's Office	Bill McCarley Roger Holt Gary Netzer
Council Deputies	Alica Belinkoff Carrie Chassin Robert Gay Nina Hermelyn Lou Innerarity Mike Odenheimer Tom Read Rita Schneer Tom Spivak Michael Stewart Midori Tabata Carolyn Watts
Cultural Heritage Board	Ileana Welch
Engineering Department	Frank Bonoff Martin Dubowsky Steve Fortune Sam Furuta Rodrigo Garcia Bill Holland Don Howery Philip E. Johnson Clifford Jones Alan Lee Leroy Lembke Homer Morimoto Robert Scott Harry Sizemore Dr. Christopher Stevens Stanley Sysak Donald C. Tillman
Engineering Bureau of Standards	Paul Zapp
Fire Department	Captail Mullen
Legislative Analyst	Gil Archuletta Dan Beal Claudia Culling Bob Marzullo
Los Angeles Convention Center and Visitors Bureau	Joe Woodard
Mayor's Office	Norman Emerson Julie Sgarzi
Off Street Parking	Guy Inkel
Office of Economic Development	Bruce Oliver
Planning Department	Phil Aker Peter Broy Calvin Hamilton Al Landini Alice Lepis William Lillenberg Fred Lge Reuben Lovret Charles Montgomery Ted Mureau Robert Sutton
Police Department	Captain Swinhart
Public Utilities	David Talcott Bob Russell
Traffic Department	William Childs Lou Clearwater Tom Conner Milbert F. Huber James McLaughlin James M. Okazaki Rafael A. Prepena Ed Rowe James H. Sherman Gerald Skiles

LOCAL GOVERNMENT AGENCIES
continued

Community Redevelopment Agency

Administration	Michael Frances David Lewis
Agency Board Members	Alan A. Goldstein Marilyn W. Hudson Kurt W. Meyer Howard Nishimura Andrew Wall Dr. Everett T. Welmers James M. Wood
Planning Department	John Spaulding
Real Estate Department	John Curry Virgil McDowell

Southern California Rapid Transit District

Board of Directors	George Brewster Byron Cook Donald Gibbs Marvin Holen Jerry Leonard Mike Lewis Thomas Neuson Jay B. Price Ruth Richter Charles Storing George Takei
Bus Planning Department	Martha Curtis Al Holman Pat Van Matre Dan Miller Frank Schroeder Paul Taylor Ben Urban
Executive Department	Ralph de la Cruz Chris Dahlstrom Jack Gilstrap George McDonald

Southern California Rapid Transit District

Operations Department	Sam Black Allan Styffe
Transit Department	Marvey Chapman Lou Collier Richard Gallagher Lenwood Howell Neil Richards Nadeem Tahir

County of Los Angeles

Board of Supervisors Deputies	Ed Cano Jerry Leonard Michael Lewis
Museum of Natural History	Tom Sitton
Planning Department	Art Hasegawa Babe Karasawa Norm Murdoch
Road Department	Lou Audelo Ed Benedict Roland Etcheverry John Fuller Gary Kaiser Irv Morhar Don Royce Tom Tidemanson
Transportation Commission	Gary Van Buskirk Don Comph Tim Egan Tisa Hanson Joe Leach Jerry Premo Rick Richmond Tommy Ross
Transportation Commission Technical Advisory Committee	Earl Docimo Bob Kobel Tom Narrigan

STATE

Air Resources Board	John Grissinger Don McAefrisch
Assembly Transportation Committee	D.J. Smith
California Department of Transportation	
Division of Mass Transit	George Gray Ron Hollis Vic Weiser
Environmental Investigation	Rudy Hendricks Larry Loudon
Environmental Planning	Wally Griffin Ron Kosinski Lois Webb
Executive Department	Bob Datel Peter Hathaway Heinz Heckeroth Dana Henry Vince Paul Dave Roper
Los Angeles Regional Transportation Study	Norm Roy
Program Budget Department	Ebert Yung
Program Development Department	Don Cross Sid Elicks Marshall Young
Transit Department	Jerry Baxter Chuck Boyer Dale Ratzlaff Joe Sanchez Gary Stevens
California Transportation Commission	William Weber
Department of General Services	Tim Timberlake
El Pueblo de Los Angeles State Historic Park	Jean Poole David Rosenthal
Governor's Office	Ron Bass
Legislative Analyst	Bob McCleary
Senate Select Committee on Public Transportation in Los Angeles	Rich Rollins
State Historic Preservation Office (Parks and Recreation)	Gene Itogawa John Merritt
State Resources Agency	Secretary
University of California Los Angeles	
Archaeological Department	Dr. Martin Rosen
Graduate Student	John Chase
History Department	Dr. Thomas Hines

REGIONAL

Bay Area Rapid Transit District (San Francisco, Ca.)	Marketing Staff
Metropolitan Mass Transit Authority (Washington, D.C.)	Michael Noonchester Hugh Wynn
Southern California Association of Governments	
Air Quality Maintenance Plan Department	Paul Wuebben
Transit Advisory Committee	David Fine
Transportation Department	William Ackermann Laurel Roennau Jim Sims Bill Wells Tad Widby Bob Zimmerman

FEDERAL

United States Department of Transportation	
Federal Highway Administration Administration	Tom Coslowsky Al Gallardo George Katayama Larry King
Urban Mass Transportation Administration	
Administration	Stewart Eurman Dee Jacobs Vincent DeMarco
Environmental Section	Edward Fleishman Abbe Marner
Grants Division	Roger Kraul
Planning Division	Michael Kennedy
United States Environmental Protection Agency (San Francisco Regional Office)	Imants Krese Marcia Williams

PRIVATE
(non-governmental)

American Resources Board	Bill Loscotoff
Atlantic Richfield Company	Artranto Zumaya
Audubon Society	Gene Brandt
Automobile Club of Southern California	Vince Desimone Dave Grayson
Chamber of Commerce (Los Angeles Area)	Bob Kiskaddon Verne Wochnick
Kaiser Engineers	Farrell Schell
Keyser Marston & Associates	Fred Norberry
National Geographic Society	Index Service
Parking Concepts, Inc. (consulting firm)	Gil Barnet
Railroads	
Amtrak	Art Lloyd
Los Angeles Union Passenger Terminal	Bob Pfister
Southern Pacific Land Company	Leo Brown
Security Pacific Bank	Chuck Adams
Wilson, Ihrag & Associates	Dr. George Wilson

INDIVIDUALS

Margaret Bach
Los Angeles Architect

Vance Bente
Archaeologist

Roberta Greenwood
Archaeologist

Roger Hatheway
Consultant

Robert Wlodarski
Archaeologist

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT

DISTRIBUTION LIST

Forwarded 5/26/78 to:	Urban Mass Transportation Administration
	Federal Highway Administration
	California Transportation Department
	Southern California Association of Governments
	Los Angeles County Transportation Commission
	Los Angeles County Board of Supervisors
	Southern California Rapid Transit District
	Federal Rail Administration
	Southern California Air Quality District
	Environmental Protection Agency
	Los Angeles City Municipal Arts Commission
	Los Angeles City Office of Environmental Quality
	State Clearing House
	Community Redevelopment Agency of the City of Los Angeles, California
	Public Utilities Commission (Los Angeles)
Forwarded 6/1/78:	State Lands Commission
	Parks and Recreation Department
	Department of General Services
	Public Utilities Commission (San Francisco)

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT RESPONSES

AGENCY	DATE OF RESPONSE	COMMENT
Federal Railroad Administration	6-16-78	Concerned with impact DPM will have on AMTRAK operations & property.
Los Angeles County Transportation Commission	6-6-78	Interested in construction financing plans and operation as DPM relates to other transit services. Also interested in various environmental issues that may be cited in EIR summary.
Southern California Association of Governments	6-14-78	Included in bi-weekly Clearinhouse Listing -- no further comment.
Southern California Rapid Transit District	6-20-78	via telephone...concerned about overly high impact on bus patronage, transfers from bus to DPM, also alignment of DPM vis-a-vis rail.
	7-17-78	Draft letter...DPM patronage estimates to high. Seeking CRA commitment to review in detail RTD staff independent patronage analysis when completed by early Fall. Provided a copy of recommendation to RTD Board for "General Consideration for Notice of Preparation of a Draft EIR for Proposed DPM".
State Lands Commission	6-7-78	Staff of Commission stated, "It does not appear that the Commission will have any permit jurisdiction."

AGENCY	DATE OF RESPONSE	COMMENT
Federal Highway Administration	6-23-78	FHWA has obligation to review and comment on proposals affecting Federal-aid projects. Stated People Mover will directly impact Hollywood Freeway and may affect El Monte Busway on Interstate 10. Alternatives considered in assessment too strictly structured. Construction impacts from 1978-1980 should be extended. Noise impacts listed as "minor beneficial" should be considered adverse. Suggested expanding Historic Cultural sites to include all eligible sites and that impact on each be noted.
California Deparment of Transportation	6-27-78	Suggested importance of associated construction impacts be fully discussed in environment document. Suggested El Monte Busway extension be included in the Improved Bus Alternatives
Southern California Air Quality Management District	7-7-78	Air quality analysis impacts should be full and complete, both primary and secondary impacts.

APPENDIX 5

INITIAL STUDY

APPENDIX 5: INITIAL STUDY

City of Los Angeles Guidelines for implementation of the California Environmental Quality Act include an Initial Study Checklist to determine whether a proposed project requires preparation of an Environmental Impact Report. Although an Environmental Impact Assessment was prepared for this project in 1977, a formal initial study was never officially filed because it was assumed that an environmental document would be prepared. However, an initial study checklist was completed for this project and the results of that checklist form the basis of the impact matrices shown in Chapter IV.

The attached forms show the results of the initial study, in which the environmental checklist was reviewed. As indicated, each question has been answered with a "yes," "maybe," or "no." Some questions have been answered in the affirmative, even if the impact is trivial. Brief explanations of the "yes" and "maybe" answers are included below. More detailed discussions can be found in other sections of this document. The EIR guidelines do not require further discussion of those questions answered in the negative.

CITY OF LOS ANGELES
GUIDELINES FOR IMPLEMENTATION OF THE
CALIFORNIA ENVIRONMENTAL QUALITY ACT

APPENDIX I

INITIAL STUDY CHECKLIST
(To be completed by Lead City Agency)

I. BACKGROUND

1. Name of Proponent: City Council of the City of Los Angeles
2. Address and Phone Number of Proponent: ____________
3. Date Checklist Submitted: ____________
4. Agency Requiring Checklist: ____________
5. Name of Proposal, if applicable: Los Angeles Downtown People Mover

II. ENVIRONMENTAL IMPACTS
(Explanations of all "yes" and "maybe" answers are required on attached sheets.)

1. Earth. Will the proposal result in:

	YES	MAYBE	NO
a. Unstable earth conditions or in changes in geologic substructures?			X
b. Disruptions, displacements, compaction or overcovering of the soil?	X		
c. Change in topography or ground surface relief features?			X
d. The destruction, covering or modification of any unique geologic or physical features?			X
e. Any increase in wind or water erosion of soils, either on or off the site?			X
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion			

	YES	MAYBE	NO
which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?			
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	X		
2. Air. Will the proposal result in:			
a. Air emissions or deterioration of ambient air quality?			X
b. The creation of objectionable odors?			X
c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X
3. Water. Will the proposal result in:			
a. Changes in currents, or the course or direction of water movements, in either marine or fresh waters?			X
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?			X
c. Alterations to the course or flow of flood waters?			X
d. Change in the amount of surface water in any water body?			X
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?			X
f. Alteration of the direction or rate of flow of ground waters?			X

	YES	MAYBE	NO
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?			X
h. Reduction in the amount of water otherwise available for public water supplies?			X
i. Exposure of people or property to water related hazards such as flooding or tidal waves?			X
4. Plant Life. Will the proposal result in:			
a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops and aquatic plants)?	X		
b. Reduction of the numbers of any unique, rare or endangered species of plants?			X
c. Introduction of new species of plants into an area, or is a barrier to the normal replenishment of existing species?		X	X
d. Reduction in acreage of any agricultural crop?			X
5. Animal Life. Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?			X
b. Reduction of the numbers of any unique, rare or endangered species of animals?			X
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?			X

	YES	MAYBE	NO
d. Deterioration to existing fish or wildlife habitat?			X
6. Noise. Will the proposal result in:			
a. Increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?	X		
7. Light and Glare Will the proposal produce new light or glare?		X	
8. Land Use. Will the proposal result in an alteration of the present or planned land use of an area?	X		
9. Natural Resources. Will the proposal result in:			
a. Increase in the rate of use of any natural resources?	X		
b. Depletion of any non-renewable natural resource?			X
10. Risk of Upset. Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?			X
11. Population. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?	X		
12. Housing. Will the proposal affect existing housing, or create a demand for additional housing?	X		
13. Transportation/Circulation. Will the proposal result in:			
a. Generation of additional vehicular movement?		X	

	YES	MAYBE	NO
b. Effects on existing parking facilities, or demand for new parking?	X		
c. Impact upon existing transportation systems?	X		
d. Alterations to present patterns of circulation or movement of people and/or goods?	X		
e. Alterations to waterborne, rail or air traffic?			X
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	X		
14. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?	X		
b. Police protection?	X		
c. Schools?			X
d. Parks or other recreational facilities?	X		
e. Maintenance of public facilities, including roads?			X
f. Other governmental services?			X
15. Energy. Will the proposal result in:			
a. Use of additional amounts of fuel or energy?	X		
b. Increase in demand upon existing sources of energy, or require the development of new sources of energy?	X		X

	YES	MAYBE	NO
16. Utilities. Will the proposal result in a need for new systems, or alterations to the following utilities:			
a. Power or natural gas?	X		
b. Communications systems?	X		
c. Water?	X		
d. Sewer or septic tanks?	X		
e. Storm water drainage?			X
f. Solid waste and disposal?	X		
17. Human Health. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X
18. Aesthetics. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?	X	X	
19. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	X		
20. Archeological/Historical. Will the proposal result in an alteration of a significant archeological or historical site, structure, object or building?		X	

	YES	MAYBE	NO
21. Mandatory Findings of Significance.			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or retrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals: (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)			X
c. Does the project have impacts which are individually limited, but cumulatively considerable?* (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	X		
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

III. DISCUSSION OF ENVIRONMENTAL EVALUATION
(Attach additional sheets)

IV. DETERMINATION
(To be completed by the Lead City Agency)

On the basis of this initial evaluation:

___ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

___ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

___ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Prepared by ______________________

Title ______________________

Revised 8/1/78

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* "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

1b. There will be some minor displacement of soil during the construction phase. (These impacts are discussed in Section IV-122.3.)

1g. Since the DPM will be elevated, riders will be somewhat more exposed to potential earthquake hazards than before. (This topic is discussed in CRA Task #4.17.

4a. Construction of the DPM will require removal of a few trees at specific locations. (See Construction Impact Matrix, Chapter IV.)

4c. This two-part question requires a two-part answer: First, the DPM will not be a barrier to the normal replenishment of existing species. Second, since landscaping will be an integral part of the project design, it is always possible that the species elected for planting will be new to the downtown area. (See Chapter IV.).

6b. It is likely that for short periods during the construction phase noise levels would be relatively high. (See Construction Impact Matrix, Chapter IV.)

7. At night Stations will be illuminated, thus adding light to the downtown area. During the day, reflections of light from glass may result in a trivial increase in glare. (See Project Description, Chapter II.)

8. One of the major impacts of the DPM will be changes in land use (See Operations Impact Matrix, Chapter IV.)

9a. Construction will require the use of certain natural materials. (These are discussed in Chapter VI.) In addition, energy resources will be required to construct and operate the system. (See Question 15.)

11. and 12. The DPM will affect the pattern of development for housing and the human population. (See Chapter IV.)

13a. The DPM will result in increased vehicular movement in the vicinity of the intercept parking lots. (See Operations Impact Matrix, Chapter IV.)

13b. The intercept parking structures will lessen the need for new on-site parking facilities. (See Operations Impact Matrix, Chapter IV

13c. To a limited degree, the DPM will affect the routing and service levels for existing bus and minibus lines. (See Chapter IV.)

13d. Since the DPM will be a new fast, reliable mode of travel, it will significantly affect the patterns of circulation and distribution of people. (See Chapter IV.)

13f. To a limited degree, the location of guideway support columns may increase traffic hazards to motor vehicles. Construction may also disrupt traffic for short periods of time, leading to possible increases in traffic hazards. (See impact matrixes in Chapter IV.)

14a. Additional foot patrol will be needed at the intercept parking structures. The guideway could limit emergency access to certain buildings.

14d. The DPM will provide increased accessibility to certain parks. Right-of-way acquisition will require taking acres of park land in the downtown area. (See impact matrixes in Chapter IV.)

15a. and b. The DPM will not require the development of new sources of energy, but it will result in minor increases in the demand for existing sources. DPM energy requirements would represent .02% of demand on DWP in 1990. (See Chapters II, IV, and VI.)

16. The construction of the DWP will require utility relocation along particular segments of the route, but this will not affect utility services to users. (See Construction Impact Matrix, Chapter IV.)

18. The modern design of the DWP may be incompatible with older structures along portions of the route. The guideway will block some views and vistas. (See impact matrixes in Chapter IV.)

19. The DPW will improve accesibility to several parks and open space areas. (See impact matrixes in Chapter IV.)

20. During construction, there is the potential for disruption of historical archaeological remains. (See Construction Impact Matrix, Chapter IV.)

21c. Economic benefits such as increased retail sales which accrue to individual establishments, may be modest in scope, but when all beneficiaries are considered, along with the expected multiplier or "ripple" effects, the cumulative impact is considerable. (See Section IV-400.)

Downtown People Mover Program

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