DRAFT ENVIRONMENTAL IMPACT REPORT

Executive Summary

The Los Angeles Downtown People Mover Program

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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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1. OVERVIEW

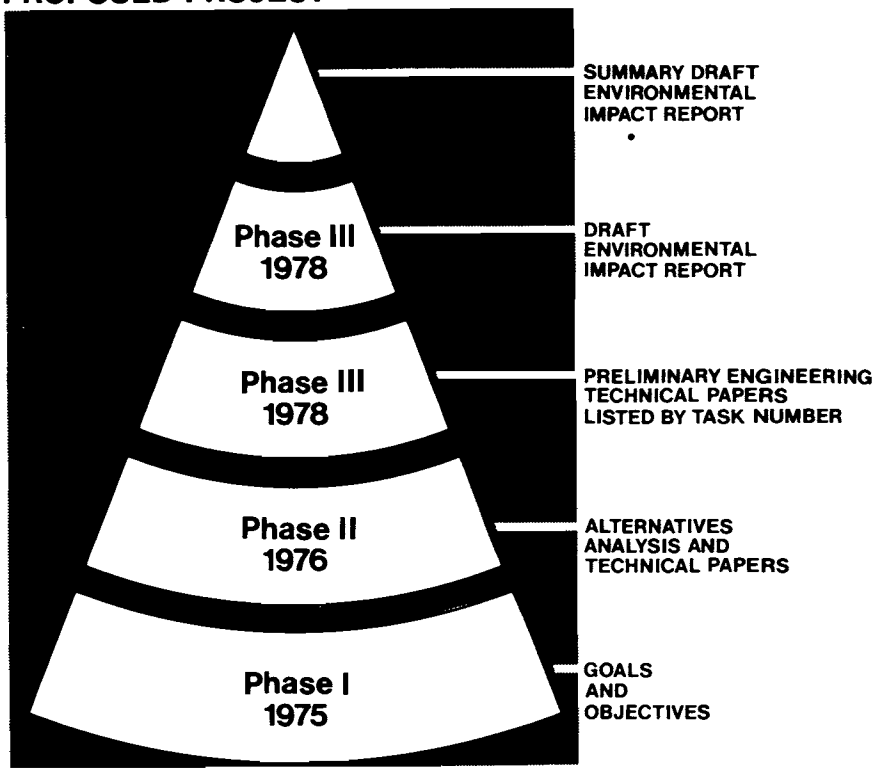
This report summarizes the environmental impacts of implementing a people mover system in downtown Los Angeles. This environmental assessment represents one element of the Phase III preliminary engineering workprogram initiated in February 1978. It also incorporates analysis conducted during previous phases of study. In this respect it draws extensively from the reports: Moving People in Los Angeles: A Summary Report of the Los Angeles Circulation/Distribution System and Summary Draft Environmental Impact Assessment and Responses to Issues.

The Draft Environmental Impact Report summarized in this document is prepared according to guidelines published by the City of Los Angeles in response to requirements of the California Environmental Quality Act (CEQA). This summary contains references to major aspects of that document. It is prepared to facilitate review of the project and to enable interested parties access to background information.

Figure 1 illustrates the major phases of analysis that directly relate to the proposed project. The Phases are cumulative and represent various stages of project refinement. The Technical Appendix is structured according to the phases of analysis outlined in Figure 1.

FIGURE 1

OVERVIEW OF ANALYSIS RELATED TO THE PROPOSED PROJECT



2. 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 2.) 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 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.

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.

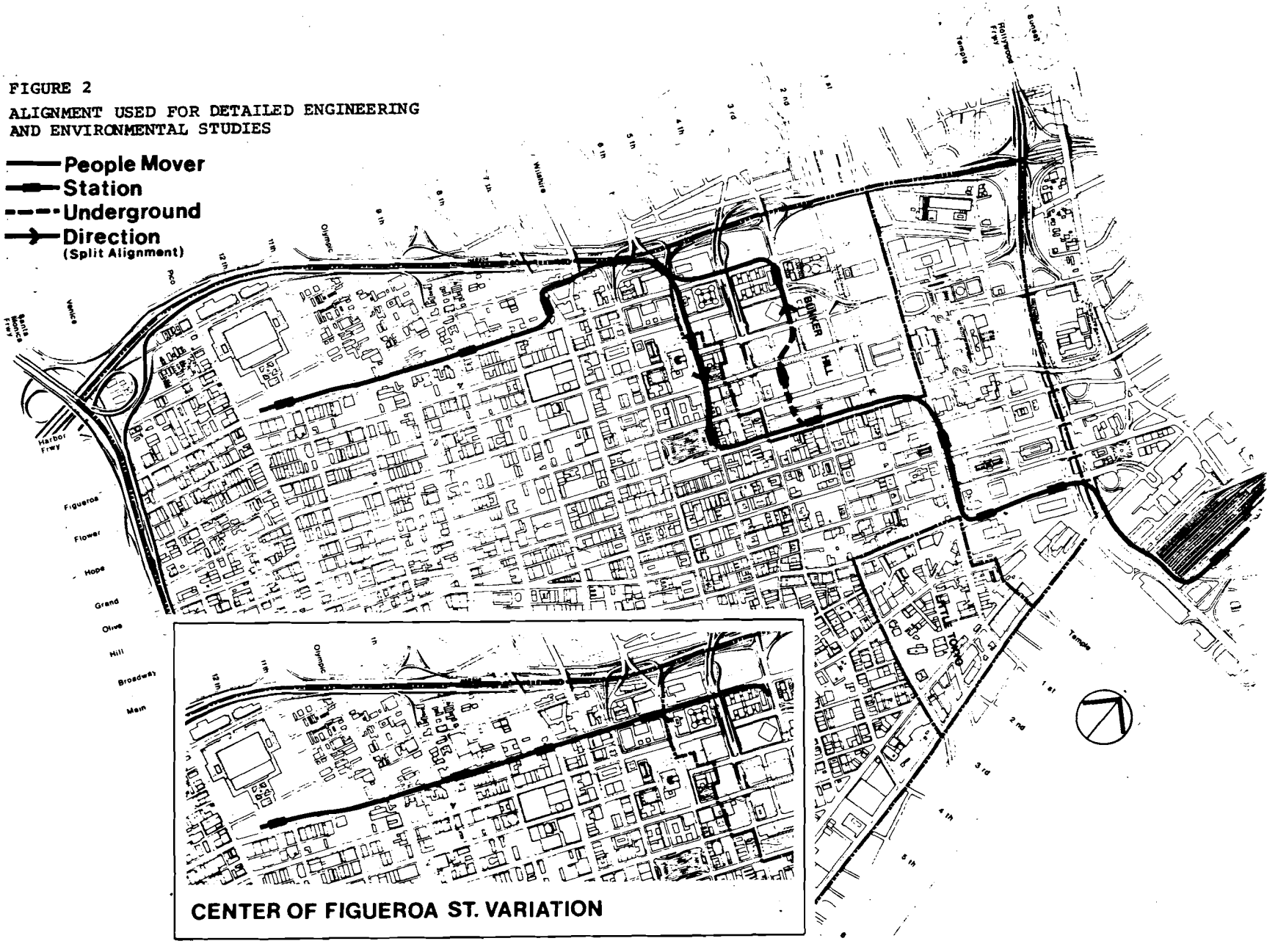
2.1 Description of the People Mover

The Los Angeles Downtown People Mover is an automated, grade separated circulation/distribution transportation system. The system described in this section 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 2. 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.

FIGURE 2

ALIGNMENT USED FOR DETAILED ENGINEERING AND ENVIRONMENTAL STUDIES



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.

ALIGNMENT

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.

An insert on Figure 2 shows a variation of the Figueora alignment located along the center of Figueora from 5th Street to the Convention Center with stations near 5th, 7th, and 9th Streets over the streets and connected to each side with short pedways.

*This variation 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. 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.

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.

GUIDEWAY

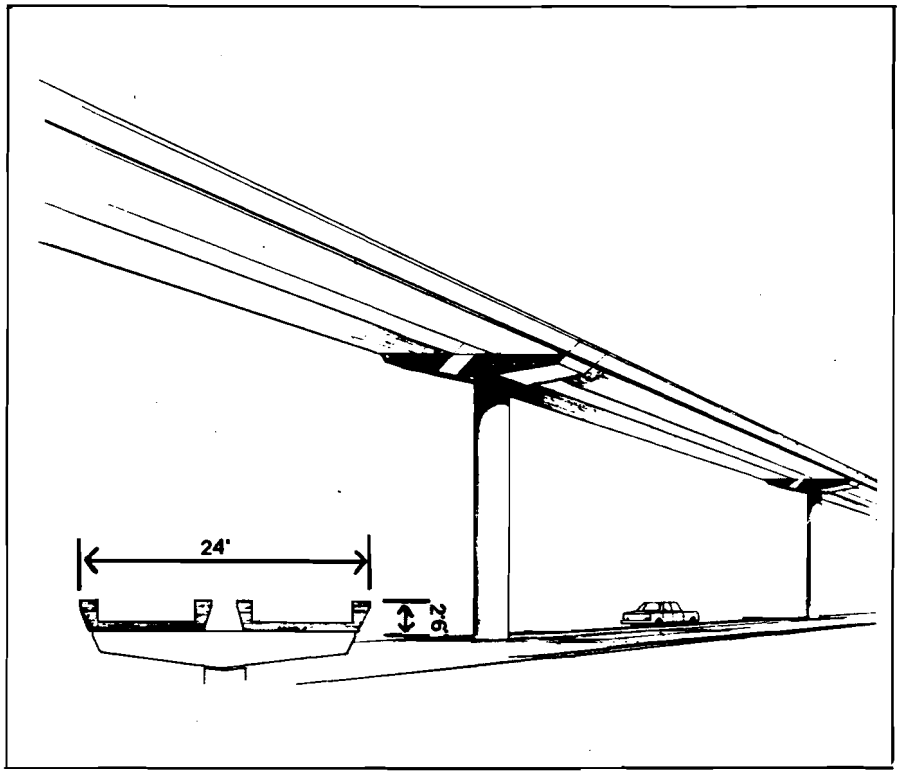
Guideway designs considered for the DPM system may be categorized by the manner in which they support the vehicle. For the DPM system these guideway options are: bottom-supported roadway, bottom-supported monorail beam, and top-supported monorail beam. Of the candidate systems which are presently available, only one uses a top-supported monorail beam. This system does not meet the study criterion 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. Figure 3 shows 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 3 also shows a typical guideway cross section for a monorail beam. 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 4. 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.

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.

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.

FIGURE 3: Typical Guideway Cross Sections



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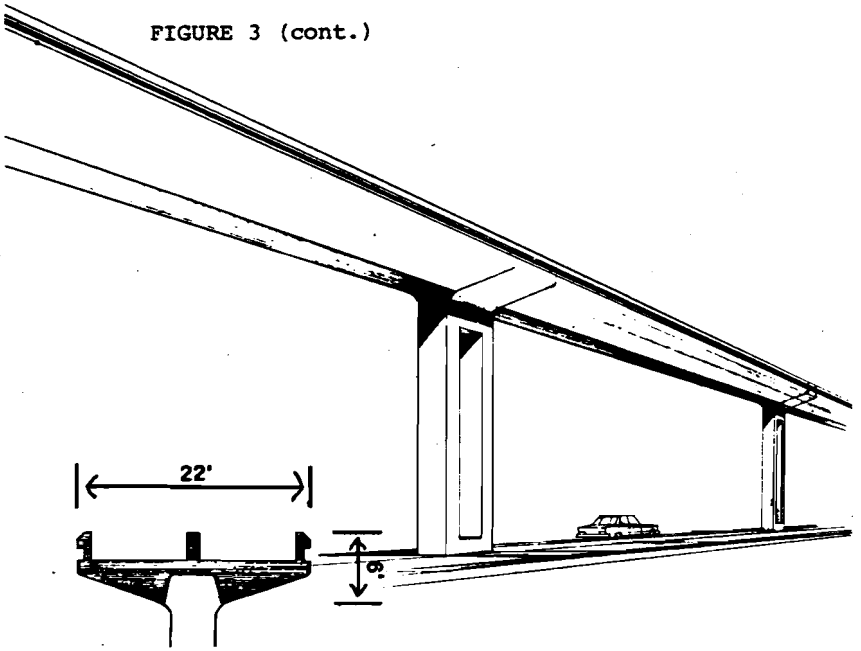

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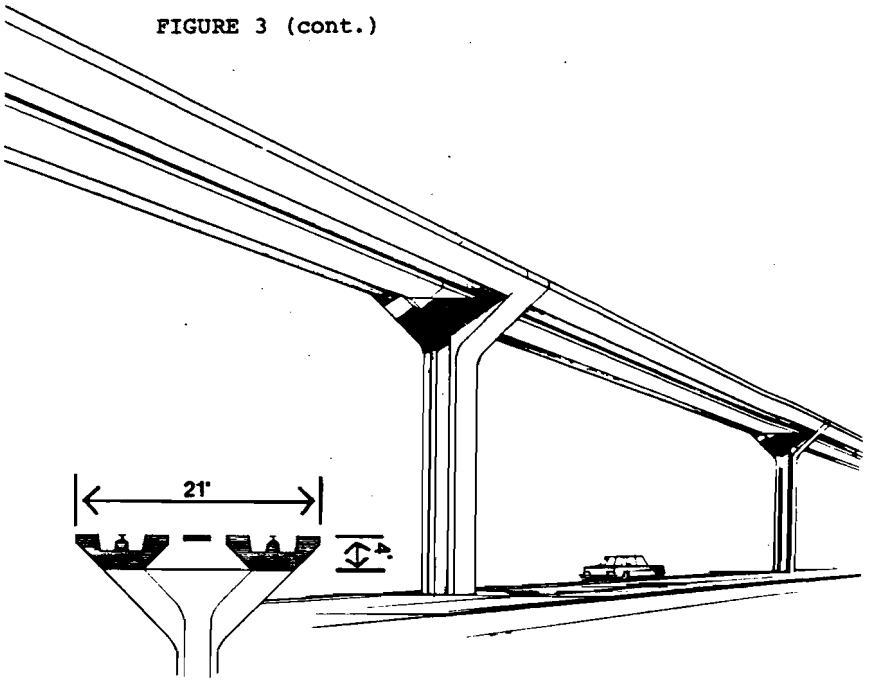
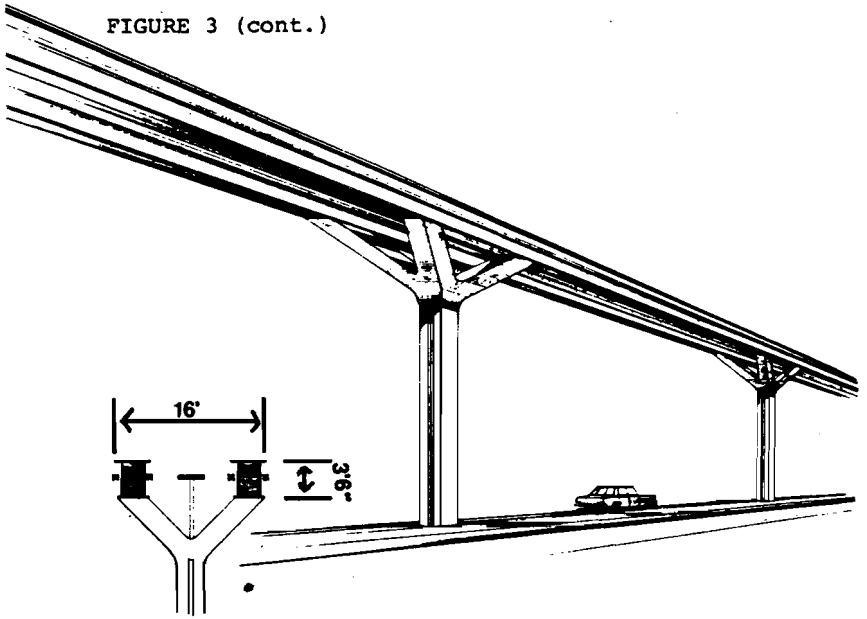


FIGURE 3 (cont.)



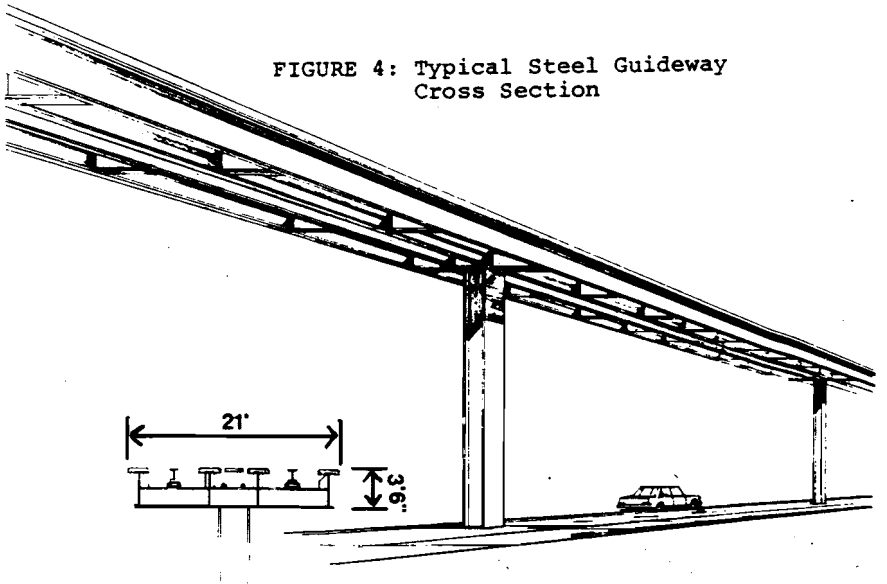


FIGURE 4: Typical Steel Guideway
Cross Section

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 Figure 5. One of these systems features a vehicle suspended on an air cushion and uses a linear-induction motor; still another vehicle operates on a monorail guideway beam.

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.

PROVISIONS FOR ELDERLY AND HANDICAPPED

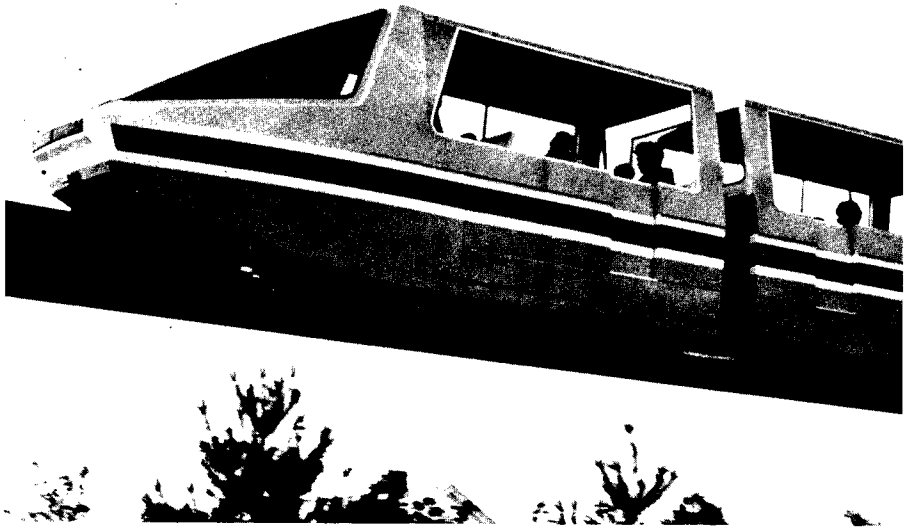
DPM policies and concepts have been developed to ensure that the DPM vehicles and facilities will be fully accessible to elderly and handicapped persons. These policies and concepts are in compliance with American National Standards Institute standards and Section 504 of the Rehabilitation Act of 1973.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

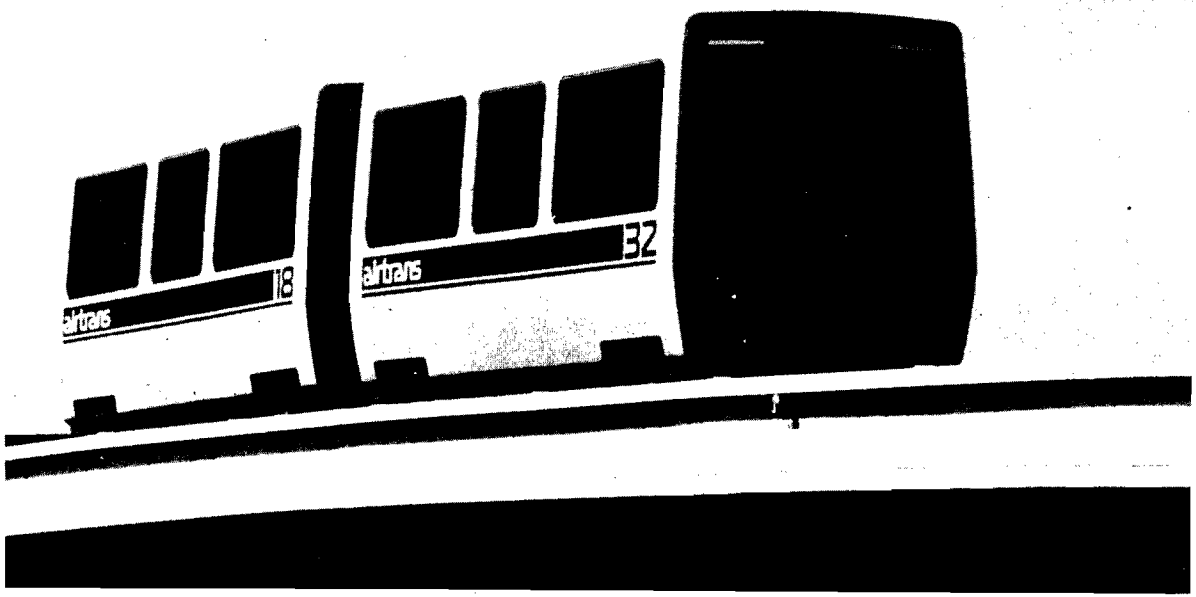
TABLE 1:
1990 DPM OPERATING PLAN

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

TOTAL ROUND-TRIP TIME about 27 minutes

AVERAGE STATION DWELL TIME = 25 seconds

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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 In 1990, the DPM system as a whole will consume some 20.7 million kilo-watt hours of electrical energy. A similar estimate for 1983 (initial system revenue operation) would be approximately 19.7 million kwh.

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:

- o 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.
- o Circulation trips are trips which begin and end in the downtown; for example, a noon-hour trip from office to restaurant.

TABLE 2 shows the split of daily trips among regional bus transfers, auto transfers, and circulation trips throughout the operating day.

Figure 6 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.

Table 2. DAILY DPM RIDERSHIP, 1990

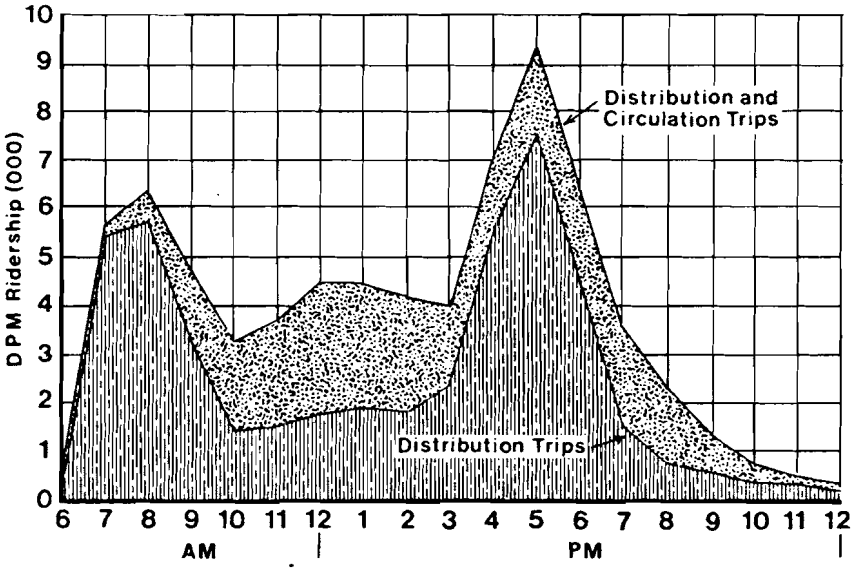
Distribution Trips	
Trips to/from transit stops	34,159
Trips to/from parking lots	12,529
Circulation Trips	25,720
TOTAL DPM RIDERSHIP	72,408

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 6

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



2.2 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.

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.

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.

2.3 Relationship to 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:

- o Transportation Systems Management (TSM) consists of an 11% increase in local bus frequency, together with a 30% increase in express bus frequency.
- o 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.
- o 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 terminate be intercepted at the Convention Center and Union Station. Other bus routes continue on downtown after stopping at the DPM station. These buses that stop near Dpm stations are designated as interface buses.

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 interface is not increased. When the starter line is considered, additional transit interface is made possible.

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.

2.4 PROJECTED OPERATING COSTS AND SOURCES OF FUNDS

Table 3 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 4 lists proposed sources of operating funds.

TABLE 3

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 4

PROPOSED SOURCES OF OPERATING FUNDS*

	1983 (millions of 1978 dollars)	1990 (millions of 1978 dollars)
DPM Passenger Revenue (10 cents average fare 1976 dollars)	2.2	2.3
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.

2.5 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 7 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 5 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.

TABLE 5

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

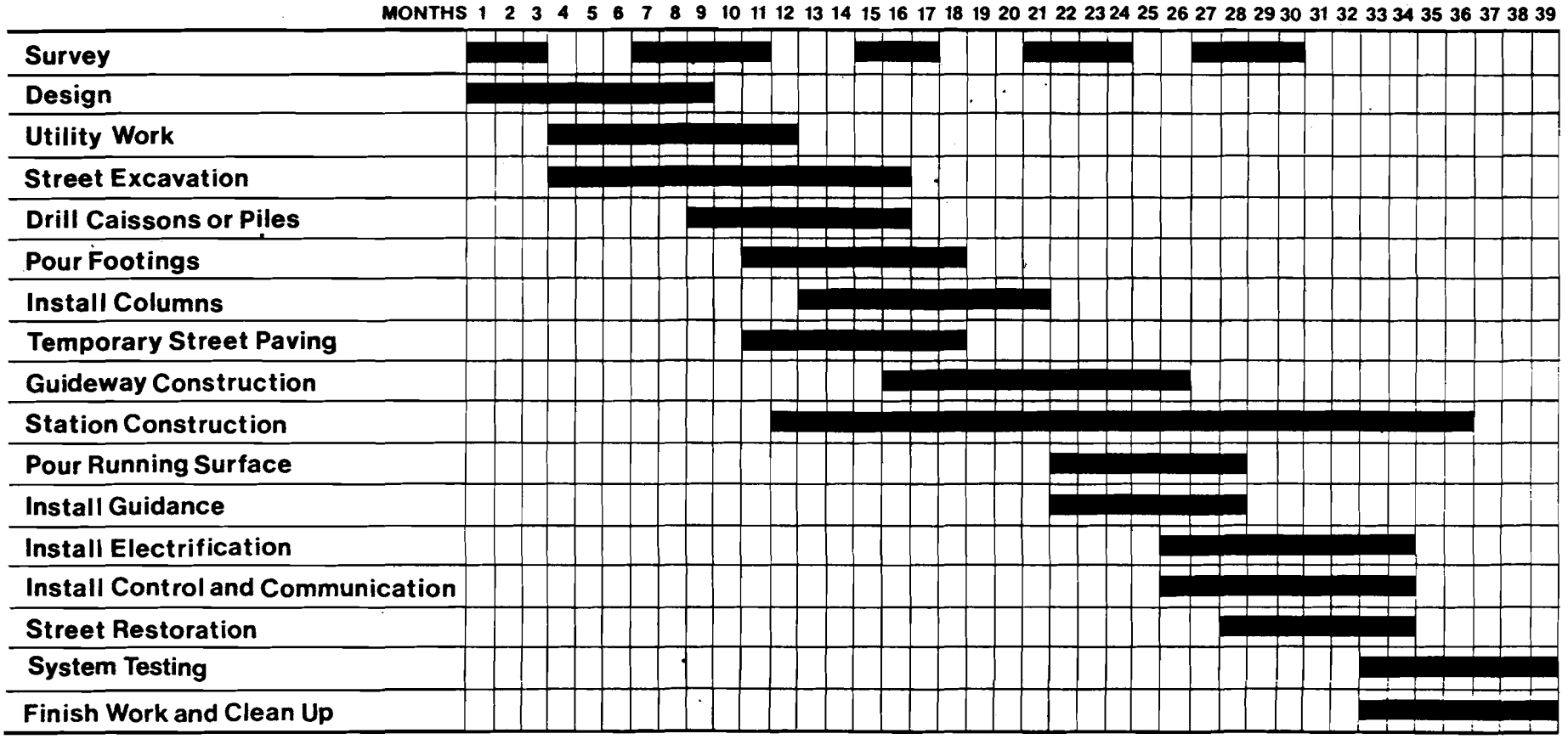
Street and Sidewalk Disruption

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

FIGURE 7

ESTIMATED DPM DESIGN AND CONSTRUCTION SCHEDULE



2.6 CAPITAL COSTS AND PROPOSED SOURCE OF FUNDS

The following tables (see Tables 6 and 7) 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 7.

TABLE 6

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 6 (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 6 (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 6 (continued)

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 7

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

3. Impact Assessment

3.1 CORRIDOR DESCRIPTION AND OVERVIEW

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:

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

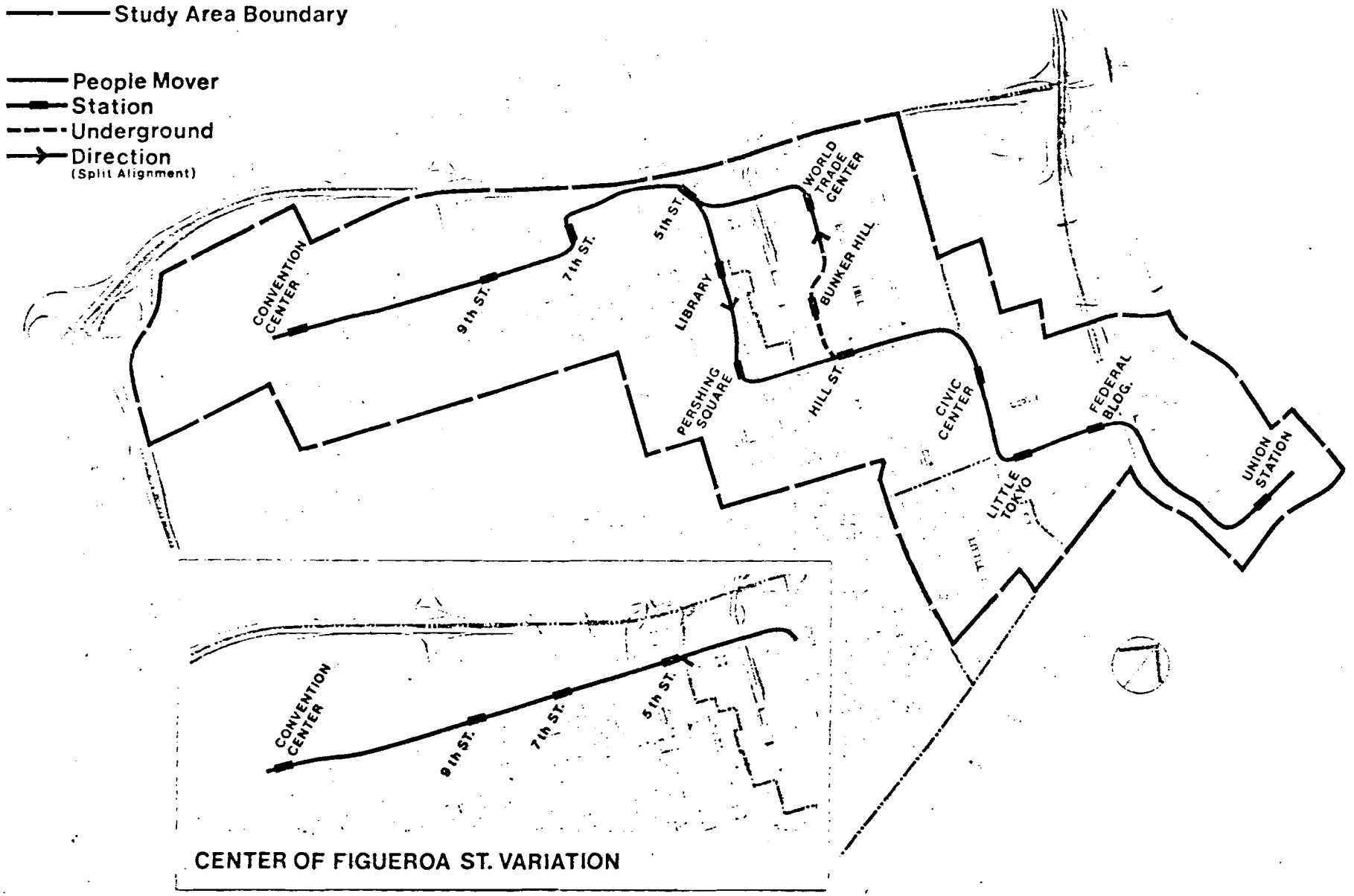
In 1990, without the DPM, the corridor will account for 79 percent of the new CBD employment, projected for the period 1975 to 1990. It will also include:

- o approximately 80 percent of office employment and square footage
- o 64 percent of retail square footage
- o 84 percent of government employment
- o 83 percent of service andhotel square footage
- o 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 8

DPM CORRIDOR STUDY AREA



Source: CRA, 1978

3.2 SUMMARY OF IMPACTS

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 These primary impacts apply to both the west side of Figueroa alignment and the center of the street variation shown in Figure 9 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 9.

ALIGNMENT USED FOR DETAILED ENGINEERING AND ENVIRONMENTAL STUDIES

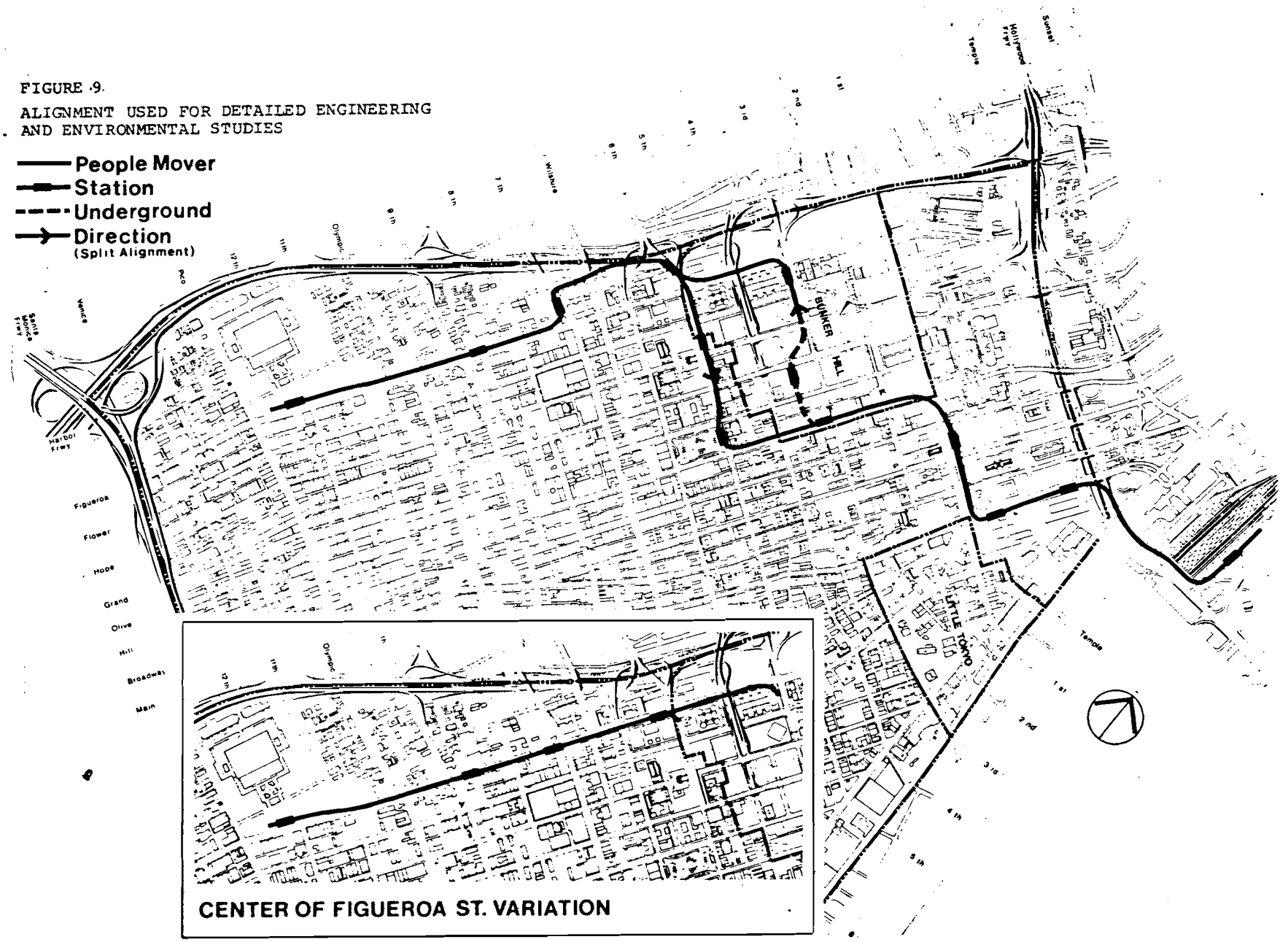


TABLE 9

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 Figueora Street alignment and the center of Figueora Street variation (see Figure 10A).

TABLE 9 (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 10
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 10 (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 10 (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.

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 11

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	Potentially Beneficial/ Adverse	Improved visual access to DPM corridor;	Partial	IV-221	4.06 4.14
		Change in cityscape					
		View obstructions, vista obstructions, potential visual incompatibilities					
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 11 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 12
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 mitigable	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 beneficial	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 accessibility 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 12 (continued)

				700,000-800,000 sq. ft. of regional office headquarters			
				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 increase in retail space			
				50,000 sq. ft. net increase 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 12 (continued)

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 12 (concluded)

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	4.1 6
Employed Population	DPM Corridor	Numbers of employees	Beneficial	8200 new employees in DPM corridor.	None	IV-231	4.1 3
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	4.2 4

Source: CRA, 1978

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.

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.

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 13 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

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 14 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 13

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 13 (continued)

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.	

TABLE 14

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

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 15 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 16 provides a summary of these effects.

TABLE 15

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 16

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

4. SHORT TERM IMPACTS VERSUS 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.

5. 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.

6. 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.

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.

7. 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.

7.1 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.

7.2 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.

7.3 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.

7.4 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.

7.5 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.

8. 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:

- the proposed improvements should enable downtown growth to increase moderately, i.e., meet a 230,000 employment level.
- the proposed improvements should be coordinated with regional improvements providing access to downtown.
- the proposed improvements should make travel to, from, and within the study area more efficient.
- 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.
- 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.

8.1 Systems Level Alternatives

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, Bunker Hill transit needs may not be fully served due to topographical constraints and street design limitations.

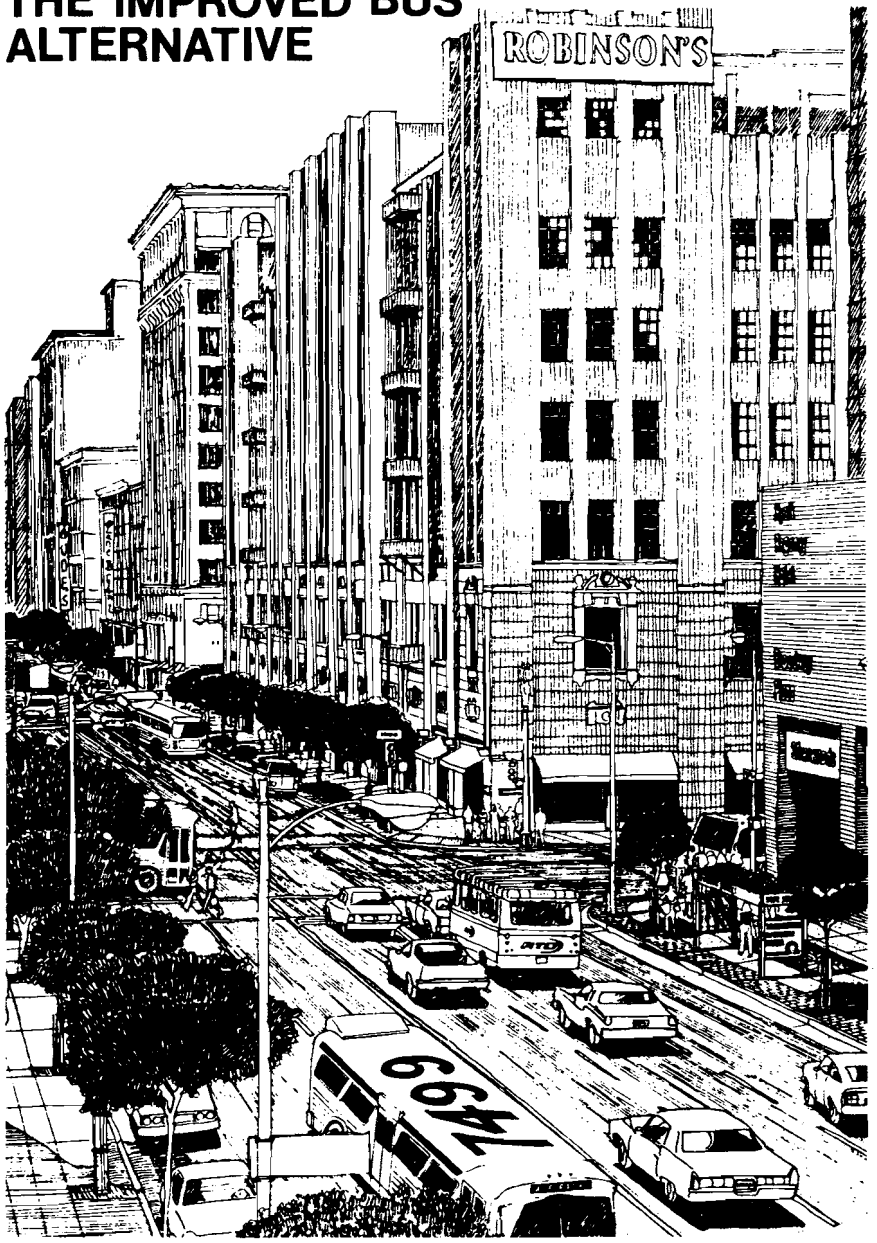
Design of the Improved Bus Alternative drew from experiences in other cities. This alternative incorporates transit marketing policies and bus-related design improvements along Broadway, Flower, First, and Seventh Streets. Figure 10 illustrates bus-related improvements along Seventh Street.

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.

FIGURE 10.

7 TH. ST. AS AN EXAMPLE OF THE IMPROVED BUS ALTERNATIVE



8.2 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 11.

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 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.

FIGURE 11

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

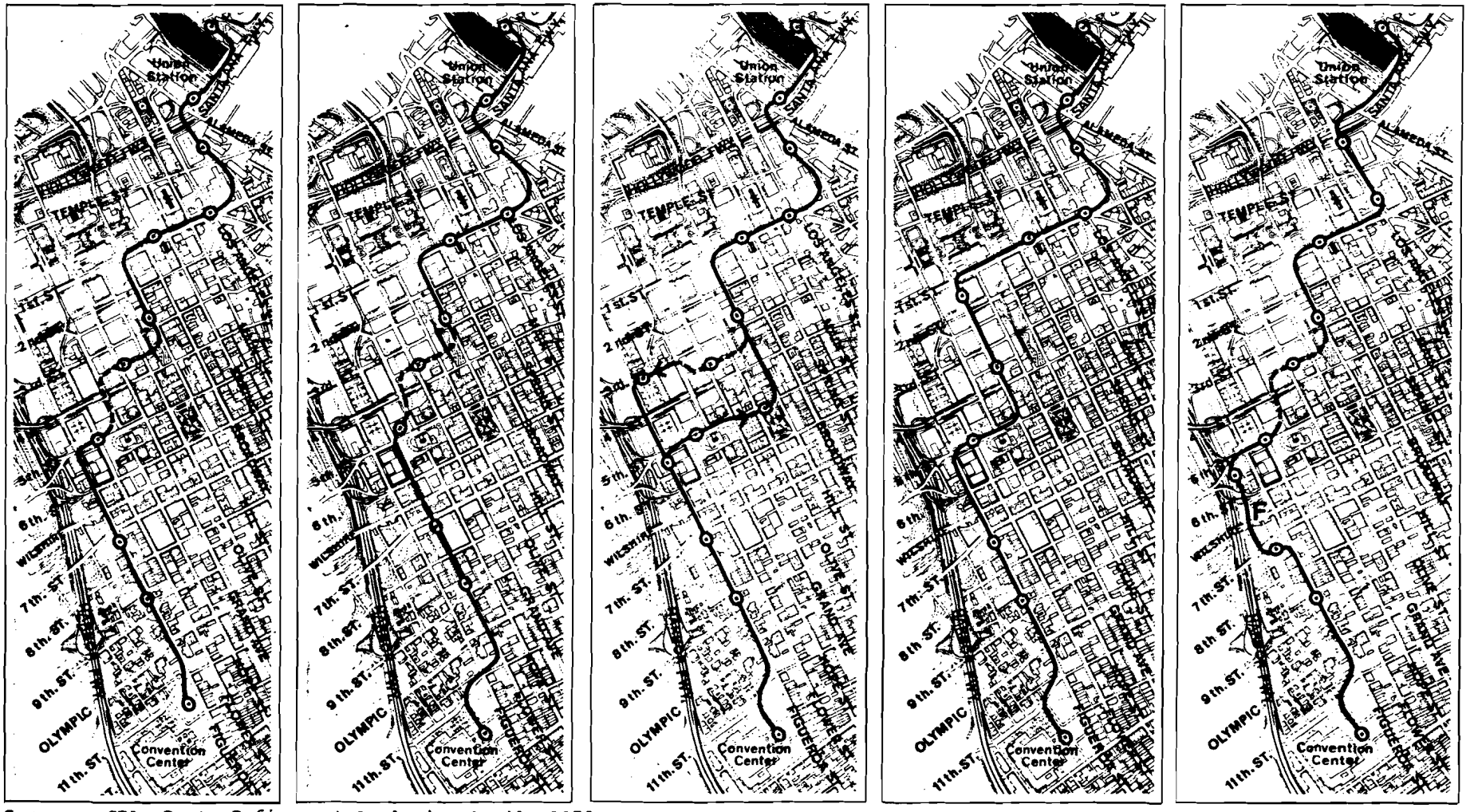
5TH. AND 3RD. ONE WAY SPLIT ALIGNMENT (Integrates Olive/Hill Streets and Bunker Hill)

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

8.3 Alternative Sites For The Project

ALTERNATIVE INTERCEPTS

Evaluation focused on twenty-five alternative locations for peripheral parking facilities and regional bus intercepts. 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:

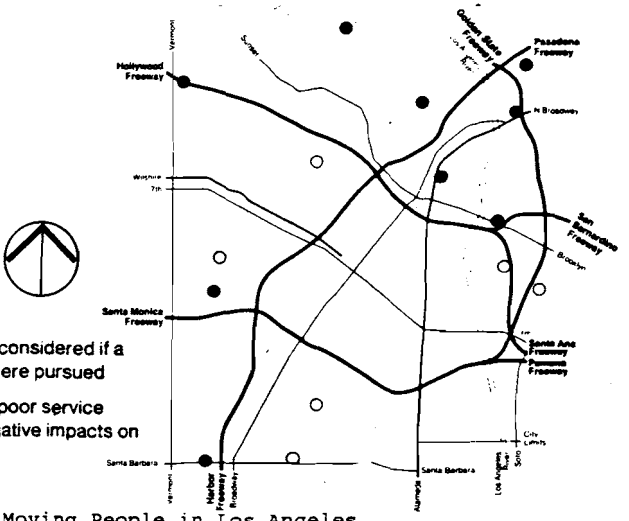
- o Feasibility of intercept location
- o Transit needs of communities where parking may be located
- o Accessibility of potential facilities to the community

Figure 12 indicates peripheral and fringe bus/auto intercept locations. Union Station and Convention Center appeared most feasible for near term implementation.

Figure 12

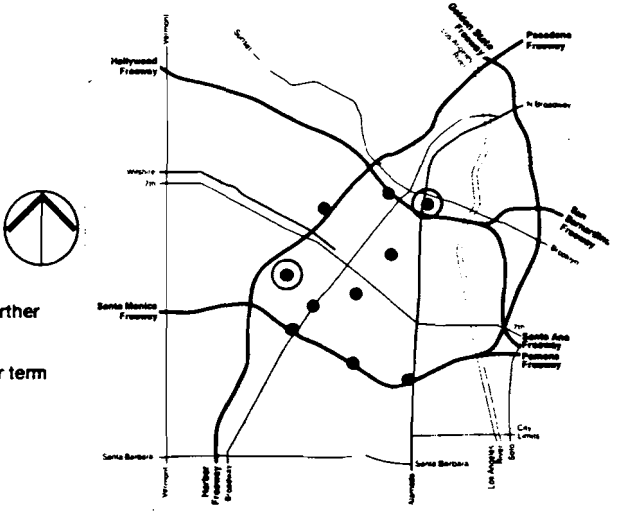
POTENTIAL PERIPHERAL AUTO INTERCEPT LOCATIONS

FIGURE VII-12A



Source: CRA, 1977. Moving People in Los Angeles.

POTENTIAL FRINGE AUTO INTERCEPT LOCATIONS



Source: CRA, 1977. Moving People in Los Angeles.

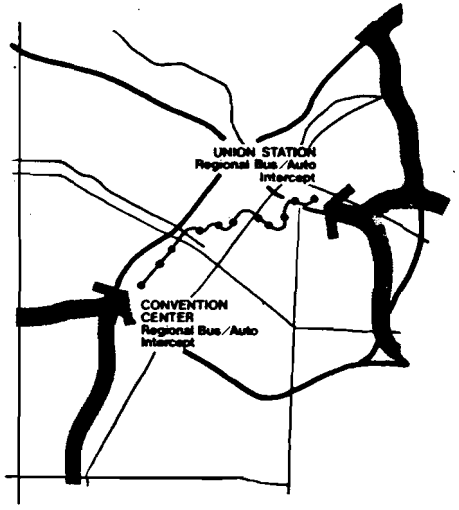
ALTERNATIVE CORRIDORS

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.)

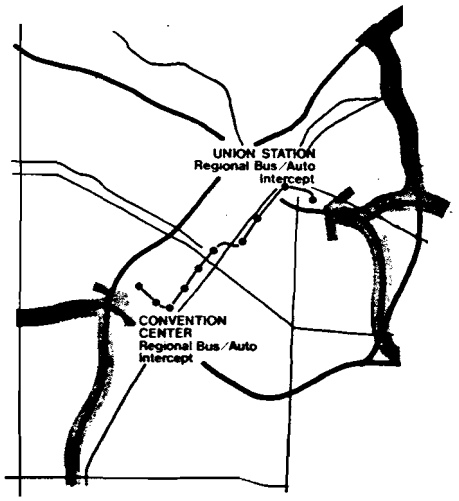
This complete network was then separated into three possible initial segments, and those were evaluated against one another (see Figure 13.).

Figure 13

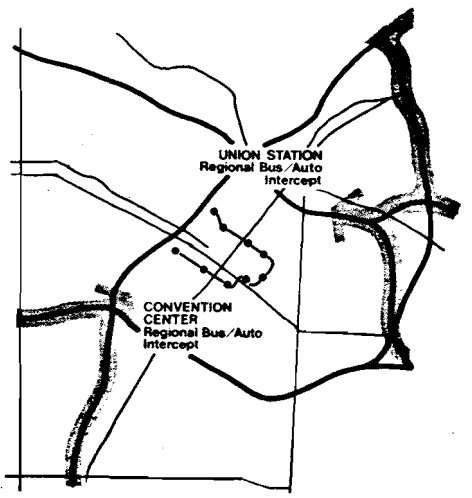
ALTERNATIVE PEOPLE MOVER ALIGNMENTS EVALUATED IN PHASE II



Alternative A



Alternative B



Alternative C

9. NO PROJECT OR POSTPONING THE PROJECT

9.1 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.

9.2 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.

10. 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.

10.1 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.

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.

10.2 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:

- Continued reliance on existing transit service in downtown, which includes minibus service, will result in congested traffic and increased air and noise pollution.
- The existing transit system is not attractive to passengers because of slow travel time and inconvenience.
- 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.
- 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.

10.3 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.

10.4 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.

Figure 14 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.

10.5 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 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.

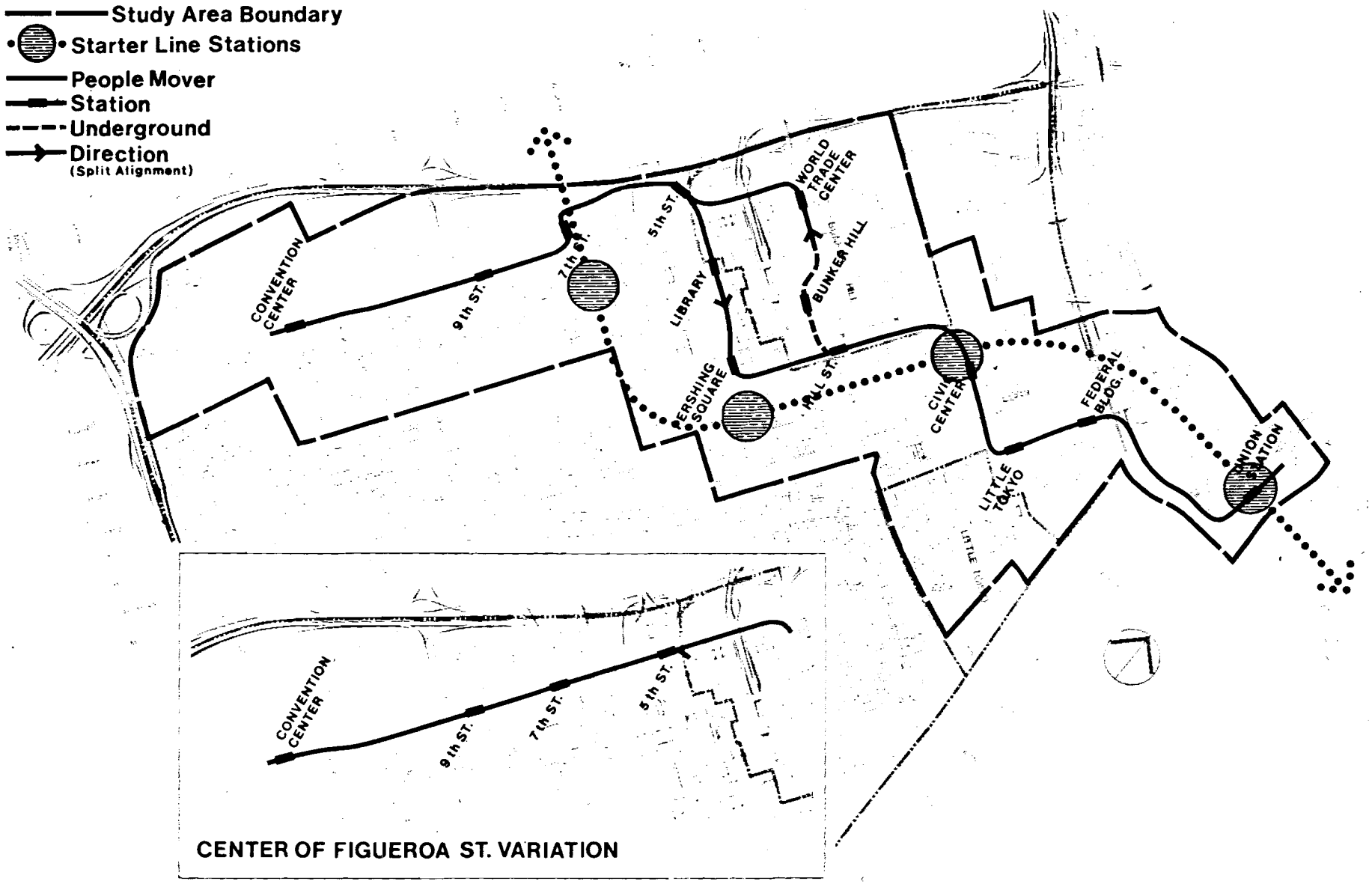
Another option suggested during the route evaluation would utilize the existing Pacific Electric tunnel in the Bunker Hill area and place the route adjacent to the freeway from Fifth Street to the Convention Center. Both of these suggestions were made because it was thought that using existing rights-of-way 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.

Figure 14

PROPOSED STARTER LINE AND PEOPLE MOVER STATIONS IN DOWNTOWN LOS ANGELES



Source: Community Redevelopment Agency, 1978.

11. 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.

11.1 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 identified 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.

11.2 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.

11.3 THE IMPROVED BUS/PEOPLE MOVER SYSTEM ALTERNATIVE

This alternative makes use of several "proven" technologies and operating policies: shuttle loop transit, buses, minibuses, 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.

11.4 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.

11.5 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.

12 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.

Downtown People Mover Program

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