U.S. Department of Transportation
Urban Mass Transportation Administration

the miami

Downtown People Mover
Draft Environmental Impact Statement

May 1980

DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION
WASHINGTON, D.C. 20590

DRAFT ENVIRONMENTAL IMPACT STATEMENT

DOWNTOWN PEOPLE MOVER

MIAMI, FLORIDA

5/14/80
Date

Edward R. Fleischman
Acting Director
Office of Program Analysis

COVER SHEET

U.S. DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Pursuant to Section 102(2)(c), PL 91-190 of the National Environmental Policy Act of 1969, and Sections 3(d) and 14 of the Urban Mass Transportation Act of 1964, as amended.

RESPONSIBLE AGENCIES:

Lead Agency: Urban Mass Transportation Administration

Cooperating Agency: Metropolitan Dade County, Office of Transportation Administration

TITLE OF PROPOSED ACTION: The Miami Downtown People Mover Miami, Florida

ABSTRACT:

The proposed Miami Downtown People Mover (DPM) is an automated transit system that would operate on a double guideway approximately 1.9 miles long in a fully elevated loop configuration around the central business district. The DPM and its complementary surface transit elements (buses and open air tram) would distribute riders from the rapid transit line to the major activity centers in downtown Miami in addition to providing internal downtowm distribution. The primary impact areas identified in this Draft EIS include land use and socio-economic impacts, transportation impacts, visual impacts, noise and energy. Secondary impact areas include air quality, water quality, impact to community services and construction activity.

COMMENTS ON THE DRAFT EIS: For further information, please contact:

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Washington, D.C. 20590

Comments must be received by: JUL 14 1980

SUMMARY

MAJOR CONCLUSIONS

Since June of 1979 a rapid transit line (Metrorail) has been under construction in Dade County. The location of its 20.5 alignment along the fringe of downtown Miami dictates the need for an efficient distribution system to adequately serve this area. Two alternatives are considered feasible to serve as a distribution system in the central business district and the remaining downtown Miami area. These are the Downtown People Mover Alternative and the All Bus Alternative. The Draft EIS is being made available to governmental agencies and the general public for review and comment. Interested parties will be given the opportunity to present their views on the project at a public hearing. A final EIS will be prepared which will include responses to all substantive comments. The Urban Mass Transportation Administration will consider the information in the Final EIS before deciding whether to fund construction of the Downtown People Mover.

I. DOWNTOWN PEOPLE MOVER ALTERNATIVE

A. Description: The Miami Downtown People Mover is a completely automated circulation/distribution system designed to interface directly with the Metrorail system to provide improved transportation in and around the central business district (CBD). The DPM consists of an elevated double guideway approximately 1.9 miles long in a loop configuration around the CBD. The system includes ten on-line stations and operates with driverless vehicles at approximately two minute headways. The round trip travel time on each guideway will take approximately 9 minutes.

The DPM will be fully integrated with the Metrorail system at the Government Center Station. It will be possible to transfer to-and-from the Metrorail system as well as to-and-from regional and local buses at this station. Bus transfer capabilities are also planned at other DPM stations.

The DPM Alternative also includes the use of buses to provide service to the Brickell and Omni areas, which are not serviced by the DPM. Three circulator bus routes will service this need. In addition, an open air tram will also operate under this alternative. The tram will operate west along Flagler Street and east along South 1st Street between the Government Center Station and Biscayne Boulevard. This will reduce the inconvenience to persons in the center of the DPM loop desiring to reach a DPM station.

UMTA's guidelines for the DPM program require that a variety of system suppliers be able to bid competitively on the DPM project. For this reason, defining the major elements of the system, i.e., guideway, stations, vehicles, maintenance facility, and control center, it was necessary to develop a "baseline system" which was sufficiently flexible to be consistent with most systems currently available. The assessment and evaluation of impacts

associated with the DPM Alternative has been based on the physical and conceptual characteristics of this baseline system.

B. Estimated Cost: The capital cost of the DPM escalated to the midpoint of construction has been estimated at $76,000,000. This figure does not include capital costs associated with the surface transit elements provided under this Alternative, which are as follows: $10,600,000 for the local and circulator bus component, and $400,000 for the open air tram component.

Annual operating costs of all elements of the DPM Alternative have been estimated at $4,776,700 based on 1979 dollars.

C. Summary of Effects

Long Term Adverse Effects

1. Visibility to and from structures adjacent to the DPM guideway will result in loss of privacy to residents occupying some of the hotel/apartment facilities in the CBD area.

2. The DPM guideway and supporting piers will partially obstruct the facade of 18 structures and approximately 170 residential units directly facing the DPM alignment.

3. There will be displacement of approximately 147 residents, 37 employees and four businesses.

4. By excluding bus activity from the portion of the CBD inside the DPM loop an increase in bus activity will occur at some intersections on the periphery of the CBD area.

5. With the placement of DPM piers adjacent to street intersections, some minor visual obstruction to motorists view of approaching vehicles and crossing pedestrians will occur.

6. The DPM may contribute to increased land values and subsequent increases in lease and rental rates.

7. The DPM maintenance facility will discharge small amounts of sanitary effluent and wastewater containing wash solvents, mud, grease, oil and gasoline. Construction of the DPM guideway and maintenance facility will add approximately 200,000 square feet of impervious surfaces to the CBD area, increasing surface water runoff.

Long Term Beneficial Effects:

1. Implementation of the DPM will increase trip opportunity in the CBD by providing an easily accessible and grade separated travel mode.

2. By providing high quality transportation within the CBD the DPM will encourage transit ridership for commuter trips on the Metrorail to CBD destination as well as intra-CBD business and noon hour trips.

3. The DPM will link major activity centers and provide increased access to retail, hotel and office activities as well as areas which are presently underutilized. Land values and retail sales will increase as a result of improved mobility around downtown. Property tax revenues will also increase.

4. Implementation of the DPM Alternative in conjunction with the Metrorail line and its supporting bus network will be a significant step toward local effort to reduce dependence on the use of the automobile, thereby conserving energy.

5. The physical characteristics of the DPM will tend to tie together independent and unrelated structures and streets within the CBD. In addition, the elevated DPM will provide a unique visual experience for system riders.

Short Term Adverse Effects

1. Temporary traffic congestion and pedestrian inconvenience will occur during construction of DPM piers and erection of guideway aerial elements. Some street side parking will be lost as a result of DPM construction.

2. Resident occupants of rooms adjacent to the DPM guideway will be temporarily affected by construction noise.

3. Construction activity and related pedestrian barrier way will temporarily affect adjacent businesses.

4. Construction will increase noise levels, vibration and air pollution around pier locations and station areas.

5. The presence of construction activity and the incremental development of the DPM system will disrupt the existing visual setting along the alignment. The visual impacts will be present for relatively short-periods, the longest being at station areas.

6. Short term impacts on the natural environment will be minor including the generation of spoil material, increases in erosion and sedimentation, increases in emissions from construction equipment.

7. Vegetation removal will be required in isolated locations along the DPM alignment. Plant material will be replaced upon completion of construction activity.

Short Term Beneficial Effects

Construction of the DPM System will generate approximately $185.2 million in regional business activity and 962 man-years of employment.

II. ALL BUS ALTERNATIVE

A. Description: The All Bus Alternative relies primarily on surface buses to meet the unique travel demand brought about by the scheduled implementation of the Metrorail line. Functioning as a collector/distribution system, the All Bus Alternative operates four circulator routes (small buses) between Metrorail stations and the major activity centers within the downtown area. Existing local bus routes (full size buses) which presently pass through the downtown area were modified to coordinate service with the Metrorail system and circulator buses.

A primary feature of the All Bus Alternative is the use of priority bus lanes on Biscayne Boulevard between Omni and Flagler Street and the conversion of Flagler Street to a transit mall to facilitate the movement of buses through the downtown area. Major bus terminals for transfer between the circulator buses and the local buses are located in the Omni area and at Metrorail's Government Center Station.

With the exception of Flagler Street, no major modifications to the downtown street system are proposed under this alternative. The transit mall is a pedestrian precinct that restricts vehicular use to buses, taxis and emergency vehicles. Truck delivery traffic will be restricted to off peak hours in the morning, afternoon and evening. Traffic will be limited to two lanes of roadway (east and west bound) while the rest of the street and sidewalk will be repaved and refurnished for pedestrian use.

B. Estimated Cost: The total capital cost for the All Bus Alternative, including the acquisition of local and circulator buses and the physical improvements of the Flagler Street transit mall, are estimated at $16,200,000. For comparison purposes, this cost has been escalated to the same midpoint of construction used for the DPM Alternative. Annual operating cost of the All Bus Alternative, based on 1979 dollars, has been estimated at $5,487,600.

C. Summary of Effects

Long Term Adverse Effects:

1. Of the 13 critical intersections investigated, the All Bus Alternative will result in an increase of bus volumes at 6 intersections.

2. Implementation of the proposed transit mall on Flagler Street will result in a significant rerouting of existing traffic onto adjacent streets resulting in a reduced operating level of service at some intersections.

3. The proposed transit mall on Flagler Street may adversely affect delivery service to adjacent businesses.

4. The increased bus activity will increase emissions affecting air quality within the downtown area.

Long Term Beneficial Effects:

1. Implementation of the All Bus Alternative will increase distribution service for Metrorail riders destined for downtown. However, due to congested conditions within the CBD, the quality of service will be lower in the core area.

2. Of the 13 critical intersections investigated, the All Bus Alternative will result in a decrease in bus volumes at 7 intersections.

3. By providing distribution capabilities within the downtown area, the All Bus will encourage transit ridership for commuter trips on the Metrorail as well as intra-CBD business and noon hour trips.

4. Implementation of the All Bus Alternative will increase access to major activity centers within the downtown area. This increased access will tend to support existing retail, hotel and office activities.

5. No relocation or displacement are associated with the implementation of the All Bus Alternative.

Short Term Adverse Effects:

1. Temporary traffic congestion and pedestrian inconvenience will occur during construction of the Flagler Street transit mall for a short period of time.

2. Construction activity on Flagler Street will increase noise levels as well as air pollution through the use of construction equipment.

3. The presence of construction activity will disrupt the existing visual setting along Flagler Street.

Short Term Beneficial Effects:

Construction of the Flagler Street transit mall will have a minor positive impact on regional business activity and increase employment in the construction industry.

AREAS OF CONTROVERSY

This Draft Environmental Impact Statement is being circulated for the purpose of obtaining comments on its contents and identifying areas of controversy. Substantive comments will be addressed in the Final Environmental Impact Statement.

ISSUES TO BE RESOLVED

The primary issue to be resolved is whether or not to commit federal funds for construction of the locally proposed action, the Downtown People Mover. The Urban Mass Transportation Administration is considering the significant impacts documented in the Draft Environmental Impact Statement as well as any substantive comments resulting from the circulation of this document.

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NEED FOR AND PURPOSE OF ACTION

INTRODUCTION

The Miami central business district (CBD) is a rapidly growing area of mixed use, today characterized primarily by non-residential, office-space dominated areas. The area forms the central core of a larger linear business district, referred to as downtown Miami, which extends north to the new Omni shopping district and south to the Brickell area. (see figure 1.1)

Development master plans for the region and for the City of Miami, as well as adopted urban development and zoning plans, focus on downtown Miami as the major diversified activity center of the region. Each recognizes the need for transit facilities which support the shaping and staging of development, redevelopment, and intensification of the central business district area.

The Downtown Plan specifically recommends four urban design principles as a basis for insuring orderly development:

1. Development amenities and catalysts to increase the attractiveness of downtown;

2. Join activity centers and areas of highest development potential;

3. Locate new development in relation to infrastructure capacity; and

4. Connect new development with a pedestrian circulation system.

It is within the context of such a comprehensive plan and development strategy for downtown Miami that any individual action should be viewed and its effect measured.

1.1 TRANSPORTATION NEEDS

Within Metropolitan Dade County the current transportation demand has been estimated in excess of 3.6 million person trips per day, with an additional 1.9 million daily trips projected by 1985.[1] The private automobile is utilized as the primary transportation mode. Public transit is limited to a coordinated surface bus system, characterized by slow travel times, high operating costs, and low ridership. Traffic on most expressways and major arterials is consequently in excess of design capacity, particularly on South Dixie Highway and portions of Interstate 95. During peak parking hours, parking facilities in downtown Miami are inadequate in many locations, particularly in the Dupont Plaza area and along Biscayne Boulevard.

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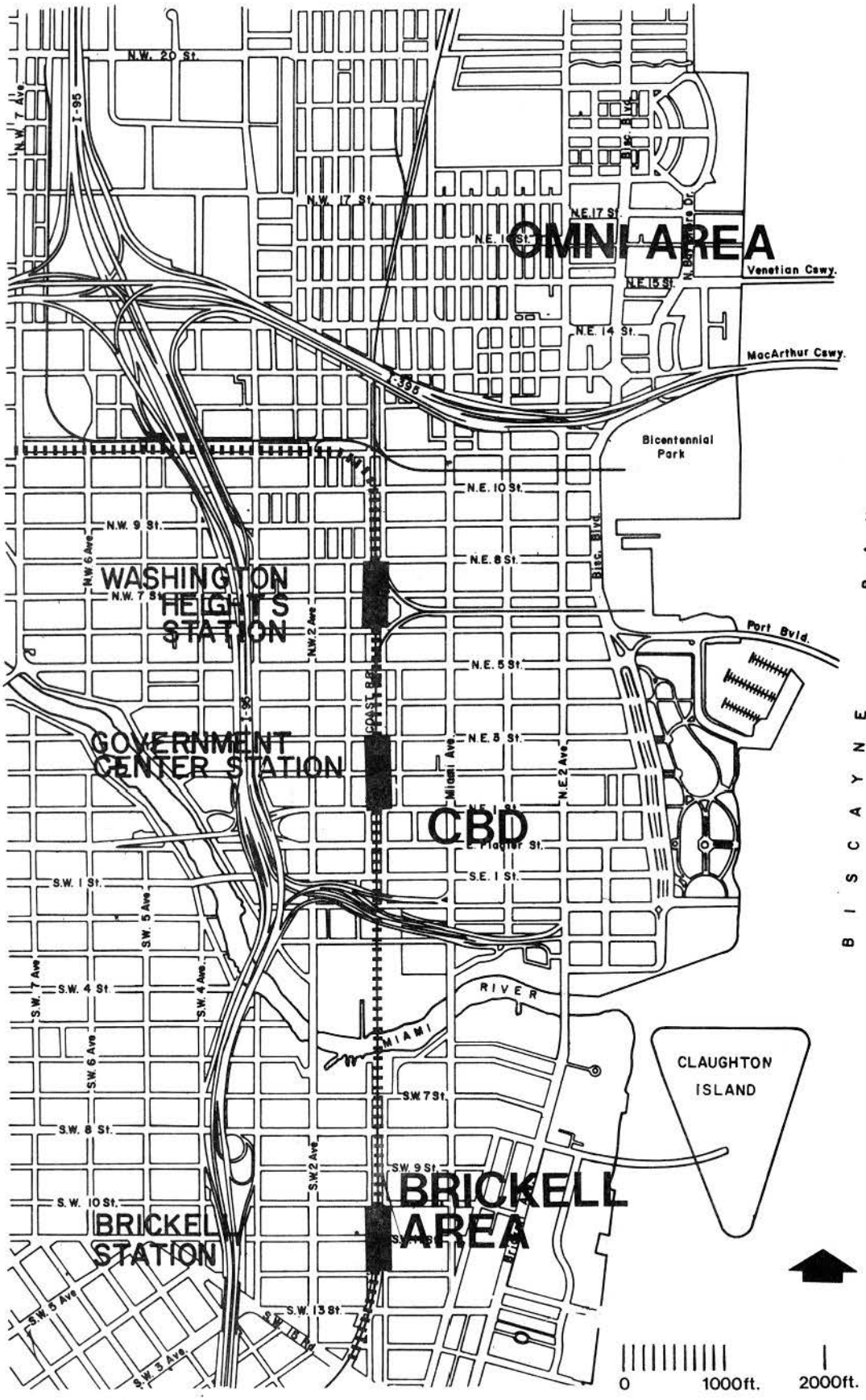
[1] Estimated by Metro-Dade Planning Department



LEGEND

METRORAIL

METRORAIL STATIONS

Figure 1.1 DOWNTOWN MIAMI

In November, 1972, the voters of Metropolitan Dade County overwhelmingly approved the County's "Decade of Progress" Bond issue providing for a Transit Improvement Program. Bond Issue Number Three authorized the sale of $132.5 million for transit improvements. The transit improvement program recommended a comprehensive, balanced public transit system consisting essentially of the following major elements:

1. A rapid transit system operating on an exclusive guideway with stations conveniently located throughout the County.

2. A system of bus routes operating on expressway and arterial streets to serve areas of the County not directly served by rapid transit.

3. A network of feeder bus routes designed to complement the rapid transit system and the trunk line bus routes.

4. Distribution systems at selected rapid transit stations to provide circulation in the vicinity of these stations and to link major traffic generating areas with rapid transit facilities.

Matching federal funds have been obtained to fund the design and construction of a 20.5 mile Rapid Transit line (Metrorail) and also to purchase additional buses which will provide service to areas not served by Metrorail. The vast bus network to be provided will be designed to feed the Metrorail stations. Construction of the Metrorail system began in June, 1979, and is progressing according to schedule. It is anticipated that revenue operations on the system will start during the latter part of 1984.

The Metrorail line connects the Dadeland South area to the CBD and continues to its northern terminus in the City of Hialeah. For the most part, the southerly portion of the alignment parallels South Dixie Highway (U.S. 1) which is the major transportation corridor in this area and connects South Dade County with the CBD. To minimize disruption to the community, it was decided to utilize an existing right-of-way formerly owned by the Florida East Coast Railroad. By virtue of this decision, the Metrorail alignment is located along the fringe of downtown Miami; the system's focal station, the Government Center Station, which is the only station serving the CBD, is far enough from most activity centers in the area to dictate the need for a complementary distribution system.

During initial planning for the Metrorail line, a number of alignments were evaluated which passed through downtown in configurations east of the Florida East Coast Railroad right-of-way. Most of these schemes made use of S.E. and N.E. 2nd Avenue.[1] Because of the requirements for space between building and track structures to allow for noise attenuation and to

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[1] Kaiser Engineers, Inc. "Draft Milestone 5 Report: Route Alignment and Station Location." January, 1975.

reduce visual intrusion, alignment right-of-ways near residential areas should be approximately 200 feet in width. Conversion of this avenue to a pedestrian mall was rejected because the "mall was not considered feasible or appropriate from an urban design standpoint."[1] In addition to the excessive land acquisition costs in penetrating the CBD in order to locate the guideway along the existing median, alignments along Biscayne Boulevard were rejected because of environmental considerations. A subsurface alignment was rejected for cost considerations.

1.2 LAND USE NEEDS

Downtown Miami includes the CBD and the Brickell area to the south and the Midtown/Omni area to the north. The CBD, located adjacent to Miami River and Biscayne Bay , is the traditional center of the downtown area. Recent high intensity development has tended to expand in the Brickell and Omni areas primarily to take advantage of the Biscayne Bay amenity as well as Miami's north-south transportation corridor. Because the distance between these activity areas is beyond walking distance the need to link them together has been a major goal in developing an action plan.

In the past several years all three areas have experienced growth. Land use intensity is highest in the CBD with major activity centers at Miami Dade Community College, the Government Center, the Flagler Street corridor, Hotel Row on Biscayne Boulevard and around Dupont Plaza. Additional development activity is currently underway as reflected by the retail expansion along Flagler Street, expansion of the Miami Dade Community College, new private office construction, construction of the Convention Conference Center, and development of the Government Center. Recent announcements by private developers have reinforced the City of Miami Planning Department projections for an increase in downtown employment of 29,500[2] jobs between 1975 and 1985.

Much of the projected private investment in CBD will benefit from the continuity in transportation planning for downtown and the region. This planning includes the Metrorail line with a station serving the CBD, and a drastically improved distribution system to serve the downtown area.

1.3 ECONOMIC DEVELOPMENT NEEDS

Recent increases in retail trade by Latin American tourists has been focused in the downtown area.[3] A 1976 survey showed a total of over $600,000,000 in sales for downtown[3] and another study that year found 80% of Flagler

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[1] Kaiser Engineers, Inc. "Draft Milestone 5 Report: Route Alignment and Station Location." January, 1975.

[2] Estimated by City of Miami Planning Department

[3] Florida International University Study of Latin Shoppers in the Miami Area, October, 1976

Street shoppers were Latin American.[1] Projections indicate a substantial potential for growth from Latin and European countries as well as increased domestic convention trade. Estimates by the City of Miami Convention Bureau suggest double the amount of delegates by 1985 from the 1978 total of 127,000.[2]

Clearly the economic development future for downtown can benefit from coordinated access between hotels, the Miami Port and the airport. A critical component of this coordination is the distribution of employees and visitors in the CBD.

Through joint public and private commitment, the much needed distribution system can be designed to maximize development potential in downtown Miami. The role of the downtown area as the center of a rapidly growing metropolitan area can be strengthened, enhancing its ability to perform as the hub of the region's economic and social activity. Commercial activity can be stimulated by increased accessibility to and mobility within the core.

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[1] Market Feasibility Study, James L. Knight, International Center, Gladstone Associates, June, 1977

[2] Park West Market Study, Praful Shah and Associates Study, Draft Report, November, 1978

CHAPTER 2.0

ALTERNATIVES INCLUDING THE PROPOSED ACTION

INTRODUCTION

This chapter evaluates the alternatives for a distribution/circulation system in downtown Miami. Of four alternatives, two have been evaluated extensively considering 51 impact categories. The significance of each category was derived from the Scoping Process and the Miami Downtown People Mover Policy Committee. The most significant categories included transportation, land use and development, economic impact, and visual impact. Other categories included in the evaluation but considered less significant are social impacts, historic sites, and natural environment impacts. The details of these impacts are discussed in Chapter 4. The description of alternatives and the process of selecting the Proposed Action are included in this chapter.

2.1 DEVELOPMENT OF ALTERNATIVES

Alternatives developed within this section refer to alternate downtown distribution systems for riders of the Metrorail system as well as other employees, visitors and residents in downtown Miami. Four alternative distribution systems have been developed by the Office of Transportation Administration for evaluation. They are:

1. No Action
2. Rail Rapid Transit Alternative - This alternative consists of two possible sub-alternatives
    A. Rail Rapid Shuttle Alternative; and
    B. Metrorail Branch Line Alternative
3. Downtown People Mover Alternative
4. All Bus Alternative

2.1.1 NULL (NO ACTION) ALTERNATIVE

The present transit system for downtown Miami includes 31 local bus routes with 12 express routes in morning and evening rush hours. Two shuttle services provide half fare short trip service during midday periods. Construction of the regional rapid transit system is underway with one station, the Government Center Station, serving the CBD area. The future site of Metrorail's Government Center Station is presently serviced with only three local bus routes which pass through the CBD area at headways of 40 and 60 minutes; therefore, in a 60 minute period, a maximum of 6 buses pass by the site of the proposed station. Assuming a crush capacity of 80 persons per bus, a maximum of 480 passengers could be accommodated by the present service. (This calculation assumes that all buses are empty when they reach this point, which is far from being the case.) With

approximately 1,900 transit riders projected to exit the Metrorail system at the Government Center Station during the morning peak hour it is clear that the existing surface bus system cannot accommodate the distribution demand for transit trips destined for the CBD area.

The average walk distance from the Government Center Station to major activity and employment areas within the CBD is approximately .6 miles. Because of the oppressive heat and high humidity which are prevalent conditions in the region for a significant portion of the year, it is felt that this walking distance is too excessive for most people and therefore would result in reduced ridership on the Metrorail system. This would ultimately foster continued use of the automobile. Consequently the Null Alternative should not be considered a realistic downtown distribution system for the future.

2.1.2 RAIL RAPID TRANSIT ALTERNATIVE

To investigate the adaptability of conventional rapid transit technology as a downtown circulation/distribution system, two rail rapid transit alternatives were developed: The Rail Rapid Shuttle Alternative and the Metrorail Branch Line Alternative.

Both of these alternatives use a technology similar to that being deployed in the regional rapid transit system, although some of the system's characteristics (Table 2.1) have been modified slightly to permit design within the constricted downtown environment. These include modifications in minimum curve radius, operating speed, station length and the number of cars in a train.

TABLE 2.1
RAIL RAPID TRANSIT ALTERNATIVE: SYSTEM CHARACTERISTICS

	Regional System Line (Metrorail)	Rail Rapid Shuttle Alternative	Metro Branch Line Alternative
Station Length	450' (6 cars)	150' (2 cars)	450' (6 cars)
Top Speed	70 mph	25 mph	70 mph*
Minimum Curve Radius	1,000 ft.	750 ft.	750 ft.
Structure Width	28 ft.	28 ft.	28 ft.
Maximum Grade	4%	4%	4%

*This speed would not be achieved on the Branch.

A. RAIL RAPID SHUTTLE ALTERNATIVE

This alternative operates as a seven station circulation loop around the downtown area with a three station shuttle extending northward along N.E. 2nd Avenue to the Omni complex and a four station shuttle extending south to the Brickell area (see Figure 2.1). Transfers onto the regional rapid transit system (Metrorail) would occur at the Government Center Station and the Brickell Station while intrasystem transfers would occur where the Omni and Brickell shuttle meet the CBD loop. No additional maintenance facility is provided since it is presumed that the vehicles would be maintained at the Metrorail facility in northwest Dade County. A service connection to the regional system is provided on the southern leg in order to obtain access to the maintenance facility. Switch connections would be required at the intersections of the CBD loop and both legs to facilitate the movement of all vehicles on the system to the service connection.

Development of this alternative has indicated several conceptual and physical problems, listed below:

1. The physical size of the system is very disruptive to the downtown environment and the large curve radius would have a significant adverse impact on a large amount of private land;

2. The Rail Rapid Shuttle Transit Alternative provides more capacity than is required to meet the service needs of downtown Miami;

3. Fewer stations, and consequently less distribution/circulation capability, can be provided by the Rail Rapid Shuttle Alternative;

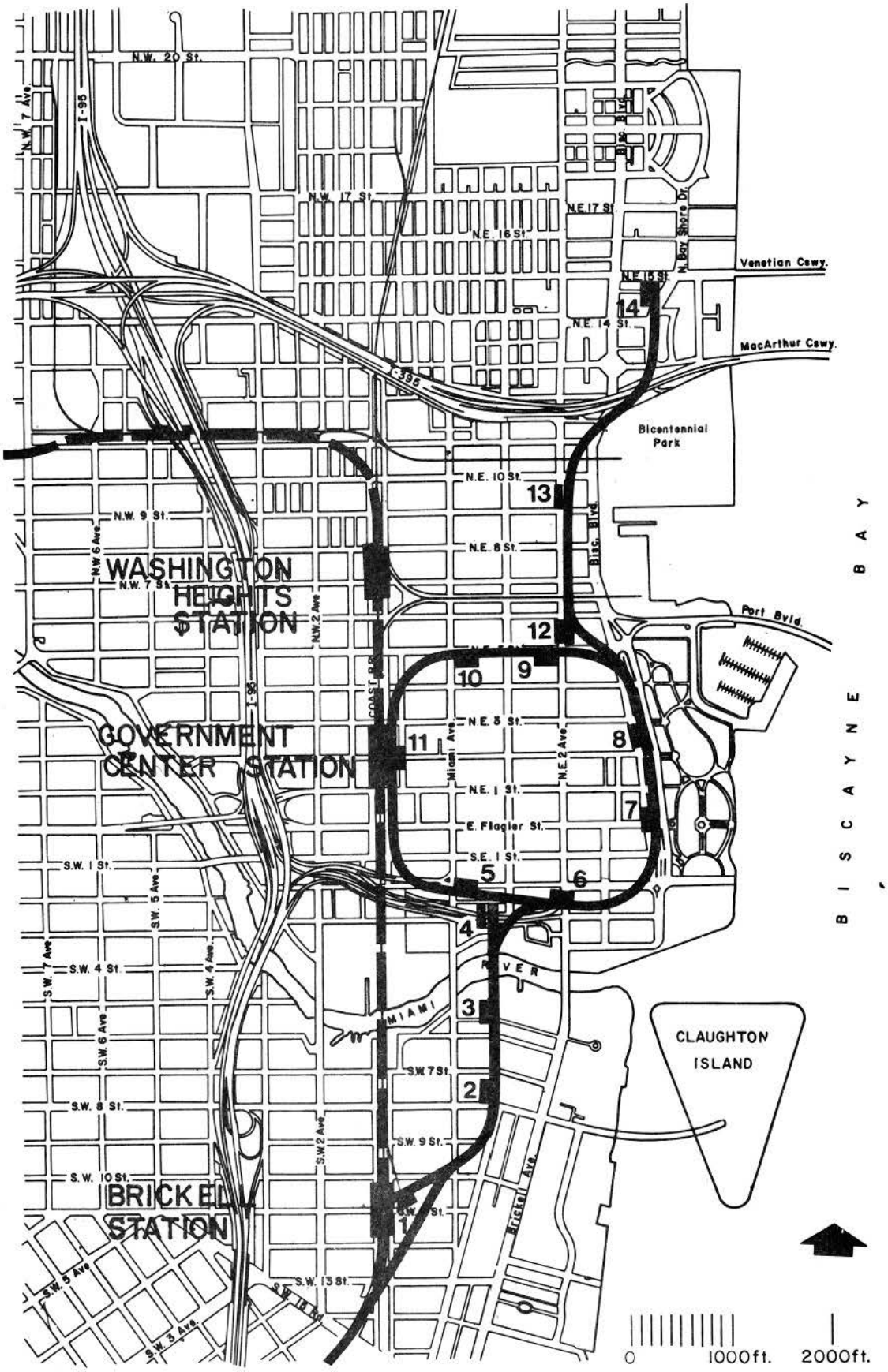
4. The small radius of curvature for steel rails would most likely result in disruptive flange squeals; and

5. This alternative has high capital and operation costs.

B. METRORAIL BRANCH LINE ALTERNATIVE

The alignment and station locations proposed under this alternative are illustrated in Figure 2.2. Under this alternative, which is essentially an expansion of the Metrorail line, every second train operating on the regional Metrorail line would be diverted to operate on the proposed Branch Line. This Branch Line would separate from the Metrorail Line at a point north of the Government Center Station and rejoin the main line at a point south of the Brickell Avenue Station. Station lengths under this alternative would be equal to the main line six car train length. Three stations would be provided on the spur. The first station would be on Fifth Street. The second station would be on Biscayne Boulevard and the third station would be south of the river in the Brickell area.

Switching from and into both the northbound and southbound Metrorail tracks requires substantial grade separation structures at both the north and south connections to the main line. Engineering studies for these

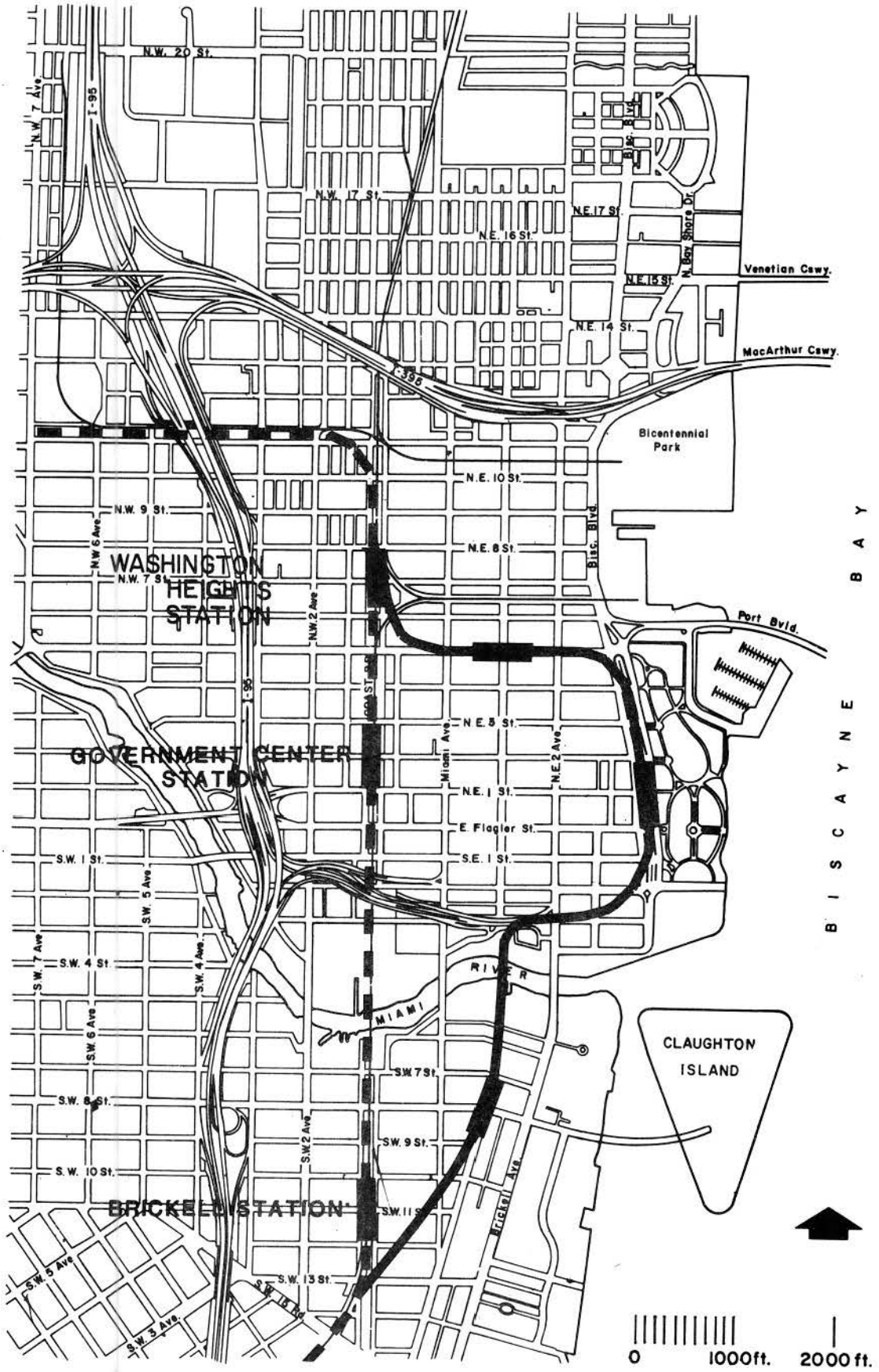


METRORAIL (Under Construction)

METRORAIL Shuttle Alternative

METRORAIL Station

Figure 2.1 RAIL RAPID SHUTTLE ALTERNATIVE



Regional Rail Rapid Transit (Under Construction)

Metrorail Branch Line Alternative

METRORAIL Station

Figure 2.2 METRORAIL BRANCH LINE ALTERNATIVE

structures should rule out the physical feasibility of this alternative altogether; however, such studies have not been accomplished due to other major objections to this alternative which are identified below:

1. The substantial land acquisition required to implement this alternative would possibly cost more than the construction of this system itself. Several major office buildings would need to be razed.

2. Rail service on the main line would be adversely impacted by the presence of the branch.

3. With only three stations, the branch could provide only limited additional distribution for Metrorail and would be of almost no value for internal downtown circulation.

4. This alternative has high capital and operational costs.

As in the case of the Rail Rapid Shuttle Alternative, the problems associated with this alternative are so severe as to preclude it from any further consideration.

2.1.3 DOWNTOWN PEOPLE MOVER ALTERNATIVE

The DPM portion of this alternative was the focus of the preliminary design and engineering analysis for a distribution/circulation system in downtown Miami. The following text documents the development of DPM alternatives including full system alternatives, staging alternatives and the interface between the DPM and other surface transportation components included under this Alternative.

In 1978 the Urban Mass Transportation Administration approved a Federal Assistance Grant for Metropolitan Dade County to undertake preliminary design and engineering of the Miami Downtown People Mover System. In January 1979, the Board of County Commissioners established the Downtown People Mover Policy Committee to provide input and to promote the development of a plan with a maximum of community involvement. The DPM Policy Committee also served as the coordinating organization which brought together interests of the public sector (Dade County, the City of Miami, and the Downtown Development Authority) with representatives of the private sector (the Greater Miami Chamber of Commerce, the Merchants Association and the general public).

Development of the Miami DPM consisted of essentially two-phases of investigation which included six Milestone decision points. Milestones represented the completion of various work tasks by the technical staff on which decisions or approvals were made by the DPM Policy Committee at regular meetings (Figure 2.3). The development of the DPM Full System represents the first phase of the preliminary engineering investigations. This phase was accomplished during milestones one, two and three. The detailed investigations of the Stage I DPM system - which represents the second phase of the investigation - were carried out during milestones four, five and six.

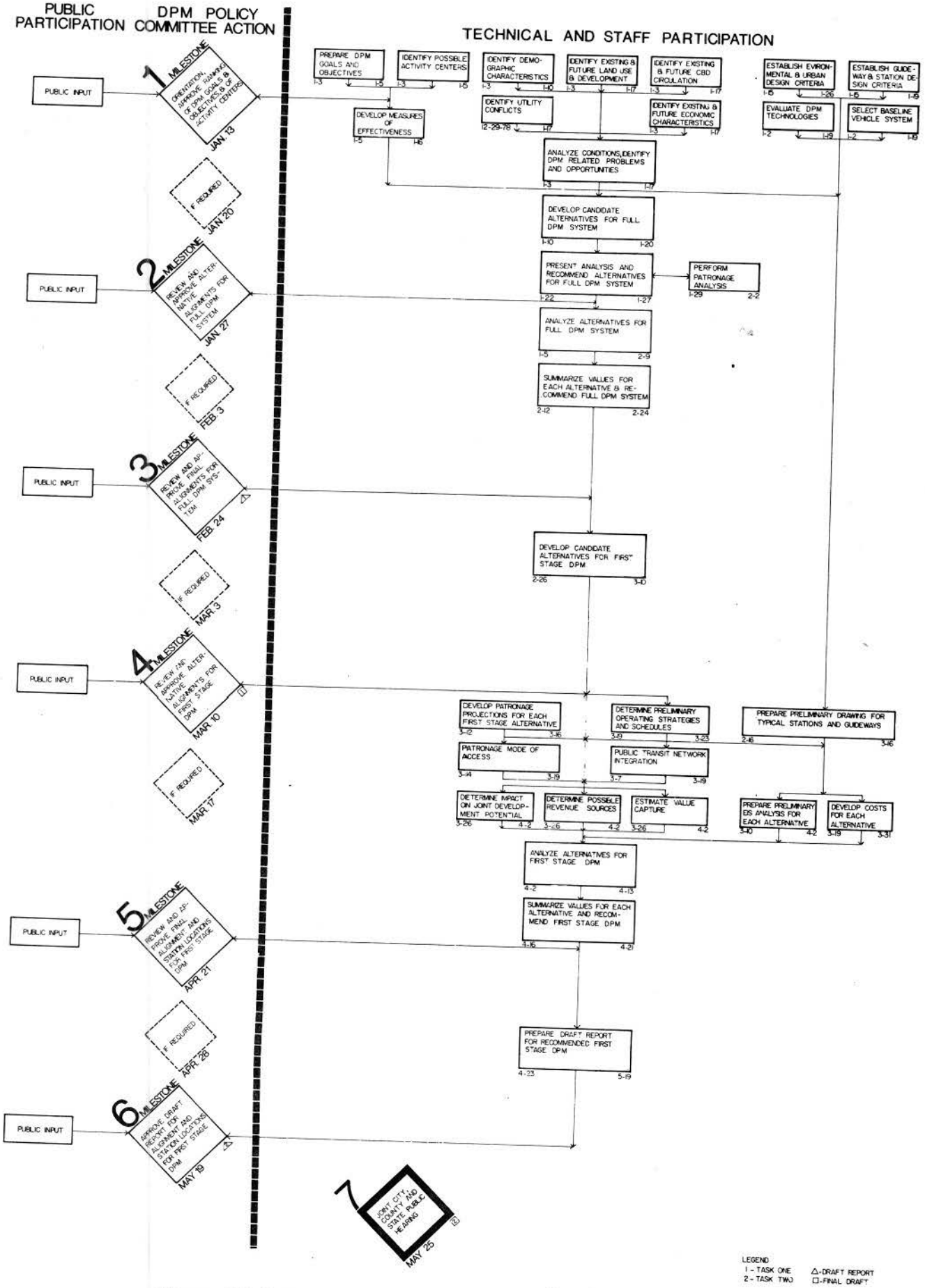


Figure 2.3 SELECTION PROCESS OF ALIGNMENT AND STATION LOCATIONS

A. FULL SYSTEM ALTERNATIVES

The process of selecting alternative Full System DPM alignments for initial evaluation required thorough involvement of the DPM Policy Committee. Based on the Committee's ranking of the DPM goals and objectives, which are summarized in table 2.2, candidate alternative alignments were developed. The Committee indicated that promotion of land use and development, improving CBD transportation services, and increasing positive economic impacts were the most important goals for the proposed DPM. In addition, they emphasized the importance of linking the major activity centers. As a result, all candidate alternative alignments were designed to serve as many of these activity centers as possible.

In general, the alignment alternatives developed did not drastically deviate from the 1976 Project Proposal to UMTA. In addition to taking into consideration the priorities established by the Policy Committee with regard to what the DPM should accomplish as a means of transportation and the areas it should serve, attention was given to environmental factors.

A Street Suitability Study was conducted to identify potential corridors within the downtown area that could accommodate an automated guideway transit system with a minimum amount of disruption. The street suitability study included the following considerations:

1. Width of right of way (ROW);
2. Proximity of existing structures to ROW;
3. Adjoining land use compatibility
4. Pedestrian circulation pattern;
5. Building bulk;
6. Historic properties; and
7. Architecturally significant structures

Thirteen candidate full system alignments were initially developed. Each followed a similar concept consisting of a double guideway loop circumventing the CBD core area connecting with the Metrorail System at the Government Center Station, a northern leg extending to the Omni Complex, and a southern leg crossing the Miami River to the Brickell area and the Brickell Metrorail Station. Station locations were determined following considerations of proximity to existing and proposed activity centers, adjoining land use, joint development potential, pedestrian and vehicular interface, ridership potential, spacing, and transfer capabilities. The storage and maintenance facility for all alternatives was located at the southwest corner of the CBD loop under the Interstate 95 distributor.

The performance of candidate alignment alternatives was evaluated with respect to DPM goals and objectives. Six were selected by the DPM Policy Committee for more detailed study and further refinement. Following the evaluation of the six full DPM alignment alternatives, a modified alignment was developed combining attributes of the various alternatives. The results of the evaluation were presented to the DPM Policy Committee on February 24, 1979. The recommended alignment was accepted in principle, but it was requested that alignment issues in the vicinity of Biscayne Boulevard, Brickell Avenue, and I-395 be resolved.

TABLE 2.2
MIAMI DPM - GOALS AND OBJECTIVES

GOALS	OBJECTIVES
Promote Land Use and Development	o Provide access to areas of greatest joint use and value capture potential.
	o Link major activity centers.
	o Minimize use of high value land in CBD core for parking/transportation services or facilities.
	o Provide access to major areas of private investment.
	o Encourage new high intensity urban development.
Maximize Cost Effectiveness	o Provide most cost effective alternative for long-range transportation needs.
	o Ensure financial feasibility.
Improve CBD Transportation Services	o Increase public transportation usage.
	o Provide access to regional bus and rail transit systems.
	o Interface with private transportation.
	o Increase schedule reliability of public transit.
	o Improve accessibility of public transportation within downtown area.
Minimize Environmental Impacts	o Reduce aesthetic intrusion.
	o Preserve architectural and historic sites.
Increase Positive Economic Impacts	o Increase CBD employment.
	o Support and contribute to revitalization of existing retail/residential/hotel/office space.
	o Increase retail sales.
	o Improve other economic conditions (cultural, entertainment, conventions, etc.)
Optimize Social Impacts	o Improve access to social activity areas.
	o Maximize service to transportation disadvantaged.
	o Minimize neighborhood/community disruption.

The substance of the Biscayne Boulevard and Brickell Avenue issues was the anticipated visual impact on both of these streets; subsequently, the alignment was relocated off these two "scenic" streets, except for a small portion on Biscayne Boulevard between S.E. 3rd Street and N.E. 1st Street.

The I-395 issue was an inquiry by DPM Policy Committee members as to the possibility of the north leg passing under I-395 at N.E. 2nd Avenue as opposed to passing over it at North Bayshore Court. The issue was resolved in favor of the North Bayshore Court crossing due to the low clearance of I-395 at N.E. 2nd Avenue.

The DPM full system alignment (see figure 2.4) was officially adopted by the City of Miami and Dade County Commission in a Public Hearing on March 9, 1979. This action was supported by the recommendation of the DPM Policy Committee and the technical staffs of Dade County Office of Transportation Administration, the City of Miami Planning Department and the Miami Downtown Development Authority.

A change in the Miami River crossing as adopted in March 9, and graphically depicted in figure 2.4, by which the DPM guideway would operate over the (presently under construction) Convention Center/hotel complex roofs, was necessitated due to conflicting construction schedules. Therefore, a new Miami River crossing west of Fort Dallas Park (approximately 400 ft. west from the original location) was recommended by the DPM Policy Committee in their June 9, 1979 meeting, and officially adopted at the County and City Commission Joint Public Hearing on June 15, 1979.

B. Staging Alternatives

The detailed investigation of the DPM Stage I system was accomplished in Milestones Four, Five and Six of the preliminary design and engineering study. The goal of the staging analysis was two fold: (1) to establish an appropriate first stage of construction for the DPM system consistent with patronage requirements, downtown development plans and available funding resources; and (2) to define system design and operating requirements.

A detailed discussion of the evaluation methodology utilized in comparing the many stage I DPM alignment alternatives considered is beyond the scope of this document. A report titled "Evaluation of First Stage DPM Systems", May 5, 1979, was prepared during the preliminary engineering phase of the project. This report, which is available for public review at OTA's offices, describes in great detail the selection process leading to the preferred first stage. The following discussion briefly highlights the salient points of this Stage I evaluation process.

As a first step in developing candidate Stage I alternatives the adopted full DPM system was divided into relatively independent segments so that each could be evaluated on its individual merit. Various segments were then combined to provide a full range of staging options in the candidate Stage I alternatives.

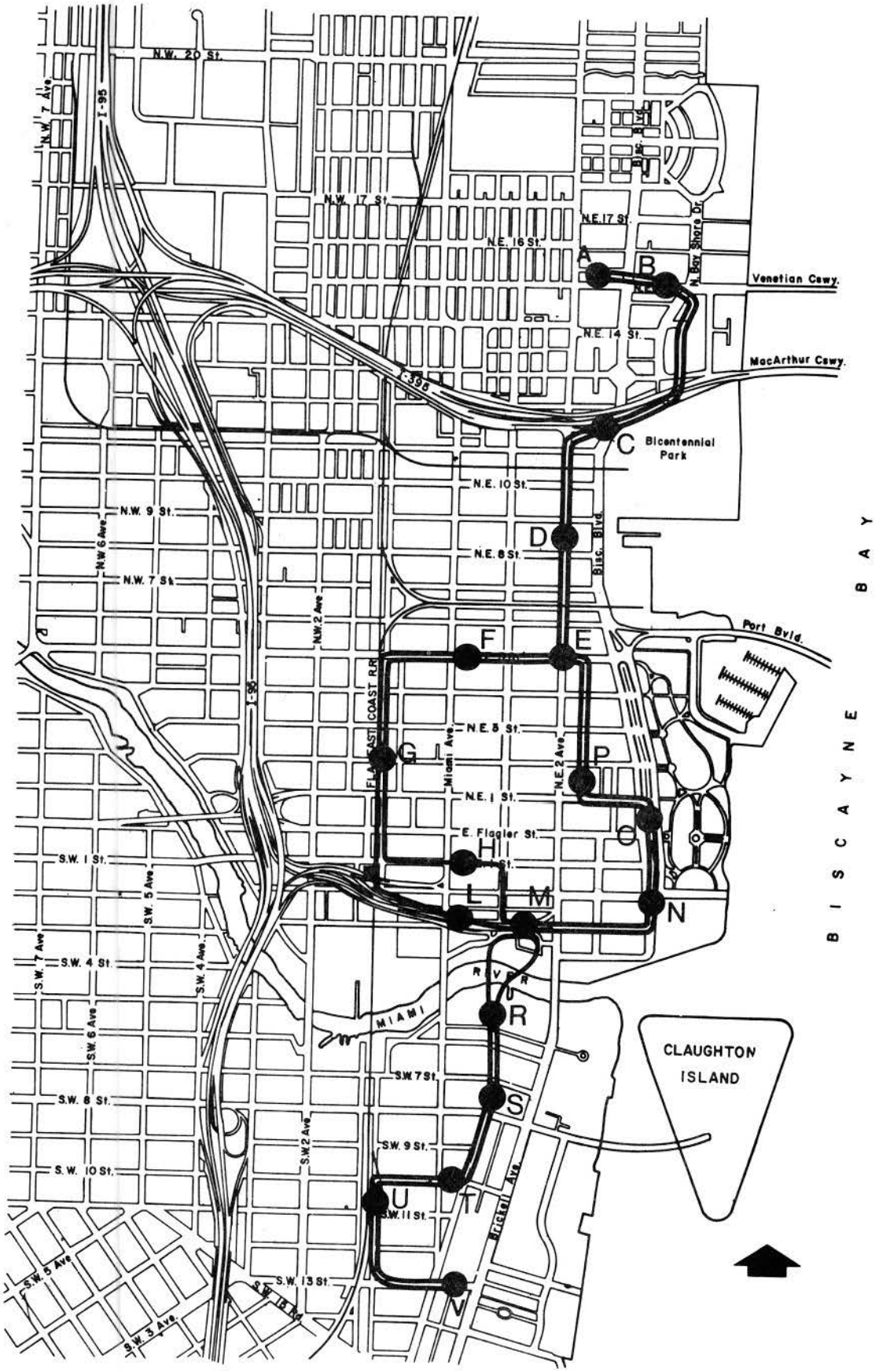


Figure 2.4 DADE COUNTY ADOPTED FULL SYSTEM (March 1979)

The criteria used to develop staging alternatives were (1) operational feasibility, (2) satisfaction of major known transportation demands, (3) reliability and availability requirements, and (4) total operating and capital costs.

The known primary transportation demands were:

1. To provide distribution of rapid transit riders from and to the Government Center and the Brickell Metrorail Stations.

2. To provide supplemental distribution of express bus riders from Miami Beach and other parts of the County into the CBD.

3. To tie activity centers in Omni and Brickell areas to the activity centers within the Central Business District.

Various combinations of the primary transportation demands were incorporated into candidate Stage I alternatives. In addition, in accordance with priorities established by the DPM Policy Committee, individual activity centers which require secondary transportation demands were considered in developing candidate alternatives.

Fifteen candidate Stage I alternatives were developed for review, evaluation and selection by the DPM Policy Committee. Seven were selected for more detailed analysis based on evaluation by the technical staff of the advantages and disadvantages of each candidate. The selected Stage I alternatives are identified as Alternatives I, IV, VI, IX, XIII, and XIV (see figure 2.5).

Following the evaluation methodology developed at the outset of the DPM Program, each Stage I alternative was evaluated with respect to goal achievement and measures of effectiveness. Measures of effectiveness were quantitative values developed by the technical staff to determine how well the alternatives satisfied each goal and objective. Additional measures were developed to provide more detailed information on the alternatives being considered. These measures are:

1. Unit cost for major elements and comparative cost studies for alternative guideway configurations and staging sequences;

2. Patronage projections for each of the seven alternatives giving station volumes and station trip patterns;

3. A preliminary analysis of reliability issues and a review of probable additional costs required to achieve the reliability goal; and

4. A segment-by-segment tabulation of capital cost and patronage to permit a "building block" approach to the evaluation of alternatives.

Using this information, specific comparisons of key indicators and alternative first stage configurations were made to identify preferred solutions.

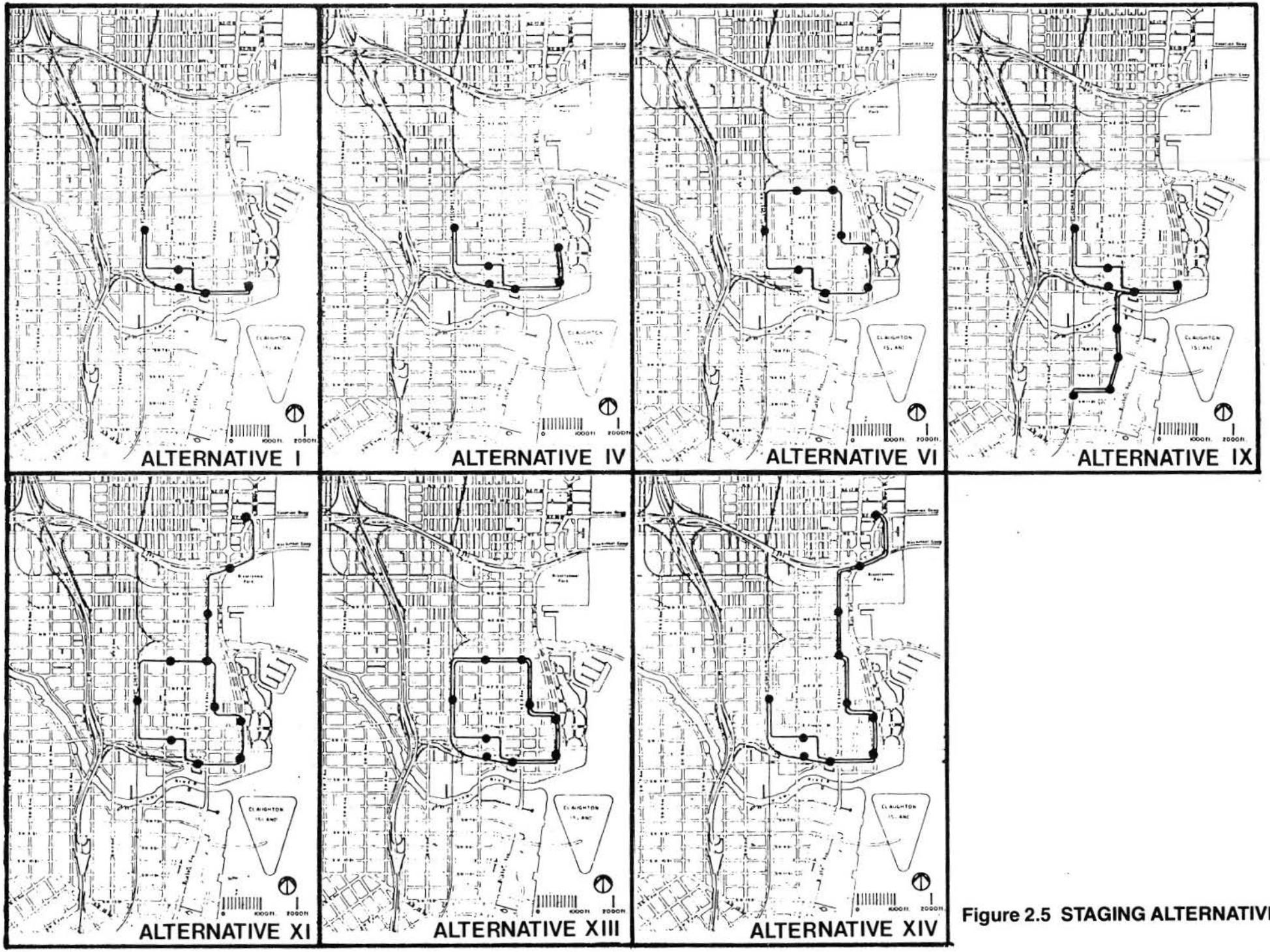


Figure 2.5 STAGING ALTERNATIVES

Evaluation of the Stage I alternatives was accomplished using a "sequential screening" process as a means of eliminating the alternatives which performed poorly in terms of several performance indicators. The process consisted of the following steps:

1. Calculation of measures of effectiveness;

2. Development of specific cost factors (e.g. capital cost per rider, operating and maintenance cost per rider, etc.); and

3. The analysis of operating configurations and the development of specific indicators to reflect operating reliability, probable risk associated with successful Stage I implementation and probable user acceptance.

On the basis of total performance scores, Alternatives I and IV were dropped from further consideration. Neither system was sufficiently large in scope to achieve the goals and objectives established for the DPM program especially, in influencing land development and providing positive economic impact. These two alternatives also scored the lowest in providing transportation services.

On the basis of cost, net revenue and various cost effectiveness measures, Alternatives IX and XIV were dropped from further consideration. The capital cost of Alternative XIV is significantly greater than other alternatives and does not represent a significant increase in total performance score. Similarly, Alternative IX does not achieve a higher performance score than Alternative VI, despite a 29% increase in cost.

The remaining three alternatives (VI, XI, and XIII) were reviewed from the operations and failure management viewpoint. Two measures of effectiveness were developed: first, a ranking based on operational flexibility and degree of risk; and second, a ranking based on capital cost per lane foot of guideway. Alternative XIII performed best relative to these two measures and performed competitively in the previous evaluations. Alternative XIII, herein referred as the DPM, was accordingly recommended and accepted as the Stage I DPM System by the Miami DPM Policy Committee. The 1.9 mile DPM loop system (see figure 2.6) was jointly adopted by the City of Miami and Dade County Commission at a Public Hearing held on June 15, 1979; therefore, this alternative is proposed for implementation by Dade County's Office of Transportation Administration.

Subsequently to the adopted alignment, several minor alterations were required as a result of detailed investigation in preliminary design of the DPM. These included: moving the site of the maintenance facility from under the I-95 distributor to the parcel north of the I-95 distributor, minor alignment changes to mitigate adverse impacts on properties of potential historic or architectural significance, and the addition of a station on N.W. 5th Street and N.W. 1st Avenue to increase DPM service coverage as well as to provide an economic stimulus for the area.

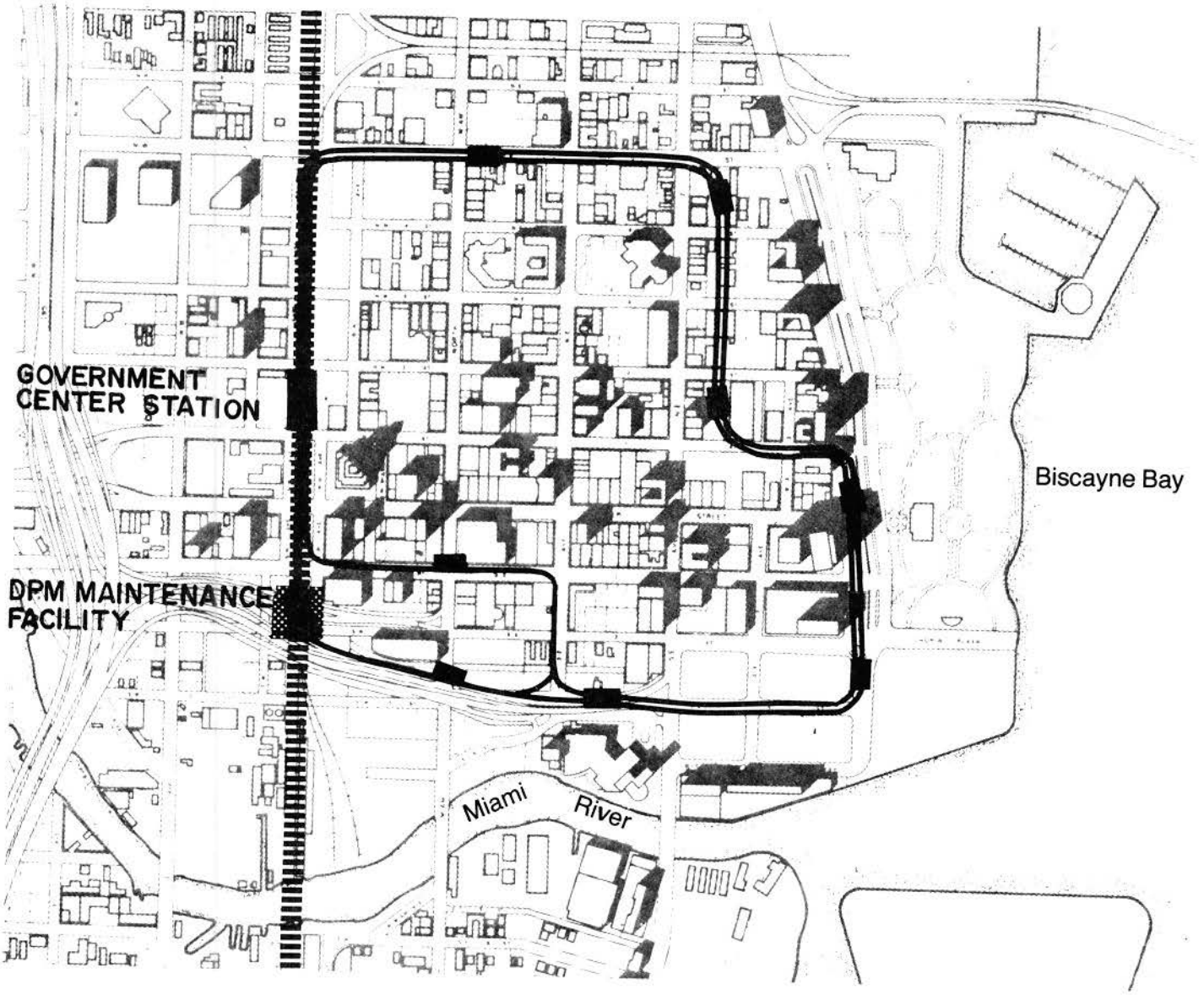


Figure 2.6 DADE COUNTY ADOPTED STAGE 1 DPM

C. Development of Surface Transit Component

A modified bus network was developed as an integral component of the DPM Alternative. The principal objectives used in the development of the bus network were similar to those established by the Miami DPM Policy Committee. However, the underlying criteria was to provide an extension of the transit service from the DPM and Metrorail systems to major activity areas not served by the DPM and to coordinate City and regional bus service with the DPM and rapid transit service in the downtown area. The bus network consists of circulator buses and local buses. In addition, an open air tram is proposed under this alternative to facilitate movement of pedestrians within the area of the DPM loop.

The operational criteria used to determine specific routes were:

1. To restrict bus activity in the CBD area;

2. To serve as a rapid transit distributor of trips with destinations to major activity areas within the downtown area not served by DPM;

3. To extend transit service from the DPM to major activity areas to the north and south of the CBD;

4. To allow for easy transfer from local and circulator buses to DPM and Metrorail stations; and

5. To reduce the inconvenience of extra long walk distances inside the CBD loop through the use of an open air tram, or other low platform easily accessible vehicle.

2.1.4. ALL BUS ALTERNATIVE

During meetings conducted as part of the EIS Scoping process, it was generally agreed that there was a need to develop an alternative that utilized a high quality central city bus system to meet the transportation requirements of downtown Miami and, more specifically, the loading patterns created by implementation of the Metrorail system.

In developing this alternative, it was decided to select a service area which coincided with that used in the development of the DPM full system. This area includes what is generally considered downtown Miami which, as previously stated, consists of the Brickell, CBD and Omni areas.

In order to provide the level of service required to meet the projected transportation demand, it was necessary to make radical assumptions such as the establishment of priority bus lanes, the conversion of Flagler Street to a transit mall, and the establishment of increased headways for regional transit buses. The objectives of these specific changes were: 1) to provide, to the extent possible, an exclusive right-of-way for buses; 2) to promote the collector/distributor role throughout this service area; and 3) to provide a high frequency system which would complement the level of service and reliability of the Metrorail system.

The All Bus Alternative includes local (full size) bus service and circulator (small bus) service. Local routes were modified so as to provide a high quality service within the CBD core area and to allow for collection/distribution activities to be handled by the proposed circulator routes.

The circulators are designed to provide crosstown movements between (1) the Brickell Station, Claughton Island, and the Brickell Avenue office developments, (2) the Washington Heights Station and the Omni new town in-town area, (3) the Omni area and Flagler Street, and (4) the Government Center Station and the Brickell area.

The All Bus Alternative is described in further detail in Section 2.2.2

2.2 DESCRIPTION OF ALTERNATIVES

2.2.1 DOWNTOWN PEOPLE MOVER ALTERNATIVE

The Downtown People Mover Alternative combines three modes of transportation to effectively accommodate the transportation requirements of downtown Miami. In addition to the DPM, this Alternative includes the use of an open air tram and also local and circulator buses to effectively service the areas north and south of the CBD core. Each of these elements is described in detail in the following sections.

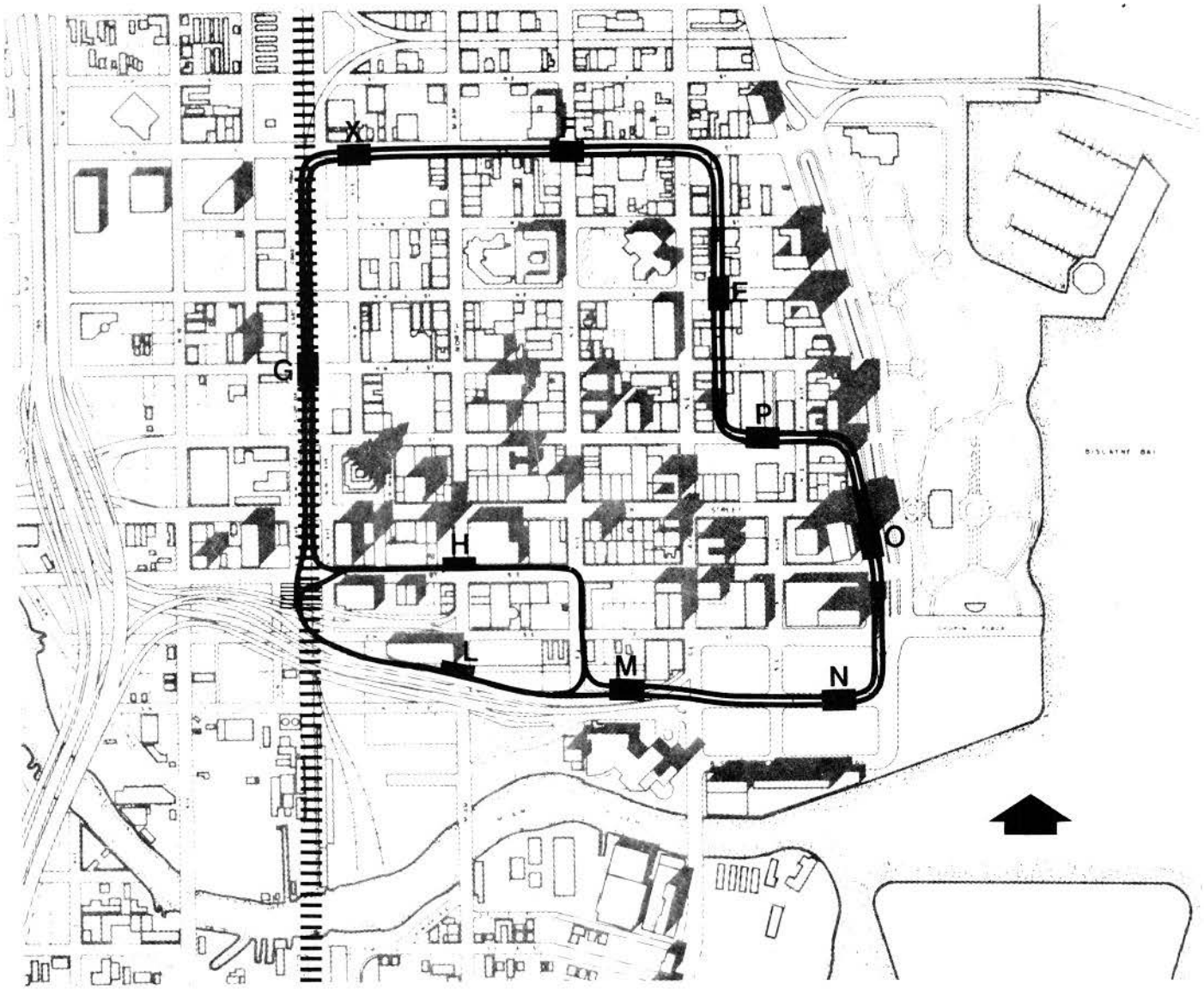
A. General Description of the DPM

The Miami Downtown People Mover is a completely automated circulation/distribution system designed to interface with Dade County's rapid rail transit system and to provide improved transportation in and around the Central Business District. The proposed DPM, as illustrated in figure 2.7, consists of an elevated double guideway approximately 1.9 miles long in a loop configuration around the CBD. The system includes ten on-line stations and operates with driverless vehicles at approximately two minute headways. The round trip travel time on each guideway will take approximately 9 minutes.

Of the ten stations, eight will be free standing aerial structures with two, the Government Center Station (G) and the New World Trade Center Station (M), incorporated into the design of proposed new developments. As final design progresses, other stations may also be incorporated into new buildings.

The Government Center Station complex will include both a DPM station and the Metrorail station for the north-south transit line presently under construction. It will be possible to transfer to and from the Metrorail system and both regional and local buses at the Government Center Station. Bus transfer capabilities are also planned at several other DPM stations.

A flat fare to be collected by coin-operated turnstiles, will be charged for use of the DPM. Free fare transfers will be provided for trips originated on the Metrorail System.



LEGEND

- Two Way Alignment
- One Way Alignment
- DPM Station
- DPM Maintenance Facility
- METRORAIL Alignment

Figure 2.7 PROPOSED DPM LOOP SYSTEM

B. Alignment and Station Description

As part of the Preliminary Engineering studies conducted for the Miami DPM system, very detailed architectural and engineering drawings have been prepared which define the various elements of the system. These drawings constitute the Miami DPM Preliminary Design Report which is available under separate cover for public inspection. The graphics which appear in this section illustrate the major elements of the system and are primarily intended to complement the accompanying written description.

The adopted DPM alignment and station locations that have been used in preliminary design are described in this section. Figure 2.8 a-e illustrate this alignment in plan and profile drawings. Figure 2.9 a-i illustrate the individual stations, highlighting the entry and exit areas and surrounding land use.

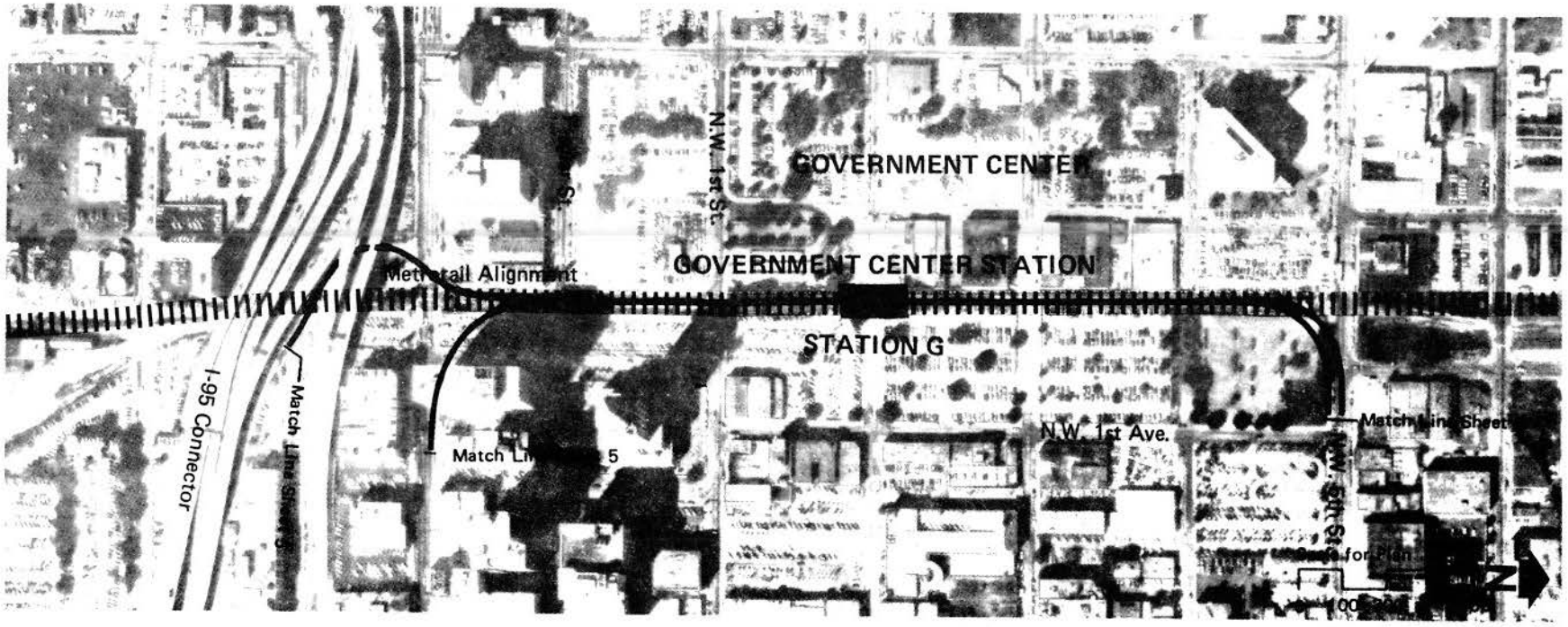
Beginning at the Government Center Station (G) at the intersection of N.W. 2nd Street and the Metrorail right-of-way (ROW), the DPM alignment proceeds northward along the Metrorail ROW to N.W. 5th Street and turns east. Immediately after turning east, the double guideway separates slightly to accommodate the center platform of station (X) located on the south side of N.W. 5th Street bridging N.W. 1st Avenue. Station (X) is a free-standing aerial station with vertical circulation elements on each side of N.W. 1st Avenue. In general, DPM stations will have both elevators and stairs provided for vertical circulation. Escalators will be used depending on capacity requirements of the individual station. As final design progresses specific needs for each station will be identified and decisions will be made on the appropriate vertical circulation elements required.

Continuing easterly from Station (x), the guideway spans North Miami Avenue, curving slightly to the north approximately five feet to avoid the Chaille Block building at 433-443 North Miami Avenue. The Chaille Block has been cited in the Dade County Historic Survey as having architectural significance (See Section 5.2). After passing the Chaille Block, the guideway curves back to its original position over the existing south traffic lane on N.E. 5th Street. The guideway continues east to station (F) which bridges N.E. 1st Avenue opposite the street from the Central Baptist Church and adjacent to the proposed Miami Dade Junior College downtown campus expansion. Ground level facilities on either side of N.E. 1st Avenue will be similar to those of Station (X).

From Station (F), the guideway proceeds along the south side of 5th Street, spans N.E. 2nd Avenue, and turns south in an alignment approximately 100 feet east of and parallel to N.E. 2nd Avenue. Holding this course, the guideway spans N.E. 4th Street and continues southward to Station (E), which bridges N.E. 3rd Street. This station will be a bus intercept point and will provide up to three bus bays between the station and N.E. 2nd Avenue. Ground level facilitities will include vertical circulation elements on both sides on N.E. 3rd Street.

From Station (E), the guideway continues in a southerly direction, spans N.E. 2nd Street, and turns to the east at N.E. 1st Street. After crossing N.E. 1st Street, the double guideway separates slightly at Station (P), located on the south side of the street across from a six-level parking garage.

Figure 2.8 DPM PLAN AND PROFILE KEY MAP



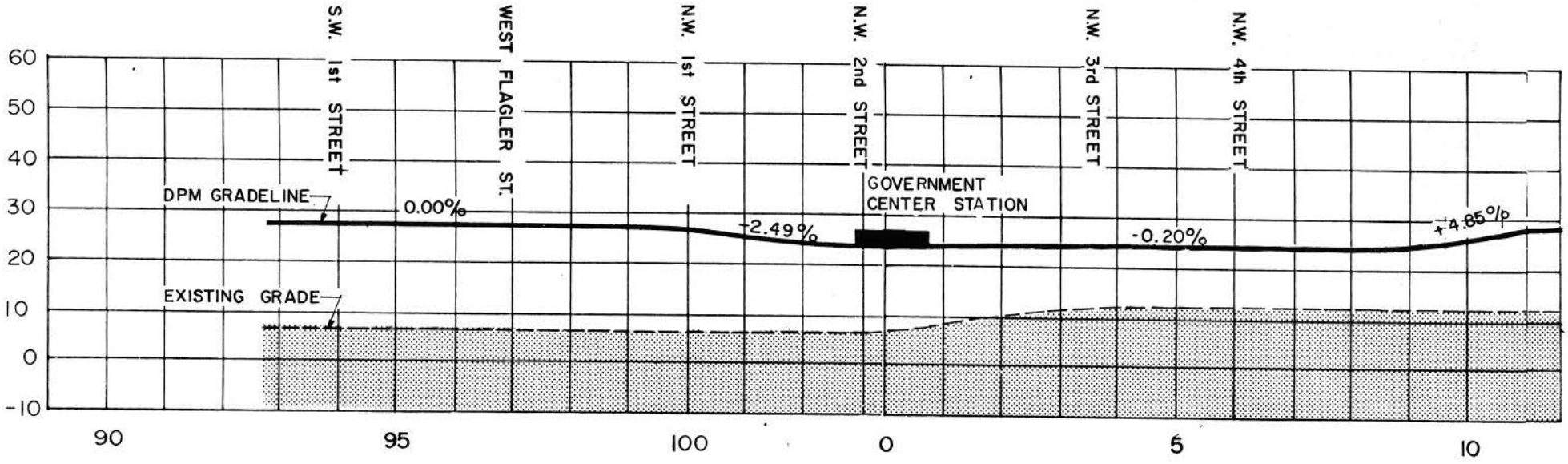
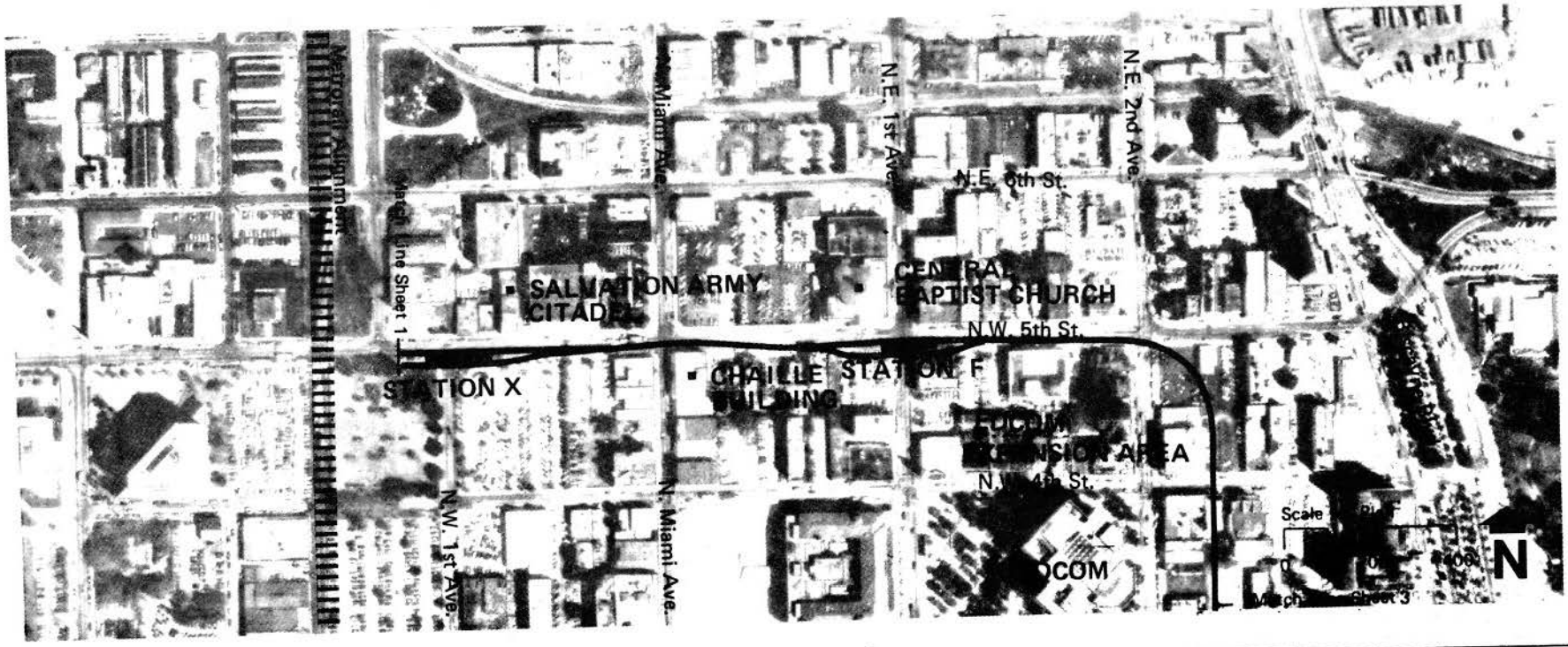


Figure 2.8a DPM PLAN AND PROFILE
SHEET 1



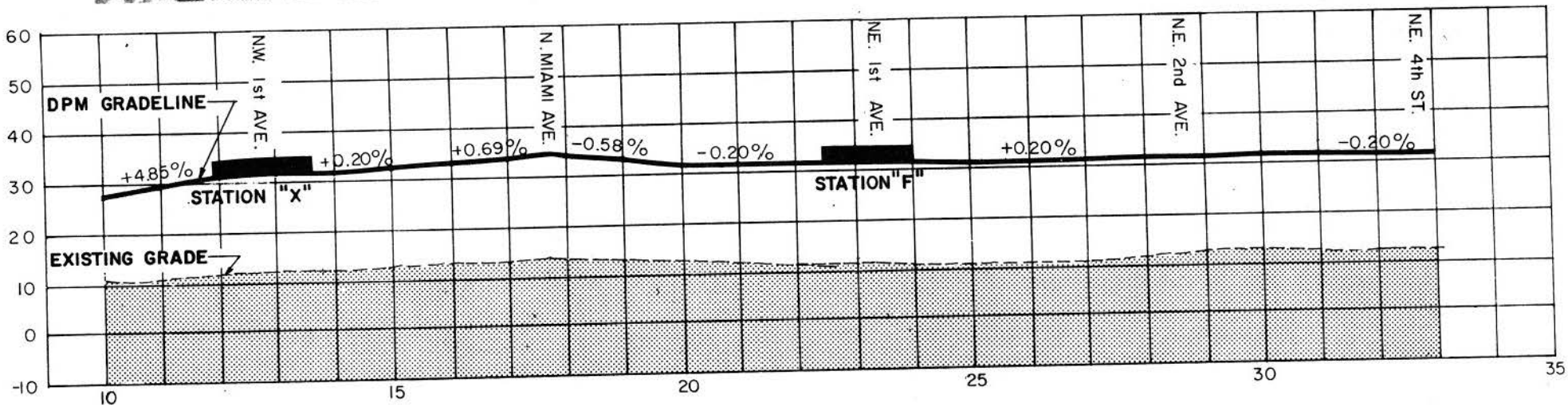
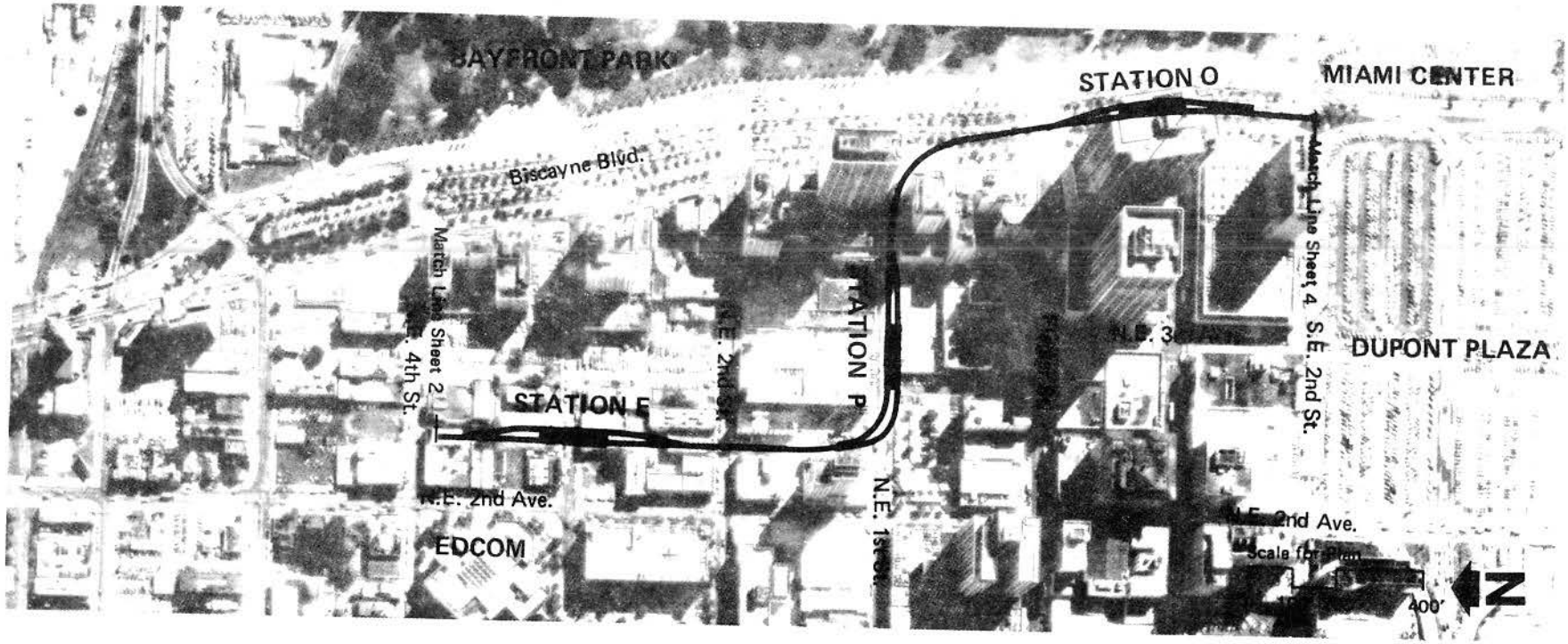


Figure 2.8b DPM PLAN AND PROFILE

SHEET 2



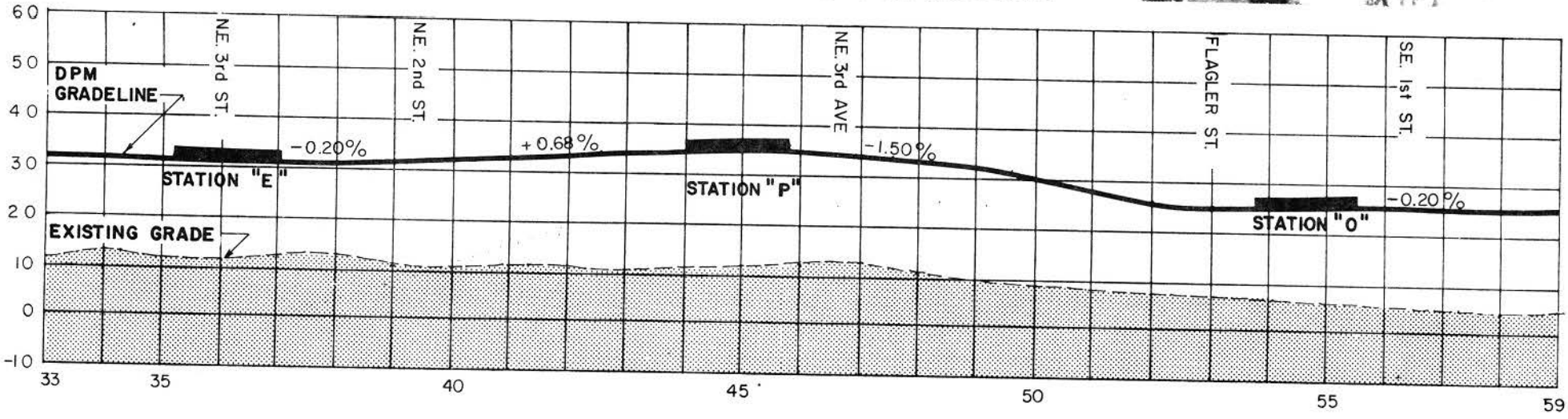
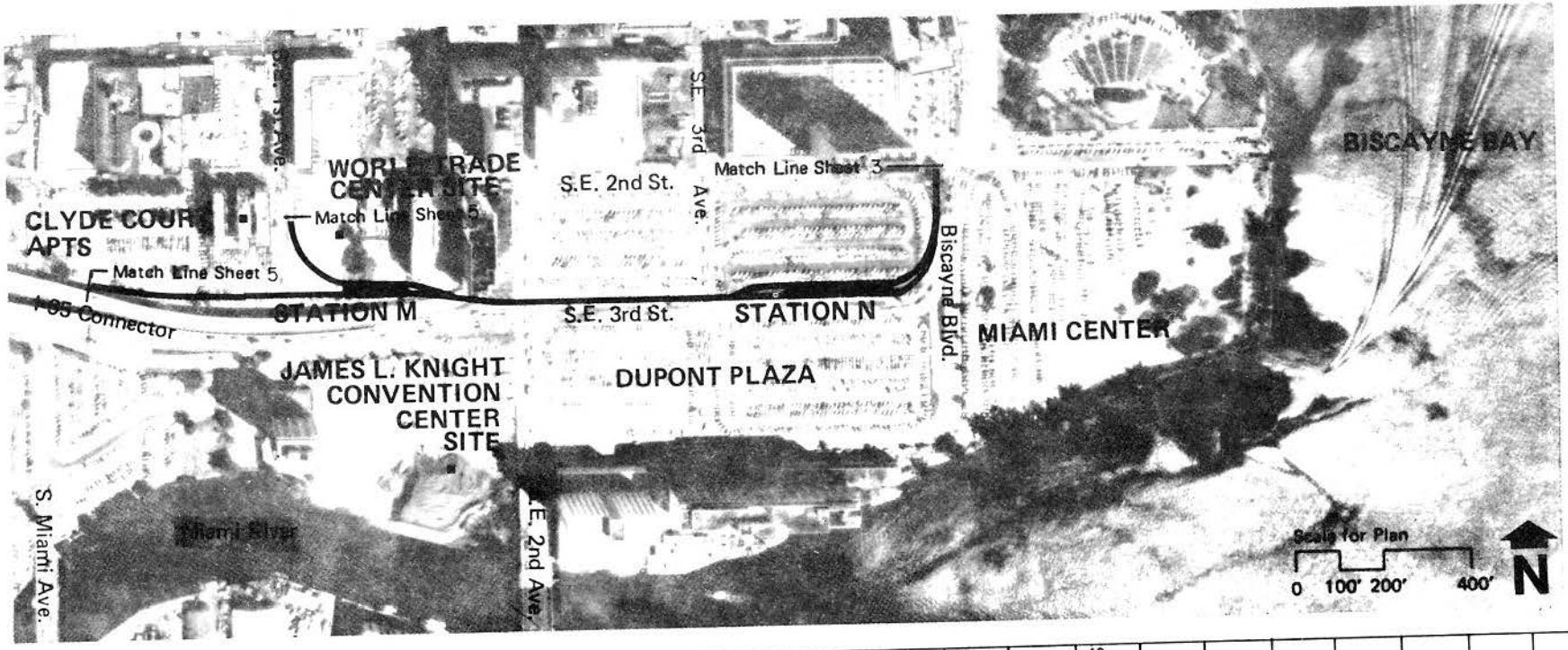


Figure 2.8c DPM PLAN AND PROFILE
SHEET 3



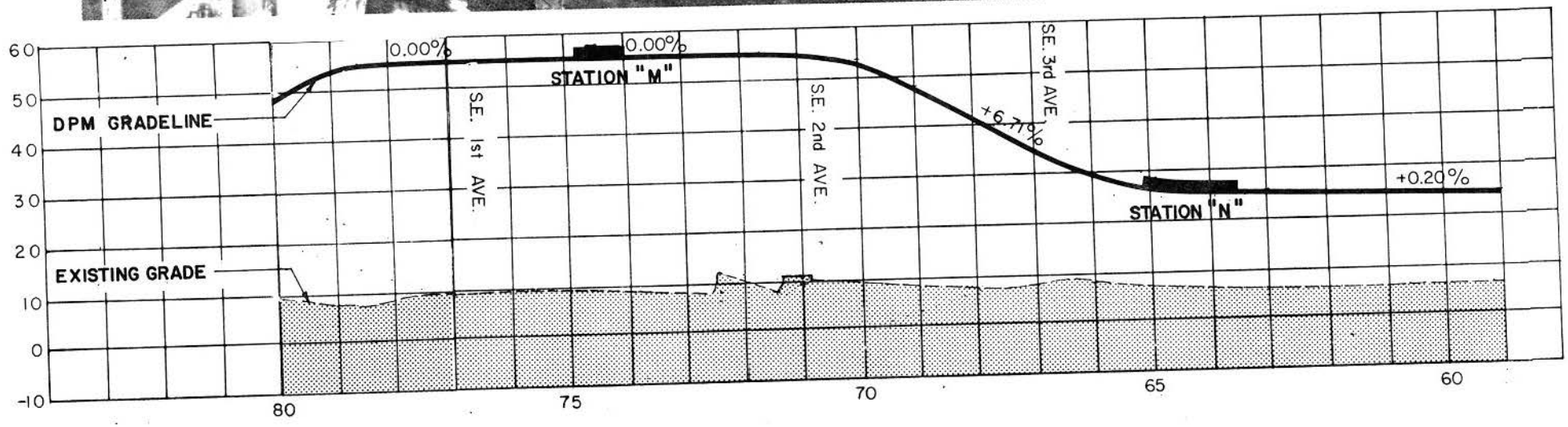


Figure 2.8d DPM PLAN AND PROFILE

SHEET 4

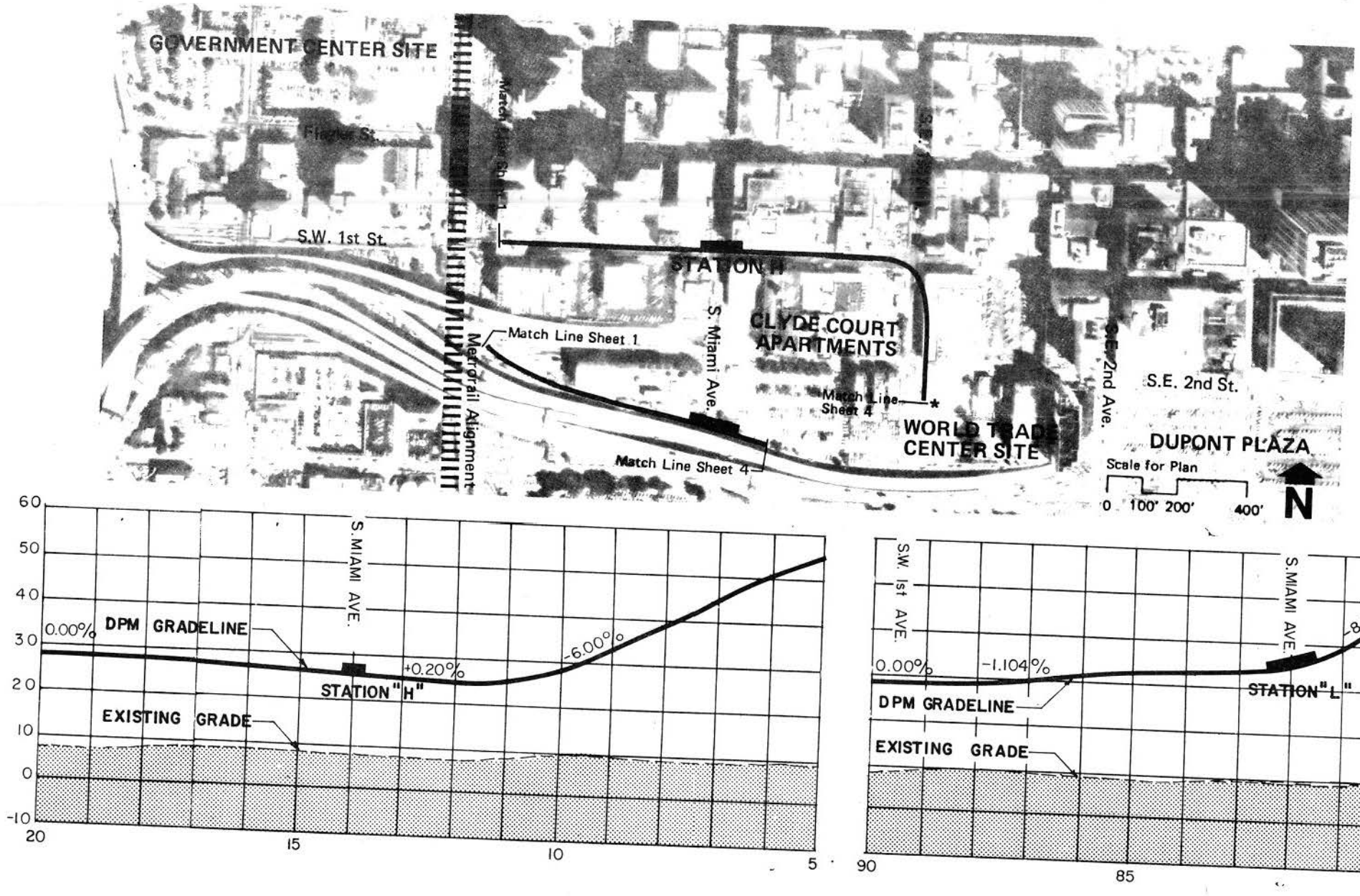


Figure 2.8e DPM PLAN AND PROFILE

SHEET 5

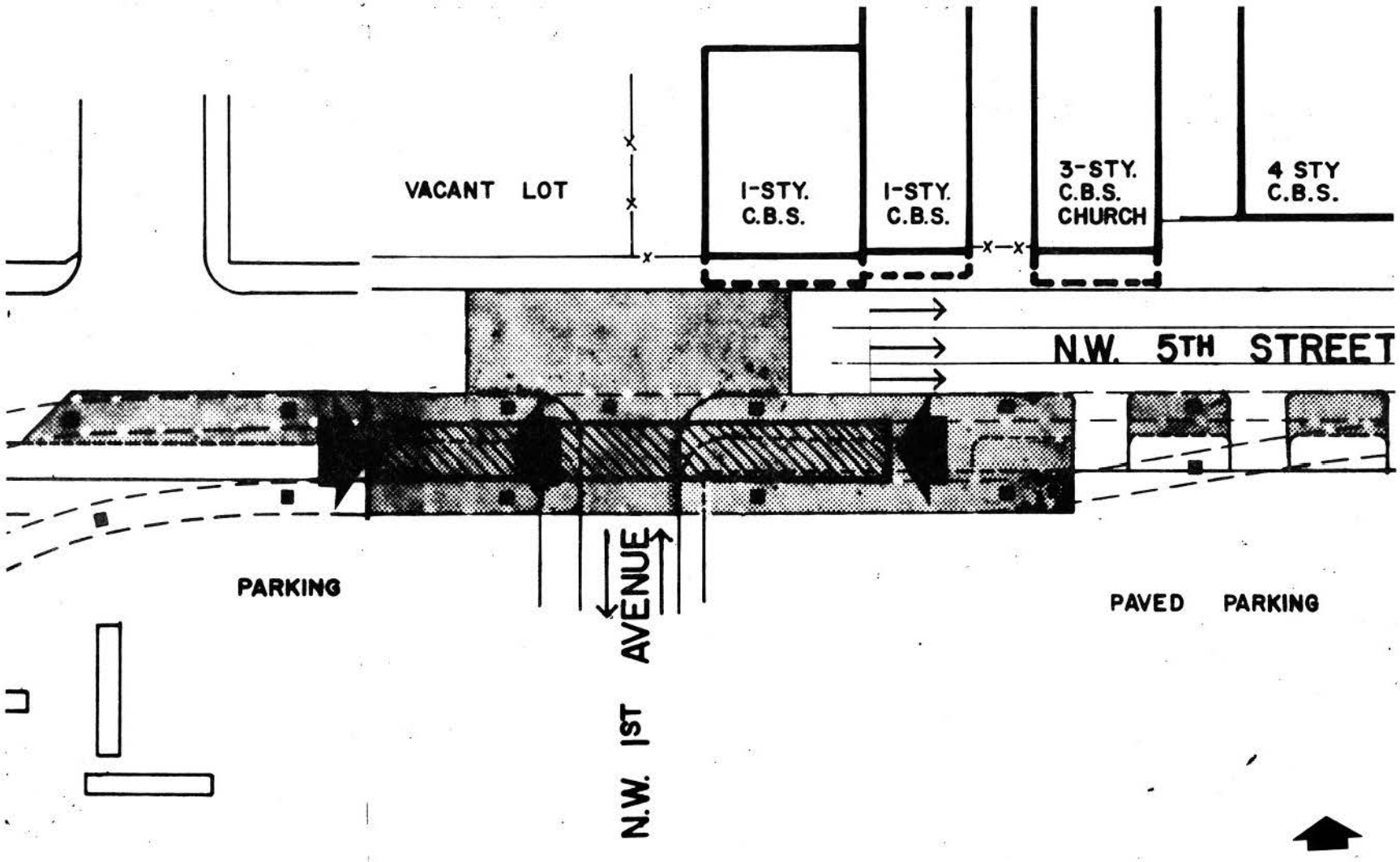


Figure 2.9a DPM STATION 'X'

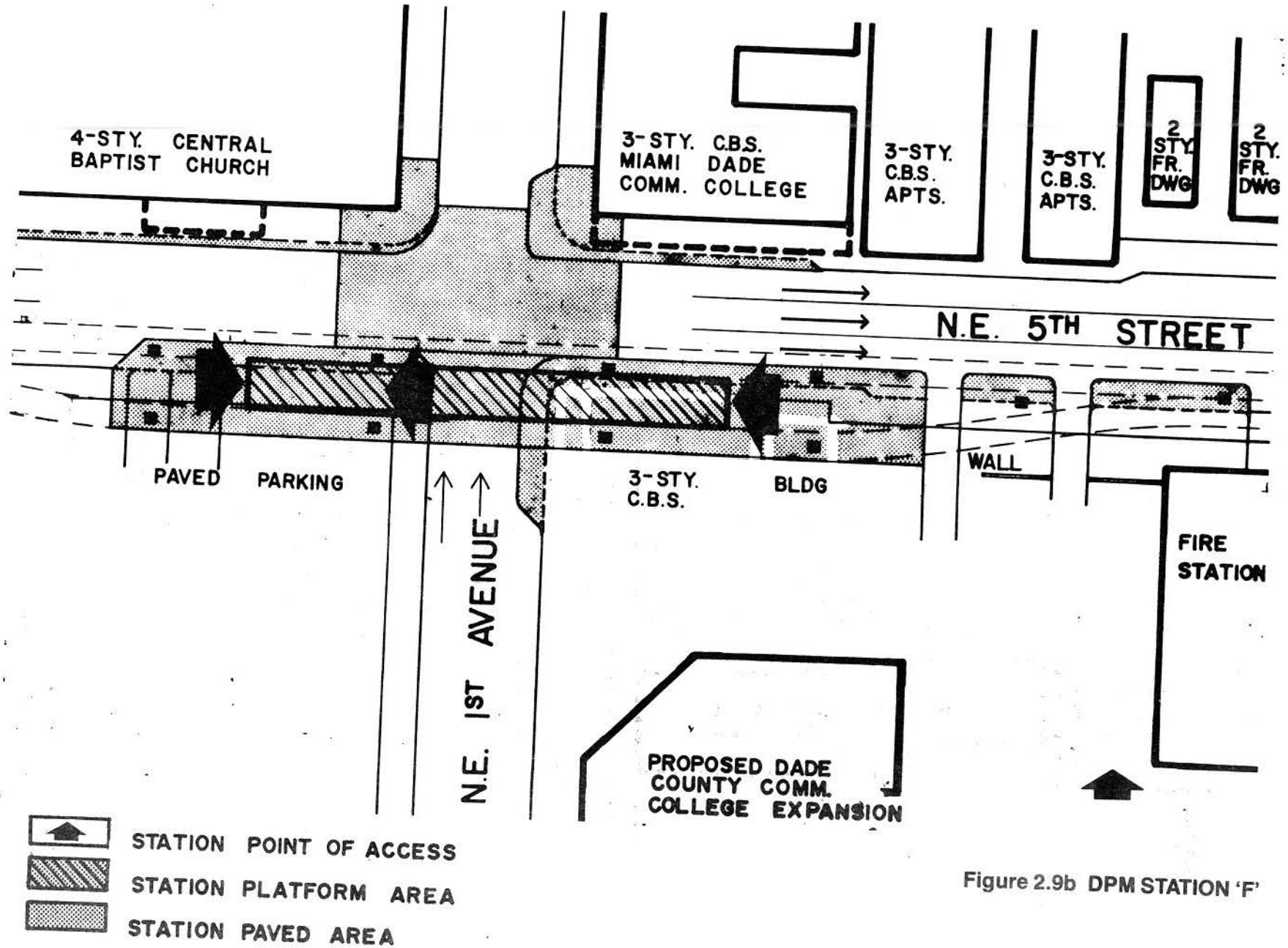


Figure 2.9b DPM STATION 'F'

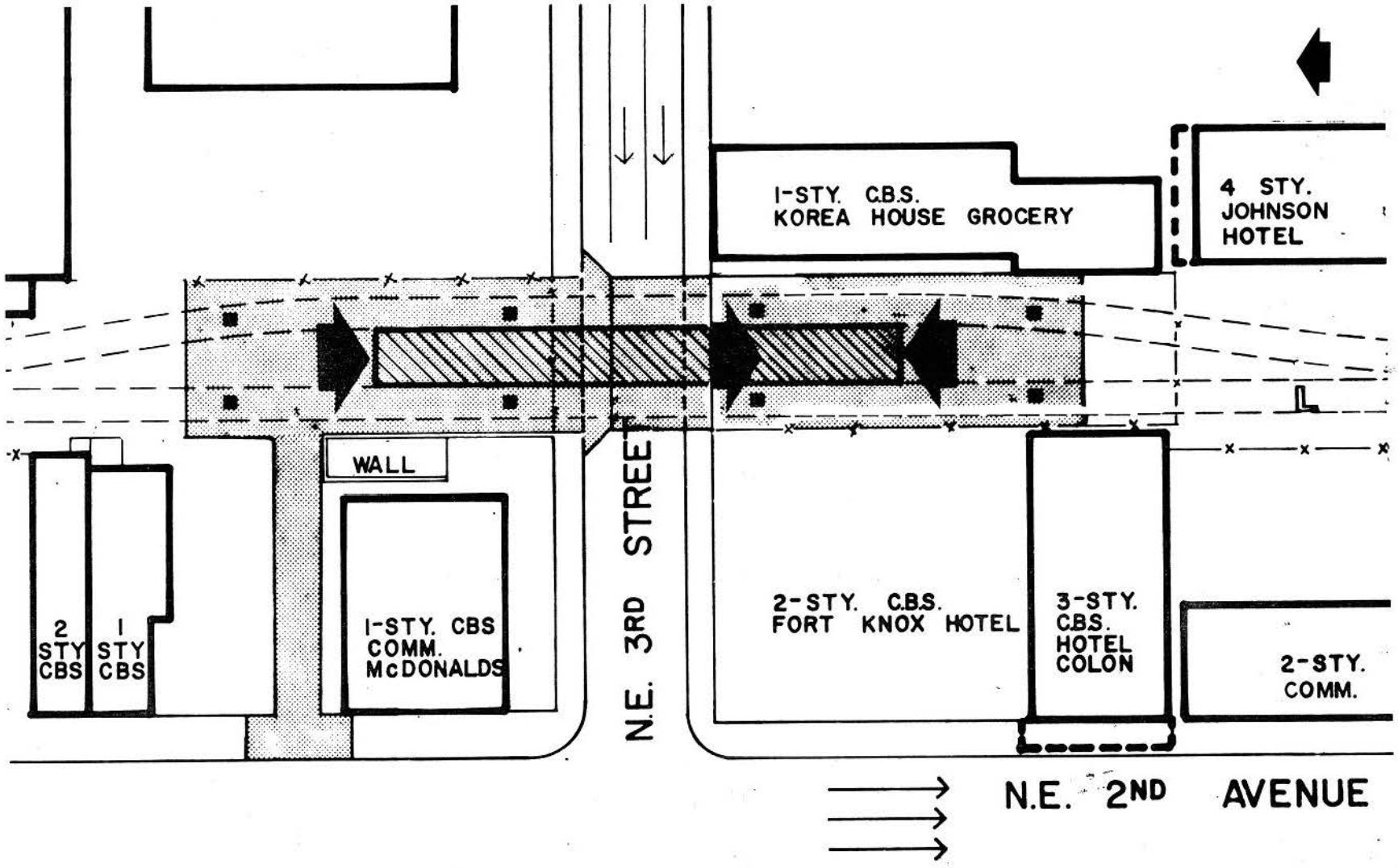


Figure 2.9c DPM STATION 'E'

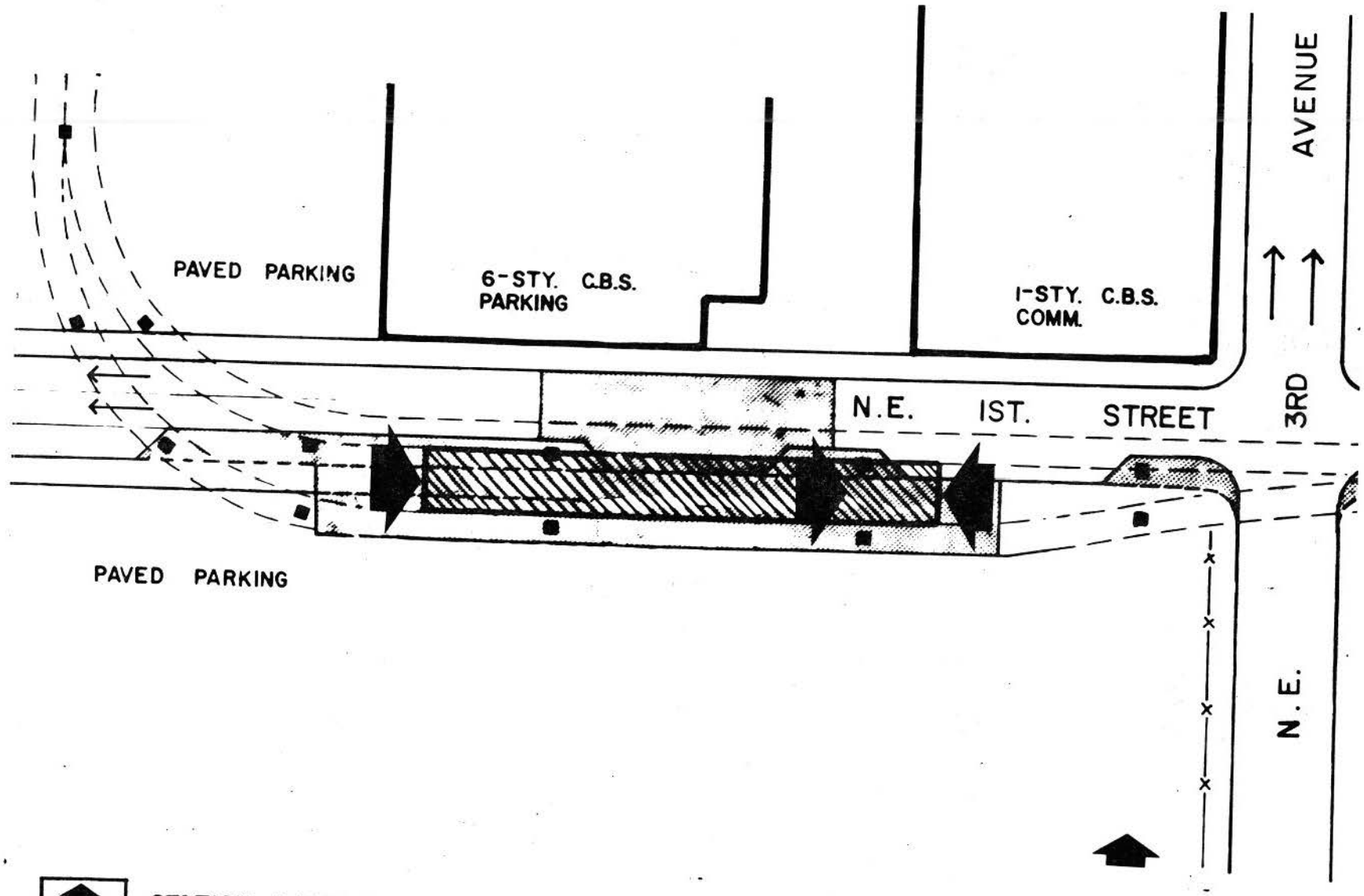


Figure 2.9d DPM STATION 'P'

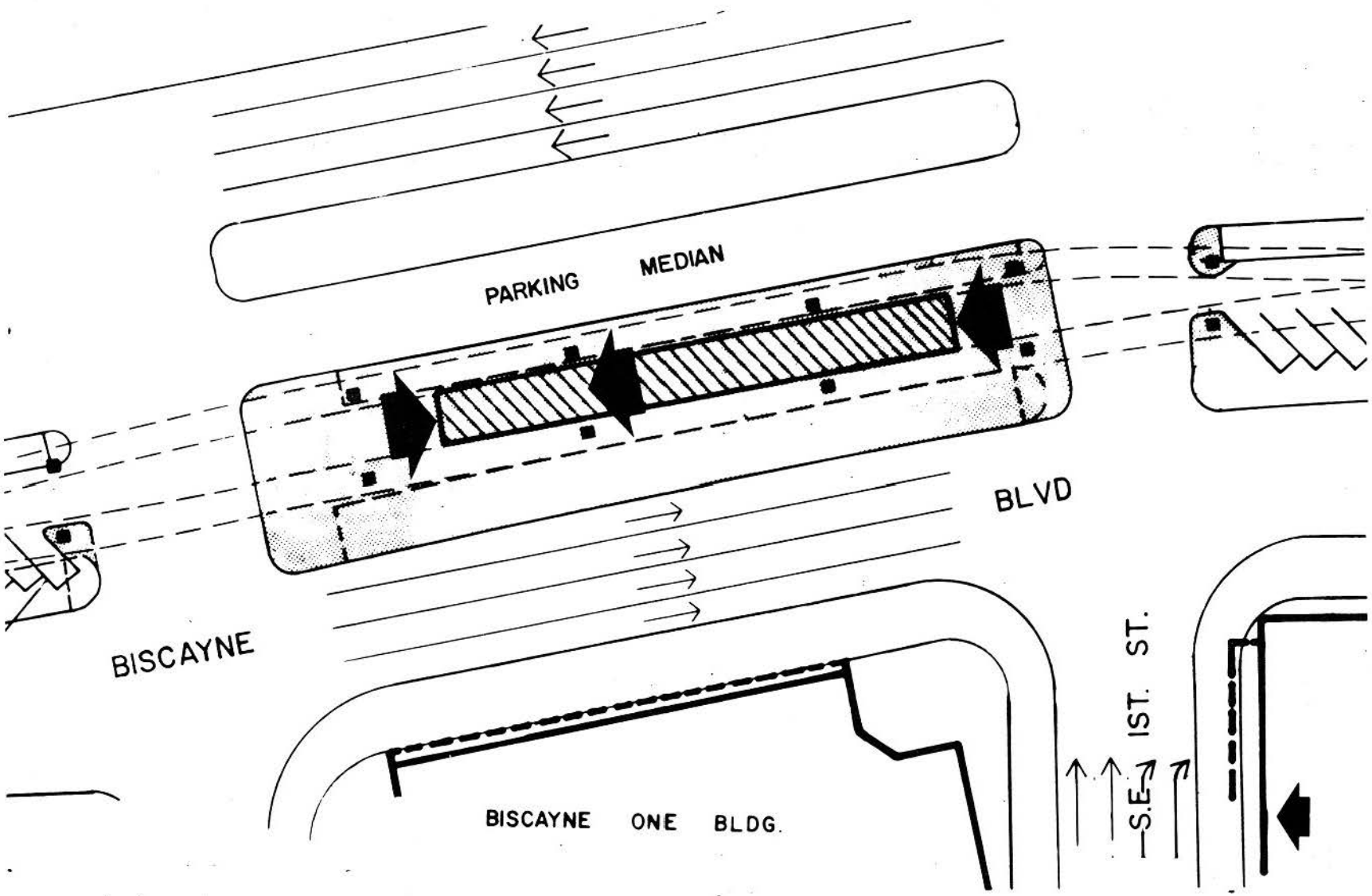


Figure 2.9e DPM STATION 'O'

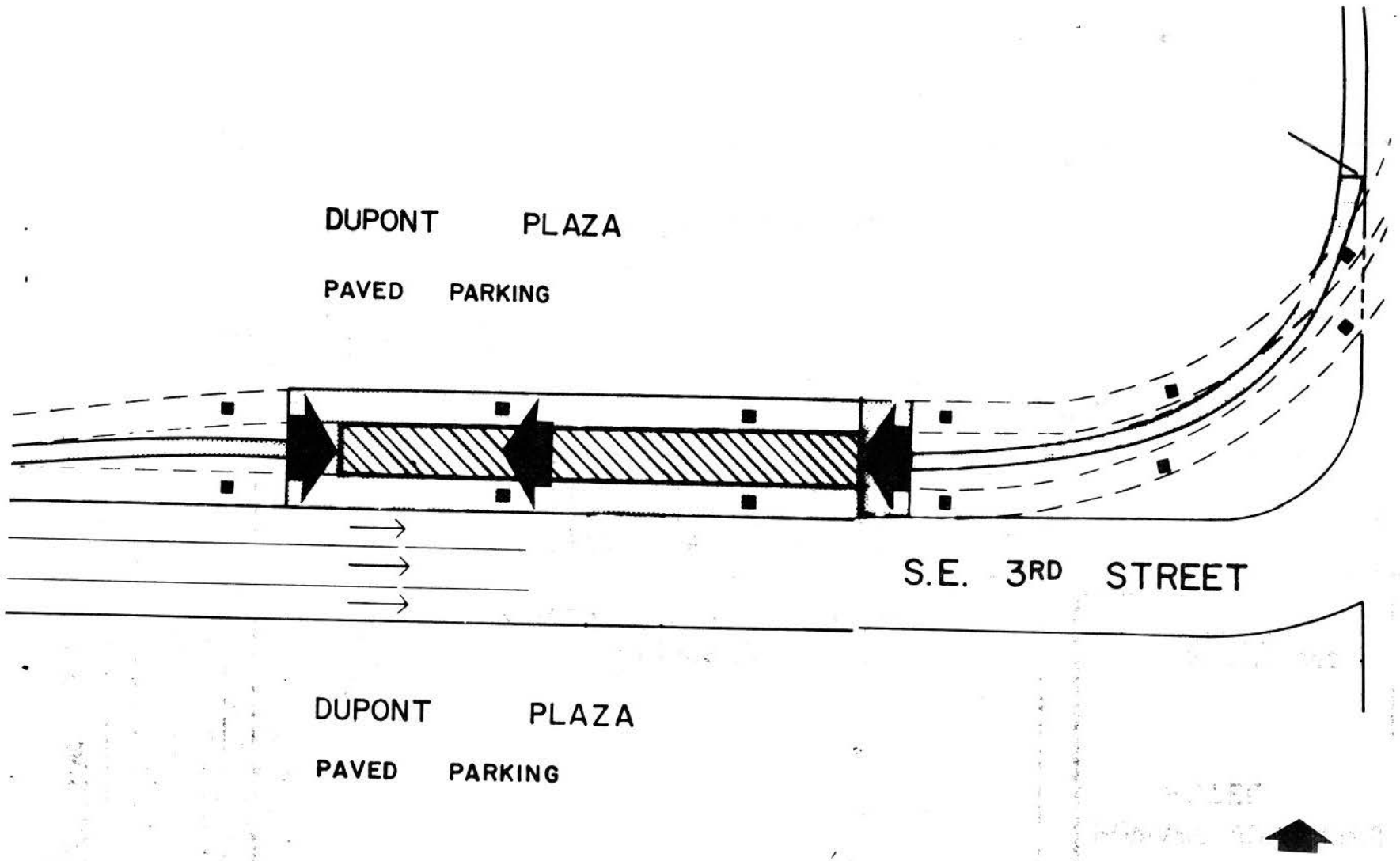


Figure 2.9f **DPM STATION 'N'**

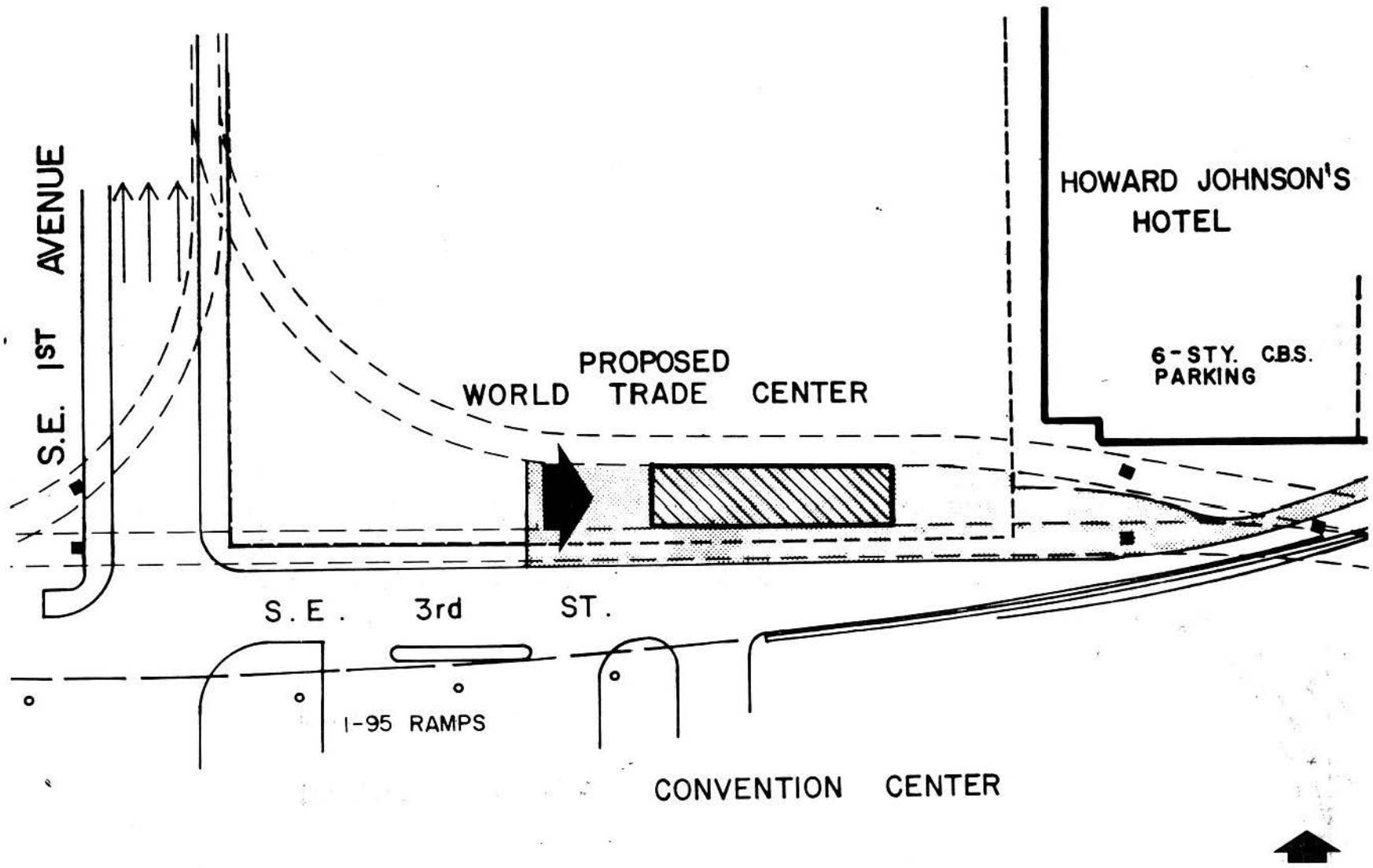


Figure 2.9g DPM STATION 'M'

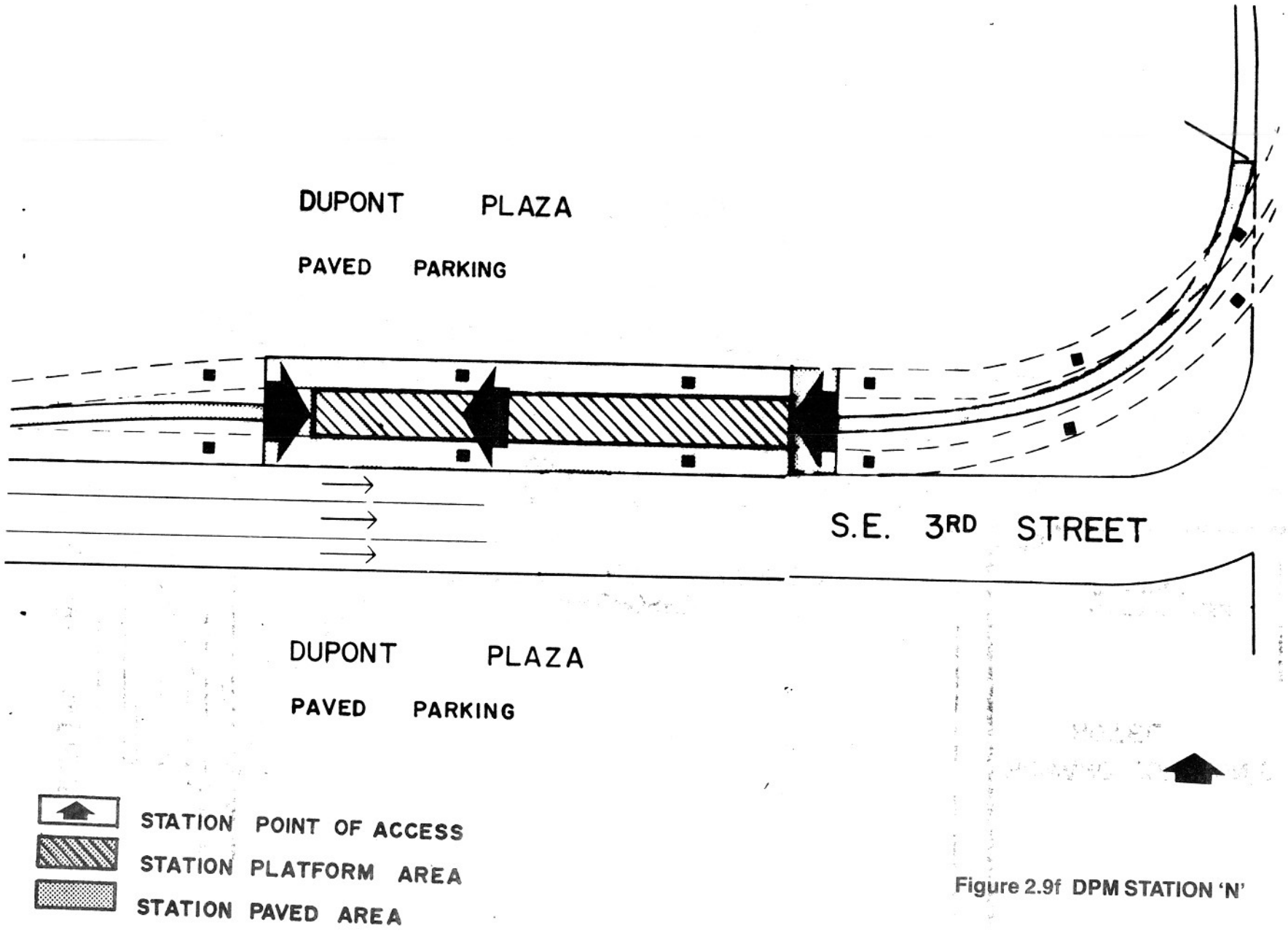


Figure 2.9f DPM STATION 'N'

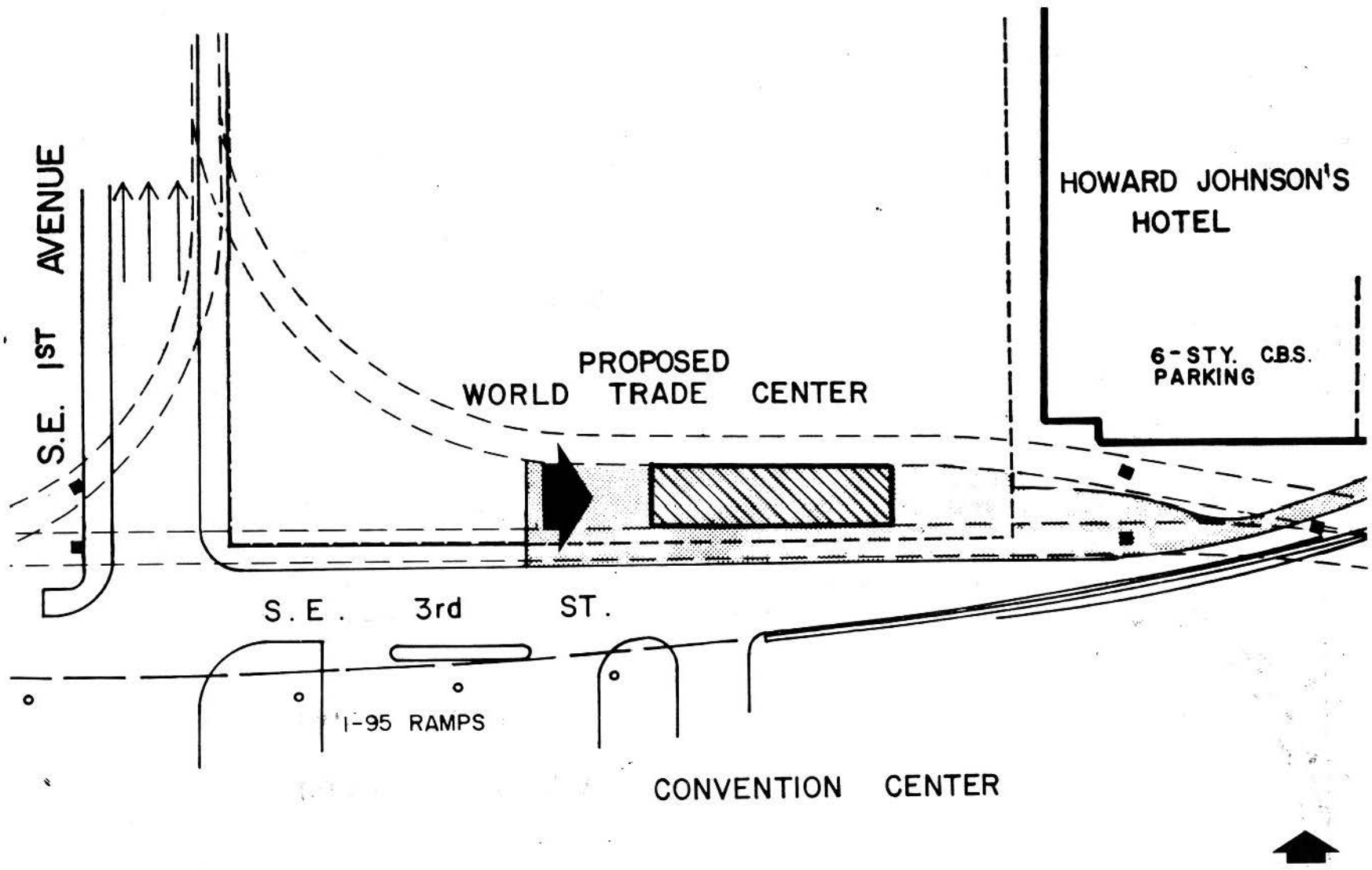


Figure 2.9g DPM STATION 'M'

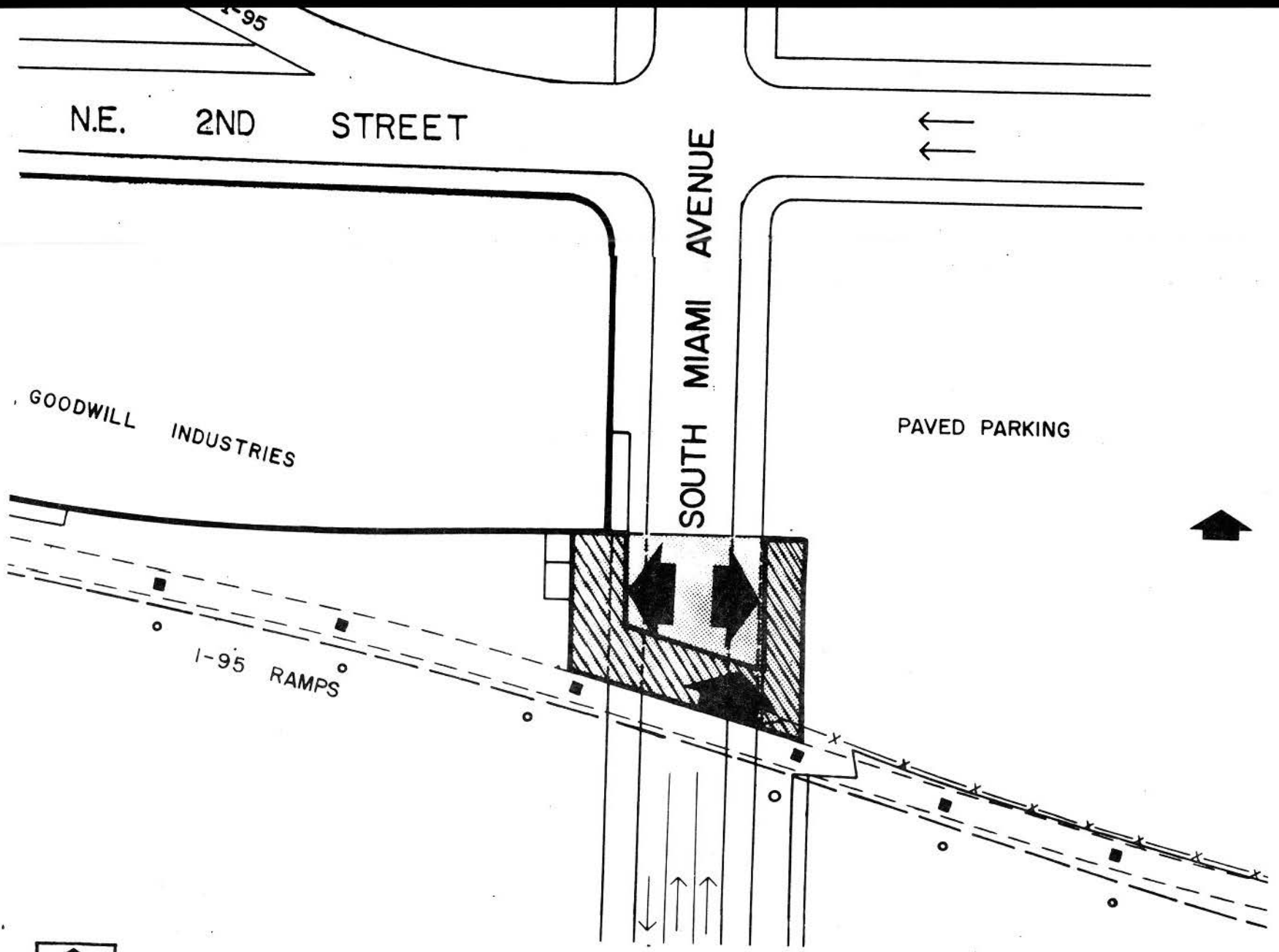


Figure 2.9h DPM STATION 'L'

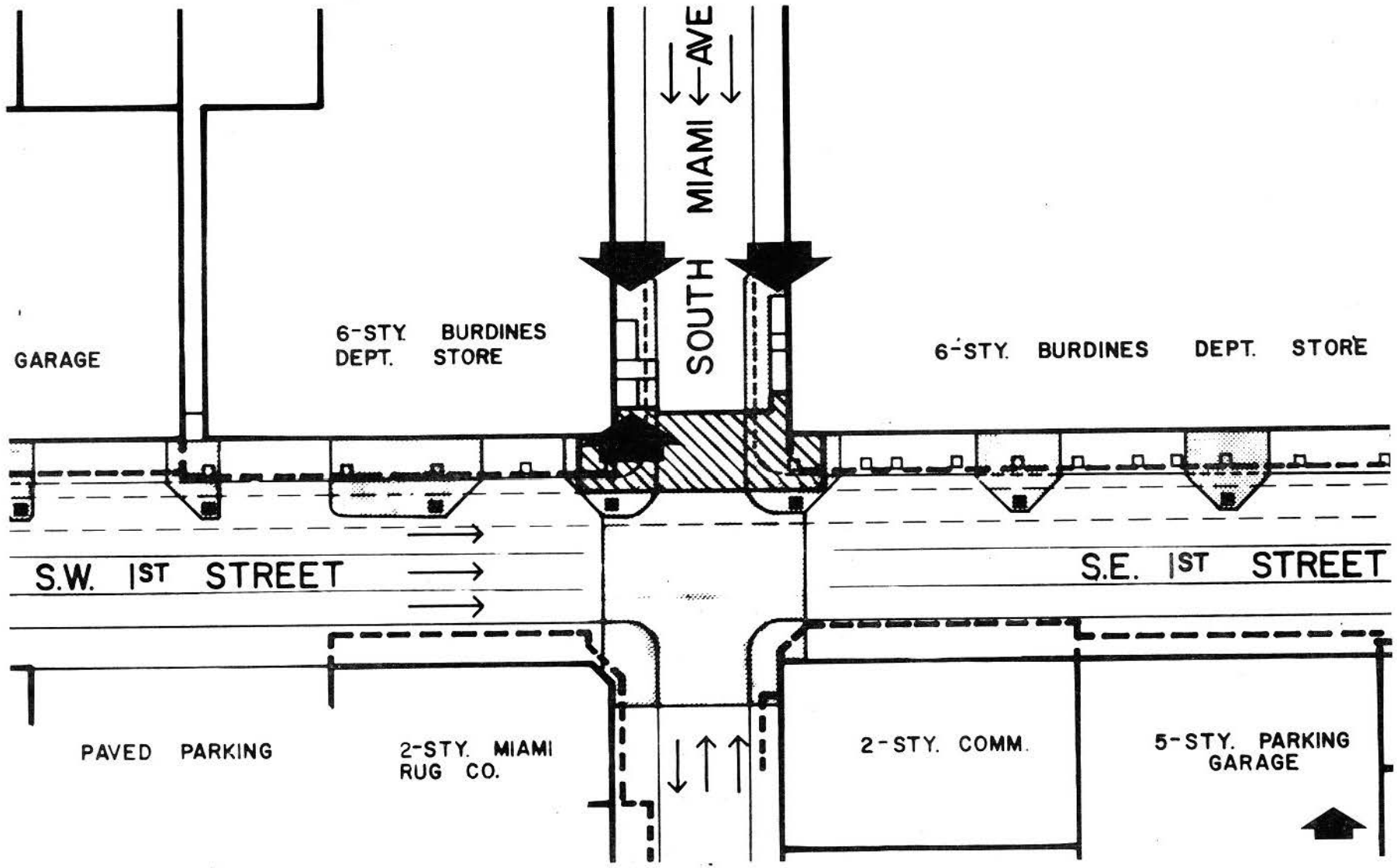


Figure 2.9i DPM STATION 'H'

Ground level facilities at this station will include vertical circulation elements at either end of the station and a drop-off zone for taxis and automobiles between the center guideway piers. The guideway continues on N.E. 1st Street for two blocks spanning N.E. 3rd Avenue, and turns south on Biscayne Boulevard in the west parking median. The guideway continues south along the Biscayne Boulevard parking median to Station (O) located between Flagler Street and S.E. 1st Street. Ground level facilities at Station (O) will include vertical circulation elements at both ends of the station, a pedestrian plaza, and a drop-off zone for buses and taxis in the parking median east of the station.

From Station (O), the guideway continues south to the Dupont Plaza area where it turns west on S.E. 3rd Street to Station (N). Ground level facilities at this station await further refinement of proposed development plans for the area. From Station (N) the guideway passes through the middle of Dupont Plaza on the north side of S.E. 3rd Street and continues its westerly direction. After spanning S.E. 3rd and 2nd Avenues, the guideway passes between the I-95 distributor and the Howard Johnson's Hotel. A vacant parcel to the west of the Howard Johnson's Hotel is the proposed site of the Miami New World Trade Center, which will incorporate Station (M) into its multi-level parking structure. The center platform will be vertically connected to both the ground and mezzanine levels inside the World Trade Center.

Continuing in a westerly direction out of Station (M), the double guideway separates with one branch turning north on S.E. 1st Avenue (east side) and the other continuing its westerly course paralleling the elevated I-95 distributor. This separation of the guideway was deemed absolutely necessary in order to minimize the potential adverse impact of a double guideway along S.E. 1st Avenue and S.E. 1st Street. S.E. 1st Avenue is only 30 ft. wide from curb-to-curb and there were serious concerns regarding the aesthetic impact of building a twenty foot wide aerial structure over it. The impact on traffic along S.E. 1st Street, one of the most heavily trafficked streets in downtown Miami, was also a governing factor in the decision to separate the double guideway at this point. From S.E. 1st Avenue, the single guideway branch turns west on S.E. 1st Street and runs on the north side in the parking lane until it crosses S.W. 1st Avenue, where it turns north at the Metrorail right-of-way. The other branch continues west adjacent to the I-95 distributor until it meets the Metrorail alignment, where it turns north to reconnect with the first branch after spanning S.W. 1st Street.

There are two Stations (H and L) on the two branches, both bridging South Miami Avenue. Station (H) is located between two structures on the north side of South 1st Street and contains vertical circulation elements on both sides of Miami Avenue. Station (L) is located approximately 20 feet north of the elevated I-95 distributor and has its circulation elements on both sides of Miami Avenue.

From S.W. 1st Street, the alignment proceeds north as a double guideway along the rapid transit alignment. The guideway crosses Flagler Street and proceeds to the Government Center Station at its main concourse level. This station will have a side platform configuration with vertical circulation elements providing direct connections to the Metrorail paid area and to ground level.

C. Description of DPM Components

The Miami Downtown People Mover System is comprised of five major components: the guideway, stations, vehicles, maintenance and storage facility, and the operations control center. As per UMTA's guidelines for the DPM program, requiring that a variety of system suppliers be able to bid competitively on the DPM project, a baseline system was developed for preliminary engineering purposes which is sufficiently flexible to be consistent with most systems currently available.

Guideway

The Miami DPM will operate on a completely elevated guideway. The guideway is two directional, except in the southwest quadrant of the loop where the double guideway separates into two single branches. The guideway provides for support and guidance of the vehicles, as well as for all vehicle interfaces with electrical power, stations, control, communication, and maintenance facility. In conformance with UMTA's guidelines, no switches will be used in the passenger service portion of the system. Switches will be required to access and egress from the maintenance facility and in an inner and outer loop connecting spur for system reliability and failure management purposes.

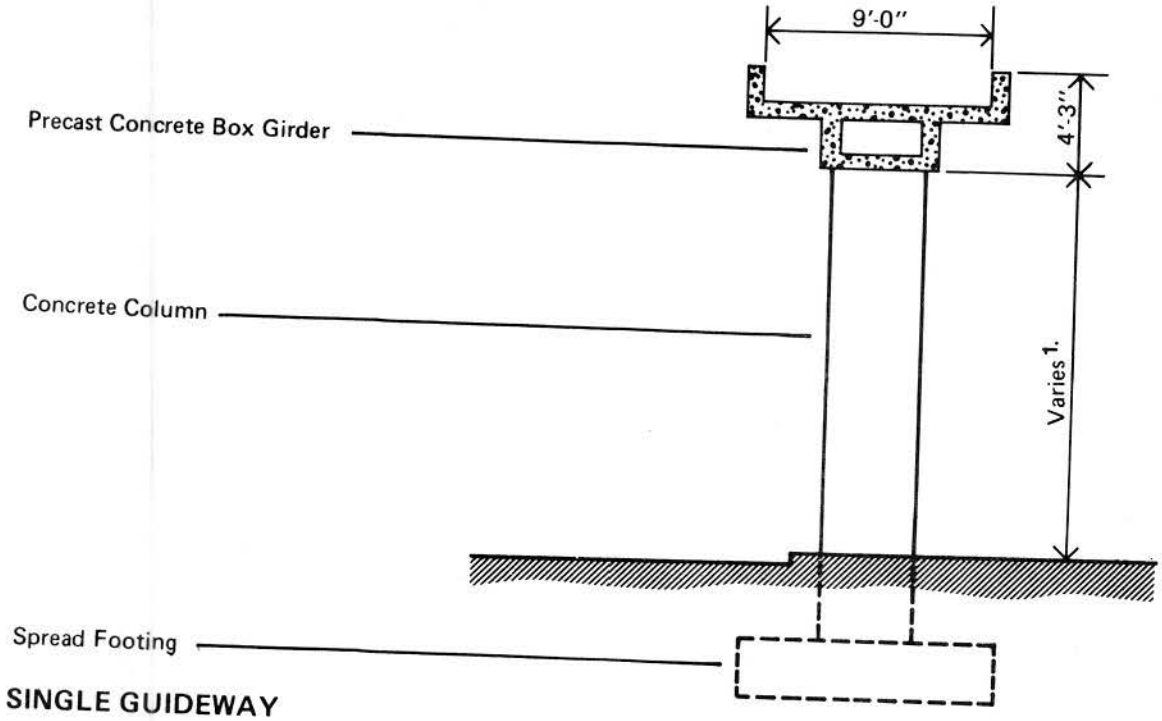
The physical size and shape of the baseline guideway is shown in Figure 2.10. The dimensions shown are approximate and may vary depending upon vehicle systems and length of span between supporting piers. Within the limits of vehicle operating requirements, the shape of the guideway can vary to provide improvements in appearance. Guideway construction of the baseline system is assumed to be of precast concrete sections with steel sections used at curves and where long spans are required.

Guideway spans will be approximately 80 feet, however, they will vary according to engineering requirements and to minimize impacts at street intersections and adjacent buildings. The clearance to the bottom of the guideway will generally be 16.5 feet above the existing ground. Pier size will vary from 2.5 feet by 3.5 to 4.0 by 6.0 feet.

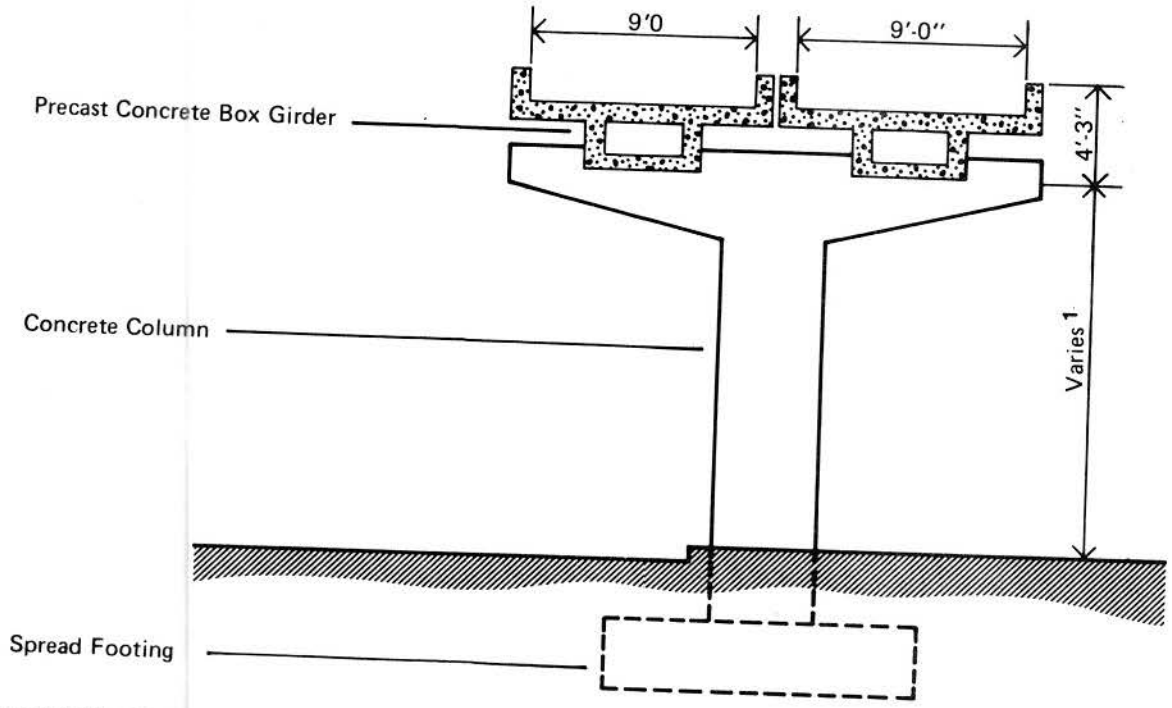
Stations

The DPM system will consist of ten stations. The basic size, configuration, and use of materials will be similiar throughout the various stations. Three stations have a side platform configuration; two of these stations have single guideway service only. The remaining seven stations have a central platform design with a double guideway, and two directional service. Figure 2.11 illustrate in plan and elevation a typical free-standing station for the baseline system.

The station will be totally accessible and barrier-free with elevators and stairs to be provided for vertical circulation. Escalators may be used depending on capacity requirements. Stations are designed so that a station agent is not required. Both visual and audio monitors are connected to the central control facility.



SINGLE GUIDEWAY



DOUBLE GUIDEWAY

[1]Bottom of Guideway is 16.5 feet minimum above street elevation.

Figure 2.10 BASELINE GUIDEWAY SECTIONS

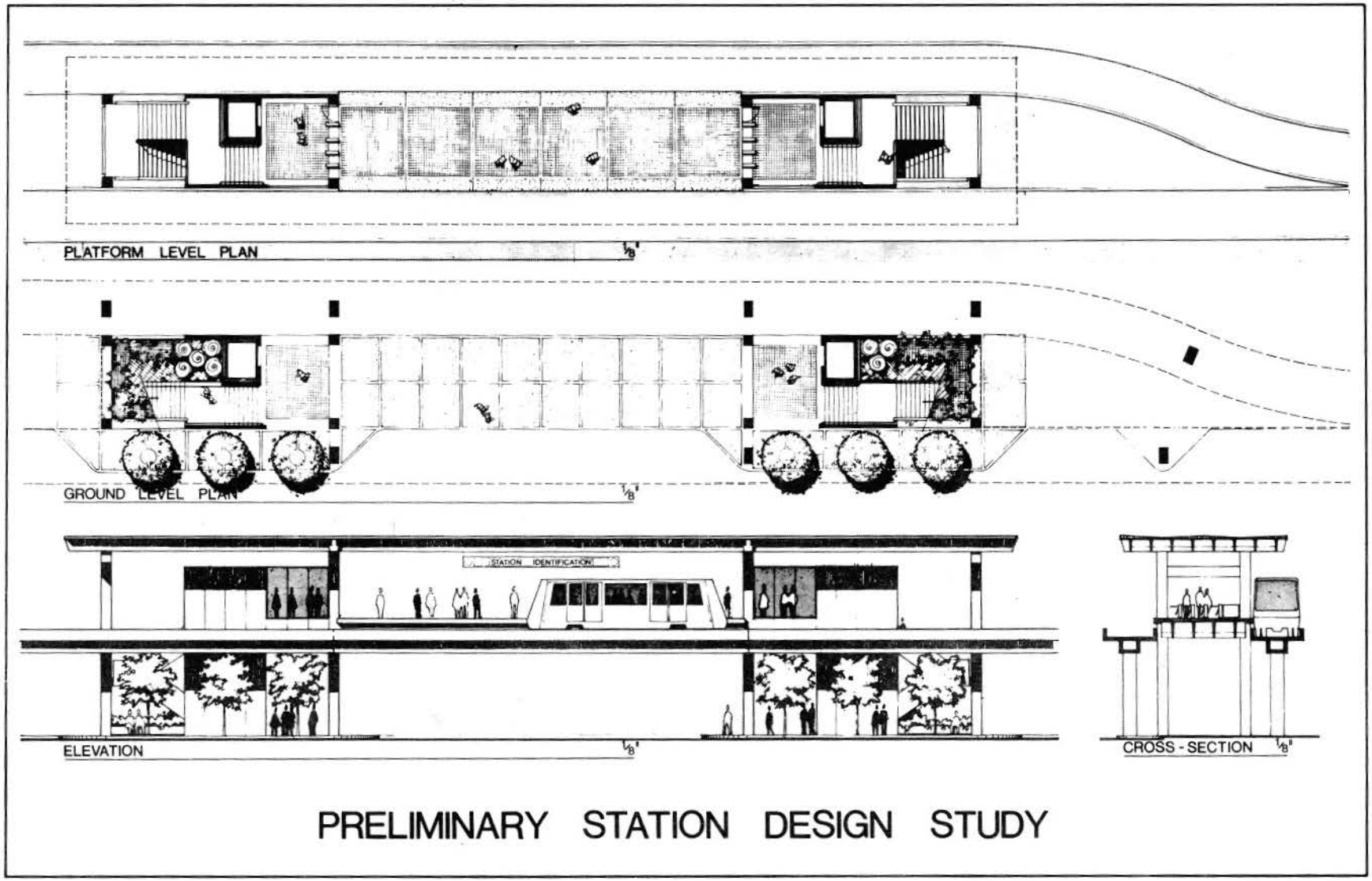


Figure 2.11 TYPICAL FREESTANDING STATION

Each station will have a free area, which will be generally accessible from public sidewalks and possibly pedestrian bridges. Paid areas will be separated from the free area by the fare collection area and turnstiles. Provisions for taxi and bus drop-off zones between piers are provided at some stations.

In general, DPM stations will have two levels: an entrance level at grade, and a platform level varying between 22.5 feet above existing street elevation to 49.5 feet. The only exception is the Government Center DPM platform level at 18.5 feet above existing street elevation. Platform areas will be open, bounded by the guideway at the sides and vertical circulation elements at the ends. Graphics and floor treatments will identify boarding and waiting areas.

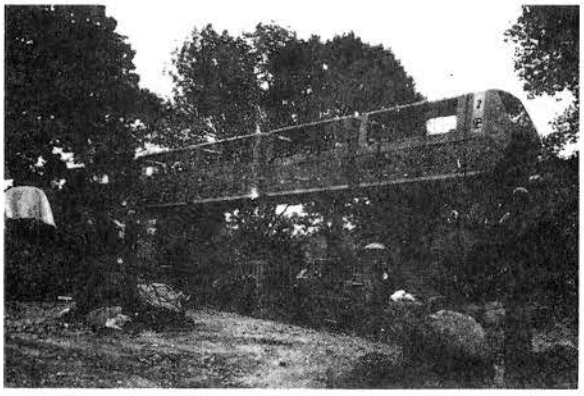
Vehicles

People mover vehicles have been designed for a wide range of uses using a variety of technical and design approaches. The Miami DPM baseline system assumes a bottom supported, electrically propelled, automatically controlled vehicle to satisfy operational requirements. Baseline criteria used in preliminary engineering have established the operational characteristics of the vehicles, although some variation is likely to occur depending on the vehicle supplier.

The baseline vehicles are approximately 25 feet long, 7 feet wide, and 10 feet high with a maximum speed of 25 miles per hour and a maximum capacity of 55 passengers. Length of the longest train or "consist" (two or more vehicles in tandem) is no more than 78 feet to meet station platform length requirements. The vehicle is intended primarily for standing passengers, however, 5 to 10 percent of the design passenger capacity will be provided with seating. Provisions for the elderly and handicapped such as adequate interior dimension to permit maneuverability by wheelchair users, grab bars, and audible chimes to signal closing and opening of vehicle doors will be included in the design of the vehicles, Each vehicle shall be equipped with thermostatically controlled heating, ventilation, and cooling systems. The vehicle interior shall be bright, attractive, easily maintained and resistent to vandalism. Bi-parting doors shall be provided on each side, with sufficient width to insure quick access and egress during peak demand periods. The doors adjacent to the platform will be automatically opened for patrons to exit and board the vehicle through the same side. Each vehicle will be equipped with a graphic display panel providing information on vehicle departure and arrival at individual stations. In addition, each vehicle will be equipped with a two-way intercom system to the central control facility.

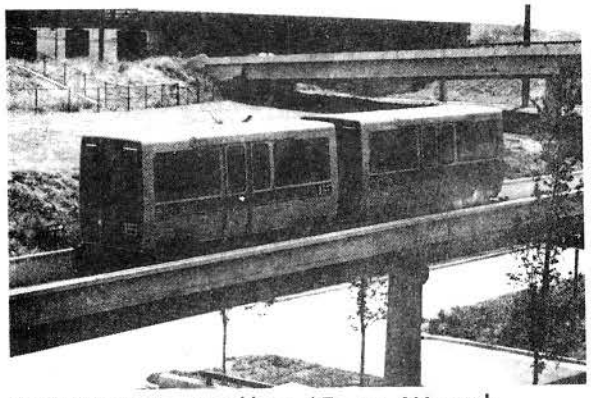
Figure 2.12 illustrates several types of existing people mover technologies which can be adapted for urban deployment with minimum mofidications.

AVAILABLE HARDWARE FOR PEOPLE MOVER SYSTEM WITH REVENUE SERVICE EXPERIENCE

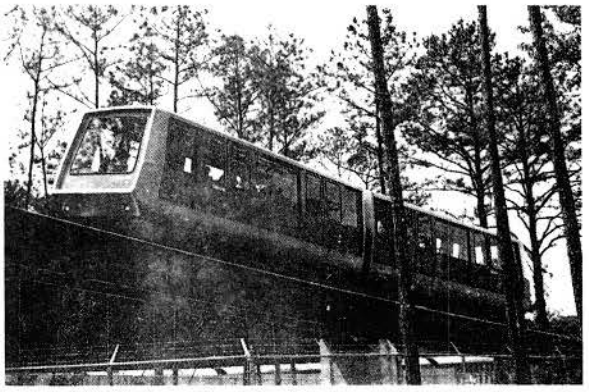


UNIMOBIL/HABEGGER TYPE II—
Hersheypark, Pennsylvania
*(**Universal Mobility, Inc., 1969**)*

MORGANTOWN PEOPLE MOVER—
West Virginia University
(Boeing Corporation, 1975)



AIRTRANS—Dallas/Fort Worth
Regional Airport, Texas *(Vought Corporation, 1974)*



TRANSIT EXPRESSWAY—**Busch**
Gardens, Williamsburg, Virginia
(Westinghouse Electric Corporation, 1975)

Figure 2.12 TYPES OF PEOPLE MOVERS

Maintenance and Storage Facility

Storage and periodic servicing of DPM vehicle fleet and equipment will be the primary activities at the maintenance facility. The facility is proposed to be located on a parcel of land bounded by S.W. 1st Street, S.W. 1st Avenue, S.W. 1st Court and the elevated I-95 distributor (see figure 2.13 a-c). A portion of the block under the I-95 distributor will also be used for access to the facility.

The maintenance and storage facility includes a maintenance shop division, vehicle storage tracks, a vehicle washer, support servicing for employees, access roads and an administration area. The facility will be contained in a two-story enclosed structure; two guideway spurs will be required to provide DPM vehicles with direct access to the maintenance facility from both the inner loop and outer loops.

Control Center

The DPM control center will be located on the 3rd floor of the proposed Dade County Administration Office Building adjacent the Government Center Station. The central control center includes controls and display console, central computers, plus offices for personnel and records management for the DPM system. It will require an area approximately 400 square feet. Additional space is provided for control equipment housing.

The command and control system will automatically regulate the movement of all vehicles except those under on-board manual control. The automatic system will control vehicle separation, routing, speed, stopping, acceleration, vehicle door operation, safety interlocks, station graphics and announcements, and in addition will monitor people mover operations. Management and supervision of the system will be accomplished by operating personnel. Display and control equipment will enable personnel to monitor and control the operation of the system. In addition, closed circuit television will allow visual observation of stations; intercoms between the control center and both vehicles and stations will also be provided.

Power Supply

The Miami DPM will receive electrical power from the Florida Power and Light Company. Incoming power will be distributed to secondary substations which control traction power and the 120 volt single phase power used for station lighting and other related electrical needs.

Power will be supplied to DPM vehicles via rails mounted at a low level on the guideway and shielded to prevent accidental contact by personnel on the guideway. Each section of the guideway (main line, station line, maintenance facility, spur, etc.) will be individually powered so that power may be removed from any one section or combination of sections without disrupting power to the entire system.

Stand-by power (480 volt) will be provided using dual diesel generators. These generators primarily designed for the Metrorail system will be modified to also accommodate people mover emergency central control facilities.

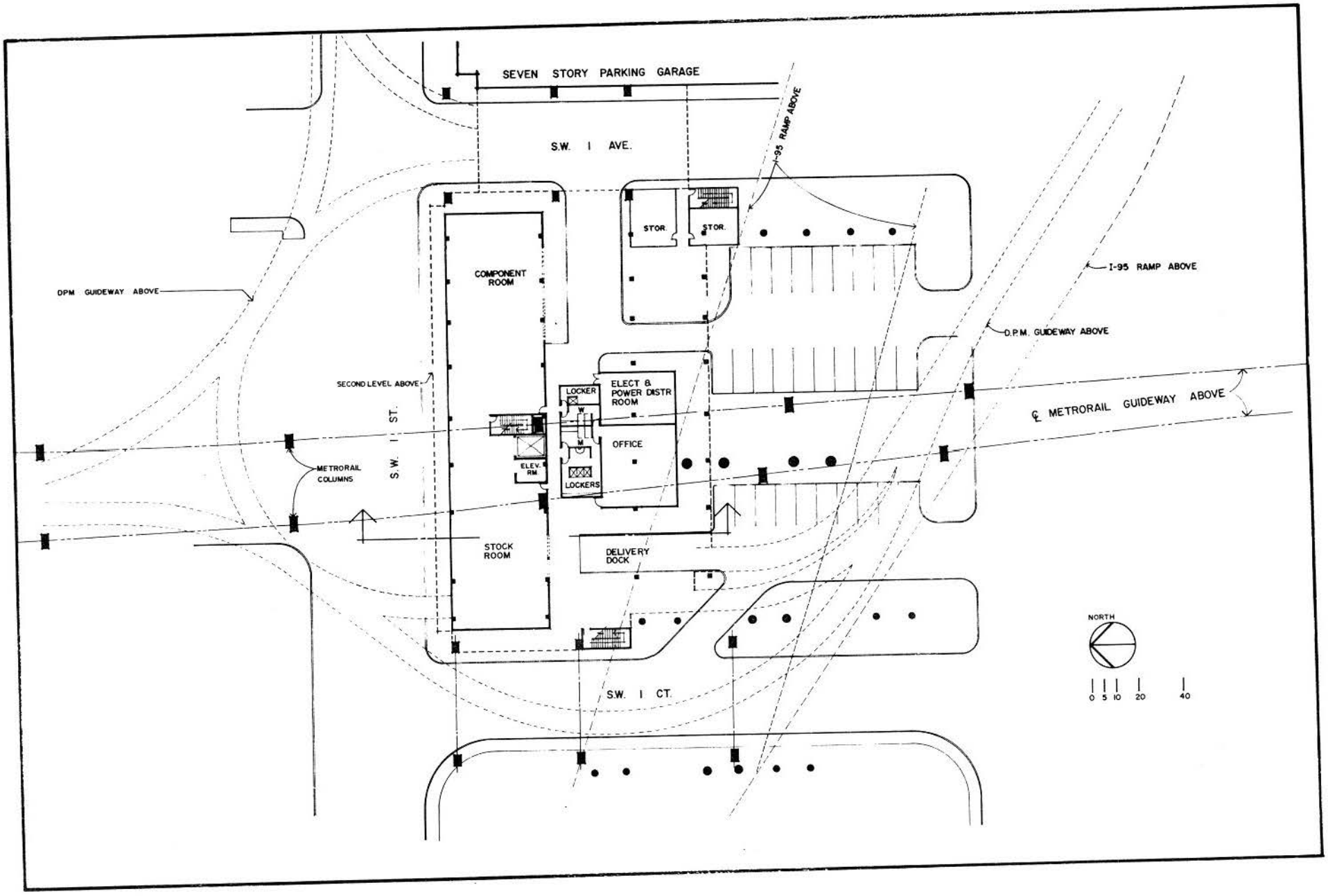


Figure 2.13a MAINTENANCE FACILITY

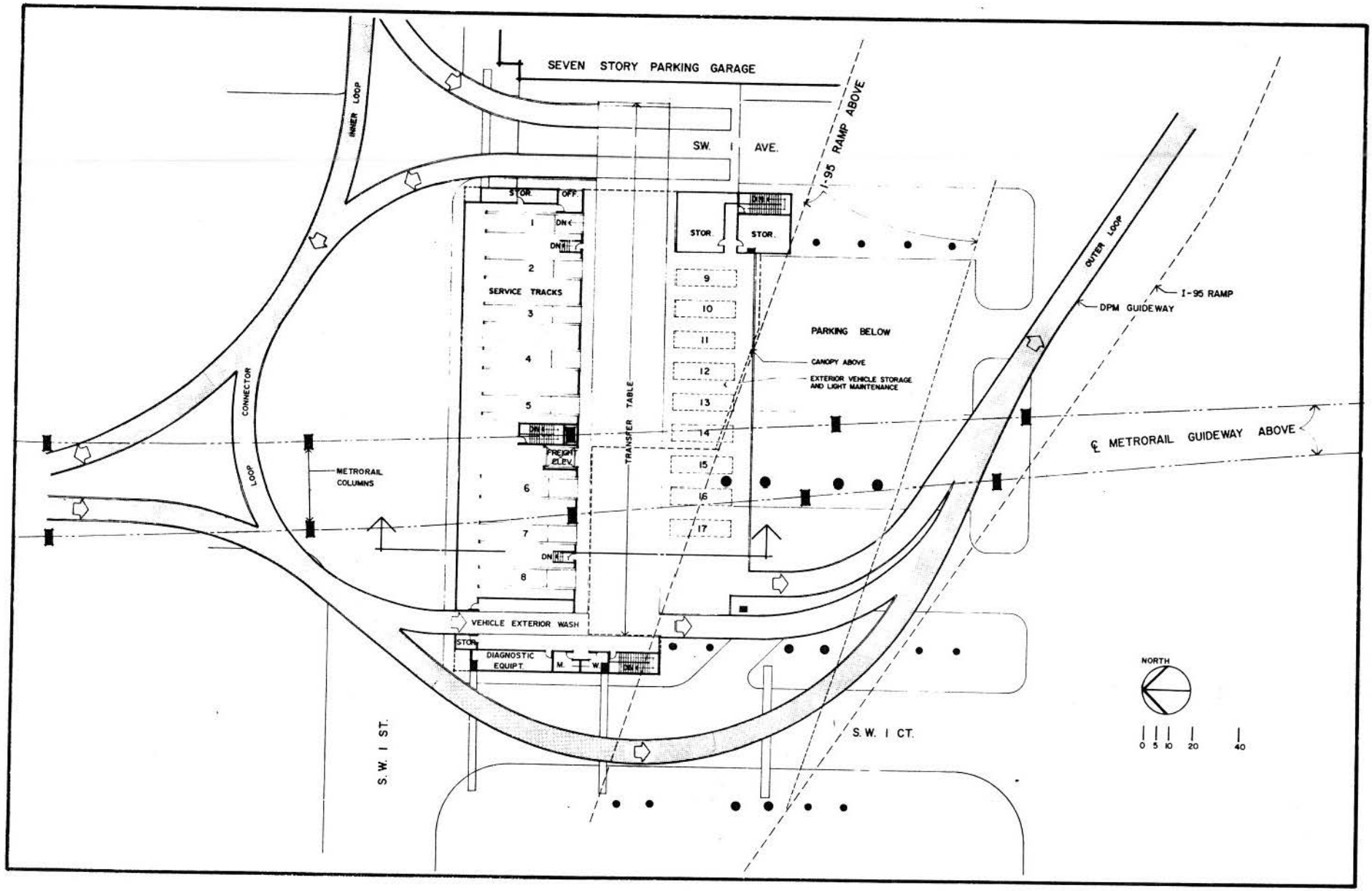
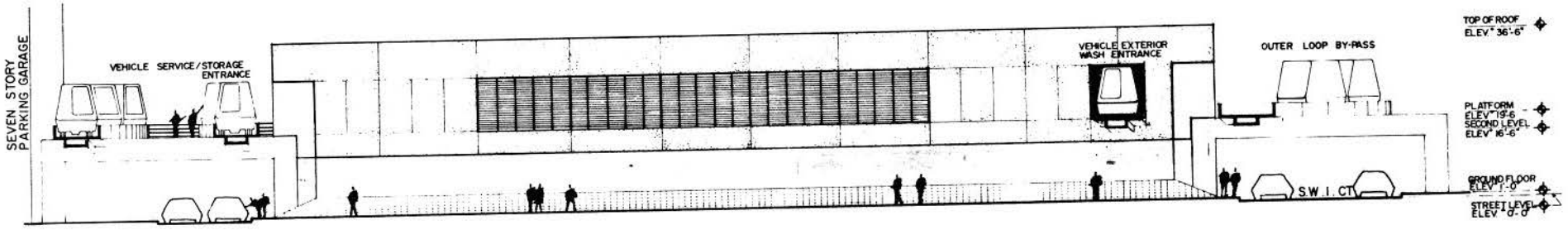
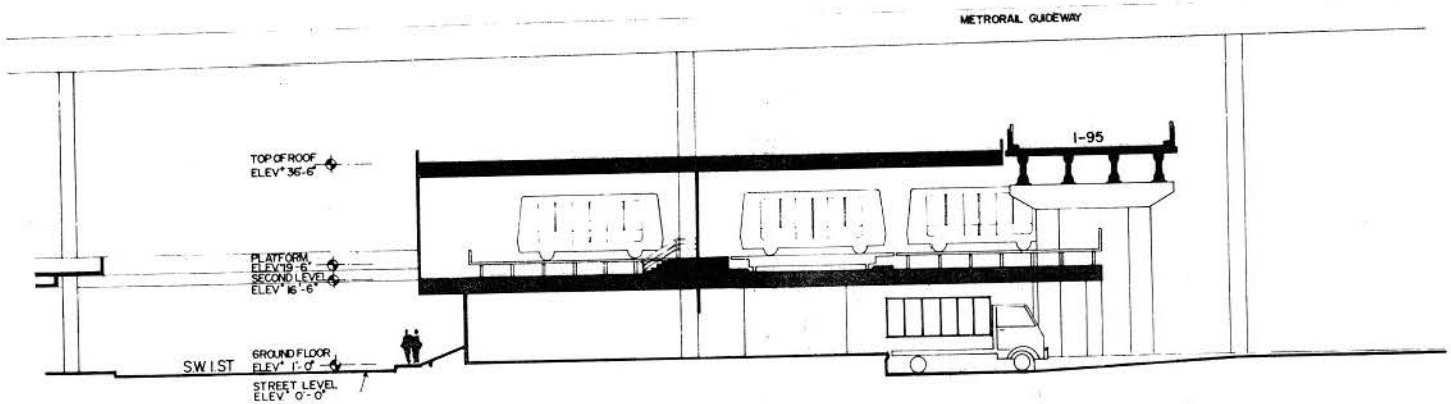


Figure 2.13b MAINTENANCE FACILITY



NORTH ELEVATION

0 4 8 16



CROSS - SECTION

0 4 8 16

Figure 2.13c MAINTENANCE FACILITY

D. Operation of the System

Routing

DPM vehicles will circulate in opposite directions on each closed guideway loop. Vehicles on the outer loop will run in a counter-clockwise direction, while vehicles on the inner loop will run in a clockwise direction. Vehicles on each loop would proceed along the guideway, stopping sequentially at each station. Operation of vehicles on the two routes will be totally independent; however, connections between loops will be provided at the DPM maintenance facility and at the junction of the inner and outer guideway branches at S.E. 1st Avenue west of the proposed World Trade Center project. These connections facilitate the addition and removal of vehicles from revenue service and provide failure management routing options.

Ridership

Projected transit ridership forecasts indicate that approximately 41,000 trips will be made on the DPM during an average workday in 1985. The total downtown transit system, including Metrorail, Downtown People Mover, bus and surface tram, will service approximately 152,000 riders during an average work day.

Daily trips can be divided into two major categories:

1. Peak Hour AM/PM Trips are generally distribution trips which occur during rush hour periods and have either origin or destination in the downtown area such as commuter trips from home to work; and

2. Midday Trips are generally off-peak circulation trips which have both origin and destination within the downtown area, for example a lunch trip from an office to a restaurant.

Peak hour volumes in 1985 are expected to be considerably higher than 1985 midday trip volumes largely due to the number of office employees in the CBD. Miami's midday volume is still comparatively high due to the volume of tourist activity in the CBD area.

Daily link volumes and station volumes were forecast for the DPM system (Figure 2.14). Station volumes refer to the on's and off's for both the inner and outer loop. As expected, the most active station is the Government Center Station (Station G), with over 9,000 boarding passengers. The least active station is station (L) with less than 900 boarding passengers per day.

Interface With Other Modes

Prior to implementation of the proposed DPM, the Office of Transportation Administration will prepare a detailed plan for the interface of the DPM with the rapid transit system, the public bus service and the open air tram. Preliminary plans for coordinating the various modes of transportation included under this Alternative are shown in Figure 2.15.

TOTAL DAILY VOLUME 40,976
HIGHEST LINK VOLUME 11,464

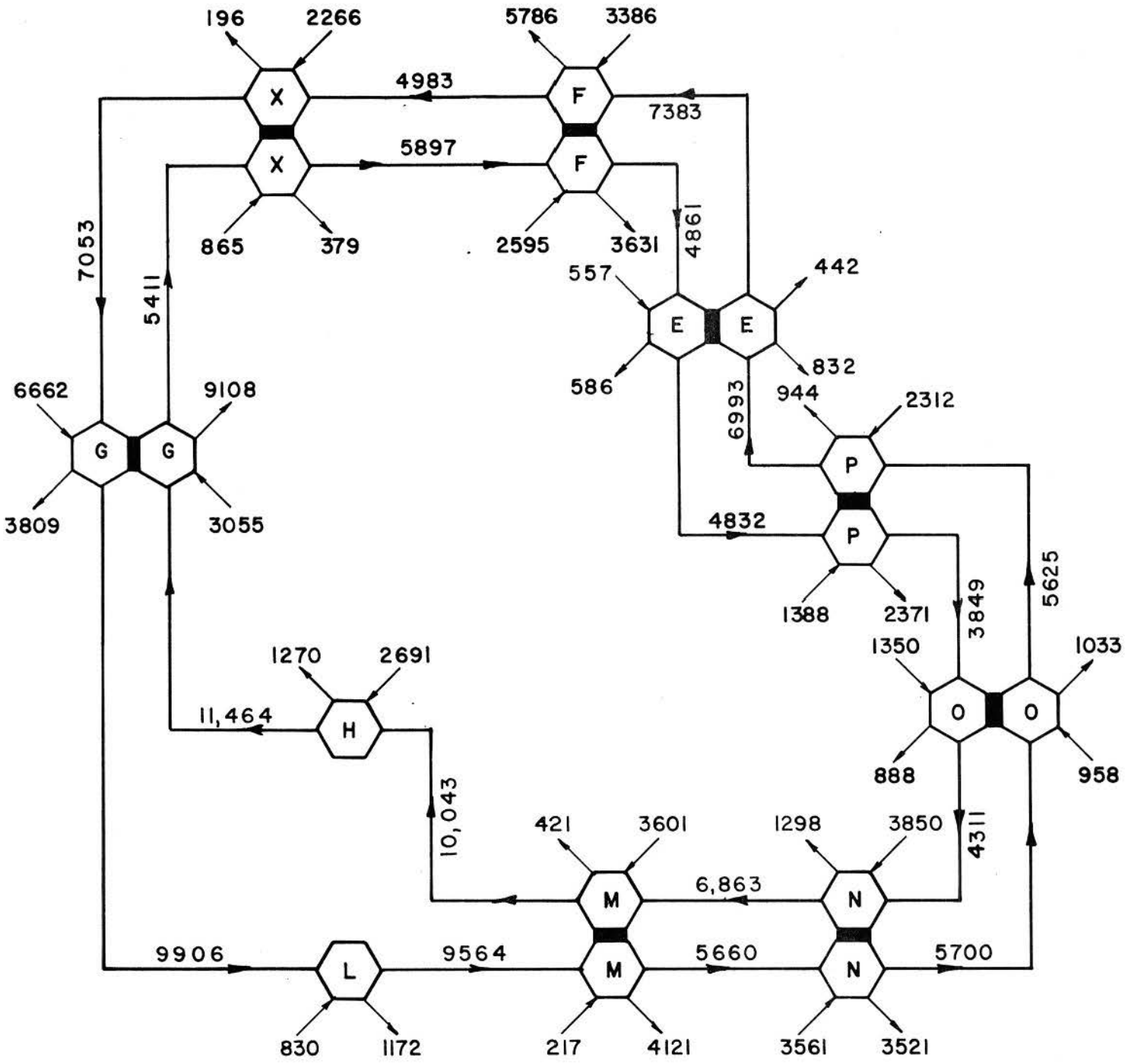
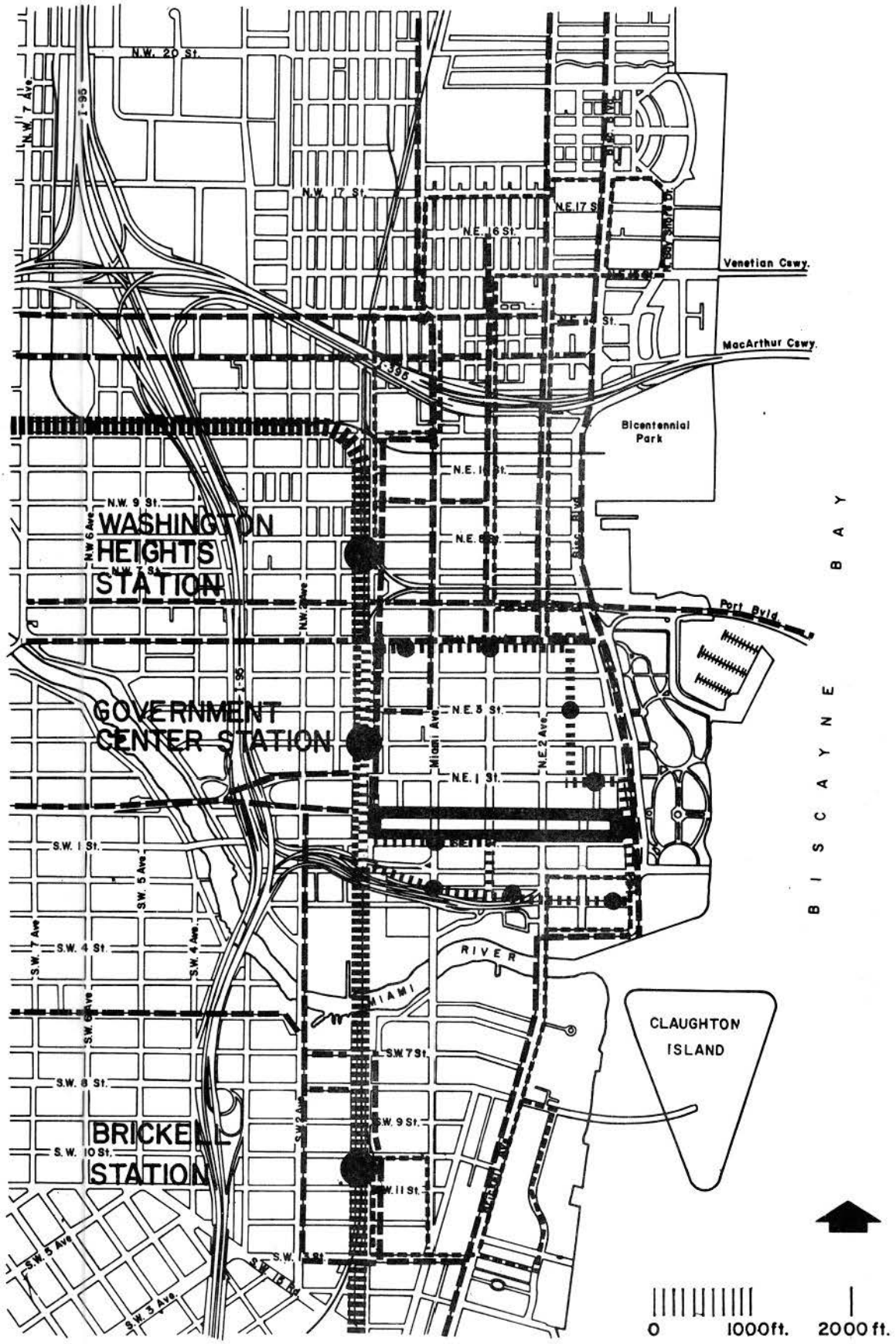


Figure 2.14 DPM DAILY VOLUMES



METRORAIL Alignment

METRORAIL Station

Open Air Tram

DPM

DPM Stations

Circulator Bus

Local Bus

Figure 2.15 DPM ALTERNATIVE PROPOSED TRANSIT INTERFACE

A key function of the DPM is to provide downtown distribution for the Metrorail system which is currently under construction. By sharing a common station facility on the west side of the CBD core, the DPM will be fully integrated with the regional mass transit system. Metrorail patrons will be provided with direct transfer capabilities to the DPM. The opportunities provided by developing the two systems simultaneously assure a better connection between the two and a combined ridership greater than would occur if the two systems operated separately.

DPM Alternative - Surface Transit Component

The DPM Alternative's surface transit component consists of circulator buses, local buses, and an open air tram. Circulator buses operate between major activity areas to the north and south of the CBD and intercept with the DPM. The circulator buses connect with the the DPM at Ball Point (Miami Center) for the Brickell Avenue area, and at N.E. 2nd Avenue and N.E. 5th Street for the Omni area. There is no connection between the Omni Brickell area, nor is there service penetrating the DPM loop with the exception of the turn-around movement in Dupont Plaza. A third circulator bus route operates north of the CBD between the Omni area and Washington Heights Metrorail Station. Local buses will also terminate at the DPM loop with most routes intercepted at the Government Center Metrorail Station and Miami Avenue and N.E. 5th Street. All express bus routes will feed into the Metrorail stations and will not operate within the downtown area. Bus speeds in the CBD area are between 6 and 8 miles per hour with varying headways.

An open air tram is proposed to operate along Flagler Street and South 1st Street corridors between the Government Center Station and Biscayne Boulevard. The tram service is used to reduce the inconvenience created by the distance that a person in the center of the DPM loop must walk to reach a DPM station. The tram, as envisioned, will be a low platform vehicle (see figure 2.16) for easy entry capable of holding 100 passengers. Emphasis is placed on standing room and circulation within the passenger area so that mall pedestrians can easily step on and off. It is expected that an average passenger trip would be one-to-two blocks. Originally designed to reduce walking distance from the DPM stations to the center of the loop, the results of the patronage simulations show that the tram is severely underused. This underutilization occurred because the tram is operating as a one way loop making it convenient to go east to west in the retail area, but serving fewer destinations (and trip origins) when going from the Government Center Station to Biscayne Boulevard. Further design work on this operation is required.

Based on the current fare structure, fares for the circulator routes are presently set at 25¢ for regional buses, however, this may change by 1985. There will be no fare charge for the tram and operating speeds are assumed to be 3 miles per hour.

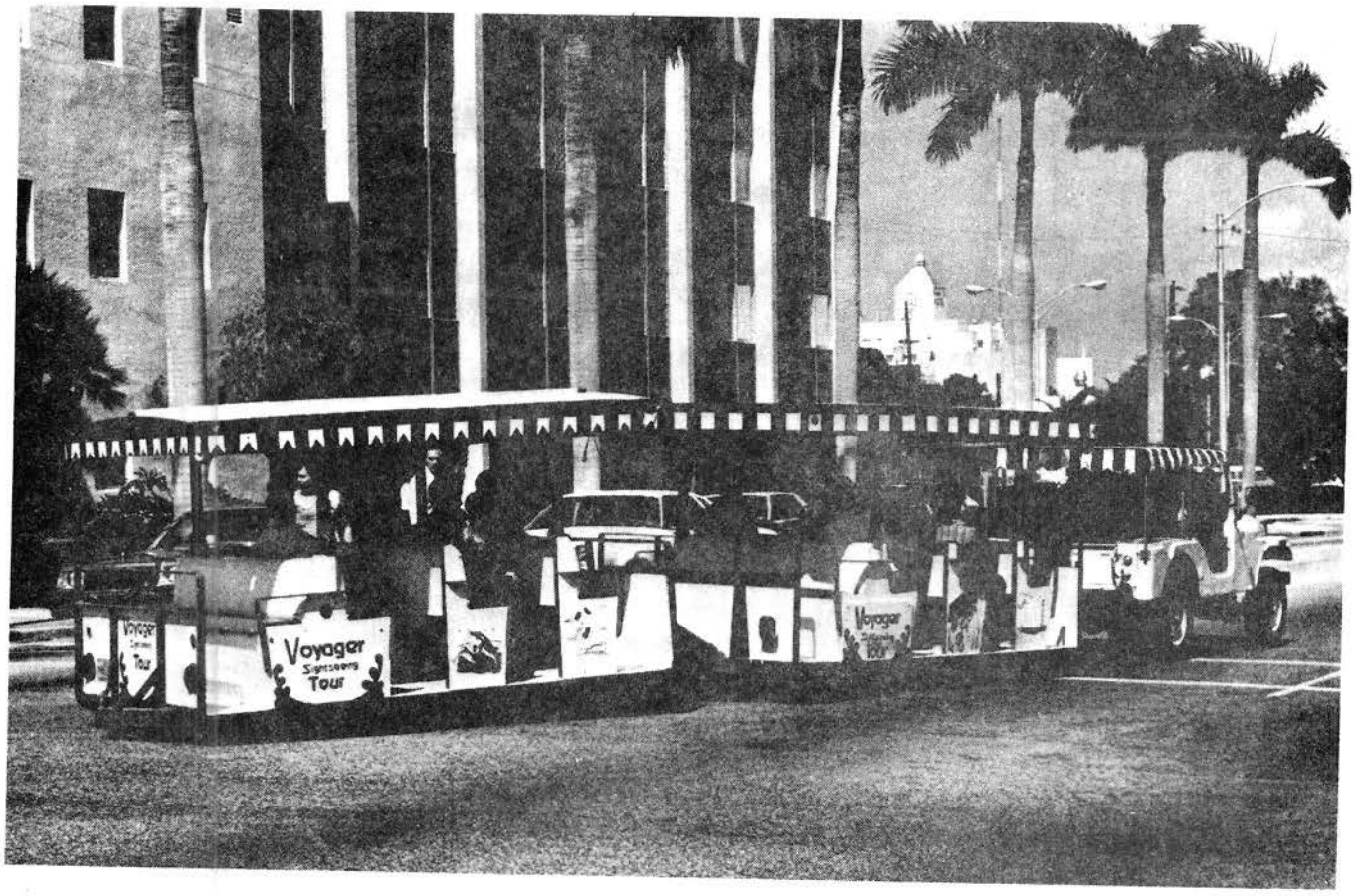


Figure 2.16 TRAM PROTOTYPE

Fare Collection System

The fare collection system is comprised of coin operated turnstiles. Presently it is anticipated that a 25¢ fare will be charged for riding the Miami DPM; reduced fares may be available for students, senior citizens, and other qualifying groups. Change machines will be provided in each DPM station. A row of turnstiles will separate the paid area from the multi-purpose "free" area. The multi-purpose area will serve as a queuing area with all the necessary information about the DPM. For every fare deposited the turnstiles will allow passengers to enter and will then lock automatically while allowing for free passenger movement in the exiting direction. One swing gate will be provided for handicapped patrons.

Safety and Security

General safety measures during DPM operation will include emergency evacuation of DPM vehicles, fire prevention and protection in vehicles and stations, system failure control measures, signalization of vehicle approach at stations, and an automated command and control system with the capacity for manual operation.

In the baseline system emergency doors at the end of DPM vehicles will be provided to discharge passengers onto the guideway, whereupon all power to guideway segments between vehicle and the next station will be terminated.

All vehicles will have automatically activated fire and smoke detection equipment and will be provided with dry powder-type fire extinguishers. Thermal overload protection equipment will be provided according to specifications in the South Florida Building Code. In the event of a failure in the automatic control system, vehicles will be operated manually. Failsafe principles in the design of critical DPM subsystems assure the maximum possible safety and reliability in the automatic vehicle protection system, the braking system, automatic doors, and the switching system.

To assure safe and efficient operations of the DPM major components throughout the system will be automatically monitored for malfunctions and failures by a malfunction display panel in the central control center.

Systems security measures include surveillance and communication capabilities with station and vehicles and proper and adequate lighting. Facilities to permit voice communication between central control and the DPM stations, and between central control and DPM vehicles, will include a public address system in DPM stations, a two-way telephone communications net linking central control and all stations, and a full duplex radio communications system in vehicles to permit two-way voice communications.

Video surveillance will consist of a closed circuit television system provided at each DPM station to permit the central control operator to monitor passenger activities in the station areas.

Provisions for Elderly and Handicapped

The DPM has been designed to provide for full accessibility and usability by the elderly and handicapped following the applicable codes of the South Florida Building Code, Passenger Elevator Requirements for the Handicapped, and An Illustrated Handbook on Accessibility Requirements for Physically Handicapped Persons in the State of Florida. Special provisions include:

1. Elevators at each station are designed for safe operation by persons in wheelchairs or with other physical disabilities, and stairs with special considerations for the physically disabled.

2. Communication systems designed so that persons with hearing or visual disabilities are able to attain full use of DPM facilities. Identification signs will be mounted to permit recognition by the blind, and audible announcements and instructions will be accomplished by visual graphics or signals for those with hearing disabilities.

3. Special parking areas for the handicapped will be provided where public parking is available adjacent to DPM stations.

4. A service gate will be provided for the physically handicapped in lieu of turnstiles in the fare collection areas. Operation of the gates will be controlled from the systems operation center, with closed circuit camera supervision.

5. Equipment such as phones, change machines, and controls will be mounted so as to be fully accessible to persons confined to wheelchairs.

6. Access to stations and vehicles will be barrier-free, so as not to impede the disabled from having full access to DPM facilities.

E. Capital Costs

Capital costs for the DPM Alternative projected to the midpoint of construction are as shown in table 2.3. Preliminary estimates of capital cost for the various elements of the DPM Loop system are based on information developed during the preliminary design and engineering phase of the project and a tentative schedule of construction beginning in 1981.

TABLE 2.3
DPM ALTERNATIVE CAPITAL COSTS

ALTERNATIVE COMPONENT		COST (in millions)
DOWNTOWN PEOPLE MOVER		$76,000,000
Guideways	$ 25.54M	
Stations	6.95	
Maintenance Facilities	2.61	
Engineering Management	5.46	
Central Control	1.26	
Vehicles	3.85	
System Testing	.62	
Contingencies	9.06	
Escalation	16.84	
Land Acquisition	4.41	
	$ 76.00M	
LOCAL BUSES		7,900,000
CIRCULATOR BUSES		2,700,000
OPEN AIR TRAM		400,000
TOTAL:		$87,000,000

Funding

As proposed, project funding for the DPM will be provided by Federal, State, and local sources. Local funds will be provided by Metropolitan Dade County and the City of Miami. Plans are also being developed to obtain a financing share from the downtown Miami private sector.

Of the $76.0 million in capital costs for the DPM $24 million has been set aside from Dade County's rapid transit funds. The remaining $52 million is proposed to be funded as shown in Table 2.4.

TABLE 2.4
PROPOSED FUNDING FOR DPM LOOP SYSTEM

SOURCE	FUNDING SHARE
UMTA	$41,600,000
Dade County	3,640,000
State of Florida	5,200,000
City of Miami	1,560,000
SUBTOTAL:	$52,000,000
Previously committed Funds[1]	24,000,000
TOTAL:	$76,000,000

[1] These funds were reprogrammed from the rapid transit commitment and include both Federal and local shares.

F. Operating Costs

Preliminary projections of operating and maintenance costs of the DPM Loop were prepared by the Dade County Office of Transportation Administration for use in comparing various alternatives. More detailed estimates of staffing requirements, maintenance procedures, and energy consumption will be made in the final system design. Anticipated operating and maintenance costs of the DPM system and its bus and tram components are as shown on table 2.5. These costs, based on 1979 dollars, were developed using projected ridership estimates and anticipated vehicle miles. In addition, Dade County's Metro Transit Agency (MTA) current daily operating cost rates were assumed.[1]

TABLE 2.5
DPM ALTERNATIVE OPERATING AND MAINTENANCE COSTS

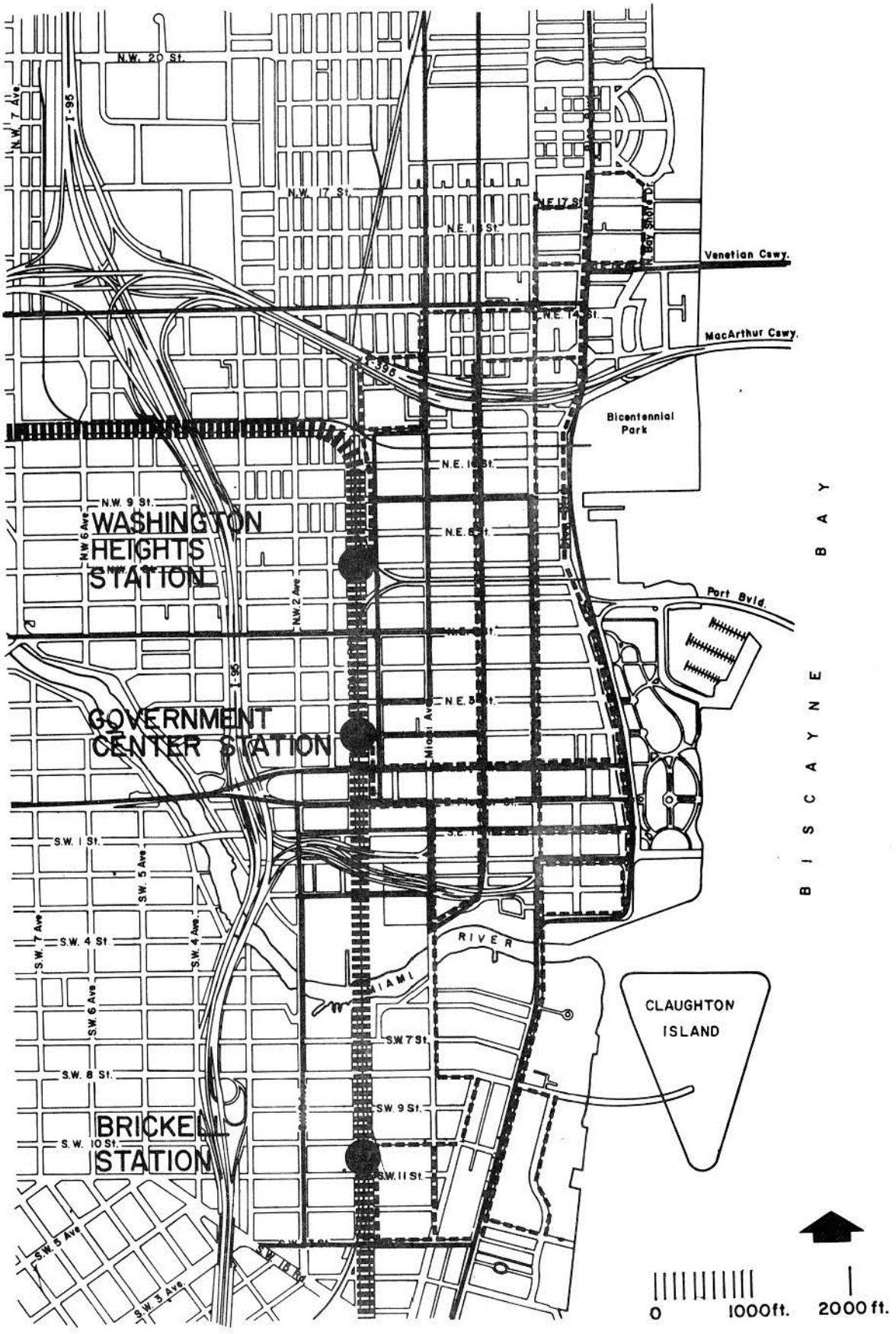
	DAILY	YEARLY
Local Bus	$ 6,726	$ 2,017,000
Tram	674	202,000
Circulator Bus	3,300	990,000
DPM	5,224	1,576,200
TOTAL	$15,923	$ 4,776,700

2.2.2 ALL BUS ALTERNATIVE

A. General Description

The All Bus Alternative primarily consists of four circulator bus routes to serve both the rapid transit distribution needs and the internal circulation requirements of the downtown area (Figure 2.17). The routes operate at five minute headways at an average speed of eight miles per hour.

[1] Daily local bus operating costs were assumed at the current (1979) MTA rate of $1.79 vehicle mile; circulator bus and tram operating costs were assumed to be equal and were based on current MTA's open-air vehicle rate of $2.41/vehicle mile. DPM daily operating costs were developed during preliminary engineering and estimated at $1.67/vehicle mile.



METRORAIL Alignment

METRORAIL Stations

Circulator Bus

Local Bus

Figure 2.17 ALL BUS ALTERNATIVE

The first of these routes operates between the Brickell Metrorail Station and the Omni area using Brickell Avenue and Biscayne Boulevard. The second route operates in the Flagler Street corridor on North and South 1st Street between the Government Center Station and Biscayne Boulevard with an extension south of Miami Avenue to the Brickell Metrorail Station. Another circulator route operates on N.E. 1st and 2nd Avenue between the planned Convention Center and the Omni area. The fourth route provides service between the Washington Heights Station and Omni area.

A primary feature of the All Bus Alternative is the use of priority bus lanes on Biscayne Boulevard between Omni and Flagler Street and the conversion of Flagler Street into a transit mall.

The objective of the priority bus lanes is to improve transit service along Biscayne Boulevard, a major urban arterial road and, next to the Interstate-95 Highway, the primary corridor connecting North Miami to the downtown area.

The conversion of Flagler Street to a transit mall is considered necessary for the efficient operation of this Alternative. Presently there are 17 bus routes which travel westbound on Flagler Street and eastbound on South 1st Street. Conflicts with other vehicular traffic and pedestrial movements already present a less than desirable situation. the additional circulator buses required under this Alternative would greatly contribute to the existing traffic problems, resulting in longer travel times, and therefore, detracting from the overall attractiveness of this Alternative. It is anticipated that converting Flagler Street to a transit mall and limiting its use to buses, taxis and emergency vehicles would improve traffic and pedestrian circulation, therefore, improve transit service and stimulate bus ridership. Decreased operating costs are also anticipated as a result of improved operating efficiency.

The level of amenity to be provided as part of the transit mall will depend on the financial support of the area's merchants. For purposes of the development of this Alternative more emphasis has been placed on the functional aspects of the transit mall. As currently envisioned, the limits of the transit mall are from Biscayne Boulevard to N.W. 1st Avenue, a distance of approximately half a mile; traffic lanes on Flagler Street will be reduced to two-12 foot lanes providing for east-west movement of traffic. Sidewalks will be widened accordingly and additional landscaping and pedestrian amenities such as bus shelters will be provided.

In general, transit malls are part of a downtown redevelopment plan. Although the primary objective of the Flagler Street transit mall is to improve the efficiency of operation of the All Bus Alternative, its implementation may also promote economic growth. A separate study (not related to the DPM project) is planned to analyze the feasibility of converting Flagler Street to a transit mall. This study will examine critical conditions which affect the implementation of a transit mall.

Major bus terminals for transfers between the circulator buses and the local buses are located in the Omni area and at the Government Center Station. Entry and exit point for local buses in the service area as well as route headways reflect the present MTA system, however routes were extended to use the transit mall and a bus terminal at the Government Center Station and Omni area. Within the service area, routes were adjusted to utilize bus priority treatment lanes, to interface with rapid transit stations, and to serve new development.

B. Operation of the System

No major modification to the downtown street system is proposed in the All Bus Alternative, except at Flagler Street. Here a proposed transit mall will include two-way bus service in a mall setting.

Buses operating under this Alternative would be maintained and operated by MTA. No additional maintenance facilities would be required.

Ridership

Projected transit ridership forecasts indicate that 142,547 trips will be generated by an All Bus Alternative in 1985 by circulator and local buses. Approximately 80,000 trips will use local buses, and 35,000 will use the circulator bus routes. The remaining internal trips are generated by the Metrorail system.

C. Capital Costs

The capital costs for the All bus Alternative will include the acquisition of local and circulator buses and the physical improvements of the Flagler Street transit mall. Capital costs projected to the midpoint of construction are shown in Table 2.6.

TABLE 2.6
ALL BUS ALTERNATIVE CAPITAL COSTS

All Bus Vehicle Requirements Local (48) $7,897,000 Circulator (52) $4,187,000	$12,084,500
Flagler Street Transit Mall Improvements	265,000
TOTAL	$12,349,500

D. Operating Costs

Operating costs of the All Bus Alternative were based on the actual 1979 MTA operation costs.

TABLE 2.7 ALL BUS ALTERNATIVE OPERATING COSTS

	DAILY	YEARLY
Local Bus	$19,730	$ 6,136,030
Circulator Bus	19,640	6,108,040
TOTAL	$39,370	$12,244,070

Local bus operations contribute significantly to the operating costs of this alternative since the regional bus system must provide the functions of collection and distribution, as well as line haul service through the service area (including Brickell and Omni areas). This requirement represents substantial additional CBD route-miles forcing operating costs to increase linearly.

2.3 EVALUATION OF ALTERNATIVES

The evaluation of alternatives has been summarized in tabular form (Table 2.8a-b) for comparison of the All Bus and DPM alternatives. Impact categories include both Short-Term (construction period impacts) and Long-Term (system operation). The impact factors have been weighted for significance by the DPM Policy Committee and the federally mandated "Scoping" process.

Most significant are the Transportation, Land Use and Development, Economic and Visual categories. Second in significance are the Social, Historic, and Archaeological categories and third in significance are the Natural Environment categories.

Impacts considered positive in evaluating the alternatives include benefits such as improved travel time and increased economic activity, while negative impacts include such items as conflict with local planning and development goals, and visual intrusion on property. Major impacts include those for which mitigating action is costly or not possible, while most minor impacts can be changed by modifying public policy.

Comments include a measure of the impact which has been quantified where possible and any mitigating action included in the proposed alternative.

2.3.1 EVALUATION SUMMARY AND COMPARISON OF ALTERNATIVES

DPM ALTERNATIVE

A. Long Term Negative Impacts

1. Visibility to and from structures adjacent to the DPM guideway will result in loss of privacy to residents occupying some of the hotel/apartment facilities in the CBD area.

TABLE 2.8a: LONG TERM IMPACTS

Impact Effect

Positive		Negative	
Major	Minor	Major	Minor
▲	△	●	○

IMPACT CATEGORY		DPM	ALL BUS	COMMENTS
TRANSPORTATION	Conformance with goals & planning	▲	△	The DPM system is a major element of the MUATS three part unified transportation plan.
	Service within the CBD	▲	△	The DPM will provide a direct service link with the Metrorail system and will have unimpeded distribution capabilities for trips destined for the CBD core area.
	Service within the Downtown Area	△	▲	The All Bus Alt. will generally provide better service for trips destined for activity centers outside the CBD core because secondary transfers will not be required.
	Increase in bus volumes at CBD intersections	○	○	Of the 13 street intersections investigated, the DPM and All Bus Alt. increased the volume of buses at 5 and 6 intersections respectively.
	Decrease in bus volumes at CBD intersections	▲	△	Of the 13 street intersections investigated, the DPM and All Bus Alt. decreased the volume of buses at 8 and 7 intersections respectively.
	Motorist visibility	○		Motorist visibility at 5 intersections will be slightly impaired.
	Transit ridership	▲	△	Transit person trips: DPM 152,062/day; All Bus 142,547/day
LAND USE AND DEVELOPMENT	Link major activity centers	▲	△	The DPM connects all major activity centers within the CBD, both existing and proposed.
	Access to areas of private development	▲	△	
	Joint development of transportation facilities	▲		8 of 10 DPM stations will most likely contain some private investment.
	Access to underutilized areas	▲	△	1.2 acres of vacant land and 29 acres of surface parking are within 600' of DPM stations.
ECONOMIC	Support of retail, hotel and office activities	▲	△	DPM-induced activity: $490,000 retail sales and $1.2 to $1.8 million lease revenue.
	Land values	▲	△	Increased access afforded by the DPM will tend to increase land values.
	Property tax base	▲	△	The long-term effect of increased property tax revenues will result from the eventual escalation of land values around DPM stations.
	Employment	△		Operation of the DPM system will require 32 employees.
	Low-income residents & borderline businesses	○		Increasing land values and property taxes may present a hardship on low-income residents and borderline businesses in the form of lease increases.
VISUAL	General visual character	△		Physical characteristics of the DPM loop will tend to tie together independent and unrelated structures and streets.
	Short- and long-range views	○		The DPM guideway will partially obstruct some short-range views of adjacent structures and some long-range views into Bayfront Park.
	Facade obstruction	○		DPM guideway will obstruct the facade of 18 structures.
	Visibility to & from adjacent structures	●		A significant loss of privacy to resident occupants living adjacent to DPM guideway will occur.
	Rider visual experience	▲		The elevated DPM guideway will provide a unique visual experience to people who work and shop in Downtown Miami.
SOCIAL	Relation to residential environment	○		Approximately 170 residential units directly face the DPM alignment.
HISTORIC SITES	Effect on historic sites	○		DPM will have an effect upon 5 historic sites.
NATURAL ENVIRONMENT	Water quality	○		DPM maintenance facility will discharge sanitary effluent and wastewater containing wash solvents, mud, grease, oil and gasoline.
	Runoff	○		Approximately 200,000 sq.ft. of impervious surfaces will be constructed within DPM facilities.
	Floodplain encroachment	○		Approximately 7600 feet of guideway are within the 100-year floodplain. Encroachment will be limited to pier locations. There is no significant encroachment associated with the proposed action.
	Vegetation	△		Landscaping for the DPM facilities will enhance the CBD environment.
	Noise and vibration	○	○	Deployment of the DPM will result in a net increase of less than 1 dB in the existing L_{dn} noise level for the impacted area. Additional buses required under the All Bus Alt. will have a minor negative impact on the area's ambient noise level.
	Air Quality	○	○	DPM vehicle miles traveled (Collector and local buses) = 9600; All Bus VMT's (local and collectors) = 10,220.
	Energy Consumption	○	○	DPM Alt. minimal electricity demand = 9.4 million Kwh, gasoline demand = 1150 gallons, diesel fuel = 1410 gallons; All Bus Alt. gasoline demand = 1940 gallons, diesel fuel demand = 3340 gallons.

TABLE 2.8b: SHORT TERM IMPACTS

Impact Effect

Positive		Negative	
Major	Minor	Major	Minor
▲	△	●	○

IMPACT CATEGORY		DPM	ALL BUS	COMMENTS
TRANSPORTATION	Traffic disruption	○	○	Construction of the DPM guideway or transit mall will impair traffic movement for short periods of time on adjacent streets.
	Pedestrian disruption	○	○	Construction at intersections will inconvenience pedestrians.
	Parking displacements	○		Approximately 90 parking spaces will be displaced as a result of DPM construction.
ECONOMIC	Capital cost	○	○	DPM construction costs, including acquisition costs for buses and trams are $87,000,000; All Bus costs for additional buses are estimated at $12,349,500.
	Regional household income	△		Approximately $100.8 million in regional household income will be generated by DPM construction.
	Regional business activity	△		Approximately $185.2 million in regional business activity will be generated by DPM construction.
	Employment	△		Approximately 962 man years of employment will be created by DPM construction.
	Business disruptions	○	○	DPM construction will disrupt 35 business access areas and 14 business loading areas. All business establishments along Flagler Street will be disrupted for transit mall improvements.
	Property tax base	○		Approximately $68,000 in annual property tax revenues will be lost to property acquisitions for the DPM right-of-way.
VISUAL	General visual character	●	○	The presence of construction activity and the incremental development of the DPM system will disrupt the existing visual setting along the alignment.
SOCIAL	Relation to residential environment	●		Approximately 170 residential units will be affected by construction-related activity.
	Residential displacement	●		142 residential units (hotel and apartments) will be displaced by DPM construction.
ARCHAEOLOGICAL SITES	Effect on archaeological sites	○		DPM construction activity may disrupt archaeological artifacts in the Dupont Plaza area.
NATURAL ENVIRONMENT	Solid waste	○		Approximately 8600 cubic yards of spoil material will be generated by DPM construction.
	Water quality	○		Ground disturbance during DPM construction will result in minor increases in erosion and sedimentation hazards.
	Vegetation	○		Approximately 41 street trees and 19 street shrubs will be taken during DPM construction; 10 Royal Palms will be relocated.
	Noise and vibration	○	○	Construction vehicles and equipment will increase noise during the work period in areas adjacent to the DPM alignment or on the Flagler Street transit mall.
	Air quality	○	○	Construction vehicles will result in minor increases in emissions in the area adjacent to the DPM alignment or along the Flagler Street transit mall.
	Energy consumption	○	○	Construction vehicles will consume minor amounts of diesel and gasoline fuels.

2. The DPM guideway and supporting piers will partially obstruct the facade of 18 structures and approximately 170 residential units directly facing the DPM alignment.

3. There will be displacement of approximately 147 residents, 37 employees and four businesses.

4. By excluding bus activity from the portion of the CBD inside the DPM loop an increase in bus activity will occur at some intersections on the periphery of the CBD area.

5. With the placement of DPM piers adjacent to street intersections, some minor visual obstruction to motorists view of approaching vehicles and crossing pedestrians will occur.

6. The DPM may contribute to increased land values and subsequent increases in lease and rental rates.

7. The DPM maintenance facility will discharge small amounts of sanitary effluent and wastewater containing wash solvents, mud, grease, oil and gasoline. Construction of the DPM guideway and maintenance facility will add approximately 200,000 square feet of impervious surfaces to the CBD area, increasing surface water runoff.

B. Short Term Negative Impacts

1. Temporary traffic congestion and pedestrian inconvenience will occur during construction of DPM piers and erection of guideway aerial elements. Some street side parking will be lost as a result of DPM construction.

2. Resident occupants of rooms adjacent to the DPM guideway will be temporarily affected by construction noise.

3. Construction activity and related pedestrian barriers will temporarily disrupt adjacent businesses.

4. Construction will increase noise levels, vibration and air pollution around pier locations and station areas.

5. The presence of construction activity and the incremental development of the DPM system will disrupt the existing visual setting along the alignment. The visual impacts will be present for relatively short-periods, the longest being at station areas.

6. Short term impacts on the natural environment will be minor including the generation of spoil material, increases in erosion and sedimentation, and increases in emissions from construction equipment.

7. Vegetation removal will be required in isolated locations along the DPM alignment. Plant material will be replaced upon completion of construction activity.

C. Long Term Positive Impacts

1. Implementation of the DPM will increase trip opportunity in the CBD by providing an easily accessible and grade separated travel mode.

2. By providing high quality transportation within the CBD the DPM will encourage transit ridership for commuter trips on the Metrorail as well as intra-CBD business and noon hour trips.

3. The DPM will link major activity centers and provide increased access to retail, hotel and office activities as well as areas which are presently underutilized. Land values and retail sales will increase as a result of improved mobility around downtown. Property tax revenues will also increase.

4. Implementation of the DPM Alternative in conjunction with the Metrorail line and its supporting bus network will be a significant step toward local efforts to reduce dependence on the use of the automobile, thereby conserving energy.

5. The physical characteristics of the DPM will tend to tie together independent and unrelated structures and streets within the CBD. In addition, the elevated DPM will provide a unique visual experience for system riders.

D. Short Term Positive Impacts

Construction of the DPM System will generate approximately $185.2 million in regional business activity and 962 man-years of employment.

ALL BUS ALTERNATIVE

A. Long Term Negative Impacts

1. Of the 13 critical intersections investigated, the All Bus Alternative will result in an increase of bus volumes at 6 intersections.

2. Implementation of the proposed transit mall on Flagler Street will result in a significant rerouting of existing traffic onto adjacent streets and some intersections will decrease their operating level of service.

3. The proposed transit mall on Flagler Street may adversely affect delivery service to adjacent businesses.

4. The increase in bus activity within the CBD will also increase emissions affecting air quality within the downtown area.

B. Short Term Negative Impacts

1. Temporary traffic congestion and pedestrian inconvenience will occur during construction of the Flagler Street transit mall.

2. Construction activity on Flagler Street will increase noise levels as well as air pollution through the use of construction equipment.

3. The presence of construction activity will disrupt the existing visual setting along Flagler Street.

C. Long Term Positive Impacts

1. Implementation of the All Bus Alternative will increase distribution service for Metrorail riders destined for downtown. However, due to congested conditions within the CBD, the quality of service will be lower in the core area.

2. Of the 13 critical intersections investigated, the All Bus Alternative will result in a decrease in bus volumes at 7 intersections.

3. By providing distribution capabilities within the downtown area, the All Bus will encourage transit ridership for commuter trips on the Metrorail as well as intra-CBD business and noon hour trips.

4. Implementation of the All Bus Alternative will increase access to major activity centers within the downtown area. This increased access will tend to support existing retail, hotel and office activities.

D. Short Term Positive Impacts

Construction of the Flagler Street transit mall will have a minor positive impact on regional business activity and will generate additional employment in the construction industry.

2.3.2 SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE

Based on the criteria used in the evaluation process and the weights derived in determining significant impact categories, the DPM Alternative is preferred by Dade County over the All Bus Alternative. Tables 2.9, 2.10, and 2.11 summarize the impacts factors of Transit Ridership, Capital Cost, Operating Costs. The DPM Alternative exceeds the All Bus Alternative in capital cost, but will deliver more transit riders at a lower annual operating cost.

The environmental consequences of both alternatives are discussed in Chapter 4 of this Statement.

TABLE 2.9
DAILY TRANSIT RIDERSHIP (Unlinked Transit Trips)*

	ALL BUS ALTERNATIVE	DPM ALTERNATIVE
Local Bus	79,590	60,939
Rapid Transit	27,616	28,791
Circulator Bus	35,341	20,682
Tram	--	679
DPM	--	40,976
TOTAL:	142,547	152,062
Average Transfers	1.38	1.54

*Unlinked transit trips include a separate count for each mode. Thus, persons transferring from one mode to another on a single trips are counted twice.

Source: Dade County-OTA

TABLE 2.10
DAILY OPERATING COSTS[1]

	ALL BUS ALTERNATIVE	DPM ALTERNATIVE
Peak 1 Hour:		
Local Bus	$ 441	$ 350
Circulator Bus	425	231
Tram	--	--
DPM Loop	--	156
TOTAL:	$ 866	$ 737
Midday 1 Hour:		
Local Bus	$ 238	$ 147
Circulator Bus	184	111
Tram	--	--
DPM Loop	--	156
TOTAL:	$ 422	$ 414
Daily Cost[2]:		
Local Bus	$ 5,569	$3,757
Circulator Bus	$ 4,650	2,705
Tram[3]	--	674
DPM Loop	--	3,128
TOTAL:	$10,219	$10,264

[1]Include daily operating costs of tram, although no peak and
[2]midday 1 hour costs have been calculated.
[3]Peak 1 hour X 5 + midday 1 hour X 15
Tram operates for 10 hours only

Source: Dade County OTA

TABLE 2.11
CAPITAL COST ESTIMATES

ALL BUS ALTERNATIVE	DPM ALTERNATIVE
$12,349,500	$87,000,000

Source: Dade County OTA

CHAPTER 3.0
AFFECTED ENVIRONMENT

3.1 LAND USE AND URBAN DEVELOPMENT

3.1.1 LAND USE AND ZONING

A. Land Use Patterns

For the purpose of this environmental impact statement, the central business district of downtown Miami extends from 6th Street south to the Miami River, and from the elevated I-95 expressway east to Biscayne Bay (figure 3.1).

The area forms the central core of a larger linear business district, referred to as downtown Miami, which extends north to the new Omni shopping district and south along Brickell Avenue. The Omni complex consists of retail, hotel, and residential uses; Brickell Avenue is characterized by high income, high density housing, as well as many new office structures. Between the two areas, the CBD core is a rapidly growing area of mixed use, today characterized primarily by non-residential, office space-dominated uses.

Major activity areas in the CBD include:

1. An office core which extends from Biscayne Boulevard west to the Metrorail right-of-way, formerly the Florida East Coast (F.E.C.) Railroad right-of-way, and from S. E. 2nd Street north to N.E. 2nd Street;

2. A retail core centering on Flagler Street and Miami Avenue;

3. Bayfront Park, a major park area along Biscayne Bay, including public open space, a public auditorium, marina, and library;

4. A hotel strip along Biscayne Boulevard, including some recent renovations, as well as some underutilized land; and

5. Shipping, warehousing, and utility areas along the Miami River, including substation equipment of Florida Power and Light.

Between and surrounding these relatively compact districts are a wide variety of mixed land uses, including scattered hotel, residential, and commercial uses, as well as large areas of surface parking.

Residential uses in the CBD are scattered in small older structures, many of which are structurally deficient. With the exception of the proposed Miami Center project, few major residential investments have been made in the area, particularly when compared to the Brickell and Omni areas, where numerous apartment buildings and condominium buildings have recently been constructed or announced.

The Port of Miami is located on Dodge Island, east of the CBD. The Port serves as a major generator of downtown activity. Large numbers of tourists arrive daily at the Port, aboard cruise ships. Tourists from the

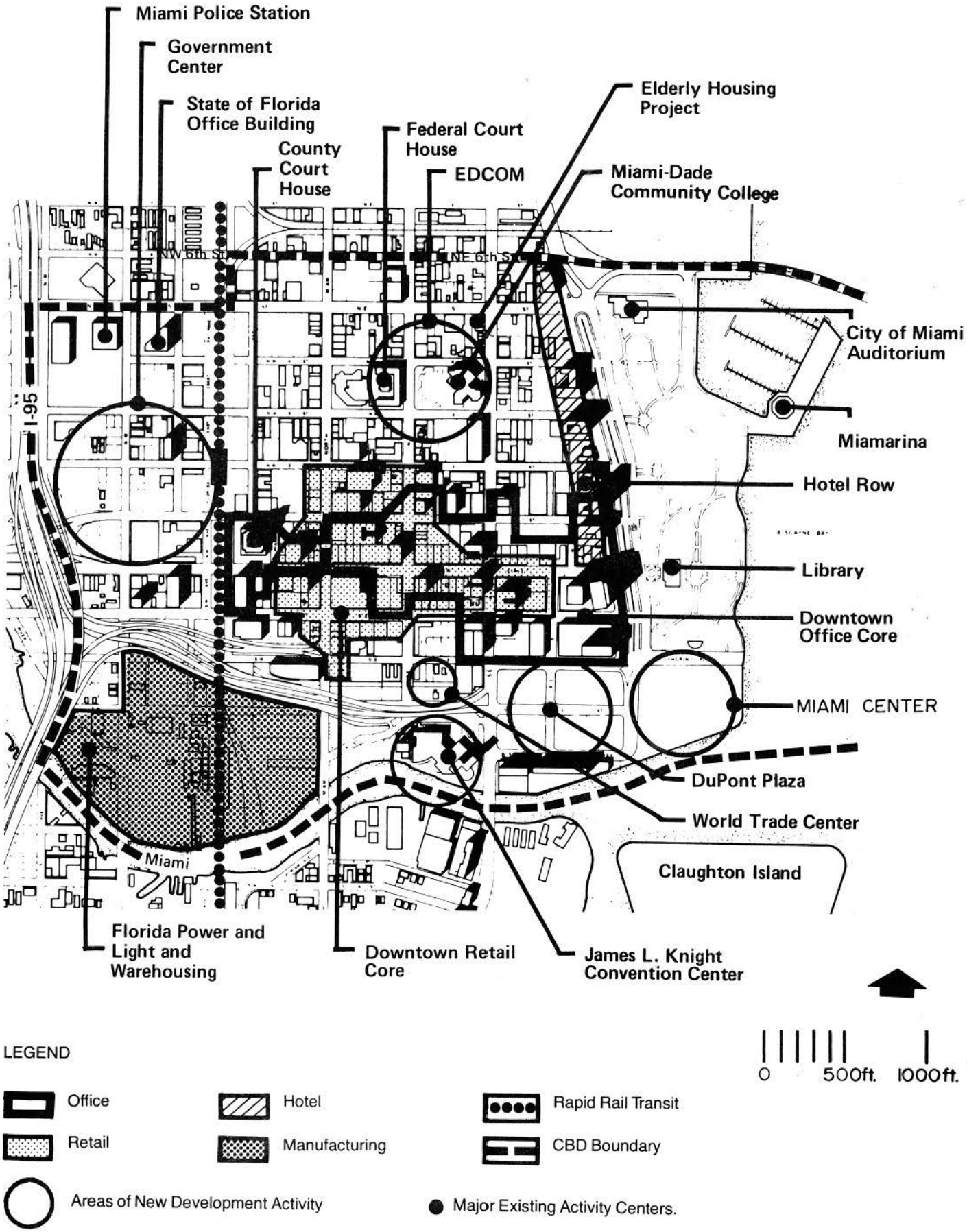


Figure 3.1 LAND USE AND DEVELOPMENT FUNCTIONAL AREAS

Port and those who arrive by air purchase goods for family and friends in the CBD, contributing significantly to the rapidly expanding retail center. The result has been the extension of retail activity beyond the retail core to renovated structures along N. E. Second Avenue, as well as significant private development interest in the area between N. E. 2nd Avenue and Biscayne Boulevard, from N.E. 6th Street to Flagler Street.

B. Zoning

The Miami CBD east of the Metrorail right-of-way is zoned Central Commercial (C-3), permitting a maximum height of 300 feet or a potential floor area ratio of 30. This zoning, together with that of the entire downtown Miami area, has been the subject of numerous studies over the past seven years.

Three major zoning issues pertaining to the CBD area have emerged:

1. The present zoning ordinance lacks adequate parking regulations. No parking is required in new developments, nor are there restrictions on excessive parking concentrations;

2. The present zoning ordinance lacks incentives in the C-3 district for residential development on existing vacant land; and

3. The present zoning ordinance lacks adequate incentives for joint development in areas served by mass transit. Special zoning districts have been proposed for rapid transit and people mover station areas which would reward joint public and private development.

A revised zoning ordinance for downtown Miami and the CBD area has not yet been adopted and is presently being studied for further revisions.

3.1.2 LAND USE PLANS AND POLICIES

Three current land use planning studies provide the planning context for the Miami CBD area:

1. Downtown Miami 1973-1985: An Urban Development and Zoning Plan (prepared in 1973 for the City of Miami and the Miami Downtown Development Authority, approved in concept, April 1975);

2. Comprehensive Development Master Plan for Metropolitan Dade County (adopted December 1974);

3. Miami Comprehensive Neighborhood Plan 1976-1986 adopted May 12, 1977).

In addition, several studies have been undertaken to address development alternatives for specific land parcels in the CBD area which have received public support; these include the Government Center Plan, the Educational Complex (EDCOM) Plan, and the Miami Riverfront Development Study.

Land use policies developed in these planning studies are consistent in their common goal to maintain and expand the role of downtown Miami as a regional diversified activity center.

Land use policies of the 1973 Downtown Miami Plan, supported in the subsequent planning studies, include actions to guide growth in the downtown area to 1985. Several key policies are developed to provide a framework for future land use and development:

1. Provide catalysts for new development and encourage public amenities as part of private investment;

2. Join activity centers and areas of highest development potential;

3. Locate new development in relationship to infra-structure capacity; and

4. Connect new development with a pedestrian circulation system.

More specific land use policies include the encouragement of continued office development, the expansion of new residential uses, and the development of retail and entertainment uses. A greater reliance on mass transit is emphasized as necessary to support new development, due to capacity limitations of the existing street system and the limited supply of parking.

3.1.3 ANTICIPATED GROWTH AND DEVELOPMENT

Considerable growth in the development of residential and non-residential land uses is anticipated in the Miami CBD area over the next decade. In 1975, the CBD contained approximately 9.9 million square feet of non-residential floor space over 280 acres of land[1]. The breakdown of uses, as well as anticipated growth from 1975 to 1985, is summarized in Table 3.1.

TABLE 3.1
ESTIMATED CBD LAND USE (in thousands of square feet)

USE	1975	1985	Percent Change
Office	7,080	10,119	+43%
Retail	1,970	2,370	+20%
Service/Institutional	522	1,487	+185%
Manufacturing	397	308	-22%
TOTAL	9,969	14,284	+43%

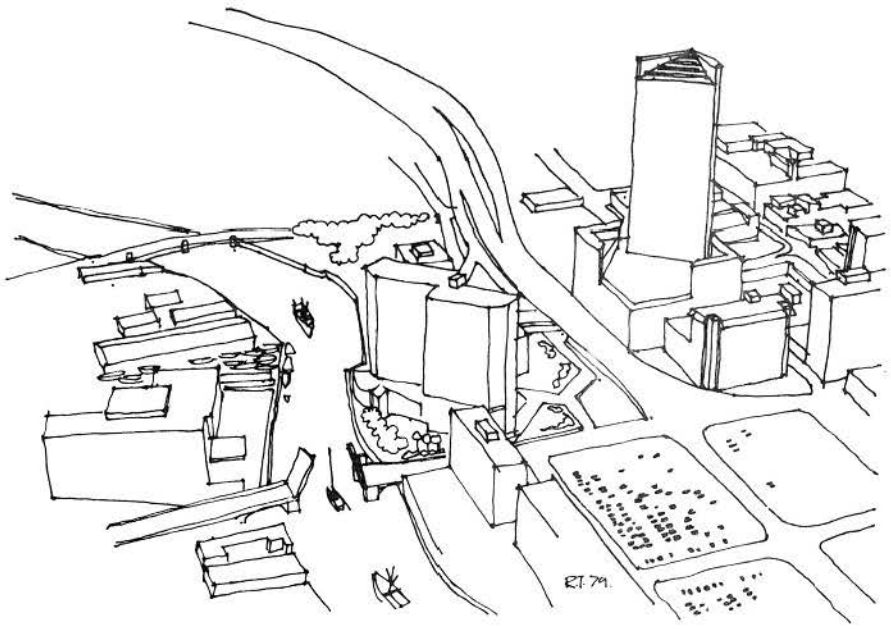
Source: City of Miami Planning Department

[1] City of Miami Planning Department.

Office space occupies the largest percentage of non-residential areas. Market forecasts have suggested that there is a demand for additional office space of from 200,000 to 400,000 square feet per year[1].

While office space demand is growing, the recent surge in retail activity and condominium demands have been greater than other forecasts. Hotel demands to meet the increasing attractiveness of Miami as a mecca for Latin American tourists and businessmen will be satisfied in part by the development of the Hyatt and Canadian Pacific Hotels at the Knight Convention Center and Miami Center respectively, as well as renovations to some of the existing hotels along Biscayne Boulevard. Potentials for residental developmnet are now the subject of a study for the Miami Downtown Development Authority of a "new town-in-town" just north of the CBD.

Major activity centers of assured growth in the CBD area include the World Trade Center, the Government Center, Ball Point, EDCOM, and the James L. Knight International Center. In addition, other private development is anticipated along Biscayne Boulevard and along the Miami Riverfront in the near future.



1. World Trade Center

   A 450,000 sq. ft. building providing a common meeting place for local and foreign businesses in international trade and commerce;

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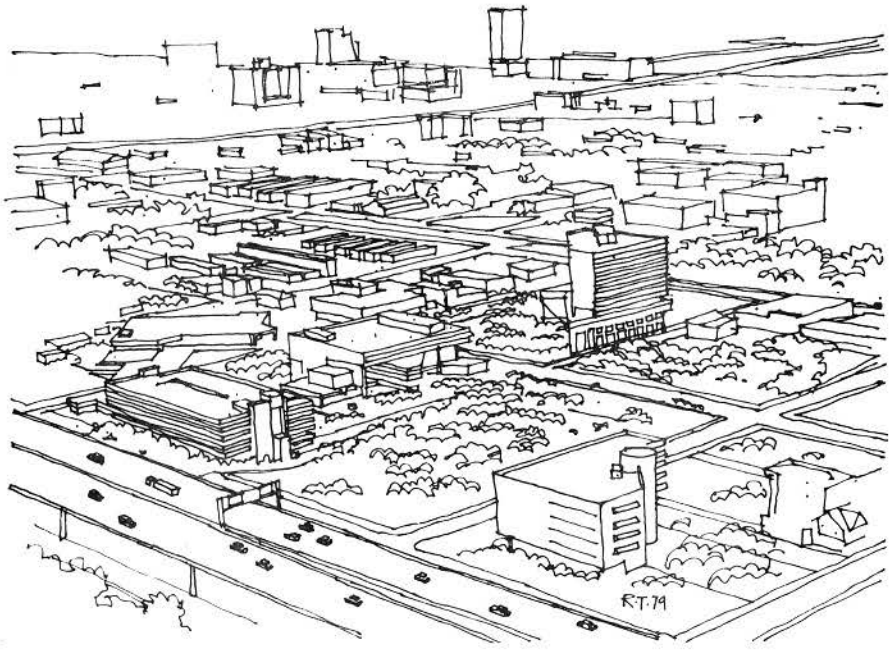
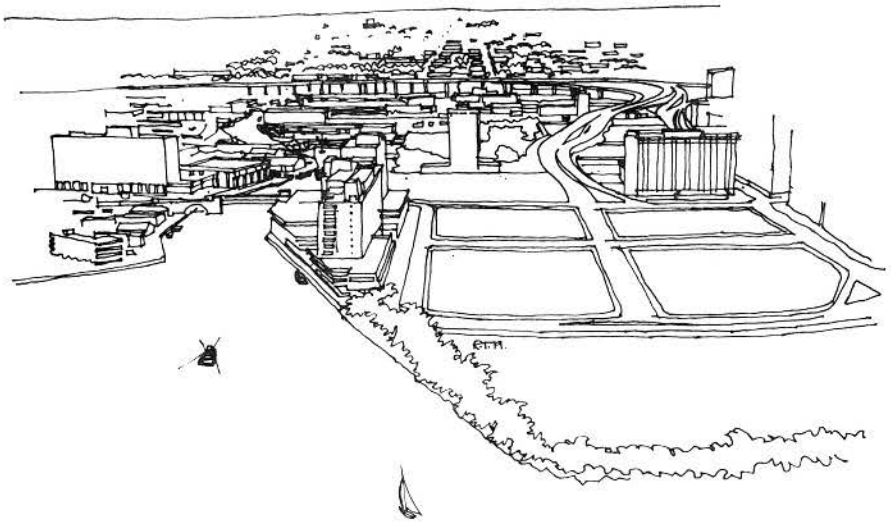
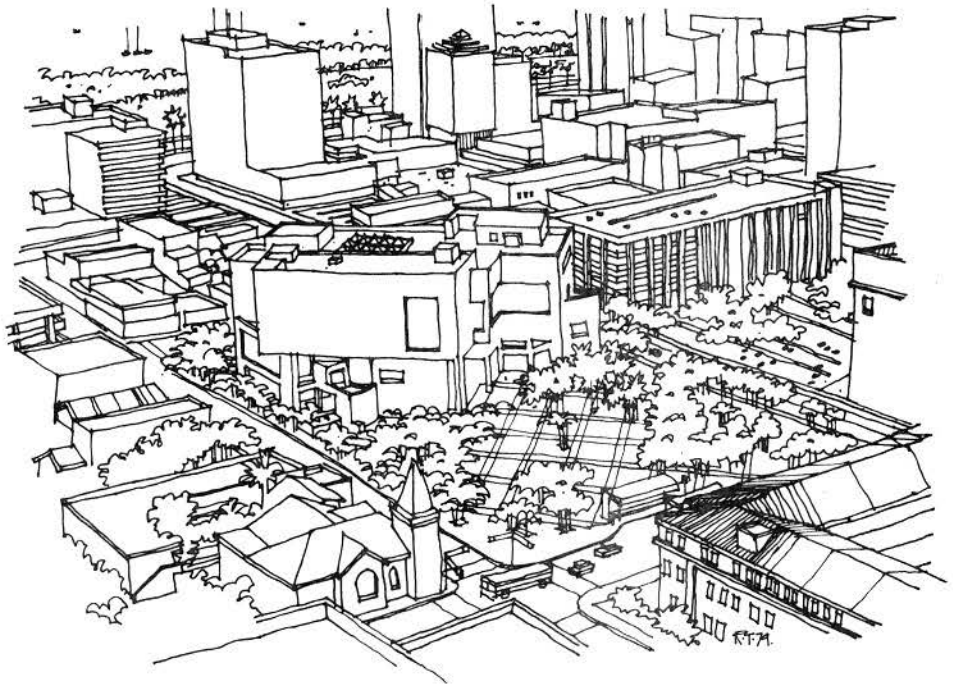
[1] Gladstone Associates. Downtown Miami 1973-1986: An Urban Development and Zoning Plan.



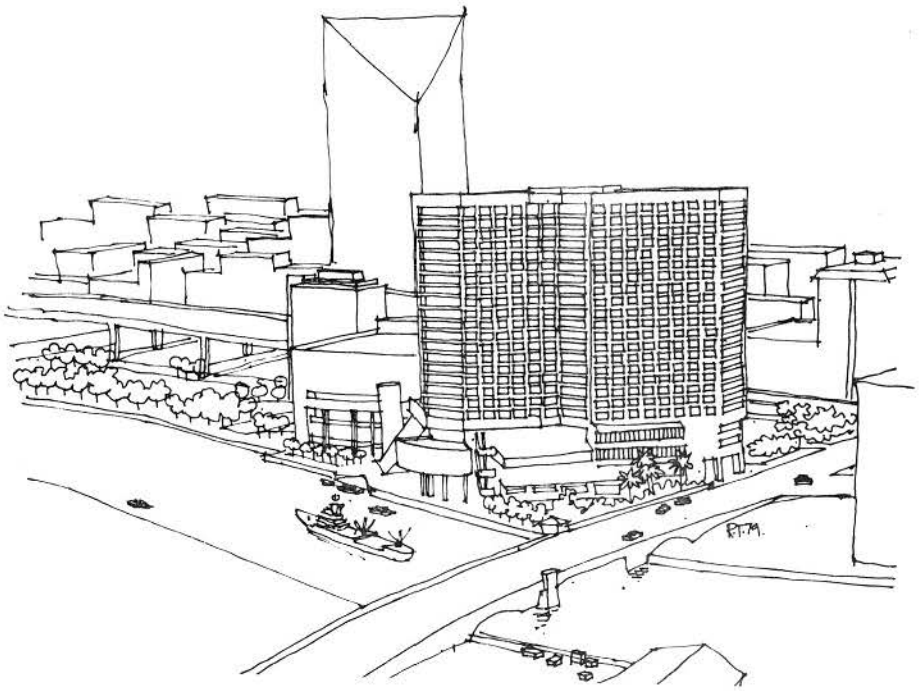
2. Government Center
Under construction, a 30, acre tract to include City of Miami Police Building, parking garages, State of Florida Regional Service Center, City of Miami administration building, Dade County administration buildings, central library and museum and a central service utility plant;



3. Miami Center
An 8.45 acre tract on Ball Point to include a 37-story, 630 room hotel, 500 condominium units, 650,000 net sq. ft. office space, 75,000 sq. ft. retail space, and 2,365 parkspaces;



4. EDCOM
A major expansion of the existing Miami Dade Community College to include 130,000 sq.ft. of college related facilities, an anticipated new campus of Florida International University, and a 150-unit senior citizen housing tower;



5. James L Knight Conference Center (Under construction)
A joint public/private development effort between the City of Miami and Hyatt Hotel, Inc. to include a 5,000 seat auditoruim, 600 room hotel, 30,000 sq.ft. retail space, 10,000 sq.ft meeting rooms, restaurants, and 1,000 car parking garage.

3.2 SOCIO-ECONOMIC CHARACTERISTICS

3.2.1 POPULATION

Metropolitan Dade County is one of the most rapidly growing metropolitan regions in the country. From 1950 to 1970, the population increased by 56 percent, to a total of approximately 1,270,000 residents.[1]. The County's 1975 estimated population was 1,500,000[2]. Projections for 1985 estimate further growth to 1,736,000 persons[3].

Within the Metropolitan Dade County Region, the 1975 Miami CBD residential population was estimated at 1570 persons[4]. This represented a substantial decline in population over the previous decade, attributed primarily to conversions of the residential structures to office and commercial uses. By 1985 this trend is expected to have reversed, as a result of new residential and mixed use developments planned or proposed for the Downtown area. the 1985 Miami CBD residential population is projected to be 2,050, representing an increase of 30 percent over ten years[5].

An analysis of age characteristics indicates that within the Metropolitan Dade County region, approximately 14 percent of the population was under the age of 25[6]. By comparison, the CBD residential population was older, with 33 percent over the age of 65 and 10 percent under the age of 25[7].

The Dade County region is characterized by a large number of Spanish speaking residents, estimated at 24 percent of the population in 1970[8]. By comparison, the CBD residential population was characterized by a greater percentage of Spanish speaking residents (approximately 32 percent) and a smaller percentage of Black residents (approximately 10 percent)[9].

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[1] Metropolitan Dade County. Proposed Metropolitan Development Guide Comprehensive Development Master Plan. Part 3. July 1974.

[2] Metropolitan Dade County. Existing Ground Transportation Conditions, Miami Urban Transportation Study, Year 2000 Plan Update. September 1975.

[3] UMTA. Final EIS-Metropolitan Dade County Rail Rapid Transit Project. May 1978.

[4] City of Miami Planning Department.

[5] Ibid.

[6] U.S. Department of Commerce, Bureau of the Census. 1970 Census of Population and Housing, 1972.

[7] Metropolitan Dade County Planning Department. 1970 Census Urban Transportation Urban Package Summary Tape. 1978.

[8] U.S. Department of Commerce, Bureau fo the Census. 1970 Census of Population and Housing.

[9] Ibid.

3.2.2 HOUSING CHARACTERISTICS

Within the Miami CBD there were an estimated 1,180 housing units in 1975[1]. Of these, 77.3 percent were multi-family units, 21.7 percent were mixed use units (multi-family, single room units over commercial or office activities on lower floors), and 1 percent were single family and duplex units. Recent projections indicate that by 1985 there will be a net increase of 38 percent to approximately 1,640 units, primarily as a result of the proposed development at Ball Point and two elderly housing projects anticipated in the vicinity of North Miami Avenue.

The 1975 City of Miami Housing Survey indicates that approximately 25 percent of the housing units in the CBD area have minor deterioration, while 36 percent have major deterioration or are dilapidated. The majority of the housing units are renter-occupied, with 1970 median contract rents far below those of Dade County[2].

Within the CBD area, there were approximately 4,460 hotel/motel units in 1975[3]. According to City of Miami estimates of present and planned development activities, new construction will add an additional 1,230 units by 1985, bringing the net total to 5,317 units (372 units are lost to demolition between 1975 and 1985)[4].

3.2.3 EMPLOYMENT AND INCOME

Approximately 43 percent of the residential population in the CBD area was in the civilian labor force in 1970[5]. Of these, approximately 5 percent were unemployed compared to 3.7 percent for the County. approximately 36 percent of the families in the CBD area had an income under $4,000 and 40 percent had an income of $4,000 to $10,000[6]. The median income was

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[1] City of Miami Planning Department. 1975-1985 Housing Estimates.

[2] U.S. Department of Commerce, Bureau of the Census. 1970 Census of of Population and Housing. 1972

[3] City of Miami Planning Department. 1975-1985 Housing Estimates.

[4] Ibid.

[5] U.S. Department of Commerce, Bureau of the Census. 1970 Census of Population and Housing. 1972.

[6] Dade County Planning Department. 1970 Census Urban Transportation Planning Package. July 1974.

$5,196 in the CBD area compared to $9,245 for the County[1]. In 1970, twenty-three percent of the families were classified as below the poverty level, and 22 percent were receiving public assistance[2].

Total employment in the CBD area in 1975 was estimated at 34,950[3]. Employment activity in the area was dominated by office workers, representing over 50 percent of the total employees[4]. Retail employment was approximately 17 percent[5]. Slightly over 10 percent were employed by the hotel industry.

The Miami CBD is currently anticipating an upsurge in office development which will maintain office employment as the predominant sector of the CBD work force. Employment forecasts for 1985 in the entire downtown area, which includes the area north and south of the CBD up to the Omni Complex and down to the Brickell area, anticipate an increase of up to 35 percent[6]. In the CBD area alone, 55,800 employees are forecasted for 1985, an increase of 60 percent[7]. This includes not only the office employment resulting from developments such as the World Trade Center, Dupont Plaza and Miami Center, but also approximately 4,100 employees to be added by the Government Center development.

3.2.4 EDUCATIONAL AND SOCIO-CULTURAL INSTITUTIONS

Three educational institutions are located within the CBD area. The Gesu Elementary School, associated with the Gesu Church, is located at 110 N.E. 2nd Street. Approximately 550 students attend the school which offers kindergarten through 8th grade education. Transportation is provided by four privately owned buses.

The Miami Dade Community College New World Campus is located at 300 N.E. Second Avenue. The College has a student enrollment of approximately 12,000 during the academic year; during the summer term, attendance decreases to 2,000. Although no special transportation is provided by the College, students have access to the campus from Metropolitan Dade County's bus system. Limited parking facilities are available in the vicinity of the campus. Florida International University has tentative plans to locate a downtown campus adjacent to Miami Dade Community College, although no plans have been finalized to date.

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[1] Dade County Planning Department. 1970 Census Urban Transportation Planning Package. July 1974.

[2] U.S. Department of Commerce, Bureau of the Census. 1970 Census of Population and Housing. 1972.

[3] Dade County Office of Transportation Administration, Division of Planning and Programming. Miami DPM Demand Estimation Methodology. May 1979.

[4] City of Miami Planning Department.

[5] Ibid.

[6] Gannett Fleming/SKBB. Miami DPM Report (Draft). May 1979.

[7] Dade County Office of Transportation Administration, Division of Planning and Programming. Miami DPM Demand Estimation Methodology. May 1979.

Bauder Fashion College is located at 100 S.E. 4th Street on the Miami River. The College offers a two-year Associate of Arts degree and presently has an enrollment of 650 students. Most of the College activities are contained in a 15-story structure with classrooms and offices on the lower floors and dormitory rooms on the upper floors, presently accommodating 376 students. The College provides additional dormitory facilities in the Brickell area for 174 students, who take local buses to and from classes. The College also leases 100 parking spaces located along the Miami River for commuting teachers and students.

Within the CBD area, there is one public library, located in Bayfront Park at Biscayne Boulevard. A new regional library facility is planned within the Government Center, in the area of N.W. 2nd Avenue and West Flagler Street, as part of a complex including an art museum and an historical museum.

Six churches are located in the CBD area:

1. Central Baptist Church (500 N.E. 1st Avenue);
2. Gesu Catholic Church (118 N.E. 2nd Avenue);
3. First Chirstian Church (230 N.E. 4th Street);
4. First United Methodist Church (127 N.E. 4th Street - moving to the corner of Biscayne Boulevard and 4th Street);
5. Centro Hispano Catolico (130 N.E. 2nd Street); and
6. Jehovah's Witness Kingdom Hall (251 N.W. 5th Street).

3.3 NATURAL ENVIRONMENT

3.3.1 GEOLOGY, GROUNDWATER, SOILS

The Miami CBD area is located on the Atlantic Coastal Ridge, a narrow ridge formation bordering the Atlantic shore from the Georgia state boundary to Homestead, Florida. The area is underlain by sediments of the Miami Limestone, the Key Largo Limestone, and the Fort Thompson Formations. Locally, small areas of the Pamlico Sand overlie the Miami Limestone. Elevation in the CBD area is generally from 5 to 15 feet, with slopes of from 0 to 2 percent.

Limestone, sandstone, and sand of the Miami Limestone, Fort Thompson, and Key Largo Formations comprise the Biscayne Aquifer, a highly permeable, very productive (500 to 7000 gal/min), and shallow unconfined aquifer. Wells in the Biscayne Aquifer provide water to all municipal water supply systems from south Palm Beach County, southward to the Florida Keys.

Heavy reliance on the Biscayne Aquifer system has resulted in concern over the quality of recharge water. Recharge to the aquifer is rapid, occurring primarily through infiltration of rainfall and of water from the surface canal system. Ground water quality is generally hard. Because

of high permeability and the interconnection of the surface and groundwater system, pollutants can enter the aquifer by direct infiltration from the land surface, canals, drainage wells, solid waste dumps, and septic and drainage fields.

Soils of the Rockdale series and Made Land complex overlie the limestone bedrock in the Miami CBD area. Areas of higher elevation, generally above 5 feet, are characterized by a thin veneer (2 to 24 inches) of Rockdale fine sand. Porous limestone parent material outcrops in many locations. Consequently, drainage is very rapid, with little or no runoff. Areas of lower elevation along the Miami River and the Biscayne Bay shore in the CBD area have generally been built up utilizing dredgings from the bottom of the Bay. Depth of fill is variable, depending upon depth to the underlying bedrock. Dredged material is typically comprised of sandy to silty lime muds of variable drainage characteristics.

3.3.2 SURFACE WATER

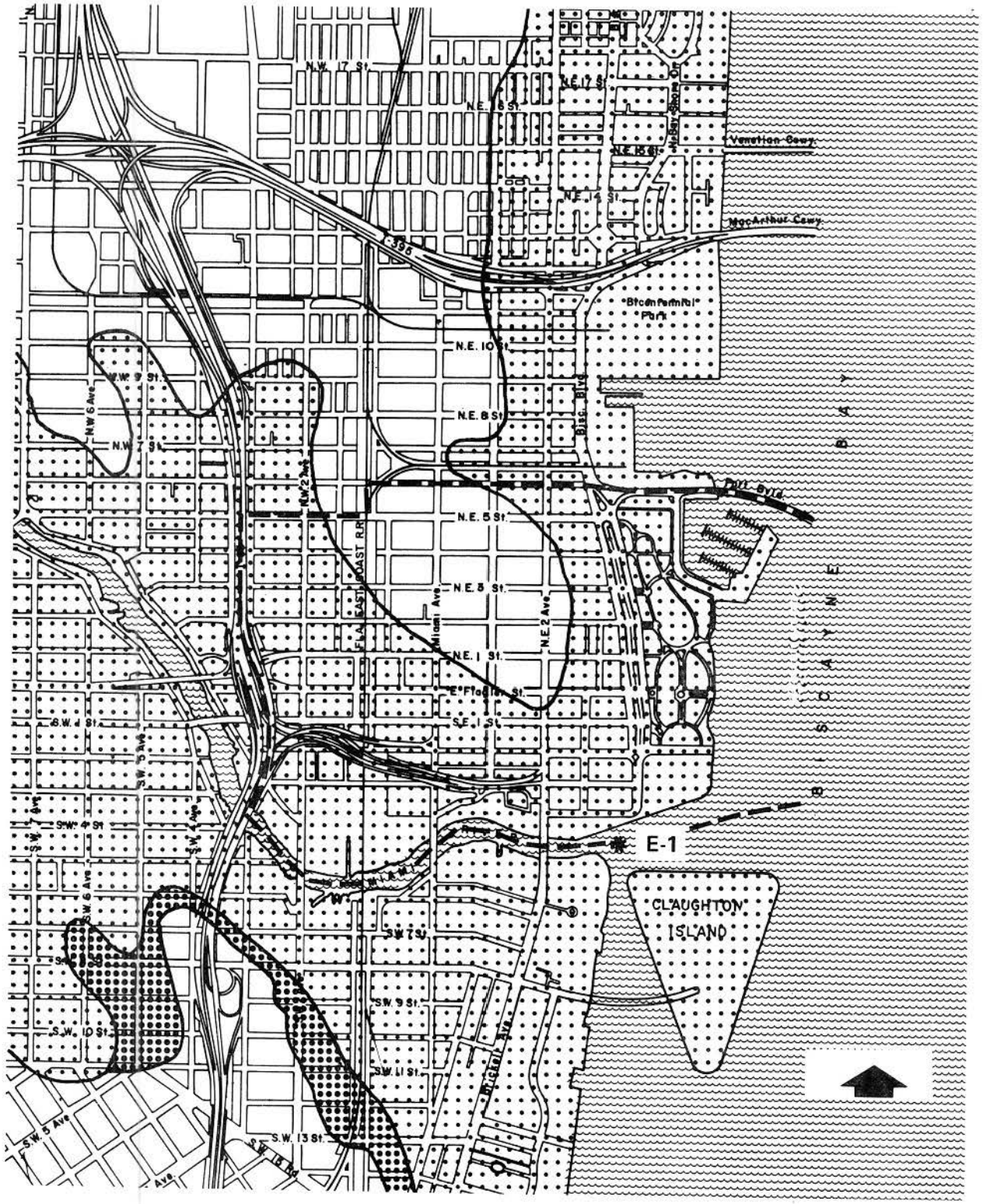
Drainage from the Miami CBD area discharges into the northern portion of Biscayne Bay (Figure 3.2). The Miami River, one of six tributary waterways draining into northern Biscayne Bay, is the only surface water feature in the area.

Much of Dade County is vulnerable to severe flooding from both land-falling hurricanes and those that pass by at sea due to the configuration and openness of the coastal physiography, critical features being Biscayne Bay and the low barrior islands with numerous passes to the Atlantic. Coastal areas such as the CBD are particularly vulnerable to hurricane flooding due to the "storm surge", or "storm tide" that results from high-winds and rising tide. In September 1926, a hurricane passed directly over Miami with winds up to 138 miles per hour. The high tide reported in Biscayne Bay was 13.2 feet above mean sea level. The frequency of hurricanes such as the 1926 storm is very low, approximately 1 in 100 years. However, hurricanes develop every year--usually between the months of June and November--which presents the potential for a major hurricane land fall in the Miami area.

The average number of years between tropical storm occurrences for the Miami area is 5 years for tropical cyclones with winds 40 mph or more, 6 years for hurricanes with winds 74 mph or more and 14 years for great hurricanes with winds 125 mph or more.

The base or 100-year flood plain of Biscayne Bay and the Miami River generally extends to the 11 foot elevation in the CBD area. The limits of the base flood plain and its relation to the project's study area are depicted in figure 3.2. Federal Insurance Administration maps were used as the primary reference in establishing base flood plain limits.

Precipitation falling on cleared areas is rapidly infiltrated, with little or no overland flow. Infiltrated water flows as throughflow to the Miami River or Biscayne Bay. Precipitation falling on developed areas enters the storm sewer system, through which it passes to the Bay or the Miami River.



AREAS OF 100-YEAR FLOOD

AREAS OF 500-YEAR FLOOD

CBD BOUNDARY

SAMPLING STATION E-1

Source: U.S. Dept. of Housing and Urban Development, Federal Insurance Administration; Dade County Department of Environmental Resources.

Figure 3.2 SURFACE WATER HYDROLOGY

Water quality in North Biscayne Bay is generally good, meeting U.S.E.P.A. criteria and Dade County standards for most variables[1]. North Biscayne Bay appears to be well oxygenated (6.5 mg/l mean DO), nutrient concentrations are low, and copper and zinc concentrations are below Dade County standards. Mean turbidity is higher in the northern part of the Bay than the southern portion (5.0 ntu vs. 2.5 ntu). Suspended sediments (7 mg/l) are higher than background (26.7 mg/l), probably because of wind resuspension of bottom sediments, marine construction activities, and/or unbulkheaded shorelines of the Julia Tuttle Causeway and spoil islands. Bacterial quality of the North Bay is good, with a geometric mean total coliform concentration of 268 MPN/100 ml.

The Miami River is a major source of pollutant discharge into North Biscayne Bay. Samples taken at the mouth of the Miami River have indicated a mean dissolved oxygen concentration of 3.8 mg/l. The River is the only tributary to North Biscayne Bay consistently found in violation of the Dade County 1000 MPN/100ml standard, with an arithmetic mean of 93000 MPN/100ml. In general, the river is considered a source of human waste-contaminated water probably due to septic tank infiltration and sewage effluent from undetected outfall pipes. In addition, sediments at the mouth of the river have exhibited concentrations of oil and grease and chlorinated pesticides.

3.3.3 VEGETATION

Vegetation in the Miami CBD area is composed primarily of street plantings and landscape plazas and major open spaces such as Bayfront Park (Table 3.2). Major streets which have been landscaped along most of their length include Flagler Street, the major retail street, and Biscayne Boulevard, along hotel row. A vest pocket park has recently been completed near Burdine's on Flagler Street. Landscaped plazas and open space vary in size and are scattered through the area. The largest of these include plazas at Miami Dade Community College New World Center (300 N.E. 2nd Avenue) and the City of Miami Parking Garage No. 4 (190 N.E. 3rd Street). With the exception of the Royal Palms framing Biscayne Boulevard, plantings along streets and in plaza areas are relatively recent. Most trees are less than 25 feet in height and are in relatively good condition. The Biscayne Boulevard palms, however, vary in height from 25 feet to 50 feet and many are in relatively poor condition.

Many surface parking areas in the CBD area have also been landscaped in some fashion by framing with shade trees along their perimeter and/or planting with scattered trees throughout their surface area The most intensively landscaped lots include those between N.E. 3rd and N.W. 5th Street east of the Metrorail right-of-way, and on N.E. 1st Street just east of 2nd Avenue. Parking facility plantings vary in height and condition. Recent plantings predominate and are similar in size and condition to street plantings. Where parking areas have been developed on cleared land, occasional large shade trees (30 to 40 feet) have been preserved.

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[1] Dade County Department of Environmental Resources. "A Short-Term Water Chemistry Assessment of North Biscayne Bay." 1978.

At the fringe of the CBD area, particularly along 5th Street, there are several large shade trees (30 to 40 feet) framing older residential and hotel structures. Scattered throughout the CBD in cleared undisturbed and unmaintained areas, there are also Australian Pines and Maleleuca trees, typically considered weed trees in most of Southern Florida.

TABLE 3.2
GENERAL VEGETATION TYPES IN THE MIAMI CBD*

Type of Area	General Vegetation Type
Streets	Black Olive (Bucida buceras) Mahagony (Swietenia mahogani) Benjamin Fig (Ficus benjaminal) Seaforthia Palm (Ptychosperma elegans) Royal Palm (Roystonea regia)
Plazas and Open Spaces	Black Olive (Bucida buceras) Mahagony (Swietenia mahogani) Cocculus (Cocculus laurifolia)
Parking Lots	Mahagony (Sweitenia mahogani) Bottle Brush (Callisteman viminalis) Benjamin Fig (Ficus benjamina) Gumbo Limbo (Bursera simaruba) Oleander (Nerium oleander) Albizia
Older Residential and Hotel Areas	Benjamin Fig (Ficus benjamina) Ficus Sp. (Ficus decora elastica) Royal Poinciana (Deloniz regia) Gumbo Limbo (Bursera simaruba)
Disturbed and Unmaintained Areas	Australian Pine (Casuarina equisetifolia) Brazilian Peppers (Schinus terebinthifolius) Cajeput Tree (Maleleuca leucadendra)

*None of the noted vegetation are endangered species.

3.3.4 NOISE

The primary noise source affecting the environment of downtowm Miami is vehicular traffic. The constant humming of air conditioning equipment also adds considerably to the background noise levels. This is especially noticeable late at night when vehicular traffic sharply declines. Noise from jet planes coming in for for landing or ascending to cruising altitude fly directly over the study area.

Research of available ambient noise data for the study area made apparent the need to conduct a monitoring program to determine existing baseline ambient noise levels. To assist in establishing the scope and level of detail of the noise survey conducted, the services of an acoustical consultant were secured. Based on the consultant's recommendations, measuring procedures were established and sufficient monitoring sites were selected to provide a definitive description of the ambient noise along the DPM corridor.

Potential noise sensitive receptions in the study area were taken into account in selecting the noise monitoring sites in the survey. The location of these sites is illustrated in Figure 3.3 Based on noise measurement levels obtained, the 24 hour equivalent sound level, L_{eq} (24), and day-night sound Level, L_{dn}, were calculated for each site. The results obtained are as follows:

Site 1. Community College Campus - N.E. 4th Street
L_{eq} (24) 67 dBA; L_{dn} = 70 dBA

Site 2. Bayfront Park (North of Library Building)
L_{eq} (24) = 64 dBA; L_{dn} = 66 dBA

Site 3. N.E. 2nd Street just east of N. E. 2nd Avenue (adjacent to hotel)
L_{eq} (24) = 68 dBA; L_{dn} = 70 dBA

Site 4. Midblock between N. E. 4th Street and N. E. 3rd Street (adjacent to church)
L_{eq} (24) = 65 dBA; L_{dn} = 67 dBA

Site 5. Intersection of N.E. 5th Street and N. E. 2nd Avenue (site of proposed senior citizen project)
L_{eq} (24) = 71 dBA; L_{dn} = 75 dBA

Site 6. Intersection of N.E. 5th Street and N.E. 1st Avenue (adjacent to Central Baptist Church)
L_{eq} (24) = 73 dBA; L_{dn} = 76 dBA

Site 7. Intersection of N.W. 3rd Street and N.W. 1st Avenue (potential redevelopment area)
L_{eq} (24) =69 dBA; L_{dn} = 71 dBA

Site 8. Vicinity of N. W. 1st Avenue and S. W. 1st Street (future site of DPM maintenance facility)
L_{eq} (24) = 71 dBA; L_{dn} = 73 dBA

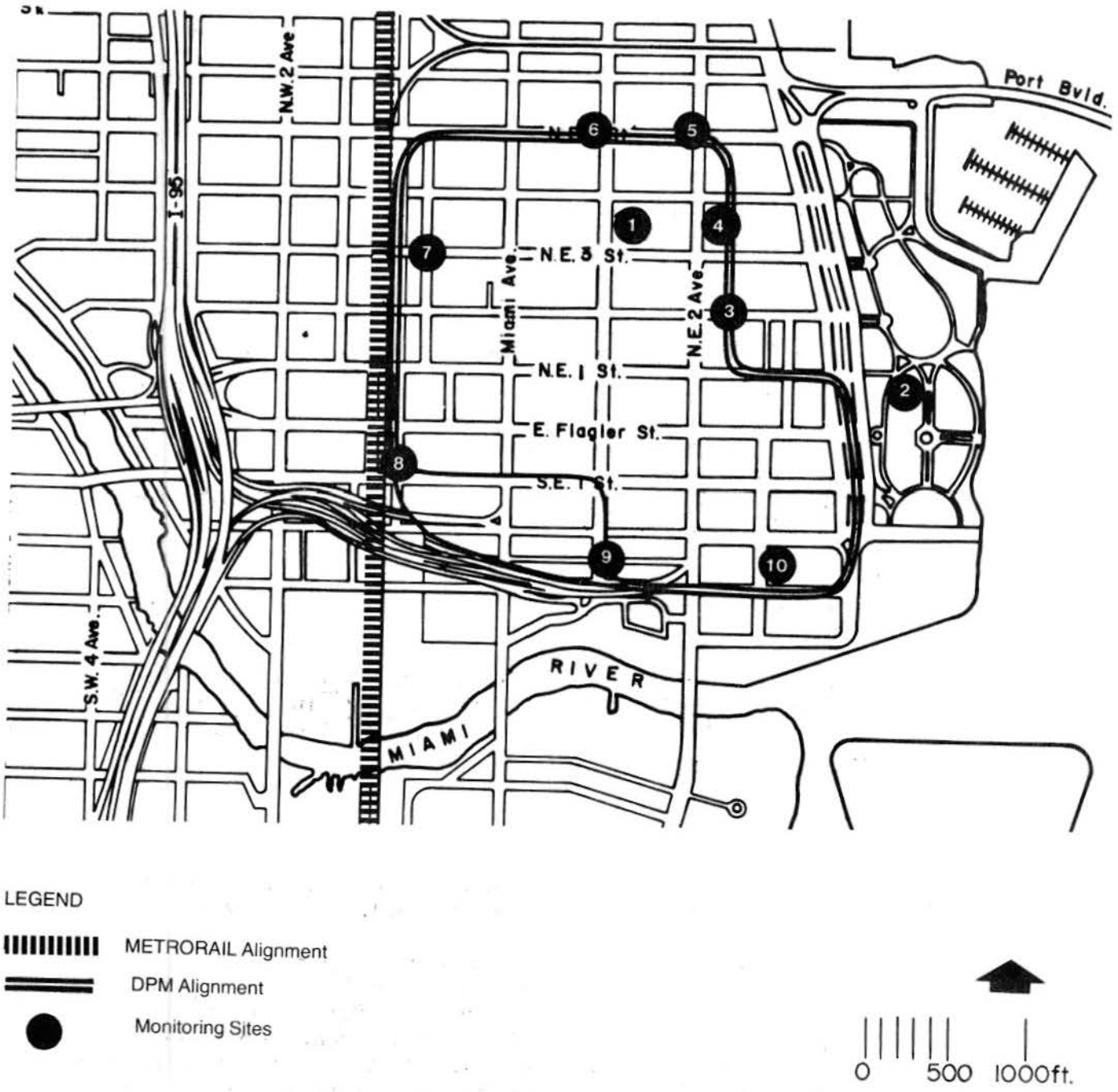


Figure 3.3 DPM AMBIENT NOISE SURVEY MONITORING SITES

Site 9. S.E. 1st Avenue between S. E. 2nd and S. E. 3rd Street (future site of World Trade Center)
L_{eq} (24) = 71 dBA; L_{dn} = 72 dBA

Site 10 Vicinity of S.E. 3rd Avenue and S.E. 3rd Street (Dupont Plaza - future site of office buildings)
L_{eq} (24) = 71 dBA; L_{dn} = 72 dBA

Generally, the results obtained conform with EPA's typical noise levels by land use.

TABLE 3.3
EPA TYPICAL AMBIENT NOISE LEVEL BY LAND USE

Area Description	Ambient Noise Level L_{dn}
Quiet suburban or rural community (remote from large cities and from industrial activity and trucking)	50 dBA
Normal suburban community (not located near industrial activity)	55 dBA
Urban residential community (not immediately adjacent to heavily traveled roads and industrial areas)	60 dBA
Noisy urban residential community (near relatively busy roads or industrial areas)	65 dBA
Very noisy urban residential community	70 dBA

Source: U.S. Environmental Protection Agency. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, EPA Report No. 550/9-74-004, 1974.

3.3.5 AIR QUALITY

Ambient air quality in Metropolitan Dade County has been monitored at several stationary air monitoring sites since 1970. Analyses of data from these sites indicate that air pollution in the County is generally less severe than that of most other urbanized regions of comparable size. This is primarily the result of relatively rapid pollutant dispersion by consistent prevailing land and sea breezes over the region's flat landscape. The area has been designated an Air Quality Attainment Area. Nonetheless, in a "hot spot" analysis study of 18 of the busiest intersections in downtown Miami, 11 of the 18 were found to have hot spot potential. This study was conducted by OTA staff to assess the impact on air quality of both the DPM and All Bus Alternatives. More details on the results of this analysis are provided in Section 4.6.5 of this document.

The principal types and sources of air pollutants in Metropolitan Dade County have been described for 1976 by the Dade County Community Improvement Program (Table 3.4). Motor vehicles have been identified as the primary emissions source, contributing 80 percent of the region's air pollutants. This is 30 percent higher than the national average contribution of motor vehicles to regional air pollutant emissions, and is primarily the result of less heavy industrial development and higher reliance on the private automobile as the primary transportation mode.

TABLE 3.4 TYPES AND SOURCES OF AIR POLLUTION EMISSIONS (1976)

Percentage of Total Emissions by Type of Pollutant	
Carbon Monoxide (CO)	76%
Hydrocarbons (H.C.)	12%
Nitrogen Oxides (NO_x)	6%
Sulfur Oxides (SO_x)	4%
Particulates (TSP)	2%

Percentage of Total Emissions by Type of Source	
Motor Vehicles	80.0%
Other Mobile Sources	8.0%
Solvent Loss	2.6%
Open Burning	1.7%
Fuel Combustion and Other Area Sources	1.9%
Point Sources: Power Plants	3.4%
Mineral Production and Processing	1.5%
Other Point Sources	0.9%

Source: Dade County Environmental Resources Management, 1977 Dade County Air Quality Data and Emission Report, April 1978.

Air quality monitoring data for suspended particulates, nitrogen dioxide, and sulfur dioxide, are presented in Table 3.5 for the 1977 Metropolitan Dade County monitoring sites (Figure 3.4). Comparison of monitoring results with existing ambient air quality standards (Table 3.6) indicates that there were no recorded violations of Federal primary standards for these pollutants in 1977. However, standards of the State of Florida and Dade County were violated at six sites (Table 3.7).

None of the 1977 or historic air quality monitoring sites provide data describing the Miami CBD area. However, beginning in March 1978, and in response to developing air quality monitoring technology and to EPA's Sampling Site Location Guidelines, the Metropolitan Dade County Department of Environmental Resources Management discontinued or relocated historic stations and added some new stations. These include one continuous carbon monoxide monitoring station at 51 South Miami Avenue, a downtown Miami traffic canyon, and a particulate organic fraction lead monitoring station at 1200 N.W. 20th Street in Miami (1978 PSI site for TSP). Because

TABLE 3.5 1977 DADE COUNTY AMBIENT AIR QUALITY DATA

Site No.	Particulates: Annual Geometric Mean (UG/M^3)	Particulates: 24-Hour Maximum (UG/M^3)	Nitrogen Dioxide: Annual Arithmetic Mean (UG/M^3)	Sulfur Dioxide: Annual Arithmetic Mean (UG/M^3)	Sulfur Dioxide: 24-Hour Mean (UG/M^3)
1	47.6	96.1	56.0	3.2	25.0
8	63.2	106.9			
10	58.6	103.3			
11	59.6	103.2			
12	54.9	92.8			
13	61.1	211.4	50.5	2.2	23.0
14	34.5	99.1			
15	39.3	102.8	18.2	2.1	11.6
16	40.7	190.6			
19	53.4	126.6			
20	63.8	167.1		2.8	22.7
21	32.2	62.4			
22	42.3	73.3			
23	41.3	98.2	28.6	2.5	18.5
24	37.9	80.1	29.5	3.2	34.3
25	49.4	84.6			
38	63.4	136.0			
29				2.2	14.5
31	36.4	100.1	55.1	3.4	34.2

Source: Dade County Environmental Resources Management; 1977 Dade County Air Quality Emission Report, April 1978.

TABLE 3.6 AMBIENT AIR QUALITY STANDARDS

Pollutant	Federal: Primary	Federal: Secondary	State of Florida	Dade County
Particulates (UG/M^3)				
Annual Geometric Mean	75	60	60	60
24-hr. Maximum	260	150	150	150
Nitrogen Dioxide (UG/M^3)				
Annual Arithmetic Mean	100	100	100	100
Sulfur Dioxide (UG/M^3)				
Annual Arithmetic Mean	80	-	60	8.6
24-hr. Mean	365	365	260	28.6
Carbon Monoxide (ppm)	10	10	10	10
8-hr. Maximum	40	40	40	40

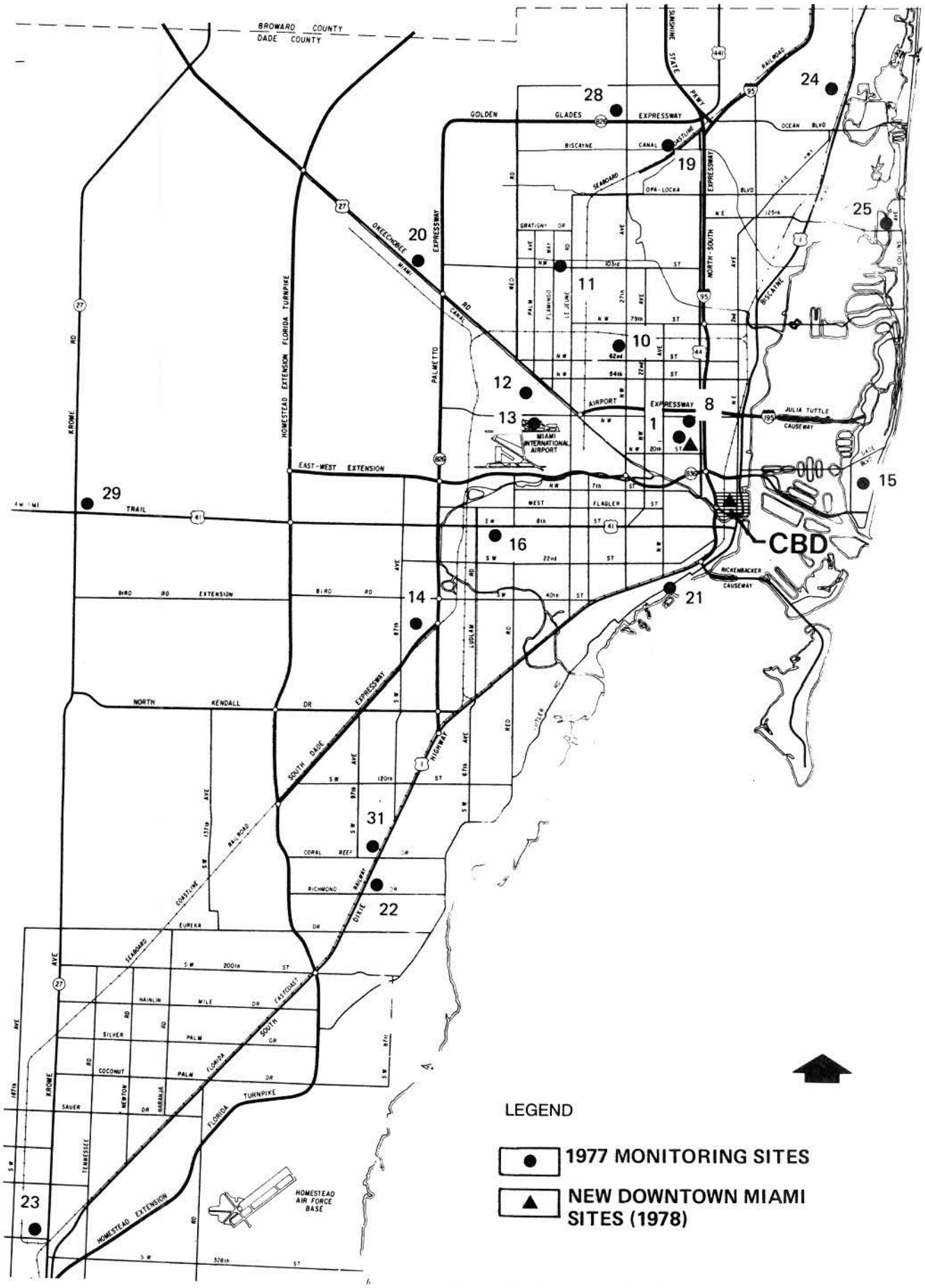


Figure 3.4 AMBIENT AIR QUALITY MONITORING SITES

of mechanical difficulties with the carbon monoxide monitor, data are not yet available from the South Miami Avenue location. Data (April through December 1978) from the 20th Street site is available in preliminary form, indicating a violation of the existing primary Federal standard for particulates, and a violation of the State of Florida standard for lead (Table 3.8).

TABLE 3.7 SUMMARY OF AIR QUALITY VIOLATIONS (1977)

	State of Florida Standard	Dade County Standard
Particulates (UG/M^3):		
Annual Geometric Mean	4 violations (Sites 8,13,20,28)	4 violations (Sites 8,23,20,28)
24-Hour Maximum	3 violations (Sites 13,16,20)	3 violations (Sites 13,16,20)
Sulfur Dioxide (UG/M^3) 24-Hour Maximum		1 violation (Site 24)

Source: Dade County Environment Resources Management; 1977 Dade County Air Quality Data and Emission Report, April 1978.

TABLE 3.8 AMBIENT AIR QUALITY DATA
1200 N.W. 20th STREET, MIAMI (UG/M^3)

Particulates:		
Annual Geometric Mean (UG/M^3)	83.6	(Violation-State of Florida)
24-Hour Maximum	130.4	
Organic Fraction:		
Annual Arithmetic Mean	7.7	
24-Hour Maximum	18.1	
Lead:		
Annual Arithmetic Mean	1.5	(Violation-Federal)
24-Hour Maximum	3.7	

Source: Dade County Environmental Resources Management; Draft 1978 Dade County Air Quality Data Emission Report

3.4 TRANSPORTATION

3.4.1 TRANSPORTATION GOALS, POLICIES, AND PLANNING

Planning for the transportation system improvements in the Miami urban area is the joint responsibility of the Florida Department of Transportation, Metropolitan Dade County, and twenty-six municipalities. The functions and activities of the agencies involved in the planning and implementation of transportation facilities serving Metropolitan Dade County are formally coordinated through the Miami Urban Area Transportation Study (MUATS), which interfaces with the Comprehensive Development Master Plan (CDMP) adopted by the County Commission on March 31, 1975.

The CDMP delineates County-wide goals and policies as well as locations and criteria for environmental protection, urban development, and transportation facilities for 1985 and 2000. The County's transportation goals and policies included in Part I of the CDMP are as follows:

"Provide access to employment and the facilities and services of the entire metropolitan area: plan for mobility, opportunity, variety, energy conservation, and low travel times and costs; safety, comfort, and convenience while traveling; and provide for efficiency, economy, and a well-balanced, integrated transportation system within Dade County without detracting from the quality of life in the community.

Public or mass transportation should be given top priority as a positive tool to support and improve the viability of the County and the Region.

Provide a system of transportation facilities which will anticipate the need for the movement of people and the storage of goods and vehicles.

Coordinate and integrate the County transportation facilities with surrounding activities so that these facilities contribute to the enrichment of the physical environment of Dade County.

Transportation facilities should be planned and designed to conserve energy and other natural resources and existing man-made facilities and to reduce the total need for new public investment.

Development with a reasonable radius of rapid transit terminals should be considered as having county-wide impact and managed consistent with overall county-wide goals."

Adopted Transportation Policies include:

"Provide rapid, safe, reliable, clean, convenient, low-fared (subsidized where necessary) public or private mass transportation systems that result in easy movement of people and goods between the proposed nodes and also between adjoining residential areas and the nodes.

Transit facilities and services should support the shaping and staging of development, redevelopment, and intensification of the central business districts, tourist areas, diversified and specialized activity centers, and their contiguous residential areas.

Provide rapid transit terminals in major activity centers and provide mass transit facilities to the tributary areas.

Develop and assure a public and private internal movement system adequate to support an activity center prior to commiting major transportation improvements needed to serve the center.

Utilize the transportation resources of the County as a tool in the solution of the County's most pressing social and economic problems, including the enhancement of tourist areas, providing low cost transportation for the elderly and the handicapped and low income families, and the revitalization of depressed areas.

Transportation planning and investment should provide for the efficient movement of goods including consideration of truck routes; intermodal terminals; use of modern distribution systems; incorporation of goods movement systems into design of major activity centers; elimination of conflicts between people movement and goods movement and the conservation of energy.

Adequate parking as well as efficient interchange facilities for feeder buses and automobile passengers should be provided at points where the highway system interfaces with the mass transit system.

Locate transit stations on or near the intersection of arterial streets.

Incorporate transportation terminals, transfer points, parking garages and local distribution systems into the design of the major centers.

Encourage the separation of pedestrian and vehicular traffic.

Create a system of interconnected bicycle paths throughout the County.

Transportation facilities should be designed to complement adjacent development and also have a distinct aesthetic identity of their own.

Designation and preservation through advance acquisition of rights-of-way where necessary of transportation corridors as a means of achieving orderly relationships between transportation and urban development.

The rapid transit and highway system should complement and facilitate local movements provided by local streets, bicycle paths, and pedestrian facilities.

Transportation planning should be coordinated with the development or redevelopment of adjacent land, particularly in the vicinity of mass transit stations and expressway interchanges.

Transportation corridors should be designed for high quality visual experiences.

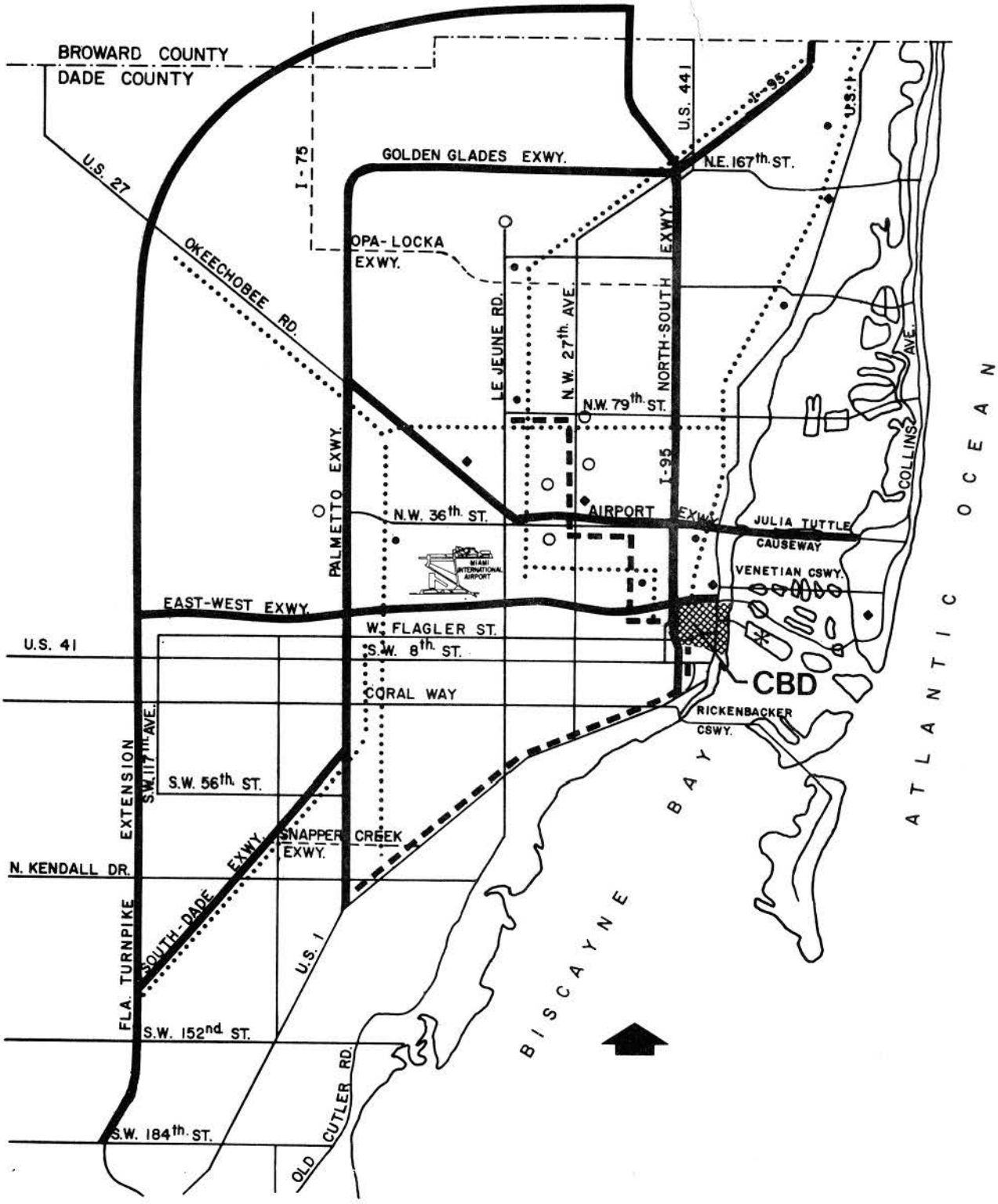
Where appropriate, adequate buffers should be provided by government to protect adjacent residential development from adverse effects of noise pollution."

Metropolitan Dade County and the City of Miami are presently in the process of developing a multi-modal transportation program consisting of three integrated system elements designed to meet Dade County's transportation needs, as well as to provide a viable alternative to automobile travel. The first element of this program involves expanding the existing bus system from 550 vehicles to more than 950 buses operating in a coordinated County-wide network. The second element is an aerial rapid transit system serving the most densely traveled commuter corridors. The third element is the proposed people mover system providing circulation from the rapid transit system to major activity and employment areas in downtown Miami. The bus improvements and the rail rapid transit improvements have already received Federal commitments for implementation. Construction has commenced on the rapid transit system.

3.4.2 EXISTING TRANSPORTATION FACILITIES

A. Regional Transportation Facilities

Major transportation facilities of the region include interstate bus lines, airports, truck terminals, a major seaport, rail services, and expressways (Figure 3.5). Two major railroads operate freight services in Dade County, the Florida East Coast (F.E.C.) and the Seaboard Coastline Railroad (S.C.L.). Amtrak offers passenger rail service through contract with S.C.L. Railroad and has two passenger stations serving Dade County, one of which is located in Miami at 2206 N.W. 7th Avenue. S.C.L. and F.E.C. provide freight service to the Port of Miami via tracks running east-west between N.W. 6th Street and N.W. 7th Street.



- Rail Rapid Transit
- Expressways
- Arterial Streets
- Railroads
- Seaport
- Interstate Bus Terminal
- Railroad Terminal
- Trucking Terminal

Figure 3.5 REGIONAL TRANSPORTATION FACILITIES

The Port of Miami is located on a 300-acre site (Dodge Island) in Biscayne Bay due east of the Miamarina and Bayfront Park. Dodge Island Seaport is a very active port through which approximatley one million passengers and two million tons of cargo passed in 1978[1]. Domestic and foreign cargo is transferred at the Port by both rail and truck carriers. Access to the port facilities via Port Boulevard intersects Biscayne Boulevard at N.E. 5th Street and N.E. 6th Street.

Dade County has four airports: Miami International Airport, New Tamiami Airport, Opa Locka Airport, and the Military Field at Homestead Air Force Base. The Miami International Airport, located approximately eight miles west of Downtown Miami, handles the bulk of commercial air carrier activities in the County and is the closest to the Miami central business district.

Major truck terminals, generally located northwest of downtown Miami adjacent to the warehouse and industrial area, provide for intercity and intracity freight moving and distribution. The area immediately north of the CBD core between N.W./N.E. 7th Street and I-395 also contains some scattered warehousing and trucking activities.

Major expressways in the region include the Palmetto Expressway (SR 826), the Golden Glades Expressway (SR 826 ext.), the East West Expressway (SR 836), the Airport Expressway (SR 112), Interstate 95, and Interstate 395/MacArthur Causeway. The latter two provide major access to the downtown area with exit ramps located in the vicinity of N.E. 2nd Avenue, N.W. 8th Street, N.W. 2nd Street, and S.E. 3rd Street.

B. Local Transportation Facilities (CBD Area)

Local transportation facilities include roadways and parking facilities, an intracity public bus sytems, and the rapid transit system, presently under construction (Figure 3.6).

Roadways

The existing street system in the CBD area follows a conventional grid system with Flagler Street and Miami Aenue forming the axis of the north-south and east-west coordinate system.

Major east-west streets serving the CBD area include Flagler/North 1st Street (one way pair) and South 1st Street (one way east bound). Major north-south streets serving the downtown area include Biscayne Boulevard (two way), East 2nd Avenue (one way south bound), Miami Avenue (one way south bound to South 1st Street) and West 2nd Avenue (two way). Miami River crossings occur at S.W. 2nd Avenue, South Miami Avenue, and Brickell Avenue.

The volume of traffic on downtown streets is heavily influenced by the proximity of expressway interchanges, concentrations of development and parking, and time of day.

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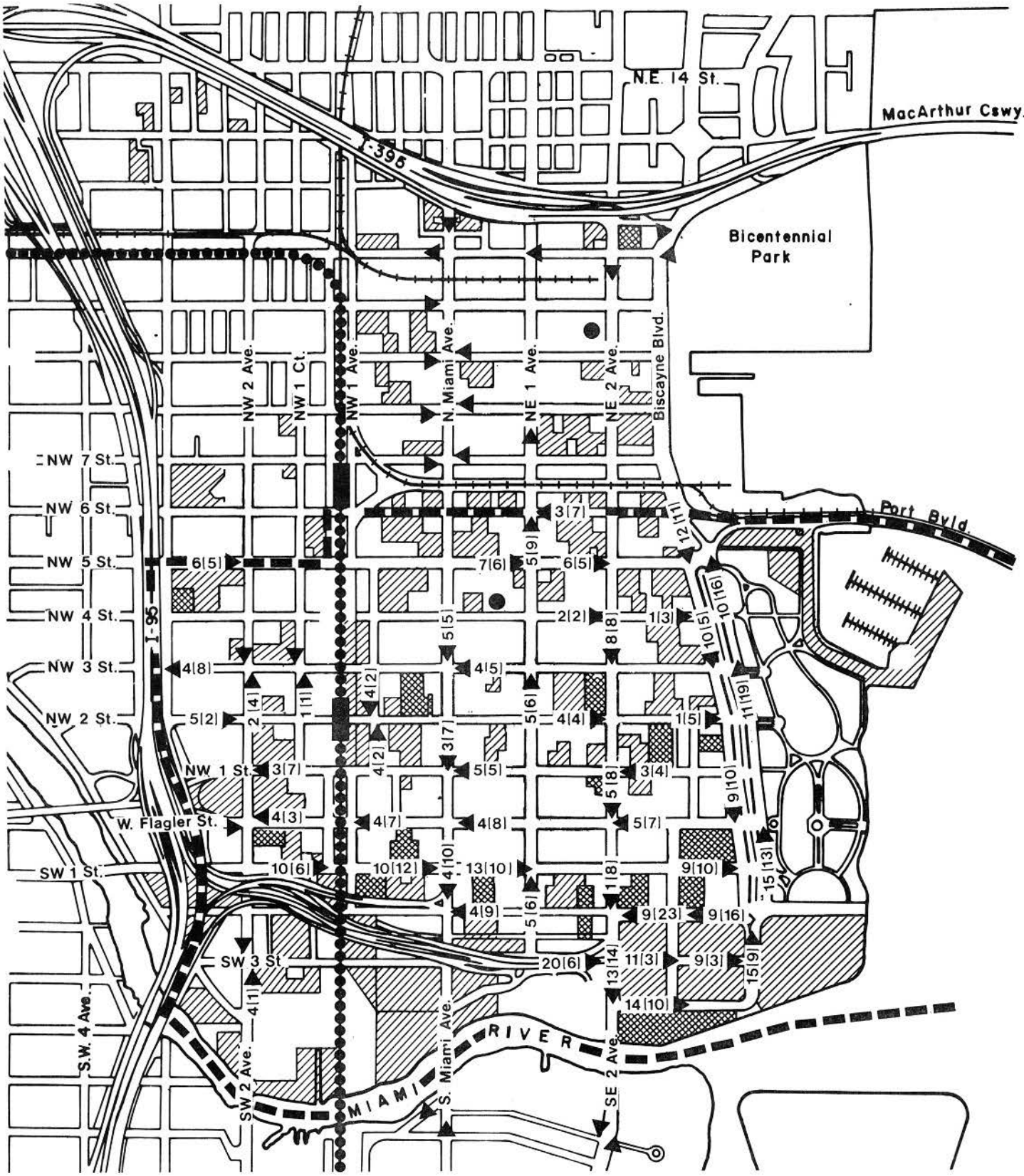
[1]Metropolitan Dade County Seaport Department. Port of Miami Update of the Master Development Plan. February 1979.



LEGEND

- SURFACE PARKING
- STRUCTURED PARKING
- AM [PM] PEAK HOUR VOLUMES (X 100)
- RAIL RAPID TRANSIT
- BUS TERMINAL
- CBD BOUNDARY

Figure 3.6 LOCAL TRANSPORTATION FACILITIES

Interstate 95 (the dominant access facility serving the downtown area), Biscayne Boulevard, and other north-south streets carry two-thirds of the traffic in and out of downtown on typical weekdays.

Peak demand hours generally occur between 8:00 and 9:00 AM and between 4:30 and 5:30 PM. Approximately 20 percent of the total average traffic on downtown streets is split between these two peak periods. Average daily traffic ranges within the downtown area are 6,000 to 8,000 (on Flagler and S.W. 1st Street, Miami Avenue, N.E./N.W. 2nd Avenue); 5,000 to 6,000 (on N.E. 1st Street, N.W./N.E. 2nd Avenue); and 5,000 or less vehicles on the remaining streets north of Flagler[1].

Table 3.9 provides existing level of service of major intersections in downtown.

Parking

Parking facilities in the CBD area include on-street metered parking, and off-street surface and structured parking. Total CBD parking availability is estimated at approximately 19,000 spaces, with over 58 percent in surface parking and 41 percent in structured parking[2].

Some existing parking areas in the CBD area may be eliminated by proposed development; by 1985, however, new development presently under construction or planned for the CBD will increase total parking by approximately 8,000 spaces[3].

Structured parking facilities to be provided by the Miami Center Development, World Trade Center, and the Convention Center Center will include most additional spaces.

Approximately 1,000 surface parking spaces at the Ball Point property will be replaced by 2,365 spaces within the proposed Miami Center residential/office/hotel complex. In addition, 1,395 surface parking spaces adjacent to the Ball Point property in DuPont Plaza may be replaced by 5,000 spaces within the proposed development for that site.

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[1] Kaiser Engineers, Collection-Distribution System Analysis, Special Task 1, Dade County Transit Improvement Program, July 1975.

[2] Downtown Development Authority

[3] Dade County Office of Transportation Administration. Exhibit B Public Transportation System, Application for a Section 5 Capital Grant for 1979-1980. March 1979.

TABLE 3.9
1979 OPERATING LEVEL OF SERVICE AT MAJOR CBD INTERSECTIONS

Intersection	LEVEL OF SERVICE AM	PM	Intersection	LEVEL OF SERVICE AM	PM
1. Biscayne Blvd. & S.E. 2nd St.	A	E	8. Biscayne Blvd. & N.E. 1st Street	A	C
2. S.E. 2nd Ave. & S.E. 2nd St.	A	E	9. N.E. 2nd Ave & N.E. 5th St.	A	A
3. N.E. 6th St. & N.E. 1st Ave.	A	D	10. Biscayne Blvd. & N.E. 4th St.	A	C
4. Biscayne Blvd. & N.E. 3rd St.	A	C	11. Biscayne Blvd. & N.E. 6th St.	D	C
5. N.E. 6th St. & N.E. 2nd Ave.	B	A	12. S.E. 1st Ave & S.E. 1st St.	C	C
6. S.E. 2nd Ave. & S.E. 3rd St.	A	A	13. N.E. 6th St. & Miami Ave.	A	A
7. S.E. 3rd Ave. & Biscayne Blvd. Way	C	A	14. N. 1st St. & Miami Avenue	C	C

1. Traffic Volumes Data Source - Metropolitan Dade County
2. Level of service estimated using chart 19 of the "Intersection Capacity Analysis Charts and Procedures", published by the Traffic Institute - Northwestern University.
3. Level of Service (LOS) Definitions:

Level of Service	Load Factor	Definition
A	0.0	No green phase of signalized intersection is fully utilized.
B	0.1	Occassionally green phase does not clear.
C	0.1-0.3	Occassionally drivers may have to wait for more than one signal indicator and backups may occur behind turning vehicles.
D	0.3-0.7	Delays to approaching vehicles may be substantial during short peaks but periodic clearance occurs.
E	1.0	Every cycle is fully utilized and long term congestion occurs.

Parking costs in the CBD area vary depending on type of space (surface or structured), duration (half an hour, all day, or monthly), and proximity to the CBD core. The range for half an hour parking is $0.05 to $.75; for all day parking the cost ranges from $0.50 to $6.00. Monthly parking can vary from $10.00 to $60.00. The most costly facilities include parking garages located in the CBD are between N.E. 1st Street and S.E. 2nd Avenue. The least costly facilities include the surface lots and metered spaces on the CBD periphery and under I-95.

Public Bus System

The Metropolitan Transit Agency, MTA, is the principal mass transit operator in Dade County. In the fiscal year 1977-78, MTA carried over 55 million revenue passengers on 550 operating buses, of which 426 were in use during the peak periods[1].

A 1974 Dade County transit ridership study indicated that over one half of all transit trips were made either to or from work and almost 100 percent of the express bus trips were made for work purposes[2]. The shopping trip comprised only one in ten trips.

As a result of downtown Miami's significance as an employment center, it is a focal point of MTA's bus service. Approximately 35,000 to 40,000 passengers[3] are carried into the downtown area each day. Presently 33 of the 66 local routes and 10 of the 20 express routes pass through the area[4].

Of the 75,000 home-based work trips using the transit mode in Dade County, over 12 percent are destined for the CBD area[5]. Travel corridors to the CBD emanate outward in a typical radial pattern. Major corridors extend eastward to the South Miami Beach area (4,800 trips daily) and south westward to the Brickell-Coconut Grove area (4,200 trips daily). The major work trip corridor in the County is between the CBD and the medium density residential areas to the southwest.

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[1] Dade County Office of Transportation Administration, Exhibit B Public Transportation System, Application for a Section 5 Capital Grant for 1979-1980. March 1979.

[2] Ibid.

[3] Kaiser Engineers, Collection Distribution System Analysis Special Task 1: Dade County Transit Improvement Program. July 1975.

[4] Dade County Office of Transportation Administration. Exhibit B Public Transportation System, Application for a Section 5 Capital Grant for 1979-1980. March 1979.

[5] Ibid

Average weekday ridership indicates that the following MTA routes generate the heaviest transit usage:

1. S.E./S.W. 1st Street and N.W. 2nd Avenue;
2. Douglas Road/Flagler Street and N.W. 36th Street;
3. Biscayne Boulevard (2 routes);
4. N.W. 27th Avenue-Flagler Street; and
5. Model City Area - Downtown Miami.

Peak period headways of 15 minutes or less are provided on the routes with the heaviest usage. On Flagler Street, Biscayne Boulevard, N.E. 2nd Avenue, Brickell Avenue, S.W. 1st Street and Miami Avenue, additional buses are used during peak periods to reduce headways.

Express buses enter the CBD from the I-95 exit ramp, Biscayne Boulevard, and S.E. 2nd Avenue, and circulate through the CBD area. Flagler and S.W. 1st Street, as a one-way pair, form major parallel bus stops along several blocks of the CBD. Corresponding north and south service is provided along Miami Avenue and N.E./S.E. 1st Avenue.

A downtown distributor or "Roun'towner" mini bus service is provided within the CBD on weekdays from 8:30 am to 5:30 pm. The open air mini buses operate on an 8 mile route which loops the downtown from Brickell Avenue to the Omni complex every 20 minutes. Current fare on the Roun-'towner is 25¢.

The fare on local routes is $0.50 with free transfer and return trips if used within 90 minutes. Citizens qualifying for discounts, and elderly and handicapped, pay a fare of $0.25 during off-peak hours. Roun-towner fares are $0.25 and express service fares are $0.75.

Rail Rapid Transit

In June of 1979, construction began on Dade County's 20.5 mile Metrorail line. When completed, transit service will be provided from Dadeland in Southwest Miami, through downtown, to Hialeah. The rapid transit line will have twenty stations and there will be an enhanced bus network designed to provide access to the system's stations.

An estimated 202,000 daily passengers will be carried by the rapid transit system in 1985. During peak hours, an estimated 41,000 persons will ride the system.

Three rapid transit stations are planned to provide service to downtown Miami:

1. Washington Heights Station at N.W. 7th Street (10 kiss-ride spaces, five feeder bus berths, limited park-ride spaces);

2. Brickell Station (south of the Miami River between S.W. 11th Street and S.W. 10th Street; projected to accommodate 10,000 riders per day; feeder bus service and kiss-ride facilities along 1st Avenue); and

3. Government Center Station at N.W. 2nd Street (designed as an integral part of the first three levels of the proposed Dade County Administration Building; station area will serve the Metrorail with a platform level 54.6 feet above ground, and the elevated DPM with a platform at the main concourse level 18.5 feet above ground. An intermediate mezzanine level is being provided at approximately 35 feet above ground. This will eventually be the platform level of the planned future expansion of the Metrorail system. The station is expected to accommodate 75,000 riders per day once it is operational. Ten feeder bus berths will be provided along N.W. 1st Avenue.

3.4.3 TRANSIT DEPENDENCY

The CBD area and Metropolitan Dade County are both characterized by large numbers of transit dependent persons. Transit dependency describes a condition generally displayed in persons or households with the following characteristics:

1. Young - 10-18 years of age;
2. Elderly - over 65; and
3. Households with no automobiles.

In Dade County, approximately 15 percent of the total population were between 10 and 18 years of age and 13.6 percent were over the age of 65 in 1970[1]. With the CBD, only 2.9 percent were young and 33 percent were over the age of 65[2]. 1975 estimates indicate that the number of elderly has risen significantly since 1970 in the CBD area[3].

Automobile ownership is a principal indicator of transit dependency. The County-wide average for automobile ownership was 1.23 per dwelling unit in 1969[4]. The lowest figures in the County for automobile ownership were in the downtown area, where auto availability was .84 autos per household. The CBD core residents in particular represent a significant transit dependent subarea, where 1975 estimates indicate that automobile ownership was 0.25 per household[5].

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[1] U.S. Department of Commerce, Bureau of the Census. 1970 Census of Population and Housing. 1972.

[2] Metropolitan Dade County Planning Department. 1970 Census Urban Transportation Planning Package.

[3] Dade County Office of Transportation Administration.

[4] UMTA Final EIS Rail Rapid Transit Project. May 1978.

[5] Dade County Office of Transportation Administration.

3.4.4 TRANSPORTATION DEFICIENCIES

A. Vehicular Congestion

To determine the extent of existing traffic problems in the CBD area, volume to capacity (V/C) ratios were calculated for all intersections for AM and PM peak hour periods[1]. The results indicate that peak hour volumes exceed "design capacity" at four CBD intersections (Table 3.10).

Field observations taken during peak and off-peak periods indicate that periodic congestion does exist on several additional streets. Along the Flagler Street corridor between Biscayne Boulevard and Miami Avenue, periodic congestion occurs as a result of inadequate storage lengths, and illegally parked cars and delivery trucks. Vehicles entering and exiting parking structures and surface lots on S.E. 1st Street, S.E. 2nd Street and S.E. 2nd Avenue contribute to periodic delays and congestion on neighboring intersections. Streets bordering Miami Dade Community College are affected by pedestrians crossing at intersections and automobiles stopping to drop passengers. Concentrated bus activity at the intersection of S.E. 1st Street and 1st Avenue causes considerable delays as buses discharge passengers and block up to two lanes while making turns. Port Boulevard, the entrance to the new Port of Miami and the Miamarina, also experiences periodic congestion as peak traffic volumes on Biscayne Boulevard interface with heavy truck traffic entering and exiting the Port on N.E. 5th and 6th Streets.

TABLE 3.10
CBD INTERSECTIONS AT WHICH DESIGN CAPACITY IS EXCEEDED DURING THE PEAK HOUR PERIOD*

Intersection	Peak Hour Period	V/C
Biscayne Boulevard and S.E. Second Street	PM	1.08
S.E. Second Avenue and S.E. Second Street	PM	1.06
Miami Avenue and I-95 Connection	AM	1.10
N.E. First Avenue and N.E. Sixth Street	PM	1.04

*For purposes of this analysis design capacity is defined as the service volume corresponding to Level of Service "C" which describes the volume of traffic that could use the intersection approach under reasonably comfortable conditions. Its use in the V/C calculations provides a convenient indicator of a transition in service levels from stable flow conditions with acceptable delays (V/C is less than or equal to 1.0) toward unstable flow conditions with annoying delays (V/C is greater than 1.0).

[1] Traffic data used to access existing traffic conditions were consolidated from the following sources: a. Ball Point DRI; b. Dupont Circle Origin & Destination Study; c. Sperry Rand Computerized Signalization Study; d. Dade County DOT Traffic Sensor Print Outs.

Within the Dupont Plaza area, through traffic from the I-95 Connector and Brickell Avenue (US-1) to Biscayne Boulevard (US-1) experiences considerable delays during peak hours as a result of interfaces with local traffic on S.E. 2nd and 3rd Streets and Biscayne Way. Several proposals for transportation improvements have been made to remedy this situation as well as to accommodate future travel demand resulting from proposed CBD developments. These include:

1. Construction of a pair of ramps connecting the I-95 connector with S.E. 2nd Street and Biscayne Boulevard Way;

2. Construction of a pair of ramps directly connecting the I-95 connector with a parking facility in Dupont Plaza;

3. Extension of Brickell Avenue/S.E. 2nd Avenue northward to the I-95 connector to directly accommodate northbound to westbound movements;

4. Construction of a series of driveways serving the parking facilities within Dupont Plaza;

5. Construction of a series of minor traffic engineering improvements at intersections; and

6. Replacement of three existing bascule bridges over the Miami River entering downtown at Brickell Avenue, Miami Avenue and S.W. Second Avenue. The Miami Avenue Bridge, a sixty-three year old, two-lane wooden structure, needed such constant mechanical and structural repairs that it was necessary to close it to traffic permanently. Design of new six-lane bascule bridge is anticipated to begin in the near future; its construction is expected to be completed within three years.

B. Short and Long-Term Parking Deficiencies

Parking problems in the CBD area are associated with a high demand for limited parking located within easy walking distance of major activity areas. Generally, parking facilities within the CBD core area are filled to capacity during the peak hour while peripheral parking areas rarely approach capacity.

A partial survey of parking facilities located within the core area east of Miami Avenue to Biscayne Boulevard and north of the Miami River to N.E. 2nd Street (Table 3.10: Area 1) indicated that from 90 to 100 percent of the available spaces in most facilities was filled for 2 to 3 hours in the morning or afternoon[1]. This area contains approximately 40 percent of the available parking in the CBD, 67 percent of the office and retail floor area, and 59 percent of the hotel activities (based on 1975 figures). The average 9:00 AM to 5:00 PM occupancy rate of these facilities was 89 percent of capacity during weekdays, reflecting the high demand for parking spaces located within close proximity to major employment areas.

[1] Downtown Development Authority. Parking Survey. August 1979. Study was only partially complete due to delayed response to questionaires.

New developments within the core area as well as in other activity centers within the study area will alter the availability of parking by shifting the location of demand and supply. To determine the character of future parking availability to compare 1975 base year parking conditions with 1985 conditions, a parking availability index has been calculated for four areas within the CBD (Table 3.11). The index is a ratio of 1975 to 1985 estimates of parking supply, with a measure of parking demand based on constant standards applied to office, retail, residential, and hotel development. The standards chosen are those of the Miami Comprehensive Zoning Ordinance. Although these standards are not a part of development regulations applying to the bulk of the CBD area, their application provides a means of comparing current and projected parking availability. The index does not include possible restrictive policies by owners on the supply side or the modal split and travel characteristics on the demand side.

The results, as shown in table 3.11 indicate that the availability of parking within the CBD core, Area 1, will generally increase. However, parking availability for the CBD study area as a whole (areas 1, 2, 3, and 4) will generally remain constant as parking supply increases at approximately the same rate as development intensity.

TABLE 3.11 PARKING AVAILABILITY ANALYSIS

		Miami CBD	Area 1	Area 2	Area 3	Area 4
Parking Supply	75	19,173	7,756	4,860	2,484	4,073
	85	27,138	14,049	8,045	2,194	2,850
	%	+42	+81	+65	-12	-30
Office Floor Area	75	7,602	5,096	1,662	705	139
	85	11,606	7,422	2,807	1,112	265
	%	+52	+46	+69	+51	+90
Parking Allotment	75	19,005	12,740	4,155	1,762	347
(1 space/400 sf)	85	29,015	18,555	7,018	2,780	662
Retail Floor Area	75	1,970	1,324	427	175	44
	85	2,370	1,776	418	145	31
	%	+20	+34	-2	-17	-29
Parking Allotment	75	4,925	3,310	1,067	437	110
(1 space/400 sf)	85	5,925	4,440	1,045	362	77
Hotel/Motel Rooms	75	4,459	2,621	277	1,367	194
	85	5,344	3,766	170	1,214	194
	%	+19	+44	-39	-11	0
Parking Allotment	75	2,229	1,310	138	685	98
(.5 spaces/room)	85	2,672	1,883	85	607	98
Residential Units	75	1,189	324	204	260	401
	85	1,630	824	151	274	391
	%	+37	+154	-26	+5	-5
Parking Allotment	75	1,783	486	306	390	856
(1.5 spaces/unit)	85	2,445	1,236	266	412	571
Total	75	27,942	17,846	5,666	3,272	1,411
Parking Allotment	85	40,057	26,114	8,374	4,161	1,408
Parking	75	.68	.43	.85	.75	2.88
Availability Index*	85	.68	.54	.96	.52	2.02

*As index value approaches 1.0, parking availability attains a service level commensurate to parking standards applied to areas outside the C-3 District.

CHAPTER 4.0

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter discusses the environmental consequences of alternatives compared in Chapter 2. The primary focus of the chapter is on Impact Categories identified as significant in the Scoping process and DPM Policy Committee reviews.

Final design engineering for the alternatives contained in this chapter has not been accomplished. The quantitative analyses presented herein have been developed by reviewing preliminary planning and engineering reports. In many cases the analysis is very site specific and projects consequences for plans which have not been verified through final engineering. The environmental consequences of each alternative are as accurately depicted as can be accomplished with the level of information available at this time. If a final design program for the selected alternative results in substantial changes to the analyses presented herein, the UMTA environmental review process will examine the environmental significance of the effects of these changes and will direct the preparation of any appropriate additional environmental documentation.

4.1 LAND USE AND URBAN DEVELOPMENT

4.1.1 CONFORMANCE WITH EXISTING LAND USE AND DEVELOPMENT PLANS

A. Downtown People Mover Alternative

The Miami DPM project is viewed as a key element in accomplishing local as well as regional land use and urban development goals. The Comprehensive Development Master Plan for Metropolitan Dade County, the Miami Comprehensive Neighborhood Plan 1976-1985, and the Downtown Miami 1973-1985 Urban Development and Zoning Plan all focus on downtown Miami as a major diversified activity center of the region. Each recognizes the need for transit facilities which support the shaping and staging of development, redevelopment, and intensification of the CBD area.

The Downtown Plan specifically recommends four urban design principles as a basis for insuring orderly development:

1. Develop amenities and catalysts to increase the attractiveness of downtown;

2. Join activity centers and areas of highest development potential;

3. Locate new development in relation to infrastructure capacity; and

4. Connect new development with a pedestrian circulation system.

The provision of a circulation linkage between existing and proposed developments, as well as increased access to major areas of private investment have been primary objectives throughout the planning of the DPM system. All new projects in the CBD area, as well as major existing activity areas, are within close proximity to DPM stations. By 1985, 83 percent of the total office space (1.8 million square feet), 75 percent of the total retail floor area, and 86 percent of the total number of hotel units (4600 units) will be within 600 feet of a DPM station.

The DPM will be an amenity to the CBD by providing a unique experience in CBD travel, as well as a catalyst to development by encouraging region-wide interest in the CBD as a major diversified activity center. Increased access and convenience provided by the DPM will contribute to Miami's efforts to improve the quality of pedestrian travel and to reduce conflicts between the pedestrian and automobile.

B. All Bus Alternative

The All Bus Alternative is designed to distribute regional trips within downtown Miami. Reduced travel times and reliability of the system will increase transit ridership, consequently reducing the volume of auto traffic in downtown as well as parking expenditures.

Since downtown Miami is currently served by a comprehensive bus network, the All Bus Alternative is not expected to have the DPM's effectiveness in promoting urban design principles inherent in planning for the Miami CBD area. Only the transit mall portion of this alternative would represent an amenity which increases the attractiveness of downtown. This would serve to encourage development in relation to existing infrastructure capacity in the blocks adjacent to Flagler Street, but not those in the remaining portions of downtown.

4.1.2 DEVELOPMENT POTENTIAL

A. Downtown People Mover Alternative

The DPM is anticipated to enhance the development potential of presently undeveloped lands adjacent to its alignment (Figure 4.1). Developable land within 600 feet of the alignment includes vacant land (1.2 acres), surface parking facilities (29 acres), and several vacant structures.

The Dupont Plaza area, although presently provided with good vehicular access from the I-95 distributor, Biscayne Boulevard and S.E. 2nd Avenue, will contain a DPM station within its four block area, further enhancing its accessibility. Tentative plans are being discussed which maximize the development potential of this area through development of office, retail, and major transportation improvements.

The Biscayne Boulevard/2nd Avenue area is also a potential development area affected by the DPM. Although the portions of many blocks which face Biscayne Boulevard and 2nd Avenue are developed, the area has been identified as a potential redevelopment location[1].

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[1] Downtown Miami 1973-1985, An Urban Development and Zoning Plan.

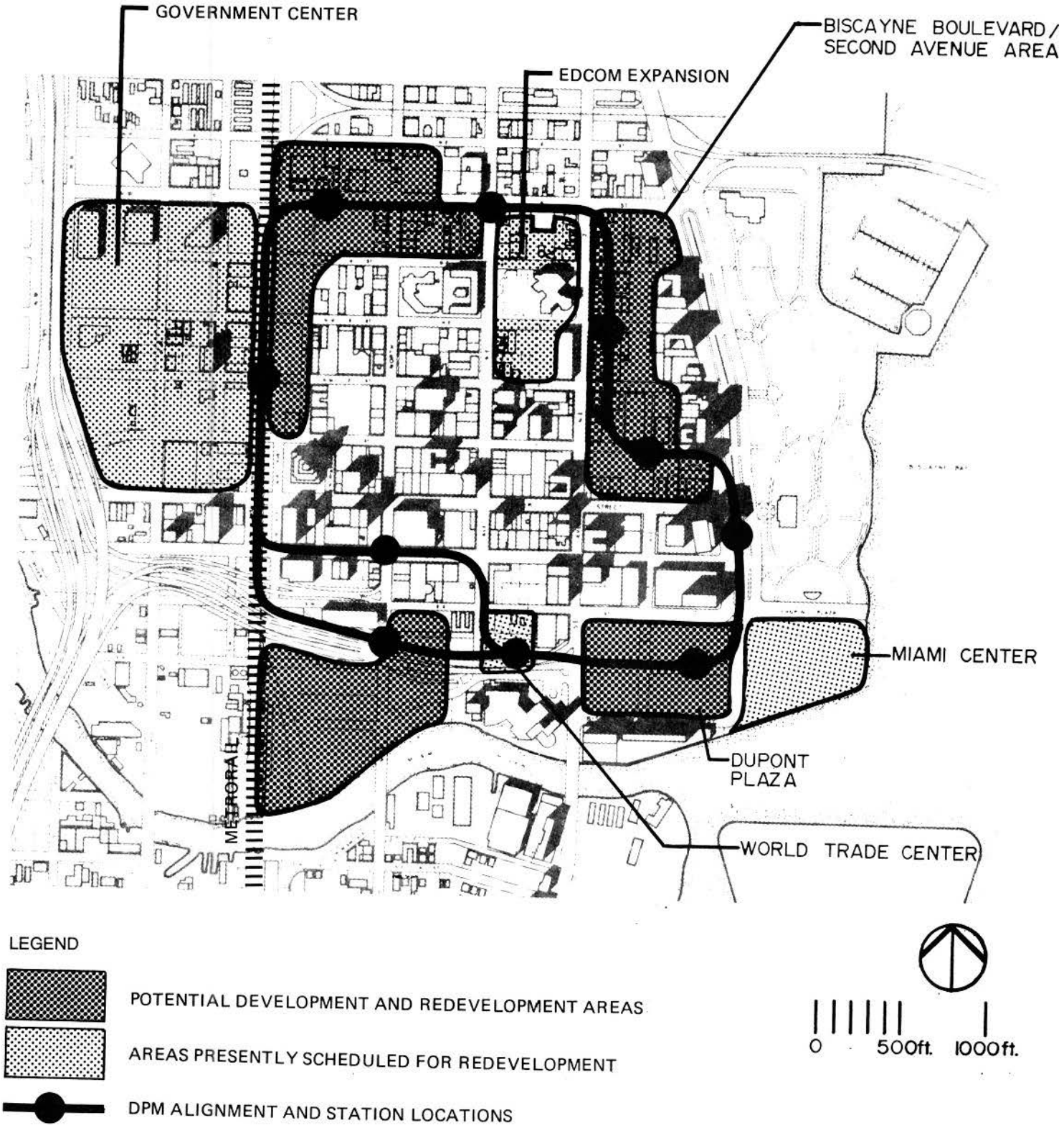

Figure 4.1 DEVELOPMENT POTENTIAL

The site of the presently vacant McAllister Hotel at East Flagler Street and Biscayne Boulevard is under consideration for redevelopment and is within one block of two proposed DPM stations.

Other areas of development potential exist near DPM stations at South Miami Avenue, both to the north and south of the I-95 distributor, and at N.W. 5th Street between the Metrorail right-of-way and North Miami Avenue. Both these locations have large areas of developable land now vacant or used for surface parking.

B. All Bus Alternative

Only the transit mall element of this alternative could conceivably have a potential impact on development in the CBD, however, it would not be possible at this time to quantify its effect. Development of presently undeveloped or underutilized land, which in general are not located adjacent to Flagler Street, will not be encouraged by implementation of the All Bus Alternative.

Although transit malls have become an increasingly popular concept with municipalities, this popularity has only been attained within the last 10 years and data available is inconclusive. Studies of transit malls in downtown areas of other cities show that resulting effects have not always been positive. Success of a transit mall depends on specific local conditions including political climate, economic climate and existing level of transit service. A technical studies grant, which is not associated with the DPM Project, is currently being solicited for the planning of a downtown transit mall in Miami. The results of this work will not be available until at least March, 1981.

4.1.3 JOINT DEVELOPMENT

A. Downtown People Mover Alternative

Joint development refers to the physical and functional integration of the DPM facility with an existing development or proposed real estate development project, and includes cost sharing of physical improvements by the property owners and the DPM program. A joint development program has been initiated as part of the DPM preliminary engineering program; procedural and policy guidelines, as well as cost sharing requirements for implementing joint development projects, have been developed during this program.

Private sector joint development opportunities include:

1. Complete or partial integration of a DPM station within existing and future projects; and/or

2. Direct pedestrian connections, e.g. pedestrian bridges or walkways.

To date, no firm commitments for private sector joint development of DPM stations have been finalized. However, initial contacts with property owners in areas adjacent to DPM stations have been undertaken. This represents the first step in a five-step process (see Table 4.1) which has

TABLE 4.1

DPM JOINT DEVELOPMENT WORK PLAN

Step 1 - CONCEPTUALIZATION

1. Explain Miami DPM Program
2. Explain Physical Characteristics of the System
3. Discuss Existing/Proposed/Projected Development Plan and its Potential Physical Relationship with DPM System
4. DPM Station Interface with Private Development
5. Prepare Technical Summary and Evaluate Overall Joint Development Potential

Step 2 - OPTIONS

1. Patronage Breakdown of Existing/Proposed/Projected Development and other Facilities in Station Area
2. Discuss Specific Station Location and Physical Impact to Existing/Proposed/Projected Development
3. Functional/Operational Needs of Station

Step 3 - DECISIONS

1. Decision to Accommodate or Reject Physical Interface
2. Extent of Physical Taking of Property Including Easements
3. Preliminary Discussion of Benefits and Trade-Offs
4. Preliminary Discussion of Physical and Fiscal Arrangements

Step 4 - AGREEMENT

1. Detailed Discussion of Benefits and Trade-Offs
2. Detailed Discussion of Physical and Fiscal Arrangements
3. Preliminary Agreements of Physical and Fiscal Arrangements

Step 5 - APPROVALS

1. Approvals by Executives (Policy Level) and Professionals (Technical Level) of Proposed Joint Development Plans
2. Draft Agreement Including Detailed Physical and Fiscal Agreements to Joint Development

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been developed as a guideline for negotiating joint development agreements. The purpose of these initial meetings has been to identify viable project concepts and to establish a public/private working relationship for carrying the projects forward. To date, more than 30 meetings with the private sector have been held. As a result, several station designs are incorporating the proposed joint development alternatives. As these design concepts are developed, subsequent meetings with affected property owners will be held to finalize the project concept and to negotiate formal cost sharing agreements. These projects will then be incorporated into the final system plan.

B. All Bus Alternative

Implementation of the All Bus Alternative will not directly enhance the opportunity for joint development by the public and private sector on currently undeveloped or underutilized lands in the Miami CBD area. Buses required under this Alternative would be maintained and stored at existing MTA facilities which are not in the downtown area. No major structures would be required to implement this alternative.

Conversion of Flagler Street to a transit mall may present opportunities for joint development; private participation may be obtained in funding the construction and maintenance costs associated with the mall. Amenities to be provided in the mall, such as bus shelters, may also be funded through a combination of private and public funding sources.

4.1.4 COORDINATION WITH PLANNED DEVELOPMENT

A. DPM Alternative

Planning and design of the DPM System have taken advantage of the opportunities presented by several developments already committed for construction within the CBD. Development plans for both the Miami World Trade Center and the Dade County Administration Building/ Government Center Metrorail Station incorporate DPM stations into their physical envelopes. A pedestrian linkage at ground level from the Miami World Trade Center to the planned James L. Knight Convention Center is planned to provide easy access to the Convention Center. An expansion of the downtown campus of Miami-Dade Community College includes a pedestrian plaza which has been architecturally coordinated with the DPM station design. A provision has also been made for the future upper level pedestrian linkage. The concept plan for the development of the 4-block Dupont Plaza area includes the integration of the DPM with a shopping galleria through the heart of the development. The design plan for the Miami Center also includes a pedestrian bridge linkage to this station. Three options for a physical connection with the existing Burdine's Department store are being jointly studied by Burdine's and the DPM staff. In addition to these projects, alternative DPM station designs are being developed for stations adjacent to proposed projects which do not have finalized plans or firm financial commitments.

B. All Bus Alternative

Implementation of this alternative would not provide any opportunities for coordination with developments already committed for construction within the CBD.

4.2 SOCIO-ECONOMIC IMPACTS

4.2.1 DISPLACEMENTS AND RELOCATIONS

A. Downtown People Mover Alternative

Due to the preliminary status of engineering design for the DPM project, at this time it is not possible to specifically identify individual properties which would have to be acquired to construct the system. Because of this uncertainty, the "baseline" alignment has been examined for the degree to which it causes displacements and relocations. Although quite specific in its quantification of these effects, the following discussion is intended to serve as a general review of the magnitude of land acquisition for the project and not a statement of direct effect on any individual property.

More than two thirds of the DPM alignment is located within existing street or rapid transit rights-of-way and public property, thus minimizing disruption to the community. Some displacements and relocations are necessary along three alignment segments where, because of space limitations, there is physical conflict between existing structures and the DPM guideway.

The first of these segments runs north-south between N.E. 1st and N.E. 5th Streets, parallel to, and approximately 100 feet east of N.E. 2nd Avenue. This alignment takes advantage of a relatively open area existing between Biscayne Boulevard and N.E. 2nd Avenue. The DPM Policy Committee opted for this alignment, rather than Biscayne Boulevard or N.E. 2nd Avenue, in order to minimize the visual impact of the DPM guideway on these streets. Biscayne Boulevard is one of the most scenic streets in Miami; and N.E. 2nd Avenue, although not considered "scenic", is a busy retail street with a relatively narrow right of way (three moving lanes), which sustains a high volume of traffic.

Along this segment, the alignment will displace approximately 73 dwelling units, contained in multi-family structures, and two businesses. The residential structures are hotel and rooming facilities housing approximately 115 residents and employing 27 persons. The majority of residents are of Hispanic origin, and are over the age of 65. Displaced businesses will include a restaurant, located within one of the hotels, and a medical office employing two persons.

The second segment runs on the south side of North 5th Street, between the rapid transit right-of-way and N.E. 2nd Avenue. Along this segment, the alignment will displace approximately 31 residential units contained in one apartment/hotel structure. Approximately 32 residents and one employee will be displaced. The occupants generally are of Hispanic origin and are primarily over the age of 50.

The third segment runs along the south side of N.E. 1st Street, from Biscayne Boulevard to N.E. 2nd Avenue. Construction of the DPM will require acquisition of the northernmost 20 feet of the Galeria Internacional. A station is to be constructed on this location and the rear of this building would conflict with the station structure. This structure is part of a two-story shopping mall, and has access from both N.E. 1st Street and Flagler Street. Two businesses, employing six people, will be displaced.

Requirements pertaining to property acquisition and relocations for projects funded by the Urban Mass Transportation Administration are described in UMTA Circular C4530.1[1]. The manual contains guidelines relating to the necessity for, and means of preparation, of:

1. The appraisal and acquisition of real property;

2. Rendering relocation services;

3. Moving, relocation, and replacement housing payments; and

4. Other expense payments when land acquisition and/or relocation is involved.

General Dade County guidelines pertaining to land acquisition and relocation are included in the "Relocation Guidelines for Families and Individuals" and the "Relocation Guide for Business Concerns and Non-Profit Organizations"[2].

In total, the construction of the proposed DPM will necessitate the acquisition of four hotels and/or rooming house properties with a total of 104 dwelling units. These units are occupied by approximately 147 persons. Approximately 43 of these units, occupied by an estimated 93 persons, are transient accommodations only and do not represent long term occupancies. Four businesses with about 37 total employees will also be displaced.

There are 41 replacement hotels in the downtown core containing 2,319 units available for relocation. All of these are similar in character to those being acquired for the DPM. Additionally, HUD is developing 150 units for elderly, low-income tenants within the perimeter of the DPM alignment. These units are expected to be completed by the end of 1982 and DPM displacees will receive priority for this publicly assisted housing.

B. All Bus Alternative

Implementation of the All Bus Alternative will not require the taking of any private property in the Miami CBD area. Consequently, there will be no residential or business displacements.

4.2.2 ECONOMIC IMPACTS

A. Downtown People Mover Alternative

Activities associated with the construction of the Downtown People Mover system may result in short term loss of business to adjacent commercial

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[1] U.S. Department of Transportation, Urban Mass Transportation Administration. "Land Acquisition and Relocation Assistance Under the Urban Mass Transportation Act of 1965, as amended (Circular C4530.1)". March, 1978.

[2] Metropolitan Dade County Office of Transportation Administration. "Relocation Guide for Business Concerns and Non-Profit Organizations, and Relocation Guide for Families and Individuals".

enterprises due to disruption of access. This disruption may take the form of undesirable construction noise, dust, or fumes. It might also be necessary, in limited cases, to temporarily relocate access paths. Such disruption will normally be limited to a period of several weeks. After this time commercial entries will be restored to their preconstruction status. In the case of very marginal businesses even this short term disruption could have adverse economic effects and, although it is not anticipated, it is possible that some business closings could occur.

Large scale transportation projects have the potential for creating significant positive impacts on the economic environment. The economic impacts of the Miami DPM are particularly significant due to the characteristics of the active urban environment in which it will be constructed and because of the permanent and reliable nature of the DPM system.

The impacts of the DPM on the City of Miami and the Central Business District cannot be measured against a traditional yardstick because no similar system has yet been implemented. However, based on extensive study of Miami's economic environment as well as similar proposed programs in other cities of the U.S., the following impacts of the system are likely to be felt in the economic sector[1].

1. Because of the increased accessibility afforded by the DPM and its permanency as a circulation corridor, the Miami DPM will serve as an extremely important element in the continuing plan to enhance and revitalize the CBD area and will contribute to the attainment of community and economic development goals;

2. The economic benefits derived from the DPM will be reflected in increased retail sales in areas in close proximity to DPM stations, stimulation of convention and hotel activities, and increased premium rents;

3. The DPM system will encourage and support more intensive development of presently underutilized properties near stations, resulting in higher land values and increased property tax revenues. In addition, the City of Miami and State of Florida will receive increased revenues from expanded hotel taxes, convention facility revenues, and retail sales tax; and

4. Changes in CBD travel will reduce bus operating costs, increase accessibility to less costly fringe parking areas, reduce congestion due to fewer buses, and increase midday CBD employee trips to restaurants and shopping areas.

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[1]Robert J. Harmon and Associates, Inc. "Economic Benefit Analysis of the Proposed Miami Downtown People Mover." September 1979.

5. In some cases, it is likely that marginal business will not obtain sufficient additional revenue to offset increased rents or tax assessments which result from this new factor. Such business may be lost to the downtown community but will be replaced by businesses more capable of operating profitably in the changed economic environment. No estimation of the increased mortality rate for such marginal businesses has been made in economic studies accomplished, but a review of DPM station locations shows that smaller business are located around only four of the ten proposed stations (H,P,E, and X).

The results of an extensive study on private sector benefits indicated that at least 85 to 90 percent of the monetary benefits generated by the DPM will be received by those businesses and property owners within a one to two block radius of a DPM stations. The incidence of benefit is maximized and the area of influence expanded when direct physical linkages (i.e., passageways or pedestrian bridges) are provided.

The private sector benefit assessment focused on three primary benefit categories. These included:

1. Increased retail sales profits;
2. Incremental premium lease revenues; and
3. Employer/employee parking cost savings.

Retail Sales

The DPM, in combination with existing and proposed office, hotel and residential development, will result in an increase in retail sales in the Miami CBD. Improved retail facilities and general convenience to the Miami CBD will increase the CBD retail merchant capture of the regional market.

Implementation of the DPM will:

1. Expand the "noontime" domain of the CBD employees;
2. Increase the CBD employment base; and
3. Encourage additional regional shopping trips to the CBD.

It is estimated that the average annual purchase volume per CBD employee will increase by $250 to 300. By 1985, the increased market potential of CBD employees could range from $7.5 to $9.0 million.

Convention delegates, regional and CBD residents are also expected to increase their annual volume of retail sales purchases. DPM-induced growth in each of these categories will add to the potential sales volume of local merchants.

A conservative estimate anticipates that an incremental annual sales volume of approximately $16.2 million (1979 dollars) will be received by existing merchants in the Miami CBD area by 1985. The incremental profits of these sales will be approximately $.5 million (Table 4.2).

Premium Lease Revenues

Approximately 6.0 million square feet of prime commercial space will have direct DPM station access and will command between $.20 - $.30 per square foot per year in premium rents as a result of the DPM system. By 1985, owners of buildings which are either physically or functionally linked to DPM stations will receive between $1.2 to $1.8 million in incremental lease revenues.

TABLE 4.2
PRELIMINARY ESTIMATE OF DPM-INDUCED RETAIL SALES PROFITS - 1985
(constant 1979 dollars)

Market Segment	Incremental Annual Sales Potential (millions)	DPM-Induced Retail Profits[6]
CBD Employees[1] @ 30,000	$ 8.3[2]	$290,000
Convention Delegates	3.3[3]	80,000
CBD Visitors	3.5[4]	90,000
Regional Demand	1.4[5]	30,000
TOTAL:	$16.2	$490,000

Source: Robert J. Harmon and Associates, Inc.
1. Contained in the immediate DPM service area.
2. General annual increase of $250-$300.
3. Assume $7 to $10 additional per delegate.
4. Estimate at 2 to 3 percent increase.
5. Estimate 2 to 3 percent increase in constant market share.
6. Estimate at 3 to 4 percent pre-tax profit reflecting 2 percent for new stores and 5 to 8 percent for existing stores.

Parking costs

The average cost of parking within the CBD area will continue to increase. Some business establishments are now desiring alternative, convenient locations for employee parking to reduce parking reimbursements and to provide more space for their customers. The use of "fringe" parking facilities is viewed as a method to accomplish these goals. The increased access to "fringe" parking facilities provided by the DPM represents an option to provide parking at an average cost of $30 less per month. This assumes that 1985 parking costs in the core area are approximately $2.50 to $3.50 per day versus $1.25 to $2.00 in fringe areas. It is estimated that by 1985 the CBD employer or employee will save, at a minimum, $1.8 million annual employee parking costs as a result of the DPM[1].

[1]Robert J. Harmon and Associates, Inc. "Economic Benefit Analysis of the Proposed Miami Downtown People Mover." September 1979.

Private Sector Participation

A plan for private sector participation in operating costs is an integral part of the DPM funding program. The private sector property owners, retail merchants, and others located within an area of direct access and influence of DPM stations are expected to derive major economic benefits from the operation of the DPM system.

A commitment has been made by the Downtown Development Authority (DDA) to assign private sector contributions (from the DDA's existing tax revenues) for all funds required for the maintenance and operation of the DPM stations. The annual private sector contribution to the DPM operation costs will be approximately $300,000 to $500,000, representing approximately 10 percent of the annual $3.5 to $4.0 million in economic benefits[1].

There are two alternative mechanisms under consideration for implementing the private sector financial participation program. The first involves the creation of a DPM special tax district, made possible under existing Dade County and City of Miami Legislative Authority. The boundaries of the district will be based on the relative accessibility of a property to a DPM station. Those properties having a direct physical and functional relationship to the DPM will be included in the district. A preliminary analysis of the special tax district boundaries has been undertaken. No final boundaries, however, have been established.

The second mechanism, designed as a fallback measure to the implementation of the special tax district, involves the commitment of a portion of the existing tax levy for the Downtown Development Authority. It is expected that the DDA taxing district will generate annual revenues in excess of $500,000 by 1985. Consequently, it will be possible to use these funds to meet the annual station maintenance and operating requirements for the DPM Loop system stations. Upon implementation of the special tax district, the DDA commitment would be voided.

Land Value and Property Tax Base

Taxable land now in private ownership will be required for the DPM right-of-way, and station and maintenance facilities. The DPM system will require acquisition of 22,000 square feet of developed land and 90,000 square feet of vacant land presently generating approximately $68,000 in annual property tax revenues (1975 dollars).

B. All Bus Alternative

Implementation of the All Bus Alternative will provide a mechanism for distribution of regional trips within the downtown area. Reduced travel times and reliability of the system will increase transit ridership.

The introduction of a transit mall restricting cars on Flagler Street is likely to improve its environmental quality. Although Flagler Street is already a healthy shopping street, the effects of the transit mall will help

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[1]Robert J. Harmon and Associates, Inc. "Economic Benefit Analysis of the Proposed Miami Downtown People Mover." September 1979.

maintain the Flagler Street corridor as a thriving commercial area. With the addition of a traffic lane to the pedestrian domain, additional pedestrian amenities can be developed which will encourage some property owners to upgrade their structures. The primary effects of such changes would be focused upon Flagler Street, rather than distributed throughout downtown.

Implementation of the All Bus Alternative will not result in the loss of any taxable land. Private sector support to fund operating costs of this Alternative has not been contemplated. It is likely, however, that a contribution from nearby property owners would be required to fund at least the upkeep and maintenance costs of the transit mall.

4.2.3 SCHOOLS AND SOCIO-CULTURAL INSTITUTIONS

A. Downtown People Mover Alternative

Schools and socio-cultural institutions within comfortable walking distance of the DPM alignment include Miami/Dade Community College, Bauder Fashion College, Central Baptist Church, First United Methodist Church, First Christian Church, Centro Hispano Catolico, Gusman Hall, and the Miami Public Library. Other institutions are planned in the future. All will be positively impacted by the DPM system as a result of increased access. Because of the proximity of the alignment there will be a visual impact on the First Christian Church. This impact will be offset by the removal of poorer quality adjacent structures and the replacement with a landscaped area beneath the guideway.

The EDCOM Complex will experience a particularly beneficial impact. The EDCOM Complex, containing the New World Campus of Miami/Dade Community College, is planned for the area bounded by N.E. 5th Street, N.E. 2nd Avenue, N.E. 2nd Street and N.E. 1st Avenue, minus the site of the off-street parking authority garage between N.E. 2nd Street and N.E. 3rd Street and the City of Miami Fire Station on 5th Street. Access to the facility from the DPM will occur at stations on N.E. 5th Street and N.E. 3rd Street. This will significantly reduce the need for vehicular drop-off of students which currently results in traffic delays on adjacent streets. Students will also be able to utilize remote parking facilities, resulting in parking savings.

B. All Bus Alternative

The All Bus Alternative will increase access to CBD institutions by providing linkages with rail rapid transit facilities as well as more frequent service than presently offered. Travel times from all points in the County will be reduced. Increased transit usage will in turn result in parking savings to students and other users.

4.3 VISUAL IMPACTS

A. DPM Alternative

For the purpose of the visual analysis, the DPM alignment has been divided into nine segments (Figure 4.2). In areas of contained views, the affected environment for each segment is defined as a corridor one half block deep,

Figure 4.2 DPM VISUAL ANALYSIS: ALIGNMENT SEGMENTS 1-9

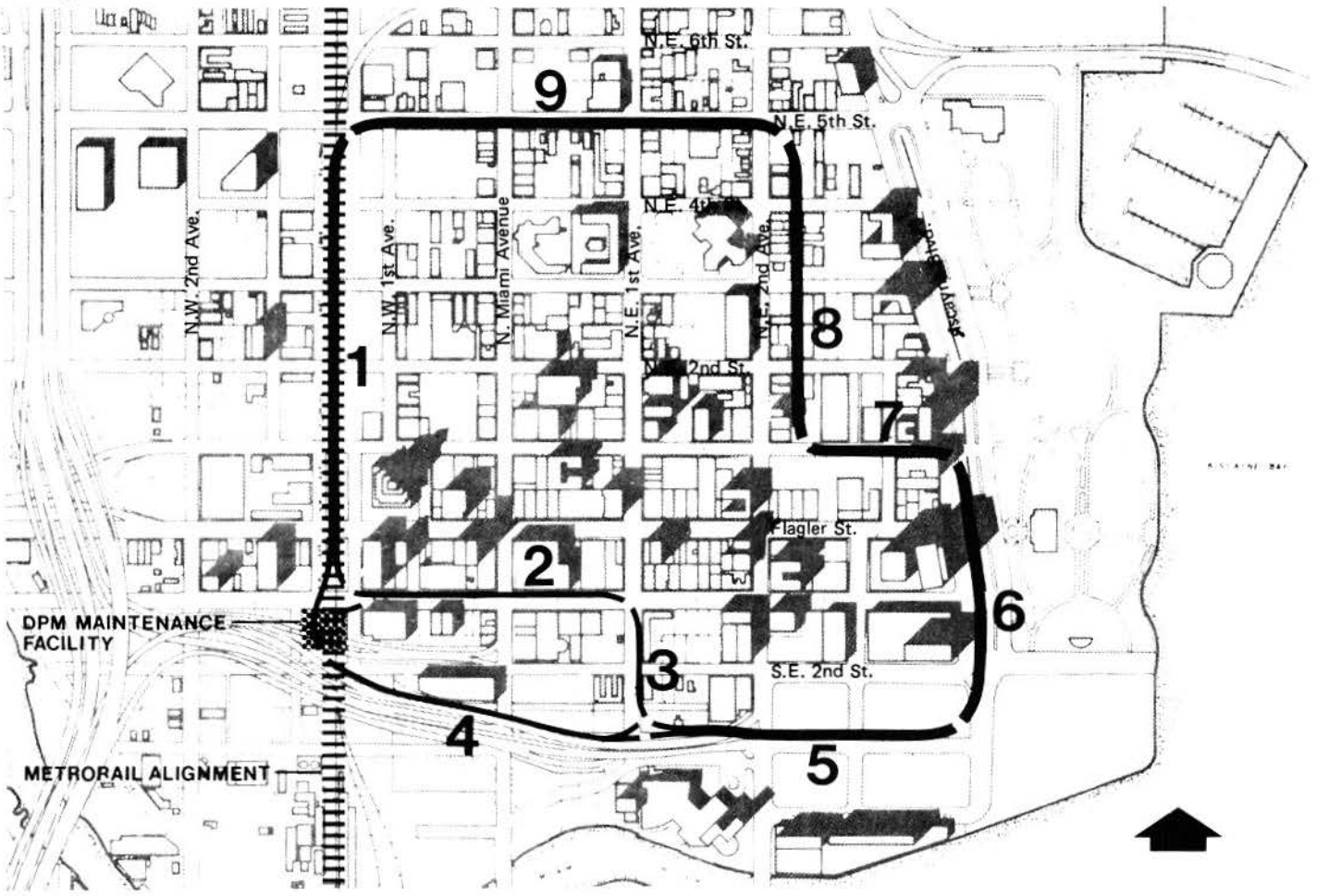


TABLE 4.3 DPM VISUAL IMPACTS SUMMARY

Impact Category:		Major	Moderate	Minor	DPM Alignment Segment								
Positive Impact		■	◪	□	1	2	3	4	5	6	7	8	9
Negative Impact		●	◪	○									
General Visual Character					□	□			■				○
Views:	Long Range									◪			
	Short Range						◪					○	
	Street Corridor						○			○	○	◪	◪
Facade Obstruction:	Historically Significant												◪
	Architecturally Significant						◪						
	Architecturally Insignificant					◪					○		○
Visibility into Residential Structures							●				○	●	◪
Visibility from Adjacent Structures						○	○			◪		○	
Sunlight and Shadows						○	○				○	○	
Views from DPM								□	◪	■			

or approximately 150 feet, on either side of the alignment. Where the area adjacent to the alignment provides open or unobstructed views, the definition of the affected environment extends to the view limit.

Two aspects of visual impacts are considered in the analysis. The first of these is a potential change in the aesthetic quality of the surrounding environment as a result of the DPM system. The second is the functional effect due to changes of views and visibility. Visibility, and its impact on traffic safety, is discussed in Section 4.4.

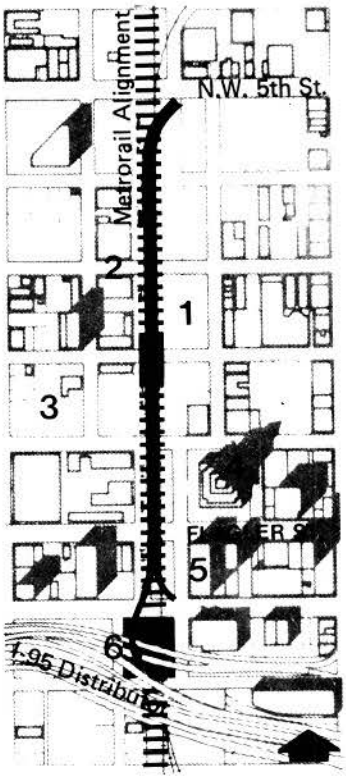
Eleven factors were used to identify potential areas of visual impact:

1. General visual characteristics;
2. Short and long-range views of streets, structures, and open space;
3. Structures of historic significance;
4. Building form (height, width, and massing);
5. Architectural qualities (facade design, fenestration and materials);
6. Sunlight and shadow characteristics;
7. Views from and into adjacent buildings;
8. Type of building occupants;
9. Location and height of DPM guideway, columns, and stations;
10. Design features of the DPM system; and
11. Views from DPM vehicles.

Each of the eleven factors was applied for the nine DPM segments on a block-by-block basis. Table 4.3 provides an overview of the visual impacts in each segment.

a. Segment 1: Along Metrorail Right-of-Way From N.W. 5th Street to the I-95 Connector

Segment Description



This segment passes along the rapid transit right-of-way acquired by Dade County. The visual setting is characterized by a half mile open linear strip of land with surface level parking to the east (1) and warehouse and commercial structures to the west (2). The area to the west between Flagler Street and N.W. 5th Street is designated as the redevelopment area for the Government Center (3) and will be transformed into a densely developed complex of State, County, and City offices and several public and cultural facilities. To the east at the southern segment end are the Dade County Courthouse (4) and Federal Building (5). Area (6) is dominated by I-95 support structures and surface parking facilities.

Visual Impact Analysis

The DPM guideway and the Metrorail line will form the eastern boundary of the Government Center. The DPM guideway, positioned directly under the elevated Metrorail transit line, will have minor additional visual impact. The marginal increase will result from the lower clearance (16 feet) of the DPM guideway as it crosses the east-west streets along the segment: S.W. 1st Street, Flagler Street, and N.W. 1st Street. Other east-west streets, along the segment (N.W. 2nd, N.W. 3rd, and N.W. 4th) will be closed as a result of the Government Center development. The DPM guideway, as currently proposed, will be supported by means of a cross-member connecting the rapid transit's supporting piers. By precluding the need for additional columns to support the DPM guideway, the visual impact along this segment is minimized.

A major activity node and visual landmark of this segment will be the Government Center station which will serve both the DPM and rapid transit systems. The station is a three level structure, spanning N.W. 1st, 2nd and 3rd Streets. The DPM platform level will be approximately 20 feet above ground, and will be directly connected to the main concourse level of the planned 30 story Dade County Administration Building. (Figures 4.3 a&b).

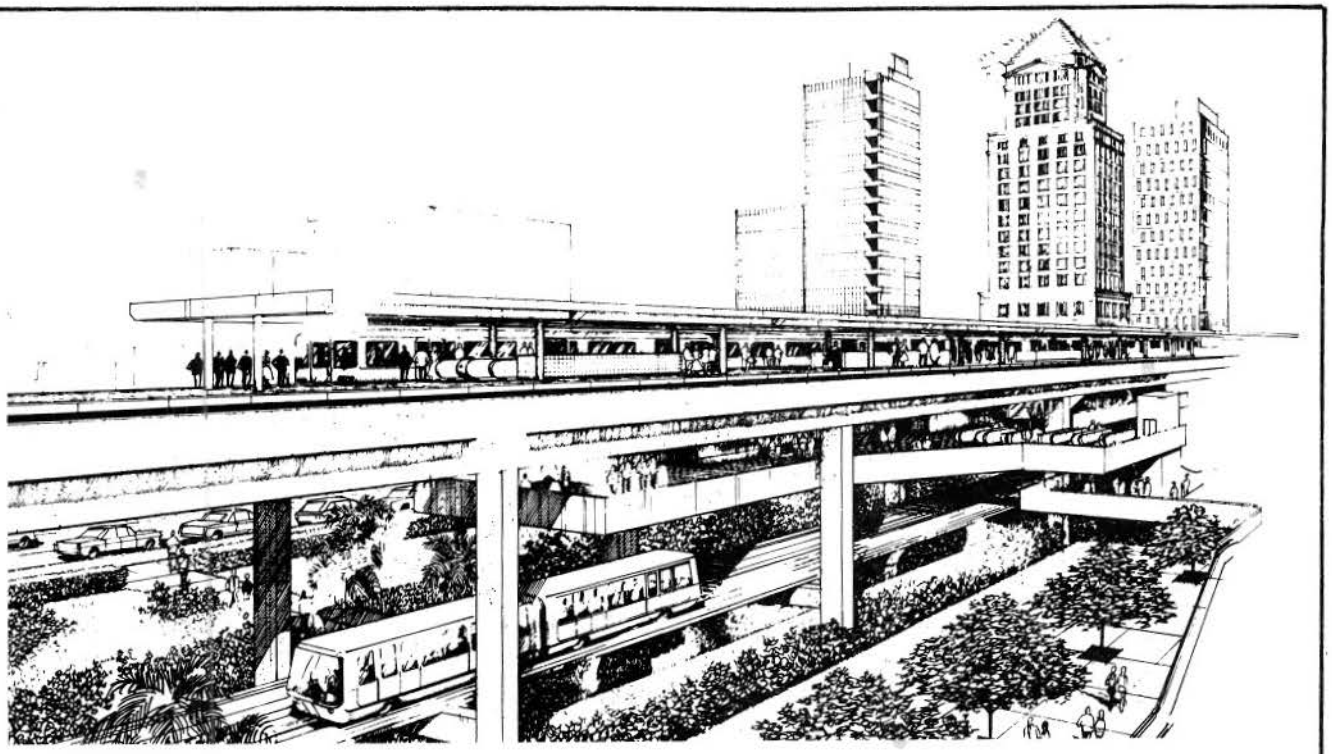


Figure 4.3a ARTIST'S SKETCH STATION 'G' LOOKING SOUTHEAST

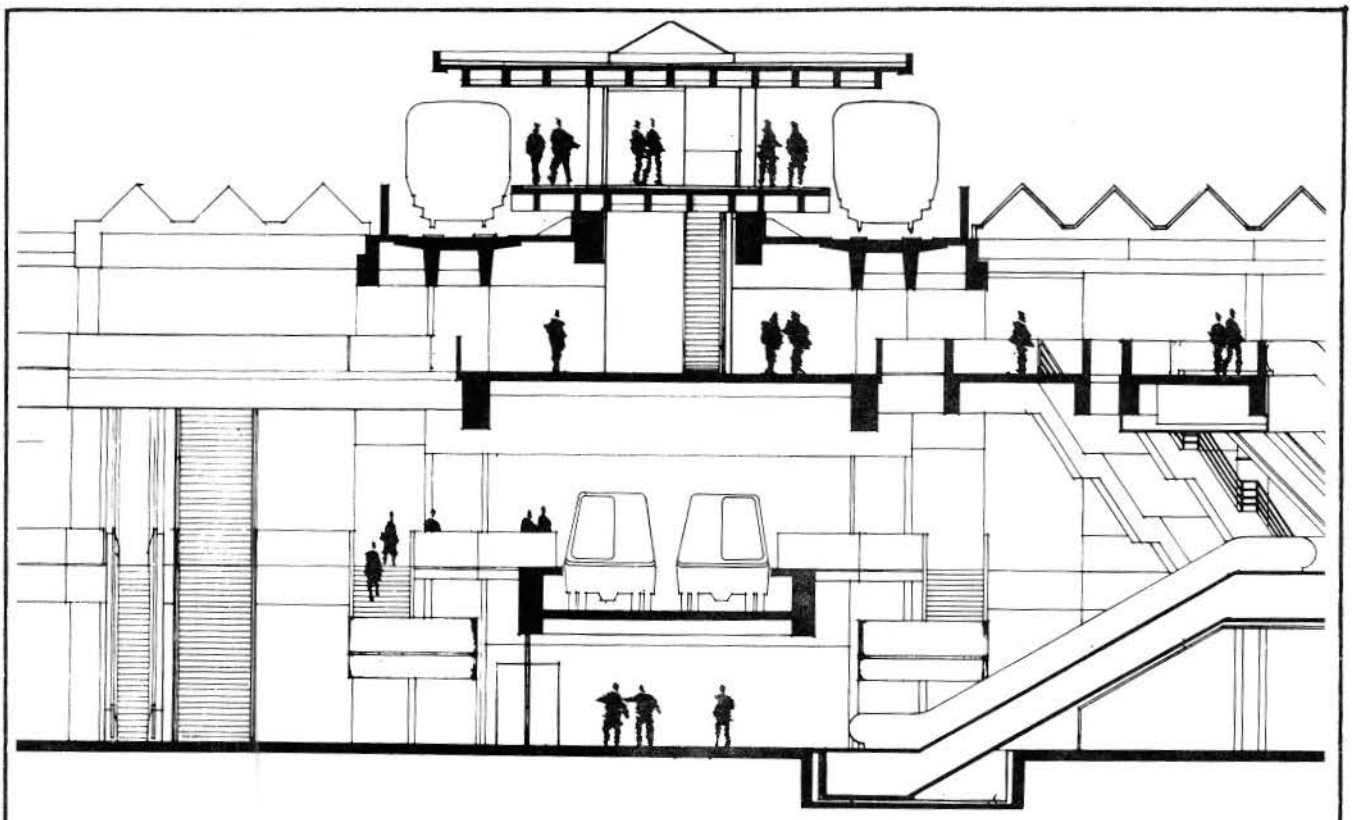
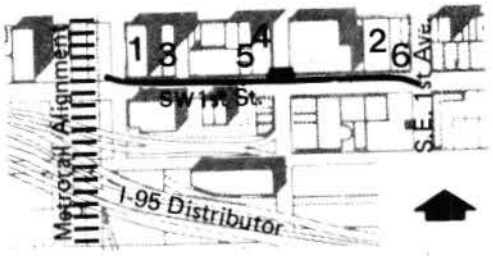


Figure 4.3b CROSS SECTION AT STATION 'G' LOOKING SOUTH

At the southern end of Segment 1 (S.W. 1st Street), the double guideway splits, with one single lane heading east and the other continuing south along the Metrorail right-of-way toward the DPM maintenance facility. The DPM maintenance facility (6) occupies a portion of the block between S.W. 1st Court and 1st Avenue, due north of the I-95 distributor. Single guideway sections will veer off the inner and outer loops at S.W. 1st Street to provide for vehicle movement in-and-out of the maintenance facility. This will result in some visual confusion to pedestrians and passing motorists by adding to the multitude of views that already exist from the I-95 distributor.

b. Segment 2: Along S.W. 1st Street from Metrorail Right-of-Way to S.E. 1st Avenue

Segment Description



Segment 2 is characterized as a busy, corridor which is not well defined as a visual unit (Figure 4.4a). Structures vary in height from 2 to 6 stories, and are interrupted by surface parking lots and multi-level structures. S.W. 1st Street is an important traffic artery (3 lanes one-way eastbound) providing access into the CBD from the Government Center area and West Miami. The buildings along this segment have varying architectural qualities ranging from the contemporary 16-story Federal Building (1) with its precast concrete curtain wall and granite faced arcade, to the older 5-story Kress Building (2), with a painted, stucco exterior and combination one and two-story arcade. Many of the structures along this segment have little or no setbacks from the street pavement and provide a pedestrian arcade below the second floor level.

Visual Impact Analysis

Segment 2 will benefit from visual continuity resulting from the DPM structure. The single guideway, which maintains a profile grade elevation of approximately 21 feet throughout this segment, will create a unifying visual element serving to strengthen the continuity of the street (Figure 4.4b). However, because the guideway passes on the north side of S.W. 1st Street, which has several buildings with shallow setbacks, some building facades will be obstructed. With placement of the elevated guideway and columns within 5 to 10 feet of the buildings, there are conditions in which the horizontal lines of the guideway and column spacing will be incongruous or out of phase and scale with building fenestrations and architectural details. These conditions exist for the Federal Building (1), Watson Building (3), Eight West Burdines Building (4), Woolworth Building (5), and the Kress Building (2) (Figures 4.5 a and b).

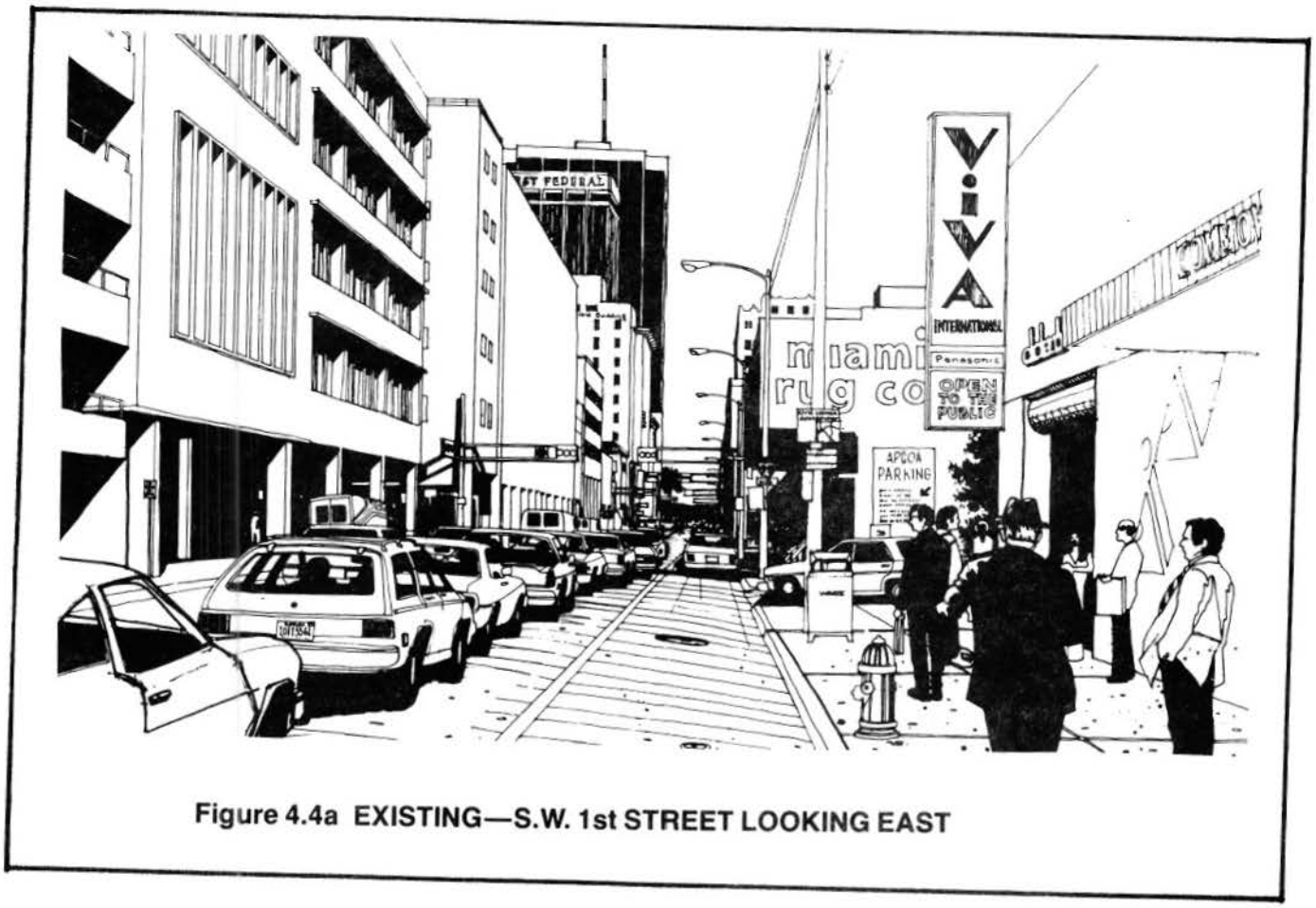


Figure 4.4a EXISTING—S.W. 1st STREET LOOKING EAST

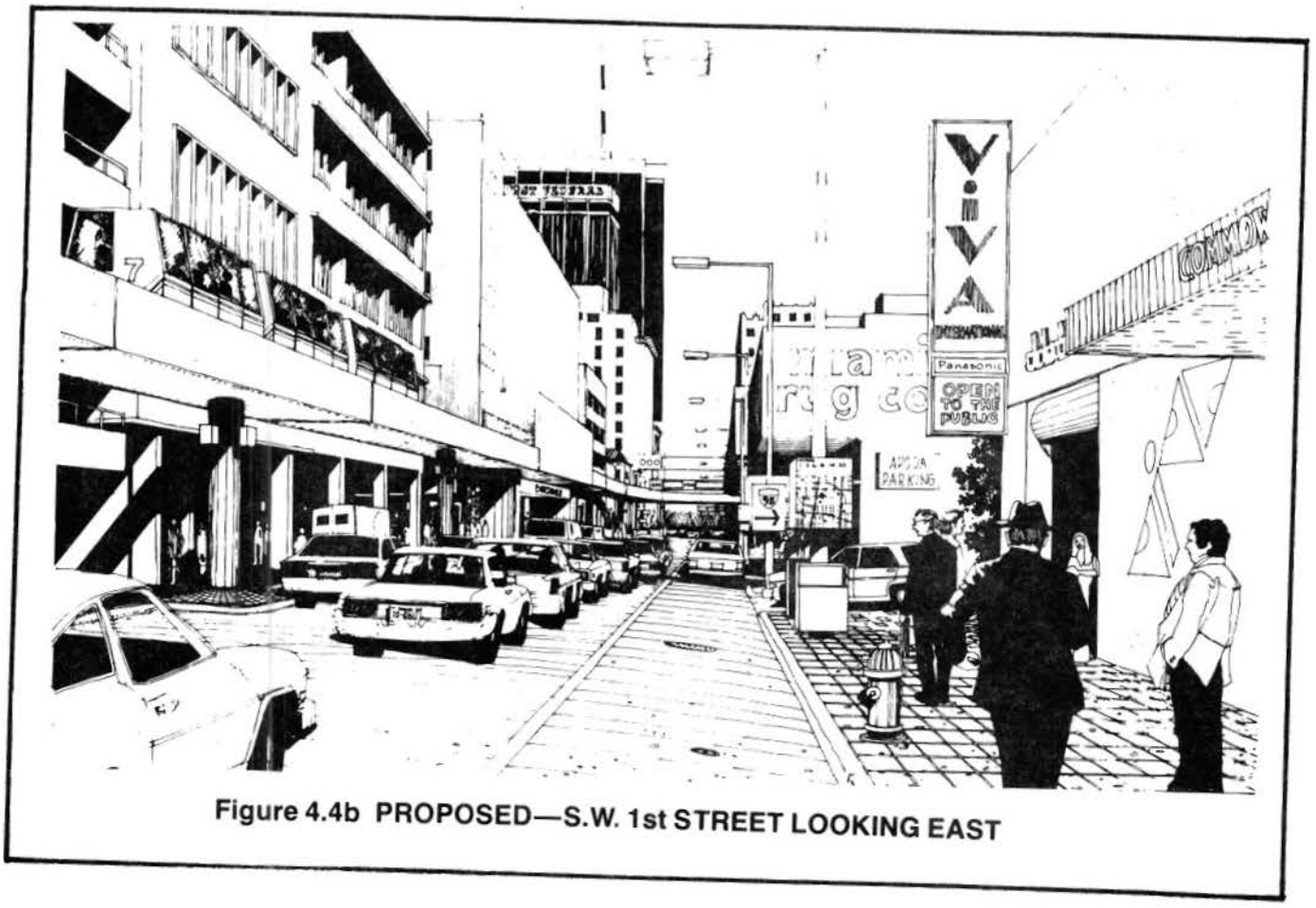


Figure 4.4b PROPOSED—S.W. 1st STREET LOOKING EAST

Additional visual impacts along Segment 2 will result from guideway and column shadows. Incoming lights will be reduced in adjacent buildings and ground level arcades. During the summer months, however, this condition will be less significant when the sun is at high altitude, and relief from intense solar exposure is advantageous.

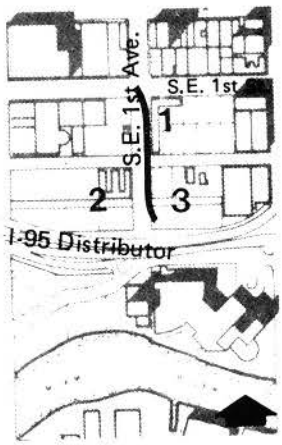
A further visual impact on an adjacent structure is the partial obstruction on the building mural "Sails on a Graphic Sea" at 71 to 81 S.W. 1st Street (6), painted as part of Miami Urban Walls Beautification Project. The guideway will pass 5 feet in front of the second story mural, partially blocking its bottom portion (Figure 4.5b).

The DPM station on Segment 2 will be located on the north side of South 1st Street, bridging South Miami Avenue between the two Burdines Buildings (Figure 4.6 a and b). Due to the limited clearance between the two buildings, the station is planned to abut the south facades and extend 26 feet north on Miami Avenue.

As a result of these physical constraints, visual integrity of the station with the existing physical elements in the area will be difficult to obtain. However, neither the adjacent buildings or surrounding streetscape possess unique architectural or environmental features.

c. Segment 3: S.E. 1st Avenue from S.E. 1st Street to the I-95 Connector

Segment Description



Two structures of significance are adjacent to Segment 3 of the alignment. On the east between S.E. 1st Street and S.E. 2nd Street is the two story Colum I building (1) with commercial activities on the ground floor and resident occupants on the second. The scale, detailing, and materials of the structure lend it an interesting architectural quality, although its facade is presently cluttered with metal and canvas awnings and a variety of signs. Opposite the Colum I Building is an open surface level parking lot, a small fast food restaurant, and a one story boutique (4). To the south of S.E. 2nd Street, on the west side of Segment 2, is the four-story Clyde Court Apartments structure (2), which has been determined eligible for the National Register of Historic Places (see Section 5.2) . The Clyde Court structure has been cited in Dade County's Historic Survey because its applied details, balconies, and central courtyards lend it a character and sense of scale which make it one of the finest examples of small-scale Mediterranean architecture in downtown Miami.

Opposite Clyde Court is the future site of the Miami World Trade Center (3). Presently used as a surface parking lot, the parcel will be developed as a modern high rise office structure, with commercial activities on the ground floor and parking between the second and ninth floors.

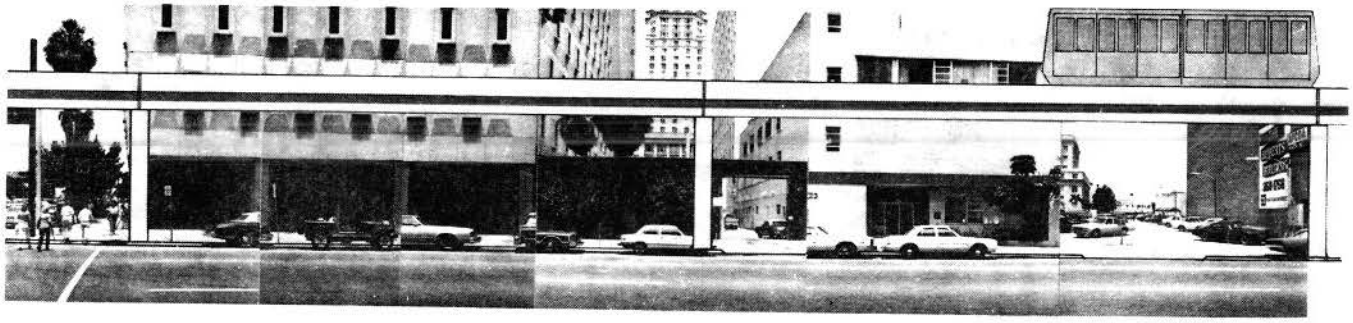


Figure 4.5a FEDERAL BUILDING S.W. 1st ST. & S.W. 1st AVE. LOOKING NORTH

Figure 4.5b KRESS BUILDING & "SAILS ON A GRAPHIC SEA" MURAL S.W. 1st ST. & S.E. 1st AVE. LOOKING NORTH

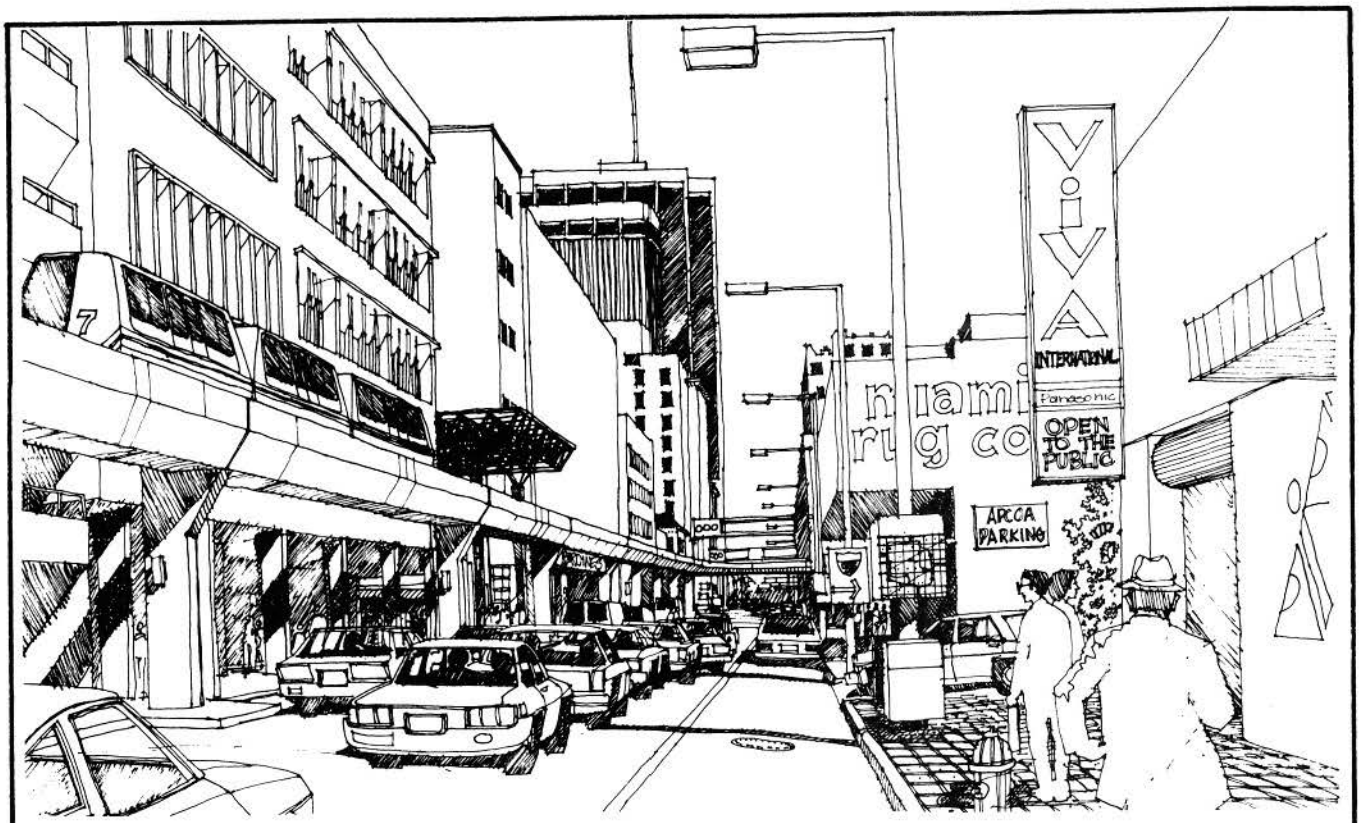


Figure 4.6a ARTIST'S SKETCH STATION 'H' LOOKING EAST

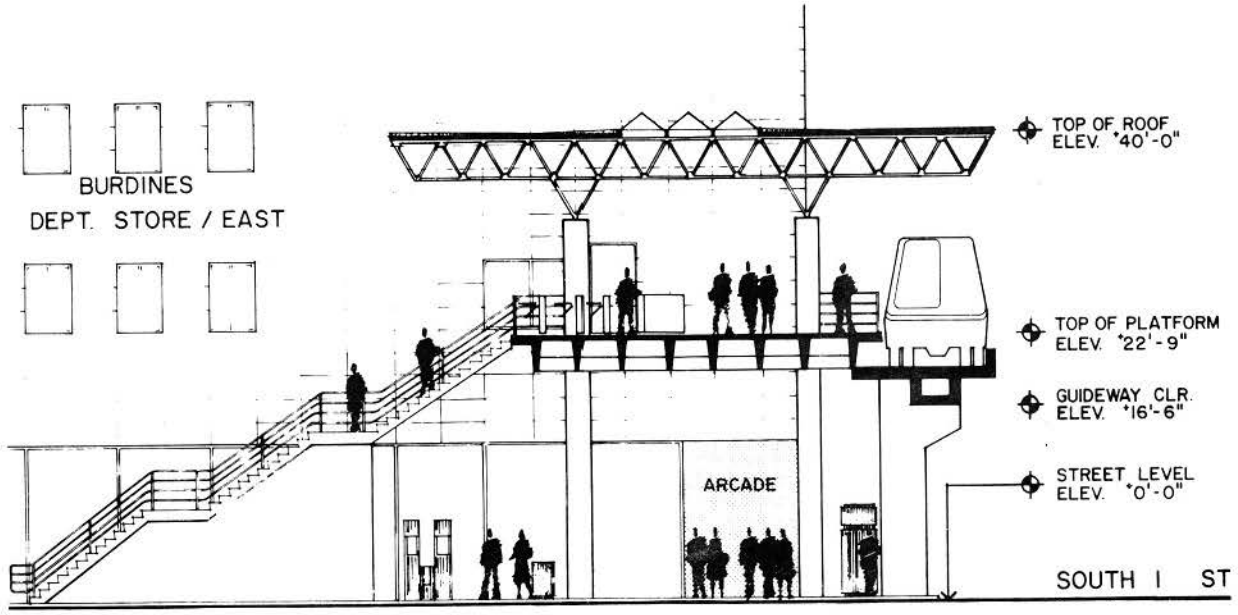


Figure 4.6b CROSS SECTION AT STATION 'H' LOOKING EAST

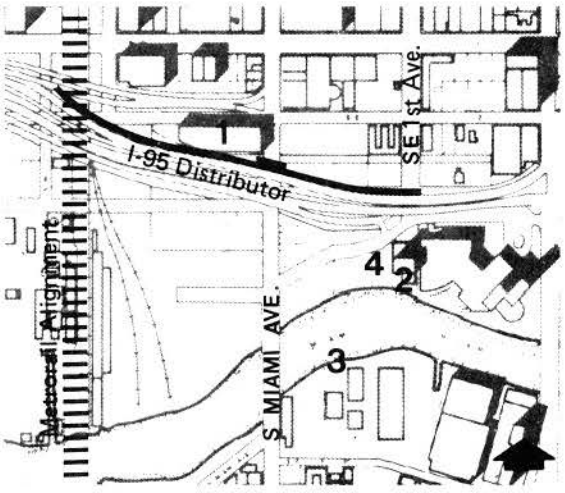
Visual Impact Analysis

The DPM single guideway will run on the east side of S.E. 1st Avenue at an elevation of 27 feet at the north, rising to 33 feet at the corner of S.E. 2nd Street at the south. The guideway and supporting columns will have an adverse visual impact on the Colum I Building as a result of its proximity (10 feet) and profile against the 2 story facade (Figure 4.7). However, the bottom of the guideway will be at an elevation higher than the roof of the building so that the only visual interference for occupants on the second story is from two columns located in the sidewalk. Location of the guideway on the east side of S.W. 1st Avenue was necessitated to mitigate potentially adverse effects on the architecturally significant Clyde Court Apartments.

d. Segment 4: I-95 Distributor from the Metrorail Right-of-Way to N.E. 1st Avenue

Segment Description

Segment 4 is visually and physically defined by the I-95 connector to the Dupont Plaza area. Ground level uses along the segment are exclusively devoted to surface parking, except for the site of the Goodwill Industries Building (1) at the corner of South Miami Avenue and S.W. 2nd Street. The I-95 distributor is elevated on piers 20 to 27 feet above ground, allowing visual contact at ground level with the Bauder Fashion College (2), the shipping-related facilities along the Miami River (3), and the site of the proposed Fort Dallas Park (4).



Visual Impact Analysis

The DPM guideway will parallel the north side of the expressway ramp, and at one point will pass within 13 feet of the three-story Goodwill Industries Building. The building fronts on S.W. 2nd Street and has few windows and virtually no architectural detailing on its south elevation.

As the DPM guideway increases its height from this point to an elevation of 40 feet at the eastern end of the segment, a panoramic view of the Miami River, the new James L. Knight Center, and Biscayne Bay will be afforded DPM riders. The station along the segment will bridge South Miami Avenue, providing access from the outer guideway loop to parking located in the area, as well as to office and retail activities on S.W. 1st Street and Flagler Street (Figures 4.8a and b).

Figure 4.7 COLUM I BUILDING S.W. 1st AVE & S.E. 1st ST.

Figure 4.8a ARTIST'S SKETCH STATION 'L' LOOKING SOUTH

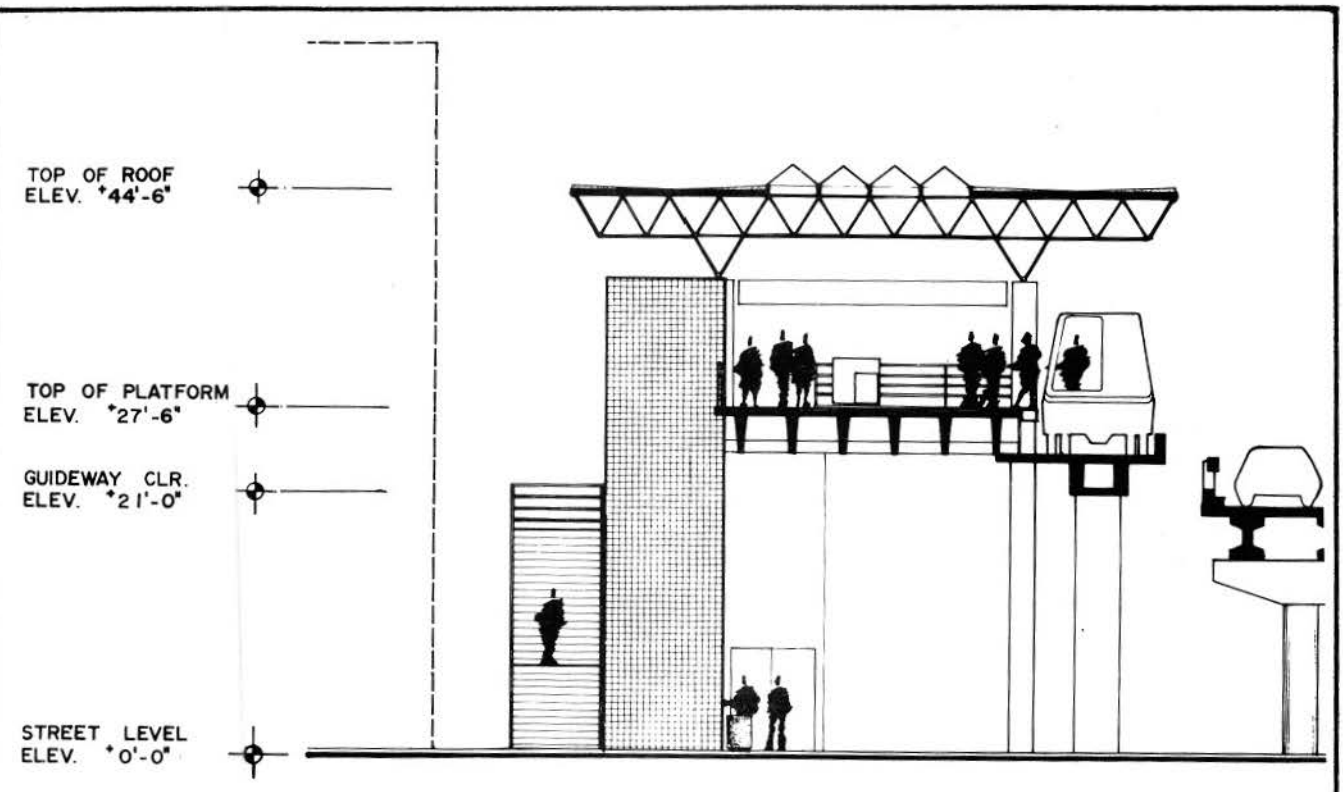
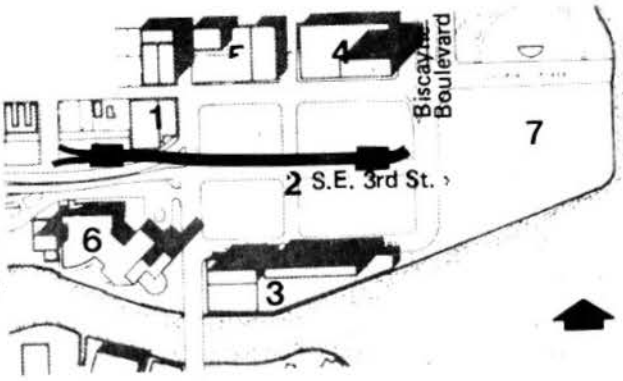


Figure 4.8b CROSS SECTION AT STATION 'L' LOOKING EAST

e. Segment 5: I-95 Connector and S.E. 3rd Street from N.E. 1st Avenue to Biscayne Boulevard

Segment Description



Except for the Howard Johnson's Hotel (1) on S.E. 2nd Avenue, Segment 5 is characterized by open land devoted to surface level parking and major roadways. Dupont Plaza (2) consists of four blocks of surface level parking bounded by the 13-story Howard Johnson's Hotel, 12-story Dupont Plaza Hotel (3), 18-story Southeast First National Bank (4), and 13-story Miami Federal Savings Building (5). To the south and east is the Miami River and Biscayne Bay, neither of which is readily visible at ground level. The segment is likely to change dramatically in the near future once construction of the James L. Knight Conference Center and hotel tower (6) is completed. In addition, anticipated development in the Dupont Plaza area and at Ball Point (6), the site of the proposed Miami Center, and the proposed improvements to the I-95 corridor will completely change the nature of this area.

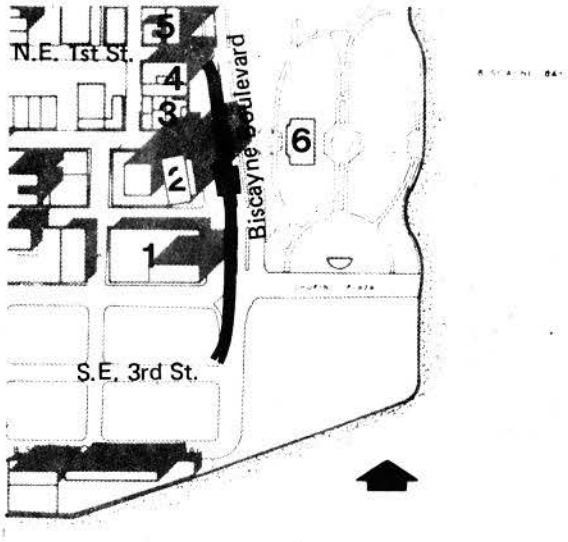
Visual Impact Analysis

The two single guideways of the inner and outer loops will join at the western end of Segment 5 at the planned Miami World Trade Center. Both the guideway and the station facility will be incorporated into the structure at the 5th floor parking level. The guideway will exit the Miami World Trade Center Station area at an elevation of approximately 40 feet above ground, pass beside the Howard Johnson's Hotel approximately four feet from its parking structure, pass over the I-95 distributor ramp (as proposed in the "Bifurcated" scheme), and descend into the Dupont Plaza area. At this point, DPM riders will be afforded a view of Biscayne Bay, the Miami River, and the most intensely developed area of the Miami CBD.

A DPM station will be located at the eastern portion of Segment 5 on S.E. 3rd Street to serve the Dupont Plaza area and the planned Miami Center. The effect of the DPM guideway and station in the area will be to provide a visual link between the existing CBD core and the planned new development in Dupont Plaza. As the proposed developments are realized in this area, the presence of the DPM will visually reinforce their functional relationship with existing development within the CBD.

f. Segment 6: Biscayne Boulevard between S.E. 3rd Street and N.E. 1st Street

Segment Description



Segment 6 passes along the median of Biscayne Boulevard to the east of the most densely developed area in the CBD west of the 36.9 acre Bayfront Park (6). Adjacent buildings include the 18-story Southeast First National Bank (1), 40-story One Biscayne Tower (2), 10-story McAlister Hotel (3), 16-story Columbus Hotel (4), and the 30-story New World Center Tower (5).

Biscayne Boulevard is a heavily traveled eight lane arterial street with two median lanes for parking (Figure 4.9a). The Boulevard is regarded as one of downtown Miami's most scenic corridors. The 30 to 40 foot Royal Palms, the expansive well-landscaped Bayfront Park (6), and the wall of tall buildings define the Boulevard. These elements together produce its legibility as a scenic avenue, despite the presence of the highest moving volume of traffic in the CBD, and the parked vehicles down the center of the Boulevard.

Biscayne Boulevard is also the route of the traditional New Year's Eve Miami King Orange Jamboree Parade. Guideway clearances will be established at dimensions sufficient to allow for passage of parade floats at appropriate locations along the route.

Visual Impact Analysis

Looking east from Biscayne Boulevard through three rows of Royal Palms provides a view of Bayfront Park and the Miami Public Library (6). The DPM guideway, which at this point is approximately 20 feet above ground, will run between the western two rows of palm trees (figure 4.9b). A station will be located between S.E. 1st Street and Flagler Street across from One Biscayne Tower (Figures 4.10a and b). The Public Library building will be at least 150 feet away from the guideway edge of the DPM's outer loop.

The views from the west side of Biscayne Boulevard toward Bayfront Park will be partially obstructed by the presence of the double guideway, columns and station. However, the elevated station platform and vehicles will provide a superior vantage point from which to view the Park and also Biscayne Bay, which is not presently visible from ground level. This panorama may be regarded as one of the most visually exciting features of the DPM system.

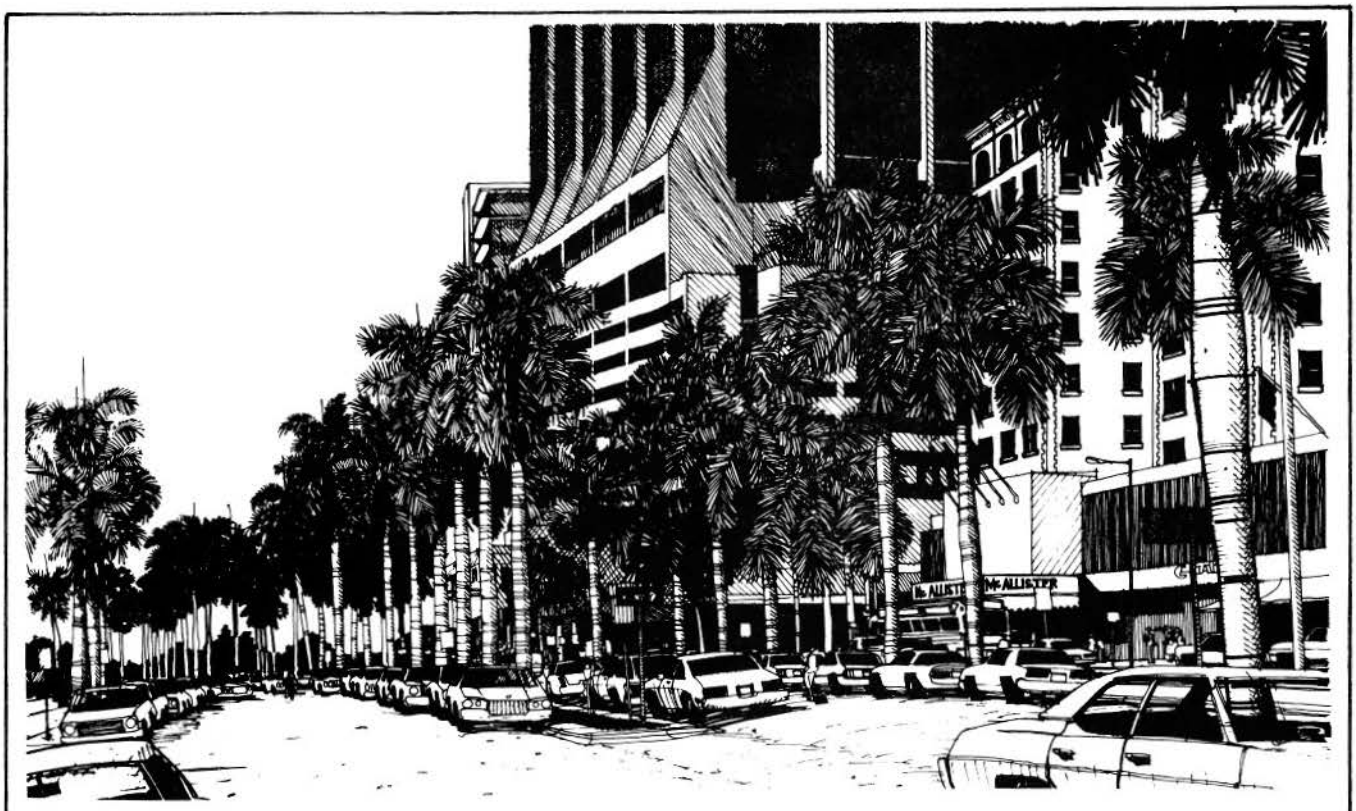


Figure 4.9a EXISTING—BISCAYNE BOULEVARD LOOKING SOUTH

Figure 4.9b PROPOSED—BISCAYNE BOULEVARD LOOKING SOUTH

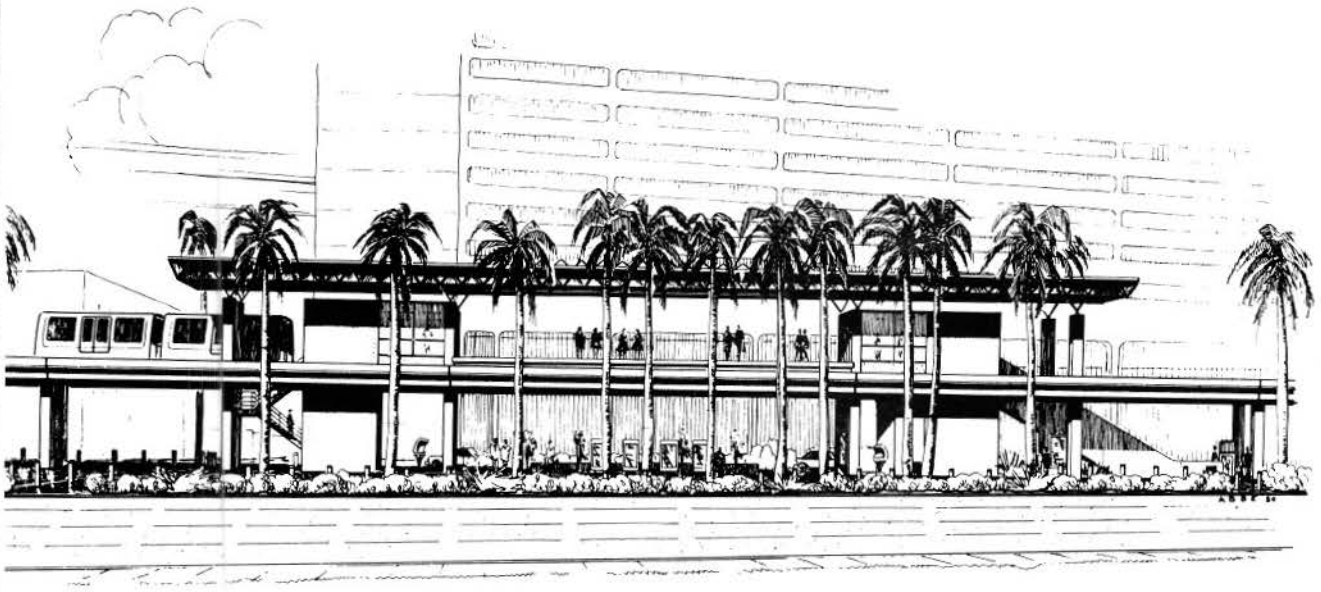


Figure 4.10a ARTIST'S SKETCH STATION 'O' LOOKING WEST

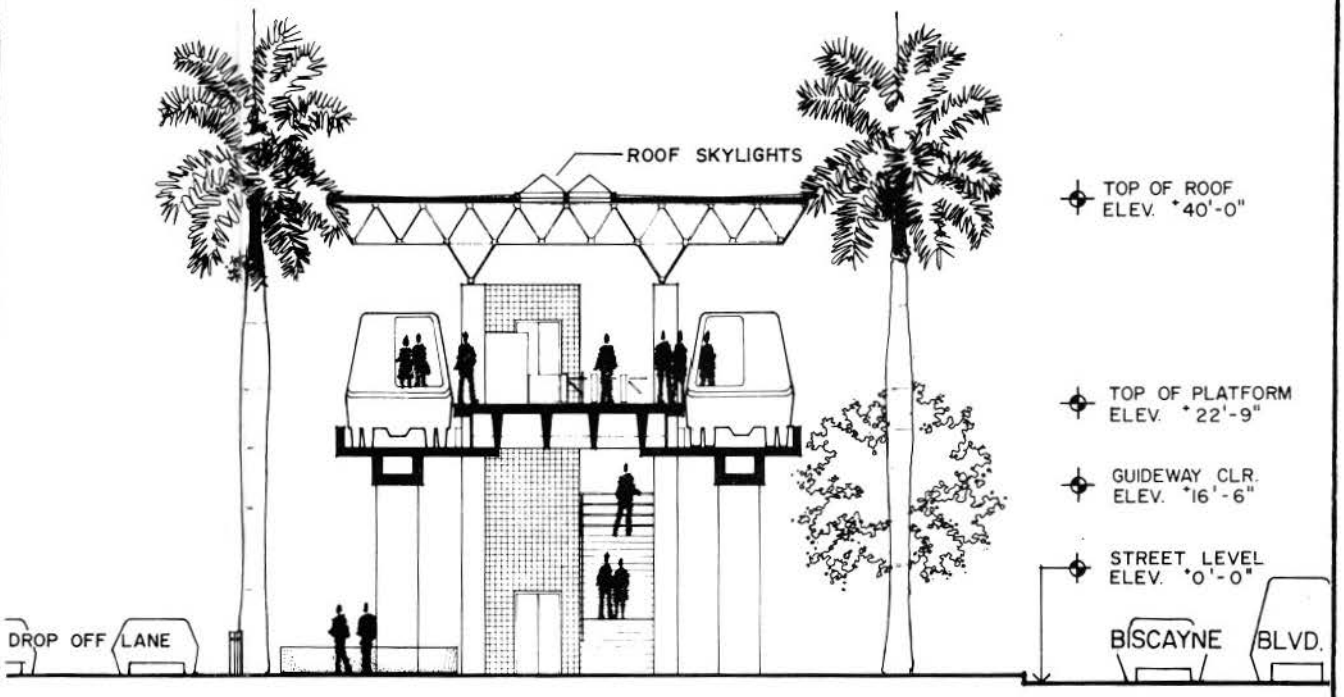
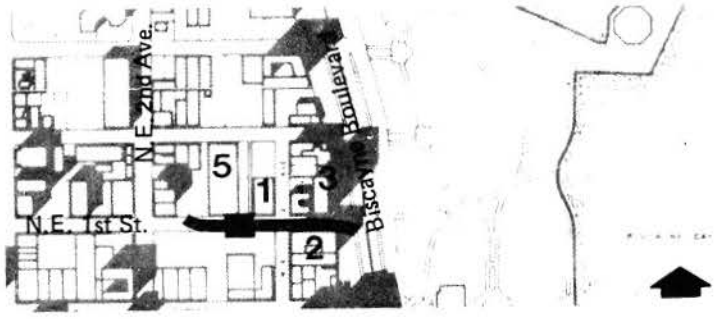


Figure 4.10b CROSS SECTION AT STATION 'O' LOOKING SOUTH

The visual effect on the high rise structures to the west of Biscayne Boulevard is negligible due to the large scale of the structures and the relative low profile of the DPM guideway and station facility. However, the view from the main lounge area of the Columbus Hotel into Bayfront Park will be partially obstructed by the presence of the double guideway.

g. Segment 7: N.E. 1st Street from Biscayne Boulevard to 100 Feet East of N.E. 2nd Avenue

Segment Description



Segment 7 turns away from the wall of high rise structures fronting on Biscayne Boulevard at N.E. 1st Street. It then enters an area of one- to six-story buildings and surface parking. Ground floor uses of most structures in the segment are devoted to tourist-oriented shops and travel agencies. Second and third floor uses on the northeastern portion of the segment are devoted to office and hotel activities. On the northwest corner of N.E. 1st Street and N.E. 3rd Avenue is the old Greyhound bus station (1). The building has recently been converted to commercial and retail uses and has become a busy activity area.

Visual Impact Analysis

From Biscayne Boulevard the double guideway proceeds along the south side of N.E. 1st Street until turning north approximately 100 feet east of N.E. 2nd Avenue. The shallow eight foot setback of the Columbus Hotel (2) and the New World Tower (3) in combination with the narrow right-of-way and sidewalks on N.E. 1st Street create a narrow streetscape. The 20-foot double guideway will take approximately 41 percent of the 48-foot air space between the two structures, resulting in a reduction of light levels during daylight hours. However, this condition will be relieved in part by considerable openness at the east and west ends of the block (Figure 4.11 a & b).

Visual impact will also result from obstruction of the Columbus Hotel facade. The DPM guideway will pass within three feet of the north elevation. However, this impact will be minimal as the elevation is non-uniform, consisting of several unrelated fenestration and detailing schemes.

Occupant privacy of the Leamington Hotel's second and third floor rooms may be adversely affected due to visibility from passing DPM vehicles. The hotel is located across the street from the DPM guideway, a distance of approximately 34 feet from the centerline of the double guideway.

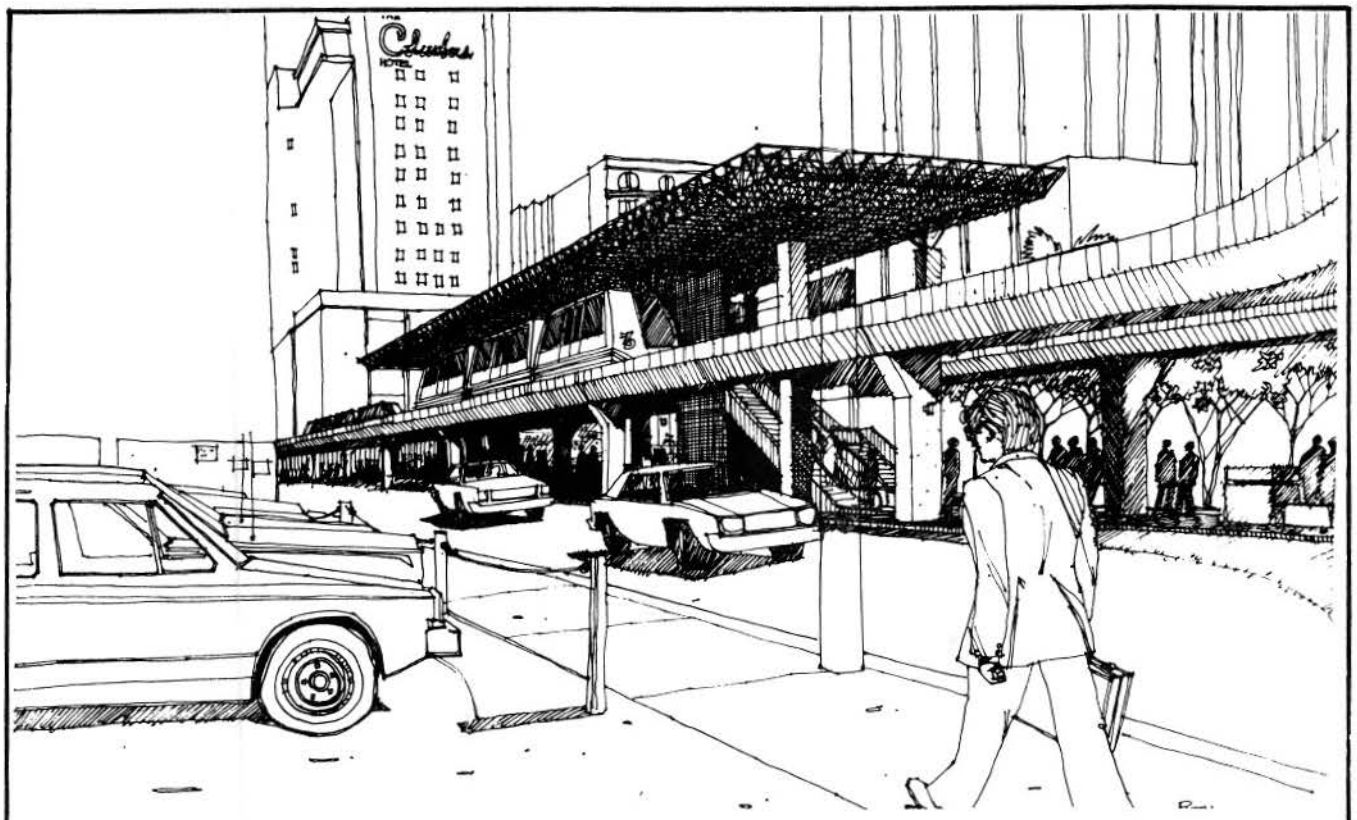


Figure 4.11a ARTIST'S SKETCH STATION 'P' LOOKING EAST

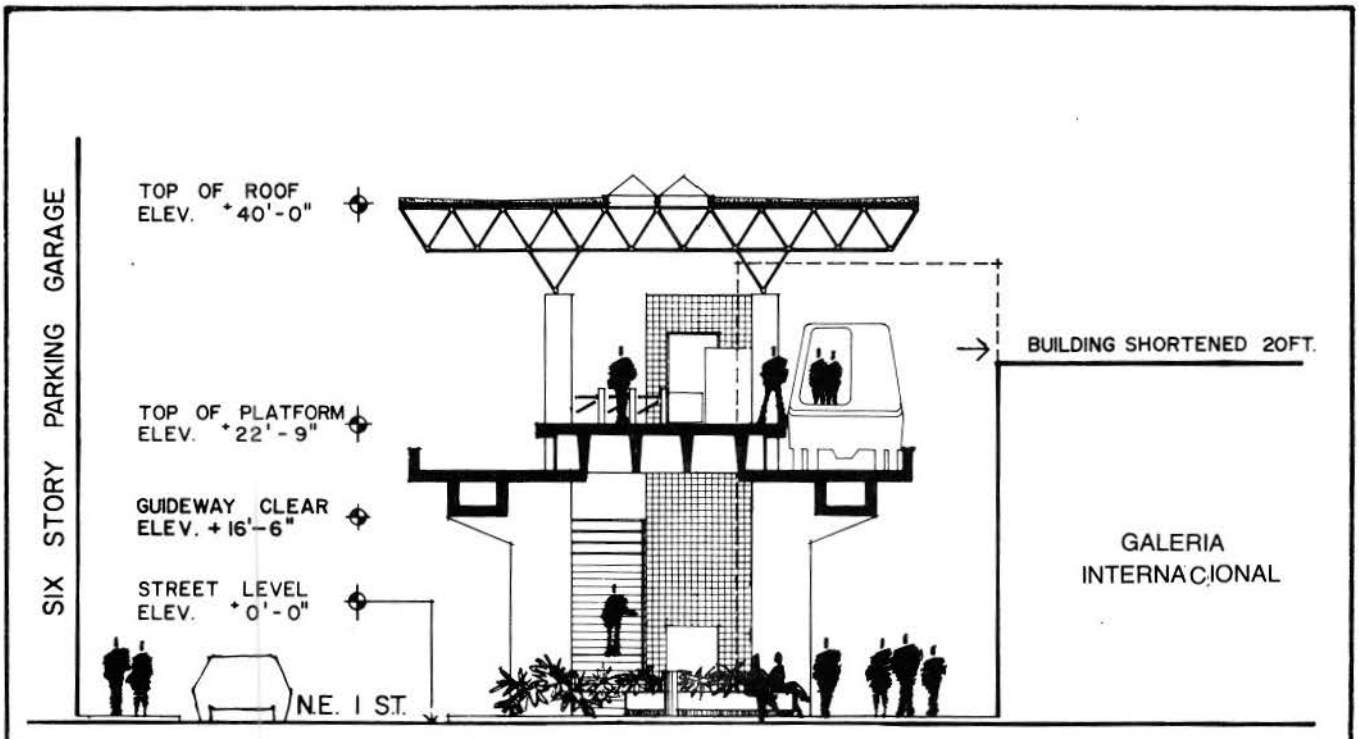
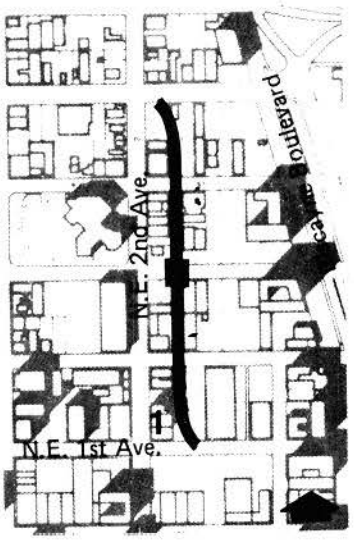


Figure 4.11b CROSS SECTION AT STATION 'P' LOOKING EAST

The station on Segment 7 will be located across the street from a 6-story parking garage (5) on property presently occupied by a recent addition to the Galeria Internacional. Due to the relatively isolated conditions of the site, surrounded by surface parking, there is no significant visual impact associated with this station.

h. Segment 8: Approximately 100 feet East of N.E. 2nd Avenue Between N.E. 1st and N.E. 5th Street

Segment Description



Segment 8 transects the four blocks between N.E. 2nd and 3rd Avenues from N.E. 1st to N.E. 5th Street. The area consists of a mixture of older hotel and rooming house structures, office buildings and small commercial buildings. Except for the 20-story Congress Building (1) and 6-story parking garage (2) at the southern portion of this segment, the adjacent structures are one to three stories in height. Most of the undeveloped property in the area is devoted to surface level parking and many of the existing structures are serviced by rear access drives.

An off street alignment paralleling N.E. 2nd Avenue was selected in this area because N.E. 2nd Avenue has insufficient width between S.E. 1st Street and S.E. 2nd Street to accomodate the DPM guideway without adversely impacting traffic flow and visually intruding on the facades of buildings facing the avenue.

Visual Impact Analysis

The DPM double guideway will pass approximately 100 feet east of 2nd Avenue. It will require the taking of several properties and relocation of occupants (see Section 4.2.1). Along this segment, the DPM profile grade is at its normal elevation approximately 20 feet above ground, maintaining a clearance of at least 16.5 feet, (measured from bottom of structure to ground level) at all street crossings. The visual impact in terms of aesthetics will be almost negligible due to the existing character of the rear facades of adjacent buildings along the DPM alignment. Most of the affected rear elevations are void of architectural detailing and are generally not visible from the surrounding streets. However, as the guideway crosses N.E. 2nd, 3rd, and 4th Streets, the corridor view of buildings fronting on these streets will be partially obstructed. The most significant of these are the First Christian Church (3) on N.E. 4th Street, and the Johnson Hotel (4) on N.E. 2nd Street. Both contain architectural features which conflict with the DPM guideway; their front facade is approximately 10 to 15 feet away from the guideway crossing.

The DPM station in Segment 8 spans N.E. 3rd Street (Figures 4.12a and b). The introduction of this element will change the existing character of the street.

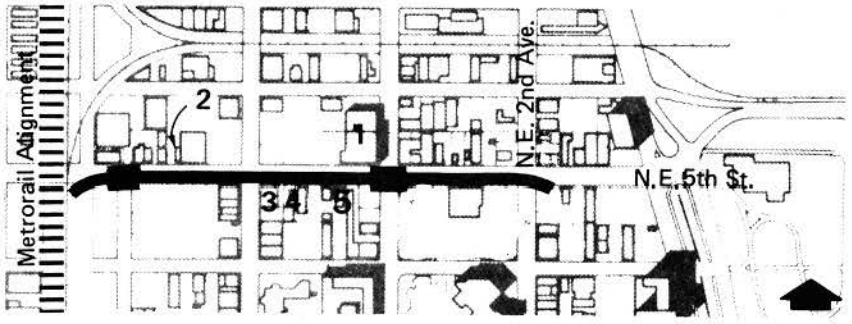
The more significant visual impact along the segment is the loss of privacy in adjacent residential structures due to visibility from the elevated DPM vehicles. This condition applies to the following structures:

1. Strand Hotel - 226 N.E. 2nd Street, 26 feet from guideway;
2. Johnson Hotel - 227 N.E. 2nd Street, 17-26 feet from guideway;
3. Hotel Colon - 229 N.E. 2nd Avenue, 6 feet from guideway; and
4. Bayview Hotel - 234 N.E. 3rd Street, 67 feet from guideway.

There are no windows in the Hotel Colon on the side facing the guideway. Its nearest windows are approximately 20 feet from the guideway.

i. Segment 9: N.E. and W. 5th Street from Biscayne Boulevard to the Metrorail Right-of Way

Segment Description



Segment 9 is beyond the CBD's densely developed node of activity and is characterized as a loosely defined corridor consisting of older one and three-story structures, surface level parking and vacant land. Approximately half the structures are residential in nature, including apartments, small hotel/rooming houses, and a few single family structures. The remaining half is a mixture of service, commercial, institutional, and office activities. The Central Baptist Church (1) is the major landmark in the segment due to its high central dome and architectural details. The Church, having both architectural and historical significance, is one of four structures on the segment considered eligible for the National Register of Historic Places. Other sites along this segment having architectural or historical significance are the Salvation Army Citadel (2), the Chaille Block (3), and Abe's Rooms (4).

N.E. 5th Street (one way eastbound) is a major access point to the Port of Miami and sustains a significant volume of heavy truck through-traffic.

Visual Impact Analysis

The DPM double guideway will pass on the south side of N.E. 5th Street approximately 20 feet over the southernmost parking traffic lane. To enable the DPM guideway to "swing" around the Chaille Block property,

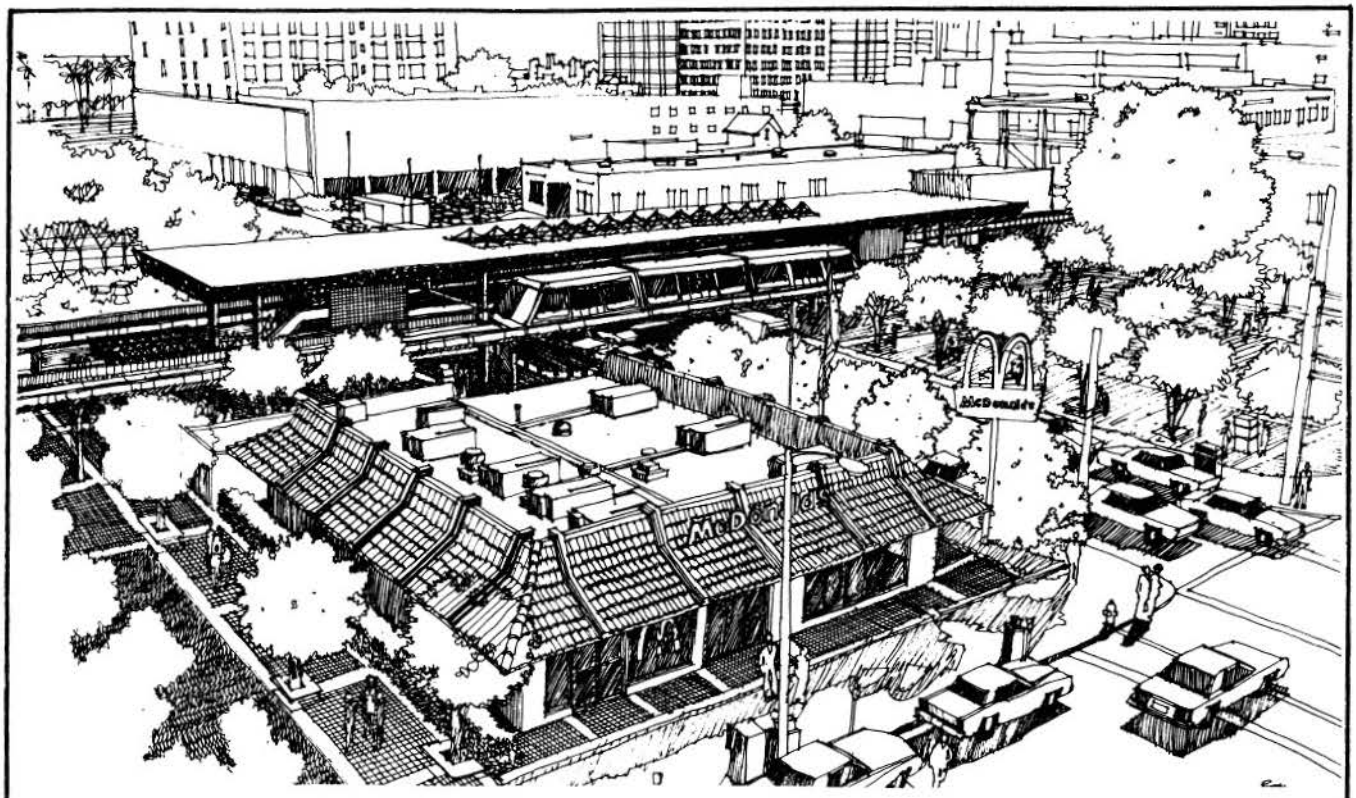


Figure 4.12a ARTIST'S SKETCH STATION 'E' LOOKING EAST

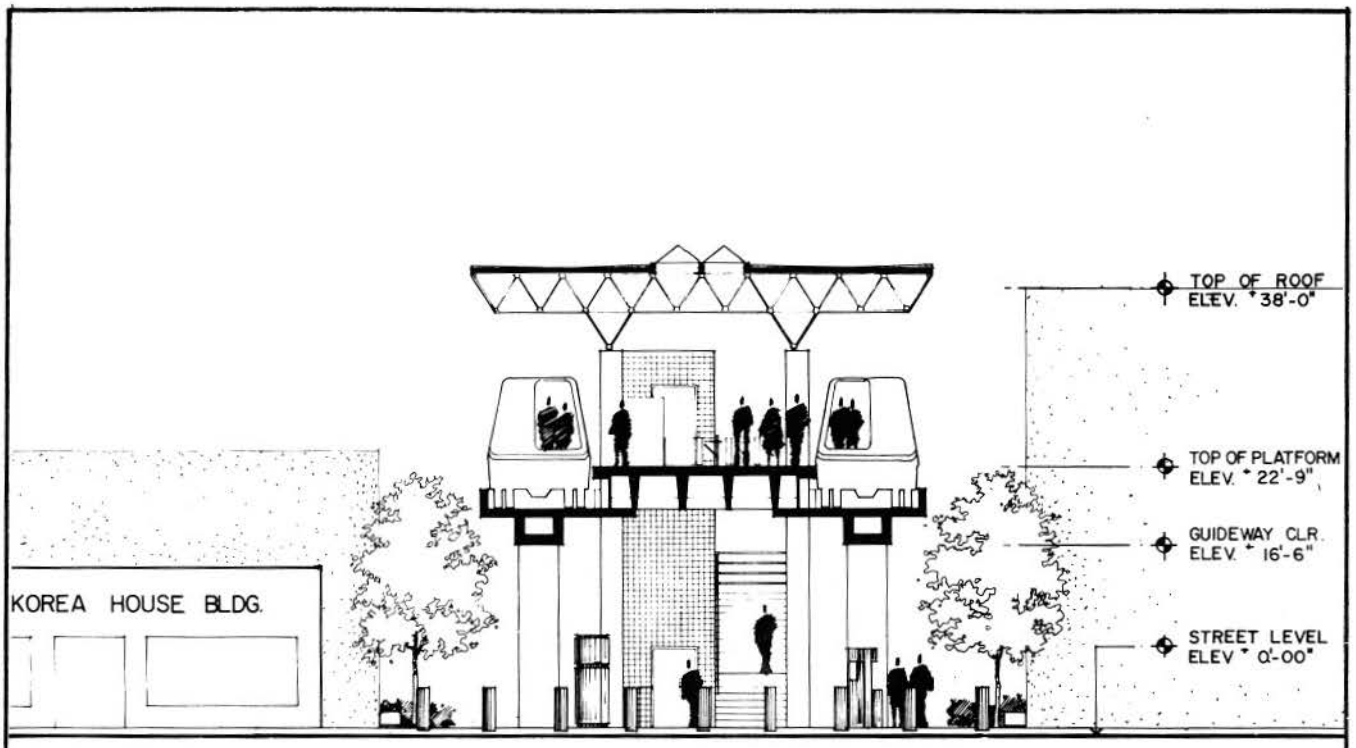


Figure 4.12b CROSS SECTION AT STATION 'E' LOOKING SOUTH

the building line of which extends to the curbline, and to maintain the existing (3) lanes of traffic, a section of North 5th Street from approximately west of North Miami Avenue to just west of N.E. 1st Avenue will have to be slightly reconfigured. This will be accomplished by introducing a slight curvature in the street's right-of-way and switching the location of the existing parking lane from the north side to the south side of 5th Street. The DPM supporting piers, which are spaced approximately every 80 feet, will then be located on the parking lane thus minimizing the impact on traffic. Two stations will be constructed along the segment, one at N.E. 1st Avenue and the other at N.W. 1st Avenue (Figures 4.13 a,& b, and 4.14 a, & b).

In general, achievement of visual compatibility between the DPM and adjacent structures will be most difficult to obtain along Segment 9. This is primarily the result of the age of the structures, their low profile and proximity to the street, and their varying materials and uses.

The more significant visual impacts will be on structures located on the south side of N.E. 5th Street which have little or no setbacks. These include the Pink Flamingo Hotel (5), and the Chaille Block (3). The impact on these structures will include facade obstruction and loss of privacy for those with resident occupants. The DPM guideway will pass within 15 feet of the hotel, and within 5 feet of the architecturally significant Chaille Block's north elevation. However, the latter structure fronts on North Miami Avenue and has few architectural details on its north elevation which could be obstructed from view by the DPM guideway. A full discussion of the impact of the DPM guideway on this property, as well as other historically or architecturally significant properties, is provided in Chapter 5.

The visual impact on residential and historic structures on the north side of 5th Street is less critical. The apartments and rooming houses between N.E. 1st Avenue and 2nd Avenue will lose some degree of privacy as the DPM vehicles pass within 36 feet of their second story windows. The DPM guideway piers and station, bridging N.E. 1st Avenue, will partially obstruct one of the best vantage points for viewing the historic Central Baptist Church.

The station in Segment 4, spanning N.W. 1st Avenue, will have no significant adverse impact on its surrounding environment, which consists of surface level parking, vacant land, and three one-story commercial structures.

B. All Bus Alternative

Implementation of the All Bus Alternative will not result in a significant impact on the visual environment of downtown Miami. While additional local buses and circulators will be present on downtown streets, these will not represent an introduction of a new visual element. Both vehicle types are currently used for transit service to and within the downtown Miami area.

The level of amenity to be provided under the Flagler Street transit mall concept will depend on the involvement of the private sector in funding the capital and maintenance costs of the mall. In general, the implementation of transit malls improves the visual setting of the street if additional pedestrian furnishings and landscaping are incorporated into the design.

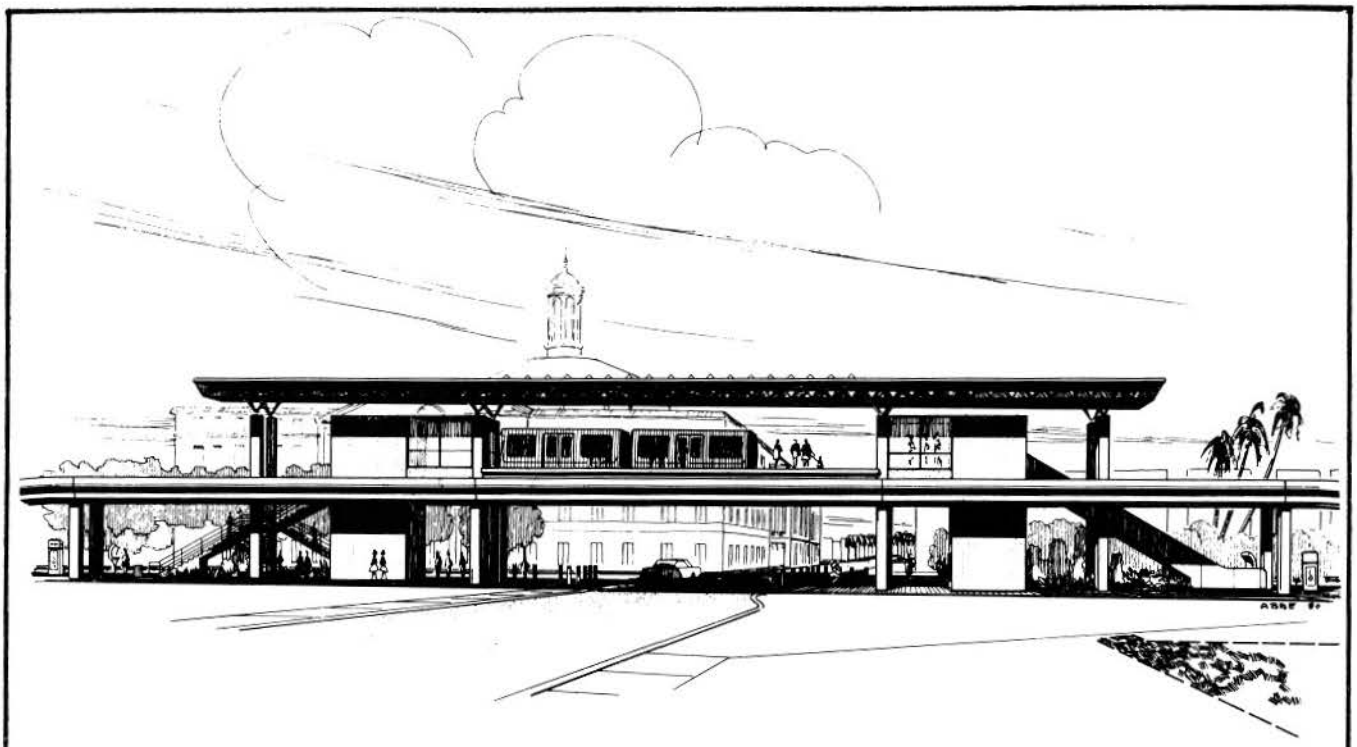


Figure 4.13a ARTIST'S SKETCH STATION 'F' LOOKING NORTH

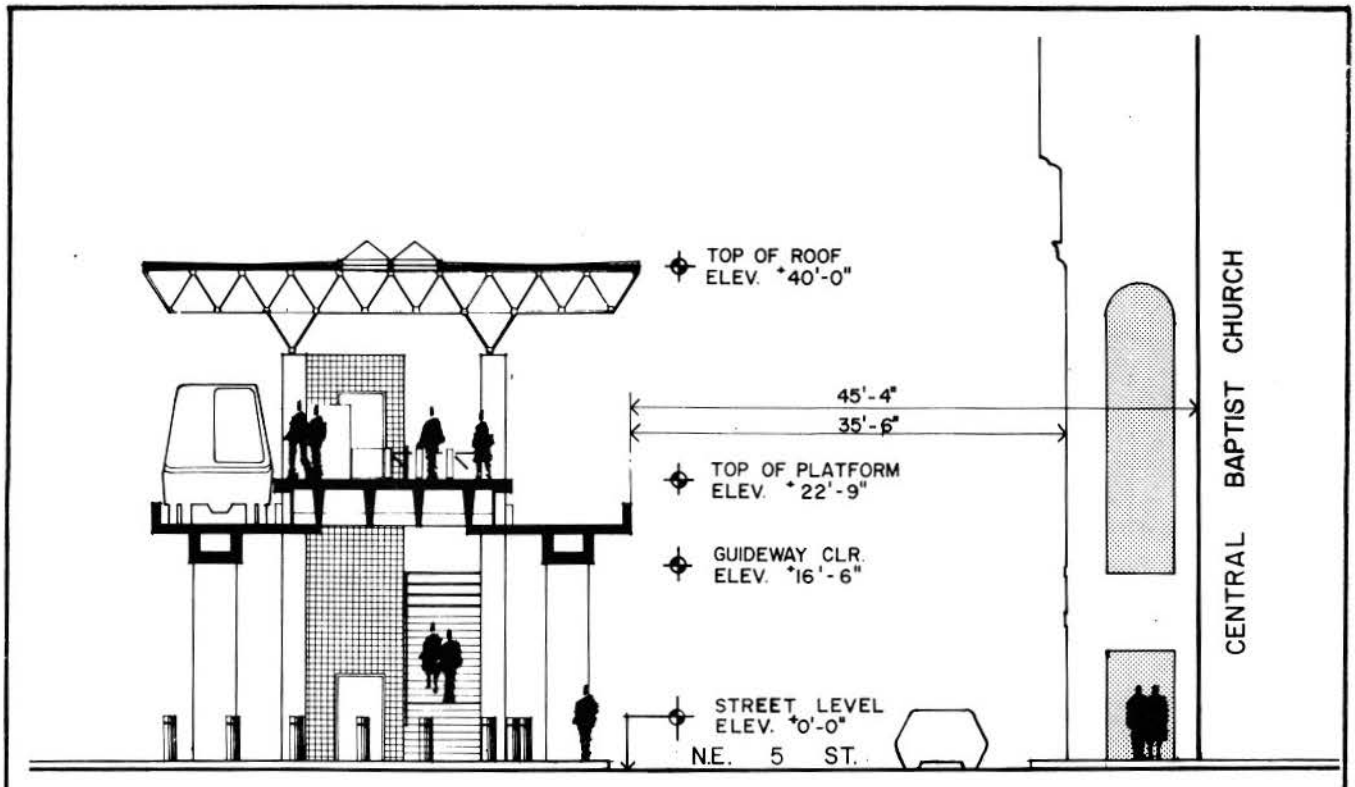


Figure 4.13b CROSS SECTION AT STATION 'F' LOOKING WEST

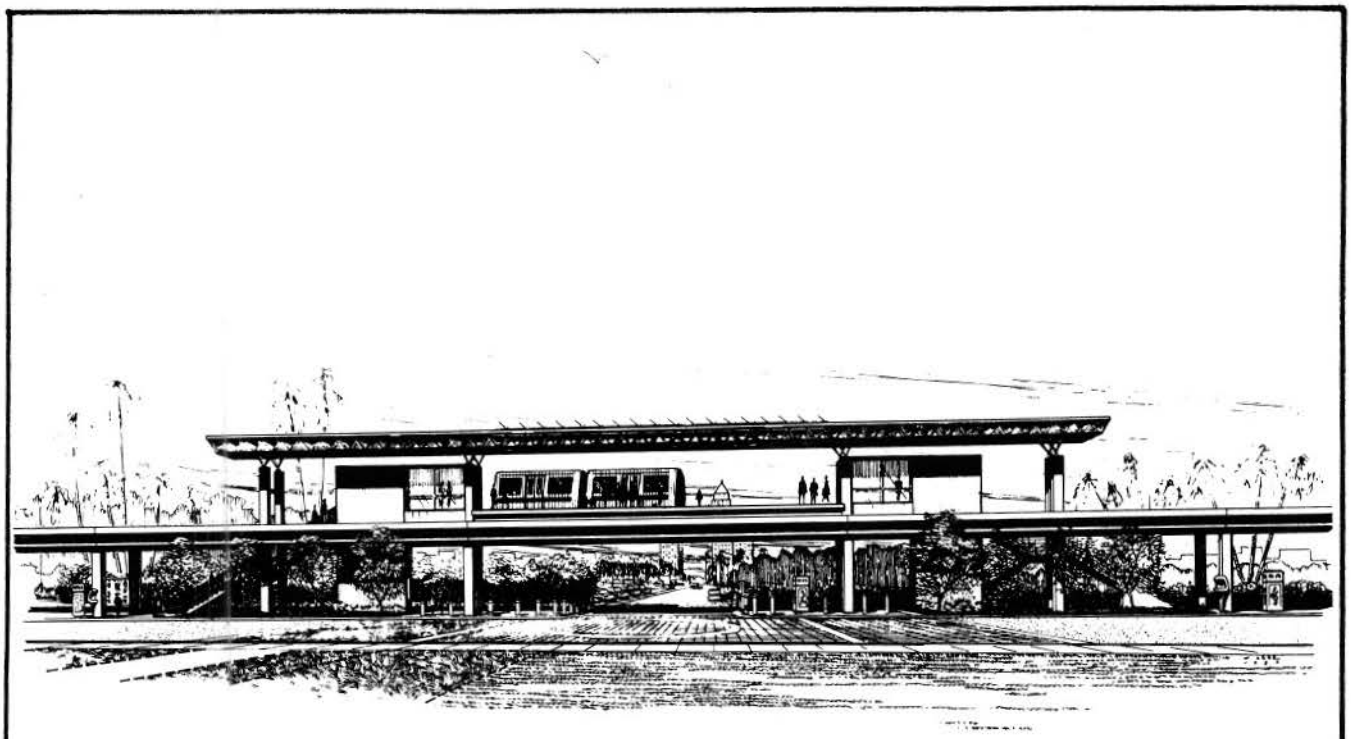


Figure 4.14a ARTIST'S SKETCH STATION 'X' LOOKING SOUTH

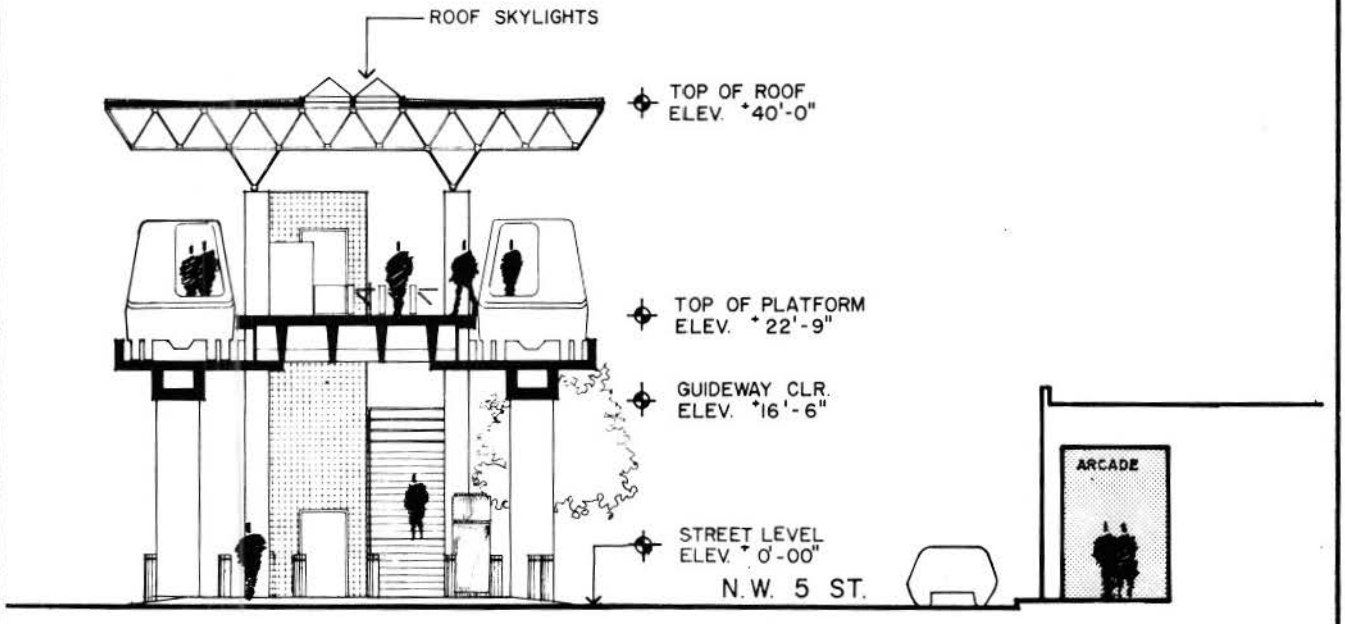


Figure 4.14b CROSS SECTION AT STATION 'X' LOOKING WEST

4.4 TRANSPORTATION IMPACTS

4.4.1 RELATION TO TRANSPORTATION GOALS, POLICIES AND PLANNING

Section 3.4.1 describes the major transportation goals policies and plans that have been adopted by Dade County and the City of Miami. The Miami Urban Area Transportation Study (MUATS), the Comprehensive Development Master Plan and the Downtown Miami, A Conceptual Transportation Plan recognize the need for an improved public transportation system in the Miami CBD.

The transportation system in Downtown Miami will require significant modification by 1985 as energy becomes more scarce and more costly, land use patterns change, urban revitalization occurs, and new development is realized in the Government Center, the Education Complex, and the Dupont Plaza/Ball Point area.

The Metrorail system will partially meet this need by carrying a significant portion of all trips into and out of the downtown area. By 1985, 8,000 persons will use the Government Center rail transit station during the peak hour. Alternatives for collection and distribution of rapid transit riders within the downtown area are considered vital to successful implementation of the Metrorail system. The details of alternatives are described in the Fifth Interim Report prepared as part of the MUATS Transit Technical Long Range Planning Study. This study concluded that the major specific site to benefit from the installation of a sophisticated collection distribution system is Downtown Miami.

A. Downtown People Mover Alternative

The DPM System is considered a suitable collection-distribution system to provide transit between the rail rapid transit stations and major activity areas within the CBD. As a distributor within the CBD area, the DPM is designed to be integrated both with the rail transit and local bus system and is a major element of the MUATS three part unified transportation system.

The DPM project's conformance to adopted plans is clear with respect to providing access from the rail rapid transit system to major employment areas through an efficient, well balanced and integrated transportation system. It conforms with the desire to reduce emission and noise levels in the CBD area by diverting auto trips to transit and reduces the conflicts between people and vehicular traffic at ground level.

B. All Bus Alternative

While the All Bus Alternative serves as a distributor for the rapid transit system and increases accessibility to major employment areas within the CBD, its efficiency is severely restricted due to the conflicts with surface level traffic.

4.4.2 SERVICE AREA

Downtown People Mover and All Bus Alternatives

The All Bus Alternative provides more extensive coverage of the downtown area than the DPM Alternative. However, it sacrifices quality of service in terms of speed and frequency in the CBD core area due to the limitations of the existing street system and conflicts with surface level traffic.

The DPM system, with tram service on Flagler and South 1st Street will replace 22.2 miles of bus service. Most of the eliminated mileage lies within the DPM loop where all travel will be made by walking, tram, and the DPM.

As shown in Table 4.4 the All Bus Alternative network requires 36 percent more vehicle miles during the peak hour than the bus network associated with the DPM Alternative.

TABLE 4.4 NETWORK CHARACTERISTICS

		All Bus Alternative	DPM Alternative
Route Miles:	Local Bus	67	51
	Circulator Bus	15	9
	Tram	-	1
	DPM	-	4
	Total:	82	65
Vehicle Miles: (peak hour)	Local Bus	614	283
	Circulator Bus	435	260
	Tram	-	67
	DPM	-	161
	Total:	1049	771

4.4.3 TRAFFIC IMPACTS

A. Downtown People Mover Alternative

Street Capacity

No traffic lanes will be lost as a result of deployment of the DPM system. In each case where the system utilizes the existing street right-of-way for its alignment, the guideway piers are located on sidewalks or in parking lanes.

Bus Volumes

To determine traffic volume impacts, changes in bus volumes resulting from implementation of the DPM Alternative were estimated for CBD intersections which are most sensitive to traffic volume increases. Intersections with traffic volumes greater than their stable flow capacity (volume to capacity ratio equal to 0.75) were investigated. The resulting volumes of bus activity at intersections were then compared to the volumes of bus activity associated with the 1979 MTA bus network (Table 4.5).

The significance of bus rerouting and consequent increase or decrease in bus activity at major intersections is shown in Table 4.6 indicating the estimated change in the operating level of service at major intersections in the CBD area. The analysis indicates that there is no significant decrease in levels of service as a result of implementing the DPM Alternative. A significant improvement in level of service does occur at the intersections of Biscayne Boulevard with N.E. 4th and N.E. 6th Street due to a significant decrease in bus activity at these locations.

Visual Impacts to Motorists

To assess visual impacts to motorists each segment of the DPM alignment, including guideway segments, station areas, and the maintenance facility location, were investigated for potential visibility problems. Results of the analysis indicate that the major visual impacts to motorists will include partial visibility obstruction of vehicles approaching an intersection and/or pedestrians beginning to cross an intersection at the curb.

Five intersections have been identified as impacted (Figure 4.15). The most significant visibility impacts will occur at the intersection of N.E. 5th Street and N.E. 1st Avenue, and at the intersection of S.E. 1st Street and South Miami Avenue. At both locations DPM stations will bridge the street in close proximity to the intersection. Motorist views of oncoming vehicles and pedestrians at the curb will be blocked by piers supporting the DPM guideway and station platform.

Actions to mitigate visibility impacts in less severe problem areas will include repositioning of traffic signals which are not easily visible and/or upgrading signalization and signage at impacted intersections. The more severe problems will be mitigated during final design of the system when the precise location of the piers is established.

Impacts on Parking, Loading Zones, and Taxi Stands

Long-term impacts on parking will include displacement of approximately 90 parking spaces from existing streets and off-street surface parking facilities (Table 4.7). Takings will occur primarily where the guideway is located above the parking lane on streets; support column design requires extension of the curb and widening of the sidewalk for protection of the piers from passing traffic.

TABLE 4.5
VOLUME OF BUSES AT INTERSECTIONS WITH VOLUME/CAPACITY (V/C) RATIO GREATER THAN OR EQUAL TO .75*

INTERSECTION (Ranked according to sensitivity in volume increases)	1979 V/C		1979 MTA	DPM		ALL BUS ALT.	
	AM	PM	Volume at Peak Hour	Vol. at Peak Hr.	Vol. Change	Vol. at Peak Hr.	Vol. Change
1. Biscayne Blvd. & S.E. 2nd Street	.78	1.25	63	30	-33	30	-33
2. S.E. 2nd Avenue & S.E. 2nd Street	.40	1.20	45.5	21	-24.5	33	-12.5
3. Biscayne Boulevard & N.E. 6th Street	1.11	1.00	111.5	66	-45.5	78	-33.5
4. N.E. 6th Street & N.E. 1st Avenue	.43	1.04	20	32.5	+12.5	34	+13.3
5. Biscayne Boulevard & N.E. 1st Street	.75	1.00	122	6	-116	121	-1
6. Biscayne Boulevard & N.E. 4th Street	.72	1.00	154	6	-148	93.5	-60.5
7. S.E. 3rd Avenue & Biscayne Boulevard Way	.99	.87	30	27	-3	27	-3
8. S.E. 1st Avenue & S.E. 1st Street	.98	.73	65	None	-65	51.5	-13.5
9. Biscayne Boulevard & N.E. 3rd Street	.57	.96	83.5	6	-77.5	93.5	+10
10. N.E. 6th Street & N.E. 2nd Avenue	.88	.78	9	33	+24	15	+6
11. S.E. 2nd Avenue & S.E. 3rd Street	.85	.66	16.5	21	+3.5	21	+3.5
12. N.E. 2nd Avenue & N.E. 5th Street	.80	.58	12	52.5	+40.5	15	+3
13. N.E. 6th Street & Miami Avenue	.40	.75	17.5	19	+1.3	22	+4.3

*1. Significance of volume change at intersections must be interpreted by comparison to volume to capacity ratios.
2. Traffic volume data source: Metropolitan Dade County.
3. V/C estimated using Chart 19 of the "Intersection Capacity Analysis Charts and Procedures," published by the Traffic Institute–Northwestern University.

TABLE 4.6 ESTIMATED CHANGES IN OPERATING LEVEL OF SERVICE AT MAJOR INTERSECTIONS

Intersections	Existing (1979) AM	Existing (1979) PM	All Bus Alt. AM	All Bus Alt. PM	DPM Alt. AM	DPM Alt. PM
1. Biscayne Blvd. & S.E. 2nd Street	A	E	A	D	A	D
2. S.E. 2nd Avenue & S.E. 2nd Street	A	E	A	E	A	E
3. N.E. 6th Street & N.E. 1st Avenue	A	D	A	D	A	D
4. Biscayne Blvd. & N.E. 3rd Street	A	C	A	C	A	C
5. N.E. 6th Street & N.E. 2nd Avenue	B	A	B	A	C	B
6. S.E. 2nd Avenue & S.E. 3rd Street	A	A	A	A	A	A
7. S.E. 3rd Avenue & Biscayne Blvd. Way	C	A	C	A	C	A
8. Biscayne Blvd. & N.E. 1st Street	A	C	A	A	A	C
9. N.E. 2nd Avenue & N.E. 5th Street	A	A	B	A	A	A
10. Biscayne Boulevard & N.E. 4th Street	A	C	A	C	A	A
11. Biscayne Boulevard & N.E. 6th Street	D	C	C	A	C	A
12. S.E. 1st Avenue & S.E. 1st Street	C	C	C	C	C	C
13. N.E. 6th Street & Miami Avenue	A	A	A	A	A	A
14. N. 1st Street & Miami Avenue	C	C	C	E	C	C

1. Traffic Volumes Data Source: Metropolitan Dade County.
2. Level of service estimated using chart 19 of the "Intersection Capacity Analysis Charts and Procedures," published by the Traffic Institute, Northwestern University.
3. Level of Service Definitions:

Level of Service	Load Factor	Definition
A	0.0	No green phase of signalized intersection is fully utilized.
B	0.1	Occasionally green phase does not clear.
C	0.1-0.3	Occasionally drivers may have to wait for more than one signal indicator and backups may occur behind turning vehicles.
D	0.3-0.7	Delays to approaching vehicles may be substantial during short peaks but periodic clearance occurs.
E	1.0	Every cycle is fully utilized and long-term congestion occurs.

TABLE 4.7 PARKING DISPLACEMENTS

Location	No. of Spaces
Biscayne Boulevard	10
South First Street	4
N.E. First Street	5
North Fifth Street	15
Site for DPM Maintenance Facility	40
DPM Alignment 100' East of Second Avenue	6
Off-street Parking under I-95 Distributor	10
Total:	90

On N.E. 5th Street parking takings will also occur where the DPM will close a traffic lane on the south of the street. To maintain the existing number and width of traffic lanes the street will be widened on the north side taking the present parking lane. A third area of impact on parking will include the loss of approximately ten off-street parking spaces in the surface parking area between the I-95 distributor and the Goodwill Industries Building on South Miami Avenue.

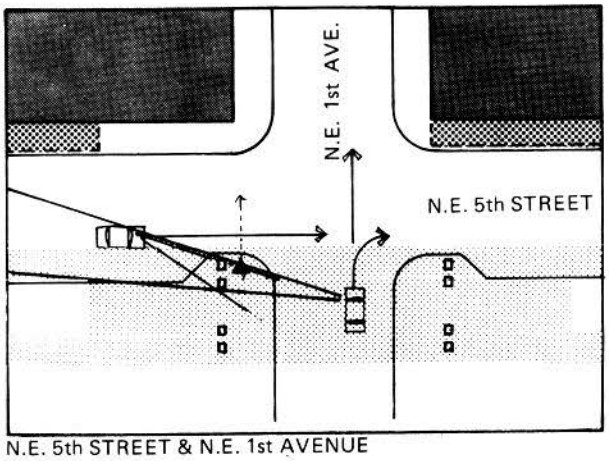
Placement of piers within street rights-of-way will also disrupt loading zones. Parallel parking will be required between columns. On S.E. 1st Street, between S.W. 1st Avenue and S.E. 1st Avenue, three loading areas will be affected. Interferences will be most significant when large tractor trailers make deliveries to the Kress and Burdines stores. Access to the rear loading area of the Goodwill Industries Building at 200 S. Miami Avenue will also be restricted. Parking between piers will be limited to smaller trucks and vehicles.

Two taxi stands will be located beneath the alignment. One stand which is adjacent to Burdines will not be adversely impacted. The stand on the corner of N.E. 1st Street and Biscayne Boulevard will have to be shifted slightly westward to accomodate pier placement.

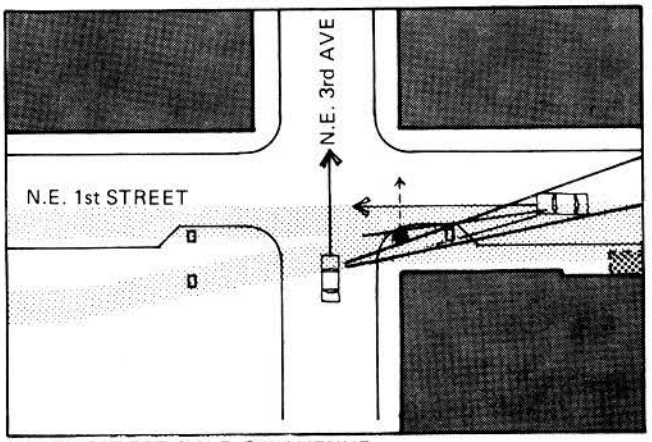
B. All Bus Alternative

Bus Activity

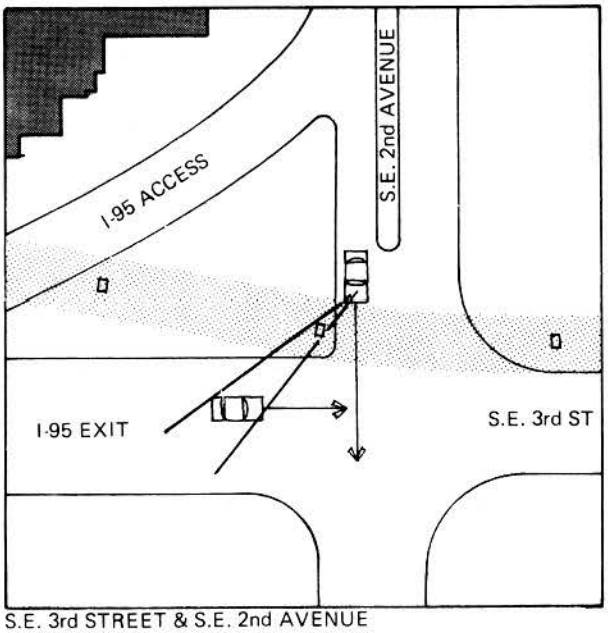
The All Bus Alternative will reduce bus activity at seven intersections in the CBD area currently operating at their stable flow capacity (Table 4.5). Bus activity will increase at six of the major intersections, however, the impact on operating levels of service is minor. The operating level of service at the intersection of North Miami Avenue and North 1st Street, which presently has a V/C ratio less than .75, will be significantly affected by an increase in bus activity from the All Bus Alternative as well as the diverted autos from the Flagler Street transit mall (see Table 4.6).



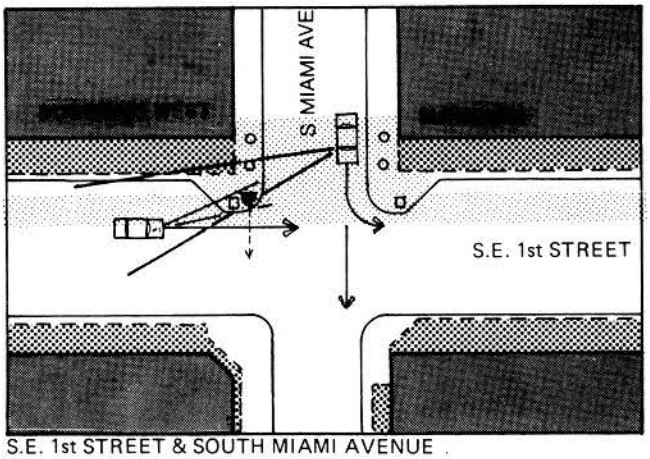
N.E. 5th STREET & N.E. 1st AVENUE



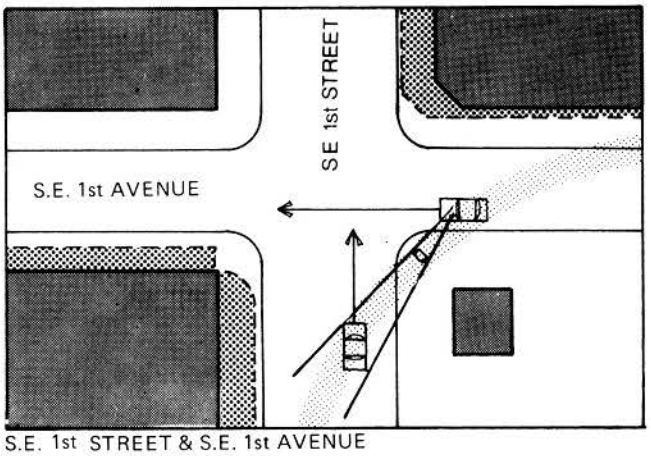
N.E. 1st STREET & N.E. 3rd AVENUE



S.E. 3rd STREET & S.E. 2nd AVENUE



S.E. 1st STREET & SOUTH MIAMI AVENUE



S.E. 1st STREET & S.E. 1st AVENUE

LEGEND

- CONE OF VISUAL OBSTRUCTION–VEHICLE
- CONE OF VISUAL OBSTRUCTION–PEDESTRIAN
- AFFECTED VEHICLE MOVEMENT
- PEDESTRIAN
- DPM SUPPORT PIERS
- ELEVATED DPM GUIDEWAY

Figure 4.15 VISUAL IMPACT ON MOTORISTS

Visual Impacts to Motorists

Implementation of the All Bus Alternative will not result in significant negative visual impacts on motorists and pedestrians at intersections in the Miami CBD area.

Impacts on Parking, Loading Zones, and Taxi Stands

Implementation of the All Bus Alternative will generally not result in the loss of parking spaces, or the disturbance of loading zones or taxi stands in the CBD area. However, implementation of the Flagler Street Transitway will result in a reconfiguration of these uses. Loading areas on Flagler Street will be the most affected with access restricted to off peak hours. Restricted access to surface parking lots adjacent to Flagler Street will require some modification to the configuration of parking spaces.

Traffic Impacts

Restricting automobile traffic on Flagler Street will affect traffic conditions on N.W. and N.E. 1st Street and on S.W. and S.E. 2nd Street. Both of these streets presently experience periodic congestion, primarily during the evening peak hour. The most significant impact from the rerouted westbound traffic on these neighboring streets will occur at the intersections of S.E. 2nd Street and Biscayne Boulevard and S.E. 2nd Avenue. Both of these streets, as indicated in table 4.13, presently experience significant delays during PM peak hour traffic.

4.4.4 SERVICE TO THE TRANSIT DEPENDENT POPULATION

Downtown People Mover and All Bus Alternatives

It is expected that both the DPM and the All Bus Alternatives will provide improved service to transit dependents within the CBD area and the region.

The regional transit dependent population will be provided easy access to CBD destinations after transferring from the Metrorail system. Local residents in the CBD will find it convenient to move about the area on the elevated DPM. One elderly housing project, totalling 150 units, will be developed within one block of the DPM station at N.E. 5th Street and N.E. 1st Avenue.

4.5 SHORT-TERM CONSTRUCTION IMPACTS

4.5.1 RESIDENTIAL POPULATION

A. Downtown People Mover Alternative

Residential structures adjacent to, or across the street from, the DPM alignment are identified in Table 4.16. For the most part, the apartments and hotels listed are used as permanent residences. Few provide tourist or business accomodations. Some are frequented by transients. The residential population is generally older with few children, and is characterized by a high proportion of Spanish-speaking and Black individuals. Incomes are typically low.

TABLE 4.8
RESIDENTIAL USES ADJACENT TO DPM ALIGNMENT

Name	Location	Total Units (Est.)	Units Facing DPM (Est.)	Proximity to DPM
Clyde Court Apts.	68 SE 2nd Avenue	80	12	40 Ft. to side facade
Abe's Rooming House	22 NE 5th Street	18	5	30 Ft. to front facade
Pink Flamingo Hotel	28 NE 5th Street	31	3	13 Ft. to front facade
(Unnamed Building)	121 NE 5th Street	36	6	35 Ft. to front facade
(Unnamed Building)	127 NE 5th Street	30	6	35 Ft. to front facade
(Unnamed Building	135 NE 5th Street	2	2	58 Ft. to front facade
(Unnamed House)	139 NE 5th Street	2	2	55 Ft. to front facade
(Unnamed House)	143 NE 5th Street	2	2	55 Ft. to front facade
Williams Apts.	151 NE 5th Street	40	6	37 Ft. to front facade
Raybar Property	505 NE 2nd Avenue	10	5	45 to 62 Ft. to side facade
(Unnamed Building)	215 NE 5th Street	18	6	57 to 72 Ft. to front facade
Bayview Hotel	234 NE 3rd Street	38	25	50 Ft. to front facade
Hotel Colon	229 NE 2nd Avenue	25	6	15 Ft. to windowless rear facade
Johnson Hotel	227 NE 2nd Street	46	10	8 Ft. to side facade
Strand Hotel	226 NE 2nd Street	70	35	8 Ft. to side facade
Hotel Leamington	307 NE 1st Street	90	18	25 Ft. to front facade
Columbus Hotel	50 Biscayne Blvd.		none on 1st 3 floors	5 Ft. to front facade
Colum I Bldg.	SE 1st Ave. between SE 2 & SE 3 Streets	50	18	7 to 35 Ft. to front facade

DPM construction disturbances to residents will vary with distance to the alignment and the nature of construction activity. Increased noise and dust will occur during daytime construction hours. Typical noise levels associated with DPM construction activity measured at distances of 50 feet and 10-15 feet have been provided in table 4.6. Access to residences along the east side of S.E. 1st Avenue, the south side of N.E. 5th Street, on N.E. 3rd Street, and on N.E. 2nd Street, will suffer disruption, but access to these locations will be maintained.

The most severe construction impact will be increased daytime noise (see Section 4.6.4). L_{eq} values measured at 50 feet from the construction site are expected to range from 86 to 91 dBA's. At distances of 10-15 feet these values will range from 92 to 97 dBA. The effect of this noise on residential structures will be mitigated as a function of distance to the alignment, type of structure, and presence of air conditioning (see Table 4.6). Interior noise levels will generally be 10 to 25 dBA's lower. The most severe impacts will occur in structures lacking air conditioning within 50 feet of the alignment, including:

1. Colum I Building
2. Abe's Rooms
3. Pink Flamingo Hotel
4. 121 N.E. 5th Street
5. 127 N.E. 5th Street
6. Williams Apartments
7. Johnson Hotel.

Impacts on residences in these structures will be mitigated to the extent possible through scheduling of construction activities during the least disruptive times of the day. The least noise generating equipment available will be used in noise sensitive locations. Access to residential structures will be maintained at all times.

B. All Bus Alternative

Construction associated with the conversion of Flagler Street to a transit mall will have a short term impact on area residents as well as shoppers and people whose place of employment is in the vicinity of the construction area. The amount of disruption would depend on the level of work required to implement the mall. For instance, if utility relocation work is involved longer and more detrimental effects can be anticipated. Sidewalk improvements, including its widening, reconfigureation of the curbline, placement of sidewalk pavers, erection of bus shelters and installation of amenities such as benders, plasters, etc., will temporarily disrupt access to stores and buildings on Flagler Street. Construction disturbances such as increased noise and dust can also be anticipated as a result of implementation of the transit mall.

4.5.2 ECONOMIC ACTIVITY

A. Downtown People Mover Alternative

Costs of labor and materials for construction of the DPM system are estimated at $76 million. Approximately 90 percent of this $76 million, or $68.4 million, can be described as "new money" to the Metropolitan Dade County region. It is estimated that $53.2 million or 78 percent of the total $68.4 million in "new money" construction cost will take place in Metropolitan Dade County. The cumulative regional impact of this new investment in the local economy will include increases in local business activity, employment, and household income.

Business Activity

The $53.2 million for DPM system construction cost to be spent in Metropolitan Dade County has been broken down as follows:

Construction - $18.0 million
Materials and Supplies - $24.7 million
Engineering and Management - $5.0 million
Contingencies - $5.5 million

Applying a 3.48 output multiplier for the Metropolitan Dade County Region[1], the indirect local gain attributable to the initial purchases of labor and material required to construct the project has been estimated at $132 million.

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[1] Kaiser Transit Group. "Economic Assessment of the Impact on Employment and Wages of Metropolitan Dade County Resulting from Federal Rapid Transit Investment." December 1977.

Considering both direct and indirect gains, the cumulative regional impact on business activity of the DPM investment will be approximately $185.2 million. Expressed as a dollar ratio, this indicates that for every dollar invested by a 17 percent local support of the total capital costs of the DPM system, approximately $21 in economic activity will be generated in the Dade County Region.

Household Income Effect

Of the $53.2 million for DPM construction to be spent in the local economy, approximately $27.9 million will be spent in the form of wages, salaries, and fringe benefits. This includes $18 million for labor, $4.7 million for engineering and management, and $5.2 million for the contingency budget. Allowing for a non-income fringe benefit of 20 percent, the total direct impact of DPM construction on regional household income will be approximately $22.3 million.

Indirect gains in household income are expressed as a percentage of indirect gains in business activity. Assuming this percentage to be 70 percent, approximately $92.4 million of the total indirect gains in business activity will be in the form of wages and salaries. Allowing for a slightly lower non-income fringe benefit of 15 percent, the total indirect impact of DPM construction on regional household income will be approximately $78.5 million.

Considering both direct and indirect gains, the cumulative regional impact on household income of the DPM investment will be approximately $100.8 million. The household income multiplier for the DPM project, expressed as the ratio of $100.8 million total induced household income to $53.2 million direct expenditure in the local economy, is estimated to be 1.89.

Employment Effect

Construction of the DPM system will result in the local expenditure of $27.9 million for wages and salaries. Assuming a 1982 (mid-year of construction) average hourly construction wage and salary rate (including fringe benefits) of $13.95, DPM system construction will generate 962 man years of employment during the 26-month construction period. (See table 4.9)

Induced indirect gains in household income resulting from DPM construction have been estimated at $78.5 million. Assuming a 1982 South Florida average household income of $18,315 and 1.3 employees per household, it is estimated that this gain will produce at least 5,572 additional man years of employment in the Metropolitan Dade County Region.

Considering both direct and indirect employment gains, the $53.2 million local construction expenditure for the DPM will produce a total of 6,534 man years of employment.

TABLE 4.9
SUMMARY OF DIRECT AND INDIRECT/INDUCED EFFECTS OF DPM CONSTRUCTION ON METROPOLITAN DADE COUNTY

	Direct Effect	Indirect/ Induced Effect	Total Effect	Ratio of Total Effect to Direct Effect
Business Activity	$53.2 mil	$132 mil	$185.2 mil	3.48
Household Income	$22.3 mil	$ 78.5 mil	$100.8 mil	4.52
Employment	962 man-years	5,572 man-years	6,354 man-years	7.78

Business Disruptions

Construction of the DPM system will cause temporary disruptions to businesses directly adjacent to the alignment. Disruptions will be in the form of increased noise and dust, impeded access, and in some instances disturbances to loading areas. Along blocks where guideway construction will occur disruptions will occur for approximately two months; blocks with station facilities will be disturbed for three to four months.

Businesses directly adjacent to the DPM alignment are identified in Table 4.10. Businesses which will be most adversely impacted include those located along S.E. 1st Avenue (between S.E. 2nd and S.E. 3rd Streets), along S.E. 1st Street (between S.E. 1st Avenue and S.W. 1st Avenue), and along N.E. 1st Street (between N.E. 2nd Avenue and Biscayne Boulevard). A total of 26 businesses along these blocks will suffer impeded access during the construction period. While several additional businesses will have access to their loading areas impeded by construction, the only significant impact will occur at the rear of the Goodwill Industries facility at 200 S. Miami Avenue. The Miami Avenue entrance to the Goodwill Industries parking lot will most likely be closed throughout the duration of construction of Station L (Fort Dallas Park Station). During this period of time, access and egress to and from the parking lot and loading area will be limited to the S.W. 1st Street entrance. After construction is completed, the Miami Avenue entrance/exit will be operational, however, it will be slightly reconfigured to accommodate the DPM station access facilities (stairs, elevator). Approximately 6-8 parking spaces will be permanently lost as a result of the DPM facilities. The County would provide Goodwill an equivalent number of spaces from one of their parking facilities contiguous to Goodwill's parking lot.

In the case of very marginal businesses, this short term disruption could have adverse economic effects and although it is not anticipated, it is possible that some business closings could occur.

TABLE 4.10
BUSINESS USES ADJACENT TO DPM ALIGNMENT

Location	Business Name/Description	Relation to DPM			DPM Construction Disturbance	
		Front	Rear	Side	Access	Loading
Colum I Building—S.E. 1st Avenue between S.E. 2nd & S.E. 3rd Streets	Variety Store	X			X	
	Luggage Store	X			X	
	Tailor Shop	X			X	
	Restaurants (4)	X			X	
	Religious Shop	X			X	
	Shoe Store	X			X	
	Import/Export Store	X			X	
	Adult Book Store	X			X	
	Jewelry Store	X			X	
200 S. Miami Avenue	Goodwill Industries		X			X
81 S.E. 1st Street	Sunglasses Shop	X			X	
79 S.E. 1st Street	Jewelry Store	X			X	
77 S.E. 1st Street	Coffee Shop	X			X	
75 S.E. 1st Street	Clothing Store	X			X	
73 S.E. 1st Street	Gift Shop	X			X	
71 S.E. 1st Street	Grocery Store	X			X	
54 E. Flagler Street	S.M. Kress & Co.		X			X
44 E. Flagler Street	Woolworth		X		X	
22 E. Flagler Street	Burdine's		X		X	X
20 S.E. 1st Street	Apcoa Parking Garage	X			X	
65 S.E. 1st Street	Watson Building	X			X	X
51 S.W. 1st Avenue	Federal Building			X	X	X
12 N.W. 5th Street	House of Miracles	X			X	
14 N.W. 5th Street	Barber Shop	X			X	
443 N. Miami Avenue	Clothing Store		X		X	
446 N. Miami Avenue	Bar			X	X	
99 N.E. 4th Street	Trailways Bus Depot			X	X	
339 N.E. 2nd Avenue	Cosmetic Store		X			X
337 N.E. 2nd Avenue	Restaurant		X			X
325 N.E. 2nd Avenue	Travel Agency		X			X
319 N.E. 2nd Avenue	Unoccupied		X			X
317 N.E. 2nd Avenue	Printing Shop		X			
301 N.E. 2nd Avenue	Restaurant		X		X	
230 N.E. 3rd Street	Korea House Grocery			X	X	
225 N.E. 2nd Avenue	Jewelry Store		X			X
223 N.E. 2nd Avenue	Luggage/Stereo Store		X			X
219 N.E. 2nd Avenue	Shoe Store		X			X
215 N.E. 2nd Avenue	Sporting Goods Store		X			X
213 N.E. 2nd Avenue	Electronics Company		X			X
111 N.E. 2nd Avenue	Congress Building			X		
250 N.E. 1st Street	Galeria Internacional	X			X	
300 N.E. 1st Street	Import/Export Store	X			X	
304 N.E. 1st Street	Hifi Store	X			X	
306 N.E. 1st Street	Barber Shop	X			X	
308 N.E. 1st Street	Florist	X			X	
320 N.E. 1st Street	Camera Store	X			X	
N.E. 1st Street & Biscayne Boulevard (southside)	British Airways	X			X	
50 Biscayne Boulevard	Columbus Hotel	X			X	

B. All Bus Alternative

Implementation of the All Bus Alternative will not have any significant short-term impacts on business activity, household income, or employment in the Metropolitan Dade County region. However, the possible transit mall on Flagler Street could result in both positive and negative economic impacts on existing businesses.

The study of the effects of transit malls in Philadelphia, Minneapolis and Portland, Oregon, reported the following economic findings regarding those facilities:[1]

> The overall impression of local officials and business leaders is that transit malls have a positive impact on the local business climate. However, this opinion is not shared by all merchants, and most benefits appear in secondary economic indicators rather than retail sales.
>
> 1. There is no evidence of overall increase in retail sales, although the transit mall may have stabilized declining retail sales in Philadelphia and Minneapolis.
>
> 2. The turnover rate increased, with national chains and those oriented toward young, middle class customers moving in. This may increase competition for some existing firms and discourage high-income customers from shopping at mall stores.
>
> 3. Vacancy rates are very low.
>
> 4. Rental rates are reported stable at the very least with many rates rising.
>
> 5. Public and private investment appears to be increasing.
>
> 6. Transit malls and other downtown developments are mutually supportive, with transit malls providing a retail focus and transportation link between developments.
>
> 7. A new cooperative spirit between business and government is seen as a major benefit of transit mall development.

[1] U.S. Department of Transportation, Urban Mass Transportation Administration. "Streets for Pedestrians and Transit: An Evaluation of Three Transit Malls in the United States." February 1979. (p.206).

4.5.3 COMMUNITY SERVICES

A. Downtown People Mover Alternative

Utilities

Construction of the DPM system will require location and/or protection during construction of electrical cables, sanitary and storm sewers, water mains, gas lines, telephone lines, and traffic signal wiring. Specific locations of utilities within the DPM construction area, including those within private property, and sidewalk and street rights-of-way, have been mapped as part of preliminary engineering.

During final system engineering, coordination with specific utilities will establish the policy for utility relocation and/or protection during the construction period. No service disruptions are anticipated.

Solid Waste

Solid waste from DPM construction will result from excavations for guideway footings, and station and maintenance facility foundations, as well as demolition of buildings. Waste will include soil material (see Section 4.6.1) and building debris comprised of wood, brick, plaster, and stone and steel fragments. Approximately 8600 cubic yards of waste material will be generated, including 5600 cubic yards of soil, and 3000 cubic yards of building debris.

Solid waste will be disposed of at an approved landfill site within Metropolitan Dade County, or where fill of similar composition is needed at other construction sites in the area.

Law Enforcement and Fire Protection

Construction activity on Miami CBD streets over the 26-month construction period may temporarily impair the delivery of police and fire emergency services. Temporary street closings and land reductions as well as the temporary presence and movement of heavy construction equipment could delay emergency services. To avoid potentially hazardous emergency situations, communication among DPM contractors and policy and fire authorities will be required throughout the construction period. Mitigating measures to avoid or reduce hazards will include scheduling of more disruptive activities during evenings or on weekends. In all instances, the DPM construction will not interfere with traffic on any CBD street so as to render it impassable to at least one lane of traffic.

B. All Bus Alternative

Implementation of the All Bus Alternative will not have any short-term impacts on the delivery of community services.

4.5.4 SAFETY AND SECURITY

A. Downtown People Mover Alternative

Activities required for construction of the DPM system will result in localized short-term conditions potentially hazardous to pedestrians and construction workers. Movement of construction vehicles (dump trucks, concrete mixers, cranes) in CBD streets as well as open excavations will constitute hazards to pedestrians. Where necessary, flagmen will be provided to minimize potential dangers. To assure safety, provisions in contractor agreements will specify treatments for equipment storage, signing, lighting, barricades preventing access to work sites, barricades to guide pedestrian traffic through work areas, and traffic control measures. In all instances, compliance will be required with all regulations of the City of Miami, Dade County, the State of Florida, and the Occupational Safety and Health Act.

B. All Bus Alternative

Impacts on safety and security related to the construction associated with this alternative can be considered negligible.

4.5.5 PARK LANDS

A. Downtown People Mover Alternative

Implementation of the DPM Alternative will not have any short-term impact on park lands in the Miami CBD area.

B. All Bus Alternative

Implementation of the All Bus Alternative will not have any short-term impacts on park lands in the Miami CBD area.

4.5.6 HISTORIC AND ARCHAEOLOGICAL SITES

A. Downtown People Mover Alternative

(See Section 5.2.)

B. All Bus Alternative

Implementation of the All Bus Alternative will not have any short-term impacts on historic and archaeological sites in the Miami CBD area.

4.5.7 NATURAL ENVIRONMENT

A. Downtown People Mover Alternative

(See Section 4.6.)

B. All Bus Alternative

Implementation of the All Bus Alternative will not have any short-term impacts on elements of the natural environment of the Miami CBD area.

4.5.8 TRANSPORTATION

A. Downtown People Mover Alternative

Construction of the DPM guideway, stations, and maintenance facility will have short-term impacts on traffic and pedestrian movement. The magnitude of construction impacts will depend on the proximity of contruction activity to rights-of-way, street capacity, curb use, characteristics of traffic and pedestrian movement, and the type of construction activity. Four critical street segments have been identified as potential problem areas.

North 5th Street between the Metrorail right-of-way and N.E. 2nd Avenue

Construction impacts along N.W. 5th Street will include intermittent temporary closure of one traffic lane. Closing of a traffic lane would first be necessary to convert the north parking lane to a moving traffic lane for a distance of 350 feet in the vicinity of North Miami Avenue. A traffic lane would also have to be closed at a later time for utility relocation, and DPM guideway and station construction on the south side of the street. This activity will impede traffic flow but will not significantly interfere with heavy truck traffic utilizing N.E. 5th Street for access to the Port of Miami. This reduction in street capacity is expected to occur intermittantly over a period of about three months. The majority of truck traffic enters the street east of the DPM construction area. Temporary disruption to north-south streets intersecting North 5th Street will also occur (for no more than one day) while precast aerial elements are lifted into place over the street.

N.E. 1st Street between N.E. 2nd Avenue and Biscayne Boulevard

The shallow setback of the Columbus Hotel will necessitate closing of one lane of traffic along N.E. 1st Street during construction of adjacent DPM piers for a period of approximately six weeks. Both traffic lanes may be closed for periods of several hours during the placement of precast aerial elements along the entire segment. Traffic volumes on the street are small. Consequently diverted traffic will be easily absorbed on adjacent streets. The most severe impact will be impeded pedestrian and taxi access to the Columbus Hotel.

S.E. 1st Avenue between S.E. 1st Street and the I-95 Distributor

This portion of S.E. 1st Avenue is a moderately traveled street (600 vehicles at P.M. peak hour), characterized by a steady volume of bus traffic. A heavily used bus stop is located on the east side of the street between S.E. 1st and S.E. 2nd Streets. Construction activity of about eight weeks duration will be located within the easternmost traffic lane, leaving the existing seven foot sidewalk free for pedestrian movement. Although construction activity is not expected to significantly affect existing traffic flow, there will be a major impact on buses as they approach the bus stop. This will be mitigated by provisions for maintaining access between the sidewalk and the bus loading area.

South 1st Street between the Metrorail right-of-way and S.E. 1st Avenue

South 1st Street is a heavily traveled eastbound street comprised of three traffic lanes with on-street parking and loading zones on both sides. The DPM guideway will be constructed on the north side of the street over the existing loading zone. One station will be located at the intersection with South Miami Avenue. Construction activity will disrupt traffic in the north lane and will have an adverse impact on traffic flows, particularly during the evening peak hour. Access will be maintained to all businesses throughout the construction period.

B. All Bus Alternative

Implementation of the transit mall concept on Flagler Street would have short term impacts on traffic and pedestrian movement. Construction activity required to reconfigure the curbline and to expand the sidewalk would impede traffic flow. Pedestrians would also be inconvenienced by the presence of temporary barriers and construction equipment. Access to all stores and office buildings would be maintained at all times.

Once the mall is operational, diversion of vehicular traffic from Flagler Street (other than buses, taxis, and emergency vehicles) is likely to create some confusion until local drivers get reoriented to the new traffic patterns.

New circulator bus routes and schedules of operation are also likely to create some temporary disruption to regular system users. This will be a transitional period until people get acquainted with the new routes and schedules. As it is customary with any significant change in bus routes or schedules, MTA would alert the public of planned changes by posting notices on board buses. Public notices in local newspapers are also customary practice.

4.6 NATURAL ENVIRONMENT IMPACTS

4.6.1 PHYSIOGRAPHY/GEOLOGY/SOILS

A. Downtown People Mover Alternative

Short Term Impacts

Physiography/Geology. DPM footings and building functions will generally be placed from 5 to 20 feet below the ground surface on the porous limestone ledges underlying the Miami CBD area. Spread footing construction will be used, except where site-specific conditions require use of pile or caisson techniques. No engineering geology constraints are anticipated which cannot be accommodated by these three foundation design alternatives.

Soils. Construction of the DPM system will require excavation of station and maintenance facility foundations and of column footings along the entire length of the alignment. Spoil generated by construction of the DPM Loop system has been estimated as follows:

1. Column footings - approximately 1100 cubic yards;
2. Station foundations - approximately 2000 cubic yards; and
3. Maintenance facility foundations - approximately 2500 cubic yards.

Excavated material will be transported from the construction site to approved spoil disposal sites elsewhere in the Metropolitan Dade County area.

Spoil material will vary in physical and chemical characteristics. Excavations on filled areas along Biscayne Bay and the Miami River will produce spoil comprised of old dredge materials from the bottom of Biscayne Bay, historically used as fill in the Miami CBD area. This material typically includes sandy to silty lime muds. Excavations in areas underlain by relatively undisturbed soils of the Rockdale series will produce spoil comprised of sand and fine sand. Where the resistance to load of the subsurface limestone ledge requires penetration of rock material, spoil will also include limestone rock fragments.

Probable short-term impacts of construction will result from accelerated erosion and sedimentation due to the exposure, stockpiling, and transportation of the unstabilized soil material. Erosion hazard will be site-specific and dependent upon the texture of the spoil. Soils high in silt content are likely to constitute a greater hazard than those having a sandy texture. Because of the preponderance of sandy soils and slopes of less than 2 percent in the CBD area, combined with the small ground area to be disturbed, erosion hazard during construction is expected to be slight.

Measures used to mitigate erosion and sedimentation impacts will include short-term measures for stabilization of exposed soils, construction site maintenance to prevent transportation of soil material through adjacent streets, and vehicle inspections to ensure against loss of uncontained material during transport of spoil material to disposal sites. To prevent

loss of material to storm sewers, suitable erosion control measures will be employed to filter runoff prior to discharge from the construction site (see Section 4.6.2 A).

Long-Term Impacts

No impacts on physiographic, geologic, or soil resources are anticipated from operation of the DPM system.

B. All Bus Alternative

Implementation of the All Bus Alternative will not have any significant impacts on the physiographic, geological, or soil resources of the Miami CBD area in either the short or the long term. Should there be a need to relocate underground utilities along Flagler Street, erosion and sedimentation hazards, may be anticipated due to the exposure and stockpiling of the unstabilized soil material.

4.6.2 GROUNDWATER/SURFACE WATER

A. Downtown People Mover Alternative

Short-Term Impacts

Water Quality. Potential water quality impacts of DPM construction will include those associated with transportation of sediment-laden runoff from the construction site to the storm sewer and/or surface drainage systems. Sediment sources will include unstabilized, exposed soil material from excavations, as well as groundwater high in suspended sediment discharged from dewatering operations.

The volume and types of soil material to be exposed to erosive forces are described in Section 4.6.1. Despite the handling of approximately 5600 cubic yards of spoil, erosion hazards have been described as slight due to coarse soil texture (silty sands and sands) and gentle slopes (0 to 2 percent) characteristic of the CBD area.

The water table in the Miami CBD area occurs from 5 to 15 feet below the ground surface. Excavations for DPM pier footings and station and maintenance facilities will consequently intersect the water table in many locations.

Groundwater, which will be very high in suspended sediment, will have to be pumped from excavations, filtered to remove sediment, and discharged from the construction site to the stormwater system. Such dewatering is temporary and is limited to the time required for excavation and construction of the foundation.

Mitigating measures to control the concentration of suspended sediment in runoff water from the DPM construction site due to erosion or dewatering will be necessitated by provisions of Chapter 24, Pollution Control of the Dade County Code. Section 24-11, Prohibitions Against Water Pollution,

specifically establishes a suspended solids effluent standard of 40 mg/l. Any runoff from DPM construction sites must conform with this standard, utilizing, for example, some combination of sediment control measures such as sediment traps, straw bale filters, and/or inlet sediment traps.

Table 4.11

STANDARDS - DISCHARGE OF EFFLUENTS TO SEWERAGE SYSTEMS

	Section 24-11 (9) METRO DADE CODE	MIAMI-DADE WATER & SEWER AUTHORITY
Temperature	150° F	150° F
Grease and Oil	25 mg/L	-
pH	5.5-9.5	5.5-9.5
BOD	-	210 mg/L
Suspended Solids	-	210 mg/L
Chlorine Demand	15 mg/L	-
Phenols	.005 mg/L	0.5 mg/L
Cn	.01 mg/L	2.0 mg/L
Cu (Total	.05 mg/L	10.0 mg/L
Cr (Hex)	.05 mg/L	-
Cr (Total	1.0 mg/L	10.0 mg/L
Cd	0.5 mg/L	2.0 mg/L
Zn (Total	1.0 mg/L	10.0 mg/L
Boron	-	1.0 mg/L
Pb	-	0.1 mg/L
Hg	-	2.0 mg/L
Ni	-	10.0 mg/L
Fe	-	25.0 mg/L

Runoff. Construction of the DPM system will not affect the efficiency of Miami's storm drainage system. Storm sewer drainage will be maintained at all times during the construction period. Sewer inlets and drainage capacity will be maintained through removal of sediment prior to discharge into the system.

Long-Term Impacts

Water Quality. Potential water quality impacts of DPM operation will include those associated with discharge of effluent from the maintenance facility, and of runoff from DPM impervious surfaces.

Effluent from the maintenance facility will be discharged into the sanitary sewer system. It will contain washwater from the car washing facility, sanitary waste, and oil and acid from mechanical maintenance practices. Connection to the sanitary system will require compliance with the Dade County Code (Section 24-11), the South Florida Building Code (Section 4612.3), and effluents standards of the Miami Dade Water and Sewer Authority. Section 24-11(9) of the Dade County Code includes chemical, physical, and biological effluent standards for all discharges into the sanitary sewer system. Standards of the Sewer and Water Authority supplement those of the County. The South Florida Building Code includes specifications for the construction of interceptors for gasoline, oil, and sand in facilities using oil and greasy substances.

Compliance with these requirements, in combination, is intended to prevent introduction of industrial wastes to the sanitary system which may interfere with the treatment process, as well as to prevent entrance of wastes into the system which cannot be removed by the treatment process.

Runoff from DPM impervious surfaces, including the guideway and station and maintenance facility roofs, will contain oil, grease, and debris typical of downtown streets. To the extent possible, runoff from these surfaces will be filtered prior to discharge into the storm sewer system. The quality of runoff water will be consistent with requirements of Section 24-11 of the Dade County Code.

Floodplains. The proposed action constitutes an "encroachment" as defined by DOT Order 5650.2 "Floodplain Management and Protection", dated April 23, 1979. Approximately three-fourths (7600 ft.) of the DPM alignment traverse the base flood plain area - elevation 11 feet above mean sea level. The specific limits of the base flood plain are shown in figure 3.2.

The DPM guideway will be an aerial structure throughout its full length. A minimum clearance of 16.5 feet will be maintained between the bottom of the structure and ground level. This places the base of the guideway structure and the system's stations above the actual water level of the 100 year flood thus minimizing any potential risk.

Miami's CBD is a densely built-up urban environment without any significant natural areas which benefit from recurring flooding action. As defined in the DOT Order, impacts on the "natural and beneficial floodplain values" are not applicable to the proposed action.

The proposed DPM is expected to have a positive impact on new development and redevelopment in currently underutilized sections of the CBD area. As required by the Code of Metropolitan Dade County, any new construction within a flood area has to comply with the provisions of County Ordinance 74-48 (Chapter 11-6 of the Code) - Development within the Flood Hazard Districts. This Ordinance is in compliance with the Federal Flood Insurance Program.

The DPM system will be designed to remain operable in the event of a 100 year flood, however, it need not operate under such flooding conditions. Structures providing access to eight of the ten DPM stations are located within the area of inundation. Where practicable, design of the access

structures which include stairs, elevators and escalators, will incorporate features designed to reduce effects of water entry. Power distribution rooms, which are required at each station and at the maintenance facility, have been located at ground level. Technically, however, these facilities do not represent an encroachment on the 100 year floodplain since the floor level of these rooms will be above the flood level elevation. In general, the design of the power distribution rooms will include the appropriate features required to keep the water out, thus minimizing threats to property and the continued operation of the system. With the exception of the power distrubution room, there are no other sensitive facilities located at the maintenance facility ground level. All DPM vehicles will be stored at the guideway level which is at least 16.5 ft. above ground.

The proposed DPM does not represent a "significant encroachment" as defined by the DOT Floodplain Order because it does not result in one or more of the following construction or flood related impacts:

a) In the event of a 100 year flood, the proposed DPM will not contribute to a considerable probability of the loss of human life;
b) Likely flood related damage associated with the proposed DPM system is not likely to be substantial in cost or extent nor is a 100 year flood likely to cause an interruption in service on or loss of a vital transportation facility.
c) There will not be a notable adverse impact on natural and beneficial floodplain values.

Runoff. Impervious surfaces in the DPM system requiring storm drainage will include the guideway structure, station roofs, and the roof of the maintenance facility. Discounting the area of the guideway and station G, shared with the rail rapid transit system, the total impervious surface area requiring drainage will be approximately 200,000 square feet. Since most of the system will be built over already paved street right-of-way, the net increase in impervious surface area and resulting runoff can be considered negligible.

B. All Bus Alternative

Implementation of the All Bus Alternative will have no significant impacts on groundwater and surface water.

4.6.3 VEGETATION

A. Downtown People Mover Alternative

Short-Term Impacts

Vegetation which will be removed by DPM construction has been identified on the basis of preliminary engineering. Trees to be removed are identified in Table 4.12. Most affected vegetation is small (less than 20 feet in height). Many trees are in poor condition. The most valuable specimen is a 30 foot Royal Poinciana tree on the east leg of the alignment between 4th and 3rd Streets.

TABLE 4.12
VEGETATION LIKELY TO BE TAKEN BY DPM CONSTRUCTION

LOCATION	NAME	QUANTITY	CONDITION
Parking Alley between Howard Johnson Hotel and I-95 Ramp	Pongamia Pinnata (Pongam)	4	12-15' height; very healthy
	Persea Americana (Avocado)	1	30' height; very poor condition
	Rosewood (Dalbhergia Sissoo)	2	12-15' height; good condition
Parking Areas adjacent to I-95 Connector	Black Olive (Bucida buccras)	4	12-20' height; good condition
	Mahogany (Swietenia mahoganii)	2	20' height; good condition
	Pongamia Pinnata (Pongam	1	15' height; good condition
	Bottlebrush (Callistemon viminalis)	5	15' height; good condition
Maintenance Facility Site	Pongamia Pinnata (Pongam)	3	20-25' height; good condition
	Pink Trumpet (Tabebuia pallida)	1	18' height; good condition
	Cuban Laurel (Fiscus Nituda)	3	30' height; good condition
	Silver Bottonbush (conocarpus erectus)	7	12-15' height; good condition
	Bottlebrush (Callistemon viminalis)	10	15' height; good condition
N.W. 5th Street between North Miami Avenue and N.W. 1st Avenue	Bottlebrush (Callistemon viminalis)	1	12' height; good condition
	Pink Trumpet (Tabebuia pallida)	4	12' height; good condition
	Coconut Palm (Cocos nucifera)	3	20-25' height; good condition
	Sabal Palm (Sabal palmetto)	3	18-20' height; poor condition
	Florida Thatch Palm (Thrinax floridana)	1	12' height; poor condition
East leg between 5th and 3rd Streets	Sabal Palm (Sabal palmetto)	1	25' height; good condition
	Royal Poinciana (Delonix regia)	1	20' height; poor condition
	Royal Poinciana (Delonix regia)	1	30' height; very good condition
	Gumbo Limbo (Bursera simaniba)	1	30' height; good condition
	Solitaire Palm (Ptychosperma elegans)	1	15' height; good condition
	TOTAL*	60	

*Total represents between 2% and 5% of all trees in downtown.
Planting for the DPM system will add approximately 160 trees.

Street trees which must be removed will be done so in compliance with provisions of Chapter 26B, Standards for Removal and Relocation of Trees, of the Dade County Code. Trees within the DPM construction area not to be removed will be protected under the same provisions.

Removal of street trees and shrubs will be mitigated through landscaping along the DPM guideway and in station areas. Along most areas of the alignment, street landscaping will be enhanced through DPM landscaping provisions.

Although planting plans will not be prepared until later stages of final design, DPM landscape materials and desirable planting locations have been recommended (Table 4.13). The DPM tree list includes, with the exception of rosewood, trees described as "desirable street trees" by the Metro-Dade Urban Forester as part of the Metro-Dade Street Tree Planting Program[1].

Rosewood has been rated as acceptable under certain conditions, but is not recommended primarily because of low wind resistance and its tendency to invade and colonize surrounding areas. It is estimated that more than 160 trees will be planted as a part of the project resulting in a net increase of about 100 trees in downtown.

Long-Term Impacts

Operation of the DPM system will have a minimal impact on street vegetation. Good maintenance practices, including pruning, pest control, and fertilization, will promote vegetation vigor, appearance, and longevity, as well as prevent vegetation-related pedestrian and traffic hazards. Particular care will be given to the maintenance and protection of the Royal Palms framing Biscayne Boulevard. Approximately ten of these palms would have to be transplanted to their new location approximately ten feet to the west. Unlike most trees with wide spread root structure whose growth is concentrated at the tips, Royal Palms are constantly initiating new roots at the base of the plant. These enable them to recover from root pruning without any major setbacks. With the appropriate care and supervision the transplanting of Royal Palms can be accomplished with almost a 100% degree of success.

B. All Bus Alternative

Implementation of the All-Bus Alternative will not have a significant impact on the vegetation resources of the Miami CBD area in either the short or the long term. Some additional landscaping along Flagler Street would be provided if this street was to be converted to a transit mall.

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[1]Clifford Shaw, Metro-Dade Urban Forester, Florida Division of Forestry. "Recommended Street Trees for Dade County." December 1976.

TABLE 4.13
RECOMMENDED DPM LANDSCAPING

Vegetation Type	Recommended Location
Large Trees:	
Black Olive (Bucida buceros) Mahogany (Swietenia mahogani) Rosewood (Dalberghia sissoo)	Open plazas and areas with adequate vertical and horizontal clearance. Tree grates of at least 6 feet.
Small Trees:	
Glossy Privet (Ligustrum lucidum) Pitch Apple (Clusia rosea) Beauty Leaf Callophyllum antillanum)	Areas where vertical clearance is limited and/or shady areas.
Palms:	
Cabbage Palm (Sabal palmetto Alexander Palm (Archontophonix alexandrae) Royal Palm (Roystonea regia)	As accent and where horizontal clearence is limited.
Shrubs and Ground Covers:	
Philodendron (Philodendron selloum) Sprenger Asparagus (Asparagua sprengeri) Giant Lily (Crinum asiaticum) Boston Fern (Nephrolepsis exaltata) Natal Plum (Carissa grandiflora) Wax Jamine (Jasminum simplicitolium)	Areas of low maintenance and/or shady areas.

4.6.4 NOISE AND VIBRATION

A. Downtown People Mover Alternative

Short-Term Impacts

Construction Noise. Noise will be generated during DPM construction by a variety of construction activities. The magnitude of the noise impact of each construction activity will be a function of the types of equipment used, distance from the construction site, and the length of time required to complete the activity.

For purposes of describing the DPM construction impact on the ambient noise environment, five construction activities have been identified (Table 4.14). Types of equipment used in each activity have also been identified, including the L_{10} and L_{eq} noise levels of each measured at distances of 50 feet and 10 to 15 feet. Total noise impact of each construction activity is expressed as the composite of individual noise contributions (calculated by superimposition of noise source contributions)[1].

[1]Kaiser Engineers/DMJM, 1978; City of Los Angeles Department of Engineering (method as presented in FHWA "Fundamentals and Abatement of Highway Traffic Noise," June 1973.)

TABLE 4.14
CONSTRUCTION ACTIVITY NOISE LEVELS (in dBA's)

	Activity	Equipment	10-15 Ft. from Construction[1]		50 Ft. from Construction[2]	
			L_{10}	L_{eq}	L_{10}	L_{eq}
1.	Locating/Relocating Utilities	Jackhammer/ Pavement breaker	104	90	98	84
		Backhoe	99	95	93	89
		Truck	99	97	93	84
		Composite	106	97	100	91
2.	Preparing Column Foundations	Jackhammer	104	90	98	84
		Backhoe	99	95	93	89
		Truck	99	90	93	84
		Compressor	93	85	87	79
		Composite	106	97	100	91
3.	Modifying Restoring Streets and Sidewalks	Jackhammer	104	90	98	84
		Front Loader	90	88	84	82
		Truck	99	90	93	84
		Light Crane	94	84	88	78
		Paver	95	94	89	88
		Composite	106	97	100	91
4.	Demolishing Structures	Front Loader	90	88	84	82
		Truck	99	90	93	84
		Composite	100	92	94	86
5.	Mobilizing Equipment at Excavations	Crane	94	84	88	78
		Truck	99	90	93	84
		Generator	87	81	81	75
		Compressor	93	85	87	79
		Composite	101	92	95	86

[1]Source: Dade County Office of Transportation Administration, 1980
[2]Source: Kaiser Engineers/DMJM, 1978, City of Los Angeles Department of Engineering

TABLE 4.15
NOISE SENSITIVE SITES ADJACENT TO DPM ALIGNMENT

Name	Location	Building Description	Distance from nearest DPM Pier to Building Face
Howard Johnson Hotel	200 S.E. 2nd Avenue	12-story; central air conditioning; rooms above 1st floor	6 ft.
Clyde Court Apartments	68 S.E. 2nd Avenue	4-story; masonry; window air conditioners	48 ft.
Colum I Building	S.E. 1st Avenue between S.E. 1st and S.E. 2nd Streets	2-story; masonry, no air conditioning	8 ft.
Watson Building	65 S.E. 1st Street	3-story; masonry; central air conditioning	21 ft.
Federal Building	51 S.W. 1st Avenue	Office tower; central air conditioning	25 ft.
Abe's Rooming House	22 N.E. 5th Street	2-story wood frame; no air conditioning	33 ft.
Pink Flamingo Hotel	28 N.E. 5th Street	2-story; masonry; no air conditioning	18 ft.
(Unnamed Building)	121 N.E. 5th Street	3-story; masonry; no air conditioning	39 ft.
(Unnamed Building)	127 N.E. 5th Street	3-story; masonry; no air conditioning	39 ft.
Central Baptist Church	500 N.E. 1st Avenue	4-story; masonry; central air conditioning	48 ft.
Miami-Dade Community College Life Lab	101-109 N.E. 5th Street	2-story; masonry; central air conditioning	48 ft.
(Unnamed House)	135 N.W. 5th Street	2-story; wood frame; no air conditioning	61 ft.
(Unnamed House)	139 N.E. 5th Street	2-story; wood frame; no air conditioning	55 ft.
(Unnamed House)	143 N.E. 5th Street	2-story; wood frame; no air conditioning	55 ft.
Williams Apartments	151 N.E. 5th Street	3-story; masonry; no air conditioning	41 ft.
Raybar Property	505 N.E. 2nd Avenue	2-story; masonry; no air conditioning	55 ft.
(Unnamed Building)	215 N.E. 5th Street	3-story; masonry; no air conditioning	66 ft.
First Christian Church	230 N.E. 4th Street	3-story; masonry; central air conditioning	32 ft.
Downtown Christian Day School	230 N.E. 4th Street	3-story; masonry; central air conditioning	18 ft.
Bayview Hotel	234 N.E. 3rd Street	2-story; masonry; window air conditioners	58 ft.
Hotel Colon	229 N.E. 2nd Avenue	3-story; masonry; window air conditioning; 1st floor commercial	9 ft.
Johnson Hotel	227 N.E. 2nd Street	4-story; masonry; no air conditioning	20 ft.
Strand Hotel	226 N.E. 2nd Street	5-story; masonry; central air conditioning	30 ft.
Congress Building	111 N.E. 2nd Avenue	Office tower; masonry; central air conditioning	9 ft.
Hotel Leamington	307 N.E. 1st Street	3-story; masonry; central air conditioning; 1st floor commercial	28 ft.
Columbus Hotel	50 Biscayne Boulevard	High rise hotel; masonry; central air conditioning; rooms above 3rd floor	6 ft.
New World Tower	100 N. Biscayne Boulevard	Office tower; masonry; central air conditioning	28 ft.
Miami Public Library	1 Biscayne Boulevard	3-story; masonry; central air conditioning	236 ft.

Table 4.14 indicates that composite noise from utility work, foundation preparation, and street restoration activities will have the most adverse noise impacts (L_{10} of 100 dBA at 50 feet). These activities will occur along the entire DPM alignment during various phases of guideway construction for an average of six weeks at any one point along the route. Construction noise will be concentrated at the guideway pier support locations.

The impact of construction noise will be most severe at noise sensitive locations along the DPM alignment (Table 4.15). The most severely impacted will be those directly fronting on the route along the east side of S.E. 1st Avenue 10 feet from the nearest pier, along the south side of N.E. 5th Street 25 feet from the nearest pier, and along N.E. 3rd and N.E. 2nd Streets 35 feet from the nearest pier.

During the DPM construction period, noise mitigation measures will be employed to reduce the noise impact on the general public, as well as on construction workers. To the extent possible, construction activities will be scheduled so that high noise generating equipment is used during periods of lowest use in adjacent sensitive structures, and during peak ambient noise periods. To the extent possible, certain types of equipment will be replaced by similar, less noise generating, equipment.

On the construction site, the work schedule will be arranged to correspond to OSHA allowable occupational noise-level duration limits. Low noise-generating equipment will be used wherever possible. Personal protective equipment will be provided as necessary.

Throughout the construction period, compliance will be required with performance standards of the City of Miami Zoning Ordinance Article XXII, Section 2, which specifies maximum permitted sound levels throughout the 24-hour period.

TABLE 4.16
MAXIMUM PERMITTED CONSTRUCTION RELATED NOISE LEVELS

Octave bands in cycles per second	Along property line abutting a residential district between 8:00 A.M. and 6:00 P.M.* Maximum permitted sound level in decibels	Along property line abutting in industrial or commercial district Maximum permitted sound level in decibels
0-75	72	79
75-150	67	74
150-300	59	66
300-600	52	59
600-1,200	46	53
1,200-2,400	40	47
2,400-4,800	34	41
over 4,800	32	39

*Permissible sound level between 6:00 P.M. and 8:00 A.M. shall be decreased by 3 decibels in each of the octave bands.

Source: City of Miami Zoning Ordinance, Article XXII, Section 2

Vibration. The operation of heavy equipment, such as dump trucks, caterpillar trucks, pavement breakers, and pile drivers will be the primary source of vibration during DPM construction. Transmission of vibration to adjacent structures and susceptibility to vibration will generally be a function of site-specific soil characteristics, building foundation design, and proximity to the vibration source.

It is not anticipated that ground-borne vibration from DPM construction activities will be sufficient to cause damage to adjacent structures. In all instances, compliance will be required with performance standards of the City of Miami Zoning Ordinance Article XXII, Section 2, specifying maximum permissible levels of ground vibration.

Long-Term Impacts

Passby Noise. For purposes of assessing passby noise it is assumed that the DPM will operate at 25 mph on straight guideway segments, slowing to 15 mph for curving segments and segments having close station spacing. Assuming a maximum train or consist length of 78 ft., passby durations corresponding to these operating speeds have been calculated at approximately 2.1 seconds at 25 mph and 3.5 seconds at 15 mph. Figures 4.16a and 4.16b graphically depict noise contours corresponding to these operating speeds and passby durations. Noise attenuation produced by increased distance away from noise source is illustrated in these figures.

Passby noise will be increased by 3 dBA where simultaneous vehicle passbys occur, i.e., two vehicles traveling in opposite directions pass one another on double guideway segments. This increase of 3 dBA results from the addition of two sound sources of the same intensity. While simultaneous passbys will happen frequently, they would only occur during day time hours of operation (7:00 a.m. to 6:00 p.m.) when both loops are fully operational. After the afternoon rush hour, service on the system will be curtailed to only one loop which will be adequate to meet the anticipated demand during this off period. In addition, as currently envisioned, the operating schedule calls for complete system shut down during the hours of 1:00 a.m. to 5:00 a.m. This operating strategy would greatly minimize any potential noise-related adverse effect associated with the development of the DPM system. The probabilities of simultaneous passbys occuring in the same exact location during a given time period have not been calculated, however, it can be safely stated that this will not be a sufficiently frequent occurence to impact ambient noise calculations. For this reason, noise increases resulting from simultaneous passbys are not viewed as a source of major concern.

Based on existing ambient noise levels measured at strategic monitoring locations along the corridor delineated by the DPM, (see figure 3.3 for locations) physical and operational characteristics of the proposed system, and data obtained from qualified system suppliers, it has been determined that the potential for adversely impacting the area's ambient noise level exists only along that portion of the system parallel to N.E. 2nd Avenue between N.E. 5th Street and N.E. 1st Street. In arriving at this conclusion, an anticipated increase in the average day-night sound level (L_{dn}) of one decibel or more above the local background noise level was

Figure 4.16a EXTERIOR NOISE CONTOURS FOR DPM OPERATIONS AT 15 M.P.H.

(Passby Duration Approximately 3.5 Seconds)

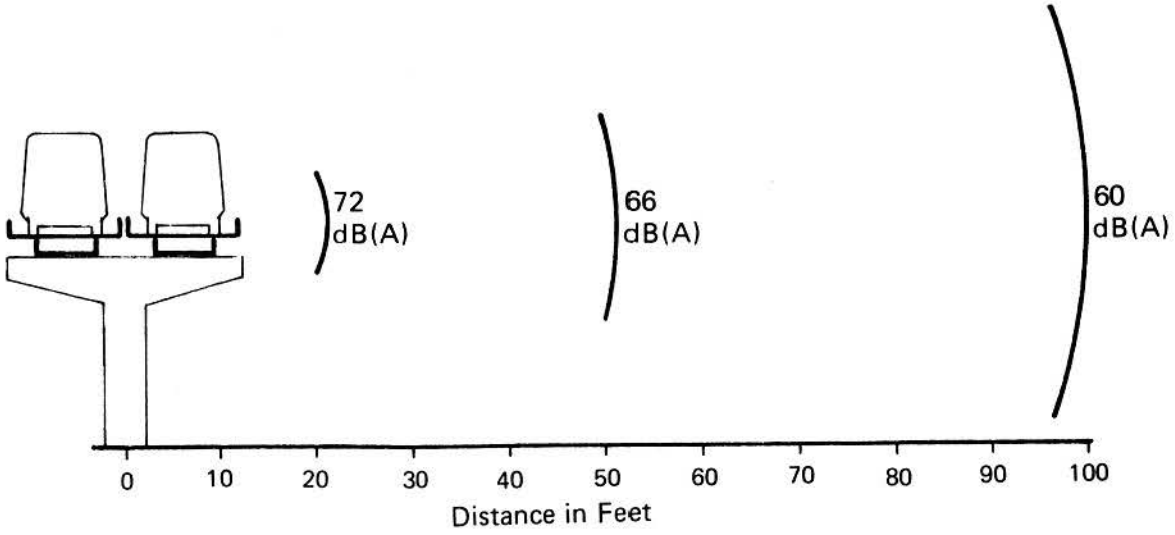
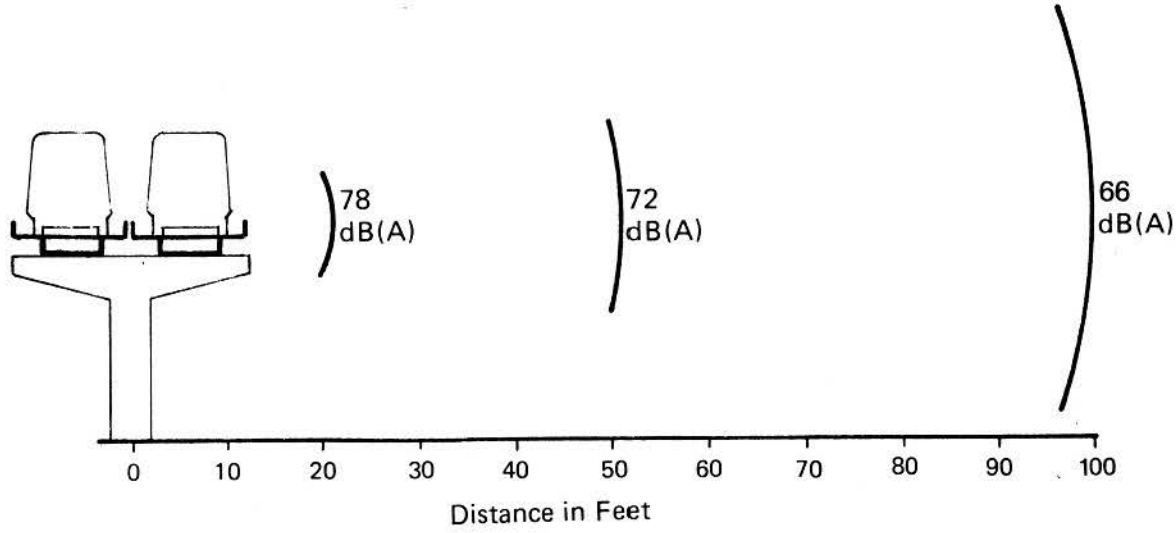


Figure 4.16b EXTERIOR NOISE CONTOURS FOR DPM OPERATIONS AT 25 M.P.H.

(Passby Duration Approximately 2.1 Seconds)



considered to represent an impact on the local population.[1] To mitigate this impact, performance specifications for the system require that maximum passby noise level, along this segment of the system are not to exceed "70 dBA at 25 feet when the vehicle is operating at the civil speed with maximum consist length. Contractor shall provide noise barriers if necessary to meet this requirement." This maximum permissible level of 70 dBA is anticipated to result in a net increase in the recorded L_{dn} value at those measurement sites in the area of less than 1 dBA.

Projected L_{dn} values associated with the operation of the DPM were calculated by use of the following equations:[2]

$$L_{dn} = L_m\ (25') - 10 \log vd + 10 \log\ (N_d + 10N_n) - 16.43$$

where, $L_m\ (25)$= max. vehicle passby noise level at 25 ft.

v = vehicle velocity (ft/sec)

d = perpendicular distance to observation point

N_d = number of vehicles between 7:00 AM and 10:00 PM

N_n = number of vehicles between 10:00 PM and 7:00 AM

Actual noise exposure to residents is further reduced by the structural characteristics of their place of residence. Building construction material, window configuration and the presence or absence of air conditioners are additional noise reduction factors. A noise reduction of 10 dBA can be assumed for masonry structures with single glazed windows and air conditioning.

Based on UMTA guidelines established during review of the Miami DPM System Criteria and Requirements document, specifications limiting exterior noise levels for the remaining of the DPM system have been set as follows:

Vehicle/Consist Speed	Max. Permissible Noise Level *
10 mph	63 dBA
30 mph	75 dBA

*These noise levels are to be measured at a distance of 50 ft. from the guideway centerline with auxiliaries and air conditioning operating.

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[1] Bolt Beraneck and Newman, Inc. Noise Rating Criteria for Elevated Transit Structures, Cambridge, Ma. 1979.

[2] Ibid.

Overall, taking into consideration the already high existing background noise levels in the study area and the mutigating measures which are to be implemented, deployment of the DPM in downtown Miami will not represent a significant change in the area's ambient noise level.

Interior Vehicle Noise

Performance specifications for the system establish interior vehicle noise level limits which are not to be exceeded under normal operating conditions with all equipment, including air conditioning operating.

Condition	Maximum Noise Level
Vehicle Stationary (doors closed)	68 dBA
Vehicle Moving	
o At 10 mph	70 dBA
o At maximum civil speed	75 dBA

Vibration. Vibration impacts depend upon several factors, including strength of the vibration source, guideway and support design, proximity to vibration sources, soil conditions, and measures taken to reduce vibration levels. All of these factors will be taken into account during final design to ensure the minimum vibration levels feasible. Because DPM vehicles are expected to have ride characteristics superior to a city bus, and further because the guideway, column and foundation design will provide a much improved roadway, it is anticipated that any potential vibration transmitted to ground level during DPM operation will be barely perceptible in the worse case, and will not exceed vibrations from adjacent street traffic.

B. All Bus Alternative

As there would be minimal construction, implementation of the All Bus Alternative will not have any short-term noise and vibration impacts on the Miami CBD area. The introduction of additional local buses and circulators will however contribute additional vehicle noise along streets in the Downtown area. The Flagler transit mall would generate a change in auto circulation and increased noise from bus volumes.

The extent of this increased noise along Flagler Street has not been calculated. In a similiar situation a transit mall in Portland, Oregon measured noise increases in L_{eq} of approximately 2 dB(A) with the addition of 175 buses in the peak hour. The Flagler Street transit mall would result in the elimination of most non-transit traffic and the addition of 76 buses in the peak hour.[1]

[1] U.S. Department of Transportation, Urban Mass Transportation Administration. "Streets for Pedestrians and Transit: An Evaluation of Three Transit Malls in the United States". February 1979.

4.6.5 AIR QUALITY

A. Downtown People Mover Alternative

Short-Term Impacts

Construction Dust. Excavation and ground disturbances during construction will increase dust levels in areas adjacent to the DPM alignment. Excavations will be small however and the impact is likely to be minimal, except at times when sea and land breezes are strong. Measures for dust control will be required of all contractors.

Pollutant Emmissions. Air pollutants will be emitted by the operation of construction equipment, the majority of which will be heavy duty diesel-powered vehicles. At the regional level the constribution to emissions will be negligible. In the area immediately adjacent to the construction site the impact will be more concentrated. Assuming a maximum of 22 pieces of construction equipment in a 300 ft. wide by 3,600 ft. long section of the project area, the carbon monoxide concentration immediately downwind of the site, as a result of construction activity, would be 2.7 ppm for 1 hour and 1.6 ppm for an 8 hour average[1].

No carbon monoxide data is currently available for determining what the total concentration would be by adding the contribution of local traffic and other sources.

The maximum lead concentration for the project area, as recorded by Dade County's Environmental Resources Management, was 3.2 ug/m^3 (quarterly average) for May-July 1978. If the pooled average lead content of gasoline is reduced from 0.8 grams/gal. in 1978 to 0.34 grams/gal. in 1982, as scheduled[2], then the projected lead maximum for 1982 is estimated at 1.36 ug/m^3. This value is less than the NAAQS's value of 1.5 ug/m^3 which must be achieved by 1982. The impact of project related lead emissions on this projected maximum should be negligible.

The impact of carbon monoxide emissions from the project is difficult to ascertain because little information is available on the contribution from local traffic. It can only be surmised however, that since auto and bus VMT will be slightly reduced overall, the DPM Alternative will show a slight reduction in project area CO concentrations.

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[1] Technical Studies, Air Quality Impact Assessment, Southern Tier Expressway, Corning, New York, prepared by Gannett Fleming Gorddry and Carpenter, Inc., September 1979.

[2] Air Quality Manual, Illinois Department of Transportation, L.F. Vik and M.E. Byers, September 1978.

Long-Term Impacts

Vehicle Miles Travelled. Operation of the DPM in conjunction with a supporting bus network will result in a reduction of automobile vehicle miles travelled (VMT) as well as a reduction of bus vehicle miles travelled when compared to other transportation alternatives.

The reduction of automobile VMT has not been specifically modelled. It is anticipated however to represent less than one percent of the regional auto VMT. Consequently while there will be a positive impact on air pollutant emissions in the region, it will be very slight.

The supporting bus network for the DPM will require operation of 35 local buses and 30 circulators through the downtown area during the peak hour. Throughout the daily operation period these vehicles will travel an estimated 4,640 and 5,200 miles respectively. Their daily fuel consumption will be approximately 1400 gallons of diesel fuel #1 and 1150 gallons of gasoline. Emissions contributed from these operations will represent a negligible portion of the daily regional emissions in Metropolitan Dade County.

Local Air Quality Impact Areas. Two types of local air quality impacts are possible as a result of implementation of the DPM alternative. Both include the potential for pollutant "hot spot" formation in the CBD area.

Operation of additional buses throughout downtown will result in localized pollutant increase, particularly of nitrogen dioxide and particulates. These could occur throughout the area under proper weather conditions.

Obstructions to loading areas could also result in delayed truck operations and idling of engines, with the consequent "hot spot" formation. This is most likely to occur along S.E. 1st Street in the vicinity of loading areas of the Burdines and Kress stores.

A hot spot potential is defined as a site specific condition where the amount of CO concentration in the air exceeds 10 milligrams per cubic meter. Eighteen (18) key downtown Miami intersections were reviewed for hot spot potential (Figure 4.17). The analysis method is based on guidelines published by the Environmental Protection Agency in August 1979. Note, the guidelines prepared by EPA do not accomodate 8 or 6 land bi-directional movement. Hence, adjustments to the volumes were made proportionally in order to make use of the EPA process.

To conduct the analysis three scenarios were first developed. They are:

- Existing Highway System - Assumes 1975 traffic and highway network, and local travel conditions.
- All Bus Alternative - Assumes 1985 highway traffic and 1985 network, reduction in roadway capacity on Biscayne Boulevard to accomodate exclusive bus lanes and opening of a transit mall on Flagler Street;
- DPM Alternative - Assumes 1985 highway traffic and 1985 network, but eliminates all bus vehicle traffic within the DPM Loop.

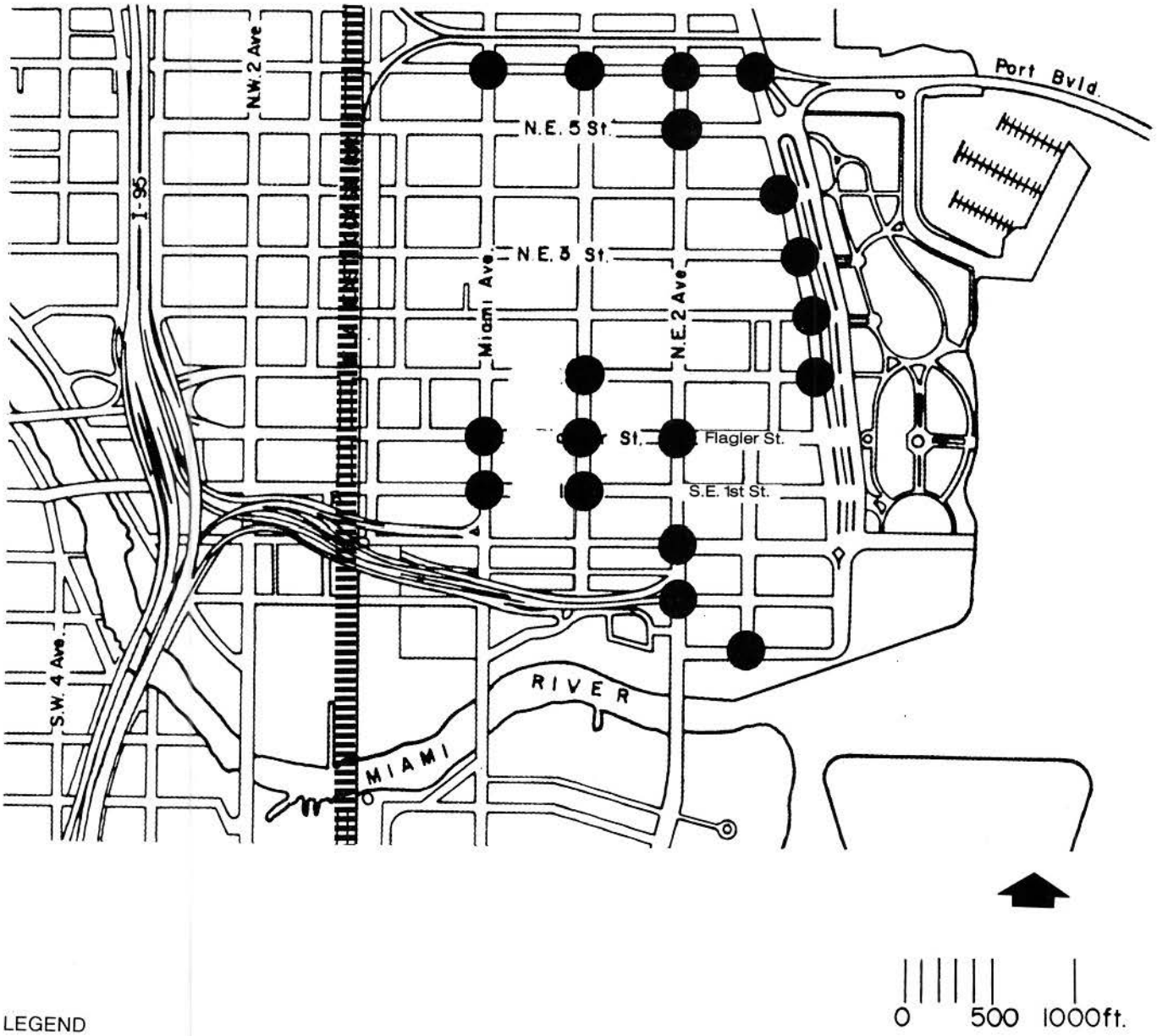

Figure 4.17 INTERSECTION STUDY FOR HOT SPOT POTENTIAL

Table 4.17 displays the results of the analysis. Using the All Bus System as the comparison standard, the 18 intersections are arrayed from highest to lowest volume as a means of identifying relative severity.

In the DPM Alternative simulation, eleven of the eighteen intersections were found to have hot spot potential. In the 1975 simulation, ten intersections were found to have hot spot potential. Based on this analysis, the Miami CBD will experience significant CO problems under any scenario given the assumed levels of highway traffic. However, reviewing the severity column, in table 4.8, it can be concluded that major restrictions of traffic flow in the CBD will only add to an already severe problem.

B. All Bus Alternative

Implementation of the All Bus Alternative will not have any short-term impacts on air quality in the Miami CBD area. During operation however it will contribute 48 local buses and 52 circulators to downtown streets during the peak hour. Throughout the daily operation period these vehicles will travel an estimated 11,020 and 8,730 miles respectively. Their daily fuel consumption will be approximately 3,340 gallons of diesel fuel #1 and 1,940 gallons of gasoline. Emissions contributed from these operations will represent a negligible portion of the daily regional emission in Metropolitan Dade County.

A study of the effects of transit malls in Philadelphia, Minneapolis, and Portland, Oregon found that such facilities result in a reduction in CO levels on the malls, without a concurrent increase on the other streets because of the dispersion of the traffic. In Portland, where bus volumes on the mall have greatly increased, there is evidence of a moderate increase in NO_2 levels.[1]

Based on the results of the hot spot analysis conducted, the All Bus Alternative increases the potential for additional hot spot intersections because of the traffic restraints imposed on Flagler Street and Biscayne Boulevard. Problem areas occur in that simulation because traffic is now forced to circulate through more intersections in order to get to a final destination. Of the eighteen intersections analyzed in the study, fourteen have hot spot potentials, as compared to ten intersections under existing conditions.

4.6.6 ENERGY

A. Downtown People Mover Alternative

Short-Term Impacts

Construction of the DPM system will require energy in the form of diesel fuel, gasoline, and electricity to power construction equipment over the twenty-six month construction period. Energy will also be required for manufacture and assembly of DPM components, including vehicles, control and maintenance equipment, and guideway and station elements.

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[1] U.S. Department of Transportation, Urban Mass Transportation Administration. "Streets for Pedestrians and Transit: An Evaluation of Three Transit Malls in the United States." February 1979.

TABLE 4.17

HOT SPOT ANALYSIS RESULTS

Intersection	All Bus Simulation			DPM Simulation			1975 Simulation			Severity
	Avg. Daily Volume	No. of Lanes	HOT(?)	Avg. Daily Volume	No. of Lanes	HOT(?)	Avg. Daily Volume	No. of Lanes	HOT(?)	All Bus vs. Others
NE 1st Ave. & NE 1st St.	4927 42056	3 2	Yes Yes	3813 42394	3 2	Yes Yes	5417 43921	3 2	Yes Yes	All Bus/1975
Miami Ave. & Flagler St.	40786 -	3 -	Yes Yes	41441 2315	3 2	Yes Yes	30394 2081	3 2	Yes Yes	DPM
Flagler & 1st Ave. NE	- 40786	- 2	Yes Yes	40213 3217	2 2	Yes Yes	39163 3486	2 2	Yes Yes	All Bus
SE 1st St. & SE 1st Ave.	38658 9772	3 3	Yes Yes	36491 9758	3 3	Yes Yes	36969 10287	3 3	Yes Yes	All Bus
Miami Ave. & NE 1st St.	36798 8481	3 3	Yes Yes	37432 8573	3 3	Yes Yes	34225 8116	3 3	Yes	DPM
NE 6th St. & NE 1st Ave.	36796 19414	3 3	Yes Yes	37263 18708	3 3	Yes Yes	40837 17963	3 3	Yes Yes	About equal
Flagler St. & 2nd Ave. NE	- 36794	- 3	Yes Yes	3757 24556	2 3	No No	4249 22839	2 3	Yes Yes	All Bus
SE 2nd Ave. & SE 2nd St.	32559 8936	3 3	Yes Yes	22637 20814	3 3	Yes Yes	21197 11247	3 3	Yes Yes	DPM
NE 6th St. & NE 2nd Ave.	31150 13391	3 2	Yes Yes	19008 9058	3 2	Yes Yes	27605 12051	3 2	Yes Yes	All Bus
Biscayne & NE 1st St.	25943 4563	3 3	No No	21848 4127	3 3	No No	7451 8488	3 3	No No	All Bus
NE 2nd Ave. & NE 5th St.	5546 25153	3 3	Yes Yes	4127 21848	3 3	No No	6772 21886	3 3	Yes Yes	All Bus
NE 6th St. & Miami Ave.	7207 23946	3 3	Yes Yes	15666 24073	3 3	Yes Yes	9757 23455	3 3	Yes Yes	DPM
SE 2nd Ave. & SE 3rd St.	21602 5591	3 2	Yes Yes	9508 133	3 2	No No	13121 3100	3 2	No No	All Bus
Biscayne & NE 3rd Ave.	18228 3856	4 4	No No	11535 7461	4 4	No No	10396 7146	4 4	No No	All Bus
Biscayne & NE 4 St.	17740 4451	4 4	Yes Yes	11060 7986	4 4	No No	9812 7809	4 4	No No	All Bus
Biscayne & NE 6th St.	17023 6728	3 2	Yes Yes	19324 6728	4 2	Yes Yes	19225 5355	4 2	No No	DPM
Biscayne & SE 2nd St.	11671 8916	3 3	Yes Yes	18592 13831	4 3	Yes Yes	6167 4065	4 3	No No	DPM
SE 3rd St. & Biscayne	53 9583	3 4	No No	8191 10445	3 4	No No	81 7859	3 4	No No	DPM

An accurate prediction of energy consumption for the total construction effort is not available. An estimate of the construction energy for the Los Angeles DPM suggested that guideway construction would utilize about 2160 KWH/foot of guideway. Similarly, an estimate of 500,000 KWH/car was utilized for vehicle fabrication.[1] At these rates, construction of the system would require a total energy consumption of 52,000,000 KWH. Using an energy conversion rate of 10,000 Btu/KWH (corresponding to a power plant distribution system efficiency of 34%) and an average energy value of 136,000 Btu/gallon of fuel, this 52,000,000 KWH figure is equivalent to approximately 3,800,000 gallons of fuel (gasoline).

Long-Term Impacts

DPM System. Operation of the DPM will require energy for traction and subsystem power. Table 4.18 indicates projected annual DPM operating energy requirements, including power required for traction, escalators/elevators, lighting, maintenance facility, and control center. The DPM will require approximately 9.5 million kilowatt-hours of electrical energy per year. This figure is equivalent to approximately 700,000 gallons of fuel per year or 2,250 gallons of fuel on an average weekday.

TABLE 4.18
ANNUAL DPM POWER CONSUMPTION (kwh)[1]

Traction Power	4,033,670
Escalators/Elevators[2]	435,400
Lighting[3]	279,900
Shop and Maintenance Facility	4,182,950
Control Center	46,650
Miscellaneous	174,160
Subtotal	9,152,730
Contingency	255,020
TOTAL	9,407,750

1. Assumes 311 days of operation per year as annualization factor.
2. 140 kwh per station.
3. 90 kwh per station.

Florida Power and Light Company (FP&L) will provide all electrical energy required to operate the system. FP&L's capability and forecast summer demand for 1984 are shown in Table 4.19. Comparison of the DPM annual power demand to available generating capacity indicates that the DPM will consume less than one percent of FP&L's available power.

[1] U.S. Department of Transportation, Urban Mass Transportation Administration. "Draft Environmental Impact Statement, Los Angeles Downtown People Mover Project". July 1979.

TABLE 4.19
FLORIDA POWER AND LIGHT COMPANY SYSTEM CAPABILITY AND (in megawatts) AND FORECAST SUMMER DEMAND SUMMARY (1984)

	System Capability	Forecast Demand (with rapid rail)	Reserve Capability	DPM Demand
1984	16,523	14,740	1,783	9.5

Source: U.S. DOT, Urban Mass Transportation Administration. "Final EIS, Metropolitan Dade County Rail Rapid Transit Project." May 1978.

Supporting Surface Bus Network. Operation of the surface bus network proposed in conjunction with the DPM will consume both diesel and gasoline fuel. Total daily energy consumption for operation of the local buses and circulators is estimated at approximately 1400 gallons of diesel fuel #1 and 1150 gallons of gasoline, respectively (Table 4.20). This estimate does not include fuel for operation of the open air tram which will have an estimated daily operation of 1340 miles.

TABLE 4.20
ESTIMATED DAILY FUEL CONSUMPTION

	DPM Alternative (Surface Element)	All Bus Alternative
Vehicle Miles Traveled[1]		
Local Bus	4,640	11,020
Circulator	5,200	8,730
Average Energy Consumption (mpg)		
Local Bus	3.3	3.3
Circulator	4.5	4.5
Total Daily Energy Consumption (gals.)		
Local Bus[2]	1,406	3,339
Circulator[3]	1,155	1,949

1. (Peak 1 hour X 5) + (Midday 1 hour X 15)
2. Diesel Fuel No. 1
3. Gasoline

B. All Bus Alternative

Operation of the All Bus Alternative will require both diesel and gasoline fuel. Total daily energy consumption for operation of the local bus sytem is estimated at 3340 gallons of diesel fuel #1; estimated daily gasoline consumption for fueling of circulator buses is estimated at 1940 gallons (Table 4.20).

4.7 PARK LANDS

A. Downtown People Mover Alternative

(See Section 5.1.)

B All Bus Alternative

Implementation of the All Bus Alternative will not require the acquisition of any public park and recreation lands, wildlife and waterfowl refuges and historic sites. The All Bus Alternative will contribute to congestion and noise in downtown streets resulting in a minor indirect negative impact on parks in the area. This will be partially offset by improved access to downtown park facilities.

4.8 HISTORIC AND ARCHAEOLOGICAL SITES

A. Downtown People Mover Alternative

(see Section 5.2.)

B. All Bus Alternative

Implementation of the All Bus Alternative will not have an effect on any historic or archaeological sites in the Miami CBD area.

4.9 UNAVOIDABLE ADVERSE IMPACTS

A. Downtown People Mover Alternative

Short-Term Impacts

Construction of the Downtown People Mover will result in several temporary adverse impacts which cannot be avoided, including:

1. Reduced accessibility to residences and businesses along the alignment;

2. Reduced sidewalk and street capacity, increased traffic congestion, and reduced travel speeds at certain locations. Some streetside parking will be lost as a result of DPM construction;

3. Presence of unsightly construction equipment will disrupt the existing visual setting along the alignment;

4. Generation of approximately 8600 cubic yards of solid waste;

5. Minor increases in air pollution and dust along the alignment from construction activities for periods not exceeding 2 months in any one block;

6. Temporary increase in noise levels adjacent to construction sites; and L_{eq} levels up to 86 to 97 dBA. This may have an adverse effect on resident occupants of rooms adjacent to DPM guideway;

7. Vegetation removal will be required in isolated locations along the alignment. Plant material will be replaced upon completion of construction activity.

Long-Term Impacts

Operation of the DPM and supporting bus network will result in additional long-term unavoidable adverse impacts, including:

1. Some view obstructions and other visual incompatibilities due to placement of the DPM guideway, stations, and maintenance facility;

2. There will be displacement of approximately 147 residents, 37 employees, and four businesses;

3. The potential for some secondary displacement effects if anticipated increases in rental prices escalate beyond the ability of current residential and business tenants to pay;

4. By excluding bus activity from inside the DPM Loop, an increase in bus traffic will occur at some intersections on the periphery of the CBD;

5. A slight increase in the demand for electrical energy, approximately 0.5% of the Florida Power and Light Company reserve capability. This would be offset by resulting fuel savings from the more efficient operation of buses in downtown and the potential energy savings resulting from daily commuters switching to mass transit as a convenient means of transportation.

6. A slight increase in the amounts of effluents discharged into the area's sanitary sewer system. This discharge will include sanitary effluent and wastewater from the maintenance facility containing wash solvents, grease, oil and gasoline. The anticipated discharge will not overburden the existing sanitary sewer treatment facilities.

B. All Bus Alternative

Short-Term Impacts

Implementation of the All Bus Alternative will not result in any short-term adverse impacts on the Miami CBD area.

Long-Term Impacts

Operation of the system of local buses and circulators will result in long-term unavoidable adverse impacts, including:

1. Increased bus traffic at 6 of 13 intersections in the CBD area identified as sensitive to volume increases; the most significant of these being at the intersection of Biscayne Boulevard and N.E. 3rd Street, and at N.E. 6th Street and N.E. 1st Avenue.

Both of these intersections presently operate above or very near their design capacity (1979 volumes at level of service 3) and as a result of increased bus activity would experience an increase in the level of congestion or delays.

2. A slight increase in the demand for liquid fuel. The estimated daily consumption for fueling the circulator buses is estimated at 1940 gallons.

3. A slight increase in ambient noise levels at intersections where there will be increased bus traffic. In no case is this impact substantial enough to result in a 1 dBA increase in the overall L_{dn} levels at adjacent structures;

4. Minor increases in air pollution.

4.10 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

A. Downtown People Mover Alternative

Development, construction and operation of a DPM in the Miami CBD will require the commitment of resources which can be considered irreversible and irretrievable. These include land, money, materials, manpower and energy. The costs associated with these commitments however must be considered in relation to benefits to be derived from the development over the long run.

Land

The DPM will require land from both public and private ownership. In most instances this land is presently vacant, in others it is occupied by structures which must be acquired and demolished. Considering vacant or underutilized land to be a scarce commodity in the Miami CBD area, the DPM can be seen as consuming a valuable resource. The project however can alternatively be viewed as creating an opportunity for enhancing the efficiency of uses on currently underutilized lands adjacent to its alignment.

Money

The capital cost for construction for the DPM system represents a resource commitment which cannot be directly retrieved. This expenditure however is offset by the associated benefits to the region in terms of short-term enhanced business activity, personal income, and employment, as well as long-term increased retail sales and property tax revenues.

Construction Materials

Materials required to implement the DPM Alternative will include concrete aggregate, cement, lumber, and steel and fabricated metals for construction of the DPM as well as supporting bus vehicles. Some materials will be produced locally, others will be produced outside the region.

Manpower

Labor expended for construction of the DPM and manufacture of vehicles cannot be recovered. This expenditure will result in beneficial direct as well as induced indirect impacts on the regional economy.

Energy

Construction of the DPM and manufacture of vehicles and components will require electrical and petroleum energy. The energy will be supplied locally as well as from outside the region. Estimates for DPM construction and operation indicate that energy requirements for construction will represent approximately 10 percent of the total system energy consumed over the life of the system.

Operation of the DPM will rely on electricity supplied by Florida Power & Light Company; bus vehicles will be powered by diesel and gasoline fuels.

B. All Bus Alternative

Implementation of the All Bus Alternative will require the irretrievable commitment of money, materials, manpower and energy.

Money

Money needed to purchase vehicles for implementation of the All Bus Alternative will be spent outside the Metropolitan Dade County Region. The expenditure will be irretrievable and will not be recovered through induced indirect effects on the local economy.

Materials

Steel and fabricated metals and vehicle components will be required for the manufacture of buses and circulators. The vehicles will be produced outside the region.

Manpower

Labor required for manufacture of vehicles will be expended outside the Metropolitan Dade County Region.

Energy

Electrical energy will be consumed during the manufacture of buses and circulators. This will be consumed outside the region. Diesel and gasoline fuels from local supplies will be required for the operation of vehicles. Consumption will be partially offset by a reduction in regional automobile vehicle miles travelled.

4.11 SHORT TERM USES OF THE ENVIRONMENT VERSUS LONG TERM PRODUCTIVITY

A. Downtown People Mover Alternative

As an integral element of Dade County's Unified Transportation Improvement Program, the proposed Downtown People Mover is expected to enhance the region's long term productivity through provision of greater accessibility and mobility. These improvements can only be achieved through some short and long term uses of the environment.

During the period of construction -- not expected to exceed 24 months overall -- the proposed system will involve some short term localized environmental degradation of the CBD. In addition to the usual range of impacts from any major street construction, i.e., noise, dust, disruption of pedestrian and vehicular traffic, and the visual clutter of construction activities, there will be some displacement of existing land uses. Once erected, visual impacts of the system will persist into the long-term, although all efforts will be made to design a system that is not discordant with the surrounding area and, where possible, that adds to the aesthetic integrity of the street scape. A concerted effort will also be made to ameliorate construction impact on businesses in the area through mitigation measures, construction activity scheduling and, if necessary, supplemental maintenance.

These short term adverse uses of the environment will be overshadowed by the long term benefits provided by increase accessibility and mobility. These long term changes in the CBD area and in the region are considered beneficial because they fulfill the objectives of existing land use planning and development policies. Long term impact will affect transit users as well as non-users. The DPM, as a complementary circulation/distribution system to the Metrorail Line, will provide transportation related benefits such as travel time reductions, parking cost reductions, improved safety, reduced traffic congestion and cost reduction realized by not operating private vehicles. Among other benefits are, improved air quality resulting from reductions in vehicle use, potential energy savings and more efficient use of fuel, improving accessibility to employment, services and recreation and providing improved access to handicapped persons. It is anticipated that deployment of the DPM will enhance the social and economic opportunities of the CBD area. Increased demand for office space, hotel rooms and residential units in the CBD area is projected as a result of the DPM. In addition, the DPM is expected to promote the development of currently undeveloped and/or underutilized land.

B. All Bus Alternative

Deployment of the All Bus Alternative would not radically change the short-term uses of the environment, however, on a long-term basis, the substantial number of buses which are necessary to accommodate the demand generated by the Metrorail Line would exacerbate the traffic congestion problems of the CBD. The All Bus Alternative would not provide the level

and quality of service in the CBD which is considered necessary to properly complement the ride quality and comfort offered by the regional Metrorail Line. Implementation of the All Bus Alternative would not serve as an inducement to the accelerated development of currently underutilized areas of the CBD.

CHAPTER 5.0
ANALYSIS OF PARK LANDS AND HISTORIC AND ARCHAEOLOGICAL SITES

5.1 4(f) ANALYSIS

Section 4(f) of the Department of Transporation Act of 1966 declares a national policy that special effort be made to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) permits the Secretary of Transportation to approve a project requiring the use of such publicly owned lands of national, state, or local significance only where it can be shown that:

1. There is no feasible or prudent alternative to the use of such land; and

2. Such project includes all possible planning to minimize harm to the Section 4(f) land resulting from such use.

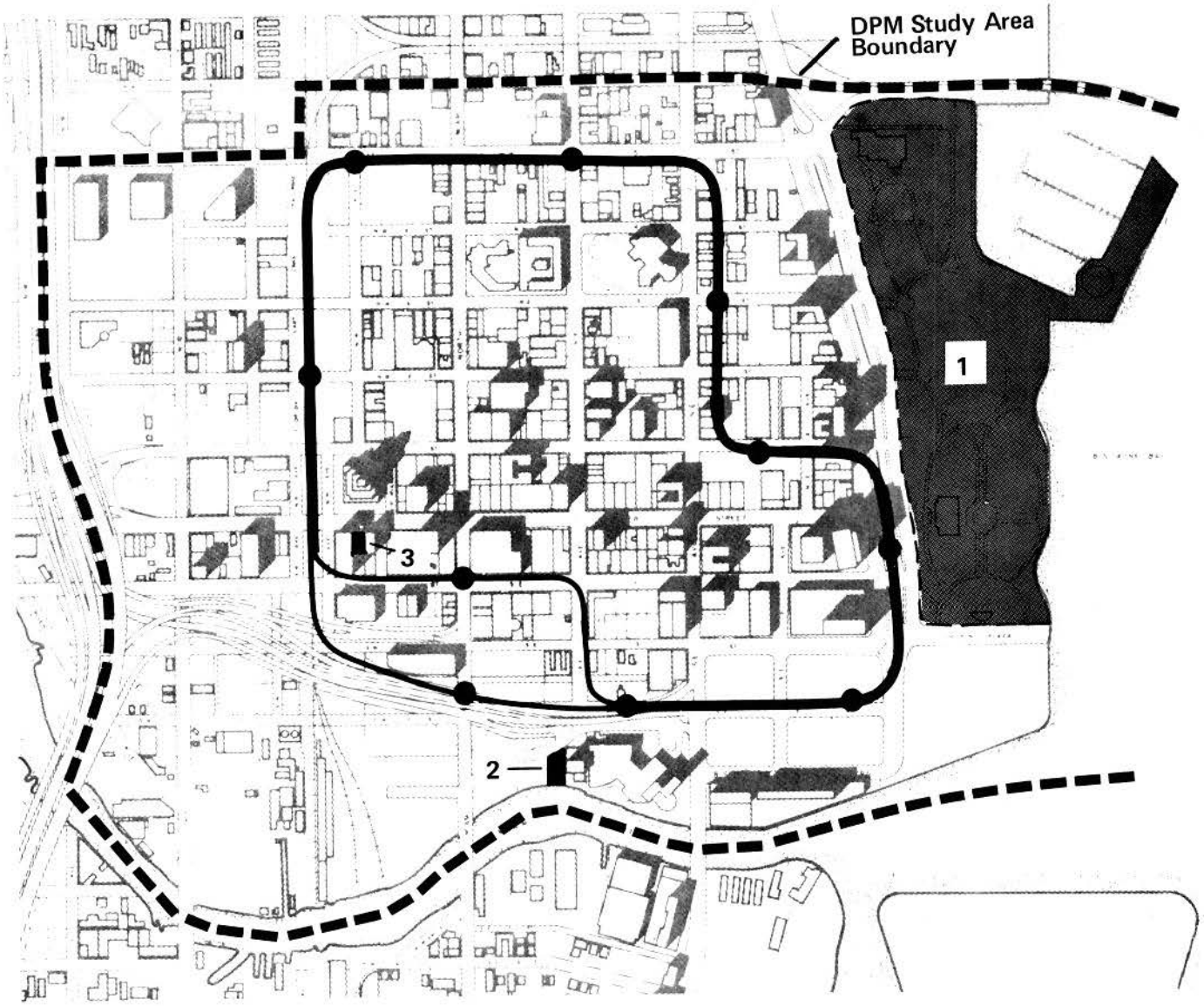
This section contains the supporting documentation required by the Secretary of Transportation for his decision regarding the use of those properties protected by Section 4(f) by the proposed DPM and All Bus Alternatives. Its purpose is to support the determination that there is no use of any public parks, recreation areas, wildlife or waterfowl refuges, by the proposed DPM and All Bus Alternatives. An inventory of historic sites and an analysis of DPM impacts is included in Section 5.2 of this chapter as required by the provisions of the National Historic Preservation Act of 1966, and Executive Order 11593. The information included in Section 5.2 is intended to supplement the analysis and determination in this section that the proposed DPM and All Bus Alternatives do not propose the use of any historic sites protected by Section 4(f).

5.1.1 Park and Recreation Lands

An inventory of park and recreation lands has identified three parks in the Miami CBD area (Figure 5.1):

1. Bayfront Park;
2. Fort Dallas Parks; and
3. Walker Mini Park.

Construction and operation of the DPM will not require the use of land from any of the three park areas, nor will it result in the severing of park access or indirect effects inconsistent with park uses. At all points along the alignment the DPM is more than 100 feet from any public park land. In all instances the DPM is expected to enhance park usage by improving access to and within the CBD area. In addition, the All Bus Alternative does not propose the use of any properties protected by Section 4(f) including any public parks, recreation areas, and wildlife or waterfowl refuges.



1 BAYFRONT PARK

2 FORT DALLAS PARK

3 WALKER MINI PARK

Figure 5.1 PARK LANDS

5.2 HISTORIC AND ARCHAEOLOGICAL SITES

Section 106 of the National Historic Preservation Act of 1966, as amended, and Executive Order 11593 "Protection and Enhancement of the Cultural Environment" requires that impacts of Federally-assisted projects be examined for all historic districts, sites, buildings, structures, or objects, and archaeological sites listed or eligible for inclusion in the National Register of Historic Places. The Act also requires that Federal agencies afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on undertakings that effect such properties. The ACHP has established procedures for the "Protection of Historic and Cultural Properties" (36 CFR, part 800). This section documents compliance with the Section 106 process and the procedures of the ACHP with regard to the potential impacts of the Miami DPM on historic properties. This section contains the "determination of effect" documentation required by the ACHP.

5.2.1 Historic Sites

A. Identification of Historic Sites

An inventory of the Miami CBD area was conducted to identify all properties having potential historic significance which could potentially be affected by the proposed Downtown People Mover. Locations of these properties were obtained from the recently completed Dade County Historic Survey.[1]

All of the properties having historic or architectural significance located within the DPM impact corridor (assumed for purposes of this analysis to extend 100 ft. from the DPM guideway edges) have been reviewed in consultation with both the Dade County Historic Survey and the State of Florida Historic Preservation Officer (SHPO) to determine which properties are protected or potentially protected under provisions of Section 106 and Executive Order 11593.

The Keeper of the National Register of Historic Places on May 1st, 1980 concurred with the opinion of the State of Florida's SHPO and determined that four sites within the Miami DPM impact corridor are eligible for listing in the National Register. The sites involved are:

1. Clyde Court Apartments
   68 S.E. 2nd Street
2. Central Baptist Church
   500 N.E. 1st Avenue
3. Salvation Army Citadel
   49 N.W. 5th Street
4. Chaille Block and Abe's Rooms
   443-443 N. Miami Avenue
   and 22 N.E. 5th Street

Figure 5.2 illustrates the location of these sites in relationship to the DPM alignment.

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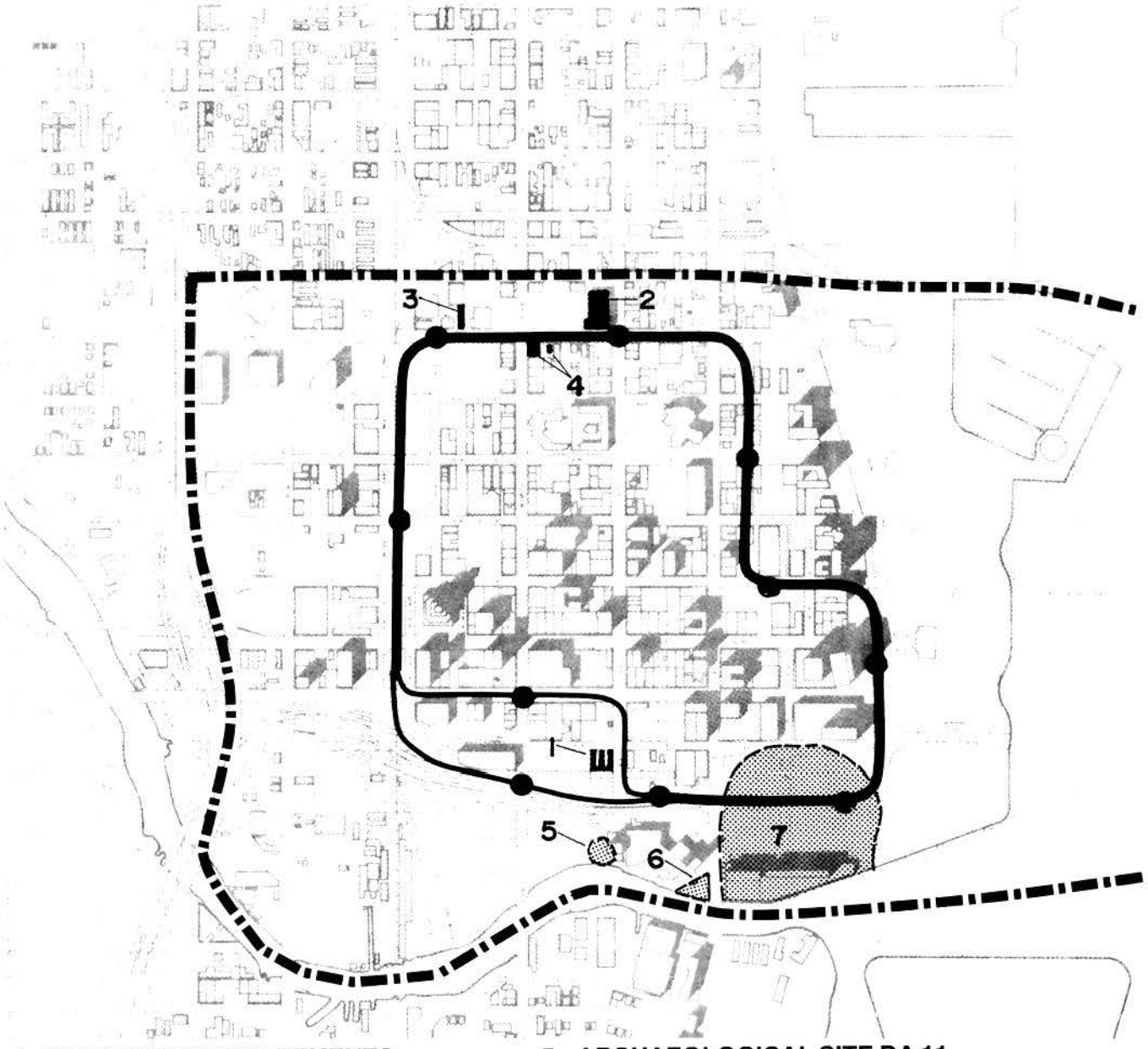
[1] Dade County Historic Survey. Survey Findings in the Downtown Miami Area. April 1979.



1. **CLYDE COURT APARTMENTS**
   68 S.E. 2nd Avenue
2. **CENTRAL BAPTIST CHURCH**
   500 N.E. 1st Avenue
3. **SALVATION ARMY CITADEL**
   49 N.W. 5th Street
4. **CHAILLE BLOCK AND ABE'S ROOMS**
   433-443 N. Miami Avenue
   and 22 N.E. 5th Street
5. **ARCHAEOLOGICAL SITE DA 11**
   Fort Dallas Park
6. **ARCHAEOLOGICAL SITE DA 1066**
7. **ARCHAEOLOGICAL SITE DA 1065**
   Dupont Plaza Area

0 500 1000 FT.

Figure 5.2 HISTORIC AND ARCHAEOLOGICAL SITES

B. Determination of Effect

The Advisory Council on Historic Preservation has established criteria (36 CFR 800.3) to be used in determining whether an undertaking has an effect on those properties included, or eligible for inclusion, in the National Register of Historic Places. In accordance with 36 CFR 800.3 and in consultation with the SHPO, the "Criteria of Effect" and "Criteria of Adverse Effect" were applied to the four properties/sites within the DPM impact corridor found eligible for listing in the National Register.

UMTA, in consultation with the SHPO as per letters dated May 2nd, 1980, has determined that the proposed DPM will have no effect on the Clyde Court Apartments, Central Baptist Church, and the Salvation Army Citadel. In addition, UMTA in consultation with the SHPO has determined that the DPM will have an adverse effect on the Chaille Block and Abe's Rooms.

As required by the regulations to implement the Section 106 process, the following documentation constitutes the Preliminary Case Report for the historic properties determined to be adversely affected by the proposed DPM project.

Property Name: Chaille Block and Abe's Rooms

Location: 433-443 N. Miami Avenue and 22 N.E. 5th Street Miami, Florida

The Chaille Block and Abe's Rooms are considered to be a single unit due to their contiguous location and association of the original owners, William H. Chaille and his son, Floyd.

Description

The earlier structure, Abe's Rooms (see Figure 5.3) was built in 1905. It is a 2½ story rectangular wood frame vernacular structure set back approximately 30 feet from the existing street right-of-way. The structure was originally used as residence by Floyd Chaille, although the father, William, is listed as the owner in 1906. Today, it is in poor condition and has been converted to a rooming house. There have been no significant alterations to the exterior of the structure. The Chaille Block, (see Figure 5.4) is a two-story rectangular concrete vernacular structure built for commercial use with space for five stores on the ground level and hotel rooms on the second floor. Today, it is in fair condition, with the shops still in use; the second floor, however, is unoccupied. The most notable feature of the Chaille Block is the facade on North Miami Avenue. A white overhanging balcony on the second floor provides an arcade for the first floor below. The arcade is comprised of seven rectangular bays with rectangular masonry columns. Entrance to the five commercial spaces are in recesses flanked by display windows. The upper portion of the facade has a stepped parapet center with a masonry sill and a center masonry circle with the structure's name and date of construction. Major alterations include a placement of an aluminum awning shade over the second floor balcony and accordion folded metal doors across the first floor facade.

Figure 5.3 ABE'S ROOMS, 22 N.E. 5th Street

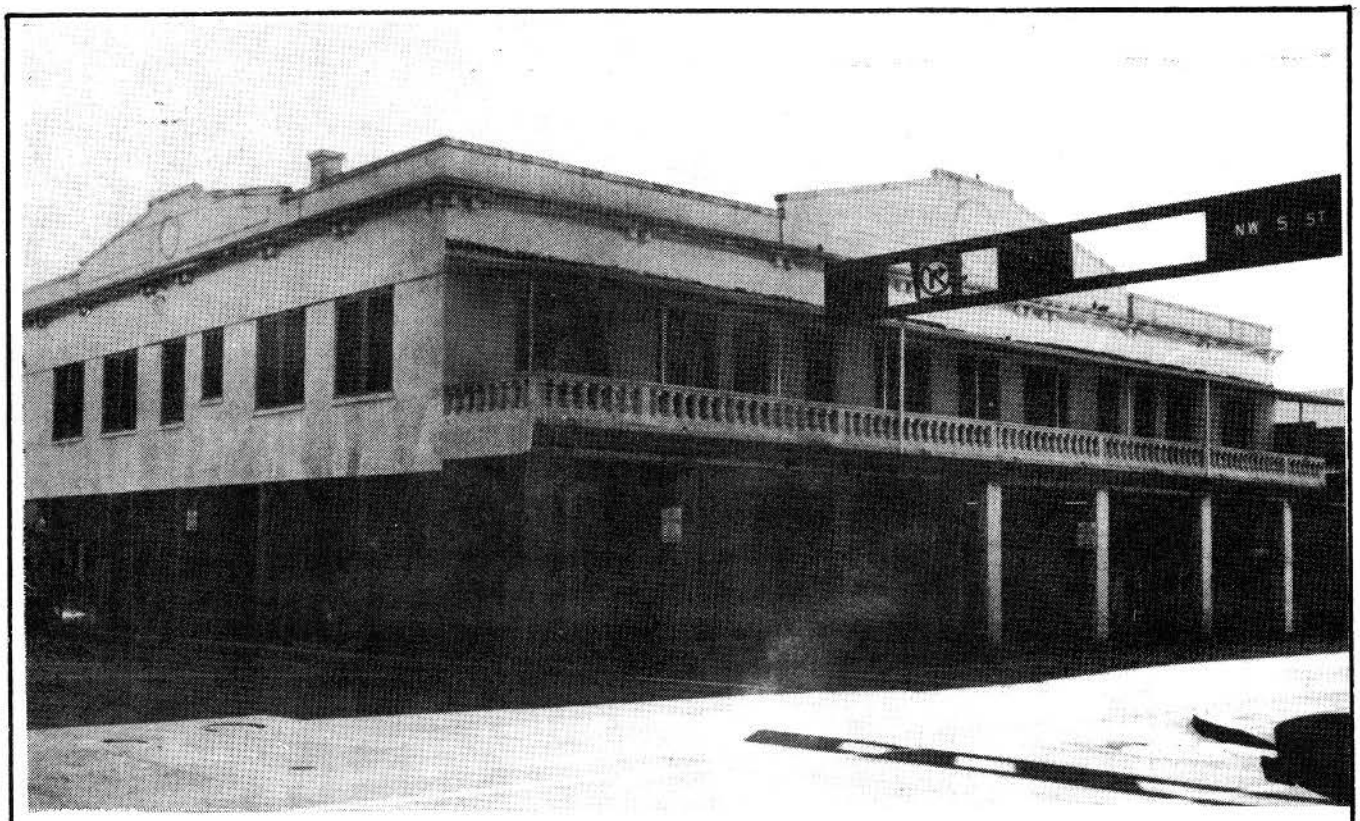


Figure 5.4 CHAILLE BLOCK, 433-443 N. Miami Ave.

Significance

The Chaille Block is considered a fine example of masonry vernacular architecture for commercial buildings in the years between 1910 and 1920. It is noteworthy for its details and adaptability to the area's climate.

From an architectural point of view, the Abe's Rooms structure does not possess any particularly redeeming features. Its principal significance is its association with the Chaille Block. Together, these structures are significant as contiguous units (see Figure 5.5) which are representative of the broad patterns of business and social structures in Miami during the early twentieth century.

Application of the Criteria of Adverse Effect

(a) The DPM guideway will pass five feet from the north elevation of the Chaille Block and 30 feet from the facade of Abe's Rooms (see Figures 5.6 a&b and 5.7). As currently planned, the DPM guideway will not require the demolition of these properties.

(b) The proximity of the alignment to the property may isolate or alter the surrounding environment from the property.

(c) The DPM will increase visual and audible elements of the surrounding area.

(d) The DPM will not result in the transfer or sale of federally owned property as the Chaille Block and Abe's Rooms properties are privately owned.

(e) The DPM project will not result in neglect of either structure.

Views of the SHPO

In a letter dated May 1st, 1980 (see Figure 5.8), the SHPO expressed his opinion on the effect of the DPM on the Chaille Block and Abe's Room's properties. His opinion regarding the mitigating measures incorporated in the alignment are also stated in this letter.

Views of Others

To date, the reaction of the local community to the proposed DPM has been overwhelmingly favorable. Public officials, as well as the downtown business community and the general public, have in general been very supportive of the project. No concerns about the project's effects on historic resources have been expressed by any of these groups.

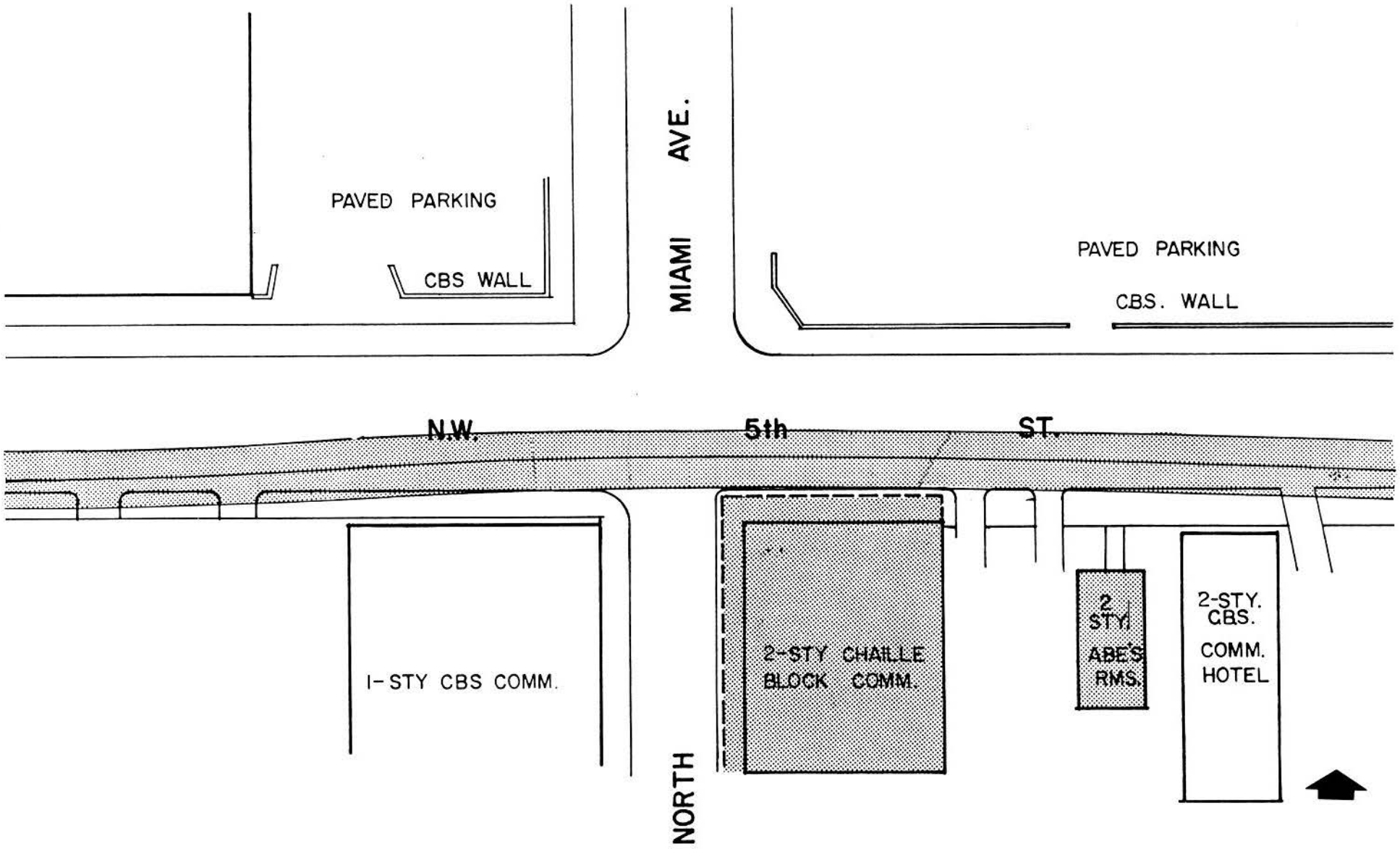


Figure 5.5 GUIDEWAY LOCATED ALONG N.E. 5TH STREET SHOWING RELATION TO CHAILLE BLOCK AND ABE'S ROOMS

Figure 5.6a VIEW LOOKING SOUTH-WEST OF ABE'S ROOMS AND REAR OF CHAILLE BLOCK

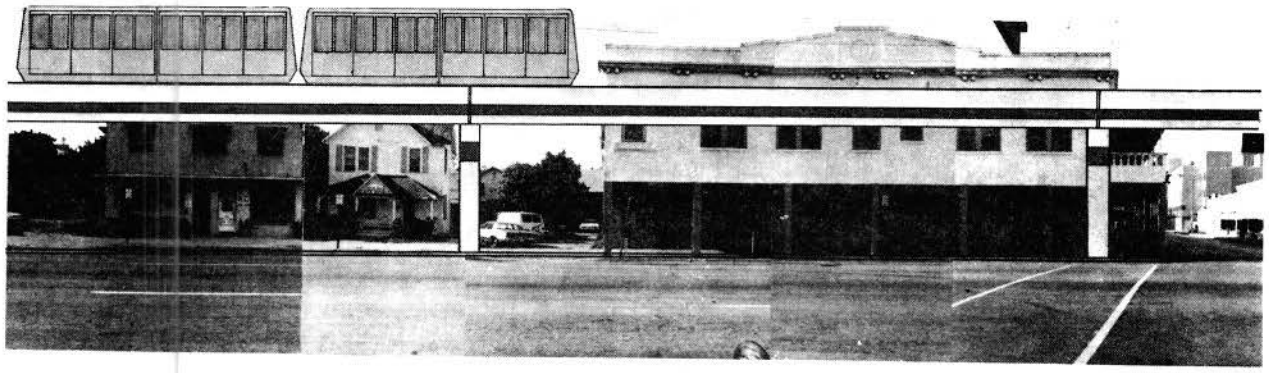


Figure 5.6B PHOTO MONTAGE OF DPM GUIDEWAY AS IT PASSES IN FRONT OF CHAILLE BLOCK & ABE'S ROOMS.

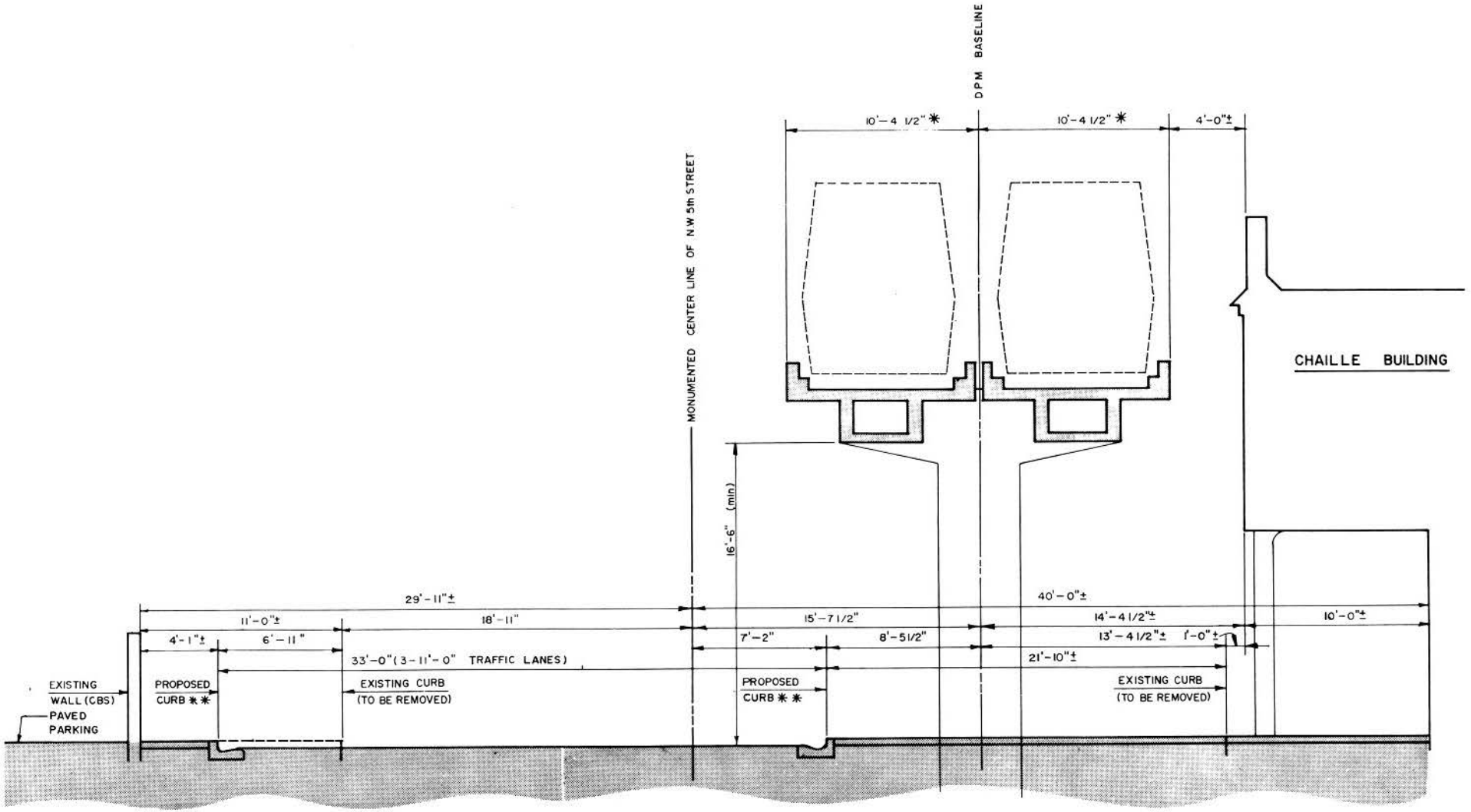


Figure 5.7 GUIDEWAY CROSS SECTION AT N.E. 5TH ST. AND MIAMI AVE. (LOOKING EAST)

FLORIDA DEPARTMENT OF STATE
George Firestone
Secretary of State
Ron Levitt
Assistant Secretary of State

May 1, 1980

Mr. John A. Dyer
Transportation Coordinator
Metropolitan Dade County
Office of the County Manager
911 Courthouse
Miami, Florida 33130

Re: Determination of Effect of the Miami Downtown People Mover on the Chaille Block and Abe's Rooms, Miami, Florida

Dear Mr. Dyer:

In a letter to you dated April 10, 1980, I stated as my opinion that the Chaille Block (433-443 N. Miami Avenue) and Abe's Rooms (22 N.E. 5th Street) were eligible for inclusion on the National Register of Historic Places. It is also my opinion that the elevated guideway of the Miami Downtown People Mover will have an adverse visual effect on these sites. This opinion was reached by applying the criteria of effect as stated in 36 C.F.R., Part 800.3 (b) (Protection of Historic and Cultural Properties). This criteria includes the "introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting."

It is also my opinion, on the other hand, that the adverse impact on these sites is mitagated by avoiding an adverse visual impact on two other more architecturally significant sites along the route of the Downtown People Mover. These sites are the Central Baptist Church and the Salvation Army Citadel. I stated in letters dated April 10, 1980, that these sites are also in my opinion eligible for inclusion in the National Register of Historic Places.

The City of Miami moved the alignment of the guideway from the north to the south traffic lane on N.E. 5th Street to avoid an impact to the south facade of the Central Baptist Church at the intersection of N.E. 5th Street and N.E. 1st Avenue, and the south (main) facade of the Salvation Army Citadel at 49 N.W. 5th Street. Although this change in alignment does cause the guideway to visually impact the Chaille Block along N.E. 5th Street, the guideway does not impact the main facade of the building which faces N. Miami Avenue. The N.E. 5th Street

elevation of the Chaille Block has little architectural interest. The guideway does obscure the main (north) facade of Abe's Rooms, which is located immediately to the rear (east) of the Chaille Block. This building, however, has little architectural interest and is significant for its historical association with the Chaille Block.

The present alignment, therefore, avoids visual impact to two architecturally significant buildings, i.e., the Central Baptist Church and the Salvation Army Citadel and avoids an impact to the main architectural features of the Chaille Block, whose significance is historical rather than architectural. Furthermore, it is my opinion that the present alignment will best serve to avoid an impact to other significant sites in the downtown Miami area.

Your interest in the preservation of Florida's historic resources is deeply appreciated.

Sincerely,

L. Ross Morrell
State Historic
Preservation Officer

LRM:Smrh

Figure 5.8 DETERMINATION OF EFFECT LETTER FROM SHPO

Following in figures 5.9, 5.10 and 5.11 are letters expressing the official position(s) of the City of Miami Planning Department, the Downtown Development Authority and the Dade County Historic Survey concerning the impact of the DPM on these structures.

Alternatives That Would Avoid Adverse Effect

The All Bus Alternative would have no effect on the Chaille Block and Abe's Rooms properties. This alternative has been described in detail in Chapter 2.0. Impacts associated with this alternative are discussed in Chapter 4.0. Based on the criteria used in the evaluation process and the overall performance of the alternatives in significant impact categories (including ridership, capital and operating costs, economic impacts and development potential), the DPM Alternative is preferred by Dade County over the All Bus Alternative. Section 2.3.1 of this document summarizes the negative and positive impacts of both of these alternatives.

Alternative DPM alignments which did not require the use of north 5th Street were evaluated during the planning and development process leading to the selection of the proposed alignment. The evaluation methodology employed took into consideration the Goals and Objectives of the DPM (see Table 2.2) which had been established at the outset of the project. Alignment configurations utilizing North 6th Street did noticeably poor in overall performance as they failed to provide adequate service to the Community College -- ranked high among activity centers which should be connected by the DPM. The combination of additional capital cost for the extra guideway length and reduced system ridership has a drastic adverse effect on the cost effectiveness of alternative alignments utilizing North 6th Street. Alignment configurations along North 4th Street provide for a very reduced loop around the CBD which does not maximize the opportunity presented by the DPM to promote land use and development goals. Although a DPM alignment along North 4th Street would avoid any adverse effect on the Chaille Block and Abe's Rooms site, the presence of two potentially historically and architecturally significant properties on 4th Street (Dade Apartments - 1918, and the former U.S. Post Office and Courthouse - 1914) would probably result in an equally adverse effect on historic properties.

Alternatives That Would Mitigate Adverse Effect

As stated in the letter from the SHPO provided in the Views of the SHPO section of this chapter, shifting the DPM alignment from the south side of North 5th Street to the north side of the same would result in an adverse effect on two other historically and architecturally significant properties. These sites are the Central Baptist Church and the Salvation Army Citadel (see Figure 5.2), both of which have been determined eligible for inclusion in the National Register.

The proposed alignment incorporates revisions which were explicitly developed to preserve the integrity of the Chaille Block and Abe's Rooms

City of Miami

JOSEPH R. GRASSIE
City Manager

March 31, 1980

Mr. Simon Zweighaft
DPM Project Manager
Dade County Office of Transportation Administration
44 W. Flagler Street
Miami, Fl. 33130

Dear Simon:

The City of Miami administration recognizes the historical significance of the Chaille Block (including Abe's Rooming House) as fine examples of early vernacular architecture in the downtown area. However, because the Chaille Block is located within the rapidly growing downtown business district, we also recognize that if these buildings can survive economic pressures for redevelopment, they must coexist with surrounding new development of a much more massive scale. Thus, we are satisfied that the proposed Downtown People Mover guideway is an acceptable addition to the environment of the Chaille buildings.

The potential negative impacts have been sufficiently mitigated by locating the guideway to the side of the major structure.

Sincerely,

Jim Reid

Jim Reid, A I C P
Director
Planning Department

JR:JM:mb

PLANNING DEPARTMENT 3342 Pan American Drive / P.O. Box 330708 / Miami, Florida 33133 / (305) 579-6086
JIM REID, AICP, Director

Figure 5.9 LETTER FROM CITY OF MIAMI PLANNING DEPARTMENT

INTER-OFFICE MEMORANDUM

downtown development authority

TO: Simon Zweighaft **DATE:** April 1st, 1980

FROM: George Varki **REFERENCE:** DPM SYSTEM - PRELIMINARY ENGINEERING STUDIES

The Downtown Development Authority is satisfied that the preliminary engineering studies for the DPM system adequately minimizes impact on existing structures. Structures like the Chaile Block and Abe's Room which are located in a rapidly growing CBD and in the impact area of a project like the DPM system must be able to coexist economically and physically in the context of new developments of substantial bulk and intensity.

VGV/mr

cc: Roy F. Kenzie
Adam P. Lukin
Jim Reid

2099 one biscayne tower · miami, florida 33131 · telephone (305) 579-6675

Figure 5.10 LETTER FROM DOWNTOWN DEVELOPMENT AUTHORITY

MEMORANDUM

107.07-17A

TO Jaime Moreno
Office of Transportation Administration

DATE February 8, 1980

SUBJECT Historic Site Along Downtown People Mover Alignment.

FROM Ivan A. Rodriguez
Dade County Historic Survey

We have conducted further investigation to substantiate the historical significance of the Chaille Block.

We contacted the great niece of Josiah Chaille, the man responsible for the plan that gave Miami its present street numbering system. She put us in touch with Josiah's second widow, who in turn referred us to John H. Chaille, Josiah's son. He informed us that the Chaille Block had been built by William H. Chaille, Josiah's father.

This fact, we believe, lessens the potential eligibility for National Register listing of the site, based on historical significance. The building is still architecturally significant as a fine example of early Miami commercial design. The impact of the Downtown People Mover on this structure, in our opinion, would be minimal, since the alignment runs along the side elevation of the building without obstructing the view of its front elevation.

I am enclosing a copy of a map showing the early shoreline at the mouth of the Miami River. Bob Carr believes that the assurance of having an archaeologist present during excavation along the Dupont Plaza parking lot area is a satisfactory measure at this time.

Figure 5.11 LETTER FROM DIRECTOR OF DADE COUNTY HISTORIC SURVEY

properties. The DPM alignment and station locations adopted on June 15, 1979, by the Dade County and City of Miami Commisssioners (see Figure 2.6) included a DPM station to be located in the area occupied by these properties. As a result of consultations with the SHPO, a revised alignment and station location scheme which precluded the demolition of both of these buildings was developed. A slight curvature was introduced in the alignment to avoid the Chaille Block's arcade which extends to the street's curb line. Relocating the station presented more difficulties because of the "ripple" effect that moving a station has on other stations in the system. To maintain adequate access to the system from the area's main activity centers and to maintain optimum spacing between stations, it was necessary to introduce an additional station (Station X - see figure 2.8). This represented an additional capital cost of approximately one million dollars to the project.

5.2.2 ARCHAEOLOGICAL SITES

A. Inventory of Archaeological Sites

Research conducted as part of the Dade County Historic Survey as well as research of the existing inventory of archaeological sites on file with Florida's Division of Archives, History and Records Management have indicated the presence of three potentially significant archaeological sites within the DPM study area:

1. An historic dump (Site DA 1066 - located along the north bank of the Miami River several hundred feet southwest of Bauder Fashion College);

2. A prehistoric midden and early Indian and historic settlement site (Site DA 11 - adjacent to the north bank of the Miami River adjacent to the west side of Brickell Avenue Bridge); and

3. The sites of two Spanish missions as well as possibly significant prehistoric resources (Site DA 1065 - in the vicinity of the Dupont Plaza Hotel).

All of the sites are located in the same general area along the northern bank of the mouth of the Miami River where it flows in Biscayne Bay. Figure 5.12 illustrates the location of these sites in relationship to the DPM alignment.

DPM since they are located several hundred feet away from the proposed alignment. There will be no construction activity involving these sites and, therefore, will not be disturbed or affected.

The DPM alignment will pass over a portion of archaeological site DA 1065. To date, no assessment has been made of the exact location and quality of material remaining from any of the archaeological components expected to exist within the site vicinity. Site DA 1065 is currently overlain by surface parking areas in the area bounded by S.E. 2nd Avenue, Biscayne Boulevard, Biscayne Boulevard Way, and S.E. 2nd Street. The area between the Miami Riverfront and Biscayne Boulevard Way is occupied by the Dupont Hotel. The extent of disturbance caused by construction of the hotel is uncertain. Future planning for the Dupont Plaza area, now

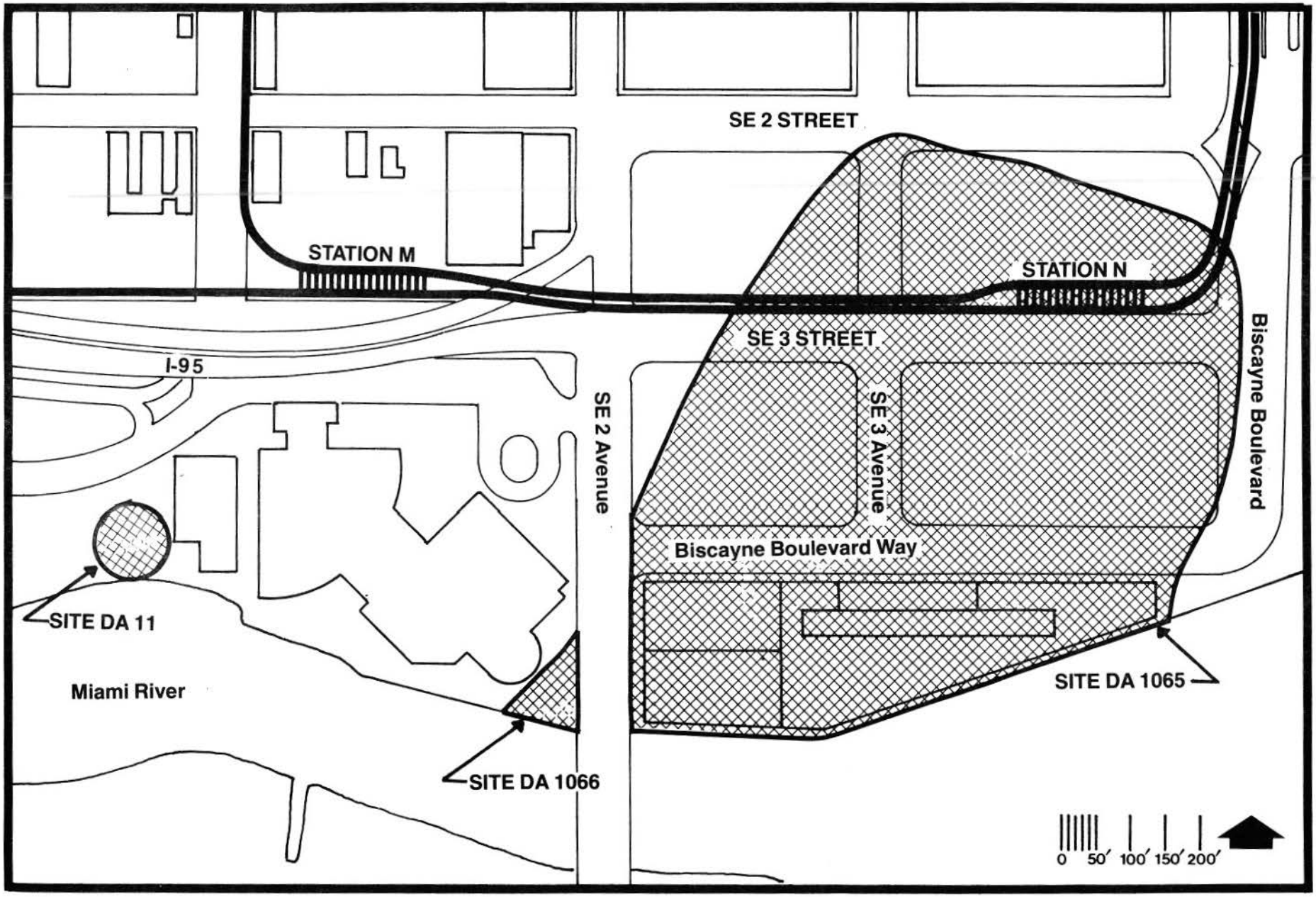


Figure 5.12 GUIDEWAY AND STATION LOCATION ALONG S.E. 3RD STREET SHOWING RELATION TO ARCHAEOLOGICAL SITES

occupied by surface parking facilities, anticipates development of the area to include mixed residential, office commercial and structural parking uses.

Any potential impact on site DA 1065 will be minimal because the DPM system, including stations, is totally elevated. Aerial construction of the guideway and station facilities will limit the area of potential impact to pier foundation(s) locations, where excavation activity will be required.

Consultations have been made with the SHPO to determine the impact of the DPM on site DA 1065. In a letter dated September 6, 1979, the SHPO stated that "... there is a good possibility that archaeological remains exist between points (stations) M and N. If the DPM project involves any ground breaking activities, this office requests that an archaeological monitor be present during these activities".

Dade County's Office of Transportation Administration will comply with the SHPO's request. If during the excavation required for the pier foundations any archaeological findings are made (as determined by the archaeological monitor), the importance of this site will be re-evaluated and compliance with the appropriate archaeological requirements will be undertaken.

LIST OF RECIPIENTS OF DRAFT ENVIRONMENTAL IMPACT STATEMENT

FEDERAL AGENCIES

Department of Transportation, Assistant Secretary for Policy and International Affairs, Washington, D.C.
Department of Transportation, Regional Representative of the Secretary, Atlanta, Georgia
Department of Transportation, Federal Highway Administration, Atlanta, Georgia
Environmental Protection Agency, Office of Environmental Review, Washington, D.C. Environmental Protection Agency, Atlanta, Georgia
Department of Housing and Urban Development, Atlanta, Georgia
Federal Emergency Management Agency, Washington, D.C.
Federal Emergency Management Agency, Atlanta, Georgia
Department of Interior
Department of Agriculture
Department of Commerce
Department of Energy
Department of Health and Welfare
U.S. Geological Survey
Advisory Council on Historic Preservation
Department of the Army Corps of Engineers, District Engineer
Office of Management and Budget
General Services Administration
U. S. General Accounting Office

STATE AGENCIES

Department of Transportation
Department of Environmental Regulation
Department of Administration Division of State Planning
Department of State, State Historic Preservation Office
Department of Natural Resources
Department of Community Affairs
Department of Legal Affairs
Department of General Services
Department of Agriculture and Consumer Services
Department of Health and Rehabilitative Services

REGIONAL AND LOCAL AGENCIES AND ORGANIZATIONS

South Florida Regional Planning Council
South Florida Water Management District
Dade County Department of Planning
Dade County Department of Traffic and Transportation
Dade County Department of Housing and Urban Development
Dade County Department of Environmental Resources Management
Dade County Department of Public Works
Dade County Department of Parks and Recreation
Dade County Historic Survey
Miami-Dade Water and Sewer Authority
City of Miami Planning Department
City of Miami Public Works Department
Miami Downtown Development Authority
Downtown Miami Business Association
Greater Miami Chamber of Commerce
League of Women Voters, Dade County
Dade-Monroe American Lung Association
Sierra Club, Miami Group
Urban League of Greater Miami
Latin Chamber of Commerce
Miami Dade Community College
Commission for the Advancement of the Physically Handicapped

In addition, notices of availability of the DEIS document were sent to the property owners of the addresses listed in Table 4.10, Business Uses Adjacent to DPM Alignment, and Table 4.15, Noise Sensitive Sites Adjacent to DPM Alignment.

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