SR 112 EXTENSION STUDY

ISSUES PAPER

Prepared For:

Dade County Metropolitan Planning Organization

Florida Department of Transportation
District VI and Turnpike District

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1.0 INTRODUCTION

1.1 Background

The extension of State Road 112 (SR 112) from its western terminus at Le Jeune Road, to the Homestead Extension of Florida's Turnpike (HEFT), is currently within the adopted Long Range Transportation Plan (LRTP), approved by the Dade County Metropolitan Planning Organization (MPO). At the request of local officials, and with the support of the MPO, the Florida Department of Transportation (FDOT) Turnpike District, in the spring of 1994, examined the SR 112 extension as a potential Turnpike Expansion Project. In May 1994, the Turnpike District drafted a *Preliminary Feasibility Report* concluding that the project would not meet the economic feasibility requirements mandated by statute for Turnpike projects.

However, this feasibility analysis was very constrained in scope and was based on a previously developed alignment/design. Alternatives were neither developed nor considered at the time. As a result of the limited nature of this feasibility study, the MPO, FDOT District VI, and the Turnpike District are conducting an expanded concept study on the feasibility of extending SR 112. The current study considers a wide array of alternative alignments/designs and focuses on system-wide facilities and operations issues. This study also seeks to involve local community stakeholders within the corridor by soliciting their comments on technical solutions explored by the study team.

1.2 Prior Corridor Studies

Several studies have addressed the need for improvements in the Central Dade County East-West Corridor in recent years including:

Miami International Airport (MIA) Roadway "Survival Plan" (1988), *DCAD and FDOT.*

This study outlined a variety of on- and off-airport roadway improvements needed for interim congestion relief, as well as alternative routes to/from the airport. Improvements

identified, but not implemented to date, are:

- Improved connection of MIA Terminal to Dolphin Expressway (SR 836).
- New Airport Expressway (SR 112) ramps at N.W. 37th Avenue.
- Establishing alternate Airport access route from the east via N.W. 21st Street and N.W. 32nd Avenue.

Miami International Airport Transportation Study (1989),
Frederic R. Harris, Inc.

This study, prepared for the MPO, identified and recommended improvement projects within the airport area and categorized them by implementation priority. Improvements identified, but not implemented to date, are:

Category 1: Improvements to begin as soon as plans production and funding allow:

- Provide airport access, via N.W. 21st Street (New Miami River Bridge), from a new N.W. 32nd Avenue/N.W. 37th Avenue interchange on SR 112.
- Reconstruct SR 836/Le Jeune Road interchange (a portion of the improvements currently under construction).
- Add grade-separated intersections at N.W. 36th Street/Le Jeune Road and N.W. 36th Street/N.W. 72nd Avenue.
- Relocate/widen Le Jeune Road from SR 836 to N.W. 21st Street, adding ramp to N.W. 21st Street.

Category 2a: Improvements recommended for further study and near-term implementation:

- Add a transit connection from Earlington Heights Metrorail station to airport.
- Build SR 836/SR 112 New Connector Extension
- Provide a better way for the Tri-County Rail System to serve the MIA terminal area.

Category 2b: Improvements recommended for further study and long-term implementation:

- Provide airport connection with a future Metrorail east-west line (EIS in progress).
- Provide a multimodal transportation center east of airport (EIS in progress).

SR 112 Advance Right of Way Acquisition Study (1991),
Schimpeler- Corradino Associates/Carr Smith Associates.

This study, prepared for FDOT District VI, identified alignments, typical sections, interchange configurations, and preliminary right-of-way requirements and costs for an extension of SR 112 from Le Jeune Road to the HEFT. The proposed design included interchanges at Le Jeune Road, N.W. 67th Avenue/N.W. 57th Avenue, Palmetto Expressway (SR 826), N.W. 87th Avenue, N.W. 97th Avenue, and the HEFT. This study primarily addressed right-of-way requirements and did not evaluate systems and operations issues in detail.

Draft Preliminary Feasibility Report (1994),
Turnpike District.

As previously noted, this report evaluated the alignment/design developed in the Schimpeler-Corradino Associates/Carr Smith report from a Florida's Turnpike financial feasibility standpoint only. Alternative alignments and designs which could potentially increase function, decrease community intrusions, and reduce costs were not developed within the scope of the study.

1.3 Other Relevant Projects

A number of other projects in or adjacent to the study area are currently underway in various stages ranging from concept development to final design. Some of these projects are listed below:

- Okeechobee Road PD&E Study
- SR 112 Widening PD&E Study
- SR 836 Master Plan
- Miami Intermodal Center (MIC)
- SR 112/SR 836 Connector
- SR 836 Multimodal Corridor Study
- N.W. 25th Street Truck Access Study
- MIA Additional Runway
- Various Transit Improvements

The sponsors of these projects will be asked to provide input and to coordinate their work with the SR 112 Extension Study Team.

1.4 Study Area

Figure 1 depicts the project location. A wide strip of Central Dade County from N.W. 74th Street to S.W. 8th Street will be evaluated to ensure a system-wide approach to the alternative developed.

1.5 Study Objectives

The current study will provide a more detailed analysis of the SR 112 Extension Corridor than previously done. It will include evaluating alignments/designs for a limited access SR 112 Extension and studying alternate improvements to the limited access facility such as intersection improvements, grade separations. Transportation System Management (TSM) strategies will also be evaluated.

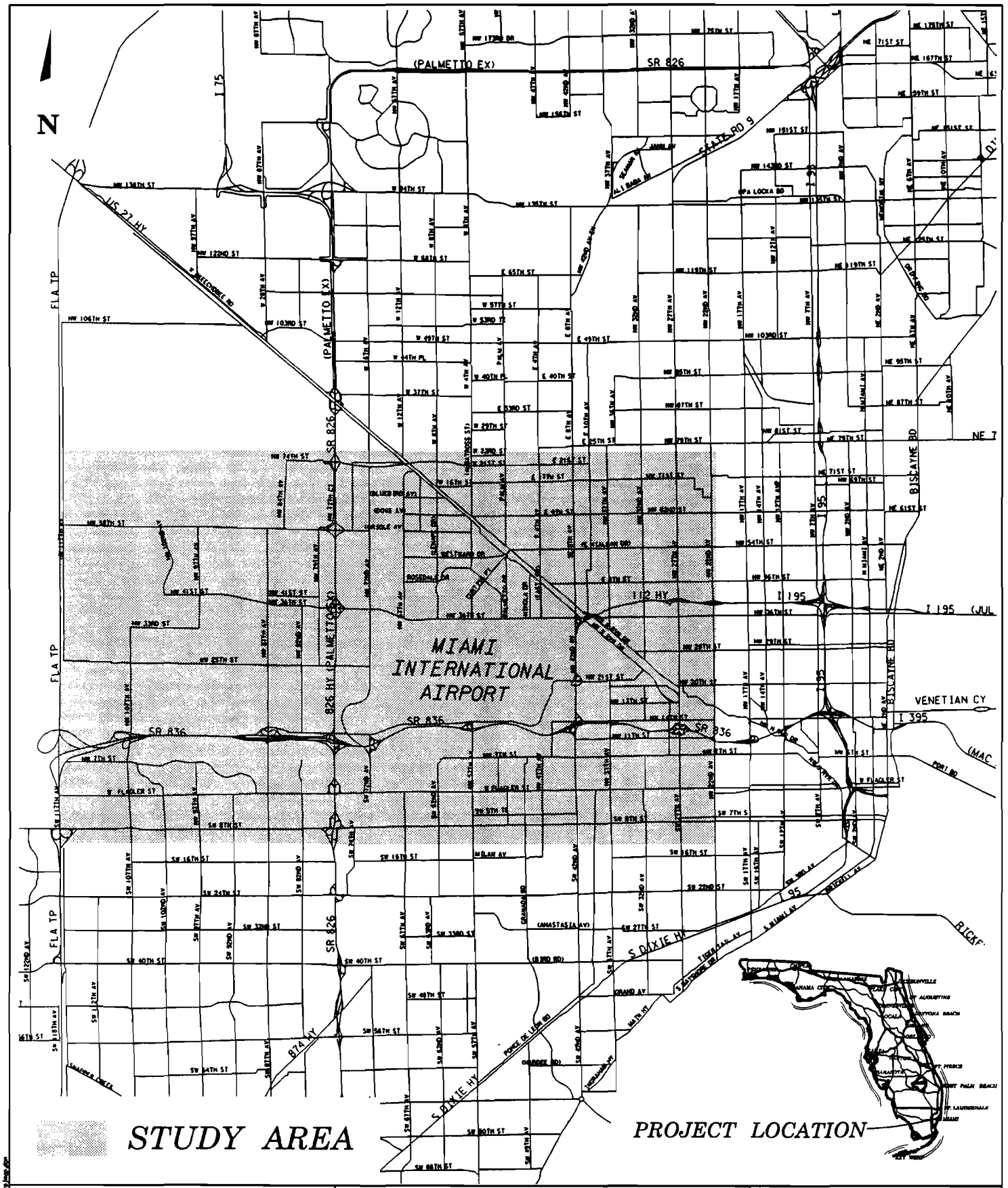
2.0 EXISTING AND FUTURE CORRIDOR CONDITIONS

2.1 Roadway Network

The existing road network in the eastern half of the study area is irregular. East of N.W. 72nd Avenue, the layout of canals, railroads, and the airport creates discontinuities in what is otherwise a regular grid network. N.W. 36th Street serves as a central spine of the study area. To its south, between Le Jeune Road and N.W. 72nd Avenue, the airport interrupts north-south arterial continuity. Also, the nearest parallel routes to the south are the airport Perimeter Road (N.W. 12th Street) and SR 836/Dolphin Expressway. To the north, Okeechobee Road parallels the Miami River Canal and runs at a diagonal from southeast to northwest intersecting Le Jeune Road just north of N.W. 36th Street.

There are no east-west streets of significance in the northern part of this area until N.W. 74th Street. There are also no north-south streets, except Curtiss Parkway, which bisects Miami Springs at an angle from N.W. 57th Avenue at N.W. 36th Street northeast to Okeechobee Road.

West of N.W. 72nd Avenue, a grid network with mostly one-mile spacing of major arterials prevails, except in the vicinity of the HEFT. Key east-west routes are SR 836, N.W. 25th Street, N.W. 36th/41st Street which extends to the HEFT, N.W. 58th Street, and N.W. 74th Street. Key routes in the north-south direction are N.W. 72nd Avenue, SR 826, N.W. 79th Avenue, N.W. 87th Avenue, N.W. 107th Avenue, and the HEFT.



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LOCATION MAP

FIGURE 1

As a result of the layout of the roadway system, east-west traffic in the airport area is forced to the northern and southern edges of MIA. Similarly, the orientation of Okeechobee Road intercepts and directs traffic to the northwest. As a result, N.W. 36th/41st Street is the only continuous east-west street between Perimeter Road/SR 836 to the south and N.W. 74th Street to the north. There are approximately two-mile gaps between these continuous parallel east-west facilities.

Additional east-west facilities will not be added to the roadway network in the area in the future. Selected roadways will be widened to four or six lanes, depending on the street. West of SR 836, the grid network will be filled out as development occurs. N.W. 74th Street is planned to be extended west, including an interchange at the HEFT. Due to the limited east-west roadway network, N.W. 36th/41st Street will continue to be a significant east-west route.

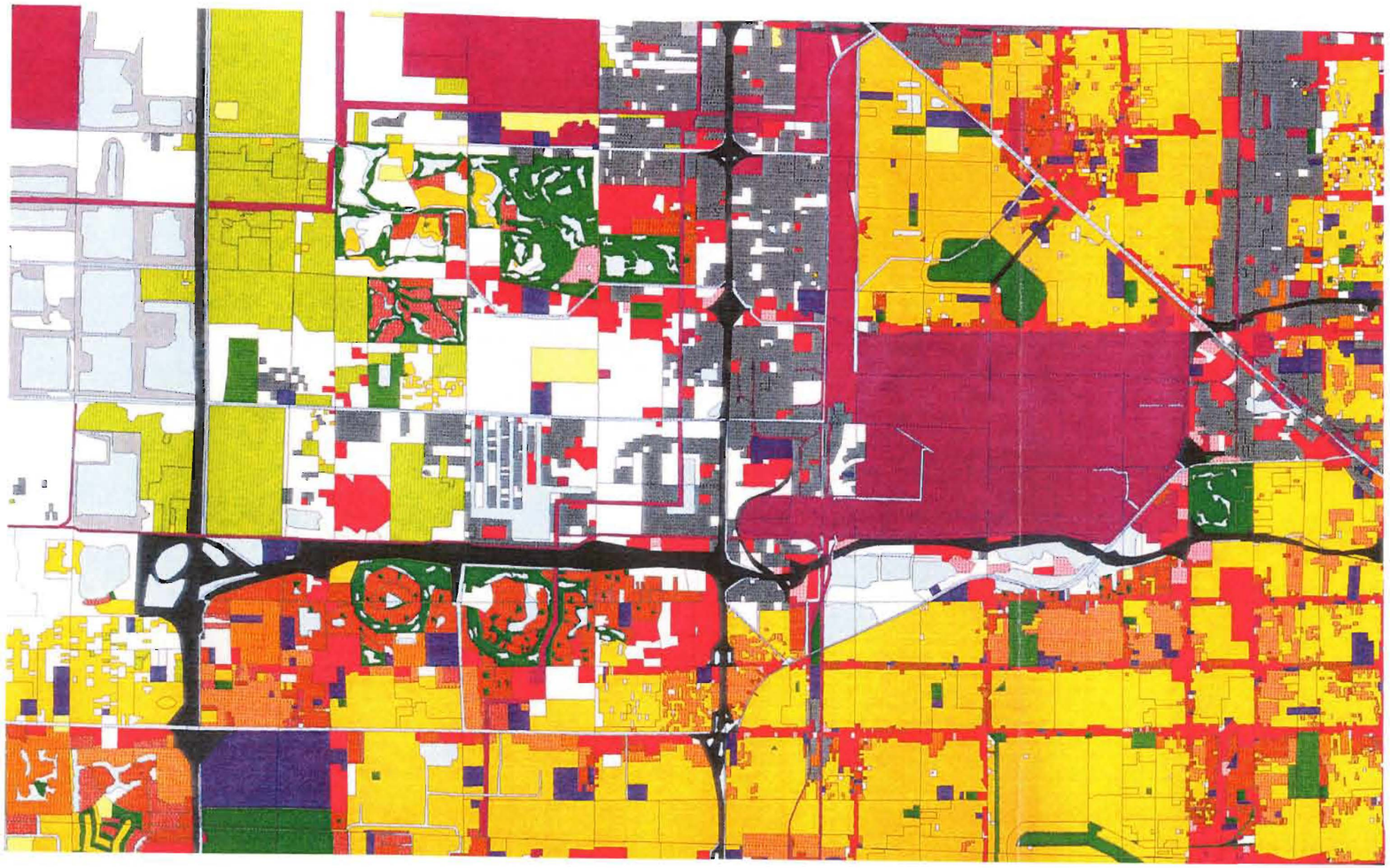
2.2 Land Use

The proposed project is located in the central and west central sections of Dade County. The limits of the corridor under study are from east of Le Jeune Road near N.W. 37th Avenue to the HEFT. Existing land uses, as shown in Figure 2, reflect the urbanized nature of the corridor. Present development of the corridor includes commercial and service uses to the east of SR 826; and a mixture of residential, commercial, industrial and vacant land uses to the west of SR 826. Future land use is shown in Figure 3. The future land use designations as indicated in the Adopted 2000 and 2010 Land Use Plan for Metro-Dade County are reasonably consistent with present use.

2.3 Transit Services

Transit services in the study area are primarily Metrobus routes operating on selected arterial highways. There is also a Tri-Rail station northeast of the airport. Shuttle buses from the MIA terminal and airport-adjacent employment areas serve the station. One Metrobus route along N.W. 36th/41st Street serves areas along N.W. 36th/41st Street to the Doral area. The existing transit network is shown in Figure 4.

Long-range plans call for additional route coverage in the West Dade area, and for increase in service frequency during peak hours. The other significant improvement will be the extension of Metrorail to N.W. 74th Street at SR 826. High Occupancy Vehicle (HOV) lanes on SR 826 are being strongly considered as part of the SR 826 Master Plan study. The SR 836 multimodal corridor study is proposing HOV connections from west of the HEFT to the Miami Intermodal Center (MIC).



LEGEND

- Single-Family
- Two-Family (Duplexes)
- Mobile Home Parks
- Townhouses
- Multi-Family, Migrant Camps
- Transient-Residential (Hotels/Motels)
- Shopping Centers, Commercial, Office, Stadiums, Tracks
- Institutional
- Industrial Extraction
- Industrial
- Airports/Ports
- Communications, Utilities, Terminals, Plants
- Wide Streets/Roads, Expressways, Ramps
- Agriculture
- Cemeteries
- Parks (Including Preserves & Conservation)
- Water
- Water Conservation Areas
- Vacant, Government Owned
- Vacant, Protected, Privately Owned
- Vacant Unprotected

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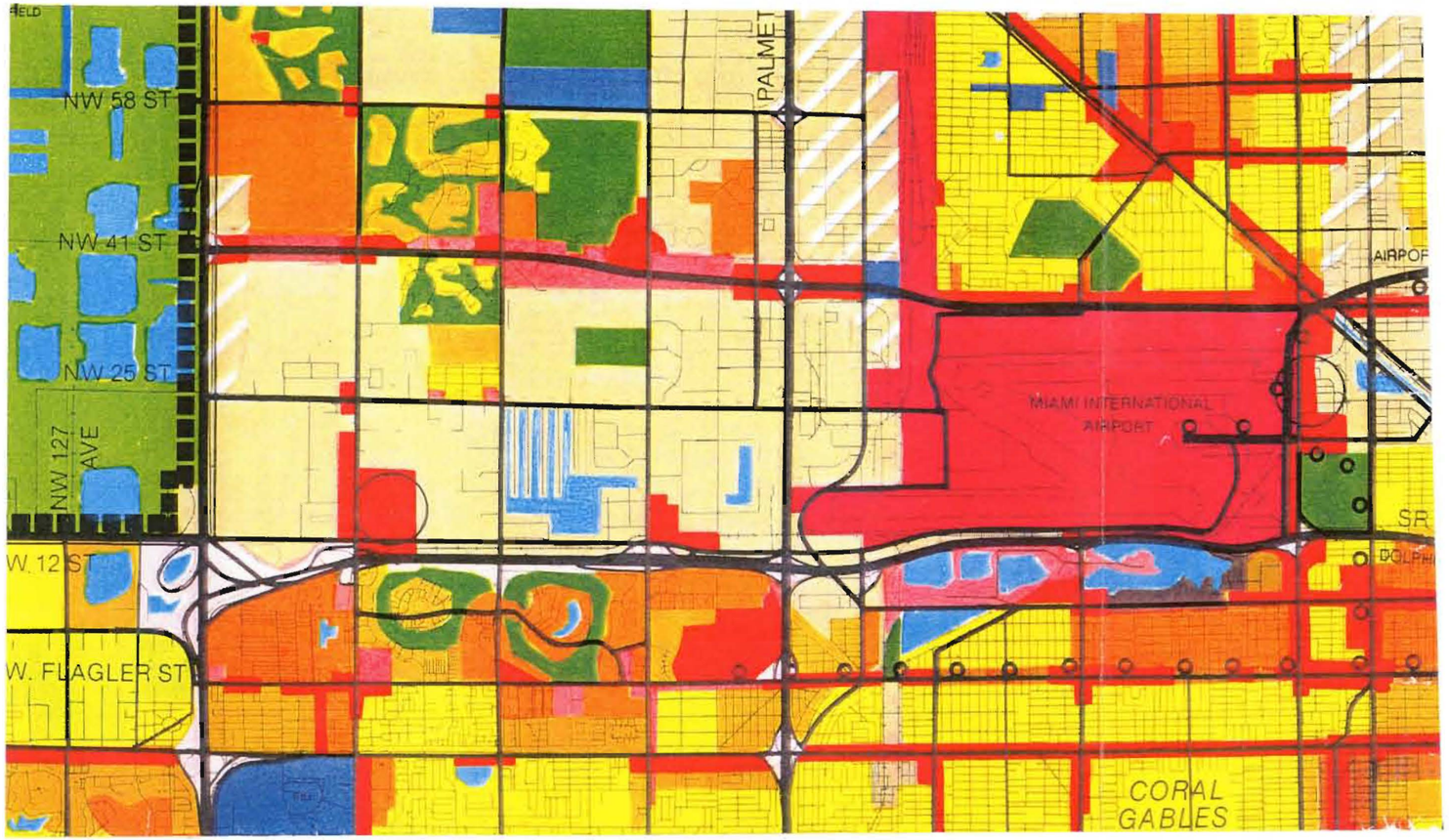
SR 112 EXTENSION STUDY

1990 LAND USE MAP

Figure 2



RESIDENTIAL COMMUNITIES

ESTATE DENSITY	UP TO 2.5	DWELLING UNITS PER GROSS ACRE
LOW DENSITY	UP TO 6	DWELLING UNITS PER GROSS ACRE
LOW-MEDIUM DENSITY	UP TO 13	DWELLING UNITS PER GROSS ACRE
MEDIUM DENSITY	UP TO 25	DWELLING UNITS PER GROSS ACRE
MEDIUM-HIGH DENSITY	UP TO 60	DWELLING UNITS PER GROSS ACRE
HIGH DENSITY	UP TO 125	DWELLING UNITS PER GROSS ACRE

- INDUSTRIAL AND OFFICE
- RESTRICTED INDUSTRIAL AND OFFICE
- BUSINESS AND OFFICE
- OFFICE/RESIDENTIAL
- INSTITUTIONAL AND PUBLIC FACILITY
- PARKS AND RECREATION
- AGRICULTURE
- OPEN LAND
- ENVIRONMENTAL PROTECTION
- ENVIRONMENTALLY PROTECTED PARKS

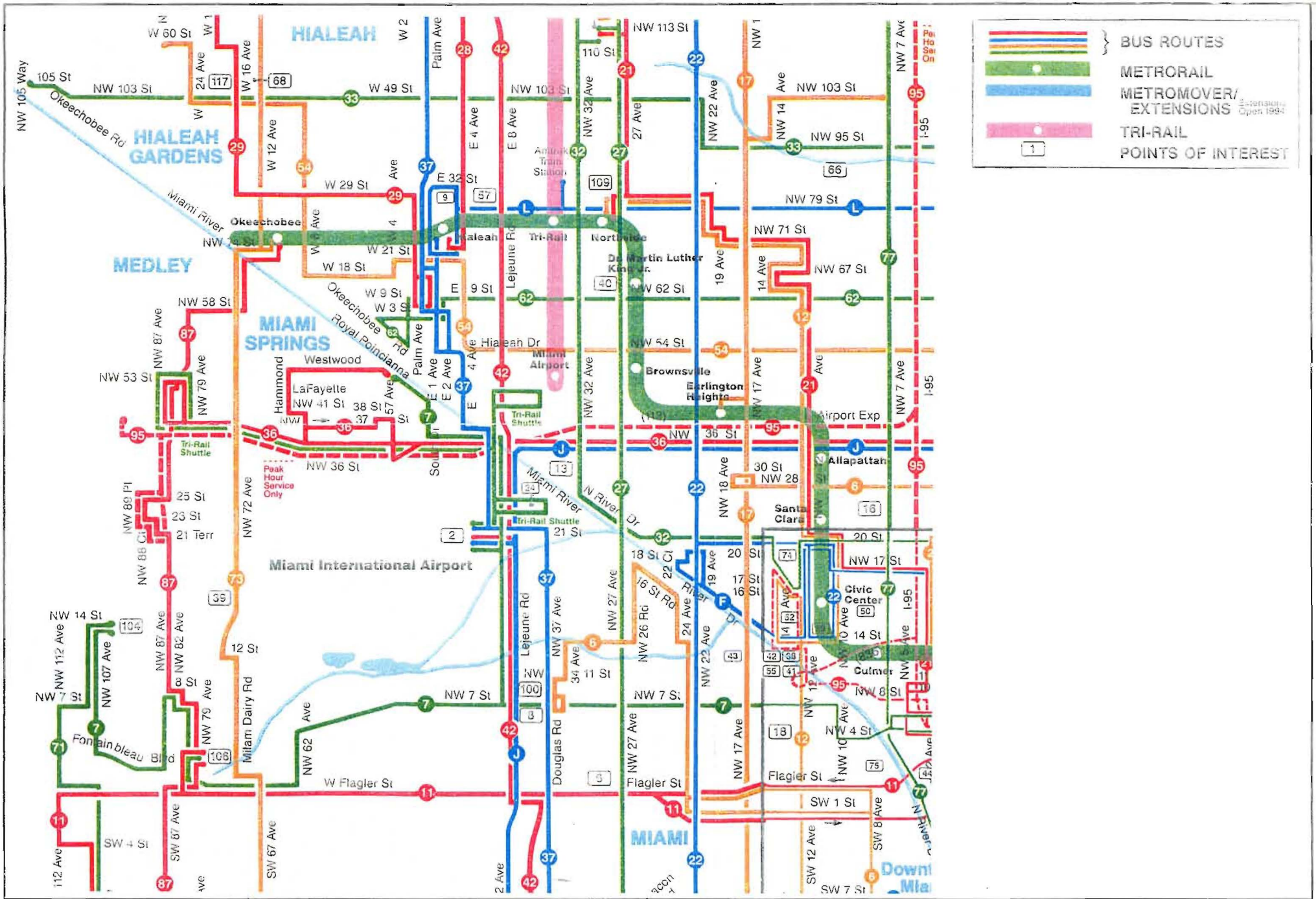
TRANSPORTATION
- TERMINALS
- EXPRESSWAYS
- MAJOR ROADWAYS (3 OR MORE LANES)
- MINOR ROADWAYS (2 LANES)
- METRORAIL PHASE 1
- FUTURE RAPID TRANSIT

ACTIVITY CENTERS
- REGIONAL
- METROPOLITAN

- URBAN DEVELOPMENT SUBJECT TO WETLAND BASIN STUDY
- 2000 URBAN DEVELOPMENT BOUNDARY
- 2010 URBAN EXPANSION AREA BOUNDARY
- WATER
- CANAL
- LEVEE/CANAL

SCALE
0 1 2
IN MILES

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.	*SR 112 EXTENSION STUDY*	*2000–2010 LAND USE MAP*	*Figure 3*



PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.	*SR 112 EXTENSION STUDY*	*EXISTING TRANSIT NETWORK*	*Figure 4*

The most significant transit improvement is the potential for a new east-west Metrorail line in the SR 836 corridor, serving the airport, and several other travel modes at the MIC east of Le Jeune Road. These SR 836 corridor improvements may divert some east-west traffic from the SR 112 corridor, but may not significantly relieve projected traffic congestion.

2.4 Major Utilities

An inventory of major utilities is being compiled for the study area. Principal utilities of concern are mainly overhead electrical transmission and distribution lines, electrical substations, canals, large sanitary and storm sewers, large water mains, and special facilities such as communication fiber optics. These facilities will be mapped and considered in the layout and evaluation of alternatives. The FEC Railroad corridor east of N.W. Third Avenue, while not strictly a utility, is a consideration due to switching tracks and the large automobile transshipment lots on either side of N.W. 36th Street in the vicinity of N.W. 67th Avenue.

3.0 NEEDS ANALYSIS

3.1 System Level Traffic

System level traffic refers to the generalized level and patterns of primary vehicular travel movements into and through the study area. Traffic assignment analysis and interpretation using year 2020 conditions has been initiated and is continuing to develop a better understanding of the system needs. The results are generated by the Southeast Regional Planning Model (SERPM). Figure 5 shows the various scenarios that were modeled to test the roadway network. The initial traffic assignments have indicated the following:

1. No-build traffic assignments show that there would be sizeable demand in the N.W. 36th Street corridor west of Le Jeune Road (50,000 to 60,000 vehicles), as compared to existing traffic volumes (40,000 to 45,000). The resulting level of service on N.W. 36th Street would be worsened.

2. The SR 836 corridor will be unable to serve all the traffic that desires to use that corridor, even with planned improvements for highway and HOV lane improvements, and a new rail transit corridor.

3. Most (about 80%) of the through traffic in the SR 836/SR 112 corridor is oriented towards the south leg of the HEFT corridor, not to the north.

SR 112 PRELIMINARY MODEL RUNS/SENSITIVITY TESTS

Test/ Run	SR 112 extension 4-lane With Toll	SR 112 extension 6-lane		SR 836-SR 112 Connector	2-Way Toll on SR 836 West of NW 57 Ave	West bound Toll on SR 836 West of NW 97 Ave	Reduce SR 836 to 6/8lanes	Existing SR 836 Toll Plaza at .50 cents	Remove NW 36th Street/SR 826 Interchange
		With Toll	Without Toll						
1	●								
2		●							
3		●			●				
4		●		●					
5		●		●	●				
6			●						
7		●			●	●			
8		●			●	●	●		
9		●		●	●	●	●		
10		●		●			●	●	
11		●		●			●	●	●

Note: The toll on SR 112 extension was modeled as 24 cents a mile.
The toll on SR 836 was modeled at $1.00 each way. Both westbound and eastbound would pay a toll.

FIGURE 5

4. Most (about 70%) of the eastbound traffic on SR 112 near the airport seeks to go north after traveling east of Le Jeune Road, suggesting that SR 112 will not divert much of the Central Business District (CBD)-oriented traffic if it is extended.

5. Tentative traffic assignments on a SR 112 extension for the year 2020 show volumes ranging from 60,000 to 120,000 east of SR 826, depending upon the number of lanes and tolling strategies.

6. Residual volumes on N.W. 36th Street east of SR 826 would fall into the 38,000 to 50,000 range, which is close to the level of existing volumes, under the conditions in Item 5.

7. A select link analysis indicates that most of the traffic in the Le Jeune Road/Proposed Interconnector corridor on the east side of the airport is oriented in a north-south direction and does not seek to jog between SR 836 and SR 112.

8. Under certain circumstances, Curtiss Parkway through Miami Springs would carry substantially greater traffic than today.

The following figures help to illustrate some of these points:

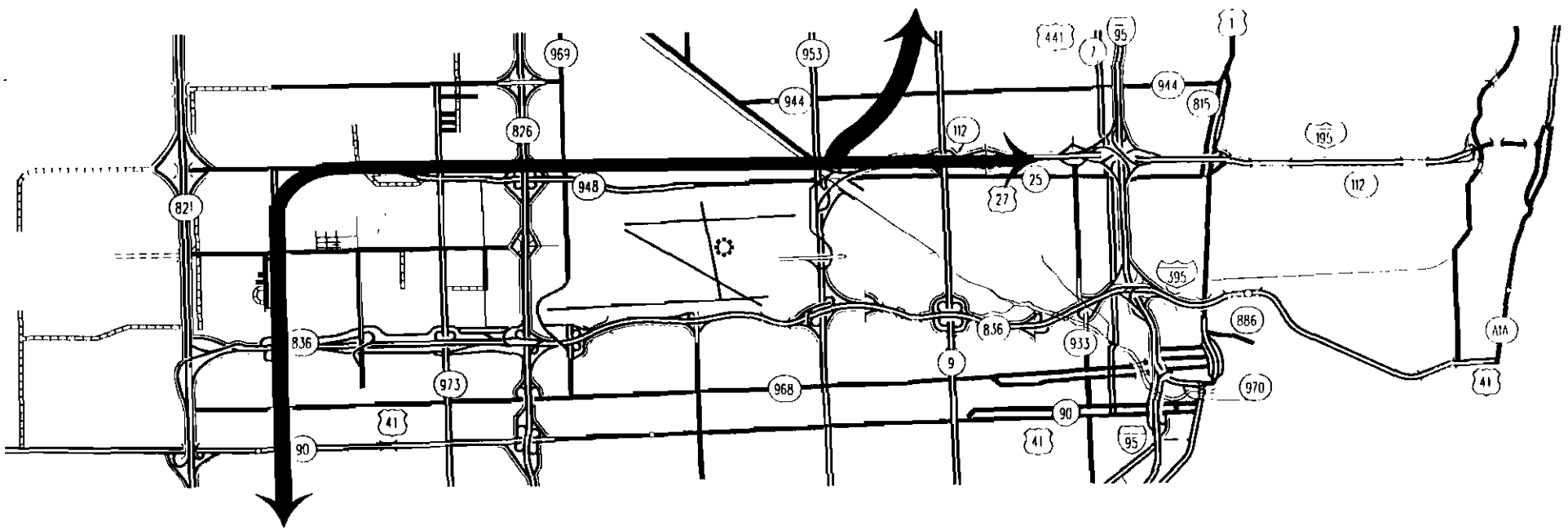
- Figure 6: Primary Travel Pattern in SR 112 Corridor
- Figure 7: Distribution of SR 112 Traffic West of SR 826
- Figure 8: Distribution of SR 112 Traffic East of SR 826
- Figure 9: SR 112/SR 836 Connection Primary Travel Pattern
- Figure10: Representative Traffic Volume Summary Showing Increase or Decrease in Traffic for Year 2020 between the SR 112 No-Build and Build Alternatives

These projections of future year travel demand form the basis for further assignments, analysis, and interpretation. It will be important to understand the travel demand needs and the resulting usage patterns for proposed alternatives in order to properly evaluate the relative effectiveness of the various alternatives.

3.2 Miami International Airport (MIA)

MIA is one of the major U.S. airports, ranked first in 1994 in international passengers, and likely to be ranked first soon in international cargo. Based on anticipated demand, MIA has embarked on a $2 billion improvement program to expand facilities.

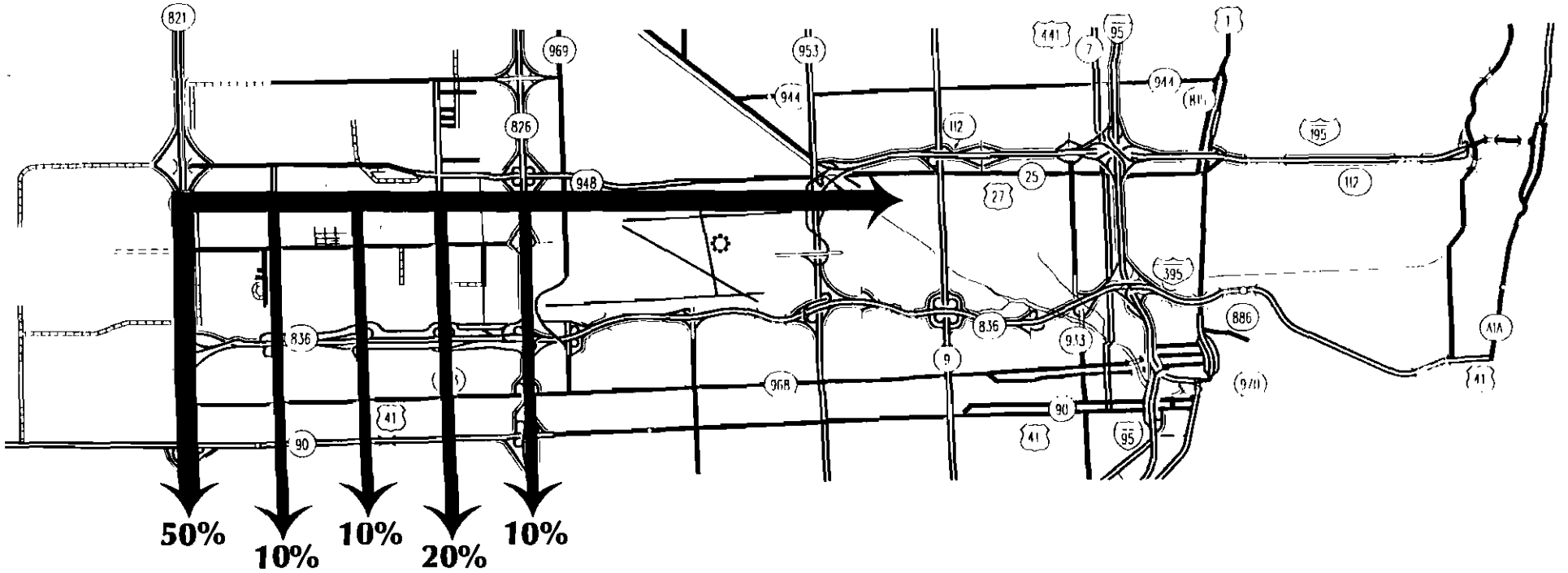
SR 112 EXTENSION



Primary Travel Pattern
In Corridor

FIGURE 6

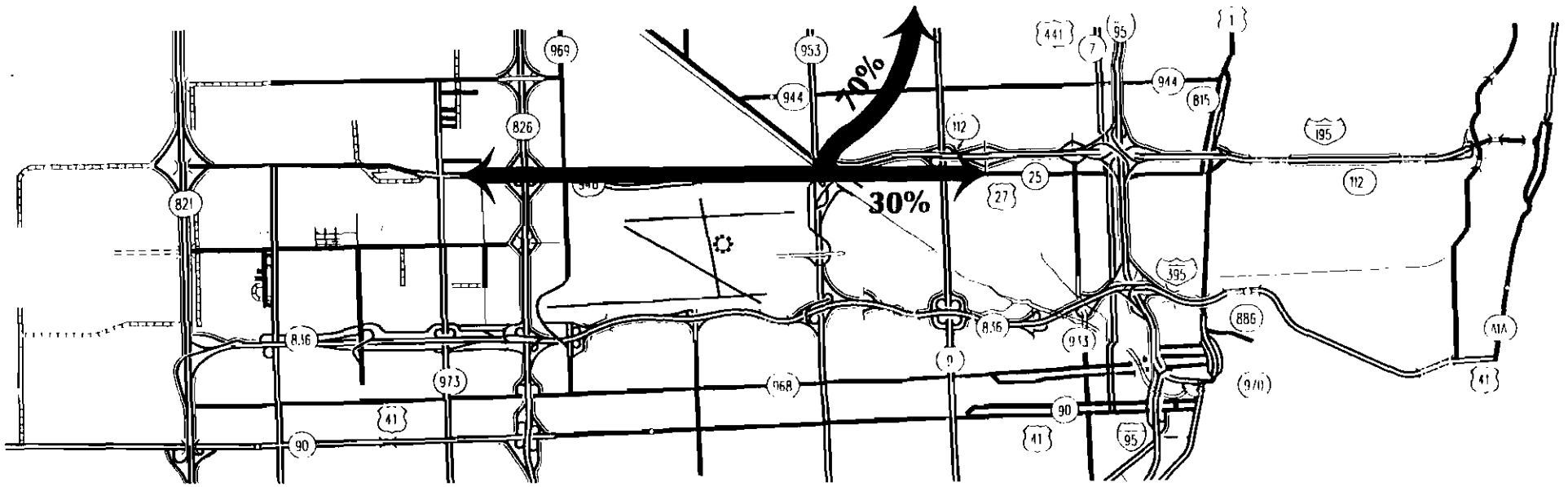
SR 112 EXTENSION



Distribution West of SR 826

FIGURE 7

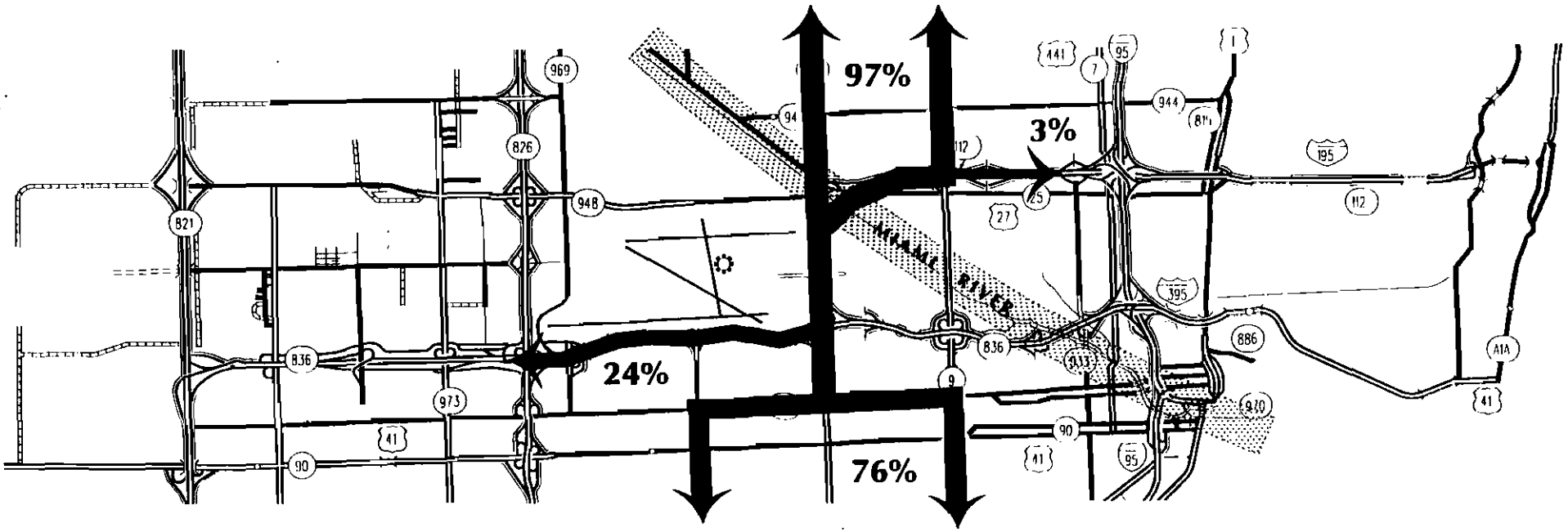
SR 112 EXTENSION



Distribution East of SR 826

FIGURE 8

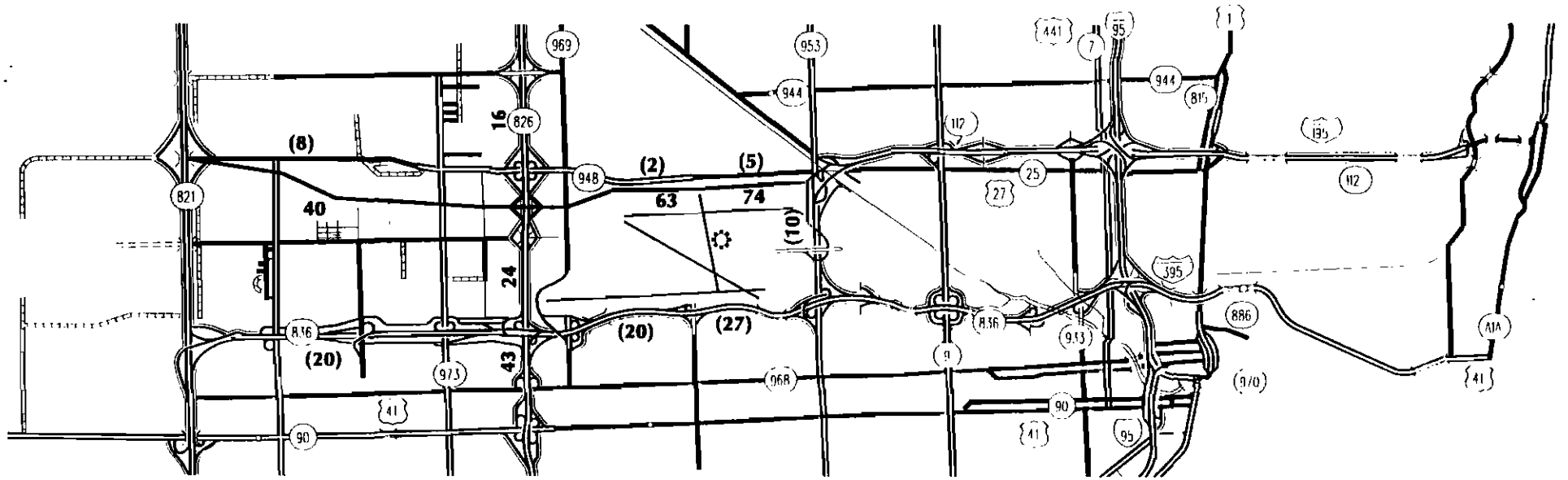
SR 112 EXTENSION



SR 112 / SR 836 Connection
Primary Travel Pattern

FIGURE 9

SR 112 EXTENSION



Net Impact
(5) minus 5,000 vehicles/day
74 plus 74,000 vehicles/day

Year 2020
Build vs. No Build
(Traffic Volume in 1,000's)

FIGURE 10

The expansion plans for MIA include additional cargo and passenger facilities, landside access and parking, and airfield capacity, the latter in the form of a new runway close to N.W. 36th Street. In the study area along N.W. 36th Street, the airport plans to save selected buildings and to build new ones as part of a master plan for aviation support uses along the northern perimeter. Access to this corridor of aviation uses will continue to be needed.

Toward the west end of the airport, the West Cargo Area is undergoing expansion. This expansion along with other warehouse/distribution center development in this district, will intensify traffic growth in the N.W. 36th Street corridor.

One of the airport's continued concerns is the accommodation of traffic in its vicinity, not only in terms of its clientele and employees, but also of traffic passing by the airport. Reasonable regional access to such a large and vital activity center is critical, and also influences the airport's ability to meet traffic concurrency criteria in the coming years.

3.3 Port of Miami (Seaport)

The seaport has been experiencing significant growth in the last ten years in its cargo as well as its cruise passenger components. Forecasts indicate continued growth and, in particular, the cargo growth relates to the SR 112 corridor.

The cargo traffic on SR 112 is due to the linkage of distribution of goods between the seaport, the West Dade warehouse and distribution district, and container storage yards presently sited in West Dade County. These linkages are in the form of truck traffic. There is essentially no interconnection between cargo activities at the airport and the seaport, as they serve two distinctly different sectors of freight movement.

3.4 Employment Growth in the Central Corridor

A review was made of projected development in the study area in particular and the central area of Dade County. In terms of population, there is residential development programmed and occurring in the West Dade area generally referred to as Doral, about five square miles in area. Little change in population is anticipated further east.

The change in employment is more dramatic in absolute terms. The West Dade area is the focal point for industrial, warehouse, and distribution activities in Dade County. It is one of the most active commercial real estate markets in the state. On a broader scale, the central corridor between N.W. 36th Street and S.W. 8th Street, extending east to include

the airport, the "Airport East" warehouse district, Jackson Medical Center, and downtown Miami contains over half of all Dade County employment. This distribution will continue over the next 20 years, meaning a significant growth rate and a sizeable absolute increase for the central corridor. These patterns will be accentuated in West Dade due to the smaller existing base.

Traffic volumes on roadways in the central corridor and in the SR 112 Extension Study area will continue to increase. These growth forecasts are incorporated into the travel forecast models being used for the study and are therefore accounted for in traffic assignments being developed to test potential alternatives.

3.5 Hurricane Evacuation

The potential role of east-west roads in the study area with regard to hurricane evacuation was reviewed. The need for east-west roads to operate as key components in hurricane evacuation is not significant. This is based on the previous analysis of evacuation clearance times performed by PBS&J two years ago for the Corps of Engineers. An update of this analysis is currently underway and will consider both the 1994 and 2000 time frames. The update is scheduled to be available in early 1995.

There are several reasons to account for the relative insignificance of the N.W. 36th Street corridor as a hurricane evacuation corridor.

1. Primary evacuation areas are east of I-95. Evacuees would likely use I-95 north to exit Dade County.

2. Evacuees relocating to local shelters will disperse generally westward with relatively short trips which do not generate concentrations of traffic as far west as the study area.

3. Other persons outside mandatory evacuation areas may use I-95, SR 826, I-75 and the HEFT, generally moving in a northerly direction.

Most of the population expected to evacuate will originate from a travel area other than south of the corridor. Because relatively short east-west travel distances are necessary to access the three north-south routes, streets in the east-west direction serve as rungs of a ladder and are not expected to accumulate significant traffic during evacuation.

While an improved route in the east-west corridor under study would enhance hurricane evacuation, it does not appear to be a compelling factor supporting the concept of improved east-west accessibility.

3.6 Alternative Corridors Considered

The focus of this study is to examine options for increasing traffic capacity in the east-west corridor immediately north of the airport. Because of geographic and subsequent roadway network restrictions discussed previously, there are only two narrowly defined corridors east of N.W. 72nd Avenue where east-west travel is practically possible. One is the N.W. 36th Street corridor which is the primary alignment in the east half of the study area.

The other is the Okeechobee Road corridor to SR 826 or N.W. 74th Street. A P.D.&E. study is currently underway for a project on this corridor to construct a six-lane arterial with traffic flow improvements. The recommended improvements were identified after lengthy dialogue with Hialeah and Miami Springs. There is little likelihood that further capacity expansion will be feasible in the Okeechobee Road corridor beyond the expansion from 4 to 6 lanes.

To the west of N.W. 72nd Avenue, there are greater, but not significant opportunities for alternative alignments. Alternatives further south than N.W. 25th Street, or further north of N.W. 74th Street are impractical. Between these limits, significant existing development tends to restrict alignments to section line roads and a few other undeveloped corridors.

Preliminary traffic studies have demonstrated that the dominant movement of east-west traffic in the West Dade area is to and from the HEFT corridor serving the Kendall area. As a result, east-west corridors to the north of N.W. 36th Street/N.W. 41st Street will do little to attract a sizeable share of target traffic movement. Thus, N.W. 74th Street which ties to Okeechobee Road, and N.W. 58th Street which is not continuous east of N.W. 72nd Avenue are not viable corridors for handling east-west traffic. For these reasons, corridors to the north of N.W. 36th/41st Street do not provide a meaningful workable opportunity for improvement and do not functionally contribute to managing east-west travel demand.

4.0 EVALUATION FACTORS

The positive and negative aspects of each alternative will be reviewed as part of a process to develop the best transportation/mobility solutions for the corridor. The evaluation factors were developed to measure the relative effectiveness of one alternative with respect to the others. It is noted that some of the evaluation factors may not be relevant to all the alternatives, and that the evaluation factors cannot be compared equally throughout the corridor. An evaluation factor may be more relevant than others in one segment, and yet it may be less important in other segments. Therefore, the evaluation factors are listed alphabetically and not in any order of importance.

It is not the intent of this study to completely address all project related issues to the level of detail commensurate with an Environmental Impact Statement. Rather the information

developed, evaluated, and presented will result in a comparative evaluation of alternatives, one to another, as well as identification of improvements that could positively impact the corridor problems in question. The following is a description of the evaluation factors proposed for this study:

4.1 Costs vs. Benefits

The extent to which the proposed improvements will return benefits in relation to the costs will be examined. The comparison will evaluate the increase in user benefits in relationship to the capital, operating, and maintenance costs associated with the alternative under examination. User benefits include travel time savings, energy savings, reduction of pollutant emissions, and increased highway safety. The ratings will be as follows:

Good: The user benefits will outweigh the capital, maintenance and operation costs of the proposed alternative.

Fair: Benefits derived from the proposed alternative will be approximately equal to its capital, maintenance and operations costs.

Poor: The capital, maintenance and operations costs of the proposed alternative will be substantially greater than the user benefits.

4.2 Economic Aspects

Impacts on the local and regional economies will be assessed. Improvement of traffic flows along the corridor could enhance businesses activity by improving access and exposure. However, lack of convenient access could reduce exposure and therefore harm business activity along the corridor. Transportation improvements may improve the regional movement of goods, therefore improving the regional economy. Improved regional access to residential areas may increase residential property values. However, close proximity to an expressway may decrease residential property values. The ratings to be used are as follows:

Good: The proposed improvements will improve both the local and regional economies.

Fair: The proposed improvements will improve the regional economy, but preserve or minimally impact the local economies along the corridor.

Poor: The proposed improvements will have the potential to cause the

deterioration of the local economies along the corridor, and will not significantly improve the regional economy.

4.3 Environmental Aspects

This evaluation factor will assess the environmental aspects of the various alternatives. This factor will consider impacts to noise, air quality, preservation of cultural, historical and archaeological resources, preservation of water resources, floodplain, wetlands, vegetation, wildlife and habitat, utilities, and energy preservation. The ratings will be as follows:

Good: The impacts from the proposed improvements will be insignificant.

Fair: The proposed improvements will negatively impact the environment either during construction or final implementation. However, the impacts can be mitigated to a level that can be considered minor.

Poor: The proposed improvements will negatively impact the environment. The impacts will have little or no potential for mitigation.

4.4 Financial Feasibility

The ability to fund the construction of the improvements will be explored. Costs for construction and right-of-way acquisition will be developed based on the concept plans. The level of detail in the cost estimate will be adequate for alternative comparison purposes. However, the costs will not be developed to the same level of detail required for a P.D.&E. study. The ratings will be as follows:

Good: The costs of construction and right-of-way acquisition will be relatively low. The project is suitable for federal, state or other funding sources.

Fair: The costs of construction and right-of-way acquisition are representative of projects of similar magnitude. Funding may not be readily available, but future funding allocations are feasible.

Poor: The costs of construction and right-of-way acquisition are relatively high, and funding is not possible.

4.5 Functional Requirements

The ability of proposed improvements to meet the functional requirements of the corridor will be assessed. Functional requirements include the ability to provide adequate capacity for the forecast travel demand, to improve regional mobility, to improve the existing traffic patterns, to minimize delays and subsequently, improve traffic levels of service. The ratings will be as follows:

Good: The corridor roadways and intersections will operate at desirable levels of service. There will be overall improvement of levels of service on regional facilities, particularly parallel corridors.

Fair: The main facility of the corridor will operate at a desirable level of service. However, some intersections or minor facilities may operate at levels of service less than acceptable. Overall corridor delays will be less than existing conditions.

Poor: The corridor roadways and intersections will operate at poor levels of service and will provide no reasonable improvement to existing conditions.

4.6 Multimodal Features

The ability of the proposed improvements to establish, facilitate and/or encourage multimodal travel will be evaluated. Multimodal features include design treatments to increase vehicle occupancy by encouraging carpools, vanpools, park-and ride facilities, transit, people-movers and other modes of transportation. In addition, this factor will evaluate measures that could reduce auto trips such as the construction of bikeways. The ratings will be as follows:

Good: The proposed improvements will accommodate and encourage multimodal means of transportation.

Fair: The proposed improvements will encourage multimodal means of transportation.

Poor: The proposed improvements will negatively impact multimodal means of transportation.

4.7 Property Access/Access Control

Provision of adequate access to the properties along the corridor, as well as minor disruptions to traffic along the corridor will be assessed. The most commonly used means of access to businesses along the corridor are driveway openings. However, the higher the number of driveways, the more disruption to the traffic flow on the corridor. Better traffic service can be provided by consolidating access points to the main facility and providing adequate traffic circulation through secondary roadways. The ratings will be as follows:

Good: The main facility will be access-controlled. Businesses and residences along the corridor will have convenient and adequate access.

Fair: The main facility will have access control at the expense of minor inconvenience to access businesses or residences, or the businesses and residences along the corridor will have adequate access at the expense of minor disruption to the main facility.

Poor: Access to businesses or residences will disrupt the traffic flow along the main facility, or the main facility traffic will have no access to businesses or residences along the corridor.

4.8 Property Impacts

Physical impacts to properties along the corridor as a result of any recommended construction will be evaluated. Included within the impact evaluation will be loss of parking spaces, landscape areas, residential homes and commercial buildings. The need for parking lot modifications, as well as the need for business and residential relocations will be considered. The ratings will be as follows:

Good: Implementation of the project will have minimal or negligible impacts to properties.

Fair: Implementation of the project will involve modification of parking lots, landscape areas and minor building impacts.

Poor: Implementation of the project will have extensive impacts to parking lots, landscape areas, major impacts to buildings and residences, and need for relocations.

4.9 Social Aspects

The social impacts on the residential neighborhoods and the business districts along the corridor as a result of potential construction will be assessed. Improvement of mobility within local neighborhoods as a result of corridor improvements could enhance the quality of life for residential neighborhoods. On the other hand, construction of regional facilities could induce deterioration of residential neighborhoods by limiting mobility from one location to another.

Items to be considered include visual appearance of improvements as well as adverse impact on sensitive areas in neighborhoods along the corridor. Elevated structures have the potential of creating visual nuisance or enhancing the appearance of the surroundings. Positive economic impacts to businesses could potentially improve visual appearance in the area through upgrades to business and store fronts, thereby preserving, even improving the quality of neighborhoods along the corridor. The ratings will be as follows:

Good: The proposed improvements will preserve or enhance the social aspects along the corridor.

Fair: The proposed improvements will minimally impact the residential neighborhoods or business districts along the corridor. Negative visual impacts can potentially be mitigated by means of landscaping or other means.

Poor: The proposed improvements will have strong negative impacts within the neighborhoods with no potential for mitigation of the impacts available.

4.10 Tolling Suitability

The ability to charge tolls to potentially recover the capital, maintenance and operation costs of the proposed improvements will be explored. Among the items to be evaluated are the physical constraints of installing toll plazas or other means of collecting tolls. The ratings will be as follows:

Good: The proposed improvements are physically suitable for collecting tolls. In addition, the facility has a good revenue potential to recover capital, maintenance and operation costs.

Fair: The proposed improvements have the potential to generate revenue, but may not recover all capital, maintenance and operation costs. The improvements are physically suitable for collecting tolls.

Poor: The proposed improvements are not physically suitable for collecting tolls or they do not have the potential to generate adequate revenue.

5.0 CORRIDOR ALTERNATIVES

The alternatives fall into three concepts: Transportation Systems Management (TSM), Smart Street, and Expressway. The TSM concept consists of construction of park-and-ride lots, transit improvements, intersection improvements, and improvement of traffic signal equipment. The Smart Street concept incorporates technology and highway improvements to efficiently manage the traffic demand at key locations to ensure mobility along the corridor. This concept consists of all applicable TSM improvements plus the installation of video surveillance/detection equipment to manage traffic incidents and the construction of grade separations at some key intersections. The expressway concepts consist of access-controlled expressway facilities.

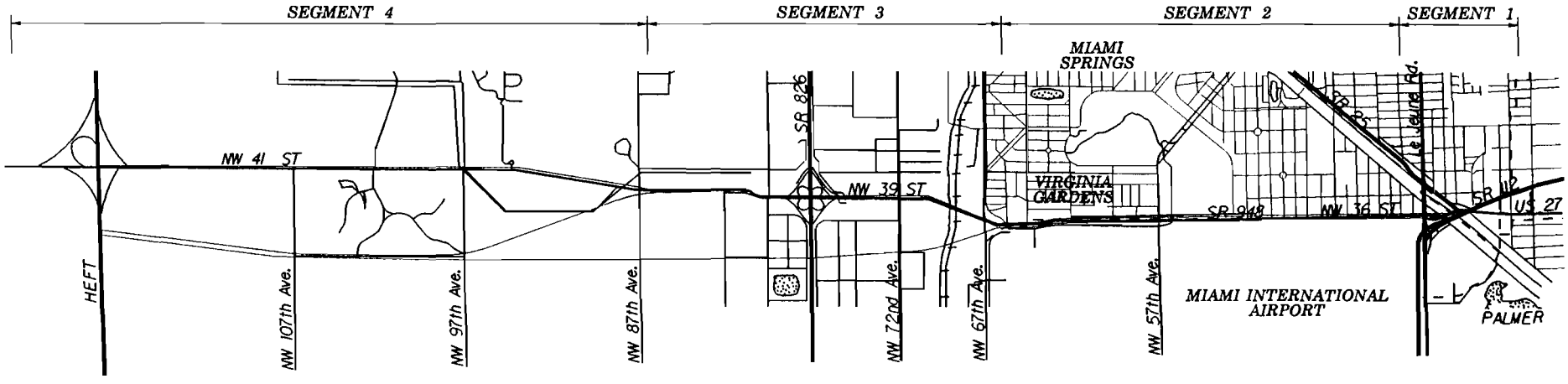
The corridor was divided into four segments to better evaluate the various alternatives. Figure 11 shows the limits for each segment. The Appendix shows graphically the various concepts and alternatives under consideration.

5.1 Segment I: SR 112 at Le Jeune Road

This segment includes the portion of the corridor from N.W. 37th Avenue to a point just west of Le Jeune Road. The purpose of specifying this segment is to present alternatives to improve the traffic flow at the confluence of SR 112 with Le Jeune Road, North River Drive, Okeechobee Road and N.W. 36th Street. The following is a brief description of the alternatives with the potential issues:

5.1.1 Transportation Systems Management

Proposed TSM alternatives include operational improvements at the intersections of N.W. 36th Street/North River Drive, N.W. 36th Street/South River Drive/Poinciana Blvd. and N.W. 36th Street/Le Jeune Road. The operational improvements will consist of constructing additional turning lanes, modifying traffic signal timing and bridge widenings. The scope of improvements will be determined after analysis of existing conditions, future traffic volumes, and existing studies for this area. The TSM improvements may be limited as a result of constraints imposed by existing structures, the Miami River and right-of-way needs.



PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.	*SR 112 EXTENSION STUDY*	*SEGMENT LIMITS*	*Figure 11*

5.1.2 Smart Street

The Smart Street alternatives will propose the construction of a grade-separated intersection at N.W. 36th Street and Le Jeune Road. The proposed improvements may consist of extending one lane in each direction from the existing SR 112 to N.W. 36th Street west of Le Jeune Road. However, additional alternatives will be analyzed for this intersection based on existing conditions, future traffic volumes and proposed roadways for this area.

5.1.3 Expressway Extension

The expressway alternatives will propose the extension of a four-lane expressway from SR 112 east of Le Jeune Road to the HEFT. The expressway concept for this particular segment will consider future projects such as the SR 836/SR 112 Interconnector and the Florida Sunpike. The vertical and horizontal alignment for this segment will vary according to the alignments proposed for the segment between N.W. 72nd Avenue and a point west of Le Jeune Road. The alternatives may limit or modify existing access to properties along N.W. 36th Street.

5.2 Segment II: West of Le Jeune Road to N.W. 72nd Avenue

This segment of the corridor includes the portion adjacent to MIA and the cities of Virginia Gardens and Miami Springs. The relatively narrow 95-foot existing right-of-way east of N.W. 57th Avenue presents a severe constraint to the expansion of facilities at grade without acquiring property. Several of the buildings on both sides have very limited or no setbacks. The following is a brief description of the various alternatives under consideration for this segment:

5.2.1 Transportation Systems Management

The TSM alternative proposes the widening of existing N.W. 36th Street at locations to be determined to provide bus turnouts and additional turning lanes. This alternative proposes modification of all four-way signalized intersections to continuous-green signalized "T" intersections. This would not apply to N.W. 57th Avenue which will continue to operate as a four-way signalized intersection. The traffic signals will be coordinated, and video detection equipment will be installed at key signalized intersections to monitor traffic and signal progression. Local bus service will be expanded throughout this segment.

5.2.2 Smart Street

The Smart Street alternatives will propose all the TSM improvements plus an additional fourth through-lane where needed to eliminate traffic bottlenecks. The video surveillance cameras will be connected to the Metro-Dade Traffic Operations Center, which could dispatch the proper staff to handle incidents detected by the system. In addition, the intersection of N.W. 36th Street and N.W. 72nd Avenue will be grade-separated. Two through-traffic lanes in each direction along N.W. 36th Street will be carried over the intersection with N.W. 72nd Avenue.

5.2.3 Expressway Extension

The expressway alternatives are classified into three groups for segment II. The first group consists of a raised structure carrying a four-lane expressway over portion of N.W. 36th Street. The structure will be supported by columns located on the south side of N.W. 36th Street. Variations of this alternative include an airport perimeter road below the eastbound lanes of the expressway, and a proposed reversible HOV lane in the median of the expressway. This group of alternatives proposes the reduction of N.W. 36th Street to a four-lane divided arterial highway.

The second group consists of a raised structure for two westbound lanes of the expressway south of a four-lane divided N.W. 36th Street. The two eastbound lanes of the expressway will be built at-grade south of the columns supporting the raised structure. Variations of this group are the inclusion of an airport perimeter road, shifting the eastbound lanes to the raised structure and the westbound lanes at-grade, and providing six lanes for N.W. 36th Street.

The third group proposes the construction of a six-lane expressway over N.W. 36th Street. The structure will be supported by columns located on the median and on the south side of N.W. 36th Street. Variations include the construction of an airport perimeter road or of parking facilities under the eastbound lanes of the expressway.

The expressway alternatives for the segment between N.W. 57th Avenue and N.W. 72nd Avenue propose the construction of a four-lane expressway between a four-lane divided N.W. 36th Street and a two-lane undivided airport perimeter road. The expressway is proposed to be constructed on fill and provide undercrossings for N.W. 57th Avenue and N.W. 67th Avenue. The variations in this segment are compatible with those between N.W. 57th Avenue and a point west of Le Jeune Road. This segment will provide expressway ramps in the vicinity of N.W. 67th Avenue.

5.3 Segment III: N.W. 72nd Avenue to N.W. 87th Avenue

This segment is basically the interchange with the Palmetto Expressway (SR 826). The commercial and office uses on both sides of N.W. 36th Street require adequate local access. The following is a description of the alternatives under consideration for this segment:

5.3.1 Transportation Systems Management

The TSM alternative will include intersection improvements at N.W. 72nd Avenue, SR 826 ramps, N.W. 82nd Avenue and N.W. 87th Avenue. In addition, bus turnouts will be provided on the far side of the intersections, and bus service will be expanded throughout this segment. Video detection/surveillance will be installed at the congested intersections.

5.3.2 Smart Street

The Smart Street alternative proposes the expansion of the elevated four lanes described in section 5.2.2 from east of N.W. 72nd Avenue to west of N.W. 87th Avenue. This alternative could be an initial phase for a future expressway. This alternative would provide access from the elevated lanes to the southbound Palmetto Expressway. Access to the other Palmetto Expressway movements will remain from N.W. 36th Street. Video detection/surveillance equipment will be installed at the signalized intersections. In addition, detection equipment on the Palmetto Expressway ramps will be installed to advise motorists of the SR 826 traffic conditions by means of either Highway Advisory Radio (HAR) or variable message signs. A variation will be to provide grade separations only at N.W. 87th Avenue and at N.W. 72nd Avenue. These alternatives include all the TSM measures feasible for this segment.

5.3.3 Expressway

The expressway alternative proposes directional ramps between the SR 112 Expressway east and the Palmetto Expressway south movements. The other movements will be provided by loop ramps. In addition, this alternative proposes to provide diamond ramps for N.W. 36th Street to the Palmetto Expressway. Two sets of collector-distributor roadways parallel to the Palmetto Expressway will serve these proposed ramps. N.W. 36th Street is proposed to serve as a frontage road on both sides of the SR 112 Expressway providing access to the local business and offices.

5.4 Segment IV: N.W. 87th Avenue to HEFT

This segment includes the portion of the corridor between N.W. 87th Avenue and the HEFT. The alternatives along this segment include horizontal alignment variations. There are pockets of undeveloped land in the vicinity of this segment. The following is a description of the alternatives considered within this segment:

5.4.1 Transportation Systems Management

This alternative proposes the construction of a park-and-ride facility in the vicinity of N.W. 107th Avenue with the provision of express bus services to the MIC and the Miami CBD. In addition, this alternative proposes expansion of local bus services along N.W. 36th Street and N.W. 107th Avenue to serve and connect the park-and-ride facility to Florida International University and the SR 836 transit corridor. This alternative also proposes encouraging limiting of access to N.W. 36th Street from future development and provision of continuous-green traffic signals wherever appropriate and feasible. Bus turnouts will be provided at all bus stops preferably on the far side of the intersections.

5.4.2 Smart Street

The smart street alternative includes all the TSM improvements plus the provision of additional through-lanes or turning lanes at the intersections with N.W. 97th Avenue and N.W. 107th Avenue.

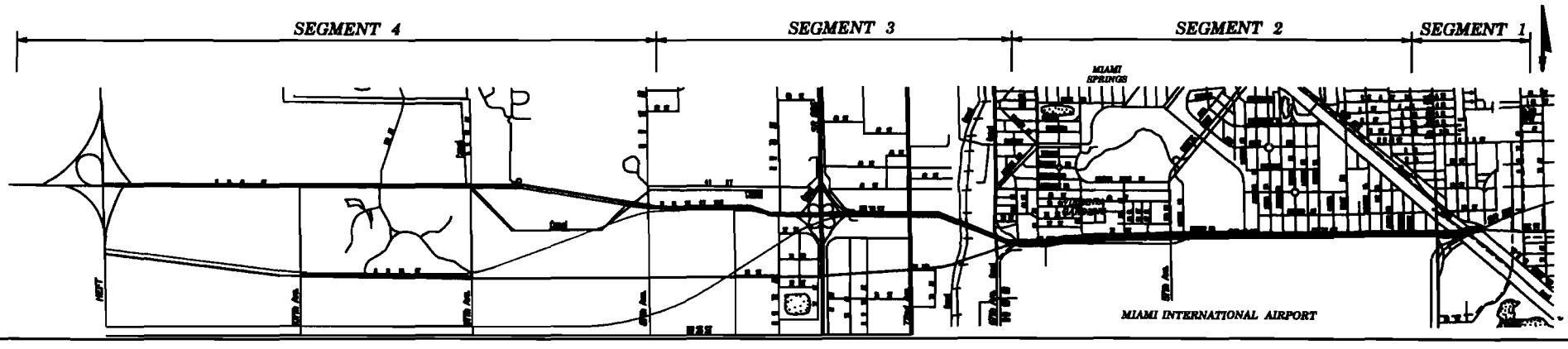
5.4.3 Expressway

The expressway alternatives propose a four-lane expressway along N.W. 36th/41st Street One proposal is the placement of an expressway on the median of N.W. 36th/41st Street Another alternative proposes to align a four-lane expressway along N.W. 33rd Street with the transition from the N.W. 36th Street alignment between N.W. 87th Avenue and N.W. 97th Avenue. Both of these alternatives propose access to the HEFT in conjunction with existing N.W. 41st Street ramps. A third alternative proposes to align the expressway along N.W. 25th Street and to provide an interchange at the HEFT between N.W. 41st Street and SR 836. The expressway alternatives in this segment propose to provide interchanges with the expressway and N.W. 107th Avenue, as well as N.W. 87th Avenue.

APPENDIX

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS



CONCEPTS

1. TRANSPORTATION SYSTEMS MANAGEMENT
2. "SMART STREET"
3. EXPRESSWAY CONCEPTS

SEGMENT LIMITS

I. Le Jeune Road /Connector Interchange

II. Le Jeune Road to NW 67th Avenue

III. NW 67th Ave. to NW 87th Ave. (SR 826 Interchange)

IV. NW 87th Avenue to HEFT

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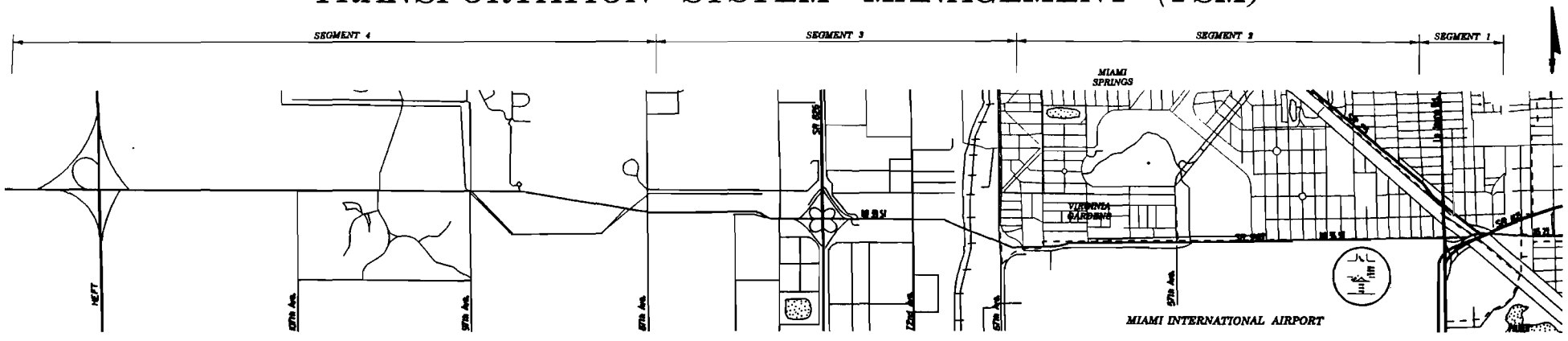
TRANSPORTATION SYSTEM MANAGEMENT (TSM)



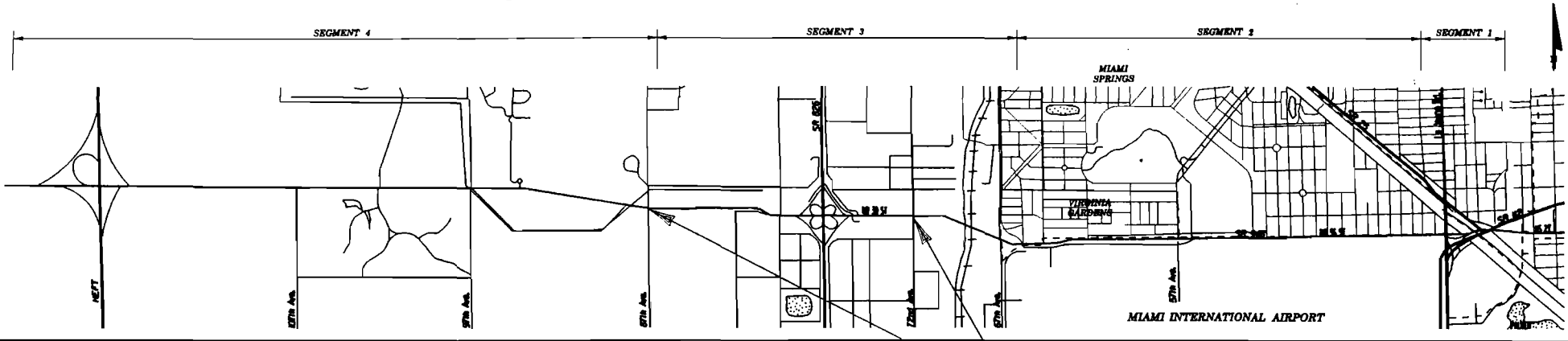
- *PARK-AND-RIDE LOTS NW 135th ST/SR 826, FIU, INTERNATIONAL MALL, SR 826/MILAM DAIRY RD, & NW 41ST ST/107TH AVE.*
- *EXPRESS BUS SERVICE FROM NW 41ST ST/107TH AVE ALONG NW 36TH ST TO MIC & CBD.*
- *EXPANSION OF SEVERAL LOCAL BUS ROUTES TO SERVE WESTERN PART OF DADE COUNTY.*
- *CONTINUOUS GREEN LANES AT INTERSECTIONS WITH MINOR STREETS.*
- *INTERSECTION IMPROVEMENTS AT NW 36TH ST/LEJEUNE RD, NW 36TH ST/MILAM DAIRY RD, NW 36TH ST/82ND AVE, & NW 36TH ST/87TH AVE.*
- *BUS TURNOUTS.*
- *TRAFFIC SIGNAL COORDINATION.*
- *VIDEO DETECTION AT BUSY/CONGESTED INTERSECTIONS.*

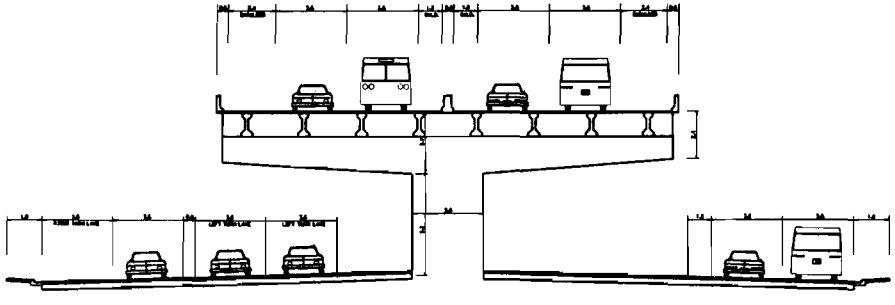
SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.

"SMART STREET" ALTERNATIVE





TYPICAL SECTION 36TH STREET (A-A)

- *APPLICABLE TSM IMPROVEMENTS.*
- *DIRECT RAMPS FROM SR 112 TO 36TH STREET.*
- *GRADE SEPARATION AT 72ND AVE. AND AT 87TH AVE.*
- *MODIFIED PALMETTO EXPRESSWAY INTERCHANGE.*
- *VIDEO DETECTION FOR INCIDENT MANAGEMENT.*
- *TRAFFIC SIGNAL COORDINATION.*

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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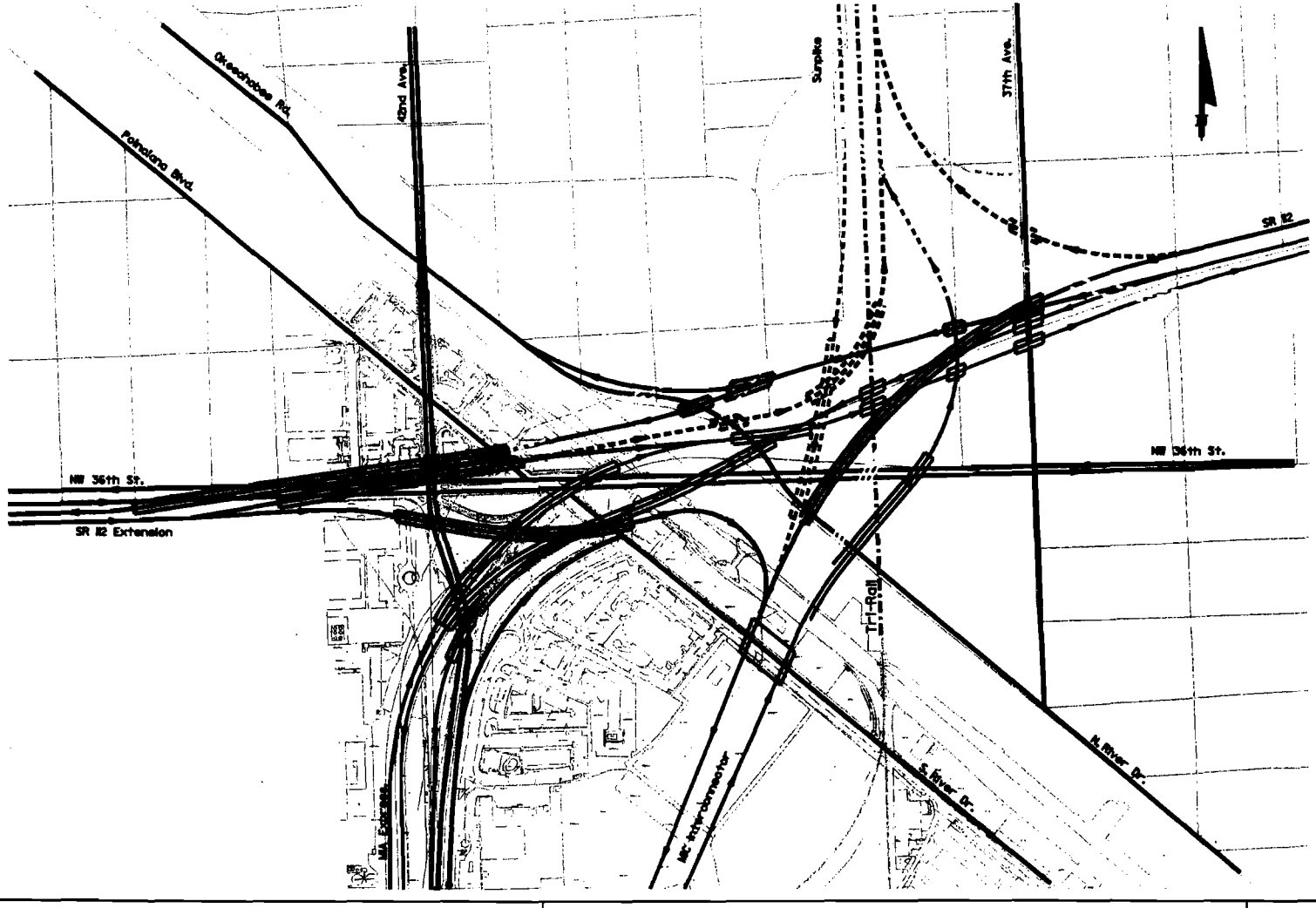
SEGMENT I

SR 112 ALTERNATIVE I-A



SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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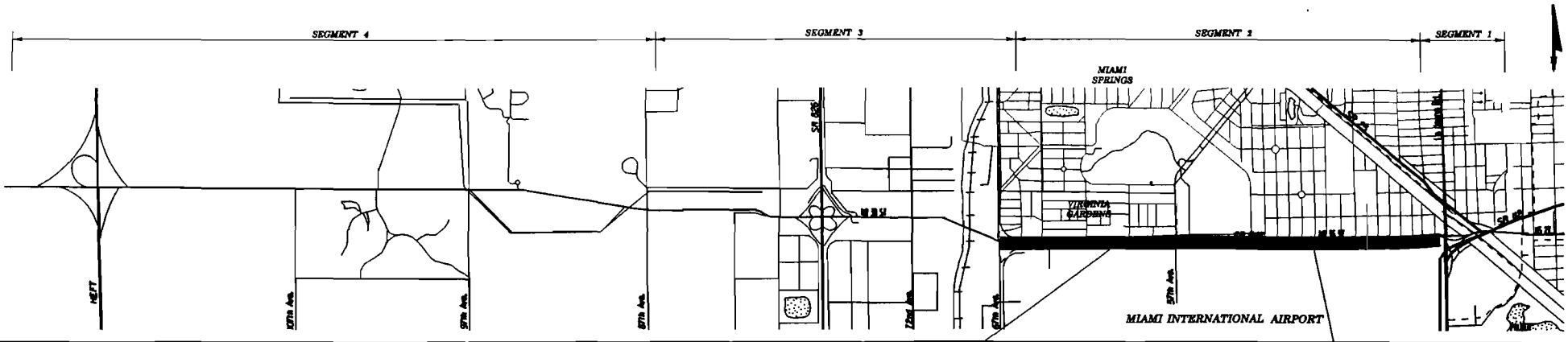
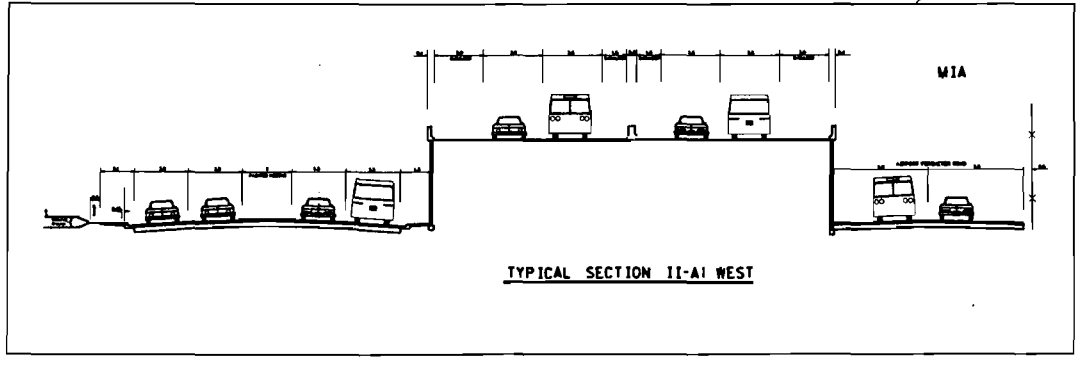
SEGMENT II

SR 112 ALTERNATIVE II-A1





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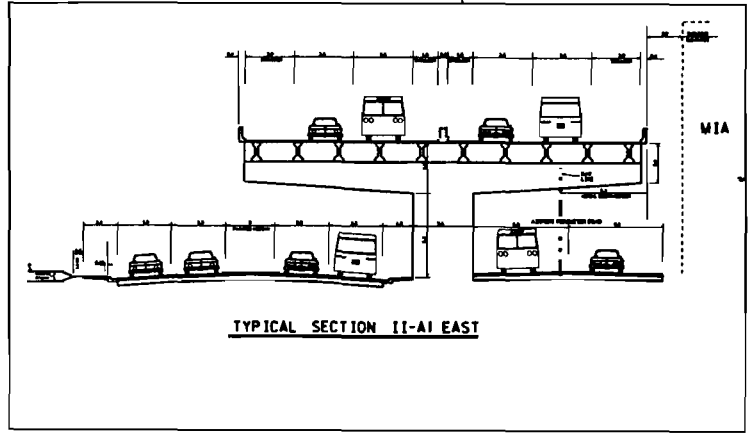

TYPICAL SECTION II-A1 EAST

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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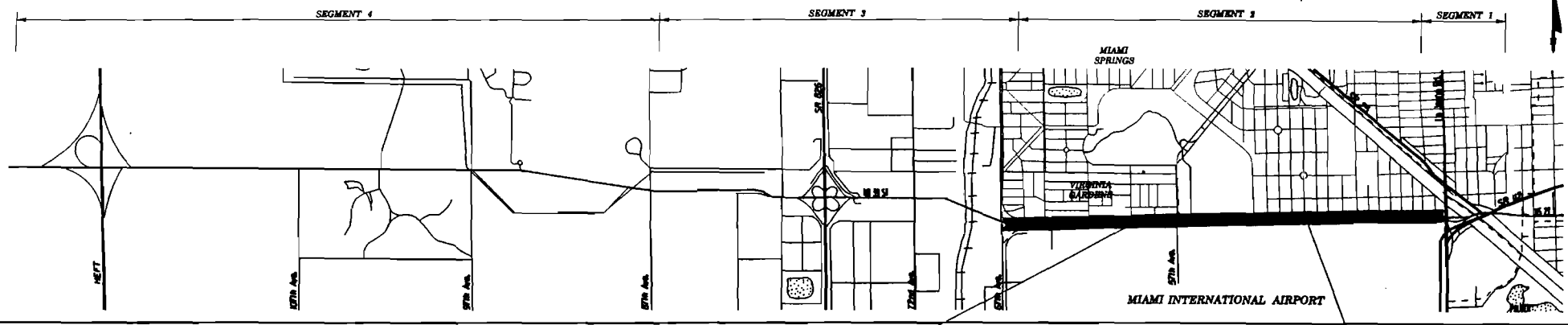
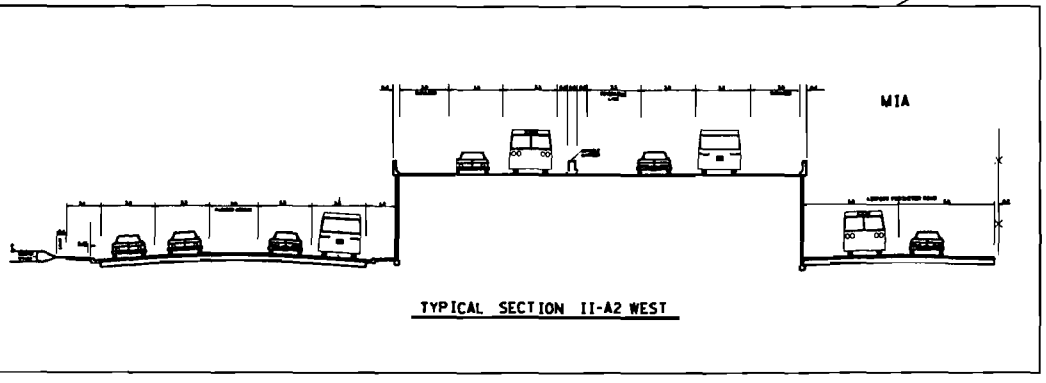
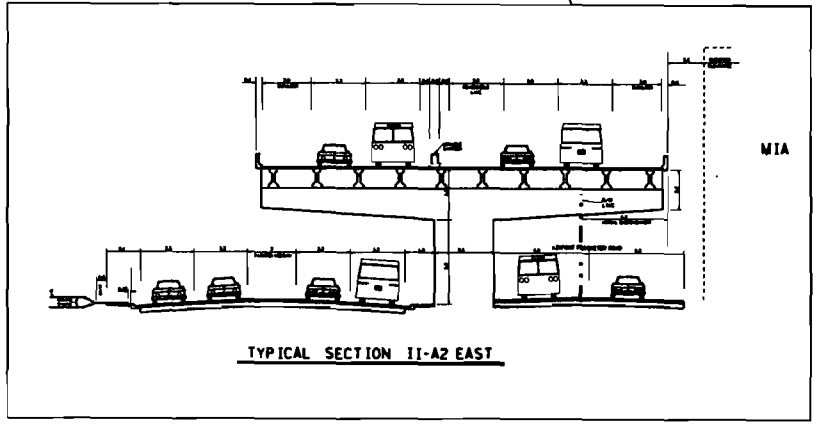
SR 112 ALTERNATIVE II-A2







SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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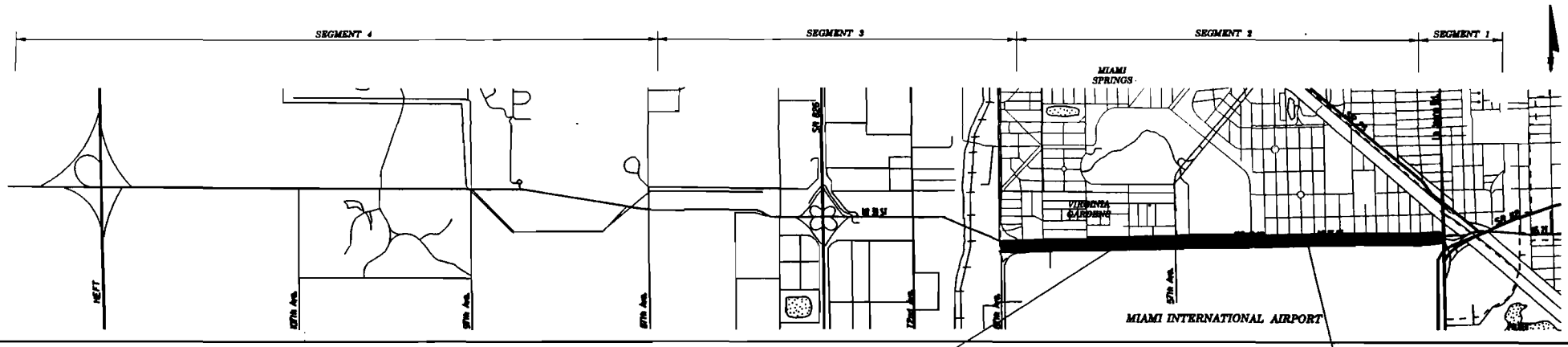
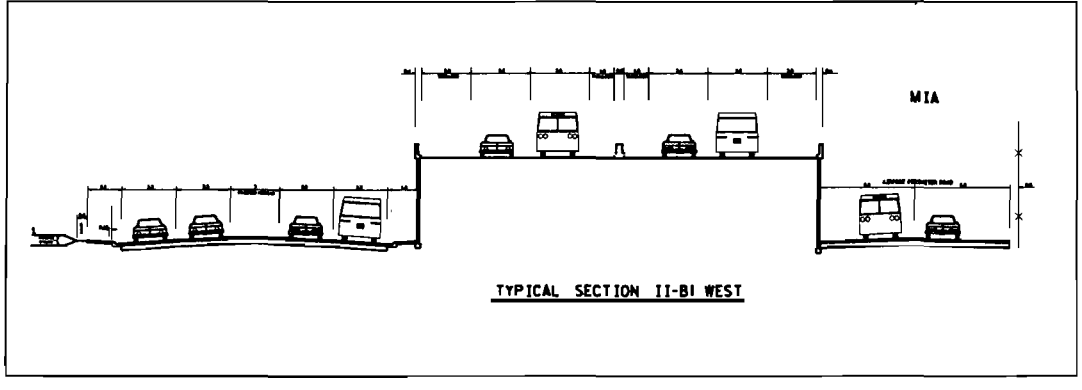
SR 112 ALTERNATIVE II–B1





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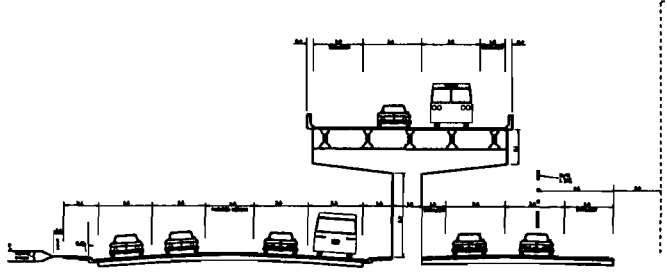

TYPICAL SECTION II-BI EAST

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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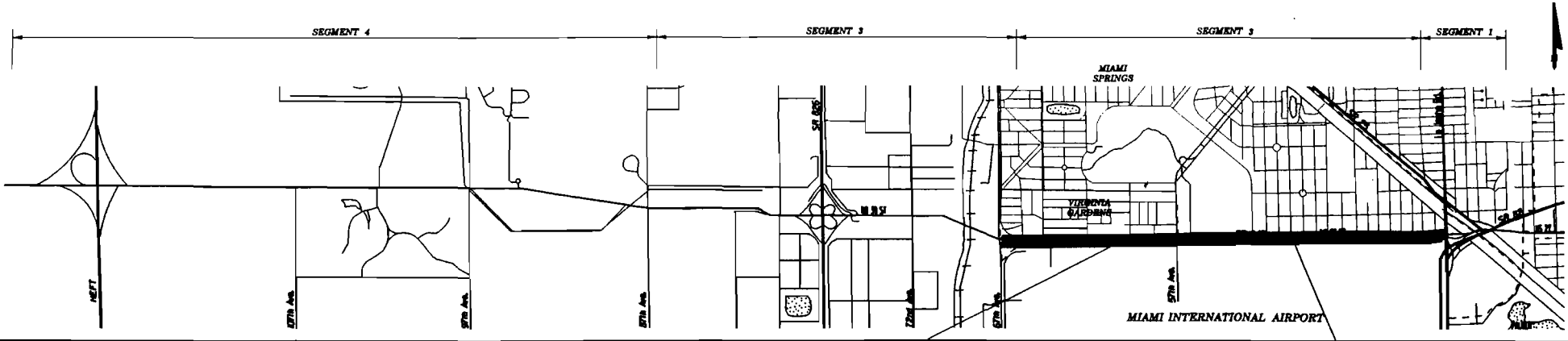
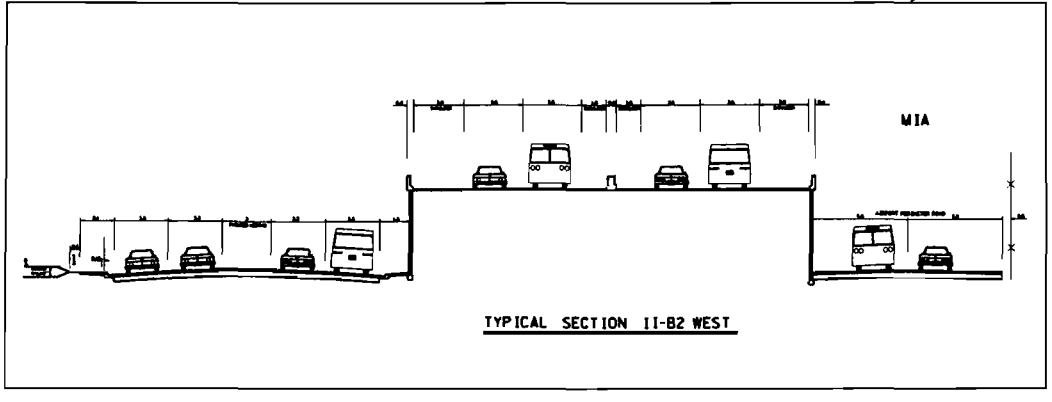
SR 112 ALTERNATIVE II-B2





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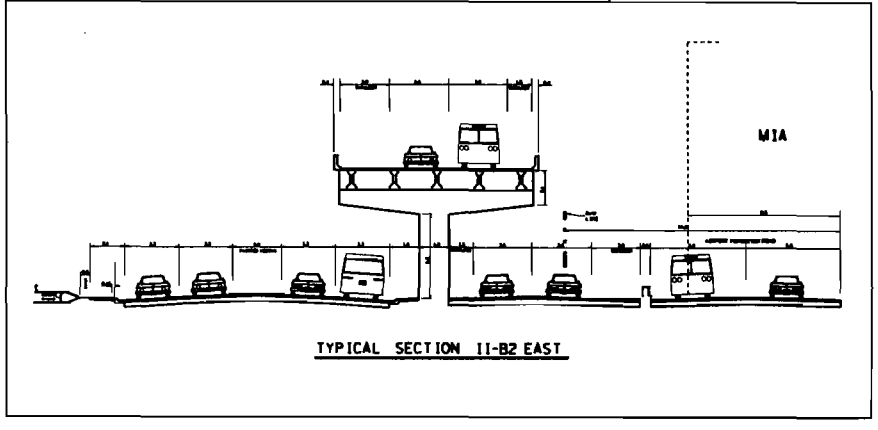

TYPICAL SECTION II-B2 EAST

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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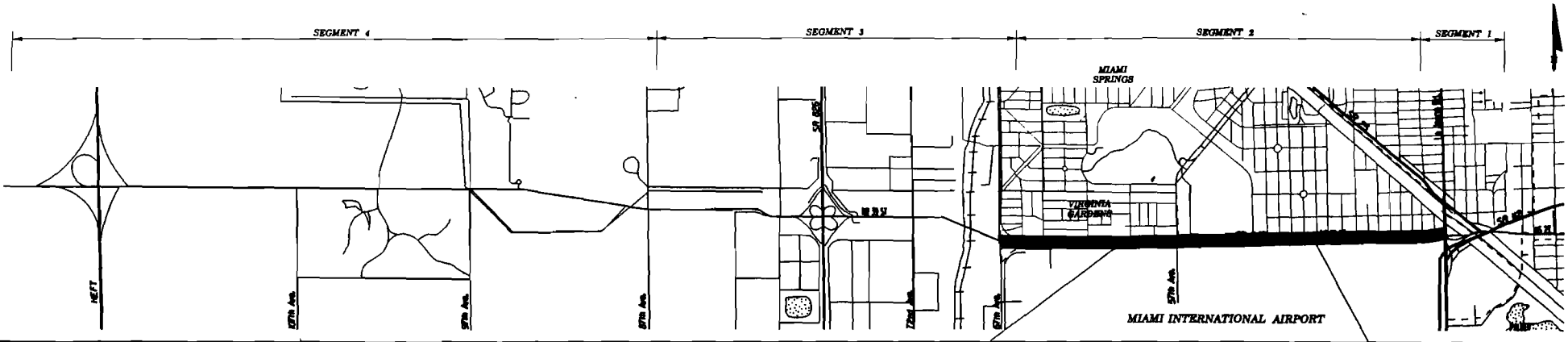
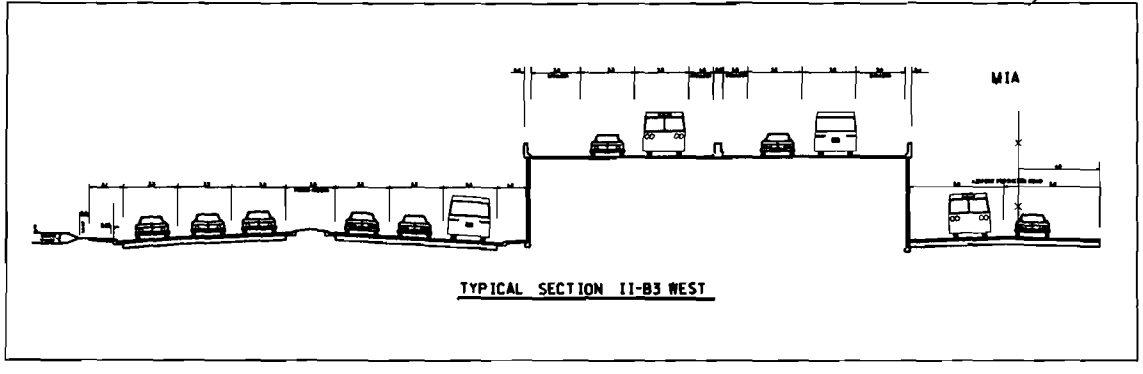
SR 112 ALTERNATIVE II-B3





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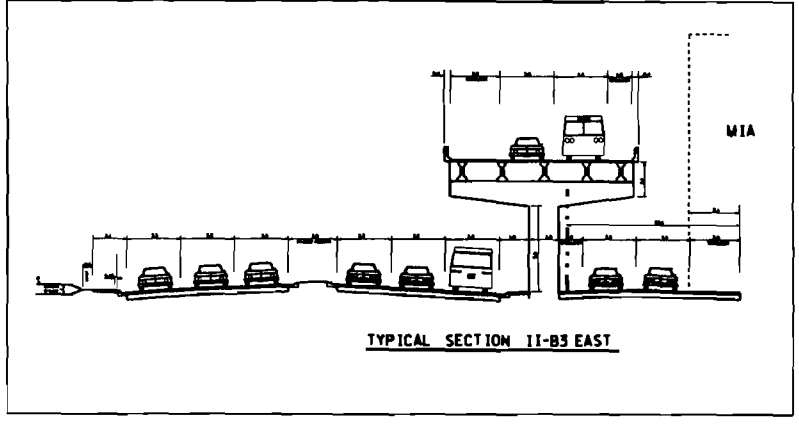

TYPICAL SECTION II-B3 EAST

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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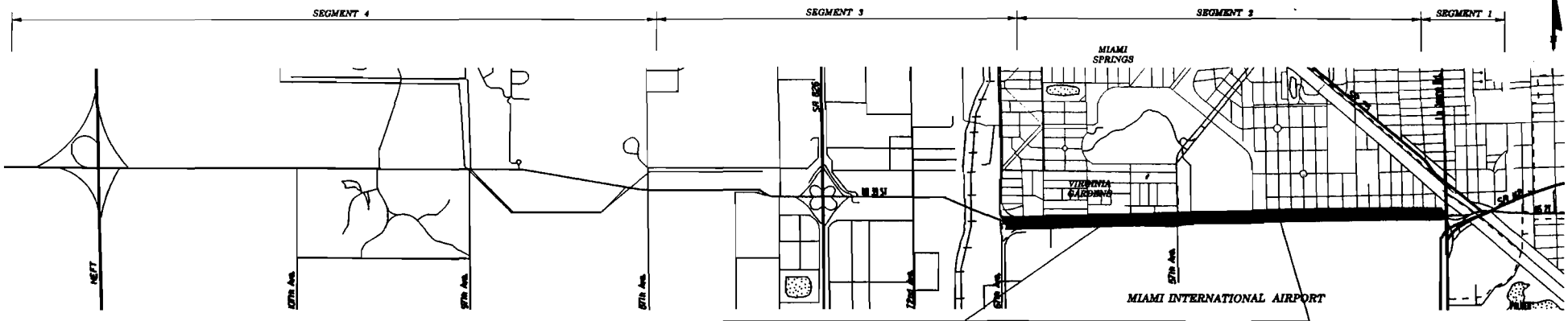
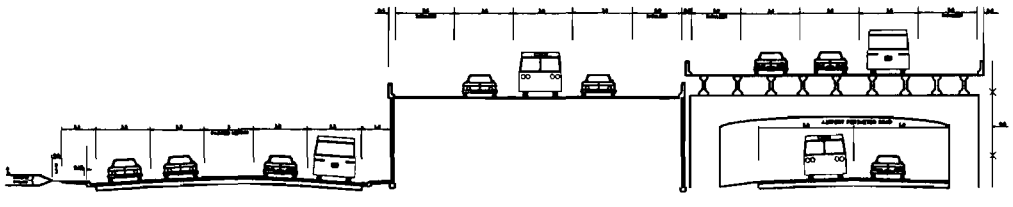
SR 112 ALTERNATIVE II-C





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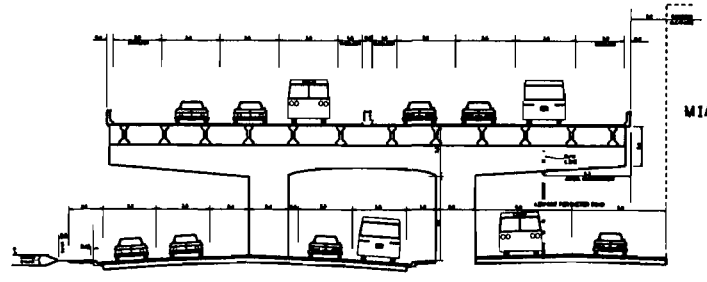

TYPICAL SECTION II-C EAST

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

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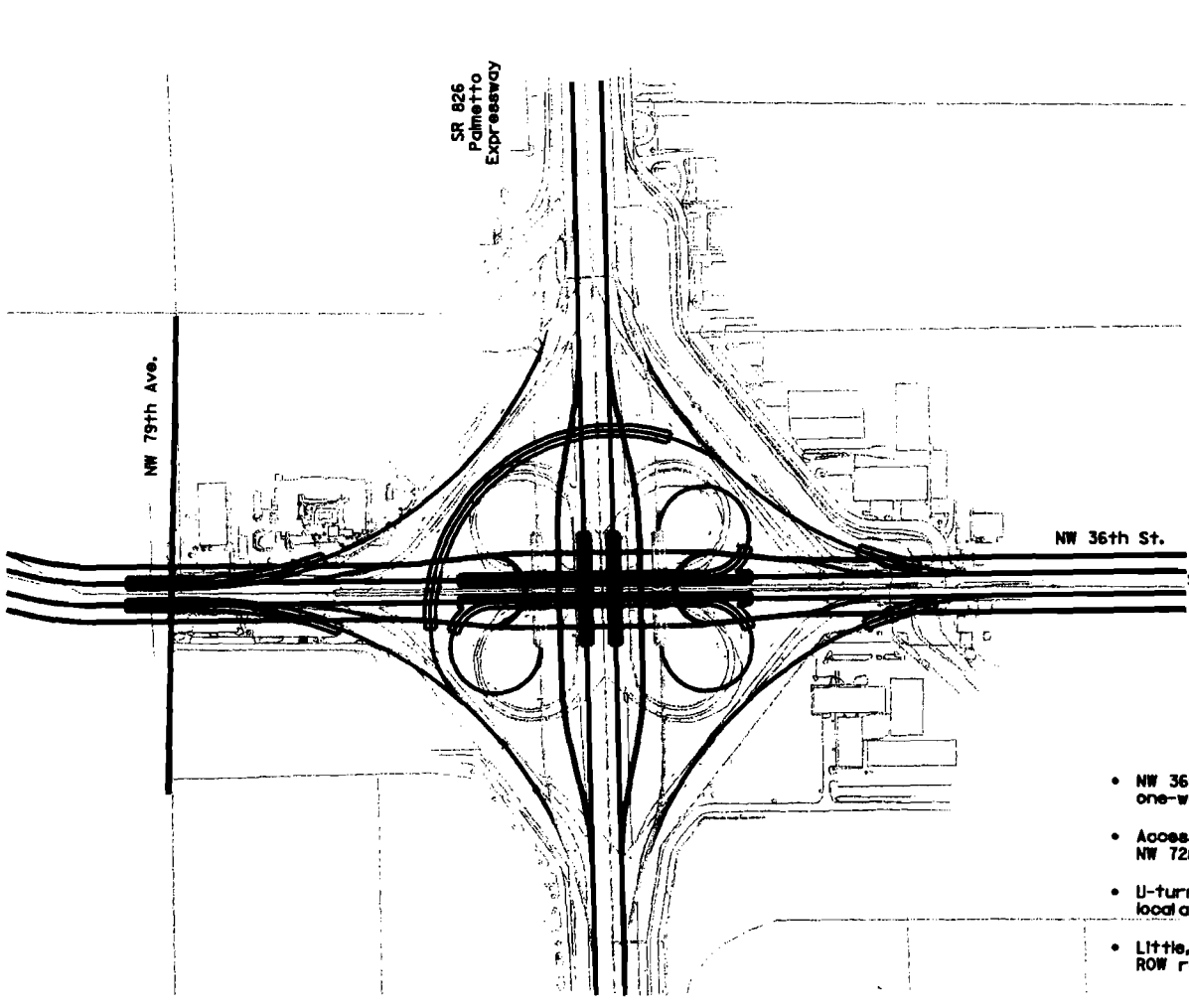
SEGMENT III

SR 112 ALTERNATIVE III-A



- NW 36th St. is a pair of one-way frontage roads.
- Access to Palmetto from NW 72nd Ave. & NW 79th Ave.
- U-turn lanes facilitate local access.
- Little, if any additional ROW required.

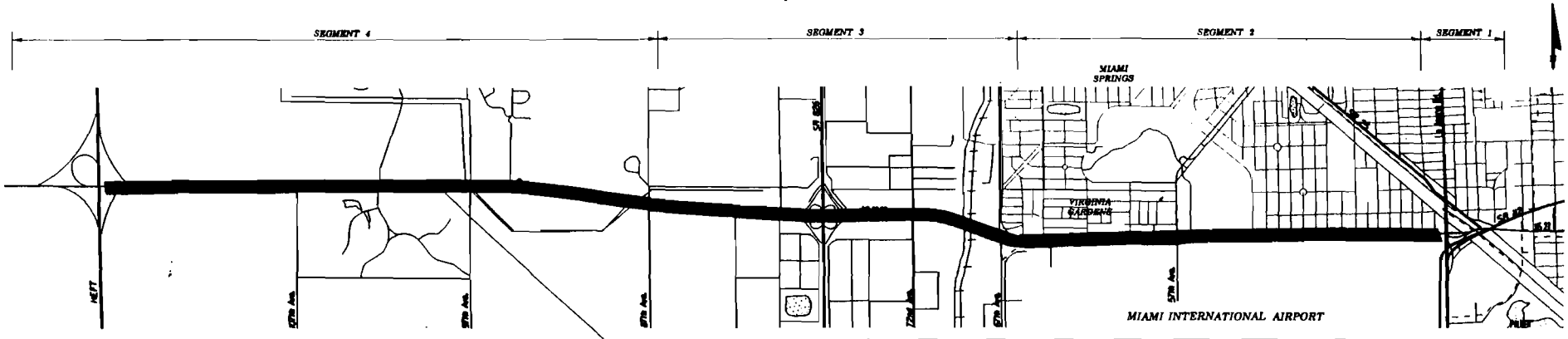
SR 112 EXTENSION STUDY

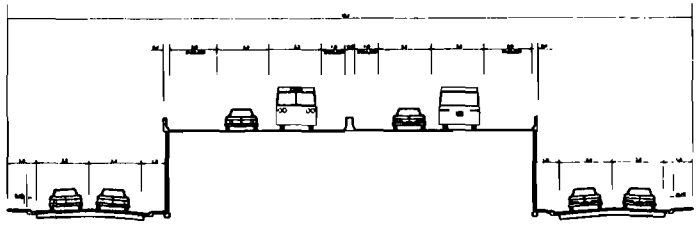
PRELIMINARY CONCEPTS

PBSJ

SEGMENT IV

SR 112 ALTERNATIVE IV-A





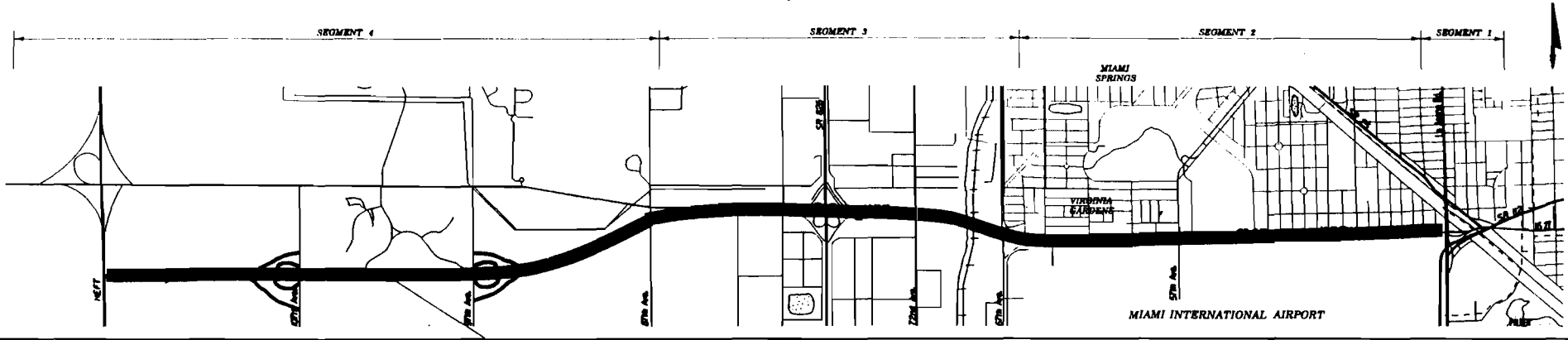
TYPICAL SECTION

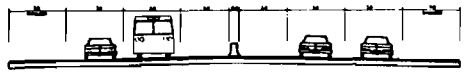
SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.

SR 112 ALTERNATIVE IV-B





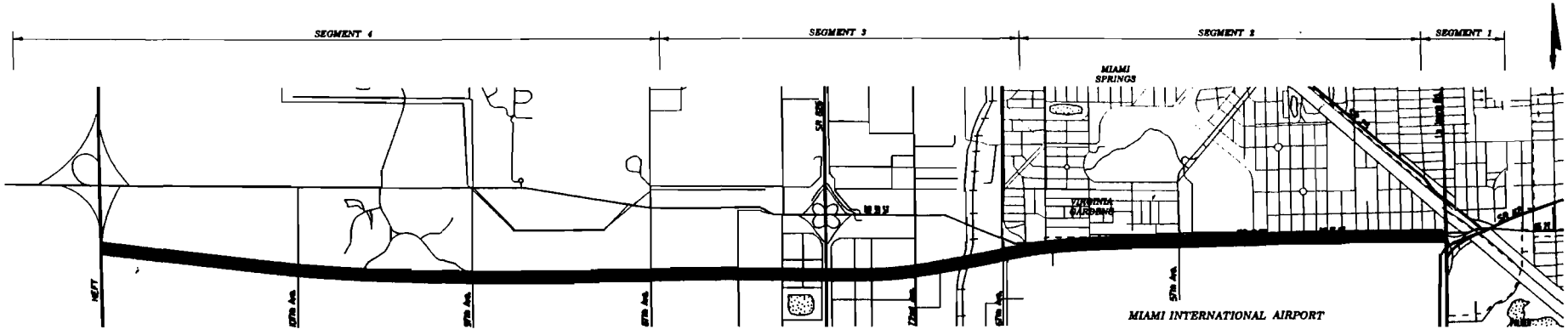
TYPICAL SECTION

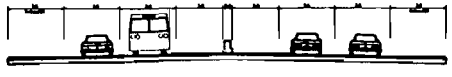
SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.

SR 112 ALTERNATIVE IV-C





TYPICAL SECTION

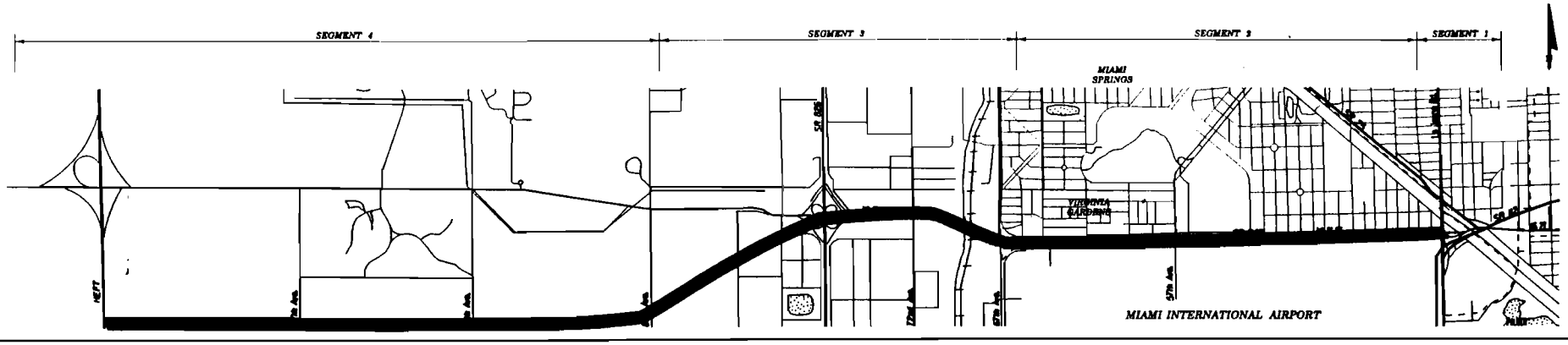
SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

PBSJ

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

SR 112 ALTERNATIVE IV-D



TYPICAL SECTION

SR 112 EXTENSION STUDY

PRELIMINARY CONCEPTS

PBSJ POST, BUCKLEY, SCHUH & JERNIGAN, INC.