

# airport area multimodal access study



final report  
executive summary



metro-dade county  
metropolitan planning organization

**Frederic R. Harris, Inc.**



## **EXECUTIVE SUMMARY**

### **INTRODUCTION**

#### **Background**

Metrorail, Tri-County Commuter Rail (Tri-Rail), and Metrobus and an extensive regional highway system, provide both mobility options and also access to major employment centers and travel destinations in Dade County. However, the ability of passengers to transfer efficiently between modes is seriously restricted wherever these high capacity transportation modes do not connect together efficiently. In addition, the key transportation modes do not directly serve the Miami International Airport (MIA), and associated facilities which are major employers and major travel destinations in South Florida.

Recent major Federal and State policy directions underscore improved intermodal transportation as a major aspect of plans and programs for correcting transportation system deficiencies and serving major activity and employment centers.

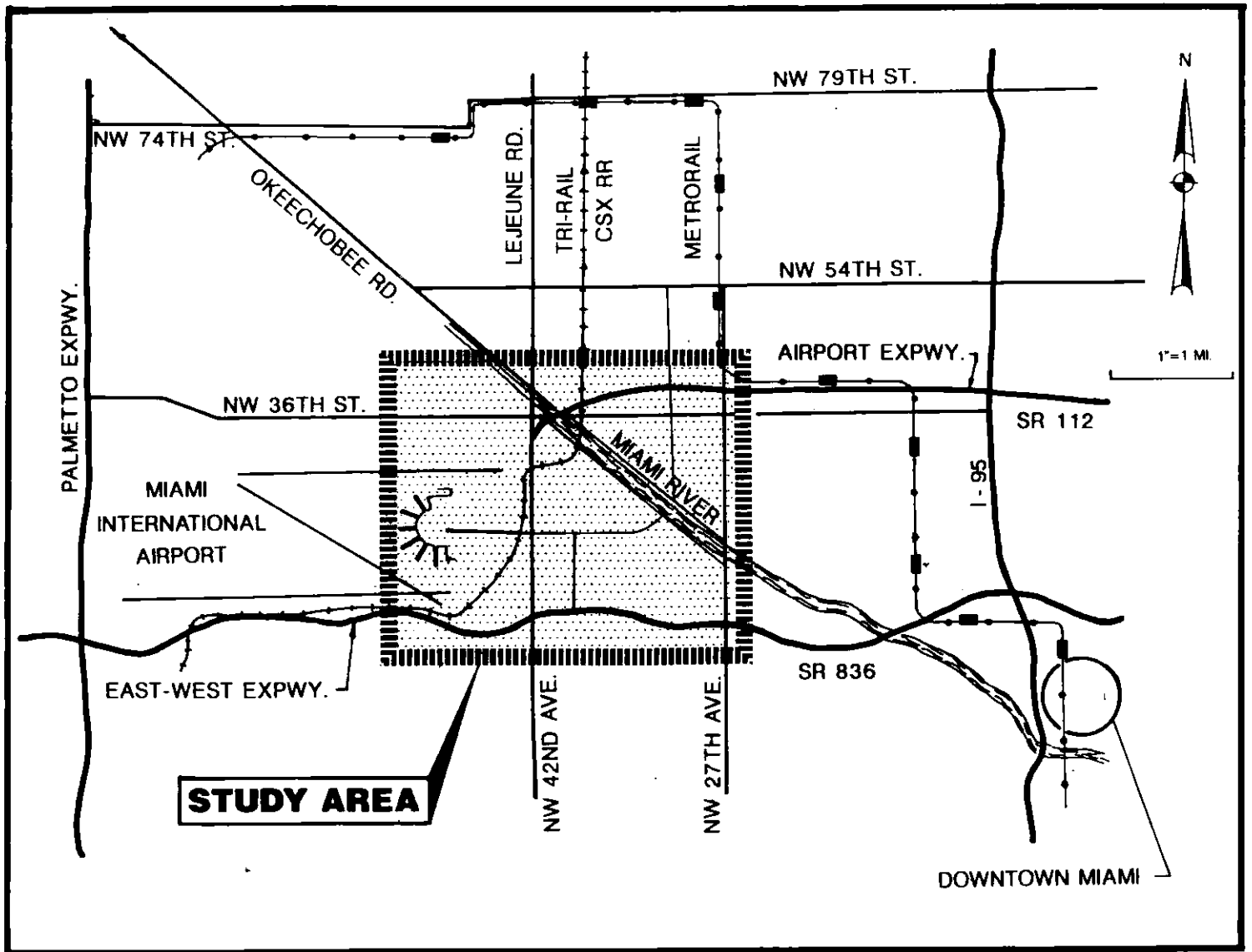
#### **Purpose**

The purpose of this study is to identify the benefits of improved intermodal connections and improved access to MIA and other major employment centers. This study develops the concept of the Multimodal Access Facility linking Metrorail, Tri-County Commuter Rail (Tri-Rail), future High Speed Rail and Metrobus. The study analyzes and evaluates alternative site locations and formulates a feasible development plan.

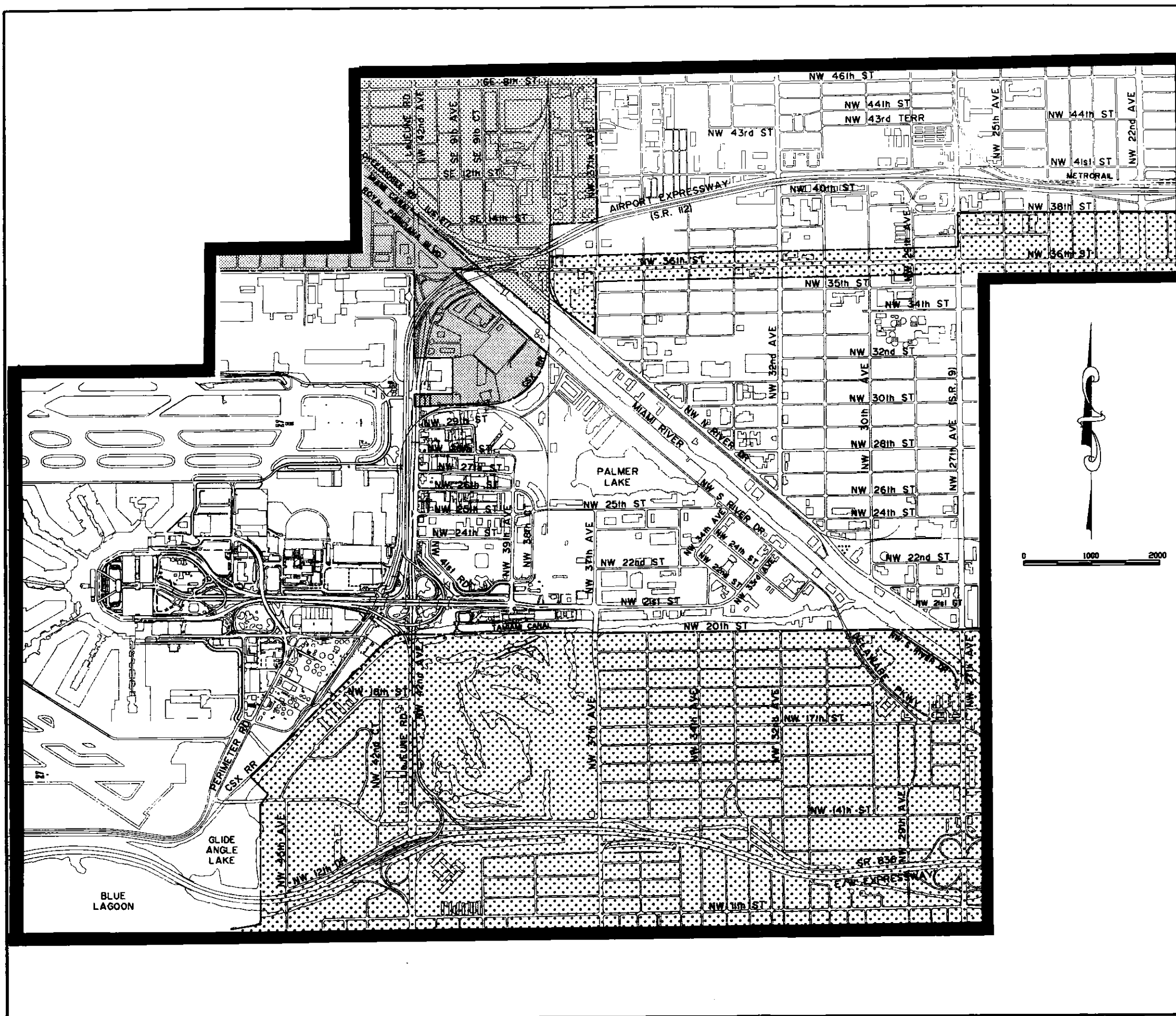
#### **Multimodal Access Study Area**

Figure S-1 shows the general project location. Figure S-2 shows that the multimodal access study area includes:







- o The Miami International Airport (MIA) terminal on the west
- o NW 27th Avenue on the east
- o SR-836 on the south
- o SE 10th Street in Hialeah (corresponds to NW 43rd Street in Miami) on the north

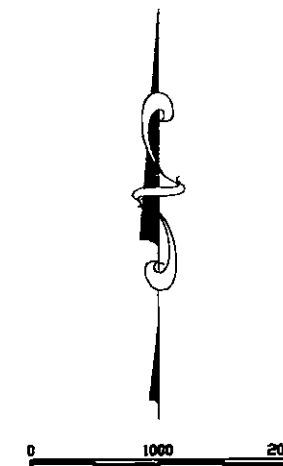


PROJECT LOCATION



## LEGEND

-  STUDY AREA
-  MUNICIPAL BOUNDARY
-  CITY OF HIALEAH
-  CITY OF MIAMI SPRINGS
-  CITY OF MIAMI
-  UNINCORPORATED DADE COUNTY



**FIGURE S-2  
STUDY AREA**

## AIRPORT AREA MULTIMODAL ACCESS STUDY

## **MULTIMODAL ACCESS CONCEPT**

The primary transportation benefits of the proposed Multimodal Access Facility, in concert with other transit and roadway improvements, are:

- o Enhancing mobility in Dade County by facilitating the safe and efficient transfer of passengers between modes.
- o Encouraging the use of transit modes as alternatives to the private auto.
- o Emphasizing the importance of integrating transportation modes with major land uses, including Miami International Airport, surrounding airport-related land uses and non-airport related developments.
- o Relieving traffic congestion on the airport terminal roadway system.

Additional non-transportation benefits are also anticipated in the form of construction jobs created, fuel consumption savings and reduced air pollutant emissions. Figure S-3 shows a conceptual diagram of the proposed facility.

### **Forecast Use of the Multimodal Access Facility**

The Year 2010 forecast use of the proposed Multimodal Access Facility was found to vary according to both the location selected and also access policies governing the provision of parking facilities at the Multimodal Access Facility. Considering both alternative locations and alternative access policies, the Multimodal Access Facility was found to attract between 12,000 and 26,000 vehicle trips per day which would otherwise use the MIA terminal roadways.

### **Justification of Travel Modes**

The Multimodal Study Steering Committee determined that the Multimodal Access Facility should serve the following public transit modes:

- o Metrorail
- o Tri-Rail
- o Metrobus Routes
- o Tri-Rail Feeder Bus Routes

STATEWIDE  
PALM BEACH COUNTY  
BROWARD COUNTY



NORTH  
DADE  
COMMUNITIES

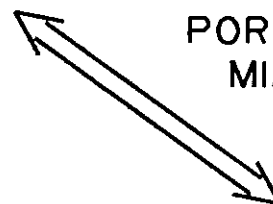


MIAMI  
INTERNATIONAL  
AIRPORT



**MULTIMODAL  
ACCESS  
FACILITY**

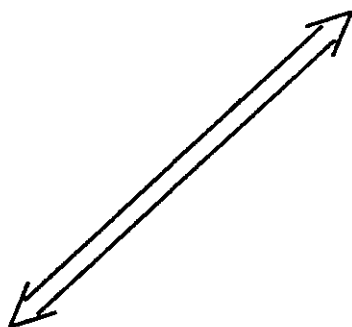
PORT OF  
MIAMI



DOWNTOWN  
MIAMI

CENTRAL CITY  
NEIGHBORHOODS

SOUTH/WEST  
DADE  
COMMUNITIES



**CONCEPTUAL MULTIMODAL  
ACCESS FACILITY**

FIGURE S-3



Metrobus routes and Tri-Rail Feeder Bus routes which presently access the MIA passenger terminal should be rerouted to access only the Multimodal Access Facility. Publicly licensed vehicles including taxicabs, limousines, jitneys and charter buses should continue to access the MIA terminal roadways and curbside. Privately owned hotel, rental car and other courtesy vehicles should be served at the Multimodal Access Facility and should no longer access the MIA terminal roadways and curbside directly. Priorities for auto access to the Multimodal Access Facility should include:

- o MIA employee parking
- o MIA users
- o Tri-Rail and Metrorail users

## **CONCEPTUAL FACILITY DEVELOPMENT**

The basic functions of the proposed Multimodal Access Facility include:

- o Intermodal transfer
- o Providing access to the MIA passenger terminal
- o Accommodating courtesy vehicles (for hotels, rental cars, etc.) so that this traffic may be removed from the congested passenger terminal roadway system.
- o Rail access
- o Bus and feeder bus access
- o Auto access
- o Bicycle and pedestrian access
- o Providing passenger services and amenities

### **Access to the Multimodal Facility**

Rail modes incorporated into the Multimodal Access Facility include:

- o Metrorail extension from the existing Earlington Heights Station.
- o Potential Metrorail connection to/from the south via a proposed east-west transit line.
- o Tri-Rail extension from existing SE 10th Street Station.
- o Potential future High Speed Rail.
- o Potential AMTRAK extension from existing NW 83rd Street Station.



The conceptual plan is designed to be accessible to the regional arterial highway system including the improvements contained in the adopted Metro-Dade County MPO Year 2010 Plan. No additional major roadway corridors are proposed to support the Multimodal Access Facility. Access ramps will be needed together with improvements for local circulation.

Travel between the Multimodal Access Facility and the MIA passenger terminal will be accomplished by a connector link. Initially this may be a shuttle bus service. During later phases of development of the Multimodal Facility, a higher type of service will likely be developed, such as an Automated Guideway Transit (AGT) system.

### **Design Concept**

Figure S-4 shows both the internal functional activities and also external access linkages for the Multimodal Access Facility. The access modes (rail, highway and bus, MIA terminal connector) all focus on a central area of common facilities, including boarding platforms, car rental, parking, pickup/dropoff and passenger services.

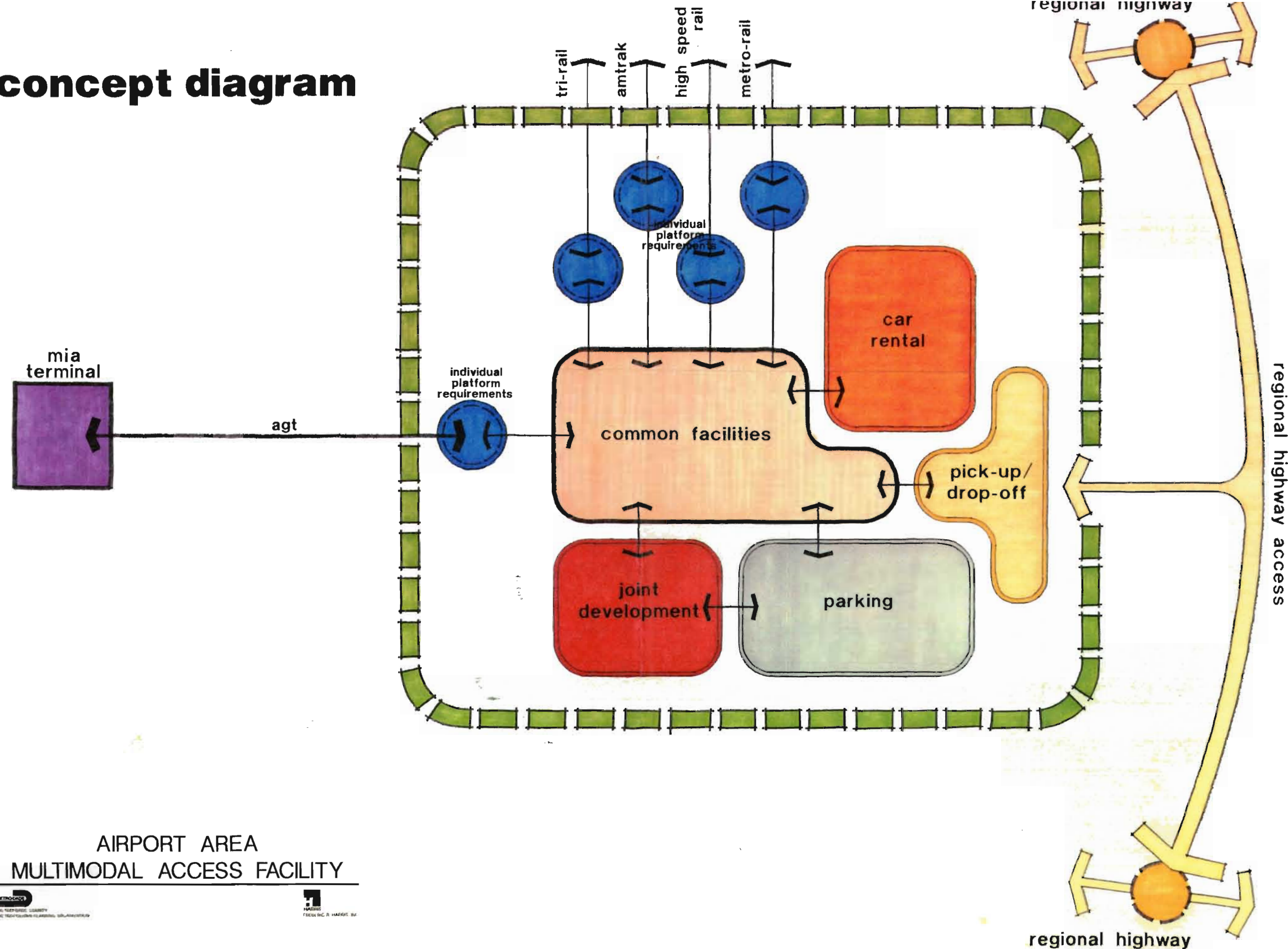
The concept diagram was further developed into a conceptual site plan as shown in Figure S-5. The multilevel design accomplishes the following:

- o Vertical separation of rail access and ground level access and circulation
- o Separation of public accessible areas and transit operations area
- o Provide for public safety in crossing and circulating around rail platform areas
- o Provide external connections for rail, bus, highway and MIA connector

This plan is sized to accommodate the conceptual requirements of users and includes the following:

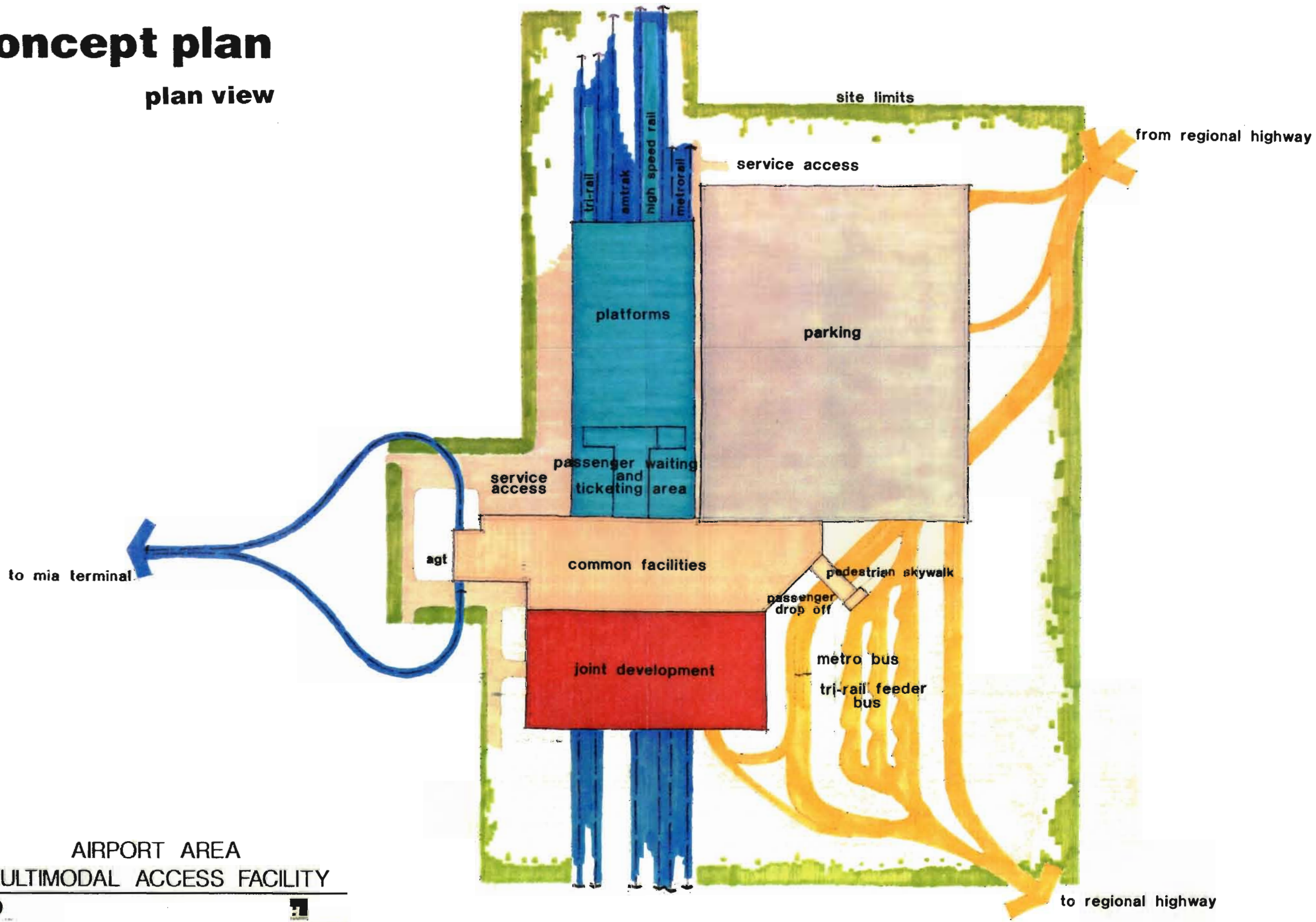
- o Platforms for the rail modes
- o Facilities for remote ticketing of airline passengers
- o A multi-level parking garage
- o A bus access and circulation area
- o Passenger waiting areas, services and amenities
- o Rental car sales desks
- o Service and operations areas for the rail lines.

concept diagram



AIRPORT AREA  
MULTIMODAL ACCESS FACILITY

**concept plan**  
**plan view**



AIRPORT AREA  
MULTIMODAL ACCESS FACILITY



FIGURE S-5

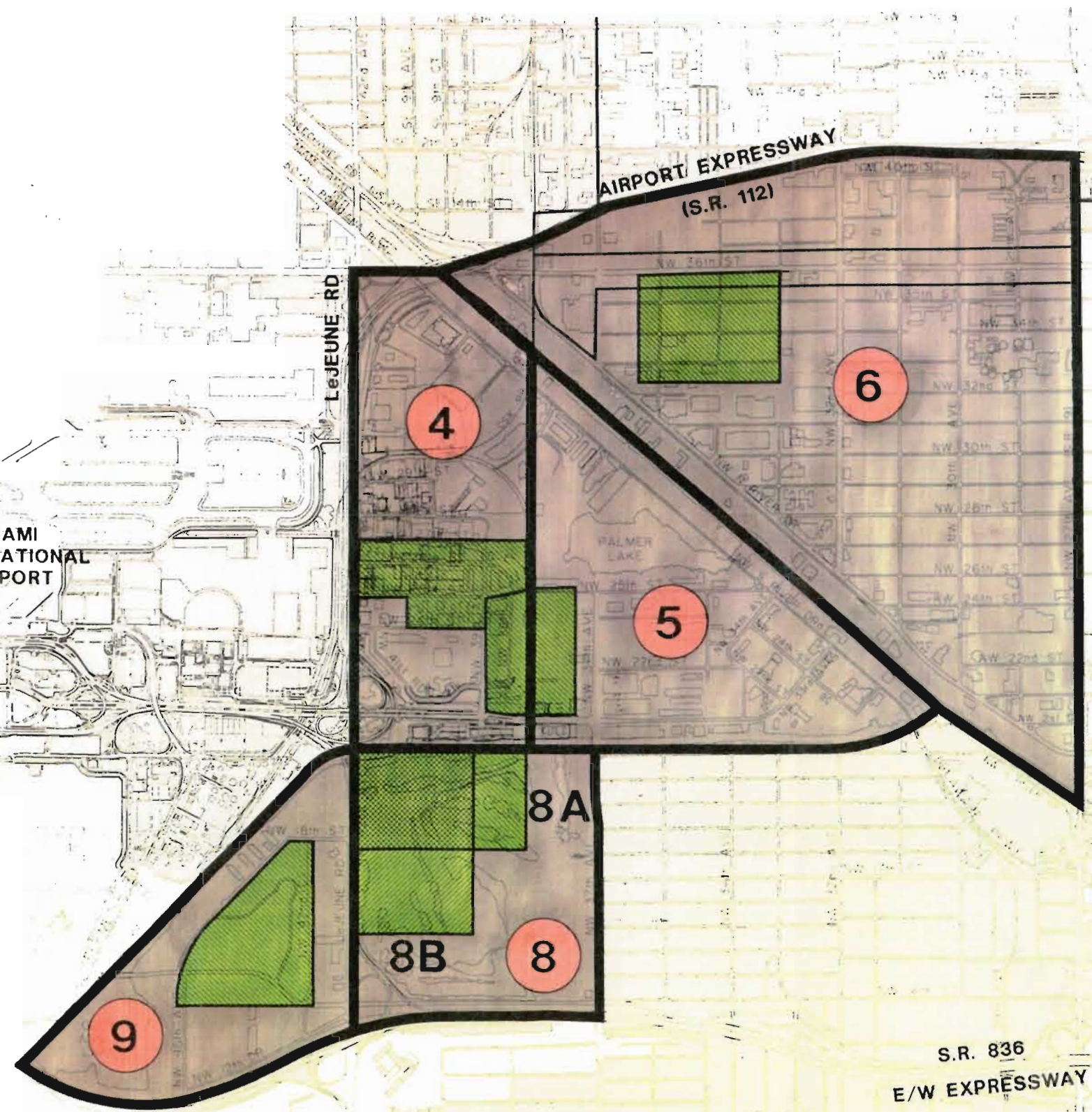


MIAMI  
INTERNATIONAL  
AIRPORT

LeJEUNE RD

AIRPORT EXPRESSWAY  
(S.R. 112)

S.R. 836  
E/W EXPRESSWAY



LEGEND



SITE LOCATION



STUDY AREA

FIGURE S-6  
PRELIMINARY  
LOCATION  
ALTERNATIVES

AIRPORT AREA  
MULTIMODAL ACCESS  
STUDY



## **FORMULATION OF LOCATION ALTERNATIVES**

The conceptual design of the Multimodal Access Facility as described above is generic in that it incorporates the desired functions and activities but does not relate to any particular location.

The study area was initially sub-divided into ten areas to identify potential location areas for the Multimodal Access Facility. Based on preliminary screening zones 4, 5, 6, 8 and 9, as shown in Figure S-6, were advanced for development of alternative conceptual site plans. Figure S-6 also shows the conceptual location of potential sites within these zones.

Conceptual site plans were prepared for each of the alternative sites and were configured to:

- o Accommodate all of the functions and activities contained within the proposed Multimodal Access Facility.
- o Provide transportation access to the facility via rail, bus, highway and MIA connector modes.
- o Minimize community, land use and environmental impacts.
- o Minimize potential right-of way acquisition and relocation impacts.
- o Accommodate employee parking (approximately 5,000–6,000 spaces)

## **EVALUATION OF ALTERNATIVE SITES**

The alternative sites were analyzed using the year 2010 Miami Urban Area Urban Transportation Study (MUATS) models. Traffic impacts on key roadways and daily transit ridership on transit modes associated with the sites were compared with a baseline alternative consisting of adopted plans with no multimodal facility. This analysis demonstrated that the Multimodal Access Facility in concert with other roadway and transit improvements, has the ability to relieve traffic volumes on the MIA terminal roadways. This occurs largely due to the Multimodal Access Facility and its connections to regional rail and bus transit systems, without which most of these trips would occur on the terminal roadways.

### **Site Evaluation Matrix**

Table S-1 summarizes the evaluation of the alternative sites. This matrix evaluates the potential impacts of the proposed Multimodal Access Facility considering transportation

access, community, land use and environment factors. No weights were assigned to any of the factors. The site evaluation matrix demonstrates that each of the alternative locations has advantages as well as disadvantages. These will affect the selection of a preferred site.

### **Implementation Issues**

Many of the potential issues and impacts identified in the site evaluation matrix may be resolved in the detailed planning/preliminary design phase of the Multimodal Access Facility. However, other issues are external constraints upon the Multimodal Access Facility which need to be addressed, including the following:

- o The MIA Master Plan Update including roadway improvements needs, the connector link to the Multimodal Access Facility and accommodations for employee parking.
- o The location and preliminary design of the Metrorail Extension from Earlington Heights and/or from a southern approach from a proposed east–west transit line.
- o Completing current studies of extending urban rail transit service from the south via an east–west line and integrating MIA to Port of Miami service.
- o The location and preliminary design of the proposed expressway connecting SR 836 with SR 112 including interchanges with these two expressways and a crossing of the Miami River.
- o Location and design of the proposed NW 32nd Avenue/NW 21st Street bridge crossing the Miami River.
- o Accommodating CSX freight trains which presently use the LeJeune Road/SR 112–Airport connector ramps grade crossings. Also accommodating CSX freight trains which presently travel to the east along the NW North New River Drive and NW 23rd Street rail lines.
- o Extending Tri–Rail service from the existing station at SE 10th Street in Hialeah to the Multimodal Access Facility.
- o Resolving alternative policies pertaining to access by private auto to the Multimodal Access Facility and to the MIA Passenger Terminal.
- o Completing current studies of extending urban rail transit service form the south via an east–west line and integrating MIA to Port of Miami service.

TABLE S-1 MULTIMODAL SITE EVALUATION MATRIX

Evaluation Criteria	Alternative Conceptual Site Number					
	4	5	6	8A	8B	9
<b>I. Proximity to Airport:</b>						
(a) Access to Multimodal Facility for airport-related commercial uses (hotels, car rentals, jitneys, etc)	○	○	●	○	○	●
(b) Access to Multimodal Facility for airport users, visitors, etc.	○	○	●	○	○	○
(c) Distance from Multimodal facility to MIA terminal via airport link	◐	◐	●	◐	◐	◐
<b>II. Rail Mode Access:</b>						
(a) Complexity in extending Metrorail from Earlington Heights to Multimodal Facility	◐	◐	○	◐	◐	●
(b) Potential for available R/W for rail line extensions (Metrorail, Tri-Rail, HSR, Airport Link)	○	○	○	◐	◐	●
(c) Compatibility with traffic on NW 21st Street and on LeJeune Road	○	○	○	◐	◐	●
(d) Flexibility to accommodate Metrorail access via east-west line	◐	◐	●	○	◐	○
(e) Flexibility to accommodate future Tri-Rail and HSR extension to SW Dade County and/or downtown Miami	●	●	●	◐	◐	◐
<b>III. Highway Access:</b>						
(a) Access to regional expressway system via direct ramps	○	○	●	◐	◐	●
(b) Access to Multimodal Facility from existing local roadways	○	○	●	◐	◐	◐
(c) Local access and circulation impacts	◐	◐	○	●	◐	●
(d) Effects on traffic congestion on airport terminal roadways	◐	○	◐	○	○	○

Acceptability Scale

(Most Acceptable)



(Least Acceptable)





Table S-1 (continued)

Evaluation Criteria	Alternative Conceptual Site Number					
	4	5	6	8A	8B	9
<b>IV. <u>Bus Transit Access:</u></b>						
(a) Access to Multimodal Facility for existing Metrobus routes						
(b) Reduction of miles of service on Metrobus routes						
(c) Positive effects on bus service along NW 36th Street						
<b>V. <u>Community/Land Use/Environmental</u></b>						
(a) Restrictions on Multimodal Facility from aircraft overflight areas						
(b) Ability to resolve local governmental jurisdictional issues.						
(c) Conformance to Metro-Dade and applicable city land use plans						
(d) Compatibility of Multimodal Facility with surrounding land uses						
(e) Site acquisition impacts						
(f) Relocation impacts						
(g) Potential for joint development opportunities						
(h) Impacts on Miami River						
(i) Impacts on Tamiami Canal						
(j) Impacts on community facilities and community redevelopment						
(k) Impacts on known historical and archaeological resources						
(l) Impacts on Multimodal Facility from contamination	REQUIRES FURTHER STUDY					
(m) Impacts on Multimodal Facility from aviation noise						

Acceptability Scale

(Most Acceptable)



(Least Acceptable)



## Cost

Table S-2 summarizes the estimated costs of the alternative site locations of the Multimodal Access Facility. The differences among the alternatives are attributable primarily to the costs of site acquisition. Table S-3 identifies the differences among the alternative sites related to the estimated costs of extending rail modes from their present terminus points to the Multimodal Access Facility. These include the Metrorail extension from Earlington Heights and the connector link from the MIA passenger terminal.

**Table S-2 – Estimated Costs – Multimodal Facility**

	Estimated Cost (Million)				
	Alternative				
	4	5	6	8A,8B	9
Construction	\$59.8	\$58.9	\$57.6	\$57.5	\$60.4
Engineering (@ 15%)	9.0	8.8	8.6	8.6	9.1
Site Acquisition	33.7	28.8	20.1	6.1	9.9
Total Multimodal Facility	\$102.5	\$96.5	\$86.3	\$72.2	\$79.4

**Table S-3 – Total Estimated Cost**

	Estimated Cost (Million)				
	Alternative Site				
	4	5	6	8A,8B	9
Metrorail Extension from Earlington Heights	\$165.0	\$181.0	\$ 93.0	\$213.0	\$245.0
MIA Connector Link	104.0	96.0	176.0	88.0	96.0
Multimodal Facility*	102.5	96.5	86.3	72.2	79.4
Total	\$371.5	\$373.5	\$355.3	\$373.2	\$420.4

\*From Table S-2

## **RECOMMENDATIONS**

### **Recommended Site Configuration**

The recommended site configuration is a multi-level building housing transit platforms, passenger services and amenities, parking and operations areas. The facility should have direct access to rail modes including Tri-Rail, Metrorail, future High Speed Rail and AMTRAK. A link connecting the Multimodal Access Facility to the MIA Passenger Terminal should be incorporated.

The facility should have access via direct ramps to the regional expressway system including SR 836 and SR 112. The facility should also have access to local streets. Bus, auto, bicycle and pedestrian access should be provided. Local access and circulation for surrounding businesses and residences should be preserved.

Both external connections and also the internal arrangement of activities should be designed and located so as to facilitate safe, efficient and convenient transfer of passengers among modes.

### **Recommended Locations**

Based upon the studies conducted, alternatives evaluated, and public input received for this project, it is recommended that sites 4 and 5 be advanced for Project Development and Environmental (PD&E) studies.

### **Recommended Actions**

The following actions are recommended:

- o Coordinate the design and implementation of the Multimodal Access Facility with other on-going studies.
- o Initiate Project Development and Environmental (PD&E) studies on the sites recommended above.
- o Initiate a study of conceptual alternatives for coordinating CSXT rail freight traffic with passenger rail traffic to the Multimodal Access Study.
- o Feasibility studies of the extensions of rail facilities plus direct access highway ramps should be conducted concurrently with the PD&E studies.

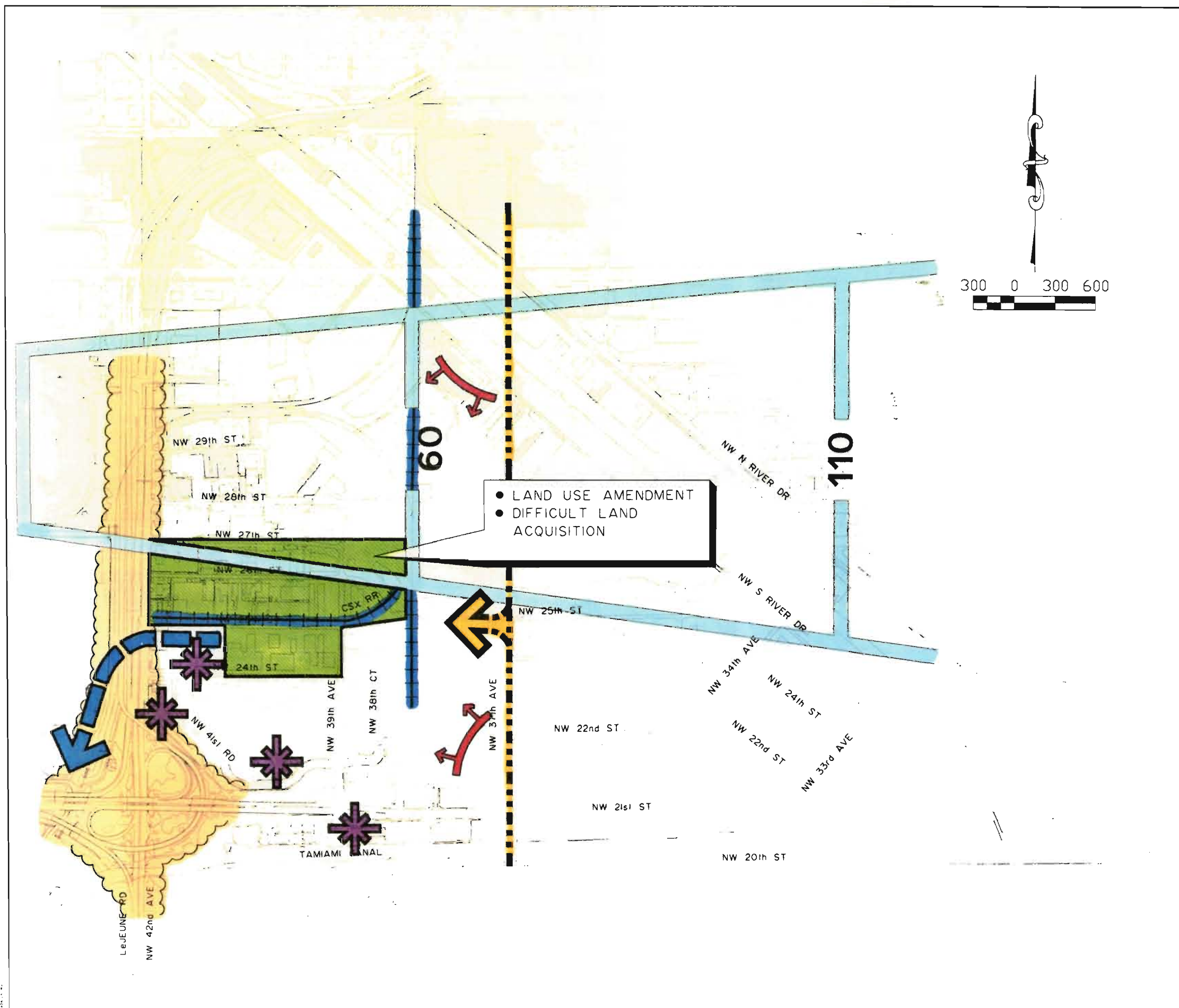
- o As these studies are completed a final site selection should be made and final design, right-of-way acquisition and construction accomplished.
- o A feasibility study should be made of integrating office, commercial, retail or other development into the Multimodal Access Facility.

### **Conceptual Location Maps**

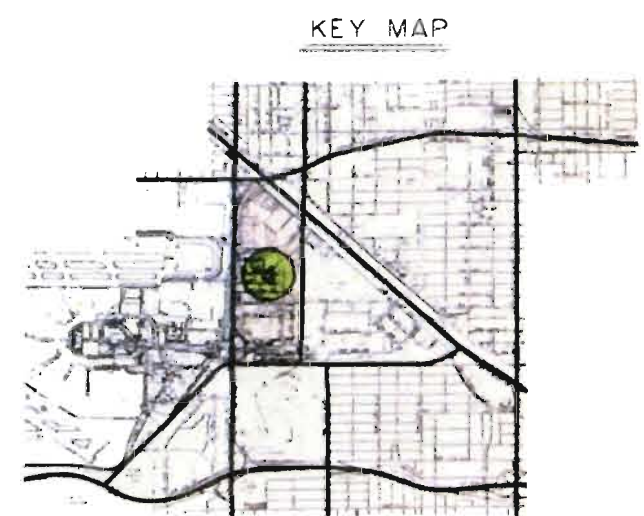
Figures S-7, S-8 show conceptual location maps of preferred alternative locations 4 and 5, respectively.

### **Conceptual Site Plans**

Figures S-9 and S-10 show conceptual site plans of preferred alternative locations 4 and 5, respectively.



- LEGEND**
- SITE
  - EXISTING EXPRESSWAY
  - PROPOSED EXPRESSWAY
  - RAIL LINE
  - HIGHLY CONGESTED ROADWAYS
  - HOTEL
  - HIGHWAY EXPOSURE
  - MIA CONNECTOR
  - APPROACH/DEPARTURE DISTRICT WITH ALLOWABLE HEIGHTS IN FEET ABOVE MEAN SEA LEVEL

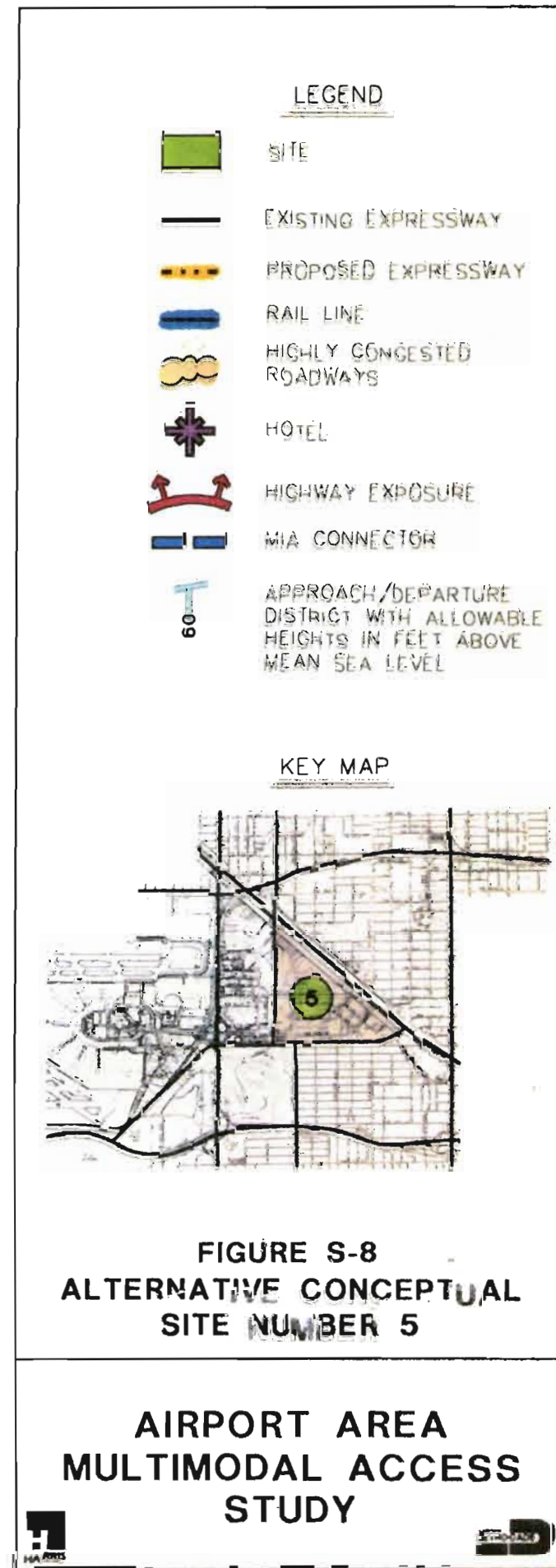
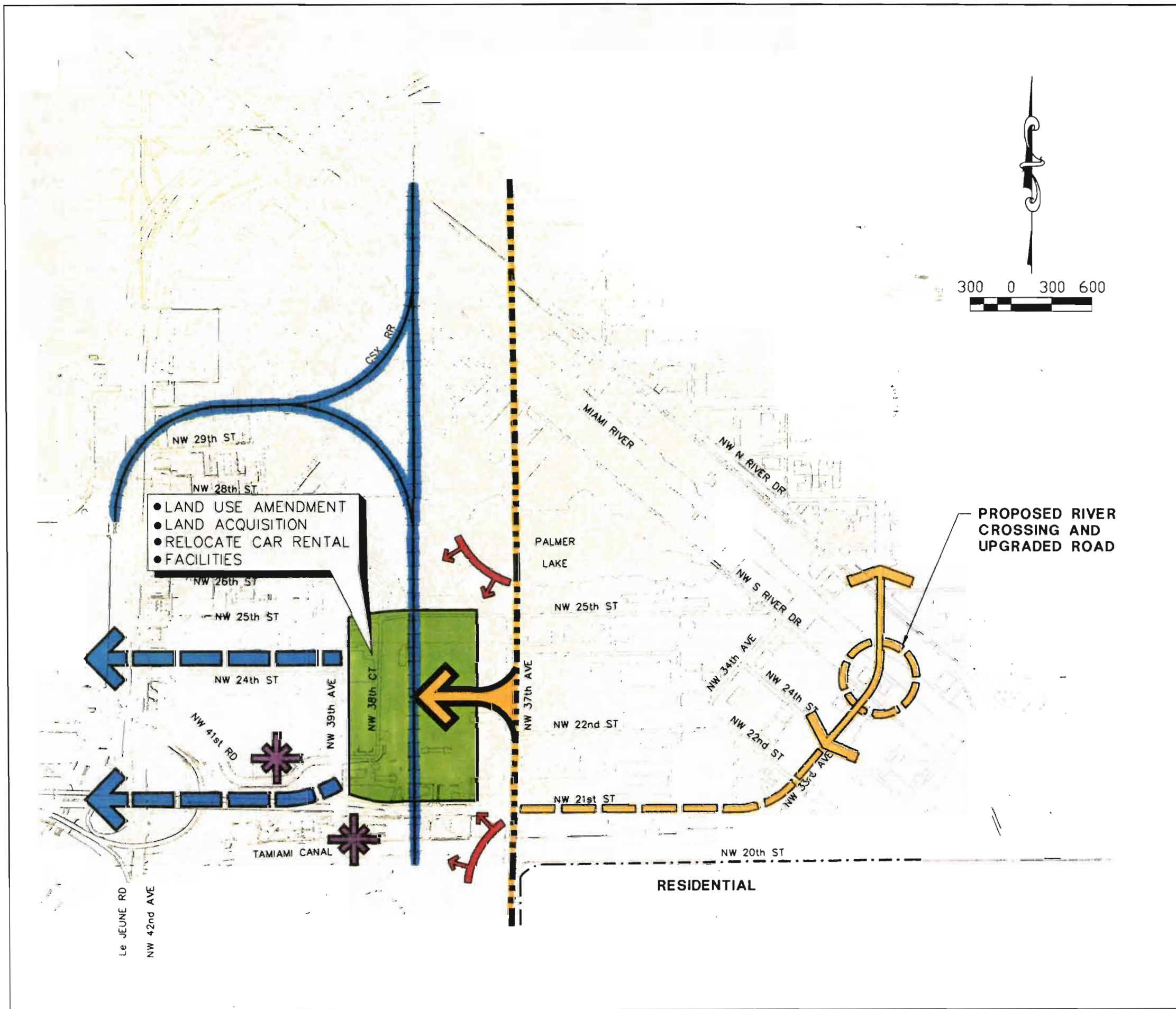


**FIGURE S-7  
ALTERNATIVE CONCEPTUAL  
SITE NUMBER 4**

**AIRPORT AREA  
MULTIMODAL ACCESS  
STUDY**









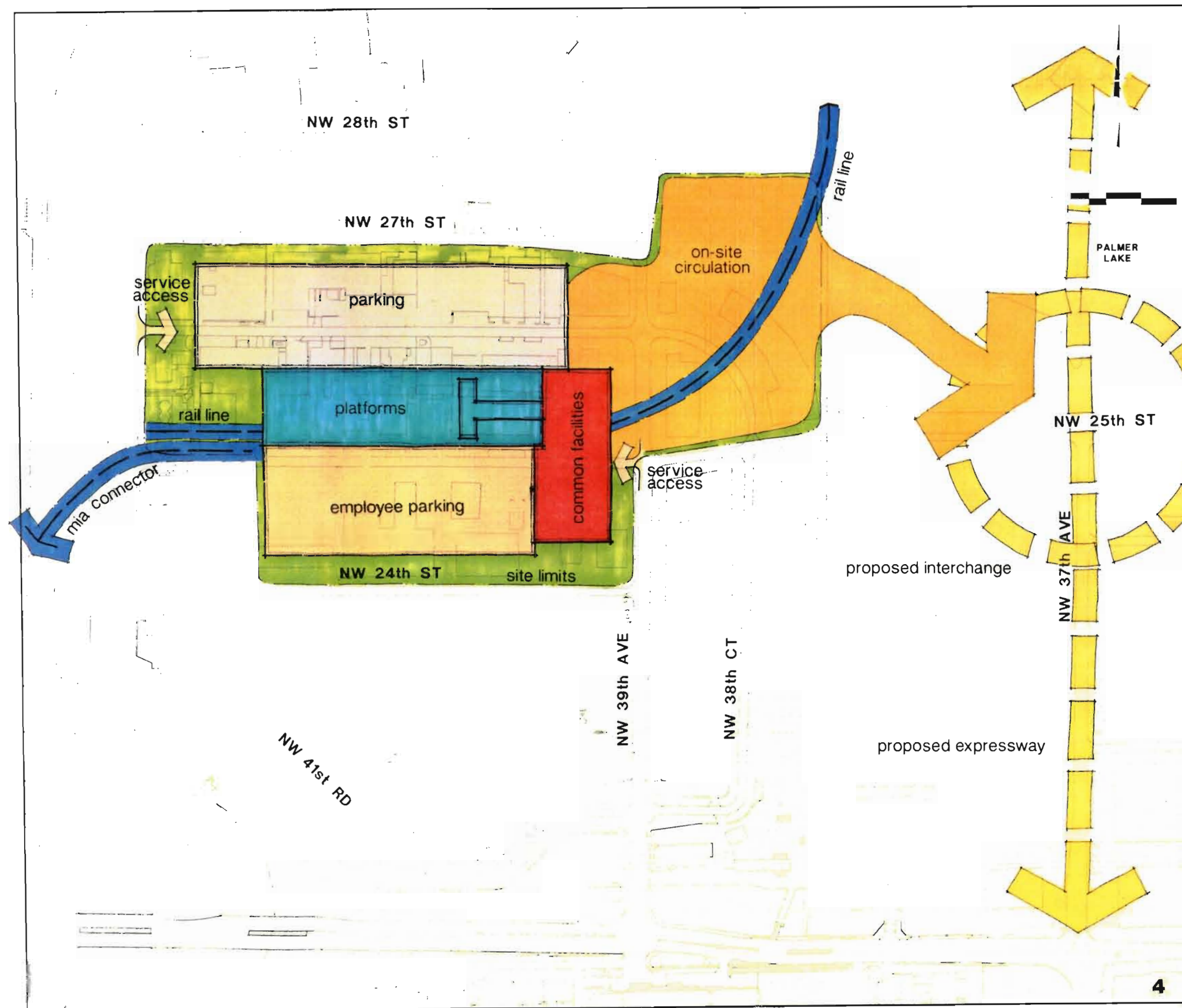


FIGURE S-9  
CONCEPT PLAN OF  
MULTIMODAL ACCESS FACILITY  
SITE NUMBER 4

AIRPORT AREA  
MULTIMODAL ACCESS  
STUDY





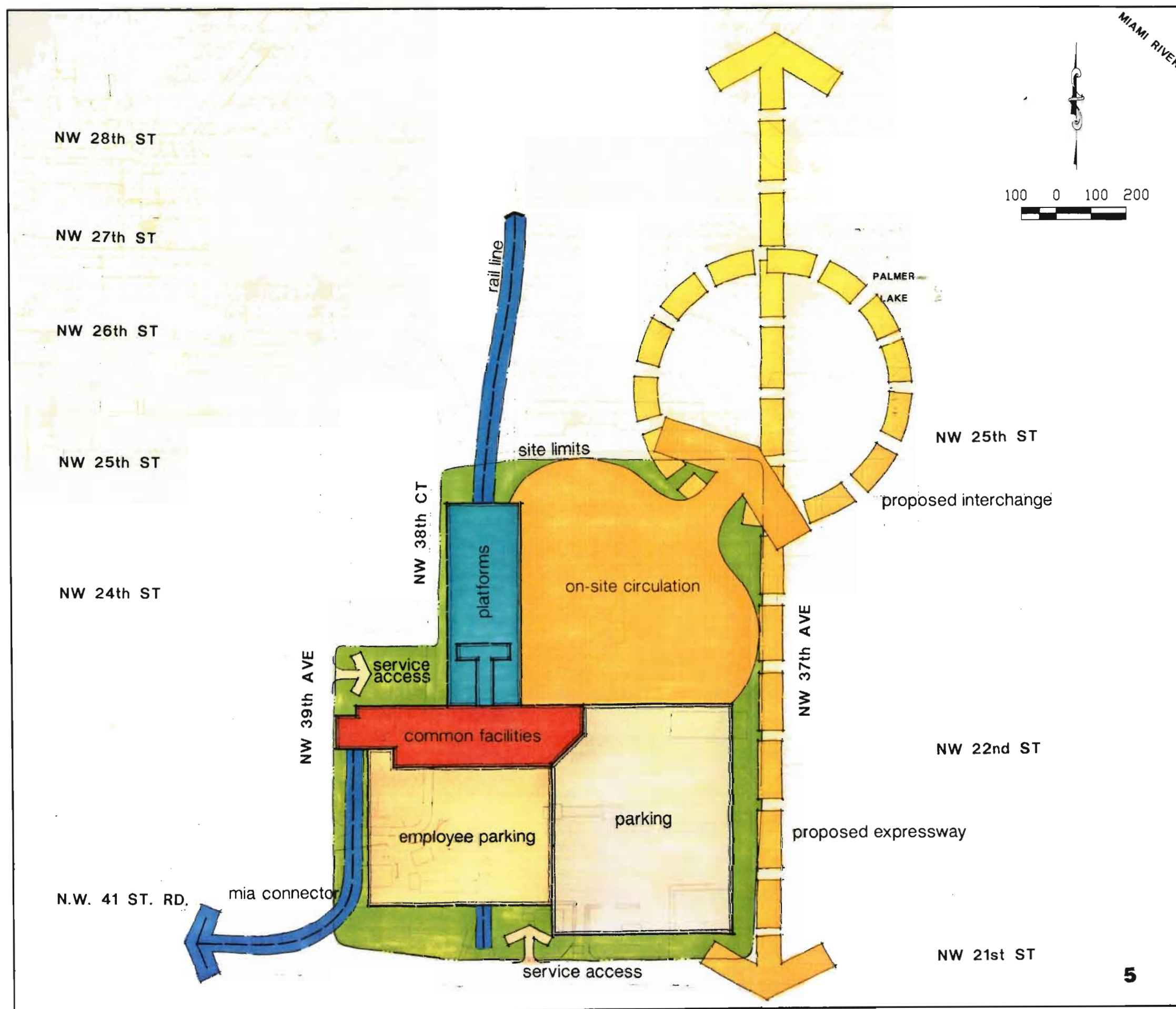


FIGURE S-10  
CONCEPT PLAN OF  
MULTIMODAL ACCESS FACILITY  
SITE NUMBER 5