



Miami Intermodal Center Policy and Technical Steering Committees' Recommendation Report

*U.S. Department of Transportation
Federal Highway Administration
Florida Department of Transportation*

*In Cooperation with the
U.S. DOT, Office of the Secretary,
Office of Intermodalism
Federal Transit Administration
Federal Railroad Administration
Federal Aviation Administration
Maritime Administration
United States Coast Guard*

*State Project Number: 87000-1522
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*Miami Intermodal Center (MIC)
Dade County
MIS/DEIS
February 1996*

**Miami
Intermodal
Center**

MIAMI INTERMODAL CENTER (MIC) PROJECT

Work Program Item No. 6114114
State Project No. 87000-1522
Federal Aid Project No. CM-8888-(67)

**THE POLICY AND TECHNICAL STEERING COMMITTEES'
RECOMMENDATION**

Prepared for:

**FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT VI**

prepared by:

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1.0 INTRODUCTION

This report has been prepared as a summary of the Miami Intermodal Center (MIC) Major Investment Strategy/Draft Environmental Impact Statement (MIS/DEIS). The report concludes with a project recommendation and financing strategy to advance into preliminary engineering and final environmental impact statement (PE/FEIS). Other considerations external to the proposed project that may affect some aspects of its implementation are also discussed. On January 12, 1996, the study's Policy and Technical Steering committees voted unanimously to forward the recommendations for the MIC project alternative defined in Section 3.0 to the Metropolitan Planning Organization's (MPO) Board of Directors for approval and inclusion in the *Metro-Dade Transportation Plan and Improvement Priorities Long Range Element*. The committees' action also recommended advancing the MIC project to PE/FEIS. The Policy and Technical Steering committees were established by the Florida Department of Transportation (FDOT) to have oversight responsibility for the MIC project and provide input and direction on key issues relating to the study.

Recommendations to advance also take into consideration the study's public hearing and 45-day public review process as required by the U.S. Department of Transportation, Federal Highway Administration, *Federal Register, Environmental Impact and Related Procedures; Final Rule, 23 CFR 771* (August 28, 1987) and the *Statewide Planning; Metropolitan Planning Rule 23, CFR 450* (October 28, 1993).

1.1 PLANNING CONTEXT

1.1.1 Planning and Project Development Process

Previous Studies and the Local Decision Making Process

The chronological history of the proposed project began in the early 1980s when the Dade County Aviation Department (DCAD) developed strategies for relieving congestion at the Miami International Airport (MIA) passenger terminal area. Early attempts at resolving the issues related to congestion centered around construction of an additional airport. Initial construction of runway facilities in the Everglades and planning for the South Florida Air Carrier Reliever Airport were halted for environmental reasons. In 1989, Metro-Dade accepted the *Miami International Airport Area Transportation Study* which recommended implementing a multimodal transportation access facility linking Metrorail, Tri-Rail, future High Speed Rail (HSR) and Metrobus. This recommendation was incorporated in the *Metro-Dade Transportation Plan and Improvement Priorities Long Range Element*, the MPO's adopted plan for Dade County. In the early 1990s, the State of Florida implemented multimodal policies to encourage the use of transportation modes other than the single-occupant vehicle. The policies specifically limited the number of lanes on state highways. The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 spurred local planners and decision makers to undertake planning efforts to link Tri-Rail and Metrorail with MIA and to improve roadway access at MIA.

With the active participation from the Chairman of the Metro-Dade Transportation Committee, the Secretariat of the MPO signed Resolution MPO 33-91 on December 3, 1991, to initiate studies for the MIA Intermodal Center and the East-West Multimodal Corridor Rail Study. In January 1992, Metro-Dade published *MIA - Port of Miami Seaport Rail Connection* and the *Airport Area Multimodal Access Study Final Report*, which identified capital improvements required to accommodate future growth at MIA and between MIA and the Seaport. Between July 1991 and June 1992, Metro-Dade coordinated a combined planning effort with FDOT District VI, the Metro-Dade Transit Agency (MDTA), and DCAD that ultimately led to initiating simultaneous MIS/DEIS planning studies for the MIC and for the East-West Multimodal Corridor Rail Study.

In Summer 1993, six federal agencies, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Federal Railroad Administration (FRA), the Federal Aviation Administration (FAA), the Maritime Administration (MARAD), and the United States Coast Guard (USCG), signed a Memorandum of Understanding (MOU) with FDOT to coordinate and document each agency's respective role and responsibilities in implementing actions related to the MIC. The MOU was developed to ensure full compliance with National Environmental Policy Act (NEPA) regulations (particularly the *Metropolitan Planning Rule 23, CFR 450*, October 28, 1993) and related federal and state laws and policies. As the lead agency, FHWA is responsible for coordinating the federal agencies' review of the studies that support the MIS/DEIS.

Also in 1993, studies that support the MIC and East-West Multimodal Corridor Rail Study planning process were prepared by DCAD and the MPO respectively. DCAD published an update to the airport master plan, which addressed access to MIA as a major component of the plan. Metro-Dade conducted the *Transit Corridors Transitional Study* pertaining to the extension of high-capacity, priority transit modes countywide, including two extensions of the existing Metrorail system and a fixed guideway connection between the MIA passenger terminal and the Port of Miami with ultimate extensions west to Florida International University and east to the Miami Beach Convention Center.

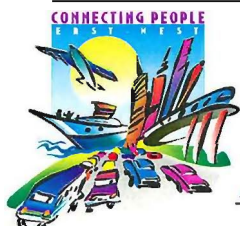
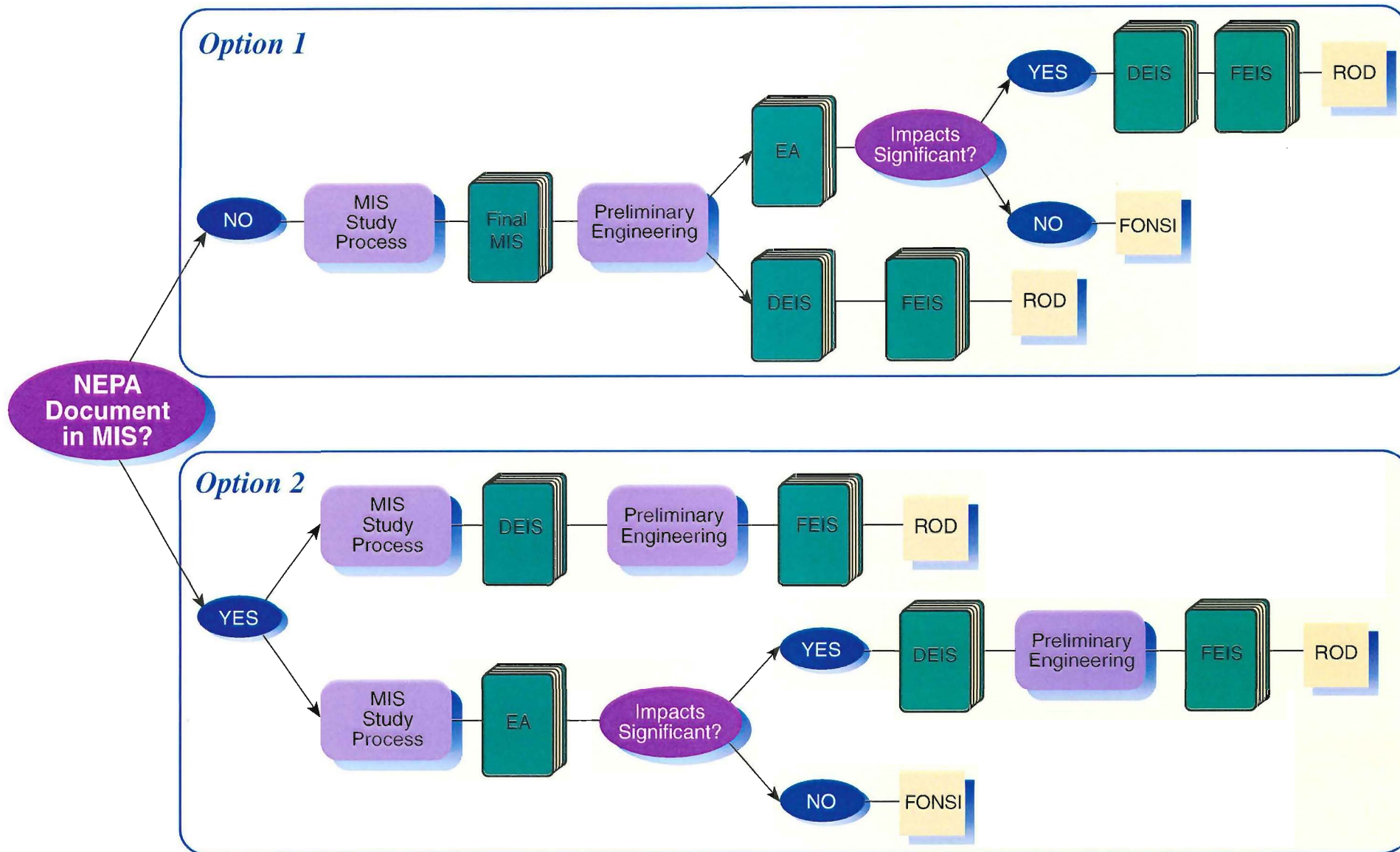
Prior to initiating the MIS/DEIS process for the MIC project, FDOT developed conceptual definitions for each MIC alternative, including the proposed locations and the modal options considered for serving the MIC. Early coordination with affected agencies and interested community organizations occurred during the conceptual development of alternatives. Through this process, environmental and engineering constraints and community concerns were analyzed to determine the most viable alternatives for the MIC, SR 836/SR 112 Interconnector and MIC/MIA Connector. These alternatives were brought before the Policy Steering Committee, which adopted the recommendation for the MIC alternatives on July 1, 1994; for the MIC/MIA corridor alternatives on August 3, 1994; and for the Interconnector corridor alternatives on July 1, 1994. The alternatives were included in FDOT's five-year work program and the MPO's *Transportation Improvement Program* and the *Transportation Plan and Improvement Priorities Long Range Element*, which is a financially constrained plan.

1.1.2 Role of the MIS/DEIS in Project Development

On October 28, 1993, the U.S. Department of Transportation issued *Rule 23, CFR 450*, outlining two options in regard to project planning and the NEPA process required for federally-funded transportation projects that are considered major investments (Figure 1). A major investment is defined as a "high-type highway or transit improvement of substantial cost that is expected to have a significant effect on capacity, traffic, level of service or mode share at the transportation corridor or sub-scale area."

- Option 1: A DEIS is prepared after a MIS has been completed and after a design concept and scope have been adopted by the MPO as part of its financially constrained long range plan. For this option, the DEIS focuses on design variations within the overall adopted design concept and scope.
- Option 2: A DEIS is prepared as part of the MIS. For this option, the MIS/DEIS presents all reasonable alternatives along with information on their costs, benefits and impacts. The MIS/DEIS leads ultimately to a decision on the preferred design concept and scope to be included in the MPO transportation plan.

Since it was decided that the MIC planning process should include early NEPA documentation, planning for the MIC has followed Option 2. In Option 2, *CFR 450* regulations require a broad range of alternatives to be examined in the MIS/DEIS according to NEPA guidelines. The MIS/DEIS identifies the type and severity of environmental consequences that could occur if any of the alternatives were implemented. Mitigation measures, including their order of magnitude costs and effectiveness in reducing an impact, also are determined. The total costs and benefits associated with each alternative are summarized and included in an evaluation of the alternatives. A comparison of the effectiveness of the alternatives in meeting the project goals and objectives also is included in the evaluation. A financial analysis presents the potential sources of funding for implementing



EA = Environmental Assessment
 DEIS = Draft Environmental Impact Assessment
 FEIS = Final Environmental Impact Assessment
 ROD = Record of Decision
 FONSI = Finding of No Significant Impact

Miami Intermodal Center

Figure 1
**ENVIRONMENTAL OPTIONS FOR A
 MAJOR INVESTMENT STUDY (MIS)**

ICF KAISER
 Bermello, Ajamil & Partners, Inc.

Source: ICF Kaiser, December 1995

each of the alternatives and the ability of the state, local and regional agencies to meet these cost requirements. The results of the environmental and financial analyses are used to compare the investment required for each alternative with the likely return on that investment. Trade-offs among alternatives are presented to facilitate selection of the Preferred Investment Strategy. Throughout the MIS/DEIS process, opportunities for comment have been provided to interested citizens and agencies with jurisdiction or expertise in the environmental technical work. Public involvement and review of the MIS/DEIS culminated with a notice of availability published in the *Federal Register* legally announcing a 45-day public comment period.

1.1.3 Public Comment Process and Decision at Hand

The 45-day public comment period (November 3, 1995 through December 18, 1995) on the MIC MIS/DEIS allowed the public and interested agencies the opportunity to cite concerns about the environmental assessment and evaluation of the project alternatives. The public comment period also offered the opportunity to suggest the preferred alternative(s) to FDOT. The comments are summarized and presented to FDOT prior to selection of the Preferred Investment Strategy. The elements of the Preferred Investment Strategy are presented for approval to the Dade County MPO for adoption into the Metro-Dade *Transportation Plan and Improvement Priorities Long Range Element*.

Following the selection of the Preferred Investment Strategy and its inclusion in the region's long range transportation plan, FDOT will apply for federal funding to perform preliminary engineering and to complete the Final Environmental Impact Statement (FEIS) for the Preferred Investment Strategy. The FEIS will incorporate and provide a summary of the comments and responses received during the public review process for the MIS/DEIS. Additionally, the FEIS will document all comments and issues raised through the public review process as well as design, cost, environmental or other changes that would have occurred since the approval of the DEIS. FDOT will review the FEIS to determine if all issues and/or comments received on the MIS/DEIS have been addressed. In addition, FHWA will determine if interagency agreements, developed as committed project mitigation measures, have been completed.

After FHWA review is completed, a Draft Record of Decision will be prepared. The FEIS is submitted to the U.S. Environmental Protection Agency (USEPA), who will place a notice of availability of the FEIS for public review in the *Federal Register*. Additionally, the FEIS is distributed to agencies that have previously commented on the MIS/DEIS. Thirty days after the notice of availability is published in the *Federal Register*, the FHWA may sign the Record of Decision and subsequently be requested by FDOT to grant location and design concept acceptance. FHWA may then authorize funding for final design, right-of-way acquisition and project construction.

1.2 PUBLIC HEARING SUMMARY

One Hundred and Sixty-three attendees were registered for the first public hearing held on December 5, 1995 at the Sheraton Biscayne Bay Hotel, located in downtown Miami, and 237 persons were registered for the hearing held on December 6, 1995 at the Radisson Mart Plaza Hotel, located approximately 8 miles west of the downtown area. Based on the number of seats provided by the two facilities, compared to the number of vacant seats during the formal sessions of both public hearings, it is estimated that over 300 persons actually attended each public hearing.

Relatively few recorded comments made at the hearings were directed towards the MIC. Responses were generally positive, with several speakers requesting details about construction dates, and several offering endorsements of the project. Some attendees who owned property in or near the study area sought clarification on potential impacts and possible acquisition schedules relative to their property.

Representatives from Budget Rent-A-Car raised issues related to the impact to the rental car industry at MIA, the customer convenience of the MIC/MIA Connector, passenger accessibility and baggage handling.

Certified court reporters took verbatim recordings of both public hearings. These documents have been finalized and are on file in the project's Public Information Program office for review.

1.3 WRITTEN COMMENT SUMMARY

Several civic organizations and transportation related groups have issued endorsements supporting the construction and development of the proposed MIC project.

One letter written by a private Dade County resident raises questions on issues such as baggage handling and traffic flow management, questioning the wisdom of locating the MIC outside of the airport's property. Another letter writer has expressed some concern over the extent of property acquisitions that would be necessary to allow construction of the SR 836/SR 112 Interconnector, as well as the visual impact of the proposed elevated roadway on the surrounding area.

Copies of all written comments have been filed at the project's Public Information Program office, and are available for review.

1.4 OTHER CONSIDERATIONS EXTERNAL TO THE MIC PROJECT

The following presents a brief discussion relative to other major projects external to the MIC that could result in design impacts as the project proceeds through final design and implementation. These projects are occurring simultaneously and will require close coordination throughout the project design process.

1.4.1 High Speed Rail

In 1991, FDOT began a process to accept proposals from the private sector in an effort to implement high speed rail (HSR) from Tampa to Miami. The process is designed to develop a partnership between government and the private business community.

In 1995, FDOT formally issued a Request for Proposals (RFP) to solicit technically feasible and financially sound plans from private entities to bring the vision of HSR to fruition in Florida. FDOT received five responses to the RFP and is currently reviewing those proposals. Three of the teams responding to the proposal would bring HSR into the MIC from the north using the existing rail corridor. One proposer would bring HSR in from the west following the SR 836 alignment to a location in the vicinity of Le Jeune Road and entering MIA or the MIC. One proposer is nonspecific about the alignment entering the MIC. If the HSR proposal from the west is selected, the Critical Area Approach-Departure Surface for MIA Runway 12/30, the proposed East-West Corridor rail, and the proposed SR 836/SR 112 Interconnector and Le Jeune Road interchange would cause severe engineering constraints for HSR entering the MIC. The exact vertical and horizontal alignment of HSR in this area has not been determined. If the proposal for HSR from the west is selected by FDOT, considerable coordination with the HSR design team will be required.

1.4.2 Strategic Airport Terminal Planning Study

The MIC conceptual program currently includes a total of 167,640 sq m (550,000 sf) of MIA landside terminal functions, along with 3,000 long term and 300 employee parking spaces to be located at the MIC by 2020. DCAD is currently conducting a long-term strategic airport planning study intended to identify options for future terminal expansion. Some of these options may include additional MIA terminal functions located at or adjacent to the MIC prior to 2020.

Study options range from having the MIC provide a supporting role, containing a limited quantity of airport landside functions (as currently planned), to locating all or most airport landside functions at the MIC and leaving the existing terminal area west of Le Jeune Road with airside functions only. It is likely that at the completion of the strategic study, the ultimate relationship between MIA and the MIC will fall somewhere in between these options.

Other goals of the strategic airport are to analyze alternatives for the MIA surface roadway system in order to alleviate congestion on terminal access roads and develop a cost/feasibility analysis to support the proposed strategic plan.

The final design for the MIC will be influenced by the type and extent of MIA facilities identified for location at the MIC. This influence may be minimal, or as in the case of substantial relocation of landside facilities east of Le Jeune Road, may greatly impact the planning and design of the MIC and related facilities. The MIA Strategic Planning Study team is expected to present preliminary recommendations early in 1996.

2.0 TRADE-OFF ANALYSIS

This section summarizes advantages and disadvantages among the options studied for the MIC Core, the SR 836/SR 112 Interconnector and the MIC/MIA Connector. Evaluation matrices and diagrams are included to compare each set of component alternatives.

2.1 MIAMI INTERMODAL CENTER (MIC) SITE 3 OR MIC SITE 4

MIC Site 3, generally defined by NW 25th Street, NW 37th Avenue, NW 22nd Street and NW 39th Avenue, could more readily accommodate the heavy rail modes that would access the site from the north. The existing rail right-of-way would lead directly into the area of MIC Site 3, thereby minimizing the complexity of the trackwork required for the heavy rail modes. Site 3's advantage in accommodating heavy rail modes is presented in the summary evaluation matrix in Table 1.

MIC Site 3 would incur lower capital, operating and maintenance costs, and offer greater passenger convenience compared to Site 4, (generally defined by NW 25th Street, NW 35th Avenue, NW 22nd Street and NW 37th Avenue). Site 4 would also require additional right-of-way, more complex curving trackwork to enter the site, and increased vertical circulation for the heavy rail modes. Sites 3 and 4 are shown in Figure 2.

The future HSR alignment, proposed to continue east and serve the Miami CBD, must have a 23 m (75 ft) vertical clearance to span the navigable waterway of the Miami Canal. At MIC Site 4, this can be accomplished only if the HSR platform is located at Level 3, resulting in additional cost, increased vertical clearance and passenger inconvenience compared to MIC Site 3. MIC Site 3 allows for future HSR to operate at Level 2. The station platform at Level 2 could provide the opportunity for future MIC Core expansion and allow MIC access roads to remain at-grade. At MIC Site 4, because the platform for HSR would be located at Level 3, other heavy rail platforms, i.e., Tri-Rail, Amtrak and Metrorail, as well as vehicular circulation, would also have to be located at Level 3 so as not to restrict the flexibility of the MIC Core functional configuration for future expansion.

MIC Site 3 also offers the advantage of a more proximate location to the MIA passenger terminal area. Because of its proximity, the guideway for the MIC/MIA Connector from MIC Site 3 would be shorter in length than for MIC Site 4, thereby reducing MIC/MIA Connector construction costs. Similar cost advantages would be realized for the MIC/MIA service tunnel and MIC access roads. Additionally, MIC Site 3 would offer potential savings in land acquisition costs and a greater opportunity for joint development east of the site. However, in the case of Site 3, future westerly expansion of the MIC Core and the development of rental car facilities may be constrained by the Ramada Hotel building. Although MIC Site 4 is not constrained by existing structures, the site is not conducive to optimal joint development opportunities.

2.2 SR 836/SR 112 INTERCONNECTOR ALIGNMENT OPTION A, B OR C

The three SR 836/SR 112 Interconnector alignment options under consideration are shown in Figure 3. SR 836/SR 112 Interconnector Alignment Option A has the advantage of being located on DCAD property immediately west of Le Jeune Road. If right-of-way were provided by DCAD, this alignment would avoid displacing existing businesses to the east of Le Jeune Road and, as a result, would have the lowest property acquisition costs of the three alignment options. Because the alignment would avoid much of the existing built-up area, Option A is more compatible with existing and future land uses and also presents the lowest level of potential contamination remediation work.

Evaluation Criteria	Site 3 - Central	Site 4 - Southeast
1. Accommodation of MIA-related Functions	●	●
2. Accommodation of Metrorail	●	●
3. Accommodation of Tri-Rail	●	●
4. Accommodation of Amtrak/HSR	●	●
5. Accommodation of East-West Corridor Rail	●	●
6. Accommodation of Bus and Vehicular Access	●	●
7. Accommodation of MIC/MIA Connector	●	●
8. Compatibility with Community/Land Use	●	●
9. Impacts to Regional Planned Development	●	●
10. Enhancement of Joint Development Opportunities	●	●
11. Displacement and Relocation Impacts	●	●
12. Impacts to Neighborhoods	●	●
13. Impacts to Cultural Resources	●	●
14. Visual and Aesthetic Impacts	●	●
15. Impacts to Parklands and 4(f) Resources	●	●
16. Noise Impact	●	●
17. Freight Impact	●	●
18. Utility Impact	●	●
19. Navigation Impact	●	●
20. Impacts to Air Quality	●	●
21. Contamination Impacts	●	●
22. Capital Costs		
MIC Facilities, Rail At-Grade	●	●
MIC Facilities, Rail Elevated	●	●
MIC/MIA Connector	●	●
MIA Landside Expansion	●	●
Rental Car Facilities	●	●
23. Operating & Maintenance Costs		
MIC Facilities, Rail At-Grade	●	●
MIC Facilities, Rail Elevated	●	●
MIC/MIA Connector	●	●
MIA Landside Expansion	●	●
Rental Car Facilities ("Hub" Concept Only)	●	●




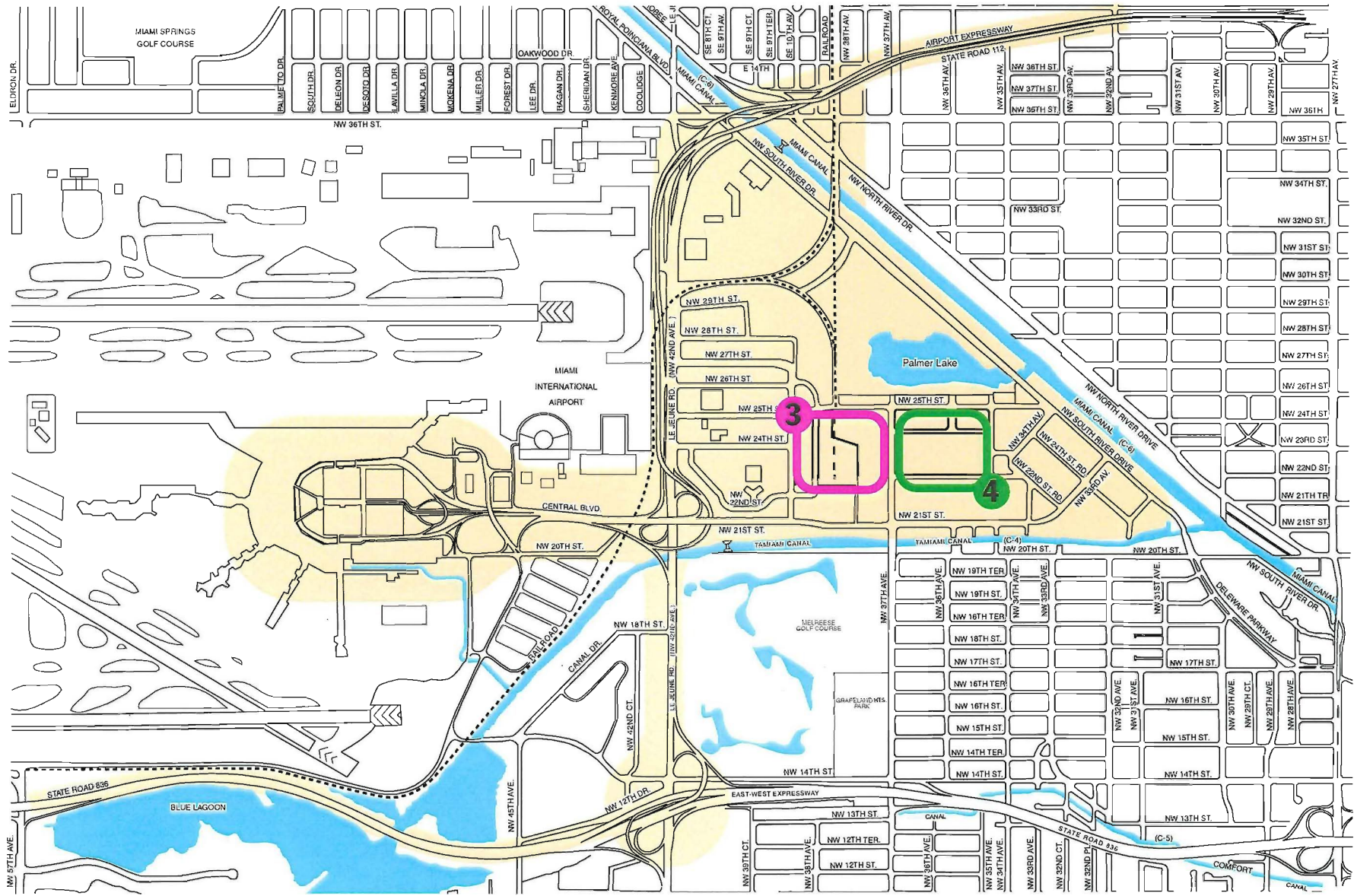
 Good
 Average
 Poor

Table 1
**MIC CORE:
EVALUATION MATRIX**



Source: ICF Kaiser, December 1995





Not to Scale

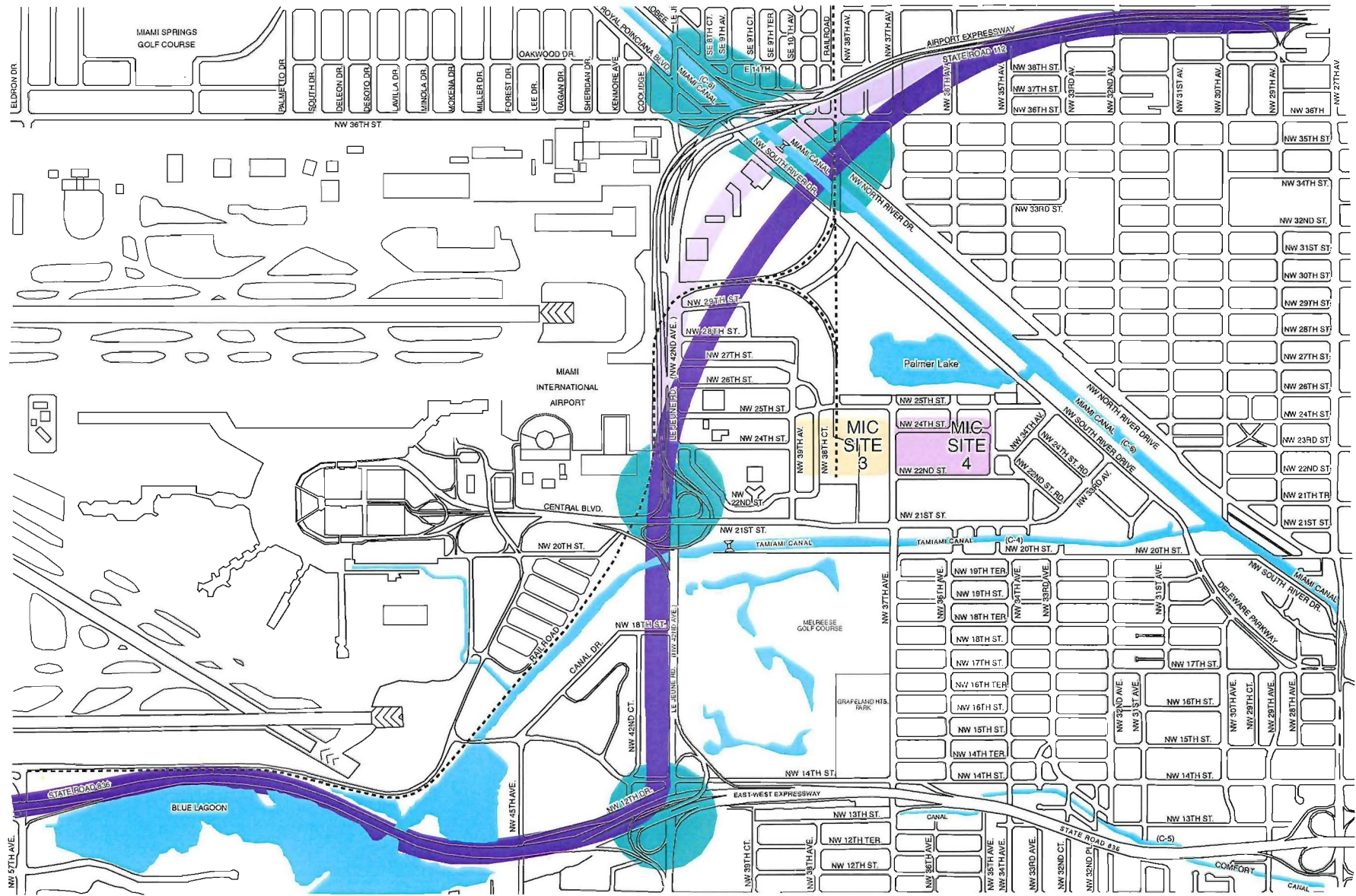
LEGEND

-  Recommended Site for MIC Core
-  Study Area



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Figure 2
MIC SITES 3 AND 4



Not to Scale

LEGEND

- Option A
- Option B
- Option C
- Interchanges



Miami Intermodal Center

Figure 3 SR 836/SR 112 INTERCONNECTOR ALIGNMENT OPTIONS

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Source: ICF Kaiser, January 1996

The primary disadvantage of Option A is that it would pass through the Critical Area Approach - Departure Surface for MIA Runway 27R. The elevation of the SR 836/SR 112 Interconnector would be limited by the approach surface of Runway 27R. A lower elevation of the SR 836/SR 112 Interconnector would conflict with the operation of the CSXT railroad west of Le Jeune Road and may preclude relocation of the railroad track underneath the Interconnector. As an alternative, the railroad could be relocated to the east side of Le Jeune Road. The relocation would displace existing businesses in this area. Option A would also force relocation of Le Jeune Road near SR 112 and preclude construction of a proposed SR 836/SR 112 Interconnector interchange at MIA because of the minimal weaving distance between the MIA access road and the proposed interchange. The greater length of the alignment and the complex requirements for reconstruction of the existing SR 112 ramp system would make Option A the most expensive to construct. The relocation costs for this alignment would increase substantially if DCAD property were not available and the roadway needed to be constructed east of the existing right-of-way along Le Jeune Road.

Alignment Option B has many of the same disadvantages as Option A. The location of Option B within the Critical Area Approach - Departure Surface of Runway 27R would limit the elevation of the SR 836/SR 112 Interconnector, requiring the relocation of the existing CSXT railroad. In addition, the Interconnector would not be able to cross over Le Jeune Road and provide the required clearance underneath the runway approach surface. Option B would preclude the implementation of the SR 836/SR 112 Interconnector interchange at MIA for the same reasons described for Option A.

Alignment Option B would traverse the area of the "Triangle" where many major businesses that contribute to the tax base of the City of Miami Springs are located. These businesses would be displaced, producing the highest acquisition and relocation costs of all the alignment options. Since the alignment would bisect the apex of the "Triangle", the opportunity for future development would be limited. The combination of extensive property acquisition and relocation, contamination remediation and reconstruction of the existing SR 112 ramp system would give Option B the highest capital cost.

Unlike the other options, Alignment Option C would not be significantly restricted by the runway approach departure surface for Runway 27R. The elevation of the SR 836/SR 112 Interconnector could be maintained to allow improved traffic circulation and the relocation of CSXT railroad track. In addition, Option C would allow the construction of the SR 836/SR 112 Interconnector interchange at MIA. Option C would have the shortest alignment and cause fewer impacts to the existing SR 112 ramp system compared to Options A and B, requiring lower construction costs. The alignment would cross the "Triangle" where a number of businesses and residences are located. The level of displacement would be more extensive than for Options A and B, yet the costs associated with acquisition and relocation are expected to be less than Option B. After relocation of the existing uses and remediation of contaminants, sufficient land would be available for additional planned development in the northern area of the "Triangle". A summary evaluation matrix for the three options is presented in Table 2.

2.3 MIC/MIA CONNECTOR WITH TERMINAL STATION BELOW GRADE, AT-GRADE OR ELEVATED

The MIC/MIA Connector linking MIC Site 3 and MIA would have a shorter guideway, with fewer and less costly property acquisitions than a system linking MIC Site 4. As a result, the MIC/MIA Connector options originating at MIC Site 3 would have correspondingly lower construction and maintenance costs. The variation in the costs between MIC Site 3 or MIC Site 4, however, is minor compared with the variation in costs among the three MIC/MIA Connector alignment and station options.

Of the three alignment/station options considered, the below grade option, shown in Figure 4, includes an underground station between the MIA parking garage structures that would incur the greatest capital cost. The costs associated with contamination remediation and the relocation of existing utilities would add to the expense

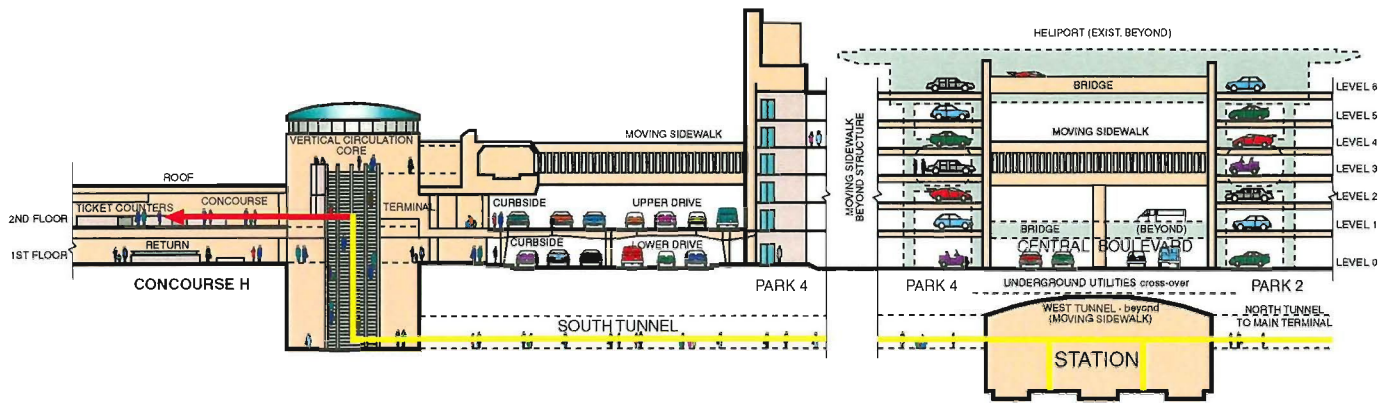
Evaluation Criteria	Option A	Option B	Option C
1. Optimized Constructability and Phasing	●	●	●
2. Optimized MIC Area Circulation	●	●	●
3. Accommodation of MIC/MIA Connector	●	●	●
4. Accommodation of East-West Corridor Rail	●	●	●
5. Accommodation of Tri-Rail, Amtrak & HSR	●	●	●
6. Impacts to SR 112	●	●	●
7. Impacts to Central Boulevard Interchange	●	●	●
8. Consistent with MPO HOV Plans	●	●	●
9. Impacts to FAA Runway Protection Zones	●	●	●
10. Compatibility with Community/Land Use	●	●	●
11. Impacts to Regional Planned Development	●	●	●
12. Enhancement of Joint Development Opportunities	●	●	●
13. Displacement and Relocation Impacts	●	●	●
14. Impacts to Neighborhoods	●	●	●
15. Impacts to Cultural Resources	●	●	●
16. Visual and Aesthetic Impacts	●	●	●
17. Impacts to Parklands and 4(f) Resources	●	●	●
18. Impacts to Wetlands	●	●	●
19. Noise Impacts on Sensitive Receptors	●	●	●
20. Contamination Mitigation Evaluation	●	●	●
21. Capital Costs			
Construction Costs	●	●	●
Property Acquisition Costs	●	●	●
22. Operating & Maintenance Costs	●	●	●

● Good
● Average
● Poor

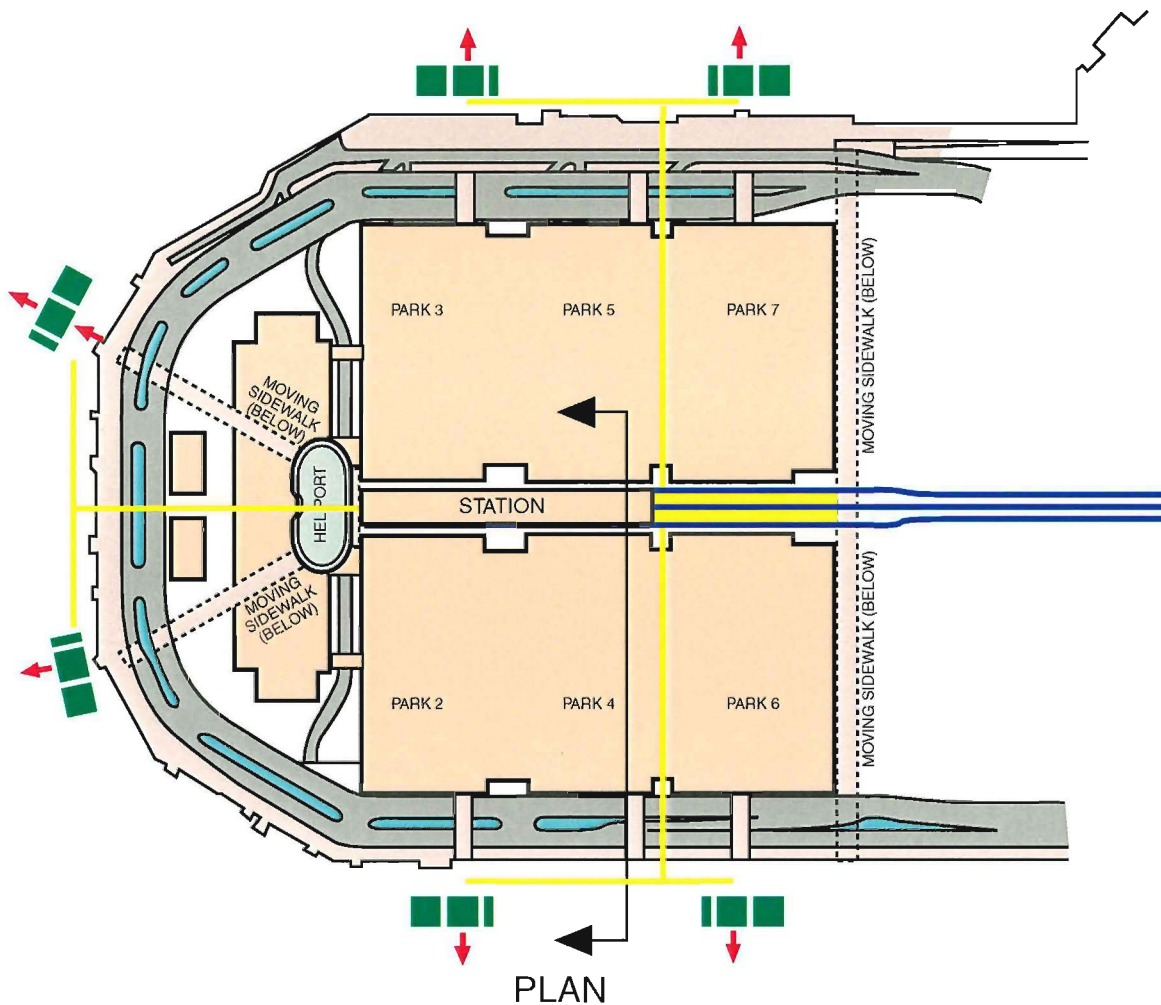


Table 2
**SR 836/SR 112 INTERCONNECTOR:
EVALUATION MATRIX**

Source: ICF Kaiser, December 1995



SECTION



PLAN

Not to Scale

LEGEND

- MIC/MIA Connector
- Pedestrian Circulation - Assisted
- Pedestrian Circulation - Non-Assisted
- Vertical Circulation Cores



Miami Intermodal Center

Figure 4
**MIC/MIA CONNECTOR
ALIGNMENT OPTION C-1:
BELOW GRADE**



Source: ICF Kaiser, December 1995

of tunneling and building a station below grade. Shoring and modifications to existing structures including the underpinning of the existing parking structures may be required. Although access to the parking garage complex from Central Boulevard may be somewhat impeded during construction, alternate access could be provided from Upper and Lower drives. Construction would neither impede circulation on the Upper and Lower drives nor affect the existing ground transportation system. A station below grade would provide the most direct and convenient access to the MIA passenger terminal at the baggage claim level and offer greater flexibility with respect to future expansion at MIA.

The capital cost for an elevated alignment and station, shown in Figure 5, would be nearly half the cost of the below grade option. An elevated station at MIA would offer direct access to the MIA passenger terminal Skyride system. The direct pedestrian access would enhance the safety and comfort of MIC/MIA Connector patrons traveling between the station and the MIA terminal. An elevated structure would also have minimal impact on existing utilities and would free the ground plane for circulation. Guideway structural supports could be positioned so that access to the parking garage complex from Central Boulevard could be maintained.

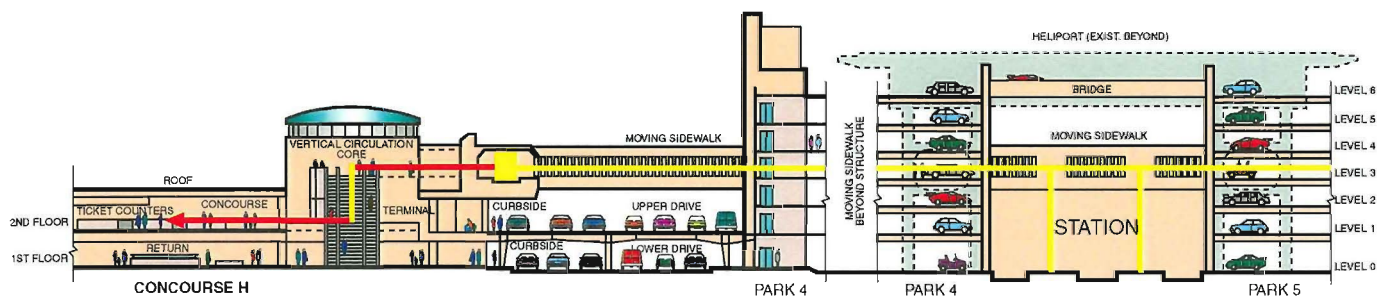
Locating the guideway and MIA station at-grade, as shown in Figure 6, represents the option with the lowest capital cost. The support structures for the elevated alignment and cut and cover construction for the below grade alignment produce construction costs of 75 percent and 150 percent respectively, higher than for the at-grade option. However, construction of the at-grade option would disrupt circulation along Upper and Lower drives and the access to the MIA parking garage complex from Central Boulevard. Pedestrian access between an at-grade station and the MIA passenger terminal would be compromised unless a traffic-controlled or grade-separated crossing of Lower Drive is installed. The at-grade option would also restrict ground level circulation and constrain flexibility for future expansion at MIA. A summary comparison evaluation matrix is shown in Table 3.

Three potential sites for the temporary storage and maintenance facility for MIC/MIA Connector vehicles have been identified. These potential sites are shown in Figure 7. The site at the existing DCAD employee parking lot would be the most expensive to construct and maintain because of the additional guideway required to reach the remote location along NW 14th Street. The other potential locations, on DCAD property immediately west of Le Jeune Road and north of Central Boulevard and at the eastern edge of the MIC Core, would require minimal additional guideway to access these sites. As a result, these two sites would be approximately 150 percent less expensive to construct than the DCAD employee parking lot site.

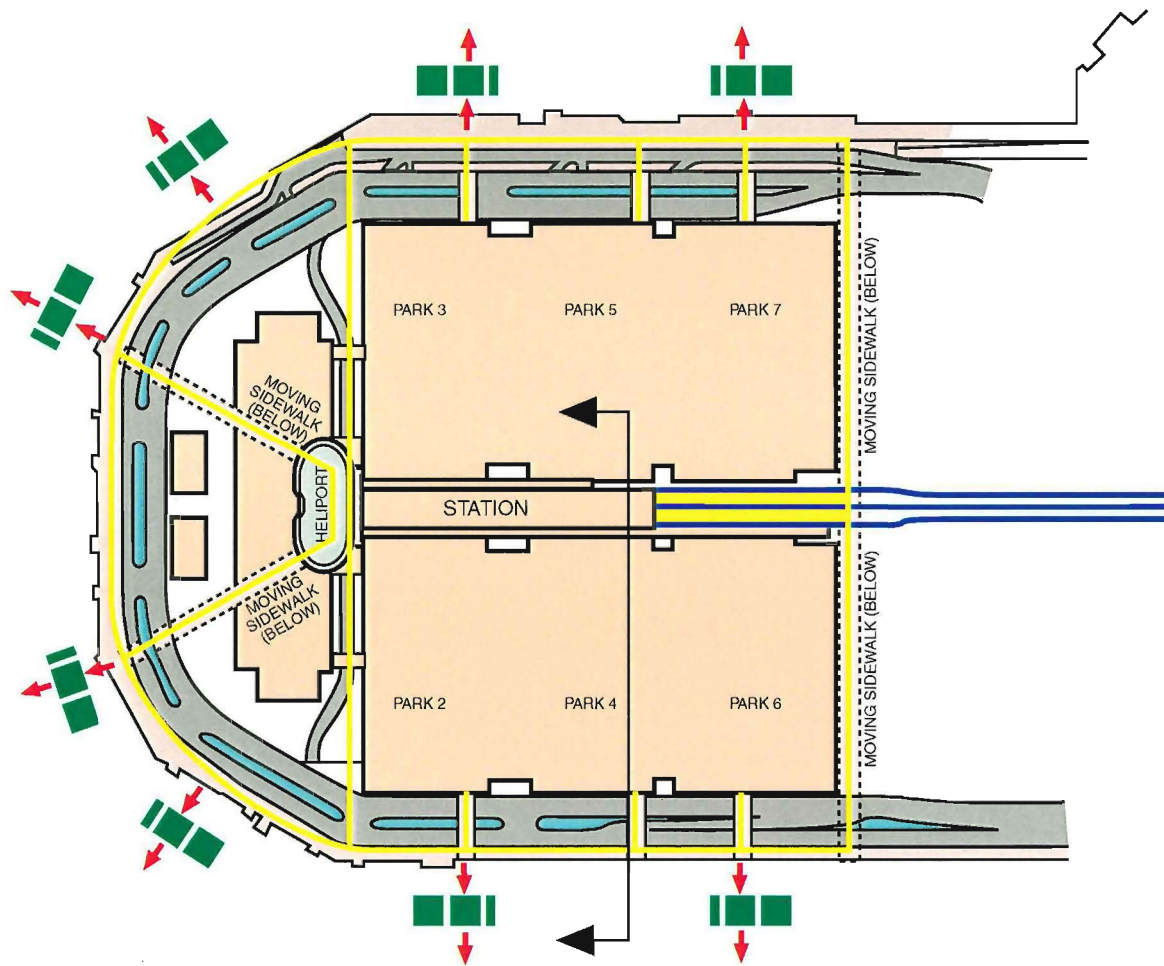
The site immediately west of Le Jeune Road offers several other advantages. The site would be located along the guideway and would incur no additional costs for linking the guideway with the temporary storage and maintenance facility. In addition, the temporary facility could contain provisions for a future intermediate station to serve MIA terminal expansion, thus off-setting some of the costs of the temporary facility. The site at the eastern edge of the MIC Core options would require an extension of the guideway beyond MIC Site 3 or MIC Site 4 and would restrict joint development at this location in the short-term. As soon as operationally feasible, the temporary facility could be replaced and joint development on the site could commence. The permanent location of the storage and maintenance facility is subject to a future technology determination and coordination with the East-West Multimodal Corridor Rail Study.

2.4 CONCEPTUAL COST ESTIMATE AND MIC PHASING PLAN

The capital, operating and maintenance costs associated with the implementation of the MIC Core facility, the SR 836/SR 112 Interconnector and the MIC/MIA Connector are summarized in Tables 4 and 5. The construction of the MIC project would be phased over a 20-year period.



SECTION



PLAN

Not to Scale

LEGEND

- MIC/MIA Connector
- Pedestrian Circulation - Assisted
- Pedestrian Circulation - Non-Assisted
- Vertical Circulation Cores

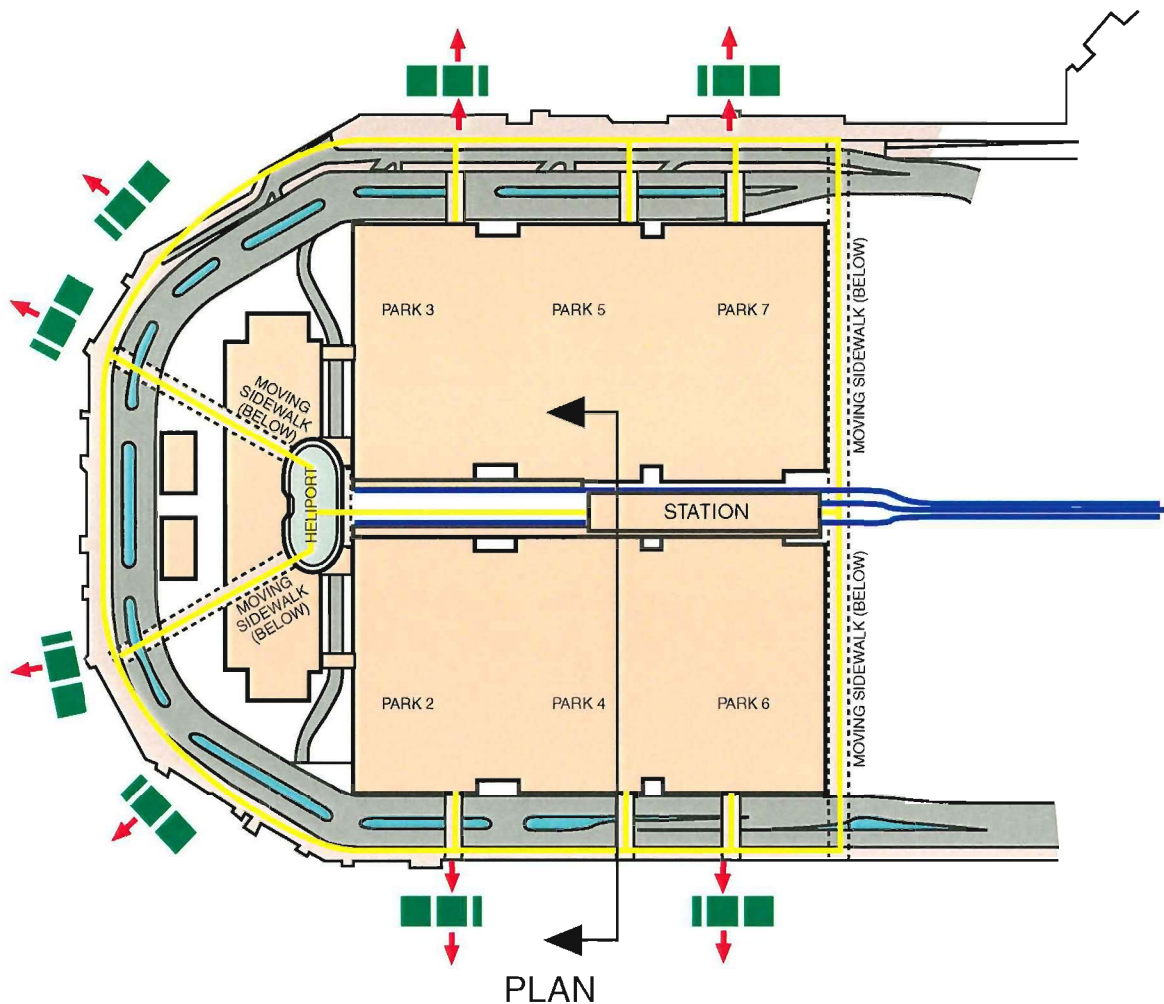
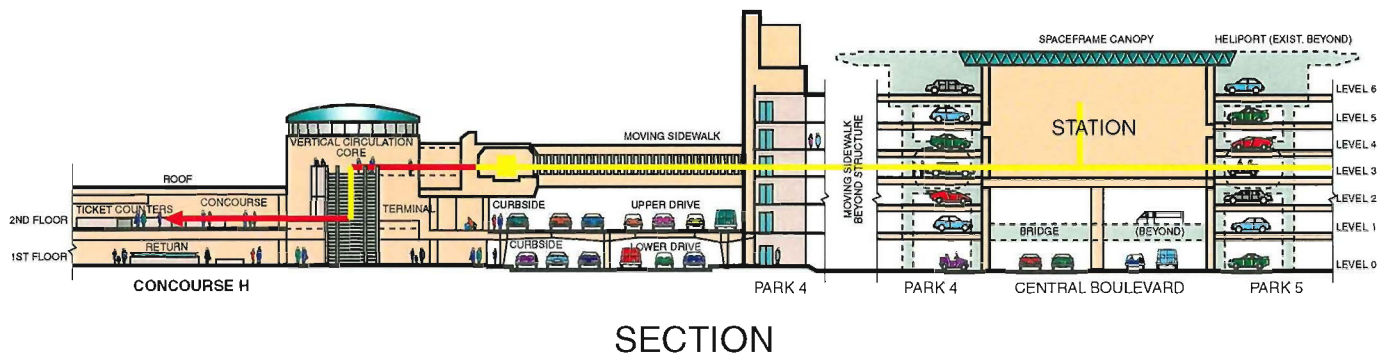


Miami Intermodal Center

Figure 5
**MIC/MIA CONNECTOR
ALIGNMENT OPTION C-2:
AT-GRADE**



Source: ICF Kaiser, December 1995



Not to Scale

LEGEND

- MIC/MIA Connector
- Pedestrian Circulation - Assisted
- Pedestrian Circulation - Non-Assisted
- Vertical Circulation Cores



Figure 6
**MIC/MIA CONNECTOR
ALIGNMENT OPTION C-3:
ELEVATED**



Source: ICF Kaiser, December 1995

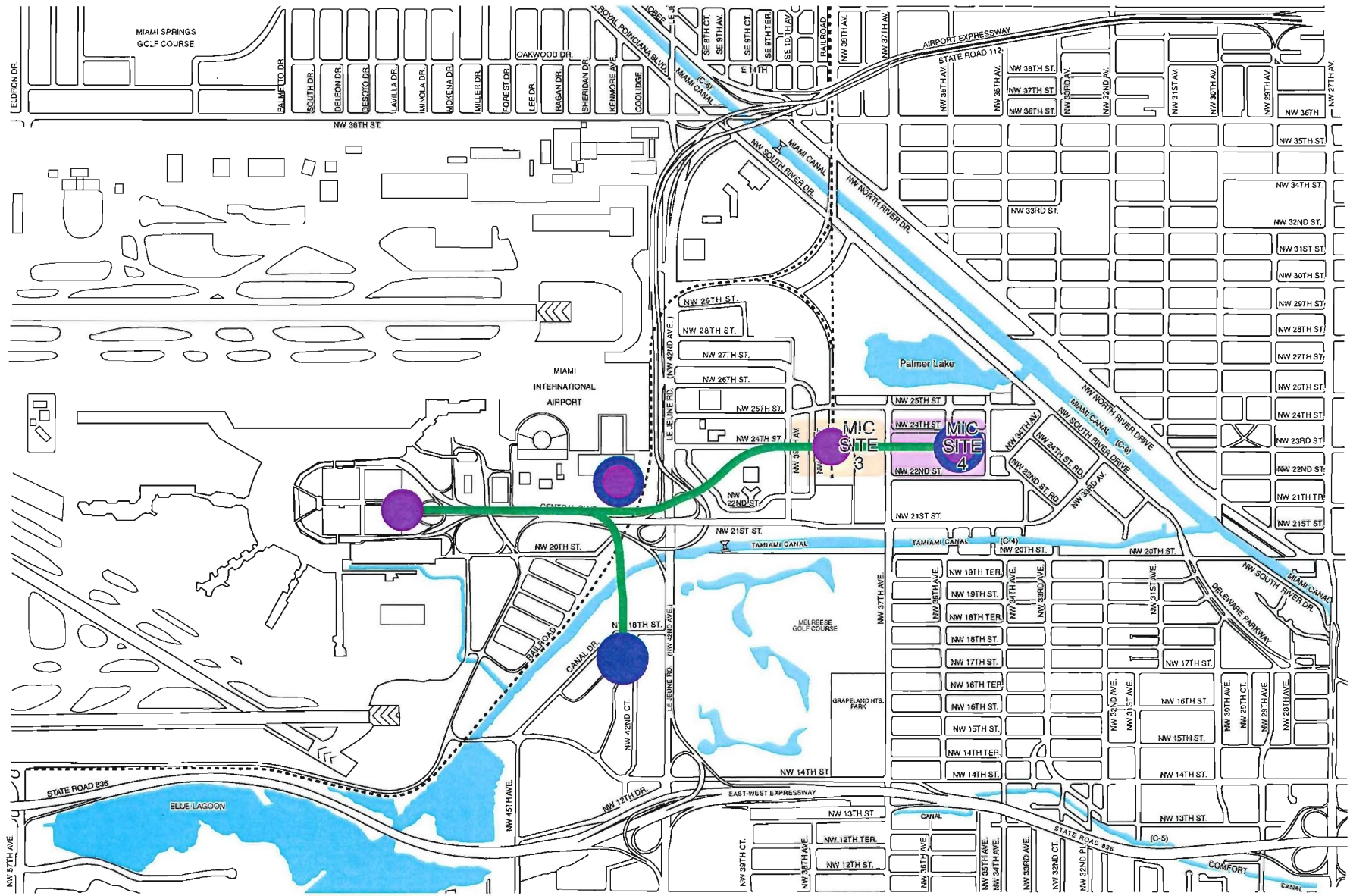
Evaluation Criteria	Underground (C-1)	At-Grade (C-2)	Elevated (C-3)
1. Impact on MIA Terminal Structures	●	●	●
2. Impact on MIA Parking Garages	●	●	●
3. Impact on Ground Transportation Systems	●	●	●
4. Impact on Utility Infrastructure	●	●	●
5. Station Accessibility to MIA Terminal	●	●	●
6. Passenger Comfort and Safety	●	●	●
7. Compatibility with Planned Expansion at MIA	●	●	●
8. Construction Impact on MIA Terminal Operations	●	●	●
9. Constr. Impact on Ground Transp. Operations	●	●	●
10. Compatibility with Community/Land Use	●	●	●
11. Impacts to Regional Planned Development	●	●	●
12. Displacement and Relocation Impacts	●	●	●
13. Impacts to Neighborhoods	●	●	●
14. Impacts to Cultural Resources	●	●	●
15. Visual and Aesthetic Impacts	●	●	●
16. Impacts to Parklands and 4(f) Resources	●	●	●
17. Impacts to Wetlands	●	●	●
18. Contamination Mitigation Evaluation	●	●	●
19. Capital Costs			
Construction Costs	●	●	●
Design and Administration	●	●	●
Property Acquisition Costs	●	●	●
20. Operating & Maintenance Costs	●	●	●

● Good
● Average
● Poor



Table 3
**MIC/MIA CONNECTOR:
EVALUATION MATRIX**

Source: ICF Kaiser, December 1995



Not to Scale

LEGEND

- Potential Station Locations
- Potential Vehicle Storage and Maintenance Sites



Miami Intermodal Center

Figure 7 MIC/MIA CONNECTOR ALIGNMENT AND RELATED FACILITIES

ICF KAISER
Bermello, Ajamil & Partners, Inc.

Source: ICF Kaiser, December 1995

TABLE 4

CONCEPTUAL CAPITAL COST ESTIMATE SUMMARY
(in millions of 1995 dollars - rounded to nearest ten thousand dollars)

Component Alternative	Construction	Design and Admin @ 25%	Contingency @ 25%	Property Acquisition	MIC/MIA Vehicles	TOTAL
MIC Facilities (includes MIC area roadway)						
MIC-1 - Site 3, Rail At-Grade	\$179.60	\$44.90	\$44.90	\$73.65		\$343.05
MIC-2 - Site 3, Rail Elevated	\$123.71	\$30.93	\$30.93	\$73.65		\$259.22
MIC-3 - Site 4, Rail At-Grade	\$211.74	\$52.93	\$52.93	\$78.28		\$395.89
MIC-4 - Site 4, Rail Elevated	\$126.99	\$31.75	\$31.75	\$78.28		\$268.76
SR 836/SR 112 Interconnector						
Option "A"	\$245.50	\$61.37	\$61.37	\$ 59.72		\$427.96
Option "B"	\$236.66	\$59.16	\$59.16	\$137.64		\$492.63
Option "C"	\$232.87	\$58.22	\$58.22	\$106.16		\$455.46
MIC/MIA Connector (includes station facilities at the MIC)						
MIC Site 3						
Underground Station at MIA	\$203.30	\$50.82	\$50.82	\$9.50	\$14.00	\$328.44
At-Grade Station at MIA	\$ 75.91	\$18.98	\$18.98	\$9.50	\$14.00	\$137.36
Elevated Station at MIA	\$107.03	\$26.76	\$26.76	\$9.50	\$14.00	\$184.04
MIC Site 4						
Underground Station at MIA	\$207.30	\$51.82	\$51.82	\$24.63	\$14.00	\$349.58
At-Grade Station at MIA	\$ 79.91	\$19.98	\$19.98	\$24.63	\$14.00	\$158.50
Elevated Station at MIA	\$111.03	\$27.76	\$27.76	\$24.63	\$14.00	\$205.18
Temporary Storage Facility						
East Storage Facility	\$10.51	\$2.63	\$2.63			\$15.76
Intermediate Storage Facility	\$7.46	\$1.87	\$1.87			\$11.19
DCAD Lot Storage Facility	\$25.46	\$6.36	\$6.36			\$38.19
MIA Landside Expansion (Phase 2)						
Site 3 - Facility and Parking	\$88.30	\$22.08	\$22.08	\$13.06		\$145.51
Site 4 - Facility and Parking	\$88.30	\$22.08	\$22.08	\$15.91		\$148.36
MIA Service Tunnel	\$60.00	\$15.00	\$15.00			\$90.00
Rental Car Facilities						
Site 3 - "Hub" Concept	\$94.80	\$23.70	\$23.70	\$17.36		\$159.56
Site 4 - "Hub" Concept	\$94.80	\$23.70	\$23.70	\$18.00		\$160.20
Site 3 - "Park" Concept	\$94.80	\$23.70	\$23.70	\$17.36		\$159.56
Site 4 - "Park" Concept	\$94.80	\$23.70	\$23.70	\$18.00		\$160.20

Source: ICF Kaiser Engineers, Inc.; May 1995.

TABLE 5

CONCEPTUAL OPERATING & MAINTENANCE COST ESTIMATE SUMMARY
(in millions - rounded to nearest ten thousand dollars)

Component Alternative/ Option	O&M Cost Estimate/Year	NOTES
MIC Facilities (includes MIC area roadways)		
MIC-1 - Site 3, Rail At-Grade	\$5.61	Includes MIC area roadways and heavy rail
MIC-2 - Site 3, Rail Elevated	\$5.22	Includes MIC area roadways and heavy rail
MIC-3 - Site 4, Rail At-Grade	\$5.67	Includes MIC area roadways and heavy rail
MIC-4 - Site 4, Rail Elevated	\$5.25	Includes MIC area roadways and heavy rail
SR 836/SR 112 Interconnector		
Option "A"	\$0.28	O&M Cost @ \$3,520/lane/km/year
Option "B"	\$0.28	O&M Cost @ \$3,520/lane/km/year
Option "C"	\$0.28	O&M Cost @ \$3,520/lane/km/year
MIC/MIA Connector		
MIC Site 3		
Underground Station at MIA	\$2.32	
At-Grade Station at MIA	\$2.32	
Elevated Station at MIA	\$2.32	
MIC Site 4		
Underground Station at MIA	\$2.39	
At-Grade Station at MIA	\$2.39	
Elevated Station at MIA	\$2.39	
MIC Station Facilities		
Complete MIC Station		O&M Cost included in MIC/MIA Connector MIC Site Alternatives
Temporary Storage Facility		
East Storage Facility		O&M Cost included in MIC/MIA Connector MIC Site Alternatives
Intermediate Storage Facility		O&M Cost included in MIC/MIA Connector MIC Site Alternatives
DCAD Lot Storage Facility		O&M Cost included in MIC/MIA Connector MIC Site Alternatives
MIA Landside Expansion (Phase 2)		
MIC Site 3 - Facility and Parking	\$6.13	
MIC Site 4 - Facility and Parking	\$6.13	
MIA Service Tunnel	\$0.60	O&M cost @ 1% of construction cost/year
Rental Car Facilities		
Site 3 - "Hub" Concept	\$3.00	O&M cost @ \$10.76/sq m/year (\$1/sq ft/year)
Site 4 - "Hub" Concept	\$3.00	O&M cost @ \$10.76/sq m/year (\$1/sq ft/year)
Site 3 - "Park" Concept		Because the "park" concept requires facilities to be built, operated and maintained by car rental companies, O&M are not included.
Site 4 - "Park" Concept		Because the "park" concept requires facilities to be built, operated and maintained by car rental companies, O&M are not included.

Source: ICF Kaiser Engineers, Inc.; May 1995.

In the phasing plan, construction would occur simultaneously on the MIC Core facilities, rental car facilities, MIC/MIA Connector, SR 836/SR 112 Interconnector and the MIC area roadways. However, the MIC Core would be completed in two phases, reflecting the two-step expansion of the MIA landside facilities at the MIC. Similarly, the SR 836/SR 112 Interconnector would also have a staged construction schedule due to the complexity of the project and the extent of ramp work required for providing access to the MIC and the MIA passenger terminal area. The conceptual construction phasing plan is shown in Table 6.

2.5 FINANCIAL FEASIBILITY

The MIC financial plans were developed in parallel with the MPO's Long Range Transportation Planning process. A series of meetings involving the MPO, FDOT, MDTA, FHWA, DCAD, Port of Miami and FAA were held to coordinate financial plans for the MIC the SR 836/East West Corridor MIS/DEIS and avoid competition for the same revenue streams. The MIC is linked to the East-West Multimodal Corridor MIS/DEIS, yet is functionally independent and will be financed separately.

The MIC project alternative encompasses numerous combinations of build alternatives. Rather than test all cases, the lowest and highest packages were examined, along with a mid-range scenario. The financial implications of the intermediate cases are assumed to fall within the envelope established by the extremes. A No-Action alternative is assumed to be fully-funded within the regional Transportation Improvement Plan (TIP).

The annual revenue and expenditure requirements for each of the sample build alternatives are analyzed through 2025. A 30-year analysis period is applied due to the extended character of the build-out period and the need for long-term financing arrangements to support project outlays. The high level of transportation investment anticipated in all modes over the next 20 years in Dade County makes a pay-as-you-go strategy for major investment projects infeasible. In addition to reviewing capital cash flows, the financial analysis incorporates the future operating costs and revenues associated with the MIC and a risk assessment.

Project capital costs include land acquisition, construction, a design and administration factor of 25 percent, and a contingency factor of 25 percent. Costs are inflated at a rate of 3.5 percent per year and revenues are all presented in year-of-expenditure (inflated) dollars. The MIC requires design consideration and land acquisition investment to accommodate future modes, such as Metrorail and HSR. Preservation of rights-of-way in order to optimize future modal linkages is one of the primary intermediate objectives of the MIC. In recognition of this "host" role, the financial projections assume that the construction costs of externally-funded transportation investments are paid by others; however, all land acquisition costs are absorbed by the MIC.

In most cases, the MIC capital plan provides a rough interface for connecting modes. The cost of constructing and operating the necessary guideways, rolling stock, systems and station elements is not included in the MIC costs and is to be borne by the tenant mode. Exceptions are the MIC/MIA Connector, which is included in the MIC capital and operating costs but will be funded by MIA, Tri-Rail, which will be relocated from its new station on the MIC site, and MDTA's bus bays on the lower level of the MIC. The East-West Corridor rail link, HSR, Amtrak and other Metrorail connections will all be funded outside of the MIC program. Major elements, such as the rental car, public parking and landside MIA terminal facilities, will be developed incrementally, as driven by capacity expansion requirements, and will be amortized by rents from private parties.

A majority of the MIC project components will be funded from MIA revenue sources available to MIA. The MIA-related elements include: the MIC/MIA Connector, a total of 51,100 sq m (550,000 sq ft) of terminal expansions, 3,000 long-term parking spaces and a service tunnel. At this time, MIA has a capital program of approximately \$1.3 billion that is anticipated to be completed by 2005. An additional \$2.3 billion of construction projects are under consideration. The financial capacity of MIA to fund the airport-related elements of the MIC is a function of the extent to which current passenger growth projections are realized, as well as forthcoming decisions establishing priority among future airport investment projects.

TABLE 6

**CONCEPTUAL PROJECT CONSTRUCTION PHASING PLAN
PROJECT DESCRIPTIONS/IMPLEMENTATION YEAR**

YEAR	COMPONENT/PROJECT
MIC	
5,6,7	MIC "Core Facility" Alternative MIC-3: Level 1 concourse, level 2 concourse, vertical circulation, MIC support facilities, baggage handling facilities, bus facility, MIC parking and phase I MIA related facilities (4645 m2 (50,000 SF)). Joint development not included.
5,6,7	Complete Tri-Rail station and all rail components within Triangle at Level 2 (elevated).
5,6,7	"Portal" provision for future Amtrak/High Speed Rail Station only.
5,6,7	Rough platform and guideway structural support for the Airport/Seaport Connector within MIC only.
5,6,7	"Portal" provision for future Metrorail station only.
5,6,7	Rough platform and guideway structural support for the East-West Rail within MIC only.
5,6	Le Jeune Road from Airport Interchange south to SR 836 Interchange.
6,7	Le Jeune Road from north of Airport Interchange to north of NW 30th Street.
5,6,7	NW 25th Street between Le Jeune Road and NW South River Drive; NW 37th Avenue between NW 21st Street and NW 25th Street; NW 39th Avenue between NW 21st Street and NW 30th Street (proposed); NW 21st Street between Airport Interchange and NW 37th Avenue; NW S. River Drive from SR 112 frontage road to NW 25th Street.
RENTAL CAR FACILITY	
5,6,7,8	Hub Alternative: Integrated customer service facility including rental counters, service and fueling areas and space for approximately 10,000 rental cars. This facility will likely be built in phases.
MIC/MIA CONNECTOR	
5,6,7,8	Complete MIA station, complete MIC station, guideway, entry vestibules, ancillary spaces, vertical circulation elements and temporary service and maintenance facility.
SR 836/SR 112 INTERCONNECTOR	
6,7,8	Northbound Interconnector from SR 836 to Airport Interchange.
13,14,15	Completion of the Interconnector from SR 836 to SR 112, includes relocation of CSXT railroad tracks.
SR 836 Interchange	
4,5,6,7	Reconfigure existing SR 836 mainline and ramps from east of NW 57th Avenue Interchange to east of Le Jeune Road Interchange to accommodate tie-in of SR 836/SR 112 Interconnector and improvements to Le Jeune Road Interchange.
Airport Interchange	
4,5	Widen MIA exit ramp to southbound Le Jeune Road and SR 836.
4,5	Northbound Le Jeune Road to eastbound NW 21st Street interim ramp.

TABLE 6 (cont)

**CONCEPTUAL PROJECT CONSTRUCTION PHASING PLAN
PROJECT DESCRIPTIONS/IMPLEMENTATION YEAR**

YEAR	COMPONENT/PROJECT
8,9	SR 836 to MIA loop ramp via Interconnector. Also included are the modifications to the existing Le Jeune Road loop ramp to Central Blvd. westbound and reconfiguration
14,15	Proposed MIA exit (eastbound Central Blvd.) to northbound Le Jeune Road and Interconnector ramps. Ramps would fly over existing Central Boulevard.
16	Realignment of the Le Jeune Road northbound ramp to eastbound NW 21st Street.
14,15	Rental Car Interchange with Interconnector
NW 30th Street Interchange	
14,15	Tight directional diamond interchange at NW 30th Street.
SR 112 Interchange	
3	Eastbound NW 36th Street flyover of Le Jeune Road to existing eastbound SR 112 ramp; includes adding third lane to southbound Le Jeune Road south of NW 36th Street
3,4	Westbound SR 112 exit ramp to westbound NW 36th Street flyover ramp at Le Jeune Road.
4,5,6	Reconfigure existing eastbound SR 112 finger ramp system from just east of Le Jeune Road to the connection of SR 112, east of NW 32nd Avenue.
6,7	Reconfigure westbound SR 112 exit ramp system.
IRON TRIANGLE (One of several combinations of improvements being considered).	
13,14	SR 25 (Okeechobee Road) from NW 36th Street to SE 7th Avenue with overpass of Le Jeune Road. Includes straightening of existing alignment to match NW North River Drive at NW 36th Street, and frontage roads at Le Jeune Road interchange.
15,16	NW 36th Street (2 lanes eastbound and 3 lanes westbound) from Sheridan Drive to NW North River Drive/Okeechobee Road intersection overpassing Le Jeune Road, NW South River Drive and Miami Canal; with frontage road system and realignment of S. Royal Poinciana and NW South River Drive.
SERVICE TUNNEL	
16,17	Tunnel extending from NW 39th Avenue, just south of NW 24th Street, to a point west of Le Jeune Road and the CSXT RR tracks adjacent to the north frontage road. The tunnel would cross Le Jeune Road at approximately a 30° angle. The tunnel was estimated to be approximately 8.3 m high and 10.4 m wide with a minimum vertical clearance of 4.3 m. The length of the tunnel could reach approximately 740 meters and could vary depending on the final alignment. The tunnel would reach a depth of approximately (-) 10.7 meters with a maximum grade of 5 percent.
MIA LANDSIDE EXPANSION	
13,14,15	Phase II MIA Facilities: Expansion of MIA landside facilities at, or adjacent to, the MIC. To include facilities for: ticketing, inbound and outbound baggage, baggage claim, airline support, lobby and 3000 long term parking spaces.

Source: ICF Kaiser Engineers, Inc.; July 1995.

2.5.1 Capital Costs And Revenues

For purposes of the financial analysis, the highest and lowest packages of build options and a mid-range combination have been selected for testing. The sample component packages are set forth in Table 7 in 1995 dollars. The annual distribution of capital outlays and the implementation schedule is based upon the MIC development program.

Project elements such as the MIA terminal expansion and long-term parking are demand-driven and largely privately-funded through fees and rents. Failure to realize traffic projections would result in simply deferring these components, rather than development of underutilized facilities. The land acquisition necessary to complete the entire undertaking would be accomplished at the outset in order to permit future phases to be implemented without extraordinary speculation premiums. The annual distribution of outlays required and the resulting inflation adjustments are portrayed in Table 8. Adjusting for inflation increases the cost of the high package to \$2.26 billion, the low package to \$1.66 billion and the mid-range scenario to \$1.88 billion in year-of-expenditure dollars.

The largest component of the project build packages is the SR 836/SR 112 Interconnector, representing about one-third of the total project cost. The MIC Core and its associated road system represent about one-fourth of the MIC capital investment. Most of the MIC/MIA Connector options represent less than 15 percent of the total capital expense, with the "high option" underground MIA station alternative boosting requirements to over 23 percent of the MIC investment.

Over 30 percent of the MIC project investment is externally-funded. Land acquisition and relocation is a major expense category, requiring about 15 percent of the total capital budget. Large variations between the MIC Core options and the MIC/MIA Connector options can be observed, with a more modest range of variation among the SR 836/SR 112 Interconnector possibilities. The terminal area expansion, long-term MIA parking, service tunnel and rental car facilities are virtually the same cost for all proposed project build combinations.

The 30-year revenue forecast (in 5-year intervals) for capital investment is summarized in Table 9. All revenues are expressed in inflated dollars. Since MIA is assumed to fund the bulk of MIC/MIA Connector costs directly, the three cases evaluated result in differing capital revenue totals. Other than the MIC/MIA Connector, all other revenue sources are held constant for each of the sample project build packages.

The finance strategy identifies a diversified set of potential revenue streams for the MIC project, the majority of which are realized through annual revenue flows. The following revenue sources are anticipated to support MIC capital expenditures:

- *Ongoing FDOT and TIP Allocations:* As part of the Long Range Transportation Plan development, FDOT and the MPO will assign to the MIC a share of all capacity expansion-related revenues available in the region over a 30-year period. Revenues from this source constitute about 35 percent of total MIC capital cash flow.
- *External Funding:* Project elements such as airline terminals, the MIC/MIA Connector, a long-term parking garage and rental car facilities, are funded with either lump-sum payments made to the MIC Implementing entity by the parties responsible for future amortization, or commitments of future revenue streams which could be capitalized by the MIC implementing agency. Depending upon the MIC/MIA Connector options selected, about 30-37 percent of the MIC capital costs will be externally funded.
- *Expressway Authority:* It is assumed that beginning in 1998, the MIC will receive \$6 million per year (inflated dollars) from the Dade County Expressway Authority. The payment is assumed to escalate at 2 percent per year and continue through 2025. Dade County has already acted to form the Authority and appoint its board,

TABLE 7

"BUILD" OPTIONS TO FINANCE
(millions of 1995 dollars)

	Construction	Design & Admin @ 25%	Contingency @ 25%	Property Acquisition	MIC/MIA Vehicles	TOTAL	% ^{1, 2}
Highest Package							
MIC-3 -Site 4, Rail At-Grade	\$211.74	\$52.93	\$52.93	\$78.28		\$395.89	23.6%
Interconnector "B" Concept	\$236.66	\$59.16	\$59.16	\$137.64		\$492.63	29.4%
MIC/MIA Underground at MIA and DCAD Lot Storage/Depot	\$232.75	\$58.19	\$58.19	\$24.63	\$14.00	\$387.76	23.2%
MIA Expansion Facilities	\$88.30	\$22.08	\$22.08	\$15.91		\$148.36	8.9%
MIA Service Tunnel	\$60.00	\$15.00	\$15.00	\$0.00		\$90.00	5.4%
Rental Car Facilities	\$94.80	\$23.70	\$23.70	\$18.00		\$160.20	9.6%
Total, Highest Undertaking	\$924.25	\$231.06	\$231.06	\$274.47	\$14.00	\$1,674.85	100.0%
Lowest Package							
MIC-2 -Site 3, Rail Elevated	\$123.71	\$30.93	\$30.93	\$73.65		\$259.22	21.1%
Interconnector "A" Concept	\$245.50	\$61.37	\$61.37	\$59.72		\$427.96	34.8%
MIC/MIA At-Grade at MIA Mid Storage/Depot	\$83.37	\$20.84	\$20.84	\$9.50	\$14.00	\$148.55	12.1%
MIA Expansion Facilities	\$88.30	\$22.08	\$22.08	\$13.06		\$145.51	11.8%
MIA Service Tunnel	\$60.00	\$15.00	\$15.00	\$0.00		\$90.00	7.3%
Rental Car Facilities	\$94.80	\$23.70	\$23.70	\$17.36		\$159.56	13.0%
Total, Lowest Undertaking	\$695.68	\$173.92	\$173.92	\$173.29	\$14.00	\$1,230.80	100.0%
Mid-Range Package							
MIC-1 -Site 3, Rail At-Grade	\$179.60	\$44.90	\$44.90	\$73.65		\$343.05	24.6%
Interconnector "C" Concept	\$232.87	\$58.22	\$58.22	\$106.16		\$455.47	32.7%
MIC/MIA Elevated at MIA East Storage/Depot	\$117.53	\$29.38	\$29.38	\$9.50	\$14.00	\$199.80	14.3%
MIA Expansion Facilities	\$88.30	\$22.08	\$22.08	\$13.06		\$145.51	10.4%
MIA Service Tunnel	\$60.00	\$15.00	\$15.00	\$0.00		\$90.00	6.5%
Rental Car Facilities	\$94.80	\$23.70	\$23.70	\$17.36		\$159.56	11.5%
Total, Mid-Range Undertaking	\$773.10	\$193.28	\$193.28	\$219.73	\$14.00	\$1,393.39	100.0%
Notes: ¹ % of Total Capital Cost, and ² approximate due to rounding							
Source: ICF Kaiser Engineers, Inc.; May 1995.							

TABLE 8						
ANNUAL CAPITAL OUTLAYS & INFLATION FACTORS (millions)						
	% Capital Outlays	Year	Inflation @ 3.5%	High \$1,674.85	Low \$1,230.80	Mid \$1,393.39
				Inflated Annual Capital Outlays		
1	3.41%	1996	1.035	\$59.11	\$43.44	\$49.18
2	5.16%	1997	1.071	\$92.58	\$68.03	\$77.02
3	5.32%	1998	1.109	\$98.79	\$72.60	\$82.19
4	4.70%	1999	1.148	\$90.33	\$66.38	\$75.15
5	11.09%	2000	1.188	\$220.60	\$162.11	\$183.53
6	14.21%	2001	1.229	\$292.56	\$214.99	\$243.39
7	14.51%	2002	1.272	\$309.19	\$227.22	\$257.23
8	5.87%	2003	1.317	\$129.46	\$95.14	\$107.70
9	0.36%	2004	1.363	\$8.22	\$6.04	\$6.84
10	1.70%	2005	1.411	\$40.16	\$29.51	\$33.41
11	2.28%	2006	1.460	\$55.75	\$40.97	\$46.38
12	2.31%	2007	1.511	\$58.46	\$42.96	\$48.64
13	6.94%	2008	1.564	\$181.79	\$133.59	\$151.24
14	8.00%	2009	1.619	\$216.89	\$159.38	\$180.44
15	7.40%	2010	1.675	\$207.64	\$152.59	\$172.75
16	3.64%	2011	1.734	\$105.71	\$77.68	\$87.95
17	3.10%	2012	1.795	\$93.18	\$68.48	\$77.52
18	0.00%	2013	1.857	\$0.00	\$0.00	\$0.00
19	0.00%	2014	1.923	\$0.00	\$0.00	\$0.00
20	0.00%	2015	1.990	\$0.00	\$0.00	\$0.00
	100.00%					
TOTAL INFLATED CAPITAL OUTLAYS				\$2,260.41	\$1,661.12	\$1,880.55
Source: Jeffrey Parker and Associates; May 1995.						

as authorized under existing state statutes. The MIC would use about 4.5 percent of the net revenues resulting from the "conservative" tolling strategies analyzed by the MPO and do not assume congestion management road pricing.

- *Cruise Ship Transfer Fee:* A \$2 (inflated dollars) transfer fee would be assessed each departing cruise ship passenger beginning in 2003. The fee would escalate gradually to \$2.50 and continue through 2025, generating about 8 percent of the MIC's capital revenues.
- *Taxi and Commercial Vehicle Access Fee Surcharge:* MIA would increase its existing access fees with a \$.75 surcharge (inflated dollars) beginning in 2003, including taxis and commercial vehicles. MIA would continue to derive all revenues from the "base" access fee.
- *Joint Development:* Independent research confirms the presence of a strong real estate market in the vicinity of MIA which is independent of MIC-related transportation improvements. Upgrading access to the "Triangle" area and master planning future development sites through land assembly are the principal pre-conditions for successful development, and both are embodied in the MIC program. Joint development is projected to yield 3 percent of MIC capital revenues beginning in 2003.

TABLE 9
SOURCES OF CAPITAL FUNDS SUMMARY
(millions of inflated dollars)

	1996-00	2001-05	2006-10	2011-15	2016-20	2021-25	TOTAL	HIGH %	LOW %	MID %
Existing State & Federal Sources (MPO & FDOT)	\$69.28	\$116.23	\$135.67	\$159.02	\$182.61	\$206.61	\$869.43	33%	37%	36%
Local Sources										
Dade County Expressway Authority	\$18.36	\$33.14	\$36.58	\$40.39	\$44.60	\$49.24	\$222.31	9%	10%	9%
Cruise Ship MIC Transfer Fee										
Passenger Departures (millions)	12.4	16.4	18.7	19.7	20.0	20.5				
Average MIC Transfer Fee	\$0.00	\$2.00	\$2.00	\$2.25	\$2.25	\$2.50				
Revenue Yield	\$0.00	\$20.16	\$37.39	\$44.36	\$44.93	\$51.25	\$198.08	8%	8%	8%
Taxi & Commercial Vehicle Access Fee										
Vehicle Departures (millions)	0.0	12.4	16.9	18.7	20.6	21.4				
Average Incremental Rate	\$0.00	\$0.75	\$0.85	\$0.95	\$1.00	\$1.00				
Revenue Yield	\$0.00	\$7.02	\$14.36	\$17.73	\$20.60	\$21.42	\$81.14	3%	3%	3%
Joint Development										
Land Payments	\$0.00	\$10.90	\$0.00	\$0.00	\$0.00	\$0.00	\$10.90	0%	0%	0%
MIC Core- Retail Concessions & Signage	\$0.00	\$2.75	\$4.97	\$5.49	\$6.06	\$6.69	\$25.96	1%	1%	1%
Tax Increment Finance District	\$0.00	\$4.88	\$11.08	\$11.81	\$11.81	\$11.81	\$51.39	2%	2%	2%
Subtotal - Local	\$18.36	\$78.85	\$104.38	\$119.77	\$127.99	\$140.41	\$589.77	23%	25%	25%
State Sources										
FDOT R-O-W Bond Program	\$100.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$100.00	4%	4%	4%
Economic Development	\$5.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.00	0%	0%	0%
Environmental Programs	\$3.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	0%	0%	0%
Subtotal - State	\$108.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$108.00	4%	5%	4%
Federal Sources										
FTA Section 3 - MIC Bus & Rail	\$24.00	\$29.00	\$25.00	\$0.00	\$0.00	\$0.00	\$78.00	3%	3%	3%
FTA Section 3 - Tri-Rail Extension	\$2.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.00	0%	0%	0%
Subtotal - Federal	\$26.00	\$29.00	\$25.00	\$0.00	\$0.00	\$0.00	\$80.00	3%	3%	3%
Self-Financing										
MIA-Funded Elements										
MIC/MIA Connector - High	\$407.38	0.00	0.00	0.00	0.00	0.00	\$407.38	16%		
MIC/MIC Connector - Low	\$131.94						\$131.94		6%	
MIC/MIA Connector - Mid	\$194.93						\$194.93			8%
Phase I MIA Terminal	\$11.43	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11.43	0%	0%	0%
Phase II MIA Terminal	\$0.00	\$0.00	\$221.90	\$0.00	\$0.00	\$0.00	\$221.90	8%	9%	9%
MIA Service Tunnel	\$0.00	\$0.00	\$156.06	\$0.00	\$0.00	\$0.00	\$156.06	6%	7%	7%
Privately-Funded Elements										
Rental Car Facilities	\$168.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$168.89	6%	7%	7%
Rents from Private Inter-City Bus Carriers	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	0%	0%
Subtotal - Self-Financing, High	\$587.70	\$0.00	\$377.96	\$0.00	\$0.00	\$0.00	\$965.66	37%		
Subtotal - Self-Financing, Low	\$312.26	\$0.00	\$377.96	\$0.00	\$0.00	\$0.00	\$690.22		30%	
Subtotal - Self-Financing, Mid	\$375.25	\$0.00	\$377.96	\$0.00	\$0.00	\$0.00	\$753.21			31%
Total Capital Revenues - High	\$809.34	\$224.08	\$643.02	\$278.79	\$310.61	\$347.02	\$2,612.86	100%		
Total Capital Revenues - Low	\$533.90	\$224.08	\$643.02	\$278.79	\$310.61	\$347.02	\$2,337.42		100%	
Total Capital Revenues - Mid	\$596.89	\$224.08	\$643.02	\$278.79	\$310.61	\$347.02	\$2,400.41			100%

*The actual annual revenue flows and "blend" of new capacity funds allocated by FDOT to District 6 and state-retained funding resources are being finalized in the Long Range Transportation Plan development process. FDOT and the MPO have authorized the preliminary use of these estimates until the LRTP is finalized and the current TIP is amended.

Source: Jeffrey Parker and Associates; September 1995.

- *Right-of-Way Bonds:* Modifications to FDOT's existing program have been authorized by the Legislature, increasing the size of the statewide funding pool. It is estimated at this time that \$100 million will be realized by FDOT's District VI for the MIC project. The underlying sources of revenue for these bonds are gasoline taxes levied by the State of Florida that are indexed to consumer prices.
- *Section 3 Funds:* Only 3 percent of the MIC's capital revenues are anticipated from the bus and rail portions of the FTA Section 3 program. The uncertainty of these funds is mitigated by spreading the annual payments over a 14-year time frame, tapping both the bus and rail programs, and sharing the appropriation risks with MIA.
- *Parking:* Parking revenues are primarily devoted to supporting MIC operating costs. However, a net operating surplus is anticipated, with the excess revenues dedicated to supporting capital investment and depreciation-related outlays. No direct contributions from parking are included in the revenue streams identified in Table 9.

2.5.2 Operations and Maintenance (O&M) Analysis

The operations and maintenance requirements of the proposed MIC project alternatives differ from a conventional transportation project in two respects. First, the "tenant" modes will bear the expense of operations and maintenance of their own stations and facilities, representing about 80 percent of the MIC's total operating expenses. These services will either be provided by the MIC implementing entity and billed back to the "tenant" mode, or will be performed directly by the tenant. Second, the MIC is primarily a facility and operations and maintenance is generally much lower than for a fixed guideway system. Elements of the development program which are deferred as a result of market factors or funding delays will not result in underutilized capacity, or excess operating deficits. Table 10 summarizes the relationships between MIC operating and maintenance revenue and expense.

The total cost of operating the MIC project alternatives is approximately \$18 million (1995 dollars) per year. However, only about \$3.6 million of this total is attributable directly to the MIC as an independent entity. The \$3.6 million estimate includes the cost of operating 23,200 sq m (250,000 sq ft) of "common area" space and the 2,800-stall parking structure. The balance of outlays is borne directly by, or is chargeable to a tenant mode.

Two sources of revenue have been identified to defray the operating and maintenance costs of the MIC which are not supported by payments or services provided by others. The first is parking revenue from the 2,800-space garage. The second operating and maintenance-specific revenue source for the MIC is a common-area charge assessed on the 130,000 sq m (1.4 million sq ft) of joint development space incorporated into the MIC Core complex. MIC operating revenues in excess of costs would be used for capital improvements and to offset depreciation-related outlays. Based upon the current projection, about \$2.5 million (1995 dollars) in net operating income would be generated annually at full build-out of the MIC and the joint development program.

2.5.3 Risk Analysis

Table 11 portrays a consolidated, pro forma cash flow summary for the three project build alternatives evaluated and reveals internal rates of return of 6.3 percent for the high package, 8.9 percent for the mid-range case and 16.1 percent for the low combination. The internal rate of return is used as a surrogate for the cost of debt and equity that the MIC implementing agency could support with the cash flows assumed. Given the early stage of the analysis, all of the sample cases are financially viable, with the low case having a considerable contingency margin. The internal rate of return measure is sensitive to both the magnitude and timing of future cash flows. As a result of the functional independence of most MIC elements, delays in realizing anticipated revenue streams would result in delaying the associated outlays, yielding a neutral impact on the internal rate of return.

TABLE 10

OPERATING REVENUE & EXPENSE SUMMARY
(millions of inflated dollars)

	Year	Inflation Factor	Annual O&M High Case	Annual Revenue							Net Operating Income
				MIA	Tenant Modes	Rental Car	FDOT/M-D	Parking	CA Charge	Total	
1	1996	1.035									
2	1997	1.071									
3	1998	1.109									
4	1999	1.148									
5	2000	1.188									
6	2001	1.229									
7	2002	1.272									
8	2003	1.317									
			\$6.40	\$0.66	\$0.53		\$0.41	\$5.38	\$0.33	\$7.31	\$0.91
9	2004	1.363	\$14.35	\$3.94	\$0.55	\$4.09	\$0.80	\$8.36	\$0.34	\$18.07	\$3.73
10	2005	1.411	\$14.85	\$4.08	\$0.57	\$4.23	\$0.83	\$8.65	\$0.35	\$18.70	\$3.86
11	2006	1.460	\$15.37	\$4.22	\$0.59	\$4.38	\$0.86	\$8.95	\$0.36	\$19.36	\$3.99
12	2007	1.511	\$15.91	\$4.37	\$0.61	\$4.53	\$0.89	\$9.27	\$0.53	\$20.19	\$4.28
13	2008	1.564	\$16.46	\$4.52	\$0.63	\$4.69	\$0.92	\$9.59	\$0.55	\$20.89	\$4.43
14	2009	1.619	\$17.04	\$4.68	\$0.65	\$4.86	\$0.95	\$9.93	\$0.57	\$21.63	\$4.59
15	2010	1.675	\$17.64	\$4.84	\$0.67	\$5.03	\$0.98	\$10.27	\$0.59	\$22.38	\$4.75
16	2011	1.734	\$30.29	\$15.63	\$2.11	\$5.20	\$1.02	\$10.63	\$0.61	\$35.20	\$4.91
17	2012	1.795	\$31.35	\$16.18	\$2.19	\$5.38	\$1.05	\$11.00	\$0.63	\$36.44	\$5.09

TABLE 10 (cont)

OPERATING REVENUE & EXPENSE SUMMARY
(millions of inflated dollars)

	Year	Inflation Factor	Annual O&M High Case	Annual Revenue							Net Operating Income
				MIA	Tenant Modes	Rental Car	FDOT/M-D	Parking	CA Charge	Total	
18	2013	1.857	\$33.56	\$17.86	\$2.26	\$5.57	\$1.09	\$11.39	\$0.65	\$38.83	\$5.26
19	2014	1.923	\$34.74	\$18.48	\$2.34	\$5.77	\$1.13	\$11.79	\$0.67	\$40.18	\$5.45
20	2015	1.990	\$35.95	\$19.13	\$2.43	\$5.97	\$1.17	\$12.20	\$0.70	\$41.59	\$5.64
21	2016	2.059	\$37.21	\$19.80	\$2.51	\$6.18	\$1.21	\$12.63	\$0.72	\$43.05	\$5.84
22	2017	2.132	\$38.51	\$20.49	\$2.60	\$6.39	\$1.25	\$13.07	\$0.75	\$44.55	\$6.04
23	2018	2.206	\$39.86	\$21.21	\$2.69	\$6.62	\$1.29	\$13.53	\$0.77	\$46.11	\$6.25
24	2019	2.283	\$41.26	\$21.95	\$2.78	\$6.85	\$1.34	\$14.00	\$0.80	\$47.73	\$6.47
25	2020	2.363	\$42.70	\$22.72	\$2.88	\$7.09	\$1.39	\$14.49	\$0.83	\$49.40	\$6.70
26	2021	2.446	\$44.19	\$23.52	\$2.98	\$7.34	\$1.43	\$15.00	\$0.86	\$51.13	\$6.93
27	2022	2.532	\$45.74	\$24.34	\$3.09	\$7.59	\$1.48	\$15.52	\$0.89	\$52.91	\$7.17
28	2023	2.620	\$47.34	\$25.19	\$3.19	\$7.86	\$1.54	\$16.07	\$0.92	\$54.77	\$7.43
29	2024	2.712	\$49.00	\$26.07	\$3.31	\$8.14	\$1.59	\$16.63	\$0.95	\$56.68	\$7.69
30	2025	2.807	\$50.71	\$26.99	\$3.42	\$8.42	\$1.65	\$17.21	\$0.98	\$58.67	\$7.95
TOTAL			\$720.41	\$350.87	\$45.58	\$132.18	\$26.25	\$275.57	\$15.33	\$845.77	\$125.35
				41%	5%	16%	3%	33%	2%	100%	
Source: Jeffrey Parker and Associates; May 1995.											

TABLE 11

PRO FORMA CASH FLOW SUMMARY
(millions of inflated dollars)

Year		High Package			Low Package			Mid-Range Package		
		Capital & Operating Revenues	Capital & Operating Outlays	Net Revenues	Capital & Operating Revenues	Capital & Operating Outlays	Net Revenues	Capital & Operating Revenues	Capital & Operating Outlays	Net Revenues
1	1996	\$74.41	\$59.11	\$15.30	\$74.41	\$43.44	\$30.97	\$74.41	\$49.18	\$25.23
2	1997	\$67.31	\$92.58	(\$25.27)	\$67.31	\$68.03	(\$0.73)	\$67.31	\$77.02	(\$9.71)
3	1998	\$25.66	\$98.79	(\$73.13)	\$25.66	\$72.60	(\$46.94)	\$25.66	\$82.19	(\$56.53)
4	1999	\$623.78	\$90.33	\$533.45	\$348.33	\$66.38	\$281.95	\$411.33	\$75.15	\$336.18
5	2000	\$18.20	\$220.60	(\$202.40)	\$18.20	\$162.11	(\$143.92)	\$18.20	\$183.53	(\$165.33)
6	2001	\$41.74	\$292.56	(\$250.81)	\$41.74	\$214.99	(\$173.25)	\$41.74	\$243.39	(\$201.65)
7	2002	\$35.03	\$309.19	(\$274.16)	\$35.03	\$227.22	(\$192.18)	\$35.03	\$257.23	(\$222.20)
8	2003	\$54.50	\$135.86	(\$81.36)	\$54.50	\$101.54	(\$47.04)	\$54.50	\$114.10	(\$59.61)
9	2004	\$66.36	\$22.56	\$43.80	\$66.36	\$20.39	\$45.98	\$66.36	\$21.18	\$45.18
10	2005	\$70.53	\$55.01	\$15.52	\$70.53	\$44.36	\$26.17	\$70.53	\$48.26	\$22.27
11	2006	\$69.28	\$71.12	(\$1.84)	\$69.28	\$56.34	\$12.94	\$69.28	\$61.75	\$7.53
12	2007	\$72.07	\$74.37	(\$2.30)	\$72.07	\$58.87	\$13.20	\$72.07	\$64.54	\$7.52
13	2008	\$451.99	\$198.25	\$253.74	\$451.99	\$150.05	\$301.94	\$451.99	\$167.70	\$284.29
14	2009	\$76.06	\$233.92	(\$157.86)	\$76.06	\$176.42	(\$100.36)	\$76.06	\$197.48	(\$121.41)
15	2010	\$78.07	\$225.28	(\$147.21)	\$78.07	\$170.23	(\$92.16)	\$78.07	\$190.38	(\$112.31)
16	2011	\$88.41	\$136.00	(\$47.59)	\$88.41	\$107.97	(\$19.56)	\$88.41	\$118.24	(\$29.83)
17	2012	\$90.87	\$124.53	(\$33.66)	\$90.87	\$99.83	(\$8.95)	\$90.87	\$108.87	(\$18.00)

TABLE 11 (cont)

PRO FORMA CASH FLOW SUMMARY
(millions of inflated dollars)

Year		High Package			Low Package			Mid-Range Package		
		Capital & Operating Revenues	Capital & Operating Outlays	Net Revenues	Capital & Operating Revenues	Capital & Operating Outlays	Net Revenues	Capital & Operating Revenues	Capital & Operating Outlays	Net Revenues
18	2013	\$94.54	\$33.56	\$60.98	\$94.54	\$33.56	\$60.98	\$94.54	\$33.56	\$60.98
19	2014	\$97.22	\$34.74	\$62.48	\$97.22	\$34.74	\$62.48	\$97.22	\$34.74	\$62.48
20	2015	\$99.99	\$35.95	\$64.04	\$99.99	\$35.95	\$64.04	\$99.99	\$35.95	\$64.04
21	2016	\$102.78	\$37.21	\$65.57	\$102.78	\$37.21	\$65.57	\$102.78	\$37.21	\$65.57
22	2017	\$105.45	\$38.51	\$66.94	\$105.45	\$38.51	\$66.94	\$105.45	\$38.51	\$66.94
23	2018	\$108.20	\$39.86	\$68.34	\$108.20	\$39.86	\$68.34	\$108.20	\$39.86	\$68.34
24	2019	\$111.04	\$41.26	\$69.78	\$111.04	\$41.26	\$69.78	\$111.04	\$41.26	\$69.78
25	2020	\$113.97	\$42.70	\$71.27	\$113.97	\$42.70	\$71.27	\$113.97	\$42.70	\$71.27
26	2021	\$118.08	\$44.19	\$73.88	\$118.08	\$44.19	\$73.88	\$118.08	\$44.19	\$73.88
27	2022	\$121.06	\$45.74	\$75.32	\$121.06	\$45.74	\$75.32	\$121.06	\$45.74	\$75.32
28	2023	\$124.14	\$47.34	\$76.80	\$124.14	\$47.34	\$76.80	\$124.14	\$47.34	\$76.80
29	2024	\$127.31	\$49.00	\$78.32	\$127.31	\$49.00	\$78.32	\$127.31	\$49.00	\$78.32
30	2025	\$130.59	\$50.71	\$79.87	\$130.59	\$50.71	\$79.87	\$130.59	\$50.71	\$79.87
TOTAL		\$3,458.63	\$2,980.83	\$477.80	\$3,183.19	\$2,381.54	\$801.65	\$3,246.18	\$2,600.96	\$645.22
Internal Rate of Return				6.3%	16.1%			8.9%		
Note: Operating costs and revenues all use the high package estimate.										
Source: Jeffrey Parker and Associates; May 1995.										

About 30 percent of MIC capital costs and revenues, and 40 percent of operating costs and revenues depend on MIA. MIA's commitment to the MIC/MIA Connector is a major risk factor because it must be made during a time period when MIA is incurring significant obligations for its capital program. MIC-related investments are not presently authorized in MIA's capital plan. Future MIA elements, such as terminal expansion and long-term parking have lower risk because their construction is demand-driven and they are not scheduled to occur until MIA's current construction program is largely complete. The principal risk mitigation strategy will be action to include the MIC in MIA's list of near-term capital investment priorities.

DCAD has questioned the eligibility of using MIA funds because the MIC site might be considered outside the airport boundary. In order to comply with FAA limitations on the use of certain airport-related funding streams for the MIC project elements, it is assumed that the ownership structure for the MIC will be established in conformance with FAA criteria. For example, the use of FAA grants or PFCs requires that the affected intermodal facilities be located on property owned by the airport or the airport owner. DCAD is a Dade County entity and it is anticipated that the MIC will be owned by Dade County as well.

Ability to Operate and Maintain Existing Services

The revenue streams identified for the MIC construction program and operations do not compete with those utilized to support MDTA transit services. They are comprised largely of airport, highway, seaport, user fee and private sector (airlines and rental car agency) funds. Section 9 capital and operating grants are not included in the future revenue forecasts and are assumed to be used to sustain existing services. The MIC is projected to generate net operating income, primarily from parking fees and rents paid by tenant modes, rather than operating deficits. Operating income will be used to defray capital costs and depreciation-related outlays.

The ongoing FDOT and TIP allocations assumed will be subject to future appropriations, but represent commitments by key funding partners from existing stable revenue sources. Other major MIC revenue sources are already-enacted, diversified, inflation sensitive, and tap stable sources of economic activity, such as highway tolls, airport patronage, parking and state gasoline taxes (FDOT right of way acquisition bonds). Conservative assumptions have been used to estimate future revenue potential from these sources. Private sector credits from major corporations in the airline, retail, hotel and rental car industries will directly and indirectly underwrite about 35 percent of the revenue commitments anticipated.

3.0 RECOMMENDATIONS

This section presents the recommended Preferred Investment Strategy for the MIC project alternative. Financial considerations and construction phasing of each component of the recommended Preferred Investment Strategy are shown in previous Section 2.4, Conceptual Cost Estimate and MIC Phasing Plan. The recommendations consider the comments received during the 45-day public comment period and the results of the public hearings as required by the National Environmental Policy Act (NEPA).

3.1 INTRODUCTION

The MIC Draft MIS/DEIS describes the comprehensive evaluation and screening processes that have been conducted for all alternatives and options related to the MIC project alternative, i.e., the MIC site, the MIC/MIA Connector and the SR 836/SR 112 Interconnector. The MIS/DEIS also documents the financial feasibility of the project and the extensive, ongoing public involvement process that has been a significant part of the MIS process. As a result of the MIS/DEIS process, the following alternatives have been identified as the Preferred Investment Strategy for the MIC project and are recommended to be advanced to PE/FEIS:

- MIC Site 3 for the MIC Core;
- Option C for the SR 836/SR 112 Interconnector; and
- Central Corridor, West Segment and the North Corridor, East Segment for the horizontal alignment of the MIC/MIA Connector.

A recommended vertical alignment for the MIC/MIA Connector has not been selected at this time for two primary reasons:

1. The technical complexities involved in the MIC/MIA Connector component dictate that more detailed environmental and engineering analysis of the vertical alignment options be conducted during PE/FEIS before a recommended alignment can be determined; and
2. DCAD is in the process of conducting a Strategic Airport Terminal Planning Study for MIA, which will be coordinated closely with the process of identifying a recommended alternative for the MIC/MIA Connector. Because of its potential impacts to the MIA terminal building and airside operations, selection would be premature at this time.

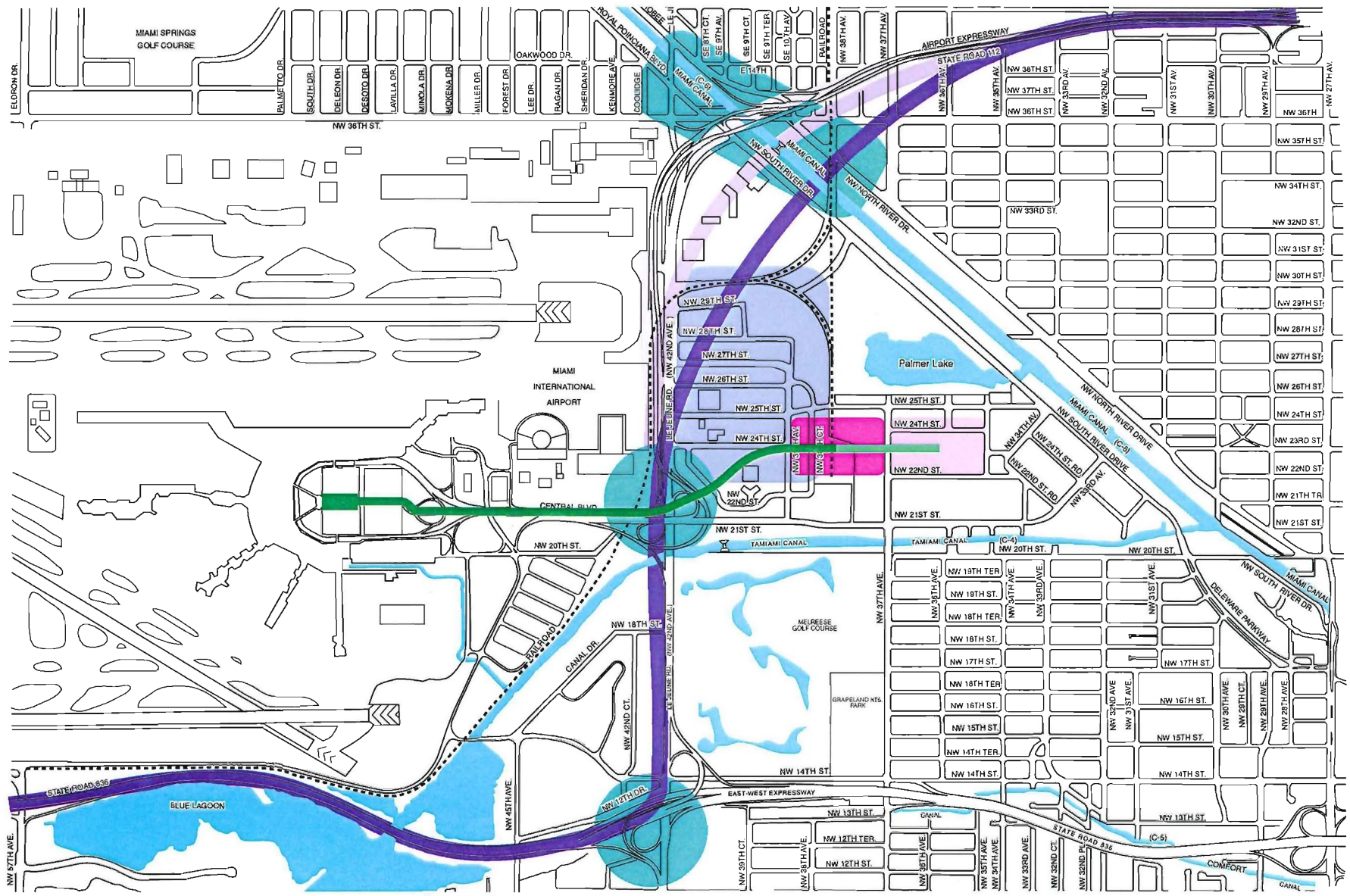
Within the Central Corridor, there are three optional vertical alignments to be further evaluated. These alignments are:

- Alignment C-1, below grade;
- Alignment C-2, at-grade; and
- Alignment C-3, elevated.

Figure 8 highlights the Preferred Investment Strategy and also shows alternatives, in a lighter background color scheme, that were evaluated throughout the MIS/DEIS process

3.2 MIC SITE

Site 3 has been recommended as the preferred location for the MIC Core primarily because of the trackwork advantages in accommodating the heavy rail modes, locating the heavy rail modes away from existing



Not to Scale

Preferred MIC Site 3

MIC Site 4

Interconnector Alignment Option A

Interconnector Alignment Option B

Preferred Interconnector Alignment Option C

Interchanges

MIC/MIA Connector Alignment

Rental Car Facilities
(Hub and Park Concepts)



Miami Intermodal Center

Figure 8 PREFERRED INVESTMENT STRATEGY AND OTHER ALTERNATIVES

ICF KAISER
Bermello, Ajamil & Partners, Inc.

Source: ICF Kaiser, January 1996

residential areas and providing improved MIC facility access from Le Jeune Road. Site 3 also allows for lower estimated right-of-way costs and improved interface between public transit modes. The site is generally defined by NW 25th Street, NW 37th Avenue, NW 22nd Street and NW 39th Avenue. The evaluation matrix used to assist in the recommendation and comparison of Site 3 and Site 4 is shown in Table 1.

Recommendations for the MIC site associated roadway network and the associated rental car configuration are discussed in the subsequent sections.

3.2.1 Associated Roadway Network

A complementary conceptual roadway network for Site 3 has been defined. Because of its preliminary, conceptual nature, this roadway network will continue to evolve in response to refined design requirements of the MIC and its associated development. As a result, design refinements of the associated roadway network will be further defined during PE/FEIS.

3.2.2 Rental Car Configuration

Integral to the MIC concept is the accommodation of rental car facilities. Through project coordination with representatives of rental car companies two conceptual solutions for rental car facilities at the MIC have been developed and are described below. A combination of these two concepts is also possible. They are:

1. a centralized, integrated, rental car structure, or hub concept; and
2. a rental car "park" solution, where rental car companies provide and organize facilities according to individual company policy.

Due to the complexities of the issues surrounding the configuration of rental car facilities at the MIC, it is recommended that the specific decision for the rental car configuration be further examined and determined during PE/FEIS, when more detailed design occurs.

3.3 SR 836/SR 112 INTERCONNECTOR

The SR 836/SR 112 Interconnector, a limited access expressway, would link the northerly SR 112 with the southerly SR 836, and provide access to the MIC and to MIA via interchanges within the MIC study area. The Interconnector would also become part of the MPO's planned HOV network.

Option C is recommended as part of the Preferred Investment Strategy primarily because Options A and B are incompatible with the MIA runway Critical Approach - Departure Surfaces. Although all design options would have displacement and relocation impacts, Option B would cause displacement of the George T. Baker Aviation Maintenance School (a Dade County public school), and the large hotels, restaurants and other businesses fronting the east side of Le Jeune Road north of NW 30th Street. Option A would present additional disadvantages in connecting with the SR 112 interchange at NW 36th Street/Okeechobee Road.

The evaluation of these three option shows that Option C is most compatible with MIA approach surfaces, would minimize impacts to major businesses in the northern end of the "Triangle" and would present no impacts to properties relative to FHWA Section 4(f) regulations and criteria. The evaluation matrix used to assist in the recommendation and comparison of the options is shown in Table 2. Option C is described below:

- **Option C** would be located on the west side of Le Jeune Road between SR 836 and the MIA Interchange. North of the interchange, it would shift east to the east side of Le Jeune Road. The alignment would pass through the northwestern portion of the MIC area "Triangle".

The operation of the CSXT rail spur (crossing Le Jeune Road at-grade just east of MIA) has had an impact on the design of the SR 836/SR 112 Interconnector and the recommended alignment option to be advanced in PE/FEIS. An operational study is proposed to describe feasible alternative railroad operations, track and signaling requirements necessary in order to allow the CSXT crossing of Le Jeune Road to be eliminated. If necessary, the SR 836/SR 112 Interconnector will be further evaluated relative to the elimination of the at-grade track. Preliminary studies indicate that benefits could be realized by the elimination of the at-grade crossing. Results of the CSXT Operations Study could be finalized in March 1996.

3.4 MIC/MIA CONNECTOR

The MIC/MIA Connector, proposed to operate on a fixed guideway, would provide the primary transportation connection between MIA and the MIC, shuttling passengers from the MIA central terminal area to the MIC facilities, rental car facilities and possibly other developments east of the MIC.

The evaluation matrix used to assist in the recommendation and comparison of the various technical design options for the MIC/MIA Connector is shown in Table 3. As stated herein, DCAD is in the process of conducting a Strategic Airport Terminal Planning Study for MIA. Results of this study may have an impact on the recommended vertical design option for the MIC/MIA Connector and require further coordination with DCAD to identify a recommended vertical alignment for the MIC/MIA Connector. All vertical design options will be carried forward for further evaluation and coordination with DCAD during the PE/FEIS.

4.0 ISSUES FOR FURTHER STUDY

This section presents a discussion of the components of the MIC project alternative that currently require further study and that will be further evaluated and either refined or resolved during the PE/FEIS phase.

4.1 INTRODUCTION

FDOT has initiated and sustained extensive coordination with several parties, such as:

- MPO;
- DCAD;
- Port of Miami;
- Rental car companies;
- Business and professional organizations;
- Community organizations;
- Representatives of surrounding municipalities; and
- Representatives of planning and development projects underway in or near the study area.

Through these coordination efforts, the issues listed below have been identified, and they have also been reviewed and analyzed to the extent possible at this time. However, because of the complexity of some of these issues, and their inter-relationships with other ongoing projects, they must be subjected to further engineering/architectural analysis and public comment before they can be resolved. Also, the recent joint FHWA/FTA MIS regulations require that all possible alternatives be analyzed to a conceptual level of detail sufficient to provide information on probable impacts and cost-benefit analysis.

The issues subject to further study are:

- The impacts of the DCAD sponsored MIA Strategic Airport Terminal Planning Study on the MIA landside functions that would occur at the MIC and the space requirements for these functions;
- The design configuration and impacts of the SR 836 Interchange with the SR 836/SR 112 Interconnector;
- Configuration of the MIA interchange;
- The design configuration of the SR 112/Le Jeune Road/NW 36th Street/Okeechobee Road intersections ("Iron Triangle") and their interface with the SR 836/SR 112 Interconnector;
- The configuration of the rental car facilities;
- The technology, length and elevation of the MIC/MIA Connector guideway;
- The location of the MIC/MIA Connector maintenance and storage facility;
- The location and type of pedestrian and bicycle facilities to be incorporated into the MIC project;
- Visual appearances and design criteria of MIC project architectural elements;
- The accommodation of future High Speed Rail at the MIC; and
- MIC rail/roadway configuration at Level 1 (at-grade) or Level 2 (elevated).

4.1.1 Strategic Airport Terminal Planning Study

DCAD is conducting a long-term strategic airport planning study to identify options for future terminal expansion. Some of these options may include additional MIA terminal functions located at or adjacent to the MIC to be implemented before 2020. Study options range from having the MIC provide a supporting role, with limited

airport landside functions (as currently planned), to locating all or most airport landside functions at the MIC and reserving the existing terminal located west of Le Jeune Road for airside functions only. The final design of the MIC will be influenced by the type and extent of MIA facilities to be located at the MIC, as dictated by the results of the airport strategic planning study. This influence may be minimal. However, if the MIC is developed to accommodate all or most landside functions, then the influence of the final recommendations of the airport study could have significant impact to the planning and design of the MIC and related facilities. The MIA Strategic Planning Study team is expected to present preliminary recommendations in early 1996. Extensive coordination between the MIC study team and the MIA Strategic Planning Study Team has occurred throughout the study process. To date, the direction of the airport strategic plan is compatible with the MIC study recommendations.

4.1.2 Design Configuration and Impacts of the SR 836 Interchange with the SR 836/SR 112 Interconnector

Resolution of the design configuration for this Interchange will be pursued during PE/FEIS. To date, the design configuration options have been carried out only to a conceptual level of detail and will be subject to more detailed engineering analysis during PE/FEIS. Changes in design of the SR 836 interchange with the Interconnector could result in variations in environmental impacts to Glide Angle Lake, and modifications in design of the SR 112 interchange could result in variations to the extent of residential and business relocation impacts.

4.1.3 Configuration of the MIA Interchange

Resolution of the design configuration for the MIA/Central Boulevard interchange is dependent upon the outcome of the MIA Strategic Planning Study, and is, therefore, marked for further evaluation and refinement during PE/FEIS. To date, design configuration options have been carried out only to a conceptual level of detail and will be subject to additional engineering analysis. Determination of the recommended design option is also partially dependent upon resolution of the MIC area roadway system, which will be finalized during PE/FEIS.

4.1.4 Design Configuration of the SR 112/Le Jeune Road/NW 36th Street/Okeechobee Road Intersection ("Iron Triangle") and their Interface with the SR 836/SR 112 Interconnector

Resolution of the design configuration for this Interchange will also be pursued during PE/FEIS. To date, the design configuration options have been carried out only to a conceptual level of detail and will be subject to more detailed engineering analysis during PE/FEIS. Design configuration resolution of "Iron Triangle" will also occur during PE/FEIS. Design determination is also partially dependent upon resolution of the MIC area roadway system, which will also be finalized during PE/FEIS. Input from adjacent municipalities, such as the City of Miami Springs, the City of Hialeah, Dade County and the City of Miami is also an important consideration. Coordination with representatives of these municipalities is ongoing. Modifications to the design configuration can result in variations in cost, right-of-way acquisition, business and residential relocation/displacement, and contamination impacts and mitigation.

4.1.5 Configuration of Rental Car Facilities

Through coordination meetings held with representatives of rental car companies in the study area, it has been determined at this stage of the study that rental car facilities would be located in areas adjacent to the MIC core facility in either a "hub" or "park" spatial arrangement as follows:

- A centralized, integrated, rental car structure, or "hub" concept that would accommodate ready/return vehicles and have fleet storage areas located north of the hub; or

- A rental car "park" solution, where rental car companies provide and organize facilities according to individual company policy.

Resolution of accommodation scenarios for rental car operations is dependent upon continued coordination and input from rental car companies.

4.1.6 Technology, Length, Elevation and Placement of the MIC/MIA Connector Guideway

During the early part of the study, FDOT assumed that the MIC/MIA Connector and Airport/Seaport Connector would operate on shared tracks and would, therefore, require compatible technologies. The technology for the Airport/Seaport Connector has not been decided. Near the completion of the MIS/DEIS process the MIC Train Operations Review Committee recommended against shared trackage for the two systems, thus eliminating the compatibility requirement. This allows the MIC/MIA Connector to utilize a technology such as the Automated People Mover (APM) which is more suited to its operating characteristics and passenger demand.

Although a preferred corridor has been selected for the east and west segments of the MIC/MIA Connector guideway and station alignment, the vertical elevation of the guideway and station configurations are still under study. Location of the MIC/MIA Connector alignment at level 3 or level 2 at the MIC is yet to be decided. A MIC project technical memorandum, *"Analysis of MIC/MIA Connector Platforms at the MIC - Level 3 versus Level 2"* dated January 6, 1996 and prepared by the MIC study team explores the placement of MIC/MIA Connector loading platforms at the MIC. The report examines pros and cons for each of the alternatives identified above. The report concludes in recommending that both MIC/MIA Connector alternatives be developed further with the objective of recommending a preferred alternative by March, 1996.

4.1.7 Location of the MIC/MIA Connector Maintenance and Storage Facility

The MIC/MIA Connector maintenance and storage facility should be located at or near the termini of the guideway to minimize the non-operational track, construction and operating costs. Since space is not available at or adjacent to the MIA station, the most desirable location would be within or adjacent to the MIC site. The exact location will be dependent upon the facility's impact on the MIC and its associated facilities, including roadways and rental car facilities.

4.1.8 Pedestrian and Bicycle Facilities

Resolution of pedestrian and bicycle facilities will be pursued during PE/FEIS, simultaneous with resolution of MIC area roadways. To date, numerous coordination meetings with the MPO Bicycle and Pedestrian Facilities Coordinator have been held to ensure that facilities are in compliance with the Dade County Bicycle and Pedestrian Facilities Plan.

4.1.9 Design Criteria of MIC Project Architectural Elements

Development of specific design criteria is not usually required in an MIS/DEIS, level of study. The major intent of the MIS/DEIS level of analysis is to determine potential environmental, cost and patronage impacts at a conceptual level of detail. At this stage of analysis, development of specific design criteria would be premature. However, design guidelines and visual appearance of the MIC and its associated facilities will be developed during the PE/FEIS phase of the project through studies of conceptual design and built form. The goal of this effort will be to convey the project's architectural scale and general design intent. Facility design guidelines will be established and coordinated with the appropriate committees and public concerns in order to guide subsequent design stages.

4.1.10 High Speed Rail (HSR)

FDOT is in the process of reviewing five proposals for HSR from Tampa to Miami. Three of the proposals indicate that HSR would approach the MIC from the north. One proposal includes a HSR approach from the west. The remaining proposer is nonspecific about the alignment approaching the MIC. If the proposal of HSR from the west is selected, the Critical Area Approach-Departure Surface for MIA Runway 12/30, the proposed East-West Corridor rail, and the proposed SR 836/SR 112 Interconnector and Le Jeune Road interchange would cause severe engineering constraints for HSR approaching the MIC. Although the exact vertical and horizontal alignment of HSR in this area has not been determined, considerable coordination with the this design team will be required; should they be selected.

4.1.11 MIC Rail/Roadway Configuration at Level 1 (at-grade) or Level 2 (elevated)

Planning and engineering analysis has established that elevating the heavy rail alignments approaching the MIC site from the north and maintaining the roadway configuration at-grade will result in significant reductions in construction costs as compared to elevating the MIC access roadways. The current design recommendation positions the loading platforms for the rail lines at the same elevated level as the MIC main pedestrian concourse (Level 2). Further refinement of rail and roadway configuration and its positioning within the MIC will be undertaken during PE/FEIS.

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