CORRADINO

Final Report

Transit Hub Evaluation Study

Submitted to:

Miami-Dade County Metropolitan Planning Organization

Submitted by:

The Corradino Group, Inc.

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Executive Summary

The Transit Hub Evaluation Study presents a comprehensive transit hub system plan that is designed to best serve public transit users and make using transit more viable throughout Miami-Dade County. This transit hub system plan has been developed during what is an important period in the development of transit in Miami-Dade County as the result of the pending opening of the Miami Intermodal Center (MIC) as well as the continued evolution of community circulators throughout the county.

An MDT bus at Aventura Mall, one of the major transit route interface locations in the county

The plan originated through the MPO's Unified Planning Work Program (UPWP) call for ideas. With the continuing development in the county and the sometimes parallel evolution of transit, it was felt that this plan could provide guidance for transit agencies and municipalities as well as private developers in creating well functioning transit spaces that serve the community and enhance the utility of transit in Miami-Dade County.

Every Metrorail station in the county is a transit hub.

The plan also recognizes the potential for transit to link public sector investment with the private sector to create economic benefit and jobs for a community through Transit Oriented Development (TOD). TOD reflects development patterns for residential and commercial facilities that encourage the attractiveness of using transit or non-motorized transportation. Bus or rail transit stations or "hubs" are usually the focal point of this type of development.

The plan has been coordinated with the MPO's Transportation Planning Technical Advisory Committee (TPTAC) which has served as the study's oversight and advisory committee. In addition, the plan was developed through coordination with Miami-Dade Transit and representatives of a number of municipalities currently operating circulator services in the county.

MDT's express commuter buses on the South Dade Busway

In Miami-Dade County, as in many other communities, transit facilities and centers are seen as potential locations for transit-oriented development as well as being supportive of urban sustainability and livability. Hubs can range in size, design

and cost from enhanced on-street bus stops to off-street facilities housing much larger facilities. The question often ends up being not of one of location, need, or availability of space but of funding. The issue becomes how to most effectively encourage and finance the development of such facilities. Through an analysis of the various studies devoted to this topic over the past several years, the MPO hopes to provide a realistic, implementable blueprint for development of effective transit hubs over the coming years.


Tri-Rail Stations are important transit hubs.

Transit centers have been the focus of several prior studies over the years. Generally, transit centers have been defined as places that function as transportation transfer points and provide access to a transportation service (commonly public transportation) and can also provide for connections between multiple services and modes (rail, bus, park-and-ride, jitney, taxi, etc.). The most recent and directly relevant study on this topic was the Transit Center Connections study[1] conducted in 2004 for the MPO. Figure S-1 presents a map of transit center connections proposed through that effort. That study used as a starting point a 1998 study which had identified a list of 25 intermodal centers. Other work that has been reviewed is a study conducted by The Corradino Group for the Florida Department of Transportation, which focused on identifying publicly available right-of-way that could be available for transit facility development.

The studies reviewed for this analysis were:

- "Alternatives for Intermodal Improvements in Miami-Dade County," 1998;
- "Transit Center Connections," 2004;
- "Miami-Dade County & The Upper and Middle Keys Park and Ride Plan," 2005;
- "Golden Glades Multimodal Transportation Facility Study," 2007;
- "Tri-Rail Parking and Circulation Study," 2007; and,
- "MDT Transit Development Plan," 2007.

To evaluate the transit hubs, the consultant established a list of transit hub sites based on the previous studies referenced above. In addition, the consultant team added a number of sites. In total, 79 sites were identified. These sites were then evaluated to in order to develop a short list of sites to carry into the Transit Hub Plan. The evaluation involved several categories that were all weighted on a scale of one, two, or three, with the higher number indicating greater suitability of the site for a transit hub. The categories used to evaluate each site are as follows:

- Size;
- Ownership;
- Adjacent MDT bus routes;
- Adjacent rail routes;
- Population and employment density;
- Access from major roadways;
- Transit ridership in area;
- Proximity to existing high capacity transit corridor;
- Proximity to proposed high capacity transit corridor;
- Parking suitability;
- Proximity to activity center; and,
- Pedestrian access.

[1] Transit Center Connections, prepared for the Miami-Dade Metropolitan Planning Organization, prepared by Cambridge Systematics, December 2004.

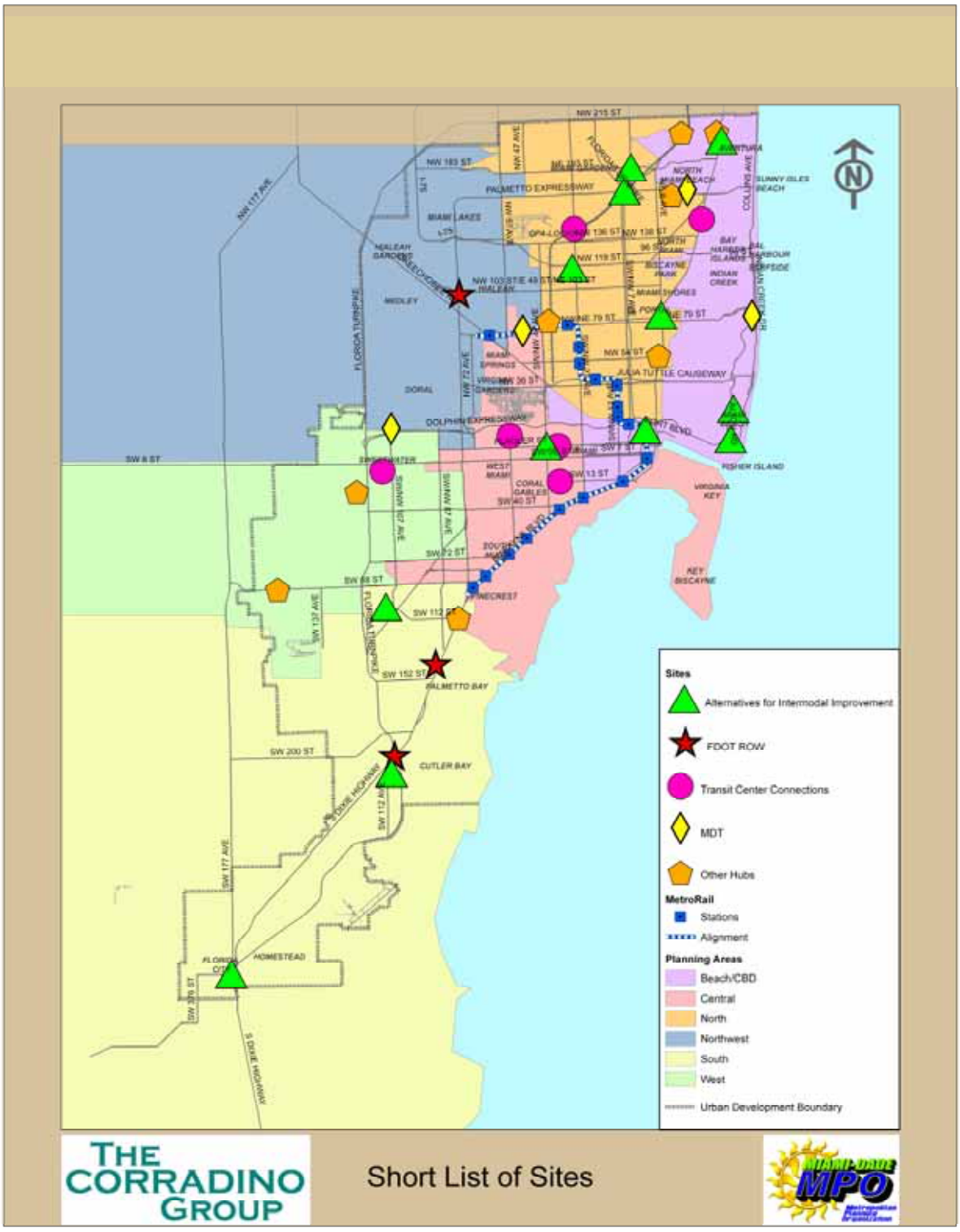
The size and ownership of each site was determined where available. Population and employment density was determined using Traffic Analysis Zone (TAZ) data for the TAZ in which the site was located from the regional SERPM6.5 transportation model for Miami-Dade, Broward, and Palm Beach Counties. Transit ridership information was derived from the Housing and Transportation Affordability Index developed by the Center for Neighborhood Technology.

As a result of the evaluation, 29 sites were placed on a short list to be incorporated into the transit hub plan. The sites are presented in Table S-1 and Figure S-1.

Table S-1
Short List of Sites for Future Transit Hubs

■ Miami-Dade Community College – North Campus
■ Miami-Dade Community College – South Campus
■ Northwest Corner of NW 7th Avenue/NW 183rd Street
■ Cutler Ridge Mall
■ Miami Beach Convention Center
■ Government Center
■ U.S. 1/Aventura Mall
■ Golden Glades (includes Golden Glades North)
■ U.S. 1/Northeast 79th Street
■ West Flagler Street/42nd Avenue
■ Florida City – Palm Drive/FEC ROW
■ 5th Street/Alton Road, Miami Beach
■ Opa-Locka Metrorail (Ali Baba Avenue and 27th Avenue)
■ Blue Lagoon Metrorail (Northwest 7th Street and 57th Avenue)
■ Florida International University (Tamiami Campus)
■ Florida International University (Northeast 146th Street and Biscayne Boulevard)
■ West Flagler Street and Northwest 37th Avenue
■ Miracle Mile (Southwest 24th Street and Southwest 37th Avenue)
■ South Dade Government Center/U.S. 1 in Cutler Bay
■ Palmetto Expressway at Northwest 103rd Street
■ Ives Dairy Road west of U.S. 1
■ U.S. 1 north of SW 144 Street
■ U.S. 1 at Northeast 4th Drive
■ Southwest 112th Street at U.S. 1
■ Kendall Drive at Southwest 157th Avenue
■ U.S. 1 at Northeast 206 Street
■ Northwest 79th Street and Northwest 38th Street (Existing Tri-Rail/Metrorail Transfer Station)
■ Southwest 26th Street at Southwest 122nd Avenue
■ The Mall at163rd Street

Figure S-1
Short List of Sites for Future Transit Hubs



The Tier Concept

An important component of the transit hub plan is a way of looking at the type of facility that can be developed at a particular location. Typically, when a transit facility is designed there is a specific purpose and a specific budget. In the case of the Transit Hub Plan, locations have been identified as suitable for use as a transit hub but an actual project could be years away. Thus, it was determined that a general set of "Tiers" or levels of development should be created to facilitate general discussion about various sites. These "tiers," accompanied with graphic illustrations that show what may be encompassed in a tier, can then be used by government agencies, municipalities, transit systems, and developers as they begin to look at specific sites and types of development.

The following defines the types of transit facilities that typically are developed. An FDOT report, Accessing Transit – Design Handbook for Florida Bus Passenger Facilities,[2] identifies the following facility prototypes:

- On-line Bus Stop;
- Primary Stop;
- Transit Mall;
- Transfer Center;
- Park-and-Ride Facilities;
- Air-bus Intermodal Transfer Centers;
- Rail-bus Intermodal Transit Stations;
- Bus Rapid Transit (BRT); and,
- University Transfer Centers.

These represent specific types of transit development intensity at a particular location. For planning purposes it was determined by the consultant that these categories were too definitive, so a broader range of categories, or tiers, is proposed. The Transit Hub Plan envisions a three-tiered concept that encompasses these facility prototypes. The components of each tier are shown in Table S-2.

Table S-2
The Tier Concept

	Tier 1: Multimodal			Tier 2: Bus Transfer	Tier 3: Superstop
	Central Stations	Intermodal Centers	Regional Hubs	Community Access Points	Local Access Points
Shelter					
Covered	Indoor Facility with A/C	Yes	Indoor Facility with A/C	Yes	Yes
Seating	100+	~ 50+	100+	~ 25	~ 15
Capacity				~ 75	~ 45
ITS					
LCD	Yes	Yes	Yes	Yes	Yes
Bicycle Parking					
Capacity	~ 50	~ 25	~ 50	~ 10	~ 3
Lockers	Yes	Preferred	Preferred	Optional	No

[2] Accessing Transit: Design Handbook for Florida Bus Passenger Facilities, prepared for the Florida Department of Transportation Planning Office, prepared by Florida Planning and Development Lab, Department of Urban and Regional Planning, Florida State University, July 2008.

Table S-2 (continued)
The Tier Concept

	Tier 1: Multimodal			Tier 2: Bus Transfer	Tier 3: Superstop
	Central Stations	Intermodal Centers	Regional Hubs	Community Access Points	Local Access Points
Facilities/Amenities					
Water Fountain	Yes	Yes	Yes	Preferred	Optional
Public Restrooms	Yes	Yes	Yes	Optional	No
Ticketing					Automated
Map	Yes	Yes	Yes	Yes	Yes
Retail/Vending	Vending/Retail	Vending/Retail Preferred	Vending/Retail	Vending	No
Parking	Discouraged	Optional	Discouraged	Park & Ride Optional	None
Customer Service Window	Yes	Yes	Yes	Optional	No
Wireless Internet	Preferred	Preferred	Preferred	Optional	Optional
Routes					
Number of Routes	10+/Intermodal	~7/Intermodal	~10/Intermodal	5 -7	3 - 5
Frequency	~5-7 min	~10 min	~5-7 min	~12 min	~15 min
Surroundings					
Density					
Land Uses	Vertically Mixed Use	Vertically Mixed Use	Vertically Mixed Use		
Handicap Accessibility					
	ADA Requirements	ADA Requirements	ADA Requirements	ADA Requirements	ADA Requirements
Security					
Emergency Call Box	Yes	Yes	Yes	Yes	Yes
CCTV	Yes	Yes	Yes	Preferred	Optional
Personnel	Yes	Yes	Yes	Optional	Optional
Vehicular Ingress and Regress					
Bus Bays	Required	Required	Required	Required	Preferred
Kiss & Ride	Yes	Yes	Yes	Optional	No
Details					

Tier 1 – Multimodal

The Tier 1 Multimodal Hub is a major transportation center generally characterized by a large footprint, many thousands of users, multiple modes of transportation, serving large portions of the metropolitan area. The Tier 1 center in Miami-Dade County would be best characterized by the downtown Government Center, the Miami-Intermodal Center now under construction, and the Golden Glades Park-and-Ride. From the

Conceptual rendering of Tier 1 Facility (axioma3architects)

FDOT facilities report referenced above, the Tier 1 would generally include Transit Malls, Air-Bus Intermodal Transfer Centers, Rail-Bus Intermodal Transit Stations, and possibly University Transfer Centers.

Tier 2 – Bus Transfer

Tier 2 Concept (axioma3architects)

A Tier 2 center is seen as a regional center, drawing park-and-ride activity, transfer between bus and possibly other modes and characterized by a smaller footprint and includes a building that functions as a transit center. A good example of a Tier 2 center being developed in Miami-Dade County is the 7th Street Transit Village that will be built on the southeast corner of 7th Avenue and NW 62nd Street. This facility will be a mixed-use development that will provide a connecting point for Miami-Dade Transit buses, private jitneys and potentially, express buses from I-95. The NW 7th Avenue Transit Village will encourage additional pedestrian traffic and economic development in the Liberty City Business District. The proposed development consists of a mixed-use complex comprised of housing, retail, parking, and transit facilities. These transit facilities include four bus bays, parking for transit users, an operator break room, and space for a possible ticket vending machine, and information displays.

Tier 3 – Superstop

This Tier typically is a stop or group of stops and shelters generally without a physical building but a generally higher level of development than a single bus stop with a shelter. Local in nature, characterized by the presence of multiple shelters and primarily serving bus-to-bus and bus-to-circulator/jitney/taxi type activity. The best examples of superstops in Miami-Dade County are the bus stations/stops along the South Miami-Dade Busway.

Tier 3 Concept (axioma3architects)

Transit Hub Plan

The Transit Hub Plan involves four primary components:

- Existing Metrorail and Busway Stations;
- Existing and Proposed (Committed) Transit Hubs; and,
- Potential Hub Sites Identified During the Planning Process.

The transit hubs identified as priority locations through have been classified as a Tier 1- Multimodal, Tier 2 – Bus Transfer, or Tier 3 – Superstop-type facility. The proposed "tier" for each site was determined based on the criteria listed in Table S-1. Figure S-2 illustrates the sites that form the basis of the transit hub plan.

Table S-3 lists the sites that make up the transit hub plan.

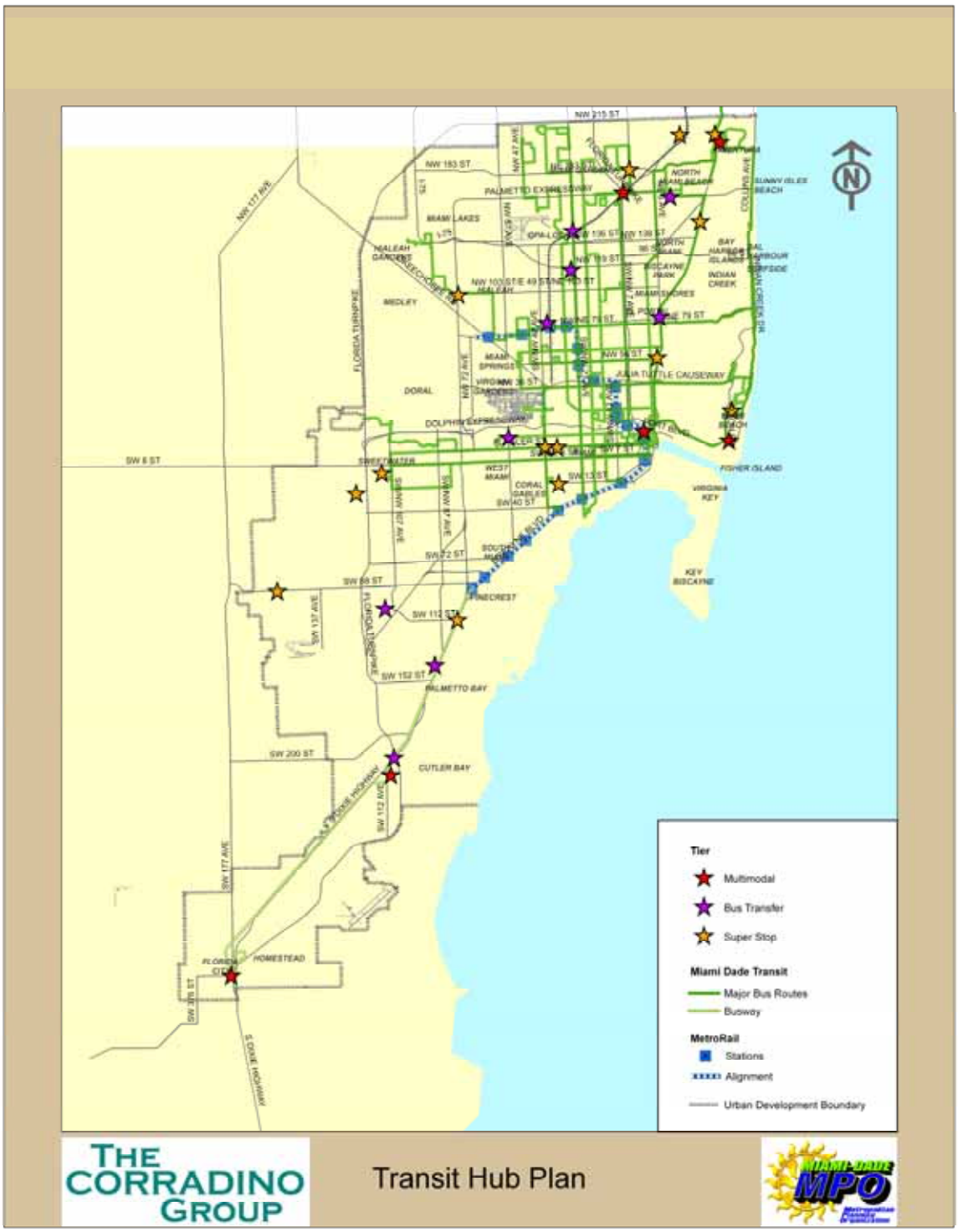
Table S-3
Transit Hub Plan

Hub	Tier	Site Cluster	Status
Miami-Dade Community College – North Campus	2	D	Does not exist
Miami-Dade Community College – South Campus	2	I	Does not exist
Northwest Corner of NW 7th Avenue/NW 183rd Street	3	C	Does not exist
Southland Mall (formerly Cutler Ridge Mall)	1	J	Does not exist
Miami Beach Convention Center	3	F	Does not exist
Government Center	1	NA	Metrorail/Metromover/MDT Hub
U.S. 1/Aventura Mall	1	A	Does not exist
Golden Glades	1	C	Existing
U.S. 1/Northeast 79th Street	2	E	Does not exist
West Flagler Street/42nd Avenue	3	G	Does not exist
Florida City – Palm Drive/FEC ROW	1	I	Does not exist
5th Street/Alton Road, Miami Beach	1	F	Does not exist
Opa-Locka Metrorail (Ali Baba Avenue and 27th Avenue)	2	B	Does not exist
Blue Lagoon Metrorail (Northwest 7th Street and 57th Avenue)	2	G	Does not exist
Florida International University (Tamiami Campus)	3	H	Does not exist
Florida International University (Northeast 146th Street and Biscayne Blvd)	3	B	Does not exist
West Flagler Street and 37th Avenue	3	G	Does not exist
Miracle Mile (Southwest 24th Street and 37th Avenue)	3	G	Does not exist
South Dade Government Center/U.S. 1 in Cutler Bay	2	J	Does not exist
Palmetto Expressway at Northwest 103rd Street	3	NA	Does not exist
Ives Dairy Road west of U.S. 1	3	A	Does not exist
U.S. 1 north of SW 144 Street	2	I	Does not exist
U.S. 1 at Northeast 4th Drive	3	E	Does not exist
Southwest 112th Street at U.S. 1	3	I	Does not exist

Table S-3 (continued)
Transit Hub Plan

Hub	Tier	Site Cluster	Status
Kendall Drive at Southwest 157th Avenue	3	NA	Does not exist
U.S. 1 at Northeast 206 Street	3	A	Does not exist
Miami Intermodal Center	1	G	Under construction
SW 26th Street and SW 122nd Avenue	3	H	Does not exist
163rd Street Mall	2	B	Does not exist
NW 7th Avenue and 62nd Street	2	E	Planned 7th Street Transit Village
Palmetto Metrorail Station – 7701 NW 79 Avenue	2	NA	Existing
Okeechobee Metrorail Station – 2005 Okeechobee Road	2	NA	Existing
Hialeah Metrorail Station – 125 E. 21 Street	2	NA	Existing
Tri-Rail Metrorail Station – 1125 E. 25 Street	2	NA	Existing
Northside Metrorail Station – 3150 NW 79 Street	2	NA	Existing
Dr. Martin Luther King Jr. Metrorail Station – 6205 NW 27 Avenue	2	NA	Existing
Brownsville Metrorail Station – 5200 NW 25 Avenue	2	NA	Existing
Earlington Heights – 2100 NW 41 Street	2	NA	Existing
Allapattah Metrorail Station – 3501 NW 12 Avenue	2	NA	Existing
Santa Clara Metrorail Station – 2050 NW 12 Avenue	2	NA	Existing
Civic Center Metrorail Station – 1501 NW 12 Avenue	2	NA	Existing
Culmer Metrorail Station – 701 NW 11 Street	2	NA	Existing
Historic Overtown/Lyric Theatre Metrorail Station – 100 NW Sixth Street	2	NA	Existing
Brickell Metrorail Station – 1001 SW First Avenue	2	NA	Existing
Vizcaya Metrorail Station – 3201 SW First Avenue	2	NA	Existing
Coconut Grove Metrorail Station – 2780 SW 27 Avenue	2	NA	Existing
Douglas Road Metrorail Station – 3100 Douglas Road	2	NA	Existing
University Metrorail Station – 5400 Ponce de Leon	2	NA	Existing
South Miami Metrorail Station – 5949 S. Dixie Highway	2	NA	Existing
Dadeland North Metrorail Station – 8300 S. Dixie Highway	2	NA	Existing
Dadeland South Metrorail Station – 9150 Dadeland Boulevard	2	NA	Existing
South Miami-Dade Busway – SW 152 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 168 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 200 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 244 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 296 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 344 Street Station	3	NA	Existing

Figure S-2
Transit Hub Plan



Costs and Implementation

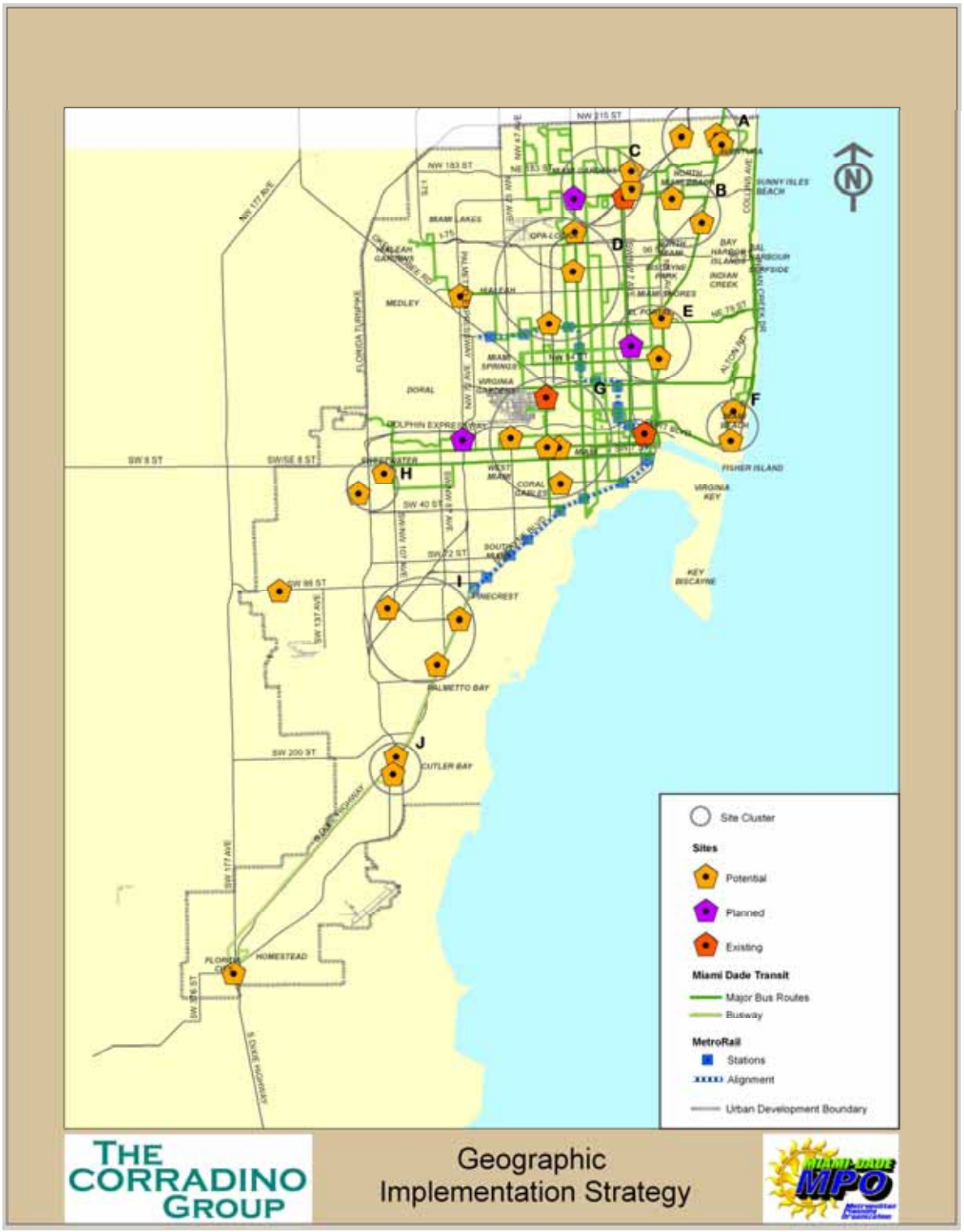
Costs will vary greatly for various facilities depending on the actual use, and materials used, and final design. For rule-of-thumb estimates, a Tier 1 facility would likely range from $500,000 to many millions (the recently opened transit center in Akron, Ohio, cost about $17 million). Tier 2 type facilities would likely cost in the range of $100,000 to $300,000, while enhanced on-street stops or superstops would have a cost of $100,000. The FDOT report referenced earlier,[3] Accessing Transit – Design Handbook for Florida Bus Passenger Facilities, presents a summary of costs for some typical elements found as part of transit facilities.

About half of the sites listed in Table S-3 are Metrorail or Busway stations. The sites also include the Miami Intermodal Center (MIC), Golden Glades, and Government Center. The remaining sites form the core of emphasis for this study. These are locations in the county that, because of demographics, transit use, and other characteristics, represent optimal places for development of transit hubs. Recognizing that some are in close proximity to each other and that eventual development of one site would likely preclude similar development at nearby locations, site clusters based on geographical location have been created and are identified in Figure S-3.

This plan will be used by the MPO and Miami-Dade Transit as a resource during planning for specific transit facility projects such as the current facility being planned at 62nd Street and NW 7th Avenue. The plan will serve as a resource during future studies that focus on the best available locations for transit facilities in the county.

[3] Accessing Transit: Design Handbook for Florida Bus Passenger Facilities, prepared for the Florida Department of Transportation Planning Office, prepared by Florida Planning and Development Lab, Department of Urban and Regional Planning, Florida State University, July 2008.

Figure S-3
Geographic Implementation Strategy



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1. Introduction

The Transit Hub Evaluation Study presents a comprehensive transit hub system plan that is designed to best serve public transit users and make using transit more viable throughout Miami-Dade County. This transit hub system plan builds upon previous studies such as the Miami-Dade Metropolitan Planning Organization's (MPO) Transit Center Connections Study conducted in 2004. It has been developed during what is an important period in the development of transit in Miami-Dade County as the result of the pending opening of the Miami Intermodal Center (MIC) as well as the continued evolution of community circulators throughout the county.

An MDT bus at Aventura Mall, one of the major transit route interface locations in the county

The plan originated through the MPO's Unified Planning Work Program (UPWP) call for ideas. With the continuing development in the county and the sometimes parallel evolution of transit, it was felt that this plan could provide guidance for transit agencies and municipalities as well as private developers in creating well functioning transit spaces that serve the community and enhance the utility of transit in Miami-Dade County. This is particularly relevant as more municipalities take responsibility for providing local transit service and building the infrastructure, such as hubs, to support those services.

Every Metrorail station in the county is a transit hub.

The plan also recognizes the potential for transit to link public sector investment with the private sector to create economic benefit and jobs for a community through Transit Oriented Development (TOD). TOD reflects development patterns for residential and commercial facilities that encourage the attractiveness of using transit or non-motorized transportation. Bus or rail transit stations or "hubs" are usually the focal point of this type of development.

MDT's express commuter buses on the South Dade Busway

A recent publication from the Florida Department of Transportation Public Transit Office[4] notes that bus passenger facilities meet different operational and passenger needs, come in an array of sizes, and are located on both private and

[4] Accessing Transit: Design Handbook for Florida Bus Passenger Facilities, prepared for the Florida Department of Transportation Planning Office, prepared by Florida Planning and Development Lab, Department of Urban and Regional Planning, Florida State University, July 2008.

public land. In the case of Miami-Dade County, which has both bus and rail transit, the transit facility interface is complex. The focus then of this study was to examine the broad base of work that has been accomplished and identify locations, facility types, and guidelines that should guide the development of future transit hubs in the county.

The work in the plan has focused on four tasks:

- Task 1: Study Management and Coordination;
- Task 2: Data Collection and Review;
- Task 3: Transit Hub Location Evaluation; and,
- Task 4: Development of a Transit Hub System Plan.

The plan has been coordinated with the MPO's Transportation Planning Technical Advisory Committee (TPTAC) which has served as the study's oversight and advisory committee. In addition, the plan was developed through coordination with Miami-Dade Transit and representatives of a number of municipalities currently operating circulator services in the county.

Tri-Rail Stations are important transit hubs.

A passenger shelter in Miami Beach for MDT passengers.

2. Data Collection and Review

Public transportation hubs in many forms have evolved over the last 30 years into a range of facilities designed to provide hubs for interfacing and interconnecting a variety of intercity, regional, and local public transportation systems and to make individual systems function more efficiently. Equally important is their value to the transit rider. The presence of hubs at places where transfers occur between vehicles of an individual system or multiple modes provides security, safety, information, and convenience, thus making people more likely to use transit. Hubs can range in size, design and cost from enhanced on-street bus stops to off-street facilities housing much larger facilities.

In Miami-Dade County, as in many other communities, transit facilities and centers are also seen as potential locations for transit-oriented development as well as being supportive of urban sustainability and livability. The question often ends up being not of one of location, need, or availability of space but of funding. The issue becomes how to most effectively encourage and finance the development of such facilities. Through an analysis of the various studies devoted to this topic over the past several years, the MPO hopes to provide a realistic, implementable blueprint for development of effective transit hubs over the coming years.

Existing Transit Services in Miami-Dade County

In Miami-Dade County today Metro-Dade Transit is the most prominent transit provider with over 90 routes, Metrorail service and 22 Metrorail stations, Metromover downtown service, bus rapid transit service along the South Miami-Dade Busway, and paratransit services through its STS program. MDT averages over 326,000 daily boardings on its bus and rail services and 6,000 boardings on its STS service.

An increasing presence in the county's transit resources are municipal circulator services. Currently, services are provided in a number of communities, including:

- Aventura;
- Bay Harbor Islands;
- Coral Gables;
- Doral;
- Hialeah;
- Hialeah Gardens;
- Miami (planned);
- Miami Gardens;
- North Bay Village;
- North Miami;
- North Miami Beach;
- Palmetto Bay;
- Sunny Isles Beach; and,
- Surfside.

There are also a variety of jitney (private public transportation) services in the county as well as numerous private taxi operators. All of the above could be potential users of transit hubs.

Review of Prior Transit Center Studies

Transit centers have been the focus of several prior studies over the years. Generally, transit centers have been defined as places that function as transportation transfer points and provide access to a transportation service (commonly public transportation) and can also provide for connections between multiple services and modes (rail, bus, park-and-ride, jitney, taxi, etc.). The most recent and directly relevant study on this topic was the Transit Center Connections study[5] conducted in 2004 for the MPO. Figure 2-1 presents a map of transit center connections proposed through that effort. That study used as a starting point a 1998 study which had identified a list of 25 intermodal centers. Other work that has been reviewed is a study conducted by The Corradino Group for the Florida Department of Transportation, which focused on identifying publicly available right-of-way that could be available for transit facility development.

The studies reviewed for this analysis were:

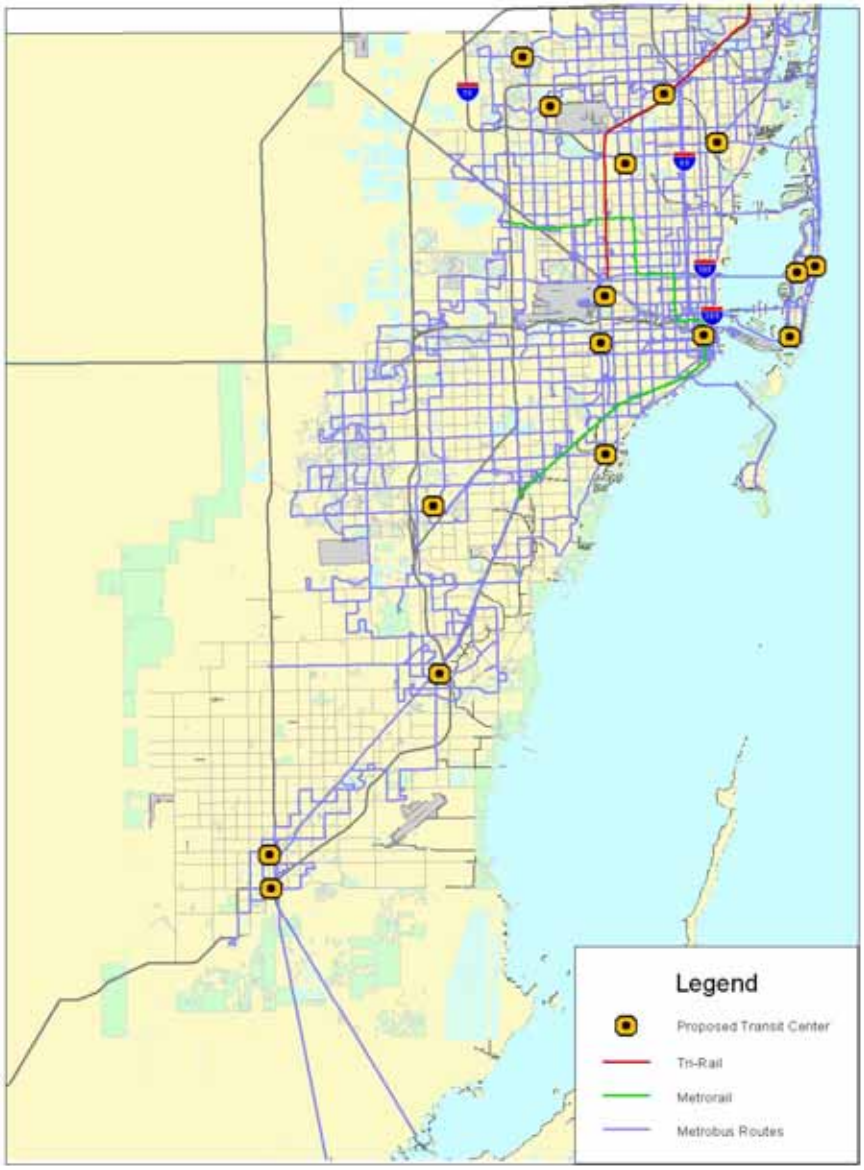
- "Alternatives for Intermodal Improvements in Miami-Dade County," 1998;
- "Transit Center Connections," 2004;
- "Miami-Dade County & The Upper and Middle Keys Park and Ride Plan," 2005;
- "Golden Glades Multimodal Transportation Facility Study," 2007;
- "Tri-Rail Parking and Circulation Study," 2007; and,
- "MDT Transit Development Plan," 2007.

The studies focused on multi-modal, joint development, and bus interface opportunities. There was a certain amount of overlap in the discussion of sites and opportunities. Over 100 sites were identified. Most did not have detailed information regarding size, ownership, and other details. The overall transit hub plan will reflect existing (or under construction) transit hubs. These include:

- Miami Intermodal Center;
- Omni;
- Aventura Mall;
- Metrorail Stations;
- Metromover Stations;
- Busway Stations; and,
- Tri-Rail Stations.

[5] Transit Center Connections, prepared for the Miami-Dade Metropolitan Planning Organization, prepared by Cambridge Systematics, December 2004.

Figure 2-1
Transit Center Connections – Potential Transit Centers



- Coconut Grove
- Collins Avenue/44th Street
- Cutler Ridge Mall
- Downtown Miami Transit Connections
- Flagler/42nd Avenue
- Florida City – Palm Drive/FEC
- Golden Glades Multimodal Terminal
- Golf Club/Miami Gardens Drive
- Homestead Transit Hub
- MDC North Campus
- MDC South Campus
- Miami Beach – Alton Road/5th Street
- Miami Intermodal Center
- Miami Lakes Tech Ed Center
- Miami Beach Transit Hub
- NE 125th Street/Dixie Highway/NE 6th Avenue

Review of Transit Hubs in other Parts of the United States

Transit systems throughout the world depend on transit hubs to enhance the public transportation experience. In Appendix A, some examples along with relative cost information are presented for cities ranging from Tampa, Fla., to Columbus, Ohio. Information on these transit hubs can be found in Appendix A.

Transit centers fulfill various distinct roles across the American urban landscape. A transit center is a major transportation hub served by several bus, subway, streetcar, or commuter train routes. These hubs provide safe and efficient transfers for users onto local and regional transportation networks. Often, the proximity to airports and seaports provides riders with easy access to international destinations. Successful main streets and downtown districts typically have a transportation hub at their core. Downtown hubs bring people efficiently into the central business district, providing easy access to jobs, shopping, city business, arts centers, and museums. Because the CBD is the location of both the transit hub and the highest concentration of employment in nearly every metropolitan area, employment density and accessibility are important determinants in transit hub placement.

The modes of transit served by a particular hub varies by its intended use and location. For instance, an intermodal center is a one-stop transportation complex with multi-modal transportation links to local and regional transit systems. While a smaller transit hub or super stop, likely provides only local access to important community structures. All transit hubs, however, are always accessible to pedestrians, bicyclists, local transit users, and in the cases of park-and-ride facilities, even cars. Transit hubs with regional transit connections usually provide access to Amtrak and intercity buses such as Greyhound.

Transit hubs vary greatly in cost. The scale and location of the facility are the main determinants in the cost estimation of the transit centers. Amenities such as retail space, restrooms, or parking also affects the cost associated with building and maintaining these centers. Table 2-1 depicts the construction costs of some sample transit hubs across the United States.

Table 2-1
Representative Transit Hub Costs

Transit Hub	Location	Cost	Size	Type
Gateway Center	Los Angeles, CA	$300 million	3.5 million ft^2	Intermodal
Federal Way Transit Center	Seattle, WA	$39.4 million	1,200 Spaces	Park-and-Ride
West Tampa Transfer Center	Tampa, FL	$1.4 million	1,120 ft^2	Transfer Center
Kenmore Square	Boston, MA	$31 million		Intermodal
Eaton Transit Center	Columbus, OH	$1.7 million	1,300 ft^2	Transfer Center
Mendenhall Station	High Point, NC	$12.9 million		Transit Hub

Transit facilities at all levels of development are increasingly being built with sustainable and eco-friendly/LEED principles. An example is in Akron, Ohio, where a $17 million bus/Greyhound transfer facility was opened on January 18, 2009. This facility features: a 134 kilowatt solar array; 45 geothermal well field; grey water recycling system; light motion detectors inside; CO2 sensors to open and close outside vents; used recycled concrete in the flooring; waterless urinals in the bathrooms; recycling of 75 percent of construction waste associated with the project; and, LED lighting where possible.

A view of the recently opened Akron, Ohio, Transit Center

3. Transit Hub Location Evaluation

To evaluate the transit hubs, the consultant established a list of transit hub sites based on the previous studies that have been conducted over the years. In addition, the consultant team added a number of sites. In total, 79 sites were identified (Figure 3-1). As can be seen, there were more transit centers in the north and east than in the north and west.

The map in Figure 3-1 shows the planning areas for the county (Beach/CBD, Central, North, Northwest, South, West) from the Miami-Dade County Long Range Transportation Plan (LRTP). These are shown so that geographic reference of the various proposed sites can be seen in relation to the county's 25-year plan.

The Comprehensive Development Master Plan (CDMP) outlines the county's objectives for growth and includes the identification of urban centers, which are to include rapid transit stations in their vicinity. The CDMP was reviewed to determine whether activity centers identified in the long range plan were reflected in the overall listing of sites. They were represented.

As noted previously, the initial list of sites was taken from several other previous studies performed in the area as well as new locations added by the consultant based on local knowledge. All the sites conceivably have potential to serve as transit centers. These sites were then evaluated to in order to develop a short list of sites to carry into the Transit Hub Plan. The evaluation table is presented in Table 3-1. The evaluation involved several categories that were all weighted on a scale of one, two, or three, with the higher number indicating greater suitability of the site for a transit hub. The categories used to evaluate each site are as follows:

- Size;
- Ownership;
- Adjacent MDT bus routes;
- Adjacent rail routes;
- Population and employment density;
- Access from major roadways;
- Transit ridership in area;
- Proximity to existing high capacity transit corridor;
- Proximity to proposed high capacity transit corridor;
- Parking suitability;
- Proximity to activity center; and,
- Pedestrian access.

The size and ownership of each site was determined where available. Population and employment density was determined using Traffic Analysis Zone (TAZ) data for the TAZ in which the site was located from the regional SERPM6.5 transportation model for Miami-Dade, Broward, and Palm

Beach Counties. Transit ridership information was derived from the Housing and Transportation Affordability Index developed by the Center for Neighborhood Technology.

Table 3-1 presents the scoring criteria that were used in the analysis. The highest score represents a higher suitability for a site to serve as a transit hub.

The scale of each category was developed and scored as follows:

Table 3-1
Transit Hub Scoring Criteria

Category	Score = 1	Score = 2	Score = 3
Size	NA	Less than an acre	More than an acre
Ownership	Private		Public
Adjacent MDT bus routes	0 to 3 routes	3 to 6 routes	7 or more routes
Adjacent rail routes	0 routes		1 or more routes
Population and employment density[1]	0 - 20	21 - 40	40 and more
Access from major roadways	No	NA	Yes
Transit ridership in area	0 to 8%	8% to 14%	14% or more
Proximity to existing high capacity transit corridor	Over 2 miles	1 to 2 miles	1 mile or less
Proximity to proposed high capacity transit corridor	Over 2 miles	1 to 2 miles	1 mile or less
Parking suitability	0	1-20	20+
Proximity to regional activity center	Over 2 miles	1 to 2 miles	1 mile or less
Pedestrian access	No sidewalks	NA	Sidewalks

[1] Population and Employment Density per acre based SERPM6.5 Model and calculated based on the Traffic Analysis Zone that the site is located in.

Table 3-2 presents the results of the scoring. There were 36 possible points. Any site having more than two-thirds of the total points possible (25 points) was identified as the "short list" of sites. Because all of these sites (with the exception of those identified by the consultant) had been identified through prior formally conducted and approved planning processes, it is recognized that this "short listing" can be considered arbitrary. And, in fact, none of the sites actually goes away because of their documentation in this report and others as having potential for transit connections. Twenty-nine sites have been placed on the short list (Table 3-2). These sites will be incorporated into the transit hub plan presented in Chapter 4.

Figure 3-1
Comprehensive Listing of Candidate Transit Hub Sites

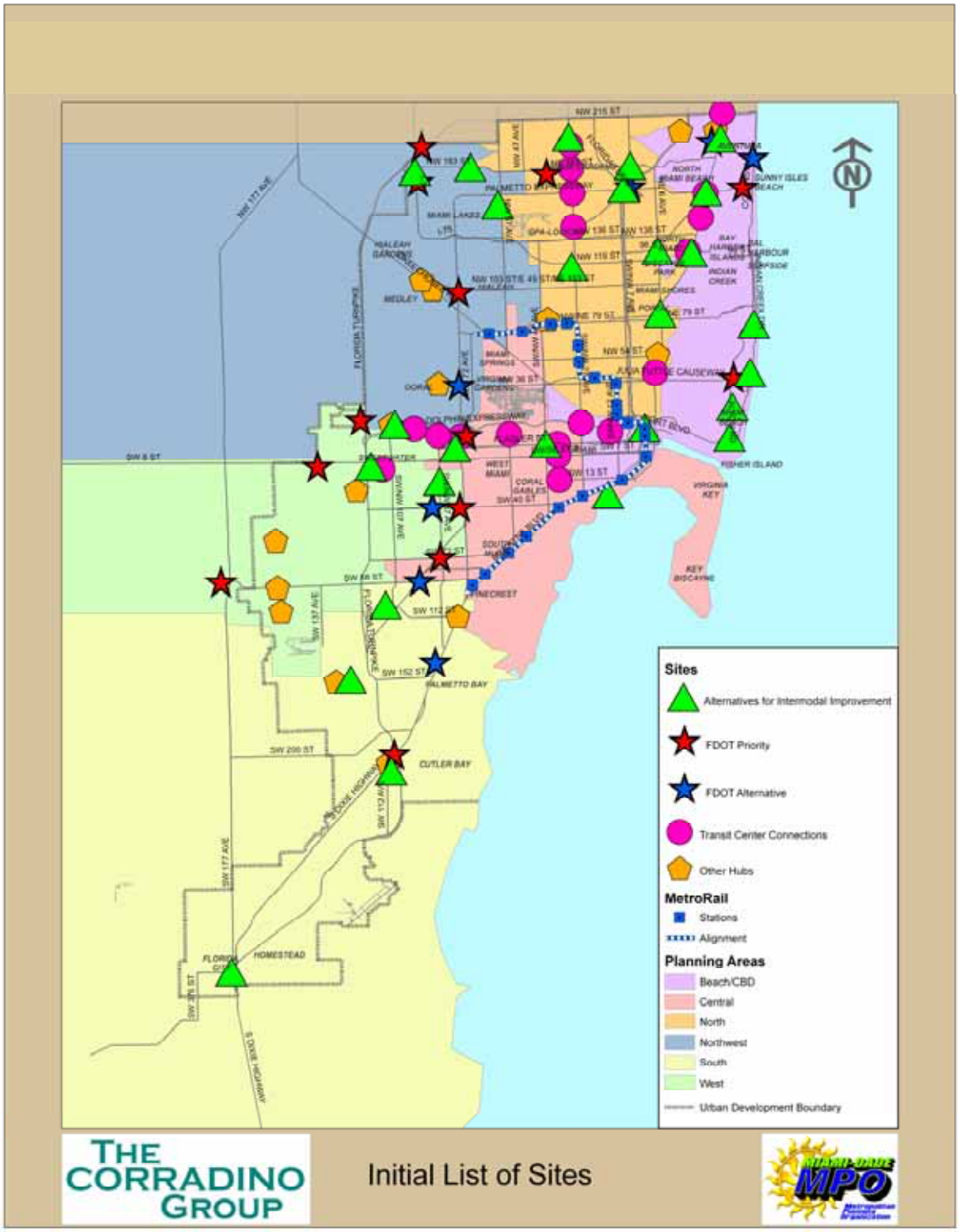


Table 3-2
Miami-Dade County Transit Hub Evaluation Study – Candidate Sites
(Note: Because of size limitations, the columns for size and access from major roadways are not listed here.)

Location	Study	Ownership	Number of Adjacent Routes		Pop & Emp Density	Transit Ridership (%)	Proximity to Existing or Proposed High Capacity Transit Corridor		Parking Suitability	Proximity to Activity Center	Pedestrian Access	Score	LRTP Planning Area
		Public/Private	MDT Bus	Rail	Per Acre[1]	% of Workforce[2]	Existing Corridors	Proposed Corridors	Spaces	Miles	Sidewalks		
MDC North Campus	1	Public	6	0	0-20	8 - 14%	0.9 Miles	0	20+	5.3	Yes	26	North
MDC South Campus	1	Public	6	0	20-40	8 - 14%	2.9 Miles	2.9 Miles	20+	0.6	Yes	25	Central
NW Corner of NW 7th Ave./ NW 183rd St.	1	Private	4	0	20-40	8 - 14%	0.7 Miles	0.7 Miles	20+	1.9	Yes	26	North
Miami Lakes Technical Education Center	1	Public	4	0	0-20	8 - 14%	2.8 Miles	2.8 Miles	20+	3.7	Yes	22	North
Cutler Ridge Mall	1	Private	10	0	0-20	4 - 8%	0.2 Miles	0.2 Miles	20+	0	Yes	26	South
Collins Ave. at NE 44th St.	1	Private	8	0	40+	8 - 14%	4.9 Miles	1.1 Miles	0	0.5	Yes	24	Beach/CBD
Coconut Grove (McFarlane Rd.)	1	Private	4	0	20-40	4 - 8%	0.4 Miles	0.4 Miles	1-20	3.2	Yes	23	Central
Collins Ave. at 72nd St.	1	Private	9	0	40+	8 - 14%	6.2 Miles	3.2 Miles	20+	3.8	Yes	23	Beach/CBD
Miami Beach Convention Center	1	Public	3	0	20-40	More than 14%	3.3 Miles	0	20+	0	Yes	27	Beach/CBD
Government Center	1	Public	4	1	40+	More than 14%	0	0	20+	0	Yes	33	Beach/CBD
U.S. 1/Aventura Mall	1	Private	7	0	40+	8 - 14%	1.5 Miles	0	20+	0	Yes	28	
FIU (Tamiami Campus)	1	Public	5	0	0-20	8 - 14%	6.2 Miles	0	20+	0	Yes	26	Central
Golden Glades Park-n-Ride	1	Public	8	1	0-20	8 - 14%	0	0	20+	3.1	Yes	29	North
Westchester Shopping Center (Coral Way and 87th Ave.)	1	Private	4	0	20-40	8 - 14%	4.1 Miles	1.9 Miles	20+	1.9	Yes	23	West
Miami International Mall	1	Private	6	0	0-20	4 - 8%	4.9 Miles	0.4 Miles	20+	0	No	21	Northwest
W. Flagler St./NW 79th Ave.	1	Private	5	0	20-40	8 - 14%	1.7 Miles	0.5 Miles	0	3.8	Yes	22	Central
27th Ave//NW 207th St.	1	Private	4	0	0-20	4 - 8%	3.2 Miles	3.2 Miles	0	0.4	Yes	19	North
Golf Club at Miami Gardens Dr.	1	Private	3	0	40+	4 - 8%	4.6 Miles	4.6 Miles	20+	5.5	Yes	20	Northwest
U.S. 1/NE 79th St.	1	Private	5	0	20-40	8 - 14%	3.6 Miles	0	20+	0	Yes	25	Beach/CBD
Coral Reef (SW 117th Ave./152nd St.)	1	Private	1	0	0-20	1 - 4%	2.6 Miles	2.6 Miles	20+	3.6	Yes	18	South
W. Flagler St./42nd Ave.	1	Private	5	0	20-40	More than 14%	1.6 Miles	0.5 Miles	0	1.8	Yes	24	Central
Florida City - Palm Drive/FEC ROW	1	Public	7	0	0-20	4 - 8%	0.4 Miles	0.4 Miles	0	1.5	Yes	25	South

Table 3-2 (continued)
Miami-Dade County Transit Hub Evaluation Study – Candidate Sites

Location	Study	Ownership	Number of Adjacent Routes		Pop & Emp Density	Transit Ridership (%)	Proximity to Existing or Proposed High Capacity Transit Corridor		Parking Suitability	Proximity to Activity Center	Pedestrian Access	Score	LRTP Planning Area
		Public/Private	MDT Bus	Rail	Per Acre[1]	% of Workforce[2]	Existing Corridors	Proposed Corridors	Spaces	Miles	Sidewalks		
87th Ave. at Miami Gardens Dr.	1	Private	0	0	0-20	4 - 8%	6.5 Miles	6.5 Miles	20+	7.1	Yes	18	Northwest
U.S. 1/163rd St.	1	Private	7	0	0-20	8 - 14%	2.4 Miles	0 Miles	0	1.9	Yes	22	Beach/CBD
NE 125th St./Dixie Highway/ NE 6th Ave.	1	Private	5	0	20-40	8 - 14%	2.8 Miles	1.0 Miles	0	3.6	Yes	21	Beach/CBD
5th St./Alton Rd., Miami Beach	1	Private	9	0	40+	More than 14%	3.4 Miles	0 Miles	20+	1.6	Yes	29	Beach/CBD
Opa-Locka Metrorail (Ali Baba Ave. and 27th Ave.)	2	Public	5	1	20-40	8 - 14%	0	0 Miles	20+	3.5	Yes	29	Central
166th St. Metrorail (NW 166th St. and 27th Ave.)	2	Private	4	0	0-20	8 - 14%	1.4 Miles	0 Miles	20+	2	Yes	24	North
183 St. Metrorail .(NW 183rd St. and 27th Ave.)	2	Private	5	0	20-40	4 - 8%	2.5 Miles	0 Miles	20+	1	Yes	23	North
199th St. Metrorail (NW 199th St. and 27th Ave.)	2	Private	4	0	0-20	4 - 8%	2.9 Miles	0 Miles	20+	0	Yes	23	North
Blue Lagoon Metrorail (NW 7th St. and 57th Ave.)	2	Private	3	0	40+	More than 14%	1.9 Miles	0 Miles	20+	2.7	Yes	25	Central
Palmetto Metrorail (NW 7th St. and Palmetto Expressway)	2	Private	3	0	20-40	8 - 14%	0	0 Miles	20+	4	Yes	24	Northwest
87th Ave. Metrorail (NW 7th St. and 87th Ave.)	2	Private	2	0	40+	4 - 8%	4.6 Miles	0 Miles	0	2.1	Yes	20	Northwest
97th Ave. Metrorail (SR 836 and 97th Ave.)	2	Private	0	0	20-40	4 - 8%	4.6 Miles	0 Miles	0	0.8	Yes	20	Northwest
FIU (Tamiami Campus)	2	Public	5	0	0-20	8 - 14%	6.2 Miles	0 Miles	20+	0	Yes	26	Central
27th Ave. Metrorail (SR 836 and 27th Ave.)	2	Private	3	0	20-40	8 - 14%	1.5 Miles	0 Miles	0	2.1	Yes	22	Central
Orange Bowl Metrorail (NW 7th St. and 15th Ave.)	2	Private	3	0	40+	More than 14%	0.6 Miles	0 Miles	20+	1.7	Yes	23	Beach/CBD

Table 3-2 (continued)
Miami-Dade County Transit Hub Evaluation Study – Candidate Sites

Location	Study	Ownership	Number of Adjacent Routes		Pop & Emp Density	Transit Ridership (%)	Proximity to Existing or Proposed High Capacity Transit Corridor		Parking Suitability	Proximity to Activity Center	Pedestrian Access	Score	LRTP Planning Area
		Public/Private	MDT Bus	Rail	Per Acre[1]	% of Workforce[2]	Existing Corridors	Proposed Corridors	Spaces	Miles	Sidewalks		
Design District (NE 42nd St. and Biscayne Blvd.)	2	Private	4	0	40+	8 - 14%	1.7 Miles	0 Miles	0	2.3	Yes	23	Beach/CBD
125th St. (NE 125th St. and 16th Ave.)	2	Private	4	0	20-40	8 - 14%	4.1 Miles	0.2 Miles	1-20	2.5	Yes	22	Beach/CBD
FIU North Campus (NE 146th St. and Biscayne Blvd.)	2	Public	3	0	40+	8 - 14%	3.4 Miles	0 Miles	20+	0	Yes	27	Beach/CBD
Northeast Passenger Activity Center (NE 162nd St. and Biscayne Blvd.)	2	Private	7	0	0-20	8 - 14%	2.5 Miles	0 Miles	0	1.8	Yes	22	Beach/CBD
Aventura (NE 215th St. and Biscayne Blvd.)	2	Private	1	0	0-20	8 - 14%	1.5 Miles	0 Miles	20+	1.2	Yes	23	Beach/CBD
Flagler (SW Flagler St. and 37th Ave.)	2	Private	4	0	20-40	8 - 14%	1.6 Miles	0 Miles	20+	2	Yes	25	Central
8th St. (SW 8th St. and 37th Ave.)	2	Private	3	0	20-40	8 - 14%	1.9 Miles	0 Miles	0	2.7	Yes	21	Central
Miracle Mile (SW 24th St. and 37th Ave.)	2	Private	4	0	40+	More than 14%	0.9 Miles	0 Miles	20+	0	Yes	27	Central
I-195 and Alton Rd. (Property used as landscaping and welcome sign by Miami Beach) (Mt. Sinai)	3	Public	7	0	20-40	8 - 14%	4.3 Miles	1.2 Miles	0	1.9	No	23	Beach/CBD
NW 170th St. and 89th Ave. at I-75	3	Public	0	0	0-20	4 - 8%	6.1 Miles	6.1 Miles	0	5.3	No	17	Northwest
Bird Road west of the Palmetto	3	Public	2	0	0-20	8 - 14%	2.7 Miles	2.7 Miles	20+	3.4	Yes	23	West
826/836 interchange	3	Public	2	0	0-20	8 - 14%	3.3 Miles	0 Miles	0	2.7	No	19	Central
NW 12th St. at NW 122nd Ave.	3	Public	6	0	0-20	Less than 1%	5.6 Miles	1.4	0	1.9	No	21	West
SW 8th St. at SW 147th Ave.	3	Public	3	0	0-20	1 - 4%	8.3 Miles	2.1 Miles	0	5.4	No	17	West
Kendall Dr. at Krome Ave.	3	Public	0	0	0-20	1 - 4%	9.7 Miles	2.1 Miles	0	5.5	No	17	West
Turnpike at I-75	3	Public	0	0	0-20	4 - 8%	6.7 Miles	6.2 Miles	0	6.7	No	16	Northwest
Sunny Isles Causeway	3	Public	4	0	20-40	4 - 8%	3.3 Miles	1.5 Miles	0	2.4	Yes	21	Beach/CBD

Table 3-2 (continued)
Miami-Dade County Transit Hub Evaluation Study – Candidate Sites

Location	Study	Ownership	Number of Adjacent Routes		Pop & Emp Density	Transit Ridership (%)	Proximity to Existing or Proposed High Capacity Transit Corridor		Parking Suitability	Proximity to Activity Center	Pedestrian Access	Score	LRTP Planning Area
		Public/Private	MDT Bus	Rail	Per Acre[1]	% of Workforce[2]	Existing Corridors	Proposed Corridors	Spaces	Miles	Sidewalks		
U.S. 1 in Cutler Bay	3	Public	4	0	40+	4 - 8%	0 Miles	0 Miles	20+	0	Yes	30	South
Palmetto at NW 103rd St.	3	Public	2	0	40+	4 - 8%	1.5 Miles	1.5 Miles	20+	0	Yes	27	Northwest
Miami Gardens Dr. at NW 37th Ave.	3	Public	3	0	0-20	4 - 8%	2.6 Miles	1.0 Miles	0	2.3	Yes	22	North
Sunset Dr. at SW 89th Ave.	3	Public	4	0	0-20	4 - 8%	1.8 Miles	1.0 Miles	20+	2.2	Yes	24	West
Ives Dairy Rd. west of U.S. 1	3	Public	4	0	0-20	8 - 14%	1.2 Miles	0 Miles	0	0.5	Yes	27	Beach/CBD
U.S. 1 north of SW 144th St.	3	Public	7	0	20-40	8 - 14%	0 Miles	0 Miles	0	3.8	Yes	28	South
A1A south of William Lehman Cswy	3	Public	4	0	20-40	8 - 14%	3.0 Miles	1.6 Miles	0	1.3	Yes	24	Beach/CBD
Golden Glades North	3	Public	8	1	0-20	8 - 14%	0 Miles	0 Miles	20+	3.1	Yes	31	North
Palmetto at NW 36th St.	3	Public	4	0	20-40	8 - 14%	2.3 Miles	2.2 Miles	0	4.6	Yes	22	Northwest
Bird Rd. at SW 89th Ave.	3	Public	3	0	20-40	8 - 14%	3.6 Miles	2.8 Miles	0	5.9	Yes	21	West
Kendall Dr. at SW 97th Ave.	3	Public	5	0	0-20	1 - 4%	2.0 Miles	0 Miles	20+	2.1	Yes	24	South
SW 104th St. and Hammocks Blvd.	4	Private	2	0	20-40	4 - 8%	6.9 Miles	0.9 Miles	20+	4.5	Yes	21	West
SW 130th Ave. and 152nd St. (under the power lines)	4	Public	1	0	20-40	1 - 4%	4.1 Miles	4.1 Miles	0	4.7	Yes	19	West
20500 SW 112th Ave. (Target)	4	Private	6	0	0-20	4 - 8%	0 Miles	0 Miles	20+	0	Yes	19	South
U.S. 1 and NE 4th Dr.	4	Private	4	0	40+	More than 14%	2.0 Miles	0 Miles	0	1.5	Yes	25	Beach/CBD
SW 112th St. and U.S. 1	4	Private	9	0	0-20	8 - 14%	0 Miles	0 Miles	20+	1.6	Yes	25	South
Kendall Dr. and SW 157th Ave.	4	Private	4	0	40+	1 - 4%	7.6 Miles	0 Miles	20+	3.6	Yes	26	West
Miller Rd. and SW 157th Ave.	4	Private	1	0	0-20	1 - 4%	8.4 Miles	2.0 Miles	20+	4.6	Yes	23	West
NW 12th St. and NW 107th Ave.	4	Private	3	0	0-20	4 - 8%	4.9 Miles	0 Miles	20+	0	Yes	19	Northwest
W. Okeechobee Rd. and NW 92 Ave	4	Private	0	0	0-20	8 - 14%	2.5 Miles	2.5 Miles	0	1.6	Yes	22	Northwest
W. Okeechobee Rd. and NW 103 St.	4	Private	0	0	40+	8 - 14%	1.9 Miles	1.9 Miles	20+	0	Yes	18	Northwest
U.S. 1 and NE 206 St.	4	Private	4	0	20-40	8 - 14%	1.2 Miles	0 Miles	1-20	0.7	Yes	25	Beach/CBD

Table 3-2 (continued)
Miami-Dade County Transit Hub Evaluation Study – Candidate Sites

Location	Study	Ownership	Number of Adjacent Routes		Pop & Emp Density	Transit Ridership (%)	Proximity to Existing or Proposed High Capacity Transit Corridor		Parking Suitability	Proximity to Activity Center	Pedestrian Access	Score	LRTP Planning Area
		Public/Private	MDT Bus	Rail	Per Acre[1]	% of Workforce[2]	Existing Corridors	Proposed Corridors	Spaces	Miles	Sidewalks		
NW 79th Ave. and NW 38th Ave. (TriRail-MetroRail Transfer)	4	Private	3	2	0-20	8 - 14%	0 Miles	0 Miles	20+	3	Yes	25	Central
SW 26 St. and SW 122 Ave.	4	Private	4	0	0-20	8 - 14%	6.3 Miles	0.5 Miles	0	0.5	Yes	25	West
Ives Dairy Rd. at I-95	4	Private	2	1	20-40	4 - 8%	0 Miles	0 Miles	0	1.8	Yes	24	North
163rd St. Mall	4	Private	4	0	20-40	8 – 14%	1.2 Miles	0 Miles	20+	0.5	Yes	26	North
NW 36 St. and NW 87 Ave.	4	Private	4	0	40+	4 - 8%	2.5 Miles	2.2 Miles	20+	1.3	Yes	22	Northwest

[1] Population and Employment Density based SERPM6.5 Model and calculated based on the Traffic Analysis Zone that the site is located in.
[2] Transit Ridership numbers derived from The Housing and Transportation Affordability Index developed by the Center for Neighborhood Technology.

Figure 3-2
Short List of Sites for Future Transit Hubs

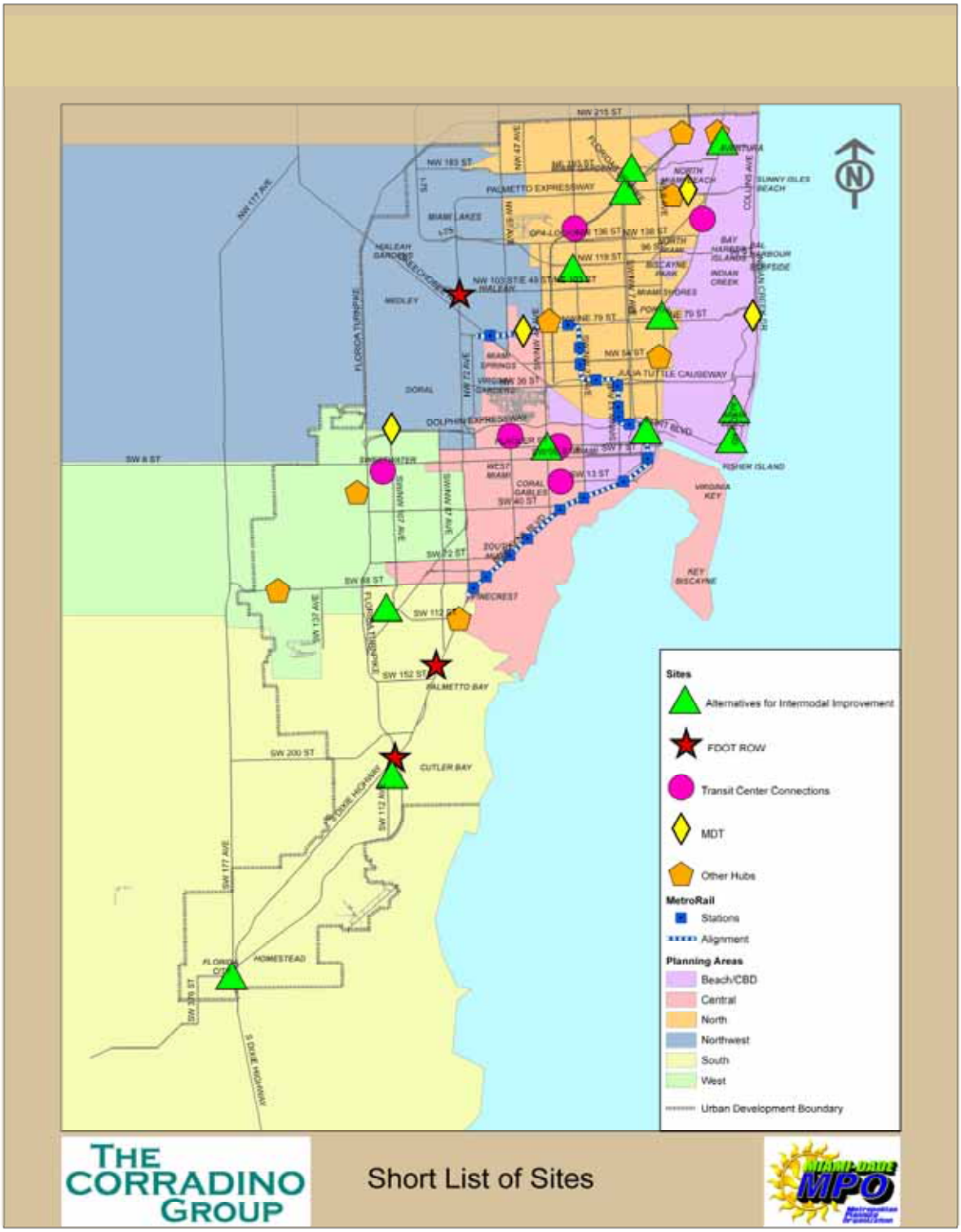


Table 3-3
Short List of Sites for Future Transit Hubs

■ Miami-Dade Community College – North Campus
■ Miami-Dade Community College – South Campus
■ Northwest Corner of NW 7th Avenue/NW 183rd Street
■ Cutler Ridge Mall
■ Miami Beach Convention Center
■ Government Center
■ U.S. 1/Aventura Mall
■ Golden Glades (includes Golden Glades North)
■ U.S. 1/Northeast 79th Street
■ West Flagler Street/42nd Avenue
■ Florida City – Palm Drive/FEC ROW
■ 5th Street/Alton Road, Miami Beach
■ Opa-Locka Metrorail (Ali Baba Avenue and 27th Avenue)
■ Blue Lagoon Metrorail (Northwest 7th Street and 57th Avenue)
■ Florida International University (Tamiami Campus)
■ Florida International University (Northeast 146th Street and Biscayne Boulevard)
■ West Flagler Street and Northwest 37th Avenue
■ Miracle Mile (Southwest 24th Street and Southwest 37th Avenue)
■ South Dade Government Center/U.S. 1 in Cutler Bay
■ Palmetto Expressway at Northwest 103rd Street
■ Ives Dairy Road west of U.S. 1
■ U.S. 1 north of SW 144 Street
■ U.S. 1 at Northeast 4th Drive
■ Southwest 112th Street at U.S. 1
■ Kendall Drive at Southwest 157th Avenue
■ U.S. 1 at Northeast 206 Street
■ Northwest 79th Street and Northwest 38th Street (Existing Tri-Rail/Metrorail Transfer Station)
■ Southwest 26th Street at Southwest 122nd Avenue
■ The Mall at163rd Street

.

Open area at Miami-Dade Community College North Campus

Parking area at Kendall Drive and SW 157th Avenue

Transit center at Golden Glades

4. Plan Development

The transit hub plan brings together years of planning studies and provides a basis for gradual implementation of a system that meets the needs of Miami-Dade County. The plan is based on the premise that the hub system would complement existing public and private transit services in the county including Miami-Dade Transit (MDT), Tri-Rail, intercity bus and rail where feasible, existing and future municipal circulators, and private jitney and taxi operations.

The Tier Concept

An important component of the transit hub plan is a way of looking at the type of facility that can be developed at a particular location. Typically, when a transit facility is designed there is a specific purpose and a specific budget. In the case of the Transit Hub Plan, locations have been identified as suitable for use as a transit hub but an actual project could be years away. Thus, it was determined that a general set of "Tiers" or levels of development should be created to facilitate general discussion about various sites. These "tiers," accompanied with graphic illustrations that show what may be encompassed in a tier, can then be used by government agencies, municipalities, transit systems, and developers as they begin to look at specific sites and types of development.

The following defines the types of transit facilities that typically are developed. An FDOT report, Accessing Transit – Design Handbook for Florida Bus Passenger Facilities,[6] identifies the following facility prototypes:

- On-line Bus Stop;
- Primary Stop;
- Transit Mall;
- Transfer Center;
- Park-and-Ride Facilities;
- Air-bus Intermodal Transfer Centers;
- Rail-bus Intermodal Transit Stations;
- Bus Rapid Transit (BRT); and,
- University Transfer Centers.

These represent specific types of transit development intensity at a particular location. For planning purposes it was determined by the consultant that these categories were too definitive, so a broader range of categories, or tiers, is proposed. The Transit Hub Plan envisions a three-tiered concept that encompasses these facility prototypes. The components of each tier are shown in Table 4-1.

[6] Accessing Transit: Design Handbook for Florida Bus Passenger Facilities, prepared for the Florida Department of Transportation Planning Office, prepared by Florida Planning and Development Lab, Department of Urban and Regional Planning, Florida State University, July 2008.

Table 4-1
The Tier Concept

	Tier 1: Multimodal			Tier 2: Bus Transfer	Tier 3: Superstop
	Central Stations	Intermodal Centers	Regional Hubs	Community Access Points	Local Access Points
Shelter					
Covered	Indoor Facility with A/C	Yes	Indoor Facility with A/C	Yes	Yes
Seating	100+	~ 50+	100+	~ 25	~ 15
Capacity				~ 75	~ 45
ITS					
LCD	Yes	Yes	Yes	Yes	Yes
Bicycle Parking					
Capacity	~ 50	~ 25	~ 50	~ 10	~ 3
Lockers	Yes	Preferred	Preferred	Optional	No
Facilities/Amenities					
Water Fountain	Yes	Yes	Yes	Preferred	Optional
Public Restrooms	Yes	Yes	Yes	Optional	No
Ticketing					Automated
Map	Yes	Yes	Yes	Yes	Yes
Retail/Vending	Vending/Retail	Vending/Retail Preferred	Vending/Retail	Vending	No
Parking	Discouraged	Optional	Discouraged	Park & Ride Optional	None
Customer Service Window	Yes	Yes	Yes	Optional	No
Wireless Internet	Preferred	Preferred	Preferred	Optional	Optional
Routes					
Number of Routes	10+/Intermodal	~ 7/Intermodal	~ 10/Intermodal	5 -7	3 - 5
Frequency	~ 5-7 min	~ 10 min	~ 5-7 min	~ 12 min	~ 15 min
Surroundings					
Density					
Land Uses	Vertically Mixed Use	Vertically Mixed Use	Vertically Mixed Use		
Handicap Accessibility					
	ADA Requirements	ADA Requirements	ADA Requirements	ADA Requirements	ADA Requirements
Security					
Emergency Call Box	Yes	Yes	Yes	Yes	Yes
CCTV	Yes	Yes	Yes	Preferred	Optional
Personnel	Yes	Yes	Yes	Optional	Optional
Vehicular Ingress and Regress					
Bus Bays	Required	Required	Required	Required	Preferred
Kiss & Ride	Yes	Yes	Yes	Optional	No
Details					

Tier 1 – Multimodal

Conceptual rendering of Tier 1 Facility (axioma3architects)

The Tier 1 Multimodal Hub is a major transportation center generally characterized by a large footprint, many thousands of users, multiple modes of transportation, serving large portions of the metropolitan area. The Tier 1 center in Miami-Dade County would be best characterized by the downtown Government Center, the Miami-Intermodal Center now under construction, and the Golden Glades Park-and-Ride. From the FDOT facilities report referenced above, the Tier 1 would generally include Transit Malls, Air-Bus Intermodal Transfer Centers, Rail-Bus Intermodal Transit Stations, and possibly University Transfer Centers.

Tier 2 – Bus Transfer

Tier 2 Concept (axioma3architects)

A Tier 2 center is seen as a regional center, drawing park-and-ride activity, transfer between bus and possibly other modes and characterized by a smaller footprint and includes a building that functions as a transit center. A good example of a Tier 2 center being developed in Miami-Dade County is the 7th Street Transit Village that will be built on the southeast corner of 7th Avenue and NW 62nd Street. This facility will be a mixed-use development that will provide a connecting point for Miami-Dade Transit buses, private jitneys and potentially, express buses from I-95. The NW 7th Avenue Transit Village will encourage additional pedestrian traffic and economic development in the Liberty City Business District. The proposed development consists of a mixed-use complex comprised of housing, retail, parking, and transit facilities. These transit facilities include four bus bays, parking for transit users, an operator break room, and space for a possible ticket vending machine, and information displays.

Tier 3 – Superstop

This Tier typically is a stop or group of stops and shelters generally without a physical building but a generally higher level of development than a single bus stop with a shelter. Local in nature, characterized by the presence of multiple shelters and primarily serving bus-to-bus and bus-to-circulator/jitney/taxi type activity. The best examples of superstops in Miami-Dade County are the bus stations/stops along the South Miami-Dade Busway.

Tier 3 Concept (axioma3architects)

Transit Hub Plan

The Transit Hub Plan involves four primary components:

- Existing Metrorail and Busway Stations;
- Existing and Proposed (Committed) Transit Hubs; and,
- Potential Hub Sites Identified During the Planning Process.

The transit hubs identified as priority locations through have been classified as a Tier 1- Multimodal, Tier 2 – Bus Transfer, or Tier 3 – Superstop-type facility. The proposed "tier" for each site was determined based on the criteria listed in Table 4-1. Figure 4-1 illustrates the sites that form the basis of the transit hub plan.

Table 4-2 lists the sites that make up the transit hub plan.

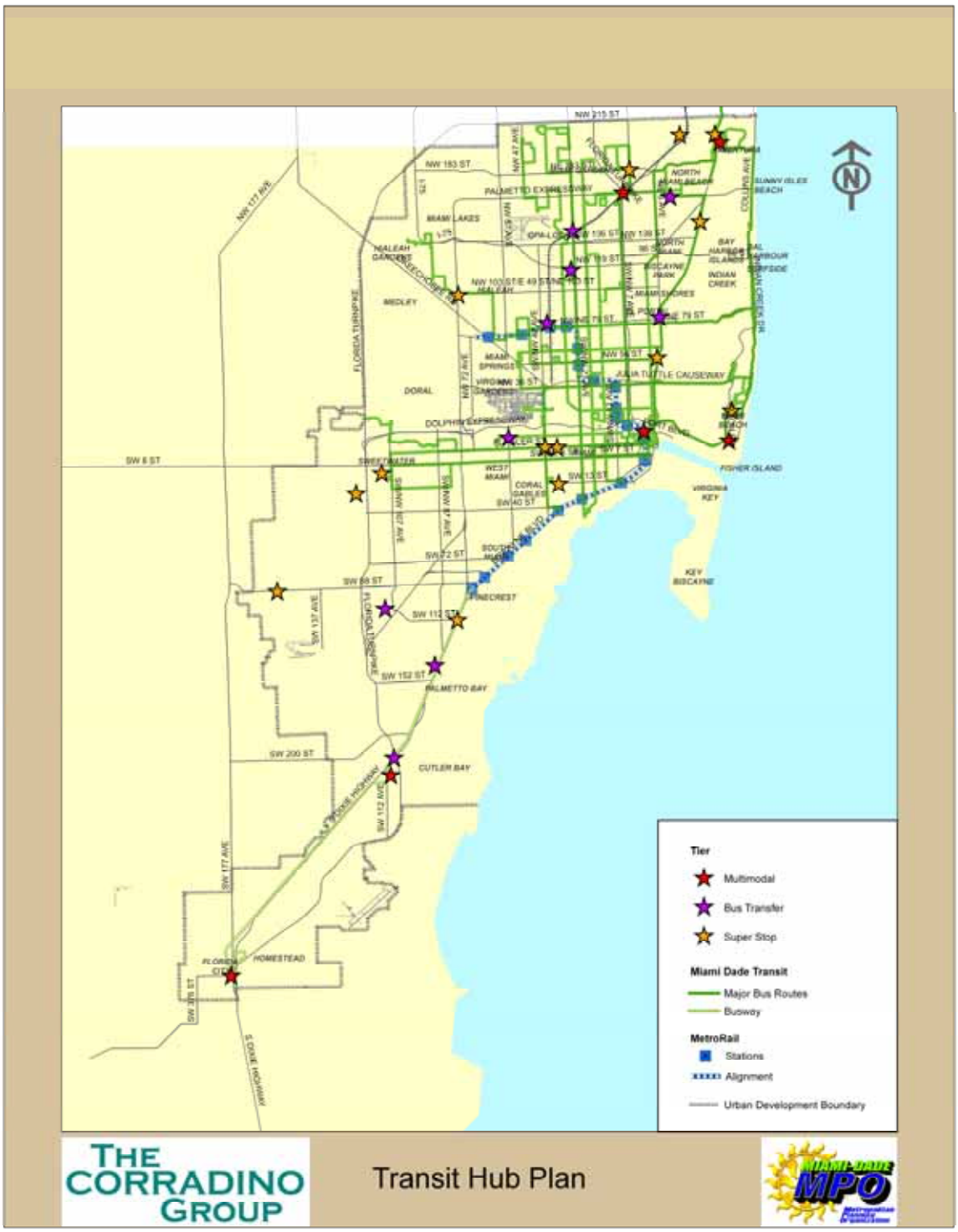
Table 4-2
Transit Hub Plan

Hub	Tier	Site Cluster	Status
Miami-Dade Community College – North Campus	2	D	Does not exist
Miami-Dade Community College – South Campus	2	I	Does not exist
Northwest Corner of NW 7th Avenue/NW 183rd Street	3	C	Does not exist
Southland Mall (formerly Cutler Ridge Mall)	1	J	Does not exist
Miami Beach Convention Center	3	F	Does not exist
Government Center	1	NA	Metrorail/Metromover/ MDT Hub
U.S. 1/Aventura Mall	1	A	Does not exist
Golden Glades	1	C	Existing
U.S. 1/Northeast 79th Street	2	E	Does not exist
West Flagler Street/42nd Avenue	3	G	Does not exist
Florida City – Palm Drive/FEC ROW	1	I	Does not exist
5th Street/Alton Road, Miami Beach	1	F	Does not exist
Opa-Locka Metrorail (Ali Baba Avenue and 27th Avenue)	2	B	Does not exist
Blue Lagoon Metrorail (Northwest 7th Street and 57th Avenue)	2	G	Does not exist
Florida International University (Tamiami Campus)	3	H	Does not exist
Florida International University (Northeast 146th Street and Biscayne Blvd)	3	B	Does not exist

Table 4-2 (continued)
Transit Hub Plan

Hub	Tier	Site Cluster	Status
West Flagler Street and 37th Avenue	3	G	Does not exist
Miracle Mile (Southwest 24th Street and 37th Avenue)	3	G	Does not exist
South Dade Government Center/U.S. 1 in Cutler Bay	2	J	Does not exist
Palmetto Expressway at Northwest 103rd Street	3	NA	Does not exist
Ives Dairy Road west of U.S. 1	3	A	Does not exist
U.S. 1 north of SW 144 Street	2	I	Does not exist
U.S. 1 at Northeast 4th Drive	3	E	Does not exist
Southwest 112th Street at U.S. 1	3	I	Does not exist
Kendall Drive at Southwest 157th Avenue	3	NA	Does not exist
U.S. 1 at Northeast 206 Street	3	A	Does not exist
Miami Intermodal Center	1	G	Under construction
SW 26th Street and SW 122nd Avenue	3	H	Does not exist
163rd Street Mall	2	B	Does not exist
NW 7th Avenue and 62nd Street	2	E	Planned 7th Street Transit Village
Palmetto Metrorail Station – 7701 NW 79 Avenue	2	NA	Existing
Okeechobee Metrorail Station – 2005 Okeechobee Road	2	NA	Existing
Hialeah Metrorail Station – 125 E. 21 Street	2	NA	Existing
Tri-Rail Metrorail Station – 1125 E. 25 Street	2	NA	Existing
Northside Metrorail Station – 3150 NW 79 Street	2	NA	Existing
Dr. Martin Luther King Jr. Metrorail Station – 6205 NW 27 Avenue	2	NA	Existing
Brownsville Metrorail Station – 5200 NW 25 Avenue	2	NA	Existing
Earlington Heights – 2100 NW 41 Street	2	NA	Existing
Allapattah Metrorail Station – 3501 NW 12 Avenue	2	NA	Existing
Santa Clara Metrorail Station – 2050 NW 12 Avenue	2	NA	Existing
Civic Center Metrorail Station – 1501 NW 12 Avenue	2	NA	Existing
Culmer Metrorail Station – 701 NW 11 Street	2	NA	Existing
Historic Overtown/Lyric Theatre Metrorail Station, 100 NW Sixth Street	2	NA	Existing
Brickell Metrorail Station – 1001 SW First Avenue	2	NA	Existing
Vizcaya Metrorail Station – 3201 SW First Avenue	2	NA	Existing
Coconut Grove Metrorail Station – 2780 SW 27 Avenue	2	NA	Existing
Douglas Road Metrorail Station – 3100 Douglas Road	2	NA	Existing
University Metrorail Station – 5400 Ponce de Leon	2	NA	Existing
South Miami Metrorail Station – 5949 S. Dixie Highway	2	NA	Existing
Dadeland North Metrorail Station – 8300 S. Dixie Highway	2	NA	Existing
Dadeland South Metrorail Station – 9150 Dadeland Boulevard	2	NA	Existing
South Miami-Dade Busway – SW 152 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 168 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 200 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 244 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 296 Street Station	3	NA	Existing
South Miami-Dade Busway – SW 344 Street Station	3	NA	Existing

Figure 4-1
Transit Hub Plan



Costs and Implementation

Costs will vary greatly for various facilities depending on the actual use, and materials used, and final design. For rule-of-thumb estimates, a Tier 1 facility would likely range from $500,000 to many millions (the recently opened transit center in Akron, Ohio, cost about $17 million). Tier 2 type facilities would likely cost in the range of $100,000 to $300,000, while enhanced on-street stops or superstops would have a cost of $100,000. The FDOT report referenced earlier,[7] Accessing Transit – Design Handbook for Florida Bus Passenger Facilities, presents a summary of costs for some typical elements found as part of transit facilities. These are presented in Table 4-3.

About half of the sites listed in Table 4-2 are Metrorail or Busway stations. The sites also include the Miami Intermodal Center (MIC), Golden Glades, and Government Center. The remaining sites form the core of emphasis for this study. These are locations in the county that, because of demographics, transit use, and other characteristics, represent optimal places for development of transit hubs. Recognizing that some are in close proximity to each other and that eventual development of one site would likely preclude similar development at nearby locations, site clusters based on geographical location have been created and are identified in Figure 4-2.

This plan will be used by the MPO and Miami-Dade Transit as a resource during planning for specific transit facility projects such as the current facility being planned at 62nd Street and NW 7th Avenue. The plan will serve as a resource during future studies that focus on the best available locations for transit facilities in the county.

[7] Accessing Transit: Design Handbook for Florida Bus Passenger Facilities, prepared for the Florida Department of Transportation Planning Office, prepared by Florida Planning and Development Lab, Department of Urban and Regional Planning, Florida State University, July 2008.

Figure 4-2
Geographic Implementation Strategy

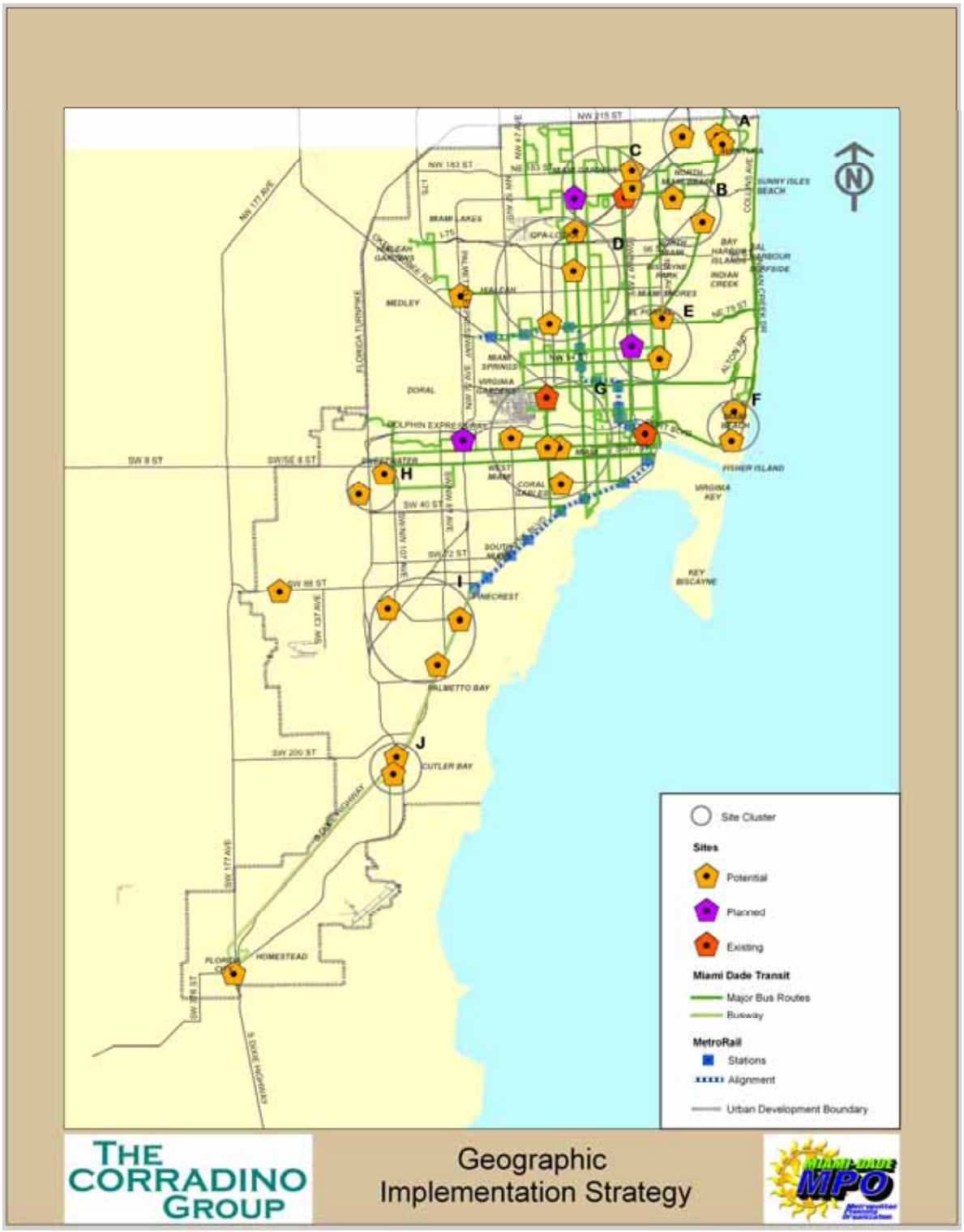


Table 4-3
Costs from FDOT Design Handbook
for Florida Bus Passenger Facilities (Appendix K)

Facility	Elements	Estimated Cost
Curb-side Facilities		
ADA Enhancements	Landing pads, wheelchairs ramps	Varies depending on type of project.
Lighting	Roadway lighting improvements	Varies depending on fixture type and service agreement with local utility. Solar lighting will cost more initially but will cost less in utility cost over time.
Landscaping	Suitable landscaping	Opportunities for funding landscaping are often more flexible than with major street changes. For example, the cost of the actual landscaping may be paid by neighborhood or business groups. Often, municipalities will pay for the initial installation and neighborhood residents or businesses agree to maintain anything more elaborate than basic street trees. Solar lighting will cost more initially, but will cost less in utility cost over time.
Other	Bike racks, trash receptacles, shopping cart storage, bollards	Varies depending on the type of furniture and the material out of which it is constructed. Recycled materials are recommended.
Sidewalks	Sidewalks or walkways	The cost for concrete curb and sidewalk is approximately $15/linear foot for curbing and $11/square foot for walkways. Asphalt curbs and walkways are less costly but require more maintenance. Sidewalks made of recycled materials, including rubber, costs approximately $20/square foot installed and may realize maintenance cost savings.
Streetside Facilities		
Bus Bays	Specific paving treatments	Variable; materials requiring hand labor (cobblestones or pavers) have a higher cost.
Queue Jumper Bus Bays	Right-turn slip lanes or bus lanes	Approximately $50,000 – $200,000 to reconfigure roadway, add striping and construct an island.
	Bus prioritization traffic signals	$30,000 – $140,000
Bus Bulbs	Curb extensions	$2,000 – $20,000 per corner, depending on design and site conditions. Drainage is usually the most significant determinant of costs. If the curb extension area is large and special pavement and street furnishings and planting are included, costs will be higher. Costs can go up significantly if something major such as a traffic signal mast arm or controller box is moved.

Table 4-3 (continued)
Costs from FDOT Design Handbook
for Florida Bus Passenger Facilities (Appendix K)

Facility	Elements	Estimated Cost
Bike Lanes	Bicycle lanes	Approximately $5,000 – $50,000 per mile, depending on the condition of the pavement, the extent of removing and repainting lane lines, the need to adjust signalization, and other factors. From a cost standpoint, the best time to create bicycle lanes is during regular street reconstruction, street resurfacing or at the time of original construction.
Pedestrian Crossings	Curb ramps	$800 – $1,500 per curb ramp (new or retrofitted).
	Pedestrian signals	$30,000 – $140,000
	Recessed stop lines	Low cost. There is no extra cost when the recessed stop line is installed on new paving or as part of repaving projects. A stop sign can be used to supplement the recessed stop line.
Intersection Nubs	Marked crosswalks and enhancements	$100 for a regular striped cross walk, $300 for a ladder crosswalk and $3,000 for a patterned concrete crosswalk.
	Pedestrian signal timing	Adjusting signal timing is very low cost and requires a few hours of staff time to accomplish. New signal equipment is approximately $20,000.
Streetside Facilities		
Raised Pedestrian Crossings	Raised intersections and raised pedestrian crossings	Raised crosswalks are approximately $5,000 – $7,000, depending on drainage conditions and materials used. The cost of a raised intersection is highly dependent on the size of the roads. They can cost from $25,000 – $70,000.
	Speed humps/tables	The cost for each speed hump is approximately $2,000. Speed tables are $5,000 – $15,000, again depending on drainage conditions and materials used.
Pedestrian Islands	Pedestrian islands	Costs range from $6,000 – $9,000 for an asphalt island or one without landscaping. The cost for installing a raised concrete pedestrian refuge island (with landscaping) is about $10,000 – $30,000.
Medians	Raised medians	The cost for adding a raised median is approximately $15,000 – $30,000 per 100 feet, depending on the design, site conditions, and whether the median can be added as part of a utility improvement or other street construction project.
	Intersection median barriers	$10,000 – $20,000
Parking	On-street parking	$30 – $150 per sign. Curb paint and stall marks or striping costs are additional (optional).
Typical Transit Facilities		
On-line Bus Stops	Bus stop signs, benches, leaning rails, shelters, bus stop information and wayfinding devices, shelter lighting	$1,000 – $10,000, depending on type of improvements.

Table 4-3 (continued)
Costs from FDOT Design Handbook
for Florida Bus Passenger Facilities (Appendix K)

Facility	Elements	Estimated Cost
Primary Stops	Shelters, bench seating, newspaper vending machines and trash receptacles, signs displaying the transit systems and the routes, bicycle storage area and pay telephone	Approximately $15,000, exclusive of land costs.
Transfer Centers	Sawtooth bus bays, passenger shelters and seating, information kiosk, secure bicycle storage, trash receptacles, and public telephone.	Approximately $50,000, exclusive of land costs.
Park-and-ride	Parking spaces shared, parking lot lighting, signage	Approximately $30,000, exclusive of land costs. By using pervious pavement, they may be able to reduce costs since they won't have to pay for stormwater retention area.

Source: Florida Department of Transportation

Appendix

Examples of Transit Hubs

Marion Transit Center - Tampa

- Hillsborough Area Regional Transit (HART)
- 15 local HART routes, 11 Commuter Express routes, the In-Town Trolley and the inter-county Pinellas Suncoast Transit Authority Routes 100X and 300X
- Opened February, 2003
- Size - 1.23 acres
- Construction Costs –
- The facility consists of two structures: a larger main building housing a patron lobby, customer service area, drivers' lounge, and office space; and a clock tower with a ground floor concession area
  - Change machines
  - Fare card sales
  - Restrooms
  - HART identification cards
  - Public telephone
  - Water fountain
  - Personalized route mapping
  - Transit guides
  - Route brochures
- 1211 N. Marion Street

Netpark Transfer Center – Tampa

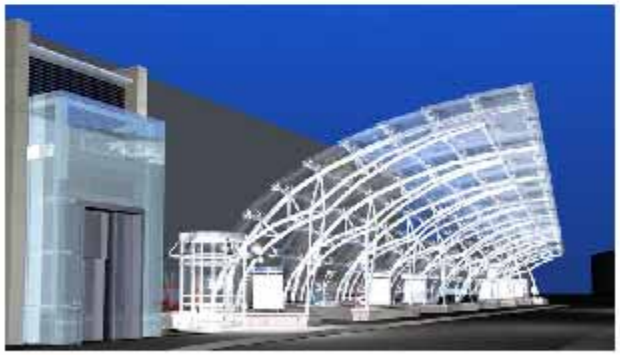
- Hillsborough Area Regional Transit (HART)
- Services 8 routes (6, 15, 32, 34, 39, 37, 41, 57)
- Opened March, 2007
- Size - 1,120 SF
- Construction Cost - $1,963,000
- Covered passenger waiting areas with seating, ticketing, public information kiosks, ending machines and public restrooms

Staples Street Station – Corpus Christi, TX

- Corpus Christi's Regional Transportation Authority (RTA)
- serves 14 bus routes and some 5,000 transit users per day
- Opened February, 1994
- included newsstands, plants, vending facilities and carts, an arcade facade along a retail area, angled parking in suitable areas, and public sculpture

Kenmore Square - Boston

- Massachusetts Bay Transit Authority (MBTA)
- Services 5 Bus routes (8, 19, 57, 60, 65) and 3 Light Rail Routes (B, C, D)
- Opening 2009
- Construction Costs – $31 Million (Includes underground station enhancement & Intersection Improvements)
- Three new escalators have been installed between the platforms, mezzanine and busway levels and are expected to be in operation during the Fall of 2008. The glass shingle installation on the new stainless steel bus canopy is nearing an October 2008 Completion



Easton Transit Center – Columbus, OH

- Central Ohio Transit Authority (COTA)
- Services 5 routes (16, 38, 39, 40, 95)
- COTA's second transit center opened its doors in May, 2002 Size – 1,300 SF
- Construction Cost - $1.7 Million

White Plains Transcenter – White Plains, NY

- Metropolitan Transit Authority (MTA)
- Terminal/transfer point for many Bee-Line buses (routes 12, 60, 62, 63) as well as intercity buses (Greyhound Lines and Adirondack Trailways) and Connecticut Transit's I-Bus to Stamford, Connecticut

Charlotte Transportation Center (downtown)

- 26 bus bays
- Services 28 local and express routes as well as the blue line LRT
- Throughput of 45,000 passengers daily
- Established through partnership with Bank of America

Intermodal Transportation Center – Ft. Worth, TX

- Fort Worth Transportation Authority
- Services Routes: 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15, 17, 46, 61, 62, 65 and 66
- Opened January 12, 2002
- The ITC is home to the T's largest bus transfer center, and the T's Customer Relations Center maintains a staffed kiosk inside for passenger information services. Taxi and Amtrak service is available also. Facilities and services are 100% wheelchair accessible.
  - **Customer Features:**
    - Wheelchair Accommodations
    - Restrooms
    - Telephones
    - Ticket Vending Machines
    - "Kiss & Ride" Passenger Drop-Off/Pick-Up
    - Meeting Rooms
    - Customer Service Center
    - Amtrak Depot
    - Taxi Stand
- Corner of 9th and Jones Streets (1001 Jones Street, Fort Worth 76102)

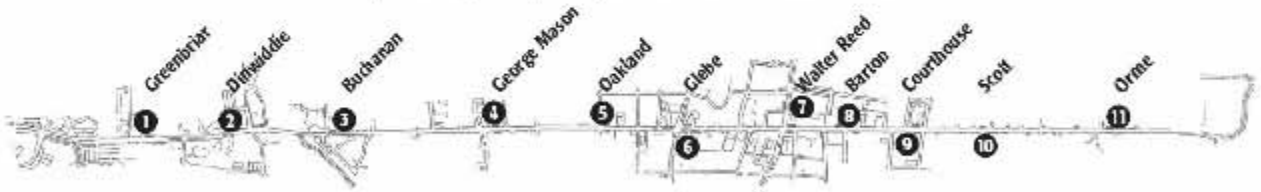
Mendenhall Station – High Point, NC

- High Point Transit (Hi-Tran)
- Services Local and Regional Bus Routes
- Opened October, 2005
- Construction Costs - $12.9 Million
- Built as a transportation hub for the High Point Furniture Market, a semi-annual event that attracts approximately 100,000 attendees each spring and fall

Columbia Pike Super Stops

- Larger, architect-designed bus shelters with amenities
- Electronic and printed information and maps for bus routes and areas
- Wireless access to information such as cell, PDA, web "Hot Zone"
- Ample seating, enhanced lighting and new security features
- Improved landscape, sidewalks
- Future accommodation of off-board fare payment

Proposed Super Stop east/west locations on Columbia Pike



Springfield, MO Bus Transfer Station

Roanoke, VA Downtown Transfer Station