

EVALUATION OF MULTIMODAL MOBILITY OPTIONS IN THE SOUTH MIAMI-DADE AREA



Contents

Summary	S-1
Introduction.....	1
Task 1: Study Coordination	2
Study Advisory Committee (SAC)	2
<i>Stakeholders Meetings</i>	<i>3</i>
<i>Workshops.....</i>	<i>3</i>
<i>Community Remarks</i>	<i>3</i>
Task 2: Analysis of Existing Conditions	4
Task 3: Identification of Future Needs.....	8
Connecting People to Jobs	10
Travel Time Analysis	12
Possible Future Scenarios.....	13
<i>Homestead to Dadeland South.....</i>	<i>13</i>
<i>West Kendall to Downtown Miami</i>	<i>14</i>
<i>Findings</i>	<i>15</i>
Mobility Hubs	16
<i>Dadeland North & South Mobility Hubs</i>	<i>16</i>
<i>Cutler Bay Mobility Hub.....</i>	<i>21</i>
<i>Coral Reef: SW 152nd Street and Busway Mobility Hub.....</i>	<i>27</i>
Forecasting Approach.....	31
<i>US-1 Corridor</i>	<i>31</i>
<i>Kendall Corridor.....</i>	<i>32</i>
<i>Old Cutler Road Corridor</i>	<i>32</i>
<i>SW 152nd Street Corridor</i>	<i>33</i>

Contents *(continued)*

<i>SW 137th/SW 157th Avenue Corridor</i>	<i>34</i>
<i>SW 117th Avenue Corridor</i>	<i>34</i>
<i>Krome Avenue Corridor</i>	<i>34</i>
Task 4: Analysis of Potential Improvements	35
Introduction.....	35
Tasks 5 and 6: Identification of Potential Projects and their Costs	36
 Appendix A – Plans for South Dade County	
Appendix B – Travel Forecasting Approach	

SUMMARY

The focus of this study is to examine mobility in South Miami-Dade County, by examining the roadway, transit, bicycle and pedestrian networks, with the goal of recommending a set of multimodal transportation projects that are interconnected, so that people have options for how they travel through the county.

Today, South Miami-Dade is a large, young, and growing area which is not fully developed. It includes 50 percent of the land area of the County, 25 percent of the population, and 12 percent of the jobs. Its population and employment are out of balance. Overall, the development pattern is not transit supportive, because it is mainly estate and low-density residential.

The roadway grid is fractured, forcing vehicular traffic onto a few major corridors, which spills into neighborhoods where bottlenecks cause congestion. The flow of about 200,000 people moving in and out of the area on the few connected roads creates congestion, which is highly directional to the north in the morning and to the south in the afternoon. Often, analysis using average *daily* traffic does not account for the fact that the vehicles heading north in the AM peak are operating at Level of Service (LOS) F, while traffic heading south experiences

free-flow, LOS A conditions. The area's residents and drivers, correctly perceive congestion that erodes their quality of life. There is a lot of work to be done.

The Strategic Miami Area Rapid Transit (SMART) Plan is in the early stages of implementation, at a time just ahead of a potential significant new national investment in transportation infrastructure, which will enhance the potential of the plan's reality. All six SMART corridors are advancing at the same time.

The projects suggested in this report are critical to make the SMART Plan more effective. They support and enhance transit by focusing on transit-supportive land uses, including "first mile/last mile" projects in development nodes.



All of this will create a vital mobility system which will increase transit ridership, make the SMART corridors more competitive for funding, and relieve neighborhood streets of congestion caused by “overflow” traffic. When examined regionally, South Miami-Dade will be part of a connected transit system, including hubs of activity along the SMART corridors. This will create a synergy for a significant shift to transit.

This should also represent a rebalancing of the region’s preponderant roadway-based investments. Currently, expenditures on road projects versus projects of alternative modes is significantly out of balance. The latest Metropolitan Planning Organization (MPO) Long Range Transportation Plan (LRTP) includes \$15.2 billion Year-of-Expenditure dollars with \$14 billion of this for new roads and the remaining eight percent (\$1.22 billion) for all other modes.

This study proposes 92 multimodal projects, including more than 30 additional transit projects to support the SMART Plan. These are combined with 16 additional roadway projects at a total system-wide cost of \$2.4 billion (\$1 billion more than the existing LRTP-- \$2.06 billion for transit, \$272 million for roads, \$79 million in bicycle projects, and \$500,000 in pedes-

trian projects.) This represents a shift in investments from roads to transit to provide multimodal transportation capacity in the future.

This blend of projects will cause efficiency gains on the road and transit networks which will help relieve neighborhood streets of congestion. Use of the transit system is projected to increase by over 30,000 riders per day compared to a scenario in which no improvements are made. This will be supported by the “first and last mile” connections of integrated bicycle and pedestrian networks.

From the perspective of roadway improvements, efficiencies are seen between the No Build Scenario and the Build Scenario in that drivers will move, on average, in five percent less time.

It is noteworthy that addressing South Miami-Dade’s congestion is as much about land use and the economy as it is about transportation facilities. To most effectively support the SMART Plan, residential and employment uses should be more closely balanced and consolidated into development nodes along corridors. This would serve to increase transit ridership, free roadway capacity, and redirect some roadway infrastructure investments to transit.

Advancing the concept of nodal development originally articulated for the “Charrette Areas” along US-1 is critical to this shift. Doing so requires changing land use and zoning to transit-oriented densities which contain a sufficient balance of commercial and residential uses. Economic development strategies to market these areas is also vital.

Enhancing transit-oriented land use and urban design in the development nodes, providing walkable paths within these areas, integrated with bicycle corridors, as well as local circulators and park-and-ride locations are all part of the initiatives that will enhance the regional effort of improving mass transit. The projects recommended in this report will fill gaps and improve existing systems to make them more productive. These projects will advance an integrated, multimodal, urban transportation system in South Miami-Dade.

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INTRODUCTION

The geographic size of Miami-Dade County is very large, only matched by its economic footprint. While the northern area of the county is almost completely built on, the southern sub-region, south of SW 88th Street, is not. South Miami-Dade is as large as Broward County and has significant amounts of undeveloped land, both inside and outside the Urban Boundary; it is anticipated to absorb the bulk of the population growth in the county in the foreseeable future.

The dramatic range of economic circumstances has driven property values in the urban core to high levels. This forces workers to live farther from their jobs, increasing their travel time and cost and decreasing their quality of life.

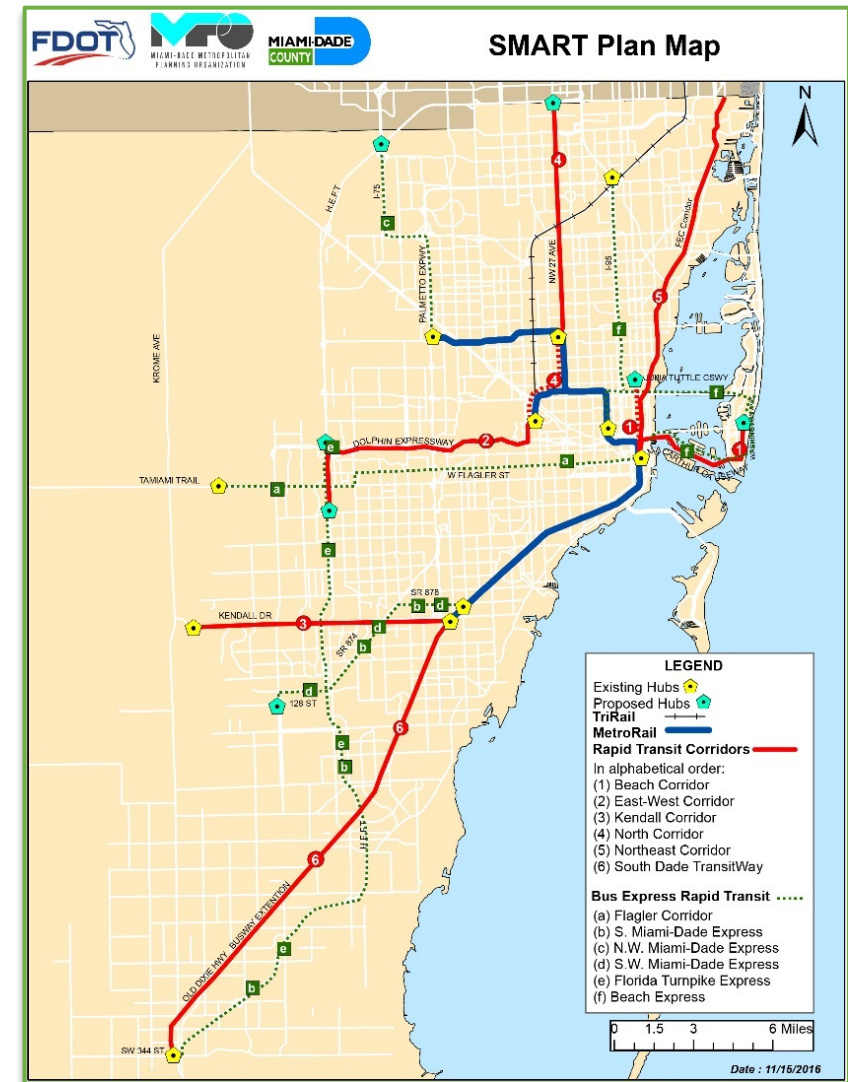
The scope in this study, while purpose-driven toward transportation, also considers land use and economic development. This report examines the South Miami-Dade County sub-region to create a multimodal, long range transportation master plan closely tied to the new Strategic Miami Area Rapid Transit (SMART) Plan.

This planning is not solely focused on roads—the focus of this effort is multimodal. While some capacity of the roadway network will be gained through technological advances, like the introduction in the market of driverless vehicles, much of the system is constrained. The

future should be accommodated by alternative modes. Funding priorities of the future need to reflect this.

Currently, the Miami-Dade Metropolitan Planning Organization (MPO) Long Range Transportation Plan (LRTP) highway projects are estimated to cost \$14 billion (accounting for inflation); transit projects, \$1.4 billion (10%); and, other projects, \$105 million. There are relatively few transit projects in the current version (2040) of the LRTP for South Miami-Dade.

This study directs attention to the major corridors and hubs within South Miami-Dade, consistent with the county's growth strategy. To effectively implement a mass transit system in a relatively undeveloped, low-density area will require land use, zoning, economic development, and transit investments in various corridors, and at hubs they serve.



South Miami-Dade's current development pattern is not transit supportive. The roadway grid is fractured, forcing vehicular traffic onto a few major corridors, which spill into residential neighborhoods where bottlenecks cause congestion. The following tasks are aimed at addressing this issue:

- Task 1: Study Coordination
- Task 2: Analyze Existing Conditions
- Task 3: Identify of Future Needs
- Task 4: Identify and Analysis of Potential Improvements
- Task 5: Estimate Costs and Potential Funding Sources
- Task 6: Recommend Actionable Improvements

The Study Coordination task supported the entire process by engaging Study Advisory Committee members, elected officials, and the general public. In Task 2, previous studies of the area were examined to establish the baseline of existing conditions. Task 3 evaluated those baseline data and forecasted future deficiencies to be addressed in a proposed list of multimodal projects organized by mode, corridor, and hub. They are evaluated for their effectiveness in Task 4 to create a plan of multimodal infrastructure which accommodates future growth with transportation capacity.

These projects are "costed" in Task 5 and a final set of recommendations is provided in Task 6.

TASK 1: STUDY COORDINATION

Work in this task informed and engaged stakeholders to build understanding of a set of implementable, multimodal projects. Coordinating with and engaging the public took place consistently throughout the study. This facilitated identifying proposed projects and resulted in a plan that is uniquely tailored to the specific needs of South Miami-Dade.

Study Advisory Committee (SAC)

South Miami-Dade contains about half of County's area including five cities, a large unincorporated area, and is serviced by a multitude of agencies. Each area has a unique understanding of the issues it faces. The Study Advisory Committee (SAC) reflected that; it consisted of representatives of:

- Cutler Bay, Town of
- Florida City
- Florida Department of Transportation
- Florida's Turnpike Enterprise
- Homestead, City of
- Miami-Dade County (Commission Districts 7,8,9,11)

- Miami-Dade Department of Transportation and Public Works
- Miami-Dade County Waste Management Division
- Miami-Dade Expressway Authority
- Palmetto Bay, Village of
- Pinecrest, Village of
- South Florida Regional Transportation Authority

Each agency assigned one person to the SAC, while each city and County Commission District involved two representatives—one technical and the other an elected leader or someone appointed by the elected body. Three meetings were held.

- [SAC Meeting 1.](#) Took place prior to *Task 2: Analysis of Existing Conditions*. SAC members were introduced to the project, reviewed the scope of services and the method of data collection.
- [SAC Meeting 2.](#) Occurred before the conclusion of *Task 4: Identification of Potential Improvements*. The list of potential improvements by mode was reviewed, along with the plan for executing Tasks 5 and 6 (i.e., preparing cost estimates and recommendations for each actionable project). Projects were initially prioritized into "near-

term,” “mid-term,” and “long-term” categories in different combinations of projects to be evaluated. Each project was explained—how it works, what it addresses, and alternatives to it.

- **SAC Meeting 3.** Was held before the conclusion of *Task 6: Recommend List of Actionable Projects*. The objective was to achieve a consensus on the priority of the projects resulting from their evaluation. In doing so, the evaluation process was reviewed leading to a discussion of the final recommendations.

Stakeholders Meetings

Stakeholders meetings supported the work of the SAC. By meeting one-on-one with key elected officials, and others they suggested, questions/concerns were addressed.

Workshops

Two workshops were held in three locations in South Miami-Dade to provide input to the process.

Workshop Series #1

The first series of three workshops introduced the project to the community and solicited opinions on transportation in the area. Concepts by mode were presented. A survey was conducted using *Turning Point*. It allowed electronic “voting” on a list of items/issues presented to the public with preferences recorded instantaneously on a “touch-pad.” The results were immediately presented to the group and used in the evaluation of alternatives.



Turning Point Polling Devices

Workshop Series #2

This series of meetings occurred prior to the culmination of Task 4, at which a photographic inventory of existing and expected future conditions and opportunities was presented. It took place at the same locations as the first series of workshops. “Breakout” sessions were held to provide those in attendance the opportunity to develop a list of projects both “needed,” as determined by the analysis, and “wanted,” developed from public input.

Community Remarks

Aside from the SAC stakeholder’s meetings and public workshops, the public could engage without attending a meeting by using the tool known as “Community Remarks,” an online, map-based citizen engagement app that captures place-based comments and photos in real-time to collaboratively identify community issues. Posted comments and questions were reviewed and evaluated.



Community Remarks Application

TASK 2: ANALYSIS OF EXISTING CONDITIONS

What is South Miami-Dade? What do we want it to be in the future? To answer those questions, data on land use, previous studies, level-of-service information for roadways, transit, bicycle, and pedestrian facilities, as well as population and employment data were studied. Multimodal levels of service were mapped to illustrate system deficiencies. The reader is referred to [Appendix A](#) for a review of previous plans focused on South Miami-Dade County and its communities.

In summary, South Miami-Dade is young and growing. It has plenty of room to grow as its geographic area, while constrained by the Urban Development Boundary, is large. It includes 25 percent of the population of the county in 50 percent of the land area, yet only 12 percent of the jobs. Roadway congestion is growing and levels of service are deteriorating.

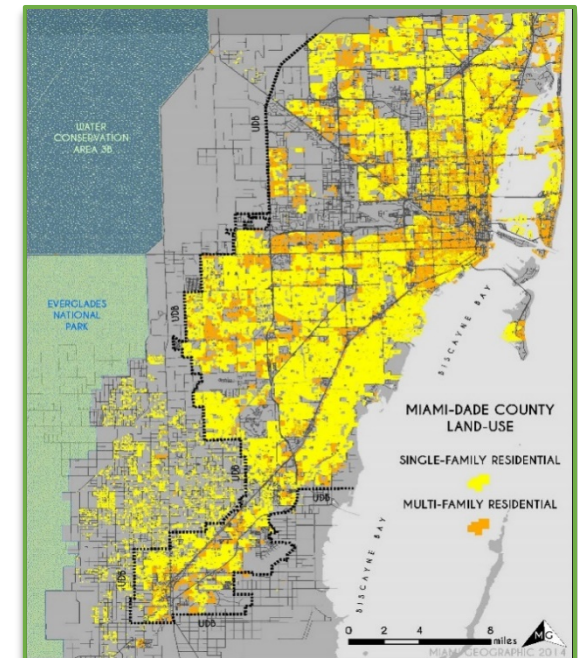
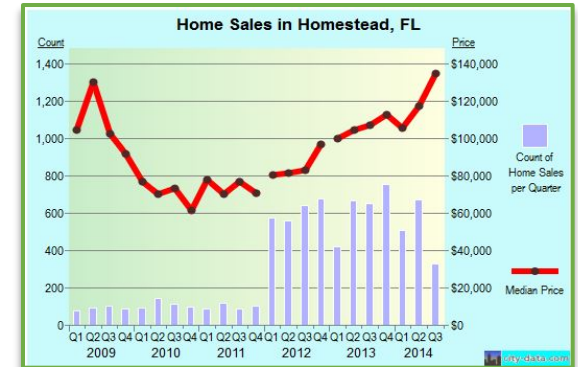
Many of the people who live in South Miami-Dade enjoy its suburban and rural character and quality of life. The land use largely consists of low-density residential development with some low- to medium-density residential. Generally, the area is spread out, even sprawling, particularly in its northwest and southeast portions. In the coming years, South Miami-

Dade County will be the fastest growing part of the region in population.

In Miami-Dade County, as a whole, the last development cycle built largely on the land north of SW 88th Street, but left large undeveloped tracts between Pinecrest and Homestead. The population of Homestead grew from about 20,000 in the late 1990s, to over 60,000 a decade later. Development is pushing south and west, and there are regular applications to expand the Urban Development Boundary which is close to the Busway between Cutler Bay and Homestead. Thousands of housing units are being constructed and thousands more are planned.

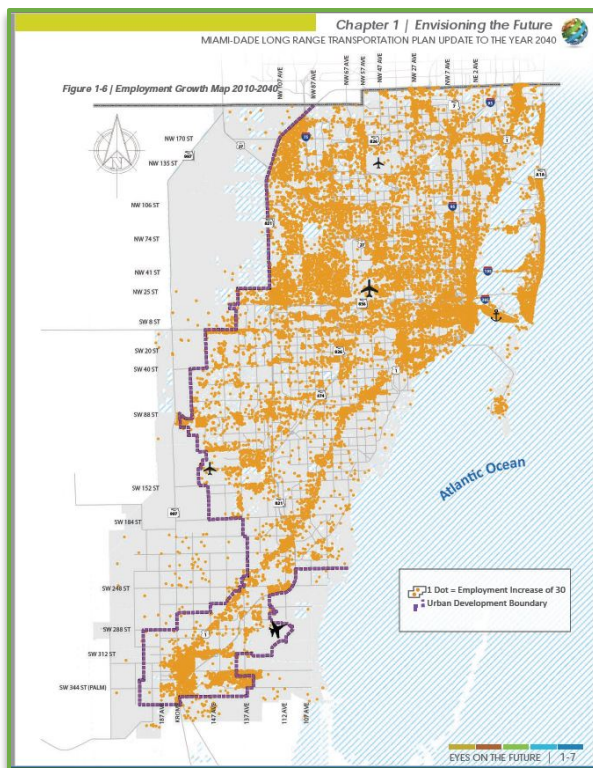
South Miami-Dade is not considered an employment center. Jobs are largely concentrated along the US-1 corridor and in the West Kendall area. Today, the study area has about 532,000 people, while employment totals about 170,000 jobs. This is a significant imbalance, meaning by necessity, people must leave the area to work, creating daily traffic congestion. If that ratio were more balanced by adding employment centers in South Miami-Dade, congestion may be mitigated without major transportation capital improvements. If that doesn't occur, and past trends continue, the study area population is expected to rise to about 758,000 in 2040, an increase of about 30 percent. Employment is expected to increase

to 277,000 in 2040, about 40 percent. So, the imbalance will only be slightly lower than it is today.



Unless those who commute out of the region can move on something other than roads, they will travel in severe congestion because the roadway network could never expand to a capacity that could absorb the future volume of travel. An affordable solution to the traffic problem must be developed.

South Miami-Dade's surface transportation is provided by the county's arterial network spaced on the mile and half-mile grid.



Overall, while a relatively full transit network exists in the northern half of the area, transit is confined to the US-1 corridor south of Cutler Bay. Often, the time between transit vehicles (headway) in the peak hours is longer than 30 minutes, which does not provide an incentive for choice riders to opt for transit. Gaps in the local transit network create large areas without adequate service.

South Miami-Dade has six bicycle trails and a hand full of bicycle lanes. These form a “skeletal network” of bicycle facilities that, if expanded, could connect the corridors and hubs. The area, while not built out from a bicycle perspective, does perform adequately from a recreational perspective. Facilities are needed to complete the regional trails and/or build upon them by adding “branching” connector trails to link neighborhoods and shopping malls, schools, job centers, transit stops, and the like. The goal is to create a bicycle network consisting of: bike lanes, bicycle boulevards, shared streets, and off-street paths.

Pedestrian facilities are typically adequate in the residential areas. Nonetheless, much needs to be done to provide adequate paths between/among generators.

While the roadway network is largely built on a grid, traffic flows regionally along corridors. Four of the ten MPO LRTP major corridors

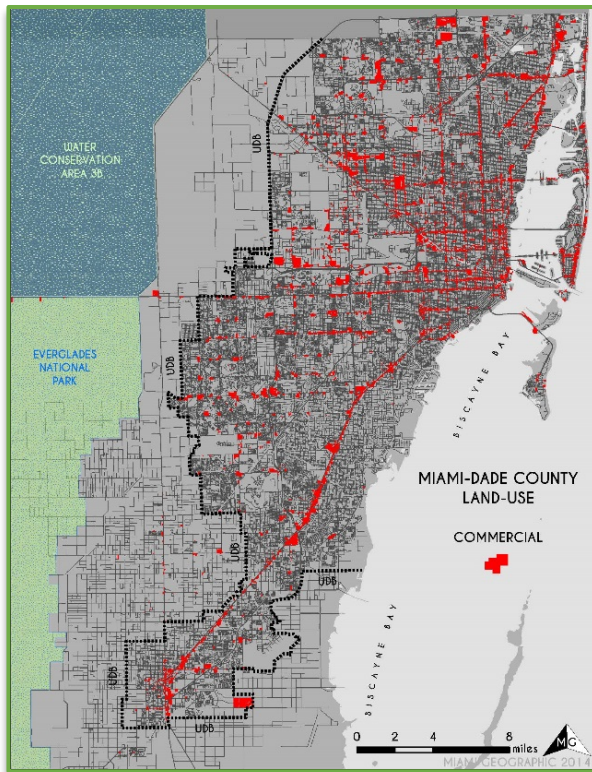


South Dade Trail/East Coast Greenway

serve South Dade. These are: US-1/SR 5, SR 94/Kendall Drive/SW 88th Street, US-1 to Palmetto Expressway, and SW 137th Avenue. Congestion affects each of these corridors.

Land use needs to be addressed, especially in the southern areas. The creation of more employment through the use of commercial and industrial land uses in the corridors is important. This would cause a reduction in the need for residents to have such long commutes due to the lack of employment in their community.

US-1/SR 5 is the most dense and diverse corridor, from land use and transportation perspectives. It connects Dadeland Area/Kendall to Florida City, serving each of the cities in South Miami-Dade with a six-lane highway plus



Metrorail, the Busway, the M-Path, and Old Cutler Bike Trail. At its mid-point, it intersects with Florida's Turnpike. This corridor is congested throughout the day, seven days per week, particularly in the peak hours. Traffic spills from US-1 into residential neighborhoods creating congestion bottlenecks at schools, failing intersections, and canal-blocked roads.

The SR 94/Kendall Drive/SW 88th Street is one of the busiest east-west corridors in the area. The 12-mile, six-lane arterial is bounded by Red Road/SW 57 Avenue and Krome Avenue/SW 177 Avenue. It serves low-density suburban residential and commercial uses, which are dense enough to create traffic, but are not necessarily transit supportive, except in the Dadeland Area. Capacity in the Kendall Corridor is expanded by the SR 878/Snapper Creek Expressway which runs parallel to Kendall Drive. On its western side, it crosses SW 137th Avenue, another major corridor. The Kendall Corridor is highly congested, particularly in the peak hour and peak direction.

The US-1 Corridor connects with the Palmetto Expressway (SR-826) and provides a north-south corridor for residents of Pinecrest, Palmetto Bay, and surrounding neighborhoods. It is also typified by low-density residential and commercial developments. Trips using this corridor are often headed to places in the west central part of the County, like Doral, and other employment centers. The Northeast Kendall Corridor is also congested in the peak hour and peak direction.

The SW 137th Avenue Corridor is located on the western portion of the study area, closest to the edge of the Urban Development Boundary. It connects eastern Homestead and the Motor Speedway with the Dolphin Expressway. This is

a six-lane arterial in the north and a two-lane arterial to the south. There is a gap in the corridor between SW 200th Street and US-1.

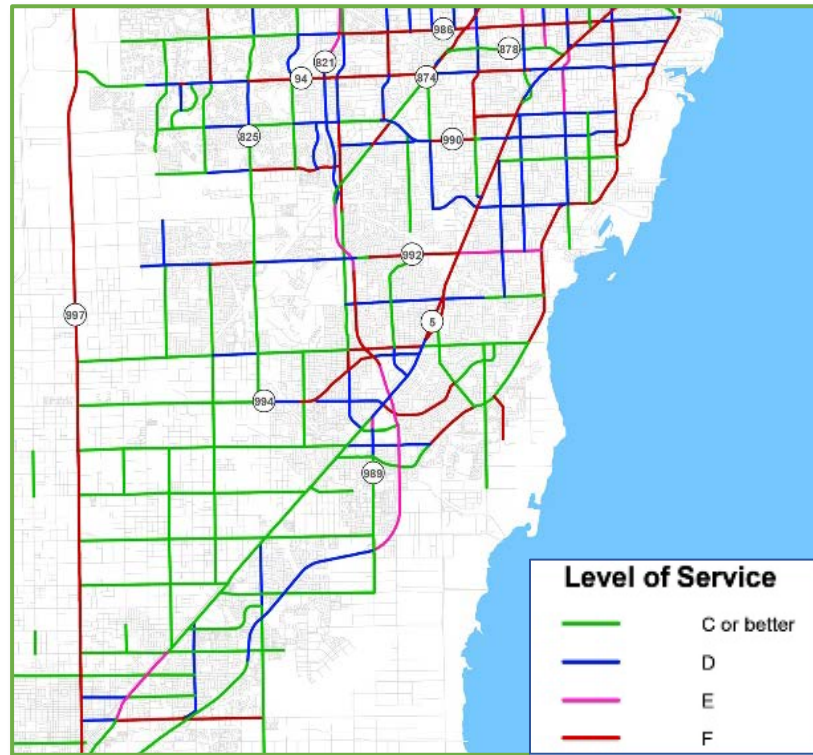
The corridor serves single- and multi-family residential development, industrial warehouses, and other rapidly developing commercial and residential areas, the Homestead Air Reserve Base, and the Park of Commerce. Travelers along this corridor are primarily going to the northwestern employment areas of the county. As with the other corridors in the study area, it is congested.

Where Do People Go?

Today, traffic in the study area south of Cutler Bay is manageable with a few links below Level of Service (LOS) D. North of Cutler Bay, however, traffic volumes are higher. Twenty percent of all of South Miami-Dade's workers head towards Miami; 6.6 percent work in Kendall; 5.8 percent head to Doral; and, 5.3 percent work in Coral Gables. These are the top four employment-based destinations of those who reside in the study area. As people try to move from South Miami-Dade to Doral and Miami, and internally in Kendall, traffic becomes congested and spreads from the main arterial bottlenecks to facilities outside the study area, as shown in [Figure 1](#).

Recent mobility studies for many of the cities in the area show that drivers try to avoid US-1

Figure 1. Roadway Levels of Service in South Dade



Source: The Miami-Dade Metropolitan Planning Organization

by traveling on residential streets as far as they can before approaching some of the bottlenecks caused by canals or other interruptions of the grid.

corridors have been evaluated as well. The MPO has examined the possibility of utilizing the many rail corridors in the area for mobility. FDOT is currently working on the Krome Avenue Corridor as well as in downtown Homestead with a truck bypass. The Turnpike is cur-

Opportunities exist by which to improve mobility with this facility. From an operations perspective, angled intersections along the US-1 corridor present safety issues, and the lack of bicycle and pedestrian connectivity further narrows mobility. Review of studies from each city shows that they all are challenged by growth.

South Miami-Dade has been the subject of no fewer than 30 studies, plans, and policy documents that speak to its transportation and land use. Not only has significant research and analysis of the US-1 Busway been conducted by the Miami-Dade MPO, other

currently expanding, and MDX has explored inserting the managed-lanes concept along the Busway. Miami-Dade Department of Transportation and Public Works is continually improving the arterial grid and is applying adaptive traffic signal technology along the US-1 Corridor. Miami-Dade County Planning and Zoning Department has performed significant land use work along the US-1 Corridor where hubs of intensity have been examined. Combined, these studies have explored how to move people by alternative modes to the single-occupant auto including the un-used rail corridors, buses on expressway shoulders, as well various bus rapid transit or light rail options.

At the local level, Homestead, Cutler Bay, Palmetto Bay, Pinecrest, and other communities have transportation plans focusing on transit circulators, safe routes to school, bicycle and pedestrian master plans, as well as traffic calming. Equally as important is that each area has examined land use and zoning changes along the US-1 Corridor.

These communities desire a multimodal transportation system to help preserve their quality of life as “cut-through” traffic moving off regional corridors is filtering into residential neighborhoods causing significant congestion.

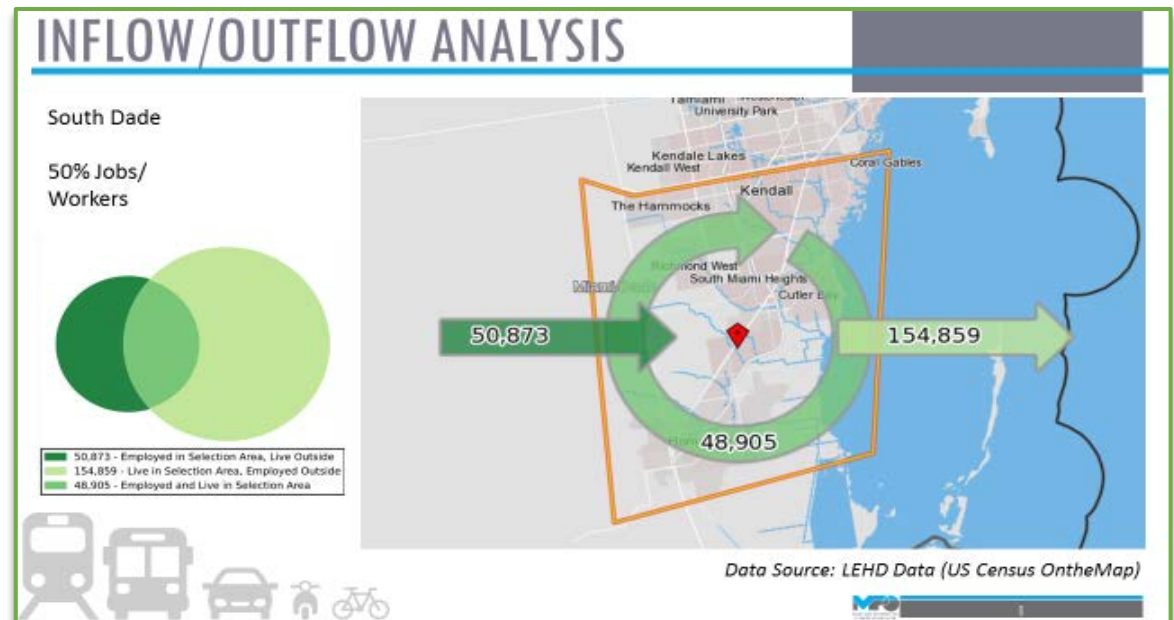
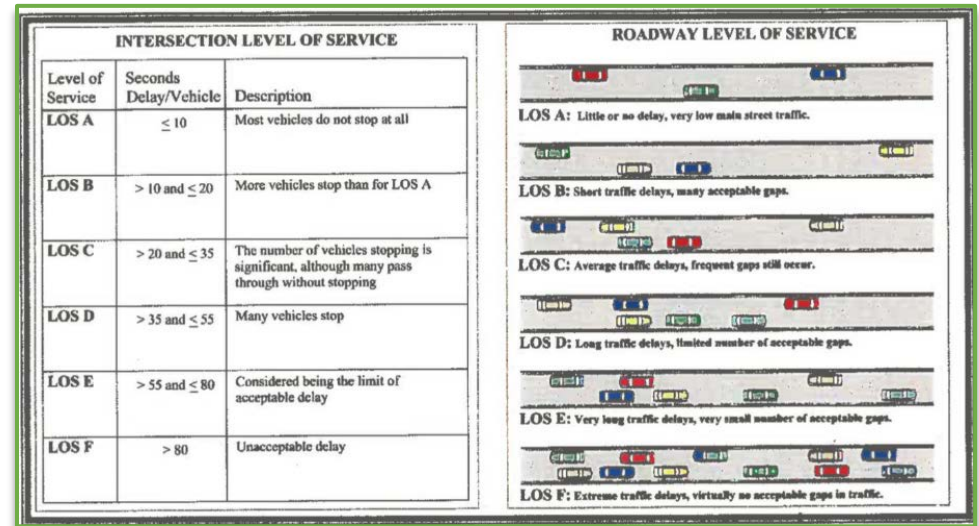
TASK 3: IDENTIFICATION OF FUTURE NEEDS

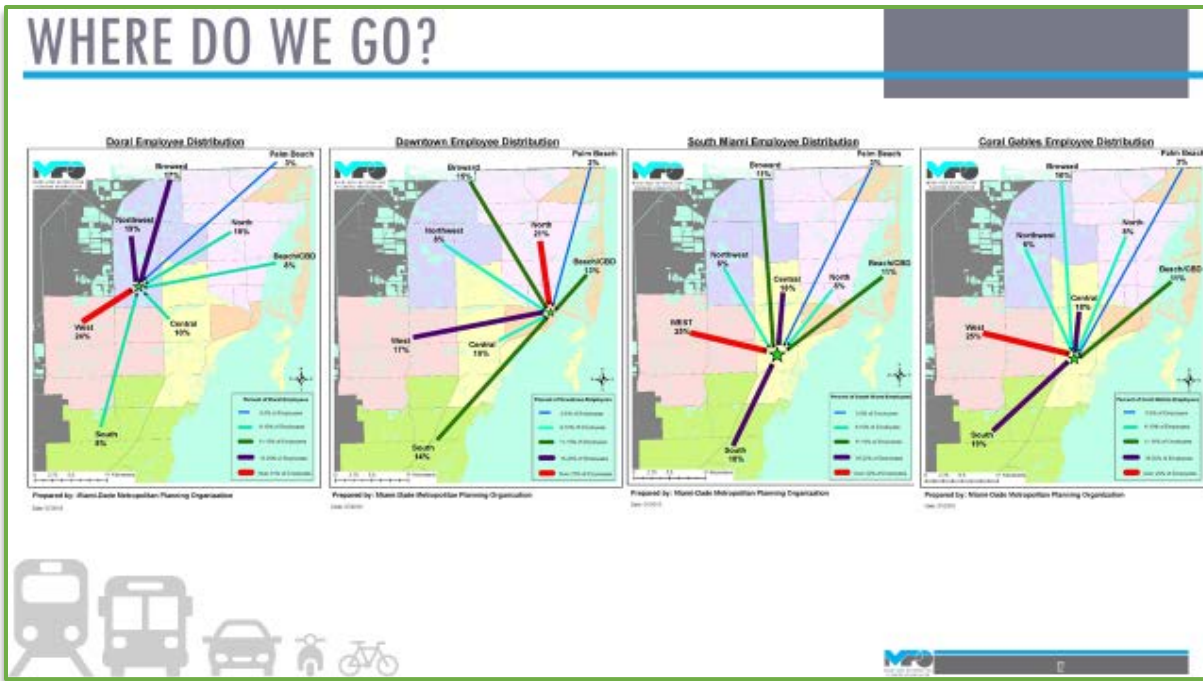
To identify corridors and hubs, population and employment data were examined. Geographic convergence of roadways, intermodal connections, and transit were identified. Then, future hubs were identified.

This analysis indicates South Miami-Dade has half as many jobs as workers. So, each day tens of thousands of workers leave the study area to reach jobs elsewhere. Conversely, about 50,000 workers who live outside of the study area drive in each day. About 50,000 workers live and work in the study area. This flow of travelers moving in and out of South Miami-Dade creates congestion, which is highly directional to the north in the morning and to the south in the afternoon. This directionality causes confusion when developments are reviewed for approval using standard engineering methods to calculate roadway LOS by examining *daily* traffic, which does not account for the fact that roadways serving traffic heading north in the morning peak are highly congested (LOS F), while roadways heading south at the same time are experiencing much less congestion.

The resulting congestion from this land use imbalance is creating economic issues. The average commuter loses more than a week's worth

of work each year sitting in traffic congestion. This equates to nearly \$4.5 billion in lost productivity.





The following highways connect these hubs:

1. [US-1](#) – the most heavily traveled in South Miami-Dade with the most potential for transit. This corridor connects Dadeland in the Pinecrest area to Palmetto Bay, Cutler Bay, Homestead, and Florida City.
2. [SR 94/Kendall Drive \(SW 88th Street\)](#) – an east-west corridor which connects to several major north-south routes that link South Miami-Dade with the rest of County. The intersection of Kendall Drive with multiple north-south regional facilities allows it to serve as a “gateway” to South Miami-Dade.
3. [Historic Old Cutler Road](#) – serves Cutler Bay, Palmetto Bay, Pinecrest, and the southern portion of Coral Gables. Its historical designation is a significant constraint for capacity increases.
4. [SW 152nd Street](#) – is a highly-traversed east-west corridor spanning the County uninterrupted. This corridor provides access to Jackson South Hospital, Coral Reef High School, Zoo Miami, the Florida Turnpike, and, by way of SW 137 Avenue, Miami Executive Airport.

Where Are We Working?

Twenty percent of South Miami-Dade workers travel to jobs in the City of Miami. Kendall, another major employment hub, attracts about seven percent of the area’s workers with the City of Doral attracting approximately six percent.

Multimodal planning identifies and focuses growth at hubs of development/employment. Then, plans are developed to connect hubs to each other by alternative modes.

Eight hubs have been identified:

1. Dadeland Mall
2. Cutler Bay (Southland Mall)
3. Coral Reef/Franjo Triangle
4. Homestead
5. Naranja
6. SW 152nd Street/SW 137th Avenue
7. Miami-Dade College (MDC) – Kendall area
8. West Kendall

5. [SW 117th Avenue](#) – the localized parallel route connecting to the Turnpike between Cutler Bay and Kendall Drive.
6. [SW 137th Avenue/157th Avenue](#) – serves the area between Kendall Drive/SW 88th Street and US-1. It passes through the Redlands, as well as residential subdivisions in the northern part of South Miami-Dade, and the Miami Executive Airport.
7. [Krome Avenue/SW 177 Avenue](#) – the westernmost corridor in the area, running between Homestead and Kendall Drive/SW 88th Street.

Improvements in these corridors were evaluated by mode using the Southeast Florida Regional Planning Model (SERPM7). Pedestrian activities were examined with the goal of achieving full walkability and American with Disability Act (ADA) compliance within one-half mile of regional hubs and within one-quarter mile of other hubs/nodes.

Bicycle facilities were studied for enhancements in the hub areas, including for bicycle parking and bike-share stations.

The transit focus included new infrastructure, “directness” of service, and new surface bus routes.



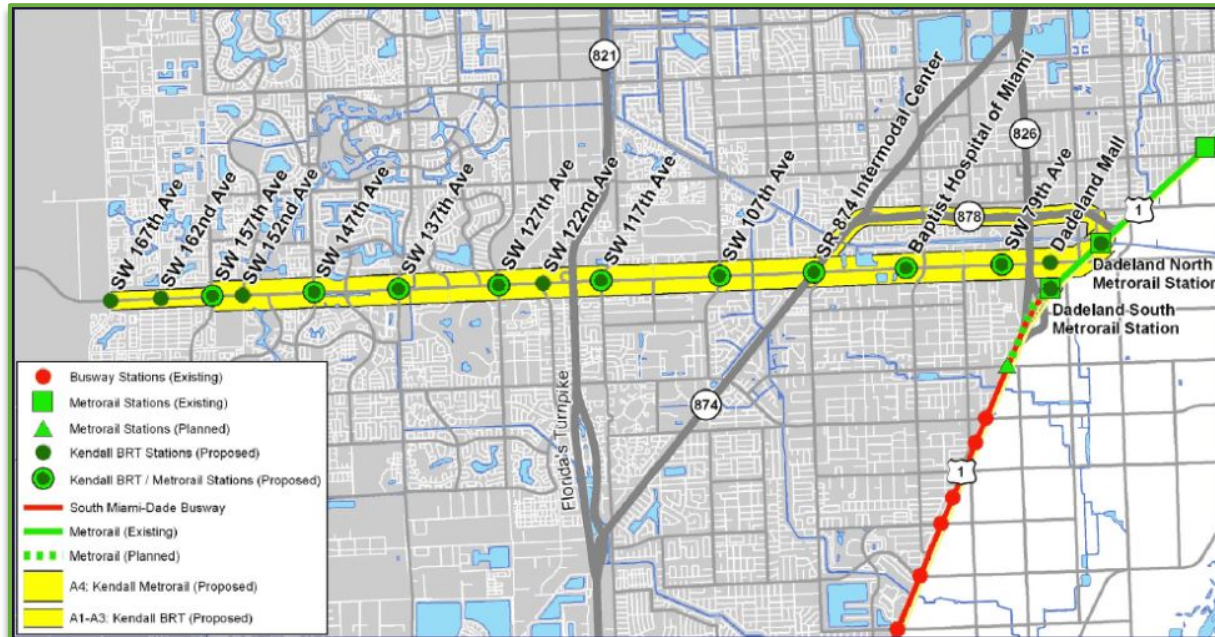
Connecting People to Jobs

This study assessed the time to drive within the study area to destinations outside. The primary origins are Homestead and West Kendall. The primary destinations are Downtown Miami, West Kendall, and Doral. The one-way highway distance from Homestead to Downtown Miami/Government Center is about 30 miles. The distance between West Kendall and

Downtown Miami/Government Center is about 21 miles, one way.

A review of the auto, transit, and bicycle travel times in the peak hours between these points demonstrates that public transportation provides the fastest connection. Along the Busway corridor, where buses have their own right-of-way, transit is shown as the most efficient and expeditious mode. As peak hour congestion increases and spreads across the day, transit will provide improved mobility, if investment shifts in that direction. For example, upgraded feeder transit service, increased parking at park-and-ride facilities, and signal prioritization can reduce travel time by fewer four-five minutes. A Light Rail Transit (LRT) system in South Miami-Dade can reduce travel by about ten minutes.

The SERPM7 model provides data that show most corridors in South Miami-Dade will exhibit deteriorated roadway LOS in 2040. This is particularly evident in the north and east parts of the study area where development exists and where the bulk of the people pass through as they leave and return to South Miami-Dade.



Source: The Corradino Group



Source: Institute for Transportation & Development Policy

It is forecast that the US-1 Corridor will be over capacity in the future, particularly in the northern segments, where it is projected to be 87 percent over capacity. Congestion will overflow onto local streets to create roadway gridlock. Park-and-ride locations along the US-1 Corridor serving the Busway will be fully utilized on a regular basis. Pedestrian and bicycle facilities cannot mitigate these issues.

The Kendall Corridor is projected to be over capacity by up to 20 percent between SW 127th Avenue and SW 147th Avenue, and between 97th Avenue and 107th Avenue by 2040.

By 2040, the Old Cutler Road Corridor will be at LOS F for more than 60 percent of its length. This cannot be solved with automobile-oriented projects.

The SW 152nd Street Corridor performs well in the future with few capacity issues, except near the Florida's Turnpike. The park-and-ride location at its junction with the US-1 Corridor will be at 100 percent capacity.

The SW 137th Avenue and 157th Avenue Corridors will require new roadway segments to provide adequate through movement.

The SW 117th Avenue Corridor will have deteriorated levels of service in 2040, particularly

along the Florida Turnpike. Localized congestion will exist due to gaps in the corridor, which should be filled.

The Krome Avenue/SW 177 Avenue Corridor will function adequately in the future because of a number of improvements being made by FDOT.

Travel Time Analysis

Typically, a commuter chooses the mode of transportation based on how quickly and safely the destination can be reached. The preferred mode in South Miami-Dade is the automobile. Over-use of this choice then causes congestion and the associated loss of productivity.

This study examined the travel times of three transportation modes: automobile, bicycle, and transit. In conducting the travel time comparison, the characteristics of the study area must be understood. The first is the primary destination of most commuters who live in South Miami-Dade. By using U.S. Census Bureau information on the origin/destination of travel and employment statistics for 2002–2014, two locations on opposite sides of the study area—Homestead and West Kendall—were selected to determine the travel times to Downtown Miami by automobile, transit, and bicycle during AM and PM peaks in mid-week.

Downtown Miami is the center with the largest attraction of South Miami-Dade workers ([Table 1](#)).

The *Google Maps Estimator* was used to determine the peak-hour time for the trip by auto. Travel times of possible future transit improvements were determined by referencing the 2006/2016 South Link study and the 2015 MPO study of BRT.

Table 1. Work Destination Report – Where South Dade Workers are Employed

South Dade		
Total Primary Jobs	2004	
	Count	Share
Total South Dade Employment	299,183	100.0%
Jobs Counts by Places (Cities, CDPs, etc.)		
	2014	
	Count	Share
Miami City, FL	60,150	20.1%
Kendall CDP, FL	19,684	6.6%
Doral City, FL	17,483	5.8%
Coral Gables City, FL	15,994	5.3%
Hialeah City, FL	6,288	2.1%
Three Lakes CDP, FL	6,025	2.0%
Homestead City, FL	4,694	1.6%
University Park CDP, FL	2,886	1.0%
Tamiami CDP, FL	2,614	0.9%

Source: U.S. Census Bureau, 2016, OnTheMap Application

Automobile

For the automobile scenario, Google Maps indicates the route with the best travel time in each of the AM and PM peak is SR-821/Florida Turnpike to SR-874/Don Shula Expressway to SR-826/Palmetto Express, and, finally, SR-836/Dolphin Expressway. The AM peak involves a total commute of between 65 and 120 minutes, under the least- and most-congested road conditions, respectively (Table 2). In the PM, the commute is between 75 and 130 minutes. To take into account the cost of tolls along this route, a separate scenario was examined using US-1 and I-95 (south of I-395), both non-tolled roads.

The latter alternative registered a 75-minute commute (AM peak) under least-congested conditions and up to 150 minutes with maximum congestion. As for the afternoon peak, a 75-minute commute was in the “favorable-congestion” scenario, and up to 130 minutes for the maximum-congestion scenario.

Bike

The biking scenario examined a route along the South Dade Trail, to the M-Path until the commuter reaches Downtown Miami. This route had the highest travel time—177 minutes—of all three modes (Table 2). The biking option is not viable for a regular commuter, and perhaps not even for a biking enthusiast.

Public Transportation

For the transit mode, a commuter would board the Route 34 Flyer to the Dadeland South Metrorail station where a transfer to the Metrorail Orange or Green Line would provide a connection to the Government Center in Downtown Miami. This route took about 99 minutes in the AM peak, including a six-minute transfer (Table 2). During the PM peak period, the reverse commute was 93 minutes, including a nine-minute transfer.

These results illustrate public transportation is competitive with the auto, especially when compared to the automobile’s travel time in maximum congestion conditions, which is evident more often than not.

Possible Future Scenarios

Homestead to Dadeland South

To examine options to better connect South Miami-Dade between Dadeland South Metrorail Station and Homestead, data from the 2006/2016 South Link Study were used to examine the following improvements to the Busway (Table 3):

Table 2. Travel Time Comparison, Homestead to Downtown Miami

Trip	Total Time (Max Congestion)	Average Speed (Max Congestion) MPH
Automobile		
AM Trip	65 min (120 min)	35 (19)
PM Trip	75 min (130 min)	31 (18)
**AM Trip	75 min (150 min)	24 (12)
**PM Trip	75 min (130 min)	23 (10)
Public Transportation		
AM Trip	99 min*	17
PM Trip	93 min*	18
Bike		
AM Trip	177 min	10
PM Trip	176 min	10

^Downtown Miami location used was Government Center

*Time to recognize the transfer at Dadeland South Station

**Trip via non-tolled roadway (US-1 & I-95)

Source: The Corradino Group

- A **T**ransportation **S**ystems **M**anagement (TSM) alternative, including double the number of park-and-ride facilities—14 versus the existing seven-plus additional signal prioritization on the Busway to improve travel times.
- A **B**us **R**apid **T**ransit (BRT) alternative including transformation of the Busway by grade separating seven critical roadway crossings.
- **L**ight **R**ail **T**ransit (LRT) from the Dadeland South Metrorail Station to Florida City, as proposed in the South Link study. This route would involve a

transfer at the Dadeland South station for the City of Homestead commuters traveling to Downtown Miami.

- Metrorail extension from the Dadeland South Station to Florida City, also proposed in the South Link Study. This option calls for no transfers for the City of Homestead commuters in traveling to Downtown Miami.

Table 2 demonstrates that transit is a viable option to the auto with no improvements along the Busway link, but it can be even more competitive if it were improved (**Table 3**) by using signal prioritization, additional feeder routes and more park-and-ride locations which could save six minutes. To do so would cost \$154 million. Installation of grade separation with full BRT can create added time savings to the commuter of 11 minutes at a cost of \$516 million.¹

Travel time can be improved by changing the type of transit from Busway to LRT. This provides a 13-minute savings at a capital cost of

Table 3. Potential Improvements to Better Connect Homestead to Metrorail at Dadeland South

Improvement	Homestead to Cutler Bay		Cutler Bay to Dadeland South		Average Speed (Max Congestion) MPH	Total Distance Traveled (Miles)	Total Travel Time (Min)
	Travel Time (Max Congestion) min	Distance Traveled (Miles)	Travel Time (Max Congestion) min	Distance Traveled (Miles)			
Automobile							
AM Trip	23 (52)	9.86	22 (48)	9.24	25 (12)	19.10	45 (100)
PM Trip	21 (52)	9.61	19 (48)	8.99	28 (11)	18.60	40 (100)
Public Transportation							
No Build	30	9.86	25	8.44	20	18.3	55
TSM	26	9.86	23	8.44	22	18.3	49
BRT	24	9.86	20	8.44	25	18.3	44
LRT	22	9.86	19	8.44	26	18.3	42
Metrorail	14	9.86	12	8.44	41	18.3	27

Source: South Link Study, 2006, The Corradino Group

about \$1.4 billion. Also, a grade-separated extension of Metrorail would create a 28-minute savings at a capital cost of \$ 2.8 billion.

West Kendall to Downtown Miami

Consistent with the Homestead-to-Downtown Miami commute, this analysis focused on the amount of time it takes for three different modes to travel from West Kendall to Downtown Miami.

Automobile

The Google Maps Estimator indicates the route of least congestion and least time between

Kendall Drive/SW 88th Street and Downtown Miami is to use SR-821/Florida Turnpike via Kendall Drive, and then SR-836/Dolphin Expressway. (**Table 4**). The AM peak commute by auto required 55 minutes in the least congested conditions, but it can reach 100 minutes in maximum congestion. In the PM, the commute was also about 55 minutes and reached 110 minutes under conditions of great congestion. To determine the impact of tolls, a separate automobile scenario was conducted using the route along Kendall Drive, US-1, and I-95 (south of I-395)—all non-tolled roadways. This alternative provided a 55-minute commute (AM peak), under favorable, light-congestion

¹ Capital costs were gathered from South Link Study 2016 update conducted by Gannett Fleming.

conditions, and up to 130 minutes in maximum congestion. For the afternoon trip, 60 minutes was the commute when there was light congestion; maximum congestion would increase this trip to 140 minutes.

Bike

The bike scenario involved a route on SW 72 Street/Sunset Drive, the SW 56 Street/Miller Drive bike path, and then the M-Path until the commuter reached Downtown Miami. This route by bicycle would take about 127 minutes. Biking is a limited option. If a bicyclist were to also use transit for part of the trip, it would still be the longest trip among using an automobile, transit, or bicycling.

Public Transportation

In this scenario, a commuter would board the Route 288 Cruiser to travel to the Dadeland North Metrorail station where a transfer is required to the Metrorail Orange or Green Line to reach the Government Center in Downtown Miami. This route would take 81 minutes in the AM including five minutes to account for the transfer to Metrorail (Table 4). During the PM peak period, the reverse commute time is 82 minutes, including the time to transfer.

The travel time comparison between the automobile and public transportation favors transit, especially when compared to automobile use in maximum congestion.

To explore if/how transit travel time can be improved, a BRT on Kendall Drive with tie-in to Metrorail, the Busway, and MDC Transit routes 71, 73, and 137 was examined (Table 5). It is forecast that these infrastructure changes would reduce the time from West Kendall to the Dadeland North Metrorail station from 40 minutes to 20. So, the complete trip by transit between West Kendall and Downtown Miami would be 61 minutes, rather than 81.

Findings

Review of the three transportation alternatives available in both the West Kendall area and the City of Homestead for commuters destined to Downtown Miami indicate that transit with

Table 4. Travel Time Comparison, West Kendall to Downtown Miami

Trip	Total Time (Max Congestion)	Average Speed (Max Congestion) MPH
Automobile		
AM Trip	55 min (100 min)	26 (14)
PM Trip	55 min (110 min)	27 (13)
**AM Trip	55 min (130 min)	22 (9)
**PM Trip	60 min (140 min)	19 (8)
Public Transportation		
AM Trip	81 min*	15
PM Trip	82 min*	14
Bike		
AM Trip	127 min	10
PM Trip	126 min	10

^Downtown Miami location used was Government Center

*Time added to reflect transfer at Dadeland South Station

**Trip via non-tolled roadway (Kendall Dr., US-1 & I-95)

Source: The Corradino Group

Table 5. West Kendall to Downtown Miami (Potential Improvement/ BRT Kendall)

Route	Current Conditions			Improved Conditions		
	Travel Time (min)	One Way Travel Time (min)	Average Speed (MPH)	Travel Time (min)	One Way Travel Time (min)	Average Speed (MPH)
Public Transportation						
88	150	75	9	79	40	17
288	100	50	14	53	26	26

Obtained by using a factor between the two current travel times and applied to route 88 improvements.

Source: BRT Implementation Plan along Transit Corridors 2015, HNTB

TSM improvements on the Busway and BRT is highly competitive with the automobile.

Biking between Downtown Miami and Homestead (177 minutes) or West Kendall (127 minutes) may be acceptable to some bike enthusiasts.

Even though the travel time comparison does not address issues that may arise with reliability, it does provide a gauge by which to improve the transit system to make it more competitive with the automobile by making infrastructure changes. But it must be kept in mind that for transit to compete with the automobile, transit must provide reliability and a greater perception of access, both of which are associated with travel by auto.

Mobility Hubs

Dadeland North & South Mobility Hubs

Dadeland is an unincorporated community located adjacent to the suburban areas of Kendall, Glenvar Heights, and Pinecrest. The region, once rural, started to transition during the 1960s and 1970s with development of the Palmetto Expressway, Metrorail, Dadeland Mall, and Dadeland Towers Office Park. The area is a combined commercial district and urban neighborhood relatively dependent on the use of an automobile for mobility. Dadeland in-

cludes a core of 7.5 acres of mixed-use development adjacent to a Metrorail station which has 15 acres of parking on several levels.

In 1998, the **D**owntown **K**endall **U**rban **C**enter **D**istrict (DKUCD) ordinance was enacted to create a town center that would emerge into a cosmopolitan urban district with a mixed-use setting. The plan is consistent with the county's Comprehensive Master Development Plan by: coordinating development intensities; organizing an interconnected network of colonnades of tree-lined streets to improve pedestrian access to transit; and, by shaping the way the buildings front onto open spaces and streets.

The area's major employment centers are mainly located on SW 88th Street, between SR-826 (Palmetto Expressway) and US-1. The traffic flows in both east-west and north-south directions to/from major regional transportation facilities and job centers in the eastern and northern areas of the County.

Located near the intersection of SR-826, SW 88th Street/Kendall Drive, and US-1, these hubs are served by Metrorail, 15 bus routes, the Pinecrest North Route circulator, and within walking distance of the Dadeland Mall, numerous business and office towers, as well as downtown Dadeland. The hub area serves as a junction point for the Ludlam Trail, Snapper Creek Trail Segment B, and the Underline/East

Coast Greenway/M-Path.

Land Use Analysis

The boundaries of the Dadeland North and South Hubs are one-half mile from both of the existing Metrorail stations combined. The primary roadways transecting the hub areas are SR-826 (Palmetto Expressway), generally located to the west; SR-878 (Snapper Creek Expressway) on the north; and, US-1 on the east. The Dadeland North and South Hubs areas are comprised of business and office uses as well as medium-, high-, and low-density residential developments (**Table 6** and **Figure 2**).

Table 6. Dadeland North and South Metrorail Stations Transit Hubs

Land Use	Acres	Land Percentage
Transportation	423.4	32.5%
Estate-density Residential	360.3	27.7%
Business and Office	220.2	16.9%
Medium-/High-density Residential	132.0	10.1%
Medium-density Residential	62.5	4.8%
Low-density Residential	56.2	4.3%
Water	21.4	1.6%
Industrial and Office	18.4	1.4%
Office and Residential	6.6	0.5%

Source: The Corradino Group

The Dadeland North and South Metrorail Stations provide significant access to surrounding businesses, offices, and residential neighborhoods in the Hub areas, as well as connections to existing transit services, such as the South Dade Busway and various Miami-Dade Transit (MDT) bus routes. The transit hub buffer area extends for one-half mile, covering a total of 27 bus stops and hundreds of buildings, making 47 percent of the hub area residential and 19 percent, commercial.

Development in the Dadeland area provides a stable foundation for transit-oriented development.

Existing Infrastructure

The major roadways located in the half-mile vicinity of the Dadeland North and South Metro-rail Stations are:

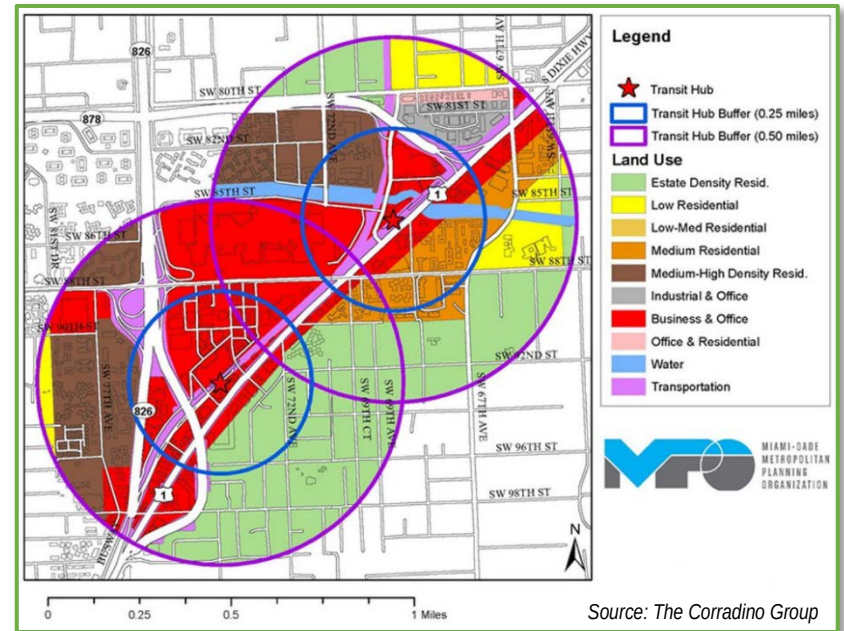
1. **SR-826 (Palmetto Expressway)** – extends from its terminus at US-1 near Pinecrest to the Golden Glades/I-95 Interchange. It is six lanes wide with access at US-1 and SW 88th Street/Kendall Drive. The expressway runs north-south but turns east-west in the Miami Lakes area. SR-826 is one of the most traveled transportation corridors in Miami-Dade County.
2. **US-1 (South Dixie Highway)** – is a principal urban arterial, six lanes wide, running in a northeast-southwest alignment. It

connects in the north to the southern terminus of I-95 and with Key West to the south.

3. **SR-878 (Snapper Creek Expressway)** – is a tolled facility on an east-to-west alignment. It runs parallel to the Snapper Creek Canal and acts as a spur route to SR-874 (Don Shula Expressway), providing access to US-1 and eastern Kendall while bypassing the Dadeland area. The expressway is four lanes wide and has access points on US-1 and SW 72nd Avenue.



Figure 2. Dadeland North and South Mobility Hubs Land Uses



4. **SR-94 (SW 88th Street/Kendall Drive)** – is a major arterial with four travel lanes, a median at some locations and sidewalks east of US-1. To the west are six travel lanes, turning lanes with a median, and sidewalks. The roadways within the hubs area are SW 79th Avenue to the west and SW 63rd Court to the east with access at SR-826, US-1, and minor collectors within the hubs area.

5. **SW 67th Avenue/Ludlam Road** – is a minor arterial running north-south with its southern terminus at the Charles Deering Estate at Coral Reef Drive. It extends into Broward County where it converts to Flamingo Road. Ludlam Road serves many municipalities and unincorporated areas of Miami-Dade County and offers connectivity to the area's higher-level arterial system.

Direct pedestrian connections between the Busway and densely-populated areas are needed to take full advantage of the existing transit service. Further, pedestrian connectivity between the Dadeland Mall, other shopping centers, offices, residential areas, and the Busway is also needed. However, it is noted that, consistent with the Downtown Kendall Urban Center District, further redevelopment surrounding the Dadeland Mall is to be accomplished by an interconnected grid system with walkable, complete streets. Additionally, the DKUCD regulations call for new bicycle paths and greenways interconnecting the area.

6. **The South Dade Busway** – travels along the west edge of US-1 on the former right-of-way of the Florida East Coast Rail Road. It provides transit service from the terminus of the Metrorail line at the Dadeland South station to Florida City at SW 344th Street (Palm Drive). There are currently 27 stops within the hubs area. Seventeen MDT routes serve the Dadeland North and South Mobility Hubs as shown on **Table 7** and **Figure 3**. The South Dade Trail, a segment of the East Coast Greenway, runs along the Busway.



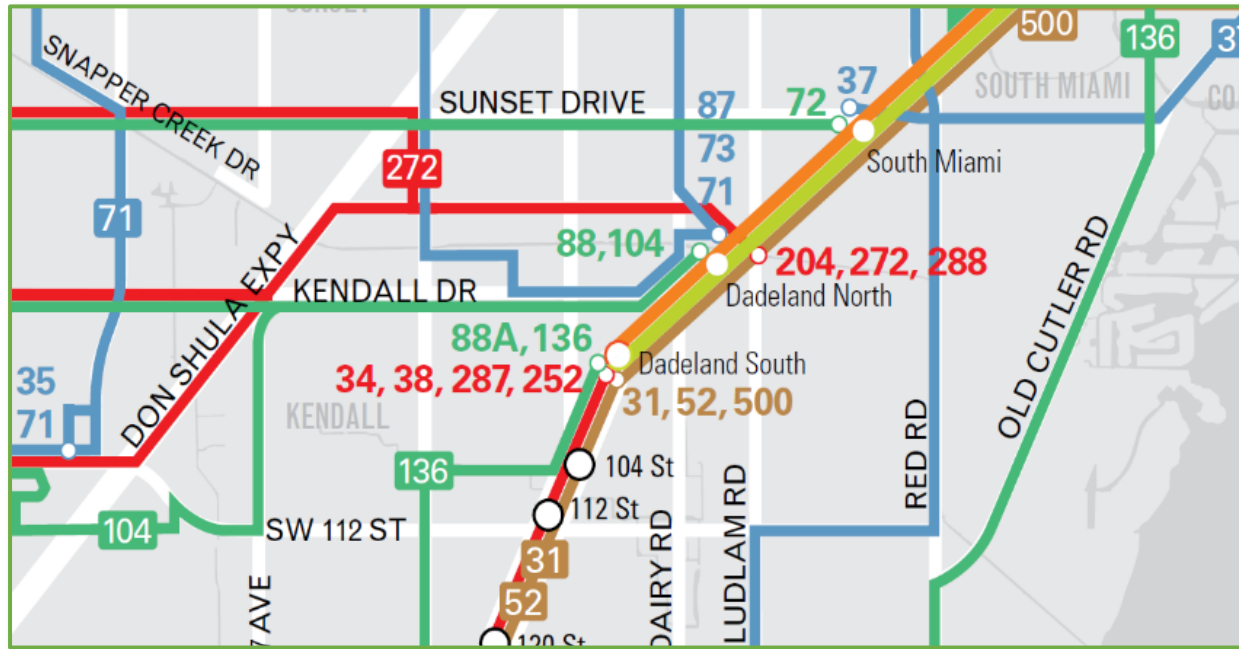
Most of the routes run either east-west on SW 88th Street/Kendall Drive or north-south on US-1 and SW 67th Avenue.

Table 7. Dadeland (North-South) Transit Hub, Existing Transit Service

Route	Name	Services	Direction	Start	End
31	Busway Local	Busway, SW 211 Street & SW 112 Ave	North-South	Dadeland South Metrorail Station	South Dade Government Center
34	Busway Flyer	Busway	North-South	Dadeland South Metrorail Station	SW 344 Street Park & Ride Lot
38	Busway Max	Busway, Southland Mall & Homestead Walmart	North-South	Dadeland South Metrorail Station	Homestead Walmart
52	-	Busway, Richmond Heights, Perrine Shopping Center, Eureka Dr., South Miami Heights, Southland Mall, South Dade Library & Govt. Ctr & Comm. Health Ctr.	North-South	Dadeland South Metrorail Station	Community Health Center
73	-	Dadeland South Metrorail, Dadeland Mall, US Post Office General Mail Facility, Okeechobee Metrorail Station, Hialeah, Miami Lakes	North-South	Dadeland South Metrorail	Miami Lakes
87	-	87 Ave., Mall of the Americas, Doral, Palmetto Metrorail Station	North-South	Dadeland North Metrorail	Palmetto Metrorail Station
88	-	Dadeland North Metrorail Station, Dadeland South Metrorail Station, Kendall Drive, West Kendall Transit Terminal	East-West	Dadeland North Metrorail	West Kendall Transit Terminal
104	-	Dadeland North Metrorail Station, Baptist Hospital, Miami Dade College Kendall Campus, Hammocks Town Center, West Kendall Transit Terminal	East-West	Dadeland North Metrorail	West Kendall Transit Terminal
136	-	Douglas Road Metrorail Station, Coconut grove, Coral Gables, Palmetto Bay, The Falls, Howard, Kendall, Dadeland South Metrorail Station, Miami Executive Airport	East-West	Douglas Road Metrorail Station	Miami Executive Airport
204	Killian KAT	Dadeland North Metrorail Station, Baptist Hospital, Miami Dade College Kendall Campus, Hammocks Town Center, West Kendall Transit Terminal	East-West	Dadeland North Metrorail Station	West Kendall Transit Terminal
252	Coral Reef MAX	Dadeland South Metrorail, Miami Dade Kendall Campus, Killian Drive, Hammocks Town Center, West Kendall Transit Terminal	East-West	Dadeland South Metrorail	Country Walk
272	Sunset KAT	Dadeland South Metrorail, Busway, Perring, Saga Bay, South Dade health Center	East-West	Dadeland South Metrorail	West Kendall Transit Terminal
287	Saga Bay MAX	Dadeland South Metrorail, Busway, Perring, Saga Bay, South Dade health Center	North-South	Dadeland South Metrorail	South Dade Health Center
288	Kendall Cruiser	Dadeland North Metrorail Station, Kendall Drive, West Kendall Transit Terminal	East-West	Dadeland North Metrorail	West Kendall Transit Terminal
500	Midnight Owl	Services Metrorail Line (From Dadeland South Metrorail station to Brickell Metrorail Station)	North-South	Dadeland South Metrorail station	Brickell Metrorail station
ORANGE LINE			North-South	Dadeland South Metrorail	MIA Metrorail Station
GREEN LINE			North-South	Dadeland South Metrorail	Palmetto Metrorail Station

Source: Miami-Dade Transit

Figure 3. Dadeland North & South Mobility Hubs MDT Routes



Source: Miami-Dade Transit

Proposed Infrastructure

In order to improve upon the existing infrastructure, and provide improved levels of service for a given facility, the Miami-Dade County MPO provides a 25-year Long Range Transportation Plan (LRTP) (Table 8) and a Transportation Improvement Plan (TIP) (Table 9), which is a five-year work program.

Most of the projects funded within the five priority years pertain to corridor improvements, such as the M-Path GreenLink, park-and-ride facilities, additions for the Metrorail stations, and corridor improvements, including implementation of full bus rapid transit along the Kendall corridor connecting the Metrorail stations. Projects, such as the M-Path GreenLink,

Metrorail park-and-ride facility, and ramps between SR-826 and the US-1 Busway are already in construction, while others, such as the future expansion of parking at the West Kendall Transit Terminal and Metrorail extensions, are yet to be funded.

In addition to BRT on the Kendall Drive corridor, the current TIP calls for funding of operations, corridor, and hub improvements. Construction projects include intersection improvements to Kendall Drive from SW 77th Avenue to US-1, and ADA improvements for the Busway. The Florida Department of Transportation projects include funding for intersection improvements from SW 77th Avenue to US-1. Miami-Dade Expressway Authority projects include Project Development and Environmental work to study managed lanes on US-1;

however, it is yet to be funded.



EVALUATION OF MULTIMODAL MOBILITY OPTIONS IN THE SOUTH MIAMI-DADE AREA

Table 8. Dadeland (North-South) Transit Hub, Miami-Dade 2040 Long Range Transportation Plan

Priority	Project #	MPO #	Project Roadway	Limits	Project Description	Cost	Notes	Project Type
1 (2015-2020)	1	CMP7	US-1	SW 344 St to I-95	Congestion Management (Signal Timing Optimization)	\$ 0.276 M	Preliminary Engineering	Corridor
	2	MDT133	Kendall Corridor (Kendall BRT)	West Kendall Transit Terminal to Dadeland North Metrorail Station	Full Bus rapid transit	\$11.9 M	Preliminary Engineering	Corridor
	3	MDT252	Ramps between the US-1 Busway and SR-826 (Palmetto)	US-1 Busway to SR-826 (Palmetto)	Construct ramps connecting the US-1 Busway to SR-826 (Palmetto)	\$93.4 M	Preliminary Engineering	Hub
	4	MDT189	Metrorail Park-and-Ride Facility	at Dadeland South	Park-and-ride facility with 1000 parking space garage and ground floor retail and office space	\$34.5 M	Preliminary Engineering	Hub
	5	MDX119	US-1 - Managed Lanes	SW 344 St (Palm) to Dadeland South Metrorail Station	Add 2 plus 1 reversible new managed lanes within the right-of-way of the US-1 Busway	\$970.0 M	Preliminary Engineering, Right of Way, Construction	Corridor
	6	NM16	M-Path Green Link	Short Term improvements SW 67 Avenue to Miami River Greenway	Bicycle/Pedestrian Improvements	\$1217.4 M	Preliminary Engineering, Construction and Capital	Corridor
	7	NM140	M-Path / Overtown Greenway	North of Miami River	Trail Improvements	\$8306.2 M	Construction	Corridor
2 (2021-2025)	1	CMP7	US-1	SW 344 St to I-95	Congestion Management (Signal Timing Optimization)	\$ 0.276 M	Right of Way	Corridor
	4	MDT189	Metrorail Park-and-Ride Facility	at Dadeland South	Park-and-ride facility with 1000 parking space garage and ground floor retail and office space	\$4.7 M	Construction	Hub
	3	MDT252	Ramps between US-1 Busway and SR-826 (Palmetto)	US-1 Busway to SR-826 (Palmetto)	Construct ramps connecting the US-1 Busway to SR-826 (Palmetto)	\$11.3 M	Construction	Hub
	8	PW150	SW 200 St	US-1 to Quail Roost Dr	Add 2 lanes and reconstruct	\$12.8 M	Preliminary Engineering, Construction	Hub
3 (2026-2030)	9	NM11	M-Path GreenLink (long-term improvements)	SW 67th Avenue to Miami River Greenway	Trail Improvements	\$4525.0 M	Preliminary Engineering, Construction, Operations & Maintenance	Corridor
	4	MDT189	Metrorail Park-and-Ride Facility	at Dadeland South	Park-and-ride facility with 1000 parking space garage and ground floor retail and office space	\$0.084 M	Construction	Hub
	5	MDX119	US-1 - Managed Lanes	SW 344 St (Palm) to Dadeland South Metrorail Station	Add 2 plus 1 reversible new managed lanes within the right-of-way of the US-1 Busway	\$970.0 M	Preliminary Engineering, Right of Way, Construction	Corridor
	10	NM90	Snapper Creek Trail "B"	SW 94th Avenue / K-Land Park to SW 57th Avenue	Trail Improvements	\$1521.2 M	Preliminary Engineering, Construction	Corridor
4 (2031-2040)	4	MDT189	Metrorail Park-and-Ride Facility	at Dadeland South	Park-and-ride facility with 1000 parking space garage and ground floor retail and office space	\$0.199 M	Preliminary Engineering	Hub
	7	NM140	M-Path / Overtown Greenway	North of Miami River	Trail Improvements	\$1083.4 M	Construction	Corridor
Unfunded Projects	11	MDT161	US-1 (Busway)	SW 88 St (Kendall) to SW 344 St (Palm)	Improve service on busway to BRT levels	-	-	Corridor
	12	CMP32	US-1	SW 344 St to I-95	Congestion Management (Enforce "don't block box" initiatives)	-	-	Corridor
	13	MDT133U	Kendall Corridor (Kendall BRT)	West Kendall Transit Terminal to Dadeland North Metrorail Station	Full bus rapid transit	-	-	Corridor
	14	MDT163	US-1 (Busway)	SW 88 St (Kendall) to SW 344 St (Palm)	Bus signal priority along US-1 Busway	-	-	Corridor
	15	MDT164	US-1 (Busway)	SW 88 St (Kendall) to SW 344 St (Palm); SW 117 Ave Intersection	Bus only grade separations at all intersections including and south of 98 St with at-grade stations	-	-	Corridor
	16	MDT165	US-1 (South Dixie Highway)	SW 88 St (Kendall) to SW 104 St	Metrorail Extension	-	-	Corridor
	17	MDT170	Coral Reef Enhanced Bus	Dadeland North Metrorail Station to SW 152 Ave / SW 152 St (Coral Reef)	Enhanced bus	-	-	Corridor
	18	MDT184	Palmetto Express Bus (South)	Dadeland North Metrorail Station to Dolphin Station Intermodal Terminal	Implement express bus service on managed lanes between terminals	-	-	Corridor
	19	MDT188	Expand over capacity Park-and-Ride lot at Dadeland North	Dadeland North Metrorail Station	Park-and-ride facility with 1000 space garage, ground floor retail, & office space with additional articulated vbuss bays	-	-	Hub
	20	MDT190	Busway Extension to Dadeland North	Dadeland South Metrorail Station to Dadeland North Metrorail Station	Extend US-1 Busway to Dadeland North (approximately one-half mile)	-	-	Hub
	21	MDT206	72/67 Ave Enhanced Bus	Dadeland North Metrorail Station to Miami Lakes Terminal	Implement limited stop bus service	-	-	Corridor
	22	SFRTA108	Kendall Area LRT	ZooMiami Area to Dadeland	New Premium Transit Service	-	-	Corridor

Table 9. Dadeland (North-South) Transit Hub Existing Future Projects, Miami-Dade MPO 2017–2020 TIP Projects

Project #	MPO #	FACILITY	LIMITS	TYPE OF WORK	Cost	Year	Notes	PROJECT TYPE
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS								
1	TA0000050	South Miami Dade Busway	Dadeland South Metrorail Station to SW 200 Street	ADA Improvements: ADA Accessibility Phase I	\$0.198 M	2016-2017	Construction	Corridor
2	TA4225291	MDT-Kendall Drive. Enhanced Bus Service	Dadeland North Metrorail Station to SW 167 Avenue	Transit Service Demonstration	\$1.198 M	< 2017	Operations	Corridor
3	TA4225292	MDT-Kendall Cruiser	Dadeland North Station to SW 162 Avenue	Urban Corridor Improvements	\$3.6 M	< 2017 - 2020	Operations	Corridor
4	TA4389491	MDT - Kendall Cruiser	Route 288	Urban Corridor Improvements	\$0.165 M	2020 - 2021	Operations	Corridor
FLORIDA DEPARTMENT OF TRANSPORTATION								
5	DT4311703	SR 94/Kendall Drive/SW 88 St.	SW 7500 Block/SW 73 Place to US 1/S Dixie Hwy	Resurfacing	\$1.495 M	<2017 - 2019	Planning, Design, Construction and Alternative Contracting Incentives	HUB
6	DT4311704	SR 94/Kendall Drive/SW 88 St.	SW 77 Ave to US 1	Intersection Improvement	\$2.6 M	2017 - 2019	Planning & Design, Construction	HUB
MIAMI-DADE EXPRESSWAY AUTHORITY								
7	XA20003	US-1 - Managed Lanes	SW 344 St (Palm) to Dadeland South Metrorail Station	PD&E Study	-	-	-	Corridor

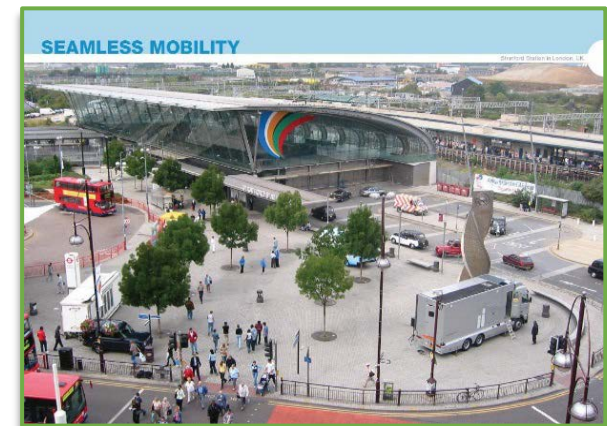
Source: Miami-Dade County Metropolitan Planning Organization

Cutler Bay Mobility Hub

Introduction

The Cutler Bay Hub is located at the intersection of two major regional thoroughfares: US-1 (South Dixie Highway) and SR-821 (Homestead Extension of the Florida Turnpike). It contains Southland Mall, South Dade Government Center, Cutler Bay Town Hall, South Miami-Dade Cultural Arts Center, and office/commercial areas. The proposed location of a trans-

portation hub is SW 112th Avenue (SR-989/Alapattah Road) and US-1 in the southeast quadrant of the intersection, which is currently a parking lot for the Southland Mall (Figure 4). This location was selected due to its proximity to the main trip generator, Southland Mall, and its accessibility to the South Dade Busway, US-1, and SR-821.



The mobility hub will be located in the Town of Cutler Bay and within the Miami-Dade County Cutler Ridge Metropolitan Urban Center District. Charrettes have been conducted by the town and county to redevelop the area into a mixed-use and denser urban area. The Hub is to be located within the Miami-Dade County Cutler Ridge Enterprise Zone, which provides incentives for businesses to move there.

Land Use Analysis

Cutler Bay and environs were developed as a suburban area which is dependent on the use

of auto for mobility. The major trip generator is the Southland Mall, an enclosed shopping area surrounded by parking. Most of the land uses surrounding the hub are business and office (Figure 4). The main office buildings are located on out-parcels of the mall next to Caribbean Boulevard. Hotels and retail are located north of Caribbean Boulevard. The highest residential density in the area is located north of SW 200th Street and west of US-1. The area west of US-1 is predominately low-density residential. The only industrial land use in the area lies just north of SW 211th Street and west of US-1.

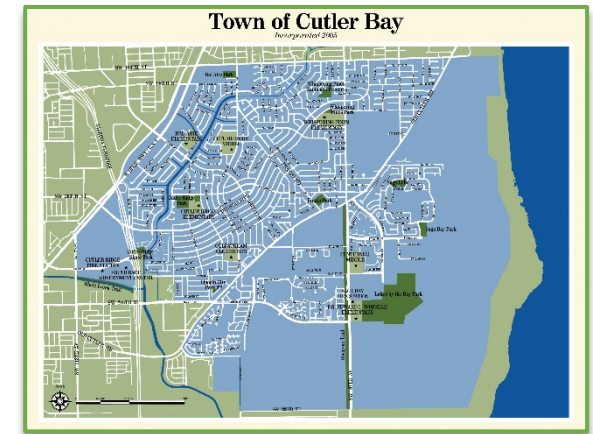
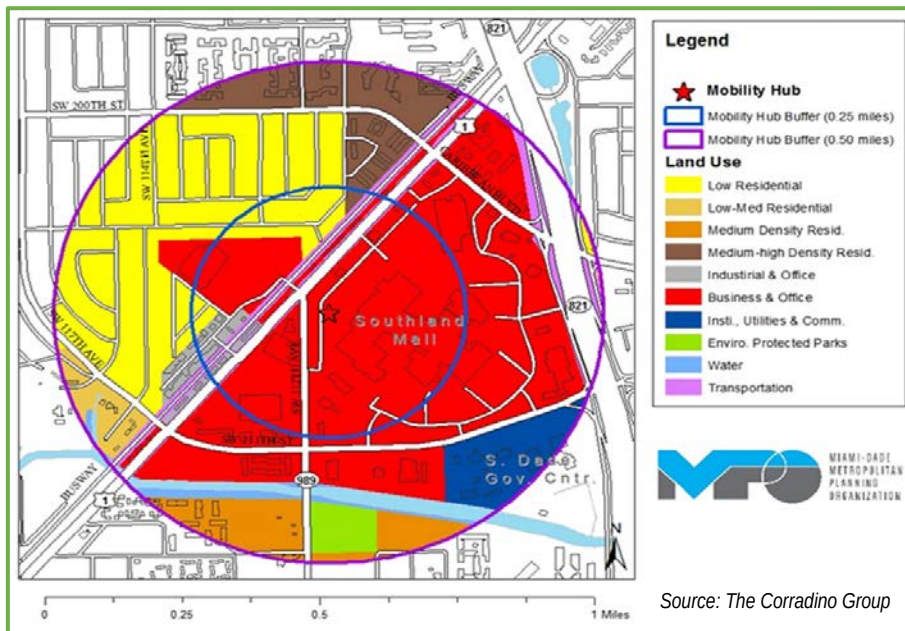


Figure 4. Cutler Bay Mobility Hub Land Uses



Charrettes and the Cutler Ridge Land Use and Land Development Regulations (zoning) call for more intensive mixed-uses in the Southland Mall area, mostly located on the parking lots surrounding the mall. Height limitations call for a minimum of six stories and a maximum of 12, which indicate major density changes for the area. If they occur,

this area will become a major development node further justifying the placement of a transit hub there.

The changes proposed for the Cutler Ridge district will provide a stable foundation for economic development in the area. Developing a transit hub as, potentially, a public-private partnership, may prove to be fruitful for both transit and the developer(s).

Existing Infrastructure

Roads

The roadway infrastructure located in the half-mile vicinity of the Cutler Bay Hub consists of:

1. **SR-821 – Homestead Extension of the Florida Turnpike** – a tolled freeway with access at US-1, Caribbean Boulevard, and

SW 211th Street. It has six lanes running north/south to connect Homestead to I-75. This is the main north-south expressway in western Miami-Dade County. It is a direct connection from the Cutler Bay Mobility Hub to the Kendall Hub and Metrorail stations farther north. Additionally, the Turnpike connects the Cutler Bay Hub to the Homestead/Florida City Hubs as well as the Dadeland North-South Hubs via SR-874 (Don Shula Expressway) and SR-878 (Snapper Creek Expressway).

2. **US-1/South Dixie Highway** – a principal urban arterial of four lanes extending from the southern part of the Cutler Bay Hub area to SW 112th Avenue where it widens to a six-lane facility north of SW 112th Avenue. US-1 runs in a northeast-southwest alignment and connects all of South Miami-Dade to I-95 on the north and through Homestead ending in Key West on the south. The Busway provides transit from the Dadeland South Metrorail station to Florida City. It serves Cutler Bay, Palmetto Bay, and Naranja.
3. **SW 211th Street/SW 117th Avenue** – an urban collector which runs east-west through most of the Cutler Bay Mobility Hub area. The four-lane facility starts at SR-821 to the east, and turns into SW

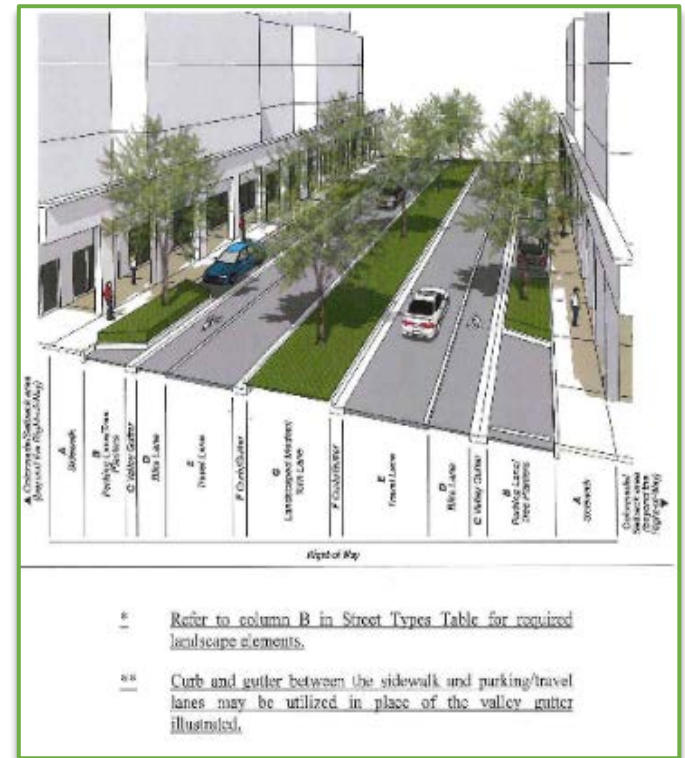
117th Avenue on the west. SW 117th Avenue runs north to SW 8th Street/US-41.

4. **SW 112th Avenue/Allapattah Road** – a minor urban arterial, four-lane roadway running north-south. It begins at US-1 in the north and runs south through the Cutler Bay Mobility Hub, providing another access point to SR-821 to SW 280th Street near the Homestead Air Force Base.
5. **Caribbean Boulevard/SW 200th Street** – also a minor urban arterial that is four lanes wide throughout the mobility hub. The roadway links the core of the Town of Cutler Bay to SW 184th Street. To the west, the road merges with Eureka Drive to become SR-994 and continues through the western part of the county to SW 202nd Avenue.

Pedestrian Facilities

There is a lack of pedestrian connectivity from the residential areas on the west of the Cutler Bay Hub to the commercial areas on the east. Additionally, connectivity of the densely-populated northwestern area to the Busway stations is virtually non-existent. Pedestrian connectivity between the Southland Mall and the Busway is also

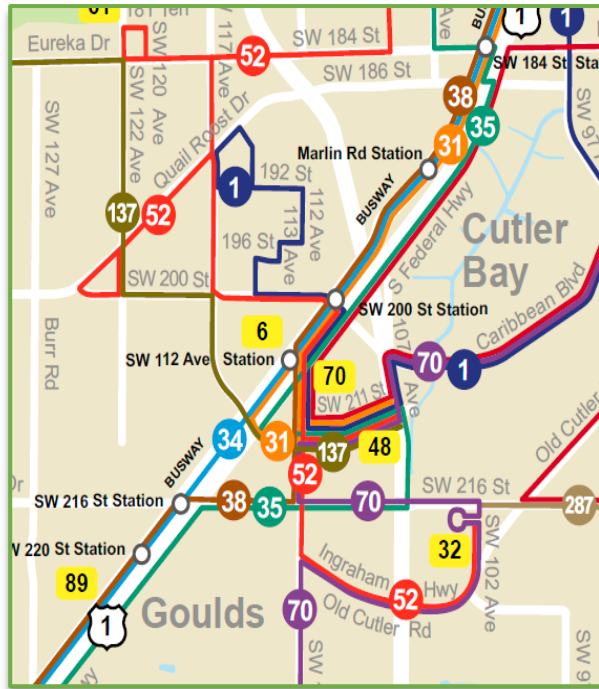
needed. As proposed in the earlier-mentioned charrettes, and as required by the Cutler Ridge Metropolitan Urban Center District regulations, further redevelopment surrounding the Southland Mall must result in an interconnected grid system with walkable, complete streets. Additionally, the regulations call for new bicycle paths and greenways interconnecting the areas of interest.



Transit

The Busway serves the Cutler Bay Hub at two stations: SW 112th Avenue, which contains a park-and-ride lot, and SW 200th Street. The stations are not conveniently accessible by walking/bicycling. Nine MDT routes serve the Cutler Bay Hub as shown on **Figure 5** and **Table 10**.

Figure 5. MDT Transit Routes Serving the Cutler Bay Transit Hub



Source: Miami-Dade Transit

Table 10. Cutler Bay Transit Hub, Existing Transit Service

Route	Name	Services	Direction	Start	End
1	-	South Miami Heights, Southland Mall, Cutler Bay, Caribbean Blvd, SW 97 Ave, West Perrine	East-West & North-South	West Perrine	South Miami Heights
31	Busway Local	Busway, SW 211 Street & SW 112 Ave	North-South	Dadeland South Metrorail Station	South Dade Government Center
34	Busway Flyer	Busway	North-South	Dadeland South Metrorail Station	SW 344 Street Park & Ride Lot
35	-	Homestead High School, SW 334 Park & Ride Lot, Homestead Hospital, Southland Mall & MDC Kendall Campus	North-South	MDC Kendall Campus	Homestead High School
38	Busway Max	Busway, Southland Mall & Homestead Walmart	North-South	Dadeland South Metrorail Station	Homestead Walmart
52	-	Busway, Richmond Heights, Perrine Shopping Center, Eureka Dr., South Miami Heights, Southland Mall, South Dade Library & Govt. Ctr & Comm. Health Ctr.	North-South	Dadeland South Metrorail Station	Community Health Center
70	-	Cutler Bay, Caribbean Blvd., Southland Mall, South Dade Library & Govt. Ctr., Comm. Health Ctr., Homestead Air Force Base, 344 St Park & Ride & Homestead High School	North-South	Cutler Bay (Saga Bay)	Homestead High School
137	West Dade Connection	Dolphin Mall, Doral, Miami International Mall, Sweetwater, Miami Executive Airport, Larry & Penny Thompson Mem. Park, Southland Mall and South Dade Gov. Ctr.	North-South	Dolphin Mall	South Dade Government Center
200	Cutler Bay Local	Southland Mall, US-1, Eureka Dr, SW 87 Ave, SW 216 St, Old Cutler Rd, Franjo Rd, Caribbean Blvd. & SW 211 St.	Circulator	Busway	Southland Mall

Source: Miami-Dade Transit

Table 11. Cutler Bay Transit Hub, Miami-Dade 2040 Long Range Transportation Plan

Priority	Project #	MPO #	Project Roadway	Limits	Project Description	Cost	Notes	Project Type
1 (2015-2020)	1	PW142	SW 200 St	US-1 to Quail Roost Dr	Add 2 lanes and reconstruct	\$17.4 M	Preliminary Engineering, Construction, Capital	Hub
	2	NM58	SW side of SW 117th Avenue	Roberta Hunter Park to South Dade Trail & Black Creek Trail junction	Bicycle/Pedestrian Improvements (Trail Improvements)	\$227.8 M	Preliminary Engineering	Corridor
	3	CMP7	US-1	SW 344 St to I-95	Congestion Management (Signal Timing Optimization)	\$ 0.276 M	Preliminary Engineering	Corridor
	4	MDX119	US-1 - Managed Lanes	SW 344 St (Palm) to Dadeland South Metrorail Station	Add 2 plus 1 reversible new managed lanes within the right-of-way of the US-1 Busway	\$970.0 M	Preliminary Engineering, Right of Way, Construction	Corridor
2 (2021-2025)	1	PW142	SW 200 St	US-1 to Quail Roost Dr	Add 2 lanes and reconstruct	\$12.8 M	Capital	Hub
	2	NM58	SW side of SW 117th Avenue	Roberta Hunter Park to South Dade Trail & Black	Bicycle/Pedestrian Improvements (Trail Improvements)	\$227.8 M	Construction, Operations &	Corridor
	3	CMP7	US-1	SW 344 St to I-95	Congestion Management (Signal Timing Optimization)	\$ 0.276 M	Right of Way	Corridor
3 (2026-2030)	4	MDX119	US-1 - Managed Lanes	SW 344 St (Palm) to Dadeland South Metrorail Station	Add 2 plus 1 reversible new managed lanes within the right-of-way of the US-1 Busway	\$33.4 M	Construction, Operations & Maintenance	Corridor
4 (2031-2040)	1	PW142	SW 200 St	US-1 to Quail Roost Dr	Add 2 lanes and reconstruct	\$0.1 M	Preliminary Engineering	Hub
	4	MDX119	US-1 - Managed Lanes	SW 344 St (Palm) to Dadeland South Metrorail Station	Add 2 plus 1 reversible new managed lanes within the right-of-way of the US-1 Busway	\$106.3 M	Capital	Corridor
Unfunded Projects	5	MDT161	US-1 (Busway)	SW 88 St (Kendall) to SW 344 St (Palm)	Improve service on busway to BRT levels	\$19.0 M	Capital	Corridor
	6	MDT161U	US-1 (Busway)	SW 104 St to SW 344 St	Metrorail Extension	\$2660.0 M	Capital	Corridor
	7	MDT163	US-1 (Busway)	SW 88 St (Kendall) to SW 344 St (Palm)	Bus signal priority along US-1 Busway	\$8.8 M	Capital	Corridor
	8	MDT164	US-1 (Busway)	SW 88 St (Kendall) to SW 344 St (Palm); SW 117 Ave Intersection	Bus only grade separations at all intersections including and south of 98 St with at-grade stations	\$307.8 M	Capital	Corridor
	9	MDT226	US-1 (Busway)	SW 344 St (Palm)/ US-1 Busway to Dadeland South Metrorail Station (Allapattah Rd/SW 112 Ave Station & Caribbean Blvd (SW 200 St) Station)	Kiss-and-ride at all stations along US-1 Busway	\$1.3 M	Capital	Corridor
	10	CMP32	US-1	SW 344 St to I-95	Congestion Management (Enforce "don't block box" initiatives)	\$0.0 M	Capital	Corridor

Source: Miami-Dade County Metropolitan Planning Organization

Most of the routes run in a north-south direction between the Dadeland South Metrorail station and Homestead, and feed the Busway stations.

Proposed Infrastructure

The Miami-Dade County MPO's LRTP and TIP, plus the Transportation Master Plan of Cutler Bay, were reviewed to determine future projects proposed within the Mobility Hub (Table 11). Most projects funded within five years are directed at connectivity of the Hub to its neighborhoods (Table 12). Also notable is that in the TIP, FDOT is to make pedestrian improvements on SW 200th Street to provide access between the most populous part of the area to the transit hub. For example, Project #2 in the LRTP addresses the connection of two regional bike routes that will provide connectivity to the Mobility Hub through the South Dade Trail toward the Black Creek Trail.

Other proposed projects include a new park-and-ride lot along the Busway at SW 112th Avenue and SW 216th Street; congestion management along Caribbean Boulevard/200th Street; urban corridor improvements for Bus-

way routes; and, signal timing optimizations on US-1 between SW 344th Street north to I-95.

As seen in Table 12, most of the same projects mentioned in the LRTP are also noted here in the TIP. Project #2 which proposes a park-and-ride facility and transit-oriented development at the location of SW 112th Avenue and the Busway, reinforces the need for more transit service. Project #4 provides the opportunity for the addition of more pedestrian-friendly crossings at major intersections of the US-1 corridor.

Projects #6 through #11 provide for express lanes on the Florida Turnpike throughout the

Hub area.

Most of the projects mentioned on Cutler Bay's Masterplan (Table 13) have been incorporated in the LRTP and TIP. Project #6 further emphasizes the focus on pedestrian mobility.

Table 12. Cutler Bay Transit Hub Existing Future Projects, Miami-Dade MPO 2017 TIP Projects

Project #	MPO #	FACILITY	LIMITS	TYPE OF WORK	Cost	Year	Notes	PROJECT TYPE
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS								
1	TA4389501	MDT South Miami-Dade	Busway Routes	Urban Corridor Improvements	\$0.467 M	2020-2021	Operations	Corridor
2	TA4388371	MDT Park & Ride Lot	S. Miami Dade Busway (SW 112 Avenue & SW 216 Street)	Development of a park and ride and TOD along South Miami Dade Busway (SW 112 Ave and SW 216 St)	\$5.2 M	2016-2017	Capital	Hub/Corridor
3	PW000005	SW 200 St/Caribbean Boulevard	SW 127 Avenue to Coral Sea Road	Congestion Management	-	-	-	Hub
FLORIDA DEPARTMENT OF TRANSPORTATION								
4	DT4378731	US-1/South Dixie Hwy	At SW 200 Street	Pedestrian Improvements	\$0.508 M	2017-2018	Construction	HUB
5	DT4386111	US-1/South Dixie Hwy	SW 344 Street to SW 152 Street	Transportation Planning: PD&E	\$1.5 M	2017-2018	PD&E	Corridor
FLORIDA TURNPIKE ENTERPRISE								
6	TP4154881	SR-821/HEFT	SW 216 Street to N. Eureka Drive	Express lanes: Add lanes & reconstruct	\$55.0 M	<2017	Const, plan & Design	Corridor
7	TP4154882	SR-821/HEFT	SW 216 Street to N. Eureka Drive	Landscaping	\$1.1 M	>2021	Construction	Corridor
8	TP4154883	SR-821/HEFT	SW 216 Street to N. Eureka Drive	Signing/Pavement Markings	\$0.3 M	2016-2017	Construction	Corridor
9	TP4233722	SR-821/HEFT	SW 288 Street to SW 216 Street	Express lanes: Add lanes & reconstruct	\$0.2 M	2016-2017	Planning & Design	Corridor
10	TP4233723	SR-821/HEFT	SW 288 Street to SW 216 Street	Signing/Pavement Markings	\$0.7 M	2016-2018	Construction	Corridor
11	TP4233724	SR-821/HEFT	SW 288 Street to SW 216 Street	Landscaping	\$1.3 M	>2021	Construction	Corridor
MIAMI-DADE EXPRESSWAY AUTHORITY								
12	XA20003	US-1 Managed Lanes	SW 344 Street to Dadeland South Metrorail Station	PD&E Study	-	-	-	-

Source: Miami-Dade County Metropolitan Planning Organization

**Table 13. Cutler Bay
Transportation Master Plan 2014**

Project #	FACILITY	LIMITS	TYPE OF WORK	Cost	Year	PROJECT TYPE
CAPACITY PROJECTS						
13	SR 821- HEFT	SW 211 ST to Caribbean Blvd	Add 2 lanes	\$3.367 M	4	Corridor
17	SR 821- HEFT	Caribbean Boulevard and Quail Roost Drive	Add 2 lanes	\$10.0 M	5	Corridor
ALTERNATIVE MODE/TRANSIT PROJECTS						
1	Town Circulator	Comprehensive Operations Analysis	Conduct Study/operational Analysis considering headway times and expansion of day service plus connect to Southland Mall, high schools and circulators in adjacent communities.	\$0.075 M	1	Hub
6	US-1 Corridor Transit		Install necessary crossing points and pedestrian pathways from major generators to transit points. Provide a Park and Ride feasibility study for the US-1 Busway. Study feasibility of cross access easements.	\$0.075 M	3	Hub
7	Connection to	Urban Center District	Build multiple sidewalk connections to Town Hall from the rest of the network. Provide landscaping along path.	\$0.075 M	3	Hub
8	Implement Bike/Ped	Master Plan and Necessary Improvement	Implement 2011 Bike/Ped Master Plan. Upgrade sidewalk facilities and remove obstacles in the Right-of-Way to ensure ADA compliance. Install and repaint crosswalks where necessary. Continuous Evaluation and Maintenance of existing and future sidewalk needs.	\$0.3 M	1 to 5	Hub
CORRIDOR ENHANCEMENT PROJECTS						
6	Signal Progression Analysis	for US-1/South Dixie Hwy, Marlin, Old Cutler Rd., SW 184 St., Franjo/SW 97 Ave	Evaluate the main corridors' signal progression.	\$0.1 M	2	Hub

Source: Miami-Dade County Metropolitan Planning Organization

Coral Reef: SW 152nd Street and Busway Mobility Hub

Introduction

The intersection of Coral Reef Drive and US-1 is relatively unbuilt, with a golf course and the Pineland Preserve. Nonetheless, this location is near the Jackson South Community Hospital, commercial areas that could further develop, proximity to The Falls shopping area, and at the intersection of two major routes in South Dade, US-1 and SW 152nd Street. This area is close to the Turnpike on the west, and is the pivot point for those heading from Country Walk, and surrounding areas in route to Downtown Miami, the primary destination for workers from this area.

In the short 3± miles between Country Walk and US-1 lies not only the Jackson South Community Hospital, but also Zoo Miami and Coral Reef High School. It is unsurprising then that travel, including vehicular activity, is high on this corridor. A park-and-ride lot already exists at SW 152nd Street and US-1, but it is at capacity, which needs to be addressed.

Land Use Analysis

The Coral Reef Hub is transected by US-1/ South Dixie Highway and the South Dade Busway, running northeast-southwest, and by SW 152nd Street/SR-992/Coral Reef Drive which runs east-west. The Hub is bounded by SW

144th Street to the north, by SW 158th Lane to the south, SW 97th Avenue to the west, and SW 87th Court to the east. The transit hub is to be located between the Village of Palmetto Bay and the unincorporated Miami-Dade areas of Kendall and Palmetto Estates. The area is generally comprised of estate- and low-medium density residential uses (46%) as well business and office uses (10%) (Table 14 and Figure 6). Parks and recreation uses represent about 18 percent of the Hub area. High-density residential uses are completely absent in this area.

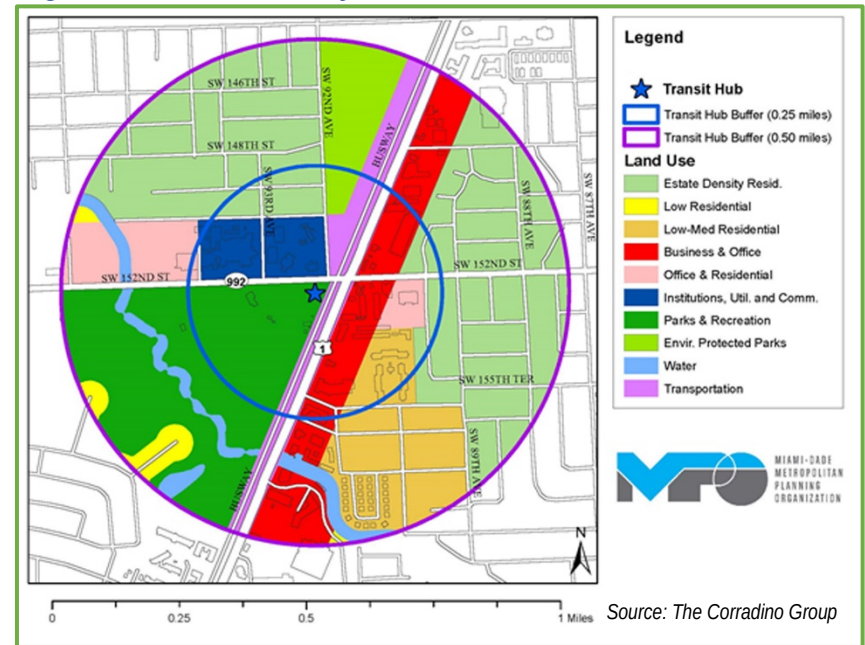
The Hub's center is located at the South Dade Busway and SW 152nd Street/Coral Reef Drive and in close proximity to US-1. Within a half-mile radius of the Hub's center there are 16 bus stops, more than 100 large buildings, and about 450 smaller buildings. Fifty percent of the area is designated residential and about 12 percent, commercial. The center is accessible by the surrounding busi-

Table 14. Coral Reef Transit Hub

Land Use	Acres	Land Percentage
Estate-density Residential	182.4	36.3%
Parks and Recreation	92.1	18.3%
Business and Office	50.4	10.0%
Low-Medium Residential	48.8	9.7%
Transportation	35.7	7.1%
Office and Residential	24.4	4.9%
Environmentally Protected Parks	24	4.8%
Institutions, Utilities and Communication	20.5	4.1%
Water	15.9	3.2%
Low-density Residential	8.4	1.7%

Source: The Corradino Group

Figure 6. Coral Reef Mobility Hub Land Uses



nesses, offices, parks, a hospital, and residential neighborhoods, as well as existing transit services, such as the Busway and various MDT bus routes.

The Hub area is oriented to the automobile. The major trip generators are Jackson South Community Hospital, Coral Reef Branch Library, Coral Reef Shopping Center and Shopping Plaza, and the Busway. The hospital and library are located northwest of the Busway and Coral Reef Drive and encompass approximately 18 acres. The Coral Reef Shopping Center and Plaza are open-air shopping destinations located along the east side of the Busway and US-1.

Most of the area immediately east of the Busway and US-1 is occupied by restaurants, car dealerships, and strip malls surrounded by parking lots (Figure 6). Farther to the east, es-

tate-density residential and low-medium residential uses are present. The Palmetto Gulf Course and Palmetto Estates neighborhood are located to the southwest of the Hub center, and Jackson South Community Hospital, Coral Reef Library, Rockdale Pineland Preserve and estate, and single-family development are to the northwest.

The Coral Reef Hub is also located just north of the proposed Village of Palmetto Bay/Franjo Triangle & Island District (FT&I) which will bring higher-intensity employment, commerce, and residential activities in support of multimodal transportation options and economic development.

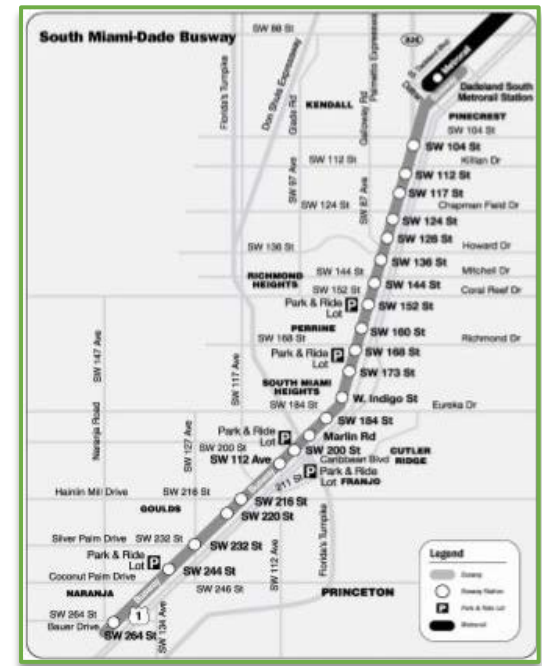
Existing Infrastructure

Roads

The roadway infrastructure located in the half-mile vicinity of the Coral Reef Hub consists of:

1. [US-1/South Dixie Highway](#) – a principal urban arterial, six lanes wide, surrounded by light- and medium-density commercial uses throughout its entire length. US-1 parallels the Busway and connects all of South Dade to I-95 from Key West.
2. [SR-992/SW 152nd Street/Coral Reef Drive](#) – a 10±-mile principal arterial that

links Krome Avenue with US-1, connecting western Miami-Dade County communities, such as Country Walk and Richmond Heights, with Cutler Bay and the surrounding areas. SW 152nd Street passes through a mixture of commercial and residential uses before crossing the Busway. Some of the roadway's main intersections are Krome Avenue, SW 137th Avenue/Lindgren Road, the Florida Turnpike, and US-1/South Dixie Highway. Within the hub area, Coral Reef Drive is four lanes wide west of US-1 and two lanes wide east of US-1.



Pedestrian

Pedestrian connectivity is poor between and among the Jackson South Community Hospital, Coral Reef Shopping Center and Plaza, banks, restaurants, coffee shops, stores, residential areas, and the Busway. As proposed in the Palmetto Bay 2015 Franjo Triangle & Island (FT&I) District Land Use Study and the MDC Comprehensive Development Master Plan, further land use activity surrounding the area will foster transition from suburban, strip commercial uses to a more integrated downtown mixed-use area, as well as improve mobility for all modes (bike, pedestrian, transit, and vehicle).

Transit

Sixteen MDT bus stops are within the Coral Reef Hub area, located mainly on SW 152nd Street/Coral Reef Drive and the Busway. The MDT bus routes serving the area are 52, 57, and 252 on SW 152nd Street, and 31, 34, 38, 57, and 287 on the Busway (Table 15 and Figure 7). Palmetto Bay Route A and Route B circulators also serve the area.

A number of routes run east-west on SW 152nd Street/Coral Reef Drive, as well as north-south on the Busway. Most of the routes serve the heavily commercial areas and shopping centers, connecting them with nearby neighborhoods.

Proposed Infrastructure

The Miami-Dade MPO 25-year LRTP and its TIP projects for the Coral Reef Hub area are displayed on Table 16 and Table 17, respectively.

The plans for the hub area include additional lanes on the Busway to create a reversible managed-lane system. Connections to existing trails within the area are also recommended. Transit improvements, such as BRT and Busway signal prioritization are unfunded. While a project to expand the park-and-ride lot at SW 152nd Street/US-1 is absent from Table 15, it is believed the County is planning to expand it. The lot is now operating at 100 percent capacity with 200 spaces.

Table 15. Coral Reef Transit Hub, Existing Transit Service

Route	Name	Services	Direction	Start	End
31	Busway Local	Busway, SW 211 Street & SW 112 Ave	North-South	Dadeland South Metrorail Station	South Dade Government Center
34	Busway Flyer	Busway	North-South	Dadeland South Metrorail Station	SW 344 Street Park & Ride Lot
35	-	Homestead High School, SW 334 Park & Ride Lot, Homestead Hospital, Southland Mall & MDC Kendall Campus	North-South	MDC Kendall Campus	Homestead High School
38	Busway Max	Busway, Southland Mall & Homestead Walmart	North-South	Dadeland South Metrorail Station	Homestead Walmart
52	-	Busway, Richmond Heights, Perrine Shopping Center, Eureka Dr., South Miami Heights, Southland Mall, South Dade Library & Govt. Ctr & Comm. Health Ctr.	North-South	Dadeland South Metrorail Station	Community Health Center
57	-	MIA Metrorail Station, South Miami Metrorail Station, Jackson South Hospital	North-South	MIA Metrorail Station	Jackson South Hospital
252	Coral Reef MAX	Dadeland South Metrorail, Busway, Coral Reef Drive, Country Walk, Regimen Heights, Palmetto Estates	East-West	Dadeland South Metrorail	Country Walk
287	Saga Bay MAX	Dadeland South Metrorail, Busway, Perring, Saga Bay, South Dade health Center	North-South	Dadeland South Metrorail	South Dade Health Center
Route A (iBus)	Palmetto Bay iBus	Busway, Palmetto Bay	East-West (Loop)	Palmetto Bay	Palmetto Bay
Route B (iBus)	Palmetto Bay iBus	Busway, Palmetto Bay	East-West (Loop)	Palmetto Bay	Palmetto Bay

Source: Miami-Dade Transit, Village of Palmetto Bay

Figure 7. MDT Transit Routes Serving the Coral Reef Transit Hub

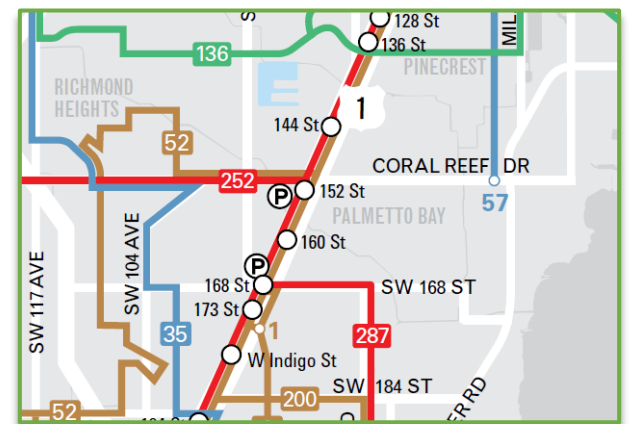


Table 16. Coral Reef Transit Hub, Miami-Dade 2040 Long Range Transportation Plan

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Source: Miami-Dade County Metropolitan Planning Organization

Table 17. Coral Reef Transit Hub Existing Future Projects, Miami-Dade MPO 2017 TIP Projects

Project #	MPO #	FACILITY	LIMITS	TYPE OF WORK	Cost	Year	Notes	PROJECT TYPE
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS								
1	PW000828	SW 152 Street	US-1	Intersection improvement	\$1.790 M	<2017	Construction	HUB
2	PW000953	SW 152 Street	At Canal 100-A	Bridge replacement (#874423)	\$1.6 M	2016-2018	Construction	HUB
3	TA4389501	MDT - SOUTH MIAMI DADE BUSWAY ROUTES	-	URBAN CORRIDOR IMPROVEMENTS	\$1.790 M	2020-2021	Operations	Corridor
FLORIDA DEPARTMENT OF TRANSPORTATION								
4	DT4332861	SR 992/SW 152 Street	SW 93 Ave. To SR 5/US-1	Intersection Improvement	\$1.775 M	<2016-2017	Planing & Design, Railroad & Utilities, Construction	HUB
5	DT4332862	SR 992/SW 152 Street	SR 821 HEFT NB Ramp to SW 93RD Ave.	Resurfacing	\$2.8 M	<2016-2017	planing & Design, Railroad & Utilities, Construction	Corridor
MIAMI-DADE EXPRESSWAY AUTHORITY								
6	XA20003	US-1 - Managed Lanes	SW 344 St (Palm) to Dadeland South Metrorail Station	PD&E Study	-	-	-	Corridor

Source: Miami-Dade County Metropolitan Planning Organization

Forecasting Approach

The travel demand forecasts for South Dade are based on SERPM7. The analysis process and results are included in [Appendix B](#). The findings are summarized here by South Dade Corridor.

The model's 2040 horizon year incorporates the MPO-approved Traffic Analysis Zone (TAZ) data and the 2040 cost feasible network. SERPM7 is a "time-of-day" model validated using period-specific and daily traffic counts. The five periods that are modeled in SERPM7 are:

early AM, AM peak, midday, PM peak, and evening.

Although SERPM7 has period-specific highway assignment routines, the model combines all period-assigned traffic volumes to report the daily model volumes.

Volume-to-capacity ratios are used as the primary performance measure to identify the transportation needs of South Dade. The 2012 FDOT Quality of Level of Service (LOS) handbook formed the basis of the analysis.

US-1 Corridor

US-1 is, and will be in 2040, heavily traveled, with forecasts that its traffic will exceed the road's capacity by two to 87 percent, depending on location, with the greatest congestion on the northern segments. Compounding this issue is the effect on the local collectors/ neighborhood streets which feed US-1. In cases, such as SW 82nd Avenue, overflow traffic from US-1 will cause additional area-wide congestion.



In evaluating the park-and-ride lot system along US-1, parking occupancy data from MDT indicate that today the occupancy of most facilities is at least 90 percent; in the case of the SW 152nd Street park-and-ride lot, the regular reported occupancy is 100 percent.

This corridor is long. A hub at Cutler Bay is a high priority. This hub can then redirect travel towards transit.

Bicycle routes were considered on two bases: 1) feeder routes into the network along the Busway; and, 2) connectivity between proposed hubs. Localized facilities such as bike share stations, fix-it stations, etc., are needed to facilitate another modal option.

Pedestrian needs along the corridor primarily involve enhanced crossing of US-1. Internal circulation must be better evaluated in a more in-depth study once hub locations are finalized.

Kendall Corridor

Kendall Drive/SW 88th Street is an east-west corridor which connects to several major north-south routes linking South Dade with the rest of Miami-Dade County. The intersection of this road with multiple north-south regional facilities means that Kendall Drive, at certain points, serves as a “gateway” to South Dade.

Vehicular traffic along Kendall Drive is projected to be above capacity (LOS F) for various segments by 2040. These tend to occur in proximity to US-1 or the expressways (Florida’s Turnpike, SR-874, SR-826). However, at the same time, to accommodate the SMART Plan’s transit corridor options, future right-of-way conversion is necessary along the same segments facing failing LOS.

Given that widening roadways to accommodate auto traffic is difficult, if not highly unlikely, transit must be explored to guide east-west traffic to Dadeland North/South, and north towards the Flagler Corridor. The convergence points for Kendall Drive with the north-south routes are key nodes at which to focus express routes/local circulator services and park-and-ride facilities.

Bicycling along the Kendall Corridor will depend on connectivity of the neighborhoods surrounding the corridor. Unfortunately, there

are no parallel routes or canal systems which would lend themselves for easily developable, continuous east-west paths. So, bicycling facilities would have to primarily focus on Kendall Drive as the “spine” of a network, with extensions into neighborhoods along the corridor. There is a potential for bicycling to be the first/last mile mode for a BRT/LRT system, but only with the appropriate facilities.

Pedestrian connections, like those for bicycling, will involve the need for enhanced linkages with a BRT/LRT system, as proposed by the SMART Plan. Internal circulation must be better evaluated in a more-in-depth study once hub locations are finalized.

Old Cutler Road Corridor

Old Cutler Road is a historic roadway serving Cutler Bay, Palmetto Bay, Pinecrest, and the southern portion of Coral Gables. This historical designation renders it difficult to widen the road.

Old Cutler Road provides a parallel corridor to US-1. In the SERPM7 2040 scenario, more than 60 percent of Old Cutler Road in the study area will be at or above 100 percent capacity (LOS F). Relief on this condition will not be resolved by widening, as noted above. Addressing the corridor’s needs will depend on multimodal solutions that allow for better connectivity to

transit, such as through local circulators and improved transit on US-1. Further, any improvements in the western and southern parts of South Miami-Dade that reduce the pressure on US-1, such as Express Routes B and E, will positively affect Old Cutler Road's mobility.



Bicycling and pedestrian facilities are well served by the Old Cutler Trail's shared-use path and wider sidewalks within Cutler Bay. Nonetheless, this condition may be improved through new east-west connections to US-1, or a northern connection to the Kendall Drive corridor, which will then allow for connectivity to the proposed *Underline* bicycle system and Metrorail at Dadeland North/South via Snapper Creek Trail and Ludlam Trail.

Pedestrian needs in this corridor are highly localized, and will be mainly related to accessing transit.



SW 152nd Street Corridor

SW 152nd Street is a highly-traveled, east-west corridor, extending across the county uninterrupted. This facility provides access to Jackson South Community Hospital, Coral Reef High School, Zoo Miami, the Florida Turnpike, and, by way of Lindgren Road, Miami Executive Airport.

While SW 152nd Street generally does not have projected capacity issues, except in the vicinity of the Turnpike, mobility is impeded on the collector roadways, such as SW 117th Avenue and SW 112 Avenue/Lincoln Boulevard. The lack of bridge connections over the canal behind the High School may also cause extra travel to occur, manifesting itself as projected capacity deficiencies on SW 144th Street and SW 92nd Avenue.

From a transit standpoint, the park-and-ride lot at US-1 and Coral Reef Drive needs to be expanded; it currently operates at 100 percent occupancy. Further, while bus service exists in the form of Route 252 MAX, it's only available during peak hours. The lack of alternatives thwarts transit mobility in the area. Additionally, eastern and western portions of this corridor would lean to different transit options, if available. Travelers in the eastern portion of the corridor would move towards US-1, but those in the western section would gravitate to the Dadeland North/South hub for Metrorail service; it would benefit from Express Route D's more direct connection.

Bicycle connectivity through facilities along Cutler Drain can serve short trips to US-1. It creates a potential multimodal first/last mile connection, provided that buses and LRT/BRT systems offer adequate storage at stations.

Given the area's high school, walkability is important in the area. Another important issue is walkability to bus stations, which are better determined as part of a localized analysis of bus facility placement.

SW 137th/SW 157th Avenue Corridor

The SW 137th/SW 157th Avenue Corridor serves areas between SW 88th Street and US-1. It passes through the Redlands, as well as residential subdivisions in the northern part of South Dade, and the Miami Executive Airport. Diverting travel from US-1 to this corridor would require the addition of new roadway segments to be built on SW 137th and SW 157th Avenues. These would allow this corridor to provide an alternative north-south route starting at Naranja, which has recently been rezoned for higher-density development.

Express Route D in the SMART Plan provides an alternative for feeding the Dadeland North/South Metrorail system; however, park-and-ride facilities, as well as local circulators, are necessary to support such a route. Further, a direct connection to SR-874 will allow the express bus a more direct route than currently available.

In addition to Express Route A, as proposed by the SMART Plan, CSX East-West corridor development to the north, and creating new express bus linkages, as necessary, will provide an alternative route to Doral and to Miami, both major travel destinations for residents in the northern half of this corridor.

Strava data on bicyclists and runners were ex-

amined to provide insight into bicycling facilities. The data show that, while there was bicycling to the south of Florida City, this pattern of travel then arcs northwest on US-1, continuing on US-1, or north on SW 147th Avenue's existing bicycle lanes, with high concentrations of activity by Miami Executive Airport. Bicycling needs along this corridor can be met through connections to existing and planned trails and bike facilities.

The corridor is characterized by a combination of rural and suburban subdivisions, with few commercial areas within walking distance to the residences. Walking would, therefore, primarily be to locations on SW 157th Avenue, such as parks or, potentially, to transit stops.

SW 117th Avenue Corridor

The SW 117th Avenue Corridor provides Cutler Bay and Kendall Drive a localized parallel route to the Turnpike. This north-south corridor offers potential for: alternative travel for US-1; routing for the SMART Plan Express Routes B and E, when combined with an intermodal station at the juncture of SR-821 and SR-874 where Route D intersects; and, a potentially faster route to reach the Dadeland North/South Metrorail Hub from the Homestead and Cutler Bay Hub areas. Forecasts for 2040 traffic indicate portions of the Turnpike, as well as SW 117th Avenue, will operate at LOS F.

Bicycle routing through this area would operate on a collector and distributor basis to funnel into key hub areas from local neighborhoods.

As with the other corridors, evaluation of pedestrian facilities should be conducted on a more localized basis, centered on first/last mile needs for transit.

Krome Avenue Corridor

Krome Avenue/SW 177th is the westernmost corridor in the area, running between Homestead and SW 88th Street. It is traditionally a freight route. It has been examined in other studies, resulting in current construction to widen the facility and, in Homestead, provide a bypass for trucking.

This study considered whether other needs exist. Capacity limitations are generally considered to be non-issues for Krome Avenue within the study area. For transit, an express route from Homestead to Kendall was explored using US Census longitudinal-employer household dynamics (LEHD) data which show low concentrations of employment-based traffic traveling north to Kendall, and originating in either Homestead or Florida City. Thus, no transit need is projected which would not already be served by the other parallel north-south corridors in this study area.

Strava data indicate that few tracked bicycling activities currently exist on Krome Avenue. This is not to say that Krome doesn't have potential for bicycling. Current projects along Krome Avenue will provide an 11.6-mile shared-use path from SW 296th St. to SW 8th St.

Pedestrian needs are minimal, given this corridor primarily serves rural areas outside the Urban Development Boundary. Should the boundary change, however, further consideration of multimodal facilities should be conducted at that time.

TASK 4: ANALYSIS OF POTENTIAL IMPROVEMENTS

Introduction

Ninety-two multimodal projects have been proposed to address the deficiencies identified as part of the existing and future conditions analyses. In the LRTP No Build Scenario, BRT would provide service on the South Dade Busway alignment. The Kendall/88th Street Corridor would have BRT operating in mixed traffic. A handful of roadway projects are proposed. All of this will cost \$1.4 billion.

In the Build Scenario, (the recommendations from this report) there will be more than 30 ad-

ditional transit projects, most notably: the Busway BRT will be converted to LRT in an exclusive guideway; the Kendall Corridor will be converted from BRT to LRT operating in mixed traffic; about 3,700 new parking spaces will be developed in 15 new park-and-ride locations; and, there will be local circulator buses, and surface transit route modifications. These are combined with 16 additional roadway project at a total system-wide cost of \$2.4 billion (\$2.06 billion in transit and \$272 million in roadway, with \$79 million in bicycle projects, and \$500,000 in pedestrian projects.)

These projects have been evaluated for their impact on the mobility system by using the SERPM7 travel forecasting model to compare the current LRTP projects for 2040 No Build Scenario with the improvements suggested in this report, i.e., the Build Scenario.

The forecasts of 2040 countywide transit ridership show growth from No Build to Build scenarios of over 30,000 riders per day (Table 18). Transit ridership on the future LRT operating in the Busway alignment is expected to see an 85 percent increase over the No Build BRT option. This conversion from BRT to LRT is projected to cost \$480 million.

Table 18. Transit Ridership by Mode

Tri-Rail	20,320	21,592	1,272	6
Metrorail	85,540	115,204	29,664	35
Inter-County Express	2,204	2,917	713	32
Trolley/Shuttles – Tri-Rail ¹	3,444	3,890	446	13
Trolley/Shuttles – Tri-Rail ²	640	588	-52	-8
MDT MAX/KAT/ Busway Local	41,540	31,356	-10,184	-25
MDT BRT	24,540	22,596	-1,944	-8
MDT Express	31,497	41,575	10,078	32
MDT I-95 Express	3,220	3,644	424	13
I-95 Inter-County Express	4,040	2,112	-1,928	-48
Metromover	33,640	39,268	5,628	17
MDT Local	326,163	322,503	-3,660	-1
	576,788	607,245	30,457	5

¹ Serving Stations in Broward and Palm Beach Counties

² Serving Miami-Dade County Tri-Rail Stations

Source: The Corradino Group

In the Kendall Corridor, the No Build scenario of BRT in mixed traffic would have daily ridership of just over 3,600. Conversion to LRT in mixed traffic would generate an additional 900 riders per day.

As noted earlier, travel in South Dade is highly directional. The dominant flow is north and out of the area in the morning to access jobs, and back to the south during the afternoon. Traffic analyses using models of *daily* traffic underemphasize this directionality. South Dade travelers understand that northbound traffic in the morning can be well above the northbound capacity of the roads, causing highly congested conditions in that direction. Yet, southbound volumes are much lower creating few congestion issues.

The reverse is true in the afternoons. But by focusing on daily traffic, a “false positive” is given, i.e., a facility appears to function better than it actually does.

Addressing South Dade congestion is as much about land use and the economy as it is about transportation facilities. A better balance of residential and employment uses could make additional capacity available northbound in the morning and southbound in the afternoon. This would mitigate the need for investment in roads. Furthering the concept of nodal development, originally articulated for the “Charrette Areas” along US-1, is critical to this shift. Doing so requires changing land use and zoning to transit-oriented densities, with a sufficient balance of commercial and residential uses. Economic development strategies to market these areas is also vital. It is recommended that models be developed to show differing development scenarios, with various levels of job growth substituting for residential growth in the hub areas. The assumption is that significant gains can be made.

Tasks 5 and 6: Identification of Potential Projects and Their Costs

From the results of the analysis and the input of the SAC, stakeholders, and the public workshops, a recommended list of future transportation improvements has been formulated. Costs for each project for each mode have been provided.

In total there are 92 projects being examined at a total cost of just over \$2.4 billion, including:

- Roadway – 16 Projects - \$273,250,000
- Transit – 33 Projects - \$2,061,300,000
- Bicycle – 29 Projects – \$91,270,000
- Pedestrian – 14 Projects - \$505,000

Details by mode are presented in [Tables 19 thru 22](#) and [Figures 8 thru 11](#).

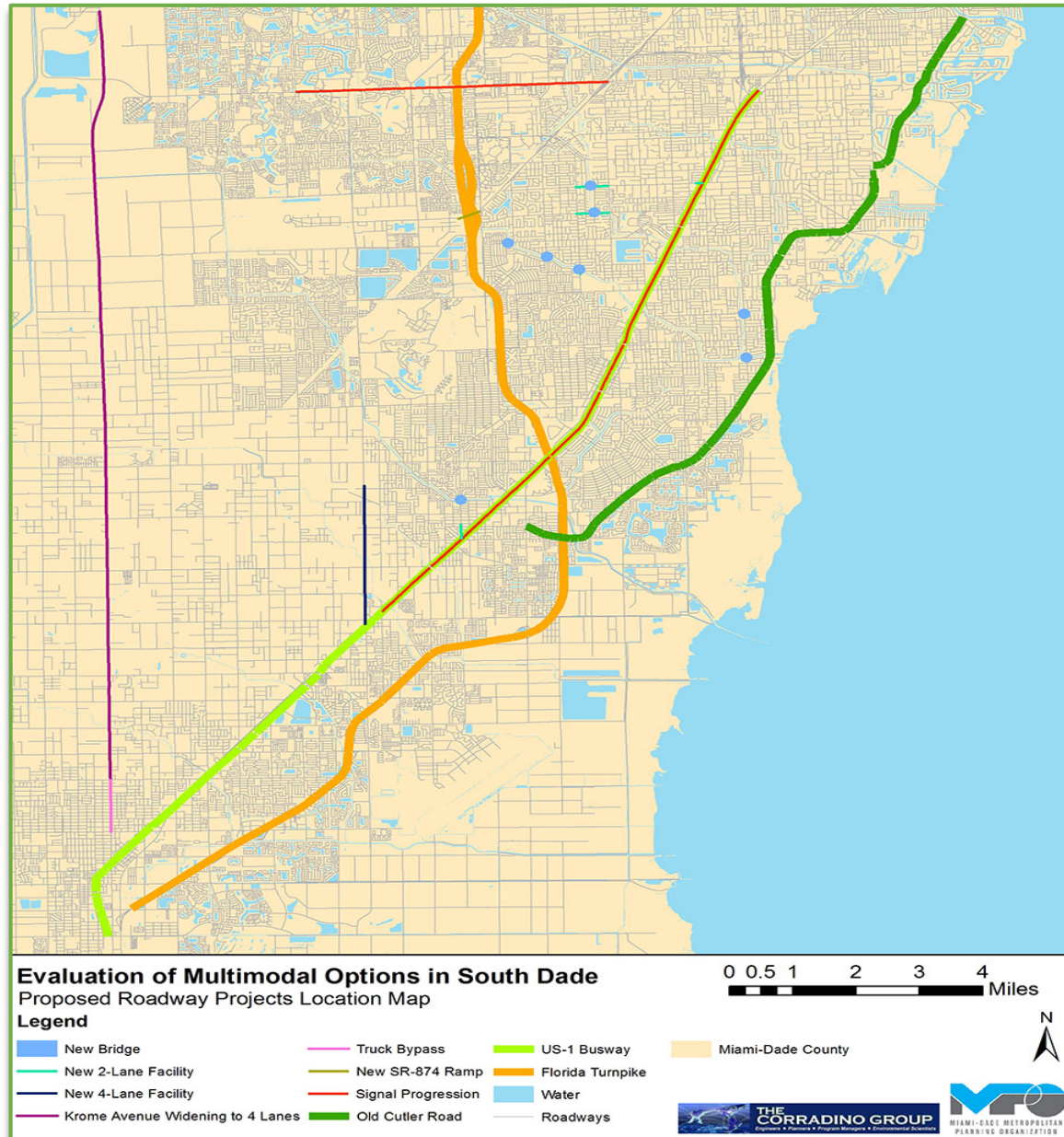
Table 19. Proposed Roadway Projects

Corridor	Name	Roadway	From	To	Description	Hubs Served	Capital Cost (in 2016 Dollars)
1	Corridor Signal Progression Analysis	US-1	SW 248th St.	Palmetto Expy.	Signal Corridor Analysis and Adjustment of corridor signal timing as warranted	Cutler Bay-Southland Mall, Dadeland, The Falls, Franjo Triangle, Coral Reef/US-1	\$50,000
1	New 2-lane Facility on SW 120th St. between SW 82nd Rd. and US-1	SW 120th St.	SW 82nd Rd.	US-1	New 2-lane facility	The Falls, Dadeland	\$300,000
1	New 2-lane Facility on SW 127th Ave. between SW 224th St. and S Dixie Highway	SW 127th Ave.	SW 224th St.	S Dixie Hwy.	New 2-lane facility	Naranja	\$950,000
1,3	New Bridge on SW 77th Ave. @ SW 160th St.	SW 77th Ave.	SW 159th Terr.	SW 169th Terr.	New Bridge, 2-lane facility, pedestrian and bicycle pathway	Coral Reef/US-1, The Falls	\$500,000
1,3	New Bridge on SW 77th Ave. between SW 173rd St. and SW 174th St. (C-100 Canal)	SW 77th Ave.	SW 173rd St.	SW 174th St.	New Bridge, 2-lane facility, pedestrian and bicycle pathway	Coral Reef/US-1, The Falls	\$950,000
2	Corridor Signal Progression Analysis	SW 88th St.	SW 147th Ave.	Don Shula Expy.	Signal Corridor Analysis and Adjustment of corridor signal timing as warranted	MDC/Kendall, Kendale Lakes	\$100,000
4	New Bridge @ C-100 and Ferguson Park/SW 102nd Ave./SW 145th St. and 2-lane Facility to Bridge	SW 102nd Ave.	SW 145th St.	SW 146th St.	New Bridge, 2-lane facility, pedestrian and bicycle pathway	Coral Reef/US-1	\$1,200,000
5	New 4-lane Facility on SW 137th Ave. between SW 205th St. to US-1	SW 137th Ave.	SW 205th St.	US-1	New 4-lane facility	Naranja, Country Walk	\$21,000,000
5	New SW 128th St. Connection to SR-874 (in conjunction w/ Express Route D)	Ramp (New) to Don Shula Expy.	SW 128th St.	Don Shula Expy.	New ramp to Don Shula Expy. from SW 128th St.	Country Walk	\$103,500,000
6	New Bridge SW 136th St. (SW 112th Ave. to SW 112th Court)	SW 136th St.	SW 112th Ave.	SW 112th Ct.	New Bridge, 2-lane facility, pedestrian and bicycle pathway	The Falls, MDC/Kendall	\$1,150,000
6	New Bridge SW 107th Ave. (SW 142nd Lane to SW 140th St.)	SW 107th Ave.	SW 142nd Ln.	SW 140th St.	New Bridge, 2-lane facility, pedestrian and bicycle pathway	The falls, Coral Reef/US-1	\$1,100,000
6	New Bridge SW 122nd Ave. (SW 210th St. to SW 212th St.)	SW 122nd Ave.	SW 210th St.	SW 212th St.	New Bridge, 2-lane facility, pedestrian and bicycle pathway	Cutler Bay-Southland	\$1,150,000
6	New 2-lane Road and Bridge New SW 120th St. between SW 99th Ct. and SW 99th Ave.	SW 120th St.	SW 99th Ct.	SW 99th Ave.	New 2-lane facility	MDC/Kendall, The Falls	\$800,000
6	New 2-lane Road and New Bridge SW 128th St. between SW 98th Ct. and SW 99th Ct.	SW 128th St.	SW 98th Ct.	SW 99th Ct.	New 2-lane facility	MDC/Kendall, The Falls	\$900,000
7	Krome Ave. Widening to 4 Lanes*	Krome Ave.	SW 312th St.	SW 8th St.	Road widening from 2- to 4-lane facility	Homestead, Baptist West	\$125,300,000
7	Truck Bypass	Krome Ave.	SW 312th St.	SW 296th St.	Truck Bypass facility	Homestead	\$14,300,000
TOTAL							\$ 273,250,000

*Future Projects will include roadway from SW 296th St. to SW 136th St.

Source: The Corradino Group

Figure 8. Proposed Roadway Projects Location Map



Source: The Corradino Group

Table 20. Proposed Transit Projects

Corridor	Name	Roadway	From	To	Description	Add'l Spaces	Headway (minutes)	One/Bi Directional	Operation Time	Days	Hubs served	Cost
1, 6	Express Route B (Florida City to Naranja to Cutler Bay, Cutler Bay to Dadeland North)	HEFT	Busway @ SW 344th St.	Southland Mall	Express Bus Route From Florida City/Homestead, with stops in Naranja (SW 137th Ave. and SW 268th St.) and Cutler Bay at Southland Mall, before proceeding up HEFT to the Don Shula Expy. to end at Dadeland North Metrorail Station	N/A	15 (regular) 10 (peak)	Bi-directional	Morning (5AM – 10AM 3PM 8PM)	M-F	Florida City/ Homestead, Cutler Bay	\$4,100,000
1,2,5, 6	Express Route E (Florida City to Naranja to Cutler Bay, Cutler Bay to Don Shula Expy./HEFT, Don Shula Expy./HEFT to Kendall Drive/HEFT; Kendall Drive/HEFT to FIU; FIU to Dolphin Mall Park and Ride)	HEFT	Busway @ SW 344th St.	Southland Mall	Express Bus Route From Florida City/Homestead north to Doral, with stops in Naranja (SW 137th Ave. and SW 268th St.), Cutler Bay at Southland Mall, HEFT/Don Shula Expy., Kendall Drive/HEFT, FIU-Sweetwater Campus, and Dolphin Mall	N/A	15 (regular) 10 (peak)	Bi-directional	5AM – 1AM	M-F	Florida City/ Homestead, Cutler Bay, MDC/Kendall	\$6,200,000
1	Metrorail Extension (Green Line) to Cutler Bay (Southland Mall)	US-1 Busway	Dadeland South Station	Busway @ SW 112th Ave.	Extension of Metrorail via Hybridized vehicle at-grade system on current US-1 Busway. Stations assumed at SW 112th St., The Falls, SW 152nd St., SW 184th St., Cutler Bay-Southland Mall. Schedule staggered with Metrorail Orange Line for 7.5/5 minute headways where they intersect.	N/A	15 (regular) 10 (peak)	Bi-directional	5AM – 12:30AM	M-F, S, Sun	Dadeland	\$680,000,000*
1	MetroRail Extension (Orange Line) to Homestead	US-1 Busway	Dadeland South Station	Busway @ SW 344th St.	Extension of Metrorail via Hybridized vehicle at-grade system on current US-1 Busway. SW 112th St., The Falls, SW 152nd St., SW 184th St., Cutler Bay-Southland Mall, SW 264th St., Between SW 288th St. and SW 296th St., SW 320th St., SW 344th St. Schedule staggered with Metrorail Green Line for 7.5/5 minute headways where they intersect.	N/A	15 (regular) 10 (peak)	Bidirectional	5AM – 12:30AM	M-F, S, Sun	Dadeland	\$1,474,500,000
1	Expansion Park and Ride @ Dadeland North	N/A	N/A	N/A	Structured Parking at Corner of SW 85th St. and SW 70th Ave.	400	N/A	N/A	N/A	M-F, S, Sun	Dadeland	\$7,500,000
1	Expansion Park and Ride @ Dadeland South	N/A	N/A	N/A	Structured Parking Route 1 by Dadeland Boulevard.	400	N/A	N/A	N/A	M-F, S, Sun	Dadeland	\$7,500,000
1,4	Expansion Park and Ride @ Busway/SW 152nd St.	N/A	N/A	N/A	Structured Parking on Existing Park and Ride Lot, increasing capacity from 200 to 450	250	N/A	N/A	N/A	M-F, S, Sun	Coral Reef	\$4,700,000
1	New Park and Ride @ Busway/SW 184th St.	N/A	N/A	N/A	New Structured Parking @ US-1/SW 184th St., capacity 300 spaces	300	N/A	N/A	N/A	M-F, S, Sun	Coral Reef	\$5,600,000
1	Expansion Park and Ride @ Busway/SW 296th St.	N/A	N/A	N/A	Surface Parking expansion of 100 spaces by current lot	100	N/A	N/A	N/A	M-F, S, Sun	Naranja	\$1,900,000

* Would be covered under an extension to Homestead

Table 20. Proposed Transit Projects (continued)

Corridor	Name	Roadway	From	To	Description	Add'l Spaces	Headway (minutes)	One/Bi Directional	Operation Time	Days	Hubs served	Cost
1	Local Circulator – West Perrine	Various (see description)	N/A	N/A	Start at Southland Mall Terminus, proceed on SW 211th St. onto SW 117th Ave., Proceed on SW 117th Ave. until SW 168th St., Proceed on SW 168th St. until SW 112th Ave., Proceed on SW 112th Ave. to SW 180th St., Proceed on SW 180 St. to SW 102nd Ave., Proceed on SW 102nd Ave. to SW 183rd St., Proceed on SW 183rd St. to Homestead Ave., Proceed on Homestead Ave. to SW 184th St., Proceed on SW 184th St. to Busway, Proceed on SW 184th to Homestead Ave., Proceed on Homestead Ave. to SW 186th St., Proceed on SW 186th St. to Marlin Rd., Proceed on Marlin Rd. to US-1, Proceed on US-1 to Southland Mall Terminus	N/A	20	Bidirectional	7AM – 9PM	M-F, S, Sun	Franjo Triangle, Cutler Bay-Southland Mall	\$600,000
1	Local Circulator – Naranja and Leisure City areas	Various (see description)	N/A	N/A	Begin at US-1 and SW 137th Ave., proceed on SW 137th Ave. until Biscayne Drive, proceed on Biscayne Drive until SW 144th Ave., proceed on SW 144th Ave. until SW 296th St., proceed on SW 296th St. to SW 152nd Ave., proceed on SW 152nd Ave. as it turns into NE 10th Ct. until Newtown, proceed on Newton Rd. to SW 288th St., proceed on SW 288th St. to Naranja Rd., proceed on Naranja Rd. to Waldrin Drive/SW 140th Ave., proceed on Waldrin Drive/SW 140th Ave. until SW 272nd St., proceed on SW 272nd St. to SW 142nd Ave., proceed on SW 142nd Ave. to Moody Drive, proceed on Moody Drive to SW 139th Ave., proceed on SW 139th Ave. to US-1, proceed on US-1 to SW 137th Ave..	N/A	30 (regular) 15 (peak)	Bidirectional	7AM – 8:30PM	M-F, S, Sun	Naranja	\$950,000
2	New LRT - Kendall Drive	SW 88th St.	US-1	SW 167th Ave.	New Bidirectional Light Rail Transit System beginning by Dadeland North on the East, and proceeding on SW 88th St. to SW 167th Ave.. Expected Stations are Dadeland Mall, SW 87th Ave., SW 97th Ave., SW 107th Ave., SW 117th Ave., SW 127th Ave., Between SW 137th Ave. and SW 142nd Ave., SW 157th Ave., SW 167th Ave. (with railyard to the west).	N/A	15 (regular) 10 (peak)	Bidirectional	5AM – 12AM	M-F, S, Sun	Dadeland, Kendale Lakes, MDC/Kendall, Baptist Hospital, Baptist-West	\$513,000,000
2	Expansion of Park and Ride @ West Kendall/163rd	N/A	N/A	N/A	Surface parking expanding from 40 to 95 spaces	55	N/A	N/A	N/A	M-F, S, Sun	Baptist-West	\$700,000
2	New Park and Ride by SW 117th Ave. and Kendall Drive (Town and Country)	N/A	N/A	N/A	Structured Parking for 350 spaces by MDC/Kendall and Town and Country. Possible intermediate P3 deal for shared parking at Town and Country.	350	N/A	N/A	N/A	M-F, S, Sun	MDC/Kendall	\$6,500,000
2	New Park and Ride by Lindgren Ave. and Kendall Drive	N/A	N/A	N/A	Surface Parking for 100 spaces	100				M-F, S, Sun		\$450,000
2	Expansion, Park and Ride @ Hammocks Town Center	N/A	N/A	N/A	Surface Parking for 100 spaces	100	N/A	N/A	N/A	M-F, S, Sun	Kendale Lakes	\$450,000

Table 20. Proposed Transit Projects (continued)

Corridor	Name	Roadway	From	To	Description	Add'l Spaces	Headway (minutes)	One/Bi Directional	Operation Time	Days	Hubs served	Cost
2, 6	Local Circulator/Interhub Circulator in area bounded by Killian Drive, Don Shula/SR-878, Kendall Drive, and HEFT	Various (See description)	N/A	N/A	Begin at MDC/Kendall campus, proceed on SW 109th Ct. to SW 107th St., proceed on SW 107th St. to SW 112th Ave. to SW 113th Place, proceed on SW 113th Place until SW 112th St., proceed on SW 117th Ave. to SW 120th St., proceed on SW 120th St. to SW 122nd Ave., proceed on SW 122nd Ave. to SW 128th St., proceed on SW 128th St. to SW 127th Ave., proceed on SW 127th Ave. to Killian Drive, proceed on Killian Drive to SW 117th Ave., proceed on SW 117th Ave. to SW 88th St., proceed to Kendale Blvd., proceed on Kendale Blvd. to SW 107th Ave., proceed on SW 107th Ave. to SW 108th Ave., proceed on SW 108th Ave. to SW 109th Ct., proceed on SW 109th Ct. to MDC/Kendall campus.	N/A	20 (regular) 15 (peak)	Bidirectional	7AM – 10:30PM	M-F, S, Sun	MDC/Kendall (connect to other hubs at SW 128th St.)	\$600,000
2	Local Circulator/First-Last Mile Program - Hammocks; Kendall Drive/SW 150th Ave. Park and Ride/Transit Stop; The Crossings; Kendall West; Kendale Lakes	Various (See description)	N/A	N/A	Begin at SW 120th St. and SW 152nd Place, proceed on SW 120th St. to SW 151st Ct., proceed on SW 151st Ct. to Hammocks Boulevard, proceed on Hammocks Boulevard to SW 112th St., proceed on SW 112th St. to SW 162nd Ave., proceed on SW 162nd Ave. to SW 88th St., proceed on SW 88th St. to Hammocks Boulevard, proceed on Hammocks Boulevard to SW 152nd Ave., proceed on SW 152nd Ave. to SW 96th St., proceed on SW 96th St. to SW 157th Ave., proceed on SW 157th Ave. to SW 104th St., proceed on SW 104th St. to SW 147th Ave., proceed on SW 147th Ave. to SW 120th St., proceed on SW 120th St. to SW 152nd Place	N/A	30 (regular) 15 (peak)	Bidirectional	7AM – 10:30PM	M-F, S, Sun	Kendale Lakes, Baptist West	\$600,000
3	New Park and Ride @ SW 87th Ave. and OCR	N/A	N/A	N/A	Surface parking for 100 spaces	100	N/A	N/A	N/A	M-F, S, Sun	Cutler Bay-Southland Mall	\$450,000*
3	New Park and Ride @ SW 168th St. and OCR	N/A	N/A	N/A	Surface parking for 100 spaces	100	N/A	N/A	N/A	M-F, S, Sun	Franjo Triangle	\$450,000*
3	New Park and Ride @ SW 67th Ave. and OCR	N/A	N/A	N/A	Surface parking for 100 spaces	100	N/A	N/A	N/A	M-F, S, Sun	Dadeland	\$450,000*
3	New Park and Ride @ SW 184th St. and OCR	N/A	N/A	N/A	Surface parking for 100 spaces	100	N/A	N/A	N/A	M-F, S, Sun	Franjo Triangle; Cutler Bay-Southland Mall	\$450,000*
3	Circulator in Pinecrest	Various (See description)	N/A	N/A	Begin at Dadeland South Metrorail Station, proceed onto SW 72nd Ave. until SW 120th St., proceed on SW 120th St. until SW 77th Ave., proceed on SW 77th Ave. until SW 136th St., proceed on SW 136th St. until SW 67th Ave., proceed on SW 67th Ave. until SW 120th St., proceed on SW 120th St. to SW 56th Ave., proceed on SW 56th Ave. to SW 104th St., proceed on SW 104th St. to SW 60th Ave. until SW 96th St., proceed on SW 96th St. until SW 67th Ave., proceed on SW 67th Ave. until SW 88th St., proceed on SW 88th St. until US-1, proceed on US-1 to Dadeland South Station.	N/A	30 (regular) 15 (peak)	Bidirectional	7AM – 10:30PM	M-F, S, Sun	Dadeland	\$750,000

* Includes land acquisition costs (as applicable).

Table 20. Proposed Transit Projects (continued)

Corridor	Name	Roadway	From	To	Description	Add'l Spaces	Headway (minutes)	One/Bi Directional	Operation Time	Days	Hubs served	Cost
3	Circulator in Palmetto Bay (Route 1)	Various (see description)	N/A	N/A	Begin at the Falls, proceed on SW 136th St. until SW 77th Ave., proceed on SW 77th Ave. until SW 152nd St., proceed on SW 152nd St. to Old Cutler Rd., proceed on Old Cutler Rd. to SW 168th St., proceed on SW 168th St. to SW 80th Ave., proceed on SW 80th Ave. to SW 160th St., proceed on SW 160th St. to SW 79th Ave., proceed on SW 79th Ave. until SW 152nd St., proceed on SW 152nd St. to US-1, proceed on US-1 to SW 144th St., proceed on SW 144th St. to SW 82nd Ave., proceed on SW 82nd Ave. to SW 136th St., proceed on SW 136th St. to the Falls.	N/A	30 (regular) 15 (peak)	Bi-directional	7AM – 10:30PM	M-F, S, Sun	Franjo Triangle, The Falls	\$600,000
3	Circulator in Palmetto Bay (Route 2)	Various (see description)	N/A	N/A	Begin at Old Cutler Rd. and SW 168th St., proceed on Old Cutler Rd. until SW 184th St., proceed on SW 184th St. until SW 87th Ave., proceed on SW 87th Ave. until SW 178th Terr., proceed on SW 178th Terr. until SW 92nd Ave., proceed on SW 92nd Ave. until SW 180th St., proceed on SW 180th St. until SW 97th Ave., proceed on SW 97th Ave. until SW 184th St., proceed on SW 184th St. until US-1, proceed on US-1 S Dixie Highway until SW 174th St., proceed on SW 174th St. until SW 90th St., proceed on SW 90th St. until SW 168th St., proceed on SW 168th St. until Old Cutler Rd..	N/A	30 (regular) 15 (peak)	Bi-directional	7AM – 10:30PM	M-F, S, Sun	Franjo Triangle	\$600,000
3	Circulator Enhancement in Cutler Bay	Various (see description)	N/A	N/A	Alter existing Cutler Bay Route circulator to increase frequency, along the following route: Begin at SW 211 St. and US-1, proceed on US-1 to SW 184th St., proceed on SW 184th St. to SW 87th Ave., proceed on SW 87th Ave. to SW 207th St., proceed on SW 207th St. to SW 82nd Ave., proceed on SW 82nd St. to SW 210th St., proceed on SW 210th St. to the end, U-turn, and proceed along SW 210th St., SW 82nd Ave., and SW 207th St. to SW 85th Ave., proceed on SW 85th Ave. to SW 212th St., proceed on SW 212th St. to SW 87th Ave., proceed to SW 87th Ave. to SW 216th St., proceed on SW 216th St. to Old Cutler Rd., proceed on Old Cutler Rd. to Franjo Rd., proceed on Franjo Rd. to Caribbean Boulevard, proceed on Caribbean Boulevard to SW 108th Ct., proceed on SW 108th Ct. to SW 211th St., proceed on SW 211th St. to US-1	N/A	30 (regular) 15 (peak)	N/A	7AM – 10:30PM	M-F, S, Sun		\$950,000
4	New Park and Ride at SW 152nd St. and SW 137th Ave.	N/A	N/A	N/A	Structure Parking for 250 spaces	250	N/A	N/A	N/A	M-F, S, Sun	Country Walk	\$4,700,000
4	Route Service Changes for 252 MAX (off-peak service)	SW 152nd St., US-1	SW 162nd Ave.	Dadeland South	Conversion of existing 252 MAX route from Peak hour service only to Full day service	N/A	15 minutes	Bi-directional	5AM – 1:30AM	M-F, S, Sun	SW 152nd St./ SW137th Ave., Coral Reef Dr./ US-1, Dadeland	\$350,000*

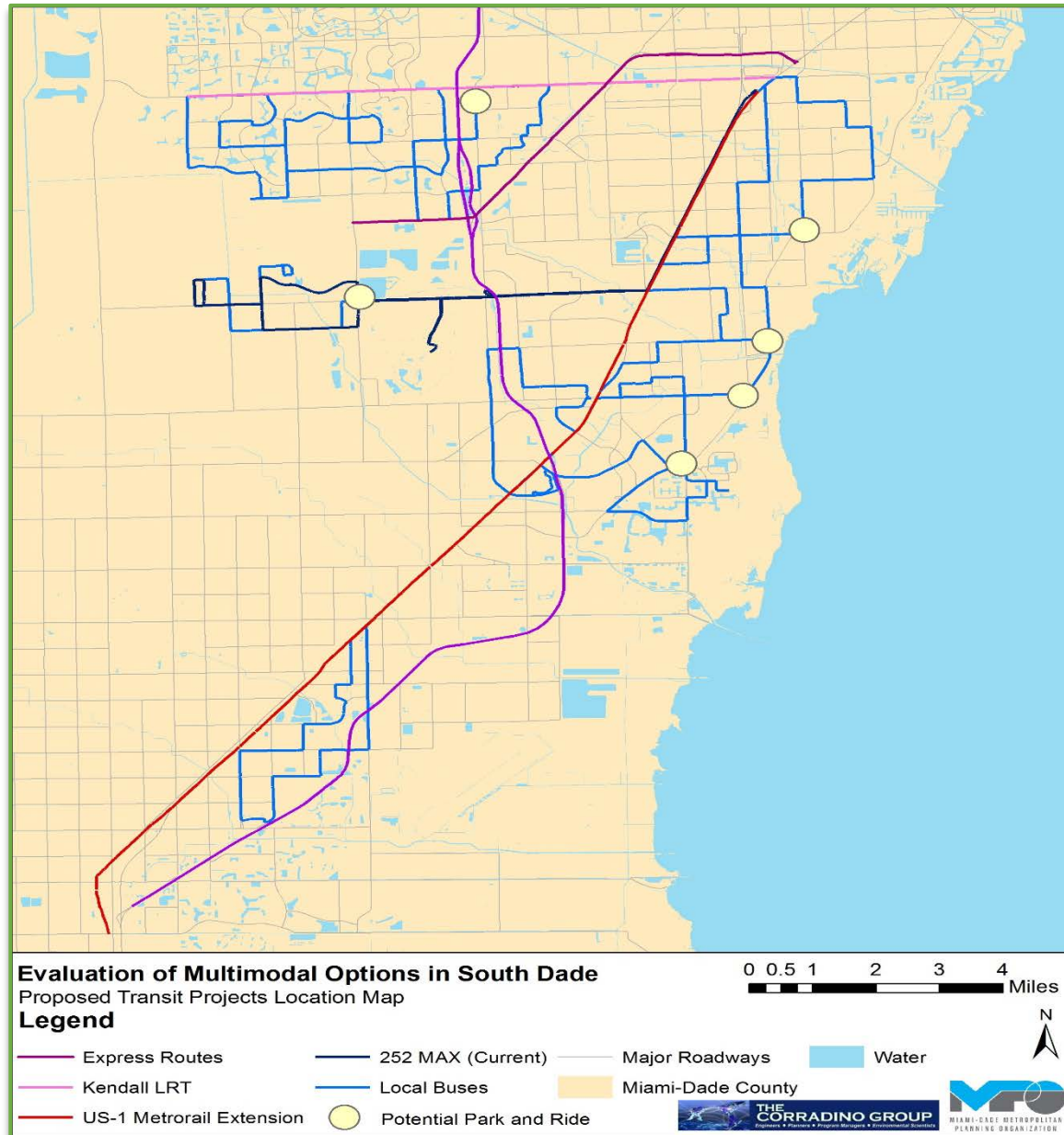
* Transit service change costs are for O+M.

Table 20. Proposed Transit Projects (continued)

Corridor	Name	Roadway	From	To	Description	Add'l Spaces	Headway (minutes)	One/Bi Directional	Operation Time	Days	Hubs served	Cost
4	Local Circulator – Richmond West and Country Walk	N/A	N/A	N/A	Begin at SW 152nd St./SW 137th Ave., proceed to Country Walk Drive, proceed on Country Walk Drive until SW 152nd Ave., proceed on SW 152nd Ave. until SW 141st St., proceed on SW 141st St. until SW 147th Ct., proceed on SW 147th Ct. until SW 143rd Terr., proceed on SW 143rd Terr. until SW 148th Ave., Proceed on SW 148th Ave. until SW 141st St., proceed on SW 141st St. until SW 152nd Ave., proceed on SW 152nd Ave. until SW 152nd St., proceed on SW 152nd St. until SW 160th Ave., proceed on SW 160th Ave. until SW 144th St., proceed on SW 144th St. until Newton Rd., proceed on Newton Rd. until SW 160th St., proceed on SW 160th St. until SW 139th Ave., proceed on SW 139th Ave. to SW 152nd St., proceed on SW 152nd St. to route terminus at SW 152nd St./SW 137th Ave.	N/A	20 minutes	Bi-directional	7AM – 9PM	M-F, S, Sun	Country Walk	\$600,000
5	SW Miami-Dade Express (Smart Plan)	N/A	N/A	N/A	Begin on SW 152nd St. by SW 137th Ave., proceed onto SW 128th St., proceed onto Don Shula Expy. from SW 128th St. to Terminus at Dadeland North Metrorail Station	N/A	15 (regular) 10 (peak)	Bi-directional	5AM – 1AM	M-F	Country Walk, Dadeland	\$1,450,000
5	Explore local circulator/feeder option in area bounded by SW 88th St. (North), SW 120th St./SW 128th St. (South), SW 122nd Ave. (East), and SW 147th Ave. (West)	Various (See description)	N/A	N/A	Begin at Town and Country Kendall (SW 88th St. and SW 117th Ave.), proceed on SW 88th St. to SW 120th Ave., proceed on SW 122nd Ave. to SW 112th St., proceed on SW 112th St. to SW 147th Ave., proceed on SW 147th Ave. to SW 96th St., proceed on SW 96th St. to Calusa Club Drive, proceed on Calusa Club Drive to SW 104th St., proceed on SW 104th St. to SW 137th Ave., proceed on SW 137th Ave. to SW 88th St., proceed on SW 188th St. to Town and Country Kendall	N/A	30 (regular) 15 (peak)	Bi-directional	7AM – 10:30PM	M-F, S, Sun	Kendale Lakes, MDC/Kendall	\$750,000
5, 6	Express Route Interchange Station at SW 128th St. and Don Shula/SR-878 (TO Route D)	N/A	N/A	N/A	Stop location for Route D/Route E/Route B Transfers	N/A				M-F	(Transfer point from/to Country Walk, Dadeland, MDC/Kendall, Cutler Bay)	
6	Park and Ride by MDC/Kendall Drive	N/A	N/A	N/A	Structured Parking, 650 spaces, by MDC Kendall Campus	650	N/A	N/A	N/A	M-F, S, Sun	MDC-Kendall	\$12,100,000
TOTAL												\$2,061,300,000

Source: The Corradino Group

Figure 9. Proposed Transit Projects Location Map



Source: The Corradino Group

Table 21. Proposed Bicycle Projects

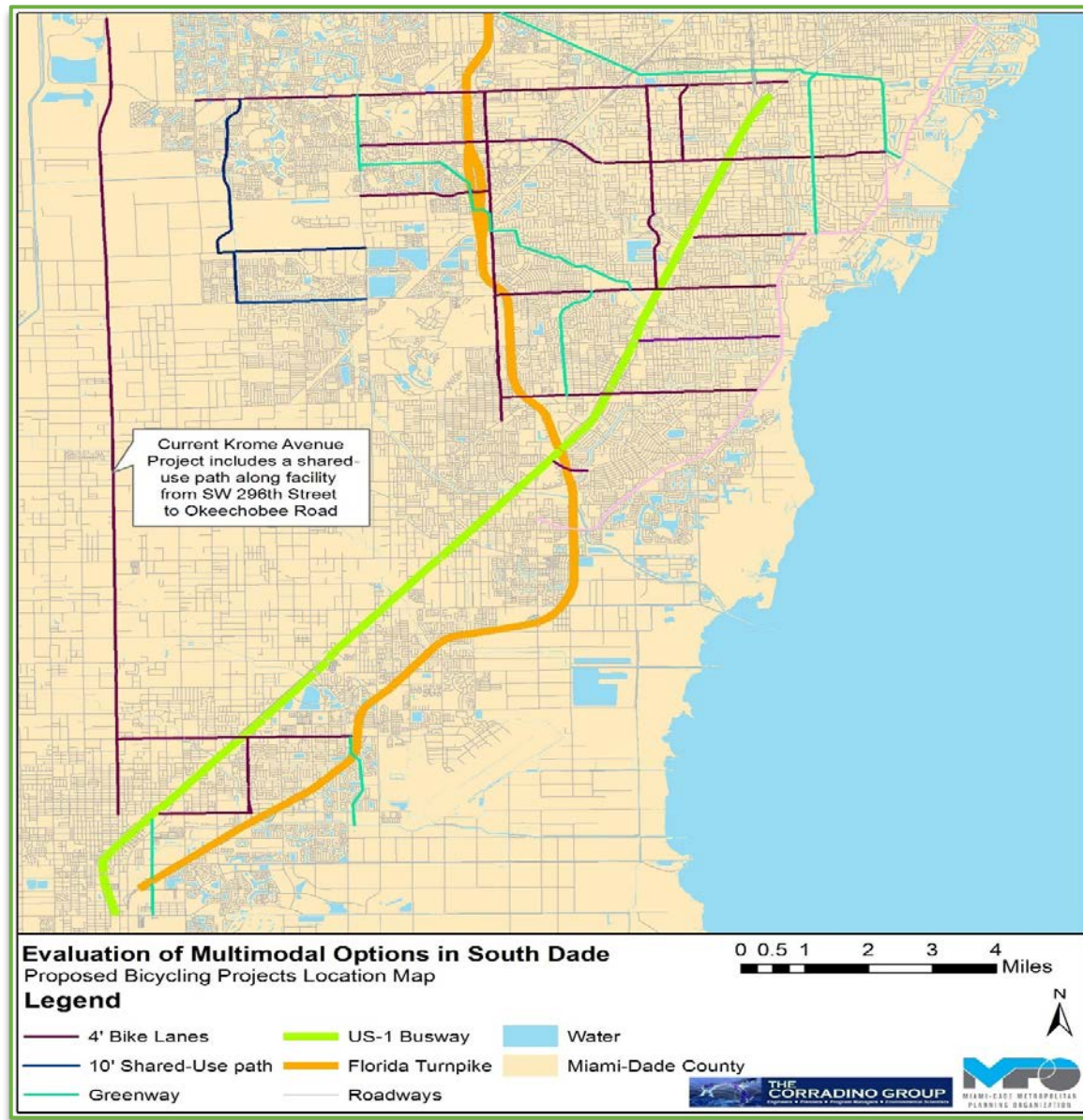
Corridor	Name	Roadway	From	To	Description	Hubs Served	Cost
1	Bicycle Lanes on SW 136th St. between Old Cutler Rd. (OCR) and US-1	SW 136th St.	OCR	US-1	New 4' Bicycle Lanes, Each Direction	The Falls, Coral Reef/US-1	\$1,100,000
1	Bicycle Lanes on SW 152nd St. between OCR and US-1	SW 152nd St.	OCR	US-1	New 4' Bicycle Lanes, Each Direction	The Falls, Coral Reef/US-2	\$1,300,000
1	Bicycle Lanes on SW 168th St. between OCR and US-1	SW 168th St.	OCR	US-1	New 4' Bicycle Lanes, Each Direction	Coral Reef/US-1, Franjo Triangle	\$1,200,000
1	Bicycle Lanes on SW 184th St. between OCR and SW 137th Ave.	SW 184th St.	OCR	SW 137th Ave.	New 4' Bicycle Lanes, Each Direction	Coral Reef/US-1, Franjo Triangle	\$2,150,000
1	Bicycle Lanes on SW 288th St. between Krome Ave. and C-103N Canal	SW 288th St.	Krome Ave.	C-103N	New 4' Bicycle Lanes, Each Direction	Homestead, Naranja	\$550,000
1	Bicycle Lanes on SW 312th St. (Campbell Dr.) between US-1 and SW 152nd Ave.	SW 312th St.	SW 152nd Ave.	US-1	New 4' Bicycle Lanes, Each Direction	Homestead, Naranja	\$1,300,000
1	Bicycle Lanes on SW 152nd Ave. between SW 312th St. (Campbell Dr.) and US-1	SW 152nd Ave.	SW 312th St.	US-1	New 4' Bicycle Lanes, Each Direction	Homestead	\$1,300,000
1	Greenway/Bike Lanes on SW 112th St. between OCR and SW 137th Ave.	SW 11th St./SW 112th St./Killian Dr.	SW 57th Ave.	SW 137th Ave.	New 4' Bicycle Lanes, Each Direction	Dadeland, US-1	\$14,500,000
1	Complete Bicycle Lanes on Caribbean Blvd. between Colonial Rd. and SW 184th St.	Caribbean Blvd.	SW 117th Ave.	SW 184th St.	New 4' Bicycle Lanes, Each Direction	Cutler Bay-Southland Mall	\$370,000
1	Greenway along C-103N Canal between Biscayne Everglades Trail and US-1	*Greenway follows C-103N Canal, off-road	Biscayne Everglades Trail	US-1	Greenway/Bicycle Path	Homestead, Naranja	\$1,200,000
1	Greenway along SW 162nd Ave. between US-1 and SW 344th St. (Palm Dr.)	SW 162nd Ave.	US-1	SW 344th St.	Greenway/Bicycle Path	Homestead	\$1,500,000
2	Bicycle Lanes on Kendall Dr. between US-1 and SW 167th Ave.	SW 88th St.	US-1	SW 167th Ave.	New 4' Bicycle Lanes, Each Direction	Dadeland, Kendale Lakes, MDC/Kendall, Baptist Hospital, Baptist-West	\$23,000,000
2	Bicycle Lanes on SW 137th Ave. between SW 112th St. (Killian Dr.) and SW 88th St.	SW 137th Ave.	SW 112th St.	SW 88th St.	New 4' Bicycle Lanes, Each Direction	MDC/Kendall, Country Walk, Kendale Lakes	\$1,600,000
2	Bicycle Lanes on SW 87th Ave. between SW 88th St. (Kendall Dr.) and SW 112th St. (Killian Dr.)	SW 87th Ave.	SW 88th St.	SW 112th St.	New 4' Bicycle Lanes, Each Direction	The Falls, Dadeland, Baptist Hospital	\$800,000
2, 5	Greenway along SW 137th Ave. between Black Creek Trail and SW 88th St. (Kendall Dr.)	SW 137th Ave.	Black Creek Trail	SW 88th St.	Greenway/Bicycle Path	Kendale Lakes	\$8,600,000
2	Bike Lane/Greenway on SW 92nd Ave. between SW 88th St. and SW 152nd St.	SW 92nd Ave.	SW 88th St.	SW 152nd St.	New 4' Bicycle Lanes, Each Direction	The Falls, Dadeland, Baptist Hospital, Coral Reef/US-1	\$2,500,000

Corridor	Name	Roadway	From	To	Description	Hubs Served	Cost
3	Snapper Creek Trail	Greenway follows Snapper Creek Canal, Off-road	SW 56th Ave.	SW 117th Ave.	Greenway/Bicycle Path along Snapper Creek	Dadeland, Baptist Hospital	\$5,300,000
3	Bicycle Path Enhancement (amenities/rest points) along Old Cutler Trail	OCR	SW 88th St.	Black Point Marina	Location of Bicycle Shelters and rest stop amenities approx. every 2 miles on OCR	Dadeland, Cutler Bay-Southland Mall	\$250,000
3	Greenway on SW 67th Ave. between OCR and SW 88th St.	SW 67th Ave.	OCR	SW 88th St.	Greenway/Bicycle Path	Dadeland	\$1,600,000
4	Bicycle Lanes on SW 152nd St. From US-1 to Lindgren Rd.	SW 152nd St.	US-1	SW 137th Ave.	New 4' Bicycle Lanes, Each Direction	Coral Reef/US-1, Country Walk	\$10,200,000
4	Greenway/Bikeway along Cutler Drain Canal C-100	* Greenway follows Cutler Drain Canal C-100 (Off-road)	HEFT	SW 152nd St.	New Bikeway along canal	Country Walk, Cutler Bay-Southland Mall	\$950,000
4	Bicycle Lanes on SW 117th Ave. between Quail Roost Dr. and SW 152nd St.	SW 117th Ave.	Quail Roost Drive	SW 152nd St.	New 4' Bicycle Lanes, Each Direction	Coral Reef/US-1, Cutler Bay-Southland	\$2,100,000
4	Shared-use Path/Greenway on SW 102nd Ave.	SW 102nd Ave.	SW 152nd St.	SW 184th St.	Shared-use Path/Greenway on Fairway Heights Blvd. between SW 152nd St. and SW 102nd Ave., Shared-use Path/Greenway on SW 102nd Ave. between Fairway Heights Blvd. and SW 182nd St.	MDC/Kendall, Coral Reef, Franjo Triangle	\$1,050,000
5	Shared-use path on SW 157th Ave. between SW 88th St. and SW 136th St.	SW 157th Ave.	SW 88th St.	SW 136th St.	New 10' Shared-use Path	Baptist West, Country Walk	\$800,000
5	Shared-use path on SW 136th St. (South Side) between SW 157th Ave. and SW 137th Ave.	SW 136th St.	SW 157th Ave.	SW 137th Ave.	New 10' Shared-use Path, South Side	Country Walk	\$500,000
5	Shared-use path on SW 152nd St. between SW 157th Ave. and SW 137th Ave.	SW 152nd St.	SW 157th Ave.	SW 137th Ave.	New 10' Shared-use Path	Country Walk	\$500,000
6	Bicycle Lanes on SW 117th Ave. between Quail Roost Dr. and Kendall Dr.	SW 117th Ave.	SW 88th St.	Quail Roost Drive	New 4' Bicycle Lanes, Each Direction	Cutler Bay-Southland Mall, MDC/Kendall	\$2,900,000
6	Bicycle Lanes on SW 120th St. between SW 117th Ave. and SW 137th Ave.	SW 120th St.	SW 117th Ave.	SW 137th Ave.	New 4' Bicycle Lanes, Each Direction	MDC/Kendall, Country Walk, Baptist West	\$2,150,000
7	Bicycle Lanes on Krome Ave.	Krome Ave.	SW 312th St.	SW 8th St.	New 4' Bicycle Lanes, Each Direction	Homestead, Baptist West	*
TOTAL							\$91,270,000

*Included in Roadway – Krome Ave. Widening to 4 Lanes

Source: The Corradino Group

Figure 10. Proposed Bicycling Projects Location Map*



Source: The Corradino Group

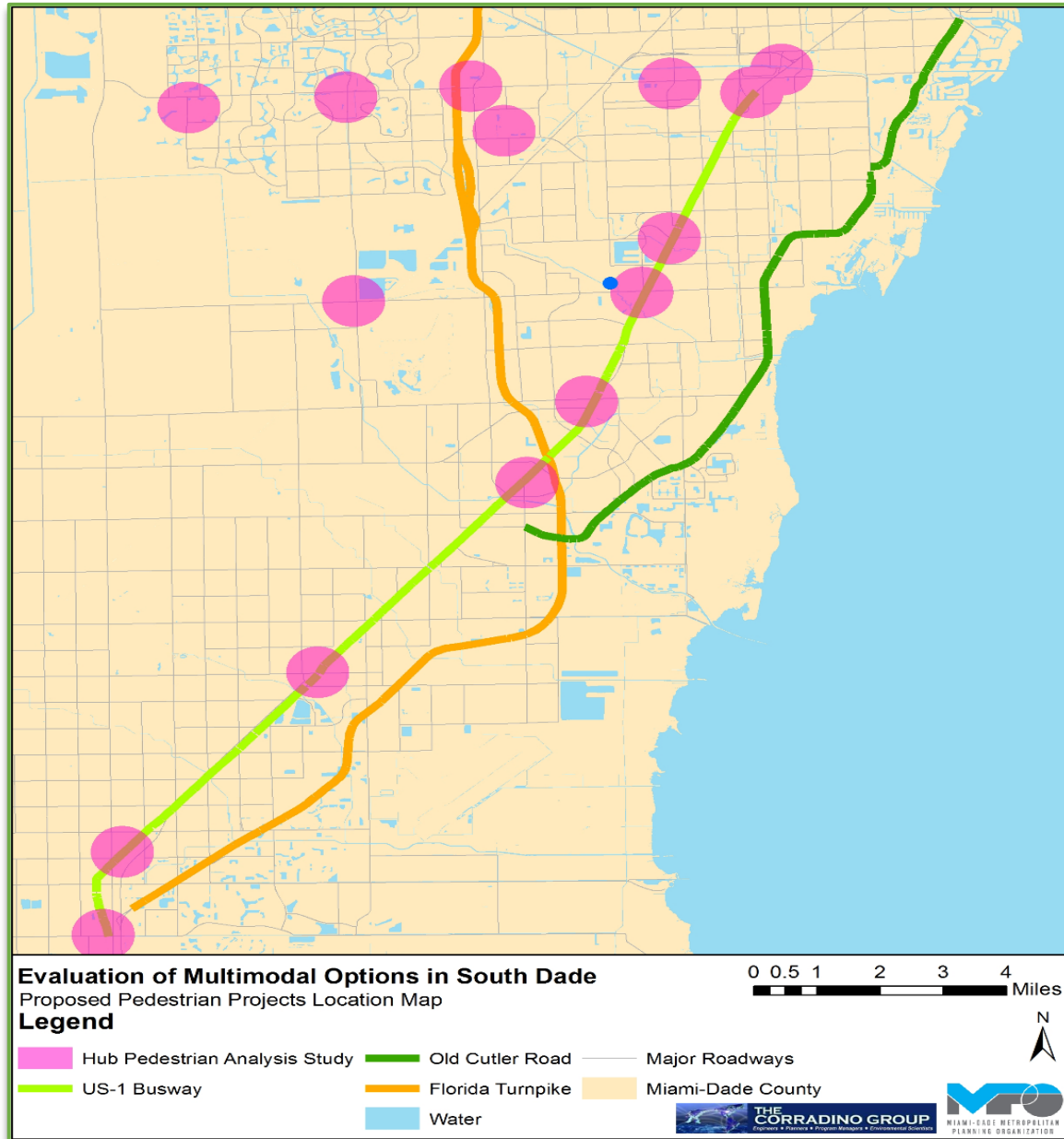
* This map depicts supplemental projects to already proposed paths; thus, these, such as the Black Creek Trail Segment B, are not depicted.

Table 22. Proposed Pedestrian Projects

Corridor	Name	Roadway	From	To	Description	Hub Area	Cost
1,2	Local Hub Study at Dadeland to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Sidewalk and Crossing Infrastructure Study for area within 0.5 mile radius of Dadeland North and Dadeland South Stations	Dadeland	\$15,000
1	Local Hub Study at The Falls to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Sidewalk and Crossing Infrastructure Study for area within 0.5 mile radius of The Falls Shopping Center	The Falls	\$15,000
1,4	Local Hub Study to Coral Reef/US-1 Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of US-1/SW 152nd Ave.	Coral Reef/US-1	\$15,000
1,6	Local Hub Study at Franjo Triangle to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of US-1/SW 184th St.	Franjo Triangle	\$15,000
1,3,6	Local Hub Study at Cutler Bay/Southland Mall to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of US-1/Caribbean Blvd.	Cutler Bay/Southland	\$15,000
1,5	Local Hub Study at Naranja to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of US-1/SW 264th St.	Naranja	\$15,000
1	Local Hub Study at Florida City to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of US-1 Busway/SW 344th St.	Florida City	\$15,000
1	Local Hub Study at Homestead to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of US-1 Busway/SW 320th St.	Homestead	\$15,000
2	Local Hub Study at Baptist Hospital to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of SW 88th St. and SW 87th Ave.	Baptist Hospital	\$15,000
2,6	Local Hub Study at MDC/Kendall to Determine Sidewalk/Pedestrian Infrastructure		N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of MDC/Kendall, and Town and Country development at SW 117th Ave. and SW 88th St.	MDC/Kendall	\$15,000
2	Local Hub Study at Kendale Lakes to Determine Sidewalk/Pedestrian Infrastructure		N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of SW 88th St. and SW 137th Ave.	Kendale Lakes	\$15,000
2	Local Hub Study at Baptist West to Determine Sidewalk/Pedestrian Infrastructure		N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of SW 88th St. and SW 162nd Ave.	Baptist West	\$15,000
4,5	Local Hub Study at Country Walk to Determine Sidewalk/Pedestrian Infrastructure	N/A	N/A	N/A	Local Hub Infrastructure Study for area within 0.5 mile radius of SW 152nd St. and SW 137th Ave.	Country Walk	\$15,000
4	New Pedestrian Bridge on SW 98th Ave. @ Canal C-100	SW 98th Ave.	South of Canal C-100	North of Canal C-100	New pedestrian bridge over Canal C-100	Coral Reef/US-1	\$310,000
TOTAL							\$505,000

Source: The Corradino Group

Figure 11. Proposed Pedestrian Projects Location Map



Source: The Corradino Group

APPENDIX A

Plans for South Dade County

INTRODUCTION

An understanding of existing conditions is critical to assessing the current needs and projecting those into the future. Since the study area is quite large, collecting primary data in the field through traffic counts, visual observations and other labor intensive techniques was cost and time prohibitive. Luckily, much of this data exists from recent sources such as State, and local traffic LOS from prior reports such as the MPO's Arterial Study, MDT routing and ridership numbers, and local master planning.

Not only has significant research and analysis been conducted by the Miami-Dade MPO relative to studies on the US-1 Bus Lanes, but other corridors have been evaluated such as the connection of SW 137th Avenue. The MPO has in the past examined the location and possibility of utilizing the many rail corridors in the area for mobility. From a state level perspective, FDOT has performed work on the Krome Avenue Corridor as well as in Downtown Homestead with the Truck Bypass. The Turnpike is currently expanding, and MDX has explored inserting the managed lanes concept along the Busway. Miami-Dade County Department of Transportation and Public Works is continually improving the arterial grid, and Miami-Dade County Planning and Zoning has performed significant land use work along the US-1 Corridor

in the "Charrette Areas," where nodes of intensity have been examined. This land use planning to create development opportunities along the US-1 Corridor, is in line with the Urban Development Boundary policy and the work done on the County's Water Shed Study.

Not only has all of this work been done, but each of the local municipalities have done significant work relative to transportation and land use planning. Each community, including Homestead, Cutler Bay, Palmetto Bay and Pinecrest have undertaken a variety of recent transportation plans, including: transit circulators, safe routes to school studies, transportation master plans, bicycle and pedestrian master plans as well as traffic calming. Equally as important is the fact that each area has examined land use and zoning changes along the US-1 Corridor. Each City has land use and transportation policies spelled out in their comprehensive plans. It is very important to note that Cutler Bay has re-land used and re-zoned the area surrounding the Southland Mall. Palmetto Bay is in the process of doing the same in the Franjo Triangle, and Homestead has recently finished constructing a new City Hall, and is in the process of building a new police station and potential intermodal facility. Each of these areas are next to the Busway and each city is seeking more elaborate transit connections.

The following details the local plans and existing conditions reviewed as part of the Literature Review to prepare for the Needs Assessment in Task 3.

TOWN OF CUTLER BAY TRANSPORTATION MASTER PLAN, OCTOBER 2014

In 2014, Cutler Bay received funding to update its 2008 (first) transportation master plan. The 2008 Plan focused on implementation of transportation projects. Primary 2008 recommendations were for a Transit Circulator and a Bicycle and Pedestrian Plan. The 2008 Plan involved interaction with citizens, staff, elected officials and local agencies to develop consensus on a vision to guide transportation projects and policy. Of the 60+ projects identified, 75 percent had been initiated or completed by 2014, including the local Circulator, which is operated by Miami-Dade Transit per an interlocal agreement with Cutler Bay.

With the economy rebounding from the recent recession, the *2014 Transportation Master Plan* recognized the importance of having capital projects in the pipeline to build when funding is available. The 2014 Plan reviewed the 2008 Plan, incorporating new citizen concerns

reported over the intervening years. In the process, existing conditions were updated by the collection of new data. The 2014 Plan resulted in an entirely new project bank, which prioritized all pending projects and removed completed projects. The scope of services covered: public involvement; data collection and analysis; needs assessment; development of potential projects; and, an implementation plan and final report. The project bank included 63 multimodal projects at a potential cost of approximately \$21 million.

Project types were: 1) capacity (using 2020 as the horizon year to test level of service); 2) corridor enhancement; 3) policy; and 4) alternative modes. The projects formulated in each of these categories were subjected to a uniform comparison using nine criteria, with some related projects consolidated as analysis proceeded. The result was a blueprint for a Capital Improvement Program with a five-year horizon. The intent was to revisit progress every few years and update and reprioritize the list.

Assuming the first year of implementation is 2015, Cutler Bay projects considered here to be significant for purposes of the South Dade study are delineated in [Table A-1](#).

Table A-1. Cutler Bay Projects Significant for South Dade Study

Project Type	Project Number	Name	Imp. Yr.	Calendar Year	Cost (in Thousands)
Alt mode	3	Safe Routes to School	1 & 2	2016	\$ 492
Capacity	2	SW 216 & SW 92 Ave & 227th St Traffic Circle	2	2017	\$ 400
Capacity	3	Gulfstream & Marlin Traffic Circle	2	2017	\$ 400
Capacity	4	Marlin & Bel Aire Traffic Circle	2	2017	\$ 400
Alt mode	5A	Bike path/lanes Gulfstream	2	2017	\$ 600
Alt mode	5B	Bike path/lanes SW 216 St	2	2017	\$ 654
Capacity	1	SW 216 St & SW 87 Ave Traffic Circle	3	2018	\$ 400
Capacity	9	Franjo & 186th St turn lane	3	2018	\$ 350
Capacity	10	SW 97th Ave & Gulfstream Connection	3	2018	\$ 105
Alt mode	6	US-1 Transit crossings	3	2018	\$ 120
Capacity	13	Turnpike 6 to 8 lanes	4	2019	\$ 3,400
Capacity	17	Turnpike 8 to 10 lanes	5	2020	\$10,000
Alt mode	7	Urban Center sidewalks	TBD	TBD	TBD
Total (Note: does not include minor projects)					\$14,375

Source: Town of Cutler Bay 2014 Transportation Master Plan

CITY OF CORAL GABLES COMPREHENSIVE PLAN AND FY 2013 TO 2017 CAPITAL IMPROVEMENT PROGRAM

As the southern section of Coral Gables was within the study area, the Coral Gables Comprehensive Plan was reviewed. The City of Coral Gables has a number of policies related to transportation planning. The most relevant

are summarized below. No references to road changes that increase capacity could be found and a number of actions in the Comprehensive Plan do not appear to have been undertaken, based on a review of the City's web site. Relevant elements of the Comprehensive Plan are paraphrased below with editorial notes.

Policy MOB-1.1.9. The City shall undertake a Transportation Master Plan by 2011 to identify

roads projected to fail the adopted Level of Service (LOS) standards, and short and long term multi-modal and policy oriented mitigation measures. Each project shall have an estimated probability cost to assist in determining a financially feasible Capital Improvements Element.

Objective MOB-2.1. Roads in the City are within the Urban Infill Area of Miami-Dade County. The City shall reduce the number of roadways operating lower than the LOS Standards to zero by January 2010.

Policy MOB-2.1.1. The minimum LOS standards for State Principal Arterial, Minor Arterial, County Minor Arterial, County and City Collector roads within the City shall be:

- Where public transit service does not exist, LOS E; within the Special Transportation Area (STA) 20 percent of non-State roads may operate below LOS E. All County roads within the STA will maintain LOS standards consistent with the County adopted standards.
- Where public transit service has headways of twenty minutes or less within one-half mile, roads shall operate at no greater than 120 percent of their capacity.

- Where commuter rail or express bus service exists, parallel roads within one-half mile shall operate at no greater than 150 percent of their capacity.

Policy MOB-2.1.2. Roads that are physically or environmentally constrained or legislatively prohibited from expansion due to their valued historic, or cultural character, will be allowed to operate at a LOS above the minimum established LOS standards.

Policy MOB-2.1.7. The City shall support and supplement mass transit by expansion of its trolley system in conjunction with Miami-Dade County mass transit services.

Policy MOB-2.3.1. The City shall, as a part of its development review process, continue to maximize utilization of existing roadway capacity and reduce peak period congestion by implementing to the maximum extent feasible, traffic operation improvements and transportation systems management.

Policy MOB-2.7.3. Because of the unique historic, aesthetic and residential qualities of Coral Way, Bird Road, Old Cutler Road, Red Road and Douglas Road, these arterial roadways shall be maintained at their present designation and capacity.

The City of Coral Gables' Streetscape Project is underway (January 2016). The goal of the project is to enhance the economic vitality of the downtown district. There are no roadway capacity additions. This is a streetscape project. Likewise, there are no capacity projects in the FY 2013 to 2017 Capital Improvement Plan.

CITY OF HOMESTEAD – 2006, 2011, AND 2015

Homestead's last transportation plan, *City of Homestead Transportation and Transit Master Plan*, was prepared in 2006. A few projects have been completed, but many projects remain, as the plan was ambitious, promoting growth. There is no implementation year or cost associated with these uncompleted projects from the 2006 Plan ([Table A-2](#)).

In June 2011 the City adopted *EAR-based Amendments to its Comprehensive Plan: Goals, Objectives & Policies*, responding to the State of Florida requirement that all local governments update their comprehensive plan every seven years. The updating process requires an Evaluation and Appraisal Report (EAR) and then Comprehensive Plan amendments based on the approved EAR. The City prepared its EAR in 2007, and adopted its EAR-Based Plan amendments on July 20, 2009, by Ordinance

Table A-2. Uncompleted Projects from Homestead's 2006 Transportation Plan

Project Type	Name
Road Widening	Turnpike - 4>6 lanes
Interchange	Turnpike - new interchange @ SE 8th (Lucy)
Road Widening	SW 328 Phase 2 (Lucy) 2> Lanes
Road Widening	SW 328 Phase 1 widening part complete
Road Widening	W of Homestead SW 320 2>4 lanes (outside Homestead)
Road Widening	SW 320 Mowry 2>3 lanes
Road Widening	SW 320 Mowry east 2/4 lanes
Road Widening	SW 320 Mowry easternmost done or blocked by development
Road Widening	W of Homestead SW 312 Campbell 0 or 2 to 6 lanes
Road Widening	SW 312 Campbell west 2>4
Road Widening	S Flagler Ave 2>4 lanes

Source: City of Homestead 2006 Transportation Master Plan

No. 2009-07-20. On October 21, 2009, FDCA issued a *Statement of Intent to Find Comprehensive Plan Amendment Not in Compliance*. The June 2011 EAR-based Goals, Objectives and Policies document addressed FDCA's compliance issues. Below are some noted changes related to transportation.

The Transportation Element of the Comprehensive Plan includes the following relevant objectives:

- Support Downtown, the Southwest Fourth Street Corridor and the Southwest Neighborhood.
- Maintain existing roads.
- Promote traffic and transit improvements that enhance regional access; more specifically:
 - ✓ Facilitate operation of the Busway and east-west connections to it.
 - ✓ Coordinate with Metro-Dade to improve east-west access to the Homestead General Aviation Airport from US-1.
 - ✓ Improve transit linkages between Homestead and the Air Reserve Base, as well as high capacity transit service on race event days.
 - ✓ Support development of an interchange on the Turnpike at Lucy Street.

- ✓ For state minor arterials, county arterials and minor collectors, and city roads and streets, review projects in light of their potential to cause a worsening of Level of Service (LOS) E traffic conditions. LOS E represents conditions of maximum vehicular flow. *[A worsening of this condition means unstable flow--a breakdown of traffic.]*
- ✓ Provide a pedestrian network for all major destinations within the City.
- ✓ Ensure developments are in compliance with the City's Future Transportation Map.
- ✓ Provide an integrated bicycle system consistent with planning, including east-west corridors that intersect with the Busway.
- ✓ Maintain transit LOS as currently provided.
- ✓ Use all available financial resources to implement the improvements on the Future Transportation Map and improve and expand transit service.

- ✓ Complete comprehensive section line roadway and parallel roadway planning in undeveloped areas to provide and implement greater east-west mobility.
- ✓ Interconnect the local network for local traffic as an alternative to use of Florida Intrastate Highway System roadways.
- ✓ Create programs that will promote the use of public transportation.
- ✓ Address LOS deficiencies identified in the 2013 and 2030 Future Traffic Conditions Maps.
- ✓ Improve Krome Avenue, US-1, Turnpike (H.E.F.T), SW 312th Street, SW 328th Street, and SW 344th Street according to the Schedule of Capital Improvements which will be updated annually to include projects on these facilities to reduce existing deficiencies, replace obsolete facilities and include projects to meet future demand.

The FY 2016 Proposed Budget (updated) includes a number of road projects out past the horizon year of the budget 2020 (Table A-3). These may be considered to supplant the 2006

Table A-3. Homestead Road Projects Beyond Horizon Year 2020

Project Type	Project Number	Name	Year	Cost
Road	112	Campbell Drive Roadway Improvements	>2020	\$ 4,000,000
Road	144	SW 328 Expansion	>2020	\$ 2,800,000
Interchange	336	Turnpike Interchange on SW 328 th St. (Lucy)	>2020	\$ 12,000,000
Road	343	Expansion of SW 162 nd Ave. from Campbell (SW 312 nd St.) to Mowry (SW 320 th St.)	>2020	\$ 4,000,000
Road	479	Mowry Drive Improvements – SW 162 nd Ave. to Krome	>2020	\$ 5,600,000

Source: City of Homestead 2006 Transportation Plan

list. There are no project descriptions with respect to number of lanes or project limits.

VILLAGE OF PALMETTO BAY – 2009 TO 2015

The Village of Palmetto Bay has in place a *Bicycle and Pedestrian Master Plan* (2009), three Safe Routes to School Plans (Coral Reef, Howard Drive and Perrine elementary schools, 2010), and a *Traffic Calming Initiatives* study (2015). There is no long-range planning document that defines roadway capacity increasing projects.

The plan recommended the development of a multi-level bicycle and pedestrian network focused on servicing the multiple user groups.

Essentially a hierarchy of facilities has been developed, not unlike the functional classification for streets. This included:

- Basic Pedestrianism (Sidewalk Network);
- Local Connectivity;
- Commuter Access;
- Greenways;
- Commercial Connectors; and,
- Policy.

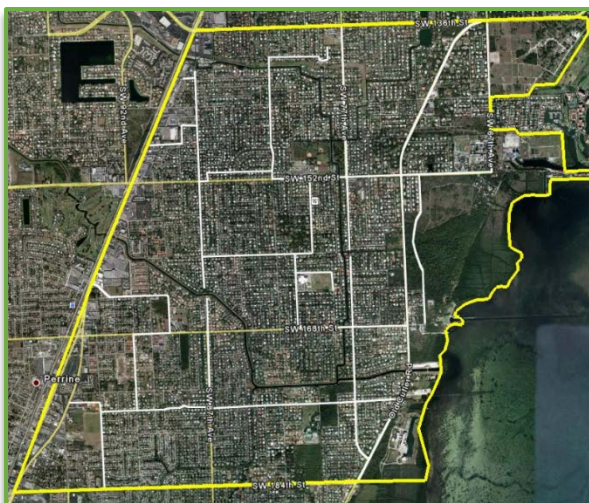
Taking into account sidewalks and bicycling on the existing grid, the plan focused on providing pedestrian access at least along the major corridors with in the Village (Figure A-1), and bicycle paths along key corridors (Figure A-2), but not to the same degree as sidewalks. To date, little of the bicycle network has been implemented.

Figure A-1. Village of Palmetto Bay Pedestrian Access Plans



Source: Village of Palmetto Bay 2009 Bicycle and Pedestrian Master Plan

Figure A-2. Village of Palmetto Bay Bicycle Plans



Source: Village of Palmetto Bay 2009 Bicycle and Pedestrian Master Plan

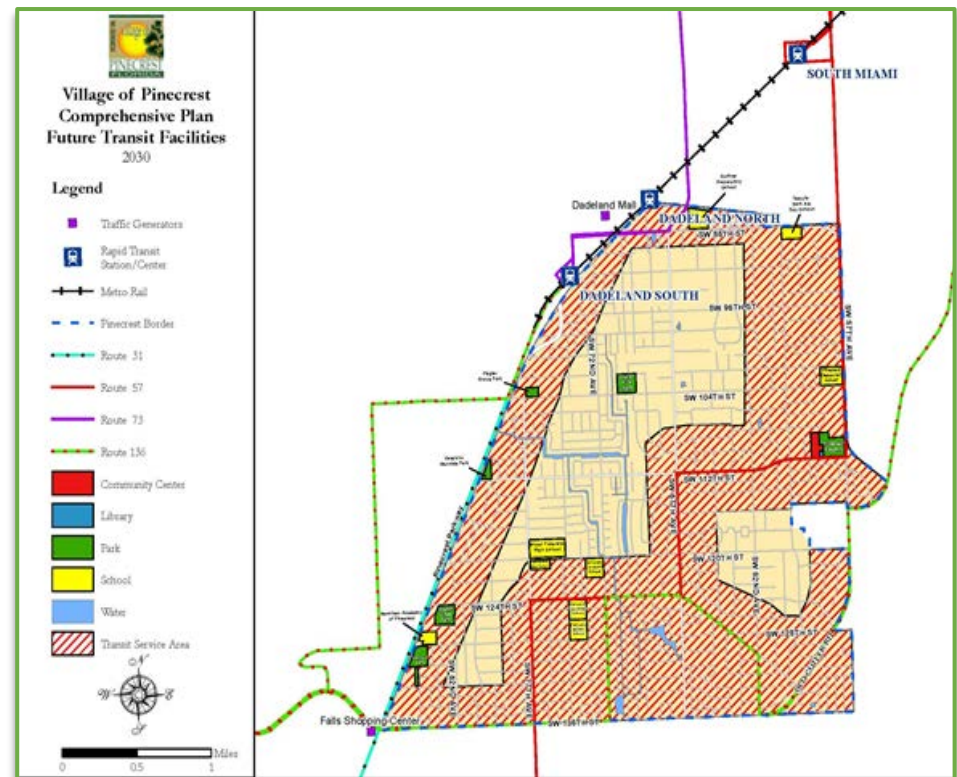
VILLAGE OF PINECREST – 2015

The Village of Pinecrest has *Comprehensive Development Master Plan Goals, Objectives, Policies* (adopted February, 1999; Amended through April 14, 2015). The best indication of the intention for future roadway expansion is Map II-1, which shows “Major Thoroughfares, Functional Classifications and Number of Lanes 2025.” The map shows all roads in Pinecrest as two lanes in 2025 except US-1 at six lanes and SW 88th Street for the blocks east of US-1 to Ludlam Road. Based on existing and future maps, no roadway expansion is planned in Pinecrest at this time.

The Village also, as part of its Comprehensive Plan, includes a Future Transit Facilities Map (Figure A-3) and a Bikeways and Sidewalks Map (Figure A-4). Transit lines within the Village

show about 50 percent coverage, and access to major regional transportation (MetroRail, Busway) via existing bus routes. The Village also has included a free School circulator in the mornings and afternoons.

Figure A-3. Village of Pinecrest Future Transit Facilities



Source: Village of Pinecrest Comprehensive Plan

The map in **Figure A-4** depicts the existing and proposed sidewalks and bicycling network for Pinecrest. The Village intends to add two proposed Bicycle Lanes, on SW 136th Street and SW 88th Street. Overall, the Village does not have sidewalks in interior local roadways, but does have sidewalks along the major corridors within the Village.

RAIL CONVERTIBILITY STUDY – 2004

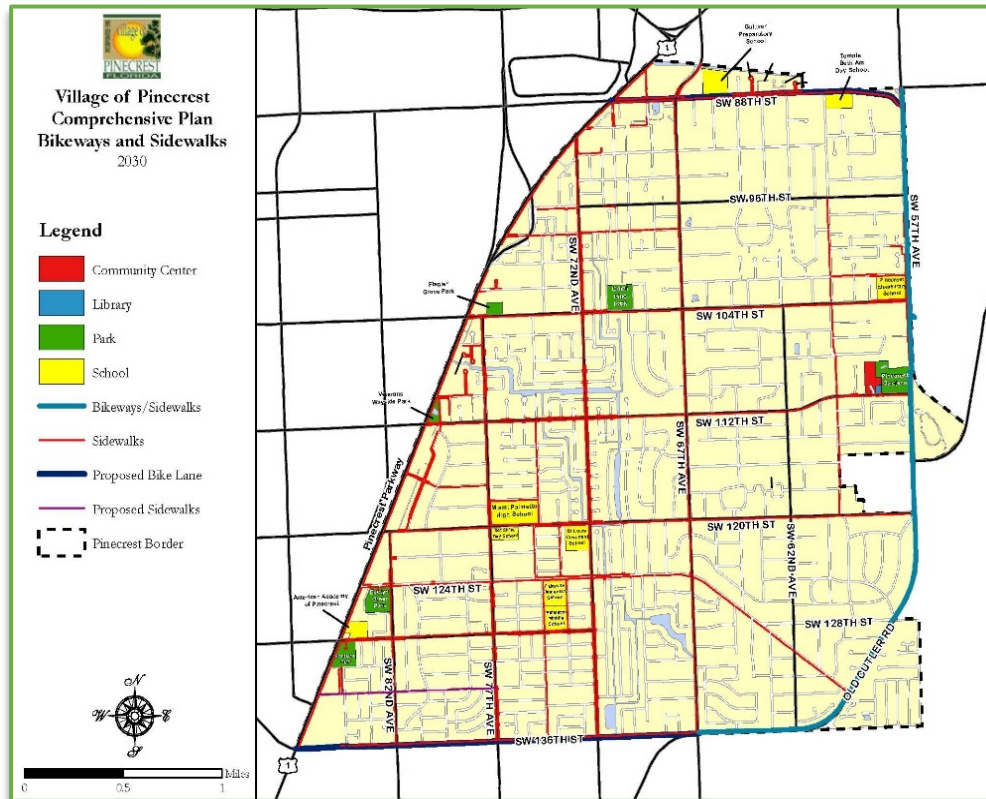
This study was sponsored by the Miami-Dade Metropolitan Planning Organization and was designed to:

- Update the *Railroad Rights-of-Way Assessment* conducted in 1993, and assess rail corridors and facilities in the County;

- Assess the short- and long-term corridor potential for public transportation and bicycle/pedestrian activities; and,
- Identify innovative strategies to maximize potential benefits.

The precedent was earlier development of former railroad right-of-way for Metrorail, the busway, and commuter rail.

Figure A-4. Village of Pinecrest Bikeways and Sidewalks Map



Source: Village of Pinecrest Comprehensive Plan

Figure A-5 presents the rail corridors. Also identified is the South Dade Busway, which operates in a former FEC-owned rail corridor. The FEC and CSX lines shown carry freight exclusively. The South Florida Regional Planning Council (SFRPC) (which is owned by FDOT), accommodates freight, South Florida Regional Transportation Authority (SFRTA)/Tri-Rail, and Amtrak under a cooperative agreement.

The study found a number of corridor segments have very limited service. Many segments have 100 feet of right-of-way, which is a tremendous opportunity for joint use. And, there is more single-track than double-track, which also supports adaptive re-use of these corridors, as there is more residual right-of-way available for an alternative use.

The study addressed whether a corridor could meet a specific need, such as linking areas where people live to where they want to go.

Figure A-5. Miami-Dade County Rail Right-of-Way Corridors, 2004



Source: Miami-Dade MPO 2005 Rail Convertibility Study

That has a direct bearing on the potential to generate ridership which is a warrant for federal funding. Also, are there fatal flaws that prevent a desired use? The study went on to make a number of recommendations that have since been superseded by more recent planning documents.

The observations at that time (2004) are repeated in this paragraph. First, the People's Transportation Plan essentially dictates which rail corridors will be the highest priority for transit use. The FEC Northeast, Dolphin, and SFRC MIC to Oleander, will be the focus of multi-use or transit projects in the next two decades. Likewise, the County's bicycle/pedestrian plans have focused on the development of the Flagler Trail in the FEC Corridor, the Ludlam Trail in the FEC Ludlam Corridor, and other projects such as the East-West Trail in the North Dade Greenways Plan. Finally, FDOT authorized a multi-county study of the entire FEC corridor and transit possibilities. In addition, transit technologies used elsewhere in the country can be accommodated, such as Bus Rapid Transit (BRT) and Diesel Multiple Units (DMU) as well as Light Rail Transit (LRT) and commuter rail. The study concluded that the MPO should prioritize the corridors and their use as multi-use facilities.

SW 137TH AVENUE CORRIDOR STUDY, 2007

This study, prepared for the Miami-Dade Metropolitan Planning Organization, evaluated roadway and safety improvement alternatives along the SW 137th Avenue Corridor from SW 344th Street to an Extension of SR 836, approximately 23 miles. The primary purpose of this

study was to examine the feasibility of making SW 137th Avenue a fourth north/south facility between Homestead and Central Miami-Dade, adding to South Dixie Highway (U.S. 1), the Homestead Extension of Florida's Turnpike (HEFT) (SR 821), and Krome Avenue (SR 997).

At that time the County's Comprehensive Development Master Plan (CDMP) called for SW 137th Avenue to be a continuous four-lane facility from SW 344th Street to SW 184th Street, and six-lane facility north to NW 12th Street. The study noted that the SW 137th Avenue corridor remained in the County's L RTP through a number of updates. The actual lanes (2016 are shown at right.)

The study found that only the build options would realistically meet the overall objectives of a facility improvement project in the SW 137th Street corridor, and that construction was feasible. Phasing was recommended.

SR 836 Extension	
	6 lanes
US 41/Tamiami/SW 8th St	4 lanes
SW 26th Street	6 lanes
SW 56th Street	4 lanes
SW 88th Street/Kendall	6 lanes
SW 184th Street	2 lanes
SW 200 Street	Missing links
SW 232 Street	2 lanes
	Break at US 1
HEFT	4 lanes
SW 344 Street	

Phase 1 would be a four-lane section with a 48-foot median, sidewalks, bike paths, and landscaping. Phase 2 would widen the road into the median to six lanes between SW 288th and SW 184th Streets. Phase 3 would grade separate intersections at US-1, SW 88th Street and US-41. The phase costs (presumably \$2007) were:

- Phase 1: \$101,810,288
- Phase 2: \$54,871,816
- Phase 3: \$84,408,436

An additional study conclusion was the SW 137th Avenue Corridor has sufficient right-of-way to accommodate the roadway improvement, as well as future transit recommendations such as BRT.

MIAMI-DADE COUNTY CSX CORRIDOR EVALUATION STUDY, 2009

This study was sponsored by the Miami-Dade Metropolitan Planning Organization to update options regarding the CSX Railroad corridor between the vicinity of Metrozoo and Oleander Junction at Miami International Airport (MIA). The study was an offshoot of the Kendall Link Study completed in 2007.

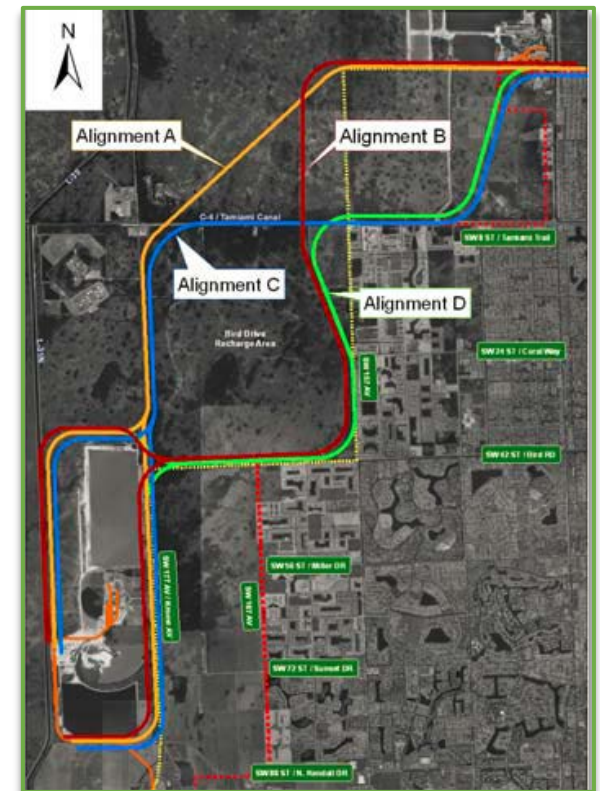
The CSX Corridor Evaluation Study addressed the following questions:

1. Could the CSX freight operation be relocated from the existing tracks to a new corridor to free up the existing corridor?
2. What transportation reuse options exist and could there be joint uses?
3. How would BRT operate?
4. What would a solution cost to build and operate?
5. What are community attitudes towards corridor reuse?
6. Who will need the services?
7. Where will the money come from?
8. What are the next steps?

The findings of the study are discussed below referencing the item numbers above.

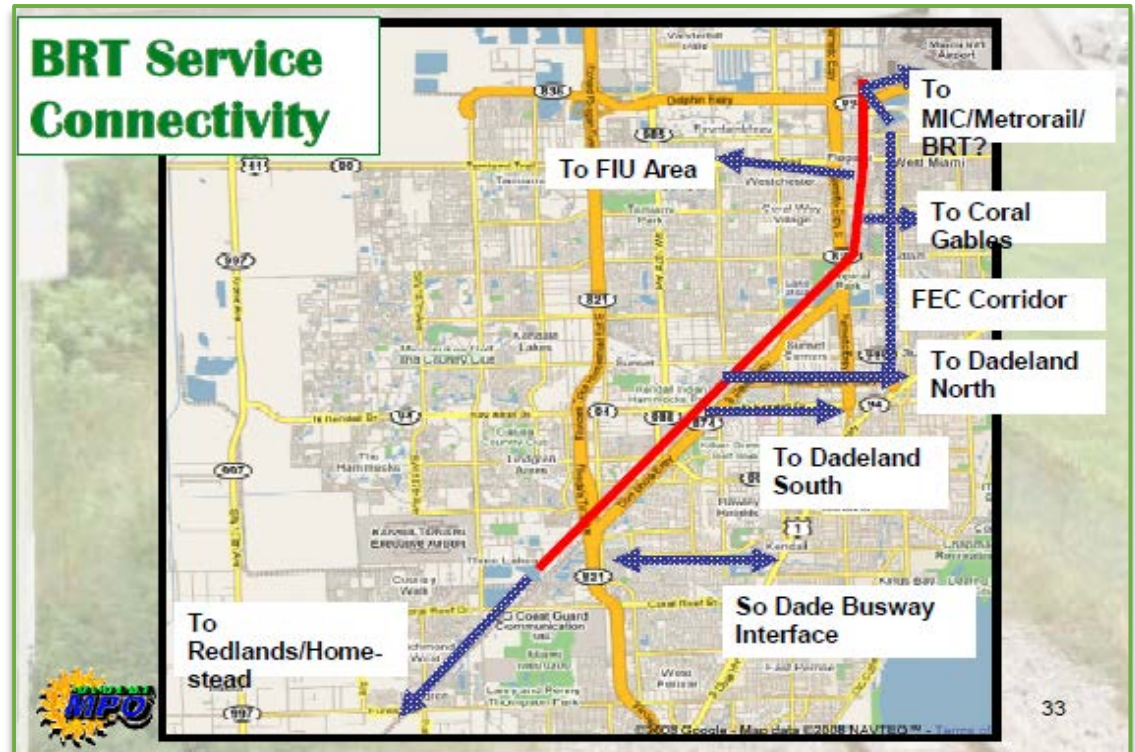
1. While there would be environmental impacts the freight corridor could be relocated.
2. The *Kendall Link Study* had proposed self-propelled Diesel Multiple Unit

(DMU) cars sharing the track with CSX. (The Federal Railway Administration, has very high [safety] requirements on joint-use of rail rights-of-way.) Shared track and the DMU technology were not popular with the community. The consultant recommended relocating the CSX operation and using the corridor for BRT and recreation.

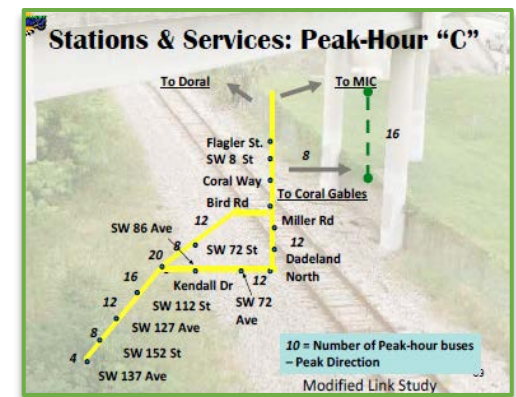


3. BRT could operate from the Metrozoo north to Bird Road where it would shift from CSX to FEC right-of-way, which is wide enough to handle BRT. The FEC could have its own BRT service south to Metrorail's Dadeland North station.
4. A variety of costs were calculated based on various scenarios.
5. Two community meetings in 2009 found opposition to joint rail car use of the tracks, but support for a BRT concept that included recreational use. Reserved curb lanes for bus use on SW 88 Street (Kendal Drive) could be part of the solution (see sidebar graphics).
6. A ridership test found 23,000 potential daily riders in 2030, a promising number compared to previous concepts.
7. At the time of the study, the belief was the project might meet the \$250 million Federal Transit Administration (FTA) Small Start threshold that is easier to attain than a financially larger New Start project.

The 2009 study conclusions follow.



1. Use of the CSX right-of-way between Oleander Junction and Metrozoo is viable.
2. BRT is complex because:
 - a. A new CSX connection linking the railroads two spurs (GPC and Lehigh) is required and develop-



ment of this connection is contingent on coordination with MDX plans to extend SR-836 westward [already completed].

- b. It might require acquisition of the entire CSX subdivision.
 - c. Negotiations with CSX must be based on due diligence by both parties. It is the County's responsibility to offer a concept to CSX, if the concept wishes to initiate a purchase of the corridor.
3. Initial studies show placement of a BRT would be favorable to earlier Kendall Link concepts proposing rail service in the corridor and could meet FTA funding guidelines.
 4. County transit plans are in flux, but BRT is viewed favorably for capital investment.
 5. CSX corridor acquisition will permit joint transportation and recreation use along the entire right-of-way.
 6. The optimal BRT will use the CSX right-of-way from Kendall Drive south; use Kendall Drive between the CSX and Metrorail Dadeland North station on reserved bus

lanes; and, connect to the FEC corridor northward from Dadeland to Oleander Junction. Joint use of the FEC and CSX seems to be an optimal situation but will require additional study.

7. Further study could optimize how these sections are developed and the entire network created.

STRATEGIES FOR INTEGRATION OF SUSTAINABILITY AND THE TRANSPORTATION SYSTEM, MIAMI-DADE COUNTY MPO, DECEMBER 2011

This study investigated travel behavior changes that could result from defined sustainable transportation strategies. Scenarios were developed as broad concepts to be applied countywide at a macro scale. Strategies went above and beyond the current (2011) plans and policies, and were evaluated outside of the LRTP process, which is guided by federal regulations.

Strategies were identified, and scenarios were created through combining these strategies. The scenarios were evaluated using the regional travel demand model, the Southeast Regional Planning Model (SERPM) version 6.5, as well as off-model techniques. The Miami-Dade

MPO established the following study guidelines.

1. Intensive capital improvements beyond those identified in the Cost Feasible Plan of the 2035 LRTP would not be considered.
2. Each scenario should be comprised of a unique set of strategies.
3. Strategies included in a scenario must be focused on changing travel demand and under the realm of influence of Miami-Dade County.

A literature review identified sustainable transportation strategies. A set of aspirational goals was set related to reducing vehicle miles of travel and single-occupancy trips over time, while increasing transit ridership and bicycle and pedestrian trips.

A two-tiered screening methodology narrowed the strategies to be included in scenario development. Tier One looked for conflicts with local plans, but no conflicts were found. Tier Two prioritized strategies based on an evaluation each strategy's strengths, weaknesses, and limitations. Stakeholder surveys provided a mechanism to remove 14 of 53 strategies from consideration. Another 18 strategies were dropped because could not be meaningfully

evaluated. The remaining 21 strategies were assigned to one of three scenarios for testing.

Scenario 1: Mobility Management. This scenario considered express bus service on a network of managed expressway lanes with reduced fares; increased parking prices; and, operational improvements on the expressways. On facilities where tolls are already collected, managed lanes would be tolled at a higher rates.

Scenario 2: Linkages. This scenario minimized travel needs by reallocating population and job growth (2015- 2035) based on smart growth and transit oriented development (TOD) principles. This scenario reallocated residential and employment densities to transit corridors, urban centers, and activity corridors; adjusted the jobs/housing balance; and, assumed implementation of Complete Streets.

Scenario 3: Multimodal. This scenario emphasized increasing the transit mode split by: providing real time information and more comfortable stations; increasing system-wide transit speeds; creating a network of arterial bus rapid transit (BRT) corridors; and, adding park-and-ride locations. Transportation demand management (TDM) strategies were modeled, such as: carpooling/vanpooling, telecommuting, car-sharing, and, parking management. Cash-out programs that encourage non-

single-occupant vehicle travel, deter car ownership, and increase person throughput were also included in this scenario.

All three scenarios were evaluated using the regional travel demand forecast model (SERPM v6.5) and compared against the 2035 LRTP adopted by Miami-Dade County in October 2009 (Figure A-6). Certain strategies were evaluated using off-model techniques based on literature review and empirical data to reflect local planning and to determine greenhouse gas (GHG) emissions, energy consumption, productivity, and equity.

The results of this effort were seen as useful to inform upcoming studies such as the Southeast Florida 2060 Vision Plan being developed by the South Florida and Treasure Coast Regional Planning Councils; an analysis of the ability to implement tolled managed highways with rapid/enhanced bus routes and ridesharing programs being conducted by the Miami-

Dade MPO; a study on parking being conducted by the Florida Department of Transportation, District 6; and, future comprehensive planning activities conducted by the Miami-Dade Department of Permitting, Environment and Regulatory Affairs and the municipalities within Miami-Dade County.

Figure A-6. Summary of Scenario Evaluation Results

Evaluation Criteria	2035 LRTP Baseline	Scenario 1: Mobility Management	Scenario 2: Linkages	Scenario 3: Multimodal
Vehicle Miles Travelled (VMT), Daily	65,355,000	62,925,000	61,293,000	64,283,000
Absolute Change from LRTP		(2,430,000)	(4,062,000)	(1,072,000)
Percent Change from LRTP		-4%	-6%	-2%
Vehicle Hours Travelled (VHT), Daily	2,778,000	2,622,000	2,428,000	2,723,000
Absolute Change from LRTP		(155,490)	(350,000)	(55,000)
Percent Change from LRTP		-6%	-13%	-2%
Average Annual Delay (hours)/Person	101	93	74	97
Absolute Change from LRTP		(8)	(27)	(4)
Percent Change from LRTP		-8%	-27%	-4%
Mode Split				
Single Occupant Vehicle (SOV)/Person Trips	5,780,000	5,415,000	5,675,000	5,725,000
SOV Percentage	53%	50%	53%	52%
High Occupant Vehicle (HOV)/Person Trips	4,959,000	5,281,000	4,913,000	4,911,000
HOV Percentage	45%	48%	45%	45%
Transit	202,500	239,550	193,500	300,100
Transit Percentage	2%	2%	2%	3%
Transit Mode Share				
All Trip Purposes	2%	2%	2%	3%
Home Based Work Trips	5%	5%	4%	6%
Transit Boardings Change Compared to Baseline				
Total Transit		18%	-4%	48%
Home Based Work		12%	-10%	32%
Trip Length (in miles)	8.3	8.3	7.9	8.3
Absolute Change from LRTP		0.0	-0.4	0.0
Percent Change from LRTP		0%	-5%	0%
Greenhouse Gas Emissions (CO2 lbs/day)	50,093,000	50,087,000	48,478,000	49,554,000
Absolute Change from LRTP		-6,000	(3,615,000)	(539,000)
Percent Change from LRTP		0%	-7.2%	-1.1%
Energy Cost, US dollars in kilowatt hours	1,785	1,785	1,855	1,766
Absolute Change from LRTP		0	(130)	(19)
Percent Change from LRTP		0%	-7%	-1%
Cost of Congestion/Lost Productivity, US \$	\$6.9 billion	\$6.7 billion	\$6.3 billion	\$6.7 billion
Absolute Change from LRTP		-\$0.2 billion	-\$0.6 billion	-\$0.2 billion
Percent Change from LRTP		-2%	-8%	-2%
Equity		No disproportionate impacts		

Source: Miami-Dade MPO Strategies for Integration of Sustainability and the Transportation System

MIAMI-DADE MPO ARTERIAL GRID
ANALYSIS PHASE II, JANUARY 2014

In 2006, the Miami-Dade MPO conducted a system-wide study of the County's arterial grid roadway network. That study assessed the arterial grid to identify strategies for to increase efficiency and capacity. There have been notable changes in travel characteristics since then.

In particular, a general reduction of traffic volume can be observed on many arterial roadways, which is consistent with national statistics. Among the factors that are cited for the general decrease in traffic volume and vehicle miles travelled include economic challenges associated with the recession, an overall improvement of transit options, and higher fuel prices. These changes gave rise to the need for re-evaluating the roadway system. Therefore, the MPO initiated the *Arterial Grid Analysis Phase II Study*.

Figure A-7. Priority Corridors and Recommended Improvements

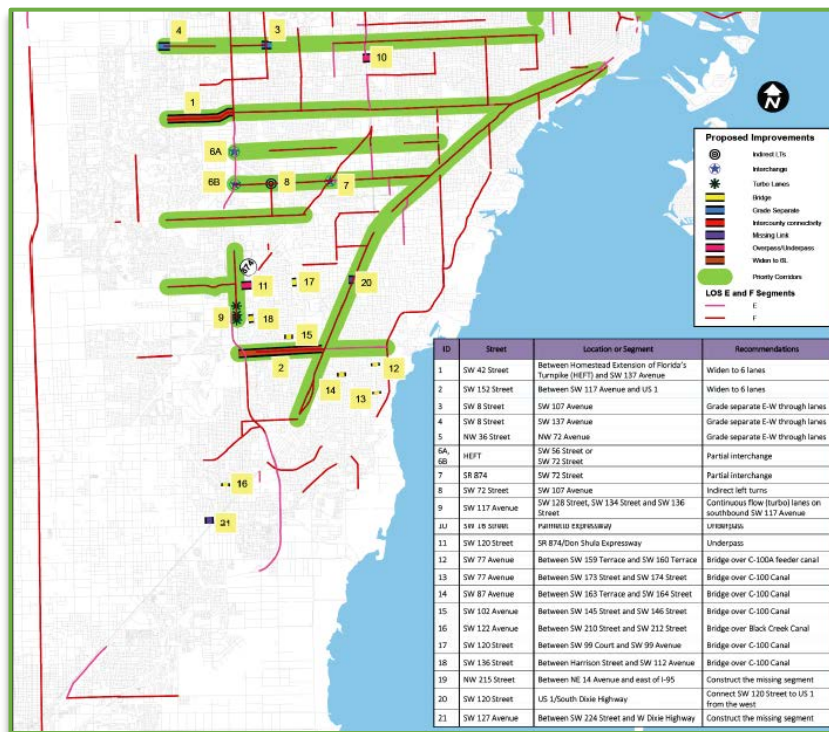


Figure A-7 shows the South Dade excerpt of recommended improvements.

MIAMI-DADE MPO 2040
LONG RANGE TRANS-
PORTATION PLAN, OC-
TOBER 2014

The transportation deficiency analysis for the 21-year period from 2020 to 2040 identified almost 300 candidate capacity improvement projects needed to meet desired mobility conditions. These projects were reviewed and evaluated to develop the

2040 Plan. The 2040 Cost Feasible Plan (Plan) was developed based on the projected available revenue of \$41 billion Year of Expenditure (YOE) dollars. Allowing for operating and maintaining the existing system leaves \$15.2 billion YOE dollars for new capital projects and their operating/maintenance costs. Highway projects would cost \$14 billion, transit projects \$1.4 billion, and other projects \$105 million. The projected revenue covers about 26 percent of the cost of all needed (versus cost-feasible) improvements. The following are highlights of the Miami-Dade 2040 Long Range Transportation Plan (LRTP) by mode for South Miami-Dade.

Transit

- East-West Corridor (Flagler) Enhanced Bus
- Douglas Road Corridor (37 Ave) Enhanced Bus
- Kendall Corridor Enhanced Bus
- Kendall Park-and-Ride Facility
- Busway Park-and-Ride Facility
- Dolphin Station Transit Terminal
- Palmetto Intermodal Terminal

Highway

- Additional managed lanes for I-75, SR-821, SR-826 (Palmetto), and SR-836 (Dolphin).

- Expressway improvements for the Florida's Turnpike, Florida Department of Transportation and the Miami-Dade Expressway Authority (MDX).

Non-motorized Improvements

Facilities such as on-road bicycle lanes, off-road greenways/trails, and sidewalks are included in the Plan. On-road bicycle and pedestrian projects are incorporated into capacity projects, when feasible. Funding for other non-motorized projects is based on the assumption that a pre-determined financial set-aside will be devoted to non-motorized transportation projects.

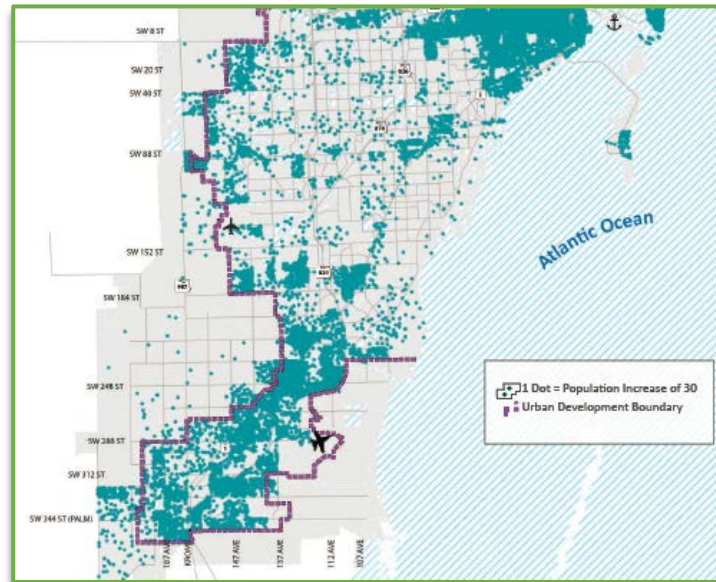
Growth in population and employment are shown in Figures 1-6 and 1-7 of the Miami-Dade MPO 2040 LRTP (**Figures A-8 and A-9**).

Population growth in South Dade is clearly strongest in the west and south of SW 152nd Street, filling in the Urban Growth Boundary.

Employment growth in South Dade is more distributed, but focused on the US-1 corridor.

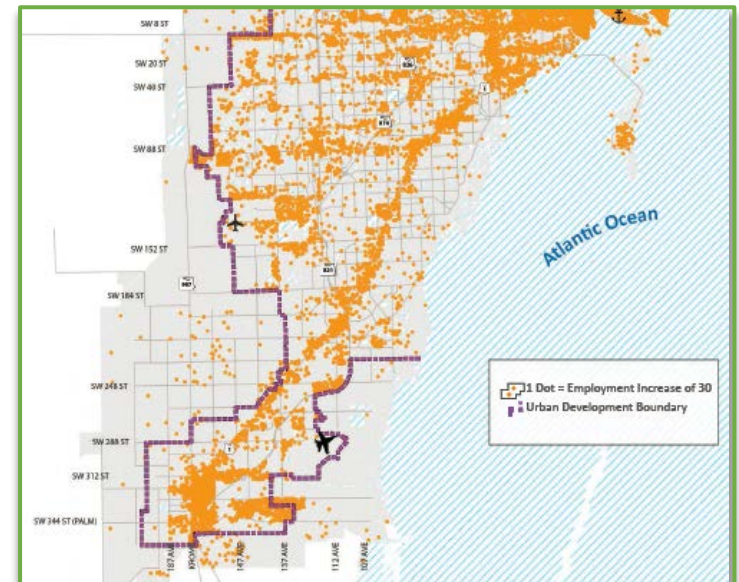
Figure A-10 through Figure A-14 and Table A-4 through Table A-8 show the Miami-Dade MPO LRTP planned projects for the South Dade region.

Figure A-8. Population Growth Map, 2010–2040



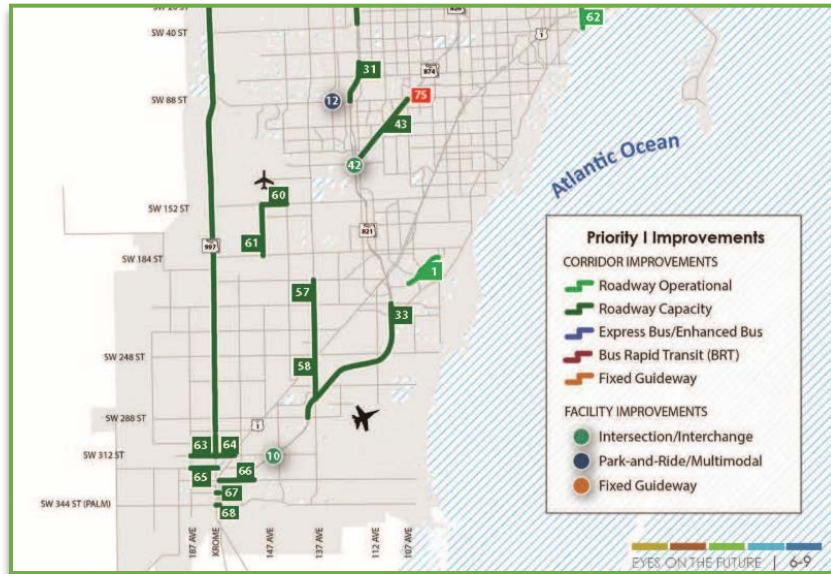
Source: Miami-Dade MPO 2040 LRTP

Figure A-9. Employment Growth Map, 2010–2040



Source: Miami-Dade MPO 2040 LRTP

Figure A-10. 2040 LRTP Priority I Improvements



Source: Miami-Dade MPO 2040 LRTP

Table A-4. 2040 LRTP Priority I Improvements Costs

MAP ID	PROJECT	LIMITS FROM	LIMITS TO	DESCRIPTION	TOTAL CAPITAL COST FUNDED VIA TIP	TOTAL CAPITAL COST (2013 \$)	PROJECT COSTS FUNDED via 2040 PLAN
1	Caribbean Blvd	Coral Sea Rd.	SW 87 Ave	Add center turn lane	\$4.467		
10	Improvements at SW 312 St. (Campbell) Interchange	SR-821 (HEFT)/SW 312 St (Campbell)		Interchange improvements	\$3.984		
12	Kendall Park and Ride Facility	SW 127 Ave/SW 88 St (Kendall)		Park-and-Ride facility with 160 spaces	\$0.741		
31	SR-821 (HEFT)	SW 88 St (Kendall)	60 St Canal Bridge	Add lanes and reconstruct	\$224.049		
33	SR-821 (HEFT)	SW 288 St	SW 216 St	Add lanes and reconstruct	\$80.267		
42	SR-874 (Don Shula) Ramp Connector	SW 128 St	SR-874 (Don Shula)	New connector ramp construction	\$103.421		
43	SR-874 (Don Shula)/Killian Parkway Interchange	SR-821 (HEFT)	SW 88 St (Kendall)	Mainline widening and interchange reconstruction	\$1.269		
57	SW 137 Ave.	US-1	SW 200 St	Completion as 2 continuous lanes	\$13.934		
58	SW 137 Ave.	SR-821	US-1	Add 2 lanes and reconstruct	\$6.949		
60	SW 152 St.	SW 157 Ave	SW 147 Ave	Add 2 lanes and reconstruct	\$2.351		
61	SW 157 Ave.	SW 184 St (Eureka)	SW 152 St (Coral Reef)	New 4 lane road construction	\$6.662		
63	SW 312 St. (Campbell)	SW 187 Ave	SW 177 Ave	Add 2 lanes and center turn lane and reconstruct	\$5.723		
64	SW 312 St. (Campbell)	SR-997 (Krome)	US-1	Widening existing lanes and reconstruct	\$13.181		
65	SW 320 St. (Mowry)	SW 187 Ave	Flagler Ave	Add 2 lanes and reconstruct	\$1.805		
66	SW 328 St.	US-1	SW 162 Ave	Add 2 lanes and reconstruct	\$2.146		
67	SW 336 St.	SR-997 (Krome)	US-1	Widen and resurface existing roadway	\$1.390		
68	SW 344 St (Palm)	SR-997 (Krome)	US-1	Widen and resurface existing roadway	\$0.890		

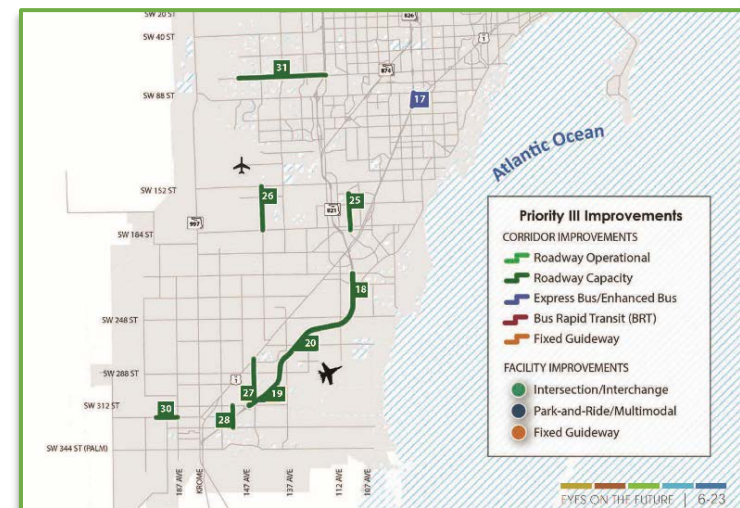
Source: Miami-Dade MPO 2040 LRTP

Figure A-11. 2040 L RTP Priority II Improvements



Source: Miami-Dade MPO 2040 L RTP

Figure A-12. 2040 L RTP Priority III Improvements



Source: Miami-Dade MPO 2040 L RTP

Table A-5. 2040 L RTP Priority II Improvements Costs

MAP ID	Project	Limits From	Limits To	Description	Total Capital Cost Funded via TIP	Total Capital Cost (2013 \$)	Project Costs Funded via 2040 Plan
2	Busway Park-and-Ride Facility	US-1 Busway	SW 104 St	Park-and-Ride facility with 250-300 surface parking spaces		\$0.116	\$1.581
6	Expand Overcapacity Park-and-Ride lot at SW 152 St			New parking garage with 500 parking spaces		\$16.250	\$22.333
14	Kendall Corridor (Kendall Enhanced Bus)**	West Kendall Transit Terminal	Dadeland North Metrorail Station	Incremental Improvement on PTP corridor	\$6.609	\$8.800	\$11.880
17	Metrorail Park-and-Ride Facility	At Dadeland South		Extend Park-and-Ride facility with 1000 parking space garage		\$25.000	\$34.541
31	SW 127 Ave	SW 120 St	SW 144 St	Add 2 lanes and new 4 lane road construction		\$10.118	\$13.536
32	SW 200 St	US-1	Quail Roost Dr	Add 2 lanes and reconstruct		\$11.211	\$15.279
34	SW 312 St (Campbell)	SW 152 Ave	SW 137 Ave	Add 2 lanes with left turn lanes and reconstruct		\$11.314	\$14.932
35	SW 320 St (Mowry)	SW 197 Ave, US-1	SW 187 Ave, SW 142 Ave	Add 2 lanes with left turn lanes and reconstruct		\$5.355	\$7.091

Source: Miami-Dade MPO 2040 L RTP

Table A-6. 2040 L RTP Priority III Improvements Costs

MAP ID	Project	Limits From	Limits To	Description	Total Capital Cost Funded via TIP	Total Capital Cost (2013 \$)	Project Costs Funded via 2040 Plan
17	Ramps between US-1 Busway and SR-826 (Palmetto)	US-1 Busway	SR-826 (Palmetto)	Construct ramps connecting the US-1 Busway to SR-826 (Palmetto)		\$60.000	\$93.384
18	SR-821 (HEFT)	SW 137 Ave	SW 216 St	Widen to 8 lanes, include express lanes for portion of project length		\$72.160	\$185.439
19	SR-821 (HEFT)	SW 312 (Campbell Dr)	SW 288 St	Widen to 6 lanes		\$36.080	\$66.947
20	SR-821 (HEFT)	SW 288 St	SW 137 Ave (Speedway)	Widen to 8 lanes		\$11.990	\$29.676
25	SW 107 Ave	Quail Roost Dr	SW 160 St	Add 2 lanes and reconstruct		\$11.295	\$18.280
26	SW 147 Ave	SW 184 St (Eureka)	SW 152 St (Coral Reef)	Add 2 lanes and reconstruct		\$13.359	\$21.626
27	SW 152 Ave	US-1	SW 312 (Campbell)	Add 2 lanes and reconstruct		\$11.220	\$18.276
28	SW 162 Ave (Farm Life)	SW 312 (Campbell)	SW 328 (Lucy)	Add 2 lanes and center turn lane and reconstruct		\$8.410	\$13.562
30	SW 320 St (Mowry)	SW 187 Ave, S. Dixie Hwy	SW 197 Ave, SW 142 Ave	Add 2 lanes and reconstruct		\$24.804	\$37.310

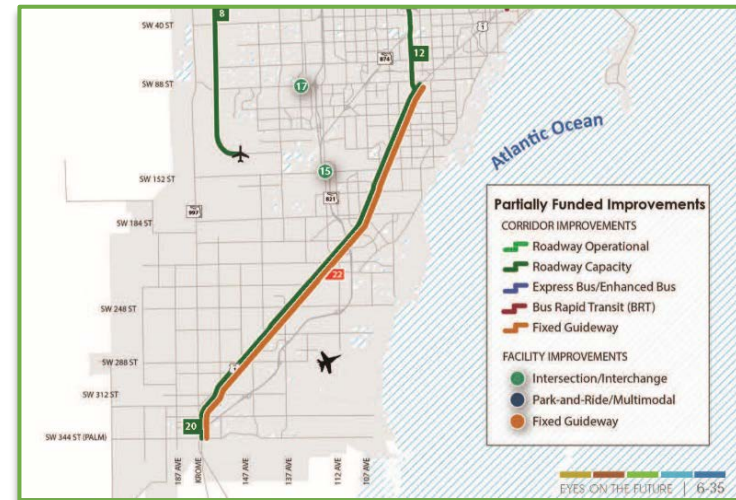
Source: Miami-Dade MPO 2040 L RTP

Figure A-13. 2040 LRTP Priority IV Improvements



Source: Miami-Dade MPO 2040 LRTP

Figure A-14. 2040 LRTP Partially Funded Improvements



Source: Miami-Dade MPO 2040 LRTP

Table A-7. 2040 LRTP Priority IV Improvements Costs

MAP ID	Project	Limits From	Limits To	Description	Total Capital Cost Funded via TIP	Total Capital Cost (2013 \$)	Project Costs Funded via 2040 Plan
5	North Canal DR	SW 162 Ave	SW 152 Ave	Add 2 lanes and divided roadway with left turn lanes		\$8,493	\$17,321
17	SR-821 (HEFT)	SR-874 (Don Shula)	Killian Pkwy	Widen to 10 lanes		\$52,742	\$101,973
23	SW 104 St	SW 147 Ave	SW 137 Ave	Add 2 lanes and reconstruct		\$7,568	\$15,442
24	SW 104 St	Hammocks Blvd	SW 147 Ave	Add 2 lanes and reconstruct		\$5,245	\$10,702
25	SW 120 St	SW 137 Ave	SW 117 Ave	Add 2 lanes and reconstruct		\$15,285	\$31,190
26	SW 137 Ave	US-1	SW 184 St	Add 2 lanes and reconstruct		\$10,466	\$21,581
28	SW 152 St (Coral Reef)	SR-821 (HEFT)	US-1	Add 2 lanes and reconstruct	\$1,750	\$64,607	\$131,153
30	SW 312 St (Campbell)	NW 14 Ave/SW 176 Ave	SW 197 Ave	Add 2 lanes and reconstruct		\$29,611	\$51,506
34	US-1	At SW 344 St (Palm)		Grade separated overpass		\$39,705	\$80,601

Source: Miami-Dade MPO 2040 LRTP

Table A-8. 2040 LRTP Priority IV Improvements Costs

MAP ID	Project	Limits From	Limits To	Description	Total Capital Cost Funded via TIP	Total Capital Cost (2013 \$)	Project Costs Funded via 2040 Plan
8	MDX SR-836 (Dolphin) SouthWest Extension***	Western Terminus of SR-836 (Dolphin)	SW 136 St	Extend SR-836 from NW 137 Ave to the Southwest Kendall area	\$7,490	\$808,000	\$681,900
12	SR-826 (Palmetto)	US-1/S Dixie Highway	SR-836 (Dolphin)	Managed Lanes	\$7,150		
15	SW 117 Ave/SW 152 St (Coral Reef) Grade Separation			Grade separate SW 117 Ave over SW 152 St (Coral Reef)		\$39,705	\$7,060
17	SW 88 St (Kendall)/SW 127 Ave Grade Separation			Grade separate SW 88 St (Kendall) over SW 127 Ave.		\$39,705	\$7,060
20	US-1 Managed Lanes***	SW 344 St (Palm)	Dadeland South Metrorail Station	Add 2/1 reversible new managed lanes within the ROW of the Busway	\$1,809	\$367,000	\$139,700
22	SMART Plan South Dade Transitway Corridor	Florida City	Dadeland South Metrorail Station	Conversion of US-1 Busway from Enhanced Bus Service to Light Rail Transit (LRT) and/or appropriate premium technology			\$7,000

Source: Miami-Dade MPO 2040 LRTP

MPO PROGRAM PRIORITIES FOR FDOT TENTATIVE WORK PROGRAM FISCAL YEARS 2016/17 TO 2020/21, MAY 2015

The purpose of this effort is to communicate to the State the priority projects approved by the MPO to be added in the “new 5th year” of the FDOT work program, which is by far the largest component of the TIP and is part of the overall TIP development process. The MPO Program Priority list is completed at the same time as the TIP development to ensure that it is available to FDOT at the beginning of the “gaming” exercise where FDOT develops the new 5th year of programmed and funded projects. The new 5th year priority projects flow from the second priority of the LRTP, and are brought into the TIP, which is the first priority of the LRTP.

The report goes on to list the projects that will advance from the second priority of the LRTP to the 5th year of the TIP. So by their nature, they are in the TIP and LRTP, covered elsewhere herein.

MPO TRANSPORTATION IMPROVE- MENT PROGRAM FISCAL YEARS 2015/16 TO 2019/20, MAY 2015

The Transportation Improvement Program (TIP), a major document of the Metropolitan Planning Organization (MPO) for the Miami Urbanized area, specifies proposed transportation improvements to be implemented in Miami-Dade County over the coming five years. The primary emphasis of the TIP is on the first three years. As required by federal regulations, projects receiving federal funds during the October 1, 2015 to September 30, 2020 time period are to be drawn from those listed in this document. In addition, projects not using federal funds, but which are part of the area's program of improvements, are shown in the TIP. Projects shown for FY 2016 and beyond, regardless of their funding source, are included as proposed. While it is anticipated that most of these projects will be implemented as programmed, they will be periodically evaluated by the MPO as the TIP is updated or amended as necessary. The TIP shows projects for a five-year time period. While the emphasis is on the first three years, presenting a five-year span allows for a more systematic forecast of funding needs during a five-year planning cycle and provides a more comprehensive view of the program for public information purposes. Included in the TIP are intermodal, highway, transit, aviation, seaport and non-motorized

improvements costing in excess of \$7.67 billion. The TIP enumerates the projects and costs over the five-year period, with funding sources identified.

This FY 2016 TIP also includes a section titled “Unfunded Priority Needs.” This section lists MPO priorities in addition to those already programmed in the TIP. The priority listing was developed for subsequent inclusion in the TIP as new revenues become available. The projects and priorities in this TIP are consistent with those in the adopted 2040 Transportation Plan.

As such, this reporting on South Dade planning can rely on the 2040 Plan with its broader timeline.

TRANSIT ORIENTED DEVELOPMENT REVIEW

Through discussion with local staff and in consideration of South Dade's land use and transit, the question posed was “how to engage a modal shift?”

Introduction

Transit Oriented Development (TOD) is a development created in the area of a public transportation station or public transit corridor. These developments are land uses which maximize and promote the use of public transit.

Such developments are conducive to the reduction of car usage and the promotion of multi-modalism. Additionally, TODs are seen as developments which provide for great sustainable alternatives to the unsustainable suburban development. TODs are a great tool in combating traffic congestion, and problems associated with sprawling, car-dominated communities and providing great economic impacts onto the local economy while using local transit infrastructure to its maximum potential. Below is a breakdown on the best practices of TODs.

According to the Institute for Transportation and Development Policy, a non-governmental non-profit organization that seeks to reduce greenhouse gas emissions and improve the quality of urban life by advancing sustainable transportation in cities around the world, TODs are considered successful if the following criteria are met:

1. Government Support:
 - a. Rezoning, to encourage mixes-use development around transit corridors
 - b. Creating comprehensive plans for the area
 - c. Actively reaching out to investors, marketing the program
 - d. Offering financial incentives

2. Land Potential:
 - a. Regional market strength in real estate value
 - b. Location of land downtown or in an attractive neighborhood
3. Transit System:
 - a. Quality of service
 - i. Frequency
 - ii. Hours of operation
 - iii. Amenities
 - b. Transit type (i.e., Bus Rapid Transit, Light Rail)

Below are a few examples of successful TOD projects.

Denver, Colorado

Denver's government agencies have invested into its TOD system. First government created a services of plans in order to promote such developments. It all started with the Regional plan for the Denver metropolitan area, Metro Vision 2020, which provided guidelines for open spaces and multi-modal transportation and urban center growth patterns.

Blueprint Denver

Later, the Blueprint Denver was created, establishing specific types of development should occur based on existing land use and transportation connections. The Blueprint organized the City into both Areas of Change and Areas of Stability.

In Areas of Change, growth is to be channeled to these areas where it is beneficial and can best improve access to jobs, housing and services with fewer and shorter auto trips. A major goal is to increase economic activity in the areas to benefit existing residents and businesses and provide the stimulus to redevelop. The following are area guiding principles to achieve such areas: contribute to urban design vision, respect valued attributes of area, contribute to economic vision, expand transportation choice and improve environmental quality.

The Areas of Stability, primarily the stable residential neighborhoods and their associated commercial areas, where limited change is expected. The goal for this area is to identify and maintain the character of an area while accommodating some new development and redevelopment. The following area guiding principles to achieve such areas: respect valued development patterns, respect valued attributes of area, respect adjoining property, expand transportation choice, minimize traffic impacts

on neighborhood streets and respect environmental quality.

The plan establishes concept land uses for all land in the city which includes building blocks and guiding principles for development character. It also establishes a street typology which brings together the function of a street with the land use character.

Denver Transit Oriented Development Strategic Plan

Denver evaluated most of its existing and planned transit stations in order to determine the priority of Transit Oriented Development for these stations. In the plan, 34 stations were evaluated and categorized in three categories. Strategize, is the category for stations which are still in pre-development planning because the rail line is not complete or due to market or development factors that make the TOD unlikely in the near term. Catalyze, is the second category, are station areas with above average market conditions for TOD, but with a need for specific infrastructure or amenity improvement to achieve the desired type of development. Energize, is the third category, are station areas where there are above average mar-

ket conditions for TOD and non-significant development or infrastructure deficiencies impeding TOD from occurring.

The stations were categorized depending on the ranking each station received in the following three analysis groups. The stations were analyzed by the level of market readiness (e.g. property values, household growth, employment growth, residential sales price, office rents, and retail rents). Then the stations were analyzed for development potential (e.g. planning completed to date, zoning, parcelization, vacant land, redevelopment land, ownership, infrastructure investment & needs). Lastly, the stations were analyzed for TOD characteristics (e.g. employment density, population density, physical form, community amenity access, park access, transit service, bicycle access, bike share and automobile ownership).

After categorizing the stations and prioritizing based on present conditions, the plan went on to recommend actions taken by the Denver government agencies in order to implement a successful TOD.

1. Administration and Management:
 - a. Establish a TOD Action Team
 - b. Appoint a TOD Steward
 - c. Explore emerging partnership opportunities to implement TOD

2. Community Planning and Development:
 - a. Integrate Transit Communities and TOD Principles into updates to the Comprehensive Plan and Blueprint Denver
 - b. Explore Opportunities for Non-Rail Station TOD Planning
3. Department of Public Works:
 - a. Evaluate Denver's role in transit planning and implementation
 - b. Apply parking management strategies at TOD
4. Department of Finance:
 - a. Utilize Denver TOD financing principles
 - i. *Venture Capture* – investment at rail stations results in accessibility improvements which translate to a larger walk shed and expanding the influence of the rail station on the surrounding area. The large influence area leads to greater development potential and appreciation in property values that could be utilized to generate revenue streams through the use of special districts or tax increment.

- ii. *Corridor Level Funding* – the revenue potential of value capture is multiplied by creating larger and broader districts.
- iii. Incentive
- iv. *Partnering* – the alignment of various stakeholder interest to achieve common goals. There are opportunities to create public private partnerships (P3s).
- b. Utilize Denver TOD financing mechanisms
 - i. Special Districts
 - 1) Improvement Districts – Creation of business Improvement Districts, General Improvement Districts and Special Improvement Districts.
 - 2) Metro districts
 - ii. Tax Increment Financing (TIF) - is a mechanism to capture incremental taxes that are created when a vacant or underutilized property is redeveloped to a higher and better use.
 - 1) Urban Renewal TIF
 - 2) Area-Wide TIF

- c. Create station area financing plans for designated “catalyze” stations.

5. Office of Economic Development

- a. Business recruitment strategies for TOD areas
- b. Housing and neighborhood development strategies for TOD areas
- c. Strategic Lending Tools for TOD areas
 - i. Key Strategic Projects that impact TOD

6. Parks and Recreation

- a. Park, Open Space, and Recreation Structure in TODs
- b. Completing the Vision for a City in a Park

With each plan, Denver created guidelines both regional and local in nature for each TOD and each transportation corridor planned in the city’s FasTrack transit system plan.

Government went an additional step forward in adding zoning changes, guidelines and regulations to promote such TOD developments. A rich mix of land uses that support transit ridership through high-intensity development was promoted.

The Denver local government also provided incentives through local and federal means. Funding through the voter-approved sales tax increase of 0.4 percent was the primary funding source of the FasTracks plan. Below are additional financial assistance, grants and tax programs put into place by Denver’s local government to finance such TODs.

- [Denver TOD Fund](#) – a \$2.2 million MacArthur Foundation, a partnership between the City of Denver and the Urban Land Conservancy and Enterprise Community Partners to foster affordable rental TOD housing.
- [Denver Livability Partnership](#) – awarded \$2.9 million from the U.S. Department of Housing and Urban Development and the Department of Transportation.
- [Metro Mayors Caucus TOD Fund](#) – \$50 million partnership between the Metro Mayors Caucus and the Colorado Housing Finance Authority to assist funding select affordable housing projects.
- [Station Area & Urban Center Planning Funds](#) – The Denver Regional Council of Governments (DRCOG) is aiming to locate 50 percent of new housing units

within urban centers as one of their regional sustainability goals. DRCOG has committed 3.5 million dollars in funding to assist local governments in developing station areas and urban centers.

- Awarded \$10 million from the [Transportation Investment Generating Economic Recovery grant](#).
- Federal Transit Administration awarded Denver's Regional Transportation District \$308 million through a [Full Funding Grant Agreement \(FFGA\)](#) to assist funding the West Corridor Project.
- [Denver Livability Partnership](#) – Grants used to provide affordable housing, and improve access to multi-modal connectivity along Denver's transit corridors.

The final step was the addition of transportation infrastructure along the corridor which was established by the FasTrack plan establishing 6.9 billion dollars for transit including 122 miles of heavy and light rail and 18 miles of BRT. Public/private partnerships were established with the local transit agency to provide private development along the established transit corridors and stations.

Denver is a true testament of good Transit Oriented Development involving all of the three criteria's critical to a successful TOD.

Cleveland, Ohio

Cleveland also created TOD planning initiatives along its Euclid Corridor BRT line, called the HealthLine. Cleveland first created a plan to construct a 9.2-mile BRT line connecting the Cleveland Clinic, downtown and University circle. The city then implemented a plan to bring TOD to downtown especially around the BRT line. Regional Transit Agency, RTA, developed TOD guidelines in order to work with community stakeholders and as well seek joint development opportunities. Additionally, the Cleveland government changed zoning codes and regulations around the Euclid Corridor transportation project to encourage TOD land uses. Other initiatives were also undertaken such as Pedestrian Retail Overlay District, Live-Work Overlay District and Planned Unit Development Overlay District.

Government also provided financial assistance, grants and tax programs. The Residential Tax Abatement gave 15-year, 100 percent property tax abatement for housing redevelopment through conversion of non-residential space. Tax Increment Financing supported public infrastructure projects. Storefront Renovation

Program offered rebates for commercial building rehabilitation and façade improvements.

The building of the 9.2-mile Euclid Corridor HealthLine was the culmination to the TOD Cleveland story. Providing high quality transportation opportunity at a fraction of the cost of a heavy rail corridor, the project cost about \$5 million per mile.

Public/Private partnerships also played a big role in creating a successful TOD in Cleveland. The Community Development Corporation(CDC), a non-profit organization, helped assist developers find tax breaks, facilitate renovation programs, developed TOD friendly building guidelines and is a liaison among property owners, developers and City and transit officials.

With all these plans, government assistance and private sector initiatives the Cleveland's BRT project, which cost \$50 million and created about \$5.8 billion in new transit oriented development, is one of the most successful transit corridor redevelopment stories in the United States. About \$114.54 dollars of new transit oriented investment for every dollar Cleveland invested into the BRT system, creating great economic return on investment. New development was not the result of transit investment alone, but an effort of the City government

channeling new development to the Health-Line. Also, the right institutional partners, including strong community development corporations, private foundations and municipal agencies in turn accessed a wide variety of financing options, assembled land and worked closely with developers.

Broward County, FL

Currently Broward County is in the process of redeveloping the county through its Long Range Transportation Plan (LRTP). The LRTP has established high capacity transit corridors, BRTs and new local bus routes with mobility hubs to provide development opportunities within those corridors. Mobility Hubs are a transit access point with frequent transit service, high development potential and a critical point for trip generation or transfers within the transit system.

Three types of mobility hubs were created to tie into the mentioned transit corridors.

Currently, a gateway hub¹ was classified for areas which exhibited high forecasted boarding and alighting's (greater than 2,200) within the future 2035 transit network in the LRTP. This hub is surrounded by high-density mixed use developments including downtown areas, transit oriented corridors (TOCs) and TODs

which provides connections for two or more high capacity (BRT, Rail) lines. **Figure A-16** is a picture of an example of a gateway hub concept.

Anchor hubs were classified for areas with moderate to high boarding and alighting's (1,500 to 2,200) forecasted in the future 2035 transit network. This hub is located near major institutions, employment centers, town centers and regional shopping centers that are similar to the local activity centers (LACs) and/or regional activity centers (RACs), which are served by at least one high capacity transit line. **Figure A-17** is a picture of such a hub.

The third mobility hub is the community hub which is more of a local or neighborhood center served by rapid bus transit and attracts more local trips than regional trips. **Figure A-18** is an example of a community hub concept.

The Hub concept has evolved as the Broward MPO has worked with partner agencies and local governments to design and implement the Hubs. There has been a greater focus on pedestrian and bicycle connections, secure and comfortable places to wait for transit, and safe and easy transfers between routes. These investments in public spaces provide the

Figure A-16. Broward County MPO Gateway Hub Concept



Source: Broward MPO

Figure A-17. Broward County MPO Anchor Hub Concept



Source: Broward MPO

framework for private investment in places where people live, work and play.

¹ The Broward MPO is rethinking these hubs and, perhaps, re-categorizing them.

Figure A-18. Broward County Community Hub Concept



Source: Broward MPO

South Dade Potential

All of these concepts of TOD can be used to help the South Dade area create economic development around its existing and future transit corridors. Especially areas located along the US-1 Busway corridor are key areas for redevelopment for TODs. Such development already exists in the northern areas of the South Dade study area along Kendall Drive and US-1. Municipalities such as Palmetto Bay and Cutler Bay have created charrettes to provide the ground work for what's needed in their areas, or development nodes. Additional action in areas south of Cutler Bay and in the Goulds, Princeton, Modelo and Homestead areas are

needed to promote additional usage of available land around the Busway transit stations. These areas show great potential in becoming future employment centers for the region, located along an extraordinary transit corridor and will provide economic development impacts for the region.

In following the TOD concepts mentioned above in Denver and in Broward County, a corridor TOD should be taken into account for the US-1 Busway. Within this corridor, employment centers should be clustered around Busway stations to develop greater density. **Table A-9** depicts the different kinds of centers depending on employment density and what types of transit can service these densities.

With this table in mind, stations on the Busway should be identified as one of the three transit centers.

By doing so priorities can be setup on centers which are densely populated, have more local government support, such as locations

where charrettes have already been done and where land is easily accessible.

The county and local agencies should look into providing additional funding assistance through grants, tax incentives and create private-public partnerships to spur TOD development in those areas. Local government agencies or non-for-profit entities should be created to develop a greater relationship with partners, such as developments and employment companies, to attract such developments and steward such partners through the incentives and process of creating TODs. The Institute for Transportation and Development Policy mentions that land potential doesn't play a strictly direct role in TOD success, a place with modest

Table A-9. Transit Centers

Community type	Transit Type	Gross Employment Density (Jobs/Acre)
Regional Center	Heavy Rail	200-250
	Light Rail/Commuter	100-200
	Bus Service/BRT	50-125
Community Center	Heavy Rail	65-90
	Light Rail/Commuter	45-60
	Bus Service/BRT	20-45
	Heavy Rail	20-30
Neighborhood Center	Light Rail/Commuter	15-20
	Bus Service/BRT	10-15

Source: A Framework for Florida Transit-Oriented Development in Florida Department of Transportation and Florida Department of Community Affairs, March 2011

land potential could still succeed if government intervention was strong. If a government does nothing to support TOD along the transit corridor, there will be no TOD impact.

Miami-Dade Transit also should look into developing a Busway system that is a complete Bus Rapid Transit System. Providing more amenities to improve on an infrastructure that's already existent should be imperative, and would provide more benefit dollar for dollar. The following improvements should be recommended:

1. Intersection treatments
2. Off-board fare collection
3. Passenger information
 - a. Estimated Time of Arrival signs
4. Safe and comfortable stations
5. Secure bicycle parking
6. Completion of the Underline

TRANSIT PROGRAMS

Transit Ridership may be encouraged by programs which subsidize transit costs and are available in Miami-Dade County.

Miami-Dade Transit Discount Programs

Currently, MDT provides four discount programs, below is a summary of each program.

Corporate Discount Program

The Corporate Discount Program (CDP) is a program through the rider's employer which provides pre-tax saving by obtaining monthly public transportation through a tax deduction under IRS Code 132(f). The CDP provides a one-month transit pass on the MDT EASY Card, good for a month of unlimited rides on Metrobus and Metrorail. Public and private companies, government agencies and non-profit organization are all eligible to participate in the program. There are three ways to participate:

1. The employee pays for the entire cost of monthly transit with pre-tax/set-aside dollars of their salary.
2. The employer pays for the entire cost of monthly transit through a tax-deductible subsidy.
3. The employer and employee share the cost of monthly transit, both paying for it with pre-tax dollars.

College Discount Program

This program allows for full-time students at local colleges, universities, technical and vocational schools to purchase the College EASY Ticket for \$56.25, half of the price of the original monthly pass (\$112.50). The college discount program is bought through the participating local college.

K-12 Discount Program

The K-12 discount program provides both registered public and private school students attending classes in Miami-Dade County to ride Metrobus and Metrorail for half the regular fare (inclusion of a daily, weekly or monthly pass). For the cost of two dollars, a student can register to obtain a K-12 EASY Card providing the reduced rate until the student graduates from high school.

County Employee Discount Pass

County employees receive a discount of \$95.65 for a monthly pass with pre-tax savings. The employees' transit expense is deducted from their paycheck before taxes and an EASY Card is automatically reloaded every month as long as the employee is in the program.

TASK 2.2 LEVEL OF SERVICE MAPPING

Land Use

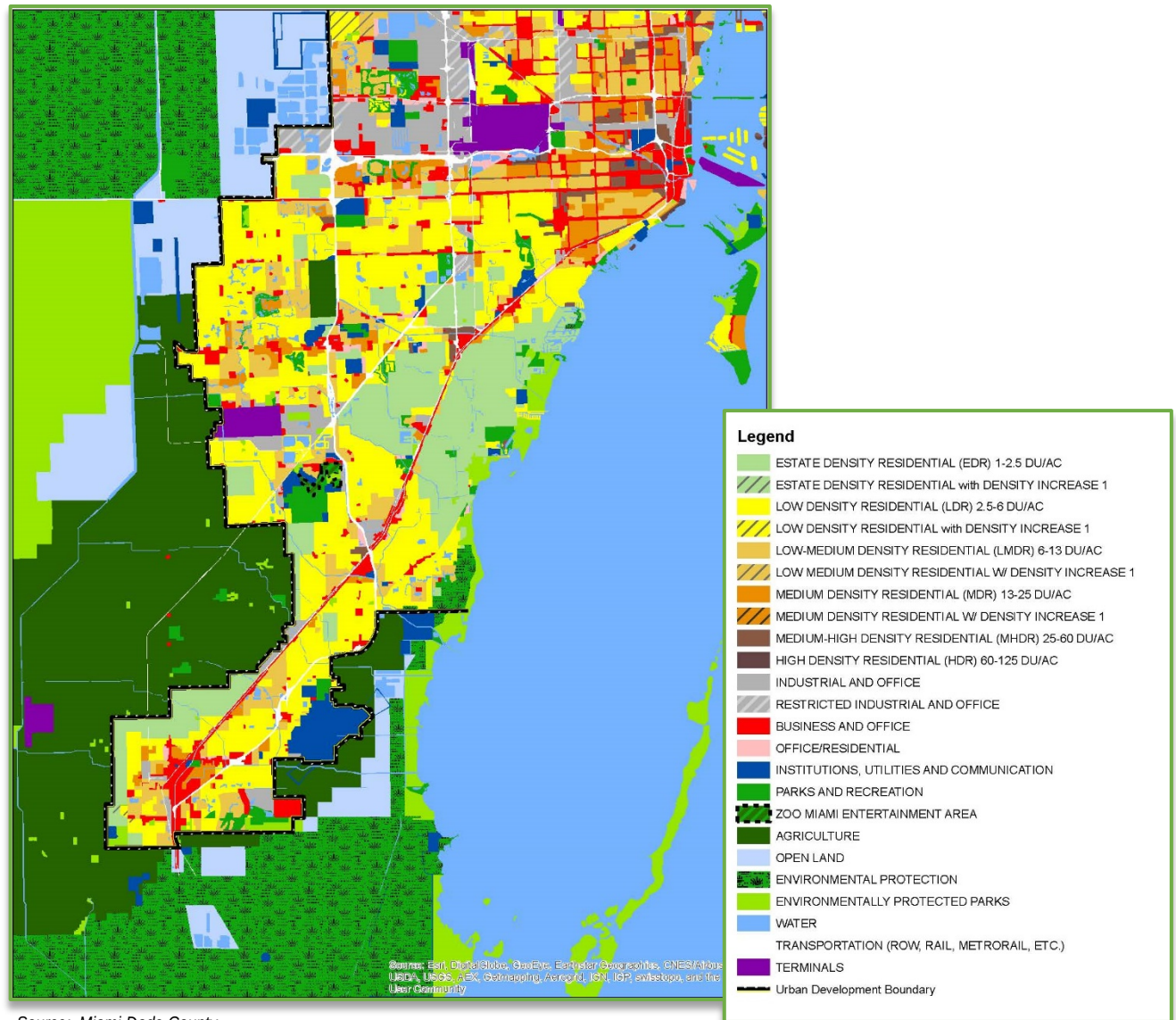
Task 2.2.1

In reviewing the land use of the South Dade area (**Figure A-19**), we find the following:

- Future Land Use – Mainly Estate and Low Density, with some Low-Medium Density
- Urban Development Boundary very close to Busway, “narrows” sub-regional development along corridor.
- South Dade is spread out, there is not much in the way of Centers/Hubs

As an offshoot of the Land Use analysis, we reviewed population estimates and projection to better ascertain potential future demand. This data was primarily extracted from the travel demand model. As the prior 2035 data highly optimistic and used historical trends with some skew bias, the newer 2040 data was utilized.

Figure A-19. Miami-Dade County Future Land Use Map



The population for the South Dade area was 532,092 in 2010, and expected based on the model to reach 758,446 in 2040. As we approach 2040, the average household size will be 3.22, rising from 3.06 in 2010 (**Table A-10**).

Employment also rises during this time period, and is projected to increase from 168,672 in 2010 to 276,819 in 2040 (**Table A-10**).

In mapping this growth in jobs and population, we find that densification is projected mainly along the US-1 corridor, with some additional growth in the Kendall area (**Figures A-20 and A-21**).

Jobs – Population Ratio

A primary indicator of potential need to travel for work can be found in a jobs-population ratio. While being at parity (Jobs: Worker Population = 1:1) does not necessarily mean people will live and work within the region, as other qualitative aspects, such as job skills to industry type also influence patterns, there is a higher likelihood and potential for this occur. Generally, a ratio of 1 to 1.5 will provide for balance; with higher numbers indicating a jobs rich area and a lower ratio indicating a bedroom community. There is evidence which suggests that in a larger area, a balanced job-housing ratio tends to exhibit shorter commuting distances, thus reducing VMT in the region.

The current population to jobs ratio is:

- 0.31 (2010)
- 0.36 (2040 Proj.)

With the average household size at 3.06, this essentially equates to one job or less per household; this population to job ratio thus indicates that South Dade is essentially overall a commuting community, and suggests that reducing regional VMT will require investment into land use and economic development, not transportation facilities such as road widening.

Jobs – Household Ratio

In looking at the jobs to household ratio, we find the following:

- 0.97 (2010)
- 1.18 (2040 Proj.)

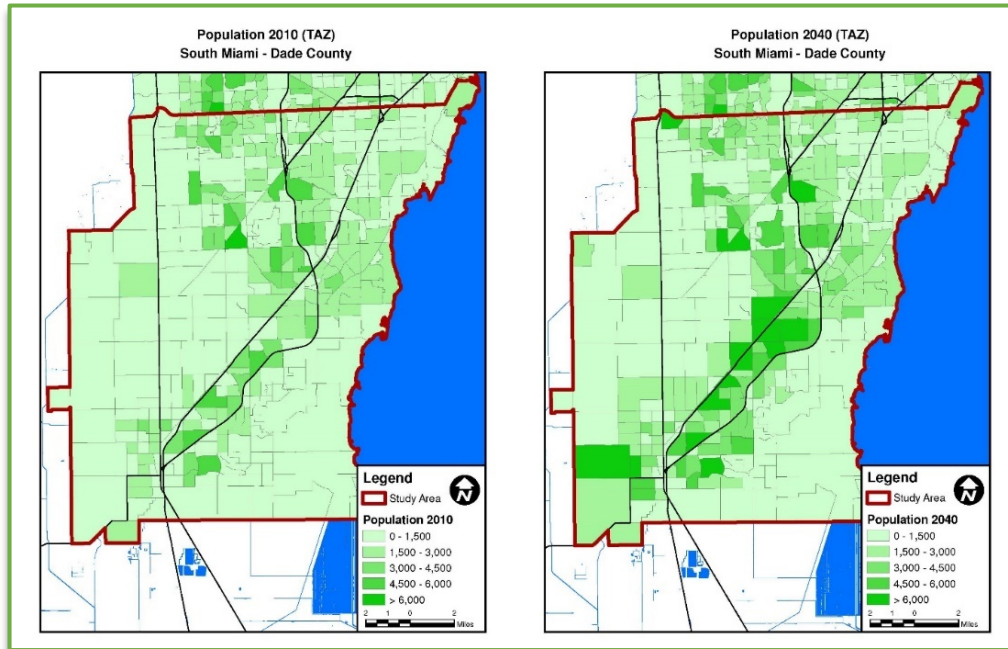
This is significant as this ratio only changes by 0.19; whereas the average household size changes by 0.16 in the same period. The small difference seen here is likely within a population's margin of error, and this shows that the number jobs is more or less only growing with the household size. Comparing the jobs and population increase, it seems as if there will be more job growth in the area versus population growth, and this is true. What this data also suggests, however, is that the difference in growth really is not all that large. Given the local factors, such as average income and observed changes in family size, the increase in household size would indicate more children or elderly member of the household, and thus more potential for a second person to need to work to make ends meet.

Table A-10. Comparison of 2030 and 2040 SE Data for South Link Corridor and Miami-Dade County

Study Area	2030 HH	2040 HH	2040-2030 % HH Diff	2030 POP	2040 POP	2040-2030 % POP Diff	2030 EMP	2040 EMP	2040-2030 % EMP Diff
Corridor	81,885	86,068	5%	255,881	261,336	2%	101,425	128,349	27%
South County Portion	165,402	137,645	-17%	511,003	466,700	-9%	103,308	148,310	44%
South County	247,287	223,713	-10%	766,884	728,036	-5%	204,733	276,659	35%
Rest of County	837,603	933,089	11%	2,382,407	2,374,102	0%	1,385,504	1,328,898	-4%
Miami-Dade Totals	1,084,890	1,156,802	7%	3,149,291	3,102,138	-1%	1,590,237	1,605,557	1%

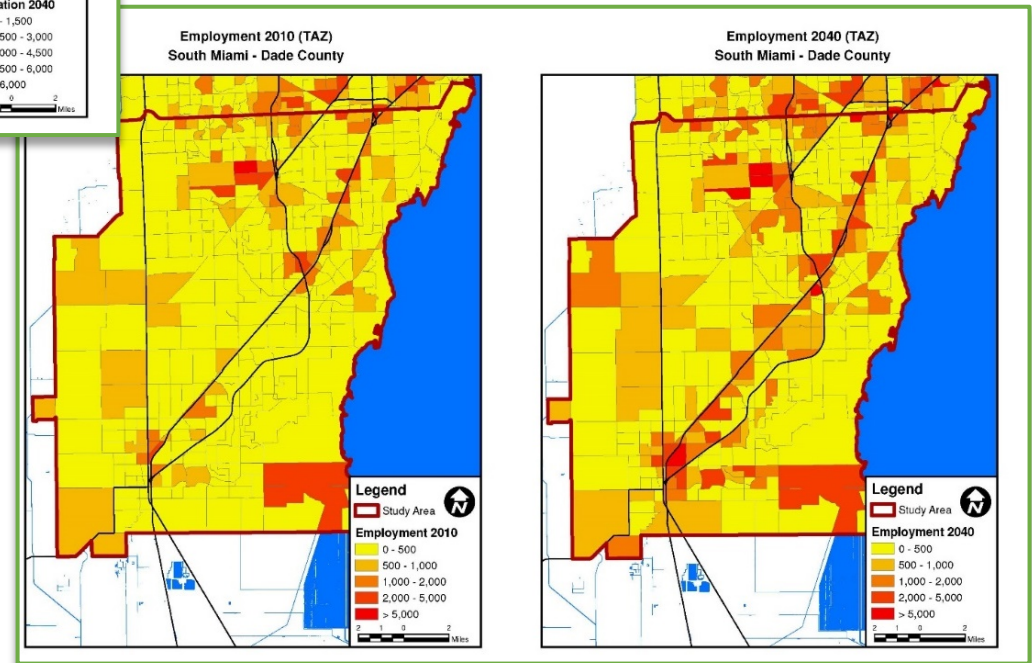
Source: South Miami-Dade Transit Corridor Study 2015 Update

Figure A-20. 2010 and 2040 Projected Populations in South Miami-Dade County



Source: SERPM7, The Corradino Group

Figure A-21. 2010 and 2040 Projected Employment in South Miami-Dade County



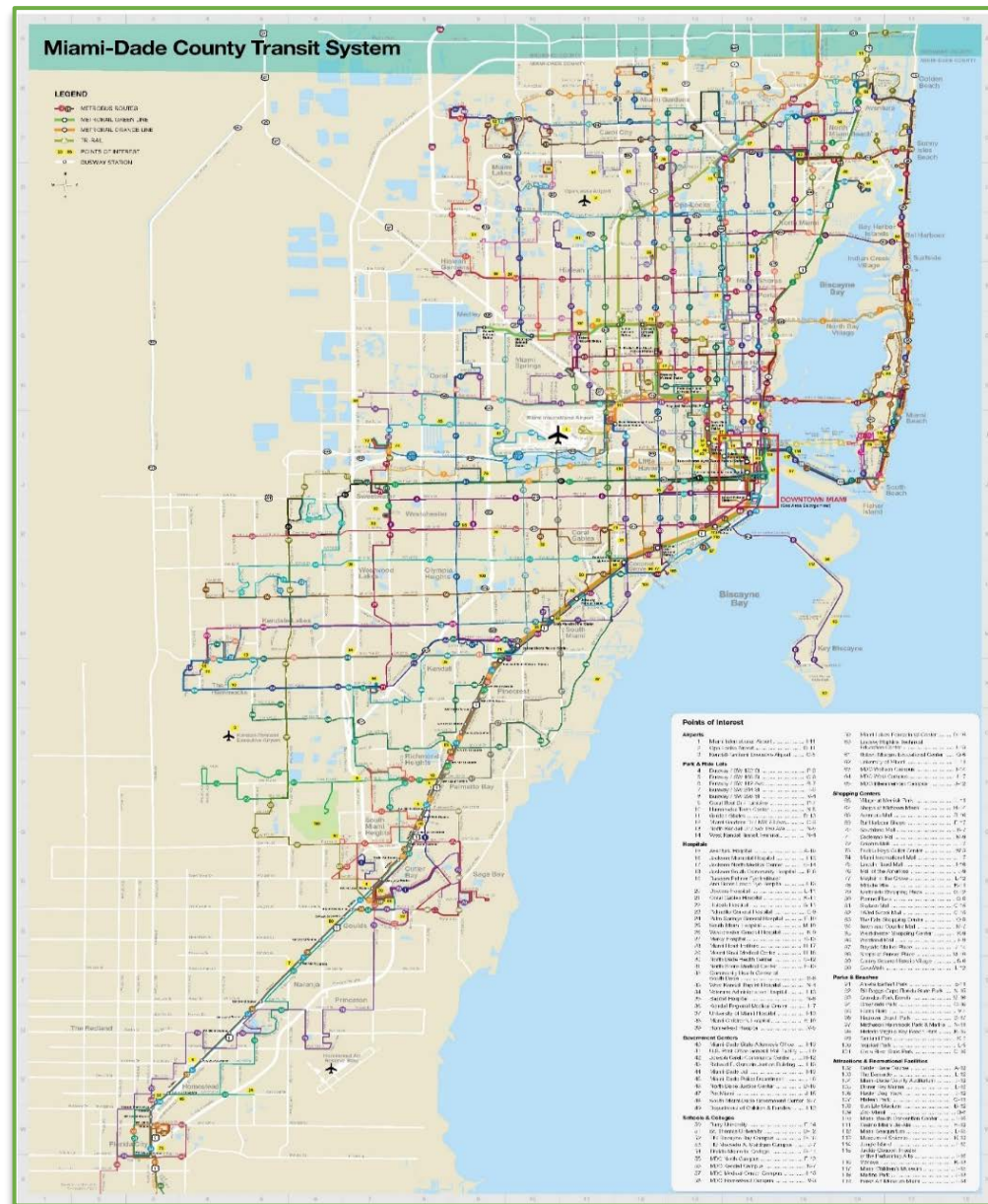
Source: SERPM7, The Corradino Group

Task 2.2.2 Transit

The following transit maps (**Figures A-22 through A-25**) show the routes and extent of range for the Miami-Dade Transit system, as well as the general coverage area of the routes. Transit provision in South Dade, from a theoretical standpoint, is very high. However, when we take the Comprehensive Plan standard of 30-min headways (in areas with $\geq 10,000$ persons/sq. mi.) in a $\frac{1}{2}$ mi. corridor, we find that coverage is much less. The difference between the two involves busing with peak headways of 30 minutes versus busing with peak headways of up to one hour. As the time between buses increase, the likelihood that transit is based on choice decreases. After all, why wait when you can drive and why not, when you have the means? Lower headways are important to enabling modal shift through capture of choice riders.

We further refined the traditional ½ mile bubble by utilizing the existing network to display a walking distance, as land use and available facilities limit the range from the bus stop. In seeing that map, we find that gaps exist in South Dade, for which local feeder routes should be explored in order to provide better service.

Figure A-22. Miami-Dade County Transit Network



Source: Miami-Dade Transit

Figure A-23. Half-mile Service Area – South Dade

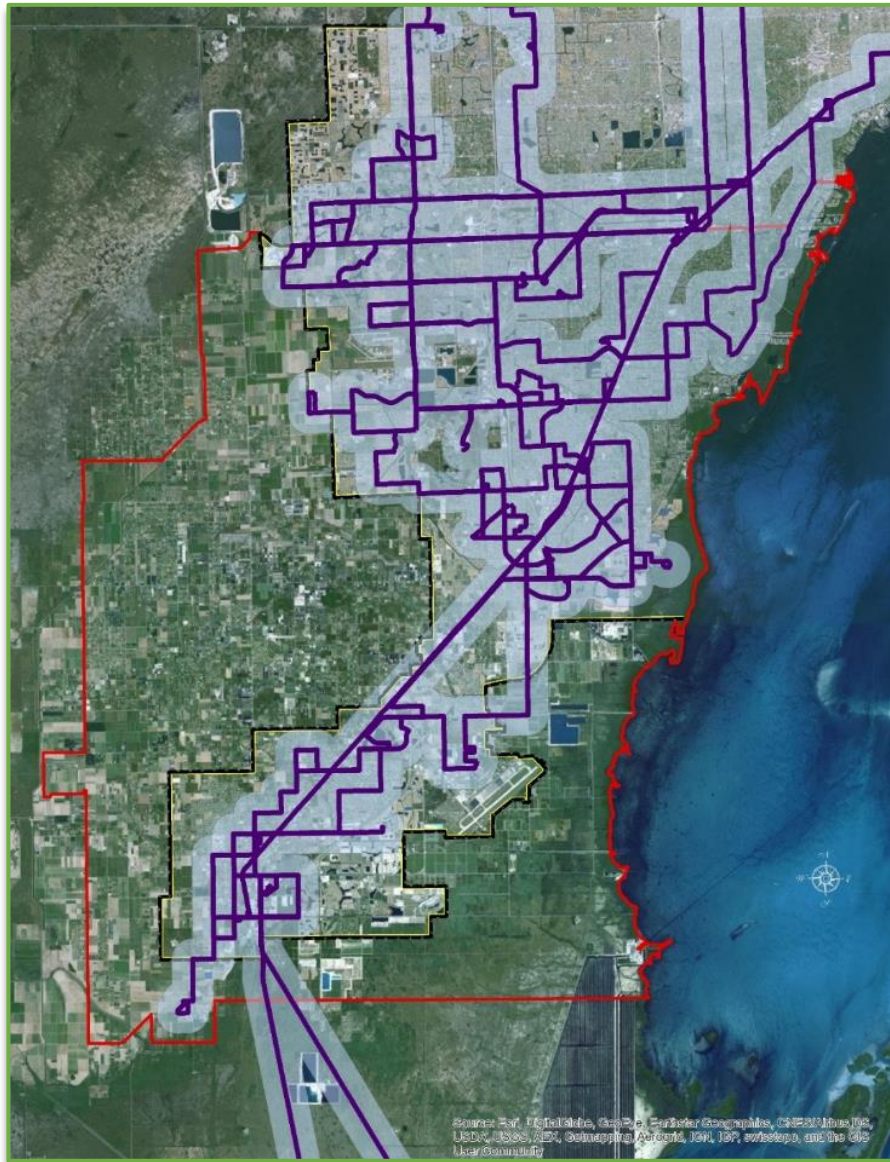


Figure A-24. Half-mile Service Area, Routes with Regular Off-peak Service

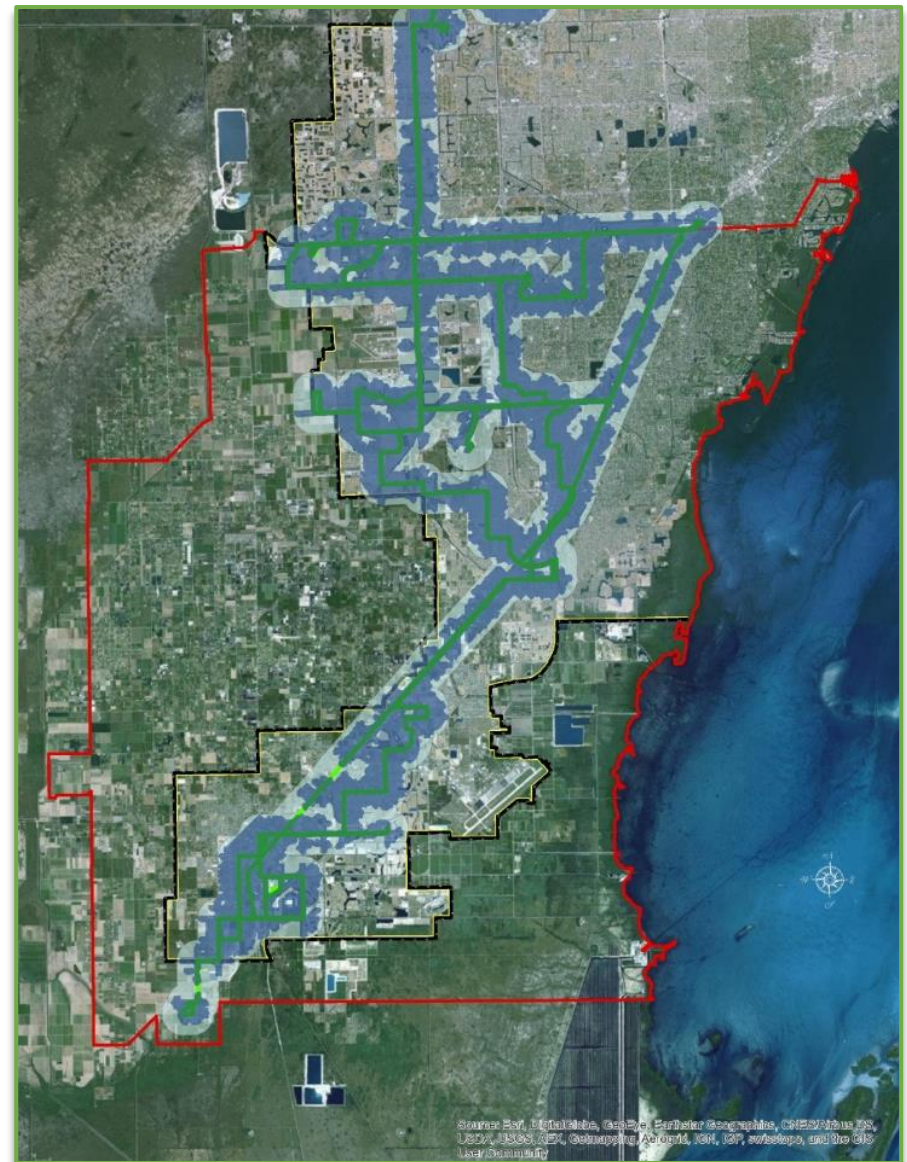
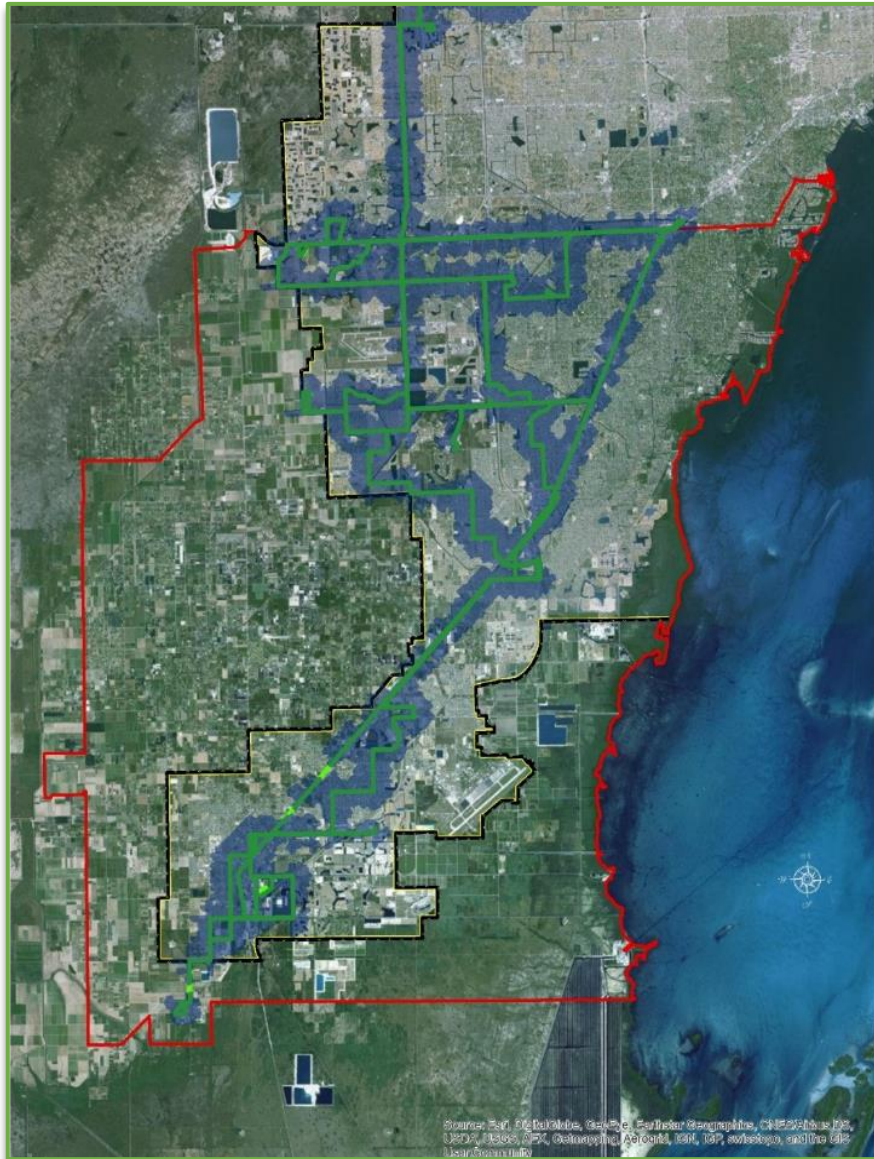


Figure A-25. Effective Transit Coverage Based on Half-mile Pedestrian Shed



Task 2.2.3 Bicycling Facilities

The local shared-use trails in the South-Dade Region can be categorized as one of three types of bike routes, these being: *Protected Bike Lanes*, *Neighborhood Greenways*, and *Urban Trails*.

Bicycling is a growing form of active transportation, commuting on a bike provides an alternative to the congested roadways and provides, at times, a time reduction on a commute while enjoying the scenery.

There are also added health benefits that make biking an ideal transportation alternative, the American Health Association latest statistics state that the average cyclist pedaling at only 10mph burns about 400 calories an hour. Their studies also

emphasize that biking a few times a week reduces blood pressure and stress while increasing energy and elevating overall mood. Other advantages of bicycling and walking reach beyond transportation effects, such as fuel cost savings, a reduced carbon footprint, and it's an ideal way to achieve recommended levels of physical activity.

A good biking infrastructure can also improve local economy. Every year new studies demonstrate the economic impacts of bicycling – recent examples include Chicago, Iowa, Minneapolis, Vermont, and Wisconsin and if we look as far as foreign nations, France's *VELIB* bike transportations master plan is nothing short of a complete success. The evidence demonstrates that investments in bicycling infrastructure make good economic sense as a cost-effective way to enhance shopping districts and communities, generate tourism and support business. The best way to attract people who ride bikes and accrue all of these benefits is by building infrastructure that makes it more attractive for people to ride. Building that infrastructure creates jobs, and it does so extremely cost-effectively. In fact, there's no better job-creating bang for your transportation buck.²

But for a bike trail to be successful a number of factors need to be carefully planned, reviewed

² Advocacy Advance, *Bicycling Means Business*

and implemented. For example, the land used and its surroundings must meet a set of optimal conditions. Properly understanding this conditions can optimize the result of the bikeway infrastructure. This means understanding factor like the need for bikeway designs that are comfortable and lower-stress for people of all abilities.

Type of Bicycle Facilities and Their Definitions:

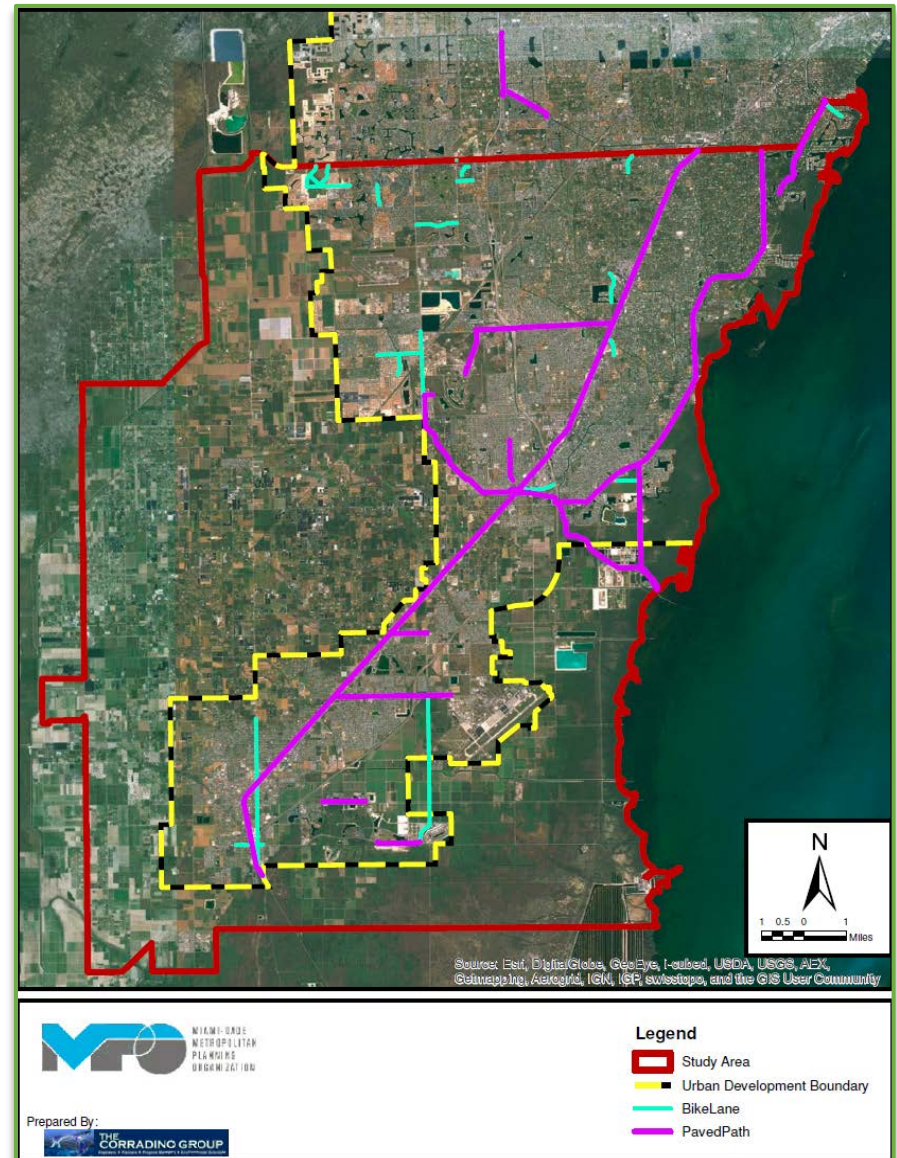
- **Protected Bike Lanes:** Low-stress bike corridors on key streets between neighborhoods that use physically protected bike lanes to create an experience similar to riding on an off-street trail.
- **Neighborhood Greenways:** Local networks of well-marked routes on quiet neighborhood streets optimized for bikes with pavement markings and other treatments, like curb bump-outs and contraflow lanes.
- **Urban Trails:** A connected network of off-street paths along corridors that provides the ultimate low-stress biking experience for people of any age or skill level. There are about five local shared-use trails located in the region.

Figure A-26 is a map indicating the trails listed along with the county's bike lanes. As can be seen from this map, the bicycle network within

South Dade is limited; where there are paved pathways, and bicycle lanes, generally, the bicycle level of service ranges from A to C. However, the coverage of the network is currently such that there is a single spine, with some parallel corridors to access this network spine, but access is limited. Additional east-west corridors would raise the bicycle level of service in various areas of South Dade.

The challenge is recognized to design city streets to be safe and welcoming to cyclists. Unique urban streets require innovative solutions such as those in the NACTO Urban Bikeway Design Guide. It should be standard practice to create safe bicycling conditions that result in a comprehensive street improvement strategy that result in better places.

Figure A-26. Regional Bike Trails



Source: The Corradino Group

Summary of Existing Trails:

- **South Dade Trail (Bike Route M) (MIXED URBAN/PROTECTED TRAIL)** – The South Dade trail is a complex but diversified trail. It consists of a 20.5-mile path with bike access parallel to US-1, located just west of the Busway. The trail starts on the north end, at the terminus of the Underline/East Coast Greenway, located at the Dadeland South Metrorail station and runs south through all of the South-Dade communities ending at Florida City. Land use along this trail makes it conducive for both utilitarian and recreational usage with both major commercial areas and institutional areas located up and down the US-1 corridor.
- **Old Cutler Road Trail (Bike Route 1) (URBAN TRAIL)** – This particular trail is located in the eastern part of the study area. Conformed of 11.8 miles long track, it provides bike access running north and south parallel to Old Cutler Road. The trail starts on Cocoplum Rd. and Sunset Drive (SW 72nd Street), in the City of Coral Gables, to the north and runs south along the historical roadway, similar to the South Dade trail, through most of the South-Dade communities and ends at SW 216th Street in the Town of Cutler Bay. This trail is mostly used for recreational purposes due to its proximity to

parks and other recreational areas. The land uses around the trail do not make it conducive for utilitarian usage due to the primarily residential suburban land use for the exception of the school areas along the trail. The trail also provides connection to the Commodore, the Red Road and the Biscayne Trails.

- **Black Creek Trail (Bike Route 7) (URBAN TRAIL)** – Unlike the previous two regional trails, the Black Creek trail runs along the Black Creek (C-1) Canal and starts at the Larry and Penny Thompson County Park, next to ZooMiami, and makes its way in a southeasterly direction to the Black Point Park and Marina at SW 244th St. With 8.3 miles in length, it is mostly used for recreation but does provide some access for residents to commercial areas along the route. The trail also intersects with the South Dade, Old Cutler Road and Biscayne Trails.
- **Coral Reef Trail (Bike Route 10) (MIXED PROTECTED/URBAN TRAIL)** – The four point four (4.4) miles trail connects east-to-west along Coral Reef Drive (SW 152nd Street) from US-1 at the US-1 SW 152nd Street park-and-ride west to ZooMiami. Unlike the above mention trails, the Coral Reef trail is a widened sidewalk with a green marked area signifying the

bike trail. This bike trail has a good mixture of recreational usage and utilitarian usage due to the mix in land uses from one end of the corridor to the other. The eastern side contains a medical facility (Jackson South), a library and other commercial areas along with a public park. Additionally, on the eastern end the trail connects with the South Dade Trail. On the western end the trail connects to more residential, commercial, and institutional uses.

- **Biscayne Trail (GREENWAY TRAIL)** – The Biscayne trail stretches a distance of 2.5 miles. It connects the Old Cutler Trail with the Black Point Park and Marina. Additionally, the north-south trail runs adjacent to SW 87th Avenue and provides a connection to the Black Creek Trail, located in the Town of Cutler Bay. With the exception of the school area, the trail is mostly used for recreational activity.
- **Snapper Creek Trail (Bike Route 3) (GREENWAY TRAIL)** – The Snapper Creek trail is a distance of 2.7 miles. Located north of the South Dade Study limit, it runs parallel to SW 117th Avenue to the west of its location. With beginnings just south of Bird Road (SW 40th Street/SR-976) it extends to a stretch that runs parallel to the roadway and the Snapper

Creek (C-2) Canal ending north of Sunset Drive (SW 72nd Street/SR-986). Connecting mostly suburban residential areas, the trail is considered a recreational trail, offering a calm quite ambiance for its user.

While most of the shared-use trails in South-Dade maybe used for utilitarian purposes, currently the trails are mostly being used for recreational purposes. This can be due to the lack of connectivity to main commercial centers in the region and the reality that most of the South-Dade region's land use is mostly residential, suburban in nature, not containing much of an employment area. This causes long commutes in both distance and time, which is not conducive for utilitarian usage. Additionally, most of the bike trails provide great access to parks and other recreational attractions in the region.

Table A-11 lists the projects currently planned for implementation in the Miami-Dade MPO 2040 LRTP. As stated earlier, the goal is to create a bicycle network consisting of bicycle lanes, bicycle boulevards, shared-use streets and off-street paths. Bicycle mode share is likely to increase by creating options for different types of cyclists with different needs. Then, the interested and concerned will become more comfortable with bicycling.

However, additional projects need to be created and implemented in order to complete the regional trails and/or build upon by adding branching connector trails. The existing system, as could be seen in **Figure A-26**, relies on US-1 as a spine. While this is a vital facility, there are few connections for safe bicycle riding which extend into the neighborhoods of South Dade. The creation of new connector trails will connect to neighborhoods and places of business, creating a seamless bike network. These trails should exist between the regional trails and major traffic generators such as major shopping malls, schools and colleges, hospitals, job centers, transit stops, and other locations of local importance.

Table A-11. LRTP Projects in Miami-Dade MPO 2040

Priority	Project #	Project Roadway	Limits	Project Description
1 (2015-2020)	NM7&24	SW 216 St	HEFT to SW 127 Ave	Bicycle/Pedestrian Improvements
	NM8	SW 268 St	US-1 to SW 112 Ave	Bicycle/Pedestrian Improvements
	NM12	SW 176 St/Hibiscus St	SW 107 Ave to US-1	Bicycle/Pedestrian Improvements
	NM13	SW 137 Ave	HEFT to US-1	Bicycle/Pedestrian Improvements
	NM16	M-Path GreenLink	SW 67 Ave to Miami River Greenway	Trail Improvements
	NM19	Biscayne Trail "C"	Biscayne National Park to Black Point Park	Trail Improvements
	NM21	SW 328 St	SW 187 Ave to SW 162 Ave	Bicycle Facility Improvements
	NM22	SW 268 St	S. Dixie Highway to SW 112 Ave	Bicycle Facility Improvements
	NM23	SW 112 Ave	SW 256 St to SW 248 St	Bicycle Facility Improvements
	NM25	Caribbean Blvd	Marlin Rd to SW 87 Ave	Bicycle Facility Improvements
	NM26	SW 112 Ave	SW 117 Ave to SW 152 St	Bicycle Facility Improvements
	NM28	SW 104 St	SW 77 Ave to SW 57 Ave	Bicycle Facility Improvements
	NM29	SW 77 Ave	SW 104 St to SW 136 St	Bicycle Facility Improvements
	NM30	SW 128 St	SW 77 Ave to US-1	Bicycle Facility Improvements
	NM31	SW 124 St	SW 77 Ave to US-1	Bicycle Facility Improvements
2 (2021-2025)	NM44	Krome Trail	Homestead to SW 8 St (Tamiami)	Bicycle Facility Improvements
	NM	SW 264 St	US-1 to SW 137 Ave	Bicycle Facility Improvements
	NM	Old Cutler Rd Path Phase 2	SW 136 St to SW 72 St	Trail Improvements
	NM	South Dade Greenway Bridges	Biscayne and Black Creek Trail Bridges	Trail Improvements
	NM	Biscayne Trail "D"	US-1 to Biscayne National Park	Trail Improvements
4 (2031-2040)	NM90	Snapper Creek Trail "B"	SW 94 Ave/K-Land Park to SW 57 Ave	Trail Improvements
	NM51	Snapper Creek Trail "A"	K-Land Park/SW 88 St to SW 72 St	Trail Improvements
	NM52	Snapper Creek Trail "A"	SW 72 St to SW 8 St/FIU	Trail Improvements
	NM58	SW side of SW 117 Ave	Roberta Hunter Park to South Dade Trail & Black Creek Trail Junction	Trail Improvements
	NM70	Black Creek Trail "B"	Larry and Penny Thompson Park to Krome Trail	Trail Improvements
	NM138	SW 137 Ave	US-1 to SW 184 St	Bicycle Facility Improvements
	NM145	SW 344 St	SW 192 Ave to NW 6 Ave	Bicycle Facility Improvements
	NM 146	SW 192 Ave	SW 344 St to SW 376 St	Bicycle/Pedestrian Improvements
	NM147	SW 376 Ave	Ingraham Highway to SW 192 Ave	Bicycle Facility Improvements
	NM148	Ingraham Highway	SW 376 St to SW 392 St	Bicycle Facility Improvements
	NM 149	SW 392 St	Ingraham Highway to Everglades National Park	Bicycle Facility Improvements
	NM152	SW 137 Ave	SW 288 St to SR-821(HEFT)	Bicycle Facility Improvements

Source: Miami-Dade MPO 2040 LRTP

EXISTING BICYCLE CORRIDORS ANALYSIS

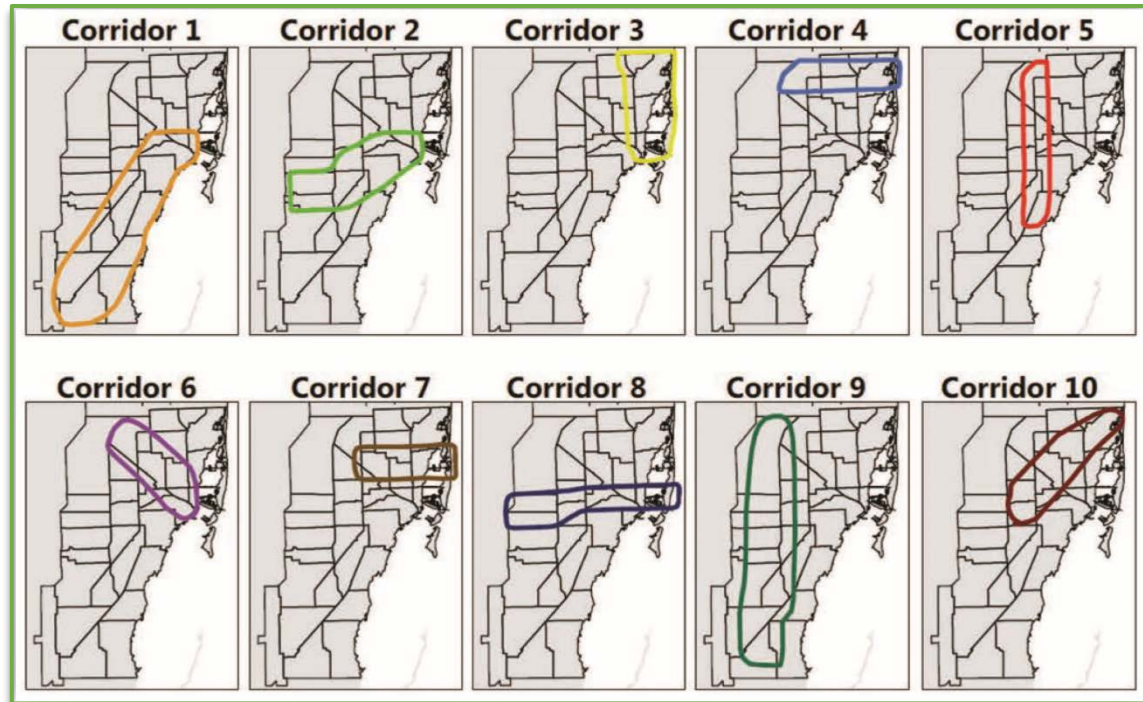
In the Miami-Dade County MPO's 2040 Long Range Transportation Plan (LRTP) ten corridors were identified using the Mobility Needs Assessment Tool (MNAT) based on dominant travel patterns within the County (**Figure A-27**). The average width and length of a given corridor is five miles and 17 miles, respectively. Out of the ten corridors, four corridors are present within the South Dade regional area. These corridors include: **Southwest US-1 (Corridor 1)**, **Kendall Downtown (Corridor 2)**, **Northeast Kendall NS (Corridor 10)** and **West County (Corridor 9)**. In this section of the study the current conditions of these four corridors will be analyzed along with the possibility of future improvements.

Southwest US-1

The Southwest US-1 Corridor is a multi-lane roadway that travels through the South Dade corridor with links for interstate travel. It is one of the primary highways serving the rapidly growing metropolitan region.

Mainly consisting of South Dixie Highway, the six-lane principle arterial connects all of South Dade to the Downtown Miami area, from a northeast-southwest direction (including a connection the Monroe county). No other

Figure A-27. 2040 LRTP Mobility Needs Assessment Tool Corridors



Source: Miami-Dade MPO 2040 LRTP

roadway in South Dade can emulate the travel pattern of US-1, other roadways may provide traffic relief assistance, such as Old Cutler Road, but no other infrastructure is able to provide direct regional access as US-1 does. This is what makes Southwest US-1 such an important centric point of access.

Due to increasing developmental pressures and the existing traffic congestion along portions of US-1, many studies have established the need to develop a comprehensive multi-modal transportation plan for the corridor.

As a result, the US-1 corridor is mostly built out in terms of roadway capacity, especially in the

northern areas of South Dade (from SW 88th Street to SW 216th Street). Yet few areas of commercial development have reached there allowed intensity. It can be anticipated that over the study horizon, land use intensities along the corridor will intensify to their as of right allowances.

The areas closest to Kendall Drive provide the most mixed land uses and higher densities. As a result, both Metrorail green and orange lines terminate in this area, which is known as Downtown Kendall. Both Dadeland South and North Metrorail stations provide access to the Downtown Kendall area, where major generators exist such as the Dadeland Mall and other commercial and residential developments of greater densities. Most of the Downtown Kendall area was developed with guidance and direction from the Downtown Kendall Charrette, which created and is still today growing into a great urban area. As we go down the US-1 Corridor we will find few pockets of development and/or future planned development that have the same intensions at mind.

South and East of the Downtown Kendall area is the Village of Pinecrest. Within this area US-1 is lined mostly with shopping centers, which have not reached their as of right zoning limits in height, density or floor area ratio. These front residential neighborhoods consisting of low density or estate density residential. In

connection with the Metrorail system, the Busway provides extraordinary transit service parallel to US-1 to the South Dade region south of the Dadeland South Metrorail station. Most of the major intersections along the US-1 corridor are aligned with Busway stations, many with park-n-ride locations, and commercial strip malls. Municipalities such as the Village of Palmetto Bay and Town of Cutler Bay have created Charrettes providing developers and government with a clear perspective and guidance on how to develop their downtown areas similar to the Downtown Kendall Charrette.

Between SW 128th Street and SW 144th Street to the west, there is a sector of mixed land use that consists of a mix between industrial areas, commercial areas and residential areas. Also located within the area is the Falls Shopping Mall, which is a regional generator of traffic. To the south and west of the shopping mall are more density populated residential areas surrounded by more suburban residential areas.

At Coral Reef Drive (SW 152nd Street) provides more mixed uses between institutional land uses, such as Jackson South Hospital, Coral Reef Library and commercial strip malls. Additionally, there is a park-n-ride located on the south western corner of the intersection for the Busway station next to the Palmetto Golf Course.

From SW 168th Street to SW 184th Avenue is the start of a more mixed use land use alongside US-1, the Village of Palmetto Bay's Village Hall is located in this area as well as other commercial and industrial uses. The Village has done a charrette in this area to provide more density and much more of an urban setting of significantly less intensity than Downtown Kendall.

Between SW 200th Street and SW 211st Street is another node of mixed use located within the Town of Cutler Bay. Within this area is the Southridge Mall mixed with other commercial areas including denser commercial and institutional uses such as the South Dade Government Center and the location of the Town's Hall. This area has also been Charrette by the Town to provide more guidance in the development of a denser and urban area very similar in nature to the Dadeland area. Located along US-1 and SW 112nd Avenue, to the northwest is another park-n-ride facility for the Busway station. It also should be noted that the Homestead Extension of the Florida Turnpike (SR-821) crosses US-1 just to the north of this area, causing this area to be the central hub for the region.

South of this area SR-821 runs parallel to US-1 to Florida City. At SW 211th Street, US-1 is reduced to a four-lane facility due to the more rural nature of the area till the City of Homestead. The Urban Development Boundary Line (UDB)

around this area is as close as a half-mile from US-1, and has created more of an agricultural use mixed with rural residential and suburban residential areas. At the intersection of US-1 and SW 244th Street is the location of the fourth Busway station park-n-ride, located in the Princeton neighborhood.

South of SW 280th Street the urban boundary opens up and the area along the US-1 corridor becomes more developed with suburban residential developments and commercial strip malls. At the intersection of SW 296th Street and US-1 is the location of the fifth Busway station park-n-ride. As US-1 runs south the development trend becomes more urban the closer the corridor gets to downtown Homestead and Florida City. The fifth and final Busway station and park-n-ride is located at SW 344th Street in the Florida City. Further to the south, Krome Avenue (SW 177 Ave, SR-997) merges with US-1 and the SR-821. The southern area of the US-1 corridor has the most potential for development compared to areas in the northern area of the corridor, which have been built out. The Florida East Coast (FEC) first developed the corridor; the South Dade Busway is actually located in what was the FEC railroad.

According to the models run in the LRTP, trips made along this corridor are usually towards the Downtown Miami, Downtown Coral Gables, Miami International Airport, Downtown

Kendall and the Kendall Baptist Hospital area. As a result, MDT and the Miami-Dade Expressway Agency (MDX) has been studying the use of the busway as an express lane, using the existing infrastructure more efficiently. MDX has studied building overpasses at major intersection along the Busway where delays maybe currently occurring on the buses servicing the route. Additionally, other alternative uses should be looked into such as regional bike corridors. The completion of the M-Path would give commuters of this corridor an additional alternative vs riding in a car or bus.

With all issues, attacking a problem from one dimension may not help in addressing the issue. Land use needs to be looked at within this corridor, especially in the southern areas and new charrette downtown nodes. The creation of more employment through the use of commercial and industrial land uses in the corridor is extremely important. This would cause a reduction in the need for residents to have such long commutes due to the lack of employment in their community.

Kendall Downtown

The Kendall Drive Corridor (SW 88th Street/SR-94) is one of the busiest east-west corridors in the South Dade region. It starts on the east at SW 57th Avenue (Red Road) as a county major collector two-lane roadway and heads west,

connecting through major highways and intersection becoming a six-lane principal arterial roadway before ending at Krome Avenue. The 12-mile corridor passes through a plethora of land uses before it finally reaches Krome Avenue.

On the east side, Kendall Drive is a suburban residential area, but as the corridor heads west to US-1, it comes more densely populated as the roadway enters the Downtown Kendall Area. This area is a major urban area with major trip generators such as the Dadeland Mall and other high-rise commercial buildings mixed with residential uses. All of these elements combine with the extraordinary transit provided by the Metrorail at both Dadeland North and South stations to create a major urban area. Along the corridor Miami-Dade Transit provides bus routes and express services along the entire corridor accompanied with park-n-ride stations.

Further west Kendall Drive, the principal six-lane arterial, (SR-94) meets with the Palmetto Expressway (SR-826) proving how connected and integral the Downtown Kendall area is. Continuing west the development on the roadway becomes strip malls and lower density apartment complexes surrounded by suburban single family residential areas. It's important to note Snapper Creek Expressway SR-878 runs parallel to Kendall Drive providing additional

support to the roadway in terms of traffic capacity. A major generator is located just west of Galloway Road (SW 87th Avenue/SR-973) the location of Kendall Baptist Hospital. The area decreases in density and becomes more of a suburban single family residential area surrounding the hospital area. Further west Don Shula Expressway (SR-874) intersects with Kendall Drive, this is where Snapper Creek expressway merges with SR-874 and seizes to assist Kendall Drive. To the south though Killian Drive (SW 104th Avenue) provides assistance and will run parallel to Kendall Drive all the way till SW 167th Avenue, just before Krome Avenue.

Traveling west until SW 117th Avenue, the land uses become denser again with apartment complexes along the corridor with more single family homes surrounding and the continuation of strip malls. To the south on Killian Drive, a major generator is located at NW 107th Avenue, Miami-Dade College West Campus.

At the interchange with SR-821, both east and west the interchanges are major shopping areas the Palms at Town & Country and Kendall Village Center. Both developments contain commercial shopping areas and professional office building providing more density to the area and jobs.

Further west at SW 127th Avenue the land use becomes more institutional and contains a major regional soccer park. Surrounding these land uses are of commercial strip malls and apartment complexes surrounded by single family residential uses. At SW 137th Avenue (SR-825) the land uses of Kendall Drive continue.

Two park-n-ride facilities are located within the western parts of the Kendall Drive Corridor along SW 150th Avenue, a parking lot next to a church and at SW 162nd Avenue next to the West Kendall Baptist Hospital. West of this area Kendall Drive's land use changes to more agricultural land uses due to the Urban Development Boundary Line. Most of the Kendall Drive corridor has been built out, both in terms of development and in terms of roadways. The only areas with development potential are in the far western reaches where the UDB exists.

According to the models run in the LRTP, trips made from this corridor are usually towards the Downtown Miami area, Downtown Kendall area and Kendall Baptist Hospital area. As a result, MDT has been implementing express buses in this corridor and creating more park-n-riders to get commuters to the Metrorail line. Additionally, MDT are in the process of implementing Bus Rapid Technology along the entire

corridor. The transportation issue of this corridor cannot be solved by only one solution but many. Land use should come to play especially the inclusion of more commercial and industrial areas to reduce the distances of trips caused by the lack of employment opportunities in an area.

Also, new tools are being used in existing infrastructure such as express buses on highways and express lanes on highways to efficiently get commuter from point to point.

Northeast Kendall

In this corridor the central roadway connecting the north-south trip is the Palmetto Expressway (SR-826) to the north and US-1 to the south, since SR-826 ends and begins. The corridor extends to the far reaches of northern Miami-Dade County to the areas of the City of Miami Lakes, Doral, Hialeah and the Miami international Airport area. Within the project area of South Dade, the corridor begins at Kendall Drive. This area, as mentioned before is a major generator of trips the Downtown Kendall area. As a result, a good amount of trips may be from north to south the Downtown Kendall area.

As mentioned before in the US-1 corridor, most the areas south of the Downtown Kendall area are residential in nature for the exception of

the few mixed use areas where employment in the commercial and industrial land uses, such as The Falls Mall area. As a result, most of the trips from this area is actually commuter with trips toward the northern part of the County where more employment centers are present.

Another area to keep in mind, as mentioned in the Kendall Corridor, is at the southwestern reaches of the corridor, the Kendall Baptist Hospital area which provides plenty of employment. This adds to the southbound commute and possible north bound commute of residents residing in the southern parts of the corridor.

Most of the corridor has been built on and will now progress to a more vertical development trend. This creates a great need for more transportation alternatives in this corridor. Such solutions as mentioned in the LRTP will be the efficient use of existing infrastructure the Palmetto Expressway with express lanes and express buses up and down the corridor.

West County

The West County corridor is located in the far west areas of the county, closest to the edges of the UDB line. A roadway, which emulates the corridor the best, especially through the South Dade region, is SW 137th Avenue (Lindgren

Road/SR-825). SW 137th Avenue provides a north/south connection for the western suburban and rural areas of Miami-Dade County. The roadway connects with the Dolphin Expressway (SR-836), the County's major east-west expressway. MDT provides bus route service along the corridor from SW 8th Street to SW 160th Street and again between SW 180th Street and SW 184th Street.

Starting along Kendall Drive, SW 137th Avenue is a six-lane principal arterial roadway aligned with commercial strip malls, single-family and multi-family residential areas.

The roadway segment between SW 120th Street and SW 136th Street consist of Miami Executive Airport located on the west side, a major commercial shopping area (London Square) mixed with industrial ware houses and multi-family residential areas.

South of SW 136th Street the western side of the roadway contains additional industrial ware house areas mixed with single-family residential uses and finishing with a commercial strip mall at SW 152nd Street (Coral Reef Drive). South of SW 152nd Street, the roadway changes functional classification to a minor arterial urban roadway containing on-street bike lanes.

On the eastern side of this segment is all single-family residential uses. South of SW 156th Street residential suburban land uses continue till SW 160th Street (Colonial Drive) where institutional uses are present on the eastern side of the roadway. The Federal Correctional Institution, the LTC Luis E. Martinez US Army Reserve Center are located in the area along with Zoo-Miami are located on the eastern side of the roadway. Further south along SW 137th Avenue are additional single family housing land uses mixed with commercial strip malls. At SW 184th Street, the roadway becomes a two lane roadway and abuts the western UDB line. This causes the areas south of SW 184th Street to become more agricultural in use and rural in nature.

South of SW 200th Street the corridor has a gap until after US-1. In this area trips are diverted either to the west on SW 147th Avenue or to the east on US-1 to connect to the rest of SW 137th Avenue. More than one study has looked into bridging the gap between SW 200th Street and US-1. Further below are tables indicating the type of roadway, implementation phasing and status of the project.

SW 137 Avenue south of US-1 is a two-lane major urban collector roadway aligned with mostly single-family and multi-family residential uses, with a sprinkling of agricultural and

undeveloped land uses till SW 268th Street. It is important to note this segment of SW 137th Avenue is within the UDB line. South of SW 268th Street similar land uses are present and the SR-821 (HEFT) intersects with SW 137th Avenue containing access to the expressway, as a result the roadway expands to a 4 lane roadway.

The roadway segment between SW 288th Street and SW 312th Street is predominantly single-family residential use on the west side, on the east the Homestead Reserve Airforce Base exists along with mostly agricultural uses surrounding the former base. The corridor contains on-street bike lanes starting from SW 288th Street till the southern end of the roadway. South of SW 312th Street the corridor passes the UDB line creating more of a rural agricultural land use.

The roadway segment between SW 366th Street and SW 344th Street is surrounded by recreational uses, including the Motor Speedway and the Homestead Sports Complex.

Due to the expanse of the West Corridor, two more roadways need to be analyzed: Krome Avenue (SW 177th Avenue/SR-997), and the Homestead Extension of the Florida Turnpike (HEFT/SR-821). SR-821 is a tolled highway running from north (I-75) to south (US-1, by the

City of Homestead) on the western area of Miami-Dade County, in relation to the West Corridor SR-821 runs on the eastern side of the corridor limits. Being that most of the land uses surrounding the turnpike are mostly suburban and residential in nature within the study area, the facility provides a direct connection to the industrial and employment centers of the County located in the northern areas of the county. These areas include the City of Doral and the Okeechobee Industrial Corridor, located within the cities of Medley, Hialeah and Hialeah Gardens.

Krome Avenue is a principal arterial located in the western edge of the county. The north-south roadway connects to Okeechobee Road (US-27) to the north and US-1 to the south by the City of Homestead. Within the corridor area, the roadway is mostly surrounded by agricultural land uses, except for the southern part which runs through the historical downtown of Homestead. Land uses abutting Krome Avenue in City of Homestead are mostly residential and commercial uses, with a small mix of industrial areas. Krome Avenue and the HEFT both provide alternatives for the residents of Homestead whom may work in the northwestern employment centers of Miami-Dade County. Additionally, traffic associated with agricultural uses such as freight trucks utilize the corridor as an alternative to the Florida

Turnpike (HEFT), with an added draw in the lack of toll needed to access Krome Avenue. Current planning includes the widening of Krome Avenue to four lanes to accommodate increased levels of traffic, with additional four-foot bicycle lanes on each side of the road, and an 11.6-mile shared-use path from SW 296th St. to SW 8th St.

Trips made from this corridor are usually from South Dade to the northern areas of Miami-Dade County towards the employment centers located in the City of Doral and further north along the SR-281 corridor, especially around the Okeechobee Road (US-27) industrial area. As a result, the Florida Turnpike has planned future expansions of the SR-821 express way to include express lanes in order to provide greater efficiencies on the expressway. Additionally, the use of express buses forms the South Dade area to the Northwestern employment centers of the county has been planned.

As noted above, one major issue with the SW 137th Avenue corridor is lack of a roadway connection between SW 200th Street and US-1. The Miami-Dade MPO has labeled this project as a priority in both Transportation Improvement Plan and Long Range Transportation Plans.

Task 2.2.4 Traffic

Review of traffic data from the MPO Arterial Grid Analysis Phase II indicated that for most of South Dade south of Cutler Bay, the traffic is generally manageable, with few links below a LOS C/D. North of Cutler Bay, however, we find that the traffic is more significantly congested, due to the limited number of arterial egresses from the area. For work, 20 percent of all of South Dade's workers heads towards Miami, 6.6 percent head to Kendall, 5.8 percent head to Doral, and 5.3 percent head to Coral Gables, which serve as the top four employment-based destinations in the area (Table A-12). As people

try to leave South Dade for Doral and Miami, and internally to Kendall, the traffic will begin to bunch up and emanate from the main arterial "choke-points" leaving the sub region. Taking the employment numbers into account, this is consistent with the LOS findings of the MPO seen below in Figure A-28.

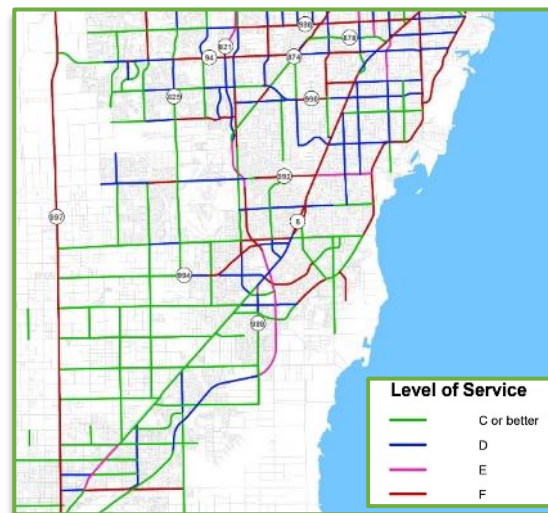
Traffic is expected to increase in the future, with the roadways noted in blue in Figure A-29 failing to meet LOS D.

Table A-12. South Dade Employment

South Dade		
Total Primary Jobs		
	2014	
	Count	Share
Total Primary Jobs	299,183	100.0%
Jobs Counts by Places (Cities, CDPs, etc.)		
	2014	
	Count	Share
Miami city, FL	60,150	20.1%
Kendall CDP, FL	19,684	6.6%
Doral city, FL	17,483	5.8%
Coral Gables city, FL	15,994	5.3%
Hialeah city, FL	6,288	2.1%
Three Lakes CDP, FL	6,025	2.0%
Homestead city, FL	4,694	1.6%
University Park CDP, FL	2,886	1.0%
Tamiami CDP, FL	2,614	0.9%

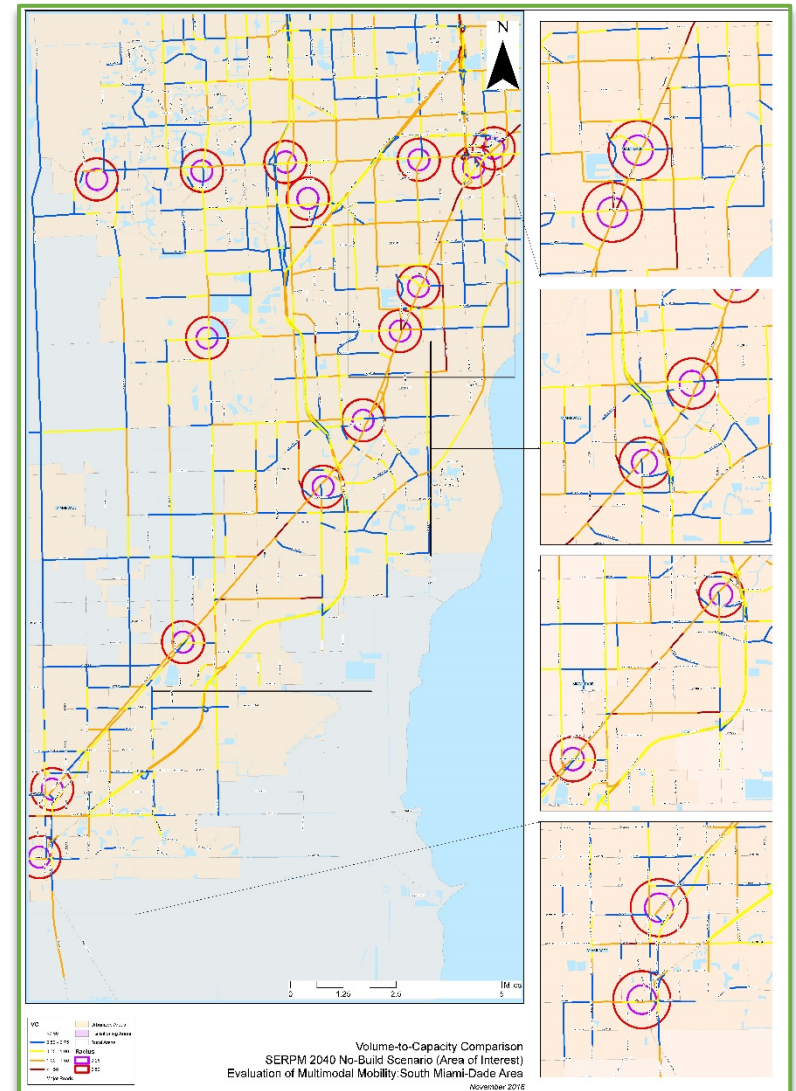
Source: US Census Bureau

Figure A-28. South Dade Arterial LOS



Source: Arterial Grid Network Analysis Phase II 2013

Figure A-29. SERPM 7.0 No Build Scenario



Source: The Corradino Group

APPENDIX B

Travel Demand Forecast

TRAVEL DEMAND FORECAST

Travel demand model forecasts for 2040 conditions were developed to support the Miami-Dade MPO study to Evaluate Multimodal Mobility Options in the South Miami-Dade region. The following is a summary of the travel demand forecasting effort.

Southeast Florida Regional Planning Model, version 7.0 (SERPM7) was used to develop forecasts for the South Miami-Dade region. The SERPM model is based on the CT-RAMP (Coordinated Travel Regional Activity-Based Modeling Platform) family of Activity-Based Models (ABM). SERPM7 was used to develop the recent 2040 Regional Long Range Transportation Plan (RLRTP). The model has a 2010 base year and 2040 horizon year. The 2040 horizon year scenario includes the MPO-approved Traffic Analysis Zones (TAZ) data and the cost feasible network inputs. SERPM7 is a time-of-day model validated using period-specific and daily traffic counts. The five periods that are modeled are:

- Early AM Period
- AM-Peak Period
- Midday Period
- PM-Peak Period
- Evening Period

Although SERPM7 has period-specific highway assignment routines, the model combines all period assigned traffic volumes to report the daily model volumes.

The 2010 base year model was validated to the year 2010 Annual Average Daily Traffic (AADT). Overall, the 2010 base year model volume root-mean-square error (RMSE) was within the allowable range for regional modeling purposes (**Table B-1**). The RMSE statistics for the regional volume is 38.21 percent with an overall volume-to-count ratio of 1.03.

The following assumptions are built into the analysis:

- Mode 292 (MDT Local) was assumed for all the new feeder/circulators routes;
- Mode 251 (MDT Express) was assumed for the following express routes: Express Route B, Route D, and Route E;
- Route 31 and 34 were eliminated;
- Rerouted on to US-1: Routes 35, Route 38, Route 52, Route 200, and Route 252;

Table B-1. Regional – RMSE and Volume/Count by Volume Group

Volume Group	Count Range	Model RMSE (%)	Allowable RMSE Range	Volume	Count	Volume/Count	No of Links
1	1- 5,000	94.17%	45 - 55%	6,171,126	4,864,305	1.27	1,571
2	5,000- 10,000	57.80%	35 - 45%	14,236,303	12,902,708	1.1	1,742
3	10,000- 20,000	34.70%	27 - 35%	31,583,467	30,890,153	1.02	2,091
4	20,000- 30,000	25.08%	24 - 27%	20,877,144	21,539,635	0.97	898
5	30,000- 40,000	24.33%	22 - 24%	6,198,180	6,099,327	1.02	180
6	40,000- 50,000	21.14%	20 - 22%	2,684,329	2,769,095	0.97	61
7	50,000- 60,000	14.61%	18 - 20%	1,248,678	1,212,303	1.03	22
8	60,000- 70,000	18.86%	17 - 18%	2,545,531	2,504,020	1.02	38
9	70,000- 80,000	21.33%	16 - 17%	4,226,563	4,093,369	1.03	54
10	80,000- 90,000	23.53%	15 - 16%	4,327,363	4,194,300	1.03	50
11	90,000-100,000	21.09%	14 - 15%	2,200,457	2,275,971	0.97	24
12	100,000-500,000	11.62%	LT 14 %	4,367,935	4,360,258	1	40
ALL	1-500,000	38.21%	32 - 39%	100,667,076	97,705,444	1.03	6,771

Source: The Corradino Group

- Green Line Metrorail extended to Cutler Bay Mall (South Dade Busway ROW): Assumed speed 33.3 and no changes to headway.
- Orange Line Metrorail extended to Florida City (South Dade Busway ROW): Assumed speed 33.3 and no changes to headway.
- Kendall LRT in mixed traffic works similar to BRT/Express bus. Mode 251 (MDT Express) includes this route.

TAZ/SOCIO-ECONOMIC DATA

Table B-2 presents population and employment data for South Dade, Miami-Dade County, and the SERPM region for 2010 and 2040.

The 2040 build scenario includes 14 road and 33 transit improvements. The transit improvements include 16 park-and-ride facilities and 17

Table B-2: Socio-economic Data Profile

	2010		2040	
	Population	Employment	Population	Employment
South Dade	557,493	181,928	790,417	297,254
Miami-Dade	2,515,905	1,125,068	3,307,549	1,636,614
Regional	5,591,127	2,634,587	7,013,526	3,409,450

Source: SERPM 7.0

transit routes. As part of the transit projects, two Metrorail route extensions, three express routes, one route with a headway improvement and ten circulator/feeder routes were developed.

DEFICIENCY ANALYSIS

Roadway

Volume-to-capacity ratios were used as the primary performance measure to identify the deficiencies in the region for build and no-build scenarios. The 2012 FDOT LOS handbook capacities were used to perform the analysis. The LOS handbook lists capacities, based on area type, facility type, signal densities, and other roadway characteristics. Capacity lookup tables were developed to assign the appropriate LOS handbook capacities to the model networks. A separate Area Type variable called AREA3 was coded into the networks that fix the area

type characteristics of the links. AREA3 variable has codes of 1, 2, and 3, corresponding to urban, transitioning, and rural area types, respectively. Finally, the volume-to-capacity

(V/C) ratio was computed for LOS B, LOS C, LOS D and LOS E capacities. For Urban area links, LOS D was the threshold, while for rural and transitioning areas, LOS C was the threshold

“Reasonableness” checks were performed comparing evaluation statistics for the regional highway system (**Table B-3**) and the Miami-Dade system (**Table B-4**). It is noted that the lane miles increase by 20 in the build scenarios due to the roadway improvements in the project list. In addition, for the build scenario, the decrease in vehicle miles travelled (VMT) and vehicle hours travelled (VHT) statistics for are expected.

Table B-3: Regional Highway Evaluation Statistics

	No-Build*	Build**
Total Number of Directional Links	34,392	34,471
Total Lane Miles	17,015.05	17,035.29
Total Directional Miles	8,752.20	8,773.48
Total Volume All Links	551,007,186	546,010,985
Average (Directional) Volumes of All Links	16,021.38	15,839.72
Total VMT All Links	143,499,190	142,230,438
Total VHT All Links	4,257,280	4,142,501
SYSTEM USER SPEED SUMMARY (excludes Centroid Connectors)		
Original Speed (VMT/Freeflow VHT)	43.23	43.29
Congested Speed (VMT/Congested VHT)	33.71	34.33
Posted Speed (MPH, weighted by Dir. Miles)	41.93	41.95
Original Speed (MPH, weighted by Dir. Miles)	40.71	40.71
Congested Speed (MPH, weighted by Dir. Miles)	37.01	37.25
Change in Speed (MPH, Congested-Original)	-3.71	-3.46
Percent Change in Speed (Change/Original)	-9.10%	-8.50%
*No-Build 2040 Cost Feasible		
** 2040 Cost Feasible with South Dade Improvements		

Source: The Corradino Group

Table B-4: Miami-Dade Highway Evaluation Statistics

	No-Build*	Build**
Total Number of Directional Links:	15,461	15,536
Total Lane Miles:	6,459.60	6,480.32
Total Directional Miles:	3,499.41	3,518.07
Total Volume All Links:	252,332,368	247,669,427
Average (Directional) Volumes of All Links:	16,320.57	15,941.65
Total VMT All Links:	57,029,184	55,943,741
Total VHT All Links:	1,976,449	1,877,012
SYSTEM USER SPEED SUMMARY (excludes Centroid Connectors)		
Original Speed (VMT/Freeflow VHT):	40.23	40.28
Congested Speed (VMT/Congested VHT):	28.85	29.8
Posted Speed (MPH, weighted by Dir. Miles):	39.62	39.69
Original Speed (MPH, weighted by Dir. Miles):	38.39	38.41
Congested Speed (MPH, weighted by Dir. Miles):	33.38	33.9
Change in Speed (MPH, Congested-Original):	-5.01	-4.51
Percent Change in Speed (Change/Original):	-13.04%	-11.73%
*No-Build 2040 Cost Feasible		
** 2040 Cost Feasible with South Dade Improvements		

Source: The Corradino Group

Roadway No Build/Build Model Results

Systemically, there are minor increases in overall speed, while regional VMT and VHT decrease. The decrease in both were expected based on the project list, as the addition of new roadway facilities and bridges allowed for fewer circuitous routes. The Volume/Capacity data on specific links are illustrated on the No-Build and Build scenario graphics, **Figure B-1** and **Figure B-2, respectively**. In the No-Build

and Build scenarios, links over capacity in 2040 are indicated by the blue lines. The comparison of V/C maps for both scenarios indicates that, although specific links may benefit, and the overall effect on the regional system is a net positive, this net positive is small and there are no significant improvements on the roadways. **Figure B-3** indicates the change between the No-Build and Build Scenarios. The red links indicate where traffic increases, and green links indicate a traffic reduction. However, not all cases of increase in traffic on individual links are to be considered negative as the most cases the increase of traffic on specific links can be attributed use/attraction underutilized roadway capacity. Examples include SW 136th Street west of SW 107th Avenue (V/C of 0.77), SW 77th Avenue between SW 162nd Street and SW 144th Street (V/C of 0.71), SW 128th Street east of SW 107th Avenue (V/C of 0.95), and SW 97th Avenue immediately

north of SW 136th Street (V/C of 0.83). Green lines on the map indicate positive effects on local congestion. In some cases, such as on Old Cutler Road by SW 168th Street (V/C change from 1.16 to 0.84), the traffic reduction means that road link no longer fails to meet LOS D standards.

Transit

Table B-5 compares transit ridership by individual modes showing moderate improvement in the transit ridership. Note the decrease in ridership for Mode 242 might be due Metrorail extension to south and the route elimination — Routes 31 and 34.

Overall ridership for the new routes, excluding Metrorail is 24,000, and the Metrorail extensions realize a ridership increase of 30,000. **Table B-6** provides more detailed projected ridership data for each of the 17 Transit Lines which were evaluated for the Build Scenario for South Dade.

Figure B-1: SERPM 2040 No-Build Scenario

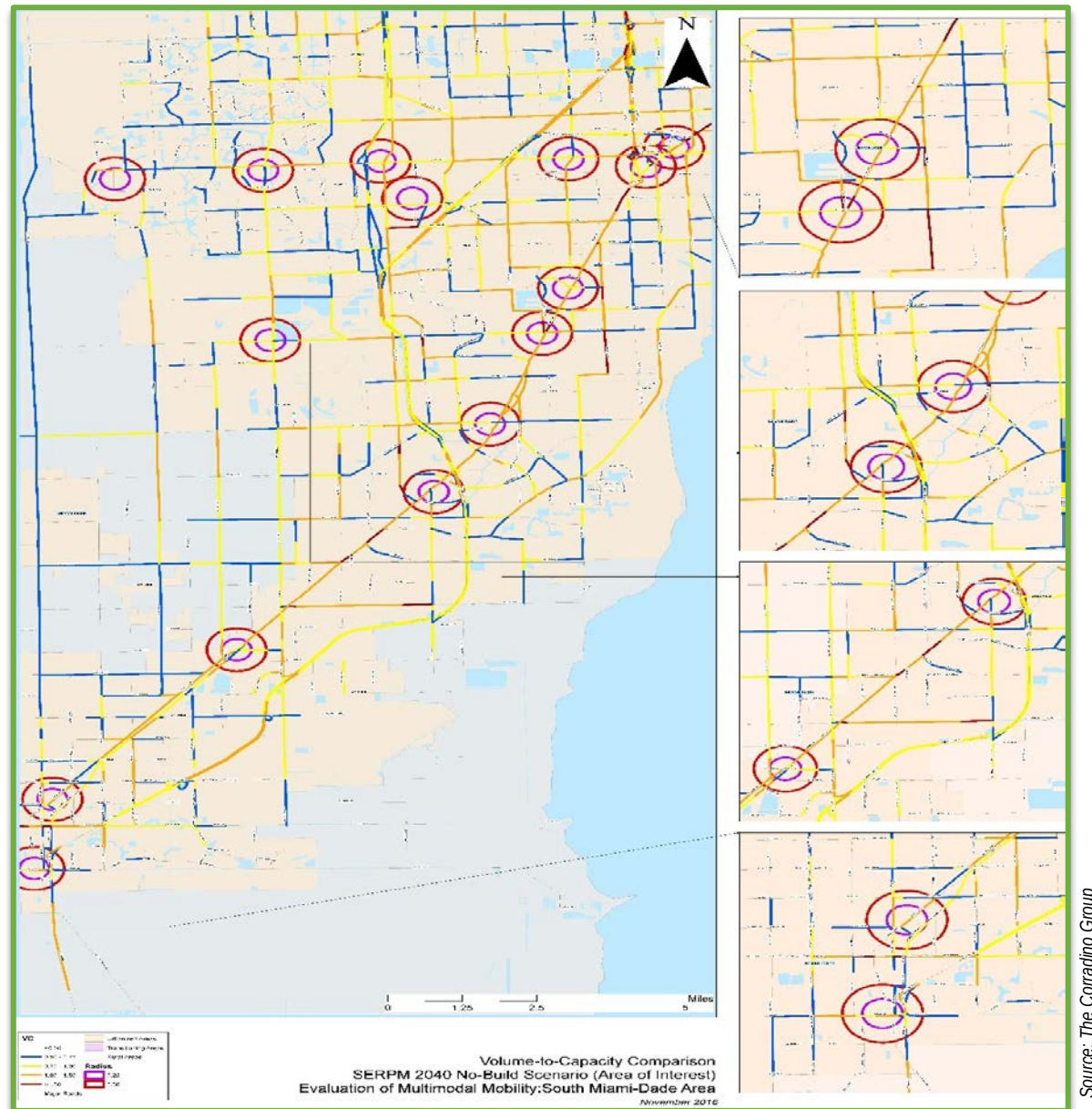


Figure B-2: SERPM 2040 Build Scenario

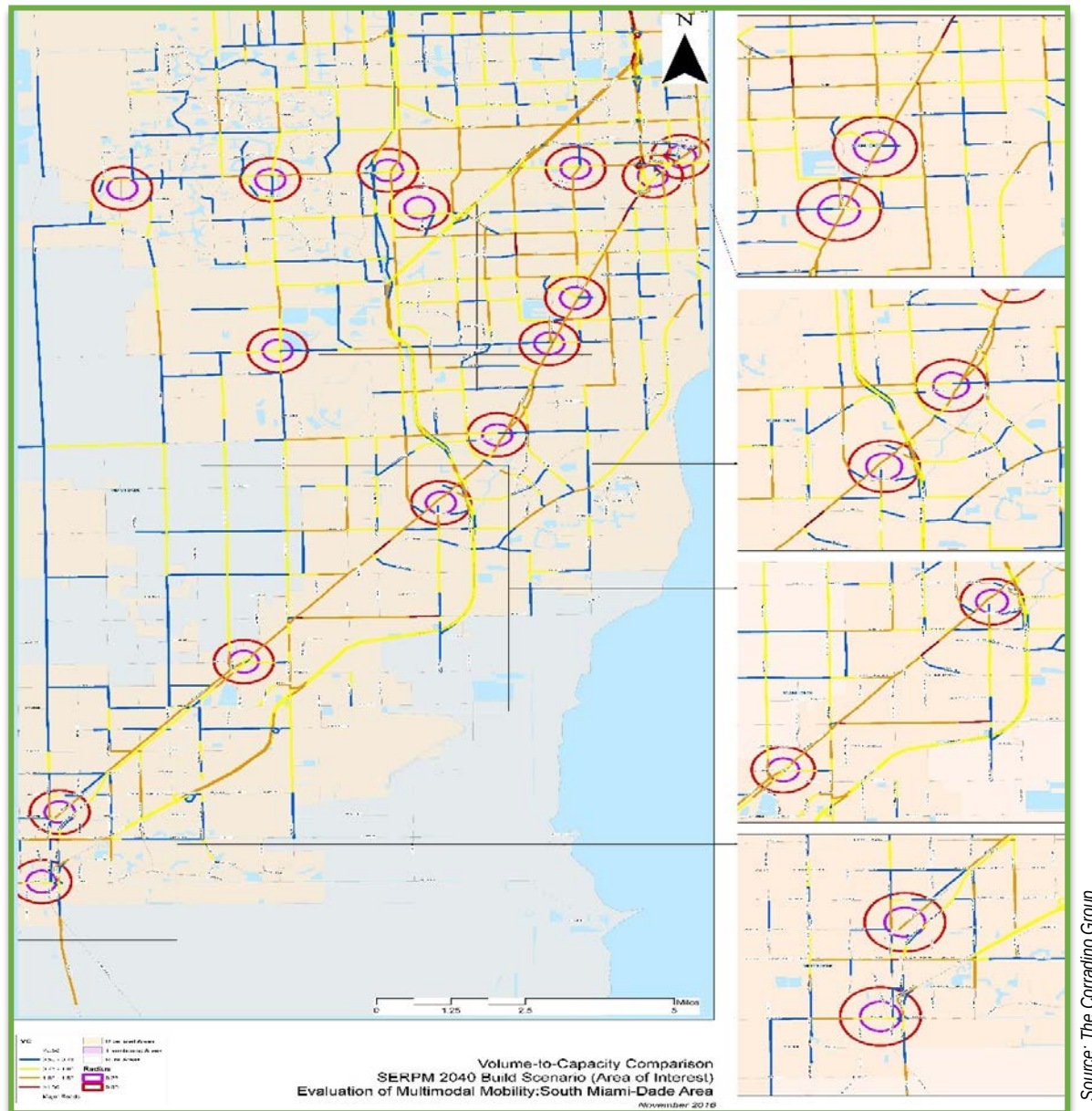
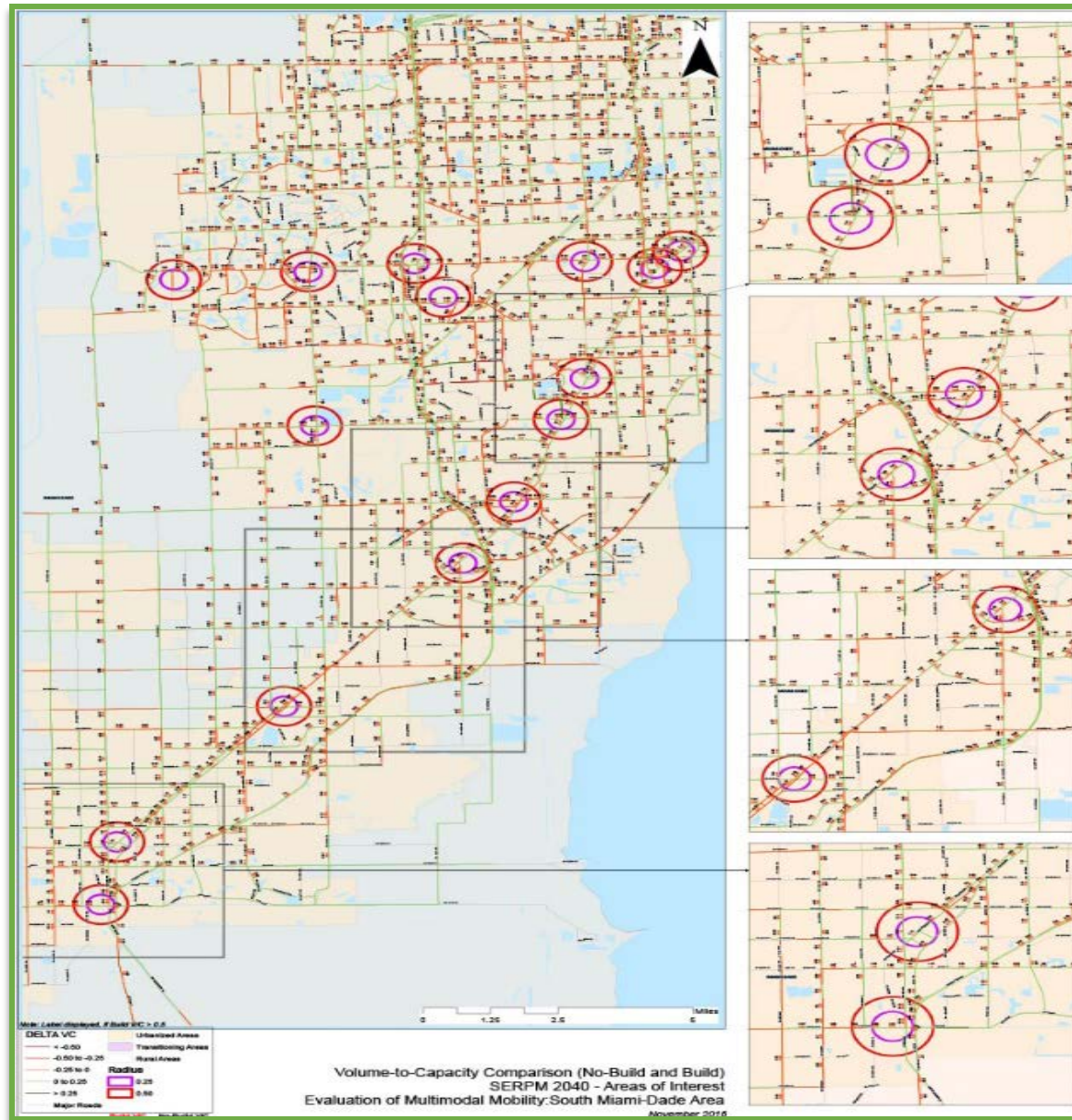


Figure B-3: 2040 V/C Comparison (Build vs. No-Build Scenarios)



Source: The Corradino Group

Table B-5. Transit Ridership Comparison by Mode

Mode	Description	2016 Ridership	2010		2040 Before		2040 After		Delta (After-Before)
			Distance (miles)	Daily Riderdhip	Distance (miles)	Daily Riderdhip	Distance (miles)	Daily Riderdhip	Daily Riderdhip
111	Tri-Rail	-	146	14,320	176	20,320	176	21,592	1,272
121	Metrorail	67,800	45	66,264	85	85,540	140	115,204	29,664
151	Inter-County Express	-	156	2,628	285	2,204	285	2,917	713
191	Trolley/Shuttles - Trirail	-	156	3,050	159	3,444	159	3,890	446
192	Trolley/Shuttles - Trirail	-	15	444	15	640	15	588	-52
242	MDT MAX/KAT/ Busway Local	16,664	119	20,640	188	41,540	152	31,356	-10,184
243	MDT BRT	-	-	-	27	24,540	27	22,596	-1,944
251	MDT Express	10,088	144	9,196	188	31,497	329	41,575	10,078
252	MDT I-95 Express		201	2,400	201	3,220	201	3,644	424
253	I-95 Inter-County Express		186	1,836	93	4,040	93	2,112	-1,928
281	Metromover	31,300	10	24,308	13	33,640	13	39,268	5,628
292	MDT Local	168,111	2,747	263,022	2,597	326,163	2,764	322,503	-3,660

Source: The Corradino Group

Table B-6: Projected Transit Ridership for Proposed Projects

Corridor	Name	Route	Route Name	Mode	Headway (minutes)	Combined Ridership
1, 6	Express Route B (Florida City to Naranja to Cutler Bay, Cutler Bay to Dadeland North)	M023L54MI, M023L54MO	RTE ExpressB: Florida City Via HEFT to Dadeland No	251	15 (regular)/10 (peak)	1,402
1,2,5, 6	Express Route E (Florida City to Naranja to Cutler Bay, Cutler Bay to Don Shula Expressway/HEFT, Don Shula Expressway/HEFT to Kendall Drive/HEFT;Kendall Drive/HEFT to FIU; FIU to Dolphin Mall Park and Ride)	M023L52MO, M023L52MI	RTE ExpressE: DOLPHIN PNR VIA HEFT to Florida City	251	15 (regular)/10 (peak)	5,566
1	MetroRail Extension (Green Line) to Cutler Bay (Southland Mall)	M14L1MD, M14L1MD-	STAGE 1: PALMETTO -> DADELAND SO	121	15 (regular)/10 (peak)	60,792
1	MetroRail Extension (Orange Line) to Homestead	M14L2MD, M14L2MD-	STAGE 2 Orange Line: MIC -> DADELAND SO	121	15 (regular)/10 (peak)	54,412
1	Local Circulator - West Perrine	M023L93MD, M023L93MD-	RTE 11: West Perrine Circulator	292	20	2038
1	Local Circulator – Naranja and Leisure City areas	M023L51MI, M023L51MO	RTE 12: Naranja and Leisure City Circulator	292	30 (regular)/15 (peak)	1519
2	New LRT - Kendall Drive	M028L15MO, M028L15MI	EBS: KENDALL WB	251	15 (regular)/10 (peak)	4585
2, 6	Local Circulator/Interhub Circulator in area bounded by Killian Drive, Don Shula/SR-878, Kendall Drive, and HEFT	M023L85MD, M023L85MD-	Route 18: Local Circulator/Interhub Circulator	292	20 (regular)/15 (peak)	1902
2	Local Circulator/First-Last Mile Program - Hammocks; Kendall Drive/SW 150th Avenue Park and Ride/Transit Stop; The Crossings; Kendall West; Kendale Lakes	M023L320MO, M023L320MI	RTE 19 : Circulator First-Last Mile Program - Kendall	292	30 (regular)/15 (peak)	691
3	Circulator in Pinecrest	M023L64MI, M023L64MO	RTE24: Circulator in Pinecrest	292	30 (regular)/15 (peak)	778
3	Circulator in Palmetto Bay (Route 1)	M023L60MI, M023L60MO	RTE25: Circulator in (Palmetto Bay Route1)	292	30 (regular)/15 (peak)	766
	Circulator in Palmetto Bay (Route 2)	M023L61MI, M023L61MO	RTE26: Circulator in (Palmetto Bay Route2)	292	30 (regular)/15 (peak)	784
3	Circulator Enhancement in Cutler Bay	M023L18MD, M023L18MD-	RTE 27: Cutler Bay Local	292	60 minutes (MDT Schedule)	388
4	Route Service Changes for 252 MAX (off-peak service)	M23L19MD, M23L19MD-	RTE 252: CORAL RF MX: DS -> CW	292	15 minutes	4224
4	Local Circulator - Richmond West and Country Walk	M023L30MD, M023L30MD-	RTE 30:Richmond West and Country Walk	292	20 minutes	495
5	Express Bus D (Smart Plan)	M023L53MI, M023L53MO	RTE ExpressD SW 128 St VIA SR874 to Dadeland North	251	15 (regular)/10 (peak)	1684
5	Explore local circulator/feeder option in area bounded by SW 88th Street (North), SW 120th Street/SW 128th Street (South), SW 122nd Avenue (East), and SW 147th Avenue (West)	M023L62MI, M023L62MI-	RTE 32: Explore Local Circulator/Feeder SW 88St/SW	292	30 (regular)/15 (peak)	1369

Source: The Corradino Group

