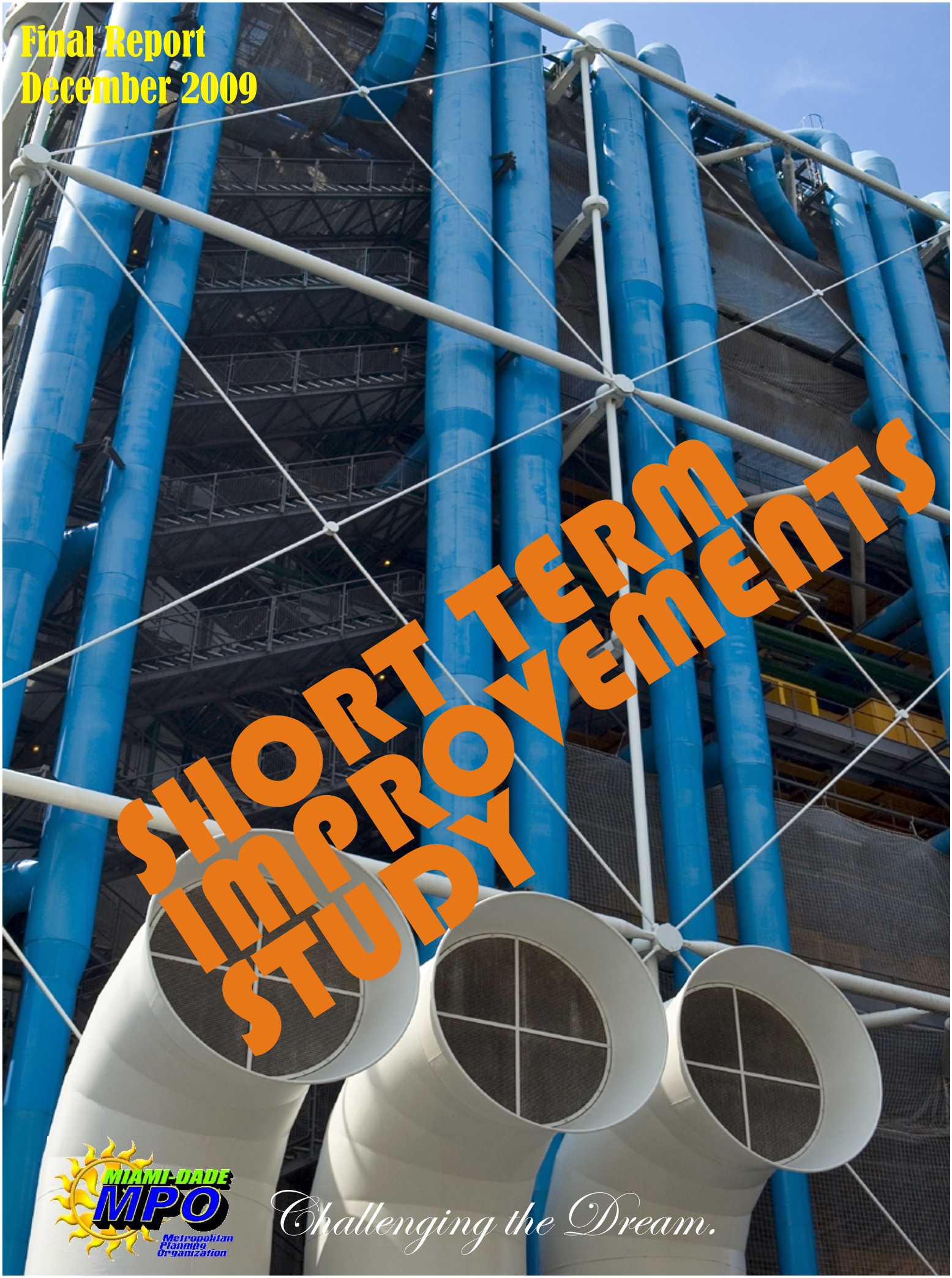
Final Report
December 2009



# SHORT TERM IMPROVEMENTS STUDY

MIAMI-DADE MPO
Metropolitan Planning Organization

*Challenging the Dream.*

# SHORT-TERM IMPROVEMENTS STUDY

This study has been conducted by the Miami-Dade County Metropolitan Planning Organization (MPO) in cooperation with:

- County Executive Office (CEO)
- Florida Department of Transportation (FDOT)
- Miami-Dade Expressway Authority (MDX)
- Miami-Dade Public Works Department (MDPWD)
- Miami-Dade Transit (MDT)
- Office of Strategic Business Management (OSBM)

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# CHAPTER I: INTRODUCTION

In an effort to assist Miami-Dade Transit (MDT), the Metropolitan Planning Organization (MPO) was requested to develop a short, middle and long range plans to improve transit operations. The short-term plan should include improvements that could be implementable in a 2-year period. The middle-term and the long-term should be implementable in a 3-5 year period and over 5-year period, respectively. A scope of work was developed and presented to a committee composed of: the County Executive Office (CEO), MDT, MPO, the Department of Public Works (PWD), the Office of Strategic Business Management (OSBM), Florida Department of Transportation (FDOT) and Miami-Dade Expressway Authority (MDX).

As a result, the MPO prepared this in-house report with a set of recommendations for improving transit operations for the short-term. Other medium and long term recommendations are also included in this report. A copy of the original scope of work is included as Appendix 1.

## I. BACKGROUND

Currently, MDT is going through the same financial problems that many other transit agencies are countrywide. Cuts in funding at Federal, State and local levels have placed MDT in a budgetary sensitive situation. In order to meet the existing budget constraints, MDT has reduced operational and administrative expenses. Operational costs adjustments have been accomplished by reducing their annual revenue miles and services during weekends and nights. However, additional service changes are needed.

On the other hand, the MPO has been requested to prepare a short-term plan to improve transit operations. Accomplishing these two goals are not an easy tasks and do not necessary going together. A Steering Committee was created with representatives of the above mentioned departments. The first meeting was held on January 15, 2009.

## II. MDT CURRENT SERVICES

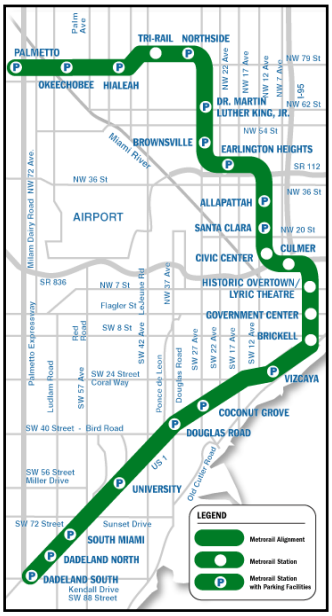
### A. Metrorail

The Metrorail is a 22.6 miles elevated, rapid transit rail system with 22 stations connecting Kendall, Downtown Miami and the City of Hialeah. The system was opened in May 1984, at a total cost of $1.03 billion. Metrorail carries an average of 62,000 passengers per day.

### B. Metromover

The Metromover is an automated people-mover system that connects Brickell and the Omni areas with Metrorail at the Government Center Station. The Metromover is free and consists of three (3) loops:

1. The Inner Loop was opened to the public in April 1986, at a total cost of $153.3 million. The length of the Inner loop is 1.9 miles and serves 8 stations.



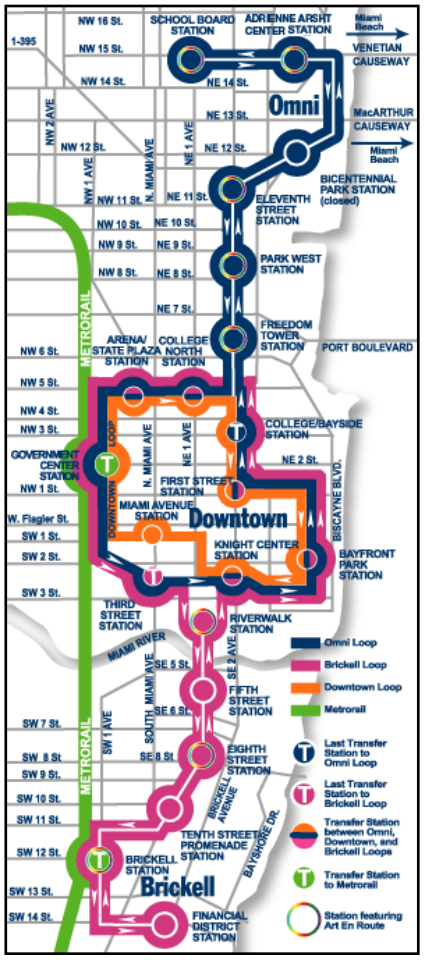

**Metrorail System**

2. The Brickell and Omni Loops were opened in May 1994, at a combined cost of $228 million. The Brickell loop is 1.1 in length and serves 6 stations. The Omni loop is 1.4 mile in length and serves also 6 stations.
3. The Metromover carries an average of 18.0 million of passengers per year.

### C. Metrobus

The Metrobus is the 12th largest bus system in the nation with 893 vehicles in the fleet. There are 90 routes with over 32 million scheduled miles serving Miami-Dade County. As of October 2008, Metrobus carried a daily average of 295,000 passengers.

In 1997, a 20-mile dedicated facility for buses only and 45 bus stations were built at a cost of $129 million. The busway connects Dadeland South Metrorail Extension to the City of Homestead.



**Metromover System**

## III. STUDY APPROACH

As mentioned before, many transit agencies including MDT, are going through difficult time due to funding limitations. Decreasing Federal, State and local funds have affected transit future plans. MDT has a dedicated funding source that facilitated the expansion of Metrobus few years ago, however, maintenance and operational costs have escalated to a point where little money is left for system expansion. Future plans are on hold. Therefore, this study will look for other alternatives to improve transit services maximizing the existing resources. This could be done by:

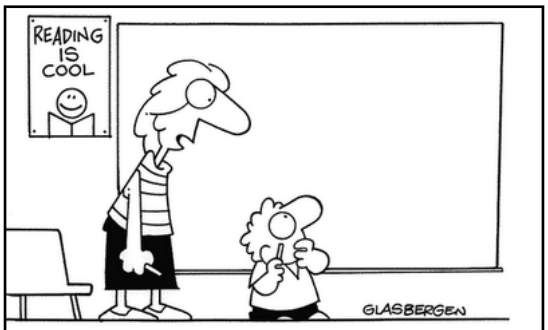
1. Establishing a vision to address current and future MDT needs based on existing funding limitations.
2. Considering the establishment of a more effective transit network capable to provide the flexibility for future changes.
3. Concentrating transit services to reduce operating costs.



4. Eliminating route duplication.
5. Creating an implementable action plan for the whole county.
6. Educating elected officials, county staff and the community about the benefits of the proposed plan.
7. Developing monitoring tools for correcting implemented services.

## IV. NEW TECHNOLOGY

In order to support any change in the bus network, it is recommended to use state of the art intelligent transportation technology. In this aspect, MDT has been working on several projects that are excellent tools for improving service. Two of these projects provide the basis for visualizing changes in the transit system. These projects are:



"There aren't any icons to click. It's a chalk board."

### A. Easy Card

The implementation of the Easy Card will allow passengers to transfer from one route to another without the inconvenience of transfers and charges. The Easy Card is like a debit card to pay the transit fare. When boarding the bus, passengers will tap the card to the farebox which automatically deduct the appropriate fare. The transfer for bus to bus is free; consequently, there is no additional cost for the passengers. This new system will expedite the access to the buses, reducing the boarding time and consequently, the travel time.


**Illustrations of the Easy Card dispensing machine and the fareboxes installed at all buses.**

### B. Automatic Passenger Count (APC) System

The APC consists of multiple sensors located on the bus that collects passenger's data. This data may include: passenger boarding and alighting by bus stop, by segments or by route, and number of passengers using the bicycle rack and the wheelchair lift. This data is collected and transmitted to a central unit that process this information. MDT will use this information for evaluating routes and make the appropriate changes to improve service.

The implementation of the APC system will allow transit to collect the necessary data by bus stop to evaluate potential improvements to the bus routes. With this system in place, MDT has the capability of tracking passenger's movement by bus stop. The reports generated by the APC will allow MDT to

evaluate routes in detail and take the appropriate corrective actions, as needed.

The implementation of these two projects makes possible the development of a system that can accomplish two of the objectives of this study:

- Reduce the operating expenses by reducing revenue-miles.
- Improve transit service.

**STANDARD REPORTS**

1. Route Demand
2. Historical Summary by Route
3. Route Productivity
4. Individual Trip Summary
5. Round Trip Summary
6. Trip Ridership
7. Segment Summary
8. Schedule Adherence
9. Bus Stop Listing
10. Route Productivity
11. Wheelchair Use
12. Bicycle Use

## V. NETWORK OPTIONS

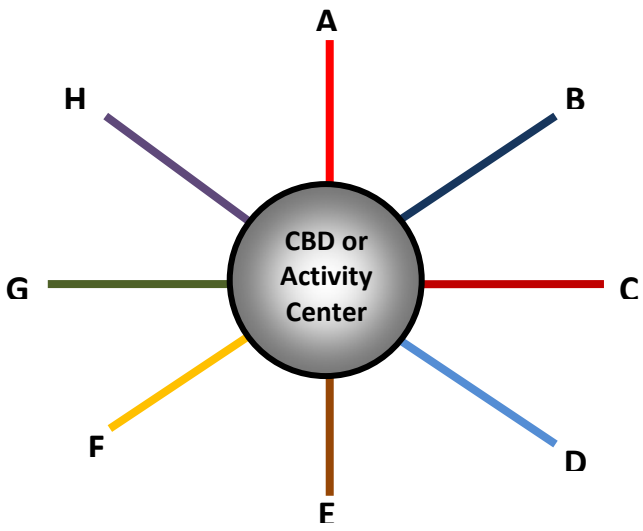
Currently, the MDT bus network is characterized by long routes and duplication of service that have not been planned as an integrated and coordinated network. The approach to service has often been reactive. Routes are implemented based on requests from different sources. Many times, existing routes are modified to comply with these requests. MDT lacks adopted performance measures and standards to justify these changes. The current system is a traditional network of routes oriented to serve the community no matter the cost. This approach resulted in long routes with unnecessary loops and circuitous route alignments that increase the route mileage and travel time affecting the majority of the riders. Figure 1 illustrates examples of these operational effects on the service. This traditional approach is not solving any of the issues that MDT is facing.

Another element to be considered is the fact that the current system has the capacity for moving a larger number of passengers. The Metrorail system is capable to carry over 150,000 passengers per day but only carried 40% of those potential passengers. The main competitor of the Metrorail is the Metrobus system. Bus routes seem to compete with the trains instead of supporting and feeding the system. There are corridors where over seven (7) routes service the same corridor. This could be a good option in the past but today it represents a waste of cost and equipment. This approach needs to be re-evaluated in detail. A change in the bus network system is highly recommended. For the purpose of this study, the three (3) most common transit bus network structures were considered, these are:

### A. Radial

This network has the CBD or a dominant activity center as a center of transit operation. This network was used many years ago when the cities concentrated all activities within the CBD. Cities like Atlanta and Curitiba in Brazil have this network in place. However, due to the expansive growth of the cities, this network has been modified to serve new communities created outside of the CBD.

In Miami, this network is not recommended. The county has activity centers in all areas of the County.

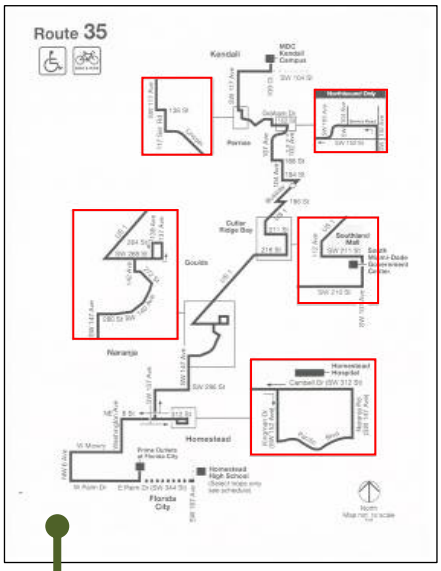



Radial Network

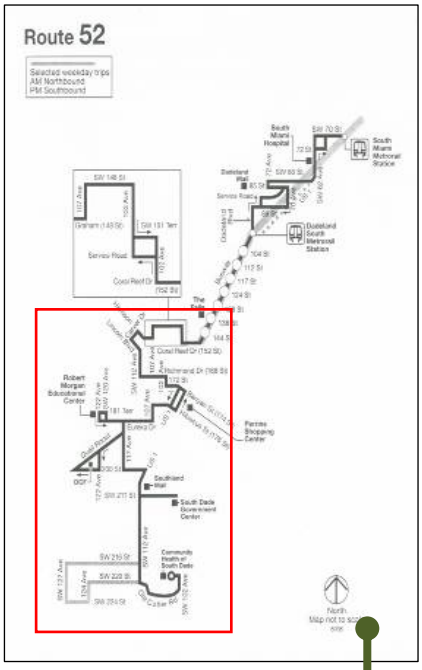
Additionally, the CBD is located close to the sea and all routes are concentrated on the west part of the CBD. Therefore, the implementation of a radial network would create a concentration of transit routes in Downtown Miami that will negatively affect the regular traffic flow in the area.

**Figure 1: Examples of MDT Routes Alignments**


**Service duplication along Collins Avenue…**

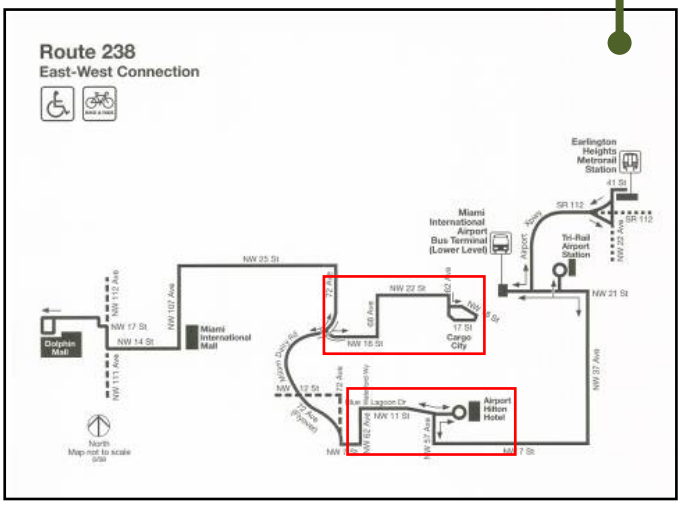


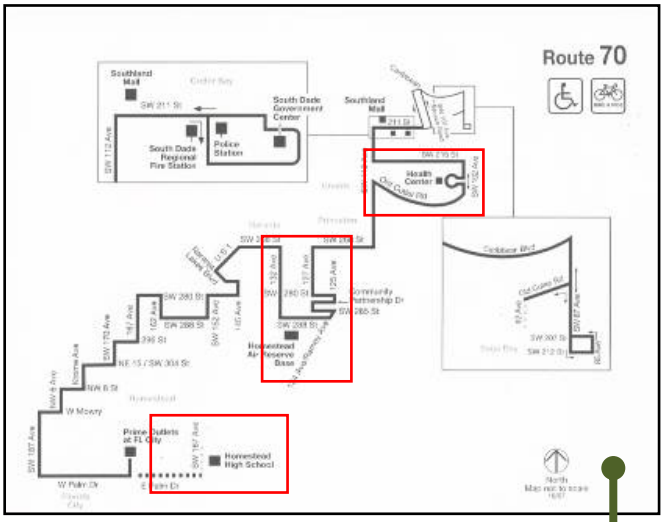

**Loops extensions on the same route…**




**Circuitous route…**

**Back and forth service…**



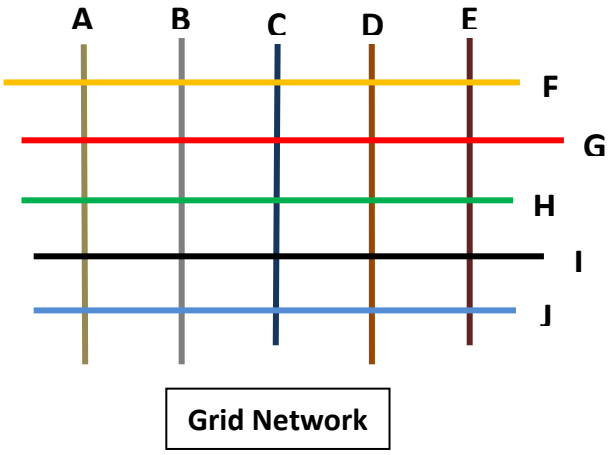




**Route deviation…**

### B. Grid Network

For implementing this network, the cities have to have a grid roadway network in place. Miami-Dade has a grid roadway network that could implement this network as an option for MDT.

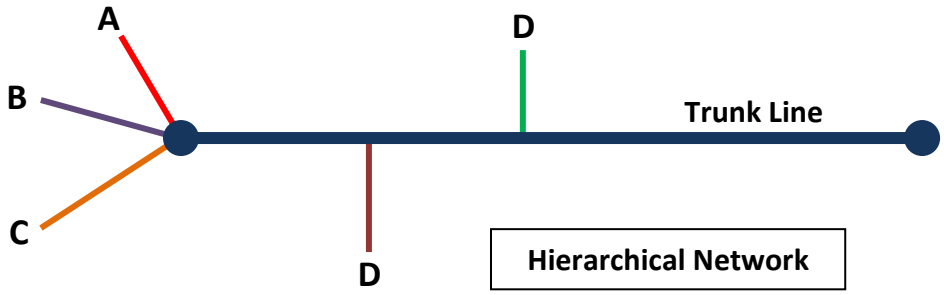
The benefit of this network is that provide direct access to many destinations with no more than one transfer. Even though the roadway system in Miami-Dade County is a grid, this concept is not recommended. The implementation of this network requires a large amount of buses and bus drivers because the routes and travel times are longer. The existing MDT's budgetary constraints do not make this option feasible for implementation.




Grid Network

### C. Hierarchical Network

This network provides the flexibility of establishing different type of routes as needed. Under this concept a major routes (trunk lines) are established along major corridors and smaller routes (feeder lines) are established for feeding the trunk lines. This network is recommended for Miami-Dade Transit.




Hierarchical Network

## VI. TRUNK & FEEDER SYSTEM

As mentioned before, transit services in Miami-Dade has been characterized by providing transit services without taking into consideration detailed evaluation, service justification and costs. There is not a pattern or network system that can define the current transit network. By establishing a hierarchical network, known as a Trunk and Feeder (T&F) System, MDT can:

1. Eliminate duplication of routes.
2. Maximize the resources where are needed.
3. Reduce operating costs.
4. Improve transit service in the trunk or feeder line on as needed basis.

5. Create the ridership for future implementation of Bus Rapid Transit (BRT) along major corridors.
6. Evaluate future rail needs (light rail or heavy rail).
7. Be creative in providing different type of services according to the needs of the community: limited stop, express, semi-express, etc…
8. Schedule adequate feeder capacity.
9. Facilitate service monitoring and data collection by individual routes and make changes accordingly.
10. Continue with the current passengers' trip patterns without considerably affecting riders' daily routines.
11. Implement proposed recommendations by phase to avoid confusion in the MDT's riders.

# CHAPTER II: ROAD TO SUCCESS

MDT has all the necessary tools in place to initiate a service change to move to next step, the development of a trunk and feeder bus system. In order to do that, it is necessary to concentrate the efforts in their existing resources and actual reality. Looking to the current transit scenario, this is a realistic view of the near future:

- The only scheduled rail deployment project is the MIC - Earlington Heights Connection.
- The North Corridor and the East-West Corridor (Orange Line) rail projects are listed in the unfunded section of the 2035 Long Range Transportation Plan (LRTP) due to lack of funding.
- Currently, there is no federal funding for new starts that could be used for one of the many proposed rail lines considered for Miami-Dade County, including both corridors mentioned before.
- MDT's budget is constraint and there are not too many alternatives to change this situation.
- MDT has adequate staff and fleet to provide a better service.
- MDT needs to look for other alternatives capable of improving service within the existing budget constraints and financial limitations.
- The proposed implementation of the trunk and feeder bus system would give MDT the flexibility to improve the current service and move in the near future to other options such as Bus Rapid Transit (BRT) and rail options such as light rail or heavy rail.
- The proposed trunk and feeder bus system does not limit the capacity and future opportunities of MDT. On the contrary, it creates the basis for building the ridership necessary to justify the change to another level of service.

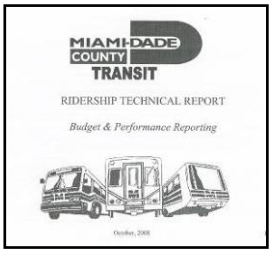
This document could be the first step in moving into a major transit master plan that can modify the existing operational service in Miami-Dade County.

## I. VISION

To develop an implementable short, mid and long term plan for improving transit operations in Miami-Dade County.

## II. OBJECTIVES

**A.** Improve mobility and accessibility of resident and businesses.
**B.** Provide cost effective transit solutions.
**C.** Maximize existing resources.
**D.** Reduce Operational costs.
**E.** Implement projects within the specific time frame.




## III. ASSUMPTIONS

In the development of this study, all evaluations analysis and calculations have been conducted using existing MDT data taken from:

1. Ridership Technical Report – Budget and Performance Reporting dated October 2008.
2. Omnibus Schedule Information, Vehicle Requirement and Operating Data Report dated October 2008.

Therefore, the analyses are consistent with MDT data. Additionally, the following assumptions have been made:

**A.** The Easy Card will be in place by the time of the implementation of the proposed Trunk & Feeder Bus System, to facilitate the transferring of passengers from one route to another.

**B.** The Automatic Passenger Count (APC) will be also in place for the continuous monitoring and further evaluation of the proposed service changes.

**C.** Even though express and limited stops services are good alternatives, due to the financial constraints of the agency, it is recommended that these service options be eliminated or reduced when implementing the recommended Trunk & Feeder Bus System.

**D.** It is assumed that the Trunk & Feeder Bus System be implemented by phases to avoid the problems created when Network 86 was implemented. This provides enough time from phase to phase to evaluate the implemented corridors and make the necessary corrective actions.

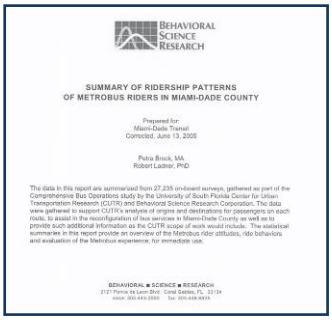
**E.** All bus stops should be located within an average of 400 meters (1,300 ft) or about 4 bus stops per miles.

**F.** It is strongly recommended that the input of the bus drivers, MDT supervisors and passengers be taken into consideration for implementing this system.

The following sections will discuss some issues and concerns regarding the implementation of this system. This discussion will demonstrate that many of these issues are based on personal perception and opinions and not on real data and facts.

## IV. TRANSFERRING

In 2005, the University of South Florida Center for Urban Transportation Research (CUTR) conducted the Comprehensive Bus Operation Study for MDT. As part of this study, 27,135 on-board surveys were collected. The Behavioral Science Research Corporation evaluated this survey. Regarding the riders' preference for transferring the overall results are as follows:


BEHAVIORAL SCIENCE RESEARCH

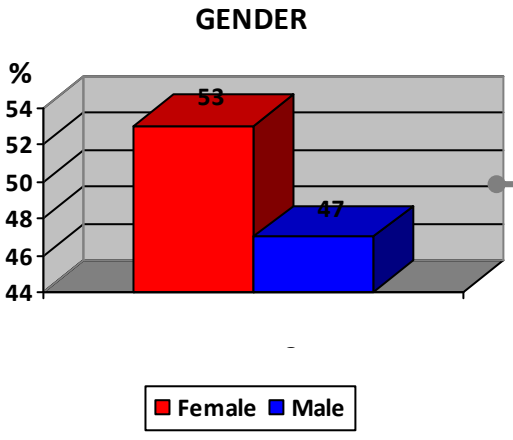
SUMMARY OF RIDERSHIP PATTERNS OF METROBUS RIDERS IN MIAMI-DADE COUNTY

Prepared for:
Miami-Dade Transit
Corrected, June 13, 2005

Petra Brock, MA
Robert Ladner, PhD

The data in this report are summarized from 27,135 on-board surveys, gathered as part of the Comprehensive Bus Operations study by the University of South Florida Center for Urban Transportation Research (CUTR) and Behavioral Science Research Corporation. The data were gathered to support CUTR's analysis of origins and destinations for passengers on each route, to assist in the reconfiguration of bus services in Miami-Dade County as well as to provide such additional information as the CUTR scope of work would include. The statistical summaries in this report provide an overview of the Metrobus rider attitudes, ride behaviors and evaluation of the Metrobus experience, for immediate use.

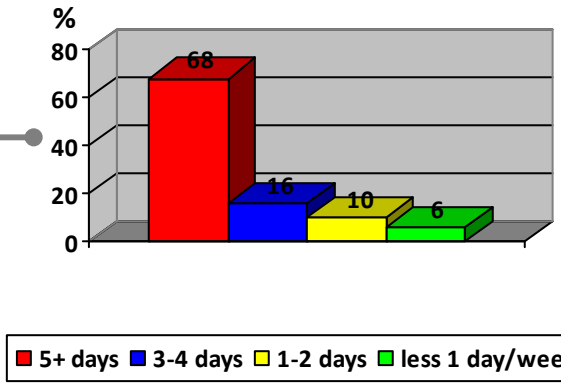
BEHAVIORAL ■ SCIENCE ■ RESEARCH



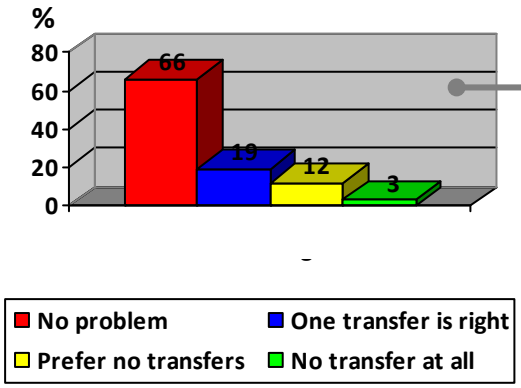

Of the total of 27,135 surveys, it was also found that 19% of the respondents were less than 20 years old, 61% between 21-50 years old, 15% between 51-65 years old and 7% over 65 years old.

**HOW OFTEN DO YOU RIDE METROBUS?**

Of the total of respondents, the majority are frequent MDT riders. A total of 84% used Metrobus more than 3 days a week.




**HOW DO YOU FEEL ABOUT TRANSFERS?**




Curiously and against many opinions, a total of 85% of the respondents do not have any problem with transferring, at least once. Another coincidence is that this percentage is similar to the results of the previous chart.

**Based on the results of this survey, transferring from one route to another or from Metrobus to Metrorail is not a major concern for MDT riders. Therefore, this report will assume that one transfer is acceptable to the majority of the passengers.**

## V. NETWORK 86'

In 1986, MDT went through a major route re-structuring called Network 86. The proposed network would integrate, simplify and consolidate local transit services to make it more attractive and cost effective. Unfortunately, the implementation of Network 86 caused chaos and confusion among Metrobus riders. Apparently, the implementation of the plan was done in the wrong way. Too many route changes implemented from one day to another and very poor marketing campaign that did not provided enough time to the community to accept and understand Network 86. As a result, MDT decided to continue with the old route system and eliminate the implemented changes. Since then, no major actions have been taking in this area.

MDT has to learn from this experience. To avoid this situation the recommended Trunk and Feeder Bus System has to be implemented in phases. Under this scenario, MDT will have time to evaluate the service along the implemented corridors and make the necessary changes and/or take corrective actions to solve any operational problem along these corridors. The proposed changes will take into consideration any change in the travel pattern of the MDT riders and reduce the number of segments or routes that can be affected by these recommendations.

Additionally, a mass marketing effort needs to be developed and coordinated among the different players to set the base for success. Passengers have to know the proposed changes and be given have the opportunity to participate in public hearings and workshops to provide their input. The proposed Trunk and Feeder plan has to be accepted by staff, elected officials and the community to be successful. A monitoring program also has to be in place to initiate an evaluation of the service as soon as these routes are implemented.

Time should not be wasted. A Response Team has to be created to take any corrective action along the affected routes to make it work. The experience gathered from Network 86 is very important in this process to avoid making the same mistakes and at the end implement the service promised to the public.

## VI. BUS STOPS SPACING

Studies conducted by universities and other entities have been trying to determine the optimal distance for locating bus stops. Different tools have been used, among them: linear regression, sensitivity analysis and modeling. During this process, many factors have been considered that influence the establishment of ideal conditions, such as: population density, passenger load, boardings and alighting per bus stop, access cost, riding time, speed, average distance travelled and lost time, among others. In general, there are a broad range of standards for locating bus stops that are not uniform. It varies from 100 mts. (328 ft) to 800 mts. (2,625 ft) depending mostly on the density of the served area (high, medium and low residential, commercial, industrial, etc…) and the type of service provided (local, semi-express, limited stops or express). Some studies have determined that 375 mts. (1,220 ft.) is the optimal distance for routes with specific conditions. However, this may change from one route to another. Even though is difficult to get a standard distance for spacing bus stops, there are other aspects that the majority of these studies agreed on:

- Distance between bus stops is inversely related to the density of the served area.
- Increasing the distance between bus stops:
  - ✓ Reduce travel time
  - ✓ Reduce operating costs
  - ✓ Reduce maintenance costs
  - ✓ Reduce the number of buses required for service
  - ✓ Increase service reliability

**RATIONALE…**

Based on Appendix 2, MDT has an average of 4.9 bus stops per mile. This average includes all routes by type: local, limited stops and express services. Taking into consideration the local routes only, this average changes to 5.5 bus stops per mile or an average of 291 mts (954 ft) between bus stops. Therefore, a passenger should be walking an average of no more than 145 mts (476 ft) to access a bus stop along the route. This distance becomes shorter close to the Downtown area where bus stops are located every other block.

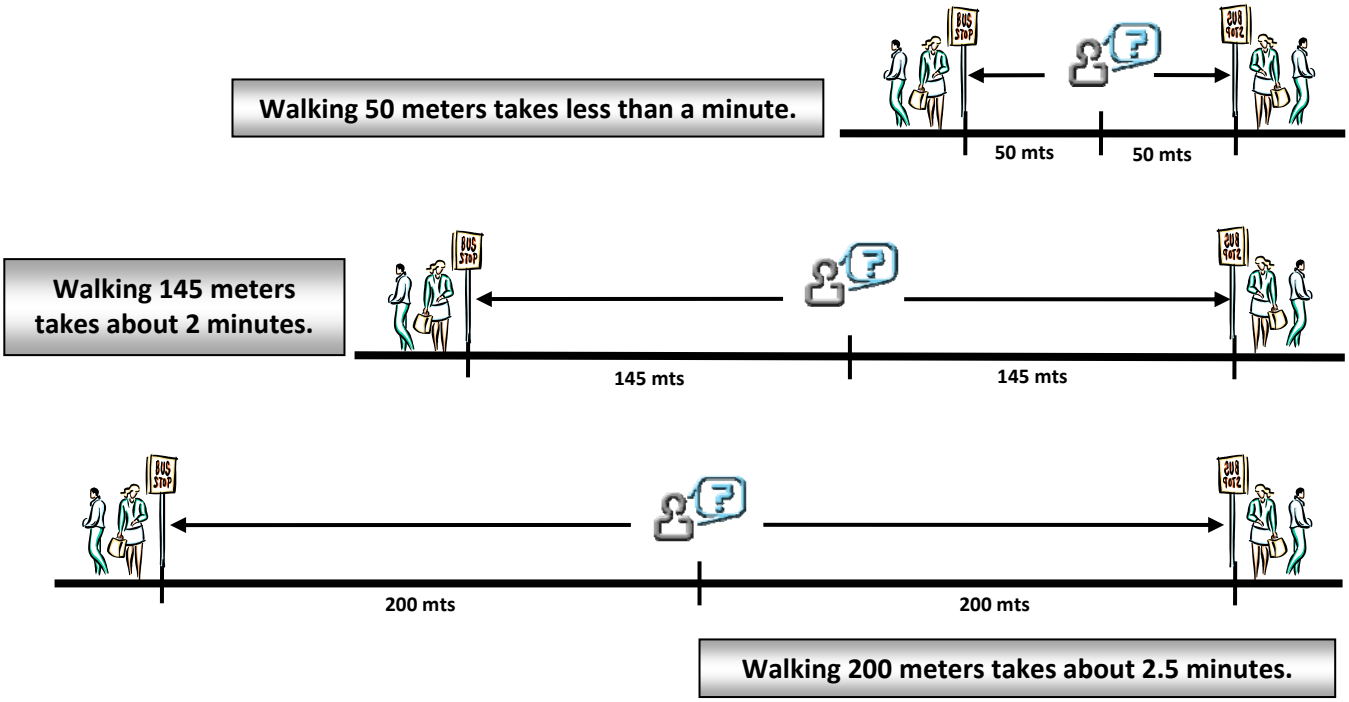
The average walking speed for an adult is 3.5 mph while for an elderly is 2.8 mph, using 3.0 mph as an average; a person can walk 145 mts in approximately 1.8 minutes (2 minutes). By spacing the bus stops to an average of 400 mts (1,312 ft), a person should walk 200 mts (656 ft) to the closer bus stops. Using the same 3.0 mph, a person should walk 200 mts (656 ft) in 2.5 minutes. Based on this calculation, spacing the bus stops to an average of 400 mts will add 1 minute walk to the closest bus stop. Additionally, for the purpose of accessibility to the bus stops, many transit agencies use 5 minutes as the influence area for bus stops which translate into 400 meters. Therefore, it is recommended to establish a standard of 400 meters for bus stops spacing, where appropriate.

Table 1 shows the average walking time to access a bus stop along the route for an adult and an elderly. The table also indicates the access time using 3.0 mph as an average. This table shows the walking impact of spacing the bus stops to 400 meters.

**Table 1: Walking Time to the Bus Stop**

| # | Description | Walking Speed (mph) | Distance in Meters & Feet | | |
|---|---|---|---|---|---|
| | | | 50 mts 164 ft | 145mts 476 ft | 200 mts 656 ft |
| 1 | Elderly | 2.8 | .7 minutes | 1.9 minutes | 2.7 minutes |
| 2 | Adult | 3.5 | .5 minutes | 1.6 minutes | 2.1 minutes |
| 3 | Average | 3.0 | .6 minutes | 1.8 minutes | 2.5 minutes |

The following figures illustrate the above referenced statements.



**As shown above, in the worst case scenario, the additional walking time for reaching a bus stop is less than 2.0 minutes. Based on this brief analysis, it is recommended to establish a standard of 400 meters between bus stops, along the majority of the routes.**

## VII. REGULAR ROUTES VS LIMITED STOPS ROUTES

As mentioned before, routes with limited stops, semi-express and express services are very good options to expedite the mobility of the passengers. However, under the current MDT financial conditions, the available resources have to be maximized and service should concentrate on the regular routes. The following illustration shows how both concepts work along a particular route.

**Regular Route – Stopping at all bus stops**

**Limited Stops Route – Stopping at selected bus stops**

Table #2 shows a comparison of both services along the same corridor. For the purpose of this comparison, the cost per passenger clearly indicate a higher direct operational cost (DOC) for the option of providing limited stop service.

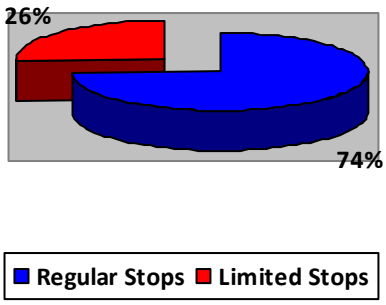
**Table 2: Average Cost per Passenger**
**Regular Routes vs Limited Stops Routes**

| Route # | Regular Routes | | | Route # | Limited Stops Service | | | Difference Cost/Pass. |
|---|---|---|---|---|---|---|---|---|
| | Passengers | DOC ($) | Cost/Pass. | | Passengers | DOC ($) | Cost/Pass. | |
| **J** | 9,209 | 16,510 | 1.79 | **120** | 1,793 | 7,217 | 4.03 | 2.24 |
| **3** | 7,939 | 21,719 | 2.74 | **93** | 3,533 | 11,476 | 3.25 | 0.51 |
| **11** | 14,163 | 21,480 | 1.52 | **51** | 4,086 | 15,226 | 3.73 | 2.21 |
| **24** | 3,728 | 13,310 | 3.57 | **224** | 351 | 2,381 | 6.78 | 3.21 |
| **27** | 10,028 | 20,551 | 2.05 | **97** | 1,490 | 6,106 | 4.10 | 2.05 |
| **31** | 2,252 | 5,845 | 2.60 | **38** | 6,805 | 23,434 | 3.44 | 0.84 |
| **40** | 2,677 | 10,669 | 3.99 | **240** | 449 | 4,074 | 9.07 | 5.08 |
| **72** | 1,199 | 5,017 | 4.18 | **272** | 1,197 | 7,335 | 6.13 | 1.95 |
| **73** | 2,711 | 10,529 | 3.88 | **267** | 569 | 2,645 | 4.65 | 0.77 |

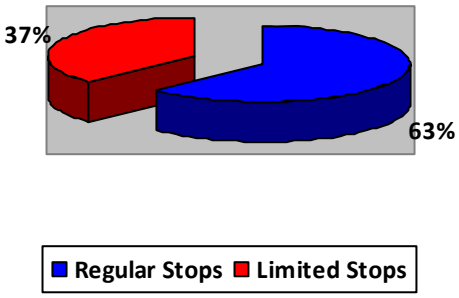
**Table 2 continues…**

| Route # | Regular Routes | | | Route # | Limited Stops Service | | | Difference Cost/Pass. |
|---|---|---|---|---|---|---|---|---|
| | Passengers | DOC ($) | Cost/Pass. | | Passengers | DOC ($) | Cost/Pass. | |
| **77** | 11,138 | 24,270 | 2.18 | **277** | 1,280 | 4,452 | 3.49 | 1.31 |
| **83** | 4,345 | 13,504 | 3.11 | **183** | 1,637 | 7,539 | 4.61 | 1.50 |
| **88** | 3,018 | 8,705 | 2.88 | **288** | 797 | 4,347 | 5.45 | 2.57 |
| **104** | 1,897 | 6,544 | 3.45 | **204** | 1,990 | 10,048 | 5.05 | 1.60 |

**PASSENGERS MOVEMENT**




**DIRECT OPERATING COSTS ($)**




**When the average cost per passenger for the above regular routes and the limited stops routes are compared, it is found that…**

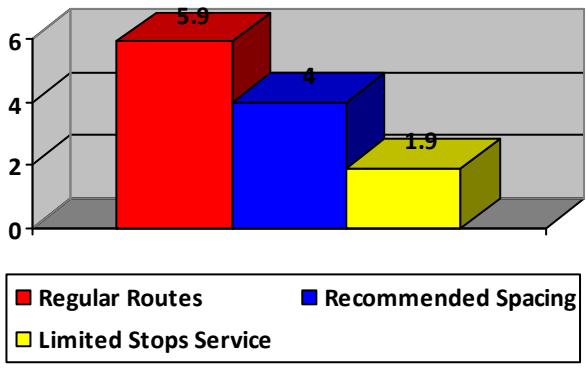
- **Regular route: $2.40/passenger**
- **Limited Stops: $4.09/passenger**

**This shows that a saving in DOC will be obtained by eliminating or reducing the routes with limited stops.**

The folowing graphs show that moving 26% of the passengers along the limited stops routes cost 37% of the DOC, while moving the rest of the 74% of the passengers along the regular routes cost 63% of the DOC.

Currently, the regular routes that have also another route providing limited stops service have an average of 5.9 bus stops per mile versus and average of 2 bus stops per mile on the limited stop service. Definitively, this represents a huge saving in travel time, but at a higher costs.

**BUS STOPS PER MILE**



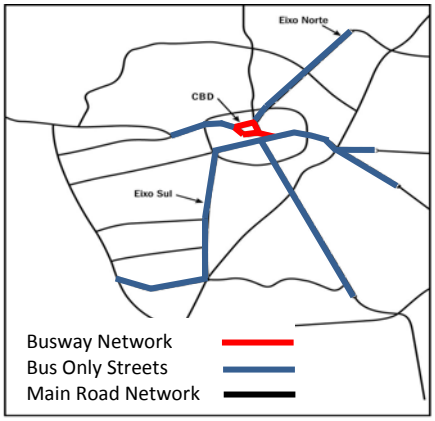
As recommended in the previous section, by establishing as a standard 400 meters between bus stops, this is an average of 4 bus stops per mile. This change provides a saving in travel time at a lower cost and does not eliminate the option of establishing a limited stops service in the future.

## VIII. THEORY VERSUS REALITY

The recommended implementation of a Trunk and Feeder Bus System is not a dream and not a theory. This concept has been established successfully in many other industries. This idea makes sense for moving anything, whether it is the distribution of water and power or the highway network. These are nothing more than a trunk and feeder system, where the collectors feed the major arterials and the major arterials feed the expressways. Regarding transit system, the most successful transit systems in the world use the trunk and feeder concept.

### A. Curitiba, Brazil

In operation since 1964, the system has expanded from one dedicated facility (busway) to five of them. This is an integrated transportation system that uses these busways just for trunk routes and the other bus routes feed these trunk lines. The trunk lines are served by bi-articulated buses with a capacity of 260 passengers per bus. Today, there are about 1,600 buses in the fleet moving over 2.0 million trips per day. The system has 26 major and moderate size integration terminals.



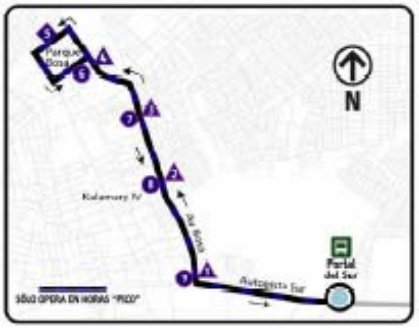

Another major component of this system is the passenger facilities. Dedicated pre-boarding stations known as the “tube” (see illustrations) are located at about 500 meters or more along the 58 km of the busway and integrated terminals every 4 kilometers. These structures facilitate the access of the passengers to the buses without major disruption. Currently, the most heavily traveled corridor carries over 14,000 passengers per hour per direction with 90 seconds headway.

## B. Transmilenio, Colombia

Based on the model used by the Curitiba System, in the late 1990's the City of Bogota initiated the planning of a similar bus transit system. After three years of planning, design and construction, the first phase of the system was opened to the public in December 2000. Today, there are over 1,000 buses serving the 9 trunk routes and over 450 buses serving the 74 feeder routes. There are over 100 stations that are divided in 4 categories, depending of the purpose and volume of the stations. The closest stations are located every 500 meters. The Transmilenio moves over 1.0 M passenger per day.

Phase III of the Transmilenio is going on and new trunk routes will be added to expand the system to other areas. This includes additional feeder routes and more stations. As Curitiba, the Transmilenio uses dedicated bus lanes along the trunk routes. Curitiba and Transmilenio are considered the most successful Bus Rapid Transit (BRTs) system in the world. Figure 2 illustrates the trunk routes and an example of a feeder route.

**Figure 2** Illustrates the Trunk Routes Network and a example of a Feeder Route of the Transmilenio.


Following the success of these cities, this system has been modeled for other cities such as: Lima (Peru), Quito (Ecuador), Singapore (Singapore), Mexico City and Leon (Mexico) and Cali and Medellin (Colombia).

## IX. WHY THESE SYSTEMS ARE SUCCESSFUL?

There are several elements that made these system successful:

1. Development of a comprehensive transportation master plan.
2. Integration of different transportation modes.
3. Use of exclusive bus lanes. Many of these busways are phisycally separated with a barrier from regular traffic that allows a high speed on the trunk routes and reduce the travel for the passengers.
4. Controlled operation of trunk and feeder routes.
5. Spacing of the bus stops at 500 meters and implementation of different type of stations depending of the service provided by the trunk line.
6. Public/private partnership.
7. Distinct identity and good image.
8. Easy fare system and pre-paid boarding stations that facilitates the boarding and alighting of passengers in attractive stations.
9. Complete monitoring of the daily service.
10. Less cost than rail options.
11. Strong marketing campaign to obtain public acceptance.

**The most important elements for the success of these systems are that they represent a great service improvement over the traditional bus services, acceptance of the public, strong political leadership and a commitment for success.**

**IF THESE SYSTEMS HAVE BEEN SUCCESSFULLY IMPLEMENTED IN OTHER CITIES…**
**WHY NOT IN MIAMI-DADE?**

## X. COMMITMENT

In order to be successful with the implementation of the recommended Trunk & Feeder Bus System, MDT should make a commitment in the following areas:

### A. Service Approach

In many other locations, and probably Miami-Dade County is not the exception, transit services are considered as a social service. This social service approach has taken many transit agencies to a recurring service expansion and increase of their operational expenses. In the long term, there is no end to this approach. Successful transit agencies, on the other hand, have taken a business approach to mass transit. This private sector approach to doing business maximizes resources and profit. This new approach is recommended for MDT.

MDT should establish a new vision by providing reliable and accessible mass transit services at a minimum operating cost. As part of this approach, MDT should concentrate its efforts in those routes with higher passenger movement. The rest of the routes that do not have enough passengers for the larger vehicles used by MDT, should be served by municipalities or the private sector or modified, as appropriate.

### B. Reliability

In the process of implementing a trunk & feeder bus system, MDT has to commit the equipment and personnel necessary for the success of the service. Time performance needs to be 100% and not less.

### C. Transferring

With the implementation of the Easy Card, transferring from one route to another is not a problem. MDT should continue facilitating this transfer free of charge.

### D. Concentrate Service

Under the existing MDT's financial constraints it is recommended to concentrate the efforts in improving the service along those corridors with higher passenger movement. Additionally, eliminate limited stops to maximize the resources and eventually, when financially appropriate, re-establish those services.

### E. Marketing

A marketing mass campaign needs to be developed and implemented. These service changes need to reach the community, users and non-users. The ultimate goal of these changes is to improve transit services for those regular riders and attract new riders to the transit system.

### F. Monitoring

MDT has to establish a monitoring system to correct any deficiencies in the proposed service. Corrective actions need to be implemented immediately after a problem is identified. While the APC System in place, this monitoring system should be customized to meet MDT's needs.

### G. Education & Training

An educational and training campaign is mandatory for bus drivers and supervisors. They are the tools to change the image of MDT and to promote the benefits of the new system.

### H. Attract New Riders

Transit riders are considered in many cities are "captives passengers". This means that they have no other transportation option than transit. An extra effort should be done to attract new riders from private vehicles. This can be done by providing a reliable service that can compete with the flexibility of the private car.

# CHAPTER III: CORRIDOR ANALYSIS

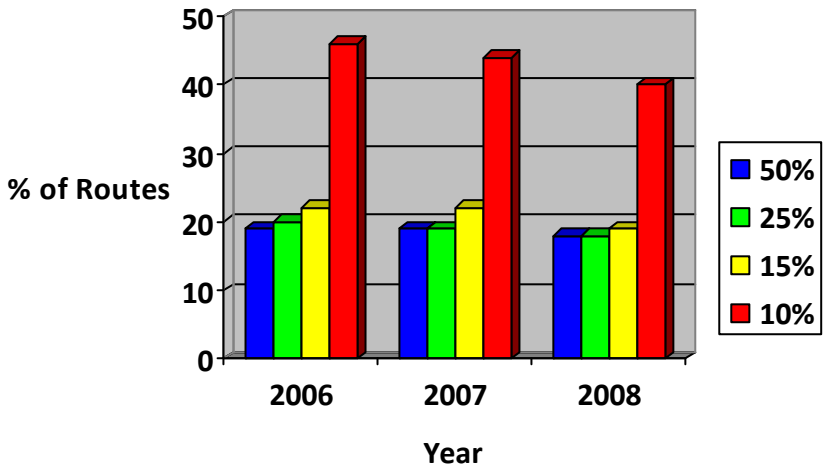
To conduct the appropriate analysis for the implementation of the Trunk and Feeder Bus System, data was gathered from different sources:

- Miami-Dade Transit (MDT)
- Metropolitan Planning Organization (MPO)
- Florida Department of Transportation (FDOT)

## I. CORRIDOR IDENTIFICATION

The first step in identifying the major transit corridors was to analyze the daily ridership by route. The latest MDT available data was from October 2008. All routes were listed from the highest to the lowest ridership. A table was developed to determine the ranking of each route by passenger movement. Appendix 3 shows the ranking of all MDT bus routes as listed in the October 2008 Ridership Technical Report (MDT). To determine the consistency of the data, the same process was conducted for September 2006 and 2007. The results of this analysis are shown in following figure.

**Figure 3: MDT Ridership Comparison**

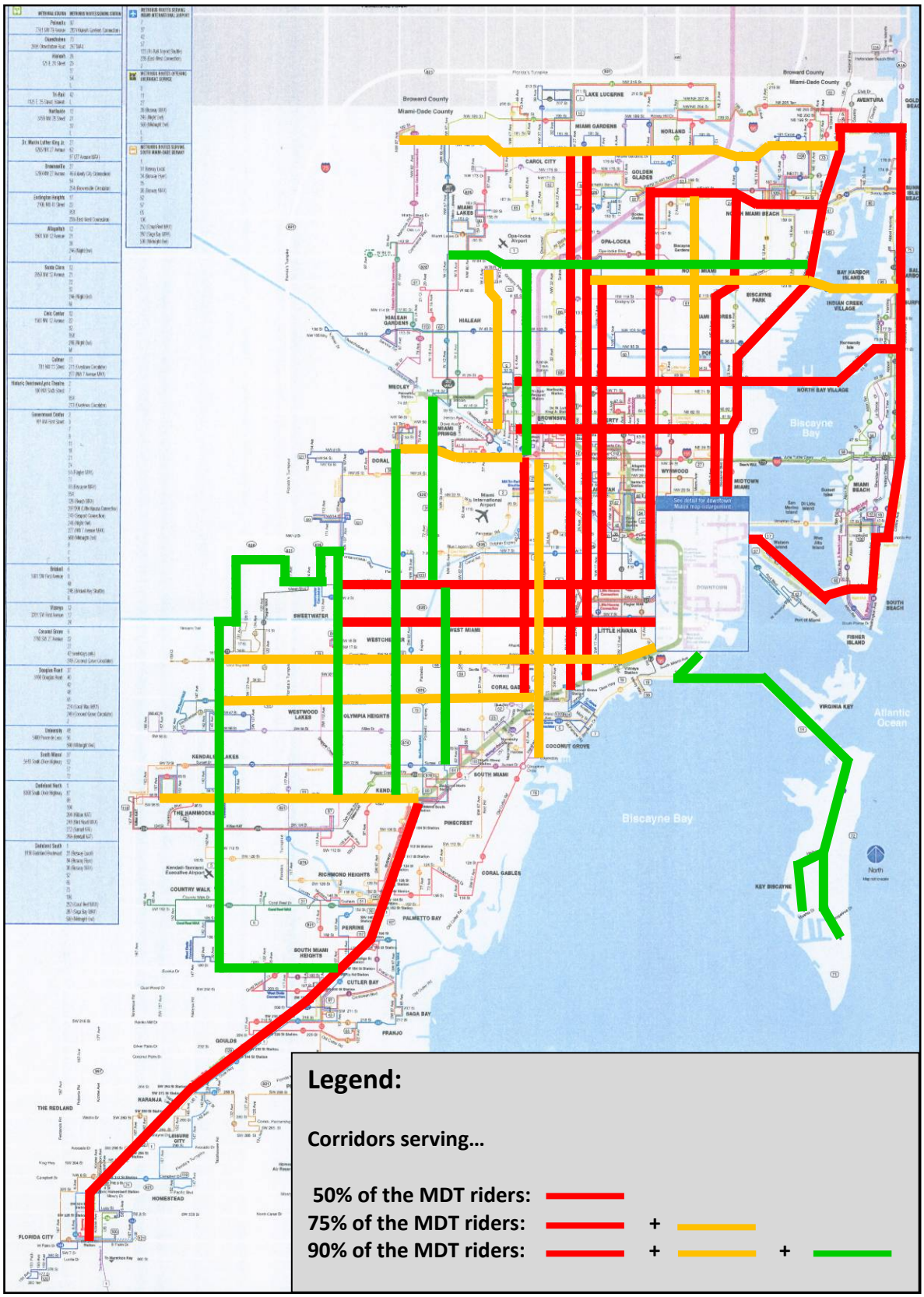



The top 18 routes carry approximately 50% of the daily passengers. In the same way, the next 18 routes carry an additional 25% of the daily passengers, another 19 routes carry 15% of the passengers and about 43 routes carry the rest 10% of the passengers. In conclusion, about 50% of the routes carry 90% of the daily passengers. Figure 3 illustrates the magnitude of this preliminary analysis.

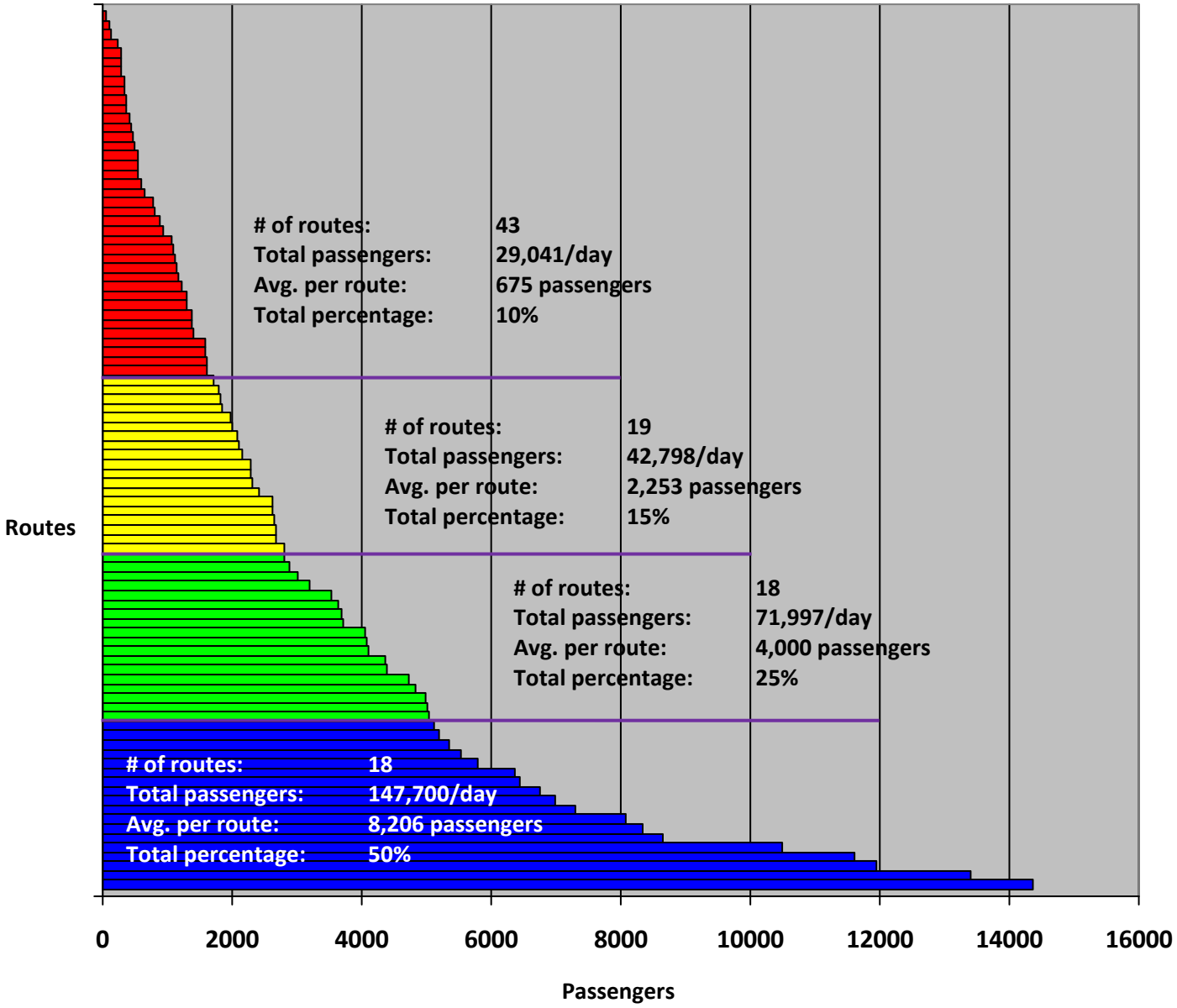
After this analysis, this data was plotted in a map to identify the corridors where these passengers movement is occurring. Figure 4 illustrates these corridors and Figure 5 grouped these routes by percentage of the daily ridership.

**Based on this preliminary analysis, MDT should consider major service improvements along those routes that carry 90% of their daily passengers.**

## Figure 4: Corridors with Higher MDT Passengers Movement



## Figure 5: Routes Grouped by Percentage of Daily Ridership




Appendix 4 lists the routes serving the corridors shown in Figures 3 and 4. Additionally, Appendix 5 shows a table with the operational characteristics of the routes by corridor.

## II. CORRIDOR SCREENING

The analysis conducted in the previous section was presented to the Study Working Committee (SWC) with the following additional comments by corridor:

- **LeJeune Road**
  The northern part of this corridor (north of NW 7th St.) has good service but is too short in length for implementing any of the proposed options.
- **NW/SW 27th Avenue**
  Ridership and buses on service are appropriate for further consideration. This corridor should be concentrated from Miami Gardens Drive to Martin Luther King Metrorail Station.
- **NW/SW 22nd Avenue**
  The northern part of this corridor (north of NW 127th St.) has good service but is too short in length for implementing any of the proposed options.
- **NW 17th Avenue**
  There is only one route and 11 buses in service. This corridor does not provide flexibility for implementing a trunk and feeder system.
- **NW 7th Avenue**
  Good corridor for considering other transit options. Consistent ridership and buses in service, but only three routes.
- **NW 2nd Avenue**
  There is only one route and 10 buses in service. This corridor does not provide flexibility for implementing a trunk and feeder system.
- **Biscayne Boulevard**
  Based on the characteristics of this corridor, this should be further evaluated for implementing a BRT.
- **Collins Avenue**
  Based on the characteristics of this corridor, this should be further evaluated for implementing a BRT.
- **Busway**
  This corridor has very good condition for implementing a trunk and feeder system. Consistent number of buses and ridership along the corridor, as well as several routes servicing the area.
- **NE 167th/163rd Street**
  This corridor has very good condition for implementing a trunk and feeder system. Consistent number of buses and ridership along the corridor, as well as several routes servicing the area.
- **NW 79th Street**
  There is only one route and 19 buses in service. This corridor should be considered for transit improvements. Good daily ridership.
- **NW 54th Street**
  There are only 12 buses in service along this corridor. This does not provide flexibility for implementing a trunk and feeder system.
- **NW 36th Street**
  Good corridor for considering other transit options. Consistent ridership and buses and several routes along the corridor.

- **Flagler Street**
  A BRT is being considered for implementation along this corridor. This corridor could be considered for further evaluation and for the implementation of a reversible lane.
- **SW 8th Street**
  There is only one route and 16 buses in service. This corridor should be considered for transit improvements as an alternative corridor for deviating traffic during the construction of the SR-826 / SR-836 Interchange.
- **Palm Avenue**
  There is only one route and 9 buses in service. This corridor does not provide flexibility for implementing a trunk and feeder system.
- **NW/SW 37th Avenue**
  The northern part of this corridor (north of NW 11th St.) has good service but is too short in length for implementing any of the proposed options.
- **NW/SW 12th Avenue**
  There is an average of 15 buses in service. This corridor should be considered for transit improvements. Good daily ridership.
- **North Miami Avenue**
  There is only one route and 6 buses in service. This corridor does not provide flexibility for implementing a trunk and feeder system.
- **Miami Gardens Drive**
  Good corridor for considering other transit options. Consistent ridership and buses and several routes along the corridor.
- **NW/NE 125th Street**
  The eastern part of this corridor (east of NE 6th St) has good service but is too short in length for implementing any of the proposed options.
- **SW 24th Street (Coral Way)**
  Only the segment from SW 107th Ave to SW 62nd Ave has good ridership and buses in service. This is due to route #8. This corridor is not recommended for implementing any of the proposed options.
- **SW 40th Street (Bird Rd)**
  There are 2 routes and 12/7 buses in service. This corridor does not provide flexibility for implementing a trunk and feeder system.
- **SW 88th Street (Kendall Dr)**
  A BRT is being considered along this corridor. MDT is working with the MPO is this project.

## III. CORRIDOR SELECTION

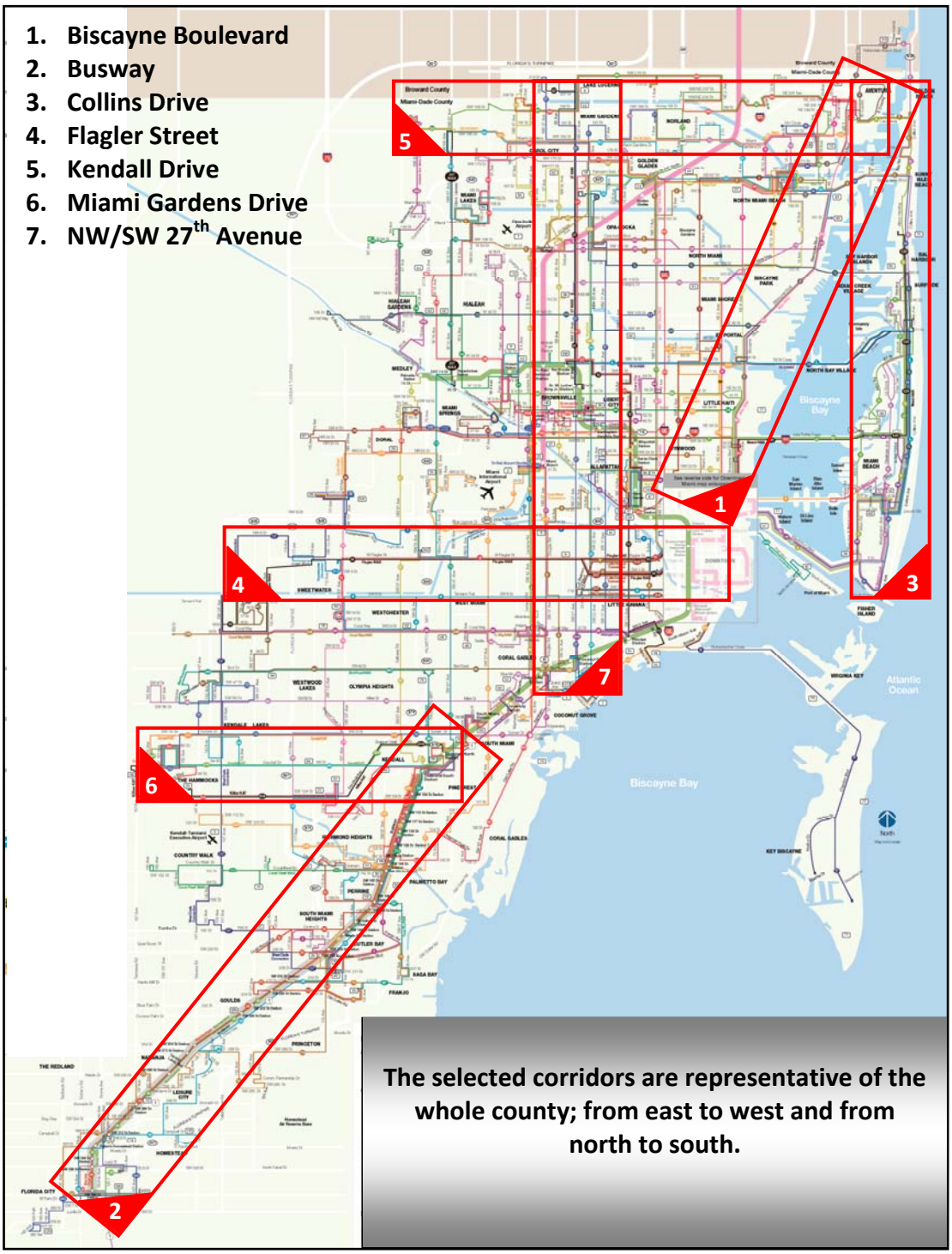
After the corridors were evaluated at the SWC level, the following corridors were selected for further analysis:

- **Biscayne Boulevard**
- **Busway**
- **Collins Avenue**
- **Flagler Street**

- **Kendall Dr.**
- **Miami Gardens Dr.**
- **NW/SW 27th Avenue**

The selected corridors are among the largest corridors in terms of buses per hour and ridership. The Kendall Drive Corridor was selected based on the work already done regarding the implementation of a BRT. MDT and MPO have been working in the development of this corridor. Figure 6 illustrates the location of the selected corridors.

**Figure 6: Selected Corridors**



## IV. CORRIDOR EVALUATION

Based on the recommendation of implementing the Trunk and Feeder (T&F) concept, every corridor was evaluated using the same methodology and approach:

- All the information used during this process was obtained from two reports generated by MDT:
  a. Ridership Technical Report dated October 2008
  b. Omnibus Schedule Information, Vehicle Requirement and Operating Data Report revised October 2008
- These reports provided the following information per route:
  a. Roundtrip (miles)
  b. Travel Time (minutes)
  c. Peak and Off-Peak Headways (minutes)
  d. Hour of Service
  e. Average Speed (mph)
  f. Average Daily Ridership
  g. Buses in Service (Peak Period)
  h. Trips per Hour (Peak and Off-Peak Periods)
  i. One Way Trips
  j. Total Revenue Miles
  k. Direct Operating Cost (DOC)
  l. Recovery ratio (%)
- Using this information it was determined:
  a. Route percentage of the average passengers per day of the total ridership
  b. Passengers/mile
  c. Passengers/hour
  d. DOC per Revenue Mile
- Proposed Trunk and Feeder routes were selected taking into consideration:
  a. Avoid duplication of service.
  b. Keep the travel patterns of existing riders.
  c. Minimize number of transfers to one.
  d. Maintain the service hours.
  e. Maximize existing resources (buses).
  f. Reduce DOC.
- To be consistent, the same information mentioned above was determined and calculated for the proposed T&F routes:
  a. Roundtrip miles were obtained from a software application called “GMAPS”.
  b. Travel time was calculated using the same average speed per route.
  c. Peak and off-peak headways were determined based on the number of buses per hour. In order not to affect existing service, the number of buses per hour was maintained or improved depending of the type of service (trunk or feeder route) and the volume of passengers.
  d. The same number of service hours was maintained for the proposed routes.
  e. The number of required buses was calculated for peak and off-peak periods.
  f. The number of one-way trips was calculated by route.

g. The total revenue-miles were calculated by route.
h. Total DOC was calculated for each proposed route using MDT data.

- After this process, a comparison for determining the effectiveness of both services; the existing versus the proposed Trunk & Feeder System.
- Due to limitations in the existing ridership data, it was determined to use the number of buses per hour as the comparison measure to maintain the level of service along the corridor.

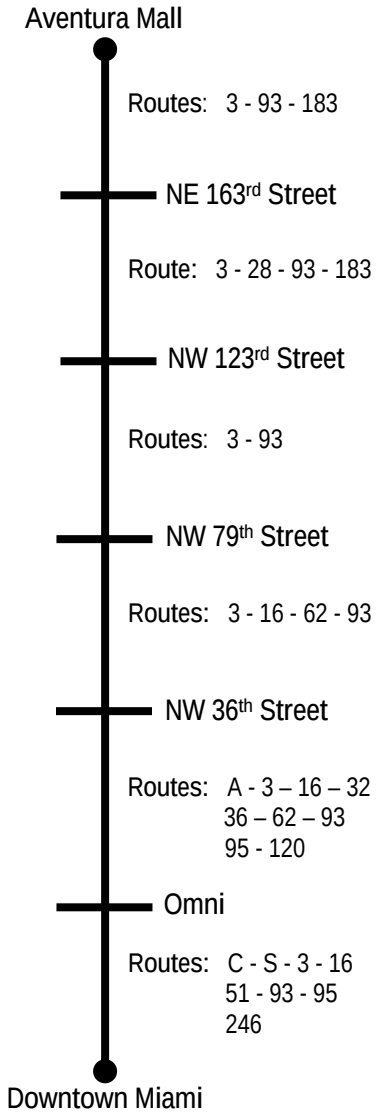
The results of these analyses are included in appendices. The next chapters provide detailed analysis and recommendation for each selected corridor.

# CHAPTER IV: BISCAYNE BOULEVARD

## I. EXISTING MDT SERVICE

Figure 7 depicts a schematic of all routes that use a segment along Biscayne Boulevard. This figure also illustrates the service duplication by segments. Figures 8 and 9 shows the detailed route alignments of all routes serving this corridor. A first screening of these routes was conducted to determine which routes were suitable for conversion to the Trunk & Feeder System.

**Figure 7: Biscayne Boulevard**




## II. ANALYSIS OF SERVICE

The following routes were selected and evaluated in more detail for further recommendations:

1. Route 3: Hallandale Beach Boulevard to Downtown Miami
2. Route 16: NE 163rd Street Mall to Downtown Miami
3. Route 62: Okechobbee Rd/MLK Metrorail Station to Omni/Indian Creek Dr.
4. Route 93: Aventura Mall to Downtown Miami

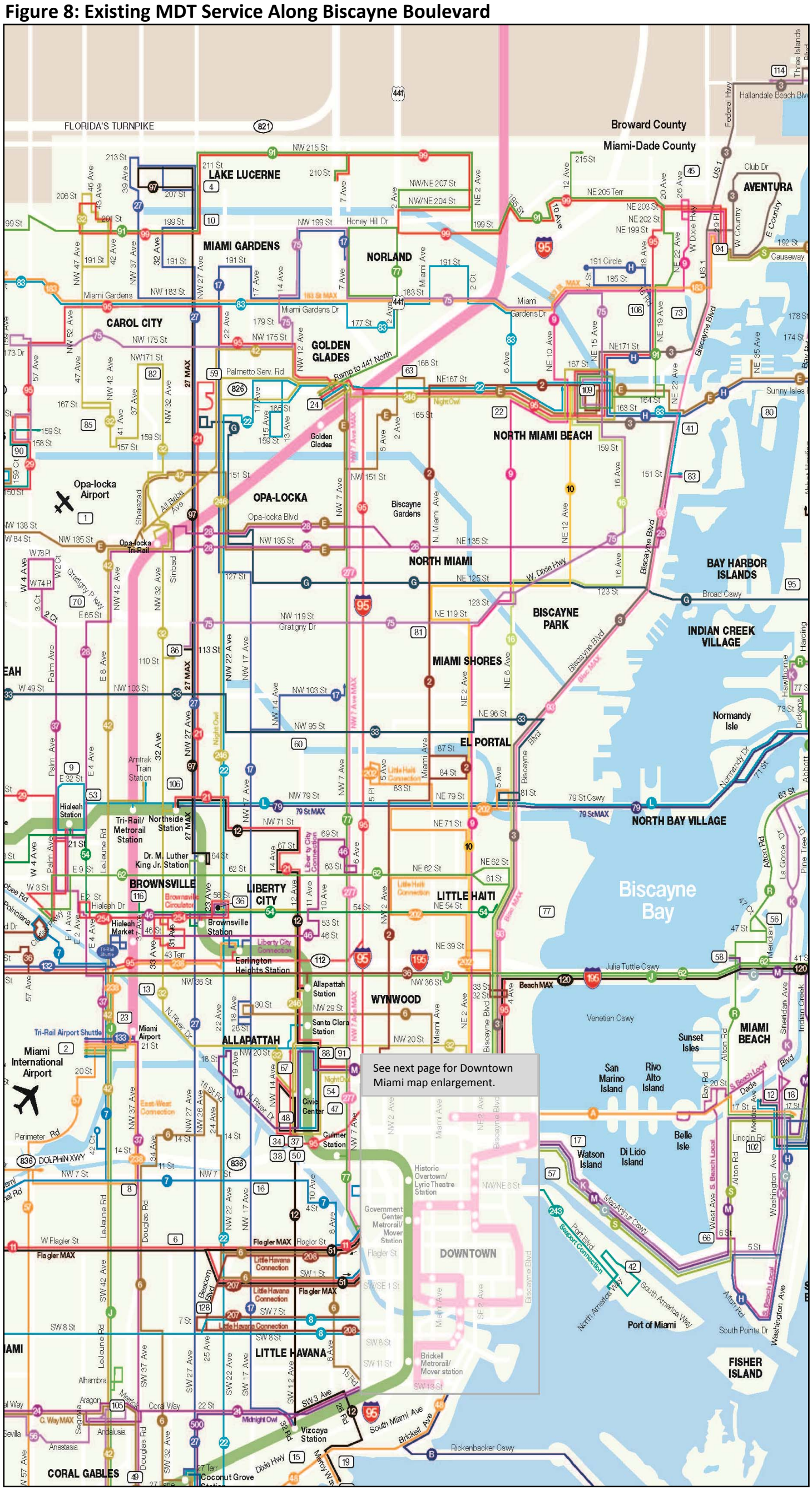
Routes 51, 183, A, C, S and 120 will be evaluated as part of other corridors. Appendix 6 shows a detailed analysis of the existing and proposed MDT routes along the corridor. In order to be consistent, the same MDT data was used for developing and analyzing the proposed route changes.

## III. PROPOSED SERVICE

### A. Rationale

1. Routes 3 and 93 provide the same service except that Route 3 provides local service and originates at Hallandale Beach Boulevard whereas Route 93 is the Biscayne Max with limited stops and originates at Aventura Mall.
2. Route 16 ends at Downtown Miami where there are too many routes and no appropriate physical facilities for handling large volume of buses.
3. Route 62 has two origins and two destinations. This situation creates passenger's confusion and limits the planning capabilities for service improvements. All boardings are reflected in the same route. Therefore, it's not possible to determine which service carries more passengers. By dividing this route in three routes, it is possible to evaluate them individually and be able to determine the need of each one. Additionally, this action eliminates the confusion regarding route identification with two different origins and destinations.

## Figure 8: Existing MDT Service Along Biscayne Boulevard



## Figure 9: Downtown Insert


There are 7 and 16 routes that use the Omni Metromover Station and the Downtown area as end terminals. The volume of passengers and buses at the downtown area requires better infrastructure and facilities for both; passengers and MDT staff.

Additionally, there are other routes serving the area but their destinations are not the Downtown area.

## B. Corridor Recommendations

1. Create the Biscayne Boulevard Trunk Route from Aventura Mall to Downtown Miami.
2. End Route 16 at the Omni bus terminal.
3. Create a feeder route from MLK Metrorail Station to Okeechobee Road in Hialeah.
4. Establish a route from MLK Metrorail Station to Omni bus terminal.
5. Continue with the express service from MLK Metrorail Station to Indian Creek Dr.
6. Eliminate service from Aventura Mall to Hallandale Beach Boulevard.

Table 3 shows the service characteristics, total revenue-miles and the direct operating costs (DOC) of the proposed changes. Additionally, Figure 10 illustrates the Trunk and Feeder System proposed for the Biscayne Boulevard Corridor.

**Table 3: Proposed Service Characteristics for Routes Along Biscayne Boulevard**

| # | Description | Biscayne Blvd. Trunk Route | MLK Feeder Route to W 3rd St. & Palm Ave. | MLK to Omni | MLK to Indian Creek Dr. Option | End Route 16 at Omni Station |
|---|---|---|---|---|---|---|
| 1 | Headway – peak | 8 | 20 | 12 | 30 | 15 |
| 2 | Headway – off-peak | 12 | 30 | 20 | - | 30 |
| 3 | Buses in Service - peak | 20 | 2 | 8 | 4 | 13 |
| 4 | Hours of Service | 24 | 20 | 20 | 6 | 18 |
| 5 | Running Time (mins.) | 159 | 42 | 88 | 110 | 165 |
| 6 | One way trips | 198 | 84 | 120 | 24 | 94 |
| 7 | Revenue-Miles | 2,990 | 269 | 804 | 202 | 1,161 |
| 8 | Operating Cost ($) | 25,295 | 2,486 | 7,429 | 1,867 | 10,530 |

## C. Affected Areas

In addition to the recommended elimination of service from Aventura Mall to Hallandale Beach Boulevard (Route 3), there are two segments that should also be eliminated. These are shown in Figures 11 and 12.

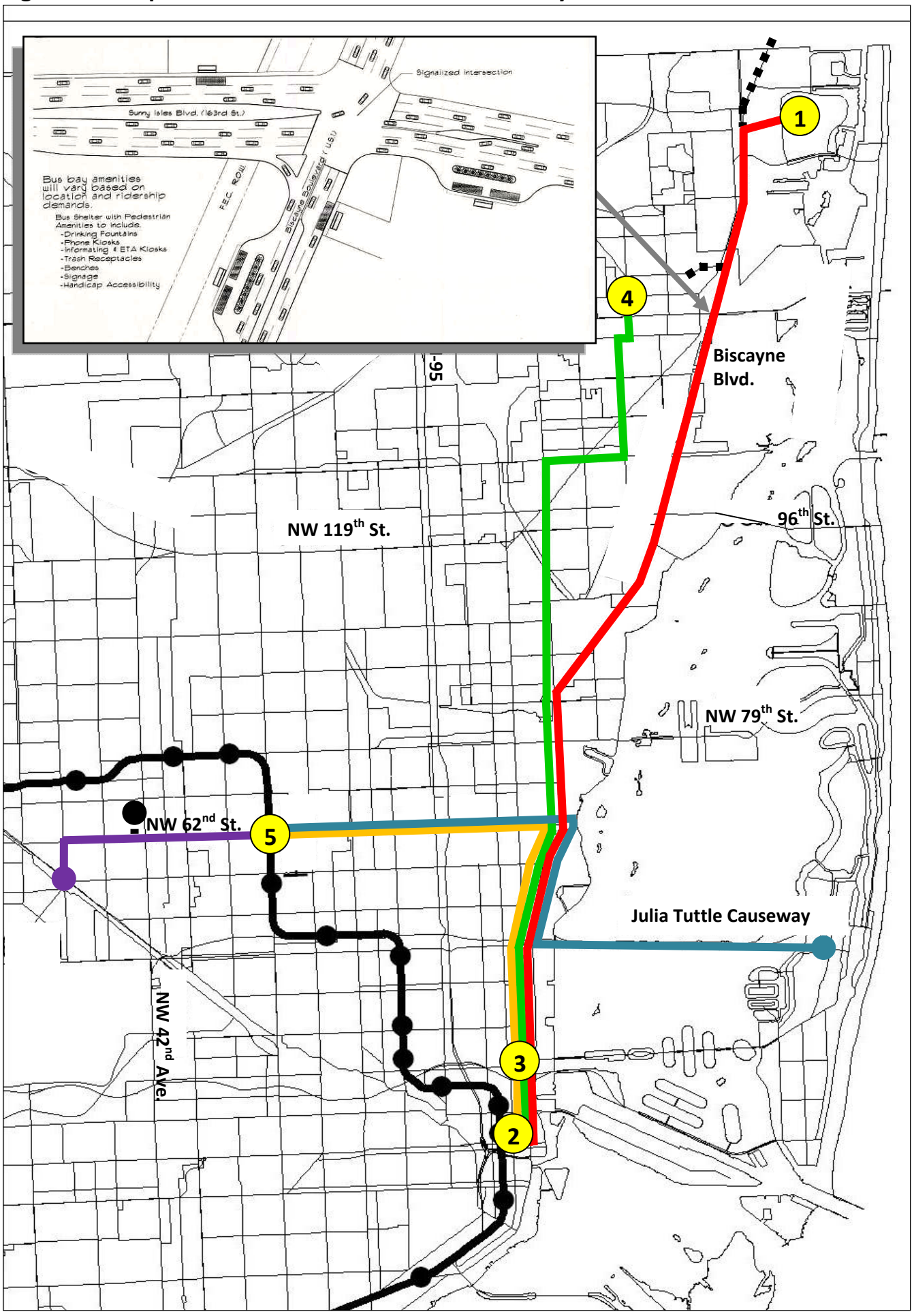
### 1. Route 3:

The length of the affected segment along this route is 0.72 miles.

This segment services single family units. There a no commercial, industrial or businesses affected by this recommended service change.

**Figure 11: Affected Roadway Segments along Route 3**

**Figure 10: Proposed Trunk & Feeder Routes for Biscayne Boulevard**




**LEGEND:**

1. Proposed Aventura Bus Terminal
2. Proposed Downtown Bus Terminal
3. Omni Metromover Station Bus Terminal
4. NW 163rd / 167th Street Bus Terminal
5. Martin Luther King, Jr. Metrorail Station

- Metrorail
- Biscayne Boulevard Trunk Route
- New Route 16
- Feeder Route 62
- New Route MLK – Downtown
- MLK – Indian Creek Dr. Express
- Affected Areas

2. **Route 62:**
As shown in Figure 12, there are three segments affected along this route for a total of 0.77 miles.

The affected segments are mostly residential and commercial.

**Figure 12: Affected Roadway Segments along Route 62**


## D. Before and After Comparison

When comparing existing routes versus the proposed service the results are similar for all corridors.

- SHORTER TRIPS ↓ LESS MILEAGE
- LESS TRAVEL TIME ↓ FASTER TRIPS
- HOUR OF SERVICES = SAME SERVICE SPAN AS BEFORE
- HEADWAY ↓ SERVICE INCREASED
- ONE WAY TRIPS ↑ MORE TRIPS FOR BETTER MOBILITY

**THE RECOMMENDED CHANGES REDUCE THE DIRECT OPERATING COSTS ASSOCIATED WITH THE CORRIDOR AND ALSO IMPROVE THE STANDARDS FOR PASSENGERS PER MILE AND PASSENGERS PER HOUR CARRIED BY EACH ROUTE.**

Based on buses per hour, Table 4 illustrates a comparison in service performance along the Biscayne Boulevard Corridor, before and after the recommended changes.

| TABLE 4: Service Comparison - Before and After | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | Aventura – NE 171st Street | 3 | 3 | 3T | 7.5 | |
| | | 93 | 4 | 183 | 2 | |
| | | 183 | 2 | | | |
| | **Total trips per hour** | | **9** | | **9.5** | **+.5** |
| 2 | NE 171st Street – NE 163rd Street | 93 | 4 | 3T | 7.5 | |
| | | 183 | 2 | 183 | 2 | |
| | **Total trips per hour** | | **6** | | **9.5** | **+3.5** |
| 3 | NE 163rd Street – NE 151st Street | 3 | 3 | 3T | 7.5 | |
| | | 83 | 4 | 83 | 4 | |
| | | 93 | 4 | 183 | 2 | |
| | | 183 | 2 | | | |
| | **Total trips per hour** | | **13** | | **13.5** | **+.5** |
| 4 | NE 151st Street – NE 135th Street | 3 | 3 | 3T | 7.5 | |
| | | 28 | 2 | 28 | 2 | |
| | | 93 | 4 | | | |
| | **Total trips per hour** | | **9** | | **9.5** | **+.5** |
| 5 | NE 135th Street – NE 96th Street | 3 | 3 | 3T | 7.5 | |
| | | 93 | 4 | | | |
| | **Total trips per hour** | | **7** | | **7.5** | **+.5** |
| 6 | NE 96th Street – NE 79th Street | 3 | 3 | 3T | 7.5 | |
| | | 33 | 2 | 33 | 2 | |
| | | 93 | 4 | | | |
| | **Total trips per hour** | | **9** | | **9.5** | **+.5** |
| 7 | NE 79th Street – NE 62nd Street | 3 | 3 | 3T | 7.5 | |
| | | 16 | 3 | 16 | 4 | |
| | | 93 | 4 | | | |
| | **Total trips per hour** | | **10** | | **11.5** | **+1.5** |
| 8 | NE 62nd Street – NE 36th Street | 3 - 16 – 62 - 93 | 3 – 3 – 4 - 4 | 3T – 16 – Express - MLK | 7.5 – 4 – 2 - 5 | |
| | **Total trips per hour** | | **14** | | **18.5** | **+4.5** |
| 9 | NE 36th Street – Omni Mover Station | 3 – 16 – 36 – 62 – 93 - 120 | 3 – 3 – 3 – 4 – 4 - 2 | 3T – 16 – 36 – 93 – 120 - MLK | 7.5 – 4 – 3 – 2 - 5 | |
| | **Total trips per hour** | | **19** | | **21.5** | **+2.5** |
| 10 | Omni Mover Station - Downtown | 3 – 16 – 51 – 93 – 246 – C - S | | 3T – 16 – 51 – 246 – C - S | 25.5 | |
| | **Total trips per hour** | | **24** | | **25.5** | **+1.5** |

## IV. ESTIMATED SAVINGS

Table 5 shows a summary of the savings along this corridor.

**TABLE 5: Summary of Savings**

| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
|---|---|---|---|---|---|---|---|
| | | Before | After | Before | After | Before | After |
| 1 | 3 | 15 | - | 2,559 | - | 21,719 | - |
| 2 | 93 | 12 | - | 1,357 | - | 11,476 | - |
| 3 | Biscayne Trunk Route | - | 20 | - | 2,990 | - | 25,295 |
| 4 | 16 | 10 | - | 1,379 | - | 12,502 | - |
| 5 | 16 (Modified) | - | 11 | - | 1,161 | - | 10,530 |
| 6 | 62 | 13 | - | 1,424 | - | 13,164 | - |
| 7 | Feeder to Hialeah | - | 2 | - | 269 | - | 2,486 |
| 8 | MLK – Omni | - | 8 | - | 804 | - | 7,429 |
| 9 | Express to Indian Creed Dr. | - | 4 | - | 202 | - | 1,867 |
| 10 | Totals | 50 | 45 | 6,719 | 5,426 | 58,861 | 47,607 |
| 11 | Savings/Weekday | 5 buses | | 1,293/Weekday | | $11,254/weekday | |

Number of buses saved… 5

Daily Revenue-Miles Saved… 1,293
Per year… 336,180

Daily Savings in DOC… $11,254
Per year… $2.9M

## V. OTHER RECOMMENDATIONS

### A. Bus Stops

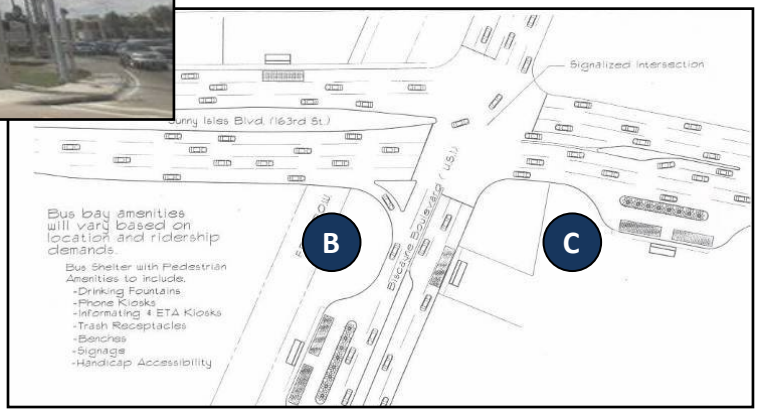
Relocate bus stops to an average of 400 meters.

### B. Larger Bus Stops/Transfer Stations/Park & Ride Facilities

**Biscayne Boulevard and NE 163rd Street**



Total estimated cost (1998): $770,000.




**A. Potential site for a P&R facility or a transfer station at Biscayne Blvd. and NE 163rd Street.**
This site is recommended in the FDOT Park & Ride Plan (2005) and could serve to transfer passengers to/from Biscayne Boulevard and Miami Gardens Trunk Routes.

**B. Potential site for a larger bus stop.**
This location may have some safety issues due to the proximity of the railroad track. However, schematic shows the possibility for construction

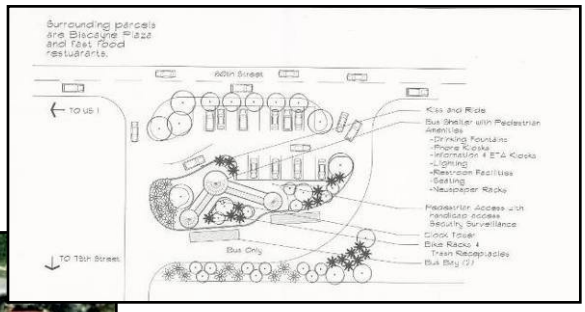
**C. Potential site for a larger bus stop.**

These sites are recommended in the Alternatives for Intermodal (1998) and Transit Connection Centers (2004) studies. These locations will transfer passengers between Biscayne Boulevard Trunk Route and Routes E & H.

## Biscayne Boulevard and NE 79th Street

**Proposed transfer station at Biscayne Blvd. and NE 79th Street**

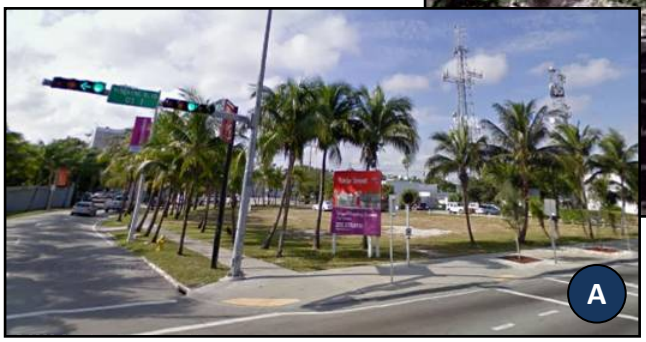
Total estimated cost (1998): $720,000. This site is recommended in the Alternatives for Intermodal (1998) and Transit Connection Centers (2004) studies.




## Biscayne Boulevard and NE 38th Street

**Potential site location for a transfer station at Biscayne Boulevard and NE 38th Street**

This site is recommended in the FDOT Park & Ride Plan (2005). The approximate estimated cost is $1.5M. This location could facilitate the transferring of passengers from Routes 36 and J to and from the Biscayne Blvd. Trunk Route.

## Biscayne Boulevard and NE 54th Street


**Potential transfer stations or a larger bus stops at NE 54th Street.**
This location will serve as a transfer facility for passengers transferring from Route 54 to the Biscayne Boulevard Trunk Route.

C Potential end terminal for Route 54.



## Biscayne Boulevard and NE 143rd Street

**Potential site for a transfer station or a larger bus stop at Biscayne Boulevard and NE 143rd Street**

This site is recommended in the FDOT Park & Ride Plan (2005).

## Palm Avenue and E 3rd Street


**Potential site locations for a transfer stations or lager bus stops at Palm Avenue and E 3rd Street.**
Routes 7, 29 and 37 can use this facility to transfer to the new feeder route. Also, other municipal services can use this transfer facility. Coordination is needed with the City of Hialeah for further consideration and implementation of this facility.

## Miami Gardens Drive and Biscayne Boulevard


**Potential location for larger bus stops at Miami Gardens Dr. and Biscayne Boulevard.**

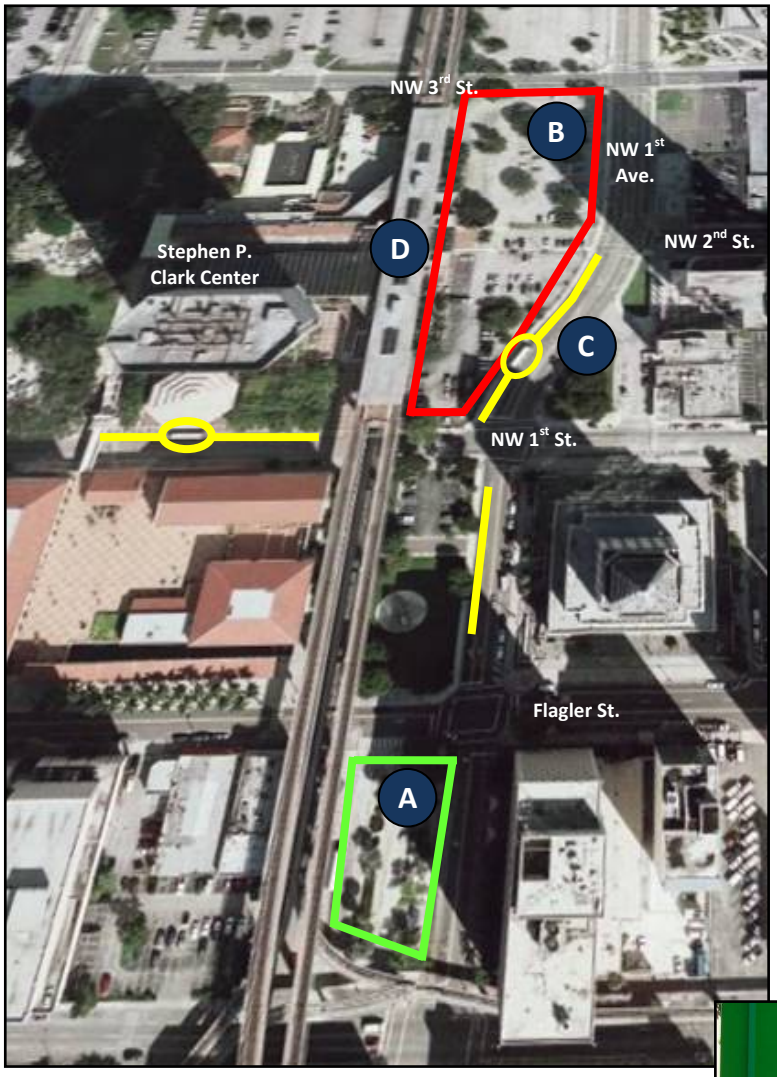
This location will allow the transferring of passengers to/from both trunk routes. However, locations need to be verified for appropriate space and evaluated for the safety of the passengers

**Potential site for an intermodal facility at Aventura Mall**



The recommended site for the location of an intermodal terminal, currently it's being used by MDT as an end point for several routes serving the Aventura Mall. This mall is also served by municipal transit services provided by the City of Aventura. An effort should be made for establishing an intermodal terminal at this location that will integrate transit services from MDT, the City of Aventura and Broward. Additionally, this facility would accommodate additional parking for the mall (employees or customers) which will bring more business opportunities to the mall.

**Potential site for the Downtown Bus Terminal east of the Stephen P. Clark Center**




This aerial shows the current MDT operation in the proximity of the Stephen P. Clark Center.

The end terminal for some MDT routes in Downtown is shown in section "A" of the aerial. This facility does not have amenities for passengers and bus drivers and it is located two blocks from the Metrorail and Metromover (D). There are some routes that have to park along NW 1st Street and NW 1st Avenue (C).

By building a multimodal terminal to the east of the Stephen P. Clark Center (B), all transit operation could be centralize in one location providing direct access to other transportation modes, as well as parking and amenities for passengers and bus drivers.

**A** — **Existing MDT Terminal Facility**

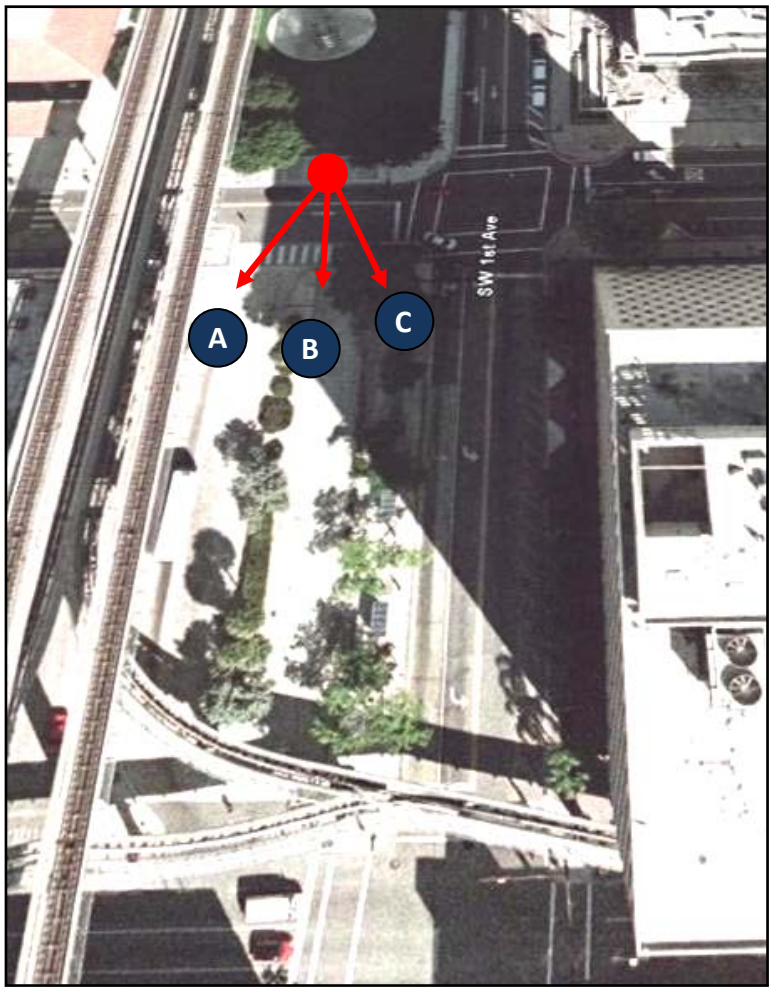
**B** — **Proposed MDT Downtown Terminal Facility**

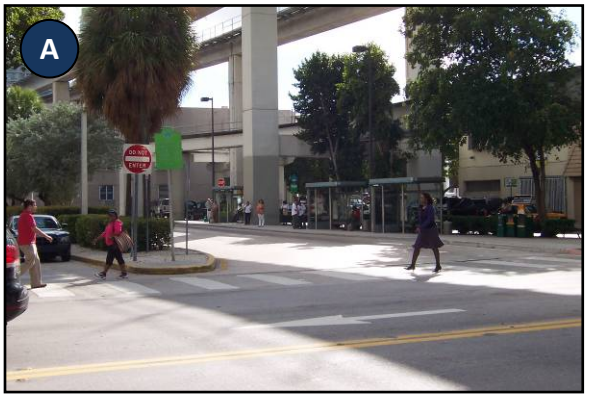
**C** — **Off-Street Parking for MDT Buses**

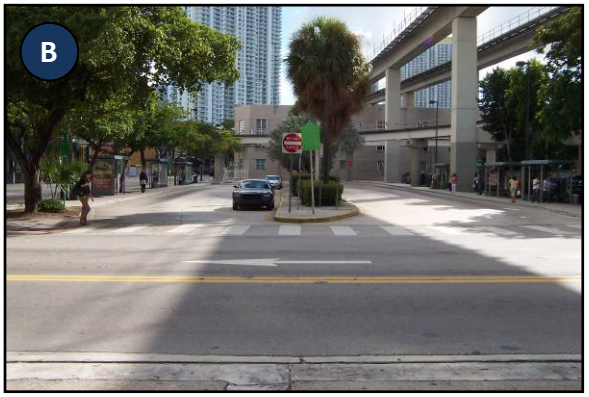
**D** — **Metrorail and Metromover Government Center Stations**


**MDT buses parked along NW 1st Avenue**

The following illustrations show a view from the Flagler Street south to the existing MDT facility. These also show private vehicles parked against the traffic.

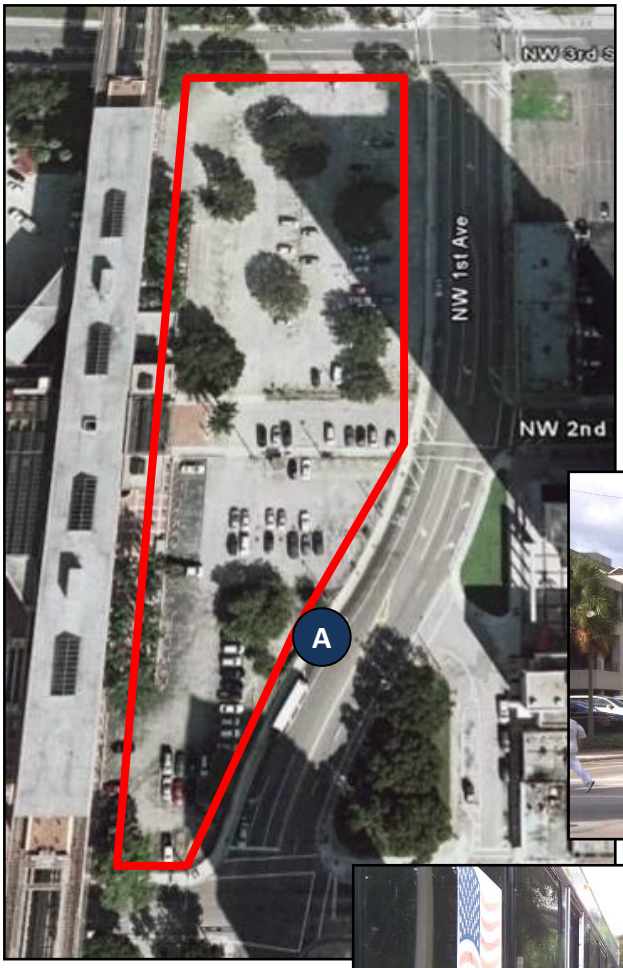




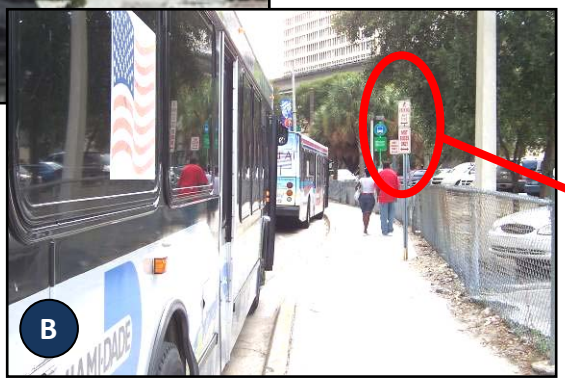
This facility provides several bus shelters for the convenience of the passengers waiting for MDT routes.




The development of this site will allow MDT's north and south routes to have their end terminal at this location. This facility will be ideal for direct transfer to Metrorail and Metromover lines.

Appendix 7 list some of the proposed amenities for this multimodal facility.

This location is recommended in the Alternatives for Intermodal Study (1998), Transit Connection



Currently, MDT buses use the east site of the proposed location, as shown in "A", as an end terminal for some routes. This facility has no amenities for passengers and bus drivers. Illustration "B" is a picture showing the sidewalk with the MDT sign.

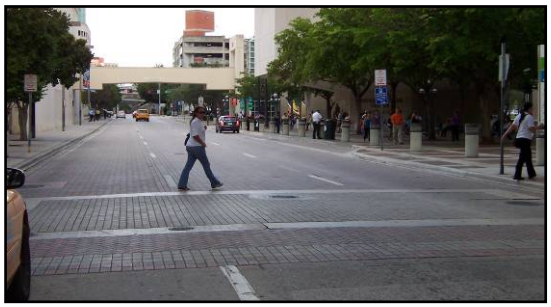
## Transit Mall at NW 1st Street between NW1st Avenue and NW 2nd Avenue


The purpose of this recommendation is to centralize MDT's operation in the Downtown area. The recommended multimodal terminal facility (A) will serve different transportation modes to/from downtown. It will include parking and all amenities for the passengers and bus drivers. Bicycle and pedestrian facilities will also be incorporated in the design.

The transit mall will provide a path for the MDT buses and the pedestrians. Access will be allowed to other non-private vehicles. The promenade (D) in the front of the Stephen P. Clark Center (B) could also be used for special activities sponsored by the County and other entities.

This recommendation will facilitate transit operations, integrate other non-motorized transportation modes, enhance the area and contribute to a better environment.





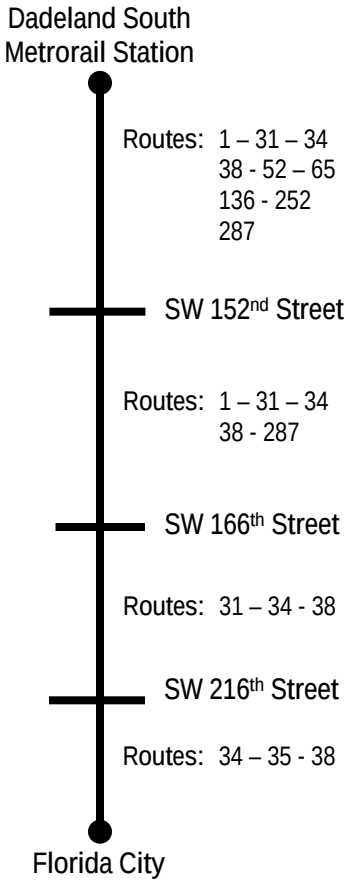
**Westbound view of the proposed transit mall from NW 1st Avenue.**

# CHAPTER V: BUSWAY

## I. EXISTING MDT SERVICE

Figure 13 shows a schematic map of all routes that use a segment along the Busway Corridor. This figure also illustrates the level of service duplication by segments. Figure 14 shows the detailed route alignments of all routes serving this corridor. Some of them are using segments and other ones just cross the corridor at one specific point. Based on a screening of these routes, next section lists those routes suitable for conversion to the Trunk & Feeder System.

**Figure 13: Busway**



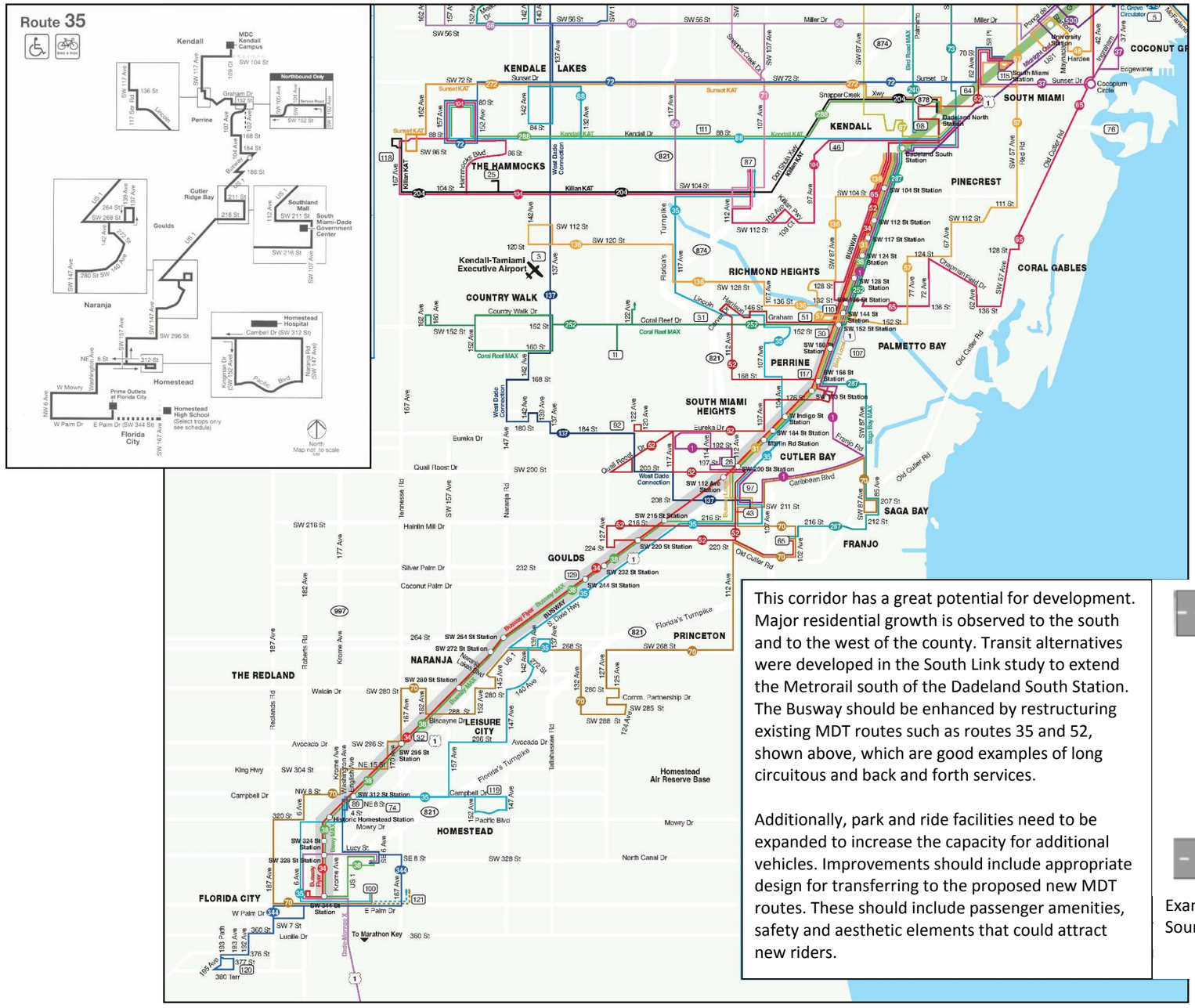

## II. ANALYSIS OF SERVICE

The following routes were selected for detailed evaluation:

1. Route 1: Dadeland North Metrorail Station to South Dade Government Center via Busway.
2. Route 31: Dadeland South Metrorail Station to South Dade Government Center via Busway.
3. Route 34: Dadeland South Metrorail Station to Florida City via Busway.
4. Route 35: MDCC (Kendall Campus) to Florida City.
5. Route 38: Dadeland South Metrorail Station to Homestead via Busway.
6. Route 52: South Miami Metrorail Station to the Community Health of South Dade via Busway.
7. Route 65: Douglas Road Metrorail Station to Dadeland South Metrorail Station.
8. Route 136: Dadeland South Metrorail Station to Kendall Tamiami Executive Airport via Busway.
9. Route 252: Dadeland South Metrorail Station to Country Walk via SW 152nd Street and the Busway.
10. Route 287: Dadeland South Metrorail Station to South Dade Health Center via Busway.
11. Route 344: MDCC (Homestead Campus) to US Post Office (SW 187th Avenue).

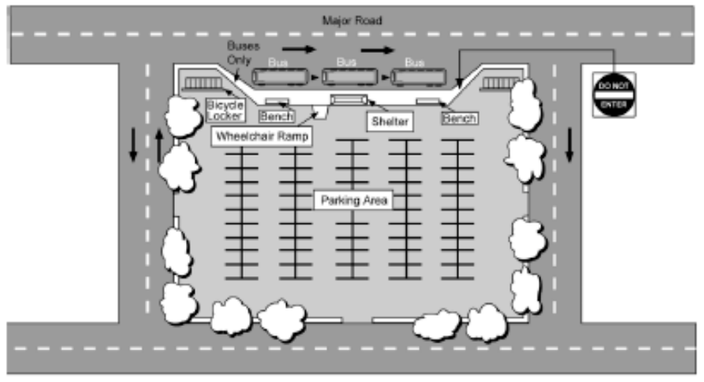
Appendix 8 shows a detailed analysis of the existing and proposed MDT routes along the corridor. The same MDT data was used for developing and analyzing the proposed route changes.

## Figure 14: MDT Routes along the Busway Corridor




This corridor has a great potential for development. Major residential growth is observed to the south and to the west of the county. Transit alternatives were developed in the South Link study to extend the Metrorail south of the Dadeland South Station. The Busway should be enhanced by restructuring existing MDT routes such as routes 35 and 52, shown above, which are good examples of long circuitous and back and forth services.

Additionally, park and ride facilities need to be expanded to increase the capacity for additional vehicles. Improvements should include appropriate design for transferring to the proposed new MDT routes. These should include passenger amenities, safety and aesthetic elements that could attract new riders.




Example of a Park and Ride design for the busway.
Source: Metropolitan Seattle Transportation Facility Design Guidelines.

## III. PROPOSED SERVICE

### A. Rationale

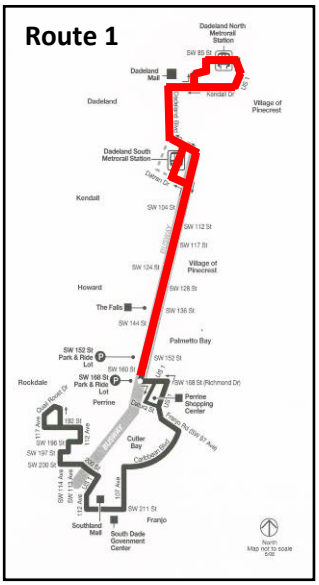
There are two important observations along this corridor that are the focus of analysis:

a. The number of existing park and ride facilities located along the corridor, which will provide the flexibility to implement more than one trunk line along the corridor.

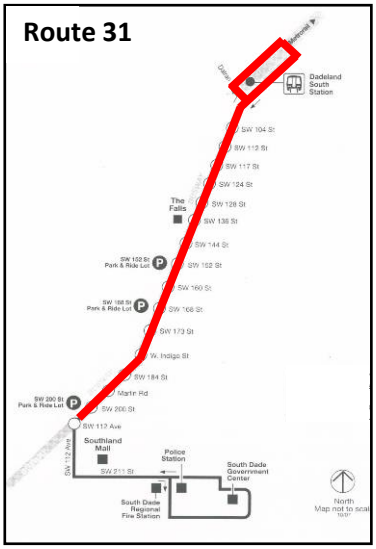
b. Nine (9) routes serve the corridor from SW 168th Street and SW 152nd Street to Dadeland South Metrorail Station. This condition will allow using Dadeland South Metrorail Station as a terminal end, but with fewer routes. At the same time, this action will reduce the traffic of buses in the station and facilitate the bus operation at that end terminal.

In addition, the daily ridership and the length of the corridor (39 miles roundtrip) provide an opportunity to be creative. Data is not available for a more detailed analysis by segment. Therefore, it is recommended to have more than one trunk route along this corridor. Also, there are several routes that operate similar to a feeder route. These routes collect passengers in the neighborhoods adjacent to the corridor and once they get into the busway, they continue the service directly to Dadeland South Metrorail Station. Based on these observations, the following recommendations are made. Most of these recommendations are oriented to the elimination of duplicate of service along the busway, as well as the reduction of the revenue miles. Segments shown in red are the part of the routes to be eliminated.

1. **Route 1**
   Eliminate service from SW 168th Street to Dadeland South Metrorail Station and use the Park & Ride lot at SW 168th Street as an end terminal, as shown in the Route 1 illustration.




2. **Route 31**
   Eliminate service from SW 200th Street to Dadeland South Metrorail Station and use the Park & Ride lot at SW 200th Street as an end terminal, as shown in the Route 31 illustration.




3. **Route 34**
   It is recommended to convert this route to a trunk Line. The end terminal at Florida City should be restructured to have better facilities and amenities for bus drivers and passengers.

4. **Route 35**

   This route is too long and too circuitous. The route should be split into two feeder routes.

   **a.** One serving the Cutler Ridge /Perrine area from MDCC Kendall Campus to SW 200th Street Park and ride lot,

   b. and the other one serving the Homestead/Florida City area from Florida City to SW 244th Street park & Ride lot.

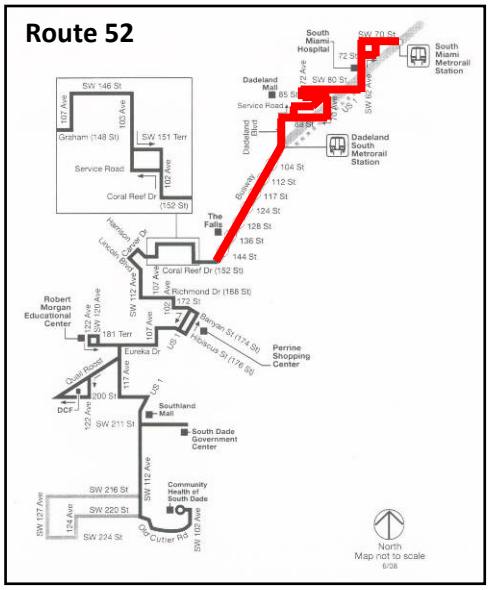
   Depending on the number of passengers going to the MDCC Kendall Campus, the south route could have the ending terminal at the Park & Ride facility located on SW 200th Street, instead that SW244th Street.

5. **Route 38**

   It is recommended that this route be converted to a trunk line. Similar to Route #34, the end terminal at Florida City should be restructured to provide better facilities for the bus drivers and the passengers, as well as other transit amenities.

6. **Route 52**

   Eliminate service from SW 152nd Street to South Miami Metrorail Station (see Route 52 illustration). The rest of the route should be converted to a feeder line. Additionally, further evaluation should be conducted for determining the best alignment of this proposed feeder route. At this time changes are not recommended to avoid disruptions in the travel patterns of the passengers using this route.




7. **Route 65**

   This route provides service from Douglas Road Metrorail Station to Dadeland South Metrorail Station via Old Cutler Road. Recommendation is made to eliminate this route or enter into a service agreement with the municipalities that are served by this route or to allow the private sector to operate this route.

   This recommendation is based on the low productivity of this route:

   a. The average daily boardings is 304 passengers as of October 2008. This represents 152 persons using the route on a daily basis.

   b. The recovery ratio is 18.1% well below the average of 28.1% for the whole system.

   c. The cost per boarding is $4.50 in comparison to $2.03 for the whole system.

8. **Route 136**

   This route provides service from Kendall Tamiami Executive Airport to Dadeland South Metrorail Station. Recommendation is made to eliminate this route or re-structure it using information from the current APC System or to allow the private sector to operate this route. There is an elementary school served by this route.

   This recommendation is based on the low productivity of this route:

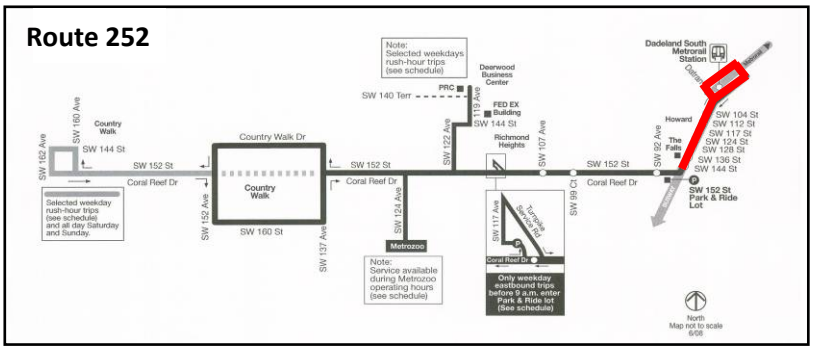
   a. The average daily boardings day is 291 passengers as of October 2008. This represents 145 persons using the route on a daily basis.

   b. The recovery ratio is 7.8% well below the average of 28.1% for the whole system.

   c. The cost per boarding is $8.13 in comparison to $2.03 for the whole system.

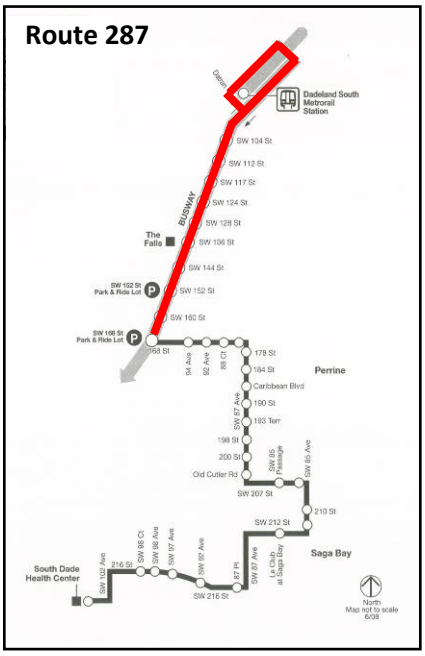
9. **Route 252**

It is recommended to end this route at the Park & Ride lot located at the Busway and SW 152nd Street. Additionally, this route should be further evaluated for determining a better alignment along SW 152nd Street. Service is provided to Metrozoo, Deerwood Business Center and Country Walk, as shown in the Route 252 illustration.




10. **Route 287**

It is recommended to end this route at the Park & Ride lot located at SW 168th Street and convert to a feeder line (see Route 287 illustration).




11. **Route 344**

This route provides service from the Dade Correctional Institution at Florida City to the US Post Office in Homestead. It is recommended to either eliminate this route to enter into a service agreement with Florida City or Homestead, to re-structure it using MDT's APC System in place by MDT or allow the private sector to operate this route. There are several activity centers located along this route, such as: MDC Homestead Campus, Workforce One, US post offices, Homestead High School and Dade Correctional Institution among others.

This recommendation is based on the low productivity of this route:

a. The average daily boardings is 327 passengers as of October 2008. This represents 164 persons using the route on a daily basis.
b. The recovery ratio is 12.3% well below the average of 28.1% for the whole system.
**c.** The cost per boarding is $6.71 in comparison to $2.03 for the whole system.

## B. Corridor Recommendations

**1.** Create three (3) Trunk Lines from Dadeland South Metrorail Station:
   a. Homestead Trunk Route to Homestead/Florida City
   b. South Dade Trunk Route to SW 244th Street Park & Ride Lot
   c. Perrine Trunk Route to SW 168th Street Park & Ride Lot

**2.** Create the following Feeder Lines:
   a. Route 1 Feeder Route
   b. Route 31 Feeder Route
   c. Route 35 North Feeder Route
   d. Route 35 South Feeder Route
   e. Route 52 Feeder Route
   f. Route 287 Feeder Route

Table 6 shows the service characteristics, total revenue-miles and DOC of the proposed changes. Additionally, Figure 15 illustrates the Trunk & Feeder Bus System proposed for the Busway Corridor.

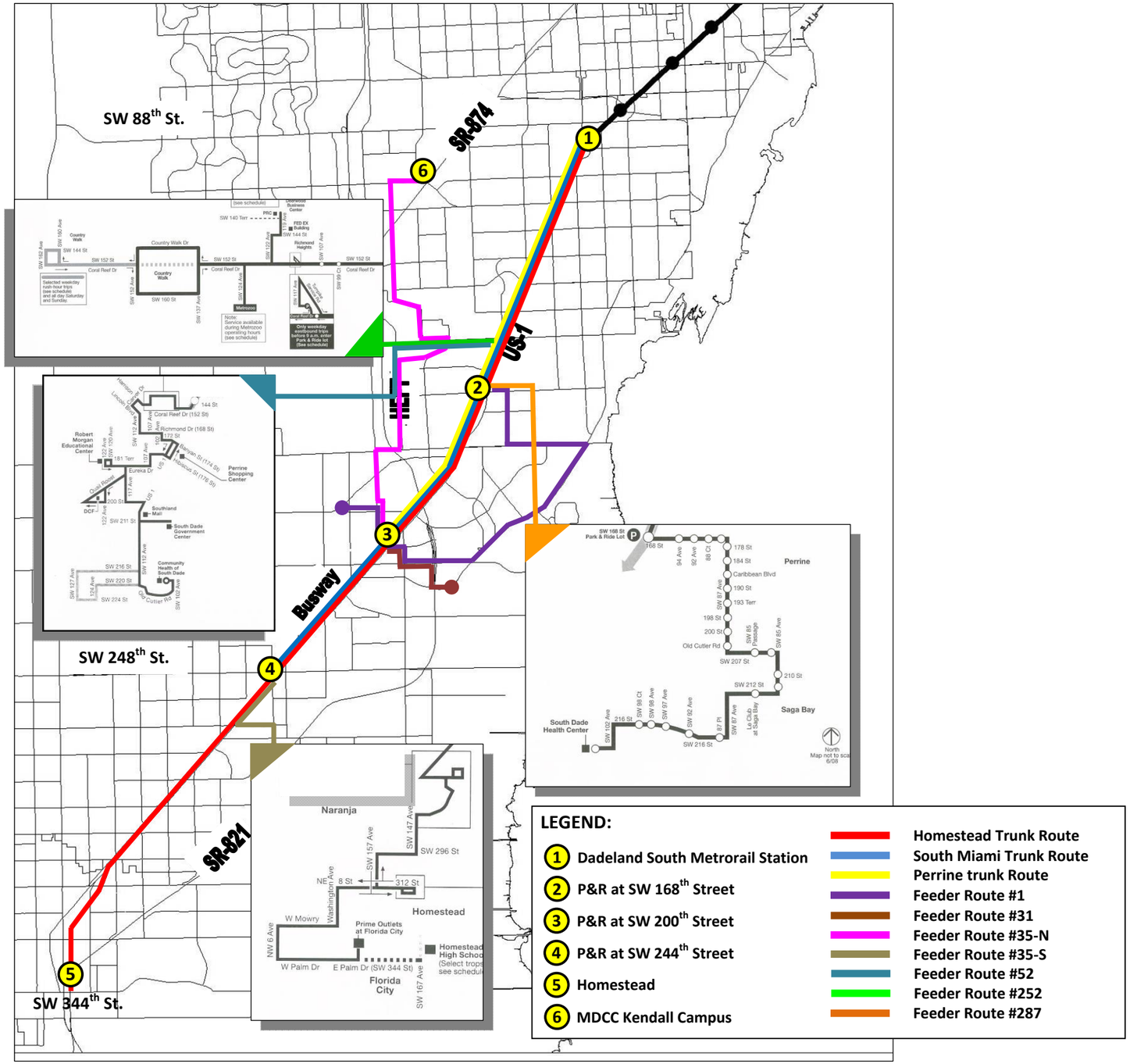
**Table 6: Proposed Routes Service Characteristics for the Busway**

| # | Description | Homestead Trunk Route | South Dade Trunk Route | Perrine Trunk Route | Feeder Route 1 | Feeder Route 31 |
|---|---|---|---|---|---|---|
| 1 | Headway – peak | 7.5 | 12 | 10 | 30 | 20 |
| 2 | Headway – off-peak | 15 | 30 | 15 | 45 | 30 |
| 3 | Buses in Service – peak | 20 | 5 | 4 | 3 | 1 |
| 4 | Hours of Service | 24 | 14 | 14 | 18 | 14 |
| 5 | Running Time (mins.) | 150 | 72 | 34 | 84 | 18 |
| 6 | One way trips | 194 | 92 | 148 | 58 | 72 |
| 7 | Revenue-Miles | 3,764 | 1,113 | 844 | 412 | 137 |
| 8 | Direct Operating Cost (DOC) ($) | 25,219 | 8,637 | 6,549 | 3,366 | 1,033 |

**Table 6 continues…**

| # | Description | Feeder Route 35-N | Feeder Route 35-S | Feeder Route 52 | Feeder Route 252 | Feeder Route 287 |
|---|---|---|---|---|---|---|
| 1 | Headway – peak | 30 | 30 | 30 | 30 | 30 |
| 2 | Headway – off-peak | 30 | 30 | 40 | 30 | - |
| 3 | Buses in Service – peak | 3 | 5 | 6 | 3 | 2 |
| 4 | Hours of Service | 17 | 17 | 18 | 16 | 7 |
| 5 | Running Time (mins.) | 74 | 132 | 172 | 82 | 52 |
| 6 | One way trips | 68 | 68 | 55 | 64 | 28 |
| 7 | Revenue-Miles | 666 | 1,190 | 1,004 | 602 | 185 |
| 8 | Direct Operating Cost (DOC) ($) | 4,316 | 7,711 | 7,550 | 4,322 | 1,371 |

**Figure 15: Proposed Trunk & Feeder Routes for the Busway**

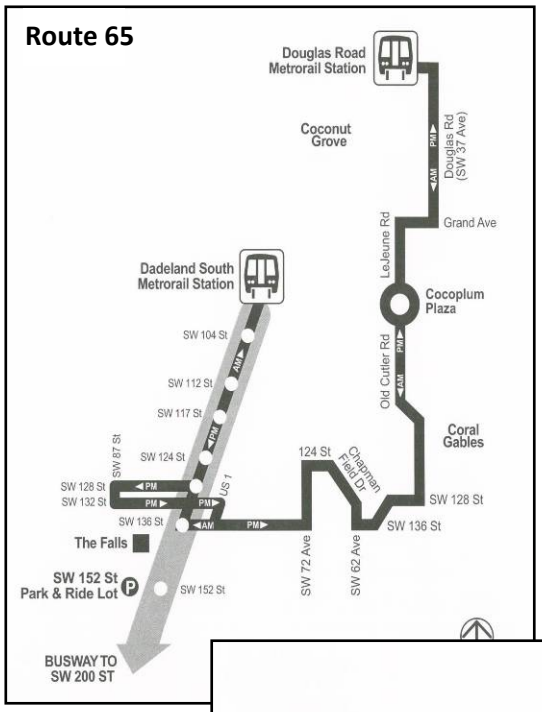


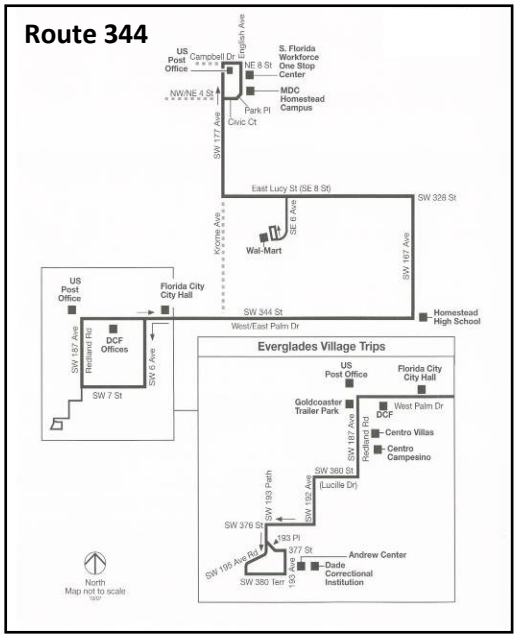
## C. Affected Areas

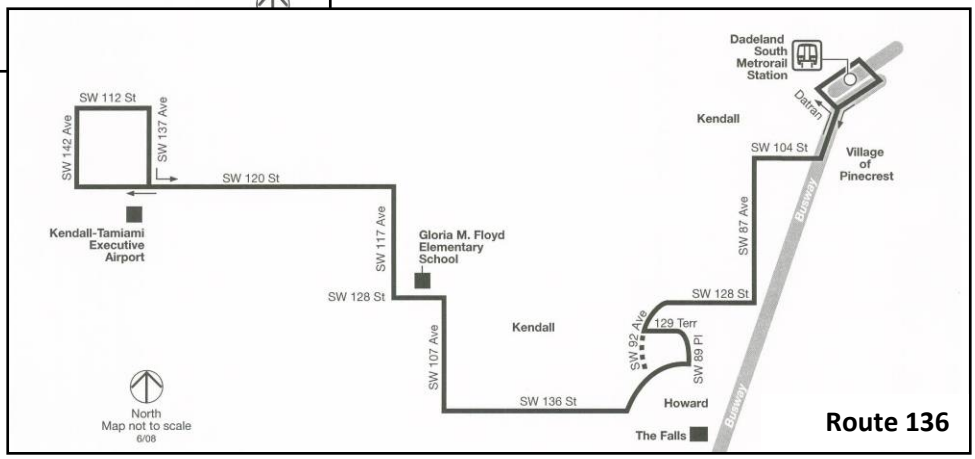
As mentioned before, there are three (3) routes that are being recommended for one of the following options:

a. Elimination
b. Re-structuring using new available data from the new Automatic Passenger Count (APC) system implemented by MDT.
c. Allowing the private sector to operate the referred routes.
d. Negotiation with the municipalities or other entities interested in entering into an agreement with MDT to subsidize the operation of these routes.

Of all of the alternatives listed above, elimination is the last option to be considered. Following are the illustrations of the affected routes.



## D. Before and After Comparison

Based on buses per hour, Table 7 illustrates a comparison in service performance along the Busway Corridor, before and after the recommended changes.

**TABLE 7: Service Comparison – Before and After**

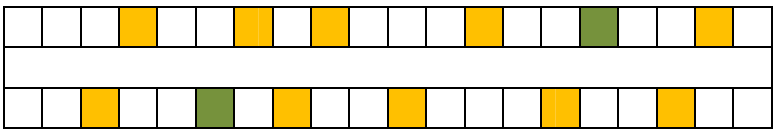
| # | Segment | Current Service | | Proposed Service | | Balance |
|---|---|---|---|---|---|---|
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | **Florida City – SW 244th Street** | 34 – 38 | 12 | Homestead TR | 8 | |
| | **Total trips per hour** | | **12** | | **8** | **-4** |
| 2 | **SW 244TH Street – SW 216th Street** | 34 – 38 | 12 | Homestead TR South Dade TR | 14 | |
| | | | **12** | | **14** | **+2** |
| 3 | **SW 216th Street – SW 200th Street** | 34 | 8 | Homestead TR South Dade TR | 14 | |
| | **Total trips per hour** | | **8** | | **14** | **+6** |
| 4 | **SW 200th Street – SW 168th Street** | 31 – 34 – 38 | 16 | Homestead TR South Dade TR | 14 | |
| | **Total trips per hour** | | **16** | | **14** | **-2** |
| 5 | **SW 168th Street – SW 152nd Street** | 1 – 31 – 34 – 38 – 287 | 20 | Homestead TR South Dade TR Perrine TR | 20 | |
| | **Total trips per hour** | | **20** | | **20** | **0** |
| 6 | **SW 152nd Street – SW 132nd Street** | 1 – 31 – 34 – 38 – 52 – 252 -287 | 25 | Homestead TR South Dade TR Perrine TR | 20 | |
| | **Total trips per hour** | | **25** | | **20** | **-5** |
| 7 | **SW 132nd Street – SW 104th Street** | 1 – 31 – 34 – 38 – 52 – 65 – 252 -287 | 27 | Homestead TR South Dade TR Perrine TR | 20 | |
| | **Total trips per hour** | | **27** | | **20** | **-7** |
| 8 | **SW 104th Street – Dadeland South** | 1 – 31 – 34 – 38 – 52 – 65 – 136 – 252 -287 | 29 | Homestead TR South Dade TR Perrine TR | 20 | |
| | **Total trips per hour** | | **29** | | **20** | **-9** |

Table 7 shows that the number of buses per hour is being reduced from SW 152nd Street to Dadeland South Metrorail Station. Currently, according to MDT schedule there are over 25 buses per hour in that segment. This does not means that the buses are running full. Based on the existing data and assuming that the routes are at full capacity along these segments and all buses having the same capacity, it can be concluded that:

- Using an average of 40 seats per bus, there are 1,000, 1,080 and 1,160 seats per hour available in segments 6, 7 and 8, respectively as indicated in Table 7.
- Using MDT data it was found that the boardings per hour for the referred routes serving those segments are:
  - ✓ Route #1… 22 boardings
  - ✓ Route #31… 40 boardings
  - ✓ Route #34… 55 boardings
  - ✓ Route #38… 31 boardings
  - ✓ Route #52… 18 boardings
  - ✓ Route #65… 23 boardings
  - ✓ Route #136… 13 boardings
  - ✓ Route #252… 16 boardings
  - ✓ Route #287… 25 boardings
  - ✓ Total… 243 boardings per hour
- Comparing all these boardings with the capacity per hour provided by the existing service, it could be assumed that the buses are running at an average of approximately 25% of the real capacity.
- The proposed changes reduced the capacity along the corridor to 20 buses (trips) per hour which represents, using the same parameters, a total capacity of 800 seats per hour.
- Based on the existing boardings of 243 passengers per hour, the proposed service can carry those passengers and still have room for future potential demand.

Even though, if the boardings are greater than the capacity, the proposed changes are saving additional buses that can be back in service in those routes that need the additional capacity.

This illustration depicts existing versus proposed occupancy by bus. The blocks in gold represent the passengers at existing condition (24% of the capacity). By adding two more passengers in green (31% of the capacity), it represents the proposed occupancy per bus for the proposed changes.



## IV. ESTIMATED SAVINGS

Table 8 shows a summary of the savings along this corridor.

**TABLE 8: Summary of Savings**

| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
|---|---|---|---|---|---|---|---|
| | | Before | After | Before | After | Before | After |
| 1 | Route 1 | 5 | - | 859 | - | 7,020 | - |
| 2 | Feeder Route 1 | - | 3 | - | 412 | - | 3,366 |
| 3 | Route 31 | 5 | - | 775 | - | 5,845 | - |
| 4 | Feeder Route 31 | - | 1 | - | 137 | - | 1,033 |
| 5 | Route 34 | 14 | - | 861 | - | 6,684 | - |
| 6 | South Dade Trunk Route | - | 5 | - | 1,113 | - | 8,637 |
| 7 | Perrine Trunk Route | - | 4 | - | 844 | - | 6,549 |
| 8 | Route 35 | 8 | - | 1,972 | - | 12,778 | - |
| 9 | Feeder Route 35-N | - | 3 | - | 666 | - | 4,316 |
| 10 | Feeder Route 35-S | - | 5 | - | 1,190 | - | 7,711 |
| 11 | Route 38 | 15 | - | 3,500 | - | 23,434 | - |
| 12 | Homestead Trunk Route | - | 20 | - | 3,764 | - | 25,219 |
| 13 | Route 52 | 9 | - | 1,454 | - | 10,938 | - |
| 14 | Feeder Route 52 | - | 6 | - | 1,004 | - | 7,550 |
| 15 | Route 65 | 3 | - | 191 | - | 1,688 | - |
| 16 | Route 136 | 3 | - | 338 | - | 2,569 | - |
| 17 | Route 252 | 6 | - | 1,220 | - | 8,759 | - |
| 18 | Feeder Route 252 | - | 3 | - | 602 | - | 4,322 |
| 19 | Route 287 | 3 | - | 318 | - | 2,358 | - |
| 20 | Feeder Route 287 | - | 2 | - | 185 | - | 1,371 |
| 21 | Route 344 | 2 | - | 353 | - | 2,501 | - |
| **10** | **Totals** | **73** | **52** | **11,841** | **9,917** | **84,574** | **70,074** |
| **11** | **Savings/Weekday** | **21** | | **1,924** | | **14,500** | |

**Number of buses saved… 21**

**Daily Revenue-Miles Saved… 1,924**
**Per year… 500,240**

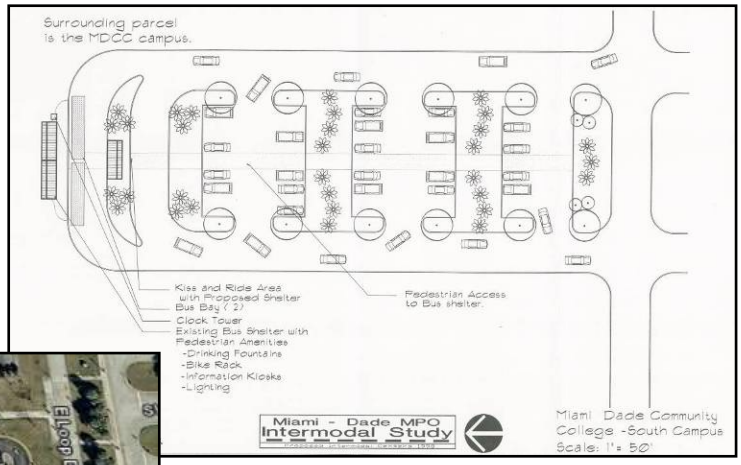
**Daily Savings in DOC… $14,500**
**Per year… $3.8M**

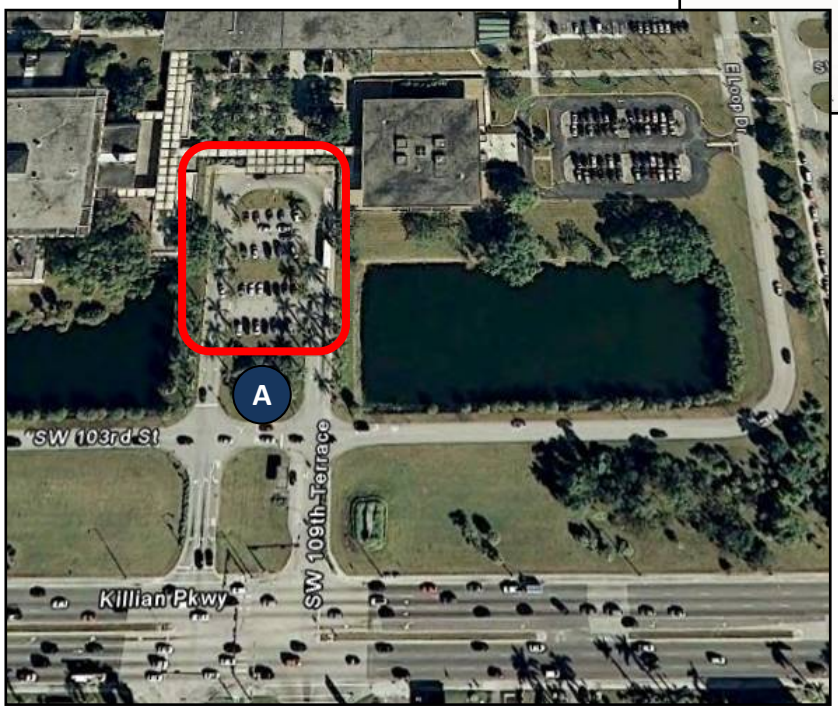
## V. OTHER RECOMMENDATIONS

### Proposed Transfer Station at MDC South Campus

This location is also recommended in the Transit Connection Centers (2004) and the Transit Hub Study (2008).
Total estimated costs (1998): $ 325,000.

This facility will allow passengers transferring to/from Routes 35-N, 56, 71 and 104.





MDC South Campus Entrance

## Busway and SW 144th Street

**Potential site for a P&R facility and a transfer station at SW 144th Street.** This facility is recommended in the Transit Hub Study (2008). As shown in the picture, MDT bus shelters are closed to this site.



## Busway and SW 152nd Street


Existing facility used as a Park and Ride at SW 152nd Street and the Busway (A). Improvements are recommended to enhance the access to the MDT bus shelters (B).

## Busway and SW 168th Street

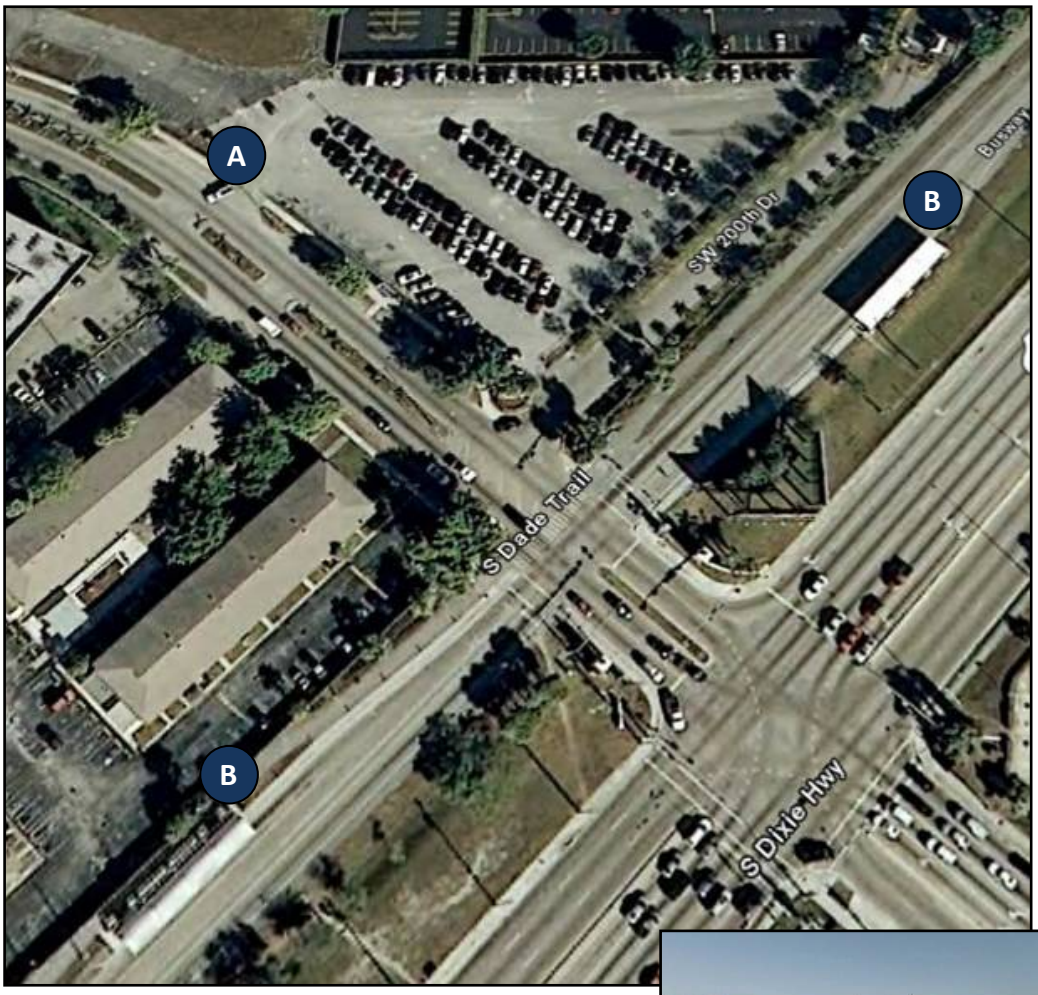

Existing Park and Ride facility located at SW 168th Street. As shown, this facility is full and consideration should be given for other improvements. Other closed locations should be evaluated for additional park and ride facilities as recommended in this report.

Illustration A shows the entrance and the conditions of this facility.


## Busway and SW 184th Street

Potential site for the construction of a Transfer Station and a Park and Ride facility.


## Busway and SW 200th Street

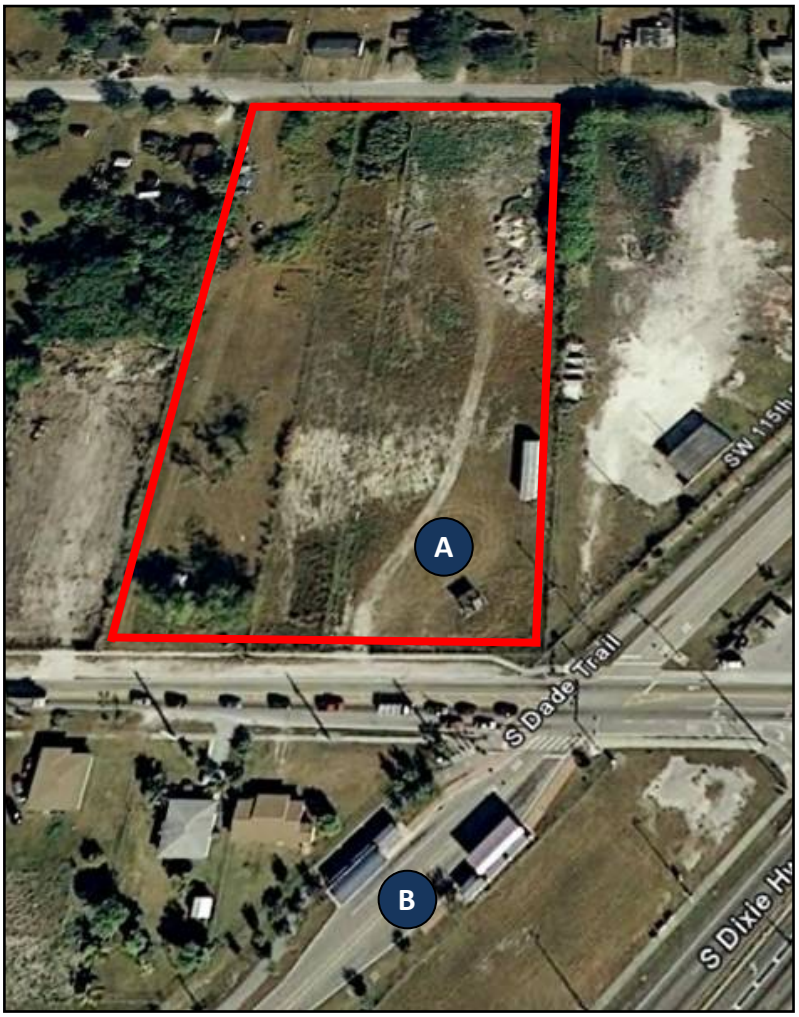




Similar to the Park and Ride located at SW 168th Street, this facility is full. Improvements are recommended to increase the capacity by re-striping and resurfacing (A), among others; and to provide a better access to the MDT bus shelters on the Busway (B).

The establishment of additional Park and Ride facilities is needed along the corridor.

## Busway and SW 216th Street




**Potential site for a P&R facility and a transfer station at SW 216th Street.**

This facility is recommended in the FDOT 6 Park & Ride Plan (2005). It is located just crossing SW 216th Street from existing MDT bus shelters along the Busway. This location needs design and connectivity to the existing bus stops, but other alternatives could be considered.

Illustrations A and B show the southeast corner of the proposed lot and the typical MDT bus shelter along the corridor.

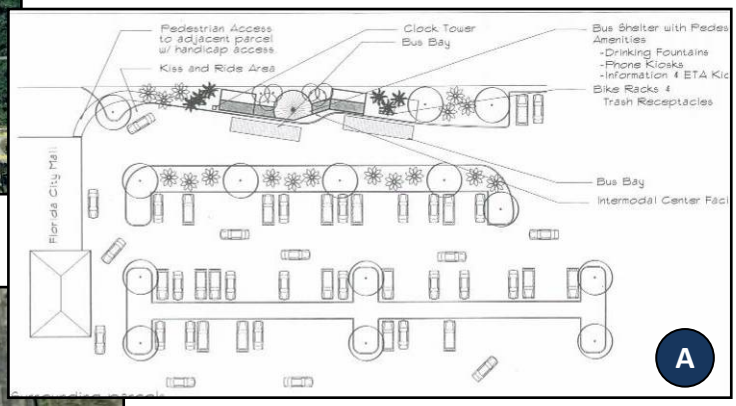

## Busway and SW 244th Street



This location will serve as the origin terminal of one of the recommended trunk lines. As well as the other existing facilities, this location will require construction and access to the existing MDT bus shelters (B).

## SW 344th Street and Prime Outlets


**Potential site for an end terminal facility.**
This site is recommended in the Alternatives for Intermodal (1998), Transit Connection Centers (2004) and the Transit Hub Study (2008).
Total estimated cost (1998): $450,000





## Homestead Bus Terminal

The Busway ends at SW 344th Street. Three blocks east of this end point, there is a piece of land that it is an agricultural area. If appropriate actions are taken, this lot could be used as Homestead End Terminal. Surrounding this lot there are an office building to the east, a shopping center to the north, an industrial area to the south and a residential area to the east. The location of this end terminal will concentrate MDT service in the south and will allow for the development of feeder routes to the Homestead and Florida City. MDT should consider this option, if approved; there is no need to build bus facilities at the Prime Outlets. Aerials below illustrate the location of the proposed terminal.



## A. Additional Coordination

1. Coordinate with FDOT to expand and add improvements to the P&R facilities along the Busway at:
   a. SW 216th Street (NW corner)
   b. SW 264th Street (NW corner)
   c. SW 280th Street (NW corner)
2. Coordinate with the South Dade Government Center improvements in the area for allowing buses to park and provide resting area for the bus drivers.
3. Coordinate with the administration of the Prime Outlets at Florida City the use of parking facilities for buses and provide resting areas for the bus drivers.

## B. Pre-Boarding Stations

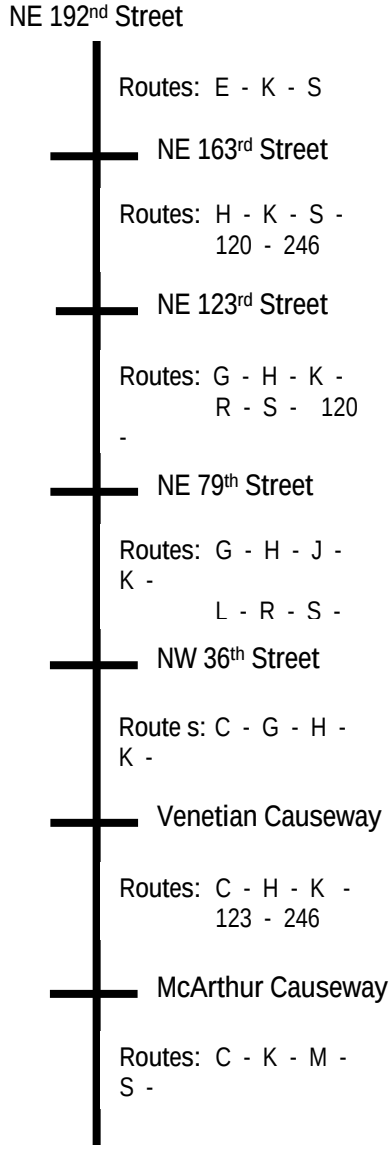
1. Evaluate the location of potential pre-boarding transfer stations along the corridor, as needed.
2. Consider change bus stops with shelters along the Busway and design, as a pilot project, a pre-paid boarding facility, where space is available.

# CHAPTER VI: COLLINS AVENUE

## I. EXISTING MDT SERVICE

Figure 16 depicts a schematic map that divides Collins Avenue in segments and shows the routes that use a segment of the corridor. This figure also illustrates the amount of service duplication among each segment. Figure 17 shows the detailed route alignments of all routes feeding and operating within this corridor. A screening of these routes determined that the following list of routes were suitable for conversion to the Trunk & Feeder System.

**Figure 16: Collins Avenue**

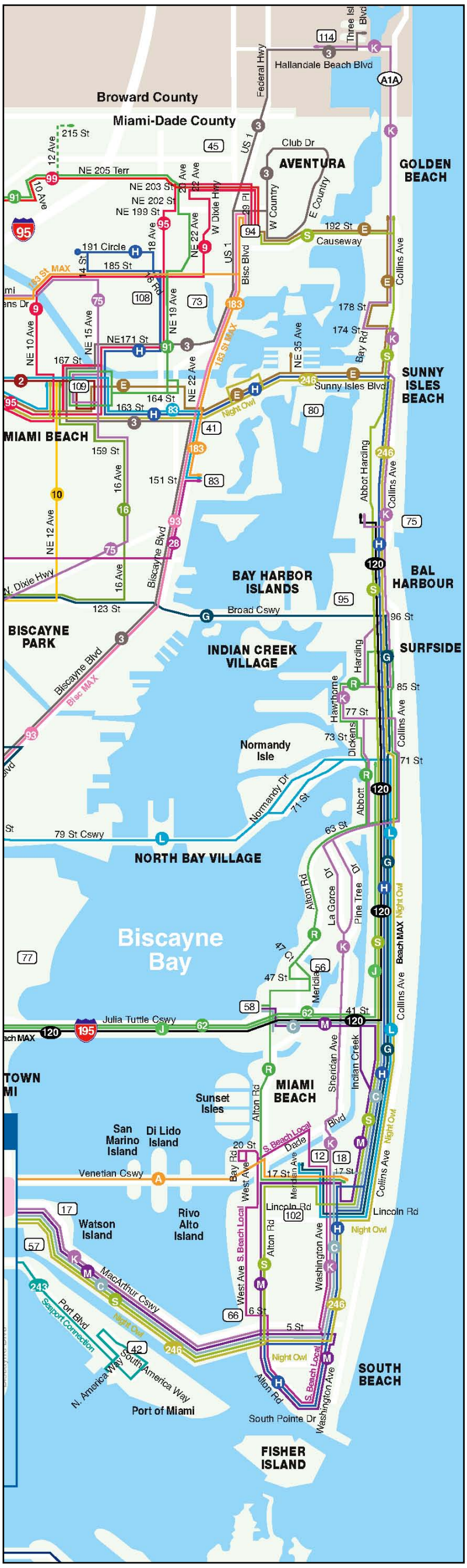



## II. ANALYSIS OF SERVICE

There are a large number of routes serving this corridor and most of them were selected for detailed evaluation:

1. Route C: Mount Sinai Medical Center to Omni Metromover Station via MacArthur Causeway.
2. Route E: Aventura Mall to Miami Lakes via Sunny Isles Causeway.
3. Route G: Lincoln Road to Golden Glades via Broad Causeway.
4. Route H: South Point Drive to Miami Gardens via Sunny Isles Boulevard.
5. Route J: Douglas Road Metrorail Station to NE 72nd Street via Julia Tuttle Causeway.
6. Route K: Hallandale Beach Boulevard to Omni Metromover Station via Collins Avenue.
7. Route L: Hialeah Metrorail Station to Miami Beach Convention Center via NW 79th Street.
8. Route M: Mount Sinai Medical Center to Civic Center Metrorail Station via MacArthur Causeway.
9. Route R: Lincoln Road to NE 88th Street via Alton Road & Collins Avenus.
10. Route S: Aventura Mall to Downtown Bus Terninal via MacArthur Causeway.
11. Route 120: Haulover Marina to Downtown Bus Terminal via Julia Tuttle Causeway.
12. Route 123: South Beach Local serving Dade Boulevard, Washington Avenue and Alton Road.
13. Route 246: Night Owl serving Collins Avenue, Downtown Miami, NW 22nd Avenue and Sunny Isles Causeway.

## Figure 17: MDT Routes along Collins Avenue



Appendix 9 provides a detailed analysis of the existing and proposed MDT routes along the corridor. The same MDT data was used for developing and analyzing the proposed route changes. For the purpose of this analysis, recommendations for routes L and 246 were on hold until more detailed analysis can be performed.

## III. PROPOSED SERVICE

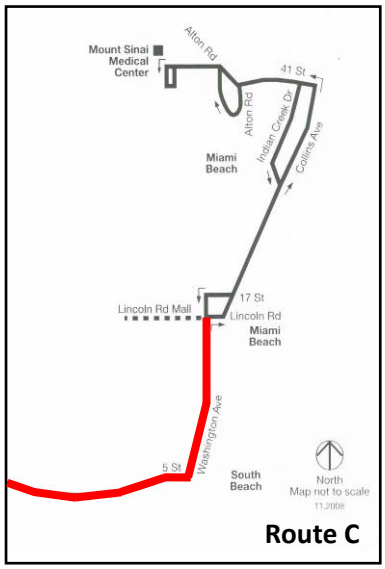
### A. Rationale

To the east of this corridor the Atlantic Ocean is located. Therefore, all routes serving this corridor can be truncated at Collins Avenue. This facilitates the development of feeder routes, as well as eliminating route duplication along the corridor. Similar to the Busway, by eliminating the duplication of service, recommended trunk lines can provide a better and faster service along the corridor. On the other hand, the limited space available for end terminals creates a challenge for innovative options.

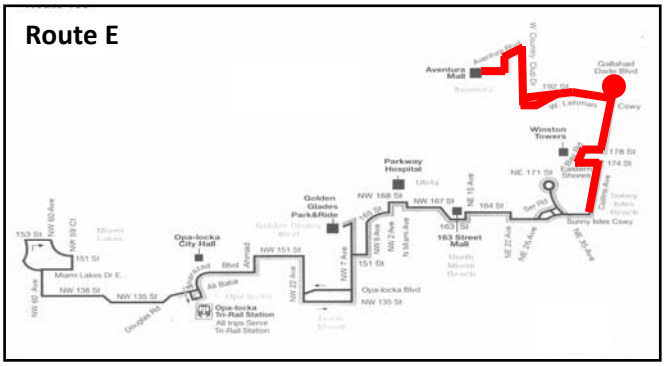
Due to the physical characteristics of the corridor, a trunk route should be implemented from the northern part of the Beach (Aventura Mall) to Downtown Miami. Additionally, another trunk route should be implemented as a local service for the City of Miami Beach. By truncating some routes at Collins Avenue, the development of transfer facilities becomes a very important part of providing the necessary amenities and capacity to assure a continuous passenger flow to/from the trunk routes. Based on these observations, the following recommendations are made.

1. **Routes K and S**
   Combine these two (2) routes, as the new trunk line from Aventura Mall to Downtown Miami.
2. **Route C**
   Eliminate service from South Pointe Dr. to the Omni Metromover Station, as shown in the Route #C illustration.
3. **Route E**
   End this route at Haulover Park and consider future alignment re-structuring using MDT' APC System (see Route #E illustration).
4. **Route G**
   End this route at NE 96th Street.
5. **Route H**
   End this route at Haulover Park.
6. **Route J**
   End this route at NE 41st Street.
7. **Route M**
   End this route at Lincoln Road.
8. **Route R**
   Keep the same alignment of the route and adjust headway as appropriate.

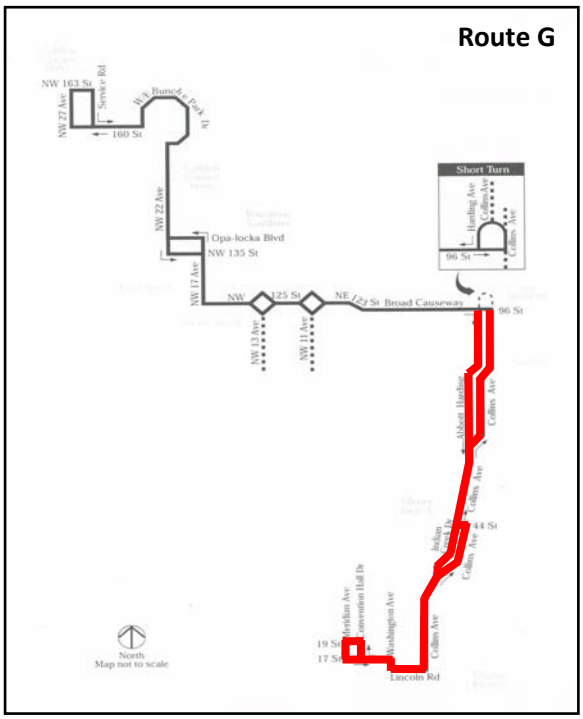
See more illustrations in the next page.

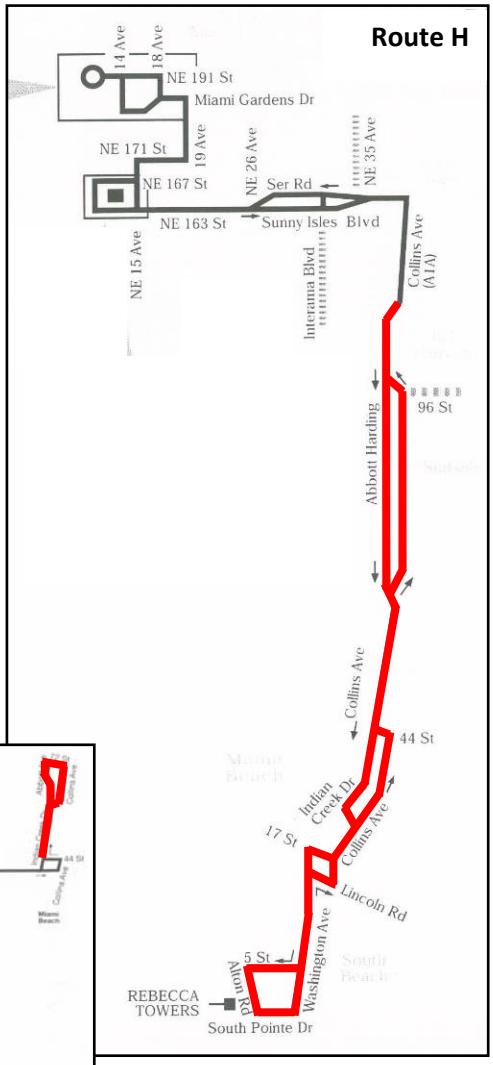


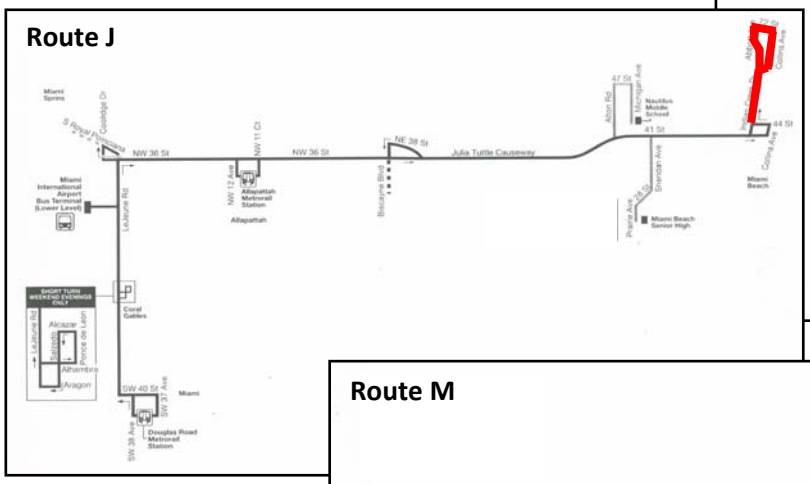
Route C

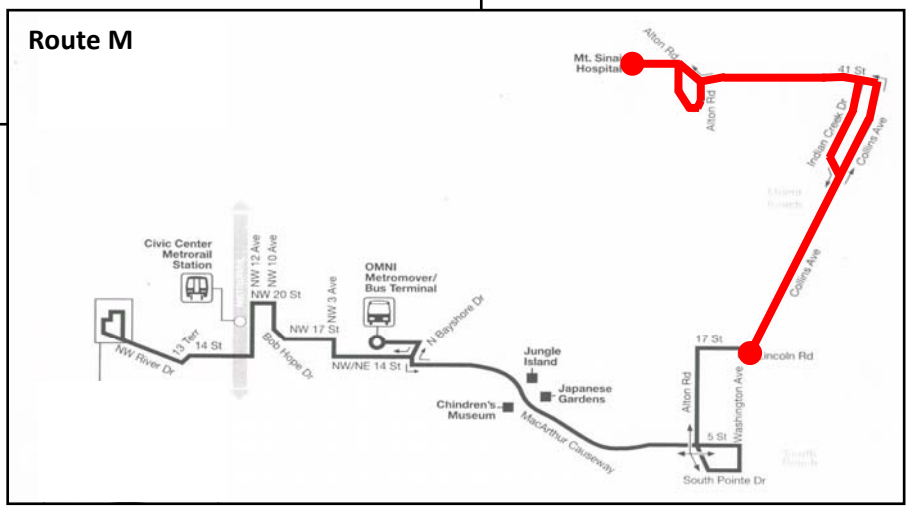


Route E


Route G
NW 163 St
NW 27 Ave
Service Rd
160 St
NW 22 Ave
Opa-locka Blvd
NW 135 St
NW 17 Ave
NW 125 St
NE 123 St
Broad Causeway
Short Turn
Harding Ave
Collins Ave
96 St
NW 13 Ave
NW 11 Ave
Abbott Harding
Indian Creek Dr
Convention Hall Dr
Washington Ave
44 St
19 St
17 St
Lincoln Rd
North
Map not to scale

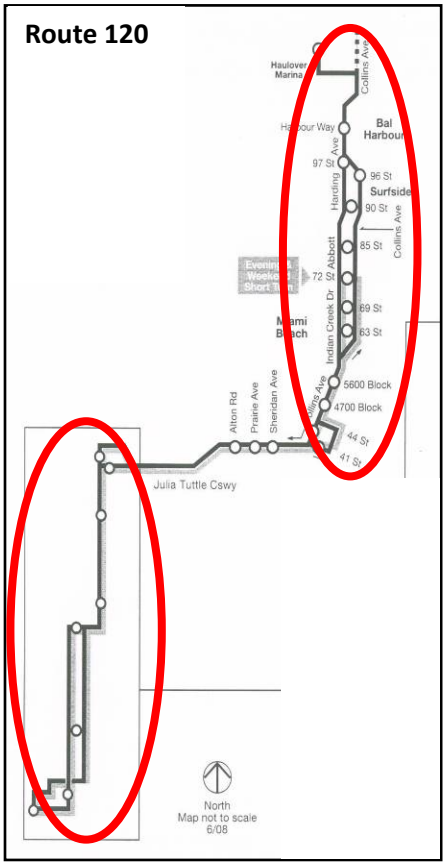

Route H
14 Ave
18 Ave
NE 191 St
Miami Gardens Dr
NE 171 St
19 Ave
NE 167 St
NE 26 Ave
Ser Rd
NE 35 Ave
NE 163 St
Sunny Isles Blvd
NE 15 Ave
Interama Blvd
Collins Ave
(A1A)
96 St
Abbott Harding
Collins Ave
44 St
Indian Creek Dr
17 St
Collins Ave
Lincoln Rd
5 St
Washington Ave
Alton Rd
REBECCA TOWERS
South Pointe Dr


Route J
Miami Springs
Coolidge Dr
N Royal Poinciana Blvd
NW 36 St
NW 11 Ct
NW 12 Ave
Allapattah Metrorail Station
Allapattah
NW 36 St
NE 38 St
Julia Tuttle Causeway
Biscayne Blvd
47 St
Michigan Ave
Nautilus Middle School
41 St
Alton Rd
Sheridan Ave
Prairie Ave
Miami Beach Senior High
Collins Ave
44 St
Miami Beach
Miami International Airport Bus Terminal (Lower Level)
LeJeune Rd
Coral Gables
SHORT TURN WEEKEND EVENINGS ONLY
Alcazar
Catalonia
Ponce de Leon
Alhambra
Aragon
SW 40 St
Bird Rd
Douglas Road Metrorail Station
SW 27 Ave
SW 29 Ave
Miami


Route M
Mt. Sinai Hospital
Alton Rd
41 St
Indian Creek Dr
Collins Ave
Civic Center Metrorail Station
NW 12 Ave
NW 10 Ave
NW 20 St
NW 3 Ave
OMNI Metromover/ Bus Terminal
NW 17 St
N Bayshore Dr
13 Ter
14 St
NW River Dr
Bob Hope Dr
NW/NE 14 St
Jungle Island
Japanese Gardens
Chindren's Museum
MacArthur Causeway
17 St
Lincoln Rd
Alton Rd
Washington Ave
5 St
South Pointe Dr

9. **Route 120**
   This route has a boarding average of 1,793 passengers per day. There are two recommendations for this route: eliminate service or provide service only during peak periods.
   The reasons for these recommendations are:
   a. Two (2) Trunk Routes are proposed to serve the north-east part of this route.
   b. There is another Trunk Route proposed along Biscaye Boulevard.
   c. The only segment in service along the route is the Julia Tuttle causeway.

   Based on these observations it is recommended one of the two above mentioned options.
10. **Route 123 – South Beach Local**
    Keep the same alignment of the route and adjust headway as appropriate.
11. **Route 246 – Night Owl**
    Eliminate service along Collins Avenue. Route S also serve this corridor.




## B. Corridor Recommendations

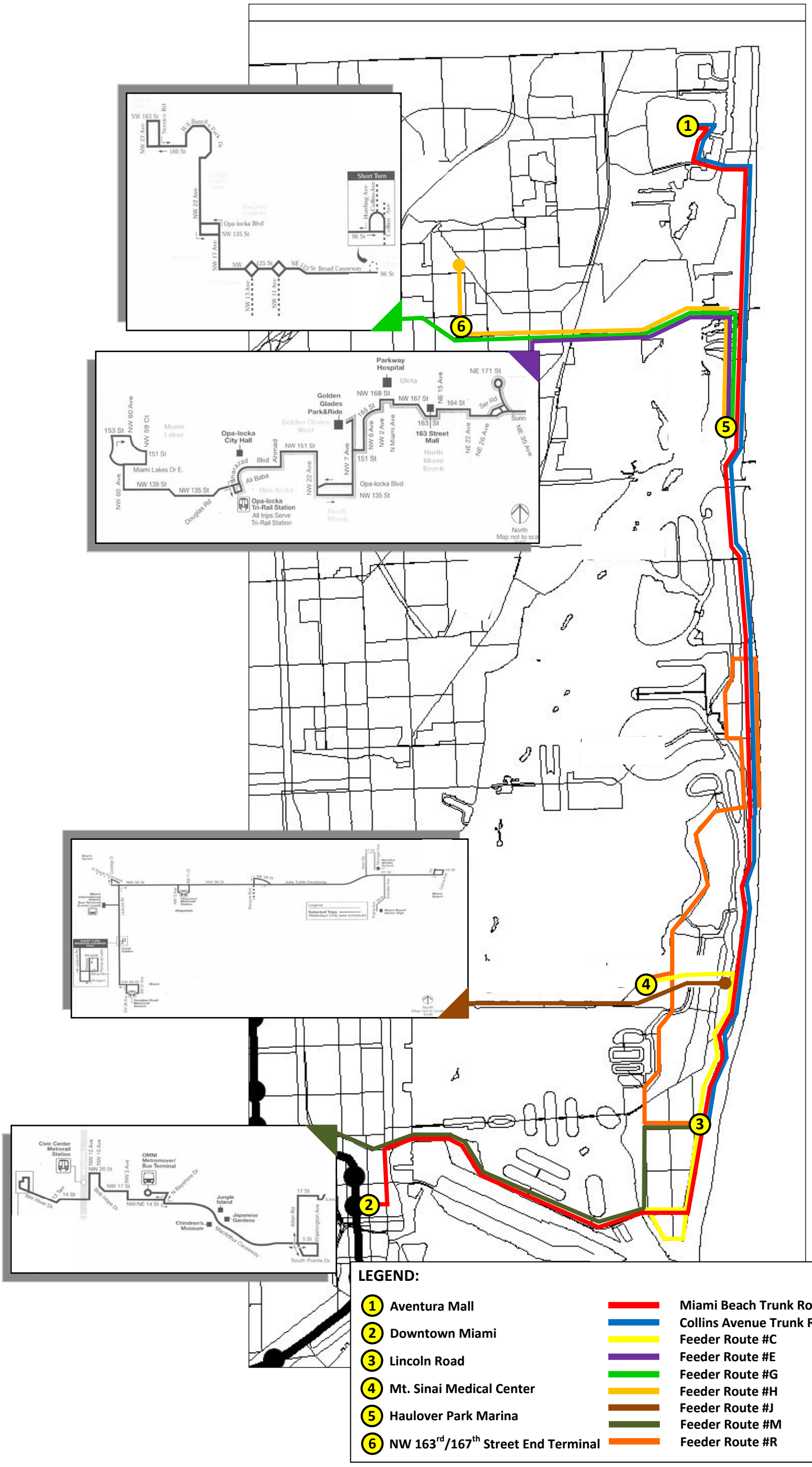
1. Create two (2) Trunk Lines from Aventura Mall to:
   a. Downtown Miami – Miami Beach Trunk Route
   b. Lincoln Road – Collins Avenue Trunk Route
2. Create the following feeder lines:
   a. Route C Feeder Route
   b. Route E Feeder Route
   c. Route G Feeder Route
   d. Route H Feeder Route
   e. Route J Feeder Route
   f. Route M Feeder Route
   g. Route R Feeder Route

Table 9 shows the service characteristics, total revenue-miles and DOC of the proposed changes. Additionally, Figure 18 illustrates the proposed Trunk & Feeder Bus System for Collins Avenue.

| TABLE 9: Proposed Routes Service Characteristics for Collins Avenue | | | | | | |
|---|---|---|---|---|---|---|
| # | Description | Aventura – Downtown Trunk Route | Miami Beach Trunk Route | Feeder Route C | Feeder Route E | Feeder Route G |
| 1 | Headway – peak | 10 | 10 | 20 | 30 | 30 |
| 2 | Headway – off-peak | 10 | 10 | 20 | 60 | 30 |
| 3 | Buses in Service – peak | 21 | 15 | 4 | 7 | 4 |
| 4 | Hours of Service | 24 | 19 | 20 | 15 | 19 |
| 5 | Running Time (mins.) | 210 | 150 | 80 | 215 | 116 |
| 6 | One way trips | 201 | 188 | 102 | 42 | 76 |
| 7 | Revenue-Miles | 4,301 | 2,914 | 572 | 924 | 768 |
| 8 | Direct Operating Cost ($) | 34,322 | 22,496 | 5,251 | 7,253 | 6,190 |

| Table 9 continues… | | | | | | |
|---|---|---|---|---|---|---|
| # | Description | Feeder Route H | Feeder Route J | Feeder Route M | Feeder Route R | Feeder Route 123 |
| 1 | Headway – peak | 20 | 15 | 30 | 45 | 15 |
| 2 | Headway – off-peak | 20 | 30 | 45 | 45 | 15 |
| 3 | Buses in Service – peak | 6 | 13 | 4 | 2 | 8 |
| 4 | Hours of Service | 19 | 20 | 17 | 15 | 18 |
| 5 | Running Time (mins.) | 128 | 196 | 125 | 90 | 60 |
| 6 | One way trips | 102 | 98 | 54 | 38 | 144 |
| 7 | Revenue-Miles | 1,199 | 1,710 | 551 | 342 | 800 |
| 8 | Direct Operating Cost ($) | 9,532 | 13,834 | 4,849 | 2,921 | 9,432 |

## Figure 18: Proposed Trunk & Feeder Routes for Collins Avenue



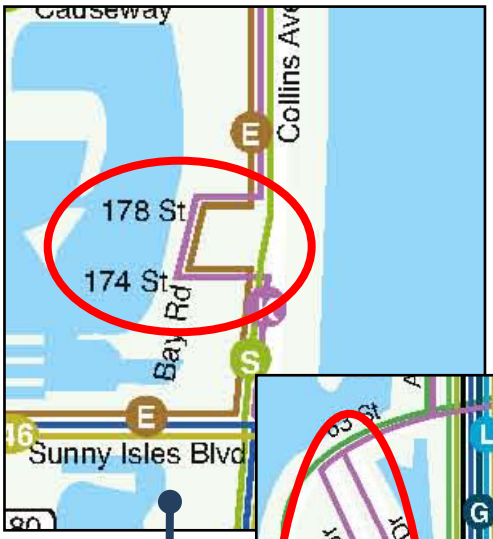

**LEGEND:**

| | |
|---|---|
| 1 Aventura Mall | Miami Beach Trunk Route |
| 2 Downtown Miami | Collins Avenue Trunk Route |
| 3 Lincoln Road | Feeder Route #C |
| 4 Mt. Sinai Medical Center | Feeder Route #E |
| 5 Haulover Park Marina | Feeder Route #G |
| 6 NW 163rd/167th Street End Terminal | Feeder Route #H |
| | Feeder Route #J |
| | Feeder Route #M |
| | Feeder Route #R |

## C. Affected Areas

Along this corridor the following segments are affected by the implementation of the recommended concept. The following illustrations depict the effects of these proposed changes.

### 1. 178th Street – Bay Road – 174th Street


Under the proposed scenario, service along 178th Street, Bay Road and 174th Street is eliminated. The new end terminal proposed for Route E is Haulover Park Marina and Route K is combined with Route S to create the Miami Beach Trunk Route. Based on MDT's APC System, passenger movement in the segment could be analyzed to consider other options, if necessary. A shuttle service could also be considered to provide service to the affected segments.

### 2. Sheridan Avenue

As previously mentioned, additional analysis could be conducted using the MDT's APC System. Passenger movement along the affected segments can be obtained and additional options considered, if necessary. A shuttle service could be considered from Lincoln Road to 63rd street.

## D. Before and After Comparison

Based on buses per hour, Table 10 provides a comparison of the number of trips per hour along Collins Avenue, before and after the recommended changes.

TABLE 10: Service Comparison – Before and After

| # | Segment | Current Service | | Proposed Service | | Balance |
|---|---|---|---|---|---|---|
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | Aventura/Biscayne Blvd. – Collins Avenue | E – S | 7 | MBT CAT | 12 | |
| | Total trips per hour | | 7 | | 12 | +5.0 |
| 2 | NE 192nd Street – NE 178th Street | E – K – S | 9 | MBT – CAT | 12 | |
| | Total trips per hour | | 9 | | 12 | +3.0 |
| 3 | NE 178th Street – NE 174th Street | S | 5 | MBT – CAT | 12 | |
| | Total trips per hour | | 5 | | 12 | +7.0 |
| 4 | NE 174th Street – Sunny Isles Blvd. | E – K – S | 9 | ST – MBT | 12 | |
| | Total trips per hour | | 9 | | 12 | +3.0 |
| 5 | Sunny Isles Blvd. – Haulover Park | H – K – S | 10 | E – H – MBT CAT | 17 | |
| | Total trips per hour | | 10 | | 17 | +7.0 |
| 6 | Haulover Park – NE 96th Street | H – K – S 120 | 12.5 | G – MBT CAT | 14 | |
| | Total trips per hour | | 12.5 | | 14 | +1.5 |
| 7 | NE 96th Street – NE 85th Street | H – K – S R – G – 120 | 16 | R – MBT CAT | 13.5 | |
| | Total trips per hour | | 16 | | 13.5 | -1.5 |
| 8 | NE 85th Street – NE 77th Street | G – S – R H – 120 | 14 | R – MBT CAT | 11.5 | |
| | Total trips per hour | | 14 | | 11.5 | -2.5 |
| 9 | NE 77th Street – NE 71st Street | G – S – R H – K -120 | 16 | ST – R MB T | 13.5 | |
| | Total trips per hour | | 16 | | 13.5 | -2.5 |
| 10 | NE 71st Street – NE 63rd Street | G – S – R H – K – L – J – 120 | 26 | L – R – MBT – CAT | 19.5 | |
| | Total trips per hour | | 26 | | 19.5 | -6.5 |
| 11 | NE 63rd Street – NE 41st Street | L – G – H S – J – 120 | 22.5 | L – MBT CAT | 18 | |
| | Total trips per hour | | 22.5 | | 18 | -4.5 |
| 12 | NE 41st Street – Lincoln Road | L – G – H C – S – M | 21 | L – C – MBT CAT | 21 | |
| | Total trips per hour | | 21 | | 21 | 0 |
| 13 | Lincoln Road – NE 5th Street | H – C – K 123 | 14 | C – MBT 123 | 13 | |
| | Total trips per hour | | 14 | | 13 | -1.0 |
| 14 | NE 5th Street – South Pointe | M – 123 | 6 | M – 123 | 6 | |
| | Total trips per hour | | 6 | | 6 | 0 |

Table 10 shows that the segment with the most critical reduction of buses per hour is from NE 71st Street to NE 63rd Street. According to MDT schedule there are over 26 buses per hour in that segment. This represents a reduction of 6 buses per hour in comparison with the proposed service. Based on existing data and assuming that the routes are at full capacity along this segment and all buses having the same capacity, it can be concluded that:

- Using an average of 40 seats per bus, there are 1,040 seats per hour available in the referred segment.
- Using MDT data it was found that the boardings per hour for the referred routes serving that segment are:
  - ✓ Route G… 32 boardings
  - ✓ Route H… 27 boardings
  - ✓ Route J… 55 boardings
  - ✓ Route K… 41 boardings
  - ✓ Route L… 41 boardings
  - ✓ Route R… 11 boardings
  - ✓ Route S… 47 boardings
  - ✓ Route 120… 26 boardings
  - ✓ Total… 280 boardings per hour
- Comparing all these boardings with the capacity per hour provided by the existing service, it could be assumed that the buses are running at an average of approximately 27% of the real capacity.
- The proposed changes reduced the capacity along the corridor to 19 buses (trips) per hour which represents, using the same parameters, a total capacity of 760 seats per hour.
- Based on the existing boardings of 280 passengers per hour, the proposed service can carry all those passengers and still have room for future potential demand.

Even though, if the boardings per hour are greater than the proposed seating capacity per hour, the recommended changes are saving additional buses that can be added to those other routes that need the additional seating capacity. This analysis can be conducted using MDT's APC data with the real boardings during peak periods. Recommendation is made to conduct these analyses for all evaluated corridors.

## IV. ESTIMATED SAVINGS

Table 11 details a summary of the savings along this corridor.

| TABLE 11: Summary of Savings | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
| | | Before | After | Before | After | Before | After |
| 1 | K | 11 | - | 1,668 | - | 12,880 | - |
| 2 | S | 21 | - | 3,919 | - | 31,261 | - |
| 3 | Aventura to Downtown Trunk Route | - | 21 | - | 4,301 | - | 34,322 |
| 4 | E | 8 | 7 | 1,117 | 924 | 8,770 | 7,253 |
| 5 | H | 12 | 6 | 2,087 | 1,199 | 16,582 | 9,532 |
| 6 | M | 6 | 4 | 756 | 551 | 6,652 | 4,849 |
| 7 | R | 3 | 2 | 430 | 342 | 3,671 | 2,921 |
| 8 | C | 8 | 4 | 1,103 | 572 | 10,128 | 5,251 |
| 9 | G | 8 | 4 | 1,255 | 768 | 10,119 | 6,190 |
| 10 | J | 15 | 13 | 2,041 | 1,710 | 16,510 | 13,834 |
| 11 | 12 | 5 | 0 | 1,008 | - | 7,217 | - |
| 12 | 123 | 11 | 8 | 963 | 800 | 11,357 | 9,432 |
| 13 | A | 2 | 3 | 360 | 385 | 2,845 | 3,042 |
| 14 | MB Local Trunk Route | - | 15 | - | 2,914 | - | 22,496 |
| 15 | Totals | 110 | 87 | 16,707 | 14,466 | 137,992 | 119,122 |
| 16 | Savings/Weekday | 23 | | 2,241 | | 18,870 | |

**Number of buses saved… 23**

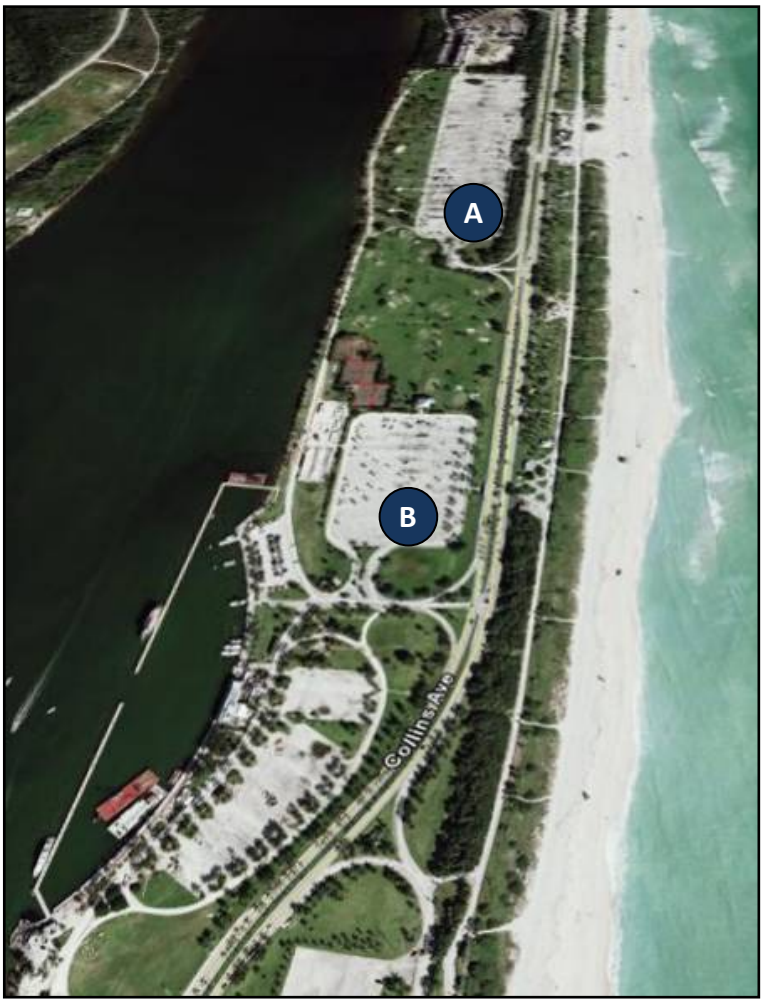
**Daily Revenue-Miles Saved… 2,241**
**Per year… 582,660**

**Daily Savings in DOC… $18,870**
**Per year… $4.9M**

## V. OTHER RECOMMENDATIONS

### A. Larger Bus Stops/Transfer Stations/Park and Ride facilities

**Haulover Park Marina**




**Proposed location for an end terminal and a transfer facility at Haulover Park Marina**
**Options: A and B**

This location is under the jurisdiction of the Parks and Recreation Department (P&RD). Currently, major construction is underway in this facility. MDT needs to coordinate with the P&RD the development of this facility. Either of two sites are recommended, as shown in the illustration. Both have direct access to Collins Avenue. Depending of the plans developed by the P&RD, one of these sites may be used for an end terminal for Routes E, G & H

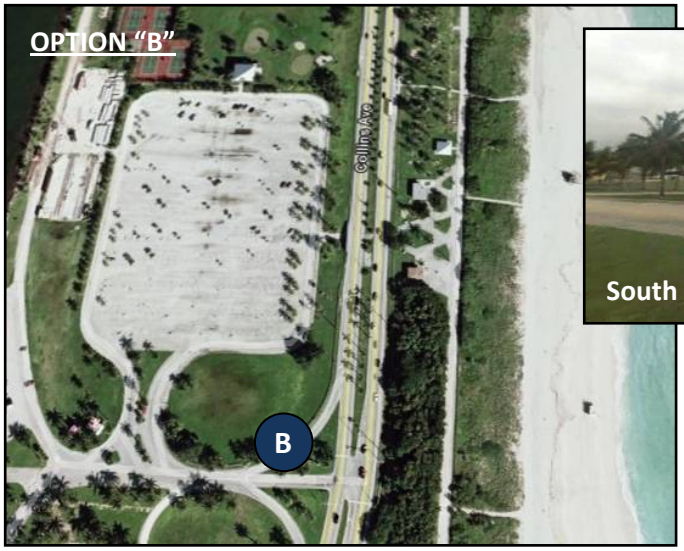
The design of this facility should be integrated to the actual development of the Park.

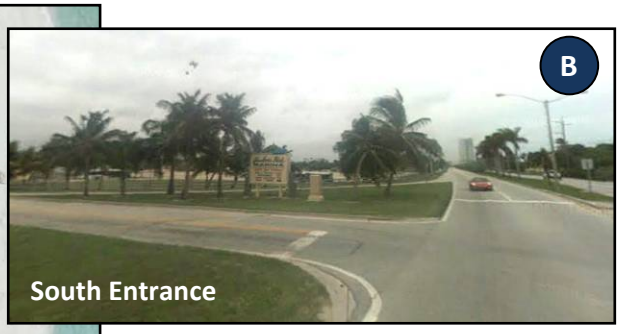
Additionally, recommendations are made for the construction of bus terminals facilities at Aventura Mall and Downtown Miami, as illustrated in Chapter IV – Biscayne Boulevard.

Option B provides a direct access to the marina area and to the tunnel that connects the park to the beach beneath Collins Avenue. Both options promote the use of this facility by providing a better transit access to the park. Next page shows illustrations in more detail about the two options.



This option provides more space for the development of the end terminal and does not interfere with the plans already in place by the Department of Parks and Recreation for the area considered under Option B.




The benefit of this option is that the access to the beach is closer than option "A". However, as indicated above, this option may face opposition to accommodate this end terminal for transit due to the increase in costs and necessary changes to the current plans.

In addition to this recommendation, there are two other locations that are recommended for the construction of an end terminal and transfer stations for this corridor. These terminals are located at NE 72nd Street and the vicinity of the Miami Beach Convention Center. All locations are not necessary. However, an analysis should be conducted to determine the best location for this facility based on the land availability and the operational changes to continue providing the recommended transit services along the corridor. Other considerations need to be added to the equation, as the coordination with the City of Miami Beach and funding available.

## Collins Avenue and NE 96th Street


**Potential site location for larger bus stops on Collins Avenue north of NE 96th Street**

This location will allow the transferring of passengers from Route #G to the two trunk routes along Collins Avenue. The development of this facility needs to be coordinated with the City of Miami Beach.

Another option for this route is to continue to Haulover Park, as shown in the Route #G illustration.

## Collins Avenue and NE 41st Street


Potential site for a larger bus stop at Collins Avenue and NE 41st Street. Street. This site will serve as the turn over point for Route J.

## Collins Avenue and NE 72nd Street

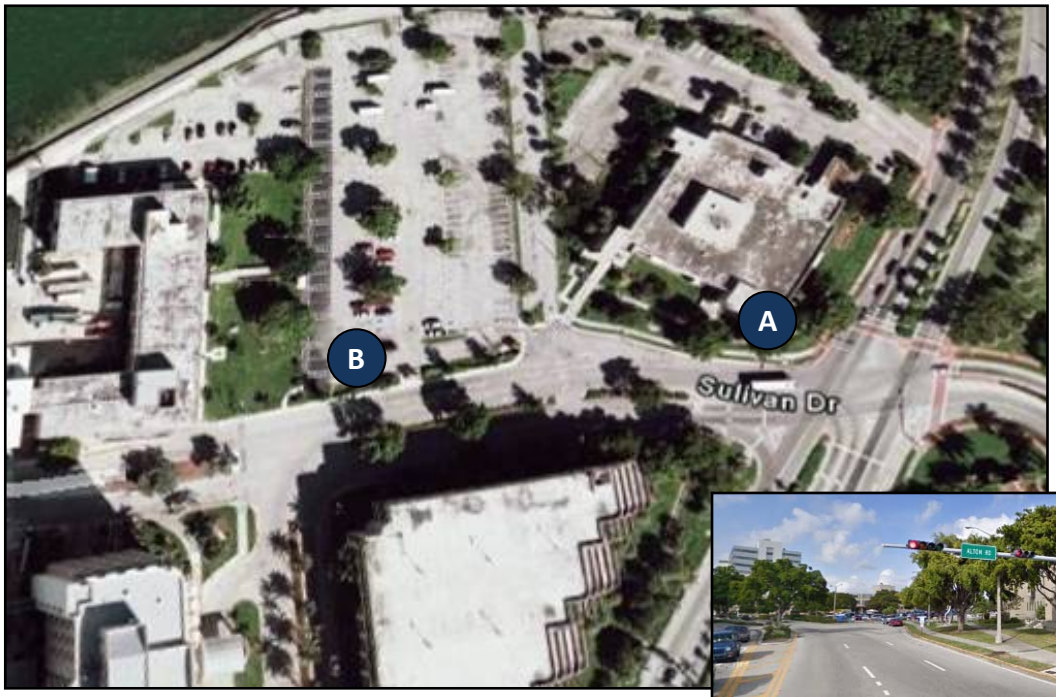
**Potential site for an end terminal at NE 72nd Street.**

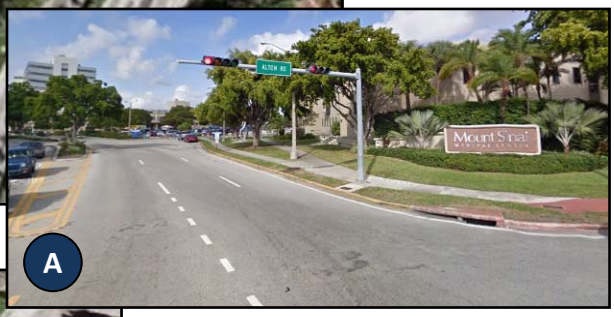
This site will provide an excellent location for improving MDT service in the Beach. If this facility is built, there is no need to consider the development of another end terminal at Haulover Park and the Miami Beach Convention Center.

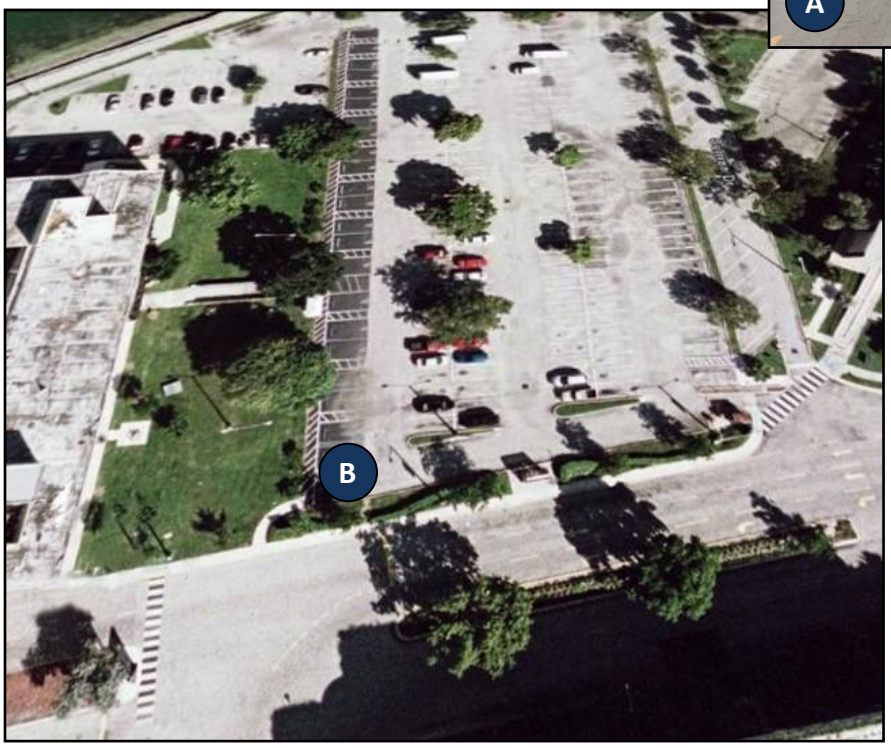



In order to accommodate all routes in this location, additional studies are needed for determining the exact site of the terminal. Probably, the whole lot could be needed for this development. Under this scenario, trunk routes could be evaluated in detail for providing a better service north and south of this terminal facility.

## Mount Sinai Medical Center



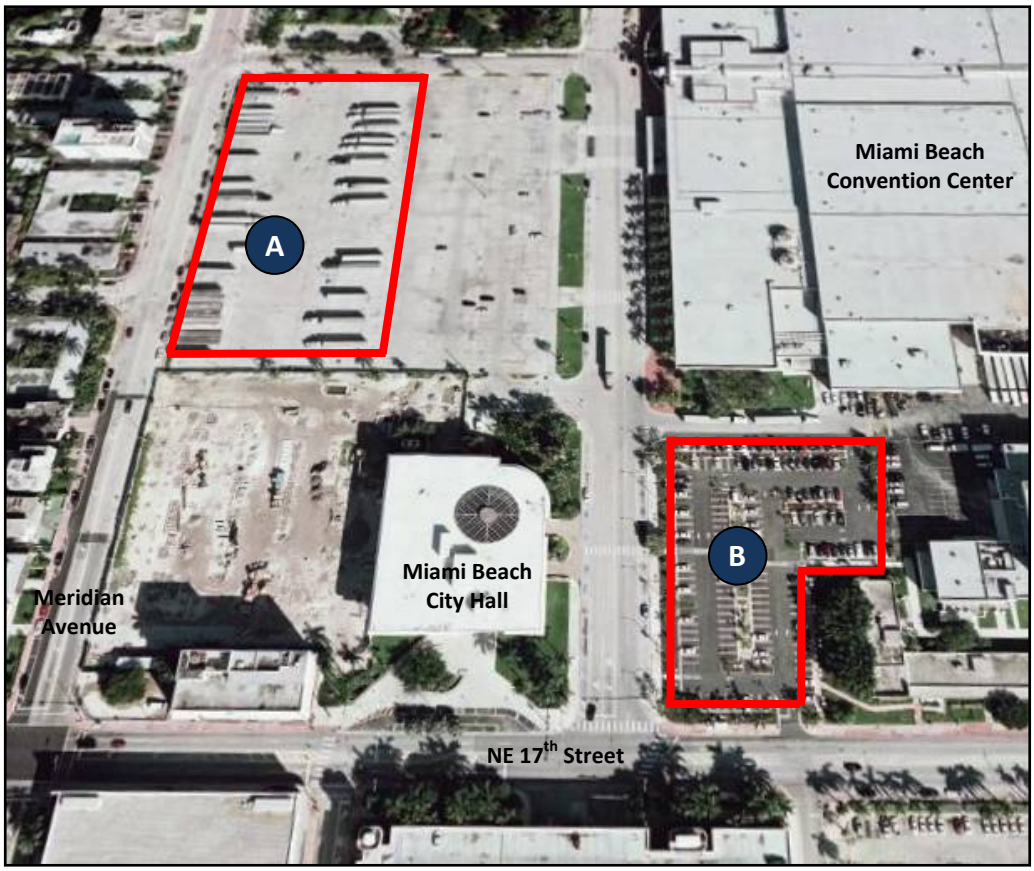

**Potential site location for an end terminal facility at Mt. Sinai Medical Center**

This location is recommended in the Transit Connection Centers Study (2004). Coordination is necessary with the administration of the hospital to develop this facility. Illustration “A” shows the entrance to the hospital and Illustration “B” the potential site which affects a small number of parking spaces for the construction of this facility.

## Miami Beach Convention Center & City Hall

**Recommended sites for a bus terminal facility in the vicinity of Miami Beach Convention Center.**

Under this scenario, MDT routes will serve both the City Hall and the Convention Center. Additionally, MDT route alignments need be revised and service improved. Coordination needs to be established with the City of Miami Beach.




Site "A" is part of the Convention Center parking lot and it is been used by trucks, as shown in the aerial. Site "B" is a parking facility for the Miami Beach City Hall. A bus terminal could be built in this lot with a parking garage to supply the parking demand for the City hall. This facility could be developed as a mini multimodal terminal.


## Washington Avenue and Lincoln Road


As mentioned for other locations, there is no need for having several bus terminal facilities within the City of Miami Beach. Only one of the three proposed locations at NE 72nd Street, Convention Center/City Hall or this one should be built.

**A** Potential site for an end terminal

**B** Potential route alignment for accessing the end terminal or as a turn over point.

**C** **D** Street views at the intersection of Collins Avenue and Lincoln Road


## B. Other Recommendations

1. Consider ending Route #L at 71st Street and creating a NW 79th Street Trunk Route. This change would save 6 buses, 1,099 revenue-miles per day and $9,183 per day in operating costs. This figure represents an additional saving of $2.4M in annual direct operating costs.
2. Coordinate the transit services recommended for Mall with the City of Aventura and Aventura Mall.
3. Consider the construction of a terminal facility at Aventura Mall.
   a. Combined use for buses (MDT and City of Aventura) and cars.
   b. Multi-level building that will allow for public facilities at the first level and regular parking in the upper levels.
   c. Upper level parking for park and ride, carpool, vanpool and mall customers.
   d. Incorporate bicycle and pedestrian access, ITS technology and green alternatives for the construction of this intermodal facility.
   e. Potential use of Federal (FTA), State and local funds for this public/private partnership multimodal project.
4. Evaluate potential transfer stations/end terminals/mini multimodal centers at Haulover Park, 96th Street, 71st Street, Mt. Sinai Hospital, Miami Beach Convention Center and Lincoln Road.
5. Evaluate potential terminal facilities at 17th Street and 72nd street.
6. Consider the construction of bus terminal facility at Downtown Miami and a transit mall along NW First Street.

# CHAPTER VII: FLAGLER STREET

## I. EXISTING MDT SERVICE

Figure 19 shows a schematic map of the two routes that use Flagler Street Corridor. Route 11 is a regular route, while Route 51 provides limited stops service. However, there are many routes crossing Flagler Street or using a segment to continue their service to other destinations. These routes are:

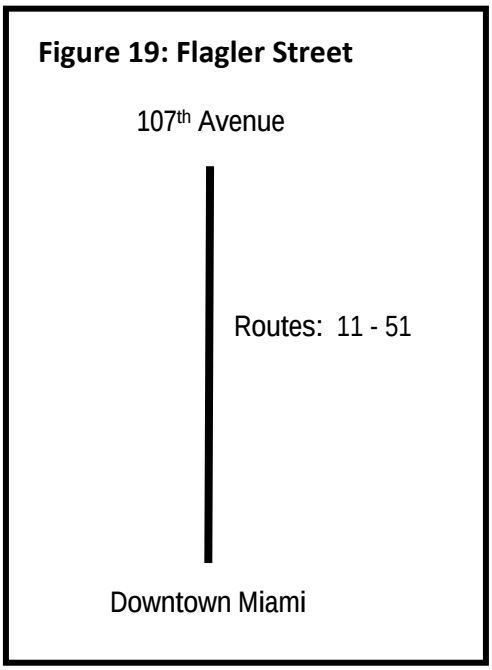



**Figure 19: Flagler Street**

### A. Crossing Flagler Street

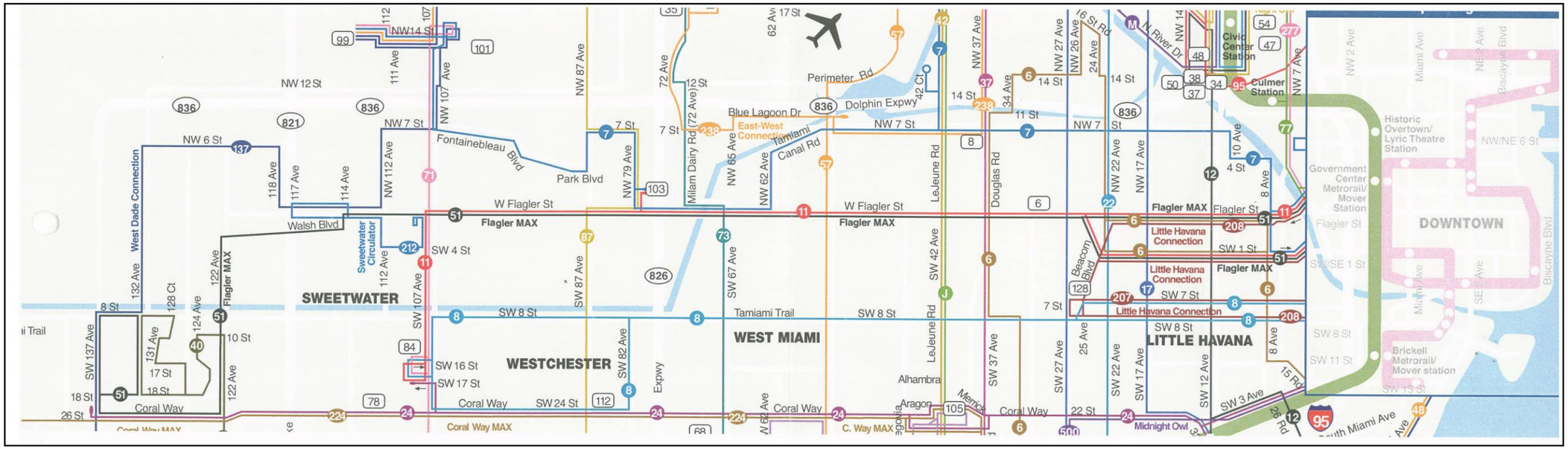
1. Route 12: Mercy Hospital to Northside Metrorail Station at 12th Avenue
2. Route 17: Vizcaya Metrorail Station to NW 199th Street at 17th Avenue
3. Route 22: Coconut Grove Metrorail Station to NE 163rd Street bus terminal at 22nd Avenue
4. Route 37: South Miami Metrorail Station to Hialeah at 37th Avenue
5. Route 42: Coconut Grove Metrorail Station to Golden Glades at 42nd Avenue
6. Route 57: Jackson South Hospital to Tri-Rail Airport Station at 57th Avenue
7. Route 71: Dolphin Mall to MDC Kendall Campus at 107th Avenue
8. Route J: Douglas Road Metrorail Station to Collins Avenue at 42nd Avenue

### B. Using segments of Flagler Street

1. Route 6: Coconut Grove Metrorail Station to NW 29th Street, from 8th Avenue to 22nd Avenue
2. Route 7: Dolphin Mall to Downtown Miami, from 62nd Avenue to 79th Avenue
3. Route 73: Dadeland South Metrorail Station to Miami Lakes, from 67th Avenue to 72nd Avenue
4. Route 87: Dadeland Mall to Medley, from 79th Avenue to 87th Avenue
5. Route 137: South Dade Government Center to Dolphin Mall, from 112th Avenue to 118th Avenue
6. Route 207: Downtown Miami to MDC Interamerican Campus, from 22nd Avenue to 1st Avenue
7. Route 212: Sweetwater Circulator, from 107th Avenue to 109th Avenue and from 114th Avenue to 117th Avenue

Figure 20 shows the detailed route alignments of all routes serving this corridor. A first screening of these routes was conducted to determine which of them were suitable for conversion to the Trunk & Feeder System.

**Figure 20: MDT Routes along Flagler Street**



## II. ANALYSIS OF SERVICE

Since two routes serve the corridor, both were selected for detailed evaluation:

1. Route 11: Florida International University (FIU) to Government Center Metrorail Station in Downtown Miami.
2. Route 51: Coral Way to Omni Metromover Station via Flagler Street

Appendix 10 shows a detailed analysis of the existing and proposed MDT routes along the corridor. The same MDT data was used for developing and analyzing the proposed route changes.

## III. PROPOSED SERVICE

### A. Rationale

Flagler Street is one of the major transit corridors that divide the county between north and south. Route 11 is a regular route that has two origins: from FIU and Mall de las Americas to Downtown Miami. Route 51 is the Flagler Max with limited stop service from Coral Way to Downtown Miami. Flagler Street does not have the duplication of service found in other corridors. Due to the importance and passenger movements along this corridor, future evaluations should be conducted in those routes that cross or use short segments of Flagler Street. They could be ideal candidates for feeder routes and for identify potential transfer stations. This option opens the possibility of integrate north-south routes with this main corridor serving the east-west corridor.

### B. Corridor Recommendations

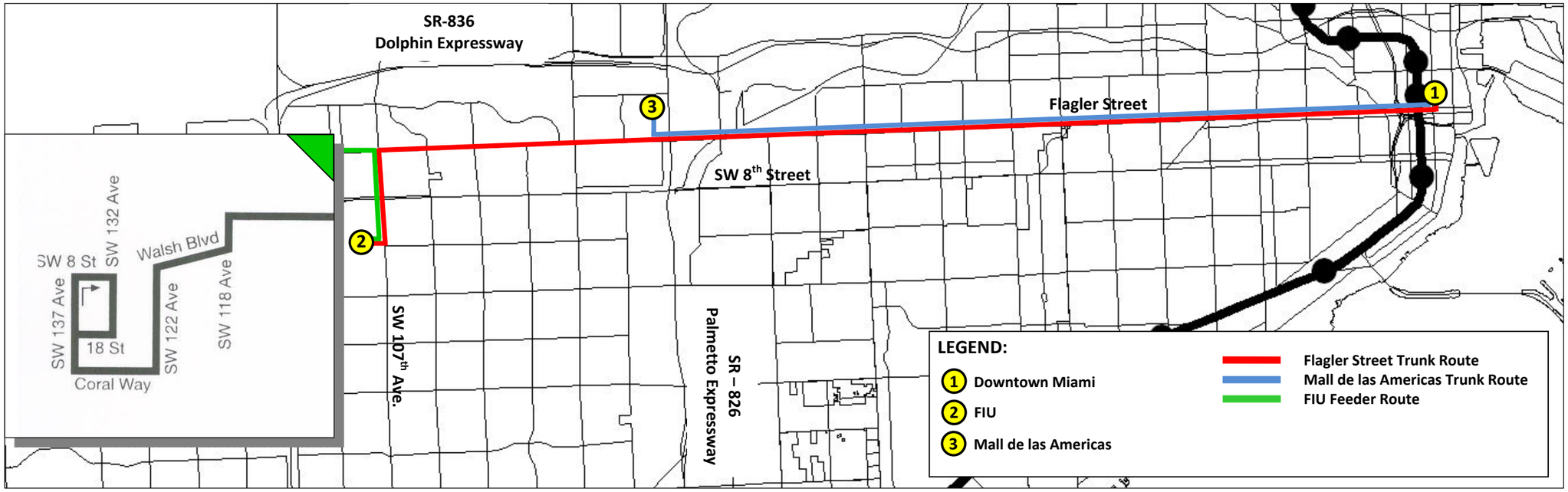
1. Create Flagler Street Trunk Route
2. Create FIU – Coral Way Feeder Route

Table 12 shows the service characteristics, total revenue-miles and DOC of the proposed changes. Additionally, Figure 21 illustrates the proposed Trunk & Feeder Bus System for Flagler Street.

**TABLE 12: Proposed Routes Service Characteristics for Flagler Street**

| # | Description | Flagler Street Trunk Route | Mall Las Americas Trunk Route | SW 137th to FIU Feeder Route |
|---|---|---|---|---|
| 1 | Headway – peak | 10 | 10 | 20 |
| 2 | Headway – off-peak | 15 | 20 | 30 |
| 3 | Buses in Service – peak | 14 | 10 | 4 |
| 4 | Hours of Service | 24 | 17 | 13 |
| 5 | Running Time (mins.) | 134 | 101 | 72 |
| 6 | One way trips | 180 | 126 | 66 |
| 7 | Revenue-Miles | 2,268 | 1,147 | 508 |
| 8 | Direct Operating Cost ($) | 21,546 | 9,968 | 4,003 |

**Figure 21: Proposed Trunk & Feeder Routes for Flagler Street**



### C. Affected Areas

The proposed changes will not affect service on any segments along this corridor.

### D. Before and After Comparison

Based on buses per hour, Table 13 illustrates a comparison in service performance along Flagler Street, before and after the recommended changes.

**TABLE 13: Service Comparison: Before & After (Peak Period)**

| # | Segment | Current Service | | Proposed Service | | Balance |
|---|---|---|---|---|---|---|
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | SW 118th Avenue – SW 107th Avenue | 51 | 2 | FIU FR | 3 | |
| | Total trips per hour | | 2 | | 3 | +1.0 |
| 2 | SW 107th Avenue – Mall Las Americas | 11 | 3 | FIU TR | 6 | |
| | | 51 | 4 | | | |
| | Total trips per hour | | 7 | | 6 | -1.0 |
| 3 | Mall Las Americas – Downtown | 11 | 7 | FIU TR | 6 | |
| | | 51 | 4 | Mall TR | 6 | |
| | Total trips per hour | | 11 | | 12 | +1.0 |

Table 13 shows that segments along Flagler Street will not be affected by the recommended changes.

## IV. ESTIMATED SAVINGS

Table 14 shows a summary of the savings along this corridor.

**TABLE 14: Summary of Savings**

| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
|---|---|---|---|---|---|---|---|
| | | Before | After | Before | After | Before | After |
| 1 | 11 | 21 | - | 2261 | - | 21,480 | - |
| 2 | 51 | 12 | - | 1933 | - | 15,226 | - |
| 3 | Flagler trunk Route | - | 14 | - | 2,268 | - | 21,546 |
| 4 | Mall de las Americas Trunk Route | - | 10 | - | 1,147 | - | 9,968 |
| 5 | FIU Feeder Route | - | 4 | - | 508 | - | 4,003 |
| 6 | Totals | 33 | 28 | 4,194 | 3,923 | 36,706 | 35,517 |
| 7 | Savings/Weekday | 5 | | 271 | | 1,189 | |

**Number of buses saved…** **5**

**Daily Revenue-Miles Saved…** **271**
**Per year…** **70,460**

**Daily Savings in DOC…** **$1,189**
**Per year…** **$309,140**

## V. OTHER RECOMMENDATIONS

### A. Transfer Stations, End Terminals and Larger Stops

**Flagler Street and NW 27th Avenue**


**Proposed locations for larger bus stops at Flagler St. and 27th Ave.**

These facilities will serve as a transfer point for 27th Ave. Trunk Route and Flagler St. Trunk Route.

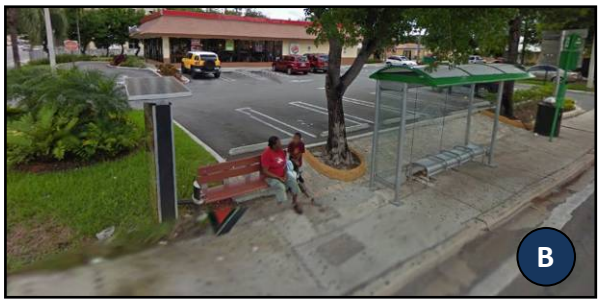
It is also recommended that these facilities provide a continuous shelter (L-shape) for the movement of the passengers from one route to another. Coordination with the private sector is necessary, as well as the improvement of the existing bus stops.


## Flagler Street and 42nd Avenue


**Potential locations for larger bus stops at Flagler Street and NW 42nd Avenue**

These facilities will serve as a transfer point for Routes 42 and J to Flagler St. Trunk Routes. It is also recommended that these facilities provide a continuous shelter (L-shape) for the movement of the passengers from one route to another. Coordination with the private sector is necessary.
This location is recommended in the Alternatives for Intermodal (1998), Transit Connection Centers Study (2004) and Transit Hub Study (2008).





## Flagler Street and Mall de las Americas

**Potential site for a multimodal facility.**

This terminal will also provide connection for Routes 7 and 87. The concept recommended for this site is similar to the one recommended for Aventura Mall. MDT should coordinate with the mall for the development of this facility. This location is recommended for a transfer station in the Alternatives for Intermodal (1998) and Transit Connection Centers Study (2004). Appendix 7 lists some of the amenities that should be considered for this facility.



## Flagler Street and NW/SW 107th Avenue

**Potential sites for Park & Ride facilities at Flagler Street and 107th Avenue.**

These optional locations are included in the FDOT P&R Plan (2005) and could be considered for P&R facilities or transfer stations or as a bus end terminal facility.




## Flagler Street and SW 99th Street


**Proposed P&R facility at Flagler Street and 99th Street (see aerial)**

This facility is recommended in the FDOT-6 Park & Ride Plan (2005).


## SW 107th Avenue – Florida International University (FIU) Entrance

**Existing FIU Bus End Terminal**

Consideration should be given to provide a direct bus entrance/exit to this facility from SW 107th Avenue.

## B. More Recommendations

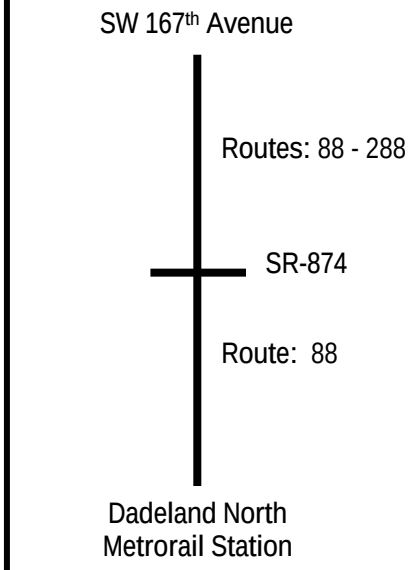
1. Consider the construction of an intermodal terminal facility at the Mall de las Americas.
   - **a.** Coordinate with the administration of the Mall de las Americas improvements for bus facilities within the mall area.
   - **b.** Combined use for buses (MDT and other city buses) and cars.
   - **c.** Multi-level building that will allow for public facilities at the first level and regular parking in the upper levels.
   - **d.** Upper level parking for park and ride, carpool, vanpool and mall customers.
   - **e.** Incorporate bicycle and pedestrian access, ITS technology and green alternatives for the construction of this intermodal facility.
   - **f.** Potential use of Federal (FTA), State and local funds for this public/private partnership multimodal project.
2. Coordinate with FIU to improve terminal facilities at the entrance of the university.
3. Evaluate potential transfer stations on Flagler Street at SW 107th Avenue, 99th Avenue and 79th Avenue.
4. Evaluate the implementation of larger bus stops at the intersection of Flagler Street and:
   - **a.** 87th Ave. for Route 87.
   - **b.** 67th Ave. for Route 73.
   - **c.** 57th Ave. for Route 57.
   - **d.** 42nd Ave. for Routes 42 and J.
   - **e.** 37th Ave. for Routes 6 and 37.
   - **f.** 27th Ave. for 27th Avenue Trunk Route.
5. Consider the construction of a bus terminal adjacent to Government Center Metrorail Station.
6. Consider the closing of NW 1st Street from NW 1st Avenue to NW 2nd Avenue for developing a transit/pedestrian mall.

# CHAPTER VIII: KENDALL DRIVE

## I. EXISTING MDT SERVICE

Figure 22 shows a schematic map of the routes that use Kendall Drive Corridor. As Flagler Street Corridor, this figure illustrates that there are only two routes serving the corridor. However, there are other routes crossing Kendall Drive or using a segment to continue their service to other destinations. These routes are:

**Figure 22: Kendall Drive**




### A. Along the Corridor

1. Route 88: Dadeland North Metrorail Station to NW 157th Avenue via Kendall Drive
2. Route 288: Dadeland North Metrorail Station to NW 157th Avenue via Kendall Drive, SR-874 and SR-878

### B. Crossing Kendall Drive

1. Route 56: MDC Kendall Campus to Miami Children's Hospital at SW 117th Avenue
2. Route 71: MDC Kendall Campus to Dolphin Mall at SW 107th Avenue
3. Route 137: South Dade Government Center to Dolphin Mall at SW 137th Avenue
4. Route 204: Dadeland North Metrorail Station to Shops at Paradise Lake via Killian drive at SW 167th Avenue (end terminal)
5. Route 272: Dadeland North Metrorail Station to Shops at Paradise Lake via Sunset Drive at SW 167th Avenue (end terminal)

### C. Using segments of Kendall Drive

1. Route 72: South Miami Metrorail Station to Kendale Lakes, from SW 152nd Avenue to SW 157th Avenue
2. Route 104: Dadeland North Metrorail Station to The Hammocks, from SW 147th Avenue to SW 167th Avenue

Figure 23 shows the detailed route alignments of all routes serving this corridor. A first screening of these routes was conducted to determine which of them were suitable for conversion to the Trunk & Feeder System.

**Figure 23: MDT Routes along Kendall Drive**

## II. ANALYSIS OF SERVICE

Both routes serving the corridor were selected for detailed evaluation:

1. Route 88: Dadeland North Metrorail Station to Kendale Lakes via Kendall Drive
2. Route 288: Dadeland North Metrorail Station to SW 157th Avenue via Kendall Drive and SR-874 (Don Shula Expressway) and SR-878 (Snapper Creek Expressway)

Appendix 11 shows a detailed analysis of the existing and proposed MDT routes along the corridor. The same MDT data was used for developing and analyzing the proposed route changes.

## III. PROPOSED SERVICE

### A. Rationale

Route 88 is a regular route that has two origins: from SW 157th Avenue and Kendale Lakes to Dadeland North Metrorail Station, and Route 288 is the Kendall KAT with limited stop service along the corridor and nonstop on the expressway. This particular route is one of the three (3) routes that are part of the "bus on shoulders" concept. Similar to Flagler Street, this corridor does not have the duplication of service found in other corridors. Routes listed above should be evaluated for determining future feeder routes serving this corridor. Additionally, the MPO in conjunction with MDT, the Florida Department of Transportation (FDOT) and the Department of Public Works are working together for the implementation of a limited Bus Rapid Transit (BRT) route along this corridor.

### B. Corridor Recommendations

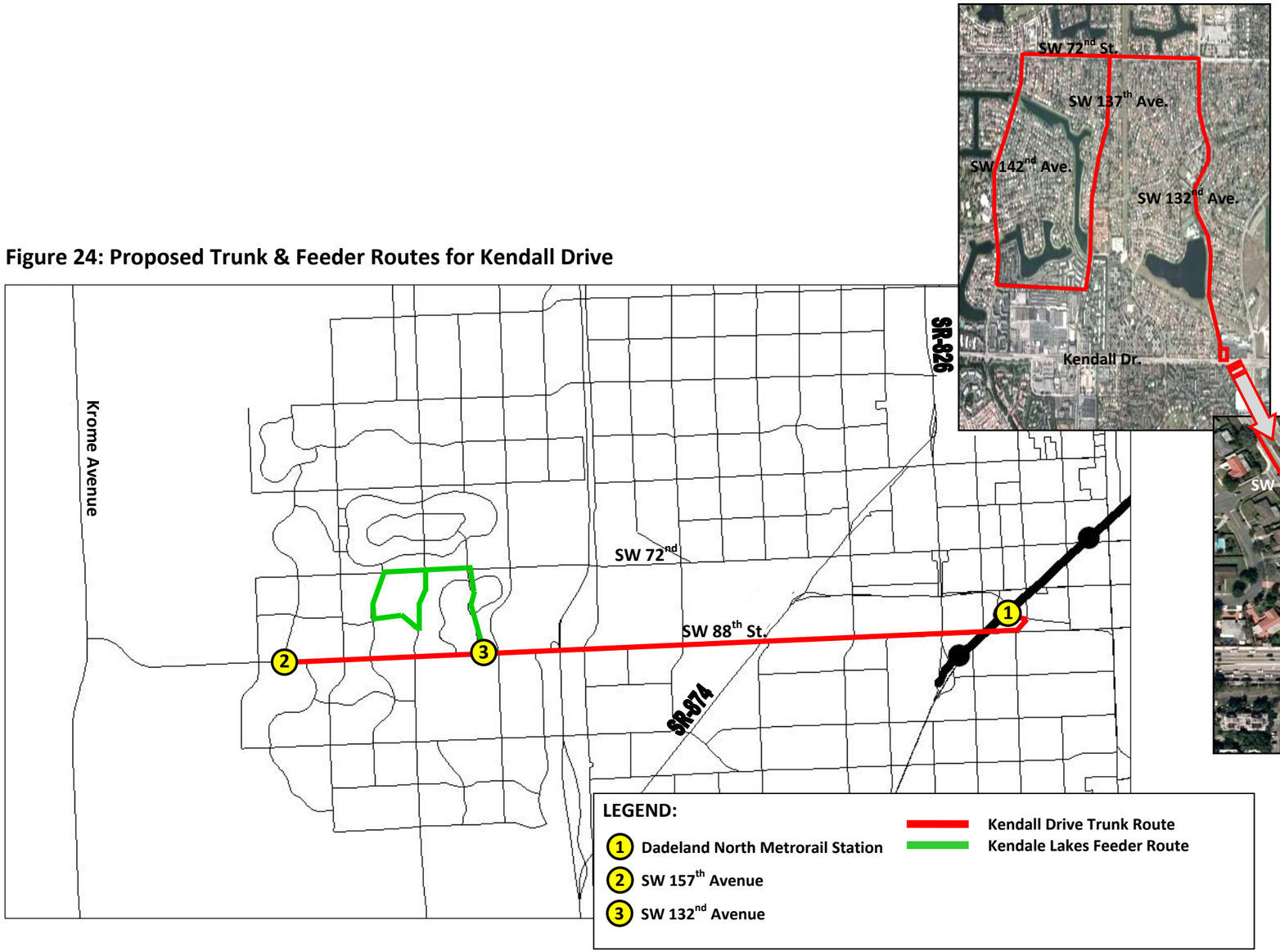
1. Create Kendall Drive Trunk Route
2. Create Kendale Lakes Feeder Route

Table 15 shows the service characteristics, total revenue-miles and DOC of the proposed changes. Additionally, Figure 24 illustrates the proposed Trunk & Feeder Bus System for the Kendall Corridor.

**TABLE 15: Proposed Routes Service Characteristics for Kendall Drive**

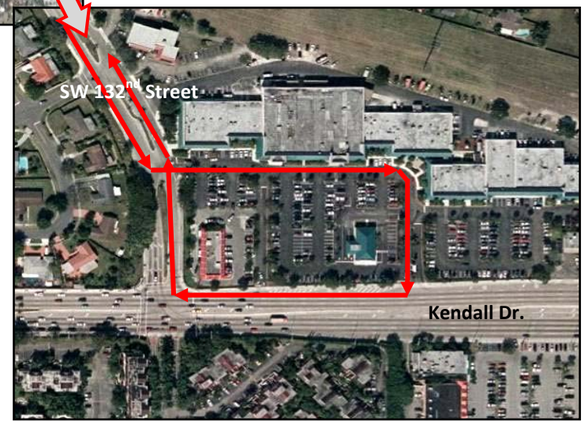
| # | Description | Kendall Dr. Trunk Route | Kendale Lakes Feeder Route |
|---|---|---|---|
| 1 | Headway – peak | 15 | 30 |
| 2 | Headway – off-peak | 20 | 60 |
| 3 | Buses in Service – peak | 8 | 2 |
| 4 | Hours of Service | 21 | 17 |
| 5 | Running Time (mins.) | 120 | 51 |
| 6 | One way trips | 120 | 50 |
| 7 | Revenue-Miles | 1,536 | 207 |
| 8 | Direct Operating Cost ($) | 9,719 | 1,536 |

**Figure 24: Proposed Trunk & Feeder Routes for Kendall Drive**










**Proposed end terminal for Kendale Lakes Feeder Route.**

This location will facilitate the transferring of passengers from the feeder route to Kendall Trunk Route. MDT needs to coordinate with the shopping center the access to their facility.

## D. Affected Areas

The proposed changes are not affecting service on any segments along this corridor. The only change is that service will continue along Kendall Drive and not on SR-874 (Don Shula Expressway) and SR-878 (Snapper Creek Expressway).

## E. Before and After Comparison

Based on buses per hour, Table 16 illustrates a comparison of service performance along Kendall Drive, both before and after the recommended changes.

**TABLE 16: Service Comparison – Before and After (Peak Period)**

| # | Segment | Current Service | | Proposed Service | | Balance |
|---|---|---|---|---|---|---|
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | SW 157th Avenue – SW 152nd Avenue | 72 | 2 | 72 | 2 | |
| | | 88 | 4 | 88T | 4 | |
| | | 104 | 2 | 104 | 2 | |
| | **Total trips per hour** | | **8** | | **8** | **0** |
| 2 | SW 152nd Avenue – SW 147th Avenue | 88 | 4 | 88T | 4 | |
| | | 104 | 2 | 104 | 2 | |
| | | 288 | 4 | | | |
| | **Total trips per hour** | | **10** | | **6** | **-4.0** |
| 3 | SW 147th Avenue – SR 874 | 88 | 4 | 88T | 4 | |
| | | 288 | 4 | | | |
| | **Total trips per hour** | | **8** | | **4** | **-4.0** |
| 4 | SR 874 – Metrorail Dadeland North Station | 88 | 4 | 88T | 4 | |
| | **Total trips per hour** | | **4** | | **4** | **0** |

Based on the same assumptions used for the Busway and Collins Avenue corridors, the boardings per hour for Route 88 and 288 are 32.2 and 23.5 passengers, respectively, for a total of 55.7 boardings per hour. Using an average of 9 buses per hour, the total capacity for both routes are 360 seats per hour. The proposed service reduces that capacity to 200 seats per hour. Based on this numbers, after reducing the number of buses per hour, still the proposed changes provide the capacity to carry the existing passenger movement along the corridor.

As mentioned before, this changes need to be monitored immediately after implementation. During these first months additional changes should be considered to supply any additional passenger demand, if needed.

# V. ESTIMATED SAVINGS

Table 17 shows a summary of the savings along this corridor.

| TABLE 17: Summary of Savings | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
| | | Before | After | Before | After | Before | After |
| 1 | 88 | 8 | - | 1,042 | - | 8,705 | - |
| 2 | 288 | 6 | - | 586 | - | 4,347 | - |
| 3 | Kendall Dr. Trunk Route | - | 8 | - | 1,164 | - | 9,719 |
| 4 | Kendale Lake Feeder Route | - | 2 | - | 207 | - | 1,536 |
| 5 | Totals | 14 | 10 | 1,628 | 1,371 | 13,052 | 11,255 |
| 6 | Savings/Weekday | 4 | | 257 | | 1,797 | |

Number of buses saved… 4

Daily Revenue-Miles Saved… 257
Per year… 66,820

Daily Savings in DOC… $1,797
Per year… $467,220

## VI. OTHER RECOMMENDATIONS

### A. Transfer Stations, End Terminals and Larger Stops

**Kendall Drive and SW 149th Avenue**


**Potential P&R facility at Kendall Dr. and SW 149th Avenue.**

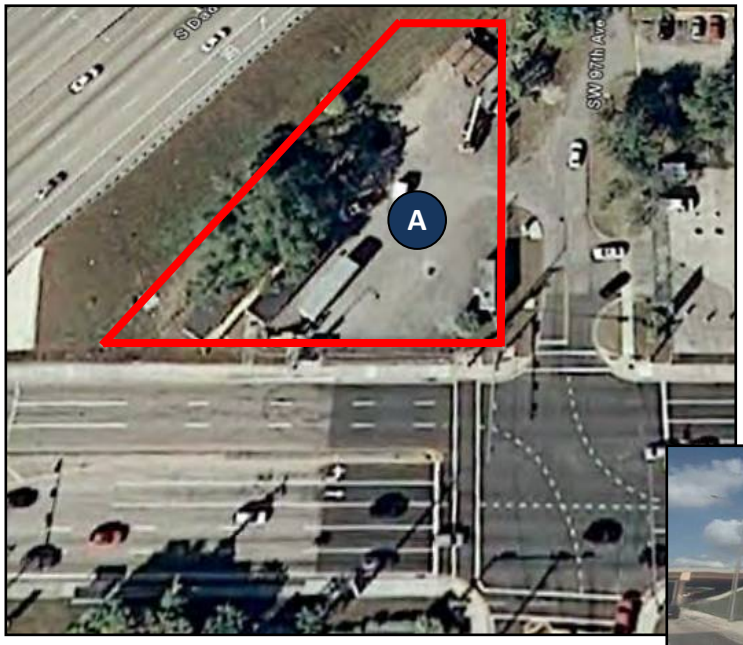
This location is recommended in the FDOT 6 P&R Plan (2005).

## Kendall Drive and SW 94th Street


**Potential P&R facility at Kendall Dr. and SW 94th Avenue.**

This location is recommended in the FDOT 6 P&R Plan


## Kendall Drive and SW 94th Street




**Potential site for a Park and Ride.**

This facility is included in the FDOT Public/Private Excess/Surplus Property Study – 2008.

## Kendall Drive and SW 107th Avenue

**Potential locations for larger bus stops at Kendall Drive and SW 107th Avenue.**

Four locations have been identified to install two large bus stops. Passengers transferring from/to Route 71 to Kendall Drive Trunk Route may use these bus stops.

Field inspections are needed to determine the best locations. Additionally, coordination is needed with the private sector.





## Kendall Drive and SW 127th Avenue


**Potential P&R facility at Kendall Dr. and SW 127th Avenue.**

This location is recommended in the FDOT 6 Park & Ride Plan (2005). However, as shown in the pictures, these locations are FPL ROW for a transmission line that may not be suitable for this type of facility.



## Kendall Drive and SW 157th Avenue

**Potential site location for an end terminal facility for the Kendall Dr. Trunk Route.**

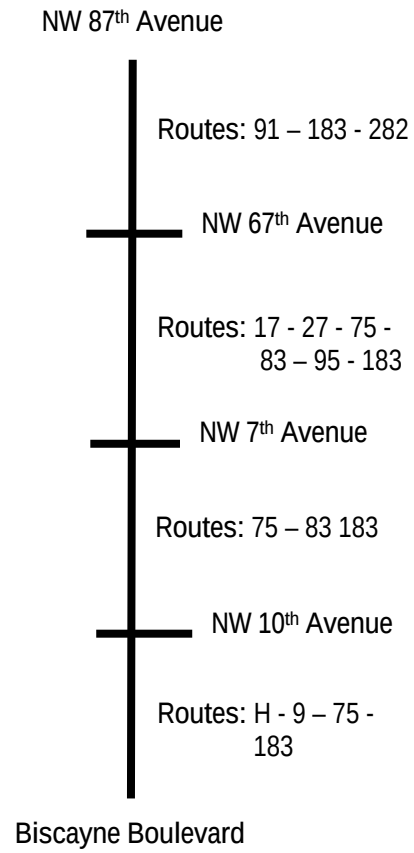
This facility (A) is recommended in the Transit Connection Centers Study (2004) (at SW 162nd Ave.) and also in the Transit Hub Study (2008).

# CHAPTER IX: MIAMI GARDENS DRIVE

## I. EXISTING MDT SERVICE

Figure 25 depicts a schematic map of all routes that use Miami Gardens Drive Corridor. As it can be seen figure, there is some service duplication along this corridor (see Figure 26). There are routes crossing Miami Gardens Drive or using a segment to continue their service to other destinations. These routes are:

**Figure 25: Miami Gardens Drive**




### A. Along Miami Gardens Drive

1. Route 83: Miami Lakes to FIU via Miami Gardens Drive
2. Route 183: NW 87th Avenue to FIU and Aventura Mall via Miami Gardens Avenue

### B. Crossing Miami Gardens Drive

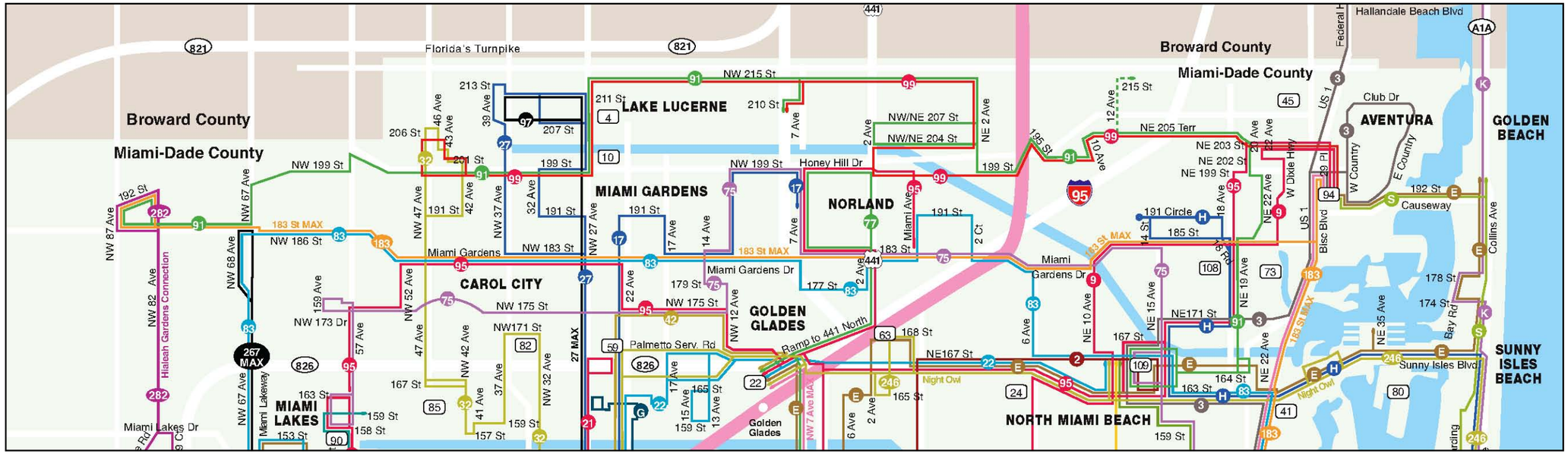
1. Route 32: Omni Metromover Station to NW 206th Terrace, at NW 47th Avenue
2. Route 77: Downtown Miami to NW 199th Street, at NW 2nd Avenue
3. Route 91: 163rd Street Mall to NW 87th Avenue, at NE 19th Avenue
4. Route 97: Martin Luther King, Jr. Metrorail Station to NW 211th Street (27 MAX), at 27th Avenue
5. Route 267: Okeechobee Metrorail Station to Miami Gardens Drive, at NW 67th Avenue

### C. Using segments of Miami Gardens Drive

1. Route 9: Downtown Miami to Aventura Mall, from NE 10th Avenue to Dixie Highway
2. Route 17: Vizcaya Metrorail Station to NW 199th Street, from NW 22nd Avenue to NW 12th Avenue
3. Route 27: Coconut Grove Metrorail Station to Calder Race Track, from NW 37th Avenue to NW 27th Avenue
4. Route 75: MDC North Campus to Miami Lakes Technical Education Center, from NW 14th Avenue to NE 15th Avenue
5. Route 91: 163rd Street Mall to NW 87th Avenue, from NW 87th Avenue to NW 67th Avennue
6. Route 95X: Carol City, from NW 52nd Avenue to NW 22nd Avenue
7. Route 282: Palmetto Metrorail Station to Miami Gardens, from NW 87th Avenue to NW82nd Avenue
8. Route H: Miami Gardens to Soute Point Drive, from NE 14th Avenue to NE 19th Avenue

A first screening of these routes was conducted to determine which of them were suitable for conversion to the Trunk & Feeder System.

**Figure 26: MDT Routes along Miami Gardens Drive**



## II. ANALYSIS OF SERVICE

Based on the service screening and the characteristics observed in this corridor, two routes were selected for detailed evaluation:

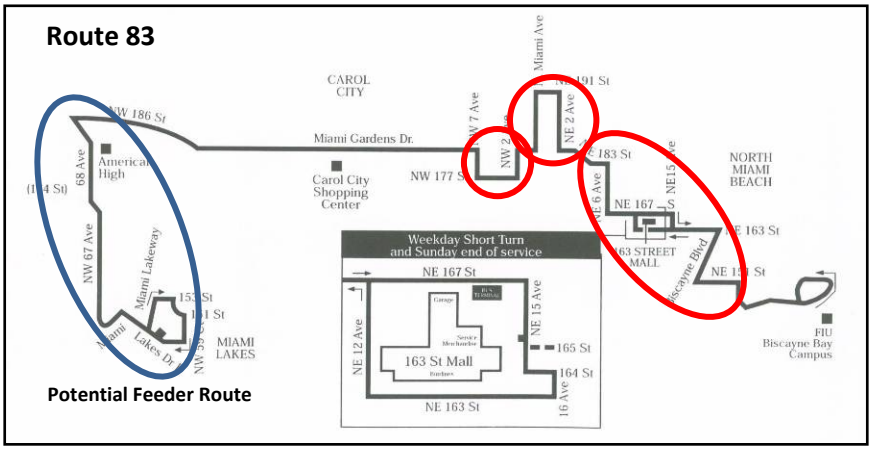
1. Route 83: Miami Lakes to FIU via Miami Gardens Drive
2. Route 183: NW 87th Avenue to FIU and Aventura Mall via Miami Gardens Drive and SR-878

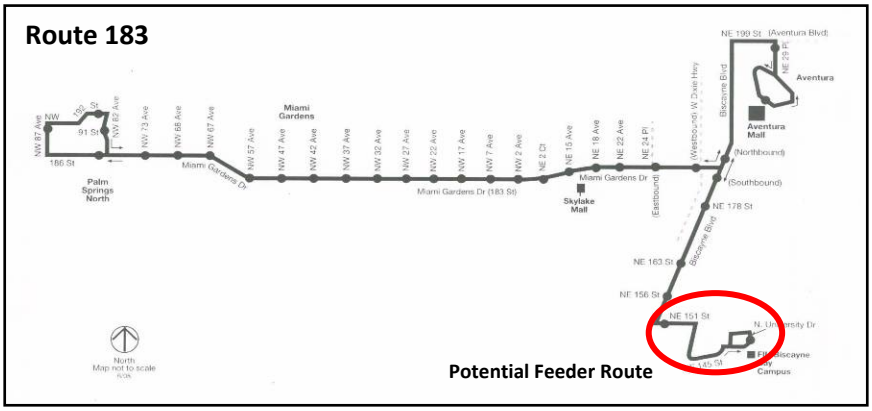
Appendix 12 shows a detailed analysis of the existing and proposed MDT routes along the corridor. The same MDT data was used for developing and analyzing the proposed route changes.

## III. PROPOSED SERVICE

### A. Rationale

As other evaluated corridors, Miami Gardens has two routes providing similar services: Route 83 stops at all bus stops and Route 183 provides limited stops service. Route 83 is a circuitous route and route 183 provides direct service along this corridor, as shown in the illustrations. Route 183 has two destinations; one at FIU and the other one at Aventura Mall. By combining these two routes, it is possible to provide better service along the corridor and make changes to minimize disruption in the travel pattern of the passengers.




This can be done by establishing two feeder routes serving FIU and Miami Lakes and make some changes to other MDT routes to cover any affected segments.

### B. Corridor Recommendations

1. Create Miami Gardens Drive trunk route using the alignment of Route 183
2. Create Miami Lakes feeder route
3. Create FIU feeder route

Table 18 shows the service characteristics, total revenue-miles and DOC of the proposed changes. Additionally, Figure #27 illustrates the proposed Trunk & Feeder Bus System for Flagler Street.

**Table 18: Proposed Routes service Characteristics for Miami Gardens Drive**

| # | Description | Miami Gardens Dr. Trunk Route | Miami Lakes Feeder Route | FIU Shuttle |
|---|---|---|---|---|
| **1** | Headway – peak | 10 | 15 | 15 |
| **2** | Headway – off-peak | 15 | 30 | 15 |
| **3** | Buses in Service – peak | 14 | 2 | 1 |
| **4** | Hours of Service | 19 | 18 | 17 |
| **5** | Running Time (mins.) | 134 | 30 | 15 |
| **6** | One way trips | 155 | 92 | 136 |
| **7** | Revenue-Miles | 2,341 | 345 | 218 |
| **8** | Direct Operating Cost (DOC) ($) | 17,366 | 2,560 | 1,615 |

## C. Affected Areas

There are several segments that are affected by the proposed changes.

**1.** NW 7th Avenue – NW 177th Street – NW 2nd Avenue
Following are the options to continue serving these segments:
- **a.** Analyze passenger movements along these segments using MDT's APC System to determine service needs.
- **b.** Modify alignment of Routes 17, 75 or 77 to serve segments where service has been discontinued.

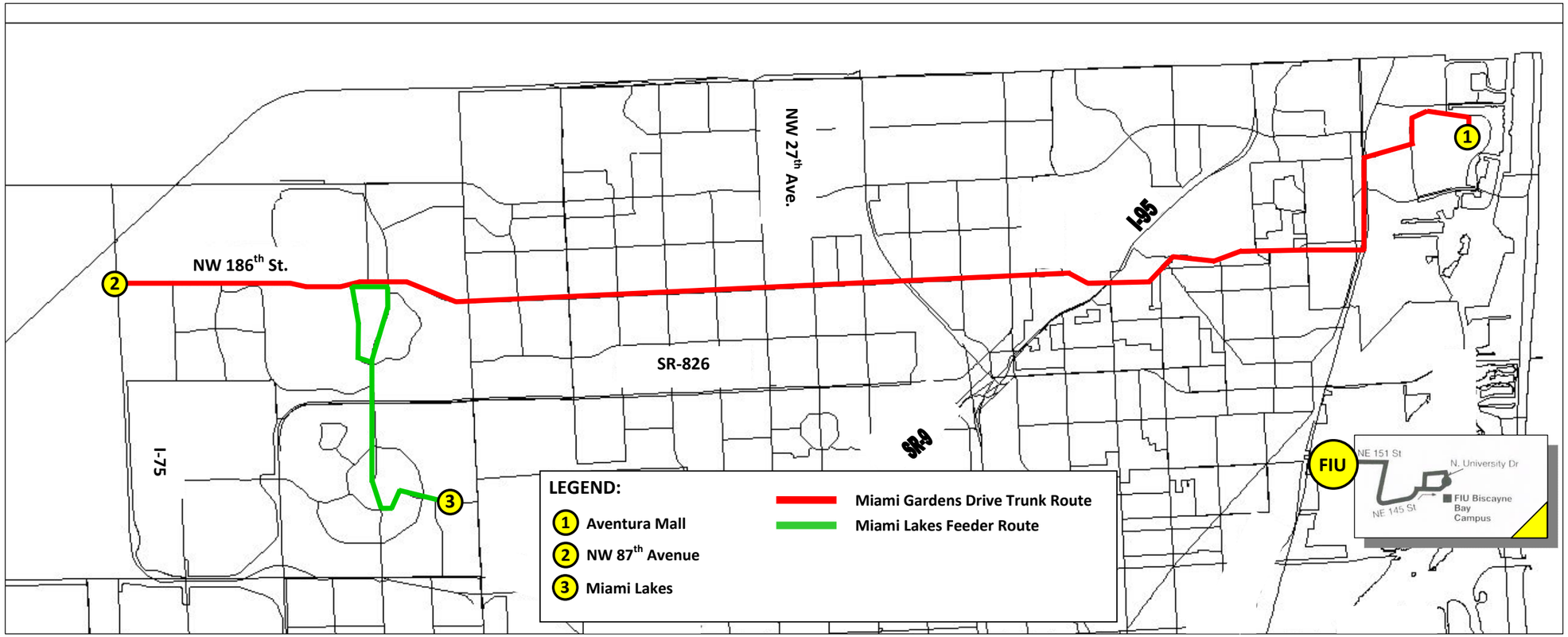
**2.** N Miami Avenue – NE 191st Street – NE 2nd Court
Following are the options to continue serving these segments:
- **a.** Analyze passenger movements along these segments using MDT's APC System to determine service needs.
- **b.** Modify alignment of Routes 75, 95 or 99 to serve these affected segments.

**3.** NE 6th Avenue
Following are the options to continue serving this segment:
- **a.** Analyze passenger movements along this segment using MDT's APC System to determine service needs.
- **b.** Modify alignment of Routes 75 or 95 to serve this segment.

For these segments there are other options that should also be considered such as:

- Establish a circulator service to service the affected areas.
- Consider a service provided by the private sector.
- Eliminate the service, if necessary.

**Figure 27: Proposed Trunk & Feeder Routes for Miami Gardens Drive**



## F. Before and After Comparison

Based on buses per hour, Table 19 illustrates a comparison in service performance along Miami Gardens Drive, before and after the recommended changes.

**TABLE 19: Service Comparison – Before and After (Peak Period)**

| # | Segment | Current Service | | Proposed Service | | Balance |
|---|---|---|---|---|---|---|
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | NW 87th Avenue – NW 67th Avenue | 91 – 183 | 2 – 2 | 91- MG Trunk Route | 2 – 6 | |
| | **Total trips per hour** | | **4** | | **8** | **+4.0** |
| 2 | NW 67th Avenue – NW 7th Avenue | 83 | 4 | MG Trunk Route | 6 | |
| | | 183 | 2 | | | |
| | **Total trips per hour** | | **6** | | **6** | **0** |
| 3 | NW 7th Avenue – NW 2nd Avenue | 75 – 183 | 2 – 2 | 75 – MG Trunk Route | 2 – 6 | |
| | **Total trips per hour** | | **4** | | **8** | **+4.0** |
| 4 | NW 2nd Avenue – N Miami Avenue | 75 – 83 – 183 | 2 – 4 – 2 | 75 – MG Trunk Route | 2 – 6 | |
| | **Total trips per hour** | | **8** | | **8** | **0** |
| 5 | N Miami Avenue – NE 2nd Court | 75 | 2 | 75 | 2 | |
| | | 183 | 2 | MG Trunk Route | 6 | |
| | **Total trips per hour** | | **4** | | **8** | **+4.0** |
| 6 | NE 2nd Court – NE 6th Avenue | 75 | 2 | 75 | 2 | |
| | | 83 | 4 | MG Trunk Route | 6 | |
| | | 183 | 2 | | | |
| | **Total trips per hour** | | **8** | | **8** | **0** |
| 7 | NE 6th Avenue – Biscayne Boulevard | 9 | 5 | 9 | 5 | |
| | | 75 | 2 | 75 | 2 | |
| | | 183 | 2 | MG Trunk Route | 6 | |
| | **Total trips per hour** | | **9** | | **13** | **+4.0** |
| 8 | Biscayne Boulevard – Aventura | 3 | 3 | Biscayne TR | 7.5 | |
| | | 93 | 4 | Trunk Route | 6 | |
| | | 183 | 3 | | | |
| | **Total trips per hour** | | **10** | | **13.5** | **+3.5** |
| 9 | Miami Lakes – NW 183rd Street | 83 | 4 | ML Feeder | 4 | |
| | | 267 | 3 | 267 | 3 | |
| | **Total trips per hour** | | **7** | | **7** | **0** |
| 10 | Biscayne Boulevard – FIU | 28 | 2 | 28 | 2 | |
| | | 83 | 2 | FIU Feeder | 4 | |
| | | 183 | 2 | | | |
| | **Total trips per hour** | | **6** | | **6** | **0** |

This table shows the additional capacity provided to this corridor. After implementation, this corridor should be monitored to determine the passenger movements and the appropriate capacity for the expected ridership.

## IV. ESTIMATED SAVINGS

Table 20 shows a summary of the savings along this corridor.

**TABLE 20: Summary of Savings**

| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
|---|---|---|---|---|---|---|---|
| | | Before | After | Before | After | Before | After |
| 1 | **83** | 13 | - | 1,660 | - | 13,504 | - |
| 2 | **183** | 5 | - | 1,123 | - | 7,539 | - |
| 3 | **Miami Gardens Dr. Trunk Route** | - | 14 | - | 2,108 | - | 15,642 |
| 4 | **FIU Feeder Route** | - | 1 | - | 218 | - | 1,615 |
| 5 | **Miami Lakes Feeder Route** | - | 2 | - | 345 | - | 2,560 |
| 6 | **Totals** | **18** | **17** | **2,783** | **2,671** | **21,043** | **19,817** |
| 7 | **Savings/Weekday** | **1** | | **112** | | **1,226** | |

**Number of buses saved… 1**

**Daily Revenue-Miles Saved… 112**
**Per year… 29,120**

**Daily Savings in DOC… $1,226**
**Per year… $318,760**

## V. OTHER RECOMMENDATIONS

### A. Transfer Stations, End Terminals and Larger Stops

**NW 183rd Street and NW 2nd Avenue**

**Potential site locations for larger bus stops at Miami Gardens and NW 2nd Ave.**

Passengers may transfer from Miami Gardens Dr. Trunk Route to Routes 75 and 77. Bus stops already exist in that intersection. However, improvements should be considered to provide benches and shelters at those locations.

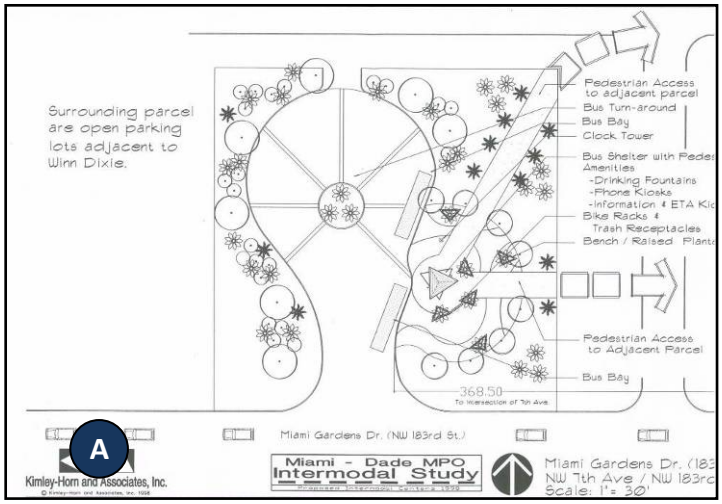


## Miami Gardens Drive and NW 7th Avenue

Potential location for a transfer station at Miami Gardens Drive and NW 7th Avenue. This site was recommended in the Alternatives for Intermodal Study (1998), Transit Connection Centers Study (2004) and the Transit Hub Study (2008). The lay-out plan shows the proposed location. The total estimated cost based on 1998 dollars is $550,000 (including the land).



**Street view**

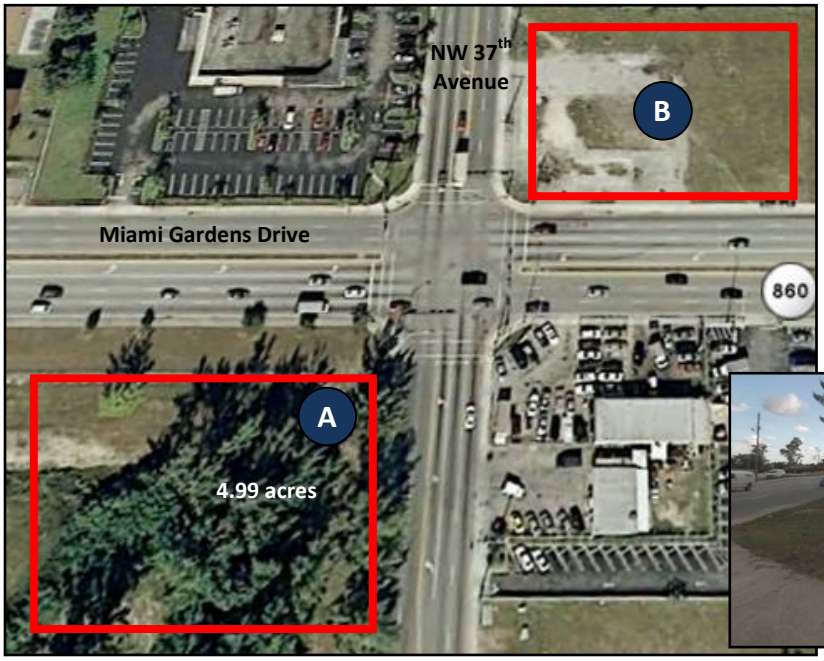


## Miami Gardens Drive and NW 27th Avenue


**Potential location for a transfer facility at Miami Gardens Dr. and NW 27th Avenue**

This facility would facilitate the transferring of passengers from/to Miami Gardens Dr. and NW 27th Avenue trunk routes and the NW 183rd street feeder route.


## Miami Gardens Drive and NW 37th Avenue




**Location (A) is recommended as a potential P&R facility for routes servicing the area.**

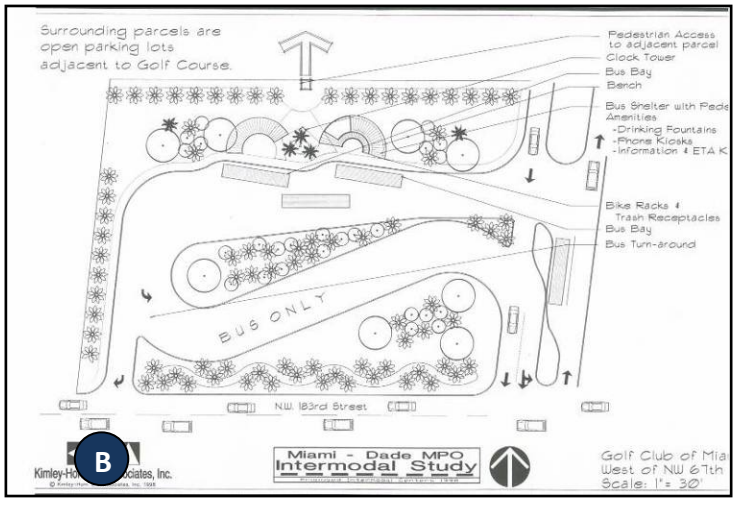
It creates the potential of implementing additional circulator services. This location is also recommended in the FDOT 6 Surplus Property Study (2008).

## Miami Gardens Drive and NW 68th Avenue

**Potential location for a transfer station and/or a Park & Ride facility.**

This location has been recommended in the Alternatives for Intermodal Study (1998) and in the Transit Connection Centers Study (2004). Total estimated cost (1998): $800,000 including the land.



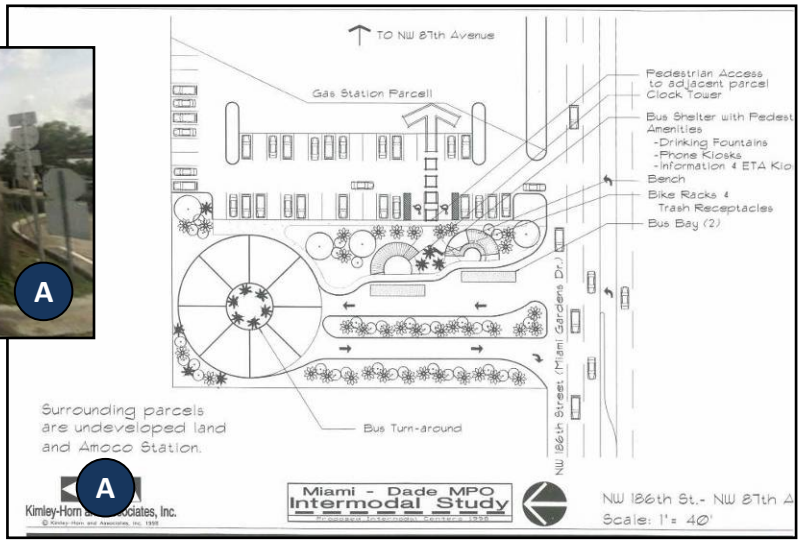



## Miami Gardens Drive and NW 87th Avenue

**Potential location for a transfer station and/or a Park & Ride facility.**

This location has been recommended in the Alternatives for Intermodal Study (1998) and in the Transit Connection Centers Study (2004). Based on 1998 dollars, the total estimated cost for this facility as shown (A) is $1.0M including the land.





## B. Additional Coordination

1. Coordinate with FIU the implementation of the proposed shuttle services within FIU facilities.
2. Coordinate with the Town of Miami Lakes the implementation of the Miami Lakes Feeder Route.

# CHAPTER X: NW/SW 27TH AVENUE

## I. EXISTING MDT SERVICE

Figure 28 depicts a schematic map of the routes that use NW/SW 27th Avenue Corridor. There are other routes crossing or using a segment of this corridor to continue their service to other destinations. These routes are:

### A. Along the Corridor:

1. Route 21: N Dade Health Center to Downtown Miami
2. Route 27: Calder race Track to Coconut Grove Metrorail Station
3. Route 97: NW 211th Street to Martin Luther King, Jr. Metrorail Station
4. Route 246: Downtown Miami to NW 167th Bus Terminal (Night Owl)

### B. Crossing NW/SW 27th Avenue

1. Route 6: Coconut Grove Metrorail Station to NW 29th Street, at NW 14th Street
2. Route 7: Dolphin Mall to Downtown Miami, at NW 7th Street
3. Route 8: FIU Park Campus to Downtown Miami, at SW 8th Street
4. Route 11: FIU Bus Terminal to Downtown Miami, at Flagler Street
5. Route 12: Mercy Hospital to Northside Metrorail Station, at NW 79th Street
6. Route 28: Hialeah Metrorail Station to FIU Biscayne Campus, at NW 135th Street
7. Route 32: Pmni Metromover Station to NW 206th Terrace, at NW 32nd Street
8. Route 42: Coconut Grove Metrorail Station to Golden Glades, at NW 151st Street
9. Route 46: Caleb Center to MDC Education center, at NW 46th Street
10. Route 51: Coral Way to Downtown Miami, at Flagler Street
11. Route 54: Biscayne Boulevard to NW 87th Court, at NW 54th Street
12. Route 62: Omni Metromover Station to Hialeah, at NW 62nd Street
13. Route 75: MDC North Campus to Miami Lakes technical Education Center, at NW 119th Street and NW 175th Street
14. Route 83: Miami Lakes to FIU Biscayne Campus, at Miami Gardens Drive
15. Route 95: Carol City, at Miami Gardens Drive
16. Route 183: NW 87th Avenue to FIU and Aventura Mall, at Miami Gardens Drive
17. Route J: Douglas Metrorail Station to Miami Beach, at NW 36th Street
18. Route L: Hialeah Metrorail Station to Miami Beach Convention Center, at NW 79th Street

**Figure 28: NW/SW 27th Avenue**

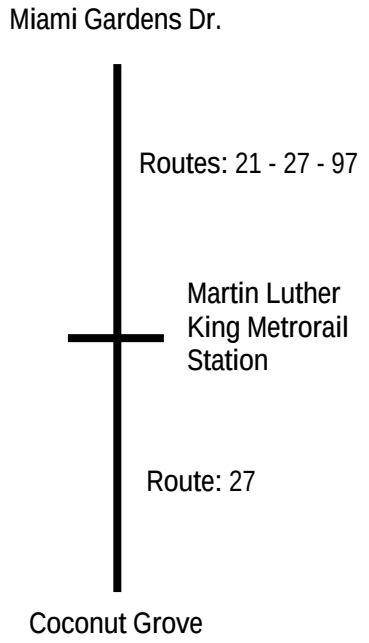


Figure 29 illustrates the detailed route alignments of all routes serving this corridor. A first screening of these routes was conducted to determine which of them were suitable for conversion to the Trunk & Feeder System.

## II. ANALYSIS OF SERVICE

Based on the service screening and the service provided by other routes along this corridor, the following routes were selected for detailed evaluation:

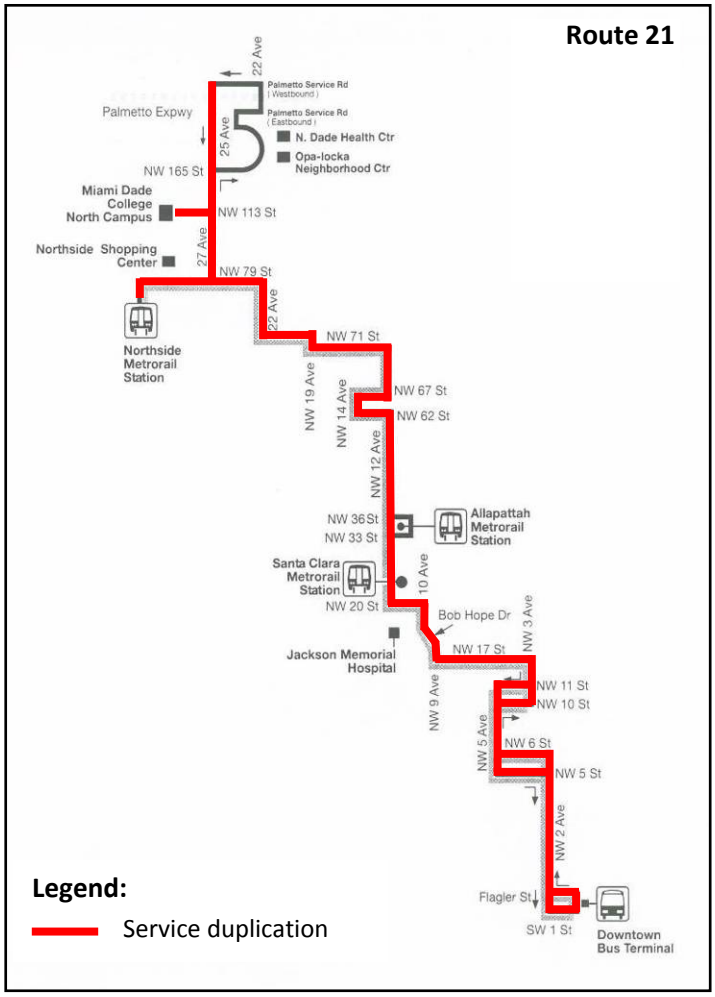
1. Route 27: Calder race Track to Coconut Grove Metrorail Station
2. Route 97: NW 211th Street to Martin Luther King, Jr. Metrorail Station

Appendix 13 shows a detailed analysis of the existing and proposed MDT routes along the corridor. The same MDT data was used for developing and analyzing the proposed route changes.

## III. PROPOSED SERVICE

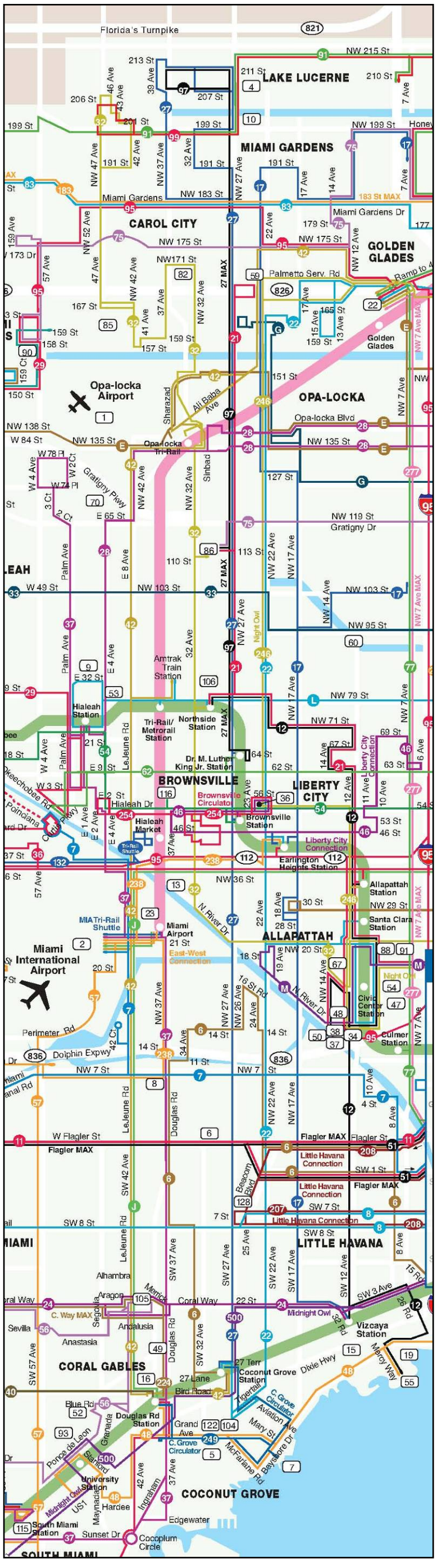
### A. Rationale

This corridor, better known as the "North Corridor", has been evaluated in several studies. A Metrorail extension has been supported for years; however funding constraints have postponed the construction of this project. This fact provides the basis for considering this corridor as part of the proposed Trunk & Feeder Bus System. This corridor is served by Routes 21, 27 and 97. Route 21 has service duplication with other routes at almost every segment. Route 27 provides service along the whole corridor and is the fifth largest route in the system, carrying over 10,000 passengers per day. Route 97 is a limited stop service from Calder Race Track to Martin Luther King, Jr. Metrorail Station. This route carries an average of 1,500 passengers per day.




Another characteristic of this corridor is the interaction with other routes. As mentioned before, there are 18 routes crossing this corridor which makes it ideal for passenger transfers. Additionally, it serves two Metrorail Stations. Based on these factors, it is recommended to create two trunk routes: one north of Martin Luther King, Jr. Metrorail Station to evaluate potential ridership for the future rail extension, as proposed. The other trunk route, south of the referred station, will provide better service along the corridor to facilitate the transferring of passengers between 27th Avenue and other east-west MDT routes.

## Figure 29: MDT Routes along NW/SW 27th Avenue



## B. Route Recommendations

1. Create 27th Avenue North Trunk Route
2. Create 27th Avenue South Trunk Route
3. Create Route 213 Feeder Route
4. Create Route 183 Feeder Route
5. Eliminate Route 21

Table 21 shows the service characteristics, total revenue-miles and DOC of the proposed changes. Additionally, Figure 30 illustrates the proposed Trunk & Feeder Bus System for this corridor.

**TABLE 21: Proposed Routes Service Characteristics for NW/SW 27th Avenue**

| # | Description | Trunk Route 27th Ave. North | Trunk Route 27th Ave. South | Feeder Route NW 213th Street | Feeder Route NW 183rd Street |
|---|---|---|---|---|---|
| 1 | Headway – peak | 7.5 | 7.5 | 15 | 15 |
| 2 | Headway – off-peak | 15 | 15 | 30 | 30 |
| 3 | Buses in Service – peak | 13 | 10 | 1 | 2 |
| 4 | Hours of Service | 24 | 24 | 15 | 15 |
| 5 | Running Time (mins.) | 98 | 78 | 15 | 22 |
| 6 | One way trips | 194 | 194 | 42 | 42 |
| 7 | Revenue-Miles | 1,804 | 1,300 | 160 | 223 |
| 8 | Direct Operating Cost ($) | 14,434 | 9,477 | 1,166 | 1,626 |

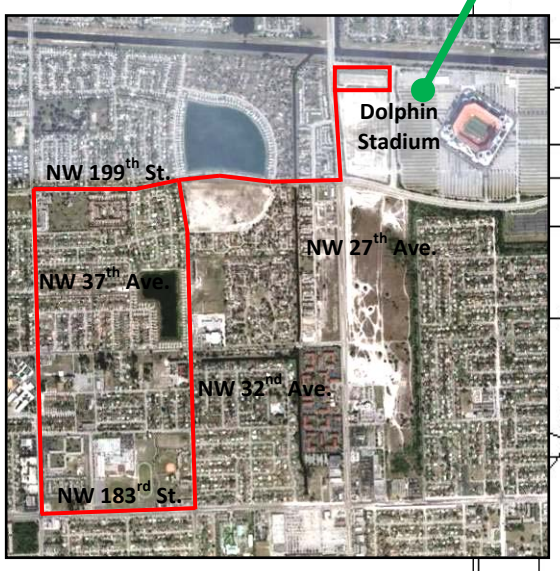
## C. Affected Areas

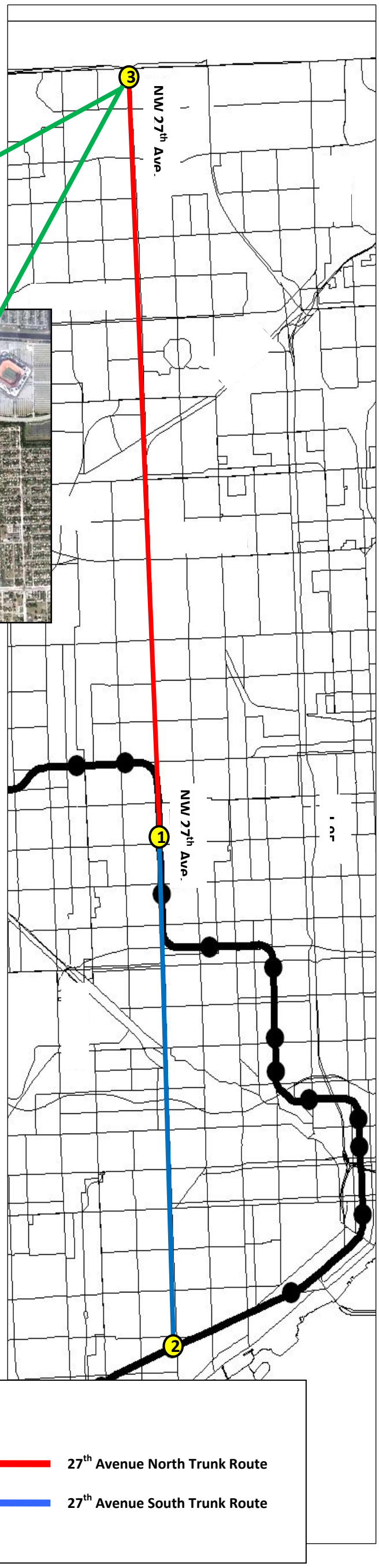
The proposed changes are not affecting service along the corridor, except for the elimination of route 21.

## Figure 30: Proposed Trunk & Feeder Routes for NW/SW 27th Avenue

**Proposed NW 213th Street to Landshark Stadium Feeder Route.**


**Proposed NW 183rd Street to Landshark Stadium Feeder Route.**




**LEGEND:**

1. Martin Luther King, Jr. Metrorail Station
2. Coconut Grove Metrorail Station
3. Calder Race Track or Landshark Stadium

27th Avenue North Trunk Route

27th Avenue South Trunk Route

### D. Before and After Comparison

Based on buses per hour, Table 22 illustrates a comparison in service performance along NW/SW 27th Avenue, before and after the recommended changes.

**TABLE 22: Service Comparison – Before and After (Peak Period)**

| # | Segment | Current Service | | Proposed Service | | Balance |
|---|---|---|---|---|---|---|
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | NW 211th Street – Palmetto Service Road | 27 | 4 | Trunk Route 27-N | 8 | |
| | | 97 | 3 | | | |
| | Total trips per hour | | 7 | | 8 | +1.0 |
| 2 | Palmetto Service Road to Martin Luther King, Jr. Metrorail Station | 21 | 2 | Trunk Route 27-N | 8 | |
| | | 27 | 4 | | | |
| | | 97 | 3 | | | |
| | Total trips per hour | | 9 | | 8 | -1.0 |
| 3 | Martin Luther King, Jr. Metrorail Station to Coconut Grove Metrorail Station | 27 | 4 | Trunk Route 27-S | 4 | |
| | Total trips per hour | | 4 | | 8 | +4.0 |

This table shows the increase in frequency south of Martin Luther King, Jr. Metrorail Station. An evaluation of the service should be conducted for determining the real needs for the corridor.

## IV. ESTIMATED SAVINGS

Table 23 shows a summary of the savings along this corridor.

**TABLE 23: Summary of Savings**

| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
|---|---|---|---|---|---|---|---|
| | | Before | After | Before | After | Before | After |
| 1 | 27 | 15 | - | 2,568 | - | 20,551 | - |
| 2 | 97 | 6 | - | 838 | - | 6,106 | - |
| 3 | 27-N Trunk | - | 13 | - | 1,804 | - | 13,151 |
| 4 | 27-S Trunk | - | 10 | - | 1,300 | - | 9,477 |
| 5 | 21 | 6 | - | 821 | - | 7,077 | - |
| 6 | 213th Feeder | - | 1 | - | 160 | - | 1,166 |
| 7 | 183rd Feeder | - | 2 | - | 223 | - | 1,626 |
| 8 | Totals | 27 | 26 | 4,227 | 3,487 | 33,734 | 25,420 |
| 9 | Savings/Weekday | 1 | | 740 | | 8,314 | |

Number of buses saved… **1**

Daily Revenue-Miles Saved… 740
Per year… **192,400**

Daily Savings in DOC… $8,314
Per year… **$2.2M**

## V. OTHER RECOMMENDATIONS

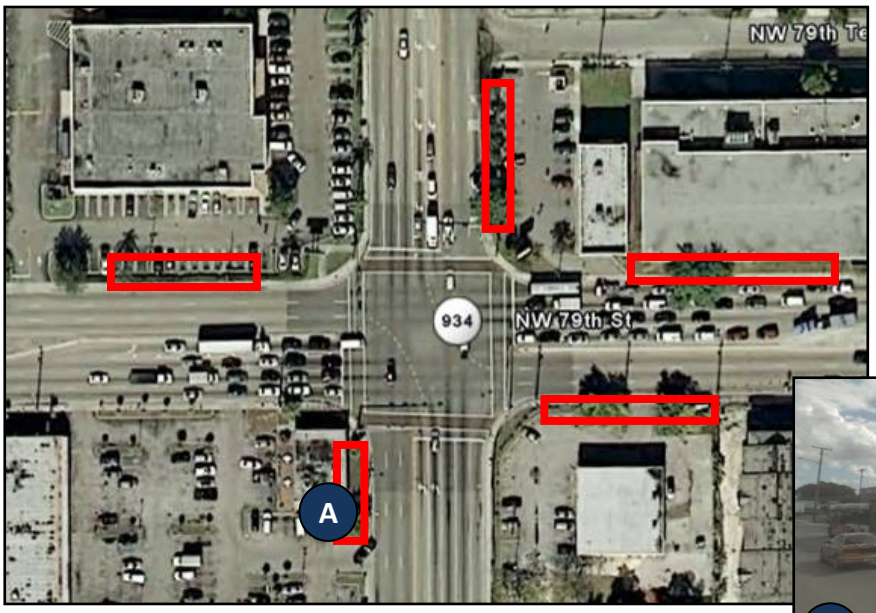
### A. Transfer Stations, End Terminals and Larger Stops

**NW 27th Avenue and NW 7TH Street**


**Potential locations for larger bus stops at the intersection of NW 27th Avenue and NW 7th Street.**

These stops will provide access for passengers transferring to/from Route 7 to the 27th Avenue Trunk Route.


## NW 27th Avenue and NW 79th Street




**Potential locations for larger bus stops at the intersection of NW 27th Avenue and NW 79th Street.**

These stops will provide access for passengers transferring to/from Routes 12, 79 and L to the 27th Avenue Trunk Route.


## NW 27th Avenue and Miami Gardens Drive

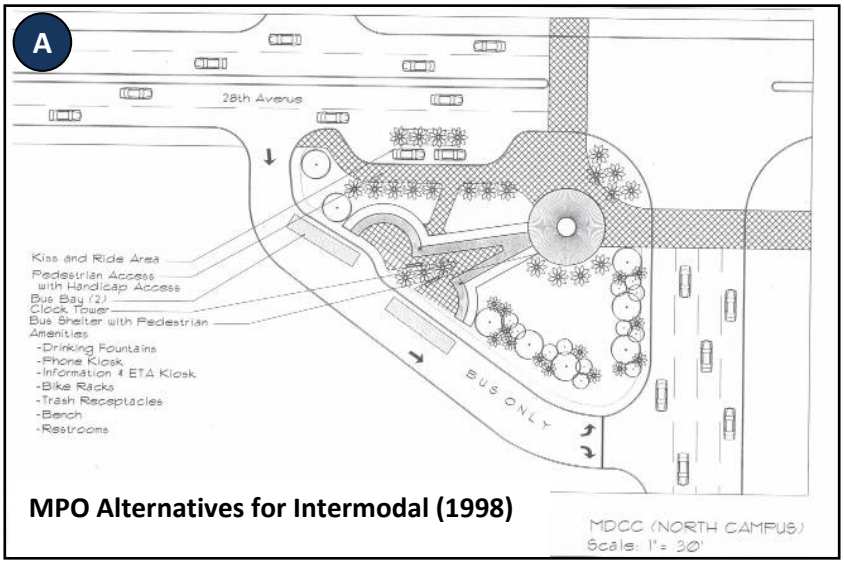
**Potential location for a transfer facility at Miami Gardens Dr. and NW 27th Avenue**

This facility would facilitate the transferring of passengers from/to Miami Gardens Dr. and NW 27th Avenue trunk routes and the NW 183rd street feeder route.


## NW 27th Avenue and NW 114th Street (MDC North Campus)

**Proposed Transfer Station at MDC North Campus.**
This location is recommended in the Alternatives for Intermodal Study (1998), the Transit Center Connections Study (2004) and the Transit Hub Study (2008). Based on 1998 dollars, the estimated total cost for this facility was $800,000.



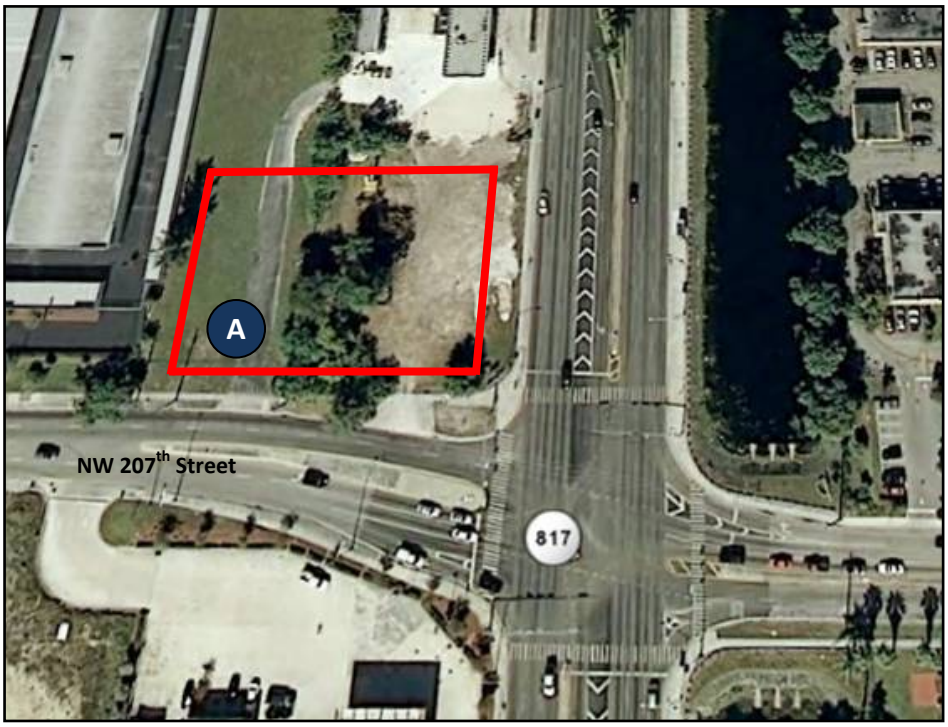



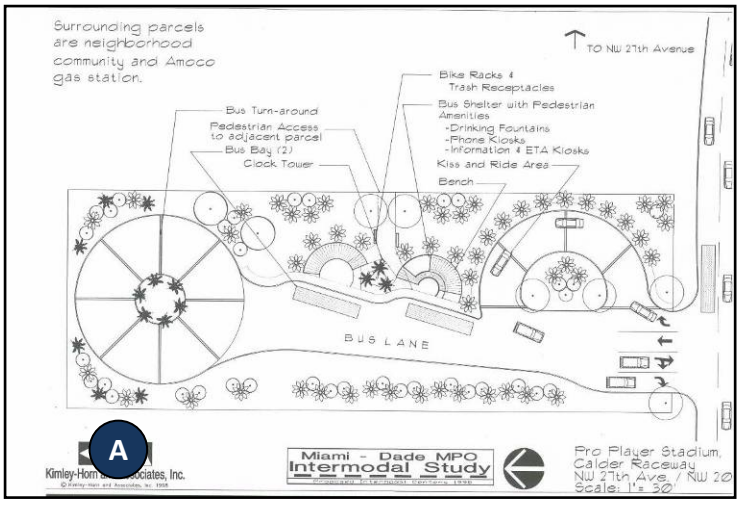

**MPO Alternatives for Intermodal (1998)**

## NW 27th Avenue and NW 207th Street

**Potential site for an end terminal facility at NW 27th Avenue Corridor and NW 207th Street**
This facility was recommended in the Alternatives for Intermodal Improvements Study (1998) and the Transit Connection Centers Study (2005).

Total estimated cost (1998 dollars): $750,000.



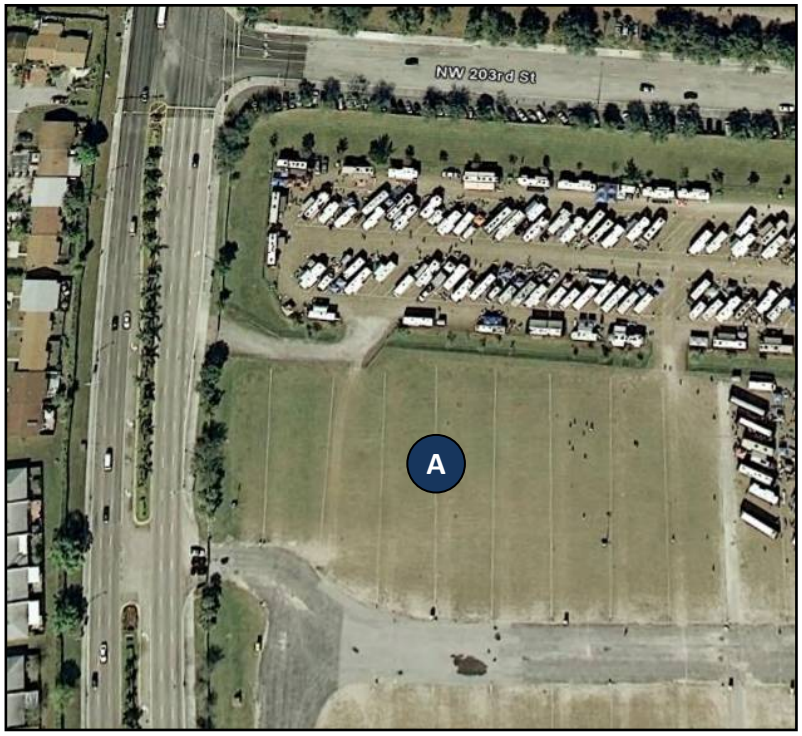



## B. Other Potential Locations for End terminals

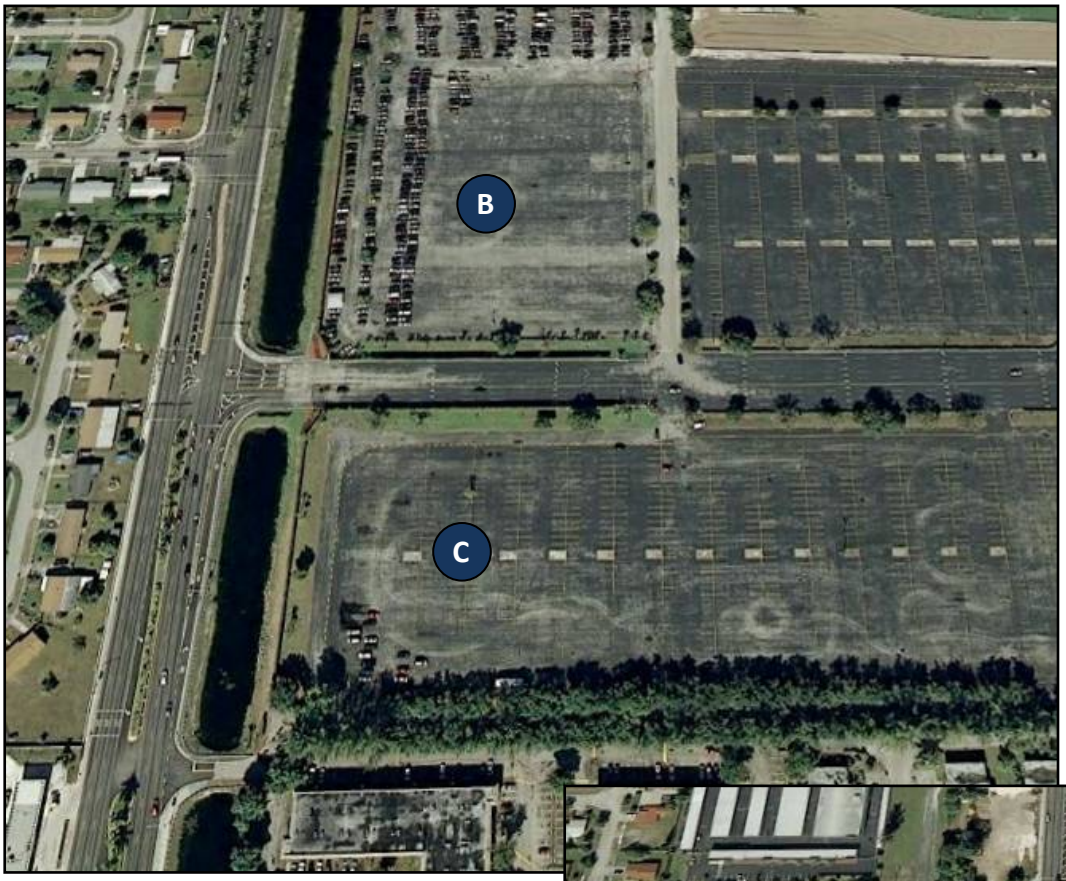
**NW 27th Avenue and NW 203rd Street**


Potential location for an end terminal at NW 27th Avenue and NW 203rd Street in the NW corner. This site is within the parking area of the Landshark Stadium.

During the football season and special activities, buses can provide direct access to the entrance to the stadium. Coordination and negotiation are needed for this site.



**NW 27th Avenue and Calder race Track**



Sites “B” and “C” are part of the parking lot of the Calder Race Track. As proposed for the LandShark Stadium, buses can provide direct access to the entrance of the Race Track during racing days and for other special activities conducted in this facility.

Coordination and negotiations are needed for these sites.

Site “D” is located in a lot west of the NW 27th Avenue and south of NW 207th Street.

## C. More Recommendations

1. Coordinate and negotiate with Landshark Stadium and/or Calder Race Track for the use of the parcels recommended for and end terminal.
2. Coordinate with Miami-Dade College (MDC) the development of a transfer facility at the North Campus.
3. Evaluate the area adjacent to Martin Luther King, Jr. Metrorail Station for operational improvements to accommodate the additional buses that will end at this station.
4. Evaluate potential transfer stations at:
   - **a.** NW 203rd Street (Landshark Stadium)
   - **b.** MDC North Campus
   - **c.** Miami Gardens Dr. (passengers transferring to/from Miami Gardens Dr. Trunk Route)
   - **d.** NW 79th Street (Routes 12 and L)
5. Evaluate the implementation of larger bus stops along NW/SW 27th Avenue for passengers transfer at:
   - **a.** NW 175th St. (Route 75)
   - **b.** NW 7th St. (Route 7)
   - **c.** NW 36th Street (Routes 36 and J)
   - **d.** Flagler St. (Flagler Trunk Route)
   - **e.** SW 8th Street (Route 8)
   - **f.** Coral Way (Route 24)

# CHAPTER XI: RECOMMENDATIONS

This chapter summarizes the recommendations made in this report. Also included are other recommendations discussed at the working committee meetings that could be implemented within two to five years. These are related not only to the transit system but roadway projects as well.

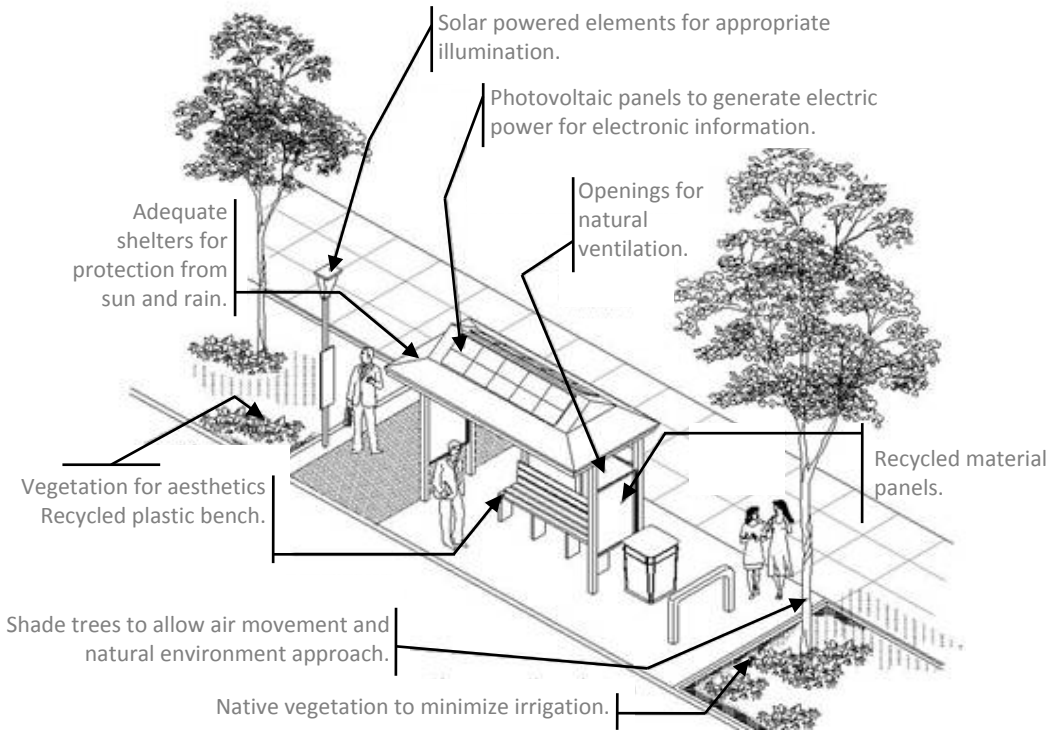
## I. SHORT-TERM RECOMMENDATIONS (0-2 years)

### A. Transit Service Improvements

As presented in Chapters IV through X, service improvements are oriented to the implementation of a Trunk and Feeder Bus System. Detailed analyses have been conducted and figures were prepared to illustrate the proposed changes in service. Figure 31 provides a summary of the recommended transit service improvements along the selected corridors.

### B. Construction of Transfer Stations or Larger Bus Stops

The recommended construction of transfer stations and larger bus stops are very important for the success of the proposed Trunk and Feeder System. With increased frequencies of transfer, these facilities will play a major role in providing the necessary amenities and weather protection for the passengers. The illustration below shows some of the elements that will provide a different approach to the existing shelters. Figure 32 lists the proposed locations where transfer stations, larger bus stops or end terminals should be considered.




Source: Center for Urban Transportation Research (CUTR)

**Figure 31: Summary of Transit Operational Improvements**

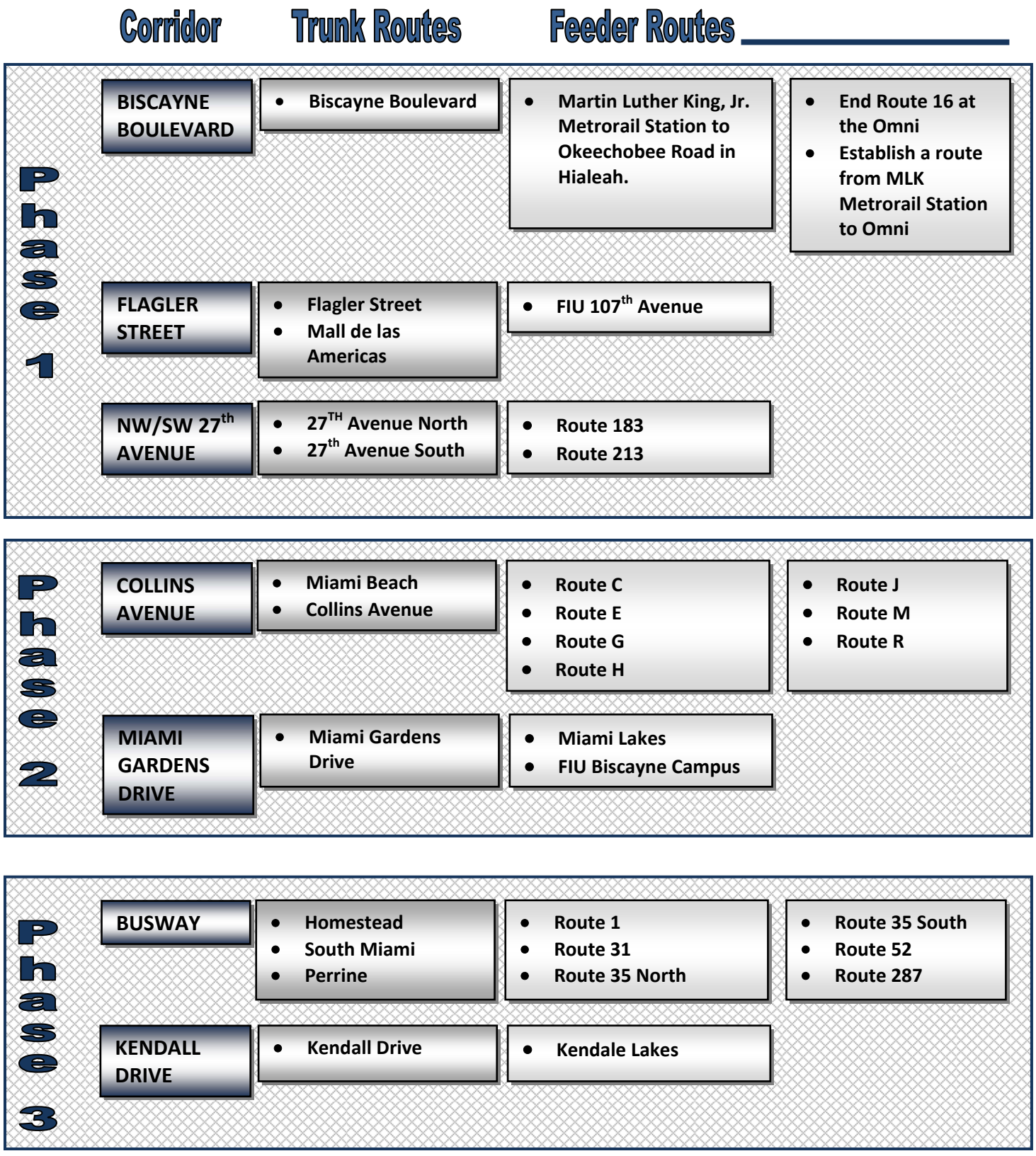


**Figure 32: Summary of Proposed Locations for Transfer Stations and Larger Bus Stops**

| Corridor | Transfer Stations | Larger Bus Stops | End Terminals |
|---|---|---|---|
| BISCAYNE BOULEVARD | • NE 163rd Street/Sunny Isles Boulevard<br>• NE 79th Street<br>• NE 38th Street | • NE 183rd Street (Miami Gardens Dr.)<br>• NE 163rd Street/Sunny Isles Boulevard<br>• NE 143rd Street<br>• NE 54th Street | • Palm Avenue and E 3rd Street |
| BUSWAY | | | • Homestead<br>• MDC South Campus<br>• South Dade Government Center |
| COLLINS AVENUE | • NE 72nd Street<br>• Miami Beach City Hall<br>• Mount Sinai Hospital<br>• Haulover Park<br>• Lincoln Road | • NE 72nd Street<br>• Miami Beach City Hall<br>• Haulover Park<br>• Lincoln Road | • NE 72nd Street<br>• Miami Beach City Hall<br>• Mount Sinai Hospital<br>• NE 96th Street<br>• Haulover Park<br>• Lincoln Road |
| FLAGLER STREET | • 37th Avenue<br>• 79th Avenue<br>• 107th Avenue | • 27th Avenue<br>• 37th Avenue<br>• 42nd Avenue<br>• 57th Avenue<br>• 67th Avenue<br>• 79th Avenue<br>• 87th Avenue<br>• 99th Street<br>• 107th Avenue | • 79th Avenue<br>• 107th Avenue<br>• FIU (SW 107th Ave.) |

**Figure 32 continue…**

| Corridor | Transfer Stations | Larger Bus Stops | End Terminals |
|---|---|---|---|
| KENDALL DRIVE | • SW 94th Avenue<br>• SW 97th Avenue<br>• SW 127th Avenue | • SW 94th Avenue<br>• SW 97th Avenue<br>• SW 107th Avenue<br>• SW 127th Avenue<br>• SW 137th Avenue | • SW 149th Avenue<br>• SW 157th Avenue |
| MIAMI GARDENS DRIVE | • NW 27th Avenue<br>• NW 37th Avenue<br>• NW 68th Avenue | • NW 2nd Avenue<br>• NW 7th Avenue<br>• NW 27th Avenue | • NW 68th Avenue<br>• NW 87th Avenue |
| NW/SW 27th AVENUE | • MDC North Campus<br>• NW 203rd Street | • NW 7th Street<br>• NW 36th Street<br>• NW 79th Street<br>• NW 175th Street<br>• Flagler Street<br>• SW 8th Street<br>• SW 24th Street | • Calder Race Track<br>• Landshark Stadium |

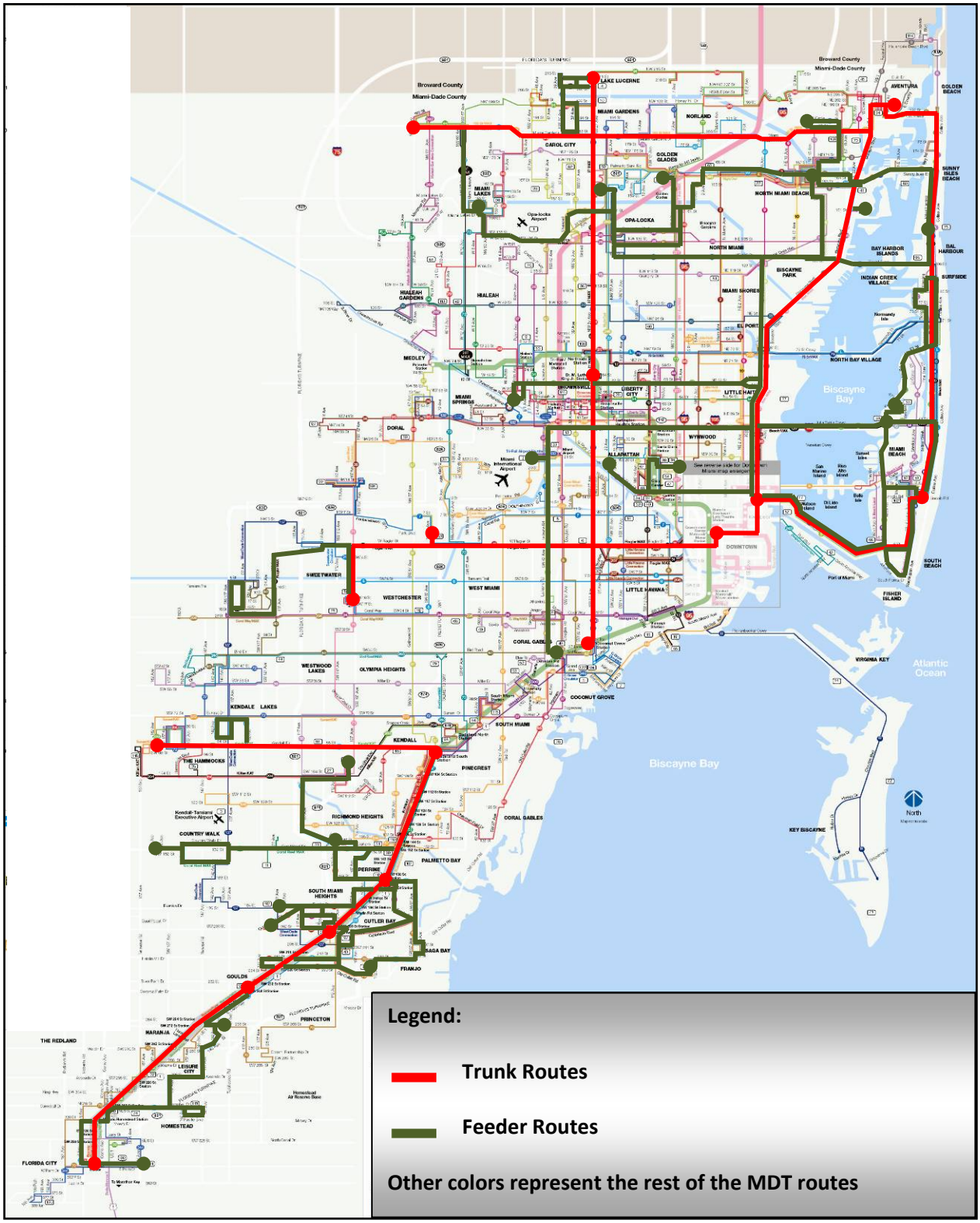
The above locations need to be defined and evaluated based on the following factors that will determine which type of facility to build: transfer stations, larger stops or end terminals. Field inspections will be required to obtain the necessary data and to establish minimum requirements for each type of facility are also recommended. Some of the factors to be considered in these evaluations are:

| FOR INSTALLATION |
|---|
| • Daily boardings<br>• Accessibility for bikes and pedestrians<br>• Visibility<br>• Right of Way (ROW) availability<br>• Integration with other MDT routes<br>• Availability of utilities<br>• ADA compliance<br>• Safety |

| PASSENGER'S AMENITIES |
|---|
| • Route information<br>• Lighting<br>• Trash can<br>• Aesthetic<br>• Security |

Figure 33 shows the seven (7) evaluated corridors with the proposed Trunk and feeder Bus System in coordination with the rest of the MDT routes.

**Figure 33: Proposed Trunk and Feeder Bus System for the seven (7) evaluated corridors**



Some examples of the proposed facilities are shown below.


## C. Construction/Expansion of Park and Ride Facilities

Improved park and ride facilities are another important element in the implementation of the Trunk and Feeder Bus System. The Florida Department of Transportation (FDOT) has identified several locations for expanding the Park and Ride Program. Additionally, there are surplus lands that can be used for this purpose. However, it is also important to determine that the construction of these locations serve the purpose of supporting transit services. The recommended locations for Park & Ride facilities are:

1. **Busway**
   - SW 144th Street
   - SW 168th Street
   - SW 200th Street
   - SW 216th Street
   - SW 244th Street
   - SW 264th Street
   - SW 280th Street

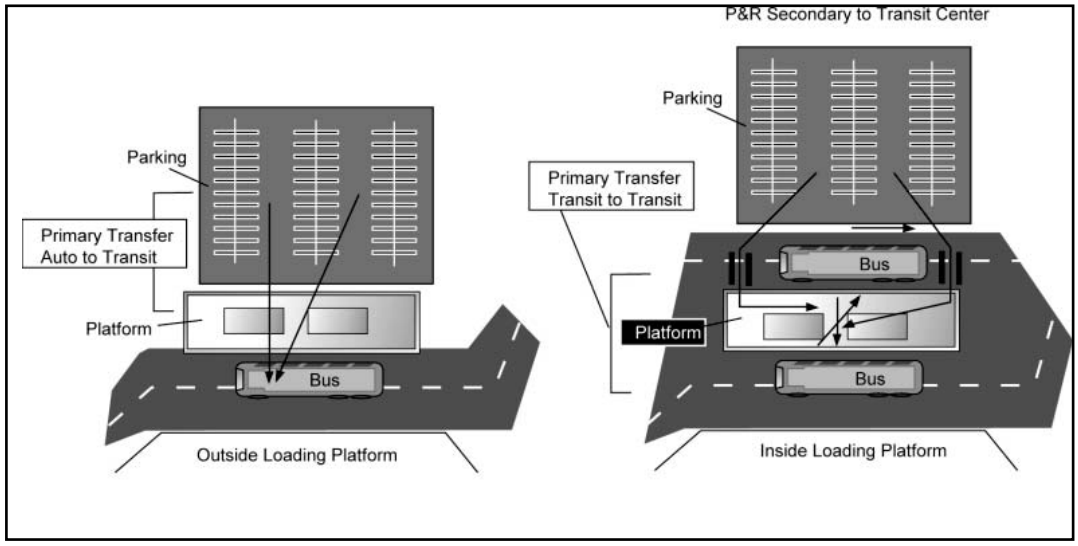
2. **Flagler Street**
   - 107th Avenue
3. **Kendall Drive**
   - SW 94th Avenue
   - SW 127th Avenue
   - SW 149th Avenue

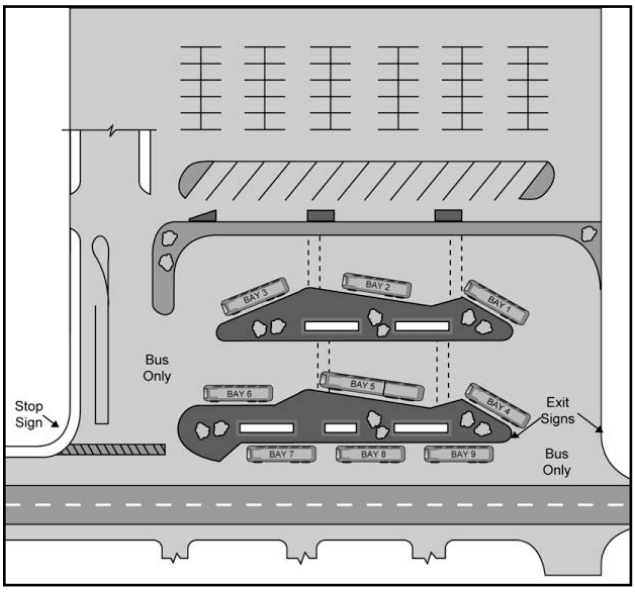
Some of the factors that should be considered during this evaluation are:

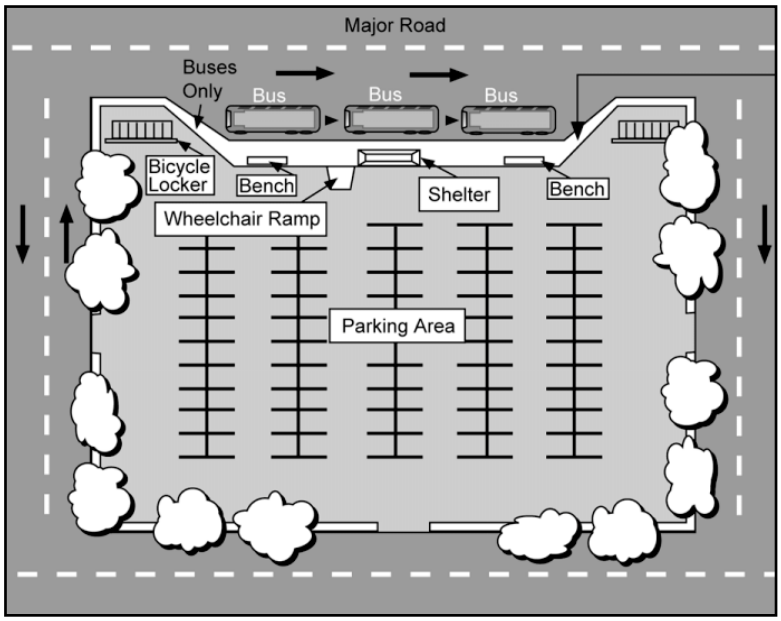
| FOR CONSTRUCTION/EXPANSION |
| --- |
| • Daily boardings<br>• Transit routes serving the are<br>• Accessibility for bikes and pedestrians<br>• Safety<br>• Visibility<br>• Right of Way (ROW) availability<br>• Availability of utilities<br>• ADA compliance/Handicapped parking<br>• Safety<br>• Attractive design |

| PASSENGER'S AMENITIES |
| --- |
| • Shelters<br>• Route information<br>• Lighting<br>• Signing<br>• Markings<br>• Aesthetic<br>• Security |

Following are some examples of the potential design for these P&R facilities:





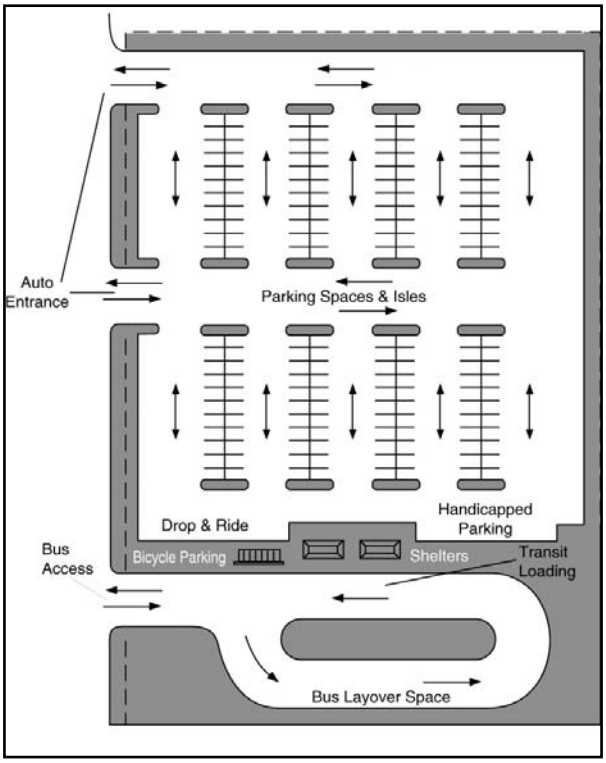




Source: Metropolitan Seattle Transportation Facility Design Guidelines.

## D. Coordination and Plan Development for Future Bus Terminal Facilities

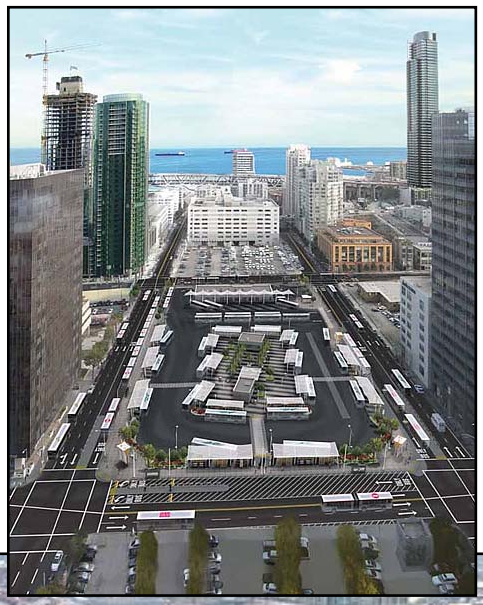
It is recommended that MDT builds a series of terminal facilities and end bus terminals to provide a better control of its service and operation. This process takes time and great effort; however at this stage, coordination and planning of these facilities should be initiated. A 6-month study is recommended to identify the locations, coordinate with other entities, prepare schematics illustrations of the recommended terminals and develop an action plan for implementation. The following locations are recommended for detailed evaluation:

1. Aventura Mall
2. Downtown Miami (Government Center)
3. Golden Glades
4. Mall de las Americas
5. Collins and NE 72nd Street
6. Miami Beach Convention Center




Appendix 7 includes recommendations made for the Downtown Miami and some of the recommended amenities for this facility. The following illustrations show different scenarios for building these types of facilities from intermodal to end terminals.

**Intermodal & End Terminals**



## E. Develop a Transit Master Plan for Miami-Dade County

This study will establish the basis for future transit short, medium and long terms developments. Based on the Transit Development Program (TDP) and the existing capabilities and financial constraints of MDT, this study should be focused on:

1. Develop a vision, goals and objectives
2. Establish new service approach based on service productivity
3. Re-evaluate existing plans
4. Identify transit options for servicing low ridership routes by:
   - Re-aligning existing routes
   - Integrating transit service with municipalities
   - Allowing private sector to provide transit service, as needed
5. Identify strategies for serving specific locations with special needs (hospitals, schools, community centers, elderly centers, home care facilities, etc…)
   - Shuttle services
   - Circulators
   - Special feeder routes
6. Evaluate short, medium and long term potential projects for implementation.
7. Prepare a financial plan.
8. Develop an action plan.

## F. Continue Evaluating MDT Services

While other studies are being developed, MDT should continue evaluating their existing routes and focus on the following elements:

1. Concentrate transit services
2. Eliminate route duplication
3. Re-structure existing routes to serve the areas affected by the implementation of a trunk and feeder bus system
4. Consider the active participation of the private sector and the municipalities to provide transit services.

## G. Create a Response Team

The implementation of the Trunk and Feeder Bus System requires a continuous monitoring program. As a result of this on-going process, operational problems may arise and corrective actions need to be taken. The creation of the response team should not wait six months for implementation. This inaction will negatively affect MDT service. Additionally, MDT should create a process to receive comments (positive or negative) from the passengers, bus operators and transit supervisors regarding the new system. Not only that, MDT should encourage and motivate this people to contact them for any situation that needs to be corrected. To solve these issues, concerns and situations, it is recommended to create a response team capable to take immediate corrective actions to fix any problem along the corridors where the trunk and feeder system has been implemented.

This team should include staff from:

1. Planning: re-structure the route, additional buses, etc…
2. Scheduling: changes in the route schedule, service span, etc…

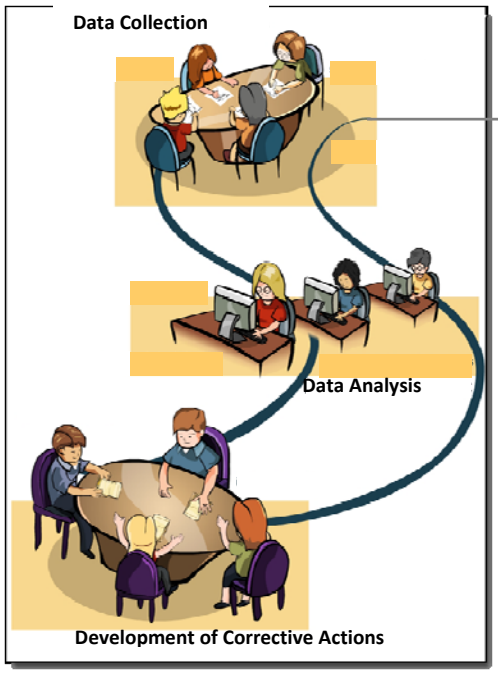
3. Bus Maintenance: fix any mechanical problem; replace bus in service, etc…
4. Facility Maintenance: relocate bus stops; enhance bus stops, benches and shelters, etc…
5. Marketing: develop flyers/brochures, educate riders, promote the service, etc…
6. Other members as appropriate.



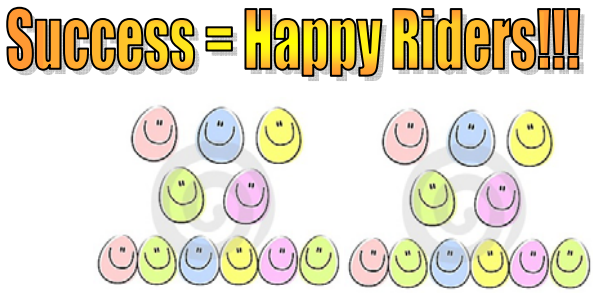

**MDT Customer Services**



Mechanical Failures







## H. Coordinate with the municipalities and the private sector to provide transit services in the following MDT routes:

The implementation of the trunk and feeder system is recommending drastic changes in the routes listed below due to low ridership.

- Route 21: Palmetto Service Road to Downtown Miami via NW 27th Avenue
- Route 65: Douglas Road Metrorail Station to Dadeland South Metrorail Station
- Route 136: Dadeland South Metrorail Station to Kendall-Tamiami Executive Airport
- Route 344: Dade Correctional Institution to MDC Homestead Campus

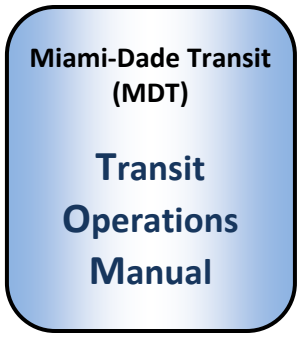
Before consider eliminating these routes or any route that could be affected in the future, MDT should initiate a process that includes:

1. Coordinate with the municipalities for the use of using existing municipal transit services or establishing circulators/shuttle services to be subsidized by MDT and the municipality. Appropriate agreements should be approved and signed by the parties involved.
2. Coordinate with the private sector to provide transit services along the affected routes.
3. Evaluate potential changes to other routes serving the area that could provide the service to the affected areas.

## I. Develop a Transit Operational Manual

It is recommended that MDT develops a Transit Operational Manual. This manual should include:

1. An overview of the agency:
   - Metrobus
   - Metrorail
   - Metromover
2. Operational procedures for, but not limited to:
   - Service operations (bus, transit and rail)
   - Passenger facilities (stations, bus stops, benches and shelters)
   - Route scheduling
   - ADA compliance
   - Service monitoring
3. Performance Measures and Standards
   Appendix 14 includes an analysis of the performance measures and standards approved by MDT.




## J. Conduct a Survey

The purpose of this survey is to obtain input from:

**Bus Drivers - Transit Supervisors - Passengers - Elected officials - County Staff**


As a result of this survey, MDT could measures the effectiveness of the system and integrates the participation of all parties involved regarding transit services. Surveys should be different in approach and content, based on the level of participation. As an example, bus drivers and transit supervisors, could provide operational information regarding the operation of the routes, while passengers will provide input regarding the quality of the service. In the same way, elected officials may provide a countywide vision about transit services and county staff could provide input regarding the costs and

benefits of the proposed trunk and feeder system. Appendix 15 shows an example of a questionnaire for bus drivers.

## K. Mass Marketing Campaign

In order to set the basis for the success of the proposed trunk and feeder system, MDT should develop a mass marketing campaign with the purpose of:

### 1. Educate the public

Before implementing the proposed system, passengers should know how the system works and all service changes involved. It is very important to give them the time to understand the system and clarify the questions and concerns that they may have. This public campaign is oriented to promote public transit and attract more riders to the system. It may include:

- Public hearings
- Workshops
- Flyers on the buses
- Newspaper ads
- Radio spots
- Attending radio talk shows to promote the proposed system

There are many other marketing options that should be considered. It is also recommended that this campaign be conducted by consultant.

### 2. Train bus drivers and supervisors

Bus drivers and transit supervisors should be trained to answer any question that passengers may have regarding the use of the system and connectivity to other routes. Additionally, this training could also include aspects regarding the handling of passengers, courtesy and good communication.

### 3. Develop a new image of MDT

This is a good opportunity to initiate a public campaign to create a new image for MDT. Some of the elements of this campaign should include a new logo and colors, public appeal, selling MDT services and branding of the trunk and feeder bus system, among others. It is recommended that this campaign be initiated after the successful implementation of the proposed system.

### 4. Develop tools for measuring MDT success

It is recommended to establish a set of tools for measuring MDT success. These tools should be used in the development of the mass marketing campaign. Additionally, other elements should be considered and developed to measure the success of the marketing campaign. This will give MDT the option to focus in those marketing elements that are more suitable to reach a larger transit population. This consideration will reduce marketing costs for future campaigns.

## L. Public Meetings

The participation of the community and their input is very important in correcting existing services and developing future plans. It is recommended to schedule on-going public meetings at community centers and available locations to obtain the input of the MDT riders and general public regarding transit services. These meetings will be used to educate the riders about the benefits of using transit. Additionally, these meetings should be coordinated with county staff and elected officials to reach the majority of the community. Appropriate marketing tools should be used to promote the participation of the general public in these meetings.

## M. Policy

A recommendation is made that MDT initiate a policy on the buses that:

1. Boarding only – front door
2. Alighting only – rear door

This action will save time at the bus stops and reduce travel time.

## N. On-going Monitoring Program

MDT should establish an on-going monitoring program to evaluate the operation of proposed routes along this corridor.

## O. Development of Studies to Support Transit Operation

The following studies are recommended to assist MDT in establishing the basis for future projects.

1. **Bus Stops Study**

   The goal of this study is to establish a methodology and mechanism for installing, removing and replacing bus stops, shelters and benches. Using the APC system, the number of boardings will be determined by bus stop. Performance measures will also be defined and the boarding data will be used for determining the standards for relocating bus stops to an average of 400 meters, as appropriate and needed. As a result, major corridors will be evaluated and an action plan developed for implementation.

   This study will assist MDT in saving maintenance costs and reduce the travel time.

2. **Feasibility of Implementing Pre-boarding Stations**

   There are several locations that could have the potential to serve as a pilot project for the development of stations where fare are collected prior to boarding. This study will establish the minimum requirements regarding service, boardings, space, physical facilities and maintenance. Additionally, permits required and estimated costs per type of station will also be developed.

   The results of this study will be used for developing a pilot project to be implemented within the next 2 years.

3. **Re-evaluation of Transit Corridors**

   The MPO and MDT have conducted several studies along major corridors to identify premium transit alternatives. Most of these studies have recommended the implementation of heavy rail. These recommendations have no real possibilities of being implemented. The existing financial limitations at Federal, State and local levels play a determining role in the ability to fund

construction of these facilities. Therefore, other options should be re-evaluated.
The purpose of this study is to revisit these studies and use the existing data, analyses and recommendations to develop a set of non-rail alternatives that can be developed. The results of this study will be used for further development of Trunk Routes and BRTs in preparation for future rail options (light or heavy rail).

4. **Intersection Improvements**
The MPO has conducted studies for the Department of Public Works (DPW) to identify low cost traffic operational improvements for alleviating congestion, improve mobility and reduce accidents. A similar study is recommended to improve those intersections and segments along major transit corridors. In this particular case, efforts will be concentrated in improving transit services minimizing any negative impact on traffic flow. Therefore, the purpose of this study could be oriented to benefit transit services and to the safety of the MDT passengers. As a result, locations will be identified and an action plan including construction costs will be developed. Additionally, this study could incorporate alternatives for implementing the traffic signal preemption system on MDT buses.

## P. Relocation of Bus Stops to an Average of 400 meters (removing stops)

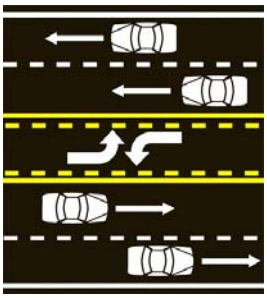
Using the APC data, MDT could conduct an evaluation of the number of boardings by bus stop. Those bus stops with no boardings during the day should be removed. Additionally, those bus stops that are too close (less than 150 meters) should also be evaluated for further analysis and relocations.

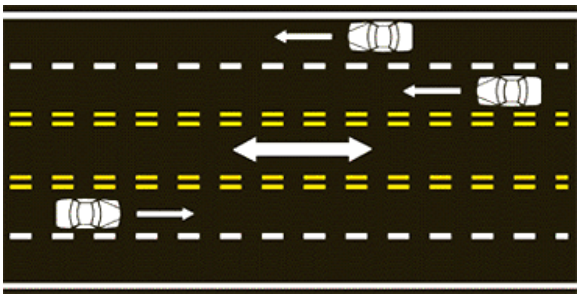
## Q. Traffic Signal Priority System

The Department of Public Works (DPW) has implemented a traffic signal priority system. MDT should coordinate with DPW and develop a program for installing the necessary equipment on the buses. This action will give priority to MDT buses at the intersections, reducing the travel time and improving transit services.

## R. Reversible Lanes/Dedicated Bus Lanes

This alternative has been evaluated in the past and no positive recommendations have been resulted from those analysis and studies. It is recommended to revisit these options. The Florida Department of Transportation (FDOT) and the Department of Public Works should reconsider these alternatives. Many cities have been successfully implemented reversible lanes for regular traffic which increase the capacity along the corridor or dedicated bus lanes which considerably improve transit operations. Those corridors that already have five lanes should be evaluated for implementing these options. A good corridor for implementing this alternative is Flagler Street. This is a major transit corridor and a reversible lane could be used for vehicular traffic and the right lanes as a dedicated bus facility. This alternative will alleviate the traffic congestion to be generated by the construction of the SR-826/SR-836 interchange along the SR-836 (Dolphin Expressway). A study is recommended to identify issues and concerns related with the implementation of these facilities and make recommendations for its implementation.



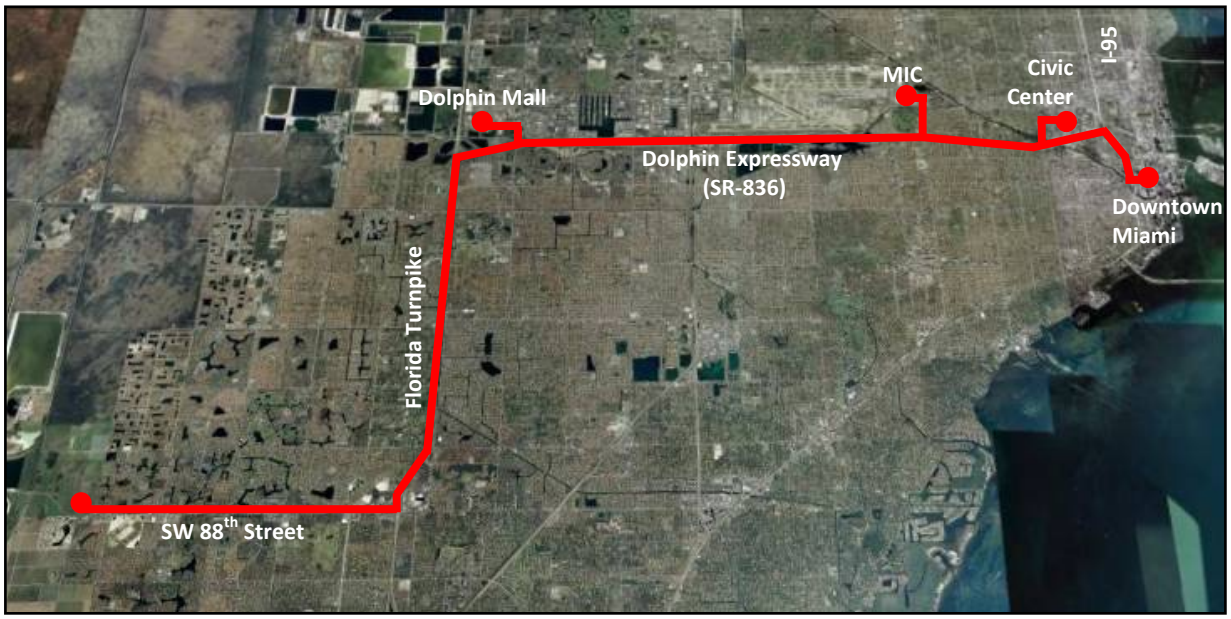


## S. Transit Oriented Development (TOD)

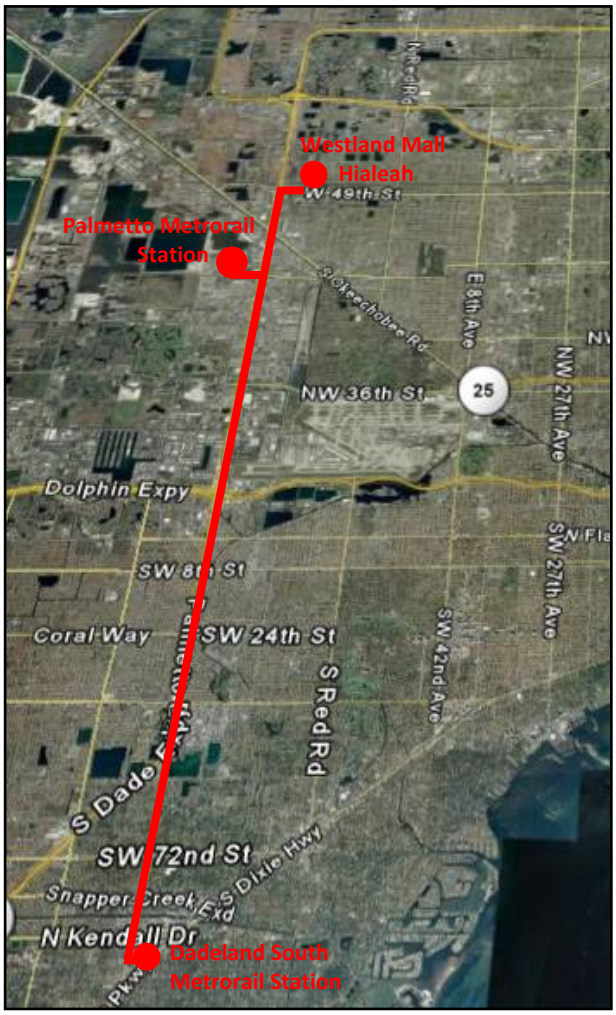

MDT should consider the development of TOD with the participation of other Federal, State, local and private entities. Communities are being more conscious about becoming more effective in the use of the existing resources; environment considerations, energy conservation, public participation, safety and use of fuel alternative vehicles are among some of main topics considered in planning future projects. A good transit service is also part of this equation of elements to improve our quality of life. MDT should be a main player in promoting TODs. Many municipalities are trying to develop the downtown concept where jobs are created and services are provided within a walkable area. An example of this effort is the Village of Palmetto Bay that combined government and transportation services in one location with access to bicycle and pedestrian facilities within a green environment.

## T. Bus on Shoulders

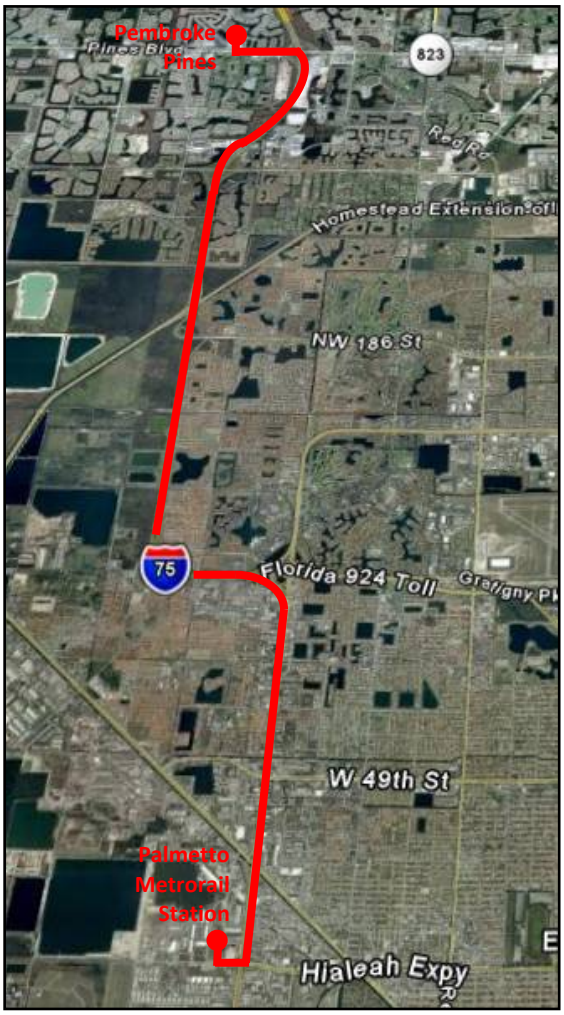
The MPO in coordination with MDT, FDOT and Miami-Dade Expressway Authority (MDX) implemented this concept along SR-874 (Don Shula Expressway) and SR-878 (Snapper Creek Expressway). Kendall KAT, Killian KAT and Sunset KAT are using the shoulders along these facilities. Based on the study conducted by the MPO, the use of the bus on shoulders concept should be expanded to other expressways, such as:




**Proposed E-W express service from SW 167th Avenue to Downtown Miami using the bus on shoulders concept where available. This route uses Kendall Drive, the Turnpike, SR-836 and the I-95 with stops at Dolphin Mall, Miami Intermodal Center (MIC), the Civic Center Health District and Downtown Miami.**




**Proposed N-S express service from NW 103rd Street at Hialeah (Westland Mall) to Dadeland South Metrorail Station using the bus on shoulders concept where available along the Palmetto Expressway (SR-826). This route stops at Palmetto Metrorail Station.**




**Proposed regional express service from Pembroke Pines in Broward to Palmetto Metrorail Station using the bus on shoulders concept where available along I-75 and the Palmetto Expressway (SR-826).**

Based on past experience, the implementation of these routes using the bus on shoulders concept should be improved in the areas of marketing and education to the public and bus drivers.

Additionally, MDT has agreements with the participating agencies, including FDOT and MDX, but not the Turnpike. MDT should coordinate with these agencies to sign a new agreement that allows for the extension of this concept to provide permanent services along the expressways. Once this agreement is approved, it is recommended to expand this service, as shown in the above illustrations.

## U. Express Transit Services

In the development of this study and based on the need for reducing MDT expenses, express services should be reduced or eliminated. As previously indicated, there is a high cost involved in providing these services. However, for the second phase of this study (2-5 year horizon), this option should be considered. Currently, MDT is providing express services from Golden Glades to Downtown Miami and the Civic Center area along the I-95 managed lanes. These routes will continue and there are no plans for eliminating or reducing the service.

As part of this study, considerations were given to provide express services along SR-836 (Dolphin Expressway) to alleviate the traffic congestion in this corridor due to the construction of the SR-826/SR-836 Interchange. This is a major project that is scheduled for completion in 8 years. However, shoulders cannot be used during the construction and no dedicated lane is recommended. Another option to alleviate the expected congestion along this corridor is to provide a park and ride facility on SW 137$^{th}$ Avenue and use SW 8$^{th}$ Street as an alternative corridor to the SR-836.

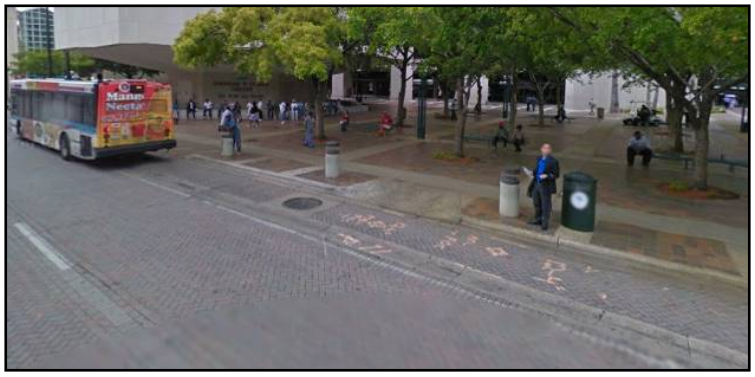
## V. Comprehensive Development Master Plan (CDMP) – Transportation Element

The Transportation Element of the CDMP establishes the minimum requirements for providing transit services within the County. Due to the current financial constraints, MDT should evaluate the Transportation Element and determine if they can comply with such requirements. This is an area that should be re-evaluated. MDT may consider a partnership with the developers to provide the infrastructure necessary for providing transit services to new developments.

This is a good opportunity for MDT to bring the private sector as a partner for future growth. The developers need to attract buyers and having a good transit alternative is an additional element for their selling campaign. On the other hand, MDT will reduce their operating or capital costs by entering into these agreements.

## W. Development of a Transit Mall

Downtown Miami is the main activity center for MDT routes. A recommendation has been made to build a terminal facility nearer to the Government Center Metrorail Station. To create the appropriate transit environment it is also recommended to develop a transit mall along NW First Street between NW 1$^{st}$ and 2$^{nd}$ Avenues. Appendix 16 includes a list of the proposed amenities recommended for the mall, as well as the traffic impacts in the adjacent roadways. The traffic flow on this segment is one-way (eastbound) which reduce the traffic impact in the vicinity of the area. This recommendation will provide a safe walking area connecting government facilities to Metrorail, as well as integrating bicycle and pedestrian elements. Aesthetics will be an important factor to provide an identity for this facility. The recommended transit mall could provide another benefit to the County. This area could serve as a center for cultural events, attracting more people and making a positive impact to the downtown area.



## X. Parking Management and Development

Some of the evaluated corridors have on-street parking which limited the capacity of the facility. All of these facilities are under the jurisdiction of FDOT or DPW. To make it a little more complicated, parking meters are located by the municipalities which represent an income for the parking authorities. By eliminating the on-street parking, the capacity of the road is considerably increased. As a result, traffic flow and transit services will benefit by having an additional lane for alleviating traffic congestion or by implementing a dedicated bus lane. However, this is a very sensitive recommendation that could be implemented in some corridors and not in others. Additionally, business offices and commercial stores could also be affected.

There are mitigation options that could alleviate the impact in the community such as creating incentives to promote transit and the construction of park and ride facilities. In order to determine the effectiveness of this recommendation, it is recommended to develop a feasibility study to evaluate and measure the benefits of this recommendation.

## Y. Funding

MDT has Federal, State and local funds available for capital and operational expenses. With the implementation of the Trunk and Feeder Bus System, MDT will have operational savings. However, there are many other recommendations that will require additional capital expenses. These facilities will require minimum maintenance expenses, which make them attractive for immediate implementation, depending on funding availability.

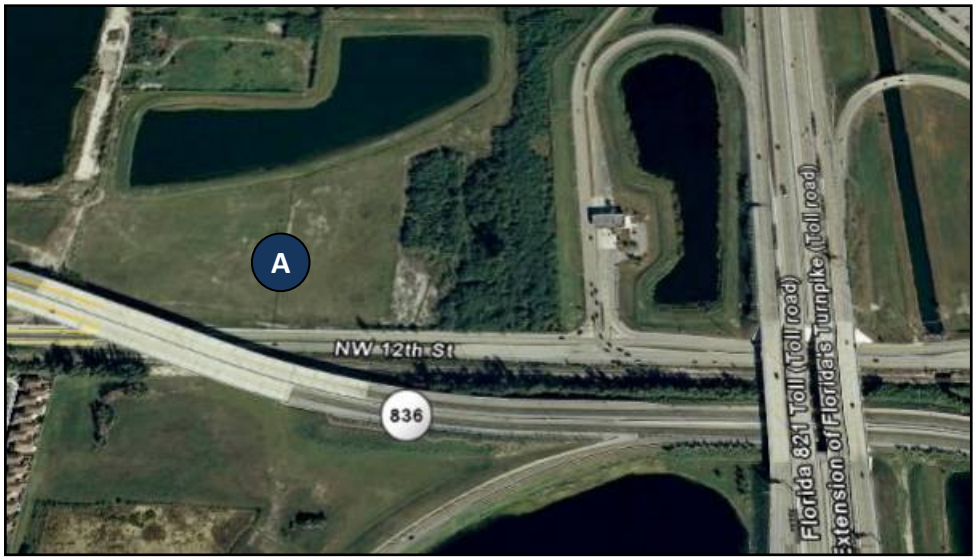
At Federal level discretionary funds and Section 5307 formula funds could be used for the construction of many of these projects. Additionally, State funds are available for capital improvements and at local level, Miami-Dade County has a dedicated surtax for transit improvements. It is recommended that for the construction of these facilities, MDT uses a different approach for soliciting these funds. MDT could prioritize these projects and proceed with the implementation by phases. As an example:

1. Phase 2: Construction projects along NW/SW 27th Avenue
   - Prepare designs
   - Develop estimated costs
   - Solicit funds
   - Construction
2. Phase 3: Construction of Park & Ride facilities
   - Identify location(s)
   - Prepare designs
   - Develop estimated costs
   - Solicit funds
   - Construction

By having a feasible and viable set of projects, MDT could change the approach for using the PTP funds. Once a project secures the necessary funds and it is ready for construction; MDT should initiate the process for securing the funds for a second project. This process will provide the basis for the construction of the needed facilities and more important, it will build MDT's trust in moving forward. Additionally, MDT should enter into partnership with other agencies, municipalities and the private sector to expand their financial capabilities. Some examples for this approach could be:

1. **Construction of a Multimodal Terminal in Downtown Miami**
   This facility could be built by MDX and lease to MDT for a $1.00/year. In this agreement, MDT will use the facility without using their capital funds and MDX will have the title of the property. In order to be attractive for MDX the investment, this facility should incorporate amenities for transit and the general public. It could be incorporate restaurants, shops, parking and theaters. A direct physical connection to the Metromover platform will provide a direct access to the Metrorail and Metromover. This building could be developed as a mini performance art center to attract not only county residents but tourism, as well. These attractions will generate an additional income for MDX.

2. **Construction of Park and Ride Facilities**
   MDT should get into an agreement with FDOT to coordinate the construction of these facilities in the County, where FDOT surplus land are available and participate actively in the FDOT Park and Ride Program. This action will allow MDT to use these facilities owned and maintained by FDOT and for MDT provide the necessary transit service for the area. The following illustration shows a Park and Ride facility (A) west of the Turnpike on NW 12th Street. This facility could be used as a Park & Ride. Express services could be provided along the Dolphin Expressway (SR-836) to the MIC, Civic Center and Downtown Miami. This project will help to alleviate the traffic congestion to be generated at the ST-826 and SR-836 due to the construction of the interchange.



3. **Expansion of Transit Services**
   There are some MDT routes that carry a very low ridership. These routes are usually servicing areas outside the major corridors and in low density areas. MDT could consider enter into an agreement with the municipalities and the private sector to provide transit service in those areas. Those routes that are not productive for MDT could be productive for the municipalities or the private sector.

## Z. Adopt a Transit Corridor

This concept will work similar to "Adopt a Highway". FDOT, MDX and the Turnpike could be partners in this concept. The program will work based on these agencies providing the capital improvement costs (buses and infrastructure) and MDT the operational costs. In order to have an incentive for the participants, the revenue coming from the farebox could be negotiated with those agencies in a beneficial way for all parties involved in this concept.

## AA. Extension of SR-112 to SR-826 (Palmetto Expressway)

MDX should consider the extension of the SR-112 to the Palmetto Expressway. This project was considered many years ago and based on the opposition of the communities in the vicinity of the airport; the project was eliminated from the Transportation Improvement Program (TIP). Over 10 years have passed when this action was taken. Based on the actual conditions, MDX should try again to revive this project to alleviate the traffic congestion along the main east-west connection in the County. Figure 34 illustrates the location of the referenced project.

Coordination needs to be established with FDOT and the MPO to work together with the Miami International Airport (MIA) in the implementation of this project.

**Figure 34: Aerial View of the MIA**

Figure 35 shows the extension of the SR-112 to the Palmetto Expressway. This project was basically ready for construction before removed from the TIP. Therefore, revisiting this project could provide an additional east-west connection that the County needed to alleviate traffic congestion in the vicinity of the MIA.

**Figure 35: SR-112 extension to the Palmetto Expressway (SR-826)**


## BB. Interchange at SR-826 (Palmetto Expressway) and SR-836 (Dolphin Expressway)

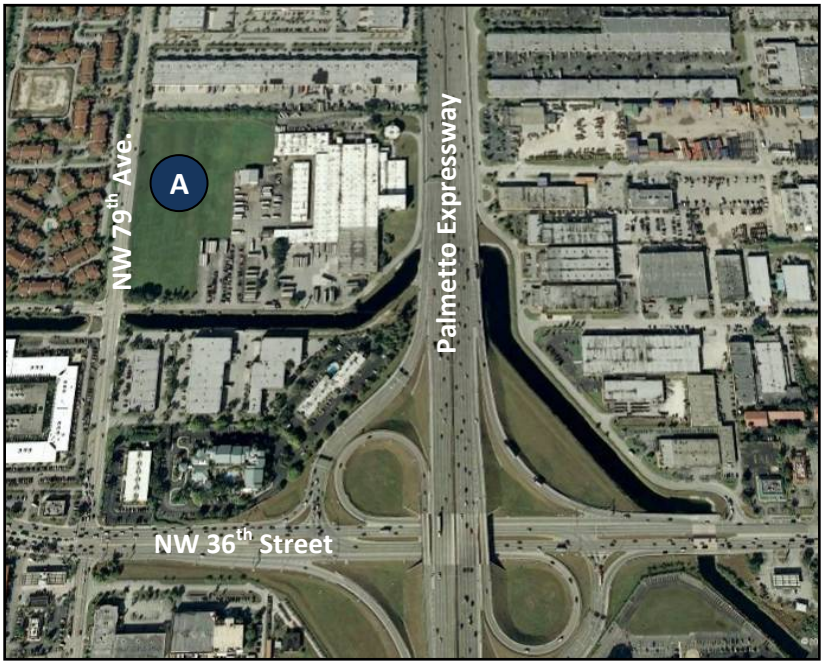
This is a joint project between FDOT and MDX. The construction of this facility will take 8-9 years and major traffic congestion is expected along those corridors. The SR-836 is a major expressway with the characteristic of having a heavy eastbound peak period in the morning and a heavy westbound peak period in the afternoon. Figure 33 shows also an aerial of the area in the vicinity of the Interchange between SR-826 and SR-836. Based on this aerial, there are some options for alleviating the traffic congestion during the construction of the interchange:

1. Develop park and ride facilities west of 137th Avenue and establish express services, as mentioned before. This option should include contacting shopping centers with parking available to be used also as park and ride facilities.
2. Use of the concept of "zipper lanes" to take a lane along the SR-836 (Dolphin Expressway) as a measure of Maintenance of Traffic (MOT). The purpose is to add a lane in the eastbound direction in the am-peak and in the westbound direction during the pm-peak. This option will add an additional capacity to the corridor. A major problem for this option is traffic using the south ramp on SR-836. However, other alternatives to detour the traffic could also be considered.

3. As shown in Figure 33, the alternate routes during the construction of this interchange are to the north NW 36th Street and to the south NW 7th Street that has no connection to the Palmetto Expressway, Flagler Street and SW 8th Street.

NW 36th Street is a main arterial that could be used to detour the southbound traffic along the Palmetto Expressway (SR-826) before the interchange with the Dolphin Expressway (SR-836). Figure 36 shows a potential site (A) for a park and ride facility that could be used for this purpose. Coordination with MDT will provide express services to the MIA, Civic Center and Downtown Miami.

**Figure 36: Potential Park and Ride Facility at NW 36th Street**

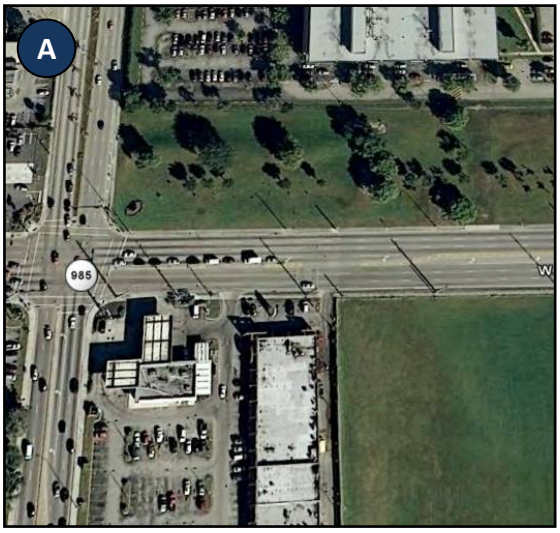



## CC. BRT Service Along Flagler Street

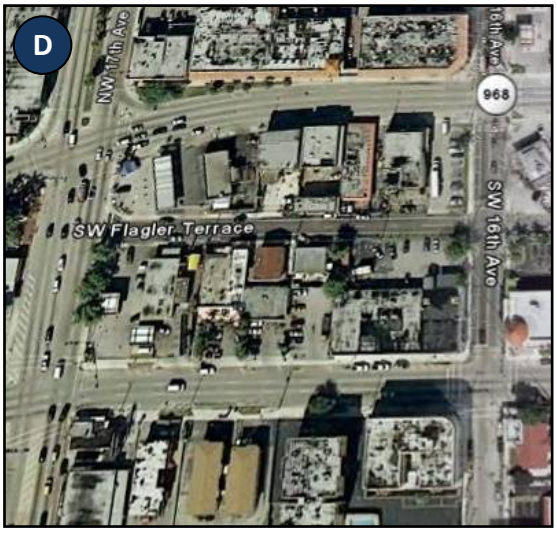
This alternative was mentioned before as part of the potential use of Flagler Street for the implementation of a BRT with a dedicated lane or as a reversible lane for regular traffic to increase the capacity of the corridor.

The following set of aerials show the different lane configurations along this corridor.

1. Aerial A: From 107th Avenue to 72nd Avenue
   This segment consists of 6 lanes and basically two additional center lanes for left turns. No on-street parking is available. Along this segment there are islands to allow left turn movements and plants for aesthetic.
2. Aerial B: From 72nd Avenue to 24th Avenue
   This segment consists of 4 lanes and one center lane for left turns. No on-street parking is available.
3. Aerial C: From 24th Avenue to Downtown Miami
   At this intersection, Flagler Street splits in two directions. Eastbound traffic turns south to merge with SW 1st Street and continues to Downtown Miami. From Downtown Miami to 24th Avenue the traffic along this corridor is only westbound.
4. Aerial D: From NW 17th Avenue to NW 16th Avenue
   This aerial shows both segments of the corridor along Flagler Street and SW 1st Street. Both are three lanes with on-street parking.






These sequences of aerials show the feasibility of implementing a reversible lane or a dedicated lane for buses. In the case of the reversible lane, this should be implemented by converting the center lane(s) as a reversible for regular traffic and the right lane as a dedicated lane for buses. In the am-peak the eastbound lane will be used for buses-only and in the pm-peak the westbound lane. There are two major concerns expressed by FDOT regarding these options: safety for pedestrians and left turns. A study should be conducted for determining the benefits of these alternatives versus current conditions.

## DD. Extension of SR 836 (Dolphin Expressway)

MDX is working in the extension of the Dolphin Expressway from SW 137th Avenue to SW 136th Street via Krome Avenue as shown in Figure 37. This is a very sensitive project, but definitively will provide another north-south corridor to the western part of the County. There are several major concerns for the development of this project; from going out of the Urban Development Boundaries (UDB) to environmental issues that needs major mitigation measures. However, MDX, the County, FDOT and the environmental agencies should work together to facilitate the construction of this project.

## EE. Connection of the Extension of the Dolphin Expressway (SR-836) to Don Shula Expressway (SR-874) via SW 136th Street

The extension of the SR-836 to SW 136th Street is one of the future projects under consideration by MDX. If this project becomes a reality; then, additional plans should be considered to close the loop with the extension of the SR-874 (Don Shula Expressway). Once the extension of the SR-874 to the SW 136th Street is completed as shown in Figure 38, additional vehicular trips will be dumped to the SW 136th Street. With the addition of the additional vehicular trips coming from the future extension of the SR-836, SW 136th Street needs to be expanded.

**Figure 37: Projected Extension of the Dolphin Expressway (SR-836) to SW 136th Street**


**Figure 38: Extension of Don Shula Expressway (SR-874) to SW 136th Street**

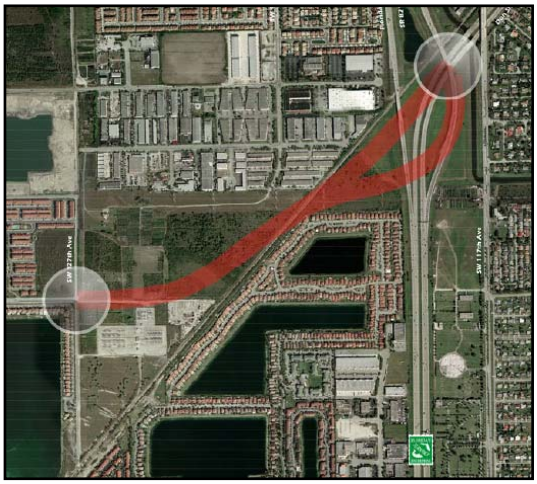


Figure 39 illustrates the proposed expansion of SW 136th Street closing the loop between SR-836 and SR-874.

**Figure 39: Expansion of SW 126th Street**


SW 136th Street is an arterial with mixed uses and configurations. From Krome Avenue to SW 157th Avenue this facility is mostly not paved and it is fully dedicated to the agriculture, as shown in aerial "A". From SW 157th Avenue to SW 142nd Avenue is adjacent land has mixed uses and the road is being converted to a 4-lane paved (Aerial B). From SW 142nd Avenue to SW 127th Avenue is commercial and residential with 4 paved lanes and one center lane for left turns (Aerial C).

The recommended project for expanding this facility should take into consideration the expansion of this facility to 6-lanes and consideration for the construction of a perimeter road for local traffic. This facility could be at-grade or elevated due to the fact that it could be tolled. As part of this project, intersections at SW 157th Avenue and SW 137th Avenue need to be also expanded. This could be a good opportunity for considering the widening of SW 137th Avenue from US-1 to Eureka Drive (SW 184th Street) as a 6-lane divided facility, as recommended in previous study.

The MPO could consider developing a feasibility study for evaluating this corridor and expanded the area to evaluate the impacts of future developments from SW 88th Street to SW 184th Street.


A


B


SW 136th St
C

## II. MID-TERM RECOMMENDATIONS (2-5 years)

In the short-term (0-2 years) several recommendations were made that include planning, design and construction of facilities. Due to the magnitude of the work to be conducted, the design and construction phases of the recommended facilities have to be moved to this term. Additionally, the planning phase of this term is starting and many other recommendations would be completed during this phase. Following is a list of recommended actions to be conducted for this period.

### A. Continue with the Expansion of the Trunk and Feeder Bus System to other Corridors

During the first phase of this effort, seven (7) corridors were evaluated. As a result, recommendations for the establishment of a Trunk and Feeder System were discussed in previous chapters. However, this effort should continue to expand the recommended system to the whole county.

### B. Construction of Transfer Stations

Continue preparing design and bid processes for the construction of the transfer stations recommended in the Phase 1 (0-2 years).

### C. Construction of Park and Ride Facilities

Continue preparing design and bid processes for the construction of the park and ride facilities recommended in the Phase 1 (0-2 years). During this phase, additional locations could be identified and included in the program.

### D. Construction of Bus Terminals

Continue preparing design and bid processes for the construction of the bus terminals recommended in the Phase 1 (0-2 years). During this phase, additional locations could be identified and included in the program.

### E. Miami Intermodal Center (MIC) – Transit Operation

The purpose of the MIC is to serve as an intermodal facility that combines several transportation modes and a rental car hub. This facility is ready for operation and MDT should initiate the process to evaluate those routes that could be serving the MIC.

### F. MIC – Earlington Heights Metrorail Extension

The construction of this project has started and operational plans should be developed. This is a recommendation that should take a higher priority. Currently, Metrorail operates in one line from Palmetto Station to Dadeland South Station. The extension to the MIC requires evaluating operational options to maximize the service. Depending of the selected option, the number of cars required for service may vary accordingly. This will provide an additional saving to MDT in the capital and operating expenses.


**Renderings for the MIC and the MIC extension to Earlington Heights Metrorail Station**

**G. Transit Mall at NW 1st Street between NW 1st Avenue and NW 2nd Avenue**

Development plans were prepare in the first phase. In this term is recommended to continue with the design and construction of this facility.

**H. Construction of Pre-boarding Stations**

Similar to the transit mall, this phase should include the design and construction of these facilities.

1. Golden Glades
2. Dadeland South Metrorail Station
3. Along the busway, as appropriate
4. Martin Luther King, Jr. Metrorail Station

**I. Implementation of BRTs**

Based on the results of the re-evaluation of the premium transit corridors, MDT should initiate in this phase the development and implementation of BRTs in the recommended corridors. The following actions are recommended:

1. Prioritize the corridors
2. Select technology
3. Identify improvements
4. Prepare implementation plan and cost estimates
5. Request and secure funds for:
   - Vehicle acquisition
   - Construction of the facilities
6. Prepare operational plan
   - Transit services
   - Maintenance plan
7. Monitoring service

**J. Traffic Signal Priority System**

Continue with the implementation and expansion of this system in all transit buses.

**K. Reversible Lanes/Dedicated Bus Lanes**

Recommendations resulted from the study conducted in phase 1 should be implemented in this phase.

**L. Transit Oriented Developments (TODs)**

Recommendations resulted from the study conducted in phase 1 should be implemented in this phase.

**M. Rail Alternatives**

During this phase an evaluation should be conducted to determine those corridors that could be considered for the implementation of rail options.

## III. LONG-TERM RECOMMENDATIONS (5+ years)

During this phase recommendations made the first two phases should be completed. Additionally new projects should be identified.

### A. Construction of Bus Terminal Facilities

1. Aventura Bus Terminal
2. Las Americas Bus Terminal
3. Downtown Bus Terminal

### B. Construction of Other Facilities

Continue the construction of those transfer stations and Park & Ride facilities not completed in the first two phases.

### C. Rail Options

Initiate the process for the implementation of the rail alternative selected in phase 2.

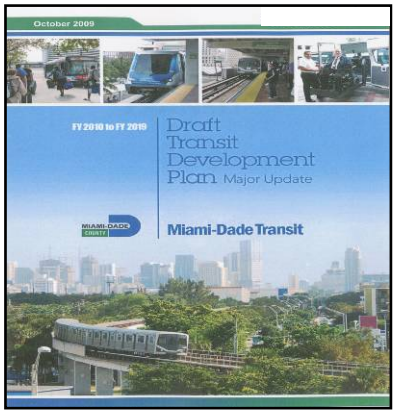
# CHAPTER XII: ACTION PLAN

Many of the recommendations made in this report could be implemented simultaneously. Additionally, most of them are inter-related because this is part of the development of an integrated and balanced transportation system. This is a short-term vision that may change the way public transit services are provided. The operational agencies may consider the development of these recommendations based on their needs and priorities. Based on the recommended phases for implementation, Table 24 lists all recommendations in a logical sequence but at the end, the priorities should be established by the County. This table provides a guideline by major steps, and prepares the basis for future developments.

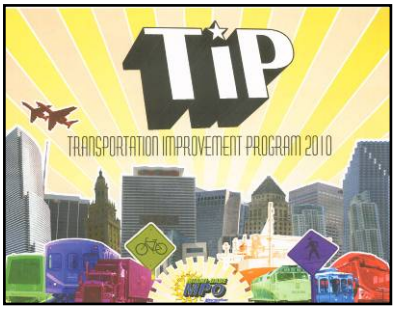
**Do the recommendations can be implemented individually?**
**Yes!**
**However, this is part of a vision and a concept that should be tied together, as a unit.**

As solicited to the MPO, the short-term recommendations can be implementable in a span of two (2) years. However, this depends of the priorities and financial situation of MDT. The recommendations included in this report are consistent with the Transit Development Program (TDP), the 2010 Transportation Improvement Program (TIP) and the approved 2035 Long Range Transportation Plan (LRTP).

Chapter II lists a series of commitments that MDT should establish to successfully implement the Trunk and Feeder Bus System concept. This is a team work effort where other transportation related agencies should actively participate and support MDT. Additionally, elected officials and the community should also work together to provide the necessary input to continue building a better transportation system for the future.








## TABLE 24: Action Plan

| # | | Description | Months | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1 | **Implementation of the Trunk and Feeder Bus System** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Phase I: Biscayne Boulevard – Flagler Street – NW/SW 27th Avenue | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Monitoring Program | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Phase II: Collins Avenue – Miami Gardens Drive | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Monitoring Program | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Phase III: Busway – Kendall Drive | | | | | | | | | | | | | | | | | | | | | | | | |
| | **f** | Monitoring Program | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | **Continue Evaluating MDT Services** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Continue evaluating transit services using APC | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Prepare quarterly progress report | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Implement recommendations | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | **Construction of Transfer Stations, Larger Bus Shelters and End Terminals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Development of study | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Identify locations and ROW acquisition | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Design of recommended facilities | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Bid Process | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Construction of facilities | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | **Spacing of Bus Stops** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Development of study | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Relocation of bus stops | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | **Municipal Coordination** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Create a team to coordinate transit services with the municipalities | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Develop joint/participation agreements | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Prepare implementation plans | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | **Development of Bus Terminal Facilities** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Development of study and conceptual plans | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Identify locations | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Coordinate with related entities (public and private sector) | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Prepare necessary agreements to proceed with design and construction | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | **Implement Policy Recommendations** | | | | | | | | | | | | | | | | | | | | | | | | | |

**Table 24 continues…**

| # | | Description | Months | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 8 | | **Conduct Surveys** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Develop Scope of Work | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Hire a consultant | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Conduct surveys | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Present results | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | **Conduct a Mass Marketing Campaign** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Develop marketing plan | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Hire a consultant | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Conduct marketing campaign | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Evaluate effectiveness of the campaign | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Present results | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | **Conduct Public Meetings** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Develop a plan for conducting quarterly meetings | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Evaluate input | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Provide response to the public | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Prepare progress report | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | **Develop a Transit Master Plan** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Prepare a Scope of Work | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Conduct study | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Implement study recommendations | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | **Development/Expansion of Park and Ride Facilities** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Identify existing potential locations for new developments or expansion | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Coordinate with FDOT ROW availability | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Develop PD&E studies, if needed | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Develop bid process | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Design and construction of facilities | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | **Create Response Team** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Develop evaluation process to correct deficiencies | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Create team | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Correct deficiencies in the operation of the T&F system | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | Develop a Monitoring Program | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Establish monitoring process | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Initiate continue monitoring process | | | | | | | | | | | | | | | | | | | | | | | | |

**Table 24 continues…**

| # | | Description | Months | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 15 | **Develop a Transit Operational Manual** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Prepare Scope of Work | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Conduct study | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Board Approval | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | **Traffic Signal Preemption System** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Coordinate with the Department of Public Works | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Develop a prioritization program | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Implement an action plan | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | **Development of a Transit Mall** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Coordinate with the Department of Public Works | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Evaluate traffic impacts | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Prepare conceptual plan | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Design facilities | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Prepare bid for construction | | | | | | | | | | | | | | | | | | | | | | | | |
| | **f** | Construction of the facility | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | **Pre-boarding Stations** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Develop study | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Implement recommendations | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Coordinate with related entities | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Design facilities | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Prepare bid for construction | | | | | | | | | | | | | | | | | | | | | | | | |
| | **f** | Construction | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | **Re-evaluation of Transit Corridors** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Develop Scope of Work | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Hire a consultant | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Conduct study | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Present results | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | **Bus on Shoulders** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Identify potential routes | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Develop plan | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Conduct marketing campaign | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Prepare implementation plan | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Initiate operation | | | | | | | | | | | | | | | | | | | | | | | | |

**Table 24 continues…**

| # | | Description | Months | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 21 | **Express Transit Services** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Identify potential routes | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Develop plan | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Conduct marketing campaign | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Prepare implementation plan | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Initiate service | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | **Roadway Improvements** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Develop study | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Evaluate recommendations | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Design of improvements | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Conduct RFP | | | | | | | | | | | | | | | | | | | | | | | | |
| | **e** | Construction of improvements | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | **Reversible Lanes/Dedicated Bus Lanes** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Re-evaluate existing studies and recommendations | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Coordinate with FDOT and DPW development of these facilities | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Prepare an action plan | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | **Development of TODs** | | | | | | | | | | | | | | | | | | | | | | | | | |
| | **a** | Evaluate potential locations for developing TODs | | | | | | | | | | | | | | | | | | | | | | | | |
| | **b** | Coordinate with municipalities and participating entities | | | | | | | | | | | | | | | | | | | | | | | | |
| | **c** | Develop conceptual plans | | | | | | | | | | | | | | | | | | | | | | | | |
| | **d** | Prepare an action plan | | | | | | | | | | | | | | | | | | | | | | | | |

# Appendix 1:
# Scope of Work

***Miami-Dade County***
***Metropolitan Planning Organization (MPO)***

# Feasible Short-Term Transit Options for Miami-Dade

## SCOPE OF SERVICES

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## I. OBJECTIVE

To evaluate existing transit services within Mimi-Dade County and recommend implementable short-term transit service improvements for increasing ridership and alleviating traffic congestion along major transit corridors.

## II. BACKGROUND

In November 2002, a half penny sales tax was approved as a dedicated fund for improving transit services. Since then, major bus improvements have been made including the purchasing of additional buses and the expansion of the bus system. However, these improvements have not produced the expected transit growth. With the increase of gas prices, operating costs and the limited funding available for the construction of new systems, it is necessary to re-evaluate the current service provided by Miami-Dade Transit (MDT) to supply the existing demand for transit services.

Based on the existing conditions of the economy, the public sector has been dramatically affected. As a result of this situation, a coordinated effort among the transportation agencies has been initiated. The purpose of this effort is to provide a base line for future transit developments. A 3-phase approach was discussed for considering feasible and affordable transit improvements. The three phases consider a 10-year horizon where improvements will be evaluated for the first two years, from 2 to 5 years and from 5 to 10 years. This study will address the challenge of finding transit improvements for the first phase (0-2 years). These improvements will be concentrated on bus services only. Rail options will be evaluated for the other two phases. It is important to mention that this effort will not delay or affect the development of the other two phases.

## III. PREVIOUS WORK

1. MDT Transportation Development Program (TDP)
2. 2030 Long Range Transportation Plan (LRTP)
3. 2009 Transportation Improvement Program (TIP)
4. Several studies conducted by the MPO and MDT to improve transit services, among them:
    a. Bus on Shoulder Service Evaluation
    b. FDOT Park and Ride Lot Plan Study
    c. On-Board Transit Studies: by CUTR (completed) and Gannett Fleming, Inc. (on-going)
    d. Transit Hub Study (on-going)
    e. Location of Bus Shelters (on-going)

## IV. METHODOLOGY

### 1. Task 1: Coordination

This task will provide the necessary coordination and require the commitment of each participating agencies during the development of the study.

**a.** The MPO will take the lead in establishing the Study Advisory Committee (SAC). This committee will include technical staff from the following agencies:
- MPO
- MDT
- Miami-Dade Expressway Authority (MDX)
- Florida Department of Transportation (FDOT)
- Public Works Department (PWD)

**b.** Once the committee is established, a kick-off meeting will be conducted to discuss and assign the required actions by agency.

**c.** Meetings and teleconferences will be conducted on as needed basis to discuss relevant issues regarding the development of the study.

**d.** Monthly progress reports will be prepared including:
- Activities conducted in the month
- Proposed activities for next month
- Actions required
- Compliance with time schedule

**e.** Work products will be submitted to the participating agencies for review and comments before final presentation to the appropriate "committee".

**f.** At the appropriate time, presentations will be developed for MPO Board and its standing committees, as well as for the Board of County Commissioners (BCC), if needed.

**g.** The SAC will be responsible for obtaining from the operational agencies all information and necessary data to conduct the study.

### 2. Task 2: Data Gathering

This task is the earlier critical path in the development of the study. Participating agencies should be willing to provide the required information on time. The completion of the study will be negatively affected due to delays in this task.

**a.** The MPO will provide:
The data required to the MPO will be used for locating the major transit corridors that need to be included in the study. These corridors need to be consistent with future major and long term improvements. The MPO has already conducted enough studies that could set the basis for transit improvements, specially those in the area of express services and terminal facilities, Finally, intermodal locations have been also identified that will help in integrating bicycles, pedestrians and carpool options.
- Copies of related studies that will contribute to this 0-2 year effort, including those mentioned in Section III.4
- Long Range Transportation Plans (LRTPs) for 2010 and 2015
  These reports will provide the basis for determining the appropriate transit corridors for further evaluation. This will provide the consistency with future plans that were considered for the referred years. Even though, many of the recommended projects could not be in place, transit projections are still valid, not in terms of the specific numbers but for the location of the premium transit corridors.
- 2005 origin-destination (travel desire lines) information obtained from the Long Range Transportation Plan (LRTP)
  This information is already available. Using the O-D data is the easiest and fastest way to identify where the people live and where the people go.

**b.** MDT will provide Metrobus information regarding:
The below information is required for determining those corridor where route duplication could be avoided. Additionally, by having the boardings per stop, it is possible to determine those segments of the bus route that could be eliminated or modified. All this data will be combined for establishing the trunk and feeder routes that could improve the service for the selected corridor.

- Route description
- Route length (miles)
- Headways (peak and off-peak)
- Fleet size per route
- Travel time (peak and off-peak)
- Deadhead time and mileage
- Number of bus stops and characteristics per route
- Number of terminals and end points. Indicate those locations where a dispatcher is available.
- Transit stations location and characteristics, including parking facilities
- Average parking usage per day
- Average daily and monthly ridership per bus route and rail system (per station)
- From the CUTR study, average number of passengers (on/off) per bus stop
- Existing performance measures and performance standards
- Maps
- Operating cost per route
- Income per route
- Future transit improvements (0-5 years TDP)
- Contract Labor
- Interlocal agreements in place that may affect the development of this study or a recommended action

**c.** FDOT, MDX and PW will provide:
These agencies are very important for any proposed improvements. The facilities where potential improvements will be recommended are under the jurisdiction of these agencies. Therefore, their assistance in terms of the input, recommendations and funding are essential during this process. This is a team effort that will benefit the transit community.

- Roadway characteristics (selected corridors)
- Traffic volumes
- Future roadway projects (0-5 years TIP)

**d.** Additionally, coordination will be established with other on-going studies to avoid duplication of efforts. Currently, the MPO is conducting the 2035 LRTP, Transit On-Board Surveys and Locate Sites for Bus Shelter Installations.

## 3. Task 3: Analysis of Existing Conditions

The purpose of this task is to analyze existing data for determining potential corridors for further evaluation. As indicated before, time is short and several studies have been already conducted to facilitate the completion of this task.

**a.** Detailed analysis of the bus service will be conducted by route, including among others:

- Proposed service reduction by MDT
- Ridership growth/reduction per route
- Operating costs per route
- Route effectiveness
  In this aspect, performance measures and standards will be identified for determining the effectiveness of each route. These performance measures could be the existing one used by MDT or others as appropriate.
- Service reliability
- Location of bus stops

b. Additional analysis will be conducted taking into consideration general aspects of the transit services, among others:
   - Concentrate bus service where potential growth in ridership is projected
   - Avoid duplication of routes
   - Availability of resources (buses)

c. Based on this analysis, potential corridors for implementing transit improvements will be determined and prioritized.

## 4. Task 4: Survey

The purpose of this task is to involve all interested parties in this process. Proposed changes need to have a level of acceptance of the community and the involvement of those persons that can positively contribute to this effort. Bringing the participation of the bus drivers would facilitate the implementation process. They will provide the issues and recommendations from the real operation on the street. This is very important because one thing is operational planning and other office planning. By taking into consideration these suggestions and recommendations, a new service image and approach will contribute to the success of the proposed transit improvements.

a. Surveys will be conducted for:
   - Bus drivers for identifying problems and issues faced in the daily operation. This survey will also focus in obtaining their recommendations for improving individual route services, as well as general comments regarding system wide improvements.
   - MDT staff for determining issues and concerns that are limiting the development of service improvements. This survey will also address technical and administrative recommendations for improving bus services.
   - Staff from participating agencies and county for obtaining their input regarding their short term approaches and recommendations.
   - Citizens' committees for obtaining their perception, concerns and issues regarding MDT services. This survey will also obtain their recommendations regarding service improvements.

b. Findings of these surveys will be compiled for further analysis. This will include highlights of the major issues, recommendations and those improvements that may require immediate action.

c. The MPO and MDT will closely coordinate the implementation of these surveys.

## 5. Task 5: Development and Evaluation of Strategies

The objective of this task is for determining the strategies that could be implemented in this bus-only short-term improvement process. These strategies will include, among others: establishing trunk routes with 5-minutes headways (peak period) (these trunk routes will feed Metrorail, as appropriate), feeder routes, long-haul services (commuter type), express services along expressways using the bus on shoulders concept, semi-express services (major arterials and highways), relocation of bus stops, development of park and ride facilities, etc...

a. The results of the surveys on Task 4 combined with the information obtained in Task #2 and the analysis made in Task 3, will provide the basis for development a toolbox with all potential feasible strategies and improvements. This toolbox will concentrate only on short-term operational improvements for Metrobus.

b. A list of potential strategies and improvements will be developed for improving mobility, increase ridership and reducing operating costs.

c. This toolbox will also include those physical improvements along the expressways, major arterials and congested intersections that are needed for the successful operation of the proposed bus improvements.

d. Using this toolbox, a set of scenarios will be developed for the recommended transit corridors identified in Task 3. The ultimate goal of these recommendations is to maximize MDT resources (man-power, infrastructure, equipment, budget, etc.). These recommendations should be creative, viable and feasible for implementation.

e. In developing these scenarios, the following aspects need to be considered, among others:

- Integrate proposed recommendations with other transportation modes: bus, rail, jitneys, bikes, carpools, vanpools, pedestrian, etc.
- Use of existing and/or future transit facilities, such as: rail stations, bus terminals, bus stops, park and ride, potential intermodal facilities (Golden Glades, MIC, etc...), as well as those identified in previous MPO studies (Connecting Traffic Generators, Alternatives for Intermodal Improvements and Transit Hub, among others).
- Measure the cost effectiveness of the proposed improvements
- Incorporate existing and future Park & Ride facilities
- Consider transfer accessibility
- Status of the traffic signal system developed by PW
- Maximize existing resources (buses, drivers and infrastructures)
- Avoid long term aspects such as the acquisition of Right of Ways
- Reduce travel time and number of transfer
- Use of enforcement, if necessary

**6. Task 6: Estimated Cost and Funding**

This is the most important element of the study. Funding is very limited, therefore it is necessary to find ways to reduce cost and maximize the available funds. It is in this task that the participation of MDX, FDOT and PW is essential. Some projects and funds in the TIP could be modified for advancing the final recommendation of this study.

**a.** A detailed cost analysis will be developed for determining the cost of the proposed improvements.

**b.** As part of this task, funding sources need to be identified before the development of the Action Plan.

**7. Task 7: Recommendation and Implementation Plan**

The objective of this task is to prepare a list of recommendations that could be placed in a matrix for prioritization and selection. This plan will include all recommended actions by corridor, by area and by service that will be presented to the participating agencies for final determination and selection.

**a.** An implementation plan will be developed considering the following factors, among others:
- Ease of implementation
- Implementation costs
- Pros and cons of recommended actions
- Time for implementation

**b.** Recommendations listed in this task that will not be included in the Action Plan could be considered in the second phase of this study regarding improvements from 2-5 years.

**8. Task 8: Action Plan**

Base on the results from the previous task, a series of improvements will be selected and an action plan will be developed, as appropriate.

**a.** A detailed action plan will be developed for implementing the recommended improvements, including:
- Description of recommended actions by type (type of service, traffic operation improvements by corridor and intersection, bus infrastructures, traffic signals, signage, traffic markings, use of ITS, pedestrian and transit amenities, etc...)
- Estimated number of buses
- Estimated number of drivers
- Priority list of recommended actions
- Steps for implementation
- Estimated improvement costs and budget
- Estimated time schedule for individual implementation
- Marketing Plan
  This item is detailed in a separate task.

**b.** This action plan should also include the flexibility of implementing the recommended actions by phases.

**c.** It is strongly recommended that this action plan be implemented as a demonstration or pilot project. By doing this, it is necessary that a monitoring system be in place for the continue evaluation of the proposed improvements. This will require an additional step for incorporating any corrective action to the service.

## 9. Task 9: Marketing Plan

This is a very important element of the plan. This task will require an active participation of all agencies. The success of the plan depends on how good the proposed improvements are selling to the users. Some of the elements that could be considered in this plan are:

**a.** Presentations to the TPC, TPTAC, CTAC, BPAC and TARC, among others.

**b.** Reaching the community by presenting the recommended plan to the neighborhoods that could be affected by the proposed improvements. This would include local meetings by homeowners associations, focus groups, municipalities, websites, etc...

**c.** Prepare and distribute brochures with detailed information about the proposed changes.

**d.** Use local newspaper and press releases to reach the community.

**e.** Get the support of the elected officials where the improvements will be implemented. This will need detailed presentation to Commissioners and County staff for their appropriate input.

**f.** Appropriate training of the bus drivers

**g.** If branding of the service is recommended, conduct a contest among students and/or county staff for the selection of name, colors and logo of the proposed service.

**h.** Create the environment to positive changes and sell the positive aspects of the proposed service, such as:

- Reliable and fastest service
- Reduced travel time
- Access to other routes and Metrorail
- Better access for pedestrians and bicycles
- Accessible Park and Ride facilities

**i.** In changing the image of the MDT service, a dedicated program for the interior and exterior cleaning of the buses to be assigned in this pilot project should be considered

**j.** Develop a signage and bus marking plan for easy identification of the users

**k.** Introduction of the new MDT collection system

**l.** Create a week free fare campaign for the implemented project. This will allow users to test the pilot project.

## 10. Task 10: Monitoring System

As indicated in the Task #8, the proposed service needs to be evaluated on a daily basis. This task creates the tool for that action and for implementing the corrective actions.

**a.** A monitoring program will be developed for periodically tracking and measuring the effectiveness of the implemented actions.

**b.** The following tools should be considered in this task:

- Use of route supervisors for running the route and reporting any positive or negative situation.
- Centralize all e-mails and phone calls from riders regarding the implemented service.
- Track the number of riders on a weekly basis
- Have an action team that could implement any corrective action in the shortest period of time

**c.** To avoid additional costs, this program should consider existing procedures and data currently collected by MDT for facilitating its implementation.

**d.** This process should also be flexible for assessing and determining corrective actions of the strategies improvements.

# Appendix 2:
# Metrobus Routes
## Bus Stop Spacing

*Miami-Dade MPO*

# Metrobus Routes
# Bus Stops Spacing

| Route # | Roundtrip (miles) | # of Bus Stops | Bus Stops per Mile | Comments |
|---|---|---|---|---|
| 1 | 27.3 | 95 | 3.5 | on Busway |
| 2 | 27.6 | 194 | 7.0 | |
| 3 | 49.7 | 262 | 5.3 | |
| 6 | 34.6 | 225 | 6.5 | |
| 7 | 32.3 | 234 | 7.2 | |
| 8 | 28.4 | 189 | 6.7 | |
| 9 | 38.1 | 249 | 6.5 | |
| 10 | 26.2 | 192 | 7.3 | |
| 11 | 27.1 | 168 | 6.2 | |
| 12 | 27.9 | 183 | 6.6 | |
| 16 | 27.2 | 177 | 6.5 | |
| 17 | 42.6 | 293 | 6.9 | |
| 21 | 33.4 | 215 | 6.4 | |
| 22 | 45.7 | 296 | 6.5 | |
| 24 | 36.2 | 206 | 5.7 | |
| 27 | 38.1 | 282 | 7.4 | |
| 28 | 28.0 | 153 | 5.5 | |
| 29 | 26.3 | 149 | 5.7 | |
| 31 | 18.0 | 38 | 2.1 | on Busway |
| 32 | 46.3 | 287 | 6.2 | |
| 33 | 26.6 | 166 | 6.2 | |
| 34 | 41.6 | 37 | 0.9 | on Busway |
| 35 | 58.1 | 304 | 5.2 | |
| 36 | 24.1 | 163 | 6.8 | |
| 37 | 43.6 | 243 | 5.6 | |
| 38 | 47.6 | 147 | 3.1 | on Busway |
| 40 | 33.6 | 184 | 5.5 | |
| 41 | 27.6 | 134 | 4.9 | |
| 42 | 51.5 | 264 | 5.1 | |
| 46 | 14.2 | 83 | 5.8 | |

| Route # | Roundtrip (miles) | # of Bus Stops | Bus Stops per Mile | Comments |
|---|---|---|---|---|
| 48 | 24.9 | 146 | 5.9 | |
| 51 | 47.8 | 116 | 2.4 | |
| 52 | 46.8 | 226 | 4.8 | on Busway |
| 54 | 30.5 | 214 | 7.0 | |
| 56 | 35.8 | 221 | 6.2 | |
| 57 | 40.5 | 177 | 4.4 | |
| 62 | 20.7 | 160 | 7.7 | |
| 65 | 30.6 | 49 | 1.6 | |
| 68 | 17.4 | 72 | 4.1 | |
| 70 | 65.6 | 291 | 4.4 | |
| 71 | 25.0 | 127 | 5.1 | |
| 72 | 24.7 | 144 | 5.8 | |
| 73 | 47.2 | 267 | 5.7 | |
| 75 | 44.3 | 254 | 5.7 | |
| 77 | 32.8 | 218 | 6.6 | |
| 83 | 36.9 | 202 | 5.5 | |
| 87 | 36.0 | 192 | 5.3 | |
| 88 | 19.3 | 135 | 7.0 | |
| 91 | 47.6 | 215 | 4.5 | |
| 93 | 30.4 | 73 | 2.4 | MAX |
| 95 | - | 373 | - | Express |
| 97 | 21.8 | 41 | 1.9 | MAX |
| 99 | 29.9 | 130 | 4.3 | |
| 104 | 31.6 | 138 | 4.4 | |
| A | 8.6 | 40 | 4.7 | |
| B | 18.5 | 87 | 4.7 | Causeway miles subtracted |
| C | 15.2 | 93 | 6.1 | Causeway miles subtracted |
| E | 55.8 | 260 | 4.7 | Causeway miles subtracted |
| G | 40.6 | 209 | 5.1 | Causeway miles subtracted |
| H | 43.8 | 250 | 5.7 | Causeway miles subtracted |
| J | 36.0 | 183 | 5.1 | Causeway miles subtracted |
| K | 46.7 | 255 | 5.5 | Causeway miles subtracted |
| L | 32.8 | 217 | 6.6 | Causeway miles subtracted |
| M | 25.0 | 172 | 6.9 | Causeway miles subtracted |
| R | 25.0 | 131 | 5.2 | |

| Route # | Roundtrip (miles) | # of Bus Stops | Bus Stops per Mile | Comments |
|---|---|---|---|---|
| S | 36.3 | 222 | 6.1 | Causeway miles subtracted |
| T | 23.8 | 110 | 4.6 | Causeway miles subtracted |
| V | 39.2 | 192 | 4.9 | Causeway miles subtracted |
| 123 | 11.1 | 73 | 6.6 | |
| 132 | 14.2 | 70 | 4.9 | |
| 136 | 21.0 | 48 | 2.3 | on Busway |
| 137 | 48.9 | 212 | 4.3 | |
| 147 | 31.8 | 102 | 3.2 | |
| 152 | 17.4 | 103 | 5.9 | |
| 175 | 39.2 | 22 | 0.6 | Express |
| 183 | 39.4 | 51 | 1.3 | MAX |
| 202 | 15.2 | 102 | 6.7 | |
| 204 | 25.5 | 41 | 1.6 | KAT |
| 207 | 6.4 | 38 | 5.9 | |
| 208 | 6.7 | 37 | 5.5 | |
| 212 | 4.3 | 30 | 7.0 | |
| 216 | 12.8 | 68 | 5.3 | |
| 224 | 26.3 | 59 | 2.2 | MAX |
| 236 | 59.9 | 237 | 4.0 | |
| 238 | 41.9 | 124 | 3.0 | |
| 240 | 27.5 | 53 | 1.9 | MAX |
| 241 | 3.07 | 124 | 4.0 | |
| 242 | 24.3 | 81 | 3.3 | |
| 243 | 8.9 | 10 | 1.1 | |
| 245 | 15.1 | 34 | 2.3 | |
| 246 | 79.5 | 432 | 5.4 | |
| 248 | 2.9 | 16 | 5.5 | |
| 249 | 7.2 | 46 | 6.4 | |
| 252 | 28.2 | 80 | 2.8 | MAX on Busway |
| 254 | - | 30 | - | |
| 267 | 18.3 | 40 | 2.2 | MAX |
| 272 | 23.8 | 42 | 1.8 | KAT |
| 277 | 22.2 | 33 | 1.5 | MAX |
| 278 | 12.5 | 83 | 6.6 | |
| 282 | 22.4 | 76 | 3.4 | |

| Route # | Roundtrip (miles) | # of Bus Stops | Bus Stops per Mile | Comments |
|---|---|---|---|---|
| 287 | 24.3 | 63 | 2.6 | MAX on Busway |
| 288 | 23.6 | 27 | 1.1 | KAT |
| 344 | 24.1 | 68 | 2.8 | |
| 500 | 30.9 | 45 | 1.5 | Rail stations only |
| | | | | |
| Totals | 3,113.3 | 15,214 | 4.9 | System wide |

## Appendix 3:

# MDT Ridership Comparison

## September 2006 to 2008

*Miami-Dade MPO*

# MDT Ridership Comparison
# September 2006 - September 2008
# Metrobus

| SEPTEMBER 2008 | | | | SEPTEMBER 2007 | | | | SEPTEMBER 2006 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % |
| 11 | 14,353 | 4.92 | 4.92 | 11 | 13,288 | 4.78 | 4.78 | 11 | 13,188 | 4.89 | 4.89 |
| S | 13,411 | 4.6 | 9.52 | S | 11,591 | 4.17 | 8.95 | 77 | 11,029 | 4.09 | 8.98 |
| 77 | 11,945 | 4.1 | 13.62 | 77 | 11,551 | 4.15 | 13.1 | S | 10,955 | 4.06 | 13.04 |
| L | 11,605 | 3.98 | 17.6 | L | 10,992 | 3.95 | 17.05 | L | 10,081 | 3.74 | 16.78 |
| 27 | 10,497 | 3.6 | 21.2 | 27 | 9,882 | 3.55 | 20.6 | 27 | 10,032 | 3.72 | 20.5 |
| J | 8,637 | 2.96 | 24.16 | 3 | 8,590 | 3.09 | 23.69 | 3 | 8,593 | 3.19 | 23.69 |
| 3 | 8,339 | 2.86 | 27.02 | 8 | 8,013 | 2.88 | 26.57 | 8 | 7,966 | 2.96 | 26.65 |
| 8 | 8,069 | 2.77 | 29.79 | 38 | 7,928 | 2.85 | 29.42 | 38 | 6,795 | 2.52 | 29.17 |
| 9 | 7,310 | 2.51 | 32.3 | 9 | 6,393 | 2.3 | 31.72 | 9 | 6,517 | 2.42 | 31.59 |
| 38 | 6,994 | 2.4 | 34.7 | 123 | 6,216 | 2.23 | 33.95 | 123 | 5,941 | 2.2 | 33.79 |
| 120 | 6,748 | 2.31 | 37.01 | J | 5,504 | 1.98 | 35.93 | 249 | 5,489 | 2.04 | 35.83 |
| 62 | 6,446 | 2.21 | 39.22 | 17 | 5,486 | 1.97 | 37.9 | 62 | 5,235 | 1.94 | 37.77 |
| 54 | 6,372 | 2.19 | 41.41 | 249 | 5,315 | 1.91 | 39.81 | 17 | 5,212 | 1.93 | 39.7 |
| 7 | 5,796 | 1.99 | 43.4 | 62 | 5,239 | 1.88 | 41.69 | J | 5,045 | 1.87 | 41.57 |
| 17 | 5,524 | 1.89 | 45.29 | K | 5,185 | 1.86 | 43.55 | K | 4,768 | 1.77 | 43.34 |
| 32 | 5,359 | 1.84 | 47.13 | 51 | 5,098 | 1.83 | 45.38 | 7 | 4,728 | 1.75 | 45.09 |
| 22 | 5,186 | 1.78 | 48.91 | 7 | 5,056 | 1.82 | 47.2 | 32 | 4,690 | 1.74 | 46.83 |
| C | 5,109 | 1.75 | 50.66 | 32 | 4,903 | 1.76 | 48.96 | 16 | 4,617 | 1.71 | 48.54 |
| H | 5,015 | 1.72 | 52.38 | 22 | 4,680 | 1.68 | 50.64 | 83 | 4,525 | 1.68 | 50.22 |
| 123 | 5,027 | 1.72 | 54.1 | 24 | 4,631 | 1.67 | 52.31 | 22 | 4,338 | 1.61 | 51.83 |
| 36 | 4,980 | 1.71 | 55.81 | H | 4,591 | 1.65 | 53.96 | 24 | 4,316 | 1.6 | 53.43 |
| 37 | 4,824 | 1.65 | 57.46 | 83 | 4,572 | 1.64 | 55.6 | H | 4,296 | 1.59 | 55.02 |
| 83 | 4,728 | 1.62 | 59.06 | 16 | 4,347 | 1.56 | 57.16 | 54 | 4,238 | 1.57 | 56.59 |
| 16 | 4,379 | 1.5 | 60.56 | 37 | 4,268 | 1.53 | 58.69 | 51 | 4,115 | 1.53 | 58.12 |
| 51 | 4,375 | 1.5 | 62.06 | 54 | 4,261 | 1.53 | 60.22 | 37 | 3,897 | 1.45 | 59.57 |
| 24 | 4,084 | 1.4 | 63.46 | 75 | 4,210 | 1.51 | 61.73 | 2 | 3,887 | 1.44 | 61.01 |
| 75 | 4,096 | 1.4 | 64.86 | 12 | 3,647 | 1.31 | 63.04 | 75 | 3,880 | 1.44 | 62.45 |
| K | 4,044 | 1.39 | 66.25 | 93 | 3,499 | 1.26 | 64.3 | C | 3,596 | 1.33 | 63.78 |

| SEPTEMBER 2008 | | | | SEPTEMBER 2007 | | | | SEPTEMBER 2006 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % |
| 12 | 3,727 | 1.28 | 67.53 | C | 3,382 | 1.22 | 65.52 | 93 | 3,483 | 1.29 | 65.07 |
| 2 | 3,679 | 1.26 | 68.79 | G | 3,359 | 1.21 | 66.73 | 12 | 3,328 | 1.23 | 66.3 |
| 35 | 3,627 | 1.24 | 70.03 | 36 | 3,228 | 1.16 | 67.89 | 36 | 3,272 | 1.21 | 67.51 |
| G | 3,524 | 1.21 | 71.24 | 2 | 3,173 | 1.14 | 69.03 | G | 3,046 | 1.13 | 68.64 |
| 10 | 3,197 | 1.1 | 72.34 | 73 | 3,177 | 1.14 | 70.17 | 88 | 2,893 | 1.07 | 69.71 |
| 88 | 3,015 | 1.03 | 73.37 | 10 | 3,022 | 1.09 | 71.26 | 10 | 2,717 | 1.01 | 70.72 |
| 21 | 2,877 | 0.99 | 74.36 | 88 | 3,036 | 1.09 | 72.35 | 40 | 2,669 | 0.99 | 71.71 |
| 34 | 2,799 | 0.96 | 75.32 | 35 | 2,909 | 1.05 | 73.4 | 21 | 2,616 | 0.97 | 72.68 |
| 208 | 2,798 | 0.96 | 76.28 | 21 | 2,742 | 0.99 | 74.39 | 35 | 2,587 | 0.96 | 73.64 |
| 40 | 2,645 | 0.91 | 77.19 | 40 | 2,738 | 0.98 | 75.37 | 73 | 2,461 | 0.91 | 74.55 |
| 93 | 2,665 | 0.91 | 78.1 | 33 | 2,267 | 0.82 | 76.19 | 33 | 2,318 | 0.86 | 75.41 |
| 207 | 2,650 | 0.91 | 79.01 | Killian | 2,225 | 0.8 | 76.99 | 87 | 2,215 | 0.82 | 76.23 |
| M | 2,627 | 0.9 | 79.91 | 52 | 2,138 | 0.77 | 77.76 | 1 | 2,093 | 0.78 | 77.01 |
| 73 | 2,616 | 0.9 | 80.81 | 137 | 2,152 | 0.77 | 78.53 | 95 | 2,102 | 0.78 | 77.79 |
| 33 | 2,419 | 0.83 | 81.64 | 34 | 2,114 | 0.76 | 79.29 | T | 2,077 | 0.77 | 78.56 |
| Killian | 2,321 | 0.8 | 82.44 | 104 | 2,108 | 0.76 | 80.05 | 137 | 2,033 | 0.75 | 79.31 |
| 31 | 2,290 | 0.79 | 83.23 | 87 | 2,056 | 0.74 | 80.79 | Killian | 2,032 | 0.75 | 80.06 |
| 137 | 2,292 | 0.79 | 84.02 | T | 2,004 | 0.72 | 81.51 | 52 | 2,007 | 0.74 | 80.8 |
| 70 | 2,160 | 0.74 | 84.76 | 207 | 1,975 | 0.71 | 82.22 | 31 | 1,977 | 0.73 | 81.53 |
| 87 | 2,110 | 0.72 | 85.48 | B | 1,939 | 0.7 | 82.92 | 70 | 1,952 | 0.72 | 82.25 |
| 52 | 2,070 | 0.71 | 86.19 | E | 1,929 | 0.69 | 83.62 | E | 1,922 | 0.71 | 82.96 |
| 104 | 2,011 | 0.69 | 86.88 | 248 | 1,931 | 0.69 | 84.31 | B | 1,889 | 0.7 | 83.66 |
| B | 1,963 | 0.67 | 87.55 | 31 | 1,864 | 0.67 | 84.98 | M | 1,887 | 0.7 | 84.36 |
| E | 1,837 | 0.63 | 88.18 | M | 1,829 | 0.66 | 85.64 | 104 | 1,861 | 0.69 | 85.05 |
| 1 | 1,824 | 0.63 | 88.81 | 95 | 1,823 | 0.66 | 86.3 | 71 | 1,846 | 0.68 | 85.73 |
| 95 | 1,788 | 0.61 | 89.42 | 70 | 1,741 | 0.63 | 86.93 | 208 | 1,823 | 0.68 | 86.41 |
| 42 | 1,712 | 0.59 | 90.01 | 71 | 1,667 | 0.6 | 87.53 | 207 | 1,688 | 0.63 | 87.04 |
| 183 | 1,622 | 0.56 | 90.57 | 277 | 1,665 | 0.6 | 88.13 | 42 | 1,571 | 0.58 | 87.62 |
| 28 | 1,609 | 0.55 | 91.12 | 1 | 1,637 | 0.59 | 88.72 | 28 | 1,525 | 0.57 | 88.19 |
| 71 | 1,590 | 0.55 | 91.67 | 28 | 1,570 | 0.56 | 89.28 | Sunset | 1,549 | 0.57 | 88.76 |
| 97 | 1,587 | 0.54 | 92.21 | 42 | 1,563 | 0.56 | 89.84 | 34 | 1,484 | 0.55 | 89.31 |
| 6 | 1,390 | 0.48 | 92.69 | 41 | 1,485 | 0.53 | 90.37 | 183 | 1,439 | 0.53 | 89.84 |
| 249 | 1,387 | 0.48 | 93.17 | 91 | 1,447 | 0.52 | 90.89 | 252 | 1,439 | 0.53 | 90.37 |
| 277 | 1,384 | 0.47 | 93.64 | 183 | 1,418 | 0.51 | 91.4 | 91 | 1,322 | 0.49 | 90.86 |

| SEPTEMBER 2008 | | | | SEPTEMBER 2007 | | | | SEPTEMBER 2006 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % |
| 252 | 1,310 | 0.45 | 94.09 | 252 | 1,384 | 0.5 | 91.9 | 97 | 1,299 | 0.48 | 91.34 |
| Sunset | 1,293 | 0.44 | 94.53 | 97 | 1,335 | 0.48 | 92.38 | 277 | 1,293 | 0.48 | 91.82 |
| 91 | 1,222 | 0.42 | 94.95 | Sunset | 1,330 | 0.48 | 92.86 | 41 | 1,237 | 0.46 | 92.28 |
| 29 | 1,157 | 0.4 | 95.35 | 29 | 1,100 | 0.4 | 93.26 | 212 | 1,235 | 0.46 | 92.74 |
| 72 | 1,150 | 0.39 | 95.74 | 56 | 1,109 | 0.4 | 93.66 | 6 | 1,045 | 0.39 | 93.13 |
| 99 | 1,104 | 0.38 | 96.12 | 72 | 1,074 | 0.39 | 94.05 | 29 | 1,059 | 0.39 | 93.52 |
| 56 | 1,078 | 0.37 | 96.49 | 57 | 962 | 0.35 | 94.4 | 72 | 1,064 | 0.39 | 93.91 |
| 212 | 1,075 | 0.37 | 96.86 | 99 | 982 | 0.35 | 94.75 | 99 | 920 | 0.34 | 94.25 |
| A | 923 | 0.32 | 97.18 | Kendall | 967 | 0.35 | 95.1 | Kendall | 902 | 0.33 | 94.58 |
| Kendall | 871 | 0.3 | 97.48 | 6 | 940 | 0.34 | 95.44 | 56 | 803 | 0.3 | 94.88 |
| 202 | 805 | 0.28 | 97.76 | 202 | 833 | 0.3 | 95.74 | 57 | 807 | 0.3 | 95.18 |
| 57 | 789 | 0.27 | 98.03 | 212 | 806 | 0.29 | 96.03 | R | 777 | 0.29 | 95.47 |
| 48 | 655 | 0.22 | 98.25 | 48 | 768 | 0.28 | 96.31 | 48 | 697 | 0.26 | 95.73 |
| 238 | 587 | 0.2 | 98.45 | 238 | 761 | 0.27 | 96.58 | 202 | 691 | 0.26 | 95.99 |
| 41 | 537 | 0.18 | 98.63 | 254 | 745 | 0.27 | 96.85 | 238 | 646 | 0.24 | 96.23 |
| 267 | 537 | 0.18 | 98.81 | 267 | 600 | 0.22 | 97.07 | 248 | 645 | 0.24 | 96.47 |
| 287 | 537 | 0.18 | 98.99 | R | 546 | 0.2 | 97.27 | 240 | 627 | 0.23 | 96.7 |
| 224 | 492 | 0.17 | 99.16 | 344 | 563 | 0.2 | 97.47 | 282 | 572 | 0.21 | 96.91 |
| 240 | 461 | 0.16 | 99.32 | 282 | 518 | 0.19 | 97.66 | V | 530 | 0.2 | 97.11 |
| R | 425 | 0.15 | 99.42 | A | 502 | 0.18 | 97.84 | 65 | 513 | 0.19 | 97.3 |
| 282 | 450 | 0.15 | 99.57 | 136 | 486 | 0.17 | 98.01 | 246 | 487 | 0.18 | 97.48 |
| 46 | 374 | 0.13 | 99.7 | 46 | 422 | 0.15 | 98.11 | 46 | 447 | 0.17 | 97.65 |
| 246 | 374 | 0.13 | 99.83 | 65 | 413 | 0.15 | 98.26 | 287 | 431 | 0.16 | 97.81 |
| 211 | 338 | 0.12 | 99.95 | 240 | 431 | 0.15 | 98.36 | 147 | 404 | 0.15 | 97.96 |
| 248 | 327 | 0.11 | 100.06 | 246 | 405 | 0.15 | 98.46 | 224 | 400 | 0.15 | 98.11 |
| 65 | 292 | 0.1 | | 147 | 377 | 0.14 | 98.6 | 344 | 411 | 0.15 | 98.26 |
| 133 | 289 | 0.09 | | 236 | 398 | 0.14 | 98.74 | 267 | 368 | 0.14 | 98.4 |
| 136 | 277 | 0.09 | | 287 | 394 | 0.14 | 98.88 | A | 340 | 0.13 | 98.53 |
| 344 | 242 | 0.08 | | 68 | 375 | 0.13 | 99.01 | 68 | 347 | 0.13 | 98.66 |
| 243 | 128 | 0.04 | | 242 | 338 | 0.12 | 99.13 | 152 | 351 | 0.13 | 98.79 |
| 132 | 111 | 0.03 | | 224 | 310 | 0.11 | 99.24 | 236 | 340 | 0.13 | 98.92 |
| 254 | 59 | 0.02 | | V | 287 | 0.1 | 99.34 | 242 | 357 | 0.13 | 99.05 |
| 37/72 | 0 | 0 | | 241 | 234 | 0.08 | 99.42 | 278 | 356 | 0.13 | 99.18 |
| 207/208 | 0 | 0 | | 243 | 225 | 0.08 | 99.5 | 136 | 322 | 0.12 | 99.3 |

| SEPTEMBER 2008 | | | | SEPTEMBER 2007 | | | | SEPTEMBER 2006 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % | Route | Avg. Weekday | Rank | Cum. % |
| Green Hills | 6 | 0 | | 133 | 195 | 0.07 | 99.57 | 243 | 312 | 0.12 | 99.42 |
| Kings Creek | 7 | 0 | | 278 | 217 | 0.07 | 99.64 | 241 | 302 | 0.11 | 99.53 |
| Sierra Lakes | 8 | 0 | | 245 | 140 | 0.05 | 99.69 | 175 | 205 | 0.07 | 99.6 |
| Robert Sharpe | 6 | 0 | | 132 | 116 | 0.04 | 99.73 | 245 | 214 | 0.07 | 99.67 |
| Special | 0 | 0 | | 216 | 127 | 0.04 | 99.77 | 254 | 204 | 0.07 | 99.74 |
| P&R | 0 | 0 | | 500 | 113 | 0.04 | 99.81 | 216 | 166 | 0.06 | 99.8 |
| | | | | 37/72 | 0 | 0 | | 500 | 119 | 0.04 | 99.84 |
| | 291,536 | 100 | | 82 | 24 | 0 | | 82 | 74 | 0.02 | 99.86 |
| | | | | 207/208 | 0 | 0 | | 133 | 75 | 0.02 | 99.88 |
| | | | | Green Hills | 6 | 0 | | 132 | 28 | 0.01 | 99.89 |
| | | | | Kings Creek | 8 | 0 | | 37/72 | 0 | 0 | |
| | | | | Sierra Lakes | 12 | 0 | | 207/208 | 0 | 0 | |
| | | | | Robert Sharpe | 8 | 0 | | Green Hills | 5 | 0 | |
| | | | | Special | 0 | 0 | | Kings Creek | 6 | 0 | |
| | | | | P&R | 0 | 0 | | Sierra Lakes | 10 | 0 | |
| | | | | | | | | Robert Sharpe | 6 | 0 | |
| | | | | | 278,135 | 100 | | Special | 0 | 0 | |
| | | | | | | | | P&R | 0 | 0 | |
| | | | | | | | | | | | |
| | | | | | | | | | 269,541 | 100 | |

# Appendix 4:
# List of Potential Corridors

*Miami-Dade MPO*

# POTENTIAL CORRIDORS

## Current Ridership as of September 2008

1. As of September 2008, the average weekday ridership was 291,536 passengers
2. Total number of routes: 96
3. 18 routes moved 50% of the ridership – 19% of the total routes
4. 36 routes moved 75% of the ridership - 37% of the total routes
5. 55 routes moved 90% of the ridership - 57% of the total routes
6. List of routes

| MDT ROUTES | | | | | |
|---|---|---|---|---|---|
| # | Description | # | Description | # | Description |
| 50% Ridership | | 75% Ridership (+) | | 90% Ridership (+) | |
| C | Mount Sinai – Collins Ave - DT | G | NW 163rd St – NW 22nd Ave – Broad Causeway – MB Convention Hall | B | Brickell MS – Crandon Blvd – Cape Florida State Park |
| L | Hialeah MS – NW 79th St – Collins Ave – MB Convention Center | H | Miami Gardens Dr – NE 163rd St – Collins Ave – South Pointe Dr | E | Aventura mall – Collins Ave – Golden Glades – NW 60th Ave |
| J | 72nd St – Collins Ave – NW 36th St – Douglas Rd MS | K | Diplomat Mall (Broward – Collins Ave - Omni | M | Mt. Sinai – Collins Ave – Civic Center – NW 19th Ave |
| S | Aventura Mall – Collins Ave - DT | 2 | NE 163rd St - NW 2nd Ave - DT | 1 | Dadeland N – Busway – Southland Mall |
| 3 | Diplomat Mall (Broward – Biscayne Blvd - DT | 10 | NE 167th St – NE 22nd Ave – NE 2nd Ave -Omni | 31 | Dadeland S MS – Busway – South Dade Government Center |
| 7 | Dolphin mall – NW 7th St - DT | 12 | Northside MS – NW 12th Ave – Mercy Hospital | 33 | NW 106th St - Lehigh Ind. Park – NW 103rd St – Miami Shores |
| 8 | FIU – SW 8th St – Wolfson Campus | 16 | NE 163rd St – NE 16th Ave – Biscayne Blvd - DT | 40 | SW 132nd Ave – SW 40th St (Bird Rd) – Douglas Rd MS |
| 9 | Aventura Mall – NE 2nd Ave - DT | 21 | N Dade Health Center – NW 12th Ave - DT | 42 | Golden Glades – NW 42nd Ave (LeJeune Rd) – Coconut Grove MS |
| 11 | FIU - Flagler - DT | 24 | FIU – SW 24th St - DT | 52 | South Miami MS – Busway – South Dade (SW 102nd Ave) |
| 17 | Carol City – NW 17th Ave – Vizcaya MS | 34 | Dadeland South MS – Busway – Florida City | 70 | Southland Mall – Homestead – Florida City |
| 22 | NE 163rd St – NW 22nd Ave – Coconut Grove | 35 | MD Kendall Campus – US 1 – Florida City | 73 | Miami Lakes – NW 72nd Ave (Milam Dairy Rd) – Dadeland South MS |
| 27 | Dolphin Stadium – NW 27th Ave – Coconut Grove MS | 36 | Miami Springs – NW 36th St - Omni | 87 | Palmetto MS - Mall Las Americas – Dadeland N MS |
| 32 | Carol City – NW 32nd Ave - Omni | 37 | Hialeah – Palm Ave – SW 37th Ave (Douglas Rd) – South Miami MS | 93 | Aventura Mall – Biscayne Blvd - DT |
| 38 | Dadeland South MS – Busway – Florida City | 51 | SW 137th Ave – Flagler St - Omni | 95 | Aventura Mall – Golden Glades – I-95 - DT |

| MDT ROUTES | | | | | |
|---|---|---|---|---|---|
| # | Description | # | Description | # | Description |
| 50% Ridership | | 75% Ridership (+) | | 90% Ridership (+) | |
| 54 | Westland Mall – Hialeah Dr – Biscayne Blvd. | 75 | Miami Lakes TEC – NW 75th St – Miami Gardens Dr – Dixie Hwy – MDC North Campus | 104 | SW 157th Ave – MDCC Kendall Campus – SW 88th St – Dadeland N MS |
| 62 | Palm Ave – NW 62nd St – Biscayne Blvd - Omni | 83 | Miami Lakes – NW 67th Ave – Miami gardens Dr - FIU | 137 | Dolphin Mall – SW 137th Ave - South Dade Government Center |
| 77 | Golden Glades – NW 7th Ave - DT | 88 | SW 157th Ave – SW 88th St (Kendall Dr) – Dadeland N MS | 204 | SW 167th Ave – SW 104th St (Killian Dr) – Dadeland N MS |
| 120 | Haulover Marina – Collins Ave - DT | 123 | Dade Blvd – Washington Ave – Biscayne St – Alton Rd | 207<br>208 | DT – Flagler St – Beacom Blvd – SW 8th St |

Based on this data, following is a list of potential corridors:

| POTENTIAL CORRIDORS | | | | | |
|---|---|---|---|---|---|
| # | Description | # | Description | # | Description |
| 50% Ridership | | 75% Ridership (+) | | 90% Ridership (+) | |
| 1 | LeJeune Road | 16 | Palm Avenue | 25 | SW 137th Avenue |
| 2 | NW/SW 27th Avenue | 17 | NW/SW 37th Avenue | 26 | SW 107th Avenue |
| 3 | NW/SW 22nd Avenue | 18 | NW/SW 12th Avenue | 27 | SW 87th Avenue |
| 4 | NW 17th Avenue | 19 | North Miami Avenue | 28 | NW 72nd Avenue |
| 5 | NW 7th Avenue | 20 | Miami Gardens Drive | 29 | SW 67th Avenue |
| 6 | NW 2nd Avenue | 21 | NW/NE 125th Street | 30 | NW/NE 135th Street |
| 7 | Biscayne Boulevard | 22 | SW 24th Street (Coral Way) | 31 | NW/NE 103rd Street |
| 8 | Collins Avenue | 23 | SW 40th Street (Bird Rd) | 32 | Crandon Boulevard |
| 9 | Busway | 24 | SW 88th Street (Kendall Dr) | 33 | SW 84th Street |
| 10 | NE 167th/163rd Street | | | | |
| 11 | NW 79th Street | | | | |
| 12 | NW 54th Street | | | | |
| 13 | NW 36th Street | | | | |
| 14 | Flagler Street | | | | |
| 15 | SW 8th Street | | | | |

# Appendix 5:
# Summary of MDT Service by Corridor

*Miami-Dade MPO*

# MDT Routes
## Summary of MDT Service by Corridor
### February 10, 2009

| Route # | Pass.per Weekday | Roundtrip (miles) | Running Time (min) | Headway | | Peak Buses | One-way Trips | Service | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Peak (min) | Off-Peak (min) | | | From | To |
| LeJeune Rd. (42nd Avenue) | | | | | | | | | |
| J | 8637 | 41.1 | 230 | 15 | 30 | 14 | 101 | 4:20a | 1:16x |
| 7 | 5796 | 32.6 | 180 | 15/30 | 20/40 | 11 | 114 | 4:50a | 10:50p |
| 42 | 1712 | 51.8 | 240 | 30 | 60 | 8 | 44 | 4:38a | 8:54x |
| | 16145 | | | 10 b/h | 6 b/h | 33 | | | |
| 27th Avenue | | | | | | | | | |
| 21 | 2877 | 33.4 | 180 | 30 | 60 | 6 | 63 | 5:20a | 12:17x |
| 27 | 10497 | 39.8 | 210 | 15 | 30 | 15 | 138 | 4:52a | 5:11x |
| 97 | 1587 | 24.3 | 90 | 20 | 30 | 6 | 73 | 5:30a | 8:00p |
| | 14961 | | | 9 b/h | 5 b/h | 27 | | | |
| 22nd Avenue | | | | | | | | | |
| G | 3524 | 36.6 | 210 | 30 | 30 | 8 | 70 | 5:20a | 1:20x |
| 17 | 5524 | 45.9 | 210 | 15 | 30 | 12 | 92 | 4:44a | 1:43x |
| 22 | 5186 | 45.7 | 270 | 15 | 30 | 15 | 90 | 4:38a | 12:36x |
| 42 | 1712 | 51.8 | 240 | 30 | 60 | 8 | 44 | 4:38a | 8:54p |
| 246 | 374 | 79.4 | 300 | | | | 17 | 10:30p | 6:39x |
| | 16320 | | | 12 b/h | 7 b/h | 43 | | | |
| 17th Avenue | | | | | | | | | |
| 17 | 5524 | 45.9 | 210 | 15 | 30 | 12 | 92 | 4:44a | 1:43x |
| | 5524 | | | 4 b/h | 2 b/h | 12 | | | |
| 7th Avenue | | | | | | | | | |
| E | 1837 | 49.0 | 240 | 30 | 60 | 8 | 47 | 5:24a | 9:38p |
| 77 | 11945 | 32.8 | 165 | 8/15 | 15/30 | 22 | 184 | 3:00a | 1:59x |
| 277 | 1384 | 22.2 | 90 | 20 | 20 | 5 | 54 | 5:05a<br>10:18a | 2:55p<br>7:29p |
| | 15166 | | | 13 b/h | 8 b/h | 35 | | | |
| 2nd Avenue | | | | | | | | | |
| 2 | 3679 | 27.5 | 160 | 20 | 60 | 6 | 96 | 4:59a | 11:37p |
| | 3679 | | | 3 b/h | 1 b/h | 6 | | | |

| Route # | Pass.per Weekday | Roundtrip (miles) | Running Time (min) | Headway | | Peak Buses | One-way Trips | Service | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Peak (min) | Off-Peak (min) | | | From | To |
| **Biscayne Boulevard** | | | | | | | | | |
| A | 923 | 8.2 | 45 | 20 | 45 | 2 | 87 | 5:50a | 11:56p |
| 3 | 8339 | 49.2 | 306 | 20 | 40 | 15 | 120 | 4:22a | 5:15x |
| 16 | 4379 | 27.0 | 180 | 20 | 20 | 10 | 102 | 4:43a | 11:17p |
| 28 | 1609 | 28.3 | 120 | 30 | 40 | 5 | 52 | 5:09a | 10:06p |
| 32 | 5359 | 46.3 | 210 | 24 | 30 | 10 | 84 | 4:43a | 12:26x |
| 36 | 4980 | 24.8 | 150 | 20/40 | 30/60 | 9 | 86 | 5:00a | 10:41p |
| 62 | 6446 | 20.8 | 135 | 10/15 | 15/30 | 12 | 155 | 5:17a | 1:41p |
| 83 | 4728 | 36.9 | 180 | 15 | 30 | 13 | 97 | 5:08a | 12:16p |
| 93 | 2665 | 30.2 | 159 | 15 | 30 | 11 | 90 | 5:50a | 8:19p |
| 95 | 1788 | 28.2 | 70 | | | 4 | 134 | 5:27a<br>8:37a | 3:40p<br>7:50p |
| 120 | 6748 | 29 | 120 | 24 | 30 | 5 | 70 | 5:00a | 10:20p |
| 183 | 1622 | 39.4 | 160 | 30 | 40 | 5 | 57 | 5:00a | 11:00p |
| | 49586 | | | 32 b/h | 23 b/h | 101 | | | |
| **Collins Avenue** | | | | | | | | | |
| C | 5109 | 21.7 | 155 | 20 | 20 | 8 | 103 | 4:52a | 12:53x |
| E | 1837 | 49.0 | 240 | 30 | 60 | 8 | 47 | 5:24a | 9:38p |
| G | 3524 | 36.6 | 210 | 30 | 30 | 8 | 70 | 5:20a | 1:20x |
| H | 5015 | 44.0 | 240 | 20 | 20 | 12 | 95 | 5:00a | 12:57x |
| J | 8637 | 41.1 | 230 | 15 | 30 | 15 | 101 | 4:20a | 1:16x |
| K | 4044 | 46.0 | 220 | 20 | 60 | 10 | 91 | 5:07a | 11:25p |
| L | 11605 | 33.7 | 204 | 10/20 | 12/24 | 19 | 189 | 4:36a | 5:19x |
| M | 2627 | 29.5 | 180 | 30 | 45 | 6 | 51 | 5:43a | 10:34p |
| R | 425 | 18.0 | 90 | 40 | 45 | 3 | 40 | 6:00a | 7:56p |
| S | 13411 | 42.8 | 240 | 12 | 12 | 21 | 183 | 4:25a | 5:16x |
| 120 | 6748 | 29.0 | 120 | 24 | 30 | 5 | 70 | 5:00a | 10:20p |
| 246 | 374 | 79.4 | 300 | | | | 17 | 10:30p | 6:39x |
| | 63356 | | | 33 b/h | 27 b/h | 115 | | | |
| **NW/NE 125th Street** | | | | | | | | | |
| G | 3524 | 36.6 | 210 | 30 | 30 | 8 | 70 | 5:20a | 1:20x |
| 10 | 3197 | 24.2 | 150 | 30 | 30 | 6 | 69 | 4:57a | 12:30x |
| 16 | 4379 | 27.0 | 180 | 20 | 20 | 10 | 102 | 4:43a | 11:17p |
| | 11100 | | | 7 b/h | 7 b/h | 24 | | | |

| Route # | Pass.per Weekday | Roundtrip (miles) | Running Time (min) | Headway | | Peak Buses | One-way Trips | Service | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Peak (min) | Off-Peak (min) | | | From | To |
| **Busway** | | | | | | | | | |
| 1 | 1824 | 27.3 | 160 | 30 | 40 | 5 | 56 | 5:05a | 11:20p |
| 31 | 2290 | 18.9 | 90 | 15 | 30 | 5 | 82 | 5:00a | 9:00p |
| 34 | 2799 | 40.4 | 120 | 7.5 | 7.5 | 14 | 40 | 4:49a<br>9:09a | 3:46p<br>7:38p |
| 35 | 3627 | 64.1 | 240 | 30 | 30 | 8 | 63 | 5:07a | 12:07x |
| 38 | 6994 | 67.1 | 260 | 15 | 15 | 15 | 166 | 4:32a | 5:55x |
| 52 | 2070 | 51.1 | 240 | 30 | 40 | 9 | 57 | 4:46a | 11:46p |
| 65 | 292 | 29.4 | 90 | 30 | 30 | 2 | 13 | 6:50a<br>9:58a | 1:13p<br>5:43p |
| 136 | 277 | 22.5 | 90 | 30 | 30 | 3 | 30 | 5:52a<br>9:53a | 2:25p<br>7:58p |
| 252 | 1310 | 28.0 | 120 | 20 | 30 | 6 | 84 | 5:20a | 9:38p |
| 287 | 537 | 24.3 | 95 | 30 | 30 | 3 | 26 | 5:31a<br>9:48a | 3:40p<br>7:25p |
| | 22020 | | | 31 b/h | 27 b/h | 70 | | | |
| **NW/NE 163rd/167th Street** | | | | | | | | | |
| E | 1837 | 49.0 | 240 | 30 | 60 | 8 | 47 | 5:24a | 9:38p |
| H | 5015 | 44.0 | 240 | 20 | 20 | 12 | 95 | 5:00a | 12:57x |
| 3 | 8339 | 49.2 | 306 | 20 | 40 | 15 | 120 | 4:22a | 5:15x |
| 22 | 5186 | 45.7 | 270 | 15 | 30 | 15 | 90 | 4:38a | 12:36x |
| 83 | 4728 | 36.9 | 180 | 15 | 30 | 13 | 97 | 5:08a | 12:16p |
| 95 | 1788 | 28.2 | 70 | | | 4 | 134 | 5:27a<br>8:37a | 3:40p<br>7:50p |
| 246 | 374 | 79.4 | 300 | | | | 17 | 10:30p | 6:39x |
| | 27267 | | | 16 b/h | 10 b/h | 67 | | | |
| **NW 79th Street** | | | | | | | | | |
| L | 11605 | 33.7 | 204 | 10/20 | 12/24 | 19 | 189 | 4:36a | 5:19x |
| | 11605 | | | 6 b/h | 5 b/h | 19 | | | |
| **NW 54th Street** | | | | | | | | | |
| 54 | 6372 | 31.0 | 180 | 20 | 30 | 12 | 88 | 4:58a | 12:45x |
| 202 | 805 | 15.2 | 80 | 30 | 40 | 3 | 53 | 5:36a | 9:26p |
| 246 | 374 | 79.4 | 300 | | | | 17 | 10:30p | 6:39x |
| 254 | 59 | 5.9 | 40 | 30 | 30 | 1 | 12 | 9:20a | 3:24p |
| | 7610 | | | 7 b/h | 5 b/h | 16 | | | |

| Route # | Pass.per Weekday | Roundtrip (miles) | Running Time (min) | Headway | | Peak Buses | One-way Trips | Service | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Peak (min) | Off-Peak (min) | | | From | To |
| NW 36th Street | | | | | | | | | |
| J | 8637 | 41.1 | 230 | 15 | 30 | 15 | 101 | 4:20a | 1:16x |
| 7 | 5796 | 32.6 | 180 | 15/30 | 20/40 | 11 | 114 | 4:50a | 10:50p |
| 36 | 4980 | 24.8 | 150 | 20/40 | 30/60 | 9 | 86 | 5:00a | 10:41p |
| 62 | 6446 | 20.8 | 135 | 10/15 | 15/30 | 12 | 155 | 5:17a | 1:41p |
| 95 | 1788 | 28.2 | 70 | | | 4 | 134 | 5:27a<br>8:37a | 3:40p<br>7:50p |
| 120 | 6748 | 29.0 | 120 | 24 | 30 | 5 | 70 | 5:00a | 10:20p |
| 132 | 111 | 14.2 | 60 | 60 | 60 | 1 | 11 | 6:22a<br>9:09a | 3:00p<br>6:17p |
| 238 | 587 | 46.8 | 180 | 30 | 60 | 6 | 40 | 5:40a | 9:06p |
| | 35093 | | | 22 b/h | 15 b/h | 63 | | | |
| Flagler St. | | | | | | | | | |
| 11 | 14353 | 27.1 | 150 | 8/15 | 15/30 | 21 | 198 | 4:32a | 5:51x |
| 51 | 4375 | 38.6 | 180 | 15 | 30 | 12 | 122 | 4:56a | 9:21p |
| | 18728 | | | 12 b/h | 6 b/h | 33 | | | |
| SW 8th St. | | | | | | | | | |
| 8 | 8069 | 28.5 | 165 | 10/20 | 15/30 | 18 | 159 | 4:40a | 12:47x |
| | 8069 | | | 5 b/h | 4 b/h | 18 | | | |
| Palm Avenue | | | | | | | | | |
| 37 | 4824 | 43.9 | 260 | 30 | 30 | 9 | 70 | 4:35a | 1:14x |
| | 4824 | | | 2 b/h | 2 b/h | 9 | | | |
| 37th Avenue | | | | | | | | | |
| 6 | 1390 | 31.8 | 180 | 60 | 60 | 3 | 20 | 8;00a | 6:42p |
| 27 | 10497 | 39.8 | 210 | 15 | 30 | 15 | 138 | 4:52a | 5:11x |
| 37 | 4824 | 43.9 | 260 | 30 | 30 | 9 | 70 | 4:35a | 1:14x |
| 238 | 587 | 46.8 | 180 | 30 | 60 | 6 | 40 | 5:40a | 9:06p |
| | 17298 | | | 9 b/h | 6 b/h | 33 | | | |
| 12th Avenue | | | | | | | | | |
| 12 | 3727 | 27.9 | 220 | 20 | 60 | 10 | 68 | 5:07a | 11:25p |
| 21 | 2877 | 33.4 | 180 | 30 | 60 | 6 | 63 | 5:20a | 12:17x |
| 95 | 1788 | 28.2 | 70 | | | 4 | 134 | 5:27a<br>8:37a | 3:40p<br>7:50p |
| 246 | 374 | 79.4 | 300 | | | | 17 | 10:30p | 6:39x |
| | 8766 | | | 5 b/h | 2 b/h | 20 | | | |

| Route # | Pass.per Weekday | Roundtrip (miles) | Running Time (min) | Headway | | Peak Buses | One-way Trips | Service | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Peak (min) | Off-Peak (min) | | | From | To |
| N Miami Avenue | | | | | | | | | |
| 2 | 3679 | 27.5 | 160 | 20 | 60 | 6 | 96 | 4:59a | 11:37p |
| | 3679 | | | 3 b/h | 1 b/h | 6 | | | |
| Miami Gardens Dr. | | | | | | | | | |
| 9 | 7310 | 37.9 | 240 | 12 | 30 | 18 | 110 | 4:42a | 12:18x |
| 75 | 4096 | 44.4 | 210 | 20 | 40 | 8 | 71 | 4:41a | 12:40x |
| 83 | 4728 | 36.9 | 180 | 15 | 30 | 13 | 97 | 5:08a | 12:16x |
| 91 | 1222 | 44.9 | 180 | 30 | 60 | 6 | 45 | 5:08a | 8:48p |
| 95 | 1788 | 28.2 | 70 | | | 4 | 134 | 5:27a<br>8:37a | 3:40p<br>7:50p |
| 183 | 1622 | 39.4 | 160 | 30 | 40 | 5 | 57 | 5:00a | 11:00p |
| | 20766 | | | 16 b/h | 8 b/h | 54 | | | |
| SW 24th Street | | | | | | | | | |
| 8 | 8069 | 28.5 | 165 | 10/20 | 15/30 | 18 | 159 | 4:40a | 12:47x |
| 24 | 4084 | 36.4 | 180 | 20 | 40 | 8 | 98 | 4:41a | 12:40x |
| 224 | 492 | 26.6 | 125 | 30 | 30 | 4 | 20 | 5:25a<br>9:25a | 3:30p<br>7:28p |
| | 12645 | | | 11 b/h | 8 b/h | 30 | | | |
| SW 40th Street | | | | | | | | | |
| 24 | 4084 | 36.4 | 180 | 20 | 40 | 8 | 98 | 4:41a | 12:40x |
| 40 | 2645 | 29.2 | 150 | 20/30 | 30/60 | 8 | 100 | 4:56a | 12:57x |
| | 6729 | | | 6 b/h | 4 b/h | 16 | | | |
| SW 88th Street | | | | | | | | | |
| 88 | 3015 | 19.4 | 120 | 15/30 | 30/60 | 8 | 116 | 5:01a | 2:43x |
| 288 | 797 | 22.5 | 90 | 15 | - | 6 | 48 | 5:50a<br>3:40p | 9:33a<br>8:21p |
| | 3812 | | | 4 b/h | 2 b/h | 8 | | | |

# Appendix 6:
# Biscayne Boulevard Corridor
## Analysis and Recommendations

***Miami-Dade MPO***

# BISCAYNE BOULEVARD CORRIDOR

Revised 07/08/09

| TABLE 1: Combine Routes 3 & 93 Create Biscayne Boulevard Trunk Route | | | | | |
|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 3 | ROUTE 93 | TOTALS | TRUNK ROUTE 3T |
| 1 | Roundtrip (miles) | 49.2 | 30.2 | | 30.2 |
| 2 | Travel Time (mins) | 306 | 159 | | 159 |
| 3 | Headway (mins) Peak | 20 | 15 | | 8 |
| 4 | Headway (mins) Off-Peak | 20 | 30 | | 12 |
| 5 | Hours of Service | 24 | 14.5 | | 24 |
| 6 | Speed (mph) | 9.6 | 11.4 | | 11.4 |
| 7 | Ridership (pass) | 7,939 | 3,533 | 11,472 | 11,472 |
| 8 | % of Total Ridership | 2.70 | 1.21 | 3.91 | 3.91 |
| 9 | Buses in Service (Peak) | 15 | 12 | 27 | 20 |
| 10 | Trips per Hour (Peak) | 3 | 4 | 7 | 7.5 |
| 11 | Trips per Hour (Off-Peak) | 3 | 2 | 5 | 5 |
| 12 | One Way Trips | 120 | 90 | 210 | 198 |
| 13 | Pass/Trip | 66.2 | 39.3 | | 61.7 |
| 14 | Total Revenue Miles | 2,559 | 1,357 | 3,916 | 2,990 |
| 15 | Pass/Mile | 3.10 | 2.60 | | 4.06 |
| 16 | Direct Op. Cost ($) (DOC) | 21,719 | 11,476 | 33,195 | 25,295 |
| 17 | Recovery Ratio (%) | 36.8 | 32.1 | | |
| 18 | DOC/Total Rev. Mile | 8.49 | 8.46 | | 8.46 |

| TABLE 2: Proposed Service for New Biscayne Boulevard Trunk Route | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | | Totals |
| | 12x – 5a | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 60 | 15 | 8 | 12 | 8 | 15 | 60 | |
| Service Hours | 5 | 1 | 3 | 6 | 3 | 3 | 3 | 24 hours |
| Trips per hour | 1 | 4 | 7.5 | 5 | 7.5 | 4 | 1 | |
| One-way Trips | 10 | 8 | 45 | 60 | 45 | 24 | 6 | 198 trips |

| TABLE 3: End Route 16 at the Omni<br>Create Feeder Route 62 from MLK to Okeechobee Road<br>Create a Route from MLK Metrorail Station to Omni<br>Create Express Route from MLK Metrorail Station to Indian Creek Dr. | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 16 | Route 16 Modified | ROUTE 62 | Feeder Route 62 | MLK to Omni | MLK to Indian Creek Dr. |
| 1 | Roundtrip (miles) | 27 | 24.7 | 20.8 | 6.4 | 13.4 | 16.8 |
| 2 | Travel Time (mins) | 180 | 165 | 135 | 42 | 88 | 110 |
| 3 | Headway (mins) Peak | 20 | 15 | 15 | 20 | 12 | 30 |
| 4 | Headway (mins) Off-Peak | 20 | 30 | 15 | 30 | 20 | - |
| 5 | Hours of Service | 18.5 | 18.5 | 20.5 | 20 | 20 | 6 |
| 6 | Speed (mph) | 9.0 | 9.0 | 9.2 | 9.2 | 9.2 | 9.2 |
| 7 | Ridership (pass) | 4,408 | 4,408 | 7,508 | | | - |
| 8 | % of Total Ridership | 1.5 | 1.5 | 2.57 | | | - |
| 9 | Buses in Service (Peak) | 10 | 11 | 13 | 2 | 8 | 4 |
| 10 | Trips per Hour (Peak) | 3 | 4 | 4 | 3 | 5 | 2 |
| 11 | Trips per Hour (Off-Peak) | 3 | 2 | 4 | 2 | 3 | - |
| 12 | One Way Trips | 102 | 94 | 155 | 84 | 120 | 24 |
| 13 | Pass/Trip | 43.22 | 46.89 | 48.43 | | | - |
| 14 | Total Revenue Miles | 1,379 | 1,161 | 1,424 | 269 | 804 | 202 |
| 15 | Pass/Mile | 3.18 | 3.80 | 5.28 | | | - |
| 16 | Direct Op. Cost ($) (DOC) | 12,502 | 10,530 | 13,164 | 2,486 | 7,429 | 1,867 |
| 17 | Recovery Ratio (%) | 33.5 | | 26.9 | | | - |
| 18 | DOC/Total Rev. Mile | 9.07 | 9.07 | 9.24 | 9.24 | 9.24 | 9.24 |

| TABLE 4: Proposed Service for Feeder Route MLK to W 3rd St. (Hialeah) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 30 | 20 | 30 | 20 | 30 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 4 | 20 hours |
| Trips per hour | 2 | 3 | 2 | 3 | 2 | 1 | |
| One-way Trips | 4 | 18 | 24 | 18 | 12 | 8 | 84 trips |

| TABLE 5: Proposed Service from MLK Metrorail Station to Omni | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 30 | 12 | 20 | 12 | 30 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 4 | 20 hours |
| Trips per hour | 2 | 5 | 3 | 5 | 2 | 1 | |
| One-way Trips | 4 | 30 | 36 | 30 | 12 | 8 | 120 trips |

| Table 6: Proposed Express Route from MLK Metrorail Station to Indian Creek Dr. | | | |
|---|---|---|---|
| Description | Time of Day | | Totals |
| | 6a – 9a | 3p – 6p | |
| Headway (mins) | 30 | 30 | |
| Service Hours | 3 | 3 | 6 hours |
| Trips per hour | 2 | 2 | |
| One-way Trips | 12 | 12 | 24 trips |

| TABLE 7: Other potential improvements | |
|---|---|
| 1 | Coordinate with FIU the establishment of an internal shuttle. |
| 2 | Coordinate with the City of Aventura the transfer of passenger from the city shuttle to the MDT routes. |
| 3 | Evaluate potential locations for continuous shelter and benches facilities for riders transferring from modified route #62 to new route #3T and vice versa. Eastbound – southbound connection & northbound – westbound connection. |
| 4 | Relocate bus stops at a quarter mile. |
| 5 | Evaluate potential transfer station at Miami Gardens Drive, NE 163rd Street, NE 79th Street and NE 36th Street. |
| 6 | Monitor new route #3T to determine additional capacity, if needed. There are 10 buses available for improving service along the corridor or adjacent corridors. |
| 7 | Branding of the new service along Biscayne Boulevard. |
| 8 | Marketing campaign to promote and create awareness of the proposed service, as well as educate the riders. |

| TABLE 8: Service Comparison - Before and After | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | Aventura – NE 171st Street | 3 | 3 | 3T | 7.5 | |
| | | 93 | 4 | 183 | 2 | |
| | | 183 | 2 | | | |
| | Total trips per hour | | 9 | | 9.5 | +.5 |
| 2 | NE 171st Street – NE 163rd Street | 93 | 4 | 3T | 7.5 | |
| | | 183 | 2 | 183 | 2 | |
| | Total trips per hour | | 6 | | 9.5 | +3.5 |
| 3 | NE 163rd Street – NE 151st Street | 3 | 3 | 3T | 7.5 | |
| | | 83 | 4 | 83 | 4 | |
| | | 93 | 4 | 183 | 2 | |
| | | 183 | 2 | | | |
| | Total trips per hour | | 13 | | 13.5 | +.5 |
| 4 | NE 151st Street – NE 135th Street | 3 | 3 | 3T | 7.5 | |
| | | 28 | 2 | 28 | 2 | |
| | | 93 | 4 | | | |
| | Total trips per hour | | 9 | | 9.5 | +.5 |
| 5 | NE 135th Street – NE 96th Street | 3 | 3 | 3T | 7.5 | |
| | | 93 | 4 | | | |
| | Total trips per hour | | 7 | | 7.5 | +.5 |
| 6 | NE 96th Street – NE 79th Street | 3 | 3 | 3T | 7.5 | |
| | | 33 | 2 | 33 | 2 | |
| | | 93 | 4 | | | |
| | Total trips per hour | | 9 | | 9.5 | +.5 |
| 7 | NE 79th Street – NE 62nd Street | 3 | 3 | 3T | 7.5 | |
| | | 16 | 3 | 16 | 4 | |
| | | 93 | 4 | | | |
| | Total trips per hour | | 10 | | 11.5 | +1.5 |
| 8 | NE 62nd Street – NE 36th Street | 3 - 16 – 62 - 93 | 3 – 3 – 4 - 4 | 3T – 16 – Express - MLK | 7.5 – 4 – 2 - 5 | |
| | Total trips per hour | | 14 | | 18.5 | +4.5 |
| 9 | NE 36th Street – Omni Mover Station | 3 – 16 – 36 – 62 – 93 - 120 | 3 – 3 – 3 – 4 – 4 - 2 | 3T – 16 – 36 – 93 – 120 - MLK | 7.5 – 4 – 3 – 2 - 5 | |
| | Total trips per hour | | 19 | | 21.5 | +2.5 |
| 10 | Omni Mover Station - Downtown | 3 – 16 – 51 – 93 – 246 – C - S | | 3T – 16 – 51 – 246 – C - S | 25.5 | |
| | Total trips per hour | | 24 | | 25.5 | +1.5 |

## TABLE 9: Summary of Savings

| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
|---|---|---|---|---|---|---|---|
| | | Before | After | Before | After | Before | After |
| 1 | 3 | 15 | - | 2,559 | - | 21,719 | - |
| 2 | 93 | 12 | - | 1,357 | - | 11,476 | - |
| 3 | Biscayne Trunk Route | - | 20 | - | 2,990 | - | 25,295 |
| 4 | 16 | 10 | - | 1,379 | - | 12,502 | - |
| 5 | 16 (Modified) | - | 11 | - | 1,161 | - | 10,530 |
| 6 | 62 | 13 | - | 1,424 | - | 13,164 | - |
| 7 | Feeder to Hialeah | - | 2 | - | 269 | - | 2,486 |
| 8 | MLK – Omni | - | 8 | - | 804 | - | 7,429 |
| 9 | Express to Indian Creed Dr. | - | 4 | - | 202 | - | 1,867 |
| 10 | Totals | 50 | 45 | 6,719 | 5,426 | 58,861 | 47,607 |
| 11 | Savings/Weekday | 5 buses | | 1,293/Weekday | | $11,254/weekday | |
| 12 | Savings/Year | 5 Buses | | 336,180 | | $2.9M | |

## TABLE 10: Other Options

| # | DESCRIPTION | ROUTE 62 | Feeder Route MLK to W 3rd St. | Feeder Route MLK to Biscayne Blvd. | MLK to Omni | MLK to Indian Creek Dr. | Route 62 Modified | New MLK Route |
|---|---|---|---|---|---|---|---|---|
| 1 | Roundtrip (miles) | 20.8 | 6.4 | 7.4 | 13.4 | 16.8 | 13.4 | 16.8 |
| 2 | Travel Time (mins) | 135 | 42 | 48 | 88 | 110 | 88 | 110 |
| 3 | Headway (mins) Peak | 15 | 20 | 10 | 12 | 30 | 15 | 30 |
| 4 | Headway (mins) Off-Peak | 30 | 30 | 15 | 20 | - | 15 | - |
| 5 | Hours of Service | 20.5 | 20 | 20 | 20 | 6 | 20.5 | 6 |
| 6 | Speed (mph) | 9.2 | 9.2 | 9.2 | 9.2 | 9.2 | 9.2 | 9.2 |
| 7 | Ridership (pass) | 7,508 | | | | - | - | - |
| 8 | % of Total Ridership | 2.57 | | | | - | - | - |
| 9 | Buses in Service (Peak) | 12 | 2 | 5 | 8 | 4 | 6 | 4 |
| 10 | Trips per Hour (Peak) | 4 | 3 | 6 | 5 | 2 | 4 | 2 |
| 11 | Trips per Hour (Off-Peak) | 2 | 2 | 4 | 3 | - | 4 | - |
| 12 | One Way Trips | 155 | 84 | 144 | 120 | 24 | 128 | 24 |
| 13 | Pass/Trip | 48.43 | | | | - | - | - |
| 14 | Total Revenue Miles | 1,424 | 269 | 533 | 804 | 202 | 858 | 202 |
| 15 | Pass/Mile | 5.27 | | | | - | - | - |
| 16 | Direct Op. Cost ($) (DOC) | 13,164 | 2,486 | 4,925 | 7,429 | 1,867 | 7,928 | 1,867 |
| 17 | Recovery Ratio (%) | 26.9 | | | | - | - | - |
| 18 | DOC/Total Rev. Mile | 9.24 | 9.24 | 9.24 | 9.24 | 9.24 | 9.24 | 9.24 |

| Table 11: Proposed Service for Feeder Route MLK to Biscayne Boulevard | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 30 | 10 | 15 | 10 | 30 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 4 | 20 hours |
| Trips per hour | 2 | 6 | 4 | 6 | 2 | 1 | |
| One-way Trips | 4 | 36 | 48 | 36 | 12 | 8 | 144 trips |

| TABLE 12: Proposed Service for Modified Route #16 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 4:45a-6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 11.17p | |
| Headway (mins) | 45 | 15 | 30 | 15 | 30 | 45 | |
| Service Hours | 1:15 | 3 | 6 | 3 | 3 | 2:15 | 18:30 hours |
| Trips per hour | 1 | 4 | 2 | 4 | 2 | 1 | |
| One-way Trips | 4 | 24 | 24 | 24 | 12 | 6 | 94 trips |

| Table 13: Proposed Service for Modified Route #62 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 1x | |
| Headway (mins) | 30 | 15 | 15 | 15 | 30 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 4 | 20 hours |
| Trips per hour | 2 | 4 | 4 | 4 | 2 | 2 | |
| One-way Trips | 4 | 24 | 48 | 24 | 12 | 16 | 128 trips |

# Appendix 7:
# Bus Terminal Amenities

# Short-Term Transit Improvement Options

## Bus Terminal Amenities

The conceptual design for bus terminal facilities should consider the following elements:

1. **Open Space**
   - **a.** Parking for buses: The number of bus parking needs to be coordinated with MDT to determine the routes using this facility. The parking layout should be based on route numbers or by area. i.e. north and east routes in one section and west and south routes in the other section. This is an item for further discussion during the preliminary design process.
   - **b.** Passenger shelters and benches
   - **c.** Lighting
   - **d.** Landscape
   - **e.** Kiss & Ride
   - **f.** Parking considerations for jitneys and taxis

2. **Terminal Building**
   - **a.** Parking
   - **b.** Drivers room for layover time
   - **c.** Restrooms facilities (MDT personnel and general public)
   - **d.** Interactive transit information kiosks
   - **e.** Transit store
   - **f.** Waiting area for passengers
   - **g.** Retail businesses (coffee shop, newspaper stand, restaurants, etc…)

3. **General**
   - **a.** Covered access to Metromover and Metrorail
   - **b.** Access for pedestrian and bicycles
   - **c.** ADA accessibility
   - **d.** Sidewalks
   - **e.** Bicycle racks
   - **f.** Bicycle lockers
   - **g.** Security surveillance cameras
   - **h.** Seating arrangement (interior and exterior)
   - **i.** Public phones
   - **j.** Appropriate signage
   - **k.** Trash cans
   - **l.** Water fountains

# Appendix 8:
# Busway Corridor
## Analysis and Recommendations

# BUSWAY CORRIDOR

(Revised 07/09/09)

| TABLE 1: Route 1 - Eliminate segment along the Busway (Feeder Route 1)<br>Route 31 - Eliminate segment along the Busway (Feeder Route 31)<br>Route 52 - Eliminate segment along the Busway (Feeder Route 52) | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE #1 | Feeder Route #1 | Route #31 | Feeder Route #31 | ROUTE #52 | Feeder Route #52 |
| 1 | Roundtrip (miles) | 27.3 | 14.2 | 18.9 | 3.8 | 51.1 | 36.5 |
| 2 | Running Time (mins) | 160 | 84 | 90 | 18 | 240 | 172 |
| 3 | Headway (mins) Peak | 30 | 30 | 15 | 20 | 30 | 30 |
| 4 | Headway (mins) Off-Peak | 40 | 45 | 30 | 30 | 40 | 40 |
| 5 | Hours of Service | 18 | 18 | 16 | 14 | 19 | 18 |
| 6 | Speed (mph) | 10.2 | 10.2 | 12.6 | 12.6 | 12.8 | 12.8 |
| 7 | Ridership (pass) | 1,621 | | 2,252 | | 1,968 | |
| 8 | % of Total Ridership | 0.55 | | 0.77 | | 0.67 | |
| 9 | Buses in Service (Peak) | 5 | 3 | 5 | 1 | 9 | 6 |
| 10 | Trips per Hour (Peak) | 2 | 2 | 4 | 3 | 2 | 2 |
| 11 | Trips per Hour (Off-Peak) | 1.5 | 1.33 | 2 | 2 | 1.5 | 1.5 |
| 12 | One Way Trips | 56 | 58 | 82 | 72 | 57 | 55 |
| 13 | Pass/Trip | 28.95 | | 27.46 | | 34.53 | |
| 14 | Total Revenue Miles | 859 | 412 | 775 | 137 | 1,454 | 1,004 |
| 15 | Pass/Mile | 1.89 | | 2.91 | | 1.35 | |
| 16 | Direct Op. Cost ($) (DOC) | 7,020 | 3,366 | 5,845 | 1,033 | 10,938 | 7,550 |
| 17 | Recovery Ratio (%) | 18.9 | | 34.5 | | 16.2 | |
| 18 | DOC/Total Rev. Mile | 8.17 | 8.17 | 7.54 | 7.54 | 7.52 | 7.52 |

| TABLE 2: Proposed Service for Feeder Route 1<br>(Quail Roost Dr. – P&R at SW 168th Street) | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 7p | 7p – 11p | |
| Headway (mins) | 30 | 30 | 45 | 30 | 45 | |
| Service Hours | 1 | 3 | 6 | 4 | 4 | 18 |
| Trips per hour | 2 | 2 | 1.33 | 2 | 1.33 | |
| One-way Trips | 4 | 12 | 16 | 16 | 10 | 58 |

| TABLE 3: Proposed Service for Feeder Route 31<br>(South Dade Gov. Center – P&R SW 200th St.) | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of day | | | | | Totals |
| | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 8p | |
| Headway (mins) | 30 | 20 | 30 | 20 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 2 | 15 |
| Trips per hour | 2 | 3 | 2 | 3 | 2 | |
| One-way Trips | 4 | 18 | 24 | 18 | 8 | 72 |

| TABLE 4: Proposed Service for Feeder Route 52<br>(Community Health of South Dade – SW 152nd St./Busway) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 11p | |
| Headway (mins) | 30 | 30 | 40 | 30 | 40 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 2 | 18 |
| Trips per hour | 2 | 2 | 1.5 | 2 | 1.5 | 1 | |
| One-way Trips | 4 | 12 | 18 | 12 | 5 | 4 | 55 |

| TABLE 5: Route 287 - Eliminate segment along the Busway (Feeder Route 287)<br>Route 38 - Create Homestead Trunk Route (Homestead – Dadeland South)<br>Route 34 - Create South Dade Trunk Route (SW 244th St P&R – Dadeland S)<br>Route 34 - Create Perrine Trunk Route (SW 68th St P&R – Dadeland S) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 287 | Feeder Route 287 | ROUTE 38 | Homestead Trunk Route | ROUTE 34 | South Dade Trunk Route SW 244th | Perrine Trunk Route SW 168th |
| 1 | Roundtrip (miles) | 24.3 | 13.2 | 67.1 (42.2) | 38.8 | 40.4 | 24.2 | 11.4 |
| 2 | Running Time (mins) | 95 | 52 | 260 | 150 | 120 | 72 | 34 |
| 3 | Headway (mins) Peak | 30 | 30 | 15 | 7.5 | 7.5 | 12 | 10 |
| 4 | Headway (mins) Off-Peak | - | - | 15 | 15 | - | 30 | 15 |
| 5 | Hours of Service | 8 | 7 | 24 | 24 | 8 | 14 | 14 |
| 6 | Speed (mph) | 15.3 | 15.3 | 15.5 | 15.5 | 20.2 | 20.2 | 20.2 |
| 7 | Ridership (pass) | 473 | | 6,805 | | 2,513 | | |
| 8 | % of Total Ridership | 0.16 | | 2.32 | | 0.86 | | |
| 9 | Buses in Service (Peak) | 3 | 2 | 15 | 20 | 14 | 5 | 4 |
| 10 | Trips per Hour (Peak) | 2 | 2 | 4 | 8 | 8 | 4 | 6 |
| 11 | Trips per Hour (Off-Peak) | 0 | 0 | 4 | 4 | 0 | 2 | 4 |
| 12 | One Way Trips | 26 | 28 | 166 | 194 | 40 | 92 | 148 |
| 13 | Pass/Trip | 18.19 | | 41.00 | | 62.8 | | |
| 14 | Total Revenue Miles | 318 | 185 | 3,500 | 3,764 | 861 | 1,113 | 844 |
| 15 | Pass/Mile | 1.49 | | 1.94 | | 2.92 | | |
| 16 | Direct Op. Cost ($) (DOC) | 2,358 | 1,371 | 23,434 | 25,219 | 6,684 | 8,637 | 6,549 |
| 17 | Recovery Ratio (%) | 18.9 | | 30.8 | | 34.1 | | |
| 18 | DOC/Total Rev. Mile | 7.41 | 7.41 | 6.70 | 6.7 | 7.76 | 7.76 | 7.76 |

| TABLE 6: Proposed Service for Feeder 287<br>(South Dade Health Center – P&R SW 168th St.) | | | |
|---|---|---|---|
| Description | Time of Day | | Totals |
| | 5:30a – 9a | 3:30p – 7p | |
| Headway (mins) | 30 | 30 | |
| Service Hours | 3.5 | 3.5 | 7 |
| Trips per hour | 2 | 2 | |
| One-way Trips | 14 | 14 | 28 |

| TABLE 7: Proposed Service for Homestead Trunk Route (Route 38)<br>From SE 8th St (Bus Zone) to Busway to Dadeland South (no detour to Southland Mall) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | | Totals |
| | 4a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | 12x – 4a | |
| Headway (mins) | 20 | 7.5 | 15 | 7.5 | 20 | 30 | 60 | |
| Service Hours | 2 | 3 | 6 | 3 | 3 | 3 | 4 | 24 |
| Trips per hour | 3 | 8 | 4 | 8 | 3 | 2 | 1 | |
| One-way Trips | 12 | 48 | 48 | 48 | 18 | 12 | 8 | 194 |

| TABLE 8: Proposed Service for South Dade Trunk Route (Option 3)<br>(From SW 244th Street P&R Lot to Dadeland South) – 12' Headway/Less Service Hours | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 7p | |
| Headway (mins) | 30 | 12 | 30 | 12 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 1 | 14 |
| Trips per hour | 2 | 5 | 2 | 5 | 2 | |
| One-way Trips | 4 | 30 | 24 | 30 | 4 | 92 |

| TABLE 9: Proposed Service for Perrine Trunk Route (Route 34)<br>(From SW 168th Street P&R Lot to Dadeland South) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 7p | 7p – 10p | |
| Headway (mins) | 15 | 10 | 15 | 10 | 15 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 1 | 3 | 17 |
| Trips per hour | 4 | 6 | 4 | 6 | 4 | 2 | |
| One-way Trips | 8 | 36 | 48 | 36 | 8 | 12 | 148 |

| TABLE 10: Route 35 – Divide Route in two Feeder Routes North and South<br>Routes 65 and 136 - Eliminate Service (coordinate municipalities) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 35 | Feeder Route 35-N | Feeder Route 35-S | ROUTE 65 | Eliminate Route 65 | ROUTE 136 | Eliminate Route 136 |
| 1 | Roundtrip (miles) | 64.1 | 19.6 | 35.0 | 29.4 | 0 | 22.5 | 0 |
| 2 | Running Time (mins) | 240 | 74 | 132 | 90 | 0 | 90 | 0 |
| 3 | Headway (mins) Peak | 30 | 30 | 30 | 30 | - | 30 | - |
| 4 | Headway (mins) Off-Peak | 30 | 30 | 30 | - | | - | |
| 5 | Hours of Service | 19 | 17 | 17 | 8 | - | 10 | - |
| 6 | Speed (mph) | 16.0 | 16.0 | 16.0 | 19.6 | - | 15.0 | - |
| 7 | Ridership (pass) | 3,245 | | | 304 | | 291 | |
| 8 | % of Total Ridership | 1.11 | | | 0.10 | | 0.09 | |
| 9 | Buses in Service (Peak) | 8 | 3 | 5 | 3 | (3) | 3 | (3) |
| 10 | Trips per Hour (Peak) | 2 | 2 | 2 | 2 | | 2 | |
| 11 | Trips per Hour (Off-Peak) | 2 | 2 | 2 | 0 | | 0 | |
| 12 | One Way Trips | 63 | 68 | 68 | 13 | | 30 | |
| 13 | Pass/Trip | 51.01 | | | 23.38 | | 9.7 | |
| 14 | Total Revenue Miles | 1,972 | 666 | 1,190 | 191 | (191) | 338 | (338) |
| 15 | Pass/Mile | 1.65 | | | 1.59 | | 0.86 | |
| 16 | Direct Op. Cost ($) (DOC) | 12,778 | 4,316 | 7,711 | 1,688 | (1,688) | 2,569 | (2,569) |
| 17 | Recovery Ratio (%) | 24.1 | | | 18.1 | | 7.8 | |
| 18 | DOC/Total Rev. Mile | 6.48 | 6.48 | 6.48 | 8.84 | | 7.60 | |

| TABLE 11: Proposed Service for Feeder Route 35 - North<br>(From MDC Kendall Campus to SW 200th Street P&R Lot) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 10p | |
| Headway (mins) | 30 | 30 | 30 | 30 | 30 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 1 | 17 |
| Trips per hour | 2 | 2 | 2 | 2 | 2 | 2 | |
| One-way Trips | 4 | 12 | 24 | 12 | 12 | 4 | 68 |

| TABLE 12: Proposed Service for Feeder Route 35 - South (From Florida City to SW 244th Street P&R Lot) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 10p | |
| Headway (mins) | 30 | 30 | 30 | 30 | 30 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 1 | 17 |
| Trips per hour | 2 | 2 | 2 | 2 | 2 | 2 | |
| One-way Trips | 4 | 12 | 24 | 12 | 12 | 4 | 68 |

| TABLE 13: Route 252 - eliminate segment along the Busway Route 344 – eliminate service | | | | | |
|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 252 | Feeder Route 252 | ROUTE 344 | Eliminate Route 344 |
| 1 | Roundtrip (miles) | 28 | 18.8 | 19.7 | 0 |
| 2 | Running Time (mins) | 120 | 82 | 75 | 0 |
| 3 | Headway (mins) Peak | 20 | 30 | 30 | - |
| 4 | Headway (mins) Off-Peak | 30 | 30 | 60 | - |
| 5 | Hours of Service | 16 | 16 | 15 | |
| 6 | Speed (mph) | 14.0 | 14.0 | 15.8 | |
| 7 | Ridership (pass) | 1,234 | | 327 | |
| 8 | % of Total Ridership | 0.42 | | 0.11 | |
| 9 | Buses in Service (Peak) | 6 | 3 | 2 | (2) |
| 10 | Trips per Hour (Peak) | 3 | 2 | 2 | |
| 11 | Trips per Hour (Off-Peak) | 2 | 2 | 1 | |
| 12 | One Way Trips | 84 | 64 | 48 | |
| 13 | Pass/Trip | 14.69 | | 6.81 | |
| 14 | Total Revenue Miles | 1,220 | 602 | 353 | (353) |
| 15 | Pass/Mile | 1.01 | | 0.93 | |
| 16 | Direct Op. Cost ($) (DOC) | 8,759 | 4,322 | 2,501 | (2,501) |
| 17 | Recovery Ratio (%) | 13.7 | | 12.3 | |
| 18 | DOC/Total Rev. Mile | 7.18 | 7.18 | 7.08 | |

| TABLE 14: Proposed Service for Feeder Route 252 (From SW 162nd Avenue to the Busway) | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | |
| Headway (mins) | 30 | 30 | 30 | 30 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 16 |
| Trips per hour | 2 | 2 | 2 | 2 | 2 | |
| One-way Trips | 4 | 12 | 24 | 12 | 12 | 64 |

| TABLE 15: Service Comparison – Before and After | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | Florida City – SW 244th Street | 34 - 38 | 12 | Homestead TR | 8 | |
| | Total trips per hour | | 12 | | 8 | -4 |
| 2 | SW 244TH Street – SW 216th Street | 34 - 38 | 12 | Homestead TR<br>South Dade TR | 14 | |
| | | | 12 | | 14 | +2 |
| 3 | SW 216th Street – SW 200th Street | 34 | 8 | Homestead TR<br>South Dade TR | 14 | |
| | Total trips per hour | | 8 | | 14 | +6 |
| 4 | SW 200th Street – SW 168th Street | 31 – 34 - 38 | 16 | Homestead TR<br>South Dade TR | 14 | |
| | Total trips per hour | | 16 | | 14 | -2 |
| 5 | SW 168th Street – SW 152nd Street | 1 – 31 – 34 – 38 - 287 | 20 | Homestead TR<br>South Dade TR<br>Perrine TR | 20 | |
| | Total trips per hour | | 20 | | 20 | 0 |
| 6 | SW 152nd Street – SW 132nd Street | 1 – 31 – 34 – 38 – 52 – 252 - 287 | 25 | Homestead TR<br>South Dade TR<br>Perrine TR | 20 | |
| | Total trips per hour | | 25 | | 20 | -5 |
| 7 | SW 132nd Street – SW 104th Street | 1 – 31 – 34 – 38 – 52 – 65 - 252 -287 | 27 | Homestead TR<br>South Dade TR<br>Perrine TR | 20 | |
| | Total trips per hour | | 27 | | 20 | -7 |
| 8 | SW 104th Street – Dadeland South | 1 – 31 – 34 – 38 – 52 – 65 – 136 - 252 -287 | 29 | Homestead TR<br>South Dade TR<br>Perrine TR | 20 | |
| | Total trips per hour | | 29 | | 20 | -9 |

| TABLE 16: Other Potential improvements | |
|---|---|
| 1 | Coordinate with the Cities of Homestead, Florida City and Pine Crest the coordination of proposed municipal transit services with MDT routes. |
| 2 | Evaluate potential locations along the Busway for continuous shelter and benches facilities for riders transferring from different routes. |
| 3 | Improve P&R lots for use them as potential end points. |
| 4 | Monitor all routes for determining potential adjustment to the routes, as needed |

TABLE 17: Summary of Savings

| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
|---|---|---|---|---|---|---|---|
| | | Before | After | Before | After | Before | After |
| 1 | Route #1 | 5 | - | 859 | - | 7,020 | - |
| 2 | Feeder Route #1 | - | 3 | - | 412 | - | 3,366 |
| 3 | Route #31 | 5 | - | 775 | - | 5,845 | - |
| 4 | Feeder Route #31 | - | 1 | - | 137 | - | 1,033 |
| 5 | Route #34 | 14 | - | 861 | - | 6,684 | - |
| 6 | South Dade Trunk Route | - | 5 | - | 1,113 | - | 8,637 |
| 7 | Perrine Trunk Route | - | 4 | - | 844 | - | 6,549 |
| 8 | Route #35 | 8 | - | 1,972 | - | 12,778 | - |
| 9 | Feeder Route #35-N | - | 3 | - | 666 | - | 4,316 |
| | Feeder Route #35-S | - | 5 | - | 1,190 | - | 7,711 |
| | Route #38 | 15 | - | 3,500 | - | 23,434 | - |
| | Homestead Trunk Route | - | 20 | - | 3,764 | - | 25,219 |
| | Route #52 | 9 | - | 1,454 | - | 10,938 | - |
| | Feeder Route #52 | - | 6 | - | 1,004 | - | 7,550 |
| | Route #65 | 3 | - | 191 | - | 1,688 | - |
| | Route #136 | 3 | - | 338 | - | 2,569 | - |
| | Route #252 | 6 | - | 1,220 | - | 8,759 | - |
| | Feeder Route #252 | - | 3 | - | 602 | - | 4,322 |
| | Route #287 | 3 | - | 318 | - | 2,358 | - |
| | Feeder Route #287 | - | 2 | - | 185 | - | 1,371 |
| | Route #344 | 2 | - | 353 | - | 2,501 | - |
| 10 | Totals | 73 | 52 | 11,841 | 9,917 | 84,574 | 70,074 |
| 11 | Savings/Weekday | 21 | | 1,924 | | 14,500 | |
| 12 | Savings/Year | 21 | | 500,240 | | 3.8M | |

## TABLE 18: Options for South Dade Trunk Route
(SW 244th Street P&R Lot to Dadeland South Metrorail Station)

| # | DESCRIPTION | ROUTE #34 | South Dade Trunk Route Option 1 | South Dade Trunk Route Option 2 | South Dade Trunk Route Option 3 |
|---|---|---|---|---|---|
| 1 | Roundtrip (miles) | 40.4 | 24.2 | 24.2 | 24.2 |
| 2 | Running Time (mins) | 120 | 72 | 72 | 72 |
| 3 | Headway (mins) Peak | 7.5 | 10 | 10 | 15 |
| 4 | Headway (mins) Off-Peak | - | 15 | 15 | 30 |
| 5 | Hours of Service | 8 | 17 | 8 | 14 |
| 6 | Speed (mph) | 20.2 | 20.2 | 20.2 | 20.2 |
| 7 | Ridership (pass) | 2,513 | | | |
| 8 | % of Total Ridership | 0.86 | | | |
| 9 | Buses in Service (Peak) | 14 | 8 | 8 | 5 |
| 10 | Trips per Hour (Peak) | 8 | 6 | 6 | 4 |
| 11 | Trips per Hour (Off-Peak) | 0 | 4 | 4 | 2 |
| 12 | One Way Trips | 40 | 148 | 88 | 92 |
| 13 | Pass/Trip | 62.8 | | | |
| 14 | Total Revenue Miles | 861 | 1,791 | 1,078 | 1,113 |
| 15 | Pass/Mile | 2.92 | | | |
| 16 | Direct Op. Cost ($) (DOC) | 6,684 | 13,898 | 8,365 | 8,637 |
| 17 | Recovery Ratio (%) | 34.1 | | | |
| 18 | DOC/Total Rev. Mile | 7.76 | 7.76 | 7.76 | 7.76 |
| (1) | 17-hour service with 10' headway at peak-period and 15' during off-peak. | | | | |
| (2) | Same headways but only during peak periods. | | | | |
| (3) | 14-hour service with 12' and 30' headways, respectively. RECOMMENDED | | | | |

| TABLE 19: Proposed Service for South Dade Trunk Route (Option 1)<br>(From SW 244th Street P&R Lot to Dadeland South) – Regular Service | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 7p | 7p – 10p | |
| Headway (mins) | 15 | 10 | 15 | 10 | 15 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 1 | 3 | 17 |
| Trips per hour | 4 | 6 | 4 | 6 | 4 | 2 | |
| One-way Trips | 8 | 36 | 48 | 36 | 8 | 12 | 148 |

| TABLE 20: Proposed Service for South Dade Trunk Route (Option 2)<br>(From SW 244th Street P&R Lot to Dadeland South) – Peak Hour Service | | | | | |
|---|---|---|---|---|---|
| Description | Time of Day | | | | Totals |
| | 5a - 6a | 6a – 9a | 4p – 6p | 6p – 7p | |
| Headway (mins) | 15 | 10 | 10 | 15 | |
| Service Hours | 1 | 3 | 3 | 1 | 8 |
| Trips per hour | 4 | 6 | 6 | 4 | |
| One-way Trips | 8 | 36 | 36 | 8 | 88 |

| TABLE 21: Proposed Service for South Dade Trunk Route (Option 3)<br>(From SW 244th Street P&R Lot to Dadeland South) – 12' Headway and less service hours | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 7p | |
| Headway (mins) | 30 | 12 | 30 | 12 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 1 | 14 |
| Trips per hour | 2 | 5 | 2 | 5 | 2 | |
| One-way Trips | 4 | 30 | 24 | 30 | 4 | 92 |

# Appendix 9:
# Collins Avenue
## Analysis and Recommendations

# COLLINS AVENUE CORRIDOR

REVISED 07/13/09

| TABLE 1: Combine Routes K and S<br>Create Aventura-Downtown Miami Trunk Route<br>End Route E at Haulover Park | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE K | ROUTE S | TOTALS | Downtown Trunk Route | ROUTE E | Route E Modified |
| 1 | Roundtrip (miles) | 46 | 42.8 | | 42.8 | 49 | 44 |
| 2 | Running Time (mins) | 220 | 240 | | 210 | 240 | 215 |
| 3 | Headway (mins) Peak | 30 | 12 | | 10 | 30 | 30 |
| 4 | Headway (mins) Off-Peak | 30 | 12 | | 10 | 60 | 60 |
| 5 | Hours of Service | 18.5 | 24 | | 24 | 15 | 15 |
| 6 | Speed (mph) | 12.5 | 10.7 | | 12.5 | 12.3 | 12.3 |
| 7 | Ridership (pass) | 5,313 | 15,868 | 21,181 | | 1,837 | |
| 8 | % of Total Ridership | 1.81 | 5.41 | 7.22 | | 0.63 | |
| 9 | Buses in Service (Peak) | 11 | 21 | 32 | 21 | 8 | 7 |
| 10 | Trips per Hour (Peak) | 3 | 5 | 8 | 6 | 2 | 2 |
| 11 | Trips per Hour (Off-Peak) | 1 | 5 | 6 | 6 | 1 | 1 |
| 12 | One Way Trips | 91 | 183 | 274 | 201 | 47 | 42 |
| 13 | Pass/Trip | 58.38 | 86.71 | | 79.9 | 39.09 | |
| 14 | Total Revenue Miles | 1,668 | 3,919 | 5,587 | 4,301 | 1,117 | 924 |
| 15 | Pass/Mile | 3.19 | 4.05 | | 3.60 | 1.64 | |
| 16 | Direct Op. Cost ($) (DOC) | 12,880 | 31,261 | 44,141 | 34,322 | 8,770 | 7,253 |
| 17 | Recovery Ratio (%) | 17.1 | 23.5 | | | 20.3 | |
| 18 | DOC/Total Rev. Mile | 7.72 | 7.98 | | 7.98 | 7.85 | 7.85 |

| TABLE 2: Proposed Service for Aventura – Downtown Trunk Route | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | | Totals |
| | 12x – 5a | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 45 | 15 | 10 | 10 | 10 | 15 | 30 | |
| Service Hours | 5 | 1 | 3 | 6 | 3 | 3 | 3 | 24 hours |
| Trips per hour | 1.33 | 4 | 6 | 6 | 6 | 4 | 2 | |
| One-way Trips | 13 | 8 | 36 | 72 | 36 | 24 | 12 | 201 trips |

| TABLE 3: Proposed Service for Modified Route #E (end at Haulover Park) | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 8p | |
| Headway (mins) | 60 | 30 | 60 | 30 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 2 | 15 hours |
| Trips per hour | 1 | 2 | 1 | 2 | 1 | |
| One-way Trips | 2 | 12 | 12 | 12 | 4 | 42 trips |

| TABLE 4: Route H - End Route at Haulover Park<br>Route M – From Collins Avenue to Civic Center<br>Route R – Adjust Headway | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE H | Route H Modified | ROUTE M | Route M Modified | ROUTE R | Route R Modified |
| 1 | Roundtrip (miles) | 44 | 23.5 | 29.5 | 20.4 | 18 | 18 |
| 2 | Running Time (mins) | 240 | 128 | 180 | 125 | 90 | 90 |
| 3 | Headway (mins) Peak | 20 | 20 | 30 | 30 | 40 | 45 |
| 4 | Headway (mins) Off-Peak | 20 | 20 | 45 | 45 | 45 | 45 |
| 5 | Hours of Service | 20 | 19 | 17 | 17 | 14 | 15 |
| 6 | Speed (mph) | 11.0 | 11.0 | 9.8 | 9.8 | 12.0 | 12.0 |
| 7 | Ridership (pass) | 4,693 | | 1,772 | | 373 | |
| 8 | % of Total Ridership | 1.60 | | 0.60 | | 0.13 | |
| 9 | Buses in Service (Peak) | 12 | 6 | 6 | 4 | 3 | 2 |
| 10 | Trips per Hour (Peak) | 3 | 3 | 2 | 2 | 1.5 | 1.33 |
| 11 | Trips per Hour (Off-Peak) | 3 | 3 | 1.33 | 1.33 | 1.33 | 1.33 |
| 12 | One Way Trips | 95 | 102 | 51 | 54 | 40 | 38 |
| 13 | Pass/Trip | 49.4 | | 34.7 | | 9.3 | |
| 14 | Total Revenue Miles | 2,087 | 1,199 | 756 | 551 | 430 | 342 |
| 15 | Pass/Mile | 2.25 | | 2.34 | | 0.87 | |
| 16 | Direct Op. Cost ($) (DOC) | 16,582 | 9,532 | 6,652 | 4,849 | 3,671 | 2,921 |
| 17 | Recovery Ratio (%) | 31.0 | | 12.7 | | 8.6 | |
| 18 | DOC/Total Rev. Mile | 7.95 | 7.95 | 8.80 | 8.80 | 8.54 | 8.54 |

| TABLE 5: Proposed Service for Modified Route H (end at Haulover Park) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 20 | 20 | 20 | 20 | 20 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 3 | 19 hours |
| Trips per hour | 3 | 3 | 3 | 3 | 3 | 1 | |
| One-way Trips | 6 | 18 | 36 | 18 | 18 | 6 | 102 trips |

| TABLE 6: Proposed Service for Modified Route M | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 10p | |
| Headway (mins) | 30 | 30 | 45 | 30 | 45 | 45 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 1 | 17 hours |
| Trips per hour | 2 | 2 | 1.33 | 2 | 1.33 | 1.33 | |
| One-way Trips | 4 | 12 | 16 | 12 | 8 | 2 | 54 trips |

| TABLE 7: Proposed Service for Modified Route R (45" headway) | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 8p | |
| Headway (mins) | 60 | 45 | 45 | 45 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 2 | 15 hours |
| Trips per hour | 1 | 1.33 | 1.33 | 1.33 | 1 | |
| One-way Trips | 2 | 8 | 16 | 8 | 4 | 38 trips |

| TABLE 8: Feeder Route C - Mt. Sinai to Lincoln Road (Option 1)<br>Feeder Route C - Mt. Sinai to South Pointe (Option 2 – Recommended)<br>Feeder Route G - End Route at NE 96th Street<br>Feeder Route J - End Route at NE 41ST Street | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE C | Route C Lincoln Rd. | Route C South Pointe | ROUTE G | Route G Modified | ROUTE J | Route J Modified |
| 1 | Roundtrip (miles) | 21.7 | 8 | 11.2 | 36.6 | 20.2 | 41.1 | 34.9 |
| 2 | Running Time (mins) | 155 | 58 | 80 | 210 | 116 | 230 | 196 |
| 3 | Headway (mins) Peak | 20 | 20 | 20 | 30 | 30 | 15 | 15 |
| 4 | Headway (mins) Off-Peak | 20 | 20 | 20 | 30 | 30 | 30 | 30 |
| 5 | Hours of Service | 20 | 20 | 20 | 20 | 19 | 20 | 20 |
| 6 | Speed (mph) | 8.4 | 8.4 | 8.4 | 10.5 | 10.5 | 10.7 | 10.7 |
| 7 | Ridership (pass) | 5,643 | | | 3,330 | | 9,209 | |
| 8 | % of Total Ridership | 1.92 | | | 1.14 | | 3.14 | |
| 9 | Buses in Service (Peak) | 8 | 3 | 4 | 8 | 4 | 15 | 13 |
| 10 | Trips per Hour (Peak) | 3 | 3 | 3 | 2 | 2 | 4 | 4 |
| 11 | Trips per Hour (Off-Peak) | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| 12 | One Way Trips | 103 | 102 | 102 | 70 | 76 | 101 | 98 |
| 13 | Pass/Trip | 54.79 | | | 47.57 | | 91.18 | |
| 14 | Total Revenue Miles | 1,103 | 408 | 572 | 1,255 | 768 | 2,041 | 1,710 |
| 15 | Pass/Mile | 5.12 | | | 2.65 | | 4.51 | |
| 16 | Direct Op. Cost ($) (DOC) | 10,128 | 3,745 | 5,251 | 10,119 | 6,190 | 16,510 | 13,834 |
| 17 | Recovery Ratio (%) | 23.0 | | | 36.9 | | 29.0 | |
| 18 | DOC/Total Rev. Mile | 9.18 | 9.18 | 9.18 | 8.06 | 8.06 | 8.09 | 8.09 |

| TABLE 9: Proposed Service for Feeder Route C - South Pointe | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 20 | 20 | 20 | 20 | 30 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 3 | 19 |
| Trips per hour | 3 | 3 | 3 | 3 | 2 | 2 | |
| One-way Trips | 6 | 18 | 36 | 18 | 12 | 12 | 102 |

| TABLE 10: Proposed Service for Feeder Route G – NE 96th Street | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 30 | 30 | 30 | 30 | 30 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 3 | 19 |
| Trips per hour | 2 | 2 | 2 | 2 | 2 | 2 | |
| One-way Trips | 4 | 12 | 24 | 12 | 12 | 12 | 76 |

| TABLE 11: Proposed Service for Feeder Route J – NE 41st Street | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 4a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 30 | 15 | 30 | 15 | 30 | 60 | |
| Service Hours | 2 | 3 | 6 | 3 | 3 | 3 | 20 |
| Trips per hour | 2 | 4 | 2 | 4 | 2 | 1 | |
| One-way Trips | 8 | 24 | 24 | 24 | 12 | 6 | 98 |

| TABLE 12: Proposed Service for South Beach Local (Route 123) | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 7a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 1x | |
| Headway (mins) | 15 | 15 | 15 | 15 | 15 | |
| Service Hours | 2 | 6 | 3 | 3 | 4 | 18 |
| Trips per hour | 4 | 4 | 4 | 4 | 4 | |
| One-way Trips | 16 | 48 | 24 | 24 | 32 | 144 |

| TABLE 13: Route 120 – Eliminate Service (Recommended)<br>Route 120 – Peak service Only<br>Route 123 – Adjust headways to 15' all day<br>Create Miami Beach Trunk Route Local (Aventura to Lincoln Road)<br>Route A – Adjust Service to 15' | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 120 | Route 120 No Service | Route 120 Peak Service | ROUTE 123 | Feeder Route 123 | ROUTE A | Feeder Route A |
| 1 | Roundtrip (miles) | 29 | | 29 | 11.1 | 11.1 | 8.2 | 8.2 |
| 2 | Running Time (mins) | 120 | | 120 | 60 | 60 | 45 | 45 |
| 3 | Headway (mins) Peak | 24 | | 30 | 10 | 15 | 20 | 15 |
| 4 | Headway (mins) Off-Peak | 30 | | - | 10 | 15 | 45 | 30 |
| 5 | Hours of Service | 17 | | 6 | 18 | 18 | 18 | 18 |
| 6 | Speed (mph) | 14.5 | | 14.5 | 11.1 | 11.1 | 10.9 | 10.9 |
| 7 | Ridership (pass) | 1,793 | | | 3,352 | 3,352 | 1,675 | |
| 8 | % of Total Ridership | .61 | | | 1.14 | 1.14 | .06 | |
| 9 | Buses in Service (Peak) | 5 | (5) | 4 | 11 | 8 | 2 | 3 |
| 10 | Trips per Hour (Peak) | 2 | | 2 | 6 | 4 | 3 | 4 |
| 11 | Trips per Hour (Off-Peak) | 2 | | - | 6 | 4 | 1.5 | 2 |
| 12 | One Way Trips | 70 | | 24 | 173 | 144 | 87 | 94 |
| 13 | Pass/Trip | 25.6 | | | 19.37 | 23.27 | 19.25 | |
| 14 | Total Revenue Miles | 1,008 | (1,008) | 348 | 963 | 800 | 360 | 385 |
| 15 | Pass/Mile | 1.78 | | | 3.48 | 4.19 | 4.65 | |
| 16 | Direct Op. Cost ($) (DOC) | 7,217 | (7,217) | 2,492 | 11,357 | 9,432 | 2,845 | 3,042 |
| 17 | Recovery Ratio (%) | 7.4 | | | 200.7 | | 35.5 | |
| 18 | DOC/Total Rev. Mile | 7.16 | | 7.16 | 11.79 | 11.79 | 7.90 | 7.90 |

| TABLE 14: Proposed Peak Service for Route 120 | | | |
|---|---|---|---|
| Description | Time of Day | | Totals |
| | 6a – 9a | 4p – 7p | |
| Headway (mins) | 30 | 30 | |
| Service Hours | 3 | 3 | 6 |
| Trips per hour | 2 | 2 | |
| One-way Trips | 12 | 12 | 24 |

| TABLE 15: Proposed Service for Feeder Route A | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 6a – 9a | 9a – 4p | 4p – 7p | 7p – 9p | 9p – 12x | |
| Headway (mins) | 15 | 30 | 15 | 30 | 60 | |
| Service Hours | 3 | 7 | 3 | 3 | 3 | 18 |
| Trips per hour | 4 | 2 | 4 | 2 | 1 | |
| One-way Trips | 24 | 28 | 24 | 12 | 6 | 94 |

| TABLE 16: Route L – End at Collins Avenue<br>Create Trunk Route L<br>Create Miami Beach Local Trunk Route | | | | |
|---|---|---|---|---|
| # | DESCRIPTION | ROUTE L | Trunk Route L | New MB Local |
| 1 | Roundtrip (miles) | 33.7 | 21.0 | 31.0 |
| 2 | Running Time (mins) | 204 | 128 | 150 |
| 3 | Headway (mins) Peak | 10 | 10 | 10 |
| 4 | Headway (mins) Off-Peak | 20 | 20 | 10 |
| 5 | Hours of Service | 24 | 24 | 19 |
| 6 | Speed (mph) | 9.9 | 9.9 | 12.5 |
| 7 | Ridership (pass) | 11,206 | | |
| 8 | % of Total Ridership | 3.8 | | |
| 9 | Buses in Service (Peak) | 20 | 13 | 15 |
| 10 | Trips per Hour (Peak) | 6 | 6 | 6 |
| 11 | Trips per Hour (Off-Peak) | 3 | 3 | 6 |
| 12 | One Way Trips | 176 | 180 | 188 |
| 13 | Pass/Trip | 63.7 | | |
| 14 | Total Revenue Miles | 2,989 | 1,890 | 2,914 |
| 15 | Pass/Mile | 3.75 | | |
| 16 | Direct Op. Cost ($) (DOC) | 25,245 | 15,971 | 22,496 |
| 17 | Recovery Ratio (%) | 14.7 | | |
| 18 | DOC/Total Rev. Mile | 8.45 | 8.45 | 7.72 |

| TABLE 17: Proposed Service for Trunk Route L (NW 79th Street) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | | Totals |
| | 12x – 5a | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 60 | 15 | 10 | 12 | 10 | 20 | 30 | |
| Service Hours | 5 | 1 | 3 | 6 | 3 | 3 | 3 | 24 hours |
| Trips per hour | 1 | 4 | 6 | 5 | 6 | 3 | 2 | |
| One-way Trips | 10 | 8 | 36 | 60 | 36 | 18 | 12 | 180 trips |

| TABLE 18: Proposed Miami Beach Local Trunk Route Aventura Mall to Lincoln Road | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 15 | 10 | 10 | 10 | 15 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 3 | 19 |
| Trips per hour | 4 | 6 | 6 | 6 | 4 | 2 | |
| One-way Trips | 8 | 36 | 72 | 36 | 24 | 12 | 188 |

| TABLE 19: Service Comparison – Before and After | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | Aventura/Biscayne Blvd. – Collins Avenue | E - S | 7 | ST MB T | 12 | |
| | Total trips per hour | | 7 | | 12 | +5.0 |
| 2 | NE 192nd Street – NE 178th Street | E – K - S | 9 | ST - MB T | 12 | |
| | Total trips per hour | | 9 | | 12 | +3.0 |
| 3 | NE 178th Street – NE 174th Street | S | 5 | ST - MB T | 12 | |
| | Total trips per hour | | 5 | | 12 | +7.0 |
| 4 | NE 174th Street – Sunny Isles Blvd. | E – K - S | 9 | ST - MB T | 12 | |
| | Total trips per hour | | 9 | | 12 | +3.0 |
| 5 | Sunny Isles Blvd. – Haulover Park | H – K - S | 10 | E - H – ST MB T | 17 | |
| | Total trips per hour | | 10 | | 17 | +7.0 |
| 6 | Haulover Park – NE 96th Street | H - K – S – 120 | 12.5 | G – ST – MB T | 14 | |
| | Total trips per hour | | 12.5 | | 14 | +1.5 |
| 7 | NE 96th Street – NE 85th Street | H – K – S R - G - 120 | 16 | R - ST - MB T | 13.5 | |
| | Total trips per hour | | 16 | | 13.5 | -1.5 |
| 8 | NE 85th Street – NE 77th Street | G – S – R –H - 120 | 14 | ST – R MB T | 11.5 | |
| | Total trips per hour | | 14 | | 11.5 | -2.5 |
| 9 | NE 77th Street – NE 71st Street | G - S – R – H – K - 120 | 16 | ST – R MB T | 13.5 | |
| | Total trips per hour | | 16 | | 13.5 | -2.5 |
| 10 | NE 71st Street – NE 63rd Street | G – S – R – H – K – L - J - 120 | 26 | ST – L R – MB T | 19.5 | |
| | Total trips per hour | | 26 | | 19.5 | -6.5 |
| 11 | NE 63rd Street – NE 41st Street | L – G – H – S – J - 120 | 22.5 | ST – L MB T | 18 | |
| | Total trips per hour | | 22.5 | | 18 | -4.5 |
| 12 | NE 41st Street – Lincoln Road | L – G – H – C – S - M | 21 | L – C – ST - MB T | 21 | |
| | Total trips per hour | | 21 | | 21 | 0 |
| 13 | Lincoln Road – NE 5th Street | H – C – K – 123 | 14 | C – ST - 123 | 13 | |
| | Total trips per hour | | 14 | | 13 | -1.0 |
| 14 | NE 5th Street – South Pointe | M - 123 | 6 | M - 123 | 6 | |
| | Total trips per hour | | 6 | | 6 | 0 |

| TABLE 20: Summary of Savings | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
| | | Before | After | Before | After | Before | After |
| 1 | K | 11 | - | 1,668 | - | 12,880 | - |
| 2 | S | 21 | - | 3,919 | - | 31,261 | - |
| 3 | Aventura to Downtown Trunk Route | - | 21 | - | 4,301 | - | 34,322 |
| 4 | E | 8 | 7 | 1,117 | 924 | 8,770 | 7,253 |
| 5 | H | 12 | 6 | 2,087 | 1,199 | 16,582 | 9,532 |
| 6 | M | 6 | 4 | 756 | 551 | 6,652 | 4,849 |
| 7 | R | 3 | 2 | 430 | 342 | 3,671 | 2,921 |
| 8 | C | 8 | 4 | 1,103 | 572 | 10,128 | 5,251 |
| 9 | G | 8 | 4 | 1,255 | 768 | 10,119 | 6,190 |
| 10 | J | 15 | 13 | 2,041 | 1,710 | 16,510 | 13,834 |
| 11 | 12 | 5 | 0 | 1,008 | - | 7,217 | - |
| 12 | 123 | 11 | 8 | 963 | 800 | 11,357 | 9,432 |
| 13 | A | 2 | 3 | 360 | 385 | 2,845 | 3,042 |
| 14 | MB Local Trunk Route | - | 15 | - | 2,914 | - | 22,496 |
| 15 | Totals | 110 | 87 | 16,707 | 14,466 | 137,992 | 119,122 |
| 16 | Savings/Weekday | 23 | | 2,241 | | 18,870 | |
| 17 | Savings/Year | 23 | | 582,660 | | $4.9M | |

| TABLE 21: Other Potential improvements | |
|---|---|
| 1 | Coordinate with the City of Aventura the transfer of passenger from the city shuttle to the MDT routes. |
| 2 | Evaluate potential locations along Collins Avenue for continuous shelter and benches facilities for riders transferring from different routes. Eastbound – southbound connection & northbound – westbound connection. |
| 3 | Relocate bus stops at a quarter mile. |
| 4 | Monitor all routes for determining potential adjustment to the routes, if needed |

# Appendix 10:
# Flagler Street
## Analysis and Recommendations

# FLAGLER STREET CORRIDOR

REVISED 07/13/09

| TABLE 1: Combine Route 11 and 51 to… Create Flagler Street Trunk Route Create Mall de las Americas Trunk Route | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 11 | ROUTE 51 | TOTALS | Flagler Trunk Route | Mall de las Americas Trunk Route | TOTALS |
| 1 | Roundtrip (miles) | 27.1 | 38.6 | | 24.2 | 18.2 | |
| 2 | Running Time (mins) | 150 | 184 | | 134 | 101 | |
| 3 | Headway (mins) Peak | 8 | 15 | | 10 | 10 | |
| 4 | Headway (mins) Off-Peak | 15 | 30 | | 15 | 20 | |
| 5 | Hours of Service | 24 | 16.5 | | 24 | 17 | |
| 6 | Speed (mph) | 10.8 | 12.9 | | 10.8 | 10.8 | |
| 7 | Ridership (pass) | 14,163 | 4,086 | 18,249 | | | |
| 8 | % of Total Ridership | 4.83 | 1.39 | | | | |
| 9 | Buses in Service (Peak) | 21 | 12 | 33 | 14 | 10 | 24 |
| 10 | Trips per Hour (Peak) | 7.5 | 4 | 8 | 6 | 6 | 12 |
| 11 | Trips per Hour (Off-Peak) | 4 | 2 | 4.5 | 4 | 3 | 7 |
| 12 | One Way Trips | 198 | 100 | 298 | 180 | 126 | 306 |
| 13 | Pass/Trip | 71.7 | 33.5 | | | | |
| 14 | Total Revenue Miles | 2,261 | 1,933 | 4,194 | 2,268 | 1,147 | 3,721 |
| 15 | Pass/Mile | 6.26 | 2.11 | | | | |
| 16 | Direct Op. Cost ($) (DOC) | 21,480 | 15,226 | 36,706 | 21,546 | 9,968 | 31,514 |
| 17 | Recovery Ratio (%) | 50.6 | 23.5 | | | | |
| 18 | DOC/Total Rev. Mile | 9.50 | 7.88 | | 9.50 | 8.69 | |

| Table 2: Proposed Service for Flagler Street Trunk Route | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | | Totals |
| | 4 – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | 12 – 4a | |
| Headway (mins) | 15 | 10 | 15 | 10 | 15 | 30 | 60 | |
| Service Hours | 2 | 3 | 6 | 3 | 3 | 3 | 4 | 24 |
| Trips per hour | 4 | 6 | 4 | 6 | 4 | 2 | 1 | |
| One-way Trips | 16 | 36 | 48 | 36 | 24 | 12 | 8 | 180 |

| TABLE 3: Proposed Service for Mall de las Americas Trunk Route | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 4 – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 7p | |
| Headway (mins) | 20 | 10 | 20 | 10 | 20 | |
| Service Hours | 2 | 3 | 6 | 3 | 1 | 15 |
| Trips per hour | 3 | 6 | 3 | 6 | 3 | |
| One-way Trips | 12 | 36 | 36 | 36 | 6 | 126 |

| TABLE 4: SW 137th Ave – SW 107th Ave Feeder Route | | |
|---|---|---|
| # | DESCRIPTION | Feeder |
| 1 | Roundtrip (miles) | 15.4 |
| 2 | Travel Time (mins) | 72 |
| 3 | Headway (mins) Peak | 20 |
| 4 | Headway (mins) Off-Peak | 30 |
| 5 | Hours of Service | 13 |
| 6 | Speed (mph) | 12.9 |
| 7 | Ridership (pass) | |
| 8 | % of Total Ridership | |
| 9 | Buses in Service (Peak) | 4 |
| 10 | Trips per Hour (Peak) | 3 |
| 11 | Trips per Hour (Off-Peak) | 2 |
| 12 | One Way Trips | 66 |
| 13 | Pass/Trip | |
| 14 | Total Revenue Miles | 508 |
| 15 | Pass/Mile | |
| 16 | Direct Op. Cost ($) (DOC) | 4,003 |
| 17 | Recovery Ratio (%) | |
| 18 | DOC/Total Rev. Mile | 7.88 |

| TABLE 5: Proposed Service for FIU Feeder Route | | | | | |
|---|---|---|---|---|---|
| Description | Time of Day | | | | Totals |
| | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 7p | |
| Headway (mins) | 20 | 30 | 20 | 20 | |
| Service Hours | 3 | 6 | 3 | 1 | 13 |
| Trips per hour | 3 | 2 | 3 | 3 | |
| One-way Trips | 18 | 24 | 18 | 6 | 66 |

| TABLE 6: Other Potential Improvements | |
|---|---|
| 1 | Relocate bus stops at a quarter mile. |
| 2 | Evaluate potential transfer station at 79th Avenue, 42nd Avenue and 27th Avenue. |
| 3 | Monitor new route #83T to determine additional capacity, if needed. |
| 4 | Branding of the new service along Flagler Street. |
| 5 | Marketing campaign to promote and create awareness of the proposed service, as well as educate the riders. |

| TABLE 7: Service Comparison: Before & After (Peak Period) | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | SW 118th Avenue – SW 107th Avenue | 51 | 2 | Feeder | 3 | |
| | Total trips per hour | | 2 | | 3 | +1.0 |
| 2 | SW 107th Avenue – Mall Las Americas | 11 | 3 | FIU Route | 6 | |
| | | 51 | 4 | | | |
| | Total trips per hour | | 7 | | 6 | -1.0 |
| 3 | Mall Las Americas - Downtown | 11 | 7 | FIU Route | 6 | |
| | | 51 | 4 | Mall Route | 6 | |
| | Total trips per hour | | 11 | | 12 | +1.0 |

| TABLE 8: Summary of Savings | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
| | | Before | After | Before | After | Before | After |
| 1 | 11 | 21 | - | 2261 | - | 21,480 | - |
| 2 | 51 | 12 | - | 1933 | - | 15,226 | - |
| 3 | Flagler trunk Route | - | 14 | - | 2,268 | - | 21,546 |
| 4 | Mall de las Americas Trunk Route | - | 10 | - | 1,147 | - | 9,968 |
| 5 | FIU Feeder Route | - | 4 | - | 508 | - | 4,003 |
| 6 | Totals | 33 | 28 | 4,194 | 3,923 | 36,706 | 35,517 |
| 7 | Savings/Weekday | 5 | | 271 | | 1,189 | |
| 8 | Savings/Year | 5 | | 70,460 | | 309,140 | |

# Appendix 11:
# Kendall Drive
## Analysis and Recommendations

# KENDALL DRIVE CORRIDOR

REVISED 07/13/09

| TABLE 1: Combine Routes 88 and 288<br>Create Kendall Trunk Route<br>Create Kendale Lakes Feeder Route | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 88 | ROUTE 288 | TOTALS | ROUTE 88T | Kendale Lakes Feeder | TOTALS |
| 1 | Roundtrip (miles) | 19.4 | 22.5 | | 19.4 | 8.3 | |
| 2 | Running Time (mins) | 120 | 90 | | 120 | 51 | |
| 3 | Headway (mins) Peak | 15 | 15 | | 15 | 30 | |
| 4 | Headway (mins) Off-Peak | 30 | - | | 20 | 60 | |
| 5 | Hours of Service | 21 | 9 | | 21 | 17 | |
| 6 | Speed (mph) | 9.7 | 15 | | 9.7 | 9.7 | |
| 7 | Ridership (pass) | 3,018 | 797 | 3,815 | | | |
| 8 | % of Total Ridership | 1.06 | 0.27 | 1.30 | | | |
| 9 | Buses in Service (Peak) | 8 | 6 | 14 | 8 | 2 | 10 |
| 10 | Trips per Hour (Peak) | 4 | 4 | 8 | 4 | 2 | |
| 11 | Trips per Hour (Off-Peak) | 2 | - | 2 | 3 | 1 | |
| 12 | One Way Trips | 116 | 48 | 164 | 120 | 50 | |
| 13 | Pass/Trip | 26.0 | 16.6 | | | | |
| 14 | Total Revenue Miles | 1,042 | 586 | 1,628 | 1,164 | 207 | 1,371 |
| 15 | Pass/Mile | 2.90 | 1.36 | | | | |
| 16 | Direct Op. Cost ($) (DOC) | 8,705 | 4,347 | 13,052 | 9,719 | 1,536 | 11,255 |
| 17 | Recovery Ratio (%) | 34.8 | 17.8 | | | | |
| 18 | DOC/Total Rev. Mile | 8.35 | 7.42 | | 8.35 | 7.42 | |

| TABLE 2: Proposed Service for Kendall Dr. Trunk Route | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 20 | 15 | 20 | 15 | 20 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 3 | 19 |
| Trips per hour | 3 | 4 | 3 | 4 | 3 | 2 | |
| One-way Trips | 6 | 24 | 36 | 24 | 18 | 12 | 120 |

| TABLE #: Proposed Service for Kendale Lakes Feeder Route | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of the Day | | | | | Totals |
| | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 10p | |
| Headway (mins) | 30 | 60 | 30 | 30 | 60 | |
| Service Hours | 3 | 6 | 3 | 3 | 1 | 16 hours |
| Trips per hour | 2 | 1 | 2 | 2 | 1 | |
| One-way Trips | 12 | 12 | 12 | 12 | 2 | 50 trips |

| TABLE 4: Other Potential Improvements | |
|---|---|
| 1 | Relocate bus stops at a quarter mile. |
| 2 | Evaluate potential transfer station at SW 137th Avenue and SW 107th Avenue. |
| 3 | Monitor new route #88T to determine additional capacity, if needed. |
| 4 | Monitor Kendale Lakes feeder to determine additional capacity, if needed. |
| 5 | Branding of the new service along Kendall Drive Corridor. |
| 6 | Marketing campaign to promote and create awareness of the proposed service, as well as educate the riders. |

| TABLE 5: Service Comparison – Before and After (Peak Period) | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | SW 157th Avenue – SW 152nd Avenue | 72 | 2 | 72 | 2 | |
| | | 88 | 4 | 88T | 4 | |
| | | 104 | 2 | 104 | 2 | |
| | Total trips per hour | | 8 | | 8 | 0 |
| 2 | SW 152nd Avenue – SW 147th Avenue | 88 | 4 | 88T | 4 | |
| | | 104 | 2 | 104 | 2 | |
| | | 288 | 4 | | | |
| | Total trips per hour | | 10 | | 6 | -4.0 |
| 3 | SW 147th Avenue – SR 874 | 88 | 4 | 88T | 4 | |
| | | 288 | 4 | | | |
| | Total trips per hour | | 8 | | 4 | -4.0 |
| 4 | SR 874 – Metrorail Dadeland North Station | 88 | 4 | 88T | 4 | |
| | Total trips per hour | | 4 | | 4 | 0 |

| TABLE #: Summary of Savings | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
| | | Before | After | Before | After | Before | After |
| 1 | 88 | 8 | - | 1,042 | - | 8,705 | - |
| 2 | 288 | 6 | - | 586 | - | 4,347 | - |
| 3 | Kendall Dr. Trunk Route | - | 8 | - | 1,164 | - | 9,719 |
| 4 | Kendale Lake Feeder Route | - | 2 | - | 207 | - | 1,536 |
| 5 | Totals | 14 | 10 | 1,628 | 1,371 | 13,052 | 11,255 |
| 6 | Savings/Weekday | 4 | | 257 | | 1,797 | |
| 7 | Savings/Year | 4 | | 66,820 | | 467,220 | |

# Appendix 12:
# Miami Gardens Drive
## Analysis and Recommendations

# MIAMI GARDENS DRIVE CORRIDOR

REVISED 07/13/09

| TABLE 1: Combine Routes 83 and 183 Create Miami Gardens Dr. Trunk Route | | | | | |
|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 83 | ROUTE 183 | TOTALS | Miami Gardens Dr. Trunk Route |
| 1 | Roundtrip (miles) | 36.9 | 39.4 | | 30.2 |
| 2 | Travel Time (mins) | 180 | 160 | | 134 |
| 3 | Headway (mins) Peak | 15 | 30 | | 10 |
| 4 | Headway (mins) Off-Peak | 30 | 40 | | 15 |
| 5 | Hours of Service | 19.25 | 18 | | 19 |
| 6 | Speed (mph) | 12.3 | 14.8 | | 13.6 |
| 7 | Ridership (pass) | 4,345 | 1,637 | | - |
| 8 | % of Total Ridership | 1.48 | 0.56 | | - |
| 9 | Buses in Service (Peak) | 13 | 5 | 18 | 14 |
| 10 | Trips per Hour (Peak) | 4 | 2 | 6 | 6 |
| 11 | Trips per Hour (Off-Peak) | 2 | 1.5 | 3.5 | 4 |
| 12 | One Way Trips | 97 | 57 | 154 | 155 |
| 13 | Pass/Trip | 44.79 | 28.72 | | |
| 14 | Total Revenue Miles | 1,660 | 1,123 | 2,783 | 2,341 |
| 15 | Pass/Mile | 2.62 | 1.46 | | |
| 16 | Direct Op. Cost ($) (DOC) | 13,504 | 7,539 | 21,043 | 17,366 |
| 17 | Recovery Ratio (%) | 31.1 | 22.4 | | |
| 18 | DOC/Total Rev. Mile | 8.13 | 6.71 | | 7.42 |

| TABLE 2: Proposed Service for Miami Gardens Dr. Trunk Route | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | |
| Headway (mins) | 15 | 10 | 15 | 10 | 20 | 40 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 3 | 19 hours |
| Trips per hour | 4 | 6 | 4 | 6 | 3 | 1.5 | |
| One-way Trips | 8 | 36 | 48 | 36 | 18 | 9 | 155 trips |

| TABLE 3: FIU and Miami Lakes Feeder Routes | | | |
|---|---|---|---|
| # | DESCRIPTION | FIU Feeder | Miami Lakes Feeder |
| 1 | Roundtrip (miles) | 3.2 | 7.5 |
| 2 | Travel Time (mins) | 15 | 30 |
| 3 | Headway (mins) Peak | 15 | 15 |
| 4 | Headway (mins) Off-Peak | 15 | 30 |
| 5 | Hours of Service | 17 | 18 |
| 6 | Speed (mph) | 12.3 | 14.8 |
| 7 | Ridership (pass) | | |
| 8 | % of Total Ridership | | |
| 9 | Buses in Service (Peak) | 1 | 2 |
| 10 | Trips per Hour (Peak) | 4 | 4 |
| 11 | Trips per Hour (Off-Peak) | 4 | 2 |
| 12 | One Way Trips | 136 | 92 |
| 13 | Pass/Trip | | |
| 14 | Total Revenue Miles | 218 | 345 |
| 15 | Pass/Mile | | |
| 16 | Direct Op. Cost ($) (DOC) | 1,615 | 2,560 |
| 17 | Recovery Ratio (%) | | |
| 18 | DOC/Total Rev. Mile | 7.42 | 7.42 |

| TABLE 4: Proposed Service for FIU Feeder Route | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 10p | |
| Headway (mins) | 15 | 15 | 10 | 15 | 10 | 15 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 1 | 17 hours |
| Trips per hour | 4 | 4 | 4 | 4 | 4 | 4 | |
| One-way Trips | 8 | 24 | 48 | 24 | 24 | 8 | 136 trips |

| TABLE 5: Proposed Service for Miami Lakes Feeder Route | | | | | | | |
|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | Totals |
| | 5a - 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 11p | |
| Headway (mins) | 30 | 15 | 30 | 15 | 30 | 60 | |
| Service Hours | 1 | 3 | 6 | 3 | 3 | 2 | 18 hours |
| Trips per hour | 2 | 4 | 2 | 4 | 2 | 1 | |
| One-way Trips | 4 | 24 | 24 | 24 | 12 | 4 | 92 trips |

| TABLE 6: Other Potential Improvements | |
|---|---|
| 1 | Coordinate with FIU the establishment of an internal shuttle. |
| 2 | Coordinate with the Town of Miami Lakes the establishment of a Miami Lakes Shuttle. |
| 3 | Evaluate potential locations for continuous shelter and benches facilities for riders transferring from new route 83T to new route 3T and vice versa. Eastbound – southbound connection & northbound – westbound connection. |
| 4 | Relocate bus stops at a quarter mile. |
| 5 | Evaluate potential transfer station at NW 67th Avenue, NW 27th Avenue and NW 2nd Avenue. |
| 6 | Monitor new route 83T to determine additional capacity, if needed. |
| 7 | Branding of the new service along Miami Gardens Drive. |
| 8 | Marketing campaign to promote and create awareness of the proposed service, as well as educate the riders. |

| TABLE 7: Service Comparison – Before and After (Peak Period) | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | NW 87th Avenue – NW 67th Avenue | 91 - 183 | 2 - 2 | 91- MG Trunk Route | 2 - 6 | |
| | Total trips per hour | | 4 | | 8 | +4.0 |
| 2 | NW 67th Avenue – NW 7th Avenue | 83 | 4 | MG Trunk Route | 6 | |
| | | 183 | 2 | | | |
| | Total trips per hour | | 6 | | 6 | 0 |
| 3 | NW 7th Avenue – NW 2nd Avenue | 75 - 183 | 2 - 2 | 75 - MG Trunk Route | 2 - 6 | |
| | Total trips per hour | | 4 | | 8 | +4.0 |
| 4 | NW 2nd Avenue – N Miami Avenue | 75 – 83 - 183 | 2 – 4 - 2 | 75 - MG Trunk Route | 2 - 6 | |
| | Total trips per hour | | 8 | | 8 | 0 |
| 5 | N Miami Avenue – NE 2nd Court | 75 | 2 | 75 | 2 | |
| | | 183 | 2 | MG Trunk Route | 6 | |
| | Total trips per hour | | 4 | | 8 | +4.0 |
| 6 | NE 2nd Court – NE 6th Avenue | 75 | 2 | 75 | 2 | |
| | | 83 | 4 | MG Trunk Route | 6 | |
| | | 183 | 2 | | | |
| | Total trips per hour | | 8 | | 8 | 0 |
| 7 | NE 6th Avenue – Biscayne Boulevard | 9 | 5 | 9 | 5 | |
| | | 75 | 2 | 75 | 2 | |
| | | 183 | 2 | MG Trunk Route | 6 | |
| | Total trips per hour | | 9 | | 13 | +4.0 |
| 8 | Biscayne Boulevard - Aventura | 3 | 3 | Biscayne TR | 7.5 | |
| | | 93 | 4 | Trunk Route | 6 | |
| | | 183 | 3 | | | |
| | Total trips per hour | | 10 | | 13.5 | +3.5 |
| 9 | Miami Lakes – NW 183rd Street | 83 | 4 | ML Feeder | 4 | |
| | | 267 | 3 | 267 | 3 | |
| | Total trips per hour | | 7 | | 7 | 0 |
| 10 | Biscayne Boulevard - FIU | 28 | 2 | 28 | 2 | |
| | | 83 | 2 | FIU Feeder | 4 | |
| | | 183 | 2 | | | |
| | Total trips per hour | | 6 | | 6 | 0 |

| TABLE 8: Summary of Savings | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
| | | Before | After | Before | After | Before | After |
| 1 | 83 | 13 | - | 1,660 | - | 13,504 | - |
| 2 | 183 | 5 | - | 1,123 | - | 7,539 | - |
| 3 | Miami Gardens Dr. Trunk Route | - | 14 | - | 2,108 | - | 15,642 |
| 4 | FIU Feeder Route | - | 1 | - | 218 | - | 1,615 |
| 5 | Miami Lakes Feeder Route | - | 2 | - | 345 | - | 2,560 |
| 6 | Totals | 18 | 17 | 2,783 | 2,671 | 21,043 | 19,817 |
| 7 | Savings/Weekday | 1 | | 112 | | 1,226 | |
| 8 | Savings/Year | 1 | | 29,120 | | 318,760 | |

# Appendix 13:
# NW/SW 27th Avenue
## Analysis and Recommendations

# NW/SW 27th AVENUE CORRIDOR

(REVISED 07/13/09)

| TABLE 1: Combine Routes 27 & 97<br>Create NW 27th Avenue Trunk Route<br>Create SW 27th Avenue Trunk Route | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 27 | ROUTE 97 | TOTALS | Trunk Route 27-N | Trunk Route 27-S | TOTALS |
| 1 | Roundtrip (miles) | 39.8 | 24.3 | | 18.6 | 13.4 | |
| 2 | Running Time (mins) | 210 | 90 | | 98 | 78 | |
| 3 | Headway (mins) Peak | 15 | 20 | | 7.5 | 7.5 | |
| 4 | Headway (mins) Off-Peak | 15 | 30 | | 15 | 15 | |
| 5 | Hours of Service | 24 | 15 | | 24 | 24 | |
| 6 | Speed (mph) | 11.4 | 16.2 | | 11.4 | 11.4 | |
| 7 | Ridership (pass) | 10,028 | 1,490 | 11,518 | | | |
| 8 | % of Total Ridership | 3.42 | 0.51 | 3.93 | | | |
| 9 | Buses in Service (Peak) | 15 | 6 | 21 | 13 | 10 | 23 |
| 10 | Trips per Hour (Peak) | 4 | 3 | 7 | 8 | 8 | |
| 11 | Trips per Hour (Off-Peak) | 4 | 2 | 6 | 4 | 4 | |
| 12 | One Way Trips | 138 | 73 | 211 | 194 | 194 | 388 |
| 13 | Pass/Trip | 72.68 | 20.41 | | | | |
| 14 | Total Revenue Miles | 2,568 | 838 | 3,436 | 1,804 | 1,300 | 3,104 |
| 15 | Pass/Mile | 3.91 | 1.78 | | | | |
| 16 | Direct Op. Cost ($) (DOC) | 20,551 | 6,106 | 26,657 | 13,151 | 9,477 | 22,628 |
| 17 | Recovery Ratio (%) | 43.6 | 23.2 | | | | |
| 18 | DOC/Total Rev. Mile | 8.00 | 7.29 | | 7.29 | 7.29 | |

| TABLE 2: Proposed Service for NW 27th Avenue North Trunk Route | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | | Totals |
| | 4 – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | 12 – 4a | |
| Headway (mins) | 20 | 7.5 | 15 | 7.5 | 20 | 30 | 60 | |
| Service Hours | 2 | 3 | 6 | 3 | 3 | 3 | 4 | 24 |
| Trips per hour | 3 | 8 | 4 | 8 | 3 | 2 | 1 | |
| One-way Trips | 12 | 48 | 48 | 48 | 18 | 12 | 8 | 194 |

| TABLE 3: Proposed Service for SW 27th Avenue South Trunk Route | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | | | Totals |
| | 4 – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 9p | 9p – 12x | 12 – 4a | |
| Headway (mins) | 20 | 7.5 | 15 | 7.5 | 20 | 30 | 60 | |
| Service Hours | 2 | 3 | 6 | 3 | 3 | 3 | 4 | 24 |
| Trips per hour | 3 | 8 | 4 | 8 | 3 | 2 | 1 | |
| One-way Trips | 12 | 48 | 48 | 48 | 18 | 12 | 8 | 194 |

| TABLE 4: Eliminate Route 21<br>Create NW 213th Street Feeder Route<br>Create NW 183rd Street Feeder Route | | | | | |
|---|---|---|---|---|---|
| # | DESCRIPTION | ROUTE 21 | Eliminate Route | NW 213th St. Feeder Route | NW 183rd St. Feeder Route |
| 1 | Roundtrip (miles) | 33.4 | | 3.8 | 5.3 |
| 2 | Running Time (mins) | 180 | | 15 | 22 |
| 3 | Headway (mins) Peak | 30 | | 15 | 15 |
| 4 | Headway (mins) Off-Peak | 60 | | 30 | 30 |
| 5 | Hours of Service | 19 | | 15 | 15 |
| 6 | Speed (mph) | 11.1 | | 15 | 15 |
| 7 | Ridership (pass) | 3,077 | | | |
| 8 | % of Total Ridership | 1.05 | | | |
| 9 | Buses in Service (Peak) | 6 | (6) | 1 | 2 |
| 10 | Trips per Hour (Peak) | 2 | | 4 | 4 |
| 11 | Trips per Hour (Off-Peak) | 1 | | 2 | 2 |
| 12 | One Way Trips | 63 | | 42 | 42 |
| 13 | Pass/Trip | 48.8 | | | |
| 14 | Total Revenue Miles | 820.9 | (820.9) | 160 | 223 |
| 15 | Pass/Mile | 3.75 | | | |
| 16 | Direct Op. Cost ($) (DOC) | 7,077 | (7,077) | 1,166 | 1,626 |
| 17 | Recovery Ratio (%) | 13.7 | | | |
| 18 | DOC/Total Rev. Mile | 8.62 | | 7.29 | 7.29 |

| TABLE 5: Proposed Service for Feeder Routes NW 213th Street and NW 183rd Street to Landshark (Dolphin) Stadium | | | | | | |
|---|---|---|---|---|---|---|
| Description | Time of Day | | | | | Totals |
| | 5 – 6a | 6a – 9a | 9a – 3p | 3p – 6p | 6p – 8p | |
| Headway (mins) | 30 | 15 | 30 | 15 | 30 | |
| Service Hours | 1 | 3 | 6 | 3 | 2 | 15 |
| Trips per hour | 2 | 4 | 2 | 4 | 2 | |
| One-way Trips | 2 | 12 | 12 | 12 | 4 | 42 |

| TABLE 6: Other Potential Improvements | |
|---|---|
| 1 | Relocate bus stops at a quarter mile. |
| 2 | Evaluate potential transfer station at SW 137th Avenue and SW 107th Avenue. |
| 3 | Monitor new route #88T to determine additional capacity, if needed. |
| 4 | Monitor Kendale Lakes feeder to determine additional capacity, if needed. |
| 5 | Branding of the new service along Kendall Drive Corridor. |
| 6 | Marketing campaign to promote and create awareness of the proposed service, as well as educate the riders. |

| TABLE 7: Service Comparison – Before and After (Peak Period) | | | | | | |
|---|---|---|---|---|---|---|
| # | Segment | Current Service | | Proposed Service | | Balance |
| | | Route # | Trips/Hour | Route # | Trips/Hour | |
| 1 | NW 211th Street – Palmetto Service Road | 27 | 4 | Trunk Route 27-N | 8 | |
| | | 97 | 3 | | | |
| | Total trips per hour | | 7 | | 8 | +1.0 |
| 2 | Palmetto Service Road to Martin Luther King, Jr. Metrorail Station | 21 | 2 | Trunk Route 27-N | 8 | |
| | | 27 | 4 | | | |
| | | 97 | 3 | | | |
| | Total trips per hour | | 9 | | 8 | -1.0 |
| 3 | Martin Luther King, Jr. Metrorail Station to Coconut Grove Metrorail Station | 27 | 4 | Trunk Route 27-S | 4 | |
| | Total trips per hour | | 4 | | 8 | +4.0 |

| TABLE 8: Summary of Savings | | | | | | | |
|---|---|---|---|---|---|---|---|
| # | Route # | Buses | | Revenue-Miles | | DOC ($) | |
| | | Before | After | Before | After | Before | After |
| 1 | 27 | 15 | - | 2,568 | - | 20,551 | - |
| 2 | 97 | 6 | - | 838 | - | 6,106 | - |
| 3 | 27-N Trunk | - | 13 | - | 1,804 | - | 13,151 |
| 4 | 27-S Trunk | - | 10 | - | 1,300 | - | 9,477 |
| 5 | 21 | 6 | - | 821 | - | 7,077 | - |
| 6 | 213th Feeder | - | 1 | - | 160 | - | 1,166 |
| 7 | 183rd Feeder | - | 2 | - | 223 | - | 1,626 |
| 8 | Totals | 27 | 26 | 4,227 | 3,487 | 33,734 | 25,420 |
| 9 | Savings/Weekday | 1 | | 740 | | 8,314 | |
| 10 | Savings/Year | | | 192,400 | | $2.2M | |

# Appendix 14:
# MDT Service Standards Analysis

# COMMENTS REGARDING MDT TRANSIT SERVICE STANDARDS

## A. GENERAL COMMENTS

1. The document is comprehensive and too ambitious. This is the first time that MDT is going through this process; therefore it is recommended keeping these performance measures and standards as simple as possible.
2. It looks more like an academic work than a set of performance measures and standards that MDT can comply with.
3. Based on the current MDT conditions (financially and operational) the performance measures and standards should be carefully selected. It is recommended to re-evaluate them and choose those that can help the agency in providing a better service. The current document should be the ultimate goal for MDT Service Standards.
4. The purpose of this process should be for establishing performance measures and standards that provides MDT with a tool for:
   a. Maximizing MDT's resources:
      - fleet
      - infrastructure
      - personnel
      - operating funds
   b. Providing the necessary flexibility in establishing new service, re-structuring current service and eliminating those unproductive routes based on specific criteria.
   c. Establishing future performance measures and standards that could also be expanded to other operational areas within transit operations, such as: maintenance, inventory, parts, etc…
5. Performance measures and standards should be used for MDT's benefit and not, at this time, as a tool for measuring and evaluating MDT's performance.
6. Performance measures and standards should be established in a way that MDT can comply with them. Also, they should be evaluated on a yearly basis for determining MDT accomplishment and move to another level of improvement.

## B. SPECIFIC COMMENTS

1. **Bus Route Spacing**
   The objective of this performance is to measure transit accessibility to the community. This section should be in concurrence with the Transportation Element of the Comprehensive Development Master Plan (CDMP) prepared by the Planning Department and approved by BCC (Mass Transit Sub-element of the CDMP, page #II-29).
   Recommendation:
   Do not use this parameter as a performance measure. MDT should use this parameter as an element to comply with the CDMP and as a measure to demonstrate the transit coverage within the county boundaries.

2. **Bus Route Directness**
   The formula used for determining this standard is too complicated. Additionally, it requires obtaining data regarding the number of through passengers and the number of passengers served by the

deviation. In order to find out the number of passengers served by the deviation, you have to:

**a.** Use a model to project the future passengers, or
**b.** Establish the service and identify the number of passenger served after the implementation. Under this scenario, once the service is implemented, it is very difficult to eliminate it.
**c.** Even though the formula is established, the last paragraph indicates that "total additional travel time for all through passengers shall not exceed 8 minutes for each rider boarding or alighting along the deviation". In other words, the deviation shall not be more than 8 minutes. If so, why the formula is needed? Additionally, the "X" minutes value (8 minutes) is not appropriate because for a route that has a running time of 100 minutes (one-way) this value represents 8%, but for a route that the running time is 50 minutes (one-way) this is 16%. There are a number of other factors that may change with this assumption, such as: number of trips, number of peak buses, revenue miles and operating cost, among others.
Recommendation:
MDT should evaluates the routes and determining a percentage of the travel time that will be allow for deviation without affecting the number of buses required for such service or X% of the travel time or X% of revenue –miles. In order to have a standard in place, it could be established no more than 5% increase in the travel time. This would allow MDT to make a detailed evaluation for further discussions and changes. On the other hand, it could be established that if for such deviation an additional bus is required, the establishment of a shuttle service could be evaluated and implemented to avoid delays in those through passengers that are already inside the bus. It is not fair for 30 passengers on the bus to deviate for 8 minutes for picking up a couple of passengers. This performance measure should require more detailed consideration and evaluation.

3. **Bus Stop Spacing**
The tables show on page #14 seems to be in contradiction. The first table establishes the distance between bus stops according to the density of the serviced area, while the second table establishes the distance between bus stops according to the type of service. This is confused. Which of the two tables are the one that will determine the distance between bus stops?
According to MDT data there are 58 routes with more than 5.0 bus stops per mile.
Recommendation:
Do not use this as a performance measure. A plan could be developed to improve transit service by reducing travel time and attracting more passengers. As part of this plan, bus stops should be evaluated on a case by case.

4. **Transit Amenities**
Do not use this as a performance measure.
Recommendation:
As in the other measure, prepare a plan integrated to the bus stop spacing for determining the amenities and passengers need on a case by case scenario and then executed. Once the plan is in place, then these parameters can be established as a performance measure.

5. **Schedule Design**
Do not use this as a performance measure. This is a tool for internal operation.

6. **Span of Service**
No comments

7. **Differing Types and Level of Service**

There is no background or explanation about this performance measure. The table shows the different type of service and the maximum number of standees. The title of this section and the table needs to be consistent. Regarding the table, there are some questions that need clarification:

**a.** Who is going to count the number of standees?

**b.** Who is going to enforce this performance measure?

**c.** Is it really what MDT wants by limiting the capacity of the standees per bus per type of service?

Recommendation:

Do not use this as a performance measure. MDT should establish performance measures under a controlled environment.

8. **Passenger Loading**

"Maximum load factor for a single trip should not exceed 160%. When elderly ridership exceeds 20%of the ridership of a route, the loading standard should not exceed 100% except in the peak where the standard is 110%. When the standing time on a trip is of short duration (< or = 10 minutes) such as school trippers with low elderly ridership, the maximum load for a single trip can be 160%. At no point shall the load factor on a single trip be greater than 175%."

Simple questions, How MDT can calculate all these conditions? How it is going to be implemented? What happen if the load factor is over any of these percentages?

Recommendation:

Load factors could be determined by route and used for detailed route evaluation with the purpose of modifying service requirements.

- high load factor more buses are required…
- low load factor less buses are required…
- low load factor, need for route realignment for that particular segment, etc…

Load factors should be established for further analysis and not as a performance measure at this time. MDT is developing a set of standards; just use those that will help the service.

9. **Headway**

No comments.

10. **Route Performance and Productivity**

    a. **Systemwide Standards**

    In this section, a table shows the number of boardings per hour.

    - Are these boardings based on peak period or off peak?
    - What happens if MDT does not meet these standards?

    Recommendation:

    This is a good standard for MDT. Capacity on the MDT buses varies according to the size of the bus. Once the standard is established, this could be used for determining the effectiveness of the route. If the route does not meet the standard, other actions could be considered, such as:

    - Modify route service (limiting the service hours, peak-period service only, etc…)
    - Modify route alignment to cover other areas.
    - Develop a mini marketing campaign for attracting new riders.
    - Reduce the route length.
    - Eliminate the route.

**b. Individual Bus Route Standards**

Two productivity standards are considered for bus routes. Both of them are very good performance measures for determining the effectiveness of a route.

- Passenger per hour

  The standard for this performance measure is 15 passengers per hour. Corrective actions need to be established when a route does not meet this standard.

  Recommendation:

  - ✓ Are 15 passengers per hour the right standard? Currently, the average number of passengers per hour is 34.4 systemwide. The recommended standard is only 43.6% of the average. This number should be reconsidered.
  - ✓ It is recommended that two standards could be established for this performance measure: one for peak period and the other one for off-peak. By doing this, a route could be evaluated and determination could be done for providing service only during peak period, if the standard is not meeting the minimum requirement during the off-peak.
- Net cost (subsidy) per passenger

  This is a good measure. As indicated before, corrective actions need to be established when a route does not meet this standard.

  Recommendation:

  - ✓ In order to facilitate the calculation of this measure, instead of using subsidy per passenger, the Direct Operational Recovery Ratio (DORR) could be used, as listed in the table on page 22. Currently the average DORR is 31.8%. Currently (based on October 2008 data), there are 23 routes below 15% DORR, 17 routes below 12% and 13 routes below 10%. By selecting one of these standards, corrective actions should be taken for those routes.
- Passenger per Mile

  Good performance measure but the standard is too complicated for calculation.

  Recommendation:

  Use an average of "X" number of passenger per mile on a systemwide and establish corrective actions. By using a 70% of systemwide passenger per mile (correct the table), the standard will change on a monthly basis. By using a fix average standard, this problem is eliminated.
- Passenger per trip

  No comment, very good approach.

  Recommendation:

  Standards should be established based on the bus size and not on the length of the trip. Having a bus with an average of 10 or 5 passengers per trip is not recommended due to: high operating cost and public image, among others. 5 or ten passengers per trip can easily be accommodated in a jitney van. A regular or mini-bus with 5-10 passengers per trip indicates poor use of the fleet.

**c. Service Delivery**

- On-Time Performace

  The proposed on-time performance for Metrobus is 75%. This is too low and does not meet the expectancy of transit riders. It is recommended to reconsider and re-evaluate this standard. 75% on-time performance is not a good indicator for building the confidence, the trust and reliability in the system.

  Recommendation:

  MDT should listed the reasons for this low on-time performance and identify potential solutions for improving this standard. This is part of MDT's commitment in servicing the County.

- **Passenger Comfort and Safety**
  No comments.

11. **New Service Recommendations and Implementation**
    It is recommended to reduce the demonstration service from 24 to 12 months. If the proposed route does not meet the standards, MDT will be spending limited funds for a period of two years. By reducing the period to 12 months, in six months the route is evaluated and corrective actions are taken if minimum standards are not met.

# Appendix 15:
# Sample Questionnaire
# Bus Driver Survey

*Miami-Dade County*
*Miami-Dade Transit (MDT)*

# SURVEY – BUS DRIVERS

MDT is in the process of evaluating; the Metrobus service. It is very important to understand that our Bus Drivers play an important role in achieving our mission **"to be the number one transportation choice in Miami-Dade County".** We are looking for your ideas for improving this service. Your participation is very important in our goal to deliver a better transit service for our customers. HELP US TO BRING YOUR IDEAS TO REALITY!!! Please respond to these questions and feel free to give us your thoughts and recommendations for improving the service.

| SERVICE SURVEY | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ROUTE # | | | DESCRIPTION | | | | | |
| 2 | HOW WOULD YOU RANK THIS ROUTE? | | | | | | | | Based on these answers, it is possible to target specific improvements along each route or group of routes. |
| | a | On-time performance | Good | | Fair | | Poor | | |
| | b | Ridership | High | | Fair | | Low | | |
| | c | How do you feel about the length of the route? | Too Long | | Just Right | | Too Short | | |
| | d | Travel Time | Too Long | | Just Right | | Too Short | | |
| | e | Bus Schedule | Too Early | | Acceptable | | Too Late | | |
| | f | Bus Cleanness | Good | | Fair | | Poor | | |
| 3 | IF YOU CAN IMPROVE THE SERVICE ALONG THIS ROUTE… WHAT WOULD YOU DO??? | | | | | | | | These answers will provide more detailed information from the drivers' perspective. For example, by recommending the use of mini-buses it is possible to consider the use of private operators (jitneys) along these routes. By increasing/reducing frequency, it is possible to determine potential saving of buses. By reducing the number of stops, we can assume that in addition to the operational benefits, the drivers support this measure. By recommending route alignments, total mileage can be reduced in those areas that service is not acceptable/good. |
| | a | Change bus size to… | Mini-buses | | Articulated | | Regular | | |
| | b | Add more buses | Yes | | No | | | | |
| | c | Reduce service hours | From | | | To | | | |
| | d | Increase frequency to… | | | minutes | | | | |
| | e | Reduce frequency to | | | minutes | | | | |
| | f | Reduce the number of stops | Yes | | No | | | | |
| | g | Adjust the route alignment. Please detail… | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 4 | WHICH ARE YOUR HEAVIEST BOARDING STOPS? | | | | | | | | These questions will provide detailed information for further analysis and route adjustments. Additionally, will be used for next phase. |
| | | | | | | | | | |
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|---|---|---|---|---|---|---|
| | | | | | | |
| 5 | WHERE DOES YOUR MAXIMUM LOAD OCCUR? | | | | | |
| | | | | | | |
| | | | | | | |
| 6 | DO YOU HAVE ANY RECOMMENDATION REGARDING YOUR ROUTE, METROBUS, METRORAIL, METROMOVER OR ANY OTHER AREA THAT YOU THINK NEED TO BE IMPROVED FOR THE BENEFIT OF OUR CUSTOMERS??? Please explain. If you need more space you may use the back of this page or add other pages. | | | | | These recommendations will provide another set of improvements that could be implemented during the 2-5 year period. |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 7 | Your name (optional) | | | | | By contacting the drivers, they will feel that they are part of the process, as should be. |
| 8 | We may contact you to clarify any of your recommendations… | | Yes | | No | |

# Appendix 16:
# NW 1st Street Transit Mall

# Short-Term Transit Improvement Options
# Proposed Transit Mall at NW 1st Street

**Closing of NW 1st Street from NW 1st Avenue to NW 2nd Avenue**

1. **Background:**
   Currently this segment of NW 1st Street is being used by buses (end of route at Government Center Building) and regular traffic. There are a lot of pedestrian activities along this segment due to the number of county employees and the public requesting county services at the referred building. It is considered that the closing of this street has a low impact on the regular traffic flow but will provide an additional element to be integrated to the proposed bus terminal facility located on the east side of the building.

2. **Purpose:**
   Convert that segment of NW 1st Street into a pedestrian and transit facility from NW 1st Avenue to NW 2nd Avenue.

3. **Location:**
   Figure 1 shows the segment of the proposed location for the pedestrian and transit mall, as well the existing MDT terminal at Downtown (1) and the proposed Downtown Miami Bus Terminal (2). If the proposed bus terminal is built, MDT may switch and or use the existing facilities as a bargaining tool for negotiating the required lot east of the Government Center Building.

4. **Traffic Flow Impact:**
   Traffic along NW 1st Avenue is two-way with intersections at Flagler Street, NW 1st Street, NW 2nd Street and NW 3rd Street. Figure 2 shows the traffic movements in the adjacent streets. The impacts on these roadways are as follows:
   - **a.** NW 3rd Street: Additional eastbound traffic from NW 1st Avenue.
   - **b.** NW 2nd Street: No major impacts.
   - **c.** NW 1st Street: Through traffic on NW 1st Street closed. The options for this traffic movement are as follows:
     - Turn north on NW 1st Avenue and turn left on NW 3rd Street to continue eastbound.
     - Turn south on NW 1st Avenue and turn right on Flagler Street to continue eastbound.
   - **d.** NW 1st Avenue: eastbound movement to NW 1st street is closed. The options for this traffic movement are as follows:
     - Southbound - Turn right on NW 3rd Street to continue eastbound.
     - Northbound - Turn left on Flagler Street to continue eastbound.

5. **Mall Facilities:**
   - **a.** Bus bays (if needed)
   - **b.** Sidewalks ADA accessible
   - **c.** Bicycle racks and lockers
   - **d.** Landscape
   - **e.** Lighting
   - **f.** Security surveillance cameras
   - **g.** Interactive transit information kiosks
   - **h.** Other amenities, as needed

**Figure 1: Transit Mall Recommended for Downtown**

**Figure 2: Traffic impacts due to the conversion of NW 1st Street to a Transit Mall**