Special Use Lanes Study: Transit Use of Shoulder By-Pass Lanes

Executive Summary

THE CORRADINO GROUP

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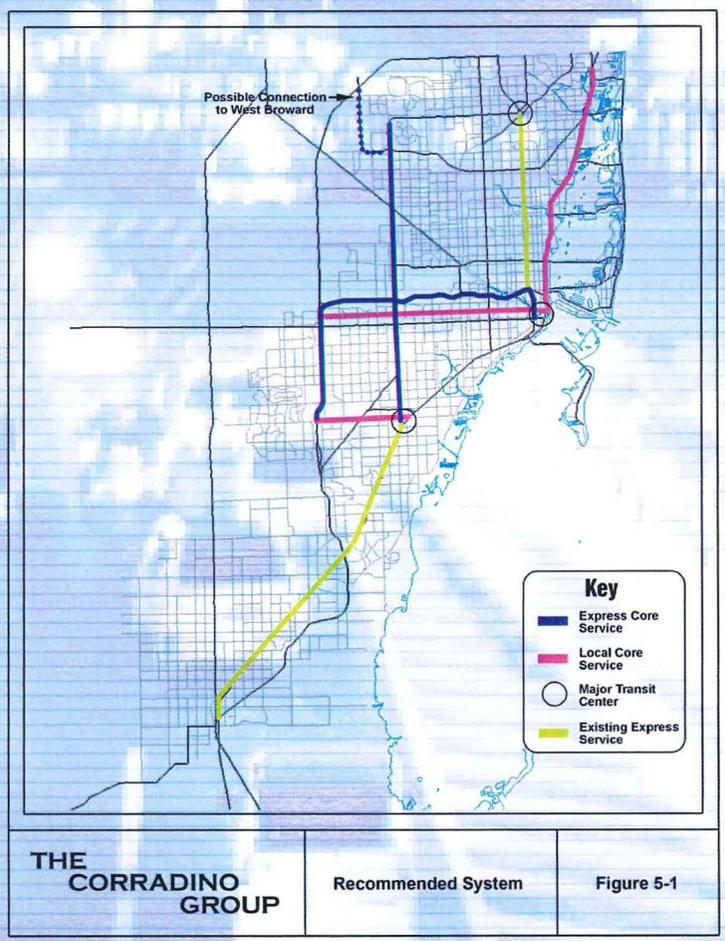
Background

Phase II - The Special Use Lane Study is the second phase of a study that looked at implementing Special Use Lanes on high volumes arterials and freeways throughout Miami-Dade County. Special use lanes were defined in the study as special facilities designed to encourage high-occupancy use. The facilities suggested ranged from exclusive Bus Rapid Transit lanes, to special toll lanes, to reversible lanes, contra-flow lanes. The initial study did not determine which type of special use lane was appropriate to which facility; it attempted to determine which facilities could accommodate special use lanes.

Special Use Lane Study – Phase I

The first study involved two tier evaluations. Tier 1 involved examining major arterials that are also section line roads that exhibited directionality or traffic flow that was heavily skewed in one direction at a particular time of day. Three freeways that were considered for special use lanes were I-95, SR 826, and SR 836, all of which carry heavy volumes of peak period and peak directional trips. Tier 2 examined in greater depth at each of the above facilities for future plans of each facility. Tier 2 also determined if these plans have any impact on the availability of right-of-way for special use lanes or if the plans have progressed far enough to have recommended use for that corridor.

The result of the Tier 2 analysis was a recommendation for a bi-level set of transit improvements through out Miami-Dade County. The system would mirror the roadway network. Transit routes would be started on the freeways to provide higher speed express bus service. Local bus service would continue to be provided on the arterials feeding several major arterials with exclusive bus service. These arterials would offer a service with buses operated with signal prioritization, fewer stops and higher frequencies. The tiered bus system is shown in Figure 1.



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Phase II Study

Following the completion of the October 2004 Phase I Report – Special Use Lane Study a series of meetings were held to determine how to progress the recommendations. Miami-Dade Transit will implement the following express bus service:

- Florida Turnpike/Kendall Drive to SR 836 to the MIC and then on to downtown Miami.
- SR 826 from Dadeland to NW 154 Street (Miami Lakes Drive.)
- Pines Boulevard/I-75 to Miami Gardens Drive to SR 826 to the Palmetto Metrorail station.

Phase II of the project is to determine exactly what segments of the freeway shoulders can be used for congestions by-pass. The analysis examines shoulder width, accident rates, obstructions such as lighting, signs etc. The combination of all the factors are put together for each segment of shoulder to determine the suitability for use for congestion by-pass. The arterials under review for this phase of the project are I-95, I-75, SR 826, SR 836, and the Florida Turnpike HEFT to Kendall.

Concept

The project will improve travel times for transit routes operating on the freeways by allowing buses to by-pass congestion in the main freeway lanes by moving onto usable segments of the shoulders. Buses will only use the shoulders when mainline speeds drop below 25 MPH. While operating on the shoulders the buses cannot exceed 35 MPH nor operate more than 15 MPH above the speeds on the mainline of the freeway. Buses would move onto and off of the shoulder as necessary to maneuver across ramps, avoid vehicles and debris on the shoulder, and as traffic conditions warrant. Because of the large amount of constructions that is currently underway, and the construction programmed for the future the location of usable shoulder segments will change frequently and will need to be coordinated with the construction efforts. Flexibility will be the key to the success of this project.

SR 821/SR 836

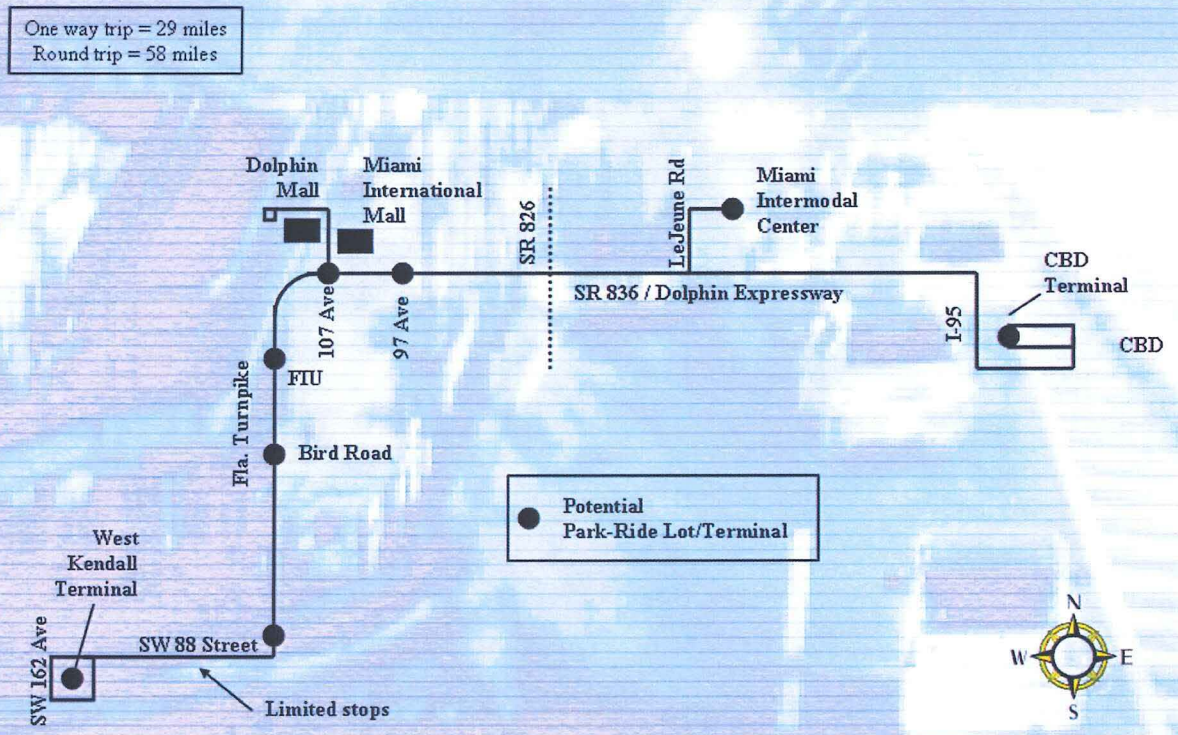
Express service would run every 10 minutes in the weekday peak for both West Kendall routes to downtown Miami with every other trip serving the Dolphin Mall/Miami International Mall. Service from West Kendall to the Miami International would be every 20 minutes in the peak. Service between the Malls and the MIC would be 20 minutes. Service in the reverse direction would operate less frequently. Off-peak express service would be provided on a route serving all destinations every 20 minutes.

Construction along this route would require constant coordination between MDX and MDT so that the bus drivers know in advance what portion of the shoulders are available for congestion by-pass, and what portions will be unavailable due to new construction.

Using congestion by-pass, peak-hour, peak-direction express service could be made from Kendall to the Government Center in 50 minutes. Service between Kendall and the Government Center with stops at Dolphin Mall and the MIC would take 65 minutes. The route from West Kendall to the MIC would require about 43 minutes, and the route from the Dolphin Mall to the MIC would take about 35 minutes. This express service would operate 25 peak buses averaging 3,550 miles daily at a cost of $3,356,000 per year. An an illustration of the proposed express route is shown below in Figure 2:

Figure 2

Turnpike/836 Express

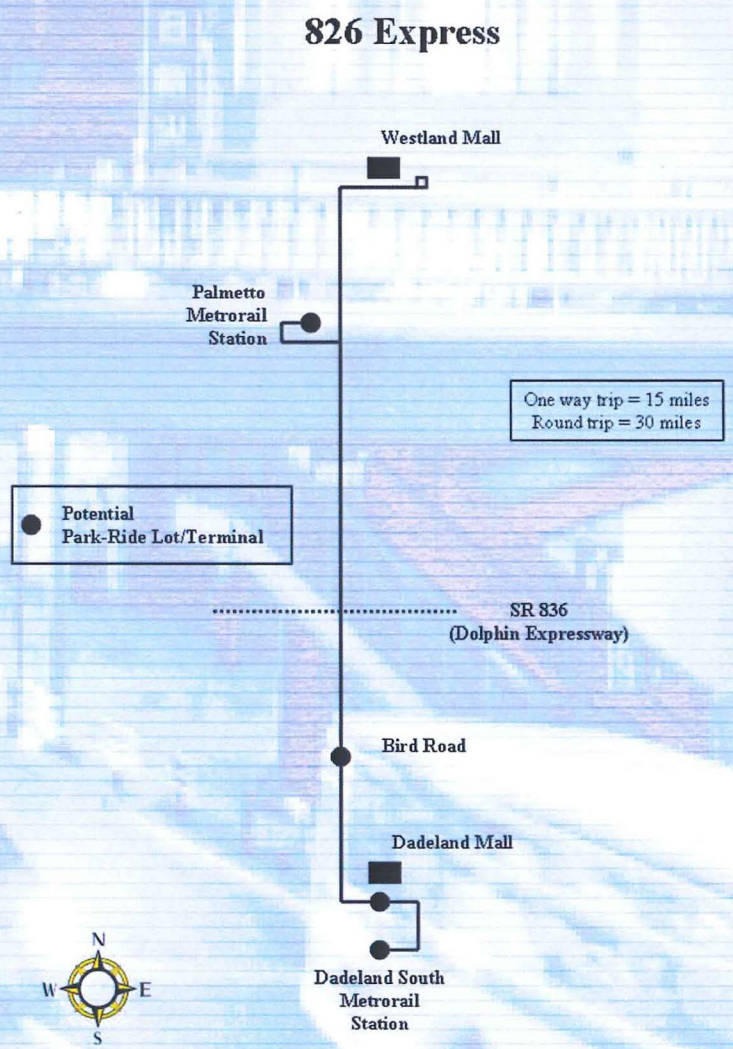


–SR 826

A new express route would be developed from the Dadeland area to the Palmetto Metrorail Station and Westland Mall via the Palmetto Expressway. The route would serve the Dadeland Metrorail Station and Dadeland Mall. Although the end of the route is shown as Westland Mall, this may change with further evaluation. This express route would operate in both directions. Construction along this route would require constant coordination between FDOT and MDT so that the bus drivers know in advance what portion of the shoulders are available for congestion by-pass, and what portions will be unavailable due to new construction.

Using the shoulders as congestion by-pass the express bus should be able to maintain an average speed of 35 mph negotiating the distance from Dadeland Mall to Westland Mall in 30 minute. Because of the congestion at ramps and all of the arterials in the vicinity of SR 836 MDT should add approximately 10 minutes to the scheduled running time for each park and ride area served. This service will run at 20 minute headways during weekday peak hours. The new express route will also run five peak buses averaging 540 miles daily at a cost of $550,000 per year. An illustration of proposed express route is shown below in Figure 3.

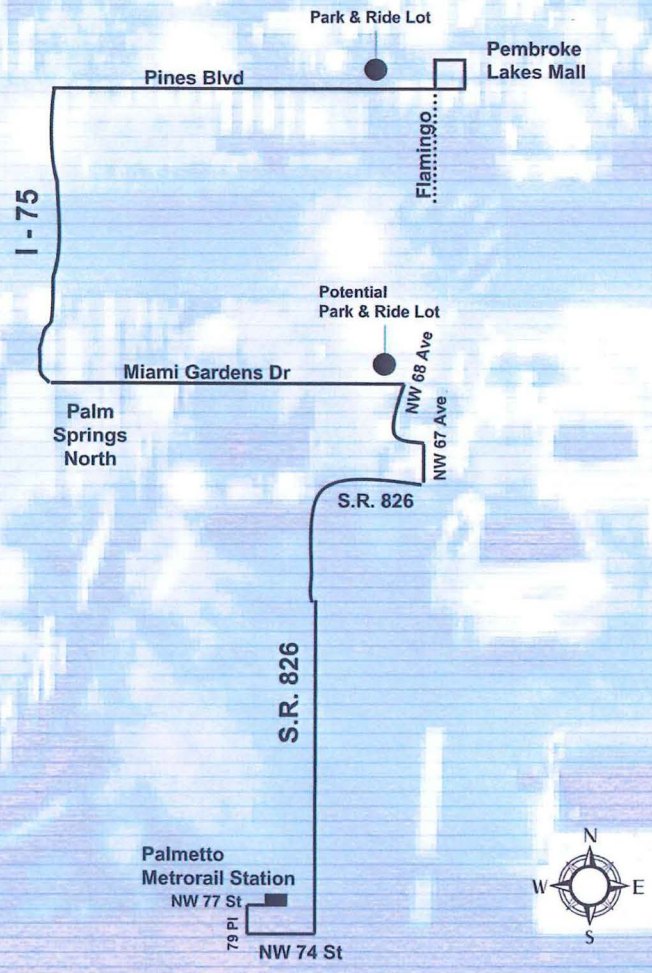
Figure 3



I-75/SR 826

This express route has started operations from Pembroke Pines to the Palmetto Metrorail Station in Medley via I-75 and the Palmetto Expressway. Potential park-ride lots would exist in the Pembroke Lakes Mall area and at Miami Gardens Drive. The express route could be diverted via Miami Gardens Drive and Ludlam Road to serve higher density residential areas in Northwest Miami-Dade. Two-way service would be provided allowing Miami-Dade residents access to jobs in Southwest Broward. This service will run at 20 minute headways at weekday peak hours. The express route will operate six peak buses averaging 510 miles daily at a cost of $530,000 per year. An illustration of the new express route is shown below in Figure 4. It would also be feasible for a second route to be established for the area of Pembroke Pines west of I-75. All of the shoulder area along I-75 is available for use as congestion by-pass. The shoulders on SR 826 along the portion utilized by the bus route is also suitable for congestion by-pass, since most of the construction has been completed.

SW Broward/NW Miami-Dade
To Palmetto Station EXPRESS



SR 874/SR 878

The current bus routes utilizing SR 874 and 878 operate on SR 874 between Killian Parkway and Dadeland South via SR 878. The usable shoulder segments on SR 874 are west of Killian Parkway and east of SW 87th Avenue entirely outside of the current bus routing. On SR 878 which is fully utilized by the bus routes only the westbound shoulders are suitable for congestion bypass. It is recommended that the westbound shoulder of SR 878 be signed for bus use only. Other areas could be converted in the future should MDT implement additional bus routes that can utilize the shoulder lanes. An initial survey of the SR 874 corridor between Killian and the Snapper Creek Expressway did not reveal any locations close enough to alignment to serve as a park and ride lot for the freeway express service. The SR 878 alignment is too close to the end of the route to consider any park and ride locations

Implementation

During discussions of this project it was determined that the Florida Department of Transportation could initiate a demonstration project without legislation. However, if the demonstration project is successful then the legislation will be required to allow transit bus operation on the freeway shoulders on a long term basis. Miami-Dade Transit will enter into separate Interlocal Agreements with FDOT District 6, Miami-Dade Expressway Authority, and the Florida Turnpike to initiate a pilot project on the various facilities. The pilot project will have a duration of three years from the first day of operation. During that time Miami-Dade Transit will bear the cost of implementation, operation and maintenance, with the voluntary support of the supporting agencies. Miami-Dade Transit will also assume full liability for any incidences that occur related to operations of their buses on the shoulders of the expressways. At the end of the pilot project it will be decided whether to continue or to expand the project.

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