

Transit dependent persons in our area are: the elderly, the young (middle school, high school, college), and commuters without access to personal vehicles. The community is young and affluent and highly mobile. This mobility is overwhelmingly satisfied by the personal automobile. The greatest transit dependent population numerically are the youth, followed by the elderly. Meanwhile the iBUS almost exclusively serves a transit dependent commuter population that lives outside the community, but works in the community.

Palmetto Bay is a community of 23,863 persons (2013 est.); 12 percent of the population is aged 65 and over, and children comprise 28 percent of the population. While aging as a community, with a median age rising from 38 in 2000 to 41 in 2013, the Village has also attracted families with children, which has increased as a share of the population over time (US Census 2013 estimate).

Corradino imported US 2010 Census data for individual blocks into GIS to allow plotting of population densities. American Community Survey (ACS) data are collected between decennial censuses and thus provide newer data, however, the ACS data are only available for block groups (aggregations of blocks). That is, the data are not so fine-grained, and so do not provide as much precision as the block data from the 2010 Census. The 2010 data show blocks with apartment complexes more accurately, for example. This is important in establishing anchor points to be served by transit.

Figure 4 shows population densities. The blue and darker green areas have the greatest population density. The map shows that population is denser nearer to US 1.

VILLAGE OF PALMETTO BAY

At a glance:

Population: 23,863 (2013 est.)

Elderly Population: 12.2% of population (2,905 – 2013 est.)

Youth Population: 27.7% of population (6,509 – 2013 est.)

Area: 8.8 sq. miles

Neighboring Communities: Cutler Bay, Pinecrest, Unincorporated Miami-Dade County

iBUS Routes: A and B

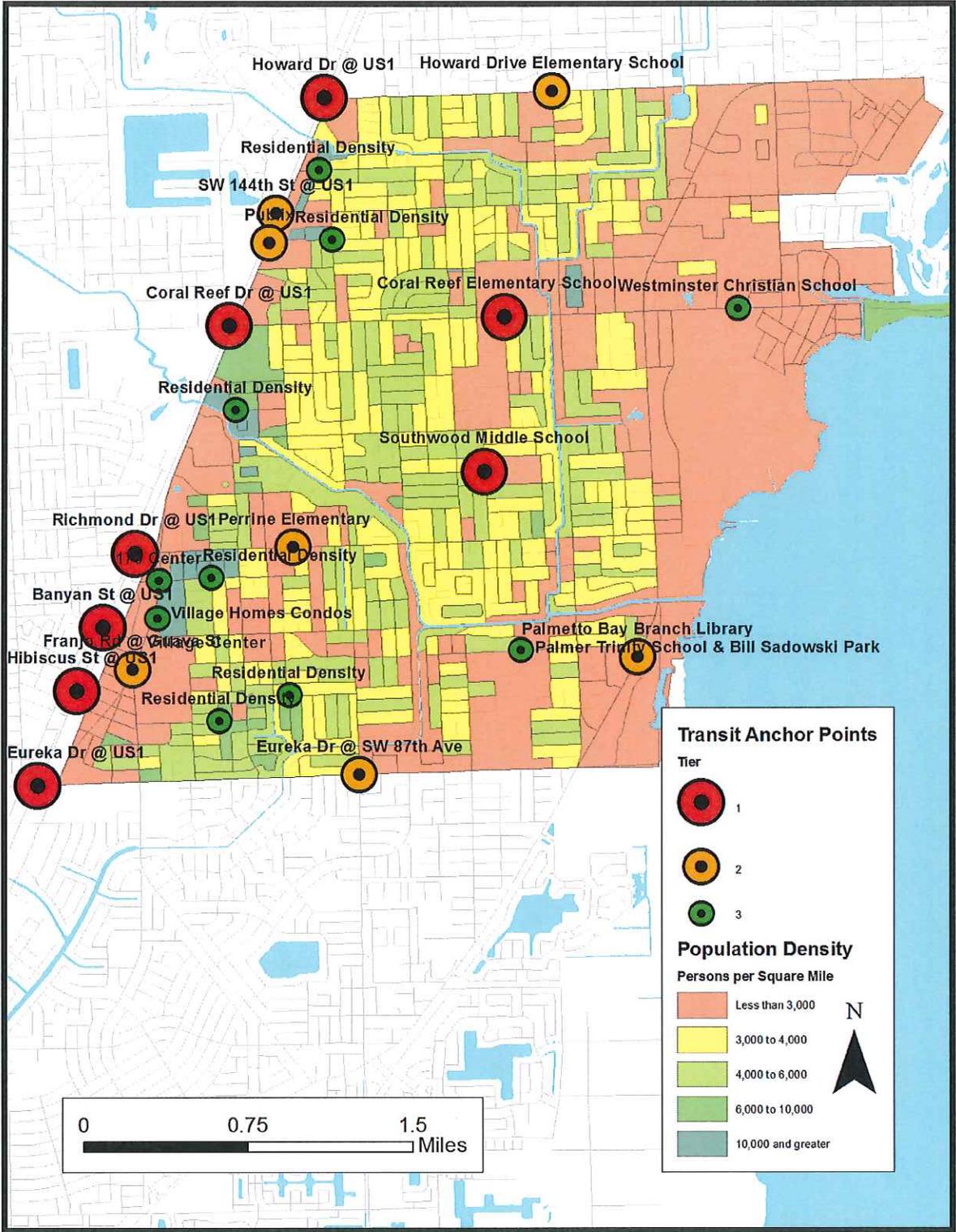
MDT Routes Servicing Palmetto Bay and Adjacent Areas: 1, 31, 34, 38, 52, 57, 57, 136, 252, 287

Major Thoroughfares: Old Cutler Road, US-1, Ludlam Road, SW 136th Street, SW 152nd Street, SW 168th Street, SW 184th Street

Transit Points of Interest: Palmetto Bay Village Center, SW 168th Street/Busway, SW 168th Street and Old Cutler Road, Village of Palmetto Bay Branch Library, SW 184th Street/Busway



Figure 4: Palmetto Bay Population Density – 2010



Source: The Corradino Group

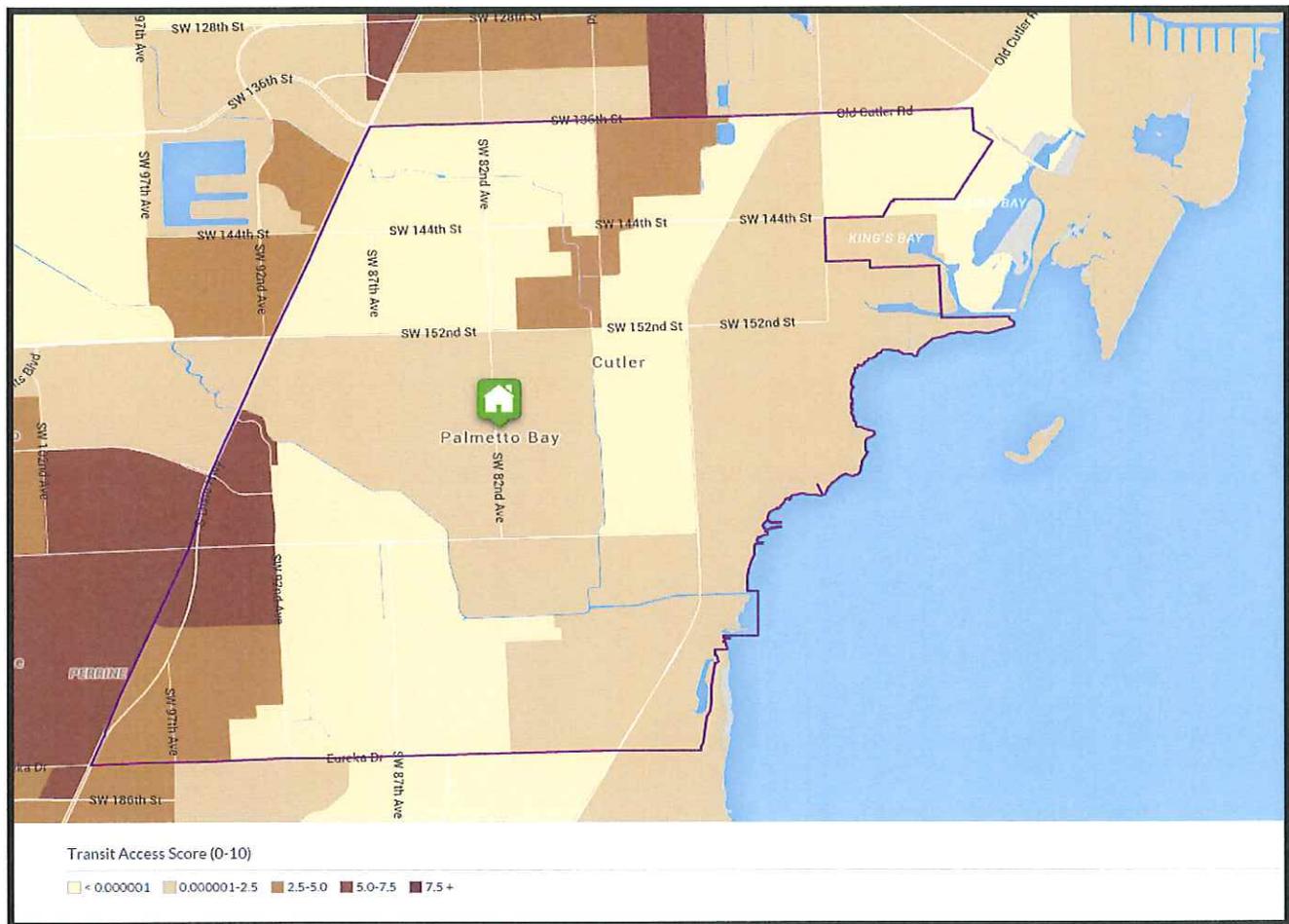
A primary indicator of transit use is population density, so it is logical for a community-based transit system to serve such areas. (A notable exception is the gated community on Paradise Point, which would be very difficult to serve.)

Secondary demographic indicators of transit use include income, age, and disability status. Palmetto Bay residents have an average of 1.85 cars per household, with an average transit expenditure of \$14/year. Residents, on average, take about 10 transit trips per year (Center for Neighborhood Technology, 2015). In short, they are currently more

likely, and overwhelmingly choose, to drive. At the same time, transit access is poor in Palmetto Bay, even with iBUS and Miami-Dade Transit service (Figure 5). This presents both considerations for the current system and opportunities for service expansion.

This is supported by the fact that in neighboring communities, transit accessibility and ridership is significantly higher. Comparatively, Pinecrest residents are about seven times more likely to take transit. Pinecrest has an average of 1.77 cars per household, with an average transit expenditure of

Figure 5: Village of Palmetto Bay Transit Access Score



Source: Center for Neighborhood Technology



\$90/year. The transit access score, unlike Palmetto Bay's low average of 1.1, is 5.7 in Pinecrest, indicating moderately high connectivity, and aids in the transit trips per resident of the community, at an average of 68 trips per resident each year.

To the south, Cutler Bay's transit access score is higher than Palmetto Bay's, at 1.5. On average, its residents are 2.5 times more likely to ride transit, at an average 24 trips a year, and have expenditures of \$32 dollars on transit. This number will continue to rise as Cutler Bay further develops its circulator. The average autos per household in Cutler Bay is 1.79.

Transit service (MDT and iBUS combined) covers approximately 32 percent of Palmetto Bay, assuming the standard ¼ mile walking distance as the transit stop's capture area. This poses the question whether transit usage is low because of individual preferential choices or because these choices are constrained

On average, all three communities have similar levels of car ownership, which is higher than Miami-Dade County's average of 1.54 per household. Yet, we see that despite this similarity in the number of personal vehicles, the level of transit accessibility is consistently correlated with transit ridership. Communities with better transit accessibility have higher ridership, regardless of car ownership.

Improving the service coverage area within Palmetto Bay would benefit the residents by providing an option that is currently not truly a feasible choice for 2/3 of the community.

As can also be seen in Figure 6, there is a large overlap between MDT routes and the iBUS. While some overlap is necessary to ensure appropriate transfers between multiple systems, current overlaps represent 1.85 mi² of the 2.83 mi², or 65 percent, of

the iBUS's coverage area, based on the existing stop locations.

At this level of route duplication, where close to two-thirds of the Palmetto Bay shuttle is in competition with MDT routes, the two bus systems are in direct competition with each other. This is particularly evident with Route A, where the overlap is 1.24 mi² of the 1.60 mi² coverage area (78 %).

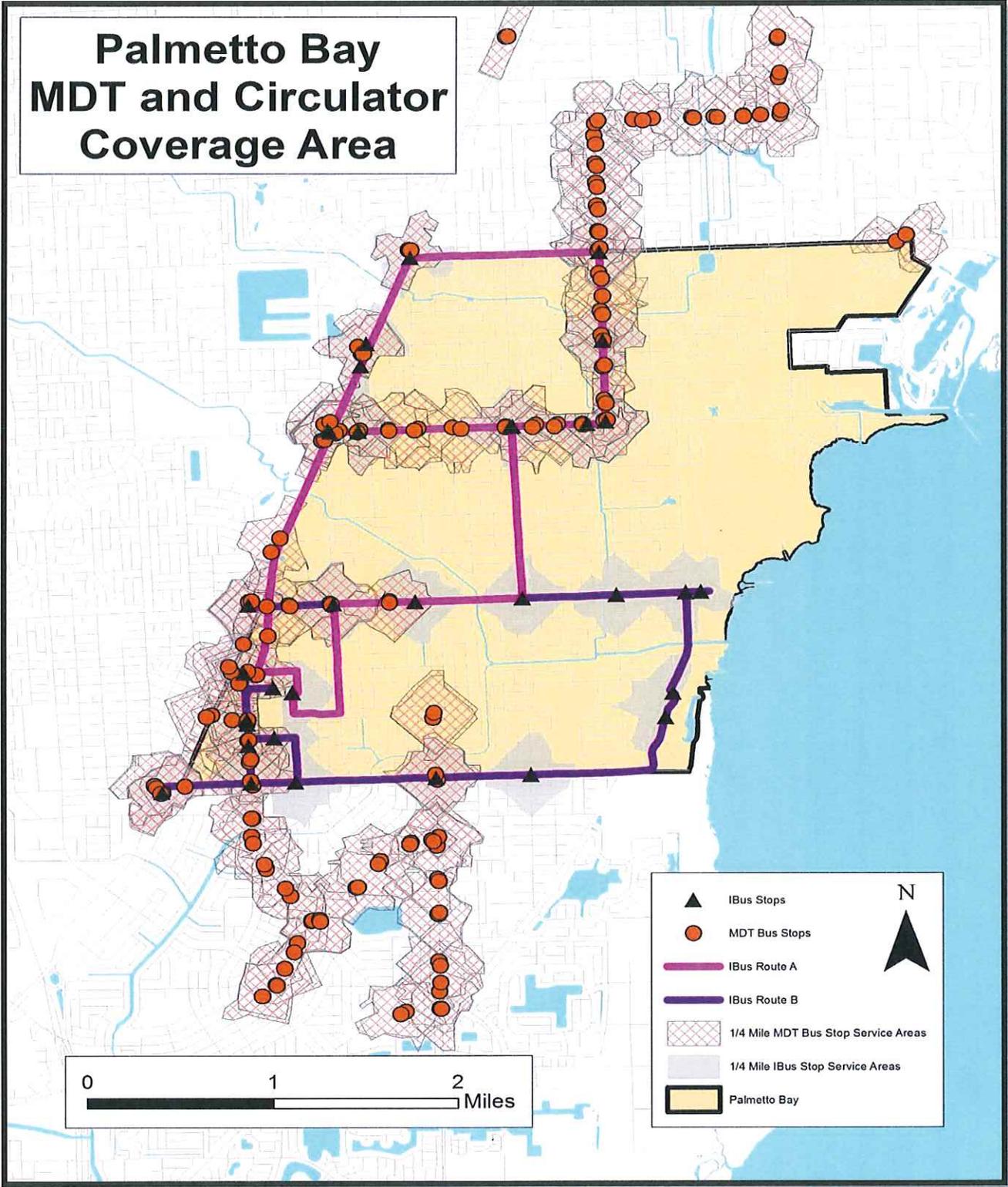
Assisted living facilities generally should be serviced by transit systems. Palmetto Bay has two such facilities, servicing families and persons with disabilities, located in the west of the Village (Shimberg Center). These have been mapped in Figure 7.

Other data sets were mapped, including key transit generators, and land use, a primary indicator of transportation needs. Transit generators for the purposes of this analysis include schools, the Village Center, local shopping areas, including markets such as Publix, park and ride locations, existing MDT transit stops, parks, and other sites of recreational interest. Additionally, points representing clusters of residential density were included in the analysis. The Franjo Triangle area, the proposed Downtown for the Village of Palmetto Bay, is naturally served by connections to the Village Hall and other existing generators, based on ¼ mile walking distance.

The service areas for Palmetto High School, Palmetto Middle School, and Southwood Middle School were also brought into GIS, together with the 2-mile boundaries for each school within which there is no public school bus service (see discussion below).



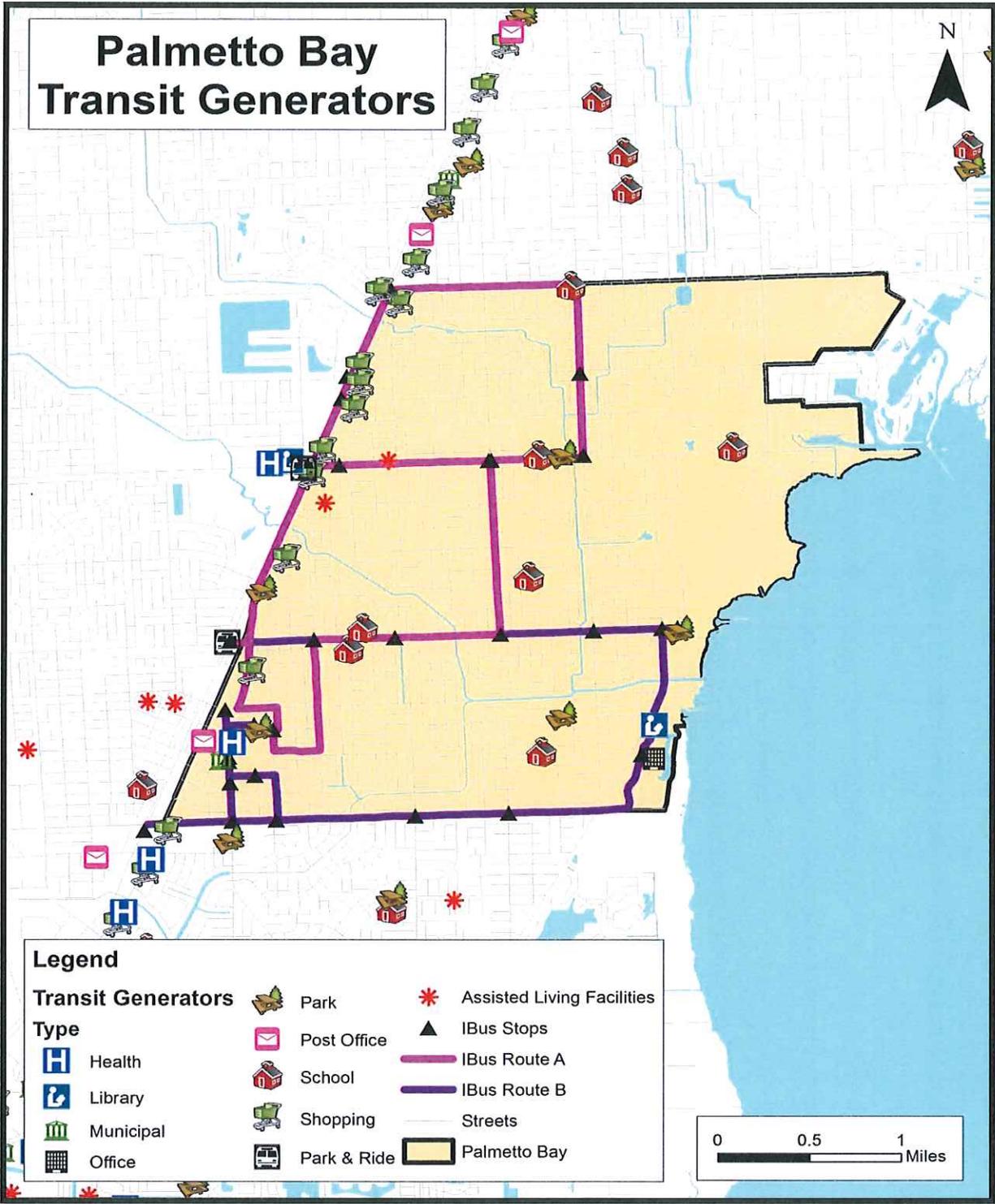
Figure 6: Transit Coverage Areas



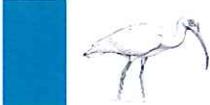
Source: Miami-Dade Transit, Village of Palmetto Bay, The Corradino Group



Figure 7: Transit Generators Map



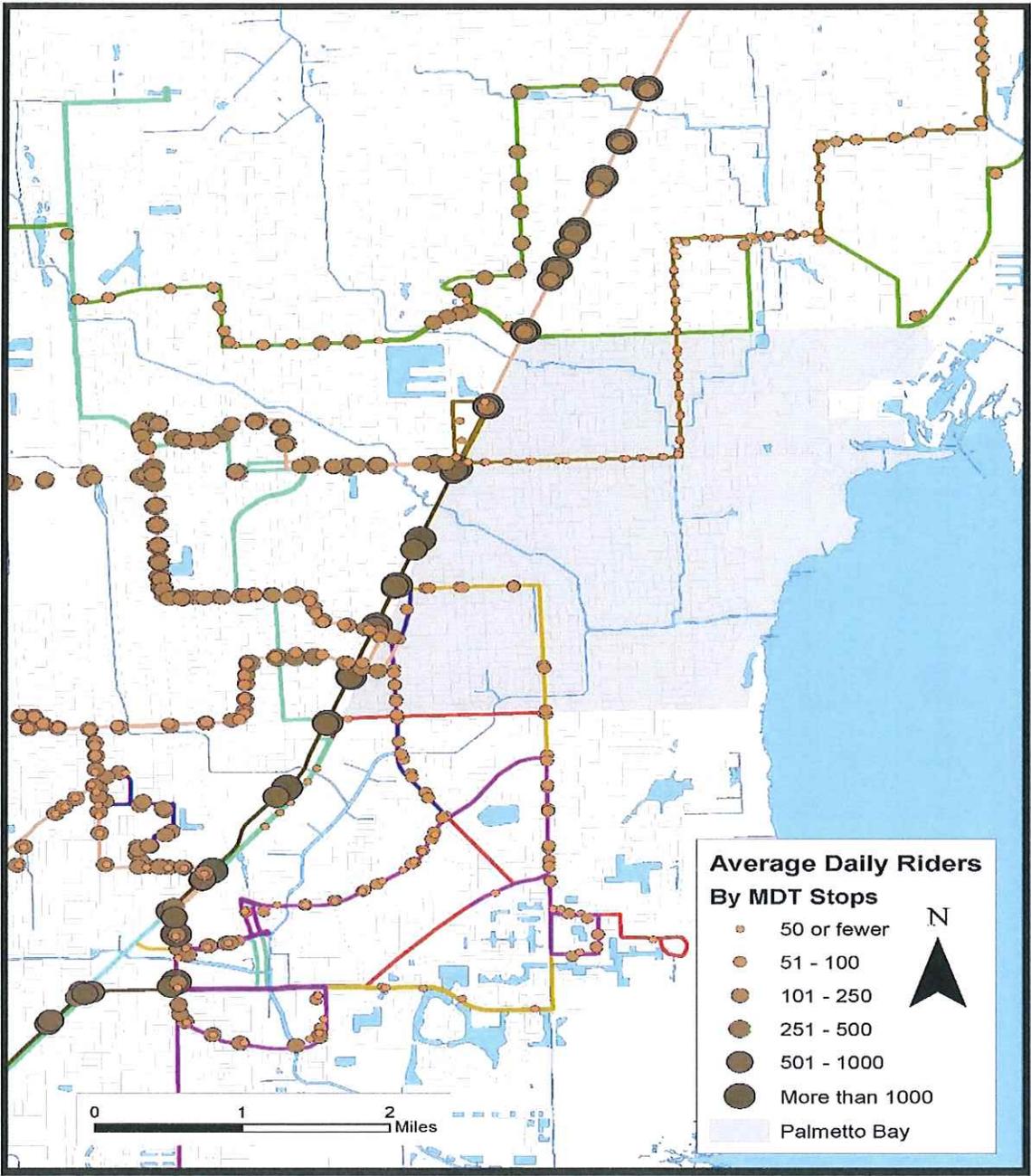
Source: Miami-Dade County, The Corradino Group, Shimberg Center for Housing



Finally related to ridership, MDT average daily patronage levels (boardings less alightings run cumulatively from the beginning of the route) were plotted by stop, along with MDT park and ride lots

and Busway stations (Figure 8). One can see the heavy ridership on the Busway, and the relatively light ridership on the lines that pass through Palmetto Bay.

Figure 8: Average Daily Ridership at MDT Stops



Source: MDT and The Corradino Group

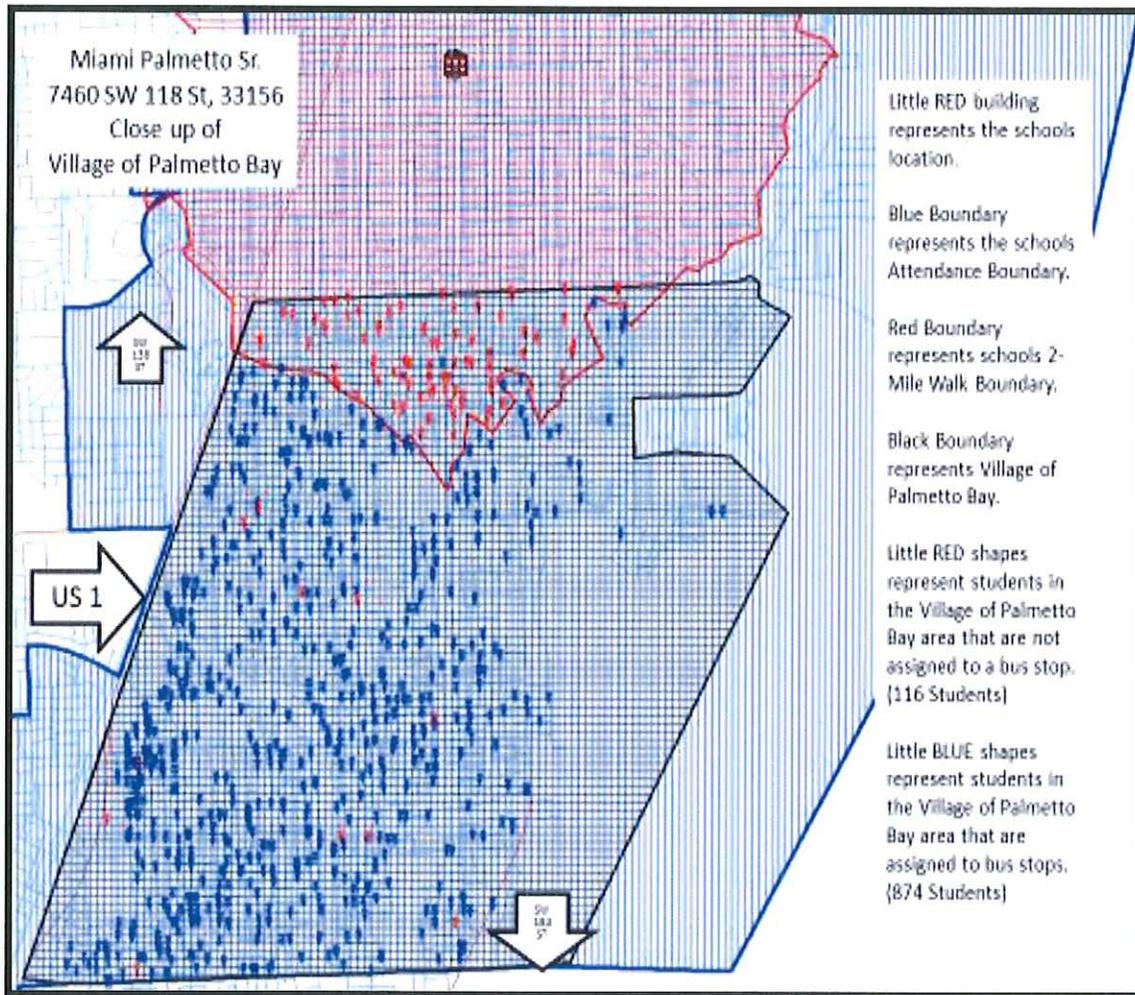
Data for Service to Students

School children represent a special case in Miami Dade County. Children living within two miles of their school are not served by the Miami Dade school bus system and must find their own way to school. Based on interest expressed by the Village, Corradino explored potential service to the schools.

Data about where students live was provided by the Miami-Dade County School Board. The data were provided in graphic form only (a picture of dots) to protect information about students. A geocoded

computer file that could be read by GIS was not provided. Figures 9, 10, and 11 show the student distribution of Palmetto Senior High School, Palmetto Middle School, and Southwood Middle School, respectively. The blue dots indicate students assigned to a school bus stop and the red dots indicate students not assigned. For analytical purposes, student locations could be inferred by seeing the density of dots on the map provided, rather than any direct use of data in the GIS software.

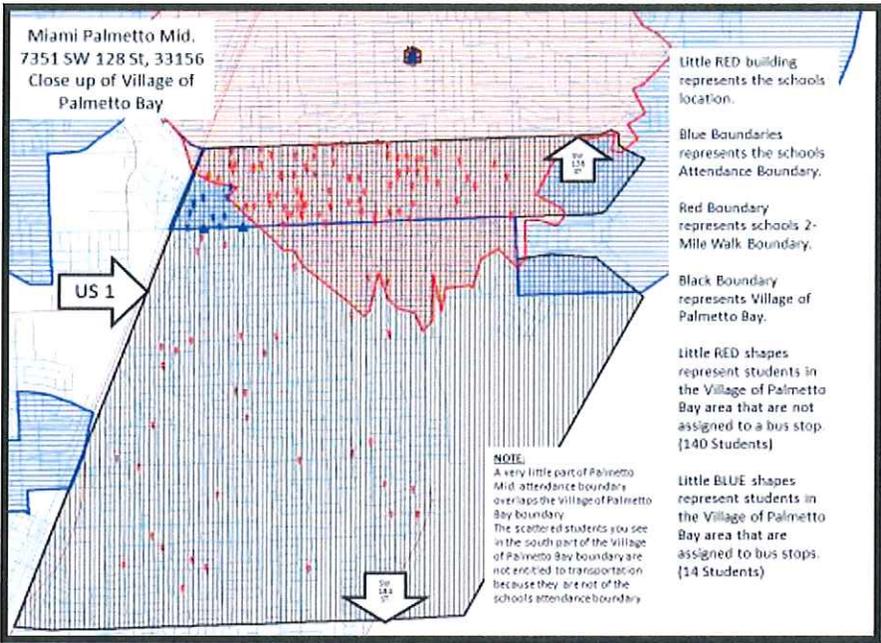
Figure 9: Palmetto Senior High School Student School Bus Assignments



Source: Miami-Dade County Public Schools

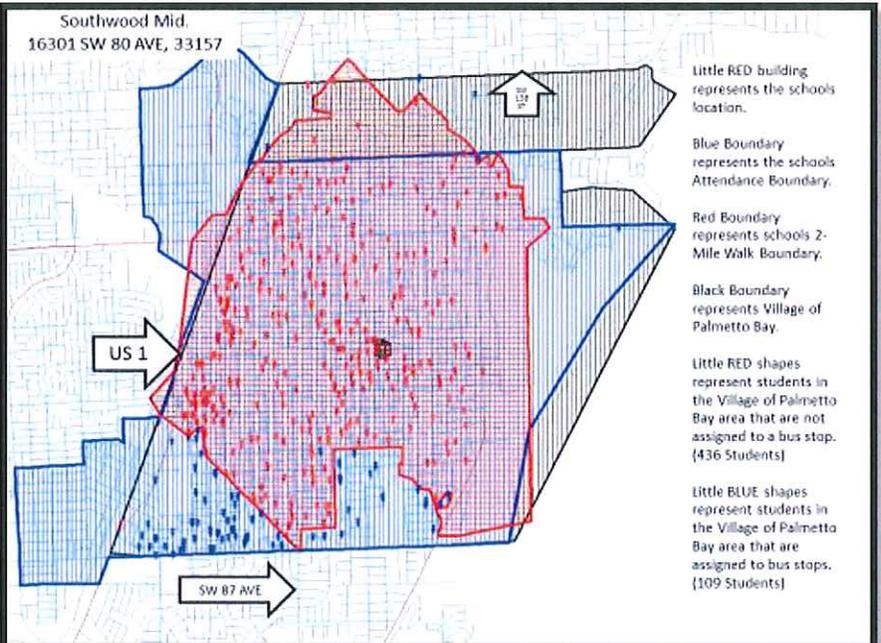


Figure 10: Palmetto Middle School Student School Bus Assignments



Source: Miami-Dade County Public Schools

Figure 11: Southwood Middle School Student School Bus Assignments



Source: Miami-Dade County Public Schools



The policy of requiring middle and high school students to get to school on their own, if they live within a two-mile radius of the school, has created a transit dependent population of youth.

An examination of this topic finds that, historically, students and the general public on the same bus are not a good mix, especially where students are in the majority. Students may be more spirited than the general public in ways that the general public can find offensive. By the same token, some parents have misgivings about having their children ride on a bus with adult strangers. For this reason planners have generally kept service to schools separate from service to the general public.

As it happens, iBus Route A is now scheduled during the midday only, so its schedule would allow it to serve schools in the morning and afternoon. Route A today operates only between 10 AM and 2 PM. This fits well with the school start times in the morning and departure times in the afternoon.

The work scope called for interviewing students to determine their ridership needs. However, after careful consideration, it was determined not to do interviews, because only one bus with 20 seats appears to be available. (To provide a second bus, a new bus would have to be purchased, or the decision would have to be made to abandon the service now being provided to commuters on Route B during the morning and afternoon.) With only one bus available, a survey of students could lead to a false sense of the expansiveness of the service to be provided and leave some parents disappointed that their child couldn't get one of the limited number of seats.

Instead, GIS was used to plot population densities using 2010 US Census data. These data together with information about the school service areas and

the corresponding areas where students are not assigned to a school bus route allowed for the development of potential school bus stops.

School service became a focal point during the development of alternatives.

On-board Passenger Survey

With few exceptions, the riders mostly do not have access to a car. Almost all are female, and Spanish is the predominant language spoken. Most appear to be in domestic service, but a number of riders get on and off the bus at the bus stop that serves the Village Center, so, some riders may work there.

The survey asked which amenities were: very important, important, somewhat important, and not important. There was almost no differentiation in response among the amenities:

- Benches;
- Shelters;
- Sidewalks;
- Trash receptacles;
- Next bus real time info

“Very important” was checked by most riders for most categories, with shelters and route information scoring slightly higher than other categories, and trash receptacles slightly lower. It is logical that these categories would be rated highly, as there are few shelters and route information is basically on-line with no bus stop signs.

Riders were asked to rate bus service in the following categories:

- Bus cleanliness;
- Bus heating, A/C;
- Driver friendliness;
- Driver appearance;
- Buses on time;
- Bus stop locations;
- Hours of operation;
- Schedules; and,
- Safety at Bus Stops



Again, most categories were ranked “very important” by almost everyone.

The survey provided an open-ended opportunity to comment. One request was to add another run in the morning and one in the afternoon. A number of riders asked that transit users be notified when there is a bus breakdown. Unfortunately, the only way to meet this need is through an alert system incorporated into a fully developed “next bus” app. A service alert can be put on the website, but riders will not make a habit of checking the website every time they take the bus.

The survey data is attached as Appendix A to Technical Memorandum #1.



Alternatives

Transit riders tend to be very conservative. People know the service they have and tend to be wary of service changes, until experience shows the new service is as good as the old. As new services involve changes in geographic coverage and schedules, there is always some initial temporary reduction of ridership. Ultimately, riders will adjust and with changes in coverage, ridership is expected to increase.

An obvious geographic reality in Palmetto Bay is that only a few roads are available for through routing of buses. This geographic consideration restricts the iBUS routing in specific areas of the Village. The canal system and discontinuous street patterns greatly limit the roads over which a bus can run, and thus limit the effective coverage area. While the identification of specific pedestrian pathways that will increase on-foot mobility is beyond the scope of this study, the addition of specific linkages in the Village would benefit the iBUS by increasing transit accessibility and market capture.

Key to determining the transit market are the previously discussed transit generators. However, as most commercial locations are already served, and with parks and schools closely tied to residential areas, evaluation of system operations and transit market capture more appropriately should be looked at from a population access standpoint. A dominant factor is the orientation of population density on the west side of the Village. A number of apartment complexes there are not presently served by the iBUS. Destinations on the east side are limited. The Village Center is the exception. Palmetto Bay's mid-

section has few origins/destinations other than homes, except for schools, which are being addressed separately, and parks. The conclusion related to market demand predominately favors an east-west orientation connecting to the Busway. There is little evident demand for north-south service due to the lack of transit generators; the exception being for flow-through traffic to relieve intercity pressure on Old Cutler Road.

Operations:

The Palmetto Bay Circulator operates in one of the most desirable places to live in our region. This route analysis has examined target populations to implement service that is efficient, effective and affordable. This report puts potential transit service into context, summarizing what was learned in the first TM with respect to the demography of the Village and transit generators, the kinds of riders on the system today, the locations of students who are now not eligible for school bus service by the Miami Dade Public School system, and the interface with the Miami-Dade Transit (MDT) system routes and Busway.

Based on the information collected to date, and despite the current low ridership, a two bus system continues to appear reasonable, holding a third bus as a spare. That said, it is essential to purchase new buses or contract for service. The current bus set is not reliable and cannot be made to be reliable. All three vehicles are well beyond their effective service lives.

Potential changes to routes A and B are discussed below. The discussion of Route A covers a modified midday circulator service coupled with morning and afternoon service to schools. An alternative on demand service is discussed later.



Route A Circulator:

To recap, Route A operates weekdays 10 AM to 2 PM, making four one hour runs, each comprised of a northern counter-clockwise loop and a southern clockwise loop (Figures 1 and 3). Buses stop only at the 16 designated (but unmarked) points. Several MDT bus stops are present along the same roadway sections where there may be only one iBUS stop. Parts of Route A overlap MDT Route 136 (along SW 136 Street), Route 57 (along SW 77th Avenue and SW 152nd Street), and Route 286 (SW 168th Street).

For Route A, the competition with Miami-Dade Transit routes is not likely to encourage new ridership. We note that while Route A's ridership is low, the MDT routes have riders. Continuing overlapping service is not likely to encourage additional ridership in the future, and ridership has more potential for growth by expanding access via increased coverage in new areas, with improved transfers to/from MDT. This is particularly important given the general lack of actual transit coverage within Palmetto Bay. However, we caution that while there is potential, this does not necessarily translate into immediate results. Additional investment into information distribution regarding the service and other key aspects of transit service development, as well as building up levels of service reliability, will be required to capture any market potential for Route A via route revisions.

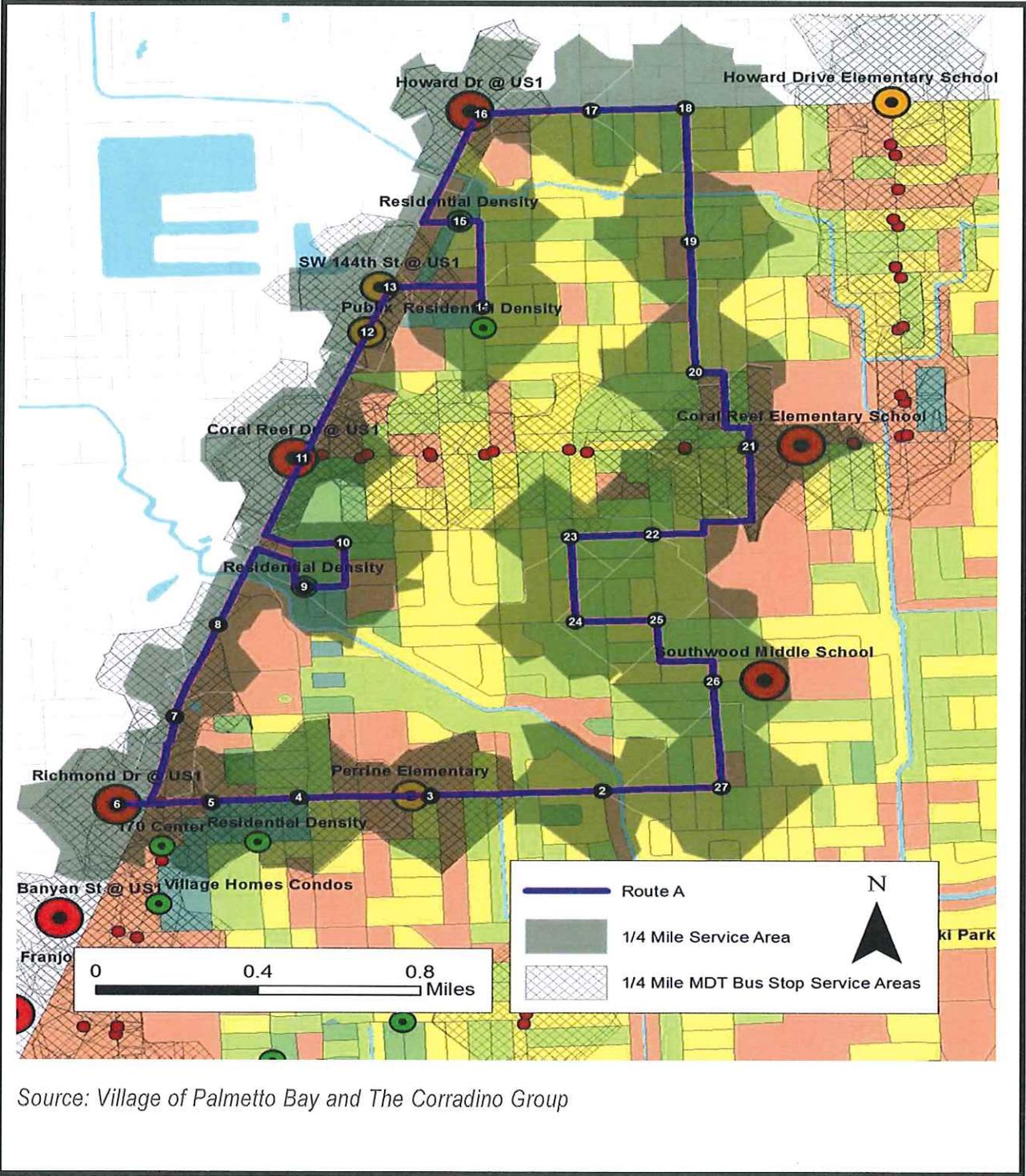
While a questionnaire could be sent to the community to ascertain potential transit demand, experience indicates it would not generate a statistically reliable result. (Many people say they would ride, but they are thinking of very frequent service, not what can in practice be put on the street in Palmetto Bay.) We

therefore provide recommendations for Route A on a population and service coverage basis (Figure 12).

Based on 2010 Census population data, the coverage of this revised Route A will provide access to approximately 7,240 residents. Information from the 2010 US Census indicates that 3 percent of Palmetto Bay's population uses transit, equating to a Route A which should have at least 200 monthly riders. At the same ridership levels as the County and Pinecrest, Palmetto Bay's neighbor, both of which have either higher transit access scores and/or a higher investment into transit, 5 percent or more of the Palmetto Bay's population could ride transit. Applying Miami-Dade County's transit usage rate to Palmetto Bay, with a reliable, well-advertised system, Route A should have a base of upwards of 400 monthly riders, as opposed to the 3rd Quarter high of 69 riders reported in April 2015. For a community of Palmetto Bay's size and geography, this is an acceptable amount and will promote multimodal goals. Additional ridership may also result from better linkages to the MDT system, through increased access. We, however, stipulate that this is only a potential estimate based on population demographics, and ridership forecasting on low-volume systems is highly dependent on the marketing strategies employed by the system.



Figure 12: Proposed Route A



The midday circulator service provided by Route A could be continued, but on a modified route (Figure 2). Its focus would continue to be on areas of residential density and commercial activity along US 1, including Publix. The most significant changes would be to a single, clockwise loop and a realignment of the route. Right turns are more swiftly and safely made than left turns and are standard practice in the transportation industry. (Route B would likewise operate in a clockwise loop). The timing of the loops would be based on maximizing the integration of Route A with Route B and the MDT routes, but the alignment would be shifted off the MDT routes where feasible, while still allowing transfers at key points.

The on-board survey found iBUS riders do not today transfer to/from MDT routes other than at the busway. This is in part because of the overlap of the routes and lack of common bus stops. Within Palmetto Bay, iBUS and MDT have similar coverage in north Palmetto Bay.

Changing Route A would expand the transit coverage in the community without compromising the ability to transfer to/from the MDT system. Route A would retain connections to the Busway, while providing local service along US 1. An essential element will be to install bus stop signs to mark boarding locations, with as many shelters as the budget and right-of-way allow. Additional stops should be put in place, as shown in the graphic, to decrease walk distances. A public involvement program will be necessary in advance of implementation.

Route A could have a built-in transfer point with Route B at the intersection of SW 82nd Avenue and SW 168th Street (see point 27 in Figure 12). Shelters and potentially a bus pull-out should be added at this

intersection. Route A would be westbound along SW 168th Street and Route B would be eastbound. This could be a layover point for one or both buses. Driver rules may require passengers to disembark during a layover time, emphasizing the desirability of a bus shelter here.

The midday, 10:00 AM - 2:00 PM, route length for Route A (and Route B also) would be just over 8 miles. Assuming an average 10 miles per hour (mph) route speed, the loop would be completed in about 50 minutes. This provides for 10 minutes of float in the system for bathroom breaks and layovers.

Riders of Route A will be able to access the Town Center and the future Downtown area either through disembarking at the north end of the downtown area or a quick transfer to Route B.

The potential Route A configuration presented does not serve the east side of Palmetto Bay. Given the lack of population density and transit anchors there, this is justified. Every transit system with fixed routes must make judgements about where to put service.

Service would continue to be provided in east Palmetto Bay for those with special needs by Special Transportation Service (STS), the shared-ride public transportation service of Miami-Dade County in compliance with the complementary paratransit service provisions of the Americans with Disabilities Act (ADA) of 1990. STS operates throughout most of urbanized Miami-Dade County, and can be used for work, school, shopping, recreation, and medical trips. STS provides door-to-door transportation for people with disabilities who are unable to use Metrobus, Metrorail, or Metromover.



Route A School Service:

As Route A is now active only in the midday, it could provide school service in the morning and afternoon.

The exploration of service to schools began with an understanding of: 1) the areas not currently being served by the buses of the Miami-Dade Public School system, and 2) the hours of the school day.

High school and middle school start and end times are shown below. The high school day begins and ends earlier than the middle schools.

	Palmetto High School	Southwood/Palmetto Middle School
Start time	7:20 AM	9:10 PM
End time	2:20 PM	3:50 PM

Source: School Web Sites.

A limitation, compared to a school bus is that the iBUSes now in operation have only 20 seats. A standard school bus has a maximum capacity of 72 passengers. So, in terms of ridership expectations, it should be understood an iBUS has nowhere near the carrying capacity of a school bus.

It is reasonable to assume that students should not be on a bus more than about 45 minutes. In Pinecrest, for example, the high school and middle school routes range from 30 to 45 minutes. Setting a travel time limit allows working backwards from the school start times to determine pickup times.

If students should be off the bus in the morning at Palmetto High School by 7:10 AM (to make it to class at 7:20 AM), the iBUS should be en route to pick up high school students as early as 6:25 AM. Using Geographic Information System (GIS) analysis allows determined a "best route" given the likely location of students and the shortest time path to serve them. An example route that does this is presented in

Figure 13. It could begin south of SW 168th Street, pass through Palmetto Bay's densest areas, and proceed through the Metro-Dade School system "no pick-up zone" to the high school.

After the bus completes its run to the high school, it could work its way outbound through the high school traffic to begin picking up a second set of students to deliver them to a middle school, either Palmetto or Southwood. Because Southwood Middle School is in the Village of Palmetto Bay and the 2-mile no school bus service area covers much of the Village, it is more logical to serve Southwood than Palmetto Middle School.

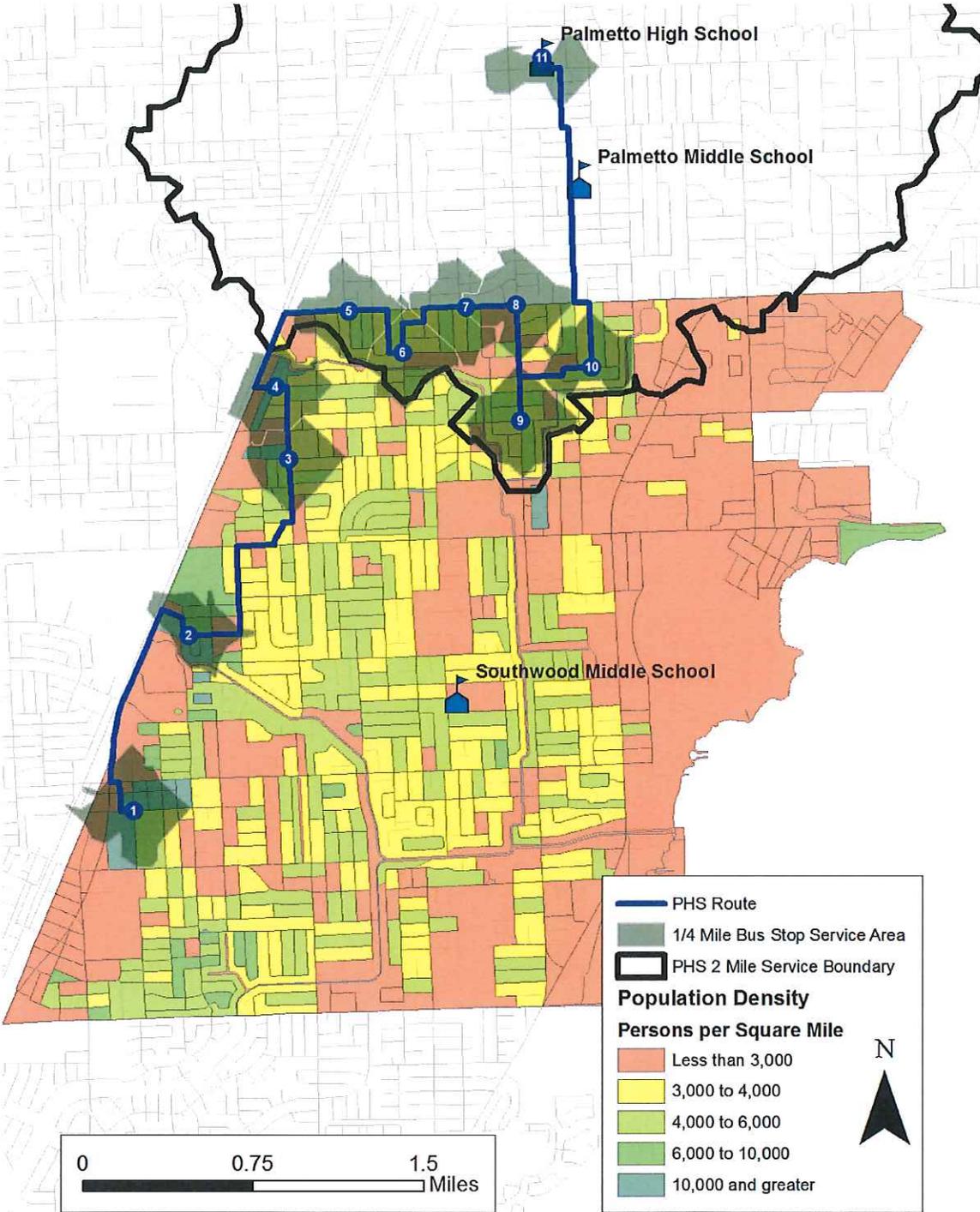
The earliest drop-off time for the Southwood Middle School is posted on the web as 8:30 AM. A question is how to make the best use of the bus after leaving Palmetto High School and before the latest possible drop-off time at Southwood Middle School, which is 9 AM (given that students must be in class by 9:10 AM). Considering the geography that could be covered, the limit of 20 seats on the bus, and the desire not to backtrack the bus, it was determined that two runs could be made to Southwood Middle School (assuming the first run drops students 10 minutes before the official earliest drop-off time).

Given the time windows set by the start and stop times of the schools, a GIS algorithm was used to provide example first and second runs to Southwood Middle School.

To have broad coverage and offer the most opportunity to pick up students, the bus must take an indirect path, within the time window and constraints of getting students to school not too early and not too late. The service provided by the Pinecrest People Mover shows an example of how buses serving schools must take circuitous routes (Figure 14).



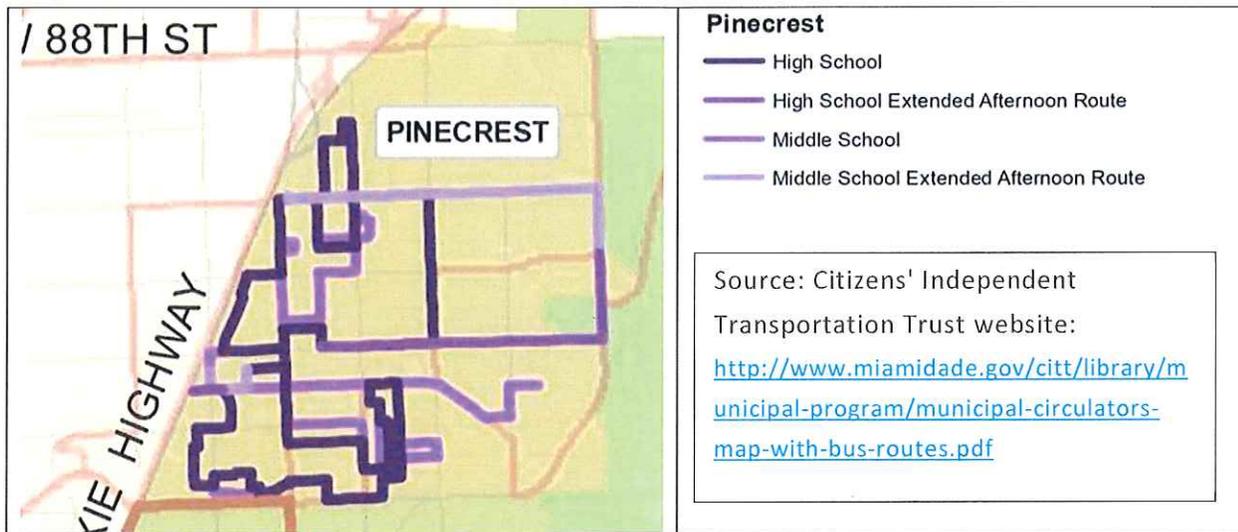
Figure 13: Potential Palmetto High School Route



Source: The Corradino Group



Figure 14: Pinecrest School Routes



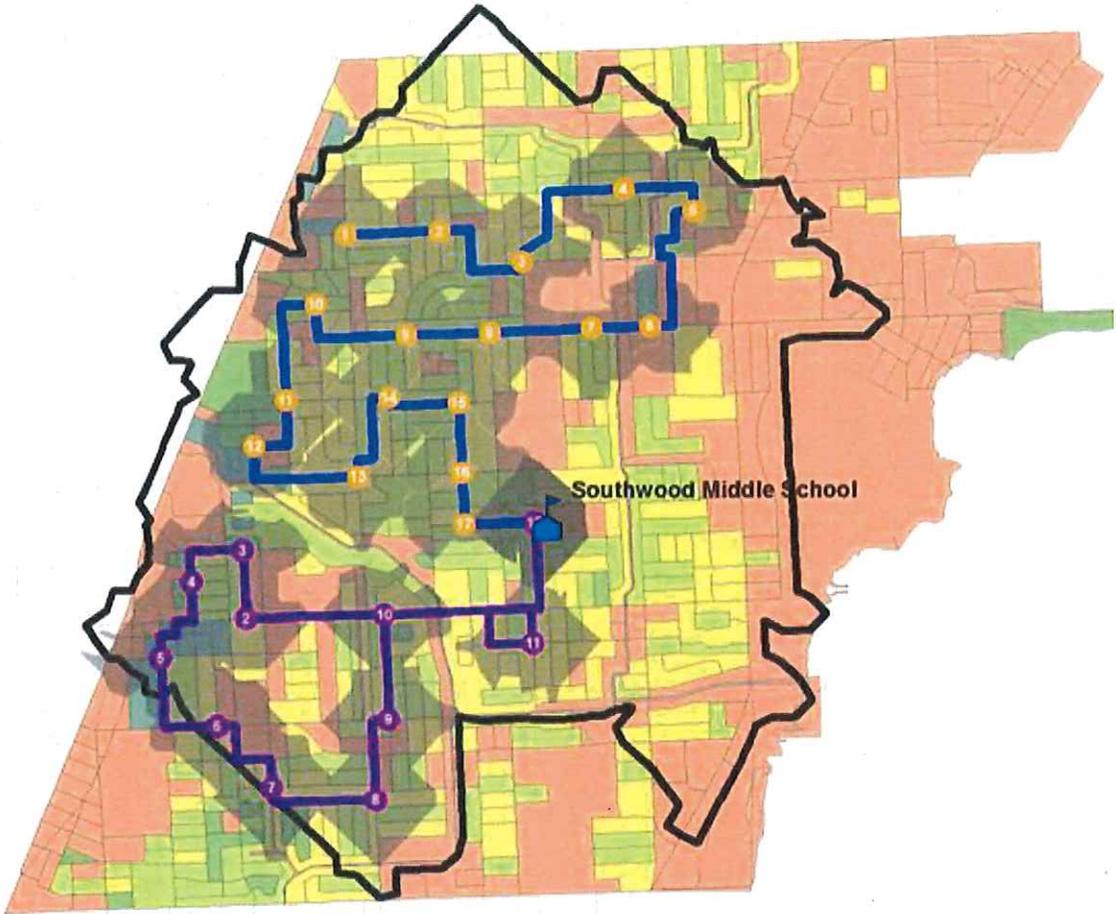
The results of the analysis of routes potentially serving Southwood Middle School presented reflects the current bus availability, with one bus devoted to school service. After leaving Palmetto High School the bus would deadhead to the residential area near the Publix store, then work its way south through the neighborhoods to the Southwood Middle School, making its first drop there at 8:20 AM (blue route in Figure 15).

If the bus were allowed to make a drop-off ahead of the currently allowed time (by ten minutes), the bus could make a second run to serve students south of the middle school. This could potentially double the number of students being provided with transportation. The second run (purple route in Figure 15) would make it back to Southfield Middle School by 9 AM. Note that it will be important to work out with school officials the routine of drop-offs so iBUSES do not get caught up in school traffic.

That bus could then revert to service on the revised Route A. At the end of the midday service, Route A could again serve the schools to take students home. Palmetto High School gets out first, so the bus would begin there. It would then serve the Southwood Middle School south route, which is shorter, to get back to the middle school to make a second home delivery. When done with that second run, the bus would proceed north to the Palmetto High School to serve students who stayed there for after school activities. Pinecrest provides this kind of after school service. There is no point in formulating a route for this service, as it would be based on demand and vary through the year. A cost has been provided below in the implementation section, based on reasonable service assumptions.



Figure 15: Southwood Middle School Example Service (One Bus in School Service)

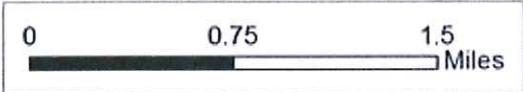


-  SMS Route N
-  SMS Route S
-  1/4 Mile Bus Stop Service Area
-  SMS 2 mile Service Boundary

Population Density
Persons per Square Mile

-  Less than 3,000
-  3,000 to 4,000
-  4,000 to 6,000
-  6,000 to 10,000
-  10,000 and greater

N

Source: The Corradino Group



A summary of the iBUS school service activity, considered here as an expansion of Route A follows:

- 6:25am-7:10am – Student collection and delivery to Palmetto High School
- 7:40am-8:20am – Student collection and delivery to Southwood Middle School – North Route
- 8:25am-9:00am – Student collection and delivery to Southwood Middle School – South Route
- 9:00am-2:00pm – Route A as revised
- 2:30pm-3:15pm – Student distribution from Palmetto High School
- 3:50pm-4:25pm – Student distribution from Southwood Middle School – South Route
- 4:25pm-5:05pm – Student distribution from Southwood Middle School – North Route
- 5:10pm-5:54pm – After school delivery from Palmetto High School

Whereas routes serving schools have been created here to show proof of concept, the actual establishment of routes might best follow the example of Pinecrest, which provides an on-line application for use of its People Mover (which serves the schools only). Students enter their name, address, and school online. Pinecrest has one bus for a northern route and one for a southern route. Each serves Palmetto High School, then Palmetto Middle School. The last day to submit a request for the fall 2015 term was Friday, July 17, 2015. So, rather than dictating a route up front, Pinecrest has students apply for service first and then tries to serve them. Any school service will require scheduling on the part of a Palmetto Bay employee (see implementation section).

Route A School Service – Two Buses in School Service:

Before returning to the discussion of Route B in non-school service, a longer term example of school service with two buses devoted to school service instead of only one bus is provided.

In this situation the service to Palmetto High School would remain the same, but the bus would next serve a modified Southwood Middle School's north route (Figure 16, blue route), to reflect the fact that another, second, bus is in service and also serving Southwood Middle School. The second bus would serve Southwood Middle School's south route unchanged (Figure 16, purple route), then serve a second north route to Southwood Middle School (Figure 16, green route) and then one run to Palmetto Middle School (Figure 17, blue route). Under this bus scenario, both middle schools are served. The three bus system means three buses are on the street, so a fourth bus, as a spare, would still be required.



Figure 16: Southwood Middle School Example Service (Two Buses in School Service)

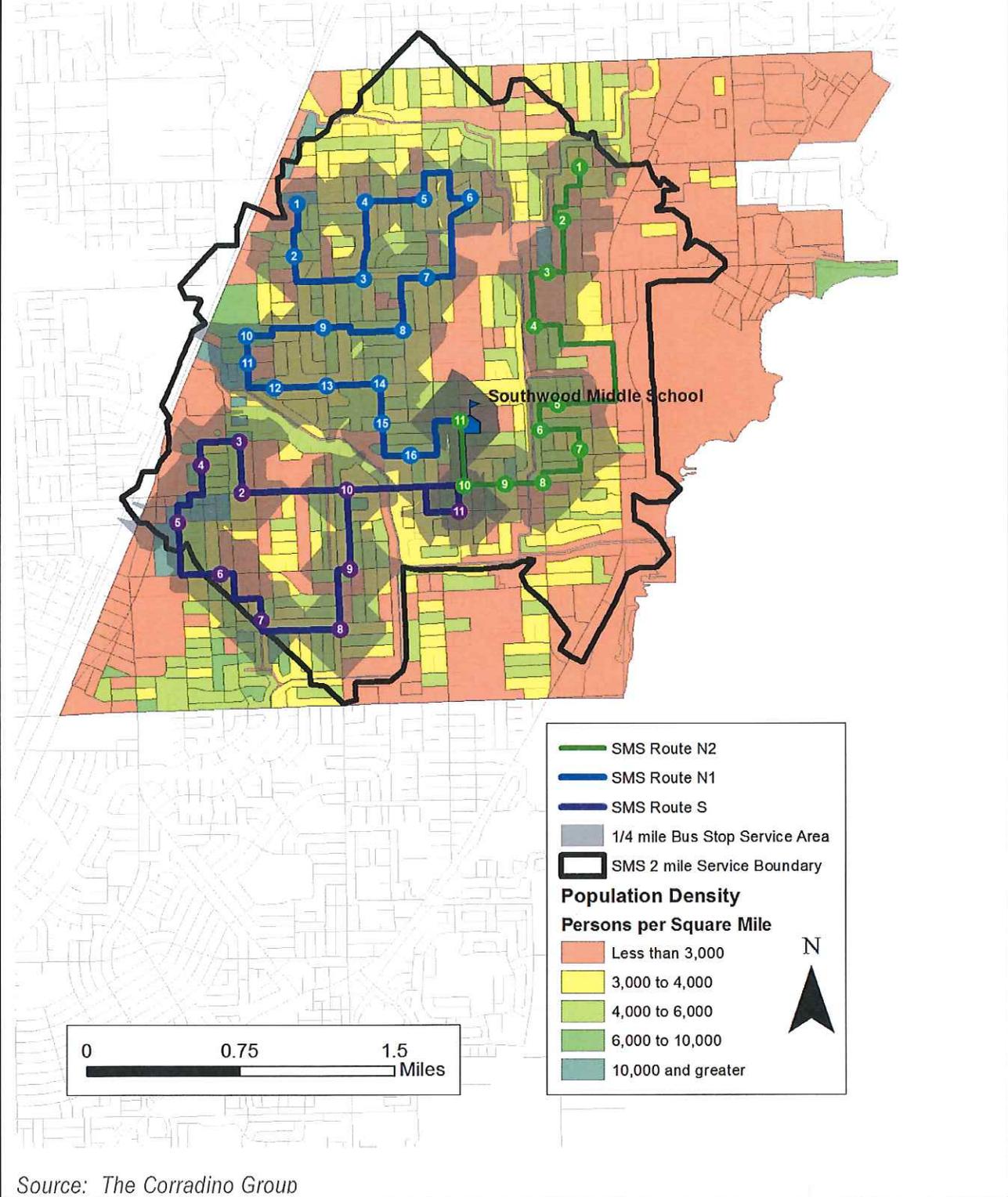
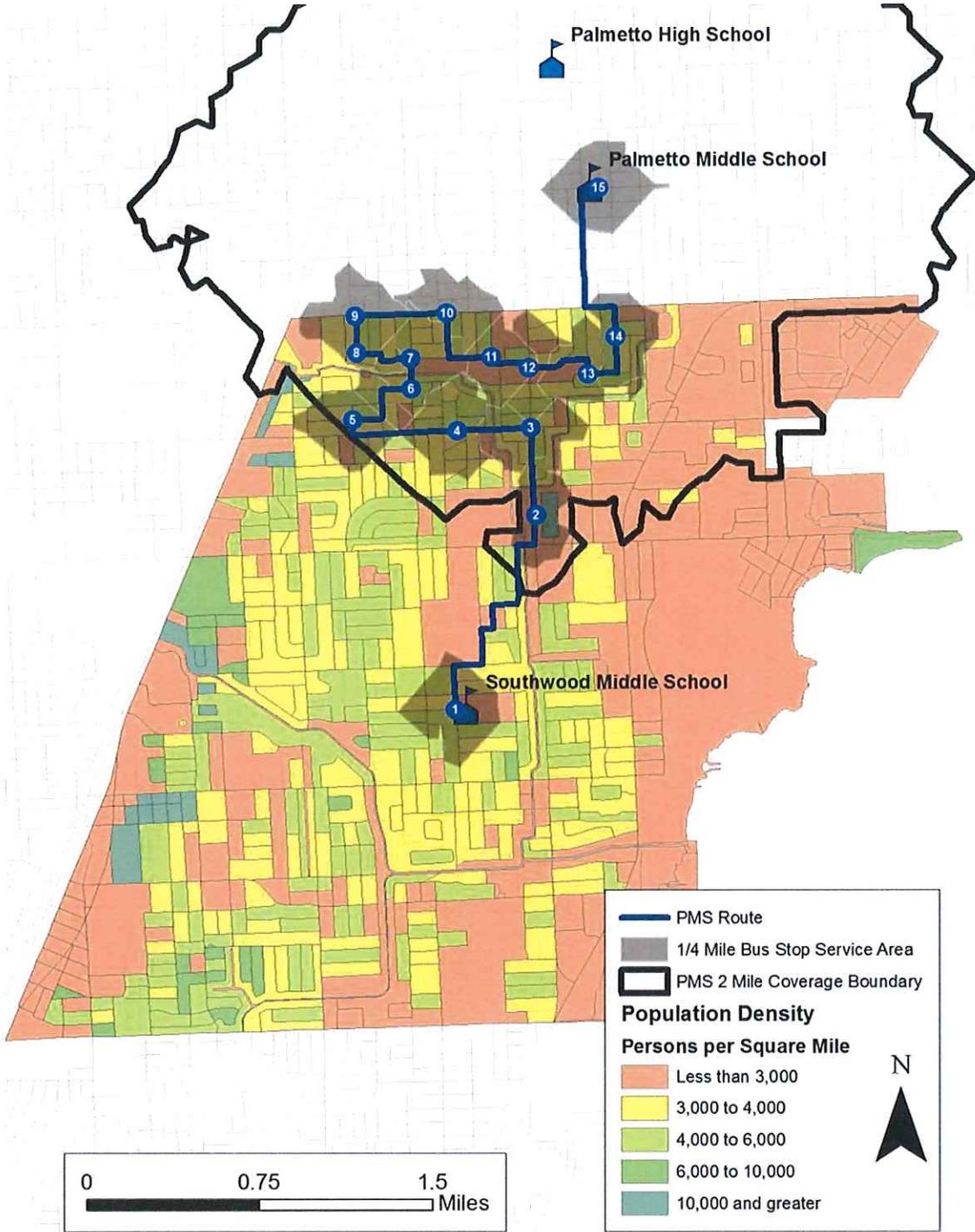


Figure 17: Palmetto Middle School Example Service
(Two Buses in School Service)



Source: The Corradino Group



Route A Optional Midday On Demand Service:

An option to providing continued midday fixed route service would be to provide on demand service. Many systems in South Florida have such service. It provides a different kind of service with different advantages, but has similar costs on a per hour basis.

Whereas most riders today are not residents of Palmetto Bay, on demand system could be restricted to residents. Having restrictions on the service, however, usually requires a certain level of administration to prequalify riders, and would not allow for use by tourists and visitors.

Importantly, on demand service requires that there be a dispatcher to schedule trips. North Miami Beach structures their service such that calls must be made three days in advance, with certain destinations served on certain days at certain hours. The advantage of such an approach is that the complexity of a many-to-many systems is somewhat reduced. If riders are grouped at one trip end, there is more efficiency than if callers can go anywhere. Matching trips is very difficult in many to many setups, as there is less potential for ridesharing.

With the desire to serve school students, the service option considered here is for mid-day service only, substituting for the current circulator service.

However, a similar service could be developed for special events, especially on weekends, utilizing this on demand model.

Route B Circulator Service:

To recap Route B (Figures 1 and 3) operates in the morning (7 AM to 9 AM) prior to the beginning of

Route A service and in the afternoon (2 PM to 5 PM) after Route A service ends for the day.

- The morning runs generally alternate between clockwise runs beginning at the Busway and SW 168th, and counter-clockwise.
- The first afternoon service is similarly a mix of clockwise and counter-clockwise runs.

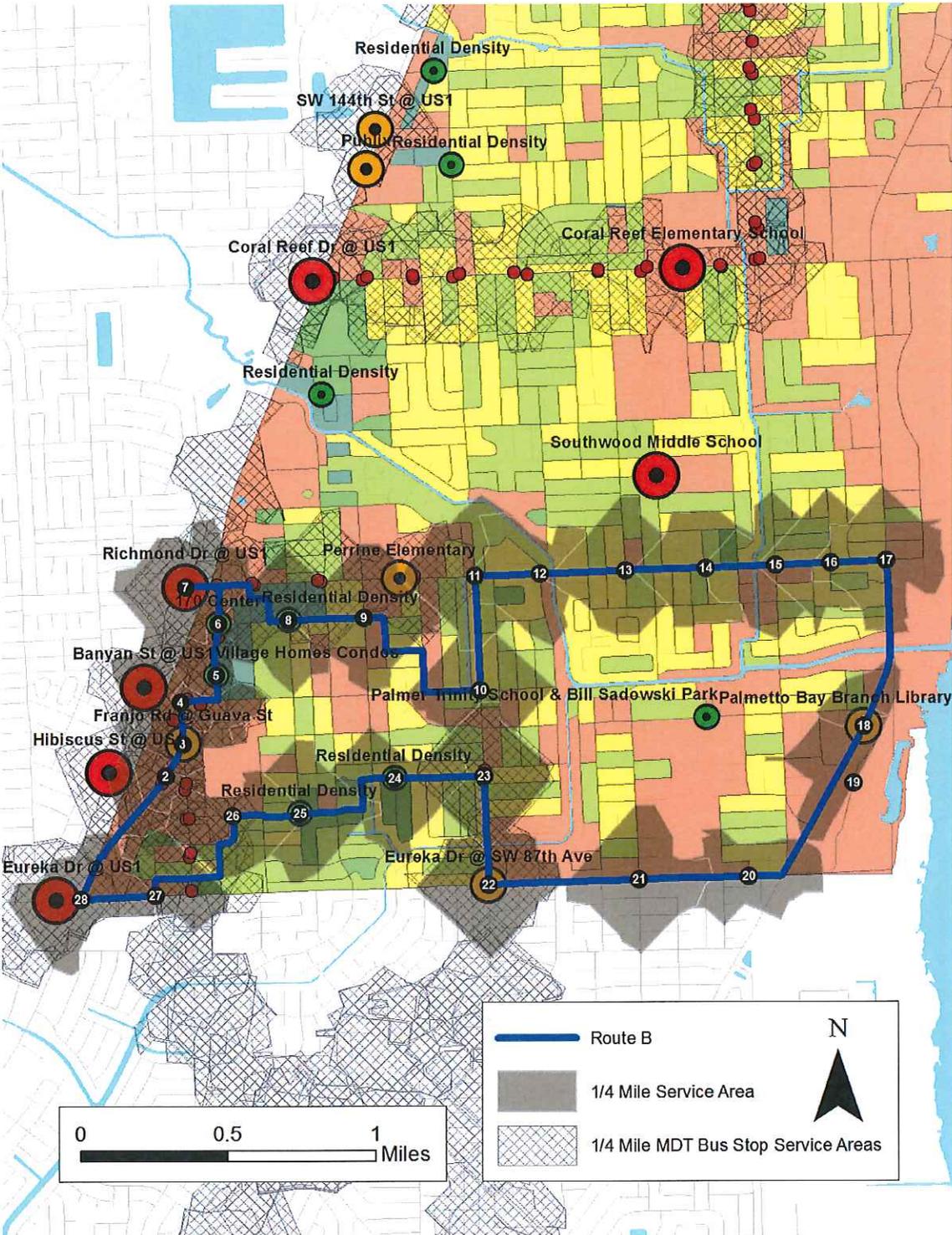
The clockwise/counterclockwise pattern of Route B is confusing. With bus stops marked only on maps, it is likely that riders find out by word of mouth where to go to catch the bus, and where it goes. There are just over two stops per mile (19 stops /8 miles). This is 1 stop per mile below the standard.

Route B currently has better service coverage than Route A. However, the accessibility of the transit system is limited by the few number of stops. Existing ridership averages in excess of 500/month. Reconfiguring Route B and providing more reliable service should result in additional riders.

Based on 2010 Census population data, the coverage area for a revised Route B (Figure 18) would provide access to approximately 2,238 families. At an average of 3.33 persons per family in Palmetto Bay, this equates to 7,786 persons. Information from the 2010 US Census indicates that 3 percent of Palmetto Bay's population uses transit, equating to a route which should have at least 200 riders/month. At the same ridership levels as the County and Pinecrest, Palmetto Bay's neighbor, both of which have either higher transit access scores and/or a higher investment in transit, 5 percent or more of the population ride transit. Applying Miami-Dade County's transit usage rate to Palmetto Bay, with a reliable, well-advertised system, Route B should have a base upwards of 400 monthly riders, if service were provided throughout the day.



Figure 18: Route B Modified



Source: The Corradino Group



Increased service coverage should have a potential for small ridership increases, with little extra investment necessary, other than for route and service information distribution, and signing bus stops. Better linkages to Cutler Bay and other system routes could potentially raise this number higher, but as with Route A, this is contingent on the quality and reliability of the system, and marketing.

Route B as presently configured is very difficult to follow. Based on what we know of patronage and the lack of signed bus stops, the Consultant believes ridership is a matter of word of mouth and trial and error. A domestic employee gets a job, and by speaking with others (all we interviewed were Hispanic) learns the iBUS comes at such and such a time and picks people up at this location. Then that individual learns more about options. What is clear from the survey work is that Route B's ridership derives from the Busway, and serves non-residents, with many riders getting on or off the bus at Village Center.

A reconfiguration of Route B is proposed that would make all runs clockwise and would share less of its coverage with MDT routes (Figure 18). Its length would be similar to Route A for the loop, which means its travel time would be just about 50 minutes, assuming an average speed of 10 mph.

Service now ends at 5:20 PM, but could be extended into the evening until 7 PM. Survey respondents asked for longer service hours. Likewise service could be provided throughout the day.

While continued population growth is expected, the Village is largely built out. Individual developments may occur, but there is no particular consideration for additional developments, other than with the Palmetto Bay/Franjo Triangle area. That affects

planning for future transit. There is a trend of aging in the community, and if this continues, there will be additional demand for door-to-door transit service by seniors. Some seniors are and will be eligible for MDT's Special Transportation Service (STS), but age alone is not an automatic qualification.

Further, there is a distinction between dependent and discretionary riders. Dependent riders are those who, for financial or other reasons, must use transit. Discretionary riders make a choice to ride transit. Transit must be convenient to attract these riders. Young riders fall between the dependent and discretionary riders. For some trips there is a choice, for other trips, there is a necessity. Ridesharing is common. Thus, choice riders and the young are targets for service changes.

Downtown Palmetto Bay/Franjo Triangle

Plans for the Franjo Triangle area include the development of a downtown area, with commercial and residential uses in a higher density than current development (Figure 19). Most development is likely to occur more than five years in the future. By that point, a new COA will be underway to further evaluate the Circulator system with respect to the new Downtown. Subsequent analyses will incorporate new demographic data for the area representing buildout conditions. From a transit access standpoint, the entire Franjo Triangle area is adequately covered by the Route B service area, and serves as a transfer area to the MDT routes along the Busway.

Downtown/Franjo Triangle development will bring more residents. These residents will be a short walk from the Busway and will be able to walk to many local businesses and restaurants. These residents,

