



VILLAGE OF
PALMETTO BAY

iBUS Comprehensive Operational Analysis

Technical Memo #1
July 20, 2015

DRAFT



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VILLAGE OF PALMETTO BAY IBUS COMPREHENSIVE OPERATIONAL ANALYSIS TECHNICAL MEMO # 1

Introduction:

Miami Dade County is young in terms of development. Just over 100 years ago, Flagler's Rail Road cut a path along what is now US-1. Our communities then began to develop in the 1950's. Today Florida is one of the fastest growing states in the Union. We have an immature transportation system almost completely built on roadways. Because of our development in a post World War II era, the transit systems that developed in the North Eastern part of the United States, never developed here. Those systems were there before the roads. The development is going to keep coming, and as we can clearly see, the roads cant handle it. There are no more roads to build, so we must use them differently. South Dade is a relatively uncongested place. If we do not move to mass transit, to see the future one would have to look no further than North East Miami Dade County. A drive to the Aventura Mall on a weekday afternoon is a perfect example of what is coming.

In South Dade we are fortunate. Flagler's Rail Road has already been repurposed. It is the Metrorail and Busway. We have the beginnings of high level transit already, while other communities, like Miami Beach does not. The Palmetto Bay Circulator is a progressive forward thinking alternative, fitting of one of the most desirable, well run places to live in our region. Perpetuating it is an investment in the future.

SUMMARY OF FINDINGS

The Palmetto Bay iBUS system currently operates two routes Monday to Friday, except on holiday:

Route A: 10 AM – 2 PM

Route B: 7 AM – 9 AM and 2 PM – 5PM

Ridership has declined from approximately **12,000 (2008) to 5,376 (2013)**. Current ridership averages **24.8** riders daily for the system, down nearly 45% from system peaks. Ridership is low on Route A at **12 Riders per day in June**.

The iBUS and MDT routes' ¼ mile transit access area covers approximately **34%** of the Village. However, these two route systems duplicate approximately **2/3 of the iBUS's coverage area**. The services are not complementing one another, but they are competing with one another. Overall, it is our opinion that general transit access in Palmetto Bay is weak, but there are definite opportunities increase it via re-routing and intersystem coordination. Opportunities also exist in providing bus service for students in the mornings, as **students living within 2 miles of their school have no assigned school busing**.

Survey and field observations indicate a desire for increased transit amenities which currently do not exist and from which the system will benefit. Increases in user friendliness are necessary for the system, including provision of information and transit infrastructure and increased outreach.

A weakness and threat to future operations of the iBUS system lies in its aged vehicular stock, which is approximately **10 years old**. Comparable vehicles utilized for transit service generally have a lifespan of **5 years**.



The key is to target the correct populations and implement a service that is efficient, effective and affordable. This report puts these issues into context, exploring the current state of the service, benchmarking it with others so that we can manage our expectations. It explores the demography of the Village and suggests potential service population's and routes. Finally it suggests potential operational characteristics. It is the goal of this report to provide the Village with as much quality information as possible in order for it to make the best decision possible.

Corradino understands the purpose of this Comprehensive Operational Analysis is to evaluate the iBus shuttle service and provide insight into how it can best evolve to serve the residents of and visitors to Palmetto Bay. Corradino is evaluating iBus service and its relationship to transit circulators in the Village of Pinecrest and the Town of Cutler Bay, and connectivity to Metro-Dade Transit (MDT) service. This study explores the existing service and potential market for shuttle service within the Village of Palmetto Bay in order to

- Determine whether its two existing routes should be reconfigured, discontinued, or consolidated.
- Evaluate the current operating model in light of fiscal and market needs.

For this project it is understood that the Village wants to explore expanded transit populations. One targeted population is younger residents. For this to occur it is important to understand all relevant city and county services, the interfaces among them, and whom Palmetto Bay's iBus is serving today. To understand the existing and potential ridership, we evaluated the demographic make-up of Palmetto Bay as well as the geographic dispersion of the student

population, and conducted an on-board survey of the iBus ridership.

Task 1:- Data Collection:

Task 1 involved collecting data on existing conditions relevant to the evaluation of iBus operations.

Staffing Operations and Vehicle Stock:

Palmetto Bay now owns three functioning buses, each with a capacity of 20 seated passengers. The buses are wheelchair lift equipped. For planning purposes, the consultant has assumed that, in the short term, two buses are available for service and one is a spare. Having a spare is a necessity under any circumstance. Presently, drivers work part time and are employed by the Village of Palmetto Bay.

Buses are equipped with wheelchair lifts and bicycle racks. However, bus stops, generally unmarked, also are located in areas with no sidewalks. Thus, persons requiring wheelchair assistance do not always have a dedicated concrete landing pad onto which they would alight from the bus.

The buses were purchased when the iBus service was initiated in 2006. While the buses are almost a decade old, the service-life of the buses in operation in Palmetto Bay is 5 years.

The buses owned by the Village are regularly maintained, but must increasingly dedicate more effort to maintain a deteriorating stock. iBus service as reported by staff and riders is subject to issues related to the age of the vehicles. Bus breakdowns have been noted to be a recurring issue, with reported cases of the backup shuttle breaking down while on route relief service. During the study, the need to repair the air conditioning units put bus operations entirely out of service from June 29, 2015 to July 1, 2015.



Table 1: Minimum Service-life categories for Buses and Vans

Category (2007)	Typical Characteristics				Minimum Life (Whichever comes first)	
	Length	Approx. GVW	Seats	Average Cost (2007)	Years	Miles
Heavy-Duty Large Bus	35 to 48 ft and 60 ft artic.	33,000 to 40,000	27 to 40	\$325,000 to over \$600,000	12	500,000
Heavy-Duty Small Bus	30 ft	26,000 to 33,000	26 to 35	\$200,000 to \$325,000	10	350,000
Medium-Duty and Purpose-Built Bus	30 ft	16,000 to 26,000	22 to 30	\$75,000 to \$175,000	7	200,000
Light-Duty Mid-Sized Bus	25 to 35 ft	10,000 to 16,000	16 to 25	\$50,000 to \$65,000	5	150,000
Light-Duty Small Bus, Cutaways, and Modified Van	16 to 28 ft	6,000 to 14,000	10 to 22	\$30,000 to \$40,000	4	100,000

Source: Useful Life of Transit Buses and Vans,
http://www.fta.dot.gov/documents/Useful_Life_of_Buses_Final_Report_4-26-07_rv1.pdf

Hours of Operations and Route:

iBus service is now provided on two bus routes (Figure 1). There is significant overlap between iBus and the MDT routes. The background of the graphic shows population density as a reference. The denser areas are near US1.

Ridership data is collected regularly by the staff. Historical data indicates that the ridership has decreased from approximately 12,000 in 2008 to 5,376 in 2013. Recent ridership reports indicate a daily average of 24.8 for the months of April 2015-June 2015. Route A's ridership ranges from a high of 69 person for the month of April 2015 (3.4 riders per day) to a low 12 persons (less than 1 rider per day) for the month of June 2015. Route B garners more riders, ranging from 511 in April 2015 (over 25 riders per day) to 549 for the month of June 2015 (over 27 riders per day).

Route A

Route A operates only during the midday (10 AM to 2 PM), making four one hour runs, each comprised of two loops: 1) a northern counter-clockwise loop starting at the Busway and SW 152nd and following SW 152nd east, SW 77th north, SW 136th west, and US 1 south; then 2) a southern clockwise loop starting at the Busway and SW 152nd and following SW 152nd east, SW 82nd south, and SW 168th west, and then working through the Franjo Triangle/Municipal Center area back north to the Busway and SW 152nd. There are ten designated stops over the length of the two loops. Stops are not marked by bus stop signs and buses stop only at designated points (as shown on the web system map and iBus pamphlet). Unless an individual looks at the map, they would not know where to go to catch the bus, as a dot on a map is not equivalent to a sign



that indicates exactly where to stand and not miss the bus.

Figure 1 shows that several MDT bus stops are present along the same roadway section where there may be only one iBus stop. (An option would be to make all MDT stops iBus stops also.) Some transit systems have up to ten stops in a mile. 16 stops for the route may not produce adequate coverage area for the route. Based on the standard assumed walk distance to transit of ¼ mile, there should be at least three stops per mile. Route A with a length of over 10 miles has only 1.5 per mile, about half of the minimum standard.

Route B

Route B 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.

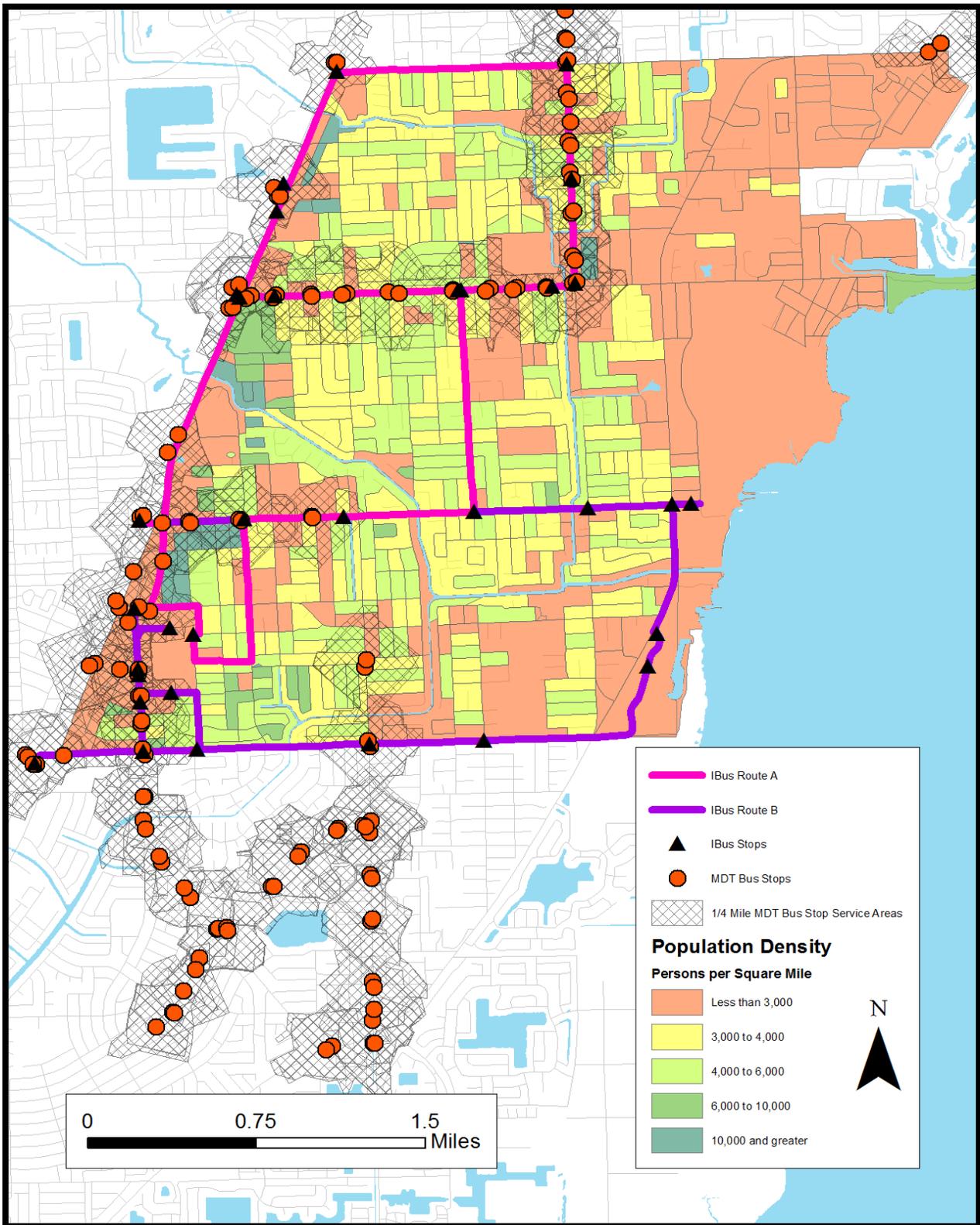
- The first morning runs clockwise beginning at the Busway and SW 168th and following SW 168th east, Old Cutler Road south (via the Branch Library and Palmetto Bay Village Center), and SW 184th back west to the Franjo Triangle area. It then reverses and runs backwards, counter-clockwise, via SW 184th, Old Cutler Road, and SW 168th to the Busway. It then runs that pattern clockwise again, then counterclockwise ending at Village Center and not getting back to the Busway.
- The first afternoon run is counter-clockwise beginning at the Municipal Center, then east on SW 184th, north on Old Cutler Road (via Village Center and the Branch Library), and west on SW 168th to the Busway. That bus then retraces its route clockwise. It makes two more clockwise runs, then ends the day with skip-stop service counter-clockwise to the Busway.

The clockwise/counterclockwise pattern of Route B is complex. 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.

No service on the iBUS is provided on Saturdays & Sundays or on the following holiday's observed by the Village of Palmetto Bay: New Year's Day; Martin Luther King, Jr. Day; President's Day; Memorial Day; Independence Day; Labor Day; Columbus Day; Veteran's Day; Thanksgiving Day; Day after Thanksgiving; and Christmas Day.



Figure 1: Existing Palmetto Bay iBus Routes and MDT Route Coverage



Source: Village of Palmetto Bay and The Corradino Group



Information and Marketing:

Route information for the iBUS is provided on the Palmetto Bay website (<http://www.palmettobay-fl.gov/content/ibus-bus-circulator-service#>). Service changes and updates are listed under "Department News." Unlike MDT routes, the iBUS does not have an online system allowing users to see the location or expected arrival times of the bus. Route information, including the one on the brochures provided by the Village in the Village Center (Figure 2) or the Village (Figure 3) provided shuttle map can be found online. The brochures are not widely distributed.

While maps are provided, bus stops are neither marked by signage nor are bus schedules available at bus stop locations. Bus stop signage and infrastructure, as well as Route timetables, also serve as visual marketing for transit systems. Bus ridership is affected by the knowledge of the system. While the iBUS itself is clearly marked, it will only affect those who see the bus. Knowledge of the shuttle's existence is hindered by its lack of visibility, and the lack of information negatively impacts user-friendliness of the system, and by extension, ridership retention and growth. The lack of transit infrastructure may also reduce ridership as the information prevents an individual from being able to plan the logistics of their trip.

In addition, on-board surveying indicates that most riders speak Spanish, and thus information provided should be bi-lingual, including service updates on the website, which is currently in English.

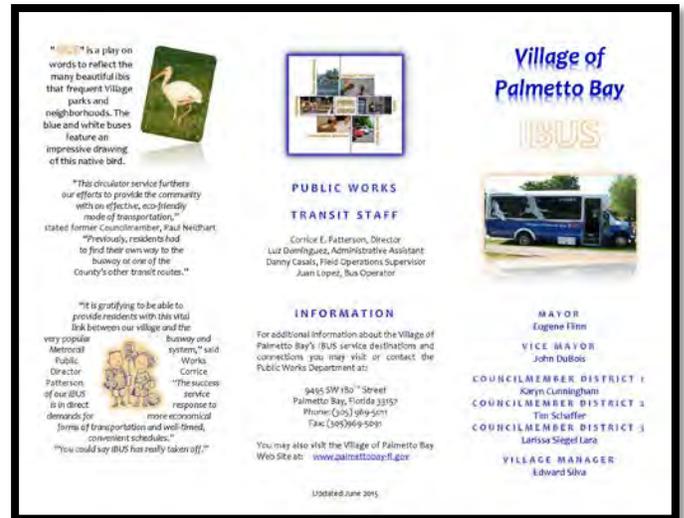
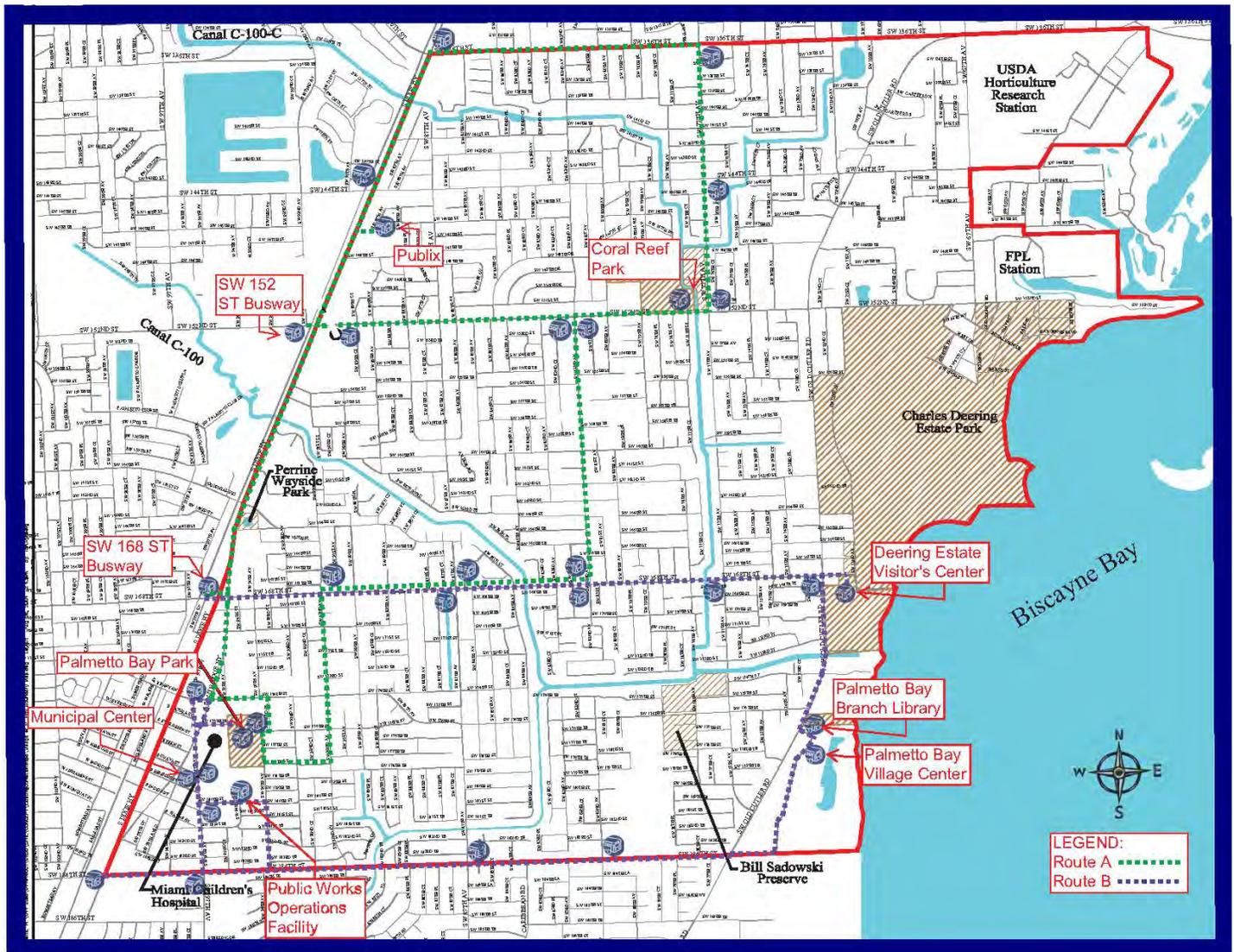


Figure 2: The Village's iBUS brochure.
Source: Village of Palmetto Bay



Figure 3: Village of Palmetto Bay iBUS Routes



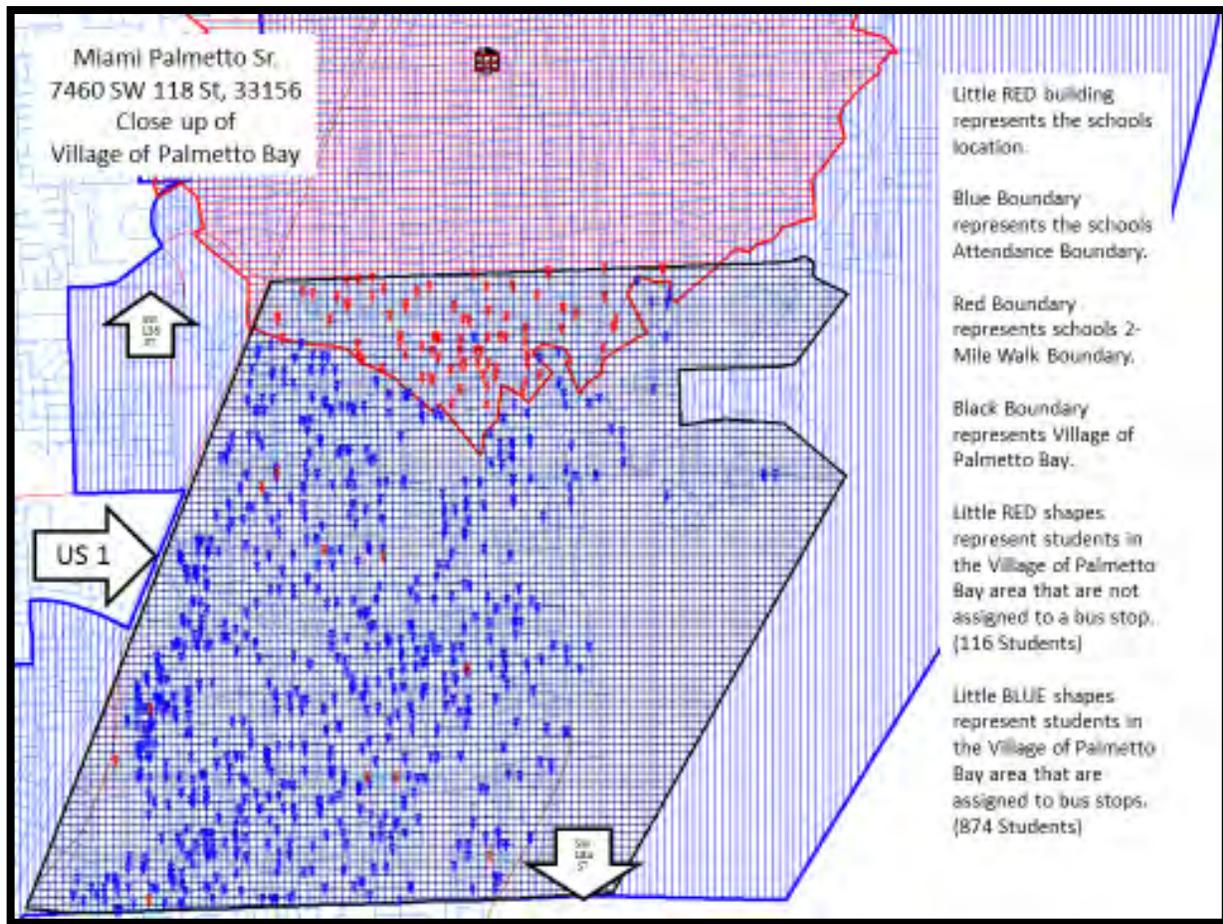
Source: Village of Palmetto Bay



Task 1.1 Data for Service to Students

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 4, 5, and 6 show the student population distribution of Palmetto Senior High School, Palmetto Middle School, and Southwood Middle School, respectively. In each case 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.

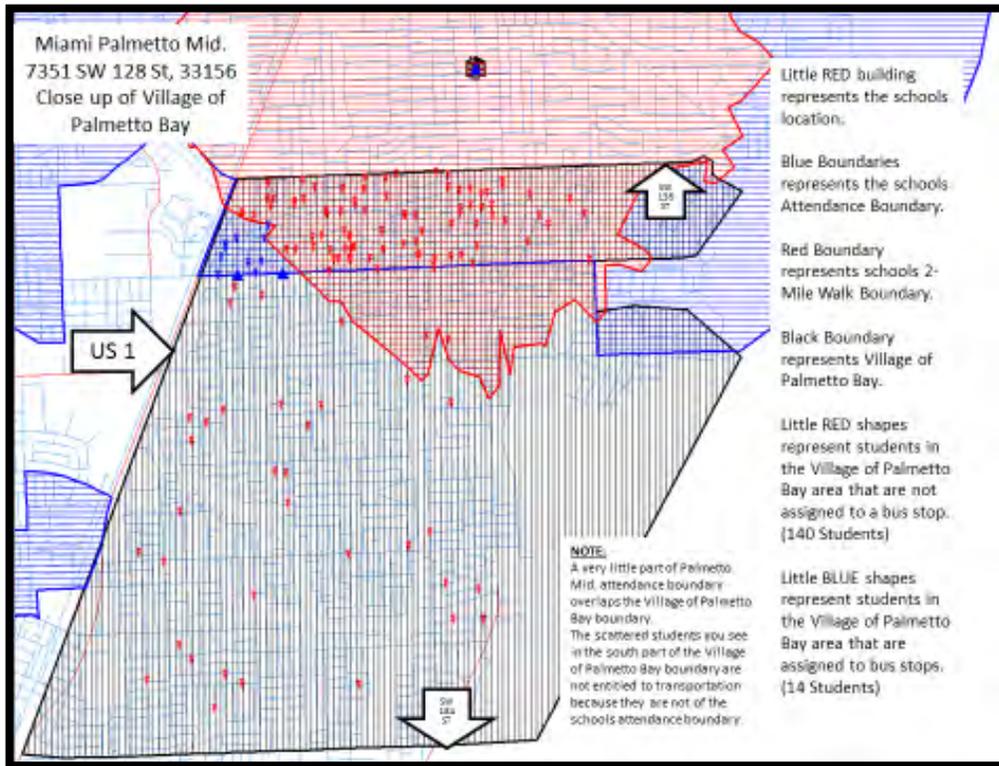
Figure 4: Palmetto Senior High School Student School Bus Assignments



Source: Miami-Dade County Public Schools

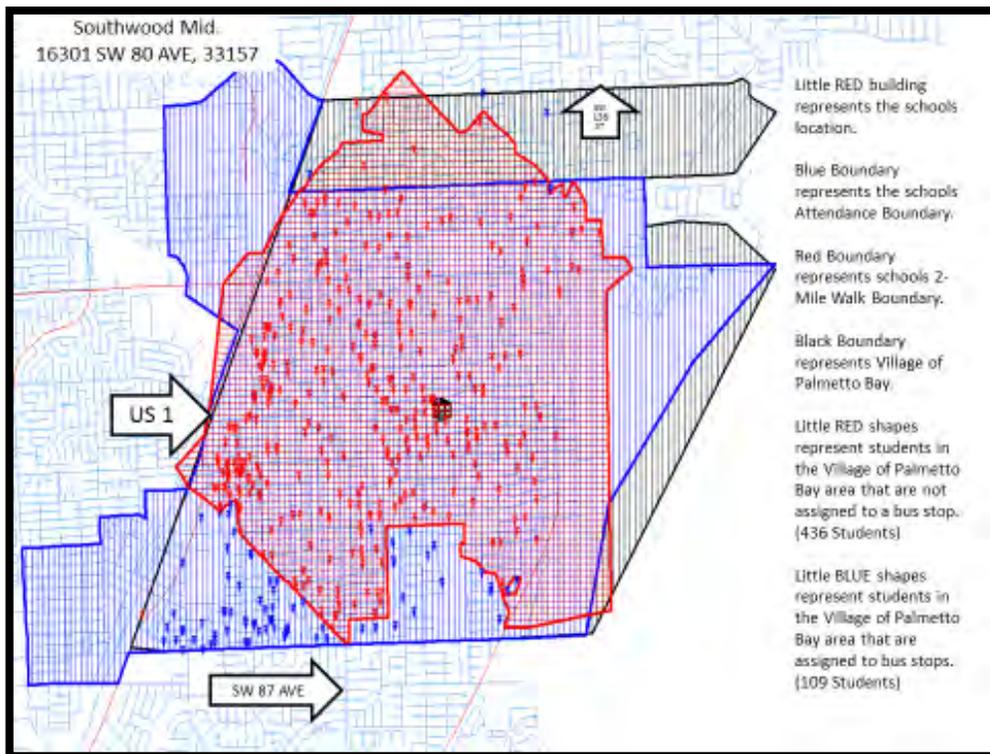


Figure 5: Palmetto Middle School Student School Bus Assignments



Source: Miami-Dade County Public Schools

Figure 6: Southwood Middle School Student School Bus Assignments



Source: Miami-Dade County Public Schools



The impetus for serving students is the limitation of service by the Miami-Dade County Public School system, such that middle and high school students are expected to get to school on their own, if they live within a two-mile radius of the school. This policy 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.

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 allows for the development of potential school bus stops.

Task 1.2 Explore New Technology

Real time scheduling and apps that let transit riders understand when the next bus is coming are topics of interest in all efforts to attract discretionary riders. Discretionary riders are persons who chose to ride transit for reasons other than economic necessity. A number of steps are required to put such a system in place.

Use of new technology has, as its starting point, provision of Global Positioning System (GPS) units on buses to track them on a constant basis. GPS units can help feed operating reporting requirements and efficiencies, and have many benefits. They provide a basis, with software support, for recording total vehicle miles, revenue vehicle miles, and other data (again based on software). Integrated units can allow recording of passenger boardings, scheduled and unscheduled maintenance, and other operating data.

All mobile apps rely upon the availability of GPS data to show waiting passengers where a bus is. Typically, GPS units are put on buses to track them and make sure they are where they are supposed to be and that they are following the prescribed schedule. The units, through software can provide alerts if the bus is off route or off schedule.

The level of technology/sophistication can vary substantially. MDT has the real-time next-bus feature on some routes today and is adding routes all



the time. Cutler Bay's Route 200 is one of the routes that has real time information. A screen shot of MDT's website shows this in Figure 7. When the website is accessed, and the bus route, stop, and direction are entered, the next bus arrival time is displayed. This same feature is available as an app for mobile phones, which is the way it is primarily being used. It would be logical and the best scenario to integrate the iBus system into the MDT overall app so users could have full access to the information for their entire trip schedule.

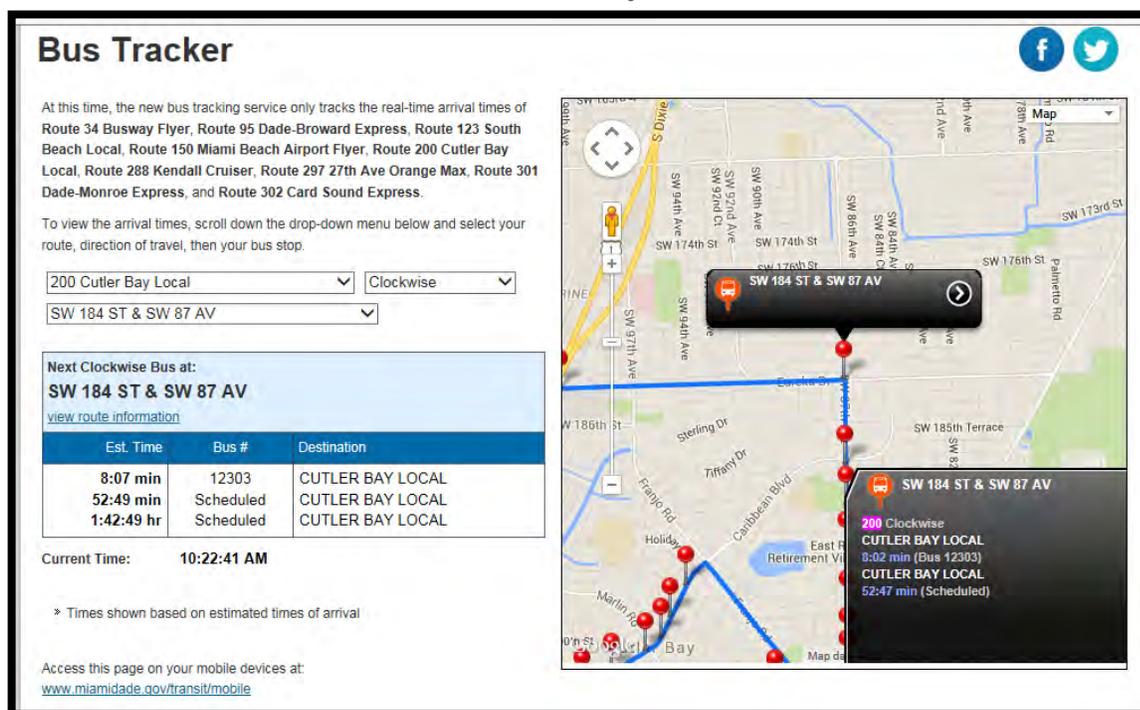
In the short term, providing an app that gives next bus arrival times, like those provided by MDT, may be the best solution, leaving more sophisticated data accumulation, like National Transit Database (NTD) statistical reporting for the long term. (NTD reporting is a system of reporting to the Federal Transit

Administration for all systems that receiving federal funding.)

The usage of smart technology has its limitations, however. The applicability depends on the ridership's access to technology. Smartphones have an inherently higher cost than regular phones, and the working class, which trend towards riding transit in higher numbers, may not have these phones. Real-time service updates, however, can be effected via SMS text messaging systems. While limited, these systems can provide alerts when the system is not working, or for when there are expected service changes.

The short term solution assumes there will not be a staff person at the iBus office that is aware of and tracking bus movements. In Palmetto Bay, an additional staff member would have to be hired in

Figure 7: MDT Bus Tracker for Route 200 – Cutler Bay



Source:

<http://www.miamidade.gov/transit/bustracker.asp?RouteID=200&Dir=Clockwise&StopID=10504&Sequence=22>



order to reasonably and reliably fulfill this task. For a system at the scale of Palmetto Bay, this cost is not reasonable. The established system would instead rely on a vendor to set up all GPS equipment and links to software to drive the apps.

At present, drivers know their whereabouts and call in their position in the event of difficulty, and maintenance then responds.

Task 1.3 Analysis of Demographics and Transit-related Information

There are two primary markets for transit riders, 1) transit dependent (those without regular access to personal vehicles), and 2) choice riders (those who have access to personal vehicles, yet choose to use transit) In Miami Dade County, the preponderance of the transit system is focused on transit dependent populations. Yet in our area of the County, we are fortunate enough to be serviced by a line that is appealing to choice riders, in the Busway and Metrorail. Choice ridership is best serviced when transit can be competitive with the private vehicle in terms of the time it takes to get from the origin and the destination, and the cost it takes to get from the origin to the destination. These factors must be considered when choosing a particular ridership market to serve. For this reason, choice ridership, may be best served through the provision of high amenity, highly frequent, minimal seat rides. It may be most advantageous if the Village is desiring to service this group, to provide more parking at the Busway park and ride lots. It has been said that Busway ridership is largely limited by parking spaces. The more spaces the more riders it will attract.

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



For the purposes of this analysis transit dependent populations in our area come in three main types, the elderly, the young (middle school, high school, college), and commuters without access to personal vehicles. The demographic analysis below explores these populations. It has been found that the community is young and affluent and highly mobile. This mobility is overwhelmingly satisfied by the personal automobile. The greatest transit dependent population are the youth, followed by the elderly (at half the population). The Village almost exclusively services a transit dependent commuter population from outside of the community, which may or may not work within the community. This ridership base is not satisfied with the service, finding it unreliable and lacking amenities.

Palmetto Bay is a community of 23, 863 persons (2013 est.); 12.2 percent of the population is aged 65 and over, and children comprise 27.7 percent of the population. While aging as a community, with a median age rising from 37.9 in 2000 to 40.7 in 2013, the Village has also attracted families with children, which has increased as a share of the population over time (US Census 2013 est).

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. 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 8 shows population densities. Green areas have the greatest population, with the darkest green showing the greatest density. The map shows that population is generally denser nearer to US 1.

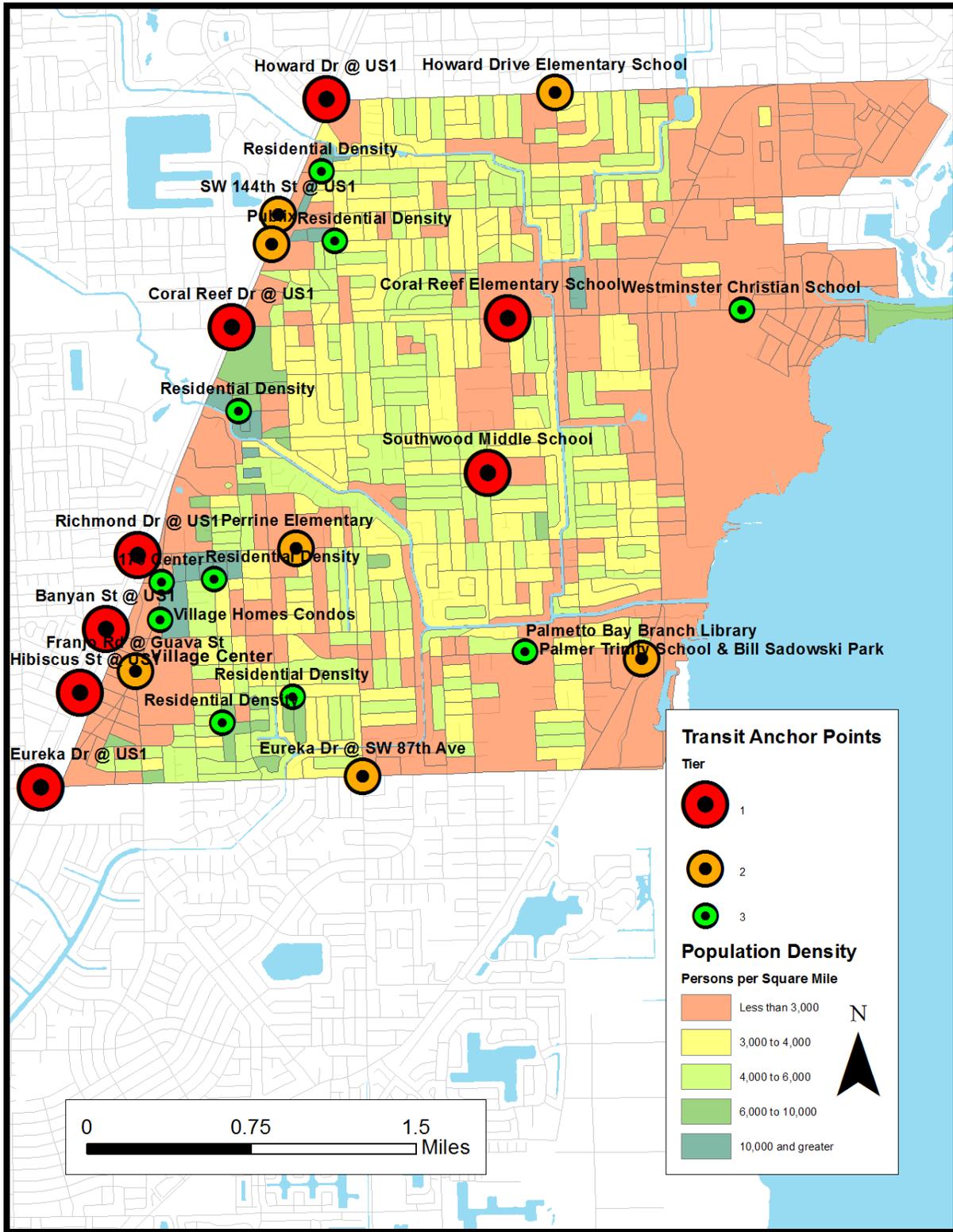
A primary indicator of transit use is population density, so it is logical for a community-based transit system to serve such areas. A notable exception is the gated community on Paradise Point, which would be very difficult to serve.

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 9). 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 7 times more likely to take transit. Pinecrest has an average of 1.77 cars per household, with an average transit expenditure of \$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.



Figure 8: Palmetto Bay Population Density – 2010



Source: The Corradino Group



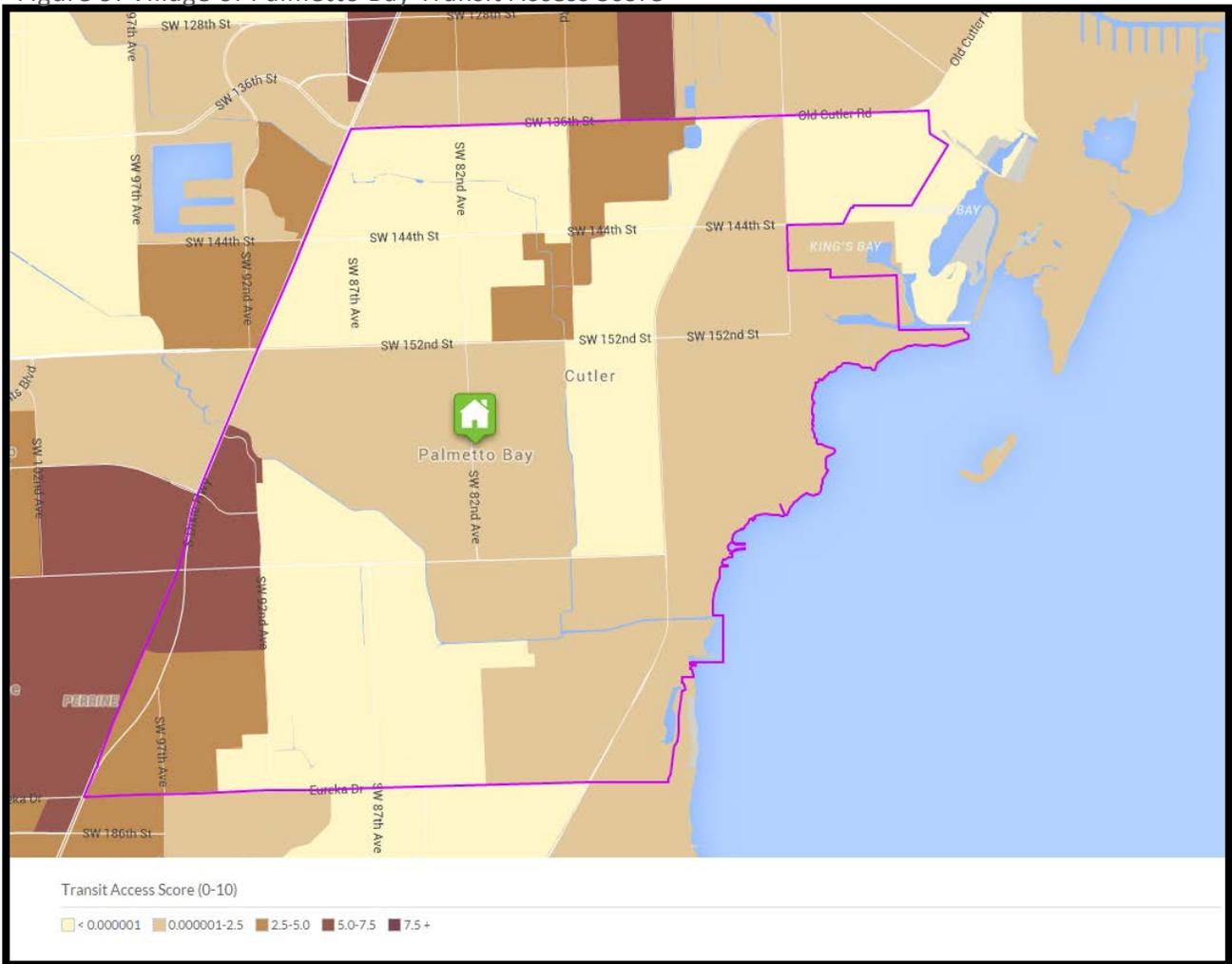
To the south, Cutler Bay's transit access score is higher than Palmetto Bay's, at 1.5. On average, its residents are 2.5 times more likely to ride transit, at an average 24 trips a year, and have expenditures of \$32 dollars on transit. This number will continue to rise as Cutler Bay further develops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

Transit service (MDT and iBUS combined) covers approximately 32.4 percent of Palmetto Bay, assuming the standard ¼ mile walking distance as the transit stop's capture well area. This poses the question of 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 in that communities with better transit accessibility have higher ridership, regardless of car ownership.

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

Figure 9: Village of Palmetto Bay Transit Access Score



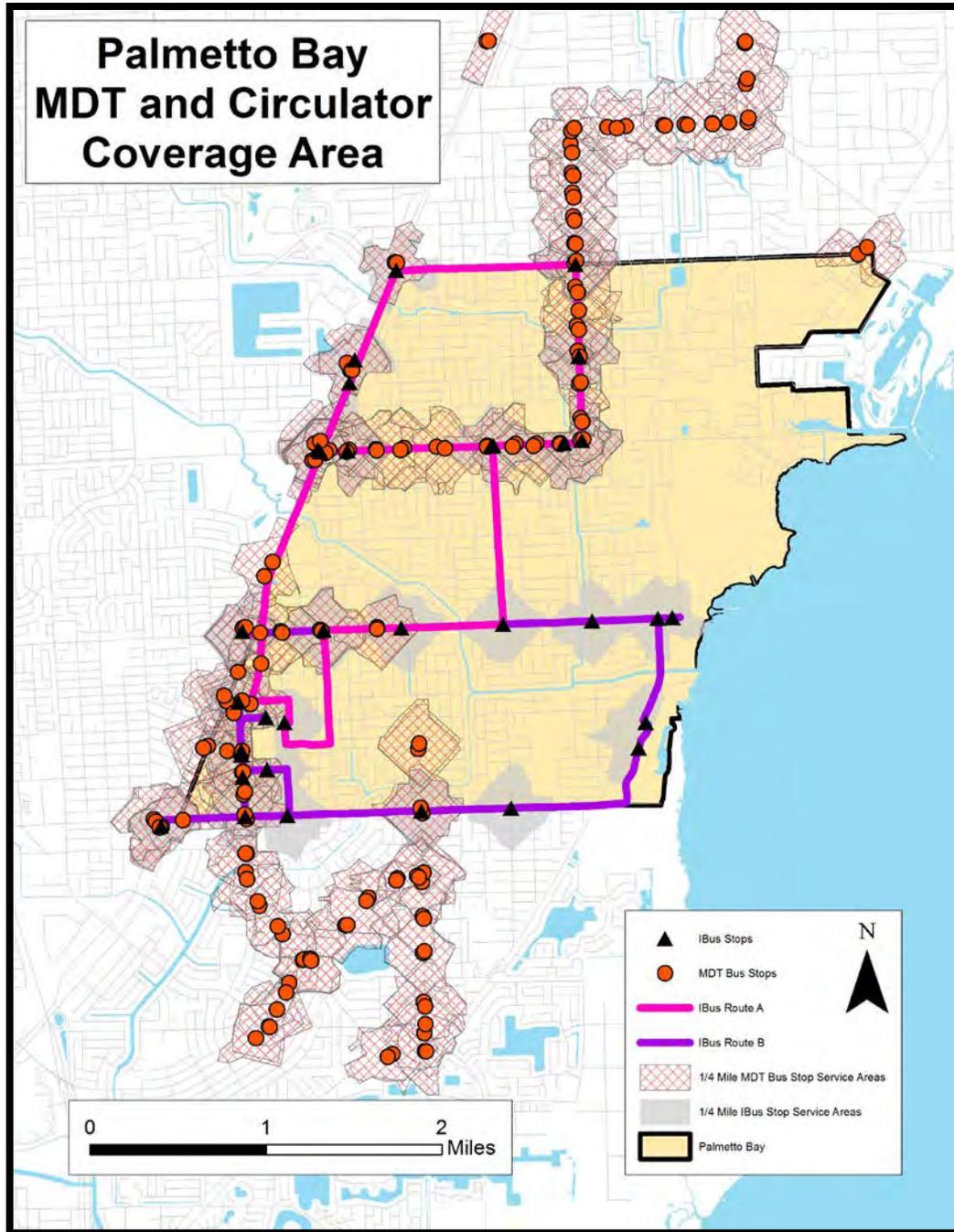
Source: Center for Neighborhood Technology



As can also be seen in Figure 10, there is a large overlap between Miami-Dade Transit routes and the Palmetto Bay shuttle. While some overlap is necessary to ensure appropriate transfers between multiple systems, current overlaps represent 1.85 mi² of the 2.83 mi², or 65.3 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 (77.5%).

Figure 10: Transit Coverage Areas



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

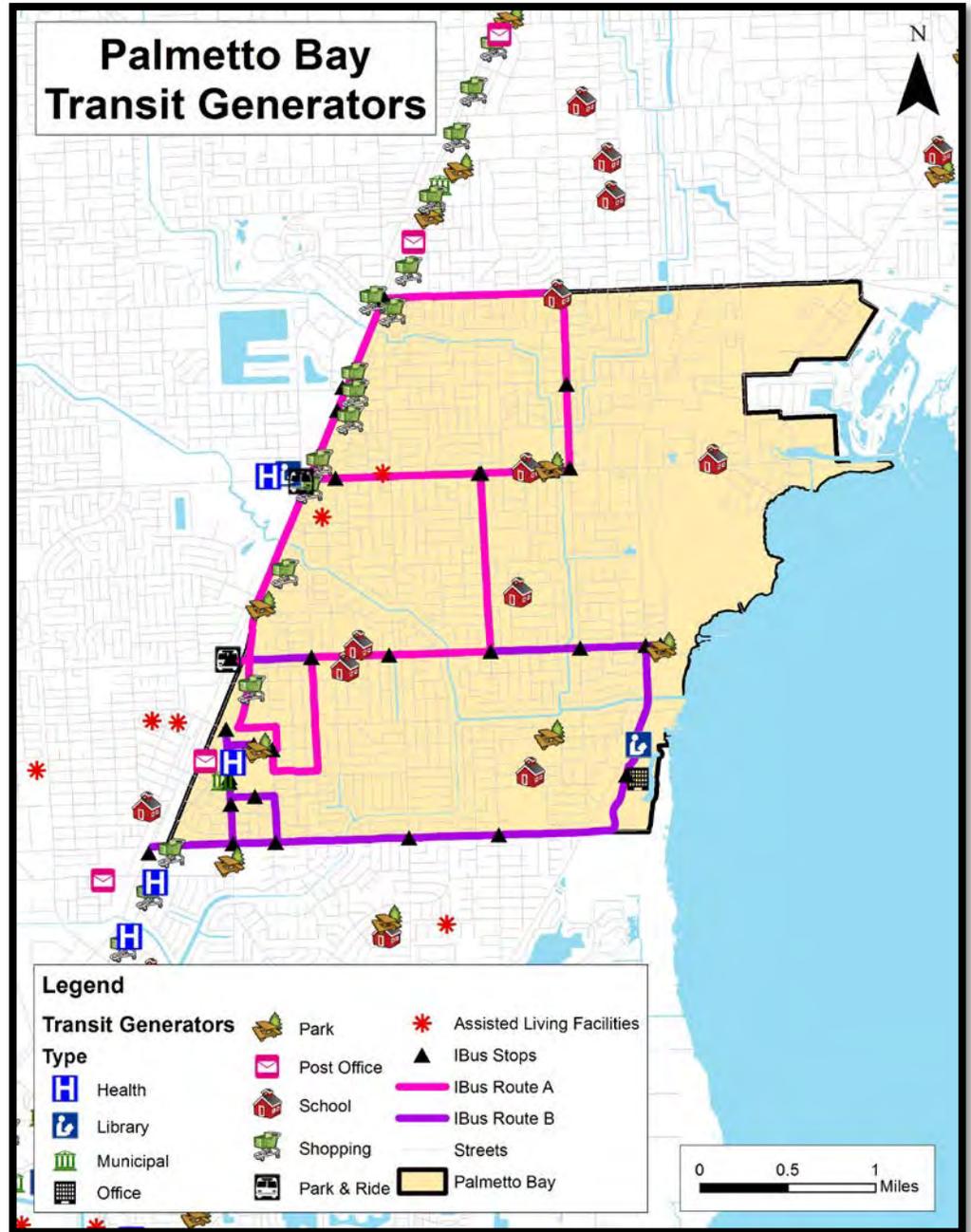


Assisted living facilities generally should be serviced by transit systems. Palmetto Bay has two such facilities, servicing families and persons with disabilities, located in the west of the Village (Shimberg Center).

During this data collection task, other data sets were mapped, including key transit generators, accounting for land use, a primary indicator of transportation needs. Transit generators for the purposes of this analysis included 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 serviced 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.

Figure 11: Transit Generators Map

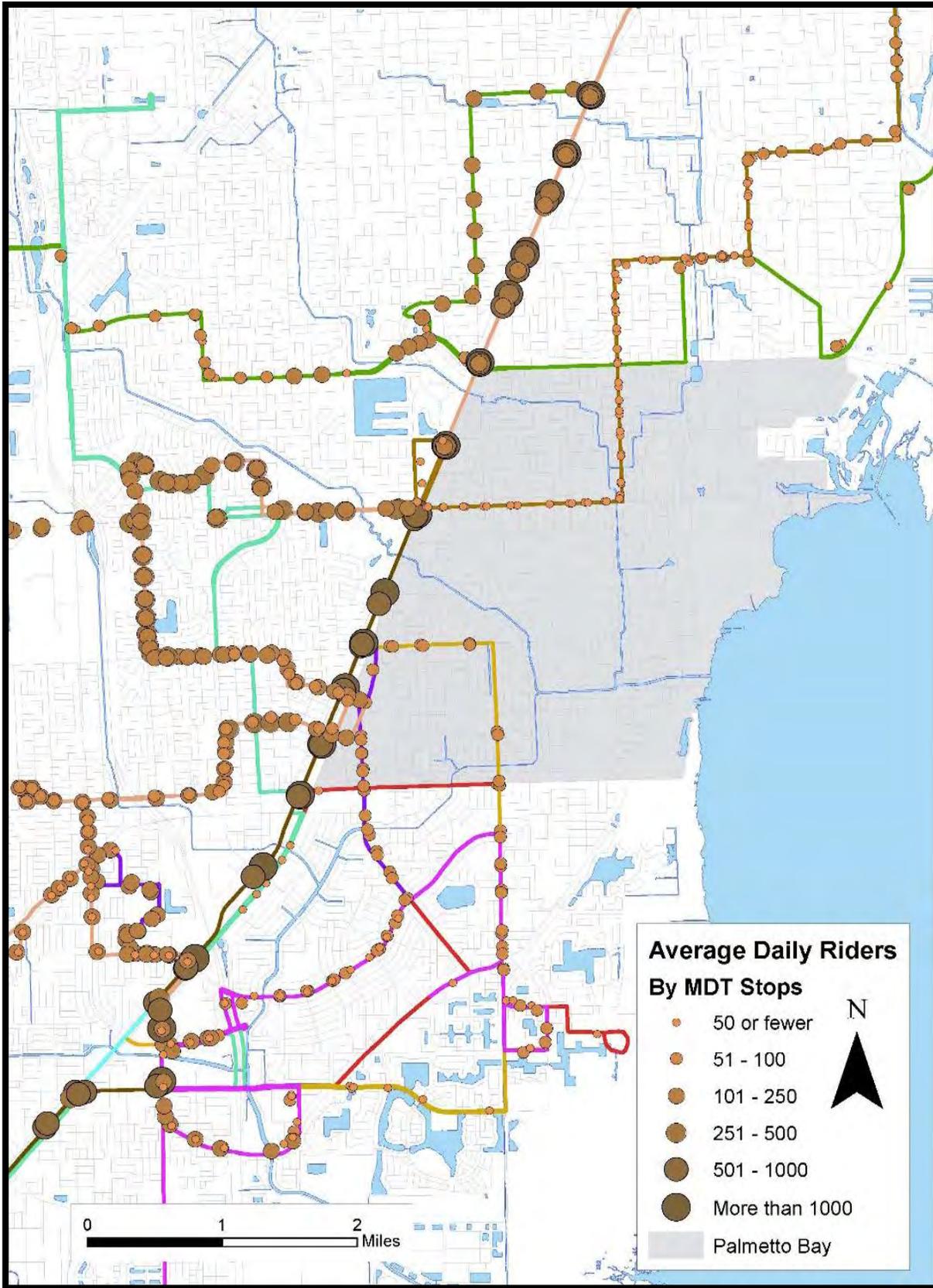


Source: Miami-Dade County, The Corradino Group, Shimberg Center for Housing

Finally, MDT average daily ridership 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. One can see the heavy ridership on the Busway, and the relatively light ridership on the lines that pass through Palmetto Bay.



Figure 7: Average Daily Ridership at MDT Stops



Source: MDT and The Corradino Group



Task 1.4 On-board Passenger Survey

On-board surveys were conducted on Route A and Route B. The afternoon runs of Route B were surveyed June 5, 2015. All other runs were surveyed on July 15, 2015.

Route A

Route A with its midday service did not have folks willing to be surveyed, on either date.

Route B

A comparison of Route B boarding times and the bus schedule shows the bus is running on time. Survey results show that Route B primarily serves commuters.

Responders said they were going to work or going home from work. Almost all are riding daily, a characteristic of a commuter. Most of those who responded are not residents of Palmetto Bay, but rather, are employed in Palmetto Bay. Almost all riders arrive via the Busway to reach their destination in Palmetto Bay and return to the Busway in the evening. No one in the afternoon transferred from an MDT route (including Route 200, the Cutler Bay Circulator). Rather, most riders are commuting home from work. More than half the ridership is boarding/alighting at the Palmetto Bay Village Center, reinforcing the understanding that it is the only significant employment destination on the east side of Palmetto Village.

Without 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
- Next bus
- Route

“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 this technical memo.



APPENDICES

APPENDIX A: Survey Results

APPENDIX B: Next-Bus Technology



APPENDIX A – Survey Results



Palmetto Bay IBus Circulator Service

Q1 Boarding location

Answered: 28 Skipped: 0

#	Responses	Date
1	Busway @ 168 St	7/15/2015 11:45 AM
2	Busway @ 168 St	7/15/2015 11:43 AM
3	Busway @ 168 St	7/15/2015 11:40 AM
4	Busway @ 168 St	7/15/2015 11:39 AM
5	Busway @ 168 St	7/15/2015 11:35 AM
6	168 St & 77 Ave	7/15/2015 11:33 AM
7	168 St & 77 Ave	7/15/2015 11:28 AM
8	Busway @ 168 St	7/15/2015 11:25 AM
9	Busway @ 168 St	7/15/2015 11:23 AM
10	Busway @ 168 St	7/15/2015 11:18 AM
11	Busway @ 168 St	7/15/2015 11:16 AM
12	Busway @ 168 St	7/15/2015 11:13 AM
13	Busway @ 168 St	7/15/2015 11:09 AM
14	Busway @ 168 St	7/15/2015 11:01 AM
15	SW 184 Street & SW 82 Avenue	6/5/2015 1:52 PM
16	Village Center	6/5/2015 1:50 PM
17	Village Center	6/5/2015 1:49 PM
18	Village Center	6/5/2015 1:47 PM
19	SW 168 ST / Old Cutler Bay	6/5/2015 1:47 PM
20	SW 168 Street & SW 89 Court	6/5/2015 1:42 PM
21	87 Ave / 168 St	6/5/2015 1:41 PM
22	SW 77 Avenue & SW 168 Street	6/5/2015 1:40 PM
23	Old Cutler & SW 184th Street	6/5/2015 1:38 PM
24	Old Cutler & 184th Street	6/5/2015 1:33 PM
25	Old Cutler & 184 Street	6/5/2015 1:30 PM
26	Old Cutler & 184 Street	6/5/2015 1:27 PM
27	87 Ave / 168 St	6/5/2015 12:10 PM
28	Old Cutler & 184 Street	6/5/2015 12:10 PM

Palmetto Bay IBus Circulator Service

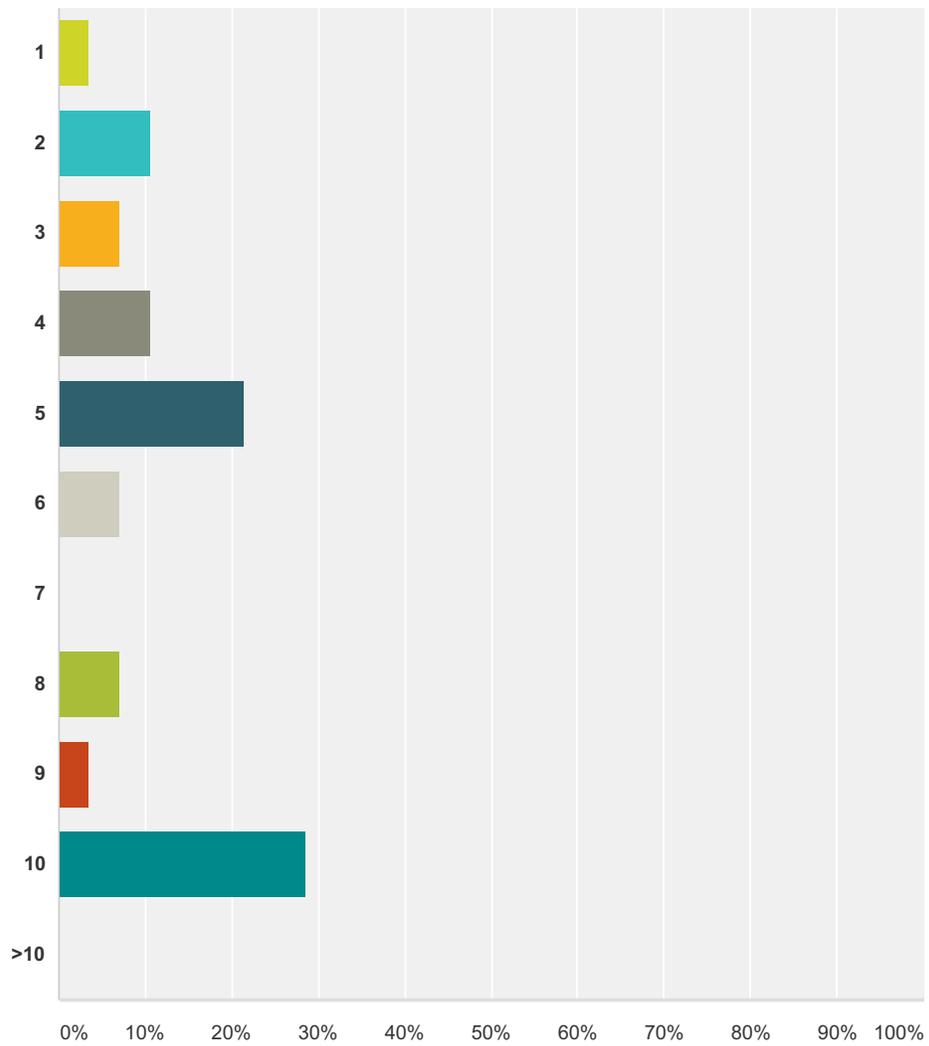
Q2 Boarding time

Answered: 28 Skipped: 0

#	Responses	Date
1	8:00 AM	7/15/2015 11:45 AM
2	8:00 AM	7/15/2015 11:43 AM
3	8:00 AM	7/15/2015 11:40 AM
4	8:00 AM	7/15/2015 11:39 AM
5	8:00 AM	7/15/2015 11:35 AM
6	7:55 AM	7/15/2015 11:33 AM
7	7:08 AM	7/15/2015 11:28 AM
8	6:55 AM	7/15/2015 11:25 AM
9	6:55 AM	7/15/2015 11:23 AM
10	6:55 AM	7/15/2015 11:18 AM
11	6:55 AM	7/15/2015 11:16 AM
12	6:55 AM	7/15/2015 11:13 AM
13	6:55 AM	7/15/2015 11:09 AM
14	6:55 AM	7/15/2015 11:01 AM
15	4:34 pm	6/5/2015 1:52 PM
16	4:32 pm	6/5/2015 1:50 PM
17	4:42 pm	6/5/2015 1:49 PM
18	4:32 PM	6/5/2015 1:47 PM
19	2:30 pm	6/5/2015 1:47 PM
20	2:41 PM	6/5/2015 1:42 PM
21	2:34 PM	6/5/2015 1:41 PM
22	2:46 pm	6/5/2015 1:40 PM
23	3:03 pm	6/5/2015 1:38 PM
24	3:44 pm	6/5/2015 1:33 PM
25	3:44 pm	6/5/2015 1:30 PM
26	3:44 pm	6/5/2015 1:27 PM
27	2:34 PM	6/5/2015 12:10 PM
28	3:44 pm	6/5/2015 12:10 PM

Q3 How many times a week do you ride the IBus?

Answered: 28 Skipped: 0



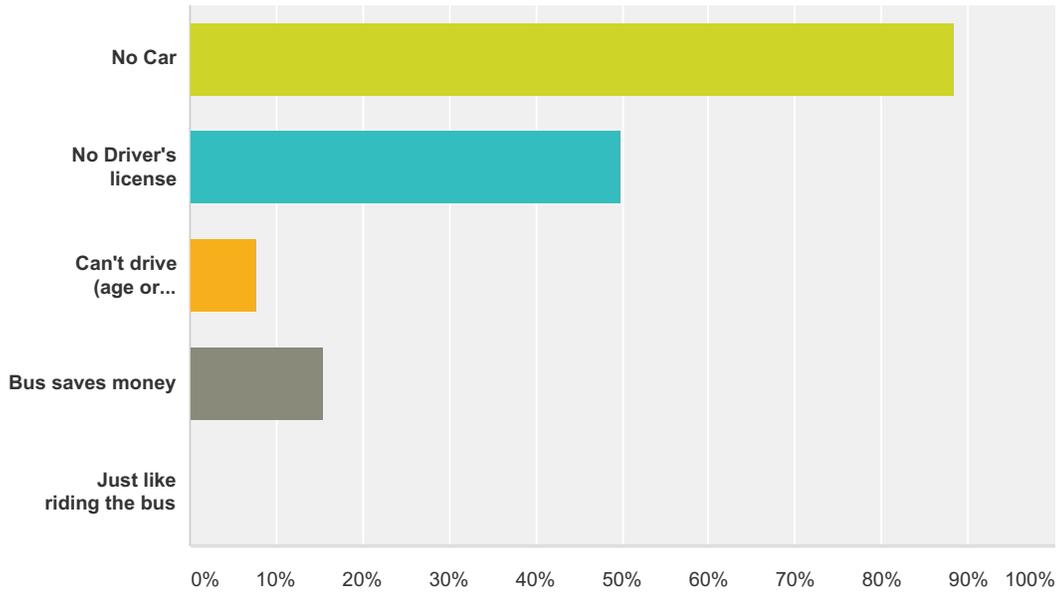
Answer Choices	Responses
1	3.57% 1
2	10.71% 3
3	7.14% 2
4	10.71% 3
5	21.43% 6
6	7.14% 2
7	0.00% 0
8	7.14% 2

Palmetto Bay IBus Circulator Service

9	3.57%	1
10	28.57%	8
>10	0.00%	0
Total		28

Q4 I am riding the bus because

Answered: 26 Skipped: 2

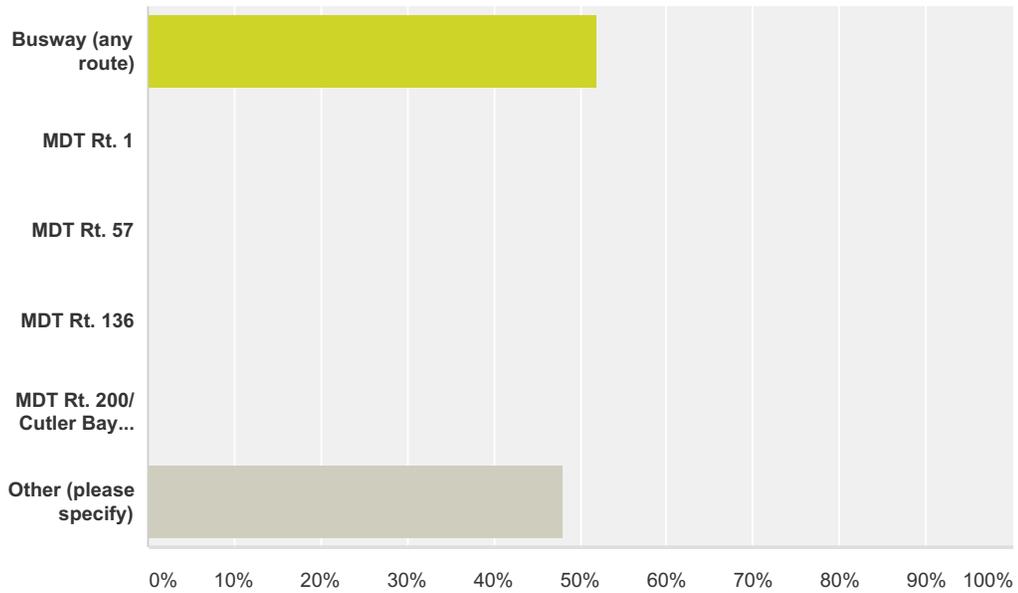


Answer Choices	Responses
No Car	88.46% 23
No Driver's license	50.00% 13
Can't drive (age or disability)	7.69% 2
Bus saves money	15.38% 4
Just like riding the bus	0.00% 0
Total Respondents: 26	

Palmetto Bay IBus Circulator Service

Q5 If you came here on an MDT bus which one?

Answered: 25 Skipped: 3



Answer Choices	Responses	
Busway (any route)	52.00%	13
MDT Rt. 1	0.00%	0
MDT Rt. 57	0.00%	0
MDT Rt. 136	0.00%	0
MDT Rt. 200/ Cutler Bay Circulator	0.00%	0
Other (please specify)	48.00%	12
Total		25

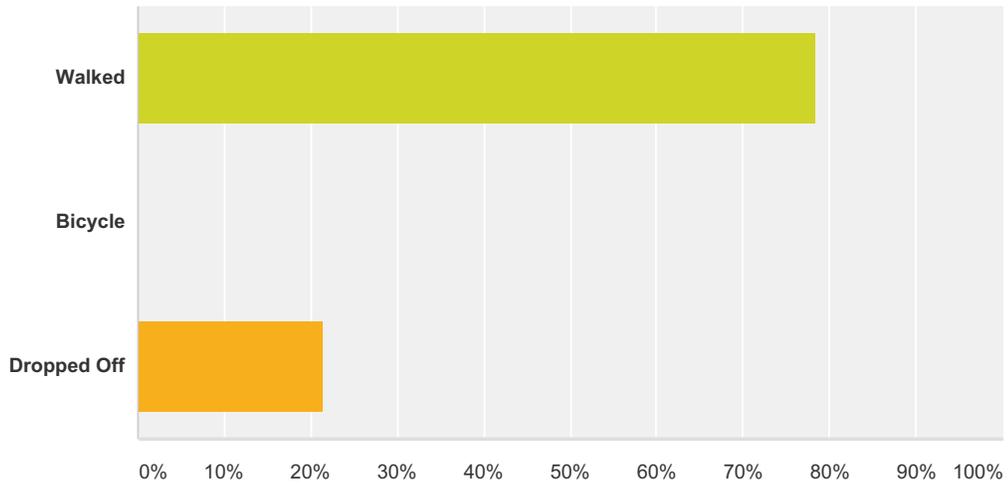
#	Other (please specify)	Date
1	work	6/5/2015 1:52 PM
2	Work (Village Center)	6/5/2015 1:50 PM
3	work	6/5/2015 1:49 PM
4	Work	6/5/2015 1:47 PM
5	88	6/5/2015 1:47 PM
6	n/a	6/5/2015 1:41 PM
7	walk	6/5/2015 1:38 PM
8	walked from work	6/5/2015 1:33 PM
9	walking from work	6/5/2015 1:30 PM

Palmetto Bay IBus Circulator Service

10	walked from home	6/5/2015 1:27 PM
11	walking	6/5/2015 12:11 PM
12	Walking from home	6/5/2015 12:11 PM

Q6 If you did not come by MDT bus, how did you get to the IBus?

Answered: 14 Skipped: 14



Answer Choices	Responses
Walked	78.57% 11
Bicycle	0.00% 0
Dropped Off	21.43% 3
Total	14

Palmetto Bay IBus Circulator Service

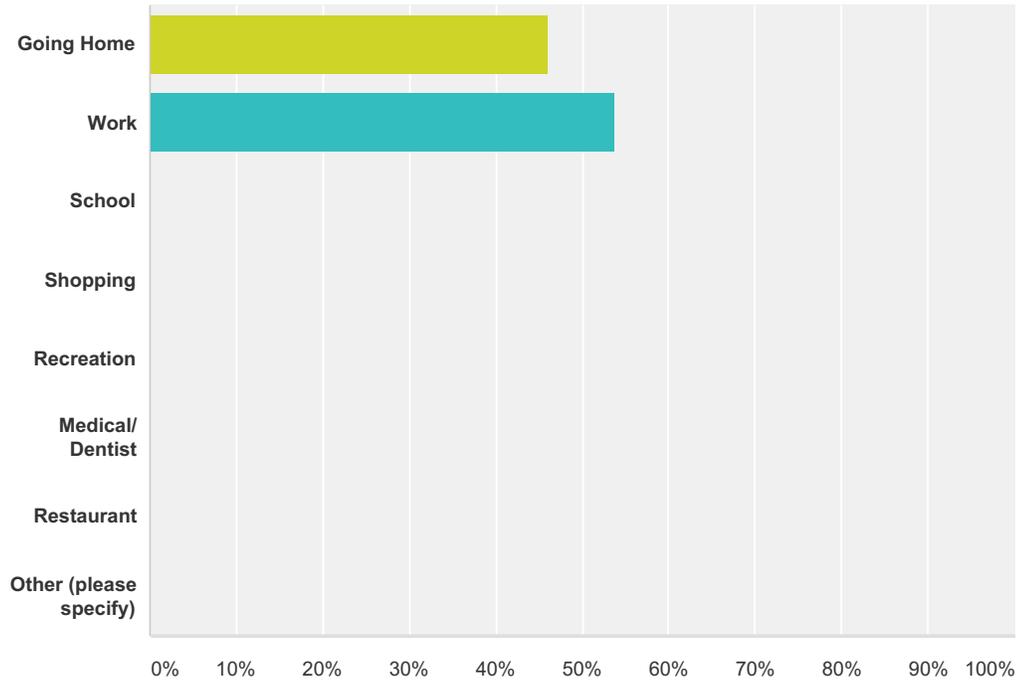
Q7 If you did not come by bus, where did you start your trip (address or nearest intersection)?

Answered: 11 Skipped: 17

#	Responses	Date
1	Home	7/15/2015 11:33 AM
2	Drove car and parked at Busway @ 152 St	7/15/2015 11:28 AM
3	Busway	7/15/2015 11:13 AM
4	SW 179 Street & SW 82 Avenue	6/5/2015 1:52 PM
5	Work (Village Center)	6/5/2015 1:50 PM
6	n/a	6/5/2015 1:47 PM
7	SW 168 ST / SW 85 AVE	6/5/2015 1:41 PM
8	SW 194th and 75th	6/5/2015 1:38 PM
9	Cutler Cay	6/5/2015 1:33 PM
10	Cutler Cay	6/5/2015 1:30 PM
11	Cutler Bay	6/5/2015 1:27 PM

Q8 Why are you making this trip?

Answered: 26 Skipped: 2

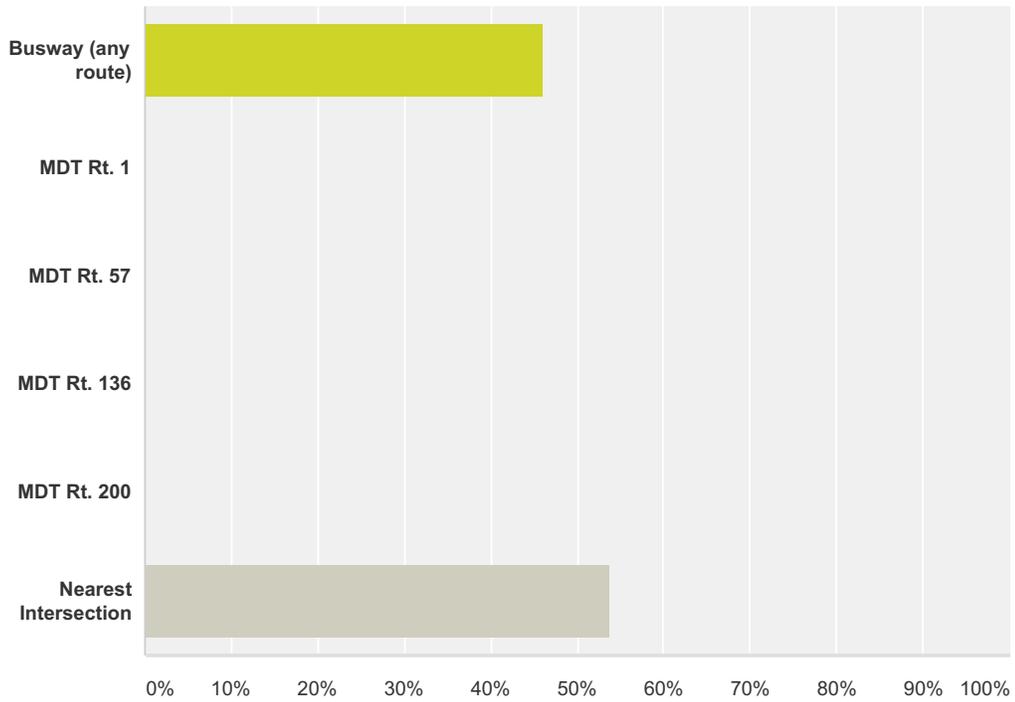


Answer Choices	Responses
Going Home	46.15% 12
Work	53.85% 14
School	0.00% 0
Shopping	0.00% 0
Recreation	0.00% 0
Medical/ Dentist	0.00% 0
Restaurant	0.00% 0
Other (please specify)	0.00% 0
Total	26

#	Other (please specify)	Date
	There are no responses.	

Q9 Where are you getting off the iBus (bus stop/MDT bus Rt./intersection)?

Answered: 26 Skipped: 2



Answer Choices	Responses
Busway (any route)	46.15% 12
MDT Rt. 1	0.00% 0
MDT Rt. 57	0.00% 0
MDT Rt. 136	0.00% 0
MDT Rt. 200	0.00% 0
Nearest Intersection	53.85% 14
Total	26

Palmetto Bay iBus Circulator Service

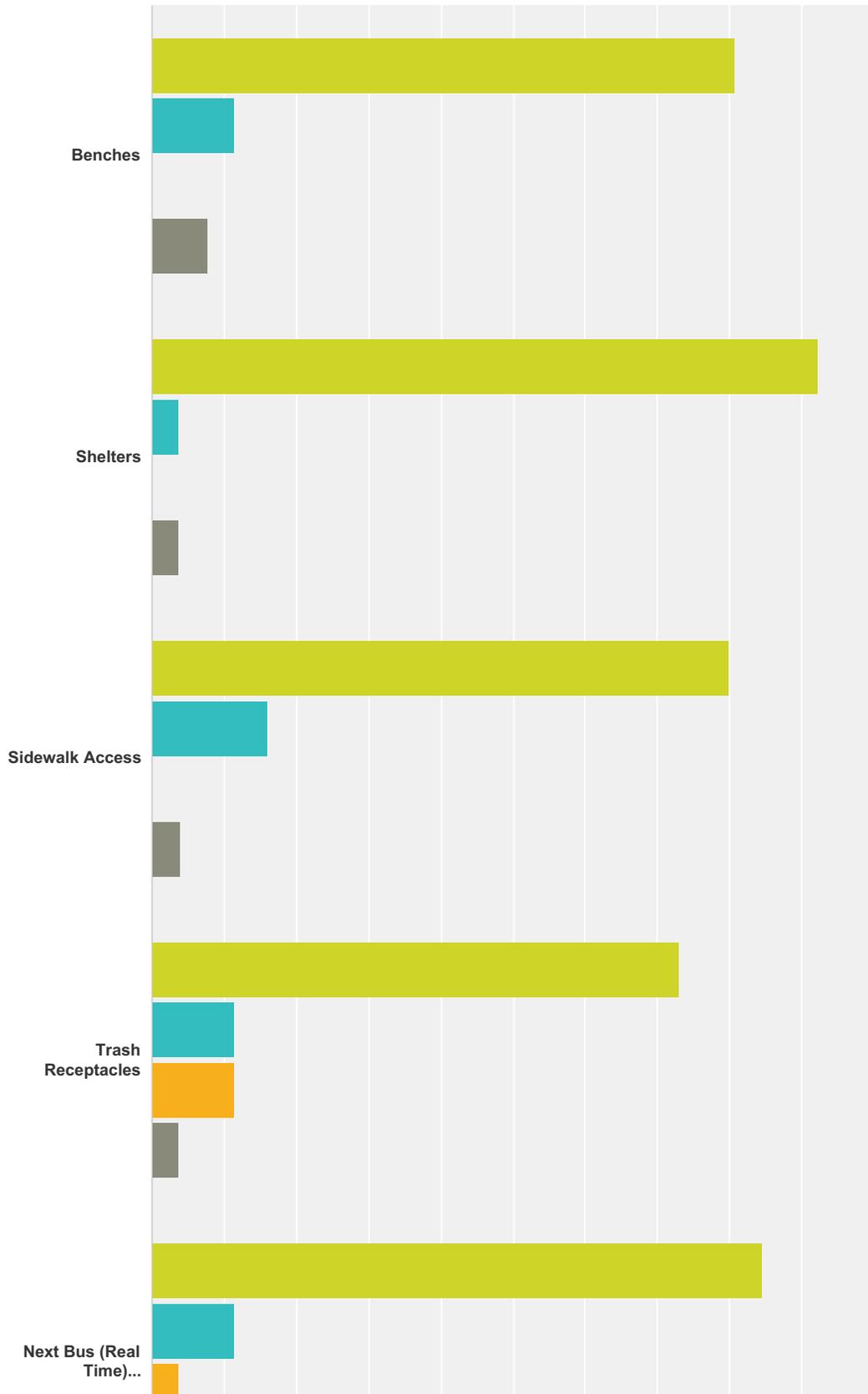
Q10 Where are you going after you get off the iBus (address or nearest intersection that is the final destination)?

Answered: 26 Skipped: 2

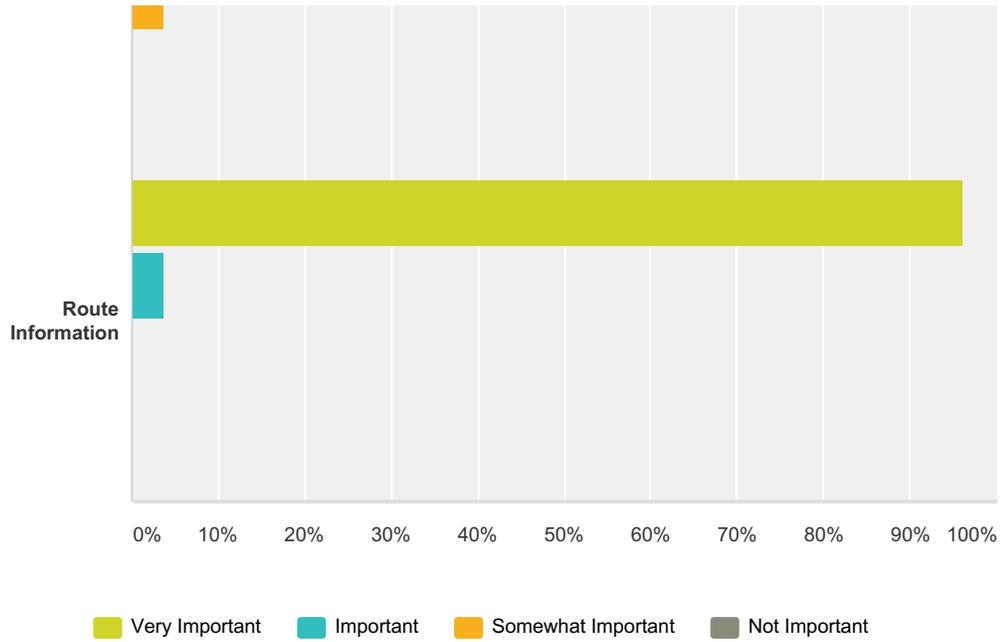
#	Responses	Date
1	185 St & 79 Ave (has to walk 30 min)	7/15/2015 11:45 AM
2	168 St & 79 Ave	7/15/2015 11:43 AM
3	184 ST & Old Cutler Road (Cutler Cay)	7/15/2015 11:40 AM
4	168 St & 74 Ave	7/15/2015 11:39 AM
5	Palmetto Bay Village Center	7/15/2015 11:35 AM
6	Brickell (Downtown Miami)	7/15/2015 11:33 AM
7	168 St & US 1	7/15/2015 11:28 AM
8	168 St & 77 Ave	7/15/2015 11:25 AM
9	184 ST & Old Cutler Road (Cutler Cay)	7/15/2015 11:23 AM
10	176 St & 83 Ave	7/15/2015 11:18 AM
11	184 ST & Old Cutler Road	7/15/2015 11:16 AM
12	Palmetto Bay Village Center	7/15/2015 11:13 AM
13	184 ST & Old Cutler Road	7/15/2015 11:09 AM
14	168 St & 74 Ave	7/15/2015 11:01 AM
15	11201 SW 190 Avenue	6/5/2015 1:52 PM
16	Allapatah & 248th	6/5/2015 1:50 PM
17	South Miami Station	6/5/2015 1:49 PM
18	SW 37th Avenue & SW 28th Street	6/5/2015 1:47 PM
19	Kendall	6/5/2015 1:47 PM
20	Old Cutler & SW 168 Street	6/5/2015 1:42 PM
21	West Kendall	6/5/2015 1:41 PM
22	Miami (Marlins Stadium)	6/5/2015 1:40 PM
23	NW Miami Dade	6/5/2015 1:38 PM
24	Kendall Drive & SW 100 Avenue	6/5/2015 1:33 PM
25	147th Avenue & 88 Street (Kendall Drive)	6/5/2015 1:30 PM
26	Little Havana (700 SW 6 Street)	6/5/2015 1:27 PM

Q11 Please rate how important these bus service elements are.

Answered: 26 Skipped: 2



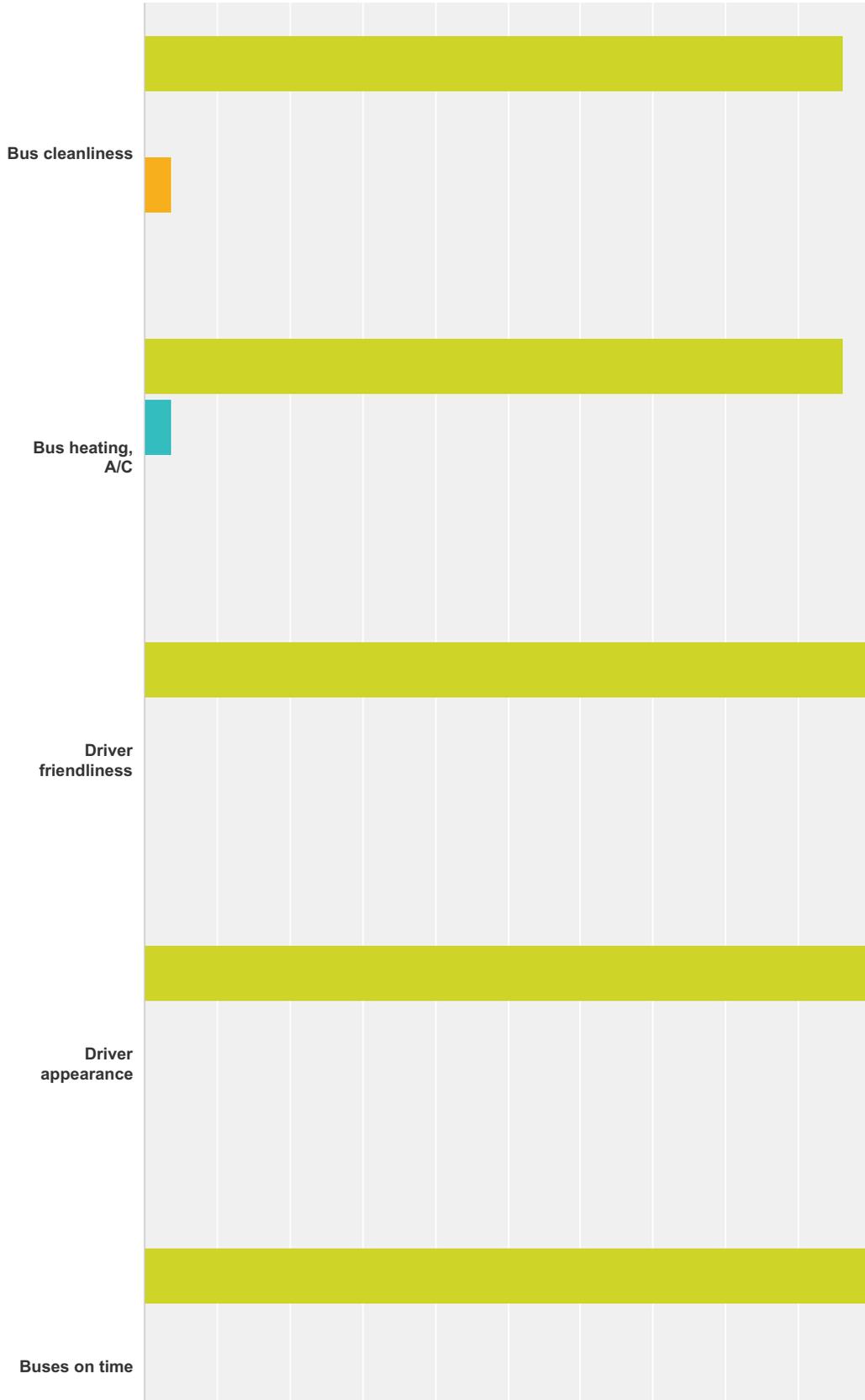
Palmetto Bay IBus Circulator Service



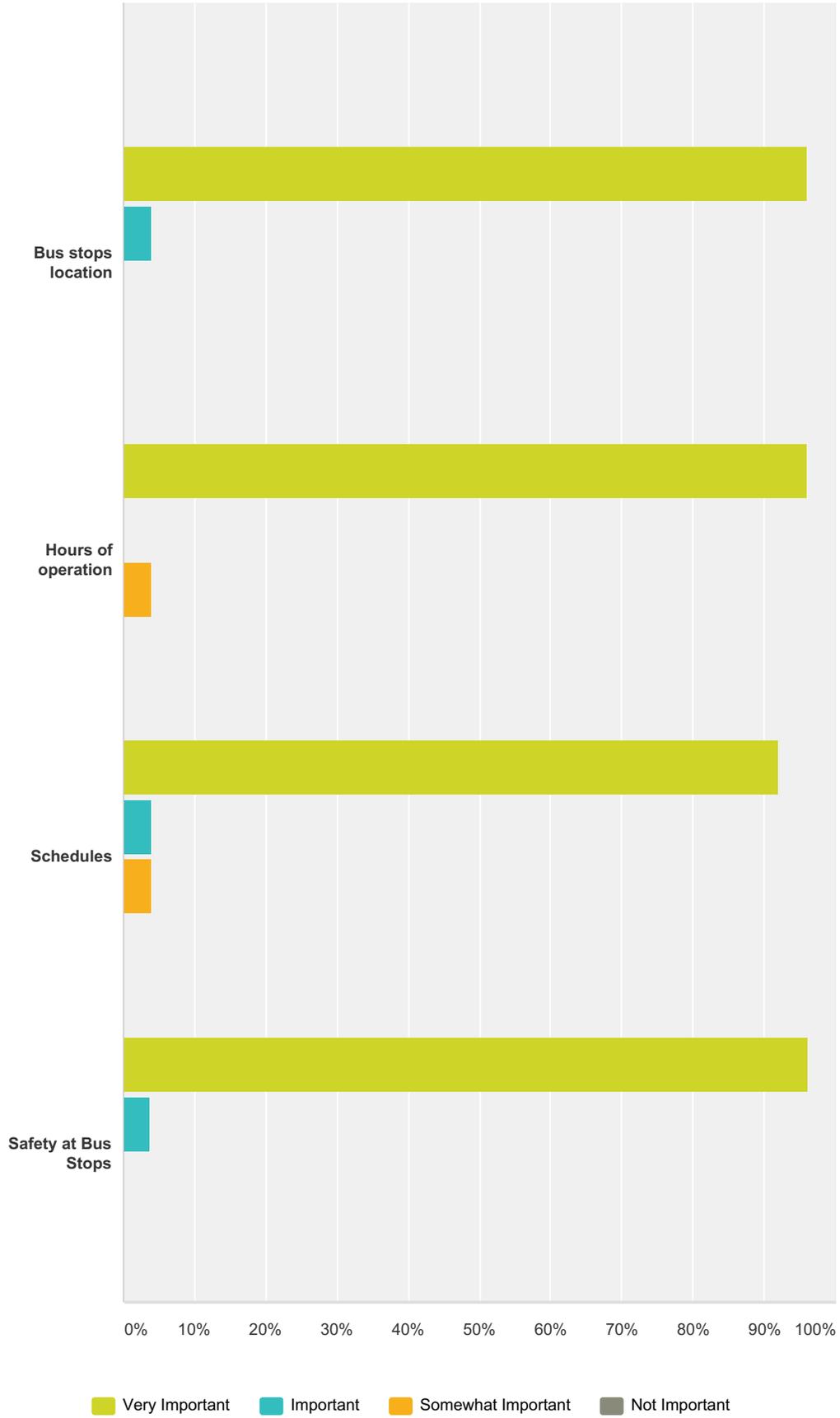
	Very Important	Important	Somewhat Important	Not Important	Total Respondents
Benches	80.77% 21	11.54% 3	0.00% 0	7.69% 2	26
Shelters	92.31% 24	3.85% 1	0.00% 0	3.85% 1	26
Sidewalk Access	80.00% 20	16.00% 4	0.00% 0	4.00% 1	25
Trash Receptacles	73.08% 19	11.54% 3	11.54% 3	3.85% 1	26
Next Bus (Real Time) Information	84.62% 22	11.54% 3	3.85% 1	0.00% 0	26
Route Information	96.15% 25	3.85% 1	0.00% 0	0.00% 0	26

Q12 How would you rate the needs for the present IBus service?

Answered: 26 Skipped: 2



Palmetto Bay IBus Circulator Service



Very Important	Important	Somewhat Important	Not Important	Total Respondents
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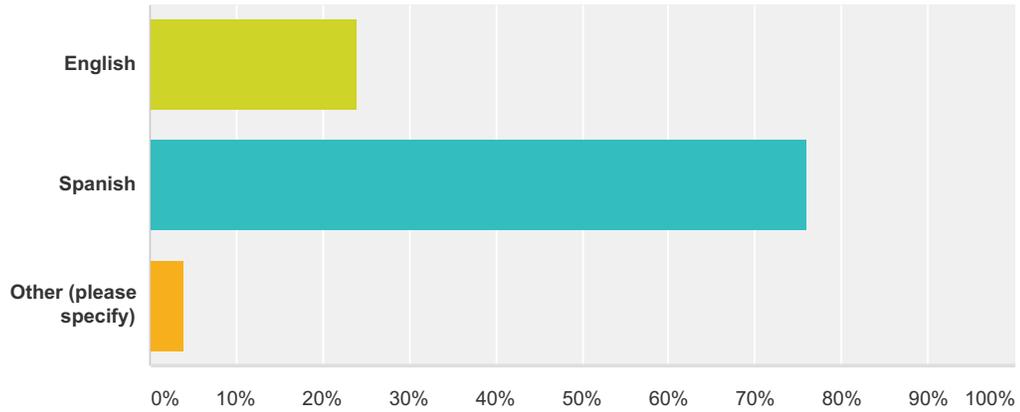
Palmetto Bay IBus Circulator Service

Bus cleanliness	96.15% 25	0.00% 0	3.85% 1	0.00% 0	26
Bus heating, A/C	96.15% 25	3.85% 1	0.00% 0	0.00% 0	26
Driver friendliness	100.00% 26	0.00% 0	0.00% 0	0.00% 0	26
Driver appearance	100.00% 26	0.00% 0	0.00% 0	0.00% 0	26
Buses on time	100.00% 26	0.00% 0	0.00% 0	0.00% 0	26
Bus stops location	96.00% 24	4.00% 1	0.00% 0	0.00% 0	25
Hours of operation	96.00% 24	0.00% 0	4.00% 1	0.00% 0	25
Schedules	92.00% 23	4.00% 1	4.00% 1	0.00% 0	25
Safety at Bus Stops	96.15% 25	3.85% 1	0.00% 0	0.00% 0	26

#	Other (please specify)	Date
1	would like to be notified in advanced if bus service is down. very happy with bus driver service	7/15/2015 11:45 AM
2	Would like to have another route leaving from busway to the east at 9:00 am	7/15/2015 11:43 AM
3	Would like to know if bus service is down ahead of time (maybe via text or flyers on bus stops). Very happy with bus driver's customer service and friendliness	7/15/2015 11:39 AM
4	Please notify in a timely manner if bus is out of service. Would like to have bus service after 6:00pm from busway to her stop (168 st & 77 ave)	7/15/2015 11:33 AM
5	Extremeley happy with bus driver customer service and friendliness	7/15/2015 11:16 AM
6	Add a trip in the AM and PM	6/5/2015 1:49 PM
7	Riders not informed in advance when service is down (buses not working)	6/5/2015 1:47 PM
8	Inform when bus service is down (ie, when bus is broken)	6/5/2015 1:38 PM
9	when buses break down, the risers are not informed in advance	6/5/2015 1:30 PM

Q13 Language

Answered: 25 Skipped: 3

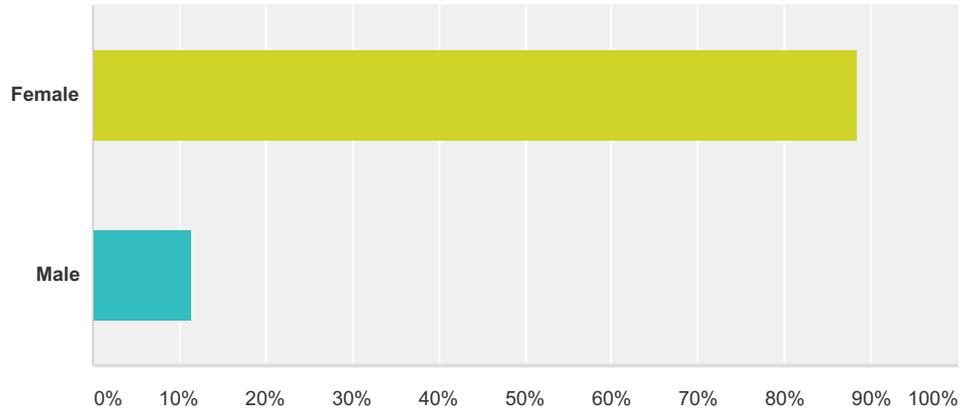


Answer Choices	Responses
English	24.00% 6
Spanish	76.00% 19
Other (please specify)	4.00% 1
Total Respondents: 25	

#	Other (please specify)	Date
1	Portuguese (Bazilian)	7/15/2015 11:28 AM

Q14 Gender

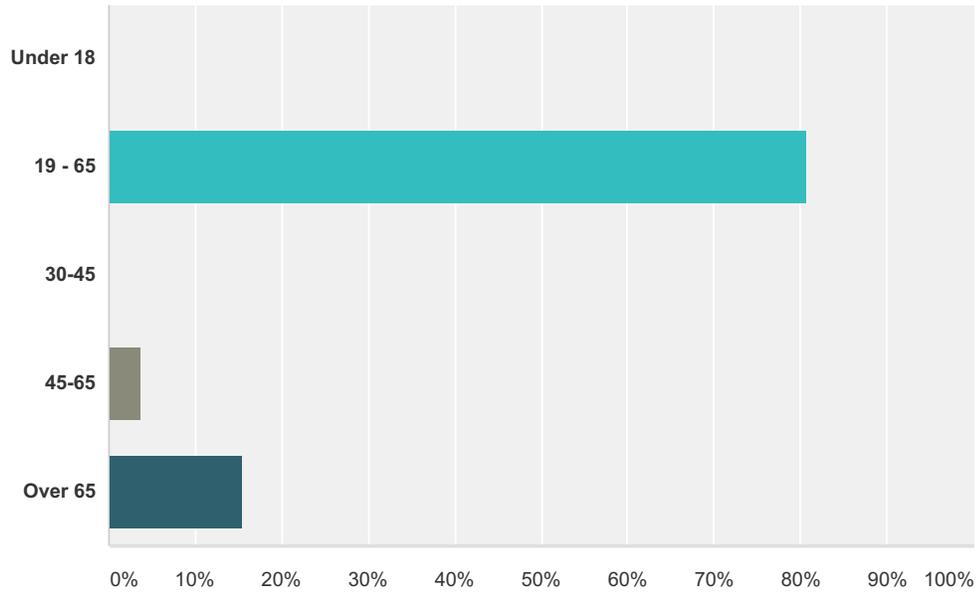
Answered: 26 Skipped: 2



Answer Choices	Responses	
Female	88.46%	23
Male	11.54%	3
Total		26

Q15 Age

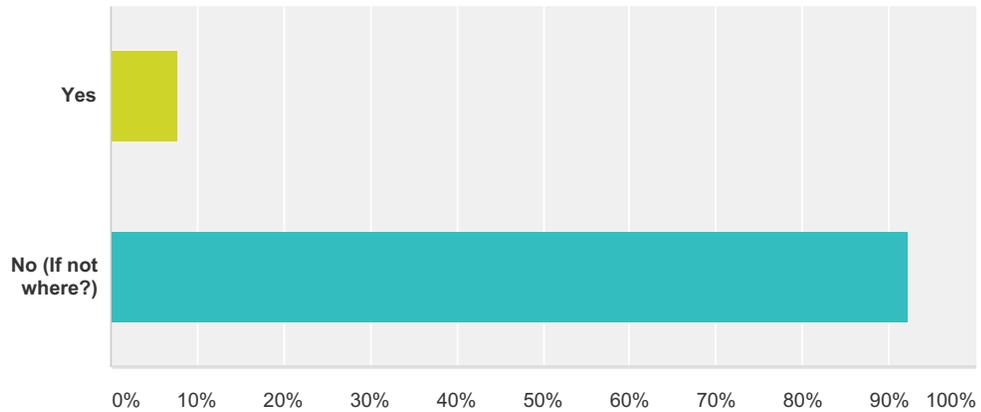
Answered: 26 Skipped: 2



Answer Choices	Responses
Under 18	0.00% 0
19 - 65	80.77% 21
30-45	0.00% 0
45-65	3.85% 1
Over 65	15.38% 4
Total Respondents: 26	

Q16 Are you a resident of the Village of Palmetto Bay?

Answered: 26 Skipped: 2



Answer Choices	Responses
Yes	7.69% 2
No (If not where?)	92.31% 24
Total	26

#	No (If not where?)	Date
1	Southwest Miami (8th St)	7/15/2015 11:45 AM
2	n/a	7/15/2015 11:43 AM
3	Kendall	7/15/2015 11:40 AM
4	Kendall	7/15/2015 11:39 AM
5	Coconut Grove	7/15/2015 11:35 AM
6	Kendall	7/15/2015 11:25 AM
7	Kendall	7/15/2015 11:23 AM
8	Miami Shores	7/15/2015 11:18 AM
9	Little Havana	7/15/2015 11:16 AM
10	Kendall	7/15/2015 11:13 AM
11	Little Havana	7/15/2015 11:09 AM
12	West Miami	7/15/2015 11:01 AM
13	no response	6/5/2015 1:52 PM
14	Homestead	6/5/2015 1:50 PM
15	South Miami	6/5/2015 1:49 PM
16	Coral Gables	6/5/2015 1:47 PM
17	Kendall	6/5/2015 1:47 PM
18	Pinecrest	6/5/2015 1:42 PM

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19	Kendall	6/5/2015 1:41 PM
20	Miami	6/5/2015 1:40 PM
21	NW Miami Dade	6/5/2015 1:38 PM
22	Kendall Drive	6/5/2015 1:33 PM
23	Kendall	6/5/2015 1:30 PM
24	Little Havana	6/5/2015 1:27 PM

Appendix B

The graphic below shows the basic setup of Nextbus software. What is missing in a future scenario for Palmetto Bay are the Agency

Management and Transit Agency components. It is possible these services could be provided by a vendor or they could be part of an interlocal agreement with MDT

