

Final Report: Survey Implementation and Summary of Raw Data



PREPARED FOR



PREPARED BY

## **Origin-Destination Surveys for Local Bus Service** (Central Garage)

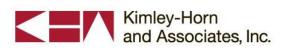
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September 2013

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## 1. Introduction

The Miami-Dade County Metropolitan Planning Organization (MPO) is conducting a series of transit ridership on-board surveys in Miami-Dade County to support the regional transit modeling efforts. The current Origin-Destination Surveys for Local Bus Service – Central Garage (Survey) Study is the fourth of five efforts needed to complete on-board surveys for the entire Miami-Dade Transit (MDT) system. The MPO has previously completed the Miami-Dade Metrorail Transit Survey (2009), the Origin Destination Study for the 95 Express (2012), Origin-Destination Surveys for Local Bus Service – Northeast Garage (2012). These surveys are intended to obtain more accurate ridership characteristics, such as origin-destination patterns trip purpose and mode of access and egress. A survey instrument was developed in consultation with the MPO and MDT to ensure the collection address their specific data needs, including information on socioeconomic characteristics and transit travel patterns of current transit riders. The survey questions were targeted to provide insight into trip purpose, modes of travel, origin-destination patterns, modes of payment and other demographic information. The survey data will be used to update and validate the Southeast Regional Planning Model (SERPM) and will be used in the developing the Activity Based Model for the region. The ridership survey data serves to improve regional travel patterns of transit riders.

### 1.1 Miami-Dade Transit Local Bus Routes

On-board surveys were conducted systematically over a three-week period in April 2013 for 22 bus local routes served by the MDT Central Division Garage. This survey effort excluded local bus and circulator routes that had less than 1,000 average daily boardings. A table of the bus routes and survey schedule is included in Table 1. The survey period was specifically selected to account for a broad range of typical riders, in advance of the end of the school year, and surveys were conducted mid-week generally between the hours of 6 am and 7 pm.

## **1.2 Survey Project Scope**

The project scope focused on primarily on using the previous Northeast Garage survey methodology and survey instrument for survey implementation and database development as it maintained date consistency with the major bus surveys. The final product is a database containing survey data collected. An initial raw data set was compiled and a preliminary geocoding effort was completed based on the raw data. A revised shapefile and dataset was completed on the raw survey data results and based on an additional review and cleanup effort. The subsequent geocoding effort is documented by a map series located in *Appendix C. Trip Origin-Destination Maps By Route* of this summary report.

The following summary report outlines general findings and summary results. The survey effort does not include data expansion, correction of biases, if any, or conversion of origin-destination format to a productions and attractions format. Additional future data processing and editing is expected to be required.





## 2. Survey Design

## 2.1 Sampling Plan

The survey was conducted over the course of three weeks in April 2013 on Tuesday, Wednesday, and Thursday generally between 6 am to 7 pm. The survey accounted for inbound and outbound directional service (i.e., northbound, southbound, eastbound, and westbound). A sampling target was set at surveying eight percent (8%) of daily ridership for the combined surveyed routes. Survey teams completed roundtrips along the surveyed bus routes originating from the Central Division Garage, Aventura Mall, a route terminus or a specific bus stop location. Survey teams completed inbound and outbound surveys for routes during each of the three time periods (AM peak, PM peak and off-peak).

Table 1 summarizes the overall survey schedule and Table 2 summarizes actual survey dates.

Route #	Route Name	Survey Date	Day of Week	# Survey Teams	Total # Surveyors
7	7	April 11	Thurs	2	6
12	12	April 17	Wed	2	4
21	21	April 23	Tue	1	3
32	32	April 18	Wed	2	5
33	33	April 18	Wed	1	2
36	36	April 10 & 17	Wed	3	9
37	37	April 11	Thurs	2	5
42	42	April 9	Tue	1	3
54	54	April 17	Wed	2	6
62	62	April 18	Wed	2	5
79	79 Street MAX	April 9	Tue	1	3
102	В	April 23	Tue	1	2
103	С	April 16	Tue	1	3
110	J	April 11	Thurs	2	6
112	L	April 9	Tue	4	13
113	Μ	April 16	Tue	1	3
120	Beach MAX	April 10	Wed	3	11
123	South Beach Local	April 16	Tue	2	6
150	Airport Flyer	April 10	Wed	1	3
207	Little Havana Connection CW	April 23	Tue	1	3
208	Little Havana Connection CCW	April 23	Tue	1	3
267	Ludlum Limited	April 17	Wed	1	3

### Table 1: Survey Dates





### 2.2 Survey Questionnaire

The survey questionnaire was based on the 2012 Northeast Garage survey instrument developed in coordination with the MPO and MDT, and provided to FDOT for review. It was modified slightly for the Central Garage surveys based on comments related to FDOT's ongoing SERPM model efforts. The changes included slight modification to the wording of questions, and adjusting the order of a few questions.

The survey included questions that were intended to provide a comprehensive information base for several different categories:

- Travel patterns (origin and destination)
- Trip purpose
- Mode of access
- Trip characteristics
- Travel behavior
- Frequency of transit use
- Fare payment method
- Household characteristics
- Passenger demographics
- Gender and disability status

Based on past experiences in acquiring quality survey data in Miami-Dade County, the surveys were completed through one-on-one, on-board transit rider interviews by a multilingual survey team surveys using handheld electronic iPad tablets. The electronic survey corresponded directly to the printed survey instrument questions and the survey software application was configured to facilitate consistent data entry. The personal interviews were used to improve the response rate, quality and consistency of data, and better survey the diversity of transit riders. The survey team included English, Spanish and Creole speaking staff.

The electronic iPad survey devices each contained a unique identifier, and were reflected in the electronic surveys. Each device was entered in a daily log that enabled correlating survey devices with specific survey team members, routes and schedules. The electronic survey data included date and time stamps, and corresponding iPad device numbers.

As a result of the effectiveness of conducting surveys using the electronic tablets and using multilingual staff (Spanish, Creole), no printed paper surveys were generated for these surveys. Screenshots of the electronic survey are located in Appendix A.





### 2.3 Methodology

The data collection effort focused on entering transit rider survey interview responses. Advance planning and survey preparation was critical to the project success. MDT bus rotaries and passenger count data summaries were analyzed to develop an initial survey work plan. The survey work plan was prepared to determine the appropriate level of staffing needed for each route based on estimated ridership, anticipated response rates, and bus schedules. The work plan was prepared to intercept eight (8%) percent of the total average daily ridership for the routes surveyed. Electronic survey data results were reviewed regularly during the survey period and allowed for adjustment and reallocation of survey teams to better meet survey target rates.

The survey included multiple choice responses and manual data entry fields. The initial set of questions was mandatory and addressed key pieces of data required for this study, including:

- Trip origin type of place and address or intersection
- Trip purpose
- Trip sequence
- Mode of access/egress
- Parking or park-and-ride locations
- Bus boarding and alighting location
- Trip destination type of place and address or intersection

The remaining questions were designed to acquire additional data on trip characteristics, bus rider profile and demographic information. The response rate was dependent upon the time available and their willingness to respond.

All transit riders surveyed participated willingly and were asked to provide consent prior to conducting the interview. Transit rider survey participation was noted as part of the electronic survey to be able to compute response rates.

### Updated Methodology

Changes were initiated to the Central Garage Onboard Bus Survey (OBS) to reflect our observations following the Northeast Garage OBS survey effort. These improvements included conducting a more thorough training exercise for the surveyors to improving the accuracy of address field data, additional quality control review efforts during the survey period, and modifying the electronic survey data entry fields to use more multiple choice field entries to reduce data entry error.





Additionally, some minor adjustments were made, as follows:

- Several survey instrument questions important to the SEPRM activity based model were moved earlier in the survey sequence
- A select few question response options (i.e., employment status, student type) were modified in consultation with the MPO
- Slight adjustments to the wording for a few questions (i.e., "coming from" instead of "begin your trip" and "going to" instead of "end your trip")

Though these minor adjustments were made, we believe that improved training and emphasis on data entry accuracy improved overall results.





## 3. Implementation

## 3.1 Training

A training session was held on April 2 at Miami-Dade Expressway Authority Board Room for the team leaders and the survey team. The training session was conducted to familiarize the entire survey team with the project objectives, survey format, survey methods, and to provide hands-on instruction, informational materials, and to answer questions. While some of the team members had prior surveying experience, most did not.

The training consisted of several parts:

- Project Overview
- Instructions & Key Factors
- Sample Survey Exercise using iPad
- Assignment Logistics

The project overview was a brief introduction to the project, including the purpose of the survey and an explanation of the questions. The instructions and key factors were explained to the team members. The expectations of the behavior were presented and discussed. A mock survey was completed with the iPad to help the team members familiarize themselves with the technology, survey questions and survey techniques. Survey teams were assigned and logistics were explained.

## **3.2 Survey Implementation**

The survey was staffed using up to seven (7) on-board survey teams. Each survey team was led by a professional from Kimley-Horn and Associates, Inc. (KHA) or sub-consultant, R.J. Behar & Company, Inc., who served as team leader, and supported by a team of approximately 20 temporary staff. Each survey team leader was accompanied by approximately two to four staff. The survey team was distinguished by an identification badge and a t-shirt labeled with "Survey Crew."

This survey was administered on April 9-11, April 16-18, and April 23. Teams were distributed on select routes and runs on each of the designated survey days to improve survey response rate, and to best achieve survey targets for each route.

Survey teams were pre-assigned to specific routes and bus runs covering the survey schedule. Survey team members met at a designated central location before proceeding to and boarding the assigned bus at the pre-defined location, such as the Central Division Garage or Aventura Mall.

The survey team members were each assigned their electronic iPad device with a unique identifier that was recorded in a daily log. The teams boarded the bus and the team leaders were positioned at the front of the bus or circulated through the bus to survey riders and manage their respective teams. The rest of the survey team was spaced out through the bus and conducted interviews with passengers.





Before beginning the interview, the survey team would enter the bus route number and the direction (inbound/outbound) that the bus was travelling. The survey team was trained to avoid interviewer selection bias. In practice, the buses were sufficiently staffed so that the survey team interviewed or requested an interview from most or all transit riders on the bus.

The surveyors actively engaged as many bus patrons as they could to complete the maximum amount of valid surveys possible. The survey team asked the potential participant if they would mind answering a few questions. Following verbal consent to be interviewed, the survey team would conduct the survey and enter responses into the iPad. If the person did not wish to participate in the survey, the negative response would be recorded to complete the survey and the survey team would proceed to approach a new transit rider.

The iPads were collected by the team leaders at the end of every survey day, and the information was uploaded to the survey database to be organized and analyzed at a future date.





## 4. Minimizing and Mitigating Non-Response Bias

### **4.1 Survey Instrument**

Survey instruments play a crucial role in reducing non-response bias. The use of an iPad as the survey instrument and using trained survey interviewers served to increase the response rate and to improve the quality and validity of survey data. The electronic survey instrument was prepared in English, but the multilingual survey team administered the survey in English, Spanish, and Creole, and recorded the answers directly into the iPads.

### 4.2 Implementation

To mitigate non-response bias for this project, the project methodology included:

- 1. Developing an easy-to-use survey instrument with simple understand questions
- 2. Selecting survey team members with prior survey experience
- 3. Selecting and training survey team members to effectively conduct the survey
- 4. Directly engaging transit riders to take the survey
- 5. Actively managing survey teams to engage transit riders
- 6. Adequately staffing bus routes depending on anticipated ridership
- 7. Making staffing adjustments to address non-performing survey team staff

Several of the team members were selected based upon experience conducting similar surveys in the past, their grasp on what was necessary to complete a successful survey, and their ability to perform. A training session was completed prior to the actual on-board surveys. Team members were instructed during the training on how to approach people, present themselves and conduct the surveys. They were provided with background information and simple, sample statements to use, and they participated in a trial survey exercise using all of the survey materials. The team was provided a target goal of the number of people to approach for a survey. The team leaders managed their teams and conducted interviews with transit riders.

The time spent completing the survey interview generally ranged from 5 minutes to 15 minutes for each transit rider.

Table 2 summarizes the percent of daily ridership surveyed by route number.





Route Number	Average Daily Ridership*	Targeted Number of Surveys	Actual No. of Riders Intercepted	% Daily Ridership Intercepted
7	4,651	372	387	8.3%
12	3,451	276	224	6.5%
21	2,339	187	156	6.7%
32	3,835	307	241	6.3%
33	2,080	166	156	7.5%
36	3,189	255	234	7.3%
37	4,260	341	377	8.8%
42	1,899	152	112	5.9%
54	3,765	301	393	10.4%
62	3,482	279	383	11.0%
79	523	42	93	17.8%
102	1,936	155	143	7.4%
103	3,817	305	294	7.7%
110	3,383	271	247	7.3%
112	11,154	892	850	7.6%
113	1,028	82	124	12.1%
120	8,144	652	652	8.0%
123	4,231	338	384	9.1%
150	1,632	131	215	13.2%
207	1,827	146	137	7.5%
208	2,407	193	184	7.6%
267	156	12	59	37.8%
Total	73,189	5,855	6,045	8.3%

#### Table 2: Percentage Surveyed of Daily Ridership by Route Number

Source: \*Miami-Dade Transit Ridership and Kimley-Horn and Associates, 2012 Average Weekday Daily Ridership





## 5. Survey Response

## **5.1 Overall Response**

While over 6,045 passengers were approached by the survey teams during the seven survey days, 2,475 transit riders elected to participate in the survey and completed the minimum nine origin-destination questions. A 41% response rate was calculated by dividing the number of survey responses by the number of people approached to complete the survey.

The 2,475 completed surveys make up the data set in use here. Table 3 shows the breakdown of surveys by bus route.

Route Number	Attempted Surveys	Completed Surveys	Percent Completed
7	387	123	31.8%
12	224	103	46.0%
21	156	64	41.0%
32	241	112	46.5%
33	156	50	32.1%
36	234	106	45.3%
37	377	160	42.4%
42	112	47	42.0%
54	393	131	33.3%
62	383	147	38.4%
79	93	43	46.2%
102	143	70	49.0%
103	294	98	33.3%
110	247	117	47.4%
112	850	331	38.9%
113	124	66	53.2%
120	652	282	43.3%
123	384	155	40.4%
150	215	107	49.8%
207	137	63	46.0%
208	184	64	34.8%
267	59	36	61.0%
Total	6,045	2,475	40.9%

#### Table 3: Survey Response Rate by Bus Route





## 6. Data Editing and Processing

## 6.1 Data Compilation

The electronic survey data was compiled on the survey application website and downloaded in a Microsoft Excel format file. The survey application database was prepared and tested prior to conducting the onboard surveys to ensure proper compilation, reporting, and data formatting. The electronic survey eliminated the additional requirement for data entry of paper surveys; no paper surveys were requested or completed.

The data was uploaded each night from the iPads to the survey website, compiled, reviewed and evaluated to determine the response rate by route. Following the completion of the surveys, the compiled data was downloaded and reviewed to identify overall errors and prepared for minor cleanup.

The data file is organized with rows representing separate surveys and columns organizing each question and the corresponding responses. Additional survey data fields include the iPad device number, date and time stamp for each entry, as well as survey team entered data (i.e., bus route and direction of travel).

## 6.2 Preliminary Data Results

As part of initial data compilation and review, the route numbers were verified by cross referencing the iPad device number, data and time of entry, and survey schedule to ensure that the surveys reflected the correct bus route and travel direction. A nominal number of surveys required that the entry for the bus route be revised, but a larger percentage required adjusting inbound and outbound entries; direction of travel was not critical but this information provides some insight into origin-destination travel patterns.

An initial geocoding effort was prepared using the raw data. The initial maps provided a quick glance of travel patterns for each bus route. However, the results illustrated the need for some data clean-up. While the electronic surveys reduced secondary data entry error from transcribing paper surveys, they did not preclude transit rider misleading responses or errors, or eliminate data entry errors from survey team members. Upon review of the raw data file, data errors included incorrect typographical spelling for street names and other similar factors.

## 6.3 Data Review and Revision

A data review and revision effort was prepared on the completed surveys to improve data quality and validity of surveys. A series of subsequent geocoding efforts were completed to correct data entries and map the revised data.





The origin and destination locations were reviewed and revised based on:

- Documented origin and destination locations (name of place, business, or attraction)
- Street name description
- Street and block number
- Logical directional attribute compared to street name
- Bus route and relative geographic location
- Logical trip sequence
- Boarding and alighting locations
- Reference and address verification using online maps

While transit riders were often apprehensive in providing their home or work addresses, the block number was often provided or entered. Survey respondents may not have accurately provided origin, destination, boarding and alighting locations, which may need to be further verified. Data revisions completed during the data revision process were limited to origin and destination intersections and addresses, and did not include the boarding and alighting data.

Section 8 of this report contains the origin and destination data maps.





## 7. Summary of Raw Data

## 7.1 Survey Data

The following section presents a table and pie chart for each question quantifying the frequency of stated responses received for the total of all of bus routes. Questions with qualitative answers were not included in this section summary and responses for each bus route were not illustrated in this section. Each tabulated summary maintains a total 2,475 responses and indicates the quantity of invalid or no response to avoid providing an extrapolated generalized trend.

The following consists of the final list of questions and serve as the basis of this summary:

- 1. Where did you come from? Where did you begin this one-way trip?
- 2. What is the address or intersection where you began this one-way trip?
- 3. Please list all the bus routes and trains you will use during this one-way trip?
- 4. How did you get to the first transit stop?
- 5. Where did you get on this bus?
- 6. Where will you get off this bus?
- 7. Where are you going? Where will you end this one-way trip?
- 8. What is the address or intersection of the place where you are going to <u>end</u> your one-way trip?
- 9. How will you get to the final destination at the end of your one-way trip?
- 10. How many days per week do you make this trip?
- 11. What is the average time it takes to make a one-way trip from door to door?
- 12. Gender?
- 13. How old are you?
- 14. Do you have a valid driver's license?
- 15. Is there a car / vehicle available you can use for this trip?
- 16. How many working, registered motor vehicles (cars, motorcycles, trucks) are owned by members of your household?
- 17. Including you, how many people live in your house?
- 18. Including you, how many are less than 16 years old?
- 19. Including you, how many are over 65 years old?
- 20. Including you, work outside of your house?
- 21. What is you household's approximate total annual income?
- 22. What is your current employment status?
- 23. What is the highest level of education you have completed?
- 24. Are you a student?
- 25. What is the fare type that you used for this one-way trip?
- 26. My race is best described as?
- 27. Can you provide a phone number, in case we need to clarify your responses?





## 7.2 Data Summary

While questions one through nine were mandatory and each have a 100 percent response rate, the remaining questions continued to have strong response rates, which likely corresponds to conducting a personal interview survey process.

Based on the tabulated results, the following observations can be made:

- Trip origins tend to be home-based since more than 52% of survey trips originate from home locations and 19% from work locations.
- Trip destinations have a greater distribution with surveyed trips ending at home representing 33% and at work representing 28%, respectively.
- 51% of transit trip are made using only one bus route, while 37% of trips are made with one transfer.
- Approximately 95% of transit riders walked to access transit and about 68% walked less than one quarter mile to their first or from their last transit stop.
- 83% of respondents traveled up to 70 minutes for a one-way trip.
- 67% of respondents used cash or a cash value fare card for payment.
- 51% of respondents indicated they did not possess a valid driver's license.
- 78% of respondents did not have a vehicle available for their trip.
- 42% of respondents were between the ages of 16 and 34 years of age, while 8% of respondents were 65 years of age or older and 2% was under the age of 16.
- 30% of respondents identified themselves as Black / African-American and 52% identified themselves as Spanish / Hispanic / Latino. In comparison, the 2010 US Census summarizes Miami-Dade County as 19% Black or African American and 65% Hispanic or Latino of any race.
- While about one-third surveyed did not provide income level information, about 23% of those who did respond reported an annual household income less than \$16,500 and another 17% earned between \$16,500 and \$22,000. About 3% of respondents earned over \$75,000 per year.

The tables and figures on the following pages summarize the survey responses. The tables tabulate the total number of responses received as well as document the number of surveys where a response was not provided. The figures illustrate the percent of responses received for each valid answer.

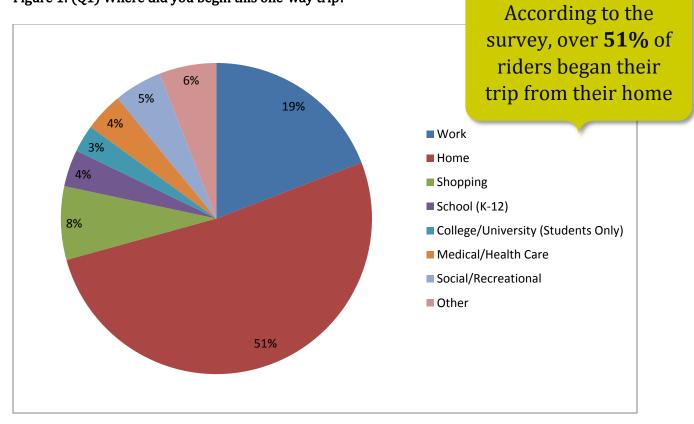




Description	Frequency	AM Peak	PM Peak	Off Peak
Your Workplace	474	85	173	216
Your Home	1276	508	124	644
Shopping	189	18	66	105
School (K-12)	95	13	25	57
College/University (Students Only)	70	5	17	48
Medical / Health Care	100	13	12	75
Social / Recreational	124	12	25	87
Other	147	7	40	100
Total	2475	661	482	1332

#### Table 4: (Q1) Where did you begin this one-way trip?

#### Figure 1: (Q1) Where did you begin this one-way trip?







#### Table 5: (Q3) How many bus transfers will you make during this one-way trip?

Description	Frequency	
No Transfers	1263	<b>51%</b> of the
One Transfer	919	respondents d
Two Transfers	257	not make any
Three Transfers	36	transfers duri
Total	2475	this one-way t

nake any ers during e-way trip

Figure 2: (Q3) How many bus transfers will you make during this one-way trip?

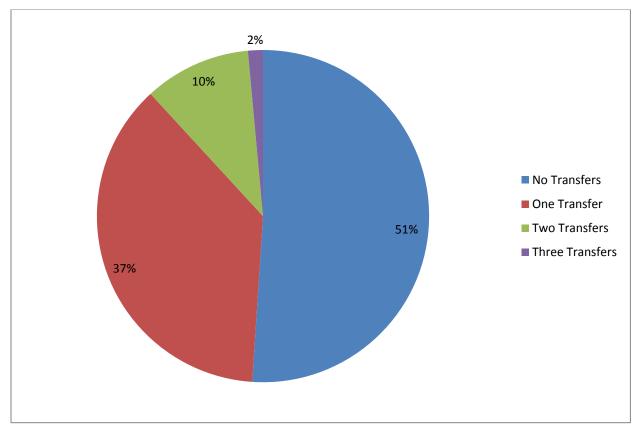


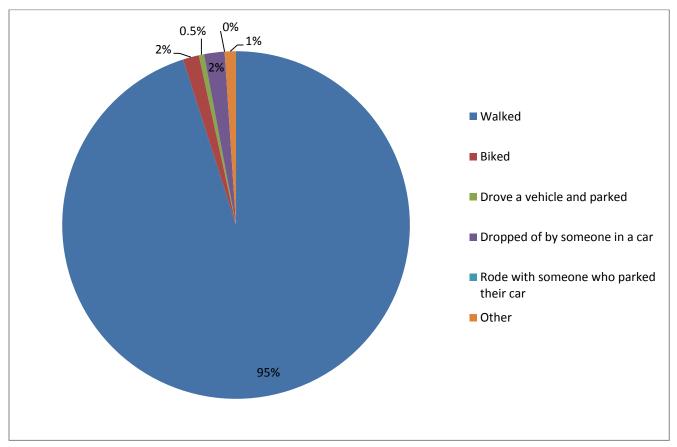


Table 6: (Q4) How did you get to the first transit stop?

Description	Frequency
Walked	2353
Biked	37
Drove a vehicle and parked	12
Dropped off by someone in a car	47
Rode with someone who parked their car	0
Other	26
Total	2475

Nearly every transit rider surveyed walked to the first stop: **95%** 

Figure 3: (Q4) How did you get to the first transit stop?



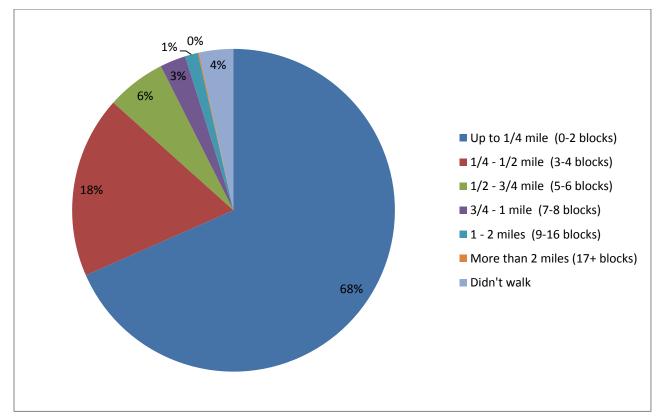


#### Table 7: (Q4) If you walked, how far did you travel to get to the first stop?

Distance	Frequency
Up to 1/4 mile (0-2 blocks)	1693
1/4 - 1/2 mile (3-4 blocks)	451
1/2 - 3/4 mile (5-6 blocks)	147
3/4 - 1 mile (7-8 blocks)	64
1 - 2 miles (9-16 blocks)	32
More than 2 miles (17+ blocks)	3
Didn't walk	85
Total	2475

Of the people who walked, **68%** traveled up to ¼ mile to their first transit stop

### Figure 4: (Q4) If you walked, how far did you travel to get to the first stop?



18



#### Table 8: (Q7) Where will you end this one-way trip?

Description	Frequency	AM Peak	PM Peak	Off Peak
Your Workplace	699	351	38	310
Your Home	828	69	290	469
Shopping	228	38	47	143
School (K-12)	94	60	6	28
College / University (students only)	78	41	8	29
Medical / Health Care	106	31	8	67
Social / Recreational	269	44	47	178
Other	173	27	38	108
Total	2475	661	482	1332

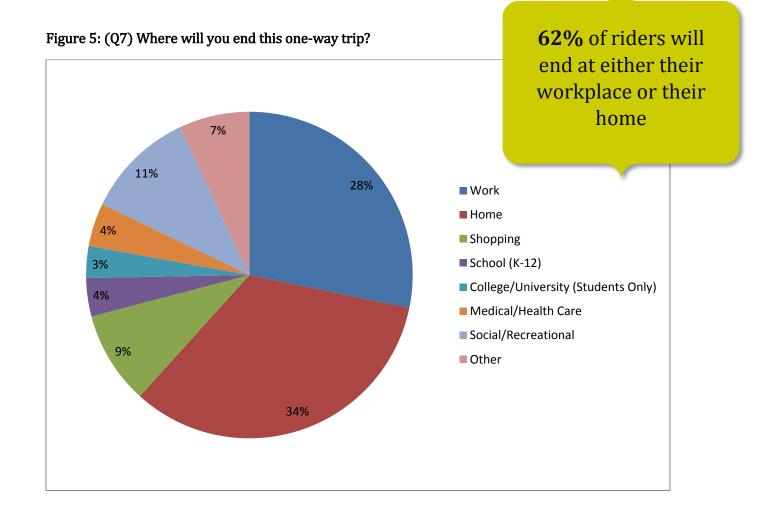


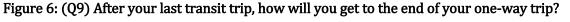


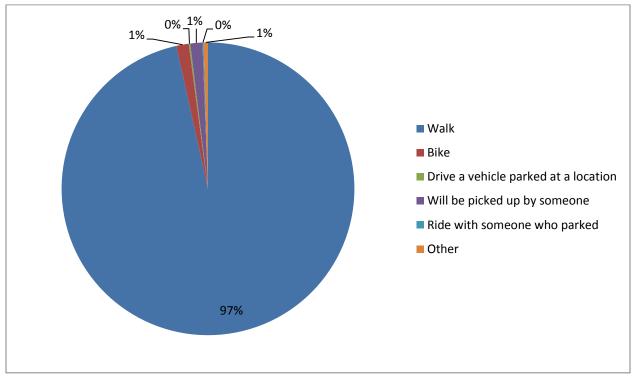


Table 9: (Q9) After your last transit trip, how will you get to the end of your one-way trip?

Description	Frequency
Walk	2389
Bike	34
Drive a vehicle parked at a location	4
Will be picked up by someone	33
Ride with someone who parked	3
Other	12
Total	2475

An overwhelming majority of people walked to their final destination: **97%** 



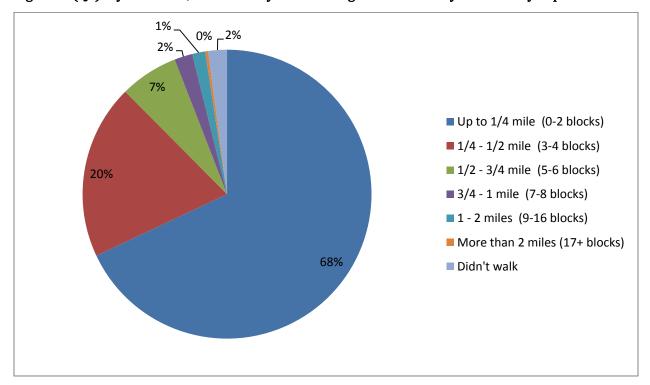






#### Table 10: (Q9) If you walked, how far did you travel to get to the end of your one-way trip?

Description	Frequency
Up to 1/4 mile (0-2 blocks)	1683
1/4 - 1/2 mile (3-4 blocks)	484
1/2 - 3/4 mile (5-6 blocks)	162
3/4 - 1 mile (7-8 blocks)	50
1 - 2 miles (9-16 blocks)	36
More than 2 miles (17+ blocks)	8
Didn't walk	52
Total	2475



### Figure 7: (Q9) If you walked, how far did you travel to get to the end of your one-way trip?



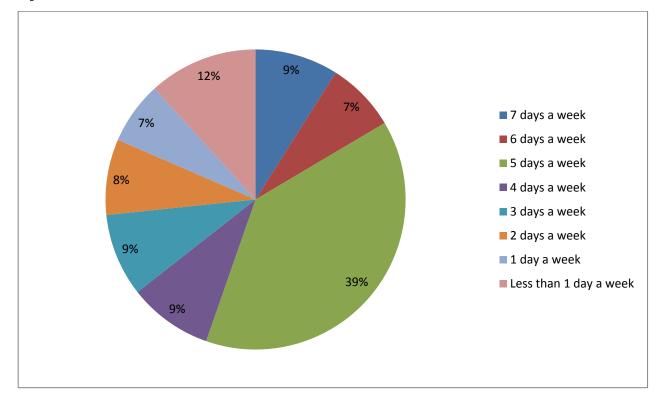


#### Table 11: (Q10) How many days per week do you make this trip?

Description	Frequency
7 days a week	220
6 days a week	184
5 days a week	952
4 days a week	222
3 days a week	219
2 days a week	200
1 day a week	165
Less than 1 day a week	288
No Response	25
Total	2475

While there was a relatively even distribution among most of the options, **39%** of people made their trip 5 days a week

Figure 8: (Q10) How many days per week do you make this trip?



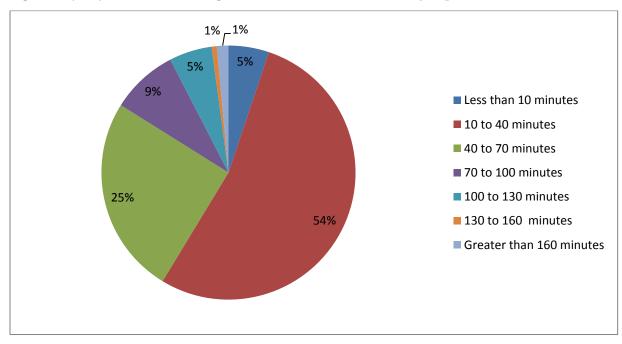




#### Table 12: (Q11) What is the average time it takes to make a one-way trip from door to door?

Description	Frequency
Less than 10 minutes	126
10 to 40 minutes	1307
40 to 70 minutes	616
70 to 100 minutes	208
100 to 130 minutes	133
130 to 160 minutes	16
Greater than 160 minutes	36
No Response	33
Total	2475

**79%** of survey respondents spend somewhere between 10 and 70 minutes on their one-way trip



#### Figure 9: (Q11) What is the average time it takes to make a one-way trip from door to door?



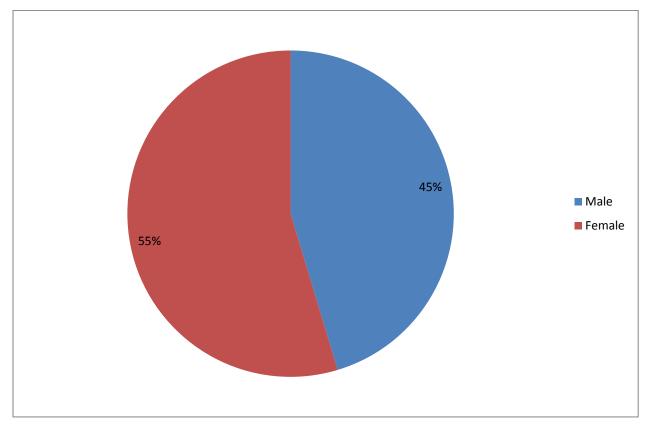


### Table 13: (Q12) What is your gender?

Description	Frequency
Male	1122
Female	1353
Total	2475

The genders are split almost down the middle – there were **231 more female respondents** than male respondents

Figure 10: (Q12) What is your gender?



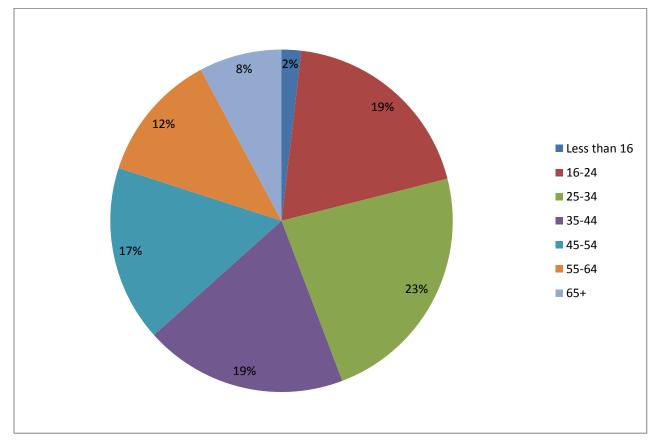


### Table 14: (Q13) How old are you?

Description	Frequency
Less than 16	45
16-24	467
25-34	564
35-44	466
45-54	404
55-64	297
65+	190
No Response	42
Total	2475

**42%** of the riders surveyed were between the ages of 16 and 34

### Figure 11: (Q13) How old are you?





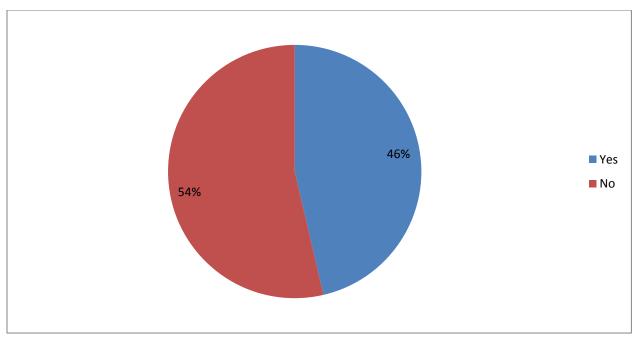


### Table 15: (Q14) Do you have a valid driver's license?

Description	Frequency
Yes	1086
No	1257
No Response	132
Total	2475

Of the people who answered this question, **54%** responded that they did not have a valid driver's license. These people likely depend on transit to get around.

### Figure 12: (Q14) Do you have a valid driver's license?



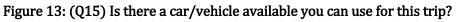




#### Table 16: (Q15) Is there a car/vehicle available you can use for this trip?

Description	Frequency
Yes	514
No	1798
No Response	163
Total	2475

**78%** of survey respondents that they did not have access to a vehicle



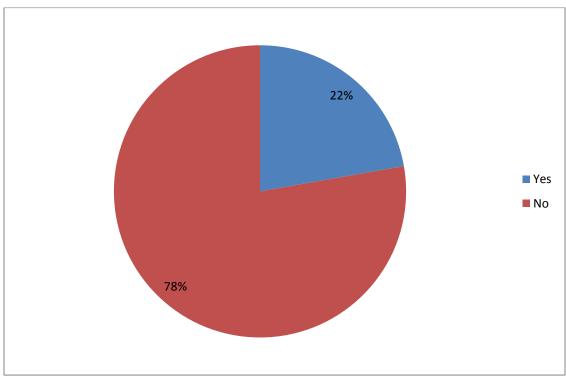




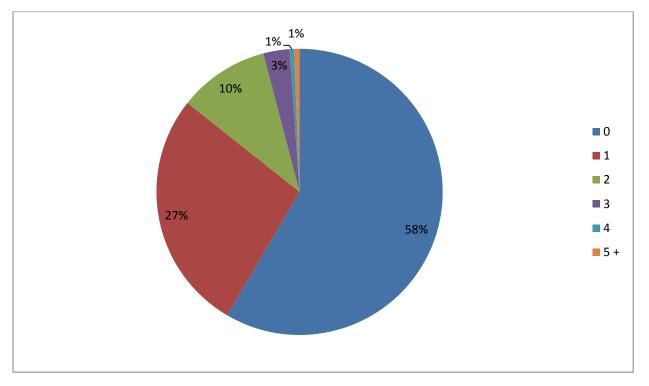


Table 17: (Q16) How many working, registered motorized vehicles are owned by members of your household?

Description	Frequency
0	1260
1	587
2	221
3	64
4	11
5 +	13
No Response	319
Total	2475

Of those who responded to this question, **58%** reported that there were 0 motorized vehicles in their household.

Figure 14: (Q16) How many working, registered motorized vehicles are owned by members of your household?





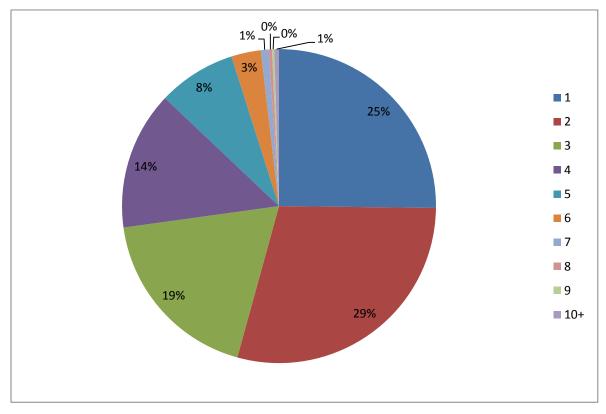


#### Table 18: (Q17) Including you, how many people live in your house?

Description	Frequency
1	530
2	612
3	390
4	300
5	169
6	64
7	17
8	7
9	5
10+	10
No Response or invalid	371
Total	2475

**87%** of survey respondents have between 1 and 4 people living in their house

### Figure 15: (Q17) Including you, how many people live in your house?





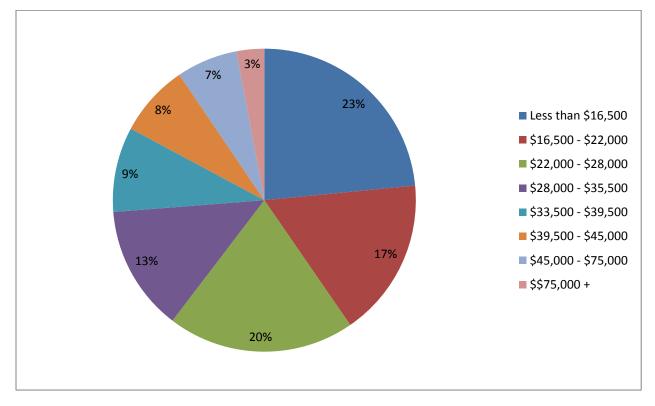


#### Table 19: (Q18) What is your household's approximate total annual income?

Description	Frequency
Less than \$16,500	396
\$16,500 - \$22,000	286
\$22,000 - \$28,000	337
\$28,000 - \$35,500	226
\$33,500 - \$39,500	153
\$39,500 - \$45,000	130
\$45,000 - \$75,000	110
\$\$75,000 +	50
No Response	787
Total	2475

While one-third surveyed chose not to respond to this question, **60%** of survey respondents reported an income of **less than \$28,000** annually

### Figure 16: (Q18) What is your household's approximate total annual income?





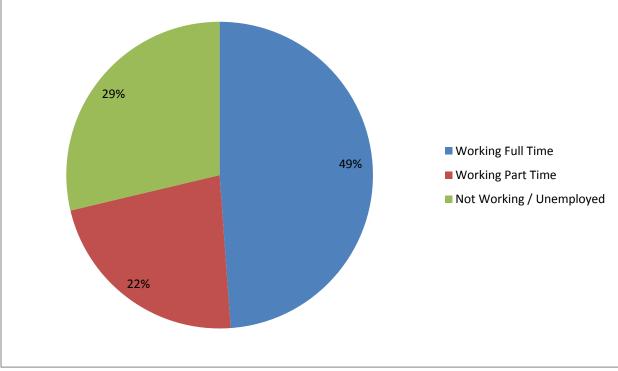


#### Table 20: (Q19) What is your current employment status?

Description	Frequency
Working Full Time	1145
Working Part Time	526
Not Working / Unemployed	673
No Response	131
Total	2475

**49%** of survey respondents reported that they were working full time

Figure 17: (Q19) What is your current employment status?





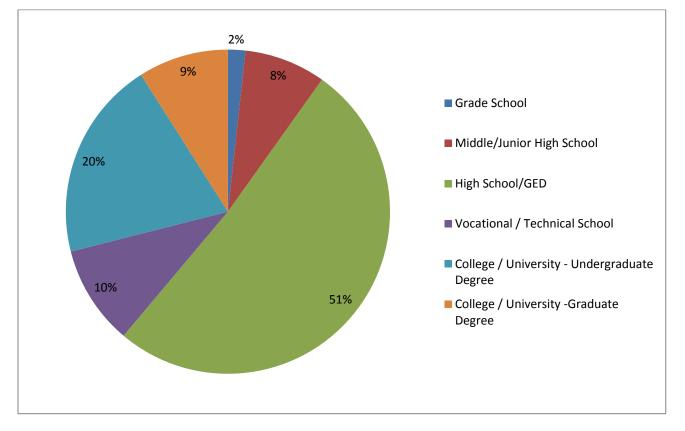


#### Table 21: (Q20) What is the highest level of education you have completed?

Description	Frequency
Grade School	37
Middle/Junior High School	172
High School/GED	1087
Vocational / Technical School	210
College / University - Undergraduate Degree	423
College / University -Graduate Degree	191
No Response	355
Total	2475

**61%** of survey respondents possessed a high school level of education or below

#### Figure 18: (Q20) What is the highest level of education you have completed?

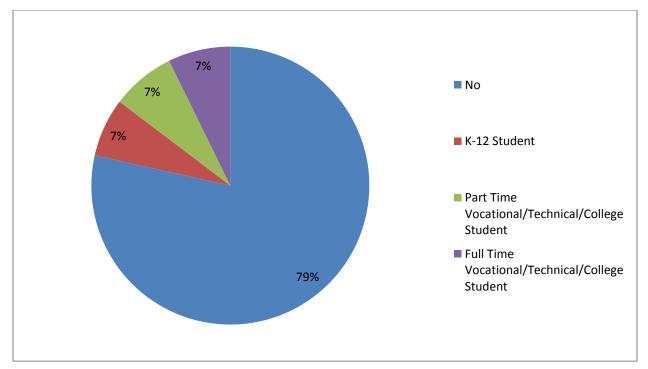




#### Table 22: (Q21) Are you a student?

Description	Frequency	
Νο	1774	<b>21%</b> of survey
K-12 Student	154	respondents identif
Part Time Vocational/Technical/College Student	168	themselves as students
Full Time Vocational/Technical/College Student	164	students
No Response	215	· · · · · · · · · · · · · · · · · · ·
Total	2475	

#### Figure 19: (Q21) Are you a student?







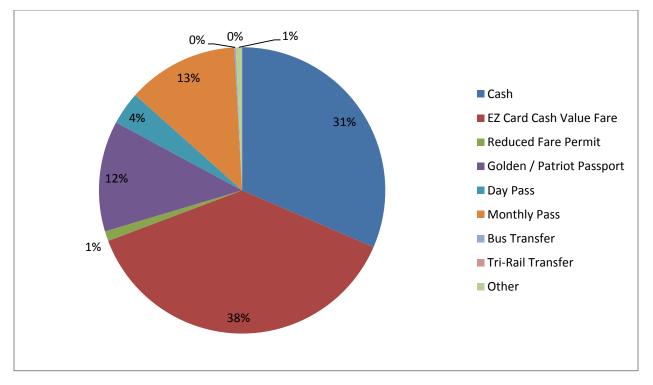
identified

#### Table 23: (Q22) What is the fare type that you used for this one-way trip?

Description	Frequency
Cash	759
EZ Card Cash Value Fare	910
Reduced Fare Permit	27
Golden / Patriot Passport	301
Day Pass	90
Monthly Pass	302
Bus Transfer	4
Tri-Rail Transfer	0
Other	17
No Response	65
Total	2475

EZ Card Cash Value Fare is the favored type of payment, followed closely by Cash

#### Figure 20: (Q22) What is the fare type that you used for this one-way trip?





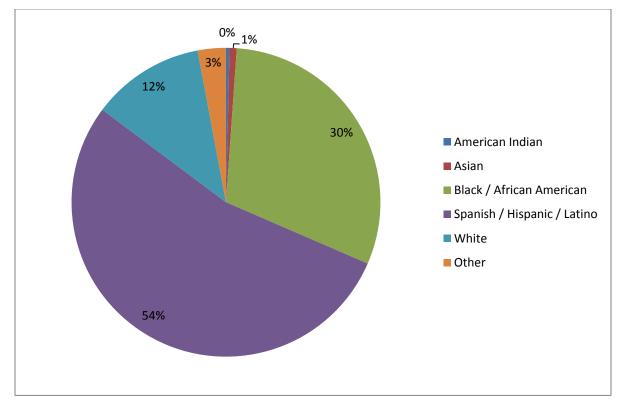


#### Table 24: (Q23) My race is best described as:

Description	Frequency
American Indian	9
Asian	18
Black / African American	732
Spanish / Hispanic / Latino	1294
White	285
Other	71
No Response	66
Total	2475

84% of survey respondents classified their race as Black/African American or Spanish/Hispanic/Latino

#### Figure 21: (Q23) My race is best described as:







### 8. Trip Origin-Destination Maps by Route

The Origin and Destination Maps included in the following section represent geocoded survey data illustrating the origin and destination locations by bus route. These locations are based upon addresses and intersection survey data provided during the survey, and were updated based on the data review and revision process outlined in Section 6. Significant attention was placed to accurately represent the surveys, while cleaning up the data to retain a strong level of valid surveys.

A separate map was prepared for origin and destination locations by route, and these maps consolidate all route data regardless of the time period or day that the surveys were conducted.

An intensity "heat" map was prepared to illustrate the relative concentration of surveys located within proximity of a single point, bus stop or location. Since the number of surveys represented by each map varies by route, the intensity map is intended to describe a relative concentration of transit rider trip origin and destination locations as compared to an absolute number of surveys.

A darker red color represents a higher concentration of origins and destinations as compared to the less intense green color. Single dots represent surveyed origin and destination locations.

Since the majority of passengers surveyed only used one bus, origin and destination location distribution is generally clustered within walking distances to bus routes. Route 267 illustrates a distributed pattern of origins and destinations, and can be related to transit riders using Metrorail to transfers between their origin and destination locations.

Certain north-south bus routes and activity centers, such as Downtown Miami, Miami Beach, Jackson Memorial Hospital, Miami-Dade College, Aventura Mall, shopping areas, Omni Station, Coconut Grove, Miami International Airport and surrounding employment centers exhibit high concentrations of origin and destination locations.

#### 8.1 Survey Response Distribution

The following tables provide insight into the transit rider travel patterns by illustrating the direction of travel by route and time period. Tables 26 and 28 provide a summary of actual number of completed surveys and attempted surveys by route, direction and time period. Tables 27 and 29 illustrate the corresponding percentage of surveys. These tables illustrate that the travel distribution for the completed surveys correspond to the attempted surveys, and indicates that future data expansion could be adequately based upon the completed survey results.





Route	AM F 6:30-9:	Peak 30 AM	PM F 3:30-6:		Off I	Peak	Total
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	
7	17	14	16	10	41	25	123
12	12	15	6	16	33	21	103
21	6	8	9	7	15	19	64
32	8	16	10	16	34	28	112
33	10	7	3	2	15	13	50
36	9	3	3	7	36	48	106
37	19	29	9	18	49	36	160
42	2	9	1	2	21	12	47
54	14	16	15	11	31	44	131
62	22	24	10	16	35	40	147
79	9	12	8	8	4	2	43
102	4	20	7	8	10	21	70
103	20	14	7	6	25	26	98
110	12	19	12	12	33	29	117
112	48	45	20	20	98	100	331
113	11	15	8	0	14	18	66
120	39	24	46	24	79	70	282
123	13	19	11	25	37	50	155
150	11	15	14	13	31	23	107
207	23	0	16	0	24	0	63
208	0	17	0	12	0	35	64
267	11	0	2	16	5	2	36
TOTAL	6	61	48	32	1,:	332	3,570

Table 25: Survey Count by Route, Direction and Time Period (Completed Surveys)





Route	AM F 6:30-9:			PM Peak 3:30-6:30 PM		Off Peak		
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound		
7	55%	45%	62%	38%	62%	38%		
12	44%	56%	27%	73%	61%	39%		
21	43%	57%	56%	44%	44%	56%		
32	33%	67%	38%	62%	55%	45%		
33	59%	41%	60%	40%	54%	46%		
36	75%	25%	30%	70%	43%	57%		
37	40%	60%	33%	67%	58%	42%		
42	18%	82%	33%	67%	64%	36%		
54	47%	53%	58%	42%	41%	59%		
62	48%	52%	38%	62%	47%	53%		
79	43%	57%	50%	50%	67%	33%		
102	17%	83%	47%	53%	32%	68%		
103	59%	41%	54%	46%	49%	51%		
110	39%	61%	50%	50%	53%	47%		
112	52%	48%	50%	50%	49%	51%		
113	42%	58%	100%	0%	44%	56%		
120	62%	38%	66%	34%	53%	47%		
123	41%	59%	31%	69%	43%	57%		
150	42%	58%	52%	48%	57%	43%		
207	100%	0%	100%	0%	100%	0%		
208	0%	100%	0%	100%	0%	100%		
267	100%	0%	11%	89%	71%	29%		

#### Table 26: Percent of Completed Surveys by Route, Direction and Time Period





Route	AM F 6:30-9:		PM Peak 3:30-6:30 PM		Off P	Peak	TOTAL
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	
7	52	43	59	41	101	91	387
12	30	32	16	34	61	51	224
21	14	11	25	13	48	45	156
32	30	25	31	34	71	50	241
33	25	15	20	2	52	42	156
36	15	15	8	9	87	100	234
37	40	73	27	55	99	83	377
42	10	15	7	9	44	27	112
54	33	41	57	42	71	149	393
62	45	46	40	48	107	97	383
79	18	23	21	22	5	4	93
102	7	32	18	19	31	36	143
103	65	30	30	21	67	81	294
110	30	45	25	24	67	56	247
112	117	99	100	93	231	210	850
113	17	25	15	1	25	41	124
120	91	86	94	55	159	167	652
123	31	41	72	47	93	100	384
150	16	25	33	42	60	39	215
207	49	0	36	0	52	0	137
208	0	57	1	34	0	92	184
267	24	0	2	23	6	4	59
TOTAL	1,5	538	1,4	05	3,1	102	6,045

Table 27: Survey Count by Route, Direction and Time Period (Attempted Surveys)





Route		Peak PM Peak :30 AM 3:30-6:30 PM			Off Peak	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
7	55%	45%	59%	41%	53%	47%
12	48%	52%	32%	68%	54%	46%
21	56%	44%	66%	34%	52%	48%
32	55%	45%	48%	52%	59%	41%
33	63%	38%	91%	9%	55%	45%
36	50%	50%	47%	53%	47%	53%
37	35%	65%	33%	67%	54%	46%
42	40%	60%	44%	56%	62%	38%
54	45%	55%	58%	42%	32%	68%
62	49%	51%	45%	55%	52%	48%
79	44%	56%	49%	51%	56%	44%
102	18%	82%	49%	51%	46%	54%
103	68%	32%	59%	41%	45%	55%
110	40%	60%	51%	49%	54%	46%
112	54%	46%	52%	48%	52%	48%
113	40%	60%	94%	6%	38%	62%
120	51%	49%	63%	37%	49%	51%
123	43%	57%	61%	39%	48%	52%
150	39%	61%	44%	56%	61%	39%
207	100%	0%	100%	0%	100%	0%
208	0%	100%	0%	100%	0%	100%
267	100%	0%	8%	92%	60%	40%

#### Table 28: Percent of Attempted Surveys by Route, Direction and Time Period



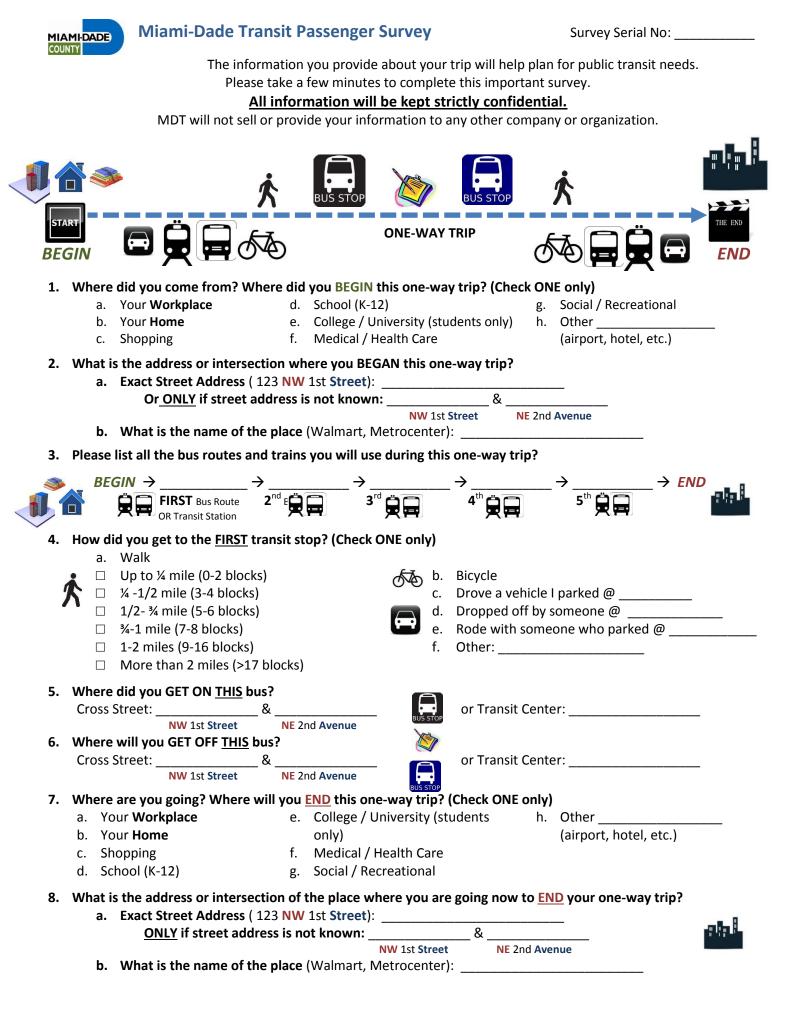




# **APPENDIX A**

Transit Passenger Survey





9.	After your last transit trip, how will you get to the <u>END</u> of your one-way trip? (Check ONE only)
	a. Walk         □ Up to ¼ mile (0-2 blocks)         △ ¼ -1/2 mile (3-4 blocks)         □ 1/2-¾ mile (5-6 blocks)
	1/2- % Inite (5-6 blocks)       a. Will be picked up by someone (a)         3/-1 mile (7-8 blocks)       e. Ride with someone who parked (a)         1-2 miles (9-16 blocks)       f. Other:         More than 2 miles (>17 blocks)       f. Other:
10.	. How many days per week do you make this trip? □ 7 □ 6 □ 5 □ 4 □ 3 □ 2 □ 1 □ < 1
11.	. What is the average time it takes to make a ONE-WAY trip from door to door? Minutes
	. Gender 🗆 Male 🗆 Female
13.	a. Less than 16       d. 35 - 44       g. 65 +         b. 16 - 24       e. 45 - 54         c. 25 - 34       f. 55 - 64
14.	. Do you have a valid driver's license? □ Yes □ No
15.	. Is there a car / motor vehicle available you can use for this trip? □ Yes □ No
16.	<ul> <li>How many working, registered motor vehicles (cars, motorcycles, trucks) are owned by members of your household? (Check ONE only)</li> <li>0</li> <li>1</li> <li>2</li> <li>3</li> <li>4</li> <li>5 +</li> </ul>
17.	Including you, how many people live in your house?
17.	how many are less than 16 years old? (# of people)
	how many are over 65 years old? (# of people) work outside of your house? (# of people)
18.	. What is you household's approximate total annual income? (Check ONE only)
	a. Less than \$16,500d. \$28,000 - \$33,500g. \$45,000 - \$75,000b. \$16,500 - \$22,000e. \$33,500 - \$39,500h. \$75,000 +c. \$22,000 - \$28,000f. \$39,500 - \$45,000
	<ul> <li>What is your current EMPLOYMENT status? (Check ONE only)         <ul> <li>a. Working Full Time</li> <li>c. Not Working / Unemployed</li> </ul> </li> <li>b. Working Part Time</li> </ul>
	. What is the HIGHEST level of education you have completed? (Check ONE only)
	a. Grade School d. Vocational / Technical School
	b. Middle / Junior High Schoole. College / University – Undergraduate Degreec. High School / GEDf. College / University – Graduate Degree
21.	Are you a STUDENT? (Check ONE only)         a. No       c. Part-Time Student (College/Vocational/Technical)         b. K-12 Student       d. Full-Time Student (College/Vocational/Technical)
22.	What is the FARE TYPE that you used for this one-way trip? (Check ONE only)         a. Cash       d. Day Pass         b. Reduced Fare Permit       e. Monthly Pass         c. Golden / Patriot Passport       f. Bus Transfer
23.	. My RACE is best described as? (Check ONE only)       a. American Indian       c. Black / African American       e. White         b. Asian       d. Spanish / Hispanic / Latino       f. Other
	. Can you provide a PHONE NUMBER, in case we need to clarify your responses?



## **APPENDIX B**

## **Electronic Survey Screen Views**





*liami-Dade Transit Passenger Survey.* 

he information you provide will be used to elp plan for public transit needs. All formation will be kept strictly confidential.

ouch the Start button to continue...



Survey Team: This information is critical to County. Please place special attention to PLACE names. For any questions, please	entering LOCATION, DIRECTION and
In case of emergency, contact 301-367-1	130 or 954-535-5100 for assistance.
What is the date?	4/1/13
What is the time?	6:33 PN
Inbound     Outbound Run Direction	
ARE YOU WILLING TO ANSWER SOME information will be kept completely CONF	
O Yes	
O No	



What is the Bus Route Number?



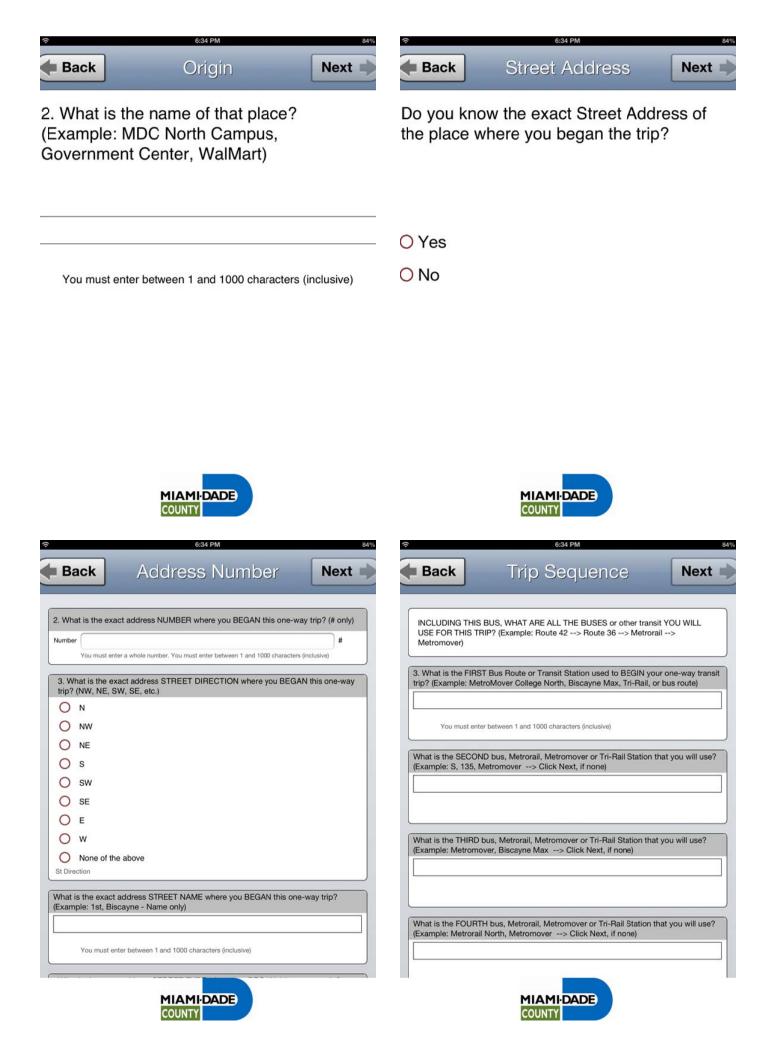


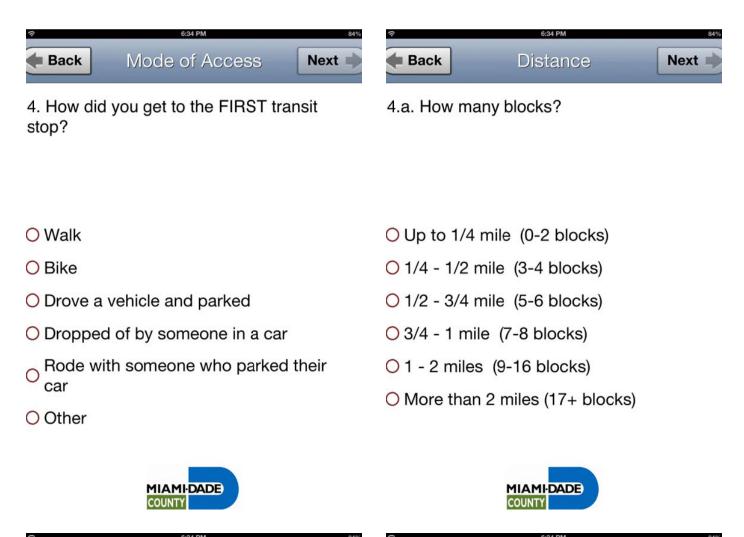
1. Where did you COME FROM? Where did you BEGIN this one-way trip?

- O a. Your Workplace
- O b. Your Home
- Oc. Shopping
- Od. School (K-12)
- O e. College / University (Students Only)
- O f. Medical / Health Care
- Og. Social / Recreational
- A Ather (airport hatel etc.)









Back	Boarding	Next
------	----------	------

5. Where did you GET ON THIS Bus? (Ask for for Bus Stop INTERSECTION, otherwise Station Name)

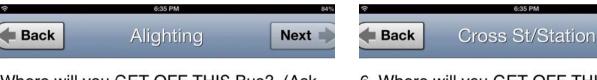
#### O Bus Stop

O Metrorail or Metromover or TriRail Station

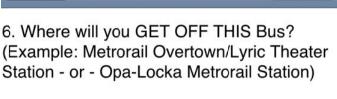
Ba	ack	Intersection	Next
		did you GET ON THIS Bus? What INTER IRECTION? (NW, NE, SW, SE, etc.)	SECTION? What is
0	N		
0	NW		
0	NE		
0	S		
0	SW		
0	SE		
0	E		
0	w		
0	None of the abov	/e	
nterse	ction		
Vhati		EET NAME? (Example: 2nd, Brickell, etc.) ween 1 and 1000 characters (inclusive)	
Wha	t is the FIRST STR	REET TYPE?	
0	Street		
0	Avenue		
0	Devilorment		

COUNTY





Where will you GET OFF THIS Bus? (Ask for for Bus Stop INTERSECTION, otherwise Station Name)

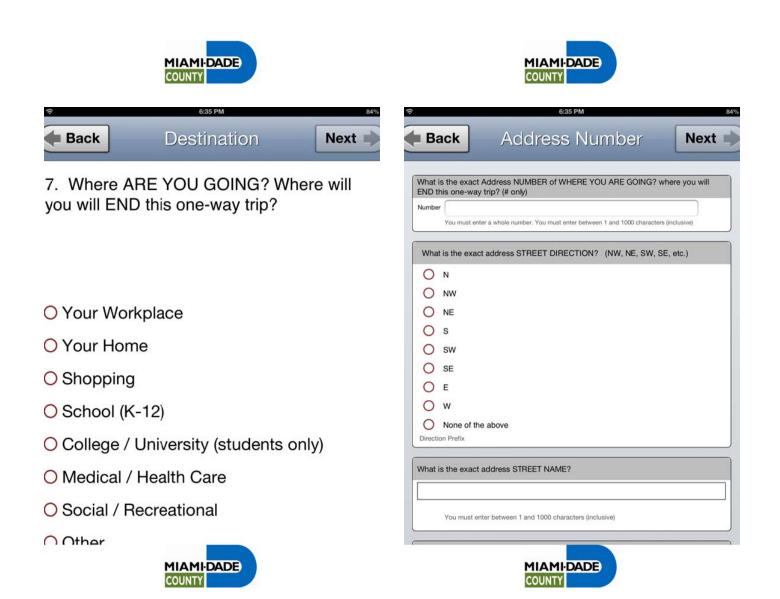


Next

O Bus Stop

O Metrorail or Metromover or Tri-Rail Station

You must enter between 1 and 1000 characters (inclusive)





9. How will you get to the final DESTINATION at the END of your one-way trip?

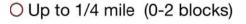


How many blocks?

- O Walk
- O Bike
- O Drive a vehicle parked at a location
- O Will be picked up by someone
- O Ride with someone who parked
- O Other

make this trip?

07



- 1/4 1/2 mile (3-4 blocks)
- 1/2 3/4 mile (5-6 blocks)
- 3/4 1 mile (7-8 blocks)
- 1 2 miles (9-16 blocks)
- O More than 2 miles (17+ blocks)



COUNTY





11. What is the average time it takes to make a ONE-WAY trip from door to door? (minutes)

01				
06				Your Answer Minut
05				
04				
03				
02				
O 1				
$\cap$ I are than 1				
	MIAMIDADE		MIAMIDADE	



হ	6:36 PM	83%	হ	6:36 PM	83%
Back	Gender	Next 📦	<b>Back</b>	Age	Next 📦
12. Gender			13. How old are	you?	
O Male			O a. Less than 16	i	
O Female			O b. 16 - 24		
			<mark>O</mark> c. 25 - 34		
			Od. 35 - 44		
			<mark>○</mark> e. 45 - 54		
			<mark>O</mark> f. 55 - 64		
			<mark>○</mark> g. 65 +		
			M		
Back	oso pm Driver's License	Next	Back Ve	essem ehicle Avail	Next
14. Do you have a valid driver's license?		15. Is there a car / motor vehicle available for this trip?			
O Yes			O Yes		
O No			O No		





Vehicles / House Next     Mext     Mext	HOUSE?
vehicles (cars, motorcycles, trucks) are owned by members of your household?	Total S OLD?
wned by members of your household? Including you, how many are YOUNGER THAN 16 YEARS Including you, how many are OVER 65 YEARS OLD?	S OLD?
Including you, how many are OVER 65 YEARS OLD?	
	<16
Your Answer #	
	>65
Including you, how many WORK OUTSIDE OF YOUR HO	ME?
	Work
MIAMI-DADE COUNTY COUNTY	
6:36 PM 83% 🗢 6:36 PM	
Back Annual Income Next 🄶 🗲 Back Employmen	t Next

18. What is your approximate TOTAL HOUSEHOLD ANNUAL INCOME?

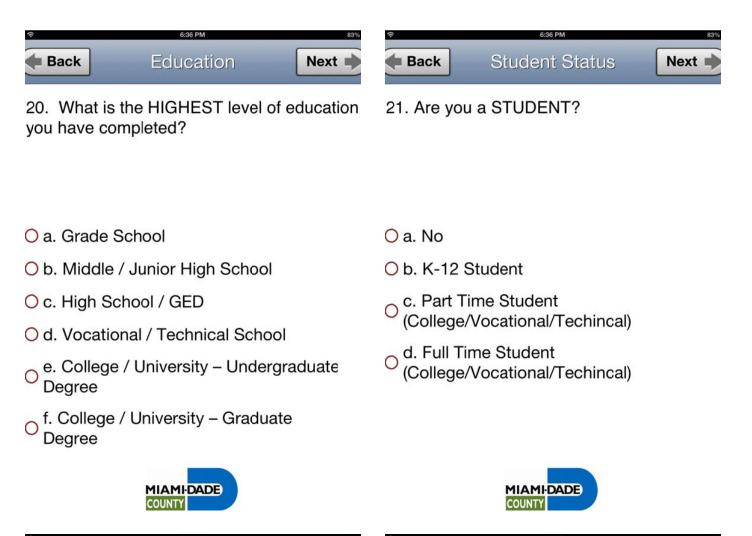
19. What is your current EMPLOYMENT status?

- O a. Less than \$16,500
- O b. \$16,500 \$22,000
- c. \$22,000 \$28,000
- d. \$28,000 \$33,500
- e. \$33,500 \$39,500
- f. \$39,500 \$45,000
- g. \$45,000 \$75,000
- ∩h \$75 000 ⊥



- O a. Working Full Time
- O b. Working Part Time
- O c. Not Working / Unemployed





Back	Fare Type	Next	Back	Race / Ethnicity	Next
22. What is	the FARE TYPE that	t you used	23. My rac	e is best described as:	

- Oa. Cash
- O b. EZ Card Cash Value Fare
- Oc. Reduced Fare Permit

for this one-way trip?

Od. Golden / Patriot Passport

MIAMIDADE

- Oe. Day Pass
- Of. Monthly Pass
- Og. Bus Transfer
- ∩h Tri-Rail Transfor

- O a. American Indian
- Ob. Asian
- Oc. Black / African American
- Od. Spanish / Hispanic / Latino
- Oe. White
- Of. Other



<ul> <li>Can you provide a PHONE NUMBER, in case we need to clarify your responses</li> <li>5. Language used for survey</li> <li>English</li> <li>Spanish</li> <li>Creole</li> </ul>		6:37 PM	
5. Language used for survey English Spanish Creole	Back	Phone Number	Next
5. Language used for survey English Spanish Creole			
English Spanish Creole	<ol> <li>Can you provide</li> </ol>	a PHONE NUMBER, in case we need to clarify	your responses
English Spanish Creole			
English Spanish Creole	25. Language used	for survey	
Creole			
	O Spanish		
inguage	O Creole		
	anguage		





## **APPENDIX C**

## Trip Origin-Destination Maps By Route



