



Miami-Dade Metropolitan Planning Organization

Compare Transit Survey Results to Actual Count Data

September 30, 2010

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Introduction

The Metrorail Survey was conducted on Tuesday, April 29, 2009. The survey was conducted per Miami-Dade County Metropolitan Organization's (MPO) goal to develop a data collection program in line with Federal Transit Administration (FTA) guidelines. The survey obtained ridership characteristics including but not limited to origin-destination travel patterns, trip purpose and modes of access and egress. The purpose of collecting this data was to update and validate the Southeast Regional Planning Model (SERPM v6.5).

A detailed description of the survey design and implementation can be found in the Miami-Dade 2009 Metrorail Transit Survey Final Report, dated July 2009. This report has been included in **Appendix A**.

The purpose of this report is to present the analysis of the Metrorail survey results in terms of riders' trip making characteristics and the spatial distribution of Metrorail trips in the region.

MDT implemented an automated fare collection system for Metrorail in October 2009. Although the Easy Card System was not implemented until after the Metrorail Survey conducted in April 2009, the data collected via the Easy Card, referred to as the Fare Card data in the report, was used in the survey expansion process and also to validate the survey results.

The first step in analyzing the survey was to check the raw data for missing information and illogical responses. Since the data collected in the survey reflects only a sample of transit riders, it was "expanded" to the entire population of Metrorail riders. Travel characteristics were estimated from the expanded data set. A few of the characteristics estimated from the survey were compared to the corresponding statistics obtained from the Fare Card.

The trip origin-destination locations were geocoded and expanded to the entire Metrorail rider population and district level flows were estimated.

Data Editing and Processing

The first step in analyzing the Metrorail Survey was to check the raw data for missing information and logic. Not all the records in the raw survey had answers to all the questions asked in the survey. Some of the records have missing information on questions that are essential for mode choice model calibration. These questions include Q1- “Trip purpose at Origin”, Q3-“Access Mode”, Q4- “Boarding Station”, Q5-“Alighting Station”, Q6- “Egress Mode” , Q7-“Trip purpose at Destination”, and Q18-“number of autos in the household”. **Figure 1** depicts the final Metrorail Survey instrument. **Appendix B** also includes the survey instrument

Figure 1: Metrorail Survey Instrument

The figure shows a survey instrument for the Metrorail system, presented in three languages: English, Spanish, and Haitian Creole. The survey is titled "METRORAIL Survey", "Encuesta de METRORAIL", and "METRORAIL Kékysone". It consists of several sections with numbered questions. The questions cover trip origin, trip purpose, access mode, boarding station, alighting station, egress mode, trip purpose at destination, and household information. The form includes checkboxes for various trip purposes and destinations, and a table for household information.

A survey response was deemed complete if it had answers to all of the above six questions. Any survey that did not have answers to all of the six questions was discarded from the sample and not used in the analysis. Before a survey was discarded for being incomplete, an attempt was made to fill in the missing information based on other questions and survey logs. This process is described in more detail in the following paragraphs.

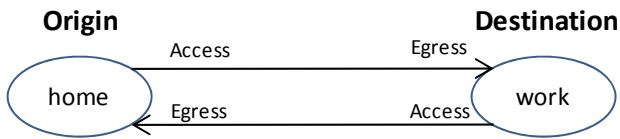
The answers to Q1-Trip purpose at Origin and Q7-Trip purpose at Destination were used to assign a trip purpose to the survey. The trip purpose categories include home based work (HBW), home based other (HBO), and non-home based (NHB): HBW trips originate at home and are destined for work; HBO trips originate at home and are destined for shopping, recreation, school, or other purpose; and NHB are trips that originate at a location other than home.

For survey records where Q1 was not answered, the response to Q1a-“Name of Place, Business or Building where trip originated” was used to fill in the missing information wherever possible. For example, if the response to Q1a was “Friend’s House”, Q1 was set equal to “Social/Recreational”. Similarly, the response to Q7a-“Name of Place, Business or Building where trip is destined for” was used to complete Q7 wherever possible. After performing data cleanup as mentioned above, the responses to questions 1 and 7 were used to

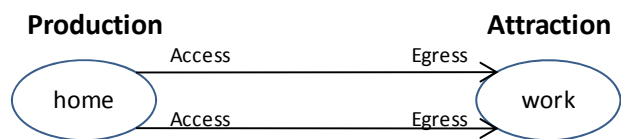
derive trip purpose for the surveys. Surveys that had missing information on Q1 and/or Q7 were discarded. In addition, surveys that had home as responses to both Q1 and Q7 were also eliminated. If the answer to Q1 was home, and the answer to Q7 was work, the trip was designated as HBW. In addition, if the answer to Q7 was home, and the answer to Q1 was work, the trip was designated to be HBW as well. In the case of the latter, the answer to Q3-“Access Mode” was set to be Egress Mode and vice-versa. This process involves converting from Origin-Destination (OD) to Production-Attraction (PA) format for model data compatibility. For a trip that either starts or ends at home, home is considered as the origin in PA format. This is important for access and egress because in OD format, access occurs on both trip ends and egress occurs on both trip ends, for 2-way trips. In PA format, access and egress are distinguishable because the “true” origin and “true” destination ends of the trips can be distinguished. **Figure 2** below depicts the distinction between OD and PA. In the second graphic, which displays a HBW trip in PA format, the home (production) end of the trip represents two P’s and the work (attraction) end of the trip represents two A’s. This format enables an understanding of the directionality of trips by distinguishing between the production and attraction ends.

Figure 2: HBW Trips in OD and PA Format

HBW Trip in OD Format



HBW Trip in PA Format



HBO trips originate at home and are destined to any place other than work. If the answer to Q1 was home, and the answer to Q7 was non-work, the trip was designated as HBO. In addition, if the answer to Q7 was home, and the answer to Q1 was non-work, the trip was designated as HBO as well. The OD format was converted to PA in a similar way as HBW.

Trips that neither originate at home nor are destined for home are classified as NHB. OD to PA conversion is not required for NHB trips. The reason for this is that NHB trips are considered one-way trips in the model, making the distinction of OD and PA irrelevant.

The response to Q3 reflects the mode of travel (Walk, Bike, Drove and Parked, Rode with someone and got dropped off, Rode with someone who parked, and other) that was used to access the first transit line (bus, Metrorail, Tri-rail etc). Similarly the response to Q6 reflects the mode that was used to reach the destination from the last transit line used for the trip. For the purpose for this analysis, the transfers to/from Metrorail also had to be computed. The response to Q9-“The exact order of bus routes, jitney, and/or rail lines used to make this trip” was used to determine transfers to/from Metrorail. If the response to Q9 showed that Metrorail was the only transit mode used for the trip, it was concluded that no transfers took place at either access or egress end. A response to Q9 showing that another mode of transit was used before boarding Metrorail was indicative of transfer at access end. Similarly if another mode of transit was used after alighting from Metrorail, it indicated transfer at the egress end.

Q3 was used in conjunction with Q9 to assign access mode to each record, while Q6 in conjunction with Q9 was used to assign egress mode. Surveys with missing access and/or egress mode were discarded.

Q4-“Boarding station” and Q5-“Alighting station” were used to develop expansion factors. This process is been explained in detail in the Expansion Methodology section. The survey logs maintained by surveyors had information on boarding station for each survey. The surveyors also marked the alighting station on the surveys collected. The boarding and alighting information collected by the surveyors was used to fill in Q4 and Q5 for the records for which these questions were not answered.

The mode choice model is estimated separately for 0 car, 1 car and 2+ car households. Q18-“Number of registered autos in the household” was used to classify the survey records in one of the above three categories. Survey records for which Q18 was not answered were discarded.

Table 1 shows the number of surveys discarded as a result of the cleanup process. It can be observed from the table that Missing Trip Purpose and Missing Auto Ownership represent the two largest sources of missing values. The total number of records with missing values is 6,427 while the total number of unusable records is 791, resulting in 10,644 number of usable records.

Table 1: Number of Survey Discarded by Cleanup Step

Description	Number
Total survey collected (A)	17,862
Missing Values	
Empty Records	575
Missing Boarding Station (Q4)	66
Missing Alighting Station (Q5)	6
Missing Trip Purpose (Q1 and/or Q7)	3,046
Missing Access Mode (Q3)	379
Missing Egress Mode (Q6)	175
Missing Auto Ownership (Q18)	2,180
Total Missing Values (B)	6,427
Non-usable Records	
Round trips (Home-Home)	611
Same Boarding and Alighting Stations	180
Total Non-usable Records (C)	791
Final Database	
Total records in Final Database (A)-(B)-(C)	10,644

Expansion Methodology

One of the objectives of the Metrorail survey was to collect information from the maximum number of riders. For a variety of reasons including but not limited to short trips and unwillingness to complete surveys, it is not possible to get every rider to fill out a survey. Therefore, the collected surveys reflect only a sample of Metrorail riders. In order to estimate travel characteristics, this sample has to be “expanded” to the entire population of Metrorail riders. There are several available options to expanding the survey. The easiest way is to estimate an expansion factor (the weight assigned to each survey) by dividing the daily Metrorail ridership by the number of surveys in the database. However, adopting this simplified expansion scheme can lead to bias. For example, assume that one out of every five people boarding at Government Center completed the survey, while one out of every two people boarding at Dadeland South completed the survey. Using the same expansion factors for surveys reflecting boardings at Government Center and Dadeland South will bias the results towards Dadeland South. In order to mitigate this bias, the Metrorail riders are divided into categories or “markets”. An expansion factor is computed for each market, so that the expanded database will have appropriate representation from each market. One such category could be Boarding station. Going back to the previous example and using Boarding station as a market segment would produce an expansion factor of five and two for Government Center and Dadeland South respectively.

In any expansion process it is imperative to define market segments. The “control total” or the total number of system users in the entire population that fall in each of the market segments have to be estimated. The number of system users in the survey is estimated for each market and expanded to the control total for the markets. The level of disaggregation of the travel markets is directly related to the validity of the results with respect to minimizing and/or mitigating bias.

The following two expansion schemes were used to expand the surveys to the entire population.

- 1. Expansion by boarding by time period, station, direction, and number of stations traveled:** This expansion scheme used boardings by time period, station, direction, and number of stations traveled as market segments. Time period were defined to be AM Peak (6:30am to 9:30am), PM Peak (3:30pm to 6:30pm), and Off Peak (5:00am to 6:30am, 9:30am to 3:30pm and 6:30pm to 12:00am). Number of stations traveled were divided into two categories, less than or equal to four and greater than four. An example of market segment in this expansion scheme will be boardings in AM Peak, Civic Center station, Northbound direction, and less than four stations traveled.
- 2. Expansion by Time period, Boarding and Alighting Station:** This expansion scheme uses time period, and a combination of boarding and alighting stations as market segments. For example, AM Peak, Dadeland South to Government Center will be a market segment.

Control Count

The data was expanded using two different methods as explained above. The first method required control counts by boarding station, direction, time period, and two categories of number of stations traveled (≤ 4 and > 4). The second expansion method required origin/destination counts by time period.

The April 2009 daily average Metrorail turnstyle counts obtained from MDT in conjunction with factors for time period, direction, and stations traveled developed from the February 2010 MDT Fare Card data were used to develop the control counts for the first expansion.

The station-station trip table from the MDT Fare Card data scaled to match the April 2009 turnstyle counts was used as the control total for the second expansion.

The MDT Fare Card data was available in station-station trip table format by time period, for four Tuesdays in the month of February 2010. The Metrorail survey was conducted on a Tuesday (April 27, 2009), hence the Fare Card data was also requested for Tuesday. The raw MDT Fare Card data was cleaned to remove trips between the same stations (Palmetto-Palmetto, Okeechobee-Okeechobee etc). The data was then averaged across the four days by time period. The resulting Fare Card data is represented in **Tables 2 through 4**.

Table 2 shows that the total number of AM Peak period trips is 17,887. Dadeland North and Dadeland South are the two biggest origin (boarding) stations, while Government Center and Civic Center are the two biggest destination (alighting) stations.

Table 3 shows that the total number of Off Peak period trips is 25,666. The Government Center and Civic Center are the two biggest origin as well as destination stations.

Table 4 shows that the total number of PM Peak period trips is 17,624. The travel pattern in terms of the biggest origin and destination stations is opposite to that of AM Peak Period. Government Center and Civic Center are the two biggest origin stations, while Dadeland North and Dadeland South are the two biggest destination stations.

Table 2: AM Peak Period Fare Card Station-Station Trip Matrix

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	2	7	7	2	5	3	3	2	2	161	3	16	223	42	9	7	13	12	6	8	6	541
Okeechobee	5	0	8	6	7	4	4	4	6	10	179	9	32	242	48	11	6	23	17	9	6	11	648
Hialeah	16	15	0	13	16	9	2	12	15	8	120	9	12	171	47	8	7	26	17	15	22	24	584
Tri-Rail	24	20	20	0	5	9	2	3	6	5	180	6	11	142	46	9	6	26	28	18	12	20	598
Northside	19	32	17	5	0	7	10	9	11	5	121	12	15	131	32	13	9	29	24	22	13	31	568
Martin Luther King Jr	11	16	15	9	7	0	9	9	16	13	78	20	12	92	18	7	5	28	22	10	12	23	431
Brownsville	8	10	13	12	13	12	0	10	7	3	51	14	8	51	12	2	2	13	6	10	5	15	277
Earlington Heights	11	13	20	16	14	15	10	0	11	5	80	21	15	123	33	9	4	22	20	18	13	27	499
Allapattah	8	9	17	17	8	13	12	8	0	2	60	18	6	125	41	13	9	49	46	19	22	33	535
Santa Clara	5	4	5	7	3	5	5	3	6	0	28	7	5	47	17	4	3	18	15	11	8	10	214
Civic Center	13	13	20	20	11	14	7	15	12	2	0	10	6	87	29	8	8	29	27	18	29	37	416
Culmer	3	2	8	5	5	5	4	8	9	1	29	0	3	50	17	13	8	35	17	20	10	21	273
Overtown	4	4	4	5	5	6	3	10	4	3	74	4	0	24	19	15	4	31	22	15	10	22	286
Government Center	26	18	50	29	19	16	13	17	26	13	198	25	25	0	86	39	52	177	95	95	90	124	1,233
Brickell	16	14	15	18	6	7	1	9	12	3	162	23	8	64	0	13	13	135	69	67	59	70	784
Vizcaya	2	3	1	5	2	1	1	2	3	0	38	6	7	73	14	0	8	60	26	40	31	34	358
Coconut Grove	3	4	2	3	2	2	1	3	7	3	73	7	10	151	47	6	0	62	31	46	39	61	561
Douglas Road	5	8	10	8	10	9	6	4	8	4	152	21	28	287	80	19	24	0	53	54	48	59	896
University	4	3	4	5	2	2	1	1	2	2	148	9	8	121	30	8	5	11	0	13	6	16	401
South Miami	5	3	4	5	4	7	1	6	7	3	303	15	47	586	93	15	10	40	29	0	27	38	1,247
Dadeland North	14	15	14	20	14	22	5	5	17	13	798	5	124	1,324	360	75	49	177	92	81	0	60	3,285
Dadeland South	25	13	29	25	20	34	9	22	30	18	809	51	118	1,110	300	57	66	206	131	121	60	0	3,253
Total	226	219	284	238	176	201	108	163	216	119	3,841	296	516	5,223	1,414	354	303	1,208	800	710	532	742	17,887

Table 3: Off Peak Period Fare Card Station-Station Trip Matrix

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	9	19	13	22	11	6	7	13	6	62	7	4	78	22	5	3	10	3	8	11	23	341
Okeechobee	5	0	25	23	32	17	8	16	13	12	73	7	10	126	25	10	6	7	9	12	18	16	472
Hialeah	24	20	0	25	45	23	16	35	32	20	117	9	11	210	43	15	13	27	14	16	34	33	785
Tri-Rail	21	10	26	0	12	12	8	12	18	8	107	6	12	190	48	14	12	30	20	26	28	37	656
Northside	35	32	42	13	0	20	33	31	26	15	90	13	25	146	41	13	8	28	16	25	35	54	743
Martin Luther King Jr	11	14	29	13	32	0	21	32	28	14	112	21	24	148	25	14	11	28	13	24	37	56	709
Brownsville	10	11	16	16	46	16	0	23	26	9	63	15	14	82	12	4	7	15	10	19	22	39	475
Earlington Heights	9	17	20	12	26	26	25	0	27	10	92	19	22	130	35	8	4	20	12	19	24	57	616
Allapattah	12	12	29	20	38	35	24	22	0	13	66	16	14	167	38	7	19	37	14	24	36	58	698
Santa Clara	7	5	14	17	13	16	13	13	13	0	14	4	6	71	20	3	7	17	12	17	18	21	322
Civic Center	60	72	130	122	127	89	80	107	78	13	0	33	47	490	146	31	62	108	135	132	323	391	2,776
Culmer	6	8	10	6	20	19	21	29	25	8	44	0	8	80	32	19	19	35	21	30	44	65	551
Overtown	10	6	13	12	15	21	13	21	19	4	39	4	0	122	26	11	15	34	18	22	56	50	532
Govt. Center	112	136	231	152	159	138	90	163	183	70	421	52	131	0	144	116	233	391	171	324	676	643	4,736
Brickell	31	25	51	52	34	20	16	27	44	22	113	23	24	159	0	33	68	117	65	93	208	157	1,383
Vizcaya	5	4	13	15	7	6	6	7	8	5	27	8	8	107	30	0	19	51	16	40	56	51	489
Coconut Grove	3	10	15	10	11	5	8	8	14	6	56	13	12	189	58	19	0	67	32	66	80	102	784
Douglas Road	14	15	35	24	39	31	15	22	49	27	101	24	31	410	160	63	96	0	46	136	219	211	1,769
University	8	7	10	21	21	15	8	16	24	8	127	20	14	146	68	27	33	53	0	43	94	83	846
South Miami	9	12	21	15	26	23	22	22	33	16	145	19	32	293	91	33	63	98	36	0	138	149	1,295
Dadeland North	16	12	43	31	25	22	15	17	35	16	352	15	44	619	216	70	103	182	90	116	0	124	2,163
Dadeland South	22	21	34	51	75	67	40	50	69	25	350	53	52	662	157	67	117	207	88	168	153	0	2,528
Total	431	458	827	662	826	632	488	679	777	326	2,573	383	545	4,626	1,438	582	917	1,565	842	1,359	2,310	2,421	25,666

Table 4: PM Peak Period Fare Card Station-Station Trip Matrix

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	5	20	25	32	15	7	10	10	2	11	2	4	31	10	3	5	7	4	4	12	24	244
Okeechobee	4	0	12	17	27	10	7	11	11	3	10	3	2	27	8	2	4	7	3	6	10	18	202
Hialeah	6	7	0	11	22	15	10	16	16	6	14	4	6	50	17	5	5	9	3	8	14	25	268
Tri-Rail	4	11	19	0	8	7	7	17	19	6	12	5	8	48	16	5	6	5	7	5	19	32	268
Northside	6	12	17	5	0	7	12	16	17	7	9	5	7	35	7	5	2	12	3	10	13	30	235
Martin Luther King Jr	4	7	9	7	10	0	13	14	15	5	6	8	7	39	7	2	4	12	5	18	23	46	261
Brownsville	0	3	6	4	15	6	0	9	7	4	7	7	6	25	4	1	2	6	2	9	9	17	149
Earlington Heights	2	6	18	6	14	11	8	0	9	3	10	7	10	38	8	3	5	9	2	10	14	23	217
Allapattah	5	4	14	9	13	7	8	10	0	3	8	5	7	39	13	5	5	16	5	14	18	26	235
Santa Clara	2	7	6	6	10	5	5	2	4	0	2	3	2	21	9	0	2	6	3	7	13	26	140
Civic Center	136	144	85	183	95	59	41	58	54	22	0	21	35	185	112	37	68	117	162	298	705	638	3,257
Culmer	6	15	5	4	29	6	9	13	6	3	7	0	2	31	16	7	5	23	11	16	104	49	369
Overtown	13	35	13	7	15	13	8	16	7	4	3	1	0	31	10	9	12	23	12	55	118	130	535
Govt. Center	193	218	164	166	155	86	46	107	100	42	76	22	29	0	74	71	137	275	115	567	1,204	935	4,782
Brickell	34	39	45	46	37	21	13	31	33	17	34	13	15	98	0	27	52	89	42	96	357	266	1,405
Vizcaya	6	17	11	13	31	6	1	9	9	1	5	11	6	56	20	0	19	26	13	24	79	60	424
Coconut Grove	5	6	7	5	9	7	3	6	11	3	10	6	6	78	33	13	0	24	8	19	53	75	388
Douglas Road	12	16	23	23	24	25	11	23	36	18	22	19	26	201	111	52	50	0	17	64	184	202	1,162
University	11	14	20	24	23	15	6	21	36	9	31	13	15	90	57	21	32	52	0	35	90	128	744
South Miami	6	8	11	16	26	11	5	14	24	8	16	9	15	108	56	39	43	56	13	0	100	92	677
Dadeland North	6	7	19	12	19	20	10	17	21	10	19	10	15	168	84	34	63	74	31	61	0	78	776
Dadeland South	11	12	25	23	29	26	18	28	35	12	28	20	24	159	77	31	66	99	22	63	81	0	889
Total	472	593	548	611	641	380	247	449	480	190	342	196	246	1,559	750	373	586	948	482	1,389	3,220	2,921	17,624

Time period factors were developed from the Fare Card data for each boarding station. These factors represent the fraction of total daily boardings by station that occur within each of the three periods. The boarding totals from **Tables 2 through 4** were used to compute these splits. For example, for the Palmetto station, the total daily boardings are 1,126 (=541+341+244). The AM-peak period factor is 48% (=541/1,126). **Figure 3** shows the time period factors for all boarding stations.

Figure 3: Time Period Factors Developed from MDT Fare Card Data

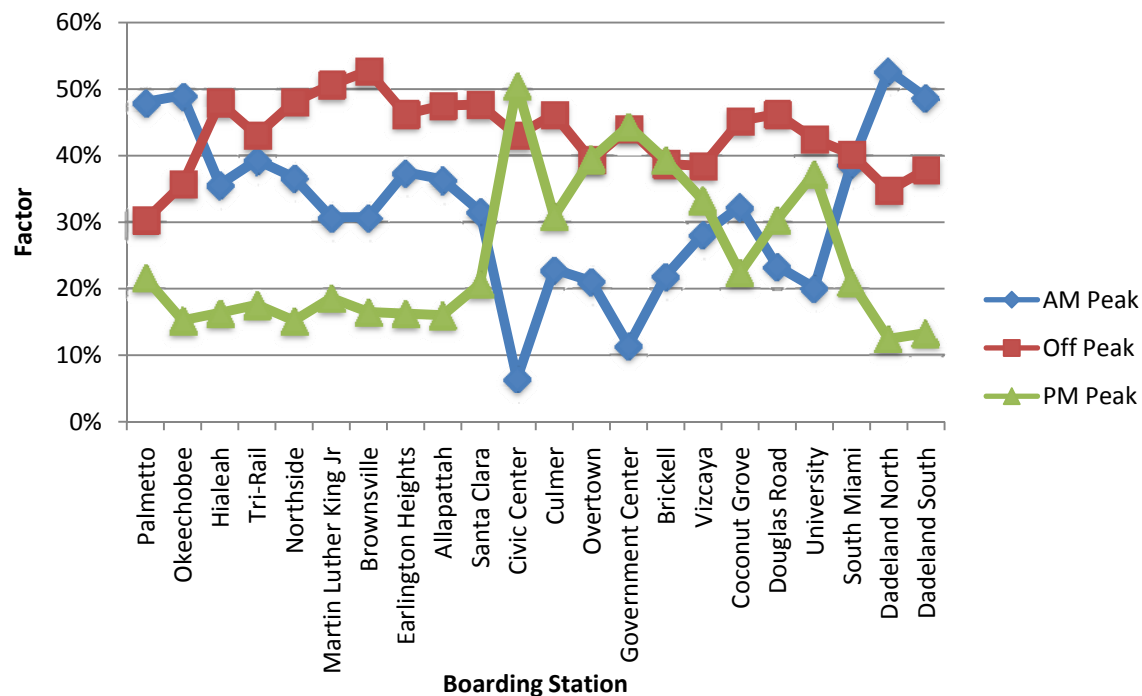


Figure 3 shows that for stations Palmetto through Santa Clara, the AM Peak period boarding factor is significantly higher than the PM Peak period factor. This is indicative of the fact that passengers use these stations to access Metrorail in the AM Peak period to go to work. The same observations holds true for South Miami, Dadeland North and Dadeland South stations.

Figure 3 indicates that for stations Civic Center going south through Brickell, the PM Peak period boarding factor is significantly higher than AM Peak period factor. This is indicative of the fact that passengers use these stations to access Metrorail in the PM Peak period to go home from work. The area around Civic Center through Brickell stations has a high concentration of employment centers.

The Off Peak factors are typically higher than AM Peak and PM Peak factors because Off Peak represents a longer duration of time compare to the other time periods.

Directional factors were developed for each boarding station and by time period. These factors represent the fraction of trips by boarding station by time period that are southbound and northbound. **Tables 2 through 4** were used to compute the northbound and southbound split. For example, for the northern most Palmetto Station, all the trips are southbound. Therefore the southbound fraction will be 100% (conversely northbound fraction will be 0%). For the Hialeah station, during the AM Peak Period, out of 584 total boardings, 31 are northbound, yielding a northbound/southbound split of 5%/95%. **Figure 4** shows the northbound split by boarding station and time period. The southbound split (not shown in the plot) is equal to 100% less the northbound factor.

Figure 4: Northbound Directional Factors Developed from MDT Fare Card Data

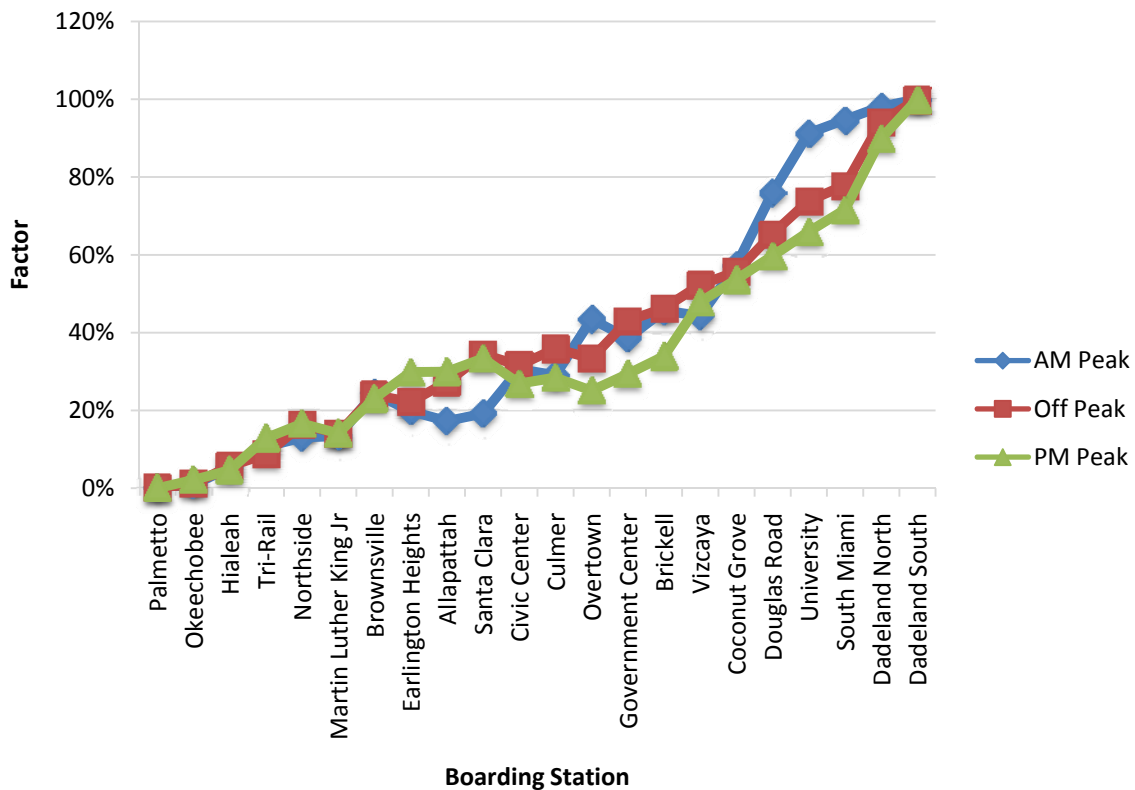
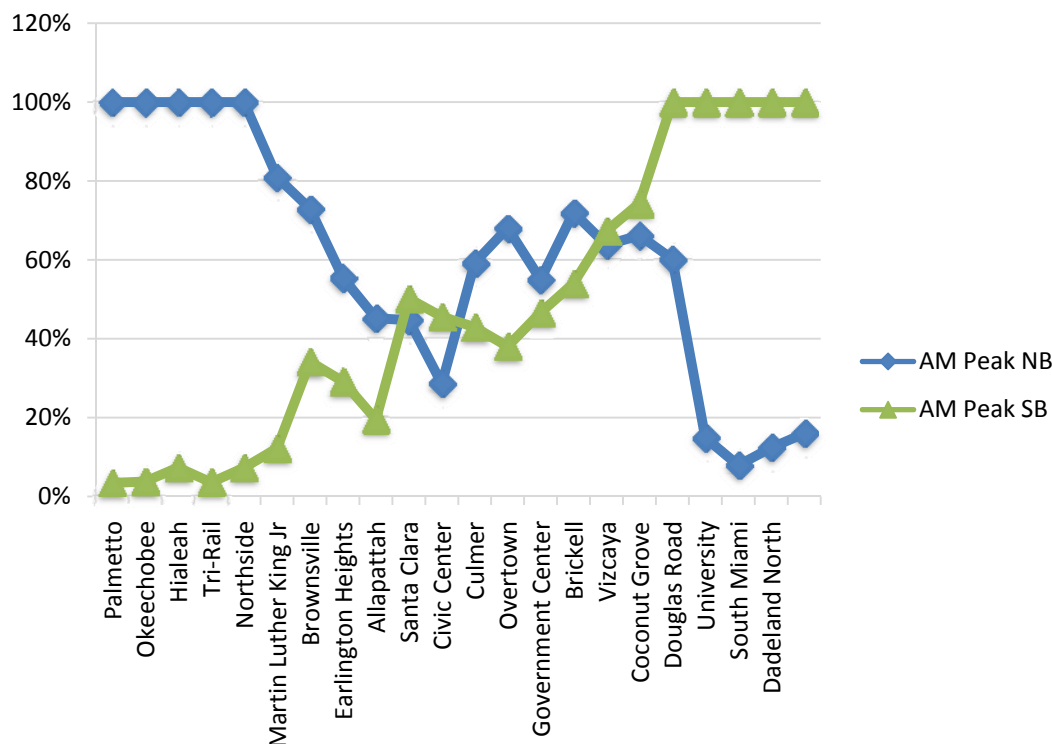


Figure 4 shows that the northbound factor increases going south from Palmetto to Dadeland South. Since Palmetto is the northernmost station, all trips are southbound and the northbound factor is 0%. Dadeland South is the southernmost station, with all trips northbound yielding a northbound factor of 100%. The northbound/southbound splits are consistent across time periods.

Factors to split the boardings, by time period and direction into number of stations traveled were developed. These factors represent fractions of trips by boarding station, time period and direction that travel four or less stations and more than four stations. **Tables 2** through **4** were used to compute the number of stations traveled splits. For example, in the AM Peak Period, for boarding station Martin Luther King Jr. and southbound direction, 45 trips travel four or less stations, producing a factor of 12% ($=45/373$).

Figure 5 shows the factors for four or less stations traveled, for AM Peak Period by direction of travel. The factor for more than four stations traveled (not shown in the figure) is equal to 100% less four or less station traveled factor.

Figure 5: Four or Less Station Traveled Factors for AM Peak Period by Direction of Travel

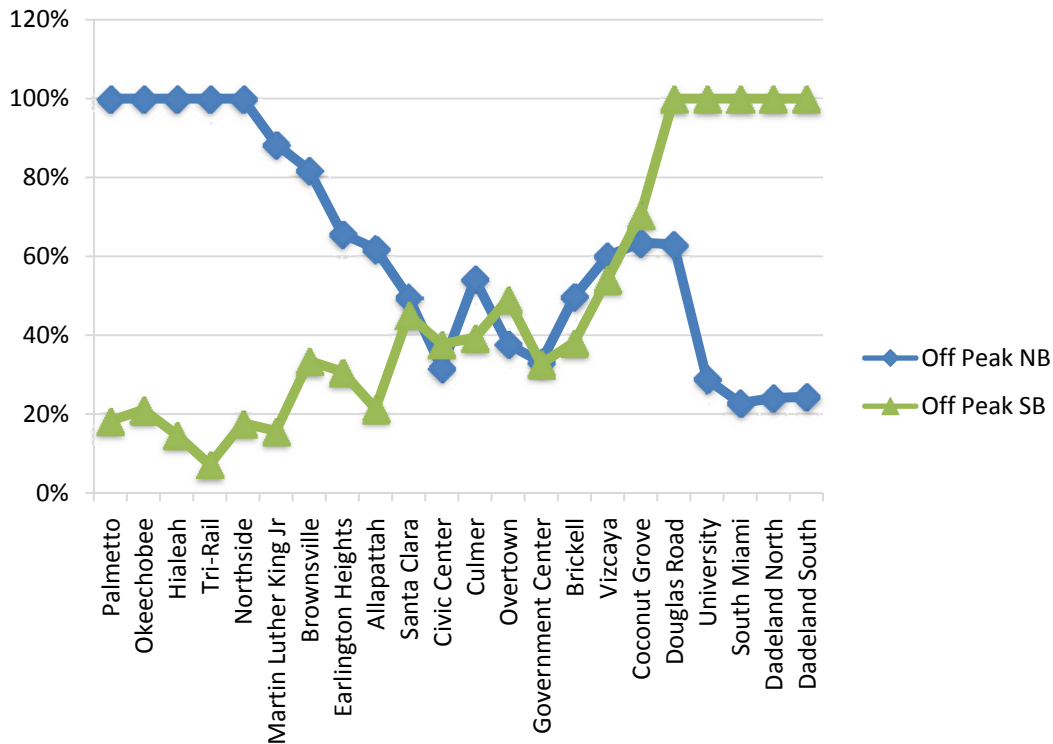


In **Figure 5**, the 81% split for Martin Luther King Jr for NB direction implies that for all the trips in the AM Peak Period boarding at Martin Luther King Jr that are northbound, 81% travel four stations or less while 19% ($=100\%-81\%$) travel more than four stations.

Northside is the fifth station from the north. All northbound trips boarding at Northside station and stations north of Northside will travel four or less stations. Therefore the northbound four or less station traveled factors are 100% for the five northern most stations. Similarly, Douglas Road is the fifth southern most station. All southbound trips boarding at Douglas station and stations south of Douglas will travel four or less stations. The southbound four or less station traveled factors are 100% for the five southernmost stations.

Figure 6 shows the factors for four or less stations traveled for Off Peak Period by direction of travel. The factor for more than four stations traveled (not shown in the figure) is equal to 100% less four or less station traveled split.

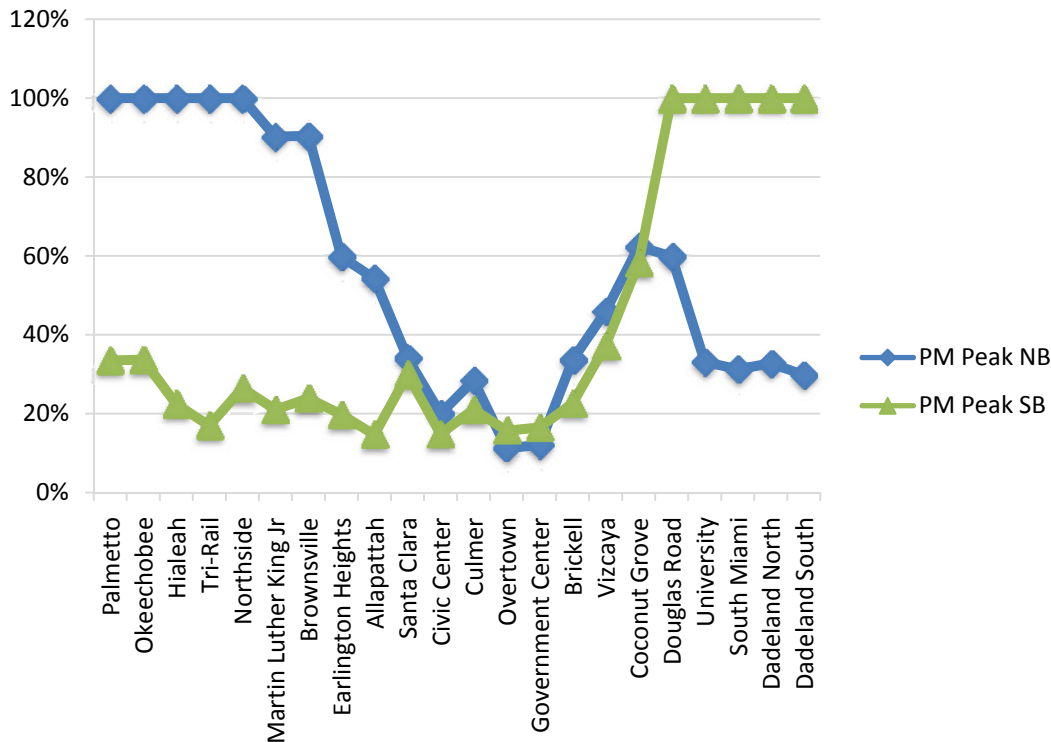
Figure 6: Four or Less Station Traveled Factors for Off Peak Period by Direction of Travel



The observations made for **Figure 5** also hold true for **Figure 6**.

Figure 7 shows the factors for four or less stations traveled for PM Peak Period by direction of travel. The factor for more than four stations traveled (not shown in the figure) is equal to 100% less four or less station traveled split.

Figure 7: Four or Less Station Traveled Factors for PM Peak Period by Direction of Travel



The observations made for **Figures 5 and 6** also hold true for **Figure 7**.

The April 2009 daily average Metrorail turnstyle counts in conjunction with factors for time period, direction, and number of stations traveled developed from the February 2010 MDT Fare Card data were used to estimate the control counts for the first expansion process.

The time period factors (shown in **Figure 3**), directional factors (shown in **Figure 4**) and stations traveled factors (shown in **Figures 5 through 7**) were applied to the April 2009 daily average Metrorail boarding counts. **Table 5** shows the April 2009 daily average boardings by station.

Table 5 shows that Government Center, Dadeland South and Civic Center are the top three boarding stations. The total weekday average boarding for April 2009 is 58,908.

Table 5: April 2009 Daily Average Boardings by Station

Station	Boardings
Palmetto	1,267
Okeechobee	1,099
Hialeah	1,799
Tri-Rail	1,965
Northside	2,098
Martin Luther King Jr.	1,309
Brownsville	915
Earlington Heights	1,536
Allapattah	1,843
Santa Clara	670
Civic Center	5,969
Culmer	1,227
Overtown	1,666
Government Center	9,494
Brickell	2,632
Vizcaya	1,379
Coconut Grove	1,637
Douglas Road	3,420
University	2,115
South Miami	3,275
Dadeland North	4,894
Dadeland South	6,699
Total	58,908

Table 6 shows the boardings by station, time period, direction and number of stations traveled. This was computed by applying the factors estimated from the Fare Card data to the April 2009 average daily boarding counts in **Table 5**. The boardings shown in **Table 6** serve as control totals for expansion method one.

The origin-destination trip tables developed from the Fare Card data (**Tables 2 through 4**) were scaled to match the boarding totals by time period shown in **Table 6** (17,224 for AM Peak Period, 24,714 for Off Peak Period, and 16,970 for PM Peak Period). **Tables 7 thru 9** show the scaled trip tables which serve as the control counts for expansion method two.

Table 6: Boarding by Station, Time Period, Direction, and Number of Stations Traveled

Station	AM Peak				Off Peak				PM Peak				Total
	NB		SB		NB		SB		NB		SB		
	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	
Palmetto	-	-	21	588	-	-	70	313	-	-	92	183	1,267
Okeechobee	4	-	20	515	4	-	82	306	4	-	55	109	1,099
Hialeah	34	-	45	563	49	-	121	693	14	-	63	218	1,799
Tri-Rail	82	-	24	666	74	-	55	718	44	-	51	250	1,965
Northside	101	-	49	621	165	-	149	694	53	-	70	196	2,098
Martin Luther King Jr	44	10	43	306	83	11	90	480	31	3	44	165	1,309
Brownsville	50	19	73	140	95	21	123	244	32	3	28	88	915
Earlington Heights	63	51	135	327	103	54	170	383	45	30	35	141	1,536
Allapattah	52	64	108	447	148	91	136	501	48	40	30	177	1,843
Santa Clara	18	22	86	85	54	55	95	115	16	30	28	65	670
Civic Center	34	84	122	145	257	555	663	1,094	162	649	327	1,876	5,969
Culmer	48	33	86	114	110	93	143	221	31	77	57	214	1,227
Overtown	104	49	76	123	83	136	215	222	19	147	77	416	1,666
Government Center	231	189	312	357	596	1,204	781	1,601	149	1,091	492	2,490	9,494
Brickell	190	74	169	144	235	237	209	338	118	233	155	530	2,632
Vizcaya	110	62	146	71	167	111	137	116	101	119	89	151	1,379
Coconut Grove	201	103	168	58	262	151	232	96	123	74	99	71	1,637
Douglas Road	366	242	192	-	652	382	547	-	371	249	418	-	3,420
University	58	331	37	-	192	473	234	-	172	349	269	-	2,115
South Miami	95	1,107	67	-	234	792	292	-	154	339	195	-	3,275
Dadeland North	314	2,222	48	-	385	1,218	97	-	180	369	61	-	4,894
Dadeland South	520	2,747	-	-	619	1,920	-	-	266	627	-	-	6,699
Total	2,755	7,724	2,015	4,730	4,618	7,766	4,625	7,706	2,160	4,588	2,764	7,459	58,908
Total (Period)	17,224				24,714				16,970				

Table 7: Scaled AM Peak Period Trip Table (Control Count for Expansion Two)

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	2	7	7	2	5	3	3	1	2	156	3	15	217	41	9	7	13	12	6	8	6	527
Okeechobee	5	0	8	6	7	4	4	4	6	10	174	9	31	236	47	11	6	22	17	9	6	10	632
Hialeah	16	14	0	13	15	9	2	12	14	8	117	9	12	167	46	8	6	25	17	15	21	23	568
Tri-Rail	24	19	19	0	5	8	2	3	6	5	175	6	10	139	45	8	6	25	27	18	12	19	583
Northside	19	32	17	5	0	7	9	9	11	5	118	12	14	127	32	13	9	28	23	22	13	31	553
Martin Luther King Jr	11	15	15	8	7	0	8	8	15	12	76	20	12	90	18	7	5	27	22	9	12	22	419
Brownsville	8	10	13	12	13	11	0	10	7	3	50	14	8	49	12	2	2	12	6	10	5	14	270
Earlington Heights	11	13	20	15	14	15	10	0	11	5	78	21	15	119	33	9	4	21	19	18	13	26	486
Allapattah	7	9	17	16	8	13	12	8	0	2	58	18	6	122	40	13	8	48	45	19	21	32	521
Santa Clara	5	4	5	7	3	4	4	3	6	0	27	6	5	46	16	4	3	18	14	11	8	10	208
Civic Center	13	13	20	19	11	13	7	15	12	2	0	10	6	85	28	8	8	28	27	18	29	36	405
Culmer	3	2	8	5	5	5	4	8	9	1	28	0	3	49	17	13	7	34	16	19	10	21	266
Overtown	3	3	4	5	5	5	3	10	4	2	72	3	0	23	18	15	4	30	22	15	10	21	279
Government Center	25	18	49	28	19	16	13	17	25	13	193	24	25	0	84	38	50	172	92	93	87	121	1,201
Brickell	15	14	15	18	6	6	1	8	12	3	158	23	8	62	0	13	12	131	67	65	58	68	763
Vizcaya	2	3	1	5	2	1	1	2	3	0	37	6	7	71	14	0	7	59	26	39	30	33	349
Coconut Grove	3	4	2	3	2	2	1	2	7	3	71	6	10	147	45	5	0	61	30	44	38	60	546
Douglas Road	4	7	10	8	9	8	6	4	8	4	148	20	27	279	78	19	23	0	52	52	47	58	873
University	4	2	4	5	2	2	1	1	2	2	144	9	8	118	30	8	5	11	0	13	6	15	391
South Miami	4	3	3	4	4	7	1	5	7	3	295	15	46	571	91	14	10	39	28	0	27	37	1,215
Dadeland North	13	15	14	19	14	21	5	5	16	12	777	5	121	1,290	351	73	48	172	90	79	0	59	3,200
Dadeland South	25	13	28	24	20	33	9	21	29	17	788	49	115	1,081	293	56	65	200	127	118	59	0	3,169
Total	220	213	277	232	172	195	105	158	210	116	3,741	288	503	5,088	1,377	345	295	1,177	780	692	518	723	17,425

Table 8: Scaled Off Peak Period Trip Table (Control Count for Expansion Two)

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	8	18	12	22	10	6	7	12	5	60	7	4	75	22	5	2	10	3	7	11	22	330
Okeechobee	5	0	24	23	31	17	8	15	13	11	71	6	9	122	25	10	6	7	9	12	18	15	456
Hialeah	23	20	0	25	44	22	16	34	31	19	113	9	11	204	41	14	13	26	13	15	33	32	759
Tri-Rail	21	10	25	0	11	11	7	11	17	8	104	6	12	184	46	13	11	29	19	25	27	36	635
Northside	34	31	41	12	0	20	32	30	25	15	88	12	24	142	40	13	8	27	16	25	34	52	719
Martin Luther King Jr	11	13	28	13	31	0	21	31	27	14	109	20	23	143	24	13	11	28	13	24	36	54	687
Brownsville	10	10	15	15	45	15	0	22	26	9	61	15	14	80	12	4	7	15	10	18	21	38	460
Earlington Heights	9	16	20	11	25	25	25	0	26	9	89	19	22	126	34	8	4	19	12	18	23	55	596
Allapattah	12	11	28	19	37	33	23	21	0	12	64	15	13	161	37	7	18	36	13	23	35	56	676
Santa Clara	7	5	14	17	12	16	13	12	12	0	14	4	6	69	19	3	7	17	12	17	18	20	311
Civic Center	58	70	126	118	123	86	77	104	76	12	0	32	46	474	142	30	60	105	130	128	312	379	2,687
Culmer	6	8	9	6	20	19	20	28	25	8	43	0	8	77	31	18	19	34	21	29	42	63	533
Overtown	10	6	13	12	15	20	12	20	18	4	38	4	0	118	26	11	14	33	17	21	54	49	515
Govt. Center	108	132	224	147	154	133	87	158	177	68	408	51	127	0	139	112	226	379	166	313	654	622	4,585
Brickell	30	24	50	51	33	20	15	26	42	21	110	22	24	154	0	32	66	114	63	90	201	152	1,339
Vizcaya	5	4	13	14	6	6	6	7	8	5	26	8	8	104	29	0	18	50	16	39	54	50	473
Coconut Grove	3	10	14	10	10	5	8	8	13	6	54	13	12	183	56	18	0	65	31	64	77	99	758
Douglas Road	14	15	34	23	37	30	15	21	48	26	98	23	30	397	155	61	93	0	45	131	212	204	1,713
University	8	7	10	20	20	15	8	15	24	7	123	20	13	141	66	26	32	52	0	42	91	81	819
South Miami	9	12	21	14	25	22	21	21	32	16	140	18	31	284	88	32	61	95	35	0	133	144	1,253
Dadeland North	15	12	41	30	24	21	15	17	34	16	341	15	43	599	210	67	99	176	87	112	0	120	2,093
Dadeland South	21	21	33	49	73	65	39	48	67	24	339	51	50	641	152	65	113	200	86	163	148	0	2,447
Total	417	443	800	640	800	612	472	658	752	316	2,490	370	527	4,478	1,392	564	888	1,515	815	1,316	2,237	2,343	24,845

Table 9: Scaled PM Peak Period Trip Table (Control Count for Expansion Two)

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	5	19	23	30	14	7	9	10	2	10	2	3	29	9	3	4	7	4	4	11	23	231
Okeechobee	4	0	12	16	25	9	6	11	10	3	10	3	2	26	7	2	3	6	3	6	10	17	190
Hialeah	5	6	0	10	20	14	9	15	15	6	13	4	6	47	16	5	5	8	3	8	13	23	253
Tri-Rail	4	10	18	0	8	7	6	16	18	5	12	5	7	46	15	5	5	5	7	5	18	30	253
Northside	6	11	16	4	0	7	11	15	16	6	8	4	7	33	7	5	2	11	3	10	13	28	222
Martin Luther King Jr	3	7	9	7	9	0	12	13	14	5	6	8	7	37	6	2	4	11	4	17	21	43	246
Brownsville	0	3	6	4	14	6	0	9	7	4	6	7	6	23	4	1	2	6	2	8	8	16	140
Earlington Heights	2	5	17	5	13	11	8	0	9	3	9	7	9	36	8	3	4	8	2	9	13	22	204
Allapattah	4	4	13	9	12	7	7	10	0	3	8	5	7	37	12	4	5	15	4	13	17	24	222
Santa Clara	2	7	6	5	9	5	4	2	4	0	2	3	2	19	8	0	2	5	3	6	12	25	132
Civic Center	128	136	80	173	89	56	39	54	51	21	0	20	33	175	106	35	64	111	153	282	665	603	3,074
Culmer	5	14	5	4	28	6	9	12	6	3	7	0	2	29	15	7	5	21	10	15	98	46	348
Overtown	12	33	12	6	14	12	7	15	6	3	3	1	0	30	9	8	12	22	11	52	111	123	505
Govt. Center	182	206	155	156	147	82	44	101	95	40	71	21	27	0	70	67	129	260	108	535	1,136	883	4,514
Brickell	32	36	43	44	35	20	12	29	31	16	32	13	14	93	0	26	49	84	39	90	337	251	1,327
Vizcaya	6	16	10	12	29	5	1	9	8	1	5	10	6	53	19	0	18	25	12	23	74	57	400
Coconut Grove	5	5	7	4	8	7	3	6	10	3	10	6	6	74	31	12	0	23	8	18	50	71	367
Douglas Road	11	15	21	22	23	24	10	22	34	17	20	18	25	190	105	49	48	0	16	61	174	191	1,097
University	10	13	19	22	22	14	6	20	34	8	30	12	14	85	54	20	30	49	0	33	85	120	702
South Miami	6	8	11	15	24	11	5	13	22	8	15	9	14	102	53	37	41	53	12	0	94	87	639
Dadeland North	6	7	18	11	18	19	9	16	19	9	18	9	14	158	80	32	59	70	29	57	0	74	733
Dadeland South	11	12	23	22	27	25	17	26	33	12	27	19	22	150	72	30	62	93	21	59	77	0	839
Total	445	559	518	577	605	359	233	424	453	180	323	185	233	1,472	708	353	554	895	455	1,311	3,039	2,757	16,637

Expansion Factors

The data collected in the Metrorail survey reflects only a sample of transit riders. Expansion factors were developed to expand the survey results to the entire population of daily Metrorail riders. The expansion process was completed in a number of steps, including review and cleaning of the sample data and a multi-dimensional expansion by disaggregate control counts for quality control purposes. The use of multidimensional expansion factors also serves as a control for non response bias by disaggregating travel market by several travel characteristics thus minimizing the under representation in the sample of any given travel market.

The expansion factors were developed for the two expansion methods and are described below:

1. Expansion by Station Boarding, Direction, Time Period, and Number of Stations Traveled: The first expansion method is by station boardings by direction, time period, and number of stations traveled. Two categories of number of stations traveled were used, less than or equal to four and greater than four.

Table 10 shows the number of surveys in each market segment. The expansion factors, shown in **Table 11**, were developed by dividing the control counts in **Table 6** by survey counts in **Table 10**. The average expansion factors for AM Peak Period, Off Peak Period and PM Peak Period are 3 ($=17,224/5,808$), 13 ($=24,714/1,916$), and 6 ($=16,970/2,920$), respectively. Any expansion factor that was more than double the average for that time period was deemed to be too high. These are shown as shaded red cells in **Table 11**. An effort was made to reduce those expansion factors to an acceptable level by aggregating the markets by direction. If that did not reduce the expansion factor to an acceptable level, adjacent station markets were aggregated. For example, in **Table 11**, the expansion factors for Hialeah in the AM Peak Period, for less than four stations traveled, for both northbound and southbound direction is more than the threshold value of six. Therefore northbound and southbound boardings at the Hialeah and Okeechobee stations were aggregated into one market and a single expansion factor of 4.7 was estimated. **Table 12** shows the revised expansion factors after aggregating markets wherever necessary. The shaded cells (shown in yellow) in **Table 12** are the ones that were aggregated. These expansion factors were applied to the survey data to expand to the entire population of Metrorail riders. For example, each survey with northbound boardings at Hialeah station during the AM Peak period and with less than 4 stations traveled, were counted 4.7 times.

Table 10: Number of Survey by Boarding Station, Time Period, Direction, and Number of Stations Traveled

Station	AM Peak				Off Peak				PM Peak			
	NB		SB		NB		SB		NB		SB	
	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta
Palmetto	-	-	7	331	-	-	6	34	-	-	15	50
Okeechobee	7	-	6	331	-	-	4	34	-	-	3	39
Hialeah	4	-	5	168	1	-	9	71	1	-	5	31
Tri-Rail	17	-	2	249	7	-	2	36	1	-	5	33
Northside	15	-	7	242	5	-	11	54	5	-	4	34
Martin Luther King Jr	6	7	7	126	7	-	4	55	2	1	3	52
Brownsville	11	8	20	41	4	2	10	27	3	6	3	15
Earlington Heights	5	11	23	87	7	2	14	34	7	8	7	32
Allapattah	10	11	16	71	10	6	11	45	1	6	2	33
Santa Clara	4	5	21	21	2	4	14	10	2	3	7	18
Civic Center	5	31	22	41	10	29	28	80	8	111	26	380
Culmer	9	22	16	34	3	1	12	23	6	8	4	17
Overtown	15	14	15	41	5	12	18	19	2	55	10	120
Government Center	27	44	46	74	28	79	33	107	8	201	65	499
Brickell	48	30	34	43	21	8	15	31	9	35	24	129
Vizcaya	9	10	14	11	7	12	9	6	12	15	9	11
Coconut Grove	60	46	25	18	36	12	32	10	13	16	24	23
Douglas Road	128	75	45	-	62	45	48	-	44	42	64	-
University	9	133	4	-	9	42	16	-	7	51	24	-
South Miami	22	357	9	-	9	62	3	-	6	38	4	-
Dadeland North	77	767	3	-	28	135	2	-	21	138	2	-
Dadeland South	160	1,313	-	-	53	174	-	-	42	160	-	-
Total	648	2,884	347	1,929	314	625	301	676	200	894	310	1,516
Total (Period)	5,808				1,916				2,920			

Table 11: Expansion Factors for Method One

Station	AM Peak				Off Peak				PM Peak			
	NB		SB		NB		SB		NB		SB	
	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta
Palmetto	0.0	0.0	3.0	1.8	0.0	0.0	11.7	9.2	0.0	0.0	6.1	3.7
Okeechobee	0.6	0.0	3.4	1.6	999	0.0	20.4	9.0	999	0.0	18.4	2.8
Hialeah	8.5	0.0	8.9	3.4	48.7	0.0	13.4	9.8	13.6	0.0	12.6	7.0
Tri-Rail	4.8	0.0	12.2	2.7	10.6	0.0	27.7	19.9	44.5	0.0	10.2	7.6
Northside	6.7	0.0	7.0	2.6	33.0	0.0	13.6	12.8	10.6	0.0	17.6	5.8
Martin Luther King Jr	7.3	1.5	6.1	2.4	11.8	999	22.4	8.7	15.5	3.4	14.7	3.2
Brownsville	4.6	2.3	3.6	3.4	23.7	10.5	12.3	9.0	10.5	0.6	9.3	5.9
Earlington Heights	12.6	4.6	5.9	3.8	14.8	27.0	12.1	11.3	6.4	3.7	4.9	4.4
Allapattah	5.2	5.8	6.8	6.3	14.8	15.2	12.4	11.1	48.0	6.7	15.1	5.4
Santa Clara	4.5	4.5	4.1	4.1	27.2	13.8	6.8	11.5	7.9	10.2	4.0	3.6
Civic Center	6.7	2.7	5.5	3.5	25.7	19.1	23.7	13.7	20.3	5.8	12.6	4.9
Culmer	5.4	1.5	5.3	3.4	36.7	93.1	11.9	9.6	5.1	9.6	14.3	12.6
Overtown	7.0	3.5	5.0	3.0	16.5	11.3	11.9	11.7	9.3	2.7	7.7	3.5
Government Center	8.6	4.3	6.8	4.8	21.3	15.2	23.7	15.0	18.7	5.4	7.6	5.0
Brickell	4.0	2.5	5.0	3.4	11.2	29.6	13.9	10.9	13.1	6.7	6.4	4.1
Vizcaya	12.2	6.2	10.4	6.4	23.8	9.2	15.2	19.3	8.4	7.9	9.9	13.7
Coconut Grove	3.4	2.2	6.7	3.2	7.3	12.5	7.2	9.6	9.5	4.6	4.1	3.1
Douglas Road	2.9	3.2	4.3	0.0	10.5	8.5	11.4	0.0	8.4	5.9	6.5	0.0
University	6.4	2.5	9.3	0.0	21.3	11.3	14.6	0.0	24.6	6.8	11.2	0.0
South Miami	4.3	3.1	7.4	0.0	26.0	12.8	97.2	0.0	25.7	8.9	48.8	0.0
Dadeland North	4.1	2.9	15.8	0.0	13.8	9.0	48.7	0.0	8.6	2.7	30.7	0.0
Dadeland South	3.3	2.1	0.0	0.0	11.7	11.0	0.0	0.0	6.3	3.9	0.0	0.0
Total	4.3	2.7	5.8	2.5	14.7	12.4	15.4	11.4	10.8	5.1	8.9	4.9
Total (Period)	3.0				12.9				5.8			

Note: 999 in the table means that there were no records in the survey corresponding to that particular market

Table 12: Revised Expansion Factors for Method One

Station	AM Peak				Off Peak				PM Peak			
	NB		SB		NB		SB		NB		SB	
	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta	<=4 sta	>4 sta
Palmetto	0.0	0.0	3.0	1.8	0.0	0.0	11.7	9.2	0.0	0.0	9.5	3.7
Okeechobee	4.7	0.0	4.7	1.6	21.5	0.0	21.5	9.0	9.5	0.0	9.5	2.8
Hialeah	4.7	0.0	4.7	3.4	16.9	0.0	16.9	9.8	9.5	0.0	9.5	7.0
Tri-Rail	6.3	0.0	6.3	2.7	10.6	0.0	27.7	19.9	14.7	0.0	14.7	7.6
Northside	6.3	0.0	6.3	2.6	19.7	0.0	19.7	12.8	14.7	0.0	14.7	5.8
Martin Luther King Jr	6.3	1.5	6.3	2.4	11.8	8.9	22.4	8.9	14.7	3.4	14.7	3.2
Brownsville	5.4	2.3	5.4	3.4	23.7	10.5	12.3	9.0	10.5	0.6	9.3	5.9
Earlington Heights	5.4	4.6	5.4	3.8	14.8	12.1	12.1	12.1	6.4	3.7	4.9	4.4
Allapattah	6.2	6.2	6.2	6.2	14.8	15.2	12.4	11.1	10.1	6.7	10.1	5.4
Santa Clara	4.5	4.5	4.1	4.1	9.3	13.8	9.3	11.5	10.1	10.2	10.1	3.6
Civic Center	5.8	2.7	5.8	3.5	25.7	19.1	23.7	13.7	13.1	5.8	13.1	4.9
Culmer	5.4	1.5	5.3	3.4	16.9	13.1	16.9	13.1	13.1	11.7	13.1	11.7
Overtown	5.8	3.5	5.8	3.0	16.5	11.3	11.9	11.7	9.3	2.7	7.7	3.5
Government Center	5.8	4.3	5.8	4.8	21.3	15.2	23.7	15.0	8.6	5.4	8.6	5.0
Brickell	5.8	2.5	5.8	3.4	11.2	14.7	13.9	14.7	8.6	6.7	8.6	4.1
Vizcaya	5.8	6.2	5.8	6.4	23.8	9.2	15.2	19.3	8.4	10.4	9.9	10.4
Coconut Grove	5.8	2.2	5.8	3.2	7.3	12.5	7.2	9.6	9.5	4.6	4.1	3.1
Douglas Road	3.5	3.2	3.5	0.0	10.5	8.5	11.4	0.0	8.9	5.9	8.9	0.0
University	3.5	2.5	3.5	0.0	21.3	11.3	14.6	0.0	8.9	6.8	8.9	0.0
South Miami	5.2	3.1	5.2	0.0	17.1	12.8	17.1	0.0	11.4	8.9	11.4	0.0
Dadeland North	4.5	2.9	4.5	0.0	17.1	9.0	17.1	0.0	11.4	2.7	11.4	0.0
Dadeland South	3.3	2.1	0.0	0.0	17.1	11.0	0.0	0.0	11.4	3.9	0.0	0.0
Total	4.3	2.7	5.8	2.5	14.7	12.4	15.4	11.4	10.8	5.1	8.9	4.9
Total (Period)	3.0				12.9				5.8			

2. Expansion by Station, By Boarding and Alightings: The second expansion method is by boardings and alightings, effectively expanding by travel patterns by time period. The market segments in this expansion are the s13 through 15 show the number of surveys in each market by time period. The expansion factors were developed by dividing the control counts in **Tables 7** through **9** by survey counts in **Tables 13** through **15**. Criteria similar to the one used in expansion one was used to identify the markets for which the expansion factor was too high. Adjacent trip interchanges were aggregated to produce one market in order to reduce the expansion factors. The expansion factors and the revised expansion factors are shown in **Tables 16** through **21**. Any expansion factor that was more than double the average for that time period was deemed to be too high. These are shown as shaded red cells; the expansion factors depicted as shaded yellow cells represent aggregated expansion factors.

Table 13: AM Peak Period Number of Survey by Boarding Station and Alighting Station

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	1	1	4	1	1	0	0	2	0	111	1	11	144	25	6	6	11	8	1	1	3	338
Okeechobee	7	0	0	1	4	1	1	2	2	6	96	4	20	141	20	8	2	11	8	1	3	6	344
Hialeah	4	0	0	1	0	3	1	1	0	1	43	1	4	69	15	3	0	10	12	4	3	2	177
Tri-Rail	9	4	4	0	1	0	0	1	2	1	91	0	3	76	26	3	3	3	19	6	1	15	268
Northside	5	5	4	1	0	2	2	0	3	2	53	5	11	76	6	22	2	28	15	6	3	13	264
Martin Luther King Jr	7	2	2	1	1	0	2	3	2	0	27	4	2	43	3	7	0	13	11	5	2	9	146
Brownsville	5	3	2	5	4	0	0	5	1	0	14	2	3	15	2	0	1	1	4	5	2	6	80
Earlington Heights	5	3	3	0	0	2	3	0	0	0	21	2	4	33	4	2	2	14	6	8	2	12	126
Allapattah	3	2	2	4	2	1	2	5	0	0	12	4	0	17	5	1	1	14	19	4	3	7	108
Santa Clara	2	1	1	0	1	0	1	1	2	0	5	1	1	14	4	0	0	3	6	2	3	3	51
Civic Center	6	2	4	13	3	3	1	2	2	0	0	1	0	13	8	1	0	5	4	7	16	8	99
Culmer	2	4	3	2	3	2	6	1	3	0	5	0	2	10	2	2	0	11	10	9	1	3	81
Overtown	1	0	3	1	2	3	0	4	0	0	15	0	0	5	5	3	2	16	10	6	4	5	85
Government Center	16	6	7	7	3	1	1	1	2	4	21	0	2	0	6	4	6	30	21	14	19	20	191
Brickell	5	5	7	7	0	0	1	2	1	2	36	3	1	8	0	3	4	13	14	9	11	23	155
Vizcaya	0	3	0	0	0	0	0	0	0	0	7	2	1	5	1	0	1	6	4	3	4	7	44
Coconut Grove	4	1	3	2	1	2	1	2	1	1	27	1	1	46	12	1	0	10	7	5	3	18	149
Douglas Road	2	3	0	1	1	6	0	2	2	2	45	5	6	98	24	3	3	0	11	9	10	15	248
University	1	0	0	1	0	1	0	0	1	1	65	3	4	56	2	3	0	4	0	0	1	3	146
South Miami	2	0	0	3	2	2	0	4	1	0	113	2	20	188	20	3	1	10	8	0	5	4	388
Dadeland North	4	0	3	1	2	7	2	1	4	2	211	14	29	388	82	17	13	29	28	7	0	3	847
Dadeland South	10	5	4	7	4	22	5	6	11	7	405	19	62	559	152	15	20	82	52	22	4	0	1,473
Total	100	50	53	62	35	59	29	43	42	29	1,423	74	187	2,004	424	107	67	324	277	133	101	185	5,808

Table 14: Off Peak Period Number of Survey by Boarding Station and Alighting Station

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	1	2	2	1	0	2	2	0	1	7	0	1	11	2	0	0	0	3	2	1	2	40
Okeechobee	0	0	0	2	1	1	1	0	0	0	11	0	1	12	3	0	0	0	1	1	0	4	38
Hialeah	1	0	0	2	4	3	0	1	3	2	13	1	2	25	4	3	2	1	7	0	3	4	81
Tri-Rail	2	5	0	0	1	1	0	0	0	0	2	0	0	17	5	0	0	0	4	1	2	5	45
Northside	2	2	1	0	0	0	2	7	2	0	12	1	1	16	2	1	0	7	2	2	5	5	70
Martin Luther King Jr	0	2	2	1	2	0	3	0	0	1	11	3	1	15	5	1	2	2	3	3	2	7	66
Brownsville	1	1	1	0	2	1	0	3	0	0	7	1	1	15	0	2	0	1	1	2	1	3	43
Earlington Heights	1	0	1	0	4	2	1	0	1	0	12	1	0	22	0	0	1	1	1	1	3	5	57
Allapattah	3	0	2	1	2	1	3	4	0	1	9	0	1	17	1	2	1	8	4	3	5	4	72
Santa Clara	0	0	0	2	2	1	1	0	0	0	2	0	1	11	2	0	1	0	1	1	2	3	30
Civic Center	3	2	2	9	7	6	5	4	1	0	0	0	1	16	11	2	4	6	16	4	22	26	147
Culmer	0	0	0	0	0	0	1	0	0	0	3	0	0	5	6	1	2	1	2	3	8	7	39
Overtown	0	0	2	1	2	2	1	4	0	0	4	1	0	14	1	1	2	4	3	5	2	5	54
Govt. Center	9	11	19	14	3	7	3	9	4	1	19	1	7	0	4	2	10	17	10	20	40	37	247
Brickell	3	0	1	0	2	0	1	0	1	0	13	2	1	5	0	1	2	4	8	7	12	12	75
Vizcaya	0	1	2	1	0	1	0	0	2	0	5	0	0	7	0	0	1	1	4	3	5	1	34
Coconut Grove	0	0	1	0	2	0	1	1	2	0	5	0	2	23	9	2	0	5	3	11	13	10	90
Douglas Road	0	3	2	3	4	1	1	2	6	4	10	4	5	40	16	3	3	0	6	8	16	18	155
University	3	0	2	5	0	2	0	0	1	1	17	0	0	11	5	2	0	2	0	2	8	6	67
South Miami	0	1	0	4	2	2	1	0	1	0	16	1	1	27	6	0	3	2	4	0	1	2	74
Dadeland North	1	0	0	1	4	2	0	1	3	2	44	2	4	59	10	2	7	8	7	6	0	2	165
Dadeland South	3	2	4	2	7	5	1	0	3	0	44	3	9	74	9	1	7	16	20	9	8	0	227
Total	32	31	44	50	52	38	28	38	30	13	266	21	39	442	101	26	48	86	110	94	159	168	1,916

Table 15: PM Peak Period Number of Survey by Boarding Station and Alighting Station

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	3	2	7	3	5	3	0	0	1	10	0	2	16	2	0	1	4	1	1	3	1	65
Okeechobee	0	0	0	1	1	1	2	0	1	2	5	1	2	13	3	1	0	5	1	0	0	3	42
Hialeah	1	0	0	1	4	0	0	2	0	0	2	2	2	11	3	0	2	2	1	1	1	2	37
Tri-Rail	1	0	0	0	1	1	3	0	1	0	6	0	1	9	4	0	1	1	1	0	3	6	39
Northside	2	1	1	1	0	2	2	0	0	0	3	0	1	11	2	1	1	4	1	3	1	6	43
Martin Luther King Jr	1	0	1	0	1	0	0	2	1	0	2	2	2	7	1	0	2	5	4	2	9	16	58
Brownsville	2	4	0	0	3	0	0	1	0	0	2	1	1	4	0	0	0	0	2	1	2	4	27
Earlington Heights	0	2	6	1	3	3	0	0	1	1	2	3	2	12	0	1	0	5	2	1	3	6	54
Allapattah	2	2	2	0	1	0	0	0	0	0	2	0	0	7	4	0	2	3	3	2	6	6	42
Santa Clara	0	0	0	1	2	0	1	1	0	0	0	1	0	6	3	0	0	1	1	0	6	7	30
Civic Center	20	19	9	37	16	10	3	3	1	1	0	2	1	14	9	5	12	15	28	59	134	127	525
Culmer	0	1	0	1	2	1	3	0	2	2	2	0	0	1	1	2	0	3	0	1	6	7	35
Overtown	15	12	3	4	10	2	1	8	0	0	1	1	0	3	1	3	3	6	5	15	39	55	187
Govt. Center	46	42	19	40	24	9	7	10	4	1	4	1	2	0	4	8	21	32	21	84	202	192	773
Brickell	6	4	3	12	4	1	0	1	2	2	0	2	1	6	0	2	5	15	2	14	69	46	197
Vizcaya	4	0	1	2	2	1	0	0	0	0	5	1	1	7	3	0	0	3	3	3	7	4	47
Coconut Grove	3	2	0	3	0	1	0	1	2	0	3	1	1	10	1	1	0	5	3	4	12	23	76
Douglas Road	1	3	2	5	0	4	3	4	2	4	7	4	3	23	12	3	6	0	3	11	25	25	150
University	2	5	2	9	0	2	0	3	3	0	6	2	4	13	1	2	2	2	0	1	9	14	82
South Miami	0	1	0	3	1	0	0	2	2	0	4	2	1	21	1	1	2	0	3	0	2	2	48
Dadeland North	1	5	0	1	4	1	0	3	3	1	31	4	4	64	15	1	5	8	2	6	0	2	161
Dadeland South	6	1	2	9	7	4	5	5	10	7	11	6	1	52	21	5	8	13	6	11	12	0	202
Total	113	107	53	138	89	48	33	46	35	22	108	36	32	310	91	36	73	132	93	220	551	554	2,920

Table 16: AM Peak Period Expansion Factors for Method Two

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	-	2.0	7.1	1.8	1.7	5.2	999	999	0.7	999	1.4	2.7	1.4	1.5	1.6	1.5	1.2	1.1	1.5	6.1	8.1	2.0	1.5
Okeechobee	0.7	-	999	5.4	1.7	3.5	3.5	1.9	3.0	1.6	1.8	2.2	1.5	1.7	2.3	1.4	3.1	2.0	2.1	8.6	2.1	1.7	1.8
Hialeah	3.9	999	-	13.0	999	2.9	2.1	11.8	999	7.9	2.7	8.4	2.9	2.4	3.0	2.6	999	2.5	1.4	3.6	7.0	11.3	3.2
Tri-Rail	2.6	4.8	4.7	-	4.6	999	999	3.1	2.9	5.2	1.9	999	3.4	1.8	1.7	2.8	1.9	8.3	1.4	2.9	11.6	1.3	2.1
Northside	3.8	6.2	4.1	4.8	-	3.2	4.6	999	3.5	2.2	2.2	2.3	1.3	1.7	5.2	0.6	4.5	1.0	1.5	3.6	4.2	2.3	2.1
Martin Luther King Jr	1.5	7.5	7.2	8.3	7.2	-	4.1	2.8	7.6	999	2.8	4.9	5.7	2.1	5.9	0.9	999	2.1	2.0	1.9	5.8	2.5	2.8
Brownsville	1.6	3.2	6.3	2.3	3.1	999	-	2.0	6.5	999	3.5	6.9	2.7	3.2	5.9	999	1.8	12.2	1.4	1.9	2.2	2.4	3.3
Earlington Heights	2.1	4.2	6.4	999	999	7.2	3.2	-	999	999	3.7	10.2	3.7	3.6	8.1	4.5	1.7	1.5	3.2	2.2	6.2	2.1	3.8
Allapattah	2.4	4.4	8.2	4.0	4.0	12.4	5.8	1.6	-	999	4.8	4.4	999	7.1	7.8	12.5	8.3	3.4	2.3	4.7	6.9	4.5	4.8
Santa Clara	2.3	3.5	4.7	999	2.6	999	4.4	3.3	2.8	-	5.4	6.4	4.9	3.2	4.1	999	999	5.8	2.4	5.5	2.7	3.1	4.0
Civic Center	2.1	6.3	4.8	1.5	3.7	4.4	7.2	7.3	5.7	999	-	9.6	999	6.4	3.5	7.8	999	5.5	6.6	2.5	1.8	4.5	4.0
Culmer	1.3	0.4	2.7	2.6	1.5	2.5	0.7	7.5	3.0	999	5.6	-	1.4	4.8	8.3	6.3	999	3.1	1.6	2.1	9.8	6.8	3.2
Overtown	3.4	##	1.3	4.6	2.4	1.8	999	2.4	999	999	4.8	999	-	4.6	3.6	4.8	2.0	1.9	2.1	2.4	2.4	4.2	3.2
Government Center	1.5	2.9	6.9	4.0	6.2	15.6	12.4	16.7	12.5	3.2	9.1	999	12.2	-	13.8	9.4	8.3	5.7	4.4	6.6	4.5	6.0	6.2
Brickell	3.0	2.7	2.1	2.5	999	999	0.7	4.1	11.6	1.6	4.3	7.5	7.9	7.7	-	4.2	3.1	10.0	4.8	7.1	5.2	2.9	4.9
Vizcaya	999	1.0	999	999	999	999	999	999	999	999	5.2	3.1	7.1	14.0	14.0	-	7.3	9.7	6.3	12.9	7.5	4.7	7.8
Coconut Grove	0.8	3.6	0.6	1.3	2.2	1.0	0.7	1.2	6.6	3.2	2.6	6.3	9.5	3.2	3.7	5.3	-	6.0	4.3	8.8	12.4	3.3	3.6
Douglas Road	2.2	2.5	999	7.4	9.4	1.4	999	1.9	3.8	1.9	3.3	4.0	4.4	2.8	3.2	6.1	7.6	-	4.7	5.8	4.7	3.8	3.5
University	4.0	999	999	5.1	999	2.0	999	999	1.5	1.9	2.2	3.0	1.9	2.1	14.7	2.5	999	2.8	-	999	5.6	5.1	2.6
South Miami	2.2	999	999	1.5	1.8	3.5	999	1.3	7.1	999	2.6	7.4	2.3	3.0	4.5	4.7	9.5	3.8	3.5	-	5.3	9.2	3.1
Dadeland North	3.3	999	4.6	19.2	6.8	3.0	2.3	4.9	4.1	6.1	3.6	0.3	4.1	3.3	4.2	4.3	3.6	5.9	3.2	11.2	-	19.4	3.7
Dadeland South	2.4	2.5	7.0	3.4	4.9	1.5	1.7	3.5	2.6	2.4	1.9	2.6	1.8	1.9	1.9	3.7	3.2	2.4	2.4	5.3	14.5	-	2.1
Total	2.2	4.2	5.2	3.7	4.8	3.3	3.6	3.6	4.9	3.9	2.6	3.8	2.7	2.5	3.2	3.2	4.3	3.6	2.8	5.1	5.1	3.9	3.0

Table 17: Revised AM Peak Period Expansion Factors for Method Two

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	-	4.6	4.6	1.8	1.7	4.2	4.2	4.2	4.2	1.4	1.4	2.7	1.4	1.5	1.6	1.5	1.2	1.1	1.5	4.1	4.1	4.1	1.5
Okeechobee	2.3	-	2.3	2.3	1.7	3.5	3.5	1.9	3.0	1.6	1.8	2.2	1.5	1.7	2.3	1.4	3.1	2.0	2.1	2.5	2.5	2.5	1.8
Hialeah	7.4	7.4	-	9.2	9.2	9.2	3.4	3.4	3.4	3.4	3.4	3.4	2.9	2.4	3.0	4.8	4.8	2.5	3.6	3.6	3.6	3.6	3.2
Tri-Rail	2.6	4.8	4.7	-	6.0	6.0	6.0	6.0	6.0	5.2	1.9	5.5	5.5	1.8	1.7	2.8	5.1	5.1	1.4	2.2	2.2	2.2	2.1
Northside	3.8	5.3	5.3	4.8	-	6.0	6.0	6.0	3.5	2.2	2.2	2.3	1.3	1.7	5.2	0.6	4.5	1.0	1.5	3.6	4.2	2.3	2.1
Martin Luther King Jr	4.3	4.3	4.3	4.3	4.3	-	4.1	2.8	3.5	3.5	3.5	4.9	5.7	2.1	5.9	1.6	1.6	2.1	2.0	1.9	5.8	2.5	2.8
Brownsville	1.6	4.4	4.4	2.3	5.9	5.9	-	2.0	4.3	4.3	4.3	4.3	2.7	3.7	3.7	3.7	3.3	3.3	3.3	1.9	2.2	2.4	3.3
Earlington Heights	5.9	5.9	5.9	5.9	5.9	5.9	5.9	-	4.9	4.9	4.9	4.9	3.7	4.1	4.1	4.5	1.7	1.5	3.2	2.5	2.5	2.5	3.8
Allapattah	4.7	4.7	4.7	4.0	4.0	4.0	4.0	4.0	-	5.0	5.0	5.9	5.9	6.0	6.0	6.0	6.0	6.0	2.3	5.1	5.1	5.1	4.8
Santa Clara	4.8	4.8	4.8	4.8	5.6	5.6	5.6	3.3	2.8	-	5.6	5.6	4.9	3.2	5.7	5.7	5.7	5.7	2.4	5.5	2.7	3.1	4.0
Civic Center	2.1	5.3	5.3	1.5	3.7	5.8	5.8	5.8	6.6	6.6	-	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	2.5	1.8	4.5	4.0
Culmer	1.3	0.4	2.7	2.6	1.5	2.5	1.6	1.6	4.7	4.7	4.7	-	5.5	5.5	5.5	5.5	5.5	3.1	1.6	3.8	3.8	3.8	3.2
Overtown	3.4	2.4	2.4	4.6	2.4	1.8	3.2	3.2	5.4	5.4	5.4	5.4	-	4.6	3.6	4.8	2.0	1.9	2.1	2.4	2.4	4.2	3.2
Government Center	1.5	5.0	5.0	7.0	7.0	7.0	7.0	7.0	9.6	9.6	9.6	9.6	9.6	-	7.4	7.4	7.4	7.4	4.4	5.6	5.6	5.6	6.2
Brickell	3.0	2.7	2.1	3.8	3.8	3.8	3.8	4.1	4.9	4.9	5.2	5.2	5.2	5.2	-	7.7	7.7	7.7	4.8	4.4	4.4	4.4	4.9
Vizcaya	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	-	7.7	7.7	7.7	7.7	7.7	7.7	7.8
Coconut Grove	0.8	3.6	0.6	1.3	2.2	1.0	0.7	3.0	3.0	3.2	2.6	3.4	3.4	3.4	3.7	5.3	-	5.3	5.3	5.4	5.4	5.4	3.6
Douglas Road	2.2	5.8	5.8	3.9	3.9	3.9	3.9	1.9	3.8	1.9	3.3	4.0	4.4	2.8	4.0	4.0	4.0	-	4.7	5.8	4.7	3.8	3.5
University	6.7	6.7	6.7	6.7	6.7	6.7	3.2	3.2	3.2	1.9	2.2	3.0	1.9	2.5	2.5	4.1	4.1	5.6	-	5.6	5.6	5.6	2.6
South Miami	5.2	5.2	5.2	1.5	1.8	3.5	2.7	2.7	2.7	2.6	2.6	2.7	2.7	3.0	4.5	4.7	4.4	4.4	5.4	-	5.4	5.4	3.1
Dadeland North	5.9	5.9	5.9	5.4	5.4	5.4	2.3	4.9	4.7	4.7	3.6	0.3	4.1	3.3	4.2	4.3	3.6	5.9	5.9	-	5.9	-	3.7
Dadeland South	2.4	4.5	4.5	3.4	4.9	1.5	1.7	3.5	2.6	2.4	1.9	2.6	1.8	1.9	1.9	3.7	3.2	2.4	3.9	3.9	3.9	-	2.1
Total	2.2	4.2	5.2	3.7	4.8	3.3	3.6	3.6	4.9	3.9	2.6	3.8	2.7	2.5	3.2	3.2	4.3	3.6	2.8	5.1	5.1	3.9	3.0

Table 18: Off Peak Period Expansion Factors for Method Two

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	-	8.3	9.0	6.1	21.6	999	2.8	3.4	999	5.3	8.5	999	4.2	6.8	10.7	999	999	999	1.0	3.7	10.9	11.1	8.2
Okeechobee	999	-	999	11.3	31.1	16.8	8.0	999	999	999	6.4	999	9.4	10.1	8.2	999	999	999	8.5	11.5	999	3.8	11.9
Hialeah	23.2	999	-	12.3	10.9	7.3	999	33.7	10.4	9.6	8.7	8.9	5.4	8.1	10.3	4.8	6.4	26.2	1.9	999	11.0	8.0	9.3
Tri-Rail	10.2	1.9	999	-	11.4	11.3	999	999	999	999	51.7	999	999	10.7	9.2	999	999	999	4.7	24.9	13.5	7.2	14.0
Northside	16.9	15.3	40.7	999	-	999	15.7	4.2	12.6	999	7.3	12.2	23.7	8.8	19.9	13.0	999	3.8	7.9	12.2	6.8	10.4	10.2
Martin Luther King Jr	999	6.6	14.1	12.8	15.4	-	6.8	999	999	13.9	9.8	6.7	22.8	9.5	4.8	13.3	5.3	13.7	4.3	7.9	17.8	7.7	10.3
Brownsville	9.5	10.3	15.1	999	22.2	15.2	-	7.3	999	999	8.6	14.7	13.9	5.3	999	1.8	999	14.5	9.9	9.1	21.2	12.5	10.6
Earlington Heights	9.0	999	19.7	999	6.3	12.6	24.5	-	25.6	999	7.4	18.7	999	5.7	999	999	4.1	18.8	11.8	17.8	7.7	11.0	10.4
Allapattah	4.0	999	13.8	19.3	18.2	33.2	7.7	5.2	-	12.2	7.1	999	13.2	9.4	36.5	3.6	18.1	4.4	3.3	7.6	7.0	13.9	9.3
Santa Clara	999	999	999	8.2	6.1	15.5	12.9	999	999	-	7.0	999	5.6	6.3	9.6	999	6.8	999	11.7	16.4	8.8	6.7	10.3
Civic Center	19.2	34.6	62.6	13.0	17.5	14.2	15.3	25.8	75.3	999	-	999	45.4	29.5	12.8	14.9	15.0	17.4	8.1	31.8	14.1	14.5	18.2
Culmer	999	999	999	999	999	999	20	999	999	999	14.2	-	999	15.4	5.2	18.2	9.4	33.8	10.3	9.7	5.2	8.9	13.6
Overtown	999	999	6.4	11.5	7.3	9.9	12.1	5.1	999	999	9.5	4.1	-	8.4	25.4	10.6	7.2	8.3	5.8	4.2	26.9	9.7	9.5
Government Center	11.9	11.9	11.7	10.4	51.1	18.9	28.9	17.5	43.9	67.4	21.3	50.4	18.1	-	34.6	55.7	22.5	22.2	16.5	15.6	16.3	16.7	18.5
Brickell	9.9	999	49.4	999	16.5	999	15.3	999	41.9	999	8.4	10.9	23.4	30.6	-	31.8	32.7	28.3	7.9	12.9	16.7	12.6	17.8
Vizcaya	999	3.5	6.2	14.4	999	5.7	999	999	3.9	999	5.1	999	999	14.8	999	-	18.3	49.5	3.9	12.8	10.7	49.3	13.8
Coconut Grove	999	999	14.3	999	5.2	999	7.6	8.1	6.6	999	10.8	999	5.8	7.9	6.2	9.0	-	13.0	10.2	5.8	5.9	9.8	8.4
Douglas Road	999	4.9	16.8	7.6	9.3	30.1	14.9	10.6	7.9	6.5	9.7	5.8	5.9	9.9	9.6	20.3	30.9	-	7.4	16.3	13.2	11.3	11.0
University	2.6	999	4.9	4.0	999	7.4	999	999	23.4	7.3	7.2	999	999	12.8	13.1	12.8	999	25.7	-	20.8	11.3	13.4	12.2
South Miami	999	11.7	999	3.6	12.4	11.1	20.8	999	32.1	999	8.7	18.3	30.4	10.4	14.6	999	20.1	47.0	8.7	-	132	71.8	16.8
Dadeland North	15.0	999	999	29.8	6.1	10.6	999	16.5	11.1	7.9	7.7	7.4	10.6	10.1	20.8	33.6	14.1	21.9	12.4	18.6	-	59.6	12.6
Dadeland South	6.9	10.2	8.3	24.4	10.4	12.9	38.4	999	22.1	999	7.7	17.1	5.5	8.6	16.8	64.9	16.1	12.5	4.3	18.0	18.4	-	10.7
Total	13.0	14.2	18.1	12.7	15.3	16.0	16.8	17.2	24.9	24.2	9.3	17.5	13.4	10.1	13.7	21.6	18.4	17.5	7.4	13.9	14.0	13.9	12.9

Table 19: Revised Off Peak Period Expansion Factors for Method Two

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	-	8.3	9.0	14.7	14.7	14.7	2.8	9.5	9.5	5.3	8.5	11.4	11.4	6.8	8.3	8.3	8.3	8.3	8.3	3.7	10.9	11.1	8.2
Okeechobee	13.6	-	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	15.8	15.8	10.1	13.9	13.9	13.9	13.9	13.9	11.5	8.1	8.1	11.9
Hialeah	15.8	15.8	-	15.8	15.8	12.5	12.5	16.2	16.2	9.6	8.7	8.9	5.4	8.1	10.3	4.8	13.0	13.0	1.9	16.0	16.0	8.0	9.3
Tri-Rail	10.2	6.9	6.9	-	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	18.2	18.2	18.2	18.2	17.3	17.3	7.2	14.0
Northside	14.1	14.1	14.1	14.1	-	14.1	14.1	14.1	12.6	8.5	8.5	18.0	18.0	8.8	19.9	13.0	4.9	4.9	7.9	12.2	6.8	10.4	10.2
Martin Luther King Jr	12.1	12.1	14.1	12.8	15.4	-	13.4	13.4	13.4	13.4	13.4	10.7	10.7	9.5	4.8	13.3	5.3	13.7	4.3	7.9	17.8	7.7	10.3
Brownsville	16.7	16.7	16.7	16.7	19.8	19.8	-	11.6	11.6	11.6	11.6	14.7	13.9	6.0	6.0	6.0	6.0	14.5	9.9	13.1	13.1	12.5	10.6
Earlington Heights	13.6	13.6	13.6	13.6	13.6	18.8	18.8	-	18.8	7.5	7.5	7.5	7.5	7.5	16.8	16.8	16.8	16.8	16.8	16.8	16.8	11.0	10.4
Allapattah	7.7	7.7	13.8	19.3	18.2	14.1	14.1	5.2	-	12.2	8.8	8.8	13.2	11.0	11.0	3.6	18.1	4.4	3.3	7.6	7.0	13.9	9.3
Santa Clara	13.4	13.4	13.4	13.4	13.4	15.2	15.2	15.2	15.2	-	15.2	15.2	15.2	6.3	14.3	14.3	14.3	14.3	14.3	16.4	8.8	6.7	10.3
Civic Center	21.4	21.4	21.4	21.4	21.4	22.0	22.0	22.0	22.0	22.0	-	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	16.8	16.8	14.5	18.2
Culmer	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	-	20.3	20.3	20.3	20.3	17.5	17.5	10.3	9.7	5.2	8.9	13.6
Overtown	13.2	13.2	13.2	13.2	7.3	9.9	12.1	5.1	12.9	12.9	12.9	12.9	-	9.5	9.5	10.6	7.2	8.3	5.8	10.7	10.7	9.7	9.5
Government Center	11.9	11.9	11.7	17.6	17.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	-	19.2	19.2	19.2	19.2	19.2	19.2	19.2	16.7	18.5
Brickell	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	24.8	24.8	24.8	-	18.2	18.2	18.2	18.2	12.9	16.7	12.6	17.8
Vizcaya	8.5	8.5	11.1	11.1	11.1	18.0	18.0	18.0	6.4	6.4	8.2	8.2	8.2	18.9	18.9	-	13.9	13.9	13.9	12.8	17.2	17.2	13.8
Coconut Grove	15.8	15.8	15.8	15.8	15.8	12.6	12.6	8.1	9.4	9.4	10.8	12.1	12.1	7.9	6.2	9.0	-	13.0	10.2	5.8	5.9	9.8	8.4
Douglas Road	9.6	9.6	16.8	7.6	13.5	13.5	14.9	10.6	7.9	6.5	9.7	5.8	5.9	9.9	14.0	14.0	14.0	-	7.4	16.3	13.2	11.3	11.0
University	4.9	4.9	4.9	11.1	11.1	11.1	11.1	11.1	15.4	15.4	9.1	9.1	9.1	15.7	15.7	15.7	15.7	15.7	-	13.2	13.2	13.4	12.2
South Miami	11.1	11.1	11.1	11.1	17.8	17.8	17.8	17.8	11.0	11.0	11.0	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	-	19.5	19.5	16.8
Dadeland North	17.8	17.8	17.8	17.8	17.8	17.8	16.2	16.2	16.2	7.9	7.7	7.4	10.6	10.1	20.6	20.6	20.6	20.6	20.6	20.6	-	20.6	12.6
Dadeland South	6.9	10.2	13.6	13.6	10.4	10.9	10.9	10.9	10.9	10.9	10.9	17.1	5.5	8.6	16.8	15.7	15.7	15.7	4.3	18.0	18.4	-	10.7
Total	13.0	14.2	18.1	12.7	15.3	16.0	16.8	17.2	24.9	24.2	9.3	17.5	13.4	10.1	13.7	21.6	18.4	17.5	7.4	13.9	14.0	13.9	12.9

Table 20: PM Peak Period Expansion Factors for Method Two

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	-	1.7	9.6	3.4	10.2	2.8	2.4	999	999	2.3	1.1	999	1.7	1.9	4.7	999	4.6	1.8	4.0	4.3	3.8	23.4	3.6
Okeechobee	999	-	999	16.5	25.9	9.6	3.3	999	10.2	1.3	1.9	2.6	0.8	2.0	2.5	1.8	999	1.3	2.9	999	999	5.8	4.6
Hialeah	5.5	999	-	10.3	5.2	999	999	7.7	999	999	6.6	2.1	3.0	4.3	5.5	999	2.6	4.1	3.0	8.1	13.1	11.9	7.0
Tri-Rail	4.3	999	999	-	8.0	7.2	2.1	999	18.2	999	2.0	999	7.5	5.2	3.9	999	5.4	5.2	6.8	999	6.1	5.2	6.6
Northside	2.8	11.3	16.0	4.5	-	3.5	5.6	999	999	999	2.7	999	6.8	3.1	3.6	4.7	2.3	2.8	3.0	3.2	12.9	4.7	5.3
Martin Luther King Jr	3.5	999	8.7	999	9.3	-	999	6.9	14.0	999	2.8	4.0	3.5	5.4	6.6	999	2.0	2.3	1.1	8.7	2.4	2.8	4.3
Brownsville	0.1	0.7	999	999	4.7	999	-	9.0	999	999	3.3	6.7	5.9	6.0	999	999	999	999	0.8	8.6	4.2	4.0	5.3
Earlington Heights	999	2.7	2.9	5.4	4.3	3.6	999	-	9.1	3.3	4.7	2.4	4.8	3.1	999	3.1	999	1.7	1.0	9.5	4.5	3.7	3.9
Allapattah	2.2	2.1	6.8	999	12.5	999	999	999	-	999	4.1	999	999	5.4	3.2	999	2.5	5.3	1.5	6.6	2.9	4.1	5.4
Santa Clara	999	999	999	5.4	4.7	999	4.4	2.1	999	-	999	2.9	999	3.3	2.8	999	999	5.4	2.9	999	2.0	3.6	4.5
Civic Center	6.5	7.3	9.1	4.8	5.7	5.7	13.2	18.5	52.2	21.4	-	10.3	33.4	12.8	12.0	7.2	5.5	7.5	5.6	4.9	5.1	4.8	6.0
Culmer	999	14.5	999	4.2	14.1	6.2	2.9	999	3.0	1.6	3.5	-	999	29.4	15.7	3.3	999	7.3	999	15.2	16.7	6.8	10.1
Overtown	0.8	2.8	4.2	1.6	1.4	6.3	7.5	2.0	999	999	3.3	1.2	-	10.1	9.6	2.9	4.0	3.7	2.2	3.5	2.9	2.3	2.8
Government Center	4.0	5.0	8.3	4.0	6.2	9.2	6.3	10.3	24.1	40.8	18.2	21.5	13.9	-	17.8	8.6	6.3	8.3	5.3	6.5	5.7	4.7	6.0
Brickell	5.5	9.3	14.5	3.7	8.9	20.2	999	29.8	16.0	8.3	999	6.4	14.5	15.7	-	13.1	10.0	5.7	20.1	6.6	5.0	5.6	6.9
Vizcaya	1.6	999	10.3	6.1	14.9	5.5	999	999	999	999	1.0	10.5	5.7	7.7	6.4	-	999	8.3	4.2	7.7	10.8	14.4	8.7
Coconut Grove	1.6	2.8	999	1.5	999	7.1	999	5.8	5.2	999	3.3	5.8	6.1	7.5	31.6	12.5	-	4.7	2.7	4.5	4.3	3.1	4.9
Douglas Road	11.2	5.3	10.9	4.5	999	6.1	3.5	5.5	17.4	4.4	3.0	4.6	8.4	8.4	8.9	16.7	8.1	-	5.5	5.6	7.1	7.8	7.5
University	5.3	2.6	9.5	2.5	999	7.1	999	6.9	11.5	999	5.1	6.1	3.7	6.7	55.2	10.2	15.2	25.2	-	33.8	9.7	8.8	8.7
South Miami	999	8.0	999	5.0	24.7	999	999	6.6	11.3	999	3.9	4.5	14.1	5.0	54.2	37.8	20.9	999	4.0	-	48.1	44.3	13.6
Dadeland North	5.6	1.4	999	11.3	4.5	19.1	999	5.4	6.6	9.6	0.6	2.3	3.7	2.5	5.4	32.6	12.1	8.9	15.0	9.7	-	37.6	4.6
Dadeland South	1.8	11.8	11.9	2.5	4.0	6.3	3.4	5.4	3.4	1.7	2.5	3.3	22.7	2.9	3.5	6.1	7.9	7.3	3.6	5.5	6.5	-	4.2
Total	4.0	5.3	10.0	4.3	6.9	7.6	7.2	9.4	13.2	8.3	3.0	5.3	7.4	4.8	7.9	10.0	7.7	6.9	5.0	6.1	5.6	5.1	5.8

Table 21: Revised PM Peak Period Expansion Factors for Method Two

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	-	1.7	9.6	3.4	10.2	2.8	8.7	8.7	8.7	2.3	1.1	2.9	2.9	1.9	6.3	6.3	4.6	1.8	4.0	4.3	8.7	8.7	3.6
Okeechobee	12.3	-	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	1.9	2.6	0.8	2.0	2.5	1.8	2.0	2.0	9.0	9.0	9.0	9.0	4.6
Hialeah	11.9	11.9	-	10.3	11.9	11.9	11.9	11.9	11.9	11.9	11.9	2.1	3.0	4.3	5.5	5.0	5.0	4.1	3.0	11.2	11.2	11.2	7.0
Tri-Rail	16.1	16.1	16.1	-	16.1	16.1	10.2	10.2	10.2	3.7	3.7	3.7	7.5	5.2	3.9	10.0	10.0	5.2	6.8	7.8	7.8	5.2	6.6
Northside	8.3	8.3	8.3	4.5	-	3.5	11.5	11.5	11.5	11.5	11.5	11.3	11.3	3.1	3.6	4.7	2.3	2.8	3.0	3.2	5.9	5.9	5.3
Martin Luther King Jr	11.8	11.8	11.8	11.8	11.8	-	10.2	10.2	10.2	10.2	10.2	4.0	3.5	5.4	6.6	3.0	3.0	2.3	1.1	8.7	2.4	2.8	4.3
Brownsville	3.7	3.7	3.7	3.7	3.7	3.7	-	8.8	8.8	8.8	8.8	6.7	5.9	9.1	9.1	9.1	9.1	9.1	0.8	8.6	4.2	4.0	5.3
Earlington Heights	3.7	3.7	2.9	5.4	4.3	6.3	6.3	-	9.1	3.3	4.7	2.4	4.8	3.7	3.7	7.6	7.6	1.7	1.0	9.5	4.5	3.7	3.9
Allapattah	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	-	6.8	6.8	6.8	6.8	6.8	3.2	4.7	4.7	5.3	1.5	6.6	2.9	4.1	5.4
Santa Clara	11.4	11.4	11.4	11.4	11.4	11.4	4.4	6.2	6.2	-	7.0	7.0	7.0	3.3	2.8	7.5	7.5	7.5	2.9	3.1	3.1	3.6	4.5
Civic Center	6.5	7.3	9.1	4.8	9.3	9.3	9.3	9.3	9.3	9.3	-	12.1	12.1	12.1	12.1	12.1	5.5	7.5	5.6	4.9	5.1	4.8	6.0
Culmer	12.7	12.7	12.7	12.7	12.7	12.7	2.9	9.2	9.2	1.6	3.5	-	11.5	11.5	11.5	11.5	11.5	11.5	12.4	12.4	12.4	12.4	10.1
Overtown	0.8	2.8	4.2	1.6	1.4	6.3	7.5	3.2	3.2	3.2	3.3	1.2	-	10.1	9.6	2.9	4.0	3.7	2.2	3.5	2.9	2.3	2.8
Government Center	4.0	5.0	8.3	4.0	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	-	11.6	11.6	6.3	8.3	5.3	6.5	5.7	4.7	6.0
Brickell	8.8	8.8	8.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.3	9.3	-	9.3	9.3	9.3	8.3	8.3	5.0	5.6	6.9
Vizcaya	5.6	5.6	10.3	10.5	10.5	5.1	5.1	5.1	5.1	5.1	5.1	10.5	5.7	7.7	6.4	-	9.3	9.3	9.3	11.2	11.2	11.2	8.7
Coconut Grove	1.6	6.1	6.1	5.8	5.8	5.8	5.8	5.8	6.7	6.7	3.3	5.8	9.6	9.6	9.6	9.6	-	4.7	2.7	4.5	4.3	3.1	4.9
Douglas Road	11.2	5.3	10.9	9.1	9.1	6.1	3.5	9.5	9.5	4.4	3.0	4.6	8.4	8.4	10.5	10.5	8.1	-	5.5	5.6	7.1	7.8	7.5
University	5.3	2.6	9.5	5.0	5.0	10.2	10.2	6.9	8.1	8.1	8.1	6.1	10.7	10.7	10.7	10.7	10.7	10.7	-	10.2	10.2	10.2	8.7
South Miami	12.8	12.8	12.8	12.8	12.8	14.5	14.5	14.5	15.2	15.2	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	-	13.5	13.5	13.6
Dadeland North	5.6	5.1	5.1	11.3	9.3	9.3	9.3	5.4	6.6	9.6	0.6	2.3	3.7	2.5	8.3	8.3	8.3	10.1	10.1	16.7	-	16.7	4.6
Dadeland South	1.8	11.8	11.9	2.5	4.0	6.3	3.4	5.4	3.4	1.7	2.5	3.3	3.3	3.3	3.5	6.1	7.9	7.3	3.6	5.5	6.5	-	4.2
Total	4.0	5.3	10.0	4.3	6.9	7.6	7.2	9.4	13.2	8.3	3.0	5.3	7.4	4.8	7.9	10.0	7.7	6.9	5.0	6.1	5.6	5.1	5.8

Survey Results-Travel Characteristics

Comparison of Expansion Methods

The survey was expanded by two different expansion methods as described in the preceding section. The boardings by station computed from the expanded data were compared to the April 2009 average boarding counts by time period and direction. **Figures 8 through 13** show the boardings by station, time period, and direction for the two expansion methods and the control counts. It should be noted that the Peak period boardings in the figures show the combined boardings for AM Peak and PM Peak periods.

In expansion method 1, the boarding counts by station, time period, direction, and number of stations traveled were used as the control totals. Therefore ideally the boardings from this expansion method should be the same as the April 2009 average boarding counts. However, due to high expansion factors for some stations, some markets had to be aggregated, leading to a minor discrepancy between the counts and the results from expansion 1.

Figure 8 shows the Peak Period Northbound boardings by station. For all the stations the boardings are very similar across the three sources.

Figure 8: Peak Period Northbound Boardings

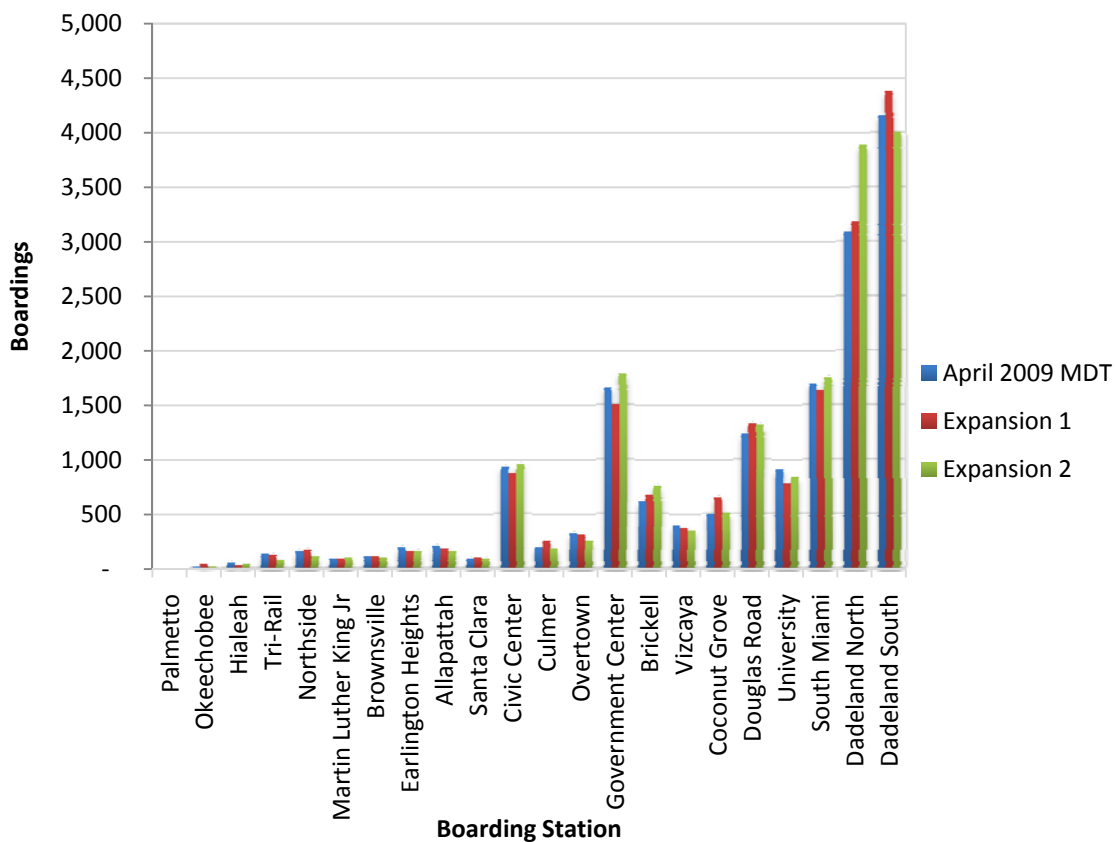


Figure 9 shows the Off Peak Northbound boardings by station. For all the stations the boardings are very similar across the three sources.

Figure 9: Off Peak Period Northbound Boardings

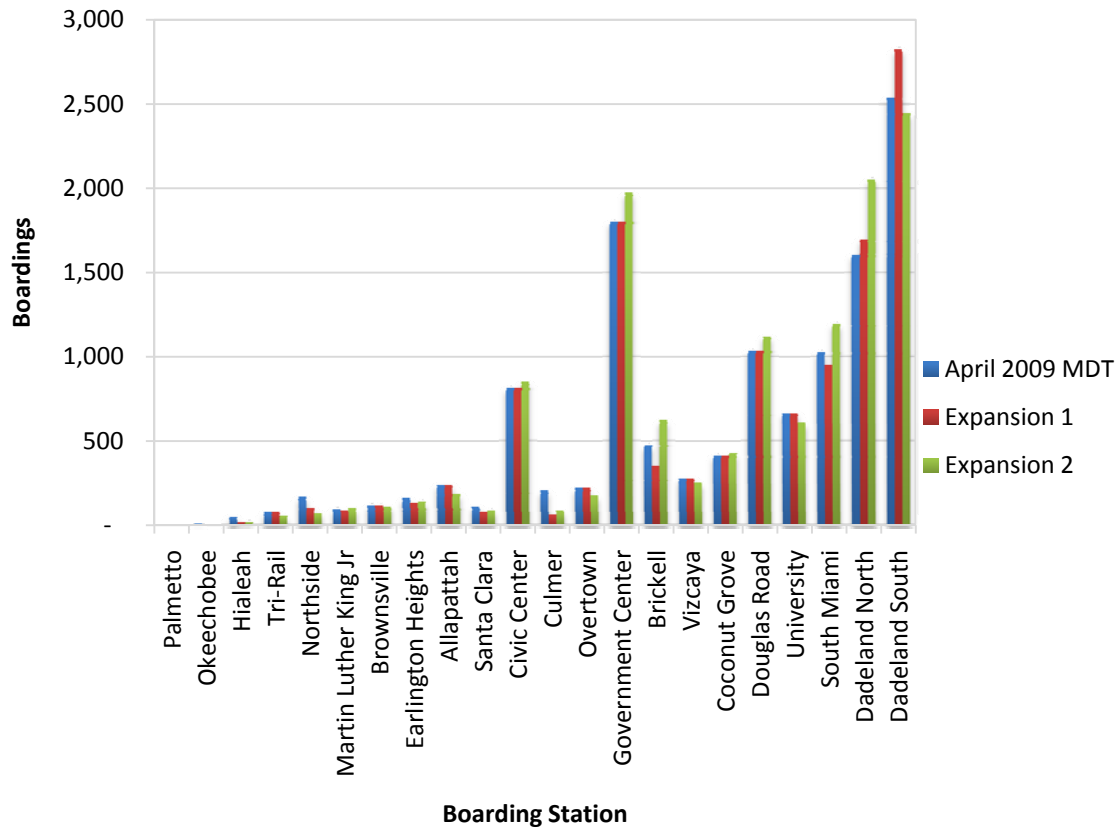


Figure 10 shows the Peak Period Southbound boardings by station. For all the stations the boardings are very similar across the three sources.

Figure 10: Peak Period Southbound Boardings

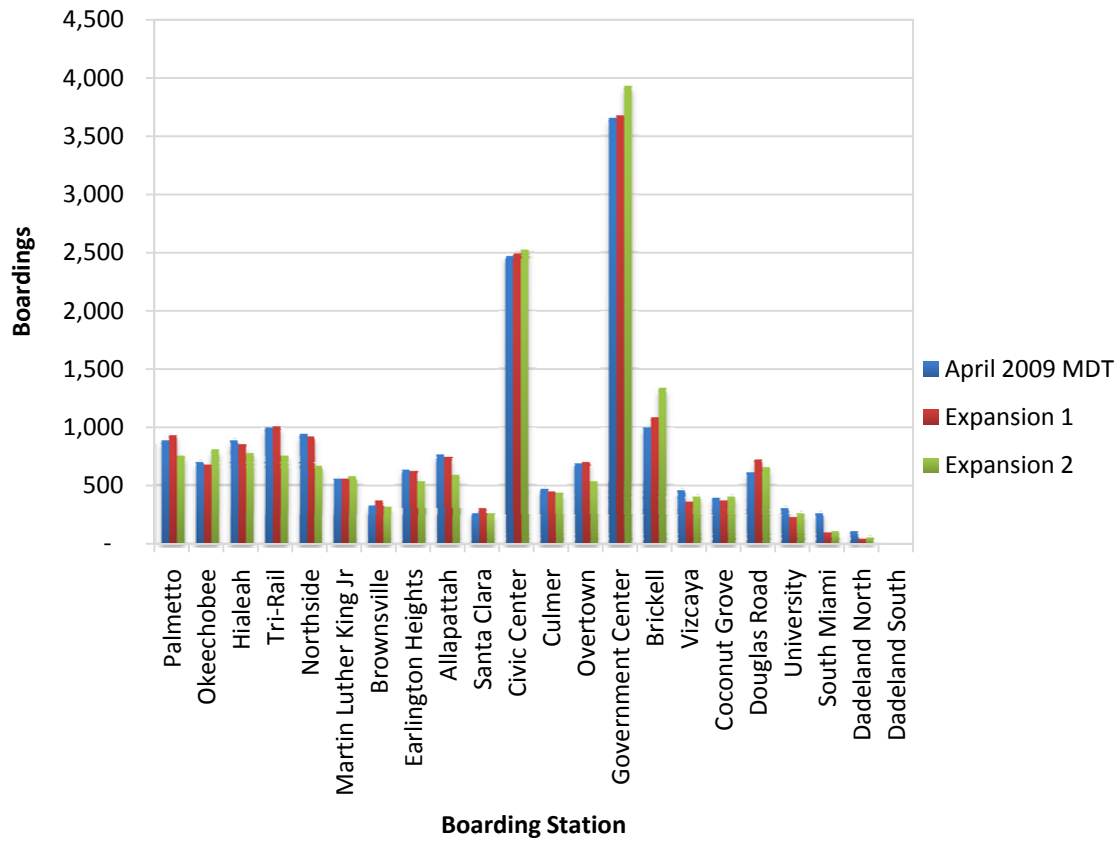
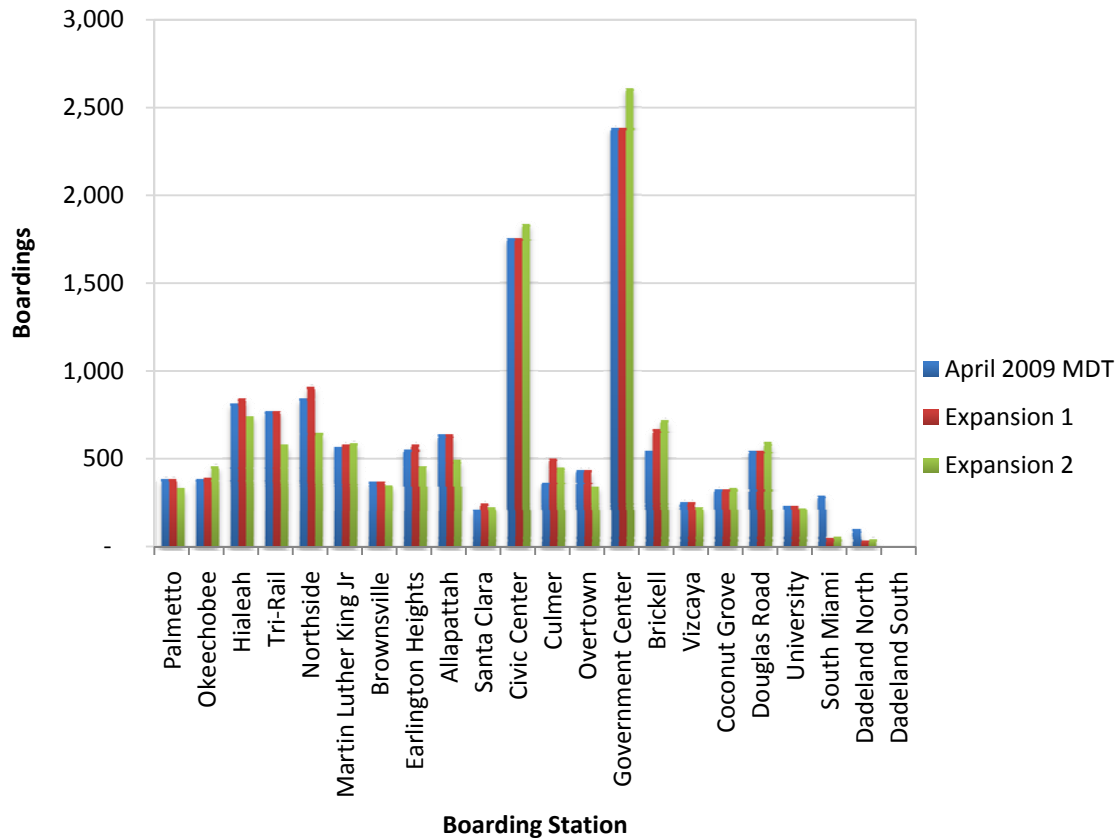


Figure 11 shows the Off Peak Period Southbound boardings by station. For all the stations the boardings are very similar across the three sources.

Figure 11: Off Peak Period Southbound Boardings



The comparison of the boarding estimates from survey expansions one and two with the 2009 April MDT counts in **Figures 8** through **11** shows that the boardings from the two expansion methodologies are very similar to each other and to the MDT counts.

The two expansion methods produced very similar results for all the variables analyzed. As an example, the results of trip purpose in relation to auto ownership are shown in **Table 22**. It can be observed from the table that the trip purpose vs. auto ownership characteristics produced using the two expansion methods are very similar.

Table 22: Comparison of Expanded Trip Purpose vs. Auto Ownership

Expanded by Boarding Station, Direction, Time Period and Number of stations traveled									
Purpose/ Ownership	0	1	2+	Total	Purpose/ Ownership	0	1	2+	Total
HBW	4,921	10,691	18,892	34,504	HBW	8%	18%	32%	59%
HBO	4,188	5,680	6,578	16,446	HBO	7%	10%	11%	28%
NHB	1,825	2,688	3,445	7,958	NHB	3%	5%	6%	14%
Total	10,934	19,060	28,915	58,908	Total	19%	32%	49%	100%
Expanded by Boarding Station, Alighting Station, and Time Period									
Purpose/ Ownership	0	1	2+	Total	Purpose/ Ownership	0	1	2+	Total
HBW	4,809	10,887	19,230	34,926	HBW	8%	19%	33%	60%
HBO	4,172	5,515	6,435	16,121	HBO	7%	9%	11%	27%
NHB	1,787	2,565	3,509	7,861	NHB	3%	4%	6%	13%
Total	10,768	18,966	29,174	58,908	Total	18%	32%	50%	100%

The remainder of the analysis in this report is focused on the results of expansion methodology one.

Trip Purpose

Table 23 and **Figure 12** show the results of trip purpose by period and also for the entire day. 24,924 Home Based Work (HBW) trips occur during the peak period, accounting for 73% of trips during that time period. HBW is the dominant trip purpose during the peak period. Most Metrorail riders during the peak periods commute to/from work.

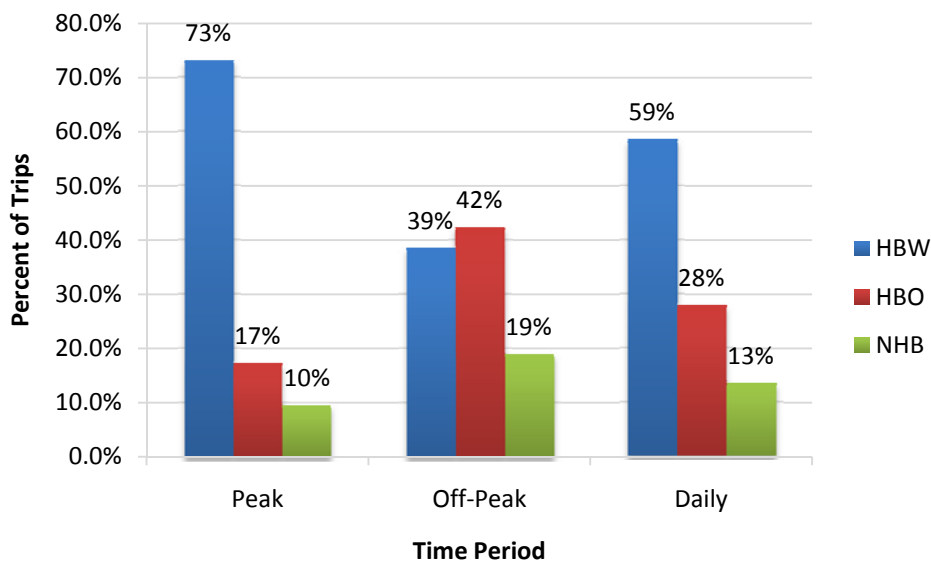
10,542 Home Based Other (HBO) trips account for 42% of off peak period trips and form the largest trip purpose during that time period. HBW trips account for 39% trips during the off-peak period.

At the daily level, HBW is the single largest trip purpose, accounting for 59% of daily trips. HBO and Non Home Based (NHB) account for 28% and 13% daily trips, respectively.

Table 23: Distribution of Trip Purpose by Time Period

Trip Purpose	Peak		Off -Peak		Daily	
	Frequency	Split	Frequency	Split	Frequency	Split
HBW	24,924	73%	9,580	39%	34,504	59%
HBO	5,904	17%	10,542	42%	16,446	28%
NHB	3,235	10%	4,723	19%	7,958	13%
Total	34,063	100%	24,845	100%	58,908	100%

Figure 12: Distribution of Trip Purpose by Time Period



Auto Ownership

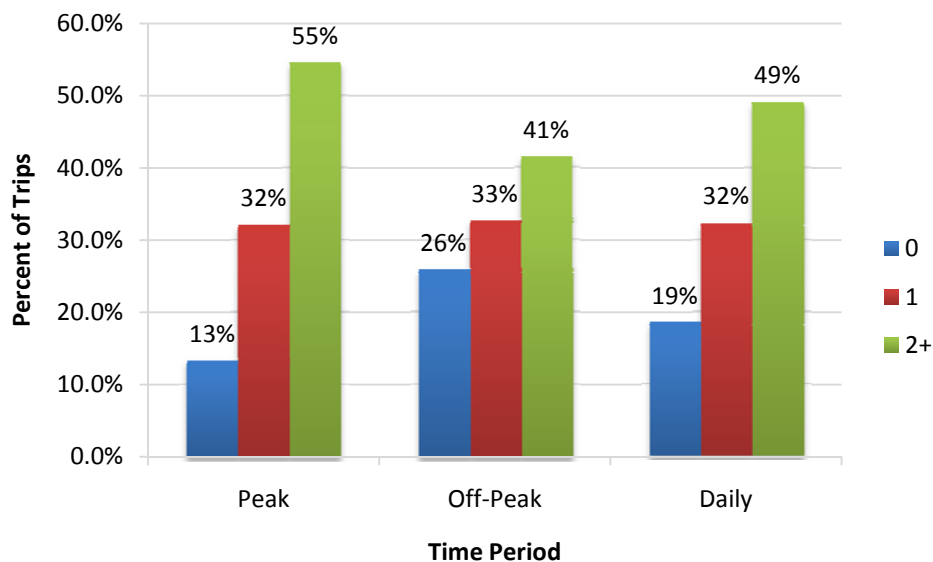
Table 24 and **Figure 13** show the results of auto ownership by time period and also for the entire day. 18,592 (54.6%) Metrorail patrons traveling during the Peak Period own two or more autos, while 32.1% own one auto.

Riders from households with two or more autos account for 41% of Metrorail trips during the Off Peak Period, while 33% riders own one auto. Riders from households with zero autos form the smallest proportion of Metrorail rider during the peak as well as off-peak periods. At the daily level, just under half of the Metrorail riders own 2 or more autos, 32% own one auto, while 19% do not own an auto.

Table 24: Distribution of Auto Ownership by Time Period

Auto Ownership	Peak		Off -Peak		Daily	
	Frequency	Split	Frequency	Split	Frequency	Split
0	4,521	13%	6,412	26%	10,934	19%
1	10,949	32%	8,111	33%	19,060	32%
2+	18,592	55%	10,322	41%	28,915	49%
Total	34,063	100%	24,845	100%	58,908	100%

Figure 13: Distribution of Auto Ownership by Time Period



Trip Purpose vs. Auto Ownership

Table 25 and **Figure 14** show the relation of trip purpose and auto ownership for peak period riders. 58% of peak period HBW trips are made by riders from households with two or more autos. Only 11% patrons making HBW trips do not own an auto.

44% of peak period HBO trips are made by riders from households with two or more autos, while 21% of HBO trips are made by riders from households with zero autos. 47% of peak period NHB trips are made by riders from households with two or more autos, while 20% of NHB trips are made by riders from households with zero autos.

During the peak period, 89% (31%+58%) of HBW trips, 79% (35%+44%) of HBO trips, and 80% (33%+47%) of NHB trips are made by patrons who own at least one auto. HBW trips have the highest proportion of riders from households with two or more autos.

Table 25: Peak Period Distribution of Trip Purpose Relative to Auto Ownership

Purpose/ Ownership	0	1	2+	Total	Purpose/ Ownership	0	1	2+	Total
HBW	2,642	7,797	14,485	24,924	HBW	11%	31%	58%	100%
HBO	1,234	2,086	2,584	5,904	HBO	21%	35%	44%	100%
NHB	645	1,066	1,524	3,235	NHB	20%	33%	47%	100%
Total	4,521	10,949	18,592	34,063	Total	13%	32%	55%	100%

Figure 14: Peak Period Distribution of Trip Purpose Relative to Auto Ownership

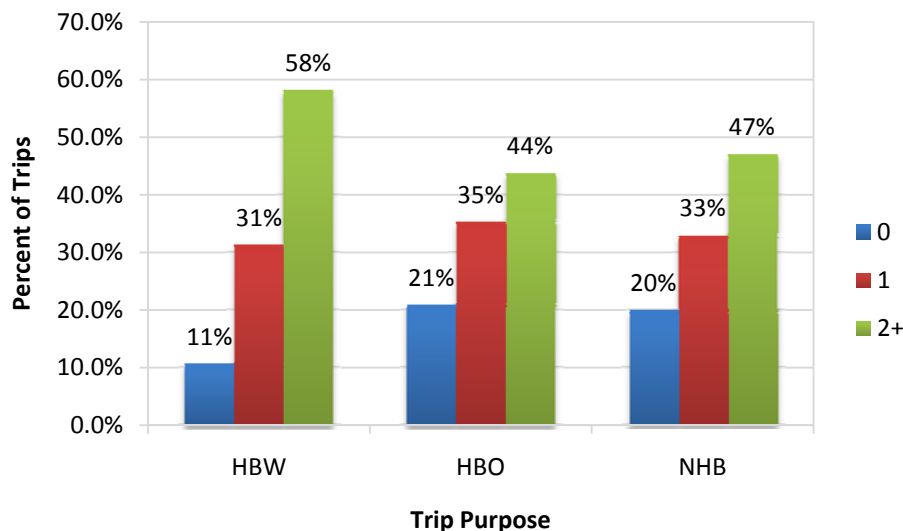


Table 26 and **Figure 15** show the relation of trip purpose and auto ownership for the off peak period. 46% of off peak period HBW trips are made by riders from households with two or more autos. 24% patrons making HBW trips do not own an auto. Compared to the peak period, there is a lower portion of off peak HBW trips made by riders from households with two or more autos, and a higher portion of trips made by riders from households with zero autos.

38% of peak period HBO trips are made by riders from households with two or more autos, while 28% of HBO trips are made by riders from households with zero autos. Following the same pattern as HBW trips, compared to peak period, there is a lower portion of HBO trips made by riders from households with two or more autos, and a higher portion of trips made by riders from households with zero autos.

41% of peak period NHB trips are made by riders from households with two or more auto owners, while 25% of NHB trips are made by riders from households with zero autos. Just like home based trips, riders from households with two or more autos make up a smaller share of NHB trips in the off peak period compared to peak, and the opposite pattern is true for riders from households with zero autos.

During the off-peak period, 76% (30%+46%) of HBW trips, 72% (34%+38%) of HBO trips, and 75% (34%+41%) of NHB trips are made by patrons who own at least 1 auto. Peak period has a higher share of riders from households with one or more autos across all purposes compared to the off peak period.

Table 26: Off Peak Period Distribution of Trip Purpose Relative to Auto Ownership

Purpose/ Ownership	0	1	2+	Total	Purpose/ Ownership	0	1	2+	Total
HBW	2,278	2,895	4,407	9,580	HBW	24%	30%	46%	100%
HBO	2,954	3,594	3,994	10,542	HBO	28%	34%	38%	100%
NHB	1,180	1,622	1,921	4,723	NHB	25%	34%	41%	100%
Total	6,412	8,111	10,322	24,845	Total	26%	33%	42%	100%

Figure 15: Off Peak Period Distribution of Trip Purpose Relative to Auto Ownership

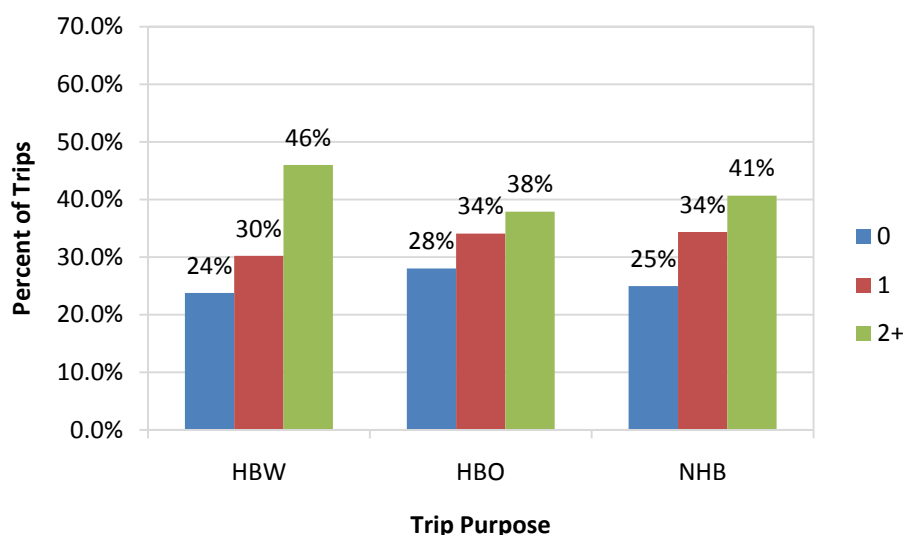
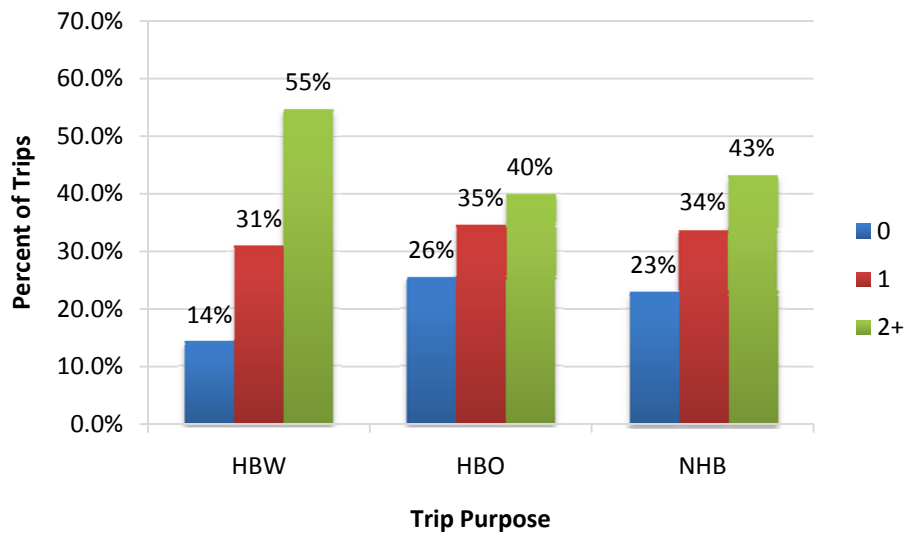


Table 27 and **Figure 16** show the relation of trip purpose and auto ownership for the entire day. 81% (32%+49%) of all Metrorail riders are auto owners. Automobile owners form the largest share of HBW trips (86%=31%+55%), compared to HBO (75%=35%+40%) and NHB (77%=34%+43%).

Table 27: Daily Distribution of Trip Purpose Relative to Auto Ownership

Purpose/ Ownership	0	1	2+	Total	Purpose/ Ownership	0	1	2+	Total
HBW	4,921	10,691	18,892	34,504	HBW	14%	31%	55%	100%
HBO	4,188	5,680	6,578	16,446	HBO	26%	35%	40%	100%
NHB	1,825	2,688	3,445	7,958	NHB	23%	34%	43%	100%
Total	10,934	19,060	28,915	58,908	Total	19%	32%	49%	100%

Figure 16: Daily Distribution of Trip Purpose Relative to Auto Ownership



Access Mode

Table 28 and **Figure 17** show the access mode in PA format. In the peak period, Park-N-Ride (PNR) and Transfer access modes have roughly the same share, around 32% each. Walk access accounts for 27% of peak period trips. Auto Access (Kiss-N-Ride and Park-N-Ride combined) accounts for 42% (=10%+32%) of peak period trips.

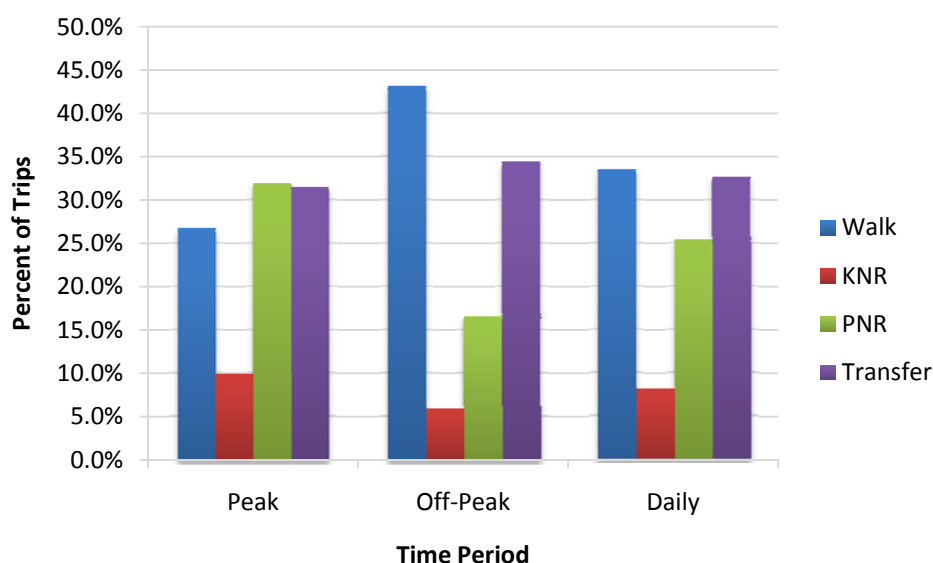
Walk access accounts for most off peak period trips with a share of 43%. Transfers account for 34% of off peak trips while auto access accounts for 23% (=6%+17%) of off peak trips.

At the daily level, Walk access accounts for most trips with a share of 34%, followed by transfers that account for 33% of daily trips. PNR accounts for 26% while KNR accounts for 8% of daily trips. Auto access accounts for 34% (=26%+8%) of daily trips.

Table 28: Access Mode Distribution by Time Period

Access Mode	Peak		Off -Peak		Daily	
	Frequency	Split	Frequency	Split	Frequency	Split
Walk	9,089	27%	10,708	43%	19,797	34%
KNR	3,352	10%	1,485	6%	4,837	8%
PNR	10,893	32%	4,115	17%	15,008	26%
Transfer	10,728	32%	8,538	34%	19,266	33%
Total	34,063	100%	24,845	100%	58,908	100%

Figure 17: Access Mode Distribution by Time Period



Trip Purpose vs. Access Mode

Table 29 and **Figure 18** show the distribution of peak period trip purpose with respect to access mode. With a 39% share, PNR access is the dominant access mode for peak period HBW trips, followed by transfers that account for 31% of trips. Auto access accounts for 48% (=9%+39%) of peak period HBW trips.

Walk access has the highest share (40%) among access modes for peak period HBO trips, followed by transfers that account for 37% of trips. Auto access has the smallest share at 23% (=13%+10%).

At 51%, walk access has the highest share of peak period NHB trips, followed by transfers at 26%. Auto access has the smallest share accounting for 22% (=7%+15%) of trips.

Table 29: Distribution of Peak Period Trip Purpose Relative to Access Mode

Purpose/ Access Mode	Walk	KNR	PNR	Transfer	Total	Purpose/ Access Mode	Walk	KNR	PNR	Transfer	Total
HBW	5,070	2,346	9,824	7,683	24,924	HBW	20%	9%	39%	31%	100%
HBO	2,359	774	575	2,196	5,904	HBO	40%	13%	10%	37%	100%
NHB	1,659	233	494	849	3,235	NHB	51%	7%	15%	26%	100%
Total	9,089	3,352	10,893	10,728	34,063	Total	27%	10%	32%	31%	100%

Figure 18: Distribution of Peak Period Trip Purpose Relative to Access Mode

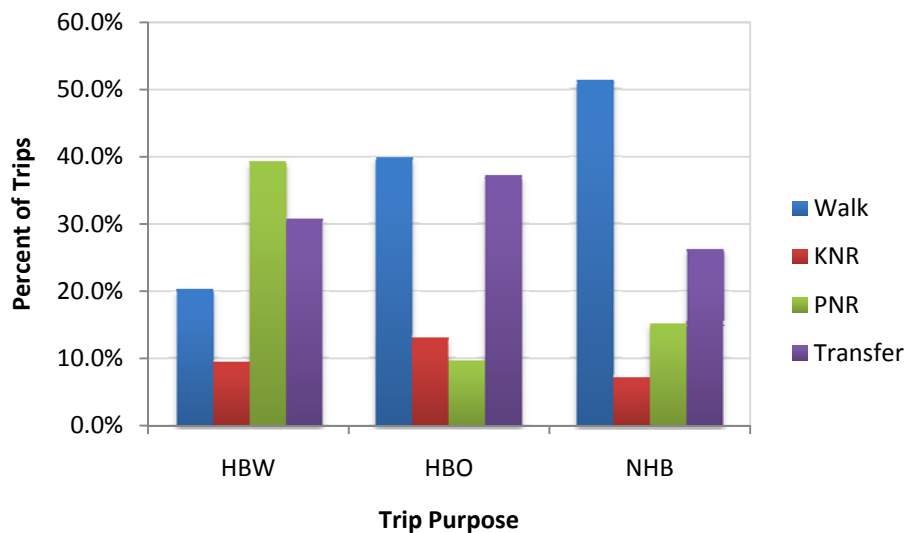


Table 30 and **Figure 19** show the distribution of off peak period trip purpose with respect to access mode. Unlike peak period HBW trips for which PNR was the largest access mode, off peak period HBW trips are dominated by walk access as the largest access mode, closely followed by transfers. PNR accounts for 25% of off peak period HBW trips, while auto has a share of 32% ($=7\%+25\%$).

HBO off peak period trips follow the same pattern as HBO peak periods trips with walk access accounting for the most trips followed by transfers. Walk and transfers have a share of 43% and 39% respectively.

NHB trips for both peak and off peak periods follow the same pattern. Walk access accounts for the largest share of NHB off peak period trip at 59%, followed by transfers which account for 28% of trips. Auto access accounts for 13% trips ($=3\%+10\%$).

Table 30: Distribution of Off Peak Period Trip Purpose Relative to Access Mode

Purpose/ Access Mode	Walk	KNR	PNR	Transfer	Total	Purpose/ Access Mode	Walk	KNR	PNR	Transfer	Total
HBW	3,381	681	2,353	3,165	9,580	HBW	35%	7%	25%	33%	100%
HBO	4,525	657	1,289	4,072	10,542	HBO	43%	6%	12%	39%	100%
NHB	2,802	147	473	1,301	4,723	NHB	59%	3%	10%	28%	100%
Total	10,708	1,485	4,115	8,538	24,845	Total	43%	6%	17%	34%	100%

Figure 19: Distribution of Off Peak Period Trip Purpose Relative to Access Mode

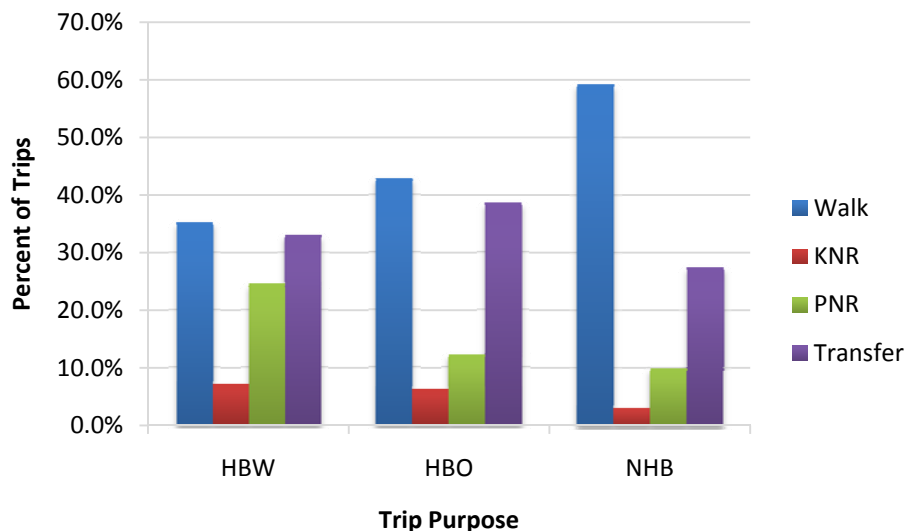
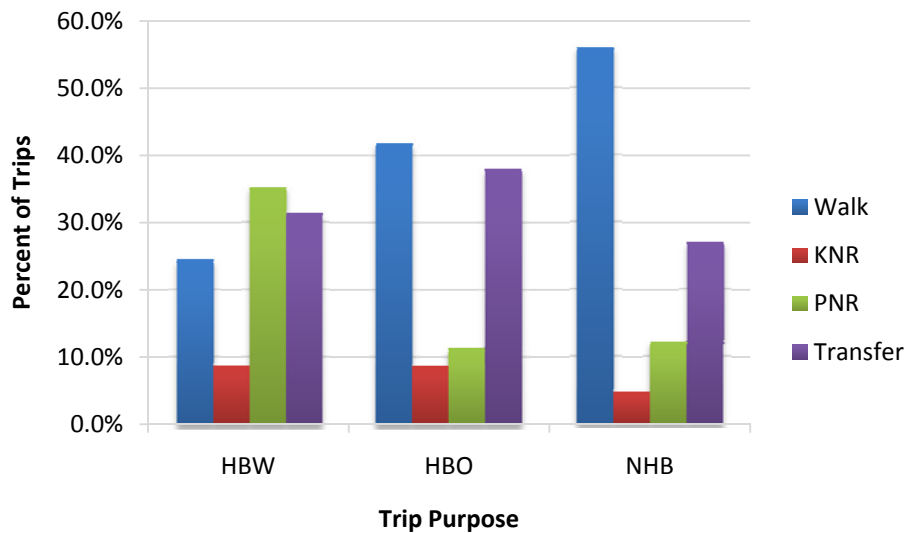


Table 31 and **Figure 20** show the distribution of trip purpose with respect to access mode for the entire day. At the daily level, PNR access accounts for the highest number of HBW trips, while walk access accounts for the highest number of HBO and NHB trips. Transfers have the second largest share among access modes across all trip purposes.

Table 31: Distribution of Daily Trip Purpose Relative to Access Mode

Purpose/ Access Mode	Walk	KNR	PNR	Transfer	Total	Purpose/ Access Mode	Walk	KNR	PNR	Transfer	Total
HBW	8,451	3,028	12,177	10,848	34,504	HBW	25%	9%	35%	31%	100%
HBO	6,885	1,430	1,864	6,267	16,446	HBO	42%	9%	11%	38%	100%
NHB	4,461	379	967	2,150	7,958	NHB	56%	5%	12%	27%	100%
Total	19,797	4,837	15,008	19,266	58,908	Total	34%	8%	25%	33%	100%

Figure 20: Distribution of Daily Trip Purpose Relative to Access Mode



Access Mode vs. Auto Ownership

Table 32 and **Figure 21** show the distribution of peak period auto ownership with respect to access mode. For riders from households with zero autos, walk and transfer are the primary means of access with shares of 52% and 45%, respectively. KNR access accounts for 2% of trips, while PNR access accounts for just over 1% trips.

Walk and Transfer account for just under 35% each of riders from households with one auto. PNR accounts for 20% of riders from households with one auto, while auto access accounts for 32% (=12%+20%) of trips made by these riders. PNR has a higher share of riders from households with one auto, compared to riders from households with zero autos.

At 47%, PNR access has the highest share among all access modes for riders from households with two or more autos in the peak period. Auto access accounts for more than half (58%) of these riders' peak period trips. Transfer and Walk account for 27% and 16% respectively of riders from households with two or more autos in the peak period. Among all auto ownership categories, PNR as the highest share of riders from households with two or more autos.

Table 32: Distribution of Peak Period Auto Ownership Relative to Access Mode

Auto Own /Access Mode	Walk	KNR	PNR	Transfer	Total	Auto Own /Access Mode	Walk	KNR	PNR	Transfer	Total
0	2,335	107	56	2,022	4,521	0	52%	2%	1%	45%	100%
1	3,824	1,259	2,138	3,728	10,949	1	34%	12%	20%	34%	100%
2+	2,929	1,986	8,699	4,978	18,592	2+	16%	11%	47%	27%	100%
Total	9,089	3,352	10,893	10,728	34,063	Total	27%	10%	32%	32%	100%

Figure 21: Distribution of Peak Period Auto Ownership Relative to Access Mode

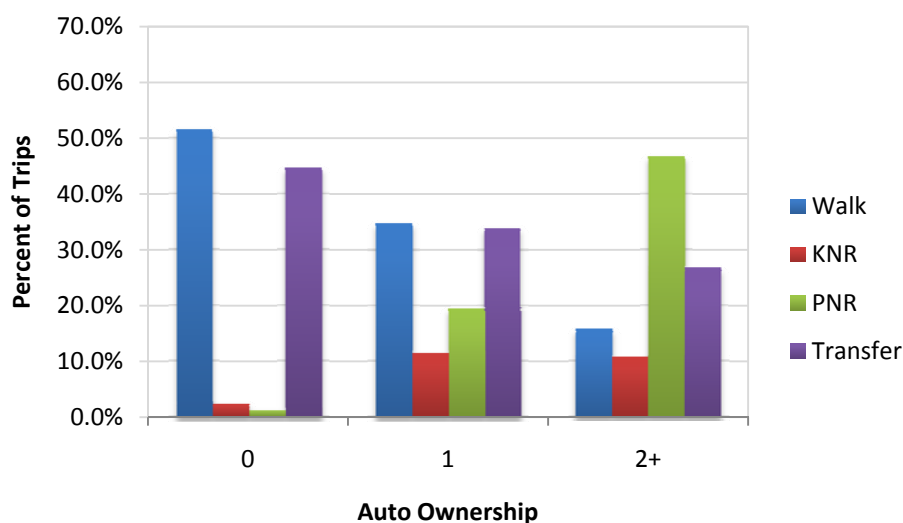


Table 33 and **Figure 22** show the distribution of off peak period auto ownership with respect to access mode. Across all auto ownership categories, Walk share is higher for off peak trips compared to peak trips, while the reverse is true for PNR and KNR.

For riders from households with zero autos, walk and transfer are the primary means of access with shares of 57% and 40%, respectively. KNR access accounts for 2% of trips while PNR access accounts for just 1% trips for riders from households with zero autos.

For riders from households with one auto, Walk and Transfer account for 46% and 37% of off peak trips, respectively. PNR accounts for 13% of riders from households with one auto, while KNR accounts for 4%. PNR has a higher share of riders from households with one auto compared to riders from households with zero autos.

Walk access accounts for 32% of riders from households with two or more autos, closely followed by PNR access which accounts for 29%. Transfers account for 29% of trips for riders from households with two or more autos.

Table 33: Distribution of Off Peak Period Auto Ownership Relative to Access Mode

Auto Own /Access Mode	Walk	KNR	PNR	Transfer	Total	Auto Own /Access Mode	Walk	KNR	PNR	Transfer	Total
0	3,641	130	47	2,594	6,412	0	57%	2%	1%	40%	100%
1	3,768	330	1,043	2,969	8,111	1	46%	4%	13%	37%	100%
2+	3,298	1,024	3,024	2,975	10,322	2+	32%	10%	29%	29%	100%
Total	10,708	1,485	4,115	8,538	24,845	Total	43%	6%	17%	34%	100%

Figure 22: Distribution of Off Peak Period Auto Ownership Relative to Access Mode

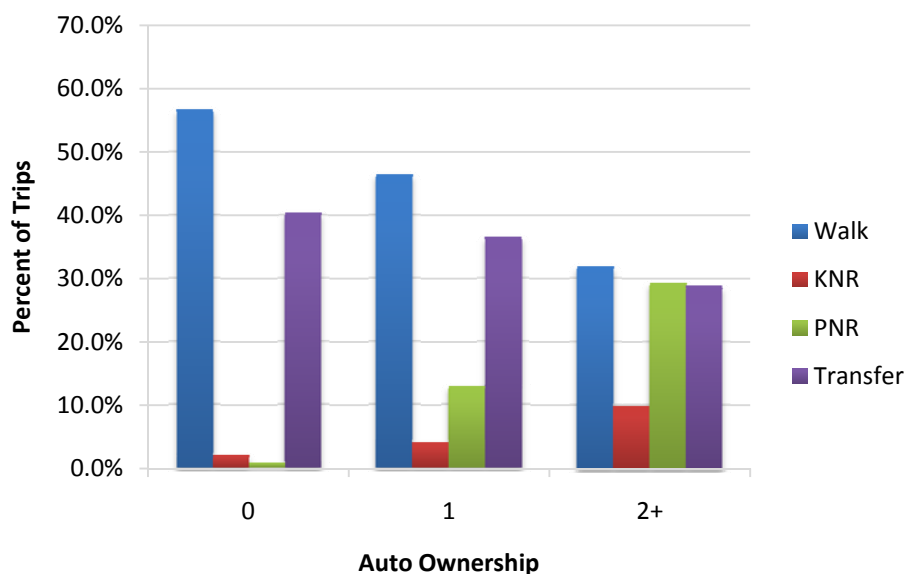


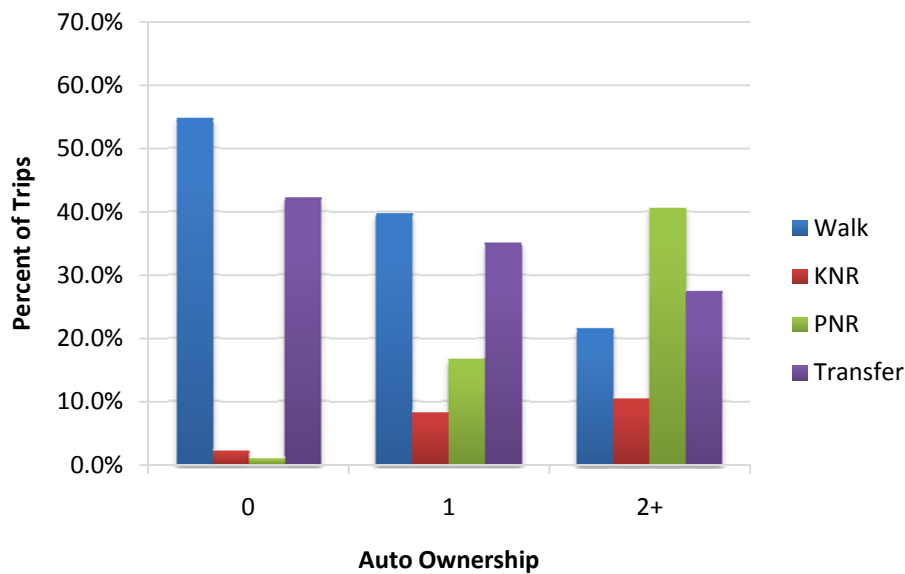
Table 34 and **Figure 23** show the distribution of auto ownership with respect to access mode for the entire day. Walk access has the largest share for riders from households with one or less autos. With a share of 41%, PNR access has the largest share of riders from households with two or more autos. The PNR access share increases going from zero to two or more auto ownership.

Transfer accounts for a significant number of trips across all auto ownership categories.

Table 34: Distribution of Daily Auto Ownership Relative to Access Mode

Auto Own /Access Mode	Walk	KNR	PNR	Transfer	Total	Auto Own /Access Mode	Walk	KNR	PNR	Transfer	Total
0	5,977	238	103	4,616	10,934	0	55%	2%	1%	42%	100%
1	7,593	1,589	3,181	6,697	19,060	1	40%	8%	17%	35%	100%
2+	6,227	3,010	11,724	7,954	28,915	2+	21%	10%	41%	28%	100%
Total	19,797	4,837	15,008	19,266	58,908	Total	34%	8%	25%	33%	100%

Figure 23: Distribution of Daily Auto Ownership Relative to Access Mode



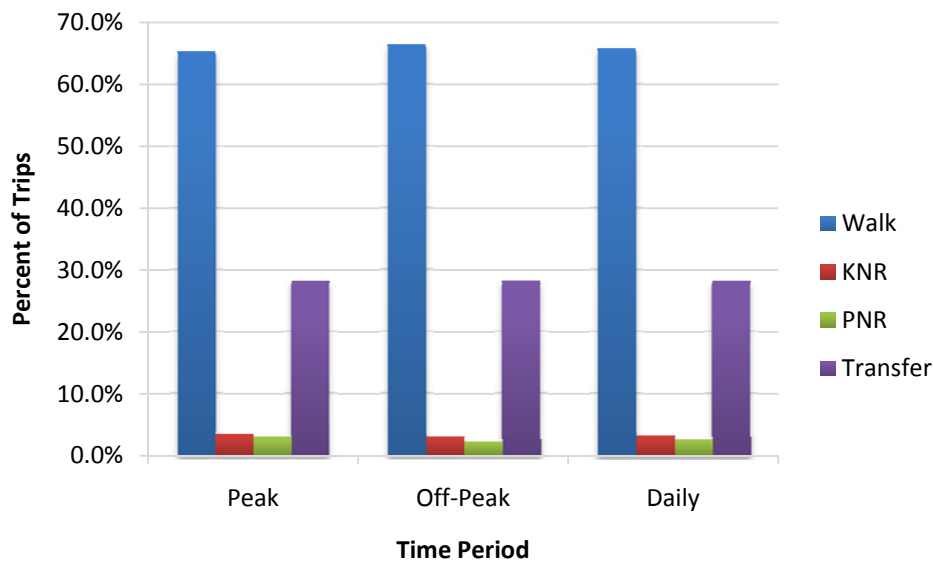
Egress Mode

Table 35 and **Figure 24** show the egress mode in PA format. The egress mode distribution is fairly constant across the time periods. Walk is the dominant egress mode in all the periods with a share of over 66%. Transfer is the second largest egress mode, with a share of over 28%. Auto egress accounts for 6% (=3%+3%) in the peak period, 5% (=3%+2%) in the off peak period and 6% (=3%+3%) daily. Auxiliary parking data were collected to corroborate the occurrence of auto egress. However, results indicate a lack of automobiles parked overnight at Metrorail stations, as documented in **Appendix A**.

Table 35: Egress Mode Distribution by Time Period

Egress Mode	Peak		Off -Peak		Daily	
	Frequency	Split	Frequency	Split	Frequency	Split
Walk	22,285	66%	16,525	67%	38,810	66%
KNR	1,157	3%	762	3%	1,919	3%
PNR	987	3%	563	2%	1,550	3%
Transfer	9,633	28%	6,996	28%	16,629	28%
Total	34,063	100%	24,845	100%	58,908	100%

Figure 24: Egress Mode Distribution by Time Period



Trip Purpose vs. Egress Mode

Table 36 and **Figure 25** show the distribution of peak period trip purpose with respect to egress mode. With a share of 68% for HBW trips, 56% for HBO trips, and 61% for NHB trips, walk is the dominant egress mode for all trip purposes in the peak period. Transfer is the second largest egress mode across all trip purposes in the peak period and has a share of 26% for HBW trips, 38% for HBO trips, and 28% for NHB trips.

Auto egress accounts for 6% (=3%+3%) of HBW trips, 6% (=5%+1%) of HBO trips, and 11% (=4%+8%) of NHB trips. Auto egress, particularly PNR has a high share of NHB trips, compared to HBW and HBO trips.

Table 36: Distribution of Peak Period Trip purpose Relative to Egress Mode

Purpose/ Egress Mode	Walk	KNR	PNR	Transfer	Total	Purpose/ Egress Mode	Walk	KNR	PNR	Transfer	Total
HBW	16,999	762	674	6,489	24,924	HBW	68%	3%	3%	26%	100%
HBO	3,309	270	70	2,255	5,904	HBO	56%	5%	1%	38%	100%
NHB	1,977	125	244	890	3,235	NHB	61%	4%	8%	27%	100%
Total	22,285	1,157	987	9,633	34,063	Total	66%	3%	3%	28%	100%

Figure 25: Distribution of Peak Period Trip purpose Relative to Egress Mode

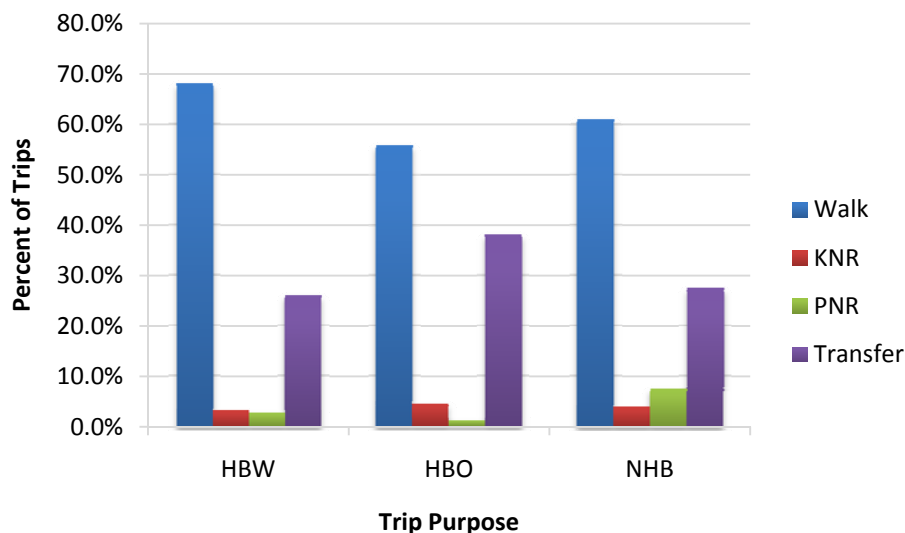


Table 37 and **Figure 26** show the distribution of off peak period trip purpose with respect to egress mode. With a share of 68% for HBW trips, 64% for HBO trips, and 70% for NHB trips, walk mode is the dominant egress mode for trip purposes in the off peak period. Walk mode has a higher share across all trip purposes compared to the peak period. Following a pattern similar to peak period, transfer is the second largest egress mode across all purposes in the off peak period and has a share of 26% for HBW trips, 33% for HBO trips, and 20% for NHB trips.

Auto egress accounts for 6% (=4%+2%) of HBW trips, 3% (=2%+1%) of HBO trips, and 10% (=5%+5%) of NHB trips. Similar to peak period, Auto egress has a high share of NHB trips, compared to HBW and HBO trips.

Table 37: Distribution of Off Peak Period Trip purpose Relative to Egress Mode

Purpose/ Egress Mode	Walk	KNR	PNR	Transfer	Total	Purpose/ Egress Mode	Walk	KNR	PNR	Transfer	Total
HBW	6,525	334	176	2,545	9,580	HBW	68%	4%	2%	26%	100%
HBO	6,689	221	134	3,499	10,542	HBO	64%	2%	1%	33%	100%
NHB	3,311	207	253	952	4,723	NHB	70%	5%	5%	20%	100%
Total	16,525	762	563	6,996	24,845	Total	67%	3%	2%	28%	100%

Figure 26: Distribution of Off Peak Period Trip purpose Relative to Egress Mode

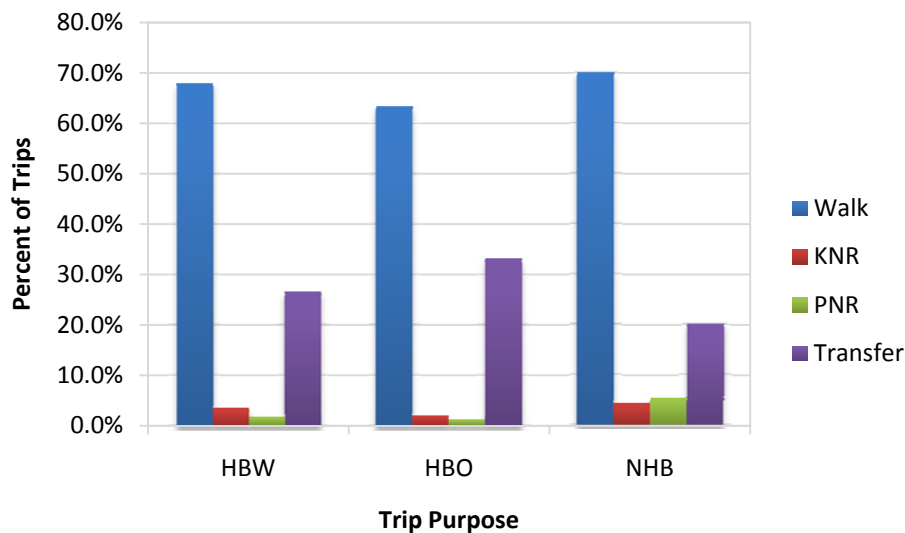


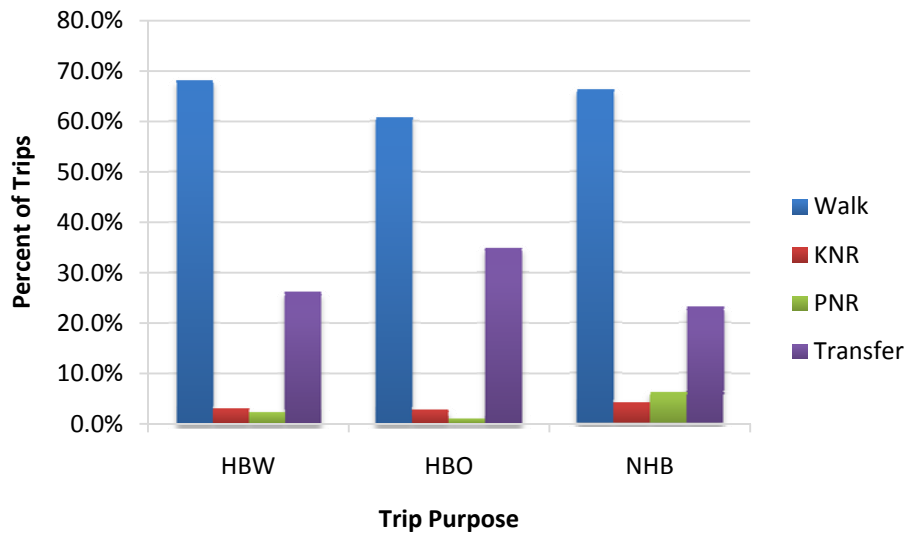
Table 38 and **Figure 27** show the distribution of daily trip purpose with respect to egress mode. On a daily basis, Walk access is the dominant egress mode, accounting for over 65% of trips across trip purposes. Transfers have the second largest share among egress modes across all trip purposes.

Auto egress accounts for 6% (=3%+3%) of HBW trips, 4% (=3%+1%) of HBO trips, and 10% of NHB trips. Auto egress has a high share of NHB trips, compared to other purposes.

Table 38: Distribution of Daily Trip Purpose Relative to Egress Mode

Purpose/ Egress Mode	Walk	KNR	PNR	Transfer	Total	Purpose/ Egress Mode	Walk	KNR	PNR	Transfer	Total
HBW	23,524	1,096	850	9,034	34,504	HBW	68%	3%	3%	26%	100%
HBO	9,998	491	204	5,753	16,446	HBO	61%	3%	1%	35%	100%
NHB	5,288	332	496	1,842	7,958	NHB	67%	4%	6%	23%	100%
Total	38,810	1,919	1,550	16,629	58,908	Total	66%	3%	3%	28%	100%

Figure 27: Distribution of Daily Trip Purpose Relative to Egress Mode



Egress Mode vs. Auto Ownership

Table 39 and **Figure 28** show the distribution of peak period auto ownership with respect to egress mode. Walk is the dominant egress mode across all auto ownership categories. The KNR share varies from 3% to 4%. PNR egress share is highest for riders from households with two or more autos, compared to other auto ownership categories.

Table 39: Distribution of Peak Period Auto Ownership Relative to Egress Mode

Auto Own /Egress Mode	Walk	KNR	PNR	Transfer	Total	Auto Own /Egress Mode	Walk	KNR	PNR	Transfer	Total
0	2,616	159	22	1,725	4,521	0	58%	4%	0%	38%	100%
1	6,982	414	147	3,406	10,949	1	64%	4%	1%	31%	100%
2+	12,687	584	818	4,503	18,592	2+	68%	3%	5%	24%	100%
Total	22,285	1,157	987	9,633	34,063	Total	66%	3%	3%	28%	100%

Figure 28: Distribution of Peak Period Auto Ownership Relative to Egress Mode

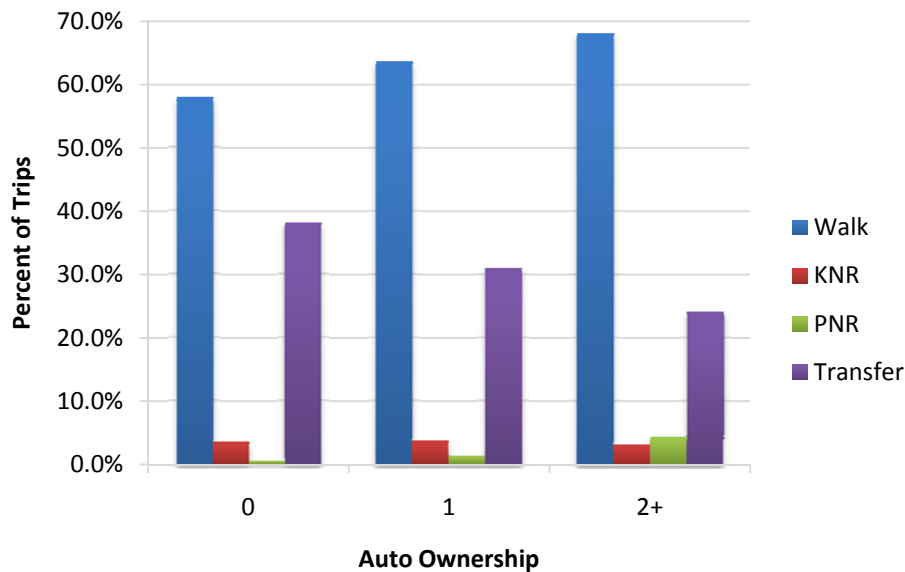


Table 40 and **Figure 29** show the distribution of off peak period auto ownership with respect to egress mode. The off peak period auto ownership with respect to egress mode shows the same distribution as peak period. Walk is the dominant egress mode across all auto ownership categories. The KNR share ranges from 2% to 4%. The PNR egress share is the highest for riders from households with two or more autos, compared to other auto ownership categories.

Table 40: Distribution of Off Peak Period Auto Ownership Relative to Egress Mode

Auto Own /Egress Mode	Walk	KNR	PNR	Transfer	Total	Auto Own /Egress Mode	Walk	KNR	PNR	Transfer	Total
0	4,237	127	22	2,027	6,412	0	66%	2%	0%	32%	100%
1	5,353	305	73	2,379	8,111	1	66%	4%	1%	29%	100%
2+	6,934	330	468	2,590	10,322	2+	67%	3%	5%	25%	100%
Total	16,525	762	563	6,996	24,845	Total	67%	3%	2%	28%	100%

Figure 29: Distribution of Off Peak Period Auto Ownership Relative to Egress Mode

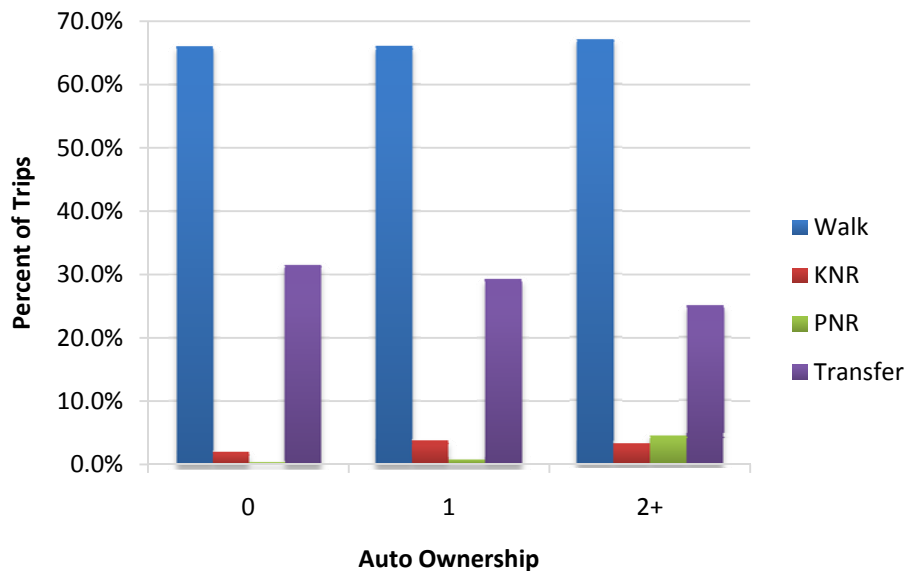
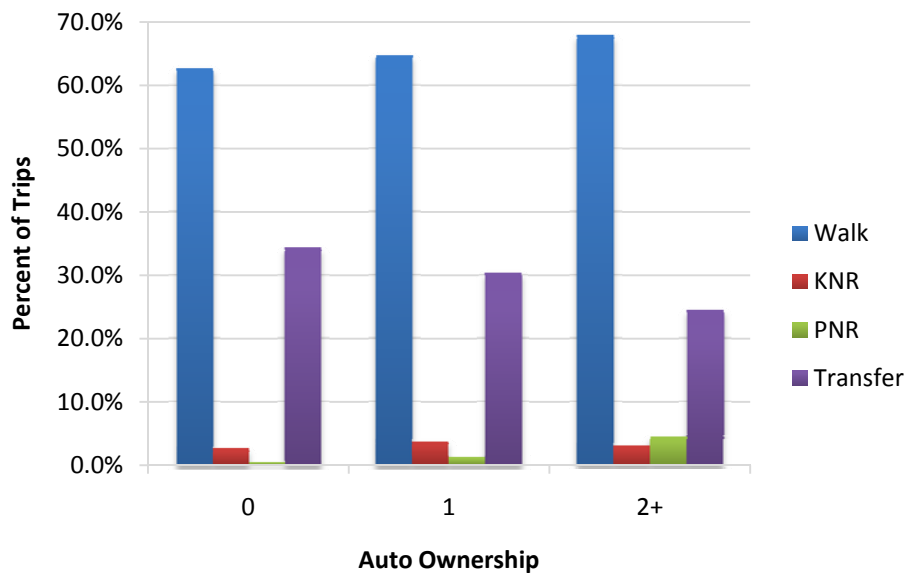


Table 41 and **Figure 30** show the distribution of auto ownership with respect to egress mode for the entire day. Walk is the dominant egress mode across all auto ownership categories. The KNR share varies from 3% to 4%. The PNR egress share is the highest for riders from households with two or more autos, compared to other auto ownership categories.

Table 41: Distribution of Daily Auto Ownership Relative to Egress Mode

Auto Own /Egress Mode	Walk	KNR	PNR	Transfer	Total	Auto Own /Egress Mode	Walk	KNR	PNR	Transfer	Total
0	6,853	286	43	3,752	10,934	0	63%	3%	0%	34%	100%
1	12,335	719	221	5,785	19,060	1	65%	4%	1%	30%	100%
2+	19,621	914	1,286	7,093	28,915	2+	68%	3%	4%	25%	100%
Total	38,810	1,919	1,550	16,629	58,908	Total	66%	3%	3%	28%	100%

Figure 30: Distribution of Daily Auto Ownership Relative to Egress Mode



Access Mode vs. Egress Mode

Table 42 shows the distribution of Access Mode with respect to Egress Mode in the peak period.

Walk and Transfer form the two highest egress mode categories across all access modes during the peak period. KNR **access** exhibits 11% KNR **egress**, while PNR **access** shows 5% PNR **egress**.

A total of 15,984 trips ($=5,798+379+174+4,376+2,246+1,058+1,953$) have Transfer as access and/or egress modes, accounting for 47% of peak period trips.

Table 42: Distribution of Peak Period Access Mode Relative to Egress Mode

Access Mode /Egress Mode	Walk	KNR	PNR	Transfer	Total	Access Mode /Egress Mode	Walk	KNR	PNR	Transfer	Total
Walk	6,315	312	217	2,246	9,089	Walk	69%	3%	2%	25%	100%
KNR	1,877	370	47	1,058	3,352	KNR	56%	11%	1%	32%	100%
PNR	8,295	97	549	1,953	10,893	PNR	76%	1%	5%	18%	100%
Transfer	5,798	379	174	4,376	10,728	Transfer	54%	4%	2%	41%	100%
Total	22,285	1,157	987	9,633	34,063	Total	65%	3%	3%	28%	100%

Table 43 shows the distribution of Access Mode with respect to Egress Mode for off Peak Period.

Similar to peak period, Walk and Transfer form the two highest egress mode categories across all access modes during the off peak period. KNR access exhibits 9% KNR egress, while PNR access shows 7% PNR egress.

A total of 11,860 trips ($=4,594+227+44+3,673+2,369+368+585$) have Transfer as access and/or egress modes accounting for 48% of off peak period trips.

Table 43: Distribution of Off Peak Period Access Mode Relative to Egress Mode

Access Mode /Egress Mode	Walk	KNR	PNR	Transfer	Total	Access Mode /Egress Mode	Walk	KNR	PNR	Transfer	Total
Walk	7,772	338	229	2,369	10,708	Walk	73%	3%	2%	22%	100%
KNR	960	138	18	368	1,485	KNR	65%	9%	1%	25%	100%
PNR	3,198	59	272	585	4,115	PNR	78%	1%	7%	14%	100%
Transfer	4,594	227	44	3,673	8,538	Transfer	54%	3%	1%	43%	100%
Total	16,525	762	563	6,996	24,845	Total	67%	3%	2%	28%	100%

Table 44 shows the distribution of Access Mode with respect to Egress Mode for the entire day.

At a daily level, Walk and Transfer form the two highest egress mode categories across all access modes. KNR access exhibits 11% KNR egress, while PNR access shows 5% PNR egress.

A total of 27,846 trips (=10,393+606+218+8,050+4,615+1,426+2,538) have Transfer as access and/or egress modes accounting for 47% of daily trips.

Table 44: Distribution of Off Peak Period Access Mode Relative to Egress Mode

Access Mode /Egress Mode	Walk	KNR	PNR	Transfer	Total	Access Mode /Egress Mode	Walk	KNR	PNR	Transfer	Total
Walk	14,087	650	446	4,615	19,797	Walk	71%	3%	2%	23%	100%
KNR	2,837	508	66	1,426	4,837	KNR	59%	11%	1%	29%	100%
PNR	11,493	156	821	2,538	15,008	PNR	77%	1%	5%	17%	100%
Transfer	10,393	606	218	8,050	19,266	Transfer	54%	3%	1%	42%	100%
Total	38,810	1,919	1,550	16,629	58,908	Total	66%	3%	3%	28%	100%

Trip Length Distribution

Figures 31 through 33 show the trip length distribution in terms of number of stations traveled during peak periods, off peak period and daily, respectively.

The peak period trip distribution shows longer trip length compared to off peak period. This could be attributed to the fact that peak period has a higher proportion of HBW trips which are typically longer than other trip purposes.

The average trip length during the peak periods is 7.3 stations. The largest rider group travels 7 stations, and they account for 13% of peak period trips. The average off peak period trip length is 6.8 stations, where the largest rider group travels 3 stations and accounts for 13% of trips.

The daily trip length is 7.1 stations and the largest rider group travels 7 stations and accounts for 11% of trips.

Figure 31: Peak Period Trip Length Distribution

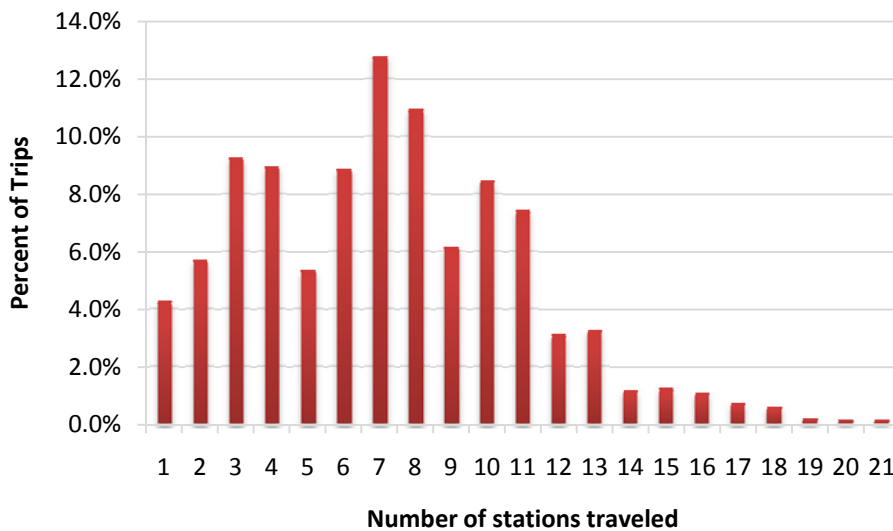


Figure 32: Off Peak Period Trip Length Distribution

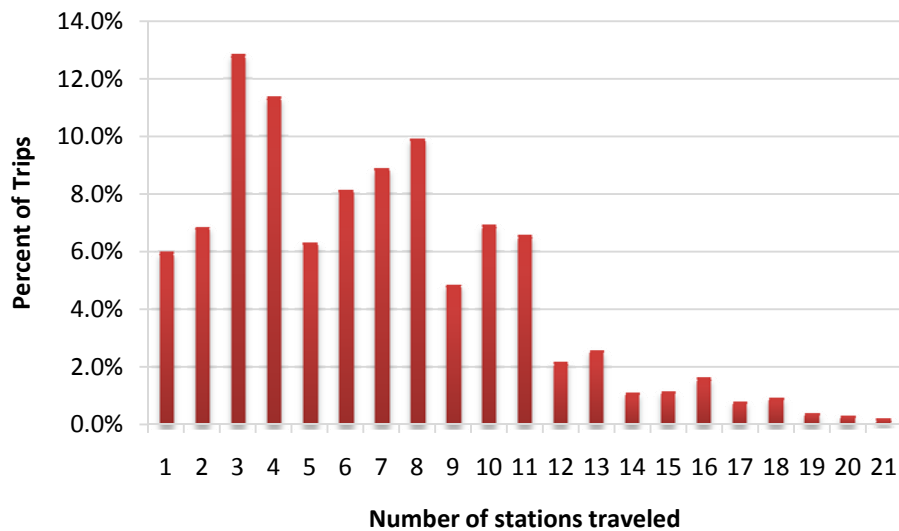
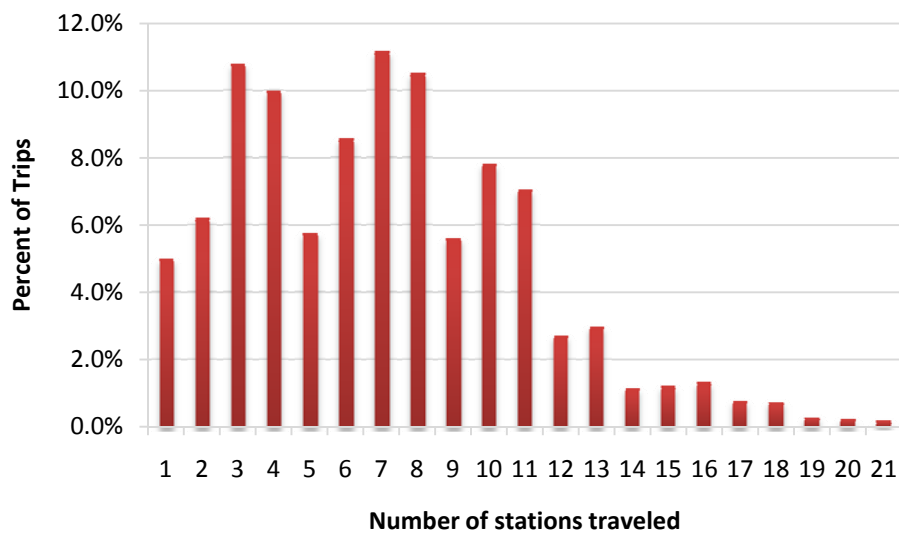


Figure 33: Daily Trip Length Distribution



Station to Station Origin-Destination Matrix

Tables 45 through 47 show the expanded station to station trip matrix in origin-destination format for the peak period, off peak period and the daily, respectively.

Table 45 shows that Government Center, Civic Center and Dadeland South are the top 3 stations in terms of total boardings and alightings. Dadeland South to Government Center, Dadeland North to Government Center, and Government Center to Dadeland North are the top 3 O-D flows during the peak period.

Table 46 shows that, just like peak period, Government Center, Civic Center and Dadeland South are the top 3 stations in terms of total boarding and alightings during the off peak period as well. Dadeland South to Government Center, Government Center to Dadeland North, and Government Center to Dadeland South are the top 3 O-D flows during the off peak period.

Table 47 shows that at a daily level, Government Center, Civic Center and Dadeland South are the top 3 stations in terms of total boarding and alightings. Dadeland South to Government Center, Dadeland North to Government Center, and Government Center to Dadeland North are the top 3 O-D flows at daily level.

Table 45: Peak Period Station to Station Origin Destination Trip Matrix

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	31	22	78	31	20	11	0	4	4	234	2	27	314	52	11	14	34	18	5	13	9	934
Okeechobee	33	0	0	14	28	14	7	3	6	15	163	9	37	255	39	15	3	31	15	2	5	18	713
Hialeah	28	0	0	14	38	14	5	17	0	3	158	17	27	309	71	10	14	48	47	20	17	21	880
Tri-Rail	72	25	25	0	21	15	44	6	13	3	289	0	16	271	100	8	16	16	58	16	25	86	1,125
Northside	61	46	40	21	0	42	42	0	19	5	153	13	34	258	27	62	11	95	44	33	13	68	1,089
Martin Luther King Jr	14	13	27	6	21	0	13	48	27	0	72	16	11	127	10	17	6	47	39	19	33	73	641
Brownsville	13	9	11	27	53	0	0	36	5	0	95	13	16	75	7	0	3	3	25	23	19	44	478
Earlington Heights	23	21	36	6	19	30	16	0	5	5	124	26	24	177	15	12	8	75	31	34	21	71	780
Allapattah	32	26	26	25	23	6	12	31	0	0	95	25	0	143	53	6	17	103	134	36	51	76	919
Santa Clara	9	4	4	10	25	0	15	15	9	0	20	14	4	118	27	0	0	16	28	8	34	37	399
Civic Center	133	117	63	252	102	67	45	51	25	13	0	32	13	259	164	28	59	92	152	316	718	655	3,356
Culmer	3	18	5	15	28	15	44	5	42	26	53	0	11	67	24	37	0	72	34	42	73	92	704
Overtown	44	32	18	14	34	16	3	35	0	0	97	9	0	52	37	41	35	69	47	70	147	206	1,006
Government Center	318	254	133	247	143	53	42	59	30	32	157	9	29	0	70	92	216	451	206	487	1,100	1,055	5,184
Brickell	52	39	37	97	27	7	2	12	16	18	211	35	14	99	0	35	67	205	99	88	320	266	1,745
Vizcaya	41	19	10	21	21	10	0	0	0	0	96	20	14	88	31	0	6	64	53	47	98	86	726
Coconut Grove	23	11	7	18	2	9	2	9	11	2	74	7	15	361	79	15	0	78	53	45	67	129	1,019
Douglas Road	12	27	12	33	3	43	18	30	18	30	187	40	37	548	191	37	64	0	65	129	256	274	2,055
University	16	34	14	64	0	16	0	21	23	2	203	21	37	228	16	28	18	32	0	9	83	134	1,000
South Miami	6	9	0	36	15	6	0	30	21	0	386	24	71	770	71	27	28	52	76	0	49	44	1,722
Dadeland North	14	13	9	6	16	23	6	11	20	8	694	51	95	1,295	278	52	116	222	149	100	0	36	3,215
Dadeland South	44	14	16	50	36	62	30	32	62	42	890	63	134	1,373	400	51	73	415	238	197	150	0	4,374
Total	993	764	517	1,055	686	468	357	452	357	210	4,451	446	666	7,187	1,761	585	773	2,222	1,614	1,726	3,293	3,480	34,063

Table 46: Off Peak Period Station to Station Origin Destination Trip Matrix

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	12	23	23	12	0	18	18	0	9	65	0	9	101	18	0	0	0	28	18	9	18	384
Okeechobee	0	0	0	43	22	22	9	0	0	0	99	0	9	108	27	0	0	0	9	9	0	36	392
Hialeah	17	0	0	34	68	51	0	10	29	20	127	10	20	244	39	29	20	10	68	0	29	39	863
Tri-Rail	21	53	0	0	28	28	0	0	0	0	40	0	0	339	100	0	0	0	80	20	40	100	847
Northside	39	39	20	0	0	0	39	138	39	0	154	13	13	206	26	13	0	90	26	26	64	64	1,008
Martin Luther King Jr	0	24	24	12	24	0	67	0	0	22	98	27	9	134	45	9	18	18	27	27	18	62	663
Brownsville	10	10	24	0	47	24	0	37	0	0	86	9	9	136	0	18	0	9	9	18	9	27	483
Earlington Heights	12	0	12	0	59	30	15	0	12	0	146	12	0	267	0	0	12	12	12	12	36	61	710
Allapattah	46	0	30	15	30	15	44	59	0	12	111	0	12	189	11	22	11	89	45	33	56	45	876
Santa Clara	0	0	0	28	28	9	9	0	0	0	19	0	9	102	23	0	11	0	11	11	23	34	319
Civic Center	57	38	38	172	134	115	129	103	26	0	0	0	24	379	261	27	55	82	219	55	301	356	2,569
Culmer	0	0	0	0	0	0	13	0	0	0	51	0	0	84	101	17	26	13	26	39	105	92	567
Overtown	0	0	23	11	23	23	11	45	0	0	66	17	0	167	12	12	24	47	35	58	23	58	655
Govt. Center	137	168	290	213	46	107	46	137	61	21	404	21	149	0	95	47	237	402	150	299	599	554	4,182
Brickell	44	0	15	0	29	0	15	0	15	0	146	22	11	56	0	14	28	56	111	103	177	177	1,019
Vizcaya	0	9	18	9	0	9	0	0	18	0	46	0	0	167	0	0	15	15	61	46	97	19	531
Coconut Grove	0	0	13	0	25	0	13	13	25	0	63	0	15	167	65	15	0	36	22	80	94	96	740
Douglas Road	0	25	17	25	34	8	8	17	51	34	85	34	42	421	168	32	32	0	68	91	182	205	1,581
University	34	0	23	56	0	23	0	0	11	11	191	0	0	124	107	43	0	43	0	29	117	88	899
South Miami	0	13	0	51	26	26	13	0	13	0	204	13	13	345	77	0	51	34	69	0	17	34	998
Dadeland North	9	0	0	9	36	18	0	9	27	18	397	18	36	532	90	18	120	137	120	103	0	34	1,732
Dadeland South	33	22	44	22	77	55	11	0	33	0	485	33	99	816	99	11	77	274	343	154	137	0	2,828
Total	460	413	613	725	746	561	461	586	361	148	3,083	229	479	5,084	1,363	327	737	1,367	1,538	1,233	2,133	2,200	24,845

Table 47: Daily Station to Station Origin Destination Trip Matrix

Origin Station / Destination Station	Palmetto	Okeechobee	Hialeah	Tri-Rail	Northside	Martin Luther King Jr	Brownsville	Earlington Heights	Allapattah	Santa Clara	Civic Center	Culmer	Overtown	Govt. Center	Brickell	Vizcaya	Coconut Grove	Douglas Road	University	South Miami	Dadeland North	Dadeland South	Total
Palmetto	0	43	45	102	43	20	29	18	4	13	298	2	36	416	70	11	14	34	46	24	22	27	1,317
Okeechobee	33	0	0	57	50	36	16	3	6	15	262	9	46	363	66	15	3	31	24	11	5	54	1,105
Hialeah	45	0	0	48	106	65	5	27	29	23	285	27	47	553	110	39	34	57	116	20	46	60	1,743
Tri-Rail	93	78	25	0	49	42	44	6	13	3	329	0	16	610	200	8	16	16	138	36	65	185	1,971
Northside	100	86	60	21	0	42	81	138	58	5	307	26	47	464	53	75	11	185	70	58	78	132	2,097
Martin Luther King Jr	14	36	51	18	45	0	80	48	27	22	170	43	20	260	55	26	24	65	66	45	51	135	1,304
Brownsville	23	20	35	27	101	24	0	73	5	0	181	22	25	210	7	18	3	12	34	41	28	71	961
Earlington Heights	35	21	48	6	78	60	31	0	17	5	270	38	24	444	15	12	20	87	43	47	57	132	1,490
Allapattah	78	26	56	40	52	21	57	90	0	12	206	25	12	333	64	28	28	192	179	69	106	120	1,795
Santa Clara	9	4	4	38	52	9	24	15	9	0	39	14	13	221	50	0	11	16	39	20	57	72	718
Civic Center	191	155	102	424	236	181	174	154	50	13	0	32	37	638	425	56	114	174	371	371	1,019	1,011	5,926
Culmer	3	18	5	15	28	15	57	5	42	26	104	0	11	151	125	54	26	85	60	81	178	183	1,270
Overtown	44	32	41	26	56	38	14	81	0	0	163	26	0	219	49	53	59	116	82	128	171	264	1,662
Govt. Center	456	421	423	461	189	160	88	196	91	53	562	30	178	0	164	140	453	854	356	786	1,698	1,609	9,366
Brickell	97	39	52	97	56	7	17	12	31	18	356	57	26	155	0	49	94	261	211	191	497	443	2,764
Vizcaya	41	28	29	30	21	20	0	0	18	0	142	20	14	254	31	0	21	80	114	93	195	106	1,256
Coconut Grove	23	11	19	18	27	9	15	22	37	2	137	7	30	528	144	30	0	115	75	125	161	225	1,760
Douglas Road	12	53	29	58	37	52	26	47	69	64	272	74	80	968	359	69	95	0	134	220	439	479	3,636
University	50	34	36	120	0	39	0	21	34	14	394	21	37	352	122	71	18	74	0	38	200	222	1,899
South Miami	6	22	0	87	41	32	13	30	34	0	591	37	84	1,115	148	27	79	86	145	0	66	78	2,720
Dadeland North	23	13	9	15	53	41	6	20	47	27	1,091	69	131	1,827	368	70	236	359	269	203	0	71	4,947
Dadeland South	78	36	60	72	113	117	41	32	95	42	1,376	96	233	2,190	500	62	150	689	580	351	287	0	7,201
Total	1,453	1,178	1,129	1,780	1,432	1,028	818	1,038	718	358	7,534	674	1,146	12,272	3,124	912	1,510	3,589	3,152	2,959	5,427	5,680	58,908

Comparison with Fare Card Data

The MDT Fare Card data was used both as a source of control data for expansion and as an auxiliary data source to cross check the trip length distribution and station boardings and alightings by time period. The comparison of boardings across stations and average trip lengths in the survey sample and the fare card data reveal consistent results, as described below.

Table 48 shows the average trip length by time period and also for the entire day. **Figures 32 through 34** show the trip length distribution from the expanded survey and the Fare Card data for peak period, off peak period and the entire day.

Table 48: Comparison of Fare Card and Expanded Survey Average Trip Length by Time Period

Period	Fare Card	Survey	% Difference
Peak	7.1	7.3	2%
Off Peak	6.6	6.8	3%
Daily	6.9	7.1	2%

Figure 34 shows that the survey trip length distribution is very similar to Fare Card trip length distribution across all trip lengths, defined by number of stations traveled. The average peak period trip length from the Fare Card data is 7.1 stations while that from the survey is 7.3 stations. There is a small difference of 2% between the two sources.

Figure 34: Comparison of Fare Card and Expanded Survey Peak Period Trip Length Distribution

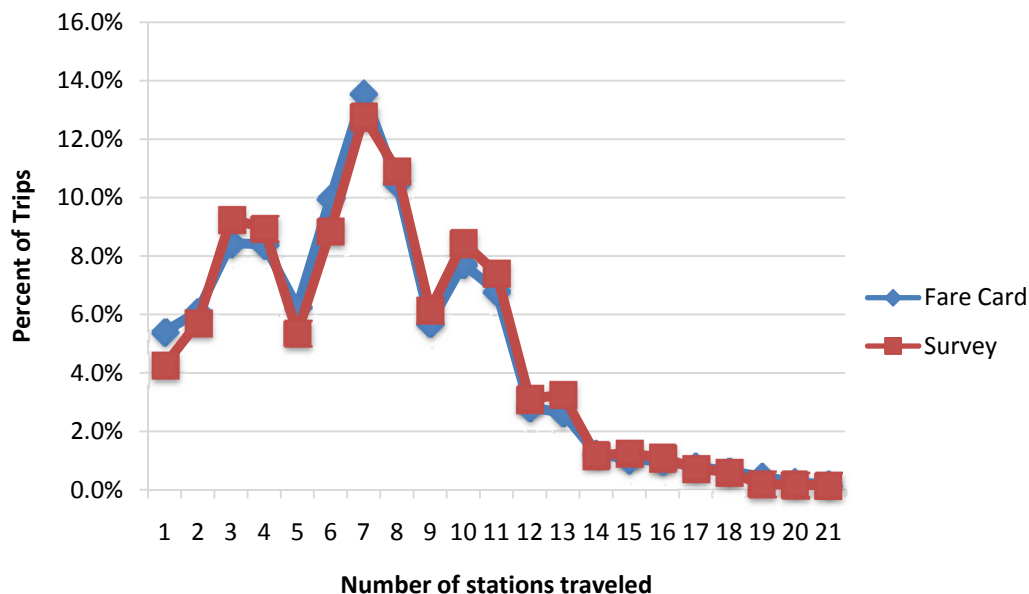


Figure 35: Comparison of Fare Card and Expanded Survey Off Peak Period Trip Length Distribution

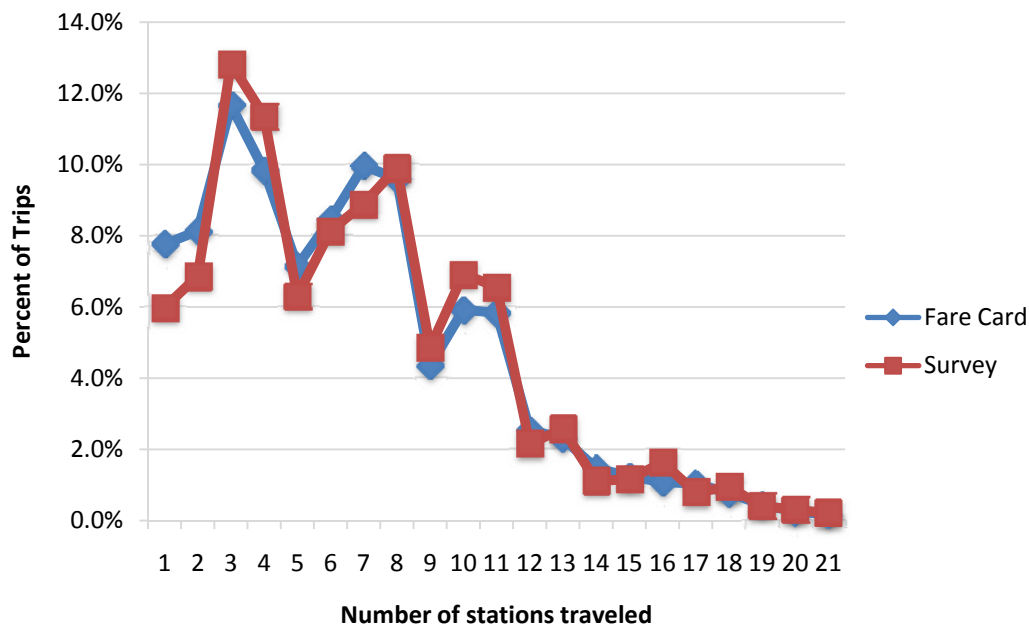
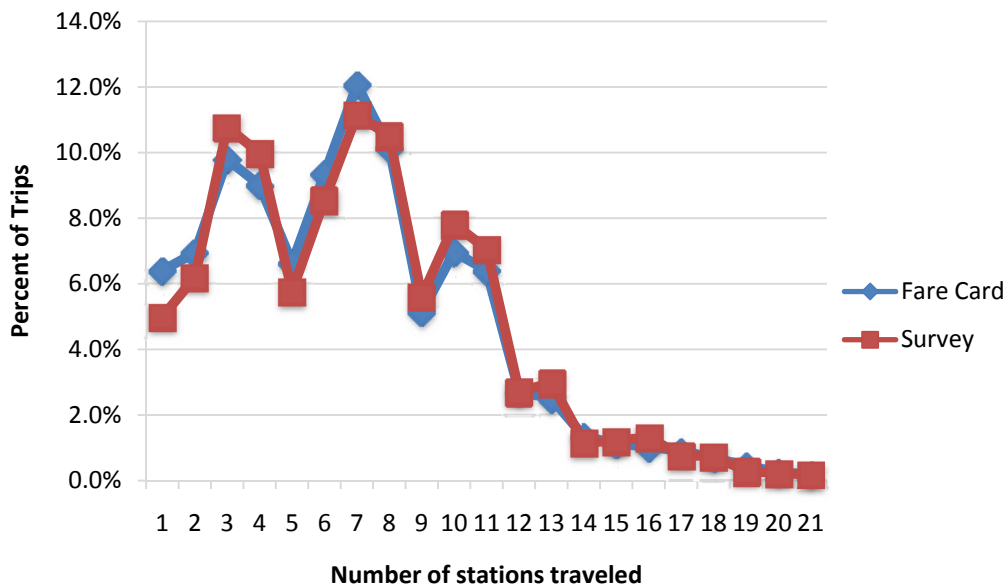


Figure 35 shows that the off peak period survey trip length distribution is also very similar to the Fare Card trip length distribution across all trip lengths. The average off peak period trip length from the Fare Card data is 6.6 stations, while that from the survey is 3% higher.

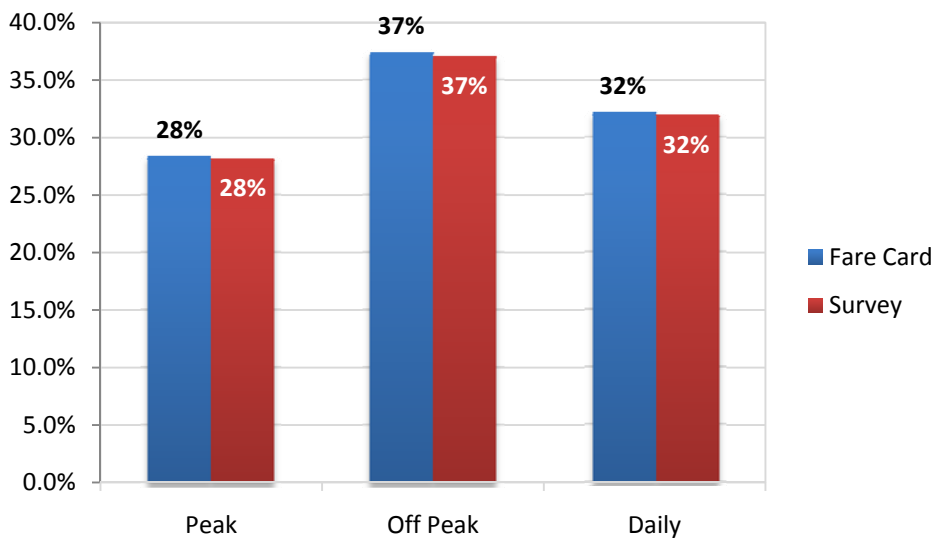
Figure 36 shows that the daily survey trip length distribution is very similar to Fare Card data, which is also reflected in similar average trip lengths. The average Fare Card trip length for the entire day is 6.9, while that from the survey is 7.1.

Figure 36: Comparison of Fare Card and Expanded Survey Daily Trip Length Distribution



During the preliminary analysis of the survey, the number of stations traveled was not used as one of the expansion dimension. It was found that in the expanded results, there was a bias against short trips. In other words, the expanded survey results showed a lower percentage of short trips (trips that travel four or less stations) compared to the Fare Card data. In order to eliminate this bias, a dimension was added to the expansion methodology, further disaggregating the data by number of stations traveled. **Figure 37** shows the resulting short trips from the expanded survey as well as the Fare Card data. It can be observed that both sources produce very similar proportions of short trips, and it can be concluded that there is no short trip bias in the expanded results.

Figure 37: Comparison of Short Trips from Fare Card and Expanded Survey



The survey sample data was expanded against counts developed by applying time period, directional, and station traveled factors to April 2009 average MDT turnstyle counts. Since the April 2009 MDT control counts are not identical to the February Fare Card data, some discrepancy is expected in the boardings from the expanded survey and Fare Card data.

Figures 38 through 40 show the comparison of boardings from the Fare Card data and expanded survey data by period and for the entire day. It can be observed from all the figures that the boarding trends from the Fare Card and expanded survey are similar across all the periods.

Figure 38: Comparison of Fare Card and Expanded Survey Peak Period Boardings

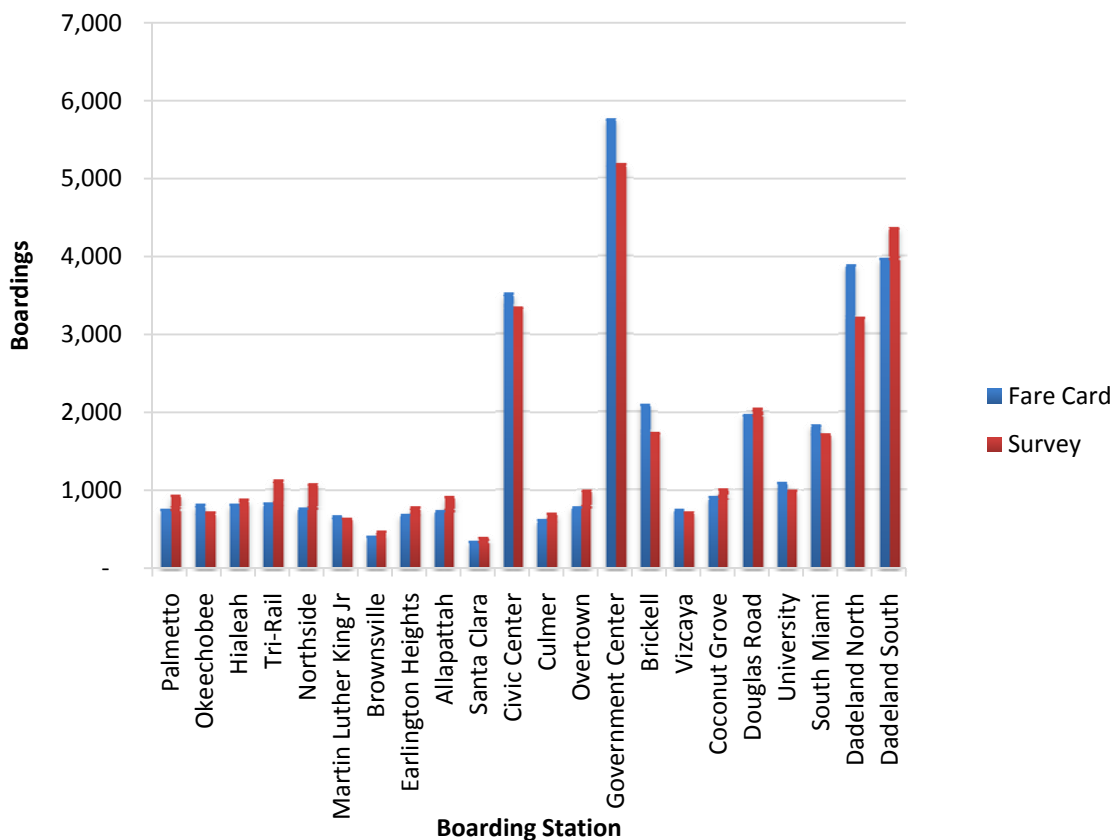


Figure 39: Comparison of Fare Card and Expanded Survey Off Peak Period Boardings

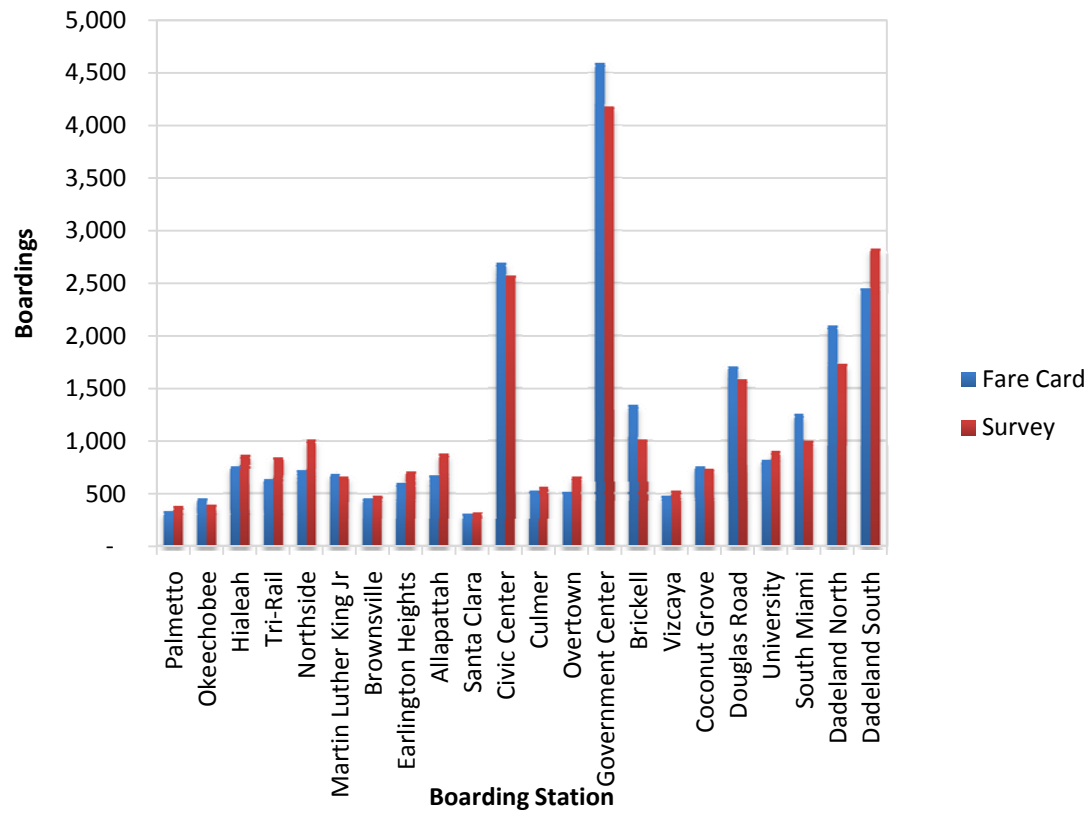
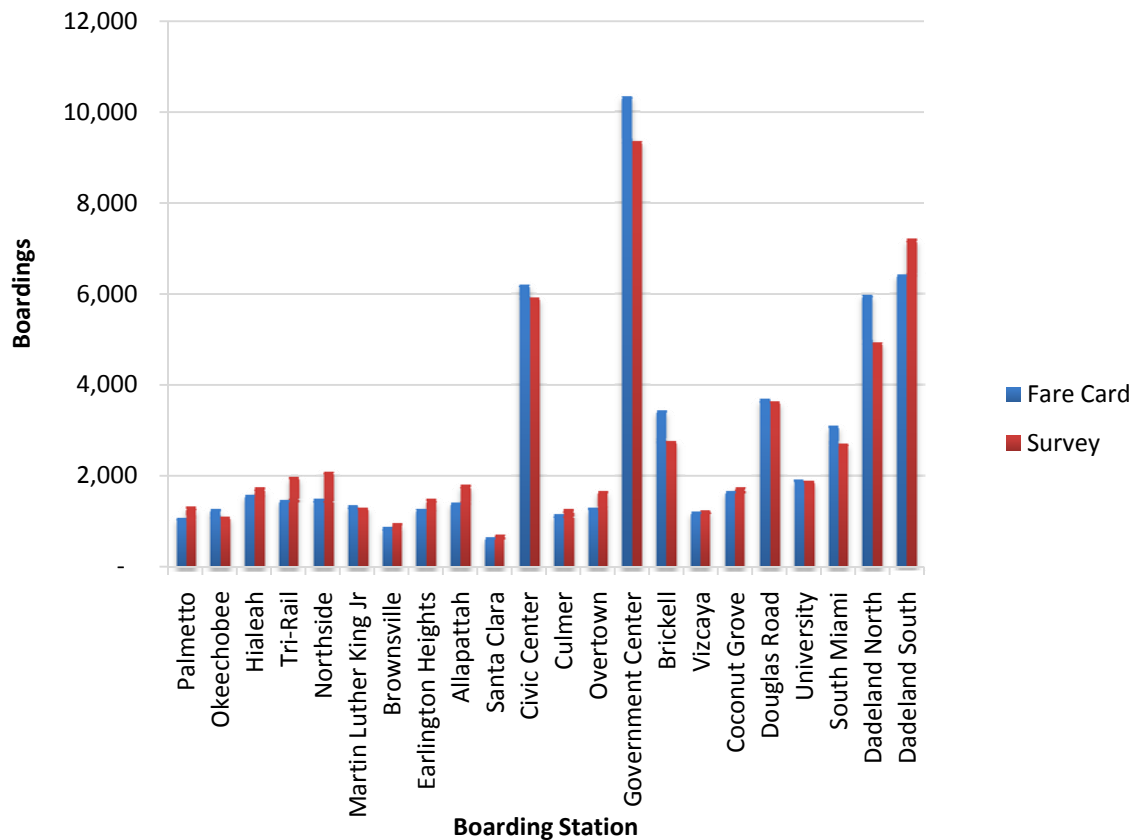


Figure 40: Comparison of Fare Card and Expanded Survey Daily Boardings



Figures 41 through 42 show the comparison of alightings from the Fare Card and Expanded Survey data by period and for the entire day. The alighting trends from the Fare Card data and expanded survey, just like boarding trends, are similar across all the periods. However, there is some discrepancy in the total alightings at certain stations. Overall, the boardings and alightings from the Fare Card data and Expanded survey are similar.

The Fare Card and expanded survey estimates of trip length distributions, average trip length, boardings, and alightings by time period were compared. The results of the comparisons show that the expanded survey produces results that are very similar to the Fare Card data across all the variables compared.

Figure 41: Comparison of Fare Card and Expanded Survey Peak Period Alightings

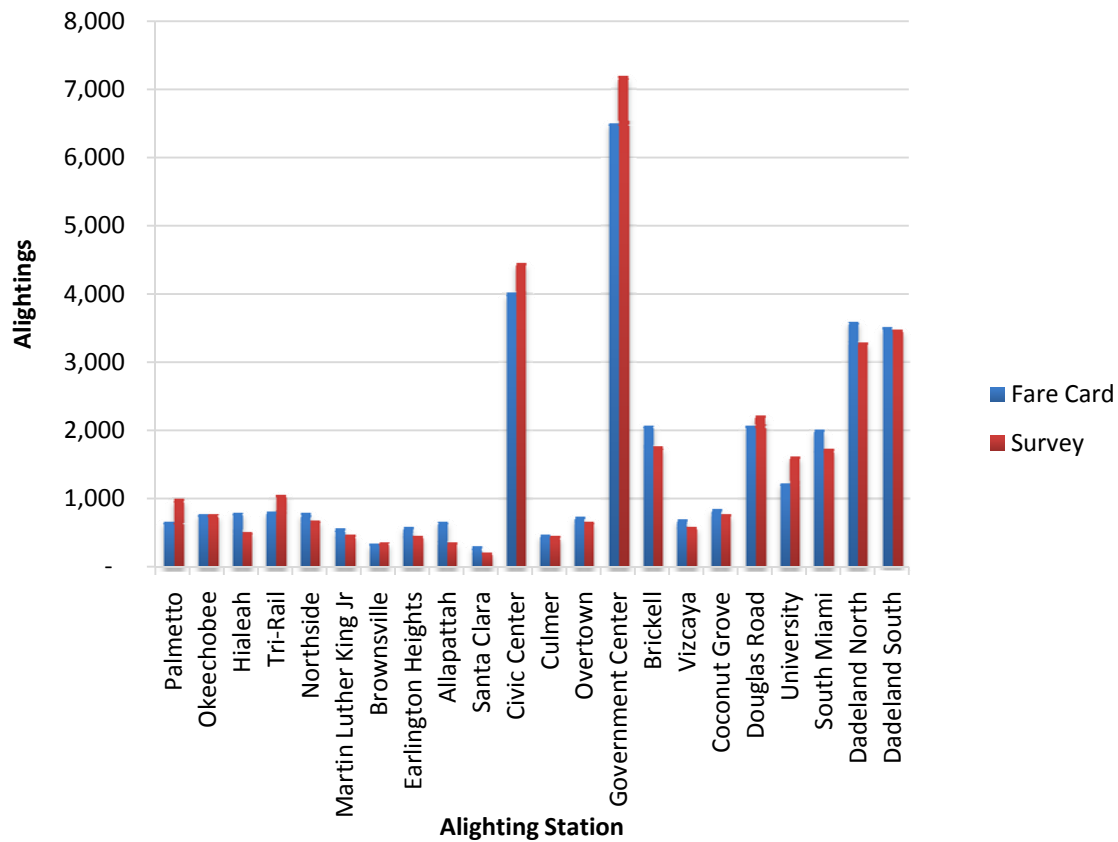


Figure 42: Comparison of Fare Card and Expanded Survey Off Peak Period Alightings

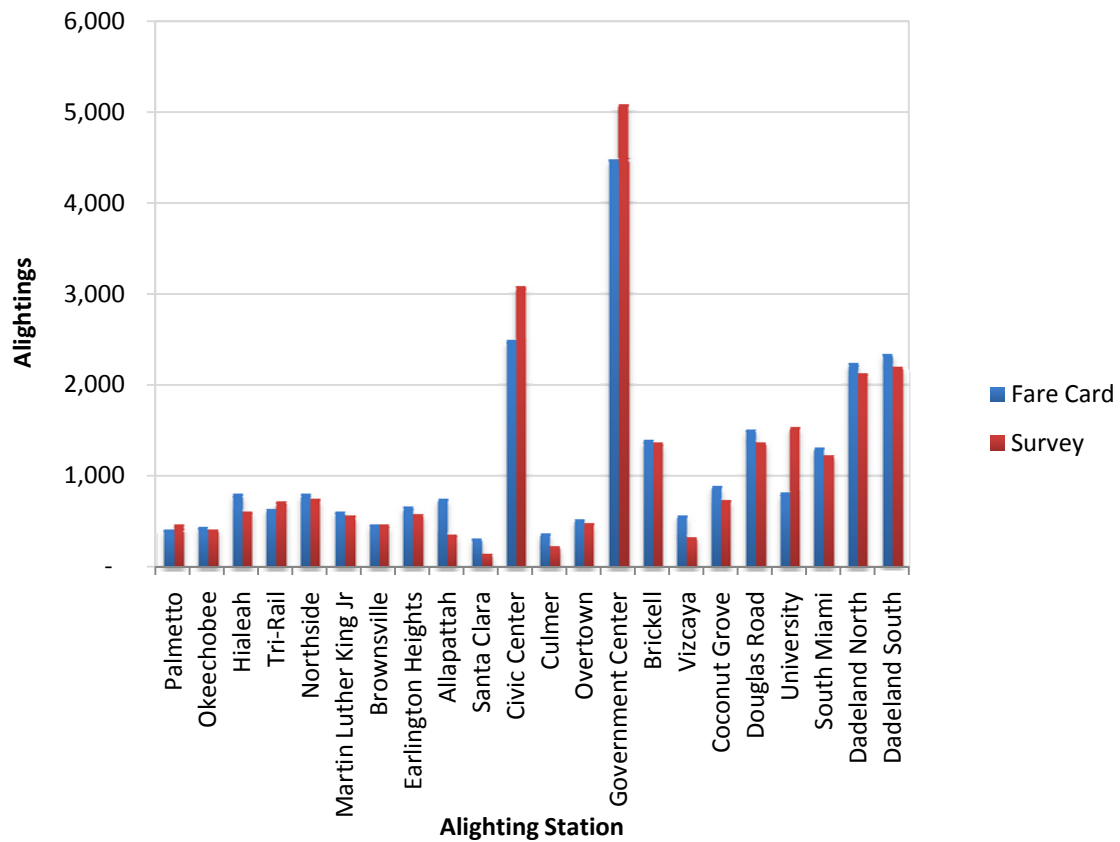
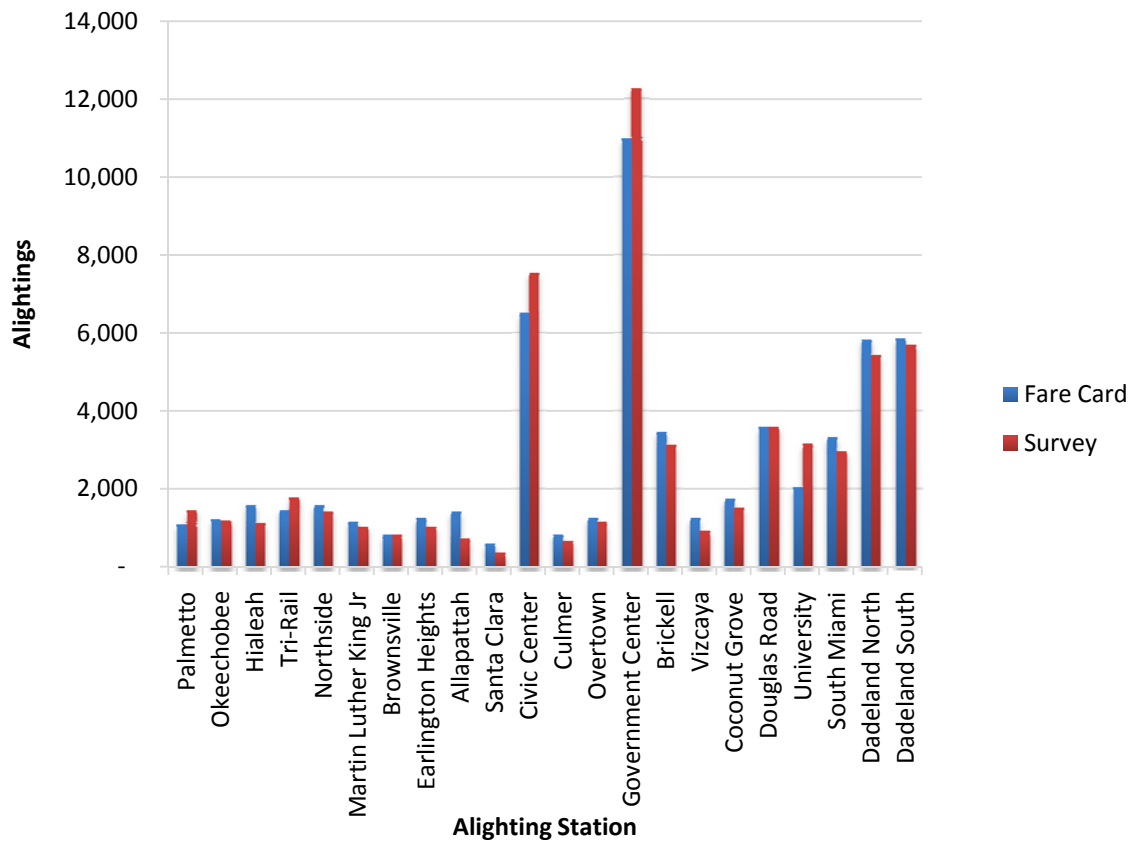


Figure 43: Comparison of Fare Card and Expanded Survey Daily Alightings



Geocoding Results

Geocoding is the process of finding and digitizing associated geographic coordinates (latitude and longitude) from geographic data such as street address and zip codes. The Metrorail survey included the street address of trip origins and destinations. These addresses were geocoded using ArcGIS.

The geocoding process requires a database of geographic information of all the street addresses in Palm Beach, Broward, and Miami-Dade counties, which was obtained. A program was developed to convert this database into a form usable by ArcGIS. Once the master database for all the addresses in the three counties was created, another program called “Geocode Address” was used to geocode the street addresses from the survey. This program reads the street address from the surveys, and matches it against the master database of addresses. Once a match is found, the geographic information of the address is read from the master database and geocoding is complete. For addresses that were not found in the master database, a manual process was conducted to geocode those locations.

The geocoded addresses were converted to a predetermined district format, where all the addresses falling within a district were defined to be contained in that district. Miami-Dade County was divided into 22 districts. **Figure 44** shows the district map.

A district to district flow table was estimated in PA format and is shown in **Table 49**. Districts 23 and 24 are Broward and Palm Beach counties respectively. Districts 21, 4, 5, 20, and 16 are the top 5 production districts, while districts 5, 6, 17, 18, and 16 are the top 5 attraction districts. The top 5 district to district flows are 21-5, 14-5, 20-5, 12-5, and 18-5. The Government Center station lies in district 5, making that district the biggest attractor in the district structure. **Figure 45** shows the bidirectional flows for district interchanges with greater than 500 daily person trip Metrorail flows.

Figure 44: District Structure for Miami-Dade County

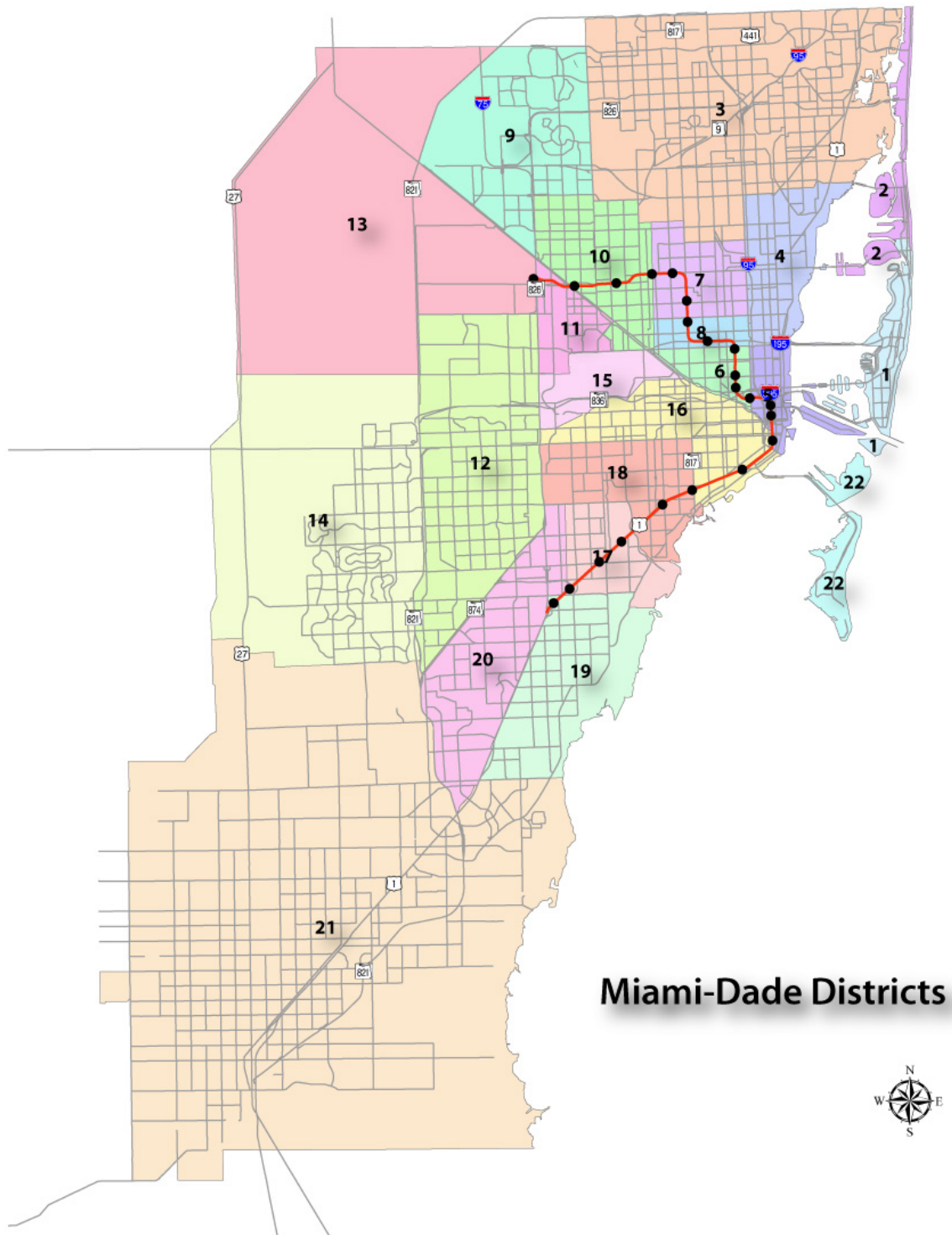
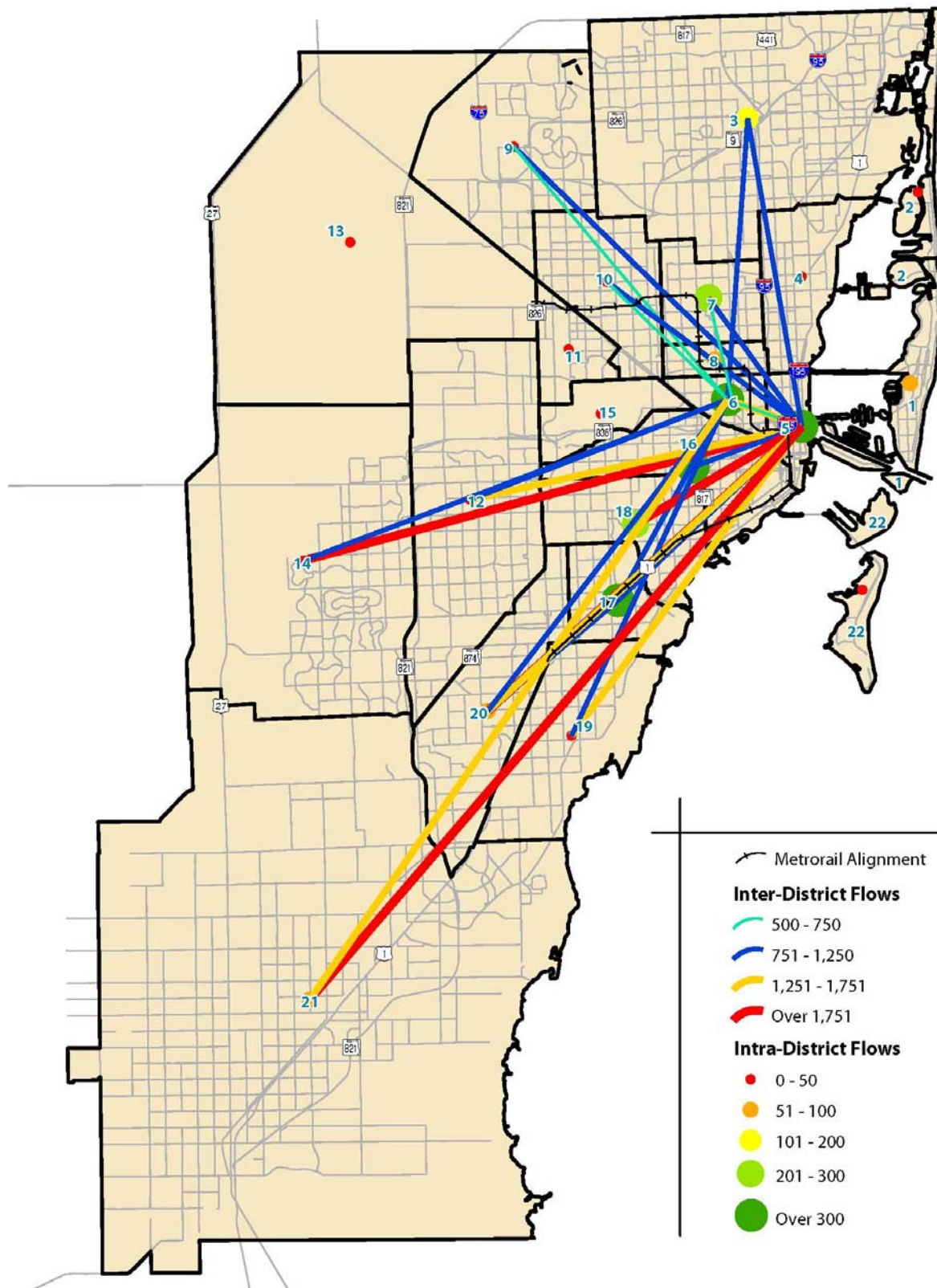


Table 49: Daily Station to Station Origin Destination Trip Matrix (in PA format)

District	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
1	70	0	5	0	0	35	24	0	0	6	0	16	6	0	0	40	108	54	24	0	0	0	43	0	432
2	0	0	0	0	8	167	0	0	0	0	23	0	0	0	0	0	0	37	0	0	0	4	6	13	256
3	47	0	108	12	803	781	115	34	9	68	65	153	12	18	59	83	316	426	35	113	41	79	67	0	3,444
4	0	0	16	3	120	382	63	30	2	33	22	65	30	0	0	85	217	186	66	48	0	35	0	0	1,401
5	37	0	83	91	763	986	191	86	35	174	35	163	34	25	27	117	664	455	163	279	43	4	70	80	4,603
6	109	13	66	9	717	508	129	23	17	110	29	134	28	0	0	178	390	245	61	108	14	0	138	67	3,092
7	89	0	30	80	578	505	202	52	78	184	93	236	54	11	14	99	201	202	84	87	30	32	37	0	2,978
8	12	0	123	50	398	432	179	92	11	31	0	41	21	5	14	88	128	135	5	60	16	9	39	12	1,901
9	30	0	2	0	877	541	12	4	11	16	0	79	6	21	0	86	128	61	4	34	26	2	45	18	2,003
10	79	0	60	36	888	569	58	23	6	41	0	36	12	28	0	96	152	93	29	0	0	21	77	25	2,329
11	0	0	0	0	50	71	0	0	0	2	33	0	0	0	0	13	26	0	0	2	0	20	15	0	233
12	16	0	49	47	1,552	798	57	4	13	11	0	33	8	0	0	152	211	225	16	19	42	11	53	4	3,321
13	5	0	19	0	25	27	0	0	0	0	0	0	13	0	0	5	0	2	6	0	0	0	0	0	101
14	75	4	27	36	2,425	1,082	18	13	0	25	0	114	37	18	4	228	178	265	52	56	28	16	202	14	4,918
15	0	0	0	0	29	63	0	0	0	0	0	0	0	0	0	7	0	0	6	28	0	0	0	0	133
16	92	0	41	44	886	742	47	12	34	121	15	177	60	108	19	352	589	363	244	217	52	16	149	18	4,398
17	25	0	46	26	829	932	48	23	3	4	5	39	0	13	0	69	460	143	6	141	42	42	37	72	3,008
18	110	12	53	80	1,514	591	26	7	49	16	0	94	12	60	4	231	293	255	131	176	48	34	50	43	3,890
19	28	19	0	0	1,137	705	10	31	0	0	0	3	0	21	0	69	257	58	15	0	13	0	16	18	2,399
20	56	0	42	33	1,723	958	83	45	24	13	13	61	14	0	54	128	671	386	24	65	12	24	41	11	4,480
21	128	20	90	77	2,453	1,469	141	16	34	84	0	131	11	9	30	455	395	401	25	39	61	37	187	4	6,297
22	0	0	0	19	13	0	0	0	0	0	0	0	3	0	0	0	0	13	0	12	0	0	0	0	60
23	10	13	0	5	1,094	690	2	0	0	74	5	56	73	22	17	98	464	71	21	4	28	0	25	18	2,791
24	19	0	0	0	137	157	0	0	0	0	7	13	0	8	0	0	54	17	4	4	3	0	7	7	438
Total	1,038	82	861	649	19,020	13,190	1,407	495	324	1,013	345	1,644	433	367	240	2,679	5,900	4,093	1,020	1,493	498	386	1,304	426	58,908

Figure 45: Bidirectional Metrorail Travel Desires (>500 daily)



The trip origins corresponding to walk access, auto access and transfer access are shown in **Figures 46 through 48**. **Figure 46** shows that the highest trip origin densities corresponding to walk access occur very close to Metrorail stations. There are some origins that are far away from Metrorail stations. This could indicate that either some Metrorail patrons walk long distances to access stations or that there was an error in filling out the survey and the long distance walk access are transfers from other transit modes.

The auto and transfer access plots, **Figures 47 and 48**, show that the origins corresponding to those access modes are spread out as expected.

Figure 46: Trip Origins corresponding to walk access

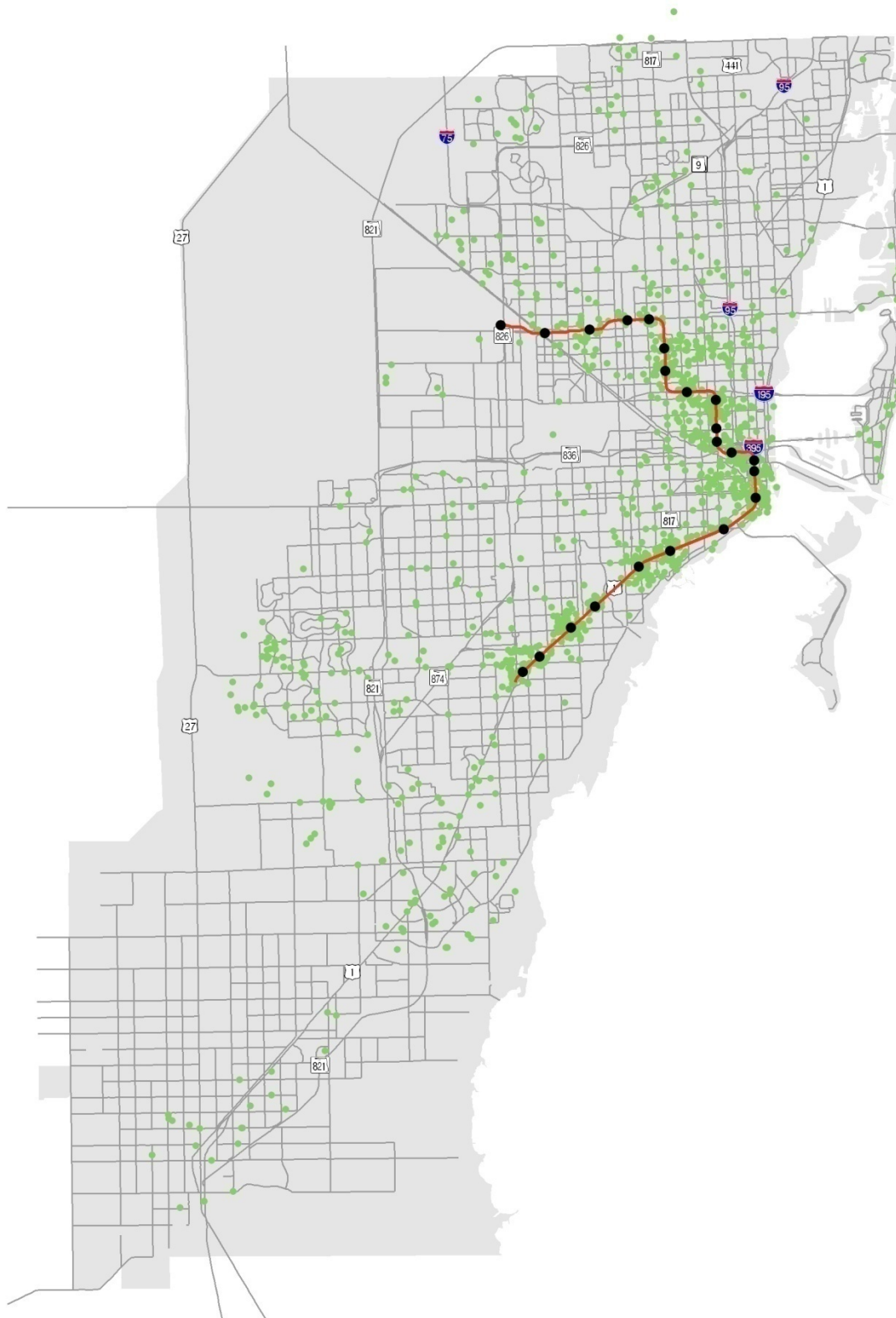


Figure 47: Trip Origins corresponding to auto access

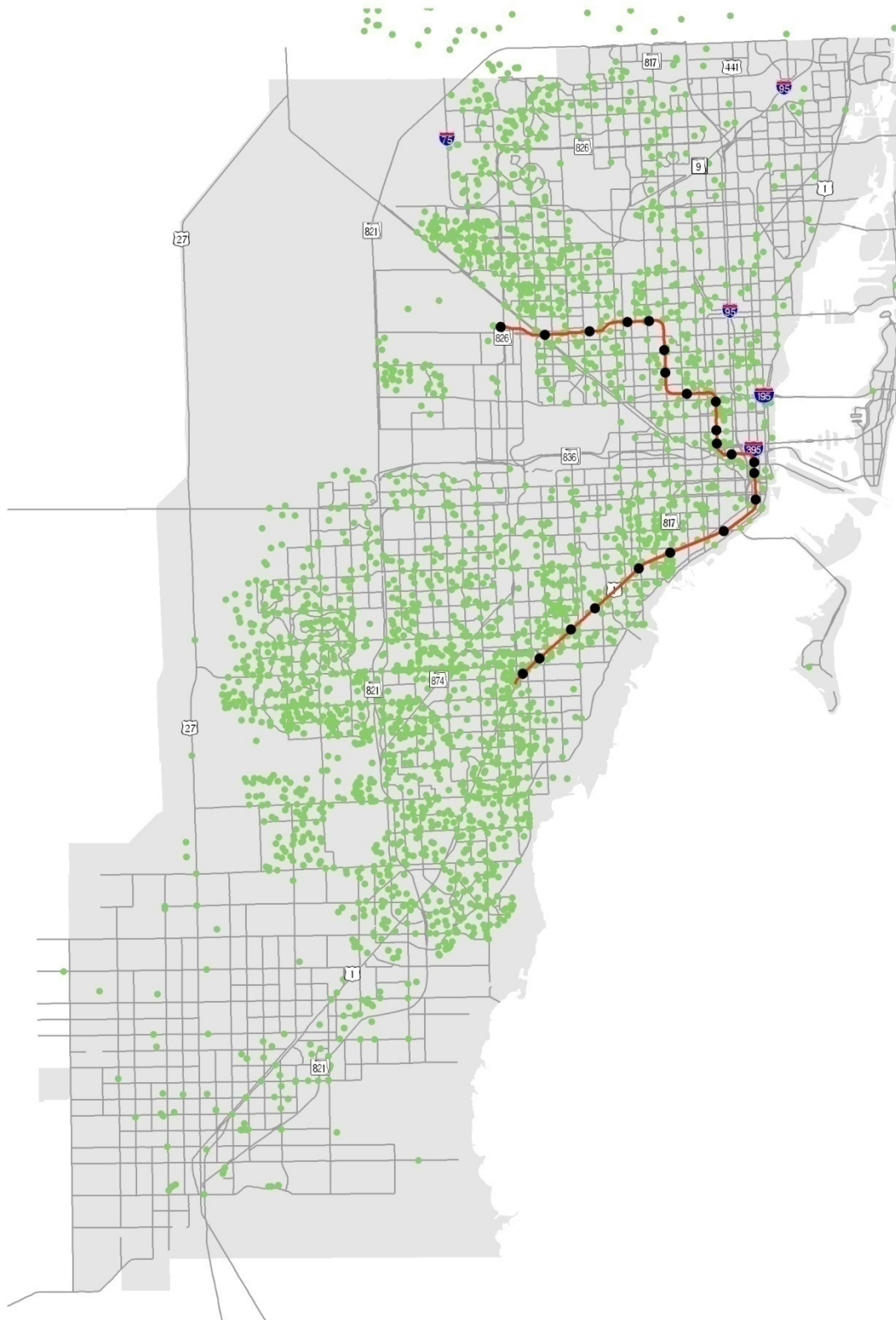
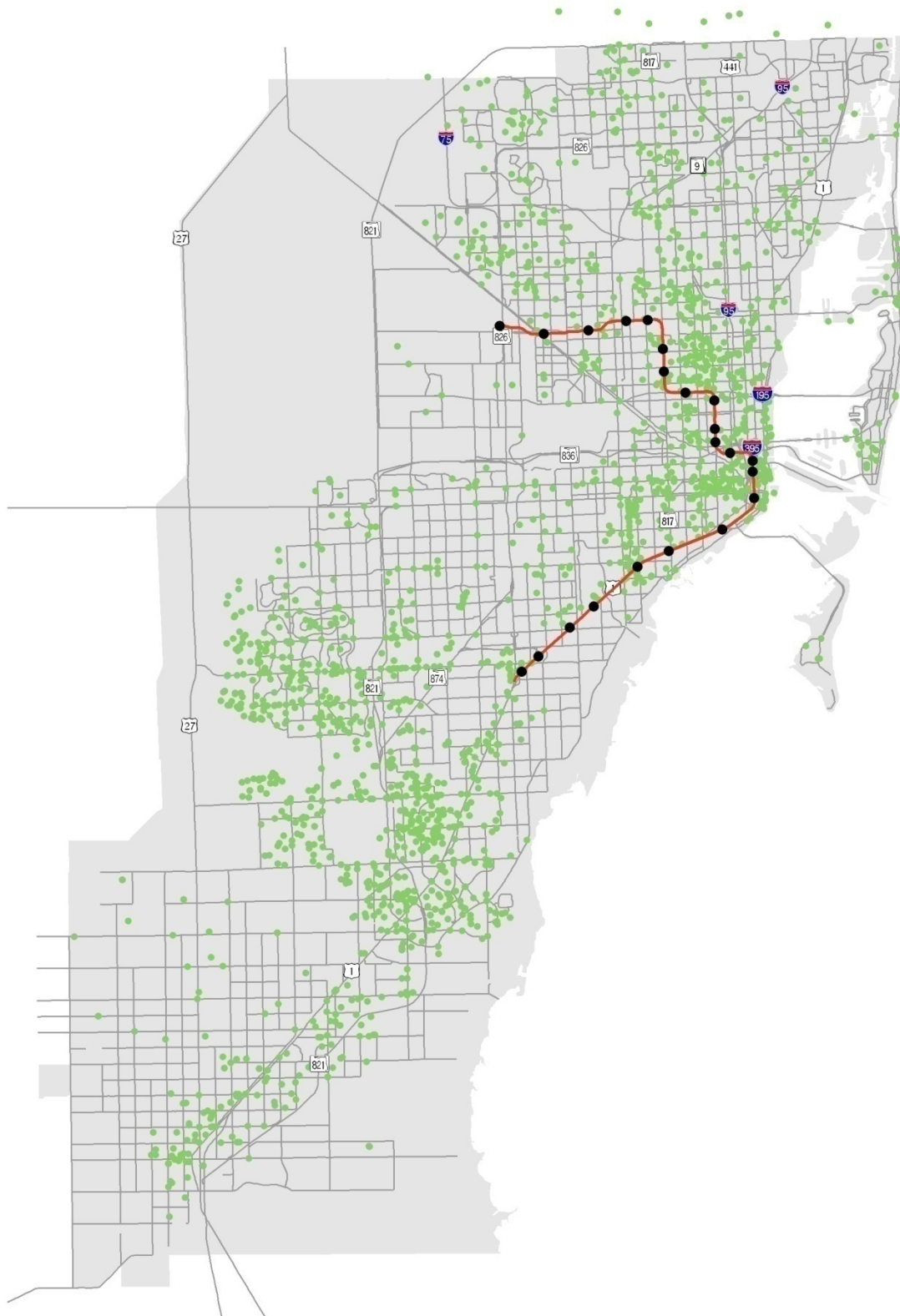


Figure 48: Trip Origins corresponding to transfer access



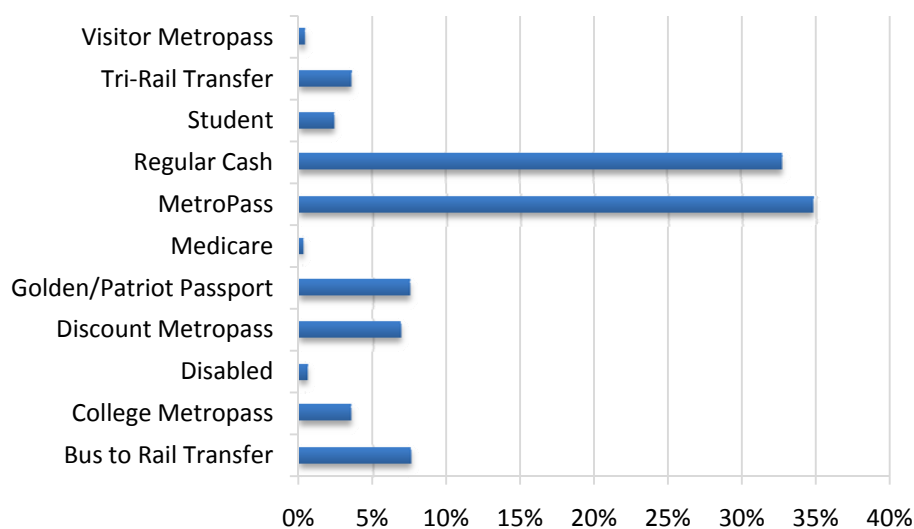
Rider Characteristics

The rider characteristics were estimated from the raw survey data (without expansion). The surveys that did not have answer for the particular characteristic being analyzed were discarded from the sample. For each of the characteristic presented, the sample size has been listed.

Fare Type

Figure 49 shows the fare type used by Metrorail riders. About 35% of riders used Metropass while another 33% used regular cash. Fare types other than Metropass and regular cash were used by 32% riders.

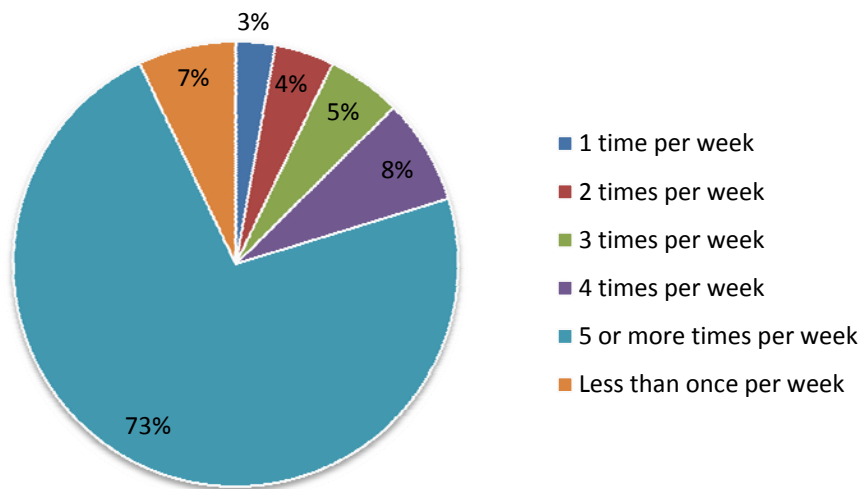
Figure 49: Fare Type (N=15,313)



Frequency of Use

Figure 50 shows the weekly frequency of Metrorail use. A little less than three-quarters (73%) of Metrorail riders use Metrorail 5 or more times a week, indicating high commuter travel. 93% of the Metrorail riders use the service at least once a week.

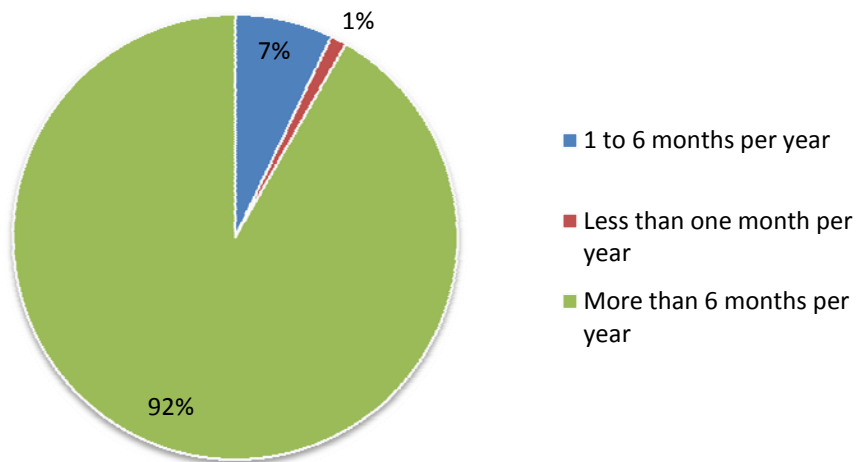
Figure 50: Frequency of Use (N=13,850)



Residency Status

Figure 51 shows the residency status of Metrorail users. A little over 90% of Metrorail riders live in South Florida for more than 6 months a year. 7% of riders live in South Florida for more than a month, while about 1% live in the region for less than a month.

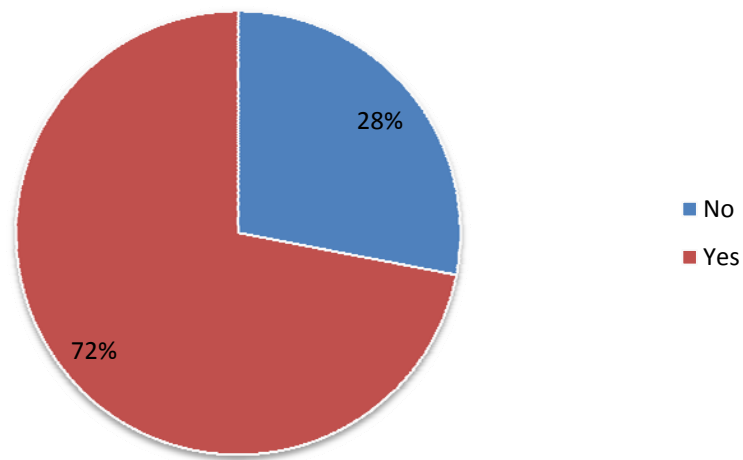
Figure 51: Residency (N=14,677)



Driver License

Figure 52 shows the percentage of Metrorail riders who hold a valid driver's license. About 70% of Metrorail riders hold a valid driver's license while only 28% are not license holders.

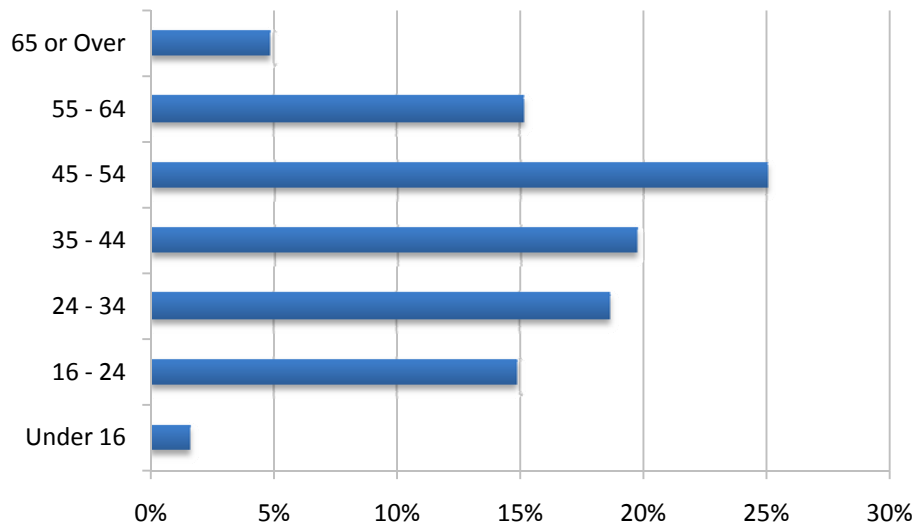
Figure 52: Driver License Holders (N=14,790)



Age

Figure 53 shows the age groups of Metrorail riders. Riders aged between 45-54 years account for one quarter of ridership, and is the single largest age group. Riders aged between 35-44 years are the second largest age group accounting for 20% ridership, while riders aged 24-34 years account for 19% ridership. About 2% of Metrorail riders are under the age of 16 years.

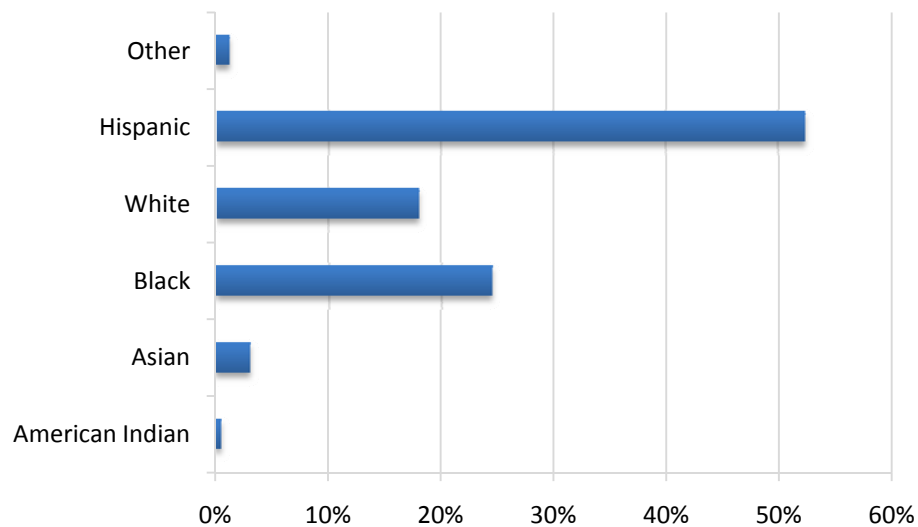
Figure 53: Age Groups (N=15,441)



Race

Figure 54 shows the race of Metrorail riders. “Hispanic” forms the largest rider group, accounting for 52% of ridership. Riders who identify themselves as “Black” account for 25% of ridership while riders who identify themselves as “White” account for 18% of riders. 1% riders identify themselves a “American Indian” and “Other” race.

Figure 54: Race (N=15,622)



Household Characteristics

Figure 55 shows the number of people in the Households of Metrorail riders. About 25% of Metrorail riders live in household of 2 people, 23% of riders live in 3 people household while 4 people household accounts for 21% Metrorail riders.

Figure 55: Number of People in Household (N=13,414)

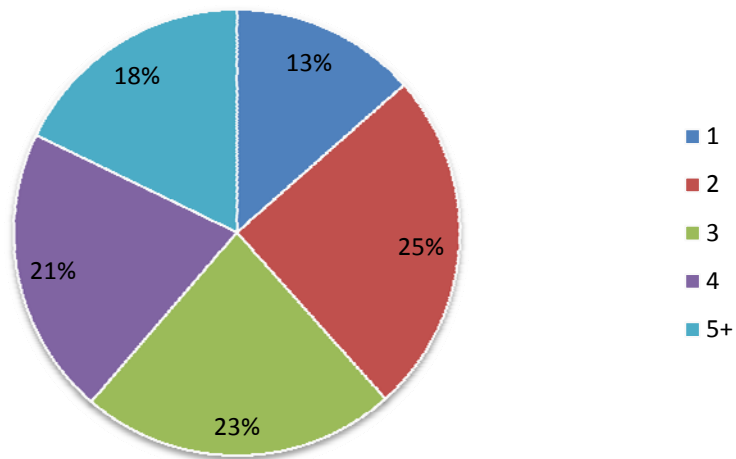


Figure 56 shows the number of people in the Households of Metrorail riders who have driver license. About 41% of Metrorail riders household have 2 driver license holders, 29% of riders live in 3 or more license holder household, while 1 license holder household accounts for 24% of Metrorail riders. Only 5% of Metrorail riders household do not have a license holder.

Figure 56: Number of People in Household with Driver's License (N=12,482)

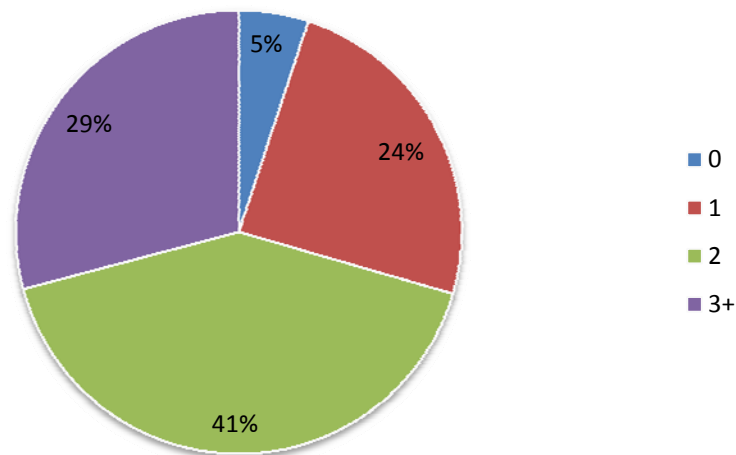


Figure 57 shows the number of people in the Households of Metrorail riders who are less than 16 years old. About 41% of Metrorail riders household have no dwellers less than 16 years, 29% of riders live in household with 1 person who is under the age of 16 years, while households that have 2 persons under the age of 16 years accounts for 20% of Metrorail riders. 10% of Metrorail riders household have 3 or more persons under the age of 16 years.

Figure 57: Number of People in Household Under 16 Years of Age (N=8,420)

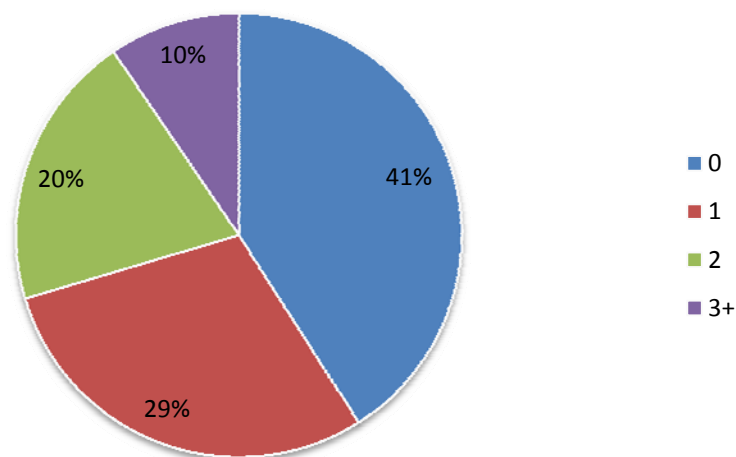


Figure 58 shows the number of people in the Households of Metrorail riders who are over 65 years old. About 69% of Metrorail riders household have no dwellers aged 65 years or older, 23% of riders live in household with 1 person who is over 65 years old, while households that have 2 or more persons over the age of 65 years accounts for 8% of Metrorail riders.

Figure 58: Number of People in Household Over 65 Years of Age (N=6,940)

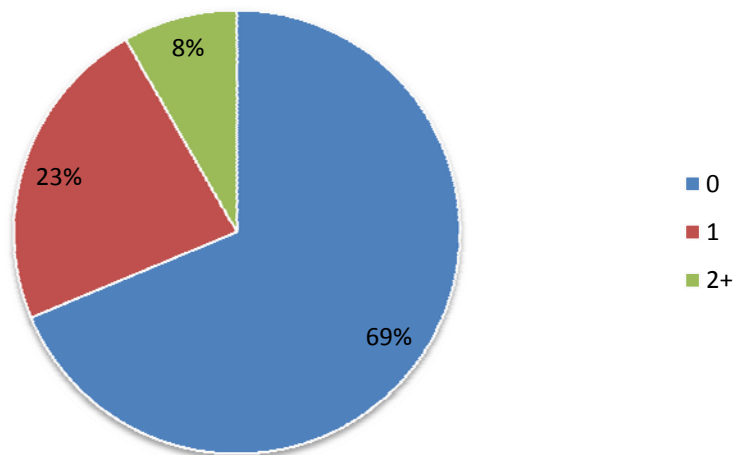
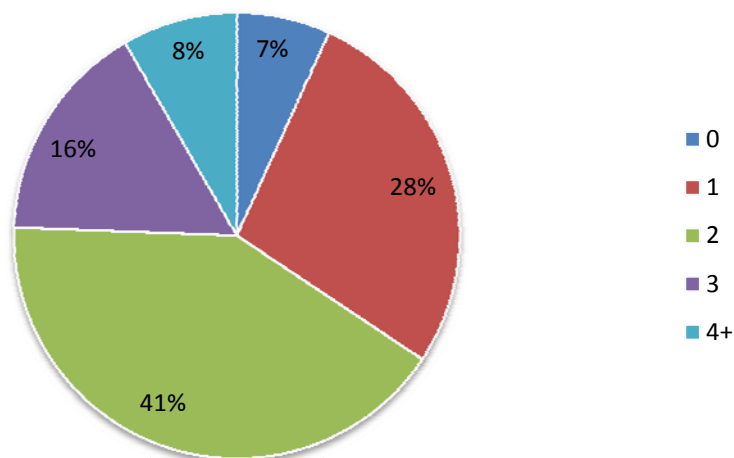


Figure 59 shows the number of people in the Households of Metrorail riders who work outside of home. About 41% of Metrorail riders household have 2 persons who work outside of home, 28% of riders live in household with 1 person who works outside of home, while households that have 3 persons working outside of home account for 16% of Metrorail riders.

Figure 59: Number of People in Household Who Work Outside of Home (N=9,435)



Summary of Findings

The Metrorail Survey conducted in April 2009 was expanded and travel characteristics were computed from the expanded surveys. MDT Fare Card data was used in survey expansion as well as an auxiliary source in validating the results estimated from the expanded survey.

Travel characteristics including but not limited to access mode, egress mode, trip purpose, auto ownership and their cross tabulations were estimated from the survey. The trip length, boarding and alighting statistics from the survey were compared with Fare Card data. In addition, rider characteristics, such as frequency of Metrorail use, age, household information, were computed from the survey as well.

The survey was geocoded using a Locator program in GIS. The expanded geocoded data was summarized and reported.

- The survey sample size provided a sound basis for expanding the sample and generalizing the results to the universe of daily Metrorail riders, with an average expansion factor of 5.5 across all disaggregate travel markets in the multi-dimensional expansion. With one of every six Metrorail riders captured in the survey effort, the sample sufficiently represents Metrorail ridership.
- There were two sources of non-response bias in the survey sample, defined by time period and trip length. The former bias resulted from a more robust sample in the peak periods than the off peak period, while the latter bias resulted from a more robust sample of long trip lengths than short trips. In both cases, the bias was mitigated through the use of the fare card data, which enabled the distinction of period trips in distinct time periods and trip length, as a function of number of stations traveled.
- It was found that the survey sample characteristics matched well with the Fare Card data, in terms of average trip length and major attraction and production stations.
- The work trip travel markets in the survey represent 60% of all Metrorail riders on a daily basis. This is a much higher market share than observed in previous Metrorail survey efforts.
- The use of auto, either by parked car or pick up (PNR or KNR), as an egress mode represents a significant share of Metrorail riders, at 6% of daily trips across all trip purposes. The auto egress mode share for NHB trips is particularly high, at 10%, likely the result of NHB trips that were surveyed on the return trip portion of a two-way trip. For travel demand compatibility purposes, these trips were considered one-way trips.
- The travel patterns observed in the Metrorail survey are significantly weighted to the travel markets between south and west Miami-Dade County and the Miami CBD and surrounding area.
- The expanded peak and off-peak period Metrorail travel markets, disaggregated by trip purpose, auto ownership, and access mode are presented in **Tables 50** and **51**, respectively.

Table 50: Peak Period Travel Markets

HBW					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	1,197	77	56	1,312	2,642
1	2,333	920	1,893	2,650	7,797
2+	1,541	1,349	7,874	3,721	4,485
Total	5,070		9,824	7,683	4,924
HBO					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	706	28	-	501	1,234
1	898	256	146	786	2,086
2+	756	490	430	908	2,584
Total	2,359	774	575	2,196	5,904
NHB					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	433	2	-	210	645
1	593	83	99	291	1,066
2+	633	147	395	349	1,524
Total	1,659	233	494	849	3,235
Total					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	2,335	107	56	2,022	4,521
1	3,824	1,259	2,138	3,728	10,949
2+	2,929	1,986	8,699	4,978	18,592
Total	9,089		10,893	10,728	34,063

Table 51: Off Peak Period Travel Markets

HBW					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	1,272	56	19	931	2,278
1	1,055	142	529	1,168	2,895
2+	1,054	483	1,804	1,065	4,407
Total	3,381	681	2,353	3,165	9,580
HBO					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	1,595	54	11	1,294	2,954
1	1,777	125	378	1,313	3,594
2+	1,153	477	900	1,464	3,994
Total	4,525	657	1,289	4,072	10,542
NHB					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	774	20	17	368	1,180
1	936	63	136	487	1,622
2+	1,092	63	320	446	1,921
Total	2,802	147	473	1,301	4,723
Total					
Auto Ownership	Access Mode				
	Walk	KNR	PNR	Transfer	Total
0	3,641	130	47	2,594	6,412
1	3,768	330	1,043	2,969	8,111
2+	3,298	1,024	3,024	2,975	10,322
Total	10,708	1,485	4,115	8,538	24,845

Appendix A: Parking Lot Count Data

This appendix documents the findings of the data collection effort to corroborate the auto egress travel markets documented in the survey. Counts were taken of overnight parked vehicles at the surface lots and parking garages at Metrorail stations that provide parking, including 16 Metrorail stations. Counts were taken on two nights for each station between September 29th and October 7th, 2010. In all cases, counts were taken on Tuesday, Wednesday, and Thursday nights to ensure weekday activity, consistent with the Metrorail survey and travel demand model scenarios. Counts were timed in accordance with Metrorail schedules to ensure that the counted vehicles were in fact parked overnight. Considering the non-operational time as the time allocated for overnight utilization and based on train schedule, counts were collected between 1:30 AM and 4:00 AM, as presented in **Table A-1**.

Table A-1. Metrorail and Data Collection Schedule

Station	First Train to Depart (AM)	Last Train to Arrive (AM)	Parking Count Times (AM)	
Palmetto	5:04	12:50	3:56	3:57
Okeechobee (S+G)	5:09	12:45	3:59	4:00
Hialeah	5:12	12:42	2:45	3:30
Northside	5:16	12:38	2:36	3:15
Dr. Martin Luther King Jr.	5:19	12:36	1:40	1:40
Brownsville	5:21	12:34	1:58	2:33
Earlington Heights	5:24	12:29	1:45	2:15
Allapatah	5:26	12:27	1:35	2:00
Santa Clara	5:25	12:25	1:28	1:39
Vizcaya	5:14	12:27	1:36	2:20
Coconut Grove	5:11	12:30	2:00	2:40
Douglas Road	5:09	12:32	2:15	2:50
University	5:06	12:35	3:30	3:05
South Miami	5:04	12:37	3:05	2:25
Dadeland North	5:02	12:39	2:39	2:55
Dadeland South (S+G)	5:00	12:41	3:20	3:20

Note: Okeechobee and Dadeland South have garage and surface lots combined.

The data collected include a report of cars and trucks observed during the hours assigned. County fleet vehicles were flagged as such, as they do not represent the Metrorail auto egress market. **Tables A-2** through **A-7** present the car and truck counts at respective stations. The occurrence of overnight parked cars at station lots ranges from 0 to 21 (Santa Clara station). The auto egress (PNR) market observed in the Metrorail survey is under-represented in the parking count observations. One possible explanation for this is that Metrorail users likely park in adjacent parking lots to avoid paying the parking fee at Metrorail park and ride lots. The results of the parking count observations are thus generally inconclusive with respect to corroboration of the Metrorail survey results.

Table A-2. Parking Lot Counts – September 29, 2010

Name of Station	Date	Time/AM	Car Parking		Truck Parking		Remarks
			Surface	Garage	Surface	Garage	
Santa Clara	9/29/2010	1:28		21		3	See Note 1
Allapatah	9/29/2010	1:35	0		0		
Earlington Heights	9/29/2010	1:45		2,18*		1,2*	
Brownsville	9/29/2010	1:58	2		1		
North Side	9/29/2010	2:36	0		0		
Hialeah	9/29/2010	2:45	1		0		
Palmetto	9/29/2010	3:56	3		0		

Note 1) Level 1:2 cars, Level 1:18 County cars, Level 1: 1 Truck, Level1:2 County trucks

Table A-3. Parking Lot Counts – September 30, 2010

Name of Station	Date	Time/AM	Car Parking		Truck Parking		Remarks
			Surface	Garage	Surface	Garage	
Vizcaya	9/30/2010	1:36	1		0		See Note 1
Coconut Grove	9/30/2010	2:00	0		0		
Douglas Road	9/30/2010	2:15	3		0		
South Miami	9/30/2010	3:05		8		0	

Note 1 Level 1:6 Cars, Level 2:1 Cars, Level 3:1 Car

Table A-4. Parking Lot Counts – October 1, 2010

Name of Station	Date	Time/AM	Car Parking		Truck Parking		Remarks
			Surface	Garage	Surface	Garage	
Santa Clara	10/1/2010	1:39		14		4	See Note 1
Allapatah	10/1/2010	2:00	0		0		
Earlington Heights	10/1/2010	2:15		2,18*		2,4*	
Brownsville	10/1/2010	2:33	0		0		
North Side	10/1/2010	3:15	0		0		
Hialeah	10/1/2010	3:30	2		0		
Palmetto	10/1/2010	3:57	2		0		

Note 1) Level 1:2 cars, Level 1:18 County cars, Level 1:2 Trucks, Level 1:4 County Trucks

Table A-5. Parking Lot Counts – October 5, 2010

Name of Station	Date	Time/AM	Car Parking		Truck Parking		Remarks
			Surface	Garage	Surface	Garage	
Dadeland North	10/5/2010	2:39		8		0	See Note 1
Dadeland South	10/5/2010	3:20	0	10	0	0	See Note 2
University	10/5/2010	3:30	0		0		
Ockeechobee	10/5/2010	3:59	0	4	0	0	See Note 3

Note 1) Ramp (Level 1-2):5 Cars, Ramp (Level5-6):1 car, Ramp (Level 8-9):2 cars

Note 2) Ramp (3A/3):2 cars, level 4:5 Cars, Ramp(5/6):2 Cars,Level 6:1 car

Note 3) Level 1:2 Cars, level 2:2 Cars

Table A-6. Parking Lot Counts – October 6, 2010

Name of Station	Date	Time/AM	Car Parking		Truck Parking		Remarks
			Surface	Garage	Surface	Garage	
Dr. ML King. Jr	10/6/2010	1:40		52		0	See Note1
South Miami	10/6/2010	2:25		6		0	See Note 2
Dadeland North	10/6/2010	2:55		10		0	See Note 3
Dadeland South	10/6/2010	3:20	0	11	0	0	See Note 4
Ockeechobee	10/6/2010	4:00	0	4	0	0	See Note 5

Note 1) Level 1:7 County cars, Level 2:35 County cars, Level 3:10 County cars

Note 2) Level 1:4 cars, Level 2:2 cars

Note 3) Ramp (Level 1-2):8 cars,Level 4 :1 car,Level 8:1 car

Note 4) Level 3:2 cars, Level 4:8 cars, Level 5:1 car

Note 5) Leve 1:2 cars,Level 2:2 cars

Table A-7. Parking Lot Counts – October 7, 2010

Name of Station	Date	Time/AM	Car Parking		Truck Parking		Remarks
			Surface	Garage	Surface	Garage	
Dr.ML King Jr.	10/7/2010	1:40		51		0	See Note 1
Vizcaya	10/7/2010	2:20	1		0		
Coconut Grove	10/7/2010	2:40	1		0		
Douglas Road	10/7/2010	2:50	1		0		
University	10/7/2010	3:05	0		0		

Note 1) Level 1:7 County Cars, Level 2:34 County Cars, Level 3:10 County Cars

Appendix B: Metrorail Survey Instrument

METRORAIL Survey		Encuesta de METRORAIL		METRORAIL Kéksyonè	
<p>Please fill out this survey to help us plan for your public transit needs. Please return your survey as you exit the Metrorail Station. If you receive another survey today, please fill it out each time you ride Metrorail today.</p> <p>ENGLISH</p>		<p>Por favor llene esta encuesta para ayudarnos con la planificación de servicios de tránsito. Por favor devuélvase su encuesta al salir la estación de Metrorail. Si recibe otra encuesta hoy, por favor llene una cada vez que use el servicio de Metrorail.</p> <p>ESPAÑOL</p>		<p>Tangpri ranpli kéksyonè sa pou ou kapab ede nou planifye bèzwen transpòtasyon ou. Tangpri remèt kéksyonè ya li wag kite estasyon Metrorail la jodiya. Tangpri ranpli yon kéksyonè chak fwa ou pran Metrorail jodiya.</p> <p>KREOL</p>	
ORIGIN - WHERE DID YOU START THIS ONE-WAY TRIP?		PARTIDA - ¿DÓNDE EMPEZÓ SU VIAJE EN UNA SOLA DIRECCIÓN?		PWEN DEPA - KI KOTE OU KOMANSE TRAJE SENP SA?	
<p>1. I originally started this one-way trip at: (Place you are coming from now.)</p> <p><input type="checkbox"/> Work Place <input type="checkbox"/> College / University <input type="checkbox"/> School (K-12) <input type="checkbox"/> Shopping</p> <p><input type="checkbox"/> Social / Recreational <input type="checkbox"/> Home <input type="checkbox"/> Other (i.e. Airport, Hotel, etc.)</p> <p>a. The Name of this Place, Business, or Building I am coming from is: _____ (Home or Name of Place, Business or Building)</p> <p>b. Please provide nearest Intersection (or Cross Streets) if you do not know the exact address The address is: _____ _____ and _____ (Cross Street #1) (Cross Street #2)</p> <p>City _____ Zip Code _____</p>		<p>1. Yo comencé este viaje en una sola dirección en: (Lugar de partida)</p> <p><input type="checkbox"/> El trabajo <input type="checkbox"/> La universidad <input type="checkbox"/> La escuela (K-12) <input type="checkbox"/> Un lugar de compras</p> <p><input type="checkbox"/> Un lugar social / recreacional <input type="checkbox"/> Mi casa <input type="checkbox"/> Otro (Ej. Aeropuerto, Hotel, etc.)</p> <p>a. El nombre del Lugar, Negocio o Edificio de partida es: _____ (Casa o Nombre del Lugar, Negocio o Edificio)</p> <p>b. Por favor provea la intersección más cercana (calles que cruzan) si no tiene una dirección exacta La dirección es: _____ _____ y _____ (Calle #1) (Calle #2)</p> <p>Ciudad _____ Código Postal _____</p>		<p>1. Mwen té kòmansé trajè senp sa nan: (Lèk ki ou soti kounyèl)</p> <p><input type="checkbox"/> Travay <input type="checkbox"/> Kolèj/Inivèsité <input type="checkbox"/> Lèkòl <input type="checkbox"/> Makèt</p> <p><input type="checkbox"/> Koté Plèzi <input type="checkbox"/> Lakay <input type="checkbox"/> Yon lòt koté (pou ekzanp: Ayewopò, otèl, etc.)</p> <p>a. Non Plas, Biznis, osinon Bilding koté mwen sòti ya sé: _____ (Lakay osinon Nin Plas, Biznis, osinon Bilding)</p> <p>b. Tangpri ba nou Kafou ki pi prè ya si ou pa konnen adrès ekzak la Adrès la sé: _____ _____ épi _____ (Riyèl #1) (Riyèl #2)</p> <p>Vil _____ Kòd Postal _____</p>	
<p>2. I left from this Place (The place identified above) at: _____ AM / PM (Circle one)</p> <p>3. To get to the first bus stop or Metrorail/Metromover/Tri-Rail Station for this one-way trip I: (Choose only one)</p> <p><input type="checkbox"/> Walked <input type="checkbox"/> Biked <input type="checkbox"/> Drove and parked at the stop/station</p> <p><input type="checkbox"/> Rode with someone who dropped me off at the stop/station</p> <p><input type="checkbox"/> Rode with someone who parked a vehicle at the stop/station</p> <p><input type="checkbox"/> Other (Please specify) _____</p> <p>4. I got on the Metrorail train at: (Check the station you got on Metrorail)</p> <p><input type="checkbox"/> Palmetto <input type="checkbox"/> Brownsville <input type="checkbox"/> Culmer <input type="checkbox"/> Coconut Grove</p> <p><input type="checkbox"/> Okeechobee <input type="checkbox"/> Earlington <input type="checkbox"/> Overtown <input type="checkbox"/> Douglas Road</p> <p><input type="checkbox"/> Hialeah <input type="checkbox"/> Heights <input type="checkbox"/> Government <input type="checkbox"/> University</p> <p><input type="checkbox"/> Tri-Rail <input type="checkbox"/> Allapattah <input type="checkbox"/> Center <input type="checkbox"/> South Miami</p> <p><input type="checkbox"/> Northside <input type="checkbox"/> Santa Clara <input type="checkbox"/> Brickell <input type="checkbox"/> Dadeland North</p> <p><input type="checkbox"/> Dr. MLK Jr. <input type="checkbox"/> Civic Center <input type="checkbox"/> Vizcaya <input type="checkbox"/> Dadeland South</p>		<p>2. Partí de este lugar (el lugar identificado arriba) a las: _____ AM / PM (Círcule uno)</p> <p>3. Para llegar a la primera parada de autobús o estación de Metrorail/Metromover/Tri-Rail para este viaje en una sola dirección yo: (Escriba uno)</p> <p><input type="checkbox"/> Caminé solamente <input type="checkbox"/> Monté una bicicleta</p> <p><input type="checkbox"/> Vine en un carro que dejé en la parada / estación</p> <p><input type="checkbox"/> Vine en un carro que me dejó en la parada/estación</p> <p><input type="checkbox"/> Vine con alguien que se estacionó en la parada / estación.</p> <p><input type="checkbox"/> Otro (Por favor especifique) _____</p> <p>4. Abordé Metrorail en la estación de: (Marque la estación en que abordo Metrorail)</p> <p><input type="checkbox"/> Palmetto <input type="checkbox"/> Brownsville <input type="checkbox"/> Culmer <input type="checkbox"/> Coconut Grove</p> <p><input type="checkbox"/> Okeechobee <input type="checkbox"/> Earlington <input type="checkbox"/> Overtown <input type="checkbox"/> Douglas Road</p> <p><input type="checkbox"/> Hialeah <input type="checkbox"/> Heights <input type="checkbox"/> Government <input type="checkbox"/> University</p> <p><input type="checkbox"/> Tri-Rail <input type="checkbox"/> Allapattah <input type="checkbox"/> Center <input type="checkbox"/> South Miami</p> <p><input type="checkbox"/> Northside <input type="checkbox"/> Santa Clara <input type="checkbox"/> Brickell <input type="checkbox"/> Dadeland North</p> <p><input type="checkbox"/> Dr. MLK Jr. <input type="checkbox"/> Civic Center <input type="checkbox"/> Vizcaya <input type="checkbox"/> Dadeland South</p>		<p>2. Mwen té kite Koté sa (kote sa té idantifye nan kéksyon an) a: _____ AM / PM (Antouré youn)</p> <p>3. Pou mwen te vini nan prèmye bis stop osinon Metrorail/Metromover/Tri-rail Estasyon sa pou trajè senp sa, mwen té: (Chwazi sèlman youn)</p> <p><input type="checkbox"/> Maché <input type="checkbox"/> Vini sou Bèkan <input type="checkbox"/> Kondi machin mwen ki paké nan estasyon an</p> <p><input type="checkbox"/> Pran woulib nan men yon moun ki depozem nan estasyon an</p> <p><input type="checkbox"/> Pran woulib nan men yon moun ki paké machin li nan estasyon an</p> <p><input type="checkbox"/> Itilize lòt Mwayen (Tangpri di ki mwayen) _____</p> <p>4. Mwen monté nan Metrorail tren sa nan estasyon: (Tchéké non estasyon an.)</p> <p><input type="checkbox"/> Palmetto <input type="checkbox"/> Brownsville <input type="checkbox"/> Culmer <input type="checkbox"/> Coconut Grove</p> <p><input type="checkbox"/> Okeechobee <input type="checkbox"/> Earlington <input type="checkbox"/> Overtown <input type="checkbox"/> Douglas Road</p> <p><input type="checkbox"/> Hialeah <input type="checkbox"/> Heights <input type="checkbox"/> Government <input type="checkbox"/> University</p> <p><input type="checkbox"/> Tri-Rail <input type="checkbox"/> Allapattah <input type="checkbox"/> Center <input type="checkbox"/> South Miami</p> <p><input type="checkbox"/> Northside <input type="checkbox"/> Santa Clara <input type="checkbox"/> Brickell <input type="checkbox"/> Dadeland North</p> <p><input type="checkbox"/> Dr. MLK Jr. <input type="checkbox"/> Civic Center <input type="checkbox"/> Vizcaya <input type="checkbox"/> Dadeland South</p>	
DESTINATION - WHERE ARE YOU GOING?		DESTINO - ¿A DÓNDEVA?		DESTINATION - KI KOTE OU PRALE?	
<p>5. I will get off the Metrorail train at: (Check the station you will get off Metrorail)</p> <p><input type="checkbox"/> Palmetto <input type="checkbox"/> Brownsville <input type="checkbox"/> Culmer <input type="checkbox"/> Coconut Grove</p> <p><input type="checkbox"/> Okeechobee <input type="checkbox"/> Earlington <input type="checkbox"/> Overtown <input type="checkbox"/> Douglas Road</p> <p><input type="checkbox"/> Hialeah <input type="checkbox"/> Heights <input type="checkbox"/> Government <input type="checkbox"/> University</p> <p><input type="checkbox"/> Tri-Rail <input type="checkbox"/> Allapattah <input type="checkbox"/> Center <input type="checkbox"/> South Miami</p> <p><input type="checkbox"/> Northside <input type="checkbox"/> Santa Clara <input type="checkbox"/> Brickell <input type="checkbox"/> Dadeland North</p> <p><input type="checkbox"/> Dr. MLK Jr. <input type="checkbox"/> Civic Center <input type="checkbox"/> Vizcaya <input type="checkbox"/> Dadeland South</p> <p>6. When I leave the last bus stop or Metrorail/Metromover/Tri-Rail Station to get to where I am going for this one-way trip I will: (Choose only one)</p> <p><input type="checkbox"/> Walk <input type="checkbox"/> Bike <input type="checkbox"/> Drive a vehicle I parked at the stop/station</p> <p><input type="checkbox"/> Ride with someone who is picking me up at the stop/station</p> <p><input type="checkbox"/> Ride with someone who parked a vehicle at the stop/station</p> <p><input type="checkbox"/> Other (Please specify) _____ (Over)</p>		<p>5. Me bajaré del Metrorail en la estación de: (Marque la estación en que se bajará de Metrorail)</p> <p><input type="checkbox"/> Palmetto <input type="checkbox"/> Brownsville <input type="checkbox"/> Culmer <input type="checkbox"/> Coconut Grove</p> <p><input type="checkbox"/> Okeechobee <input type="checkbox"/> Earlington <input type="checkbox"/> Overtown <input type="checkbox"/> Douglas Road</p> <p><input type="checkbox"/> Hialeah <input type="checkbox"/> Heights <input type="checkbox"/> Government <input type="checkbox"/> University</p> <p><input type="checkbox"/> Tri-Rail <input type="checkbox"/> Allapattah <input type="checkbox"/> Center <input type="checkbox"/> South Miami</p> <p><input type="checkbox"/> Northside <input type="checkbox"/> Santa Clara <input type="checkbox"/> Brickell <input type="checkbox"/> Dadeland North</p> <p><input type="checkbox"/> Dr. MLK Jr. <input type="checkbox"/> Civic Center <input type="checkbox"/> Vizcaya <input type="checkbox"/> Dadeland South</p> <p>6. Cuando me vaya de la parada de autobús o estación de Metrorail/Metromover/Tri-Rail para ir a mi destino en una sola dirección voy a: (Escriba uno)</p> <p><input type="checkbox"/> Caminar solamente <input type="checkbox"/> Ir en bicicleta</p> <p><input type="checkbox"/> Ir en un carro que yo dejé en la parada/estación</p> <p><input type="checkbox"/> Ir en un carro que me recogerá en la parada/estación</p> <p><input type="checkbox"/> Ir en un carro que alguien parquero en la parada/estación</p> <p><input type="checkbox"/> Otro (Por favor especifique) _____ (Vuelva la página)</p>		<p>5. Map désann Metrorail tren sa nan estasyon: (Tchéké non estasyon an.)</p> <p><input type="checkbox"/> Palmetto <input type="checkbox"/> Brownsville <input type="checkbox"/> Culmer <input type="checkbox"/> Coconut Grove</p> <p><input type="checkbox"/> Okeechobee <input type="checkbox"/> Earlington <input type="checkbox"/> Overtown <input type="checkbox"/> Douglas Road</p> <p><input type="checkbox"/> Hialeah <input type="checkbox"/> Heights <input type="checkbox"/> Government <input type="checkbox"/> University</p> <p><input type="checkbox"/> Tri-Rail <input type="checkbox"/> Allapattah <input type="checkbox"/> Center <input type="checkbox"/> South Miami</p> <p><input type="checkbox"/> Northside <input type="checkbox"/> Santa Clara <input type="checkbox"/> Brickell <input type="checkbox"/> Dadeland North</p> <p><input type="checkbox"/> Dr. MLK Jr. <input type="checkbox"/> Civic Center <input type="checkbox"/> Vizcaya <input type="checkbox"/> Dadeland South</p> <p>6. Lè mwen kite dènyé bis stop osinon Metrorail/Metromover/Tri-rail Estasyon sa pou trajè senp sa, mwen pral: (Chwazi sèlman youn)</p> <p><input type="checkbox"/> Maché <input type="checkbox"/> Pran Bèkan <input type="checkbox"/> Kondi machin mwen ki paké nan estasyon an.</p> <p><input type="checkbox"/> Pran woulib nan men yon moun kab vini chachem nan estasyon an.</p> <p><input type="checkbox"/> Pran woulib nan men yon moun ki paké machin li nan estasyon an.</p> <p><input type="checkbox"/> Itilize lòt Mwayen (Tangpri di ki mwayen) _____ (Tounen paj la)</p>	

Compare Transit Survey Results to Actual Count Data

<p>7. I will ultimately finish this one-way trip at: (Place you are going to.) <input type="checkbox"/> Work Place <input type="checkbox"/> College / University <input type="checkbox"/> School (K-12) <input type="checkbox"/> Shopping <input type="checkbox"/> Social / Recreational <input type="checkbox"/> Home <input type="checkbox"/> Other _____ (i.e., Airport, Hotel, etc.)</p> <p>a. The Name of this Place, Business, or Building I am going to is: _____ (Home or Name of Place, Business or Building)</p> <p>b. Please provide nearest Intersection (or Cross Streets) if you do not know the exact address The address is: _____ _____ and _____ (Cross Street #1) (Cross Street #2)</p> <p>City: _____ Zip Code: _____</p> <p>8. I will arrive at this Place (the Place identified above) at: _____ AM / PM (Circle one)</p>	<p>7. Finalmente concluiré mi viaje de una sola dirección en: (El lugar de mi destino) <input type="checkbox"/> El trabajo <input type="checkbox"/> La universidad <input type="checkbox"/> La escuela (K-12) <input type="checkbox"/> Un lugar de compras <input type="checkbox"/> Un lugar social / recreacional <input type="checkbox"/> Mi casa <input type="checkbox"/> Otro _____ (Ej. Aeropuerto, Hotel, etc.)</p> <p>a. El nombre del Lugar, Negocio o Edificio de mi destino es: _____ (Casa o nombre del Lugar, Negocio o Edificio)</p> <p>b. Por favor provea la intersección más cercana (calles que cruzan) si no tiene una dirección exacta La dirección es: _____ _____ y _____ (Calle #1) (Calle #2)</p> <p>City: _____ Código Postal: _____</p> <p>8. Llegaré a este lugar (el lugar identificado arriba) a las: _____ AM / PM (Círculo uno)</p>	<p>7. Map bouklé trajé senp sa nan: <input type="checkbox"/> Travay <input type="checkbox"/> Kolèj/Inivèsité <input type="checkbox"/> Lèkòl <input type="checkbox"/> Makèt <input type="checkbox"/> Koté Plézi <input type="checkbox"/> Lakay <input type="checkbox"/> Yon lòt koté _____ (pou ekzasp: Apyewapò, asinan Orit)</p> <p>a. Non Plas, Biznis, osinon Bilding koté mwen soti ya sé: _____ (Lakay asinan Non Plas, Biznis, osinon Bilding)</p> <p>b. Tanpri ba nou Kafou ki pi prè ya si ou pa kannen adrès ekzak la Adrès la sé: _____ _____ épi _____ (Ryèl #1) (Ryèl #2)</p> <p>City: _____ Kòd Postal: _____</p> <p>8. Map rivé Koté sa (kote ou té idantifye nan kèkayon ouan) a: _____ AM / PM (Antoure youn)</p>												
ABOUT THIS ONE-WAY TRIP														
<p>9. The exact order of bus routes, jitneys, and/or rail lines I will use to make this one-way trip is: (List in the boxes below the buses, school buses, jitneys and rail lines used for this one-way trip.)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25%;">START</td> <td style="width: 25%;">First les menbra/lini/òtwa ki fwa</td> <td style="width: 25%;">Second les menbra/lini/òtwa ki fwa</td> <td style="width: 25%;">Third les menbra/lini/òtwa ki fwa</td> <td style="width: 25%;">Fourth les menbra/lini/òtwa ki fwa</td> <td style="width: 25%;">END</td> </tr> <tr> <td></td> <td>EXAMPLE: BCT (Rt. 4)</td> <td>Tri-Rail</td> <td>Metrorail</td> <td>Metromover</td> <td></td> </tr> </table>			START	First les menbra/lini/òtwa ki fwa	Second les menbra/lini/òtwa ki fwa	Third les menbra/lini/òtwa ki fwa	Fourth les menbra/lini/òtwa ki fwa	END		EXAMPLE: BCT (Rt. 4)	Tri-Rail	Metrorail	Metromover	
START	First les menbra/lini/òtwa ki fwa	Second les menbra/lini/òtwa ki fwa	Third les menbra/lini/òtwa ki fwa	Fourth les menbra/lini/òtwa ki fwa	END									
	EXAMPLE: BCT (Rt. 4)	Tri-Rail	Metrorail	Metromover										
<p>10. The fare type I used for this Metrorail one-way trip was: <input type="checkbox"/> \$2 Regular Cash <input type="checkbox"/> Bus to Rail Transfer <input type="checkbox"/> Tri-Rail Transfer <input type="checkbox"/> Metrorail Reduced Fare Permit (Circle one): <input type="checkbox"/> Disabled Medicare Student Preschool <input type="checkbox"/> Golden / Patriot Passport <input type="checkbox"/> Metropass <input type="checkbox"/> Discount Metropass <input type="checkbox"/> College Metropass <input type="checkbox"/> Visitor Metropass</p> <p>11. I typically make this one-way trip: <input type="checkbox"/> Less than once per week <input type="checkbox"/> 1 time per week <input type="checkbox"/> 2 times per week <input type="checkbox"/> 3 times per week <input type="checkbox"/> 4 times per week <input type="checkbox"/> 5 or more times per week.</p>	<p>10. La tarifa que usé para este viaje en Metrorail en una sola dirección era: <input type="checkbox"/> \$2 en efectivo <input type="checkbox"/> Transferencia de autobús a tren <input type="checkbox"/> Transferencia de Tri-Rail <input type="checkbox"/> Metrorail tarifa reducida - (Círculo una) <input type="checkbox"/> Incapacitado <input type="checkbox"/> Medicare <input type="checkbox"/> Estudiante <input type="checkbox"/> Preescolar (Círculo una) <input type="checkbox"/> Dorado (Golden) / Pasaporte Patriota (Patriot) <input type="checkbox"/> Metropass <input type="checkbox"/> Metropass de Descuento <input type="checkbox"/> Metropass Universitario <input type="checkbox"/> Metropass de Visitante</p> <p>11. Típicamente hago este viaje en una sola dirección: <input type="checkbox"/> Menos de una vez por semana <input type="checkbox"/> Una vez por semana <input type="checkbox"/> 2 veces por semana <input type="checkbox"/> 3 veces por semana <input type="checkbox"/> 4 veces por semana <input type="checkbox"/> 5 o más veces por semana</p>	<p>10. Fason mwen té pèyé poum té pran Metrorail trajé senp sa sèt: <input type="checkbox"/> \$2 Lajan Kach <input type="checkbox"/> Transfé Bis pou Tren <input type="checkbox"/> Transfé Tri-Rail <input type="checkbox"/> Kat Diskont Metrorail - (Antoure youn) <input type="checkbox"/> Andikapé <input type="checkbox"/> Mediké <input type="checkbox"/> Elèv Matinél <input type="checkbox"/> Paspò Lò / Patryòt <input type="checkbox"/> Mètopas <input type="checkbox"/> Diskont Mètopas <input type="checkbox"/> Kolèj Mètopa <input type="checkbox"/> Vizitè Mètopas</p> <p>11. Mwen fè trajé senp sa: <input type="checkbox"/> Mwens ké yon fwa pa sèmen <input type="checkbox"/> Yon fwa pa sèmen <input type="checkbox"/> Dé fwa pa sèmen <input type="checkbox"/> Twa fwa pa semen <input type="checkbox"/> Kat fwa pa semen <input type="checkbox"/> Plis ké senk fwa pa sèmen.</p>												
PLEASE TELL US ABOUT YOURSELF. (This information will be kept strictly confidential.)														
<p>12. I live in Zip Code _____.</p> <p>13. I live / stay in South Florida: <input type="checkbox"/> Less than one month per year <input type="checkbox"/> 1 to 6 months per year <input type="checkbox"/> More than 6 months per year</p> <p>14. I have a valid driver's license: <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>15. My age is: <input type="checkbox"/> Under 16 <input type="checkbox"/> 16-24 <input type="checkbox"/> 24-34 <input type="checkbox"/> 35-44 <input type="checkbox"/> 45-54 <input type="checkbox"/> 55-64 <input type="checkbox"/> 65 or over</p> <p>16. My race is best described as: <input type="checkbox"/> American Indian <input type="checkbox"/> Asian <input type="checkbox"/> Black / African American <input type="checkbox"/> White <input type="checkbox"/> Spanish / Hispanic / Latino <input type="checkbox"/> Other _____</p> <p>17. Including me, (# of people) _____ people live in my home and of those: (# of people) _____ have a driver's license; (# of people) _____ are under 16 years old (# of people) _____ are 65 or over; and (# of people) _____ work outside of our home.</p> <p>18. There are _____ registered cars, trucks, vans or motorcycles in my household. Register to win a free Metropass when you return a completed survey. (please print clearly) Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____</p> <p>Please return completed surveys in the marked boxes as you leave the station.</p>	<p>12. Mi código postal es _____.</p> <p>13. Vivo / resido en el Sur de la Florida: <input type="checkbox"/> Menos de un mes al año <input type="checkbox"/> 1 a 6 meses al año <input type="checkbox"/> Más de 6 meses al año</p> <p>14. Tengo licencia de conducir: <input type="checkbox"/> Sí <input type="checkbox"/> No</p> <p>15. Mi edad es: <input type="checkbox"/> Menor de 16 <input type="checkbox"/> 16-24 <input type="checkbox"/> 24-34 <input type="checkbox"/> 35-44 <input type="checkbox"/> 45-54 <input type="checkbox"/> 55-64 <input type="checkbox"/> 65 o más</p> <p>16. La raza que me caracteriza es: <input type="checkbox"/> Indio-Americano <input type="checkbox"/> Asiático <input type="checkbox"/> Negro / Afro-Americano <input type="checkbox"/> Raza Blanca <input type="checkbox"/> Español / Hispano / Latino <input type="checkbox"/> Otro _____</p> <p>17. Incluyéndome a mí, (# de personas) _____ persona(s) viven en mi hogar y de ellos: (# de personas) _____ tiene(n) licencia de conducir; (# de personas) _____ es(son) menores de 16 años; (# de personas) _____ es(son) de 65 o más; y (# de personas) _____ trabaja(n) fuera de nuestro hogar.</p> <p>18. Tenemos registrados _____ carro(s), camiones, vans o motocicletas en mi hogar. Regístrese para ganar un Metropas gratis cuando devuelva una encuesta completa. (Por favor escriba claro) Nombre: _____ Dirección: _____ Ciudad: _____ Estado: _____ Código Postal: _____</p> <p>Por favor devuelva la encuesta completa en las cajas marcadas cuando salga de la estación.</p>	<p>12. Mwen abité nan kòd postal _____.</p> <p>13. Mwen viv nan Sid Florida pou: <input type="checkbox"/> Mwens ké yon mw pa ané <input type="checkbox"/> Youn a 6 mw pa ané <input type="checkbox"/> Plis ké 6 mw pa ané</p> <p>14. Mwen gen lisans poum kondi machin: <input type="checkbox"/> Wi <input type="checkbox"/> Non</p> <p>15. Laj mwen se: <input type="checkbox"/> Mwens ké 16 <input type="checkbox"/> 16-24 <input type="checkbox"/> 24-34 <input type="checkbox"/> 35-44 <input type="checkbox"/> 45-54 <input type="checkbox"/> 55-64 <input type="checkbox"/> 65 oswa Plis</p> <p>16. Pi bon fason pou dékri ras mwen sé: <input type="checkbox"/> Mèriken Indyen <input type="checkbox"/> Aziatik <input type="checkbox"/> Nwa/Afriken Mèriken <input type="checkbox"/> Blan <input type="checkbox"/> PanYòl / Ispanik / Latèn <input type="checkbox"/> Lòt _____</p> <p>17. Konté tèt pami, (kantite moun) _____ moun ki abité lakay mwen, é nan yo: (kantite moun) _____ ki genyen yon lisans; (kantite moun) _____ ki genyen mwens ké 16 an; (kantite moun) _____ ki genyen plis ké 65 an; épi (kantite moun) _____ ki travay deyò kay la.</p> <p>18. Genyen _____ vwati, kamyon, tibi (yòl) osinon motosiklèt ki imatrikilé lakay mwen. Anrejistre pou kab genyen yon Mètopas gratis lè ou rétoounen kéksyoné sa. (Tanpri ékri ak klè) Non ou: _____ Adrès ou: _____ Vil: _____ Eta: _____ Kòd Postal: _____</p> <p>Tanpri meté kéksyoné ki konpléte yon nan bwat ki maké pou yo a lè wap kite estasyon an.</p>												