



SOUTH FLORIDA EAST COAST CORRIDOR
TRANSIT ANALYSIS STUDY

F.M. NO. 417031-1-22-01
CONTRACT: C-8F66

2008 Tri-Rail On-Board Survey Final Report

*Prepared For
Florida Department of Transportation District 4
&
South Florida Regional Transportation Authority*



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July 24, 2009

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Introduction

As part of the South Florida East Coast Corridor Study (SFECCS), a survey of passengers on the Tri-Rail commuter rail system was conducted on Wednesday, October 22, 2008. The survey was conducted in part to collect data reflective of a significant increase in service on Tri-Rail that was implemented in the summer of 2007. A total of 8,403 questionnaires were distributed to eligible respondents, of which 6,103 were completed, for a response rate of 73 percent. The Tri-Rail system is 72 miles long and has 18 stations located in Palm Beach, Broward, and Miami-Dade counties (see **Figure 1**)—with operations beginning at approximately 4:00 AM and concluding at approximately 11:05 PM. **Appendix A** includes the complete Tri-Rail train schedule.

Figure 1 – Tri-Rail System



The purpose of the survey was to gather information to supplement a 2007 Tri-Rail on-board survey, which collected ridership characteristics, origin-destination patterns, and mode of access/egress. The information from the survey will ultimately be used as input data for the mode choice model as part of the South Florida East Coast Corridor Transit Analysis Study, as well as for other transit studies within the tri-county region.

The 2007 survey was administered for an entire day, reflecting a 100% daily distribution of questionnaires. At that time, Tri-Rail was operating a 40-train per day (half-hour peak period) service plan. As of June 4, 2007, Tri-Rail began operating a 50-train per day (20-minute peak period) service plan—as a result of double-tracking the corridor and the institution of a new operating agreement with CSX. Both sets of data (2007 and 2008) will be used to:

- Calibrate and verify the Southeast Regional Planning Model (SERPM), version 6.5, under the two different operating plans;
- Develop automobile mode of egress capabilities within SERPM 6.5; and
- Evaluate the effect that rising fuel costs have on Tri-Rail usage, with potential modification of user costs in SERPM 6.5.

Survey Highlights

- 6,103 completed questionnaires of 8,403 that were distributed—a response rate of 73%
- 61 percent of riders are between the ages of 25 to 54
- 17 percent of riders are in college, while 6 percent are in high school
- 48 percent of riders have graduated from college
- 84 percent of riders have a valid driver's license
- 34 percent of riders have household incomes between \$35,000 to \$75,000, while 23 percent have household incomes from \$75,000 to over \$100,000
- Approximately 67 percent of trips were Home-Based Work, 30 percent Home-Based Other, and only 4 percent Non-Home Based
- Approximately 67 percent of Tri-Rail trips are made by riders with two or more vehicles, 27 percent with one vehicle, and only 5 percent without access to a vehicle
- Approximately 74 percent of first time riders use Tri-Rail for non-work related activities
- Riders that have been using Tri-Rail for 6 months or more use it predominately for work related activities—between 67 to 75 percent
- Overall vehicle ownership levels between 2007 and 2008 were similar, although the Home-Based Work trip purpose was higher in 2008
- There were more Home-Based Work trips in 2008 than there were in 2007 for both peak and off-peak periods
- Park-and-Ride access was 34 percent in 2007 compared to 49 percent in 2008
- Kiss-and-Ride access was 36 percent in 2007 compared to 22 percent in 2008
- Ride-and-Drive egress was 9 percent in 2007 compared to 12 percent in 2008
- The Ride-and-Drive phenomena appears to increase substantially for longer trips—trips that pass 10 or more stations
- Approximately 50 percent of riders travel between 3 to 6 station stops
- The survey data was analyzed using three different weighting/expansion methods (weighted by Train; weighted by Direction, Boarding Station, and Time Period; and weighted by Station,

Boardings and Alightings), each produced similar results that expanded boardings matched observed door counts

Sampling Plan

The survey was administered on Wednesday, October 22, 2008. It encompassed a half-day on-board survey of all adult passengers (age 12 or older) with full-day door counts. This day was representative of service provided by Tri-Rail on a typical weekday. The survey included all morning and early afternoon Tri-Rail trains, both northbound and southbound, for a total of 30 trains (out of a total of 50 trains). Tri-lingual survey cards (English, Spanish, and Creole) were distributed and collected on-board all 30 trains in revenue service from the first morning trains at approximately 4:00 AM until approximately 2:45 PM that same afternoon. Passenger door counts were conducted all day long on all Tri-Rail trains this day—4:00 AM to 11:05 PM. Data collection activities began with the southbound P601 train leaving the Mangonia Park station at 4:00 AM and concluded with the arrival of the P648 train arriving at the Mangonia Park station at 11:05 PM.

Minimization/Mitigation of Non-Response Bias

Non-response bias—bias that occurs when observed answers deviate from the general population due to differences between respondents and non-respondents—was addressed by implementing the survey in a way that maximized the response rate. The following describes the strategies that were used to minimize and mitigate non-response bias for this effort. The implementation focused on two primary strategies to minimize non-response bias; 1) utilization of trained personnel, and 2) utilization of specific methods designed to encourage respondents to complete the survey.

1. Trained personnel.

- a. Survey personnel were trained to do more than simply hand out the survey. They were trained to be enthusiastic, knowledgeable about the purpose of the survey, and diligent in collecting completed surveys.
- b. A diverse staff was put in the field to increase the odds that non-English speaking or illiterate respondents would have an opportunity to participate in the survey. The language proficiencies of all survey staff, both professional and temporary, was identified during the development of the staffing plan. With this information, each train was assigned staff with competencies in three languages.
- c. Ample staff was provided throughout the survey to address questions by respondents and to ensure that no rider was overlooked in the distribution of the survey. The supervisory staff assigned to manage the survey implementation had prior on-board survey experience. Those with the greatest experience with on-board surveys were assigned to the busiest trains.
- d. The temporary surveyors were pre-screened to have the following desirable characteristics: well-groomed, able to stand for long periods of time, comfortable approaching strangers, attention to detail, persistence, and being courteous. In

addition, all surveyors were properly and adequately identifiable with logo shirts and/or official name tags.

- e. All survey staff was required to attend a comprehensive 3-hour training session. The training consisted of a discussion on the survey purpose, a brief description of the SFRTA Tri-Rail system, a hands-on training experience with the survey instrument, and a discussion on logistics, expectations of surveyors, as well as a role-playing exercise.

2. Methods that encouraged response. Various methodological strategies were utilized to maximize the response rate, including a streamlined survey instrument, minimized complexity of the survey instrument, and marketing.

- a. The survey instrument was designed very carefully to be comprehensive, but only included essential questions. It is typically the case that shorter survey instruments are more likely to be completed than longer ones. The complexity of the questions on the survey was also an important consideration, because respondents are less likely to complete the survey if it contains complicated language or concepts that are difficult for riders to understand. Therefore, the length and complexity of the survey was kept to a minimum.
- b. The survey was advertised in advance of its implementation to give riders a “heads-up” about the survey. To this end, the SFRTA prepared and distributed a multi-lingual “seat drop” flyer giving advanced notice of the survey to its riders, and provided a written notice on the SFRTA website one week prior to the survey implementation. In addition, SFRTA posted large color signs (multi-lingual) at stations for one full week in advance, and on the day of the survey. SFRTA also made verbal announcements (multi-lingual) on all trains after every station the day before and the day of the survey.
- c. Tri-Rail and FDOT staff were also present on many of the trains in an effort help establish survey legitimacy and provide additional information that riders may desire.
- d. A pretest was conducted on a small sample size to review how the questions were understood and answered by the rider. This pre-test was used to determine if the survey procedures were adequate and also if the questions were understood as intended. Based on the results of this pretest the questionnaire was revised prior to implementing the survey. In addition, the 2008 questionnaire is similar to the 2007 questionnaire and therefore the questions had already been tested.
- e. Throughout the survey, surveyors and train captains were available to assist passengers complete the questionnaire through a one-on-one interview for those who were illiterate, visually impaired, or otherwise needed assistance.
- f. Pens were given to every survey respondent so they could fill out the survey. Not only did the free pens provide a mechanism for respondents to fill out the survey, but the pens also had the SFRTA name and logo printed on them, which provided additional legitimacy to surveyors.

Mitigation of non-response bias after the survey was administered was accomplished through a careful analysis of the survey results relative to observed data from other sources. The demographics of

respondents were analyzed relative to the survey population, or universe. The survey universe was defined in terms of the population of the study area, as defined by an approximate 5-mile radius travel shed around each station.

Another source of control data used to mitigate non-response bias was disaggregate ridership count data for key Tri-Rail travel markets. Auxiliary counts, from a supplemental station-based Tri-Rail rider survey, were collected and utilized to ensure that those key travel markets were represented appropriately in the survey response. The auxiliary counts provide a thorough understanding of the identified travel markets with respect to their magnitudes and the extent to which they are represented in the survey response (see **Appendix D**).

Auxiliary counts were collected for various key travel markets as defined in the March 2007 Tri-Rail survey. These markets included:

- a. Park-and-ride automobile access riders,
- b. "Ride-and-drive" automobile egress riders, and
- c. West Palm Beach public school students.

For park-and-ride automobile access, available counts from a 2008 park-and-ride inspection were utilized. As part of these auxiliary counts, the "ride-and-drive" automobile egress mode was ascertained to capture riders who leave cars at Tri-Rail stations overnight.

Survey Instrument

The survey instrument was designed as a self-administered questionnaire with mainly close-ended questions. The questionnaire was provided in English, Spanish and Creole. Each questionnaire was pre-printed with a unique serial number, which linked each questionnaire to a specific trip.

The survey consisted of 26 questions that inquired about the rider's one-way trip, recent travel behavior, and socio-demographic information. Ten (10) questions asked about the rider's one-way trip information (Q1 to Q9, and Q13). Three (3) questions were about the rider's recent travel behavior (Q10 to Q12), and the remaining 13 questions asked about the rider's socio-demographic characteristics. Additional space was provided for comments and suggestions.

A copy of the survey instrument (with all three language versions) is provided as **Appendix B**.

An important feature of the survey questionnaire was the egress mode of travel question. It has been observed recently in other transit on-board surveys that transit patrons use an automobile as their egress mode in significant numbers. This is a phenomenon that, until recently, has been assumed not to occur. It must now be considered as a viable mode, both as a drive-alone mode as well as a shared-ride mode. Question 6 on the 2008 survey addressed the egress mode and included three potential automobile egress modes for respondents to choose from.

Another important feature of the survey was contained in questions 10 and 11. These questions focused on new Tri-Rail riders, a rider market of particular interest, given the recent double-tracking of the Tri-Rail system. The before-and-after double-tracking analysis provided insight into the impact of the increased service and the specific travel markets that it affects.

The 2007 survey questionnaire was reviewed and revised to clarify questions for the 2008 survey. In addition, due to the recent increase in Tri-Rail ridership, new questions were added to the 2008 questionnaire regarding length of ridership and reasons for choosing Tri-Rail services.

Surveyor and Supervisor Training

In order to adequately staff the survey implementation, it was necessary to hire temporary survey personnel. A training session for the temporary survey personnel was developed, planned and conducted prior to the on-board transit survey. Training was also provided to Supervisory Personnel who were recruited mainly from the Consultant Team, FDOT and SFRTA. Training was mandatory for all surveyors—temporary personnel and full-time staff. Two training sessions were conducted, each lasting approximately 3 hours. The training sessions consisted of a discussion on the survey purpose, a PowerPoint presentation, a brief description of the SFRTA Tri-Rail system, a hands-on training with the survey instrument, and a discussion on logistics, expectations of surveyors, and safety. The surveyors and supervisors were also provided a period for questions and answers prior to the conclusion of the training sessions.

A handout of the PowerPoint presentation served as a Training Manual, and was distributed to all surveyors prior to the training. The surveyors were able to keep the manual overnight to allow them to reference and study the manual prior to the survey the following day. A copy of the Training Manual PowerPoint presentation is provided as **Appendix C**.

The training sessions were conducted at the offices of the SFRTA in Pompano Beach at 9:45 AM and 1:45 PM on Tuesday, October 21, 2008. It was requested that all surveyors ride Tri-Rail to the training sessions to gain familiarity with the system. Those surveyors who had not ridden Tri-Rail to the training sessions were requested to ride Tri-Rail prior to the survey. A two-day Tri-Rail pass was provided to each surveyor and supervisor prior to the training for this purpose.

Survey Implementation

Two weeks prior to the survey, a pretest was conducted on a small number of riders to review how the questions were understood and answered by the rider. This pretest was completed to determine if the planned procedures were adequate and also to determine if the questions were understood as intended. Based on the results of the pretest, the questionnaire was revised prior to the survey.

The survey involved the distribution and collection of questionnaires for all morning and early afternoon passengers riding Tri-Rail on Wednesday, October 22, 2008. Each of the 15 northbound and 15

southbound Tri-Rail trains that departed from the northern and southern most stations (Mangonia Park and Miami Airport respectively) by 2:00 p.m. were surveyed. These trains consisted of two or three bi-level rail cars for passenger conveyance. Five surveyors were assigned to conduct distribution and collection activities on each bi-level Tri-Rail car. Of the five surveyors, two were assigned to count boardings and alightings—one at each door. As passengers boarded a car at each rail station, surveyors approached the passenger, handed them a questionnaire and pen, and requested that the passenger complete the survey prior to exiting the train. Surveyors were instructed to approach passengers between stops and encourage and/or assist them with the completion of the questionnaire, as well as collect completed questionnaires from each passenger.

For each one-way train trip, surveyors were provided with more questionnaires than the anticipated number of riders. The serial number range for the questionnaires distributed during each trip was recorded to ensure that each completed survey could be linked to the trip which they were distributed. In addition, a trip log was attached to the oversize envelopes used to house questionnaires collected by the surveyor. Surveyors used this log to record the serial number of the first and last questionnaire distributed on each trip. A trip log collecting the actual station arrival and departure times was also completed for each surveyed trip.

In addition to the 30 trains that were surveyed, door counts were completed on the remaining 20 trains for this day. One door counter was assigned to each of the two doors to collect counts of boardings and alightings. A door count log was completed for each train by recording the boardings and alightings at each station. This log also identified the starting station, ending station, start time, end time, and train number for each trip.

Periodically throughout the survey day (and on the day prior), Tri-Rail conductors made public announcements encouraging rider participation in the study.

To facilitate high quality results during the survey data collection effort, the following quality control measures were implemented:

- By carefully screening, selecting and training the temporary personnel, an emphasis was placed on the professionalism of the survey staff. Temporary personnel were pre-screened for suitability for this type of work and were notified of the mandatory training session. Surveyors were required to become knowledgeable about the questionnaire by completing a questionnaire based on their trip to the training session, as well as practicing how to distribute, collect and perform record-keeping tasks prior to conducting the survey. All surveyors were provided with a training manual detailing the surveying techniques and expectations.
- A Train Captain was assigned to each train to monitor the activities of surveyors and provide feedback or suggestions for improving their work. The train captains were full-time employees of either the consultant, SFRTA or FDOT. Many of the Train Captains were multi-lingual. The Train Captains also emphasized to the ridership the importance of the survey and tried to persuade those who were unwilling to take the survey. In addition, when necessary, the Train Captains helped passengers fill out the survey, or provide additional support as needed. The

Train Captains also supervised compilation of data envelopes containing completed surveys and other relevant activity logs.

- Station Masters were located at both the northern and southern terminal stations (Mangonia Park and Miami Airport stations). These Station Masters met with each surveyor prior to boarding the train to review procedures and provide supplies. At the end of an assigned trip, the Station Masters also met with the surveyors to conduct a quick debriefing of their individual data collection efforts for the trip just completed, provide additional questionnaires and trip log forms/envelopes for the next trip they were to survey, and offer suggestions for overcoming any field difficulties that the surveyor may have encountered.
- The Station Masters and Train Captains were able to communicate, as needed, via cellular phones throughout the survey. The Station Masters and Train Captains met with surveyors at the start and end of each surveyed trip to discuss any problems or issues.
- A Control Center Monitor was stationed at Tri-Rail's dispatching center to monitor any deviations from the day's planned operations. The Control Center Monitor relayed vital information to the Station Masters or Survey Manager, as appropriate throughout the day of the survey.
- A Survey Manager coordinated all aspects of the on-board survey implementation including: temporary personnel, scheduling of staff, provision of supplies, and overall survey logistics.
- The staffing agency provided the supervision of the temporary workers including: check-in, train assignments, and check out.

Tri-Rail Station Auxiliary Rider Survey

An auxiliary survey of rail riders was conducted over a four-week period between October 21, 2008 and November 14, 2008 at 14 of Tri-Rail's 18 stations to complement the on-board survey for the purpose of capturing travel patterns of passengers. Below is a brief description of the auxiliary station survey count methodology and data collection process. For a complete description of the Tri-Rail Station Auxiliary Rider Survey, please see **Appendix D**.

Tri-Rail Station Rider-Survey Methodology

Stations were selected from the list of stations that exhibited characteristics (based on the 2007 on-board survey) of having one or more of the following conditions: high auto egress mode or large number of short (one or two station) trips. Survey data was collected in five steps:

1. Overnight parking at 14 Tri-Rail stations was counted about 30 minutes prior to the arrival of the first train at that station. The first train southbound departed Mangonia Park station at 4:00 am and the first train northbound departed Miami International Airport station at 4:20 am.
2. Passengers' mode-of-access for each train in each direction (northbound and southbound), at 12 stations were observed and collected using mode choices consistent with those used for the on-board survey.

3. Interviews of passengers waiting to board each train at each of the 14 stations were conducted to collect their travel distance information. The travel distance was defined as the number of stations a passenger was traveling and described as 1, 2, or 3+ stations.
4. Total numbers of alighting passengers for each train at 12 stations were counted.
5. Exiting passengers' mode of egress for each train at 14 stations were observed and collected.

Tri-Rail Station Rider-Data Collection

A data collection plan was developed to direct the survey effort at each station based on field visits and aerial photo reviews of each station. According to the station configuration (i.e., number of entrances, number of parking lots, overhead bridge or at-grade crossings, etc.), the number, and positions of survey staff at the station were established.

Prior to the arrival of the first train at each of the stations, the survey crew assembled and reviewed the data collection plan and materials to clarify any modifications needed to make sure all survey elements were collected effectively and efficiently. For example, some minor adjustments or reassignments of surveyors were necessary at some stations with multiple entrances and multiple parking lots. During the data collection process, the survey crew regrouped several times to make sure data collection was going smoothly and to make additional adjustments to the data collection plan if necessary.

At least four counters were necessary at each of the stations, except at the Lake Worth and Pompano Beach stations where only trip length and egress mode was collected by two counters. One surveyor was responsible of arriving at the station at least 30 minutes prior to the first train to count the number of overnight parked cars at the station parking lot(s). Two counters, one at each platform, collected trip length and alighting counts at each platform. As riders accessed the platform and waited for the train, they were interviewed about their trip length (1, 2, or 3 or more stations). Just before the train arrived, surveyors performed a boarding count. Alighting counts were made from one end of the platform when train doors opened and those carrying their bikes out the train were noted.

The other two to four counters surveyed station access and egress mode at different positions around the station entrances, and other access points where they could efficiently observe how Tri-Rail passengers accessed and left each station. To facilitate the data collection of access and egress mode, non-automobile modes were assigned to at least one counter who was observing the access and egress mode by walking, transit bus, MetroRail, school bus, Tri-Rail shuttle, and bike. The other counter(s) were observing the access and egress mode by automobile: park-n-ride, rideshare-n-park, pick-up or drop-off, and taxi.

Survey Response

Overall Response

On the day of the survey a total of 15,662 passengers boarded the SFRTA Tri-Rail trains. The surveyors distributed 8,403 questionnaires and collected 6,103. The survey response rate was 73% based on the total number of collected surveys. The response rate is calculated as follows:

$$\text{Response Rate (\%)} = \frac{\text{Completed Questionnaires}}{\text{Distributed Questionnaires}} = \frac{6,103}{8,403} = 73\%$$

The actual sample size based on the total number of passengers was 39%. The sample size is calculated as follows:

$$\text{Sample Size (\%)} = \frac{\text{Completed Questionnaires}}{\text{Total Passenger Counts}} = \frac{6,103}{15,662} = 39\%$$

The 6,103 collected questionnaires make up the final dataset that will be used for the survey analysis.

Response Rate by Question

The following table lists the response rate for each question. The response rate was calculated by dividing the number of provided answers by the total number of returned surveys (6,103).

About Rider's One-way Trip (Question 1 – 9, and Question 13)												
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q13			
98%	97%*	96%	93%	92%	84%	95%	97%*	90%	26%**			
About Rider's Recent Travel Behavior (Questions 10 – 12)												
Q10	Q11	Q12										
92%	63%	78%										
Socio-demographic Characteristics (Questions 14 – 26)												
Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26
91%	85%	90%	91%	92%	81%	84%	91%	84%	83%	86%	90%	87%

* Q2 and Q8 asked about the ORIGIN and DESTINATION of the rider's one-way trip. In many cases, the information provided by the respondents was incomplete or insufficient. Extra efforts were made to locate the landmarks and/or addresses on the map based on careful analyses of other relevant information of the trip, resulting in a greater number of geo-codable addresses (5,930) than was provided.

** Q13 asked about the number of adults and children in the traveling group who cannot fill out the survey form. Even though 26% is low compared to other response rates, it is significant given that 26% equates to 1,570 Tri-Rail riders.

Passenger Door Counts

The number of passengers boarding and disembarking each car was recorded at each station for all 50 trains in both directions on the day of the survey. The passenger door counts were then summarized by station, by train, and by direction. A total of 7,966 passengers were counted boarding southbound trains, while 7,696 passengers were counted boarding northbound trains, resulting in a total daily boarding of 15,662 passengers.

Data Editing and Processing

A number of steps were taken to review and examine the dataset for accuracy and completeness. The first step involved checking for missing values or non-responses for questions directly related to trip making characteristics. **Table 1** lists the types of records with missing values and the number of records for each type. The number of records for each type represents the remaining number of records after the records with previous missing values have been removed. For example, “214” means that there were 214 records with no responses for Q7 remaining after 8 empty records and 110 records with no trip origin (Q1) were removed. A total of 1,264 records were removed reducing the number of records in the database to 4,839.

Table 1 – Records with Missing Values

Records (Question Number)	Number of Records*
Empty Records	8
Missing Trip Origin (Q1)	110
Missing Trip Destination (Q7)	214
Missing Boarding Station (Q4)	257
Missing Alighting Station (Q5)	157
No Access Mode Chosen (Q3)	133
No Egress Mode Chosen (Q6)	69
Non-Response to Auto Ownership (Q24)	316
Total	1,264

One of the most common issues in an origin-destination travel survey is that people often think of a trip as a round trip and therefore use the same location for both trip origin and trip destination. The database was reviewed to identify those records with the same answers for both trip ends. A total of 1,190 records were found and a summary of these records is provided in **Table 2**. Similar to **Table 1**, the number of records also represents the remaining number of records after the missing values in the previous groups were removed. As a result 1,190 additional records had to be removed, further reducing the number of records in the database to 3,649.

Table 2 – Records with Same Answer for Both Trip Ends

Records	Number of Records
Round Trips	
Home-to-Home	946
Airport-to-Airport (same airport)	7
Work-to-Work	160
School-to-School	13
College-to-College	23
Same boarding and Alighting Stations	41
Total	1,190

The dataset was also checked for typographical errors. This is particularly important for Question 9 where the reported return times to complete the second leg of the round trip will be used for imputing (the substitution of some value for a missing data point) data records for the afternoon. **Figure 2** shows an example of the type of errors that may occur during the data input process. All of these errors were corrected in the final database.

Figure 2 - Correction of Typographical Errors

q9	q9Time	q10	q11Gas	q11TriRail	q11NewSchool	q11Other
1	5:03 p.m.	2	TRUE	FALSE	FALSE	FALSE
1	5:15 p.m.	2	FALSE	FALSE	TRUE	FALSE
1	5:00 pm	4	FALSE	FALSE	FALSE	FALSE
1	5:07	3	TRUE	FALSE	FALSE	FALSE
1	5:00pm	2	TRUE	FALSE	FALSE	FALSE
1	17:00 pm	4	FALSE	FALSE	FALSE	FALSE
1	5:03 pm	2	TRUE	FALSE	FALSE	FALSE
1	5:15PM	4	TRUE	FALSE	FALSE	FALSE
1	5:00pm	4	TRUE	FALSE	FALSE	FALSE
1	5:14pm	3	TRUE	TRUE	FALSE	FALSE
1	5:00PM	4	FALSE	FALSE	TRUE	FALSE

The final step in the data review process was the most intensive and it involved checking the logic and validity of answers for individual records in the database. Two types of errors were most common and they required close examination of the original survey questionnaire, and in some cases careful analysis of related questions in other parts of the survey. One was the possibility of assigning a survey sample to the wrong train in the wrong direction. As an example, all records shown in **Figure 3** indicate trips going southbound from Mangonia Park station to various other stations in the south, and yet their associated train number was P628, which was going northbound towards the Mangonia Park station. In most cases, these errors were corrected by reviewing the original survey log sheet where the unique survey serial numbers were recorded by train and by station.

Figure 3 – Sample Records Validity Check – Train Number

survey_number	train	q1	q4	q5
1881	P628	3	Mangonia Park	Fort Lauderdale
6065	P628	1	Mangonia Park	Boca Raton
6066	P628	1	Mangonia Park	Delray Beach
6317	P628	1	Mangonia Park	Lake Worth
6318	P628	5	Mangonia Park	Lake Worth
6319	P628	5	Mangonia Park	Lake Worth
13513	P628	6	Mangonia Park	Cypress Creek
5703	P628	1	Mangonia Park	Boynton Beach
6261	P628	1	Mangonia Park	West Palm Beach

The second type of error occurred when respondents provided multiple answers where only a single answer was needed. This was particularly true for Question 3 where respondents were asked to provide the immediate previous access mode and for Question 6 where they were asked for the immediate subsequent egress mode. **Figure 4** shows an example where multiple egress modes were selected by respondents. Each column in **Figure 4** represents an egress mode and the number “1” indicates the person had chosen this particular mode as the egress mode. To determine the most likely egress mode for these records, a number of factors need to be taken into consideration. In general, a higher mode will be selected over a lower mode. For example, if a respondent had selected both Transit Bus and Bike, then Transit Bus will be assumed to be the egress mode. Of course, the availability of transit services at each station needs to be considered when making assumptions.

Figure 4 – Sample Records Validity Check – Egress Mode

q6Walk	q6Bike	q6Taxi	q6School Bus	q6Metrorail	q6TransitBus	q6TriRail	q6Parked
1	1	2	2	2	1	2	2
1	1	2	2	1	2	2	2
1	1	2	2	2	2	2	2
1	1	2	2	2	2	2	2
1	1	2	2	2	1	2	2
1	1	2	2	2	1	2	2
1	1	2	2	2	2	2	2
1	1	2	2	2	1	1	1
1	1	2	2	2	2	2	2

In addition to the survey questionnaires, the all day passenger door counts collected by train and by station were also reviewed for reasonableness and for possible logical errors. Even though small in numbers, there were cases where boardings were recorded at the final station of a train run and alightings were recorded at the beginning of a train run. Instead of simply removing these counts, they were transferred to either the immediate next train or the immediate previous train. Specifically, the boardings at the final station were converted to boardings at the beginning of the next train going in the opposite direction; whereas alightings at the first station were converted to alightings at the final station of the previous train in opposite direction.

The data review and editing process produced a final dataset of 3,649 usable records with a reasonable level of accuracy. The 3,649 records account for almost 60 percent of the total collected survey forms.

Expansion Methodology

Control Count Collection

Boarding and alighting counts were recorded at every station for every train for the entire day of the survey. These counts were maintained by train, time period and direction. The boarding and alighting counts were used as a source of controls for the expansion of the Tri-Rail sample data. Auxiliary counts of key travel markets were also obtained for non-response bias mitigation and expanded data cross-checking. Available counts collected by SFRTA were also utilized to cross-check the manual counts.

Expansion Process

The expansion process was completed in a series of steps. The first step was to clean the data to eliminate bad data and clarify partial responses. After cross-checking daily manual station counts with counts provided by SFRTA, the next step was to apply a station level expansion factor to the total ridership in the AM morning period. Stations for which there were no survey responses were grouped for either a multiple station or multiple run (at same station) expansion. The expanded AM sample data was then analyzed in terms of home-based (round trips) versus non home-based trips. Based on the analysis of AM home-based trips and estimates of PM non home-based trips, the data was expanded to daily trips. Adjustments were made, as necessary, to ensure they matched daily counts. A more detailed step-by-step description of the expansion process is provided below.

1. Survey data was cleaned to eliminate illogical answers, as well as to clarify incomplete answers.
2. Usable survey records were expanded to AM counts by station, train, and direction. Typically, origin and destination questions resulted in lower response rates than other questions such as trip purpose or access mode. Therefore, multiple expansion factors were developed.
3. Expanded AM survey data was analyzed in terms of home-based versus non home-based trips to properly expand the AM expanded sample to daily ridership.
 - a. For home-based trip survey responses, origins and destinations were doubled for each trip to reflect a production/attraction format.
 - b. Non home-based AM trips were summarized. This category of trips includes all trips that utilize Tri-Rail for just one direction. Characteristics of this category of trips in the 2008 survey were compared to the comparable trips in the 2007 survey as a consistency check.
 - c. Non home-based PM trips were estimated from March 2007 all-day Tri-Rail survey data. The relationship of AM non home-based trips and PM non home-based trips in the 2007 dataset were reviewed and used to develop 2008 PM trips relative to 2008 AM trips.
 - d. Non home-based AM trips, home based daily trips, and non home-based PM trips were added together. The product of this reflects total daily trips.
4. A time period adjustment factor was developed and applied to the expanded survey data so that each respective time period matches the corresponding time of day counts.

Cross-Check Expanded Data against Auxiliary Sources

The expanded survey data was cross-checked against other available data sources, including manual auxiliary counts, 2007 survey results, and various expansion dimensions other than station boardings.

1. Expanded survey responses were summarized by key markets and checked against auxiliary counts, as described in Expansion Process section, above. This analysis provided a disaggregate accuracy check of the expanded data. The appropriate adjustment factors help mitigate non-response bias.
2. Survey results were cross-checked against the 2007 Tri-Rail survey results.
3. Alighting counts were utilized as a cross-check of the boarding level expansion results.
4. Dimensions other than the station level boardings were utilized for cross-checking purposes. Train, direction, and segment level expansion totals were used for this purpose.

Imputation of Afternoon Samples

Since the 2008 on-board survey was conducted for a half-day in the morning rather than a full day, samples were available for only the 30 trains surveyed in the morning. No samples were available for the remaining 20 trains in the afternoon or evening. The passenger door counts, on the other hand, were collected by station, by train, for all 50 trains for the entire day of the survey. Two different approaches were available to expand the morning samples to a full day. One would be to only use morning samples; another would require creating virtual samples from the morning samples to represent afternoon riders. After evaluating both approaches, it was decided to use the second approach to perform the data analysis. The advantages of using the second approach were:

- This approach allowed for true representation of riders in the afternoon because these were the same riders who would have been surveyed in the afternoon if the on-board survey had continued into the afternoon.
- This approach provided a set of records associated with each train in the afternoon. With the afternoon passenger door counts, the samples could be expanded in the same way as the morning samples.
- This approach made the best use of information collected in the survey, as it fully utilized answers provided in Question 9 and door counts collected for afternoon trains.
- This approach allowed for more disaggregate expansion. For example, with the afternoon samples, survey expansion could be conducted by three time periods instead of two, AM Peak, Off-Peak, and PM Peak. The three time periods are consistent with the time periods used in SERPM 6.5.

The drawback of this approach is that the imputed afternoon samples will miss the journeys that start in the afternoon. However, the missing journeys are accounted for in the expansion process when the afternoon door counts are used as control totals, as these door counts include the trips that occur in the

afternoon. Of course, the underlying assumption is that afternoon riders have similar travel characteristics as those making return trips in the afternoon.

To create a virtual sample from an existing survey record, the following information was used:

- Answers to Question 9,
- Boarding station,
- Alighting Station, and
- Train Schedule.

Question 9 asked the survey respondents if they would come back to Tri-Rail later in the day to complete their round trip, and if they would, at what time. Only those with a “Yes” answer and a valid return time could be used to create virtual samples. When creating a virtual sample, the alighting station for the original record was used as the boarding station and the travel direction was simply the reverse of the original trip. With the direction and boarding station known, a train schedule was then used to find the corresponding train for the return trip. For example, survey record 1156 in **Figure 5** shows that the rider boarded train P602 in the morning at Hollywood Station going northbound and disembarked the train at the West Palm Beach station. The rider indicated he or she would return to Tri-Rail at 3:36 pm to complete their round trip. So for this particular rider, the return trip would start at 3:36 pm going from the West Palm Beach station southbound to the Hollywood station. With the train schedule for southbound trains (**Figure 6**), the train that leaves the West Palm Beach Station at 3:36 pm is train P633. Sometimes the return time provided by the survey respondent did not match the train schedule. In this case, the train that left closer to the return time was assigned to the virtual sample.

Figure 5 – Example Survey Record for Sample Imputation

survey_number	train	q1	q4	q5	q9	q9Time
1156	P602	1	Hollywood	West Palm Beach		1 3:36 pm

Figure 6 – Determining Train Number for Return Trips

Train Number	P649	P647	P645	P643	P641	P639	P637	P635	P633	P631	P629	P627
Mangonia Park	8:40 PM	7:40 PM	6:40 PM	6:00 PM	5:30 PM	5:00 PM	4:30 PM	4:00 PM	3:30 PM	3:00 PM	2:00 PM	1:00 PM
West Palm Beach	8:18 PM	7:18 PM	6:18 PM	6:08 PM	6:06 PM	6:06 PM	6:06 PM	6:06 PM	3:36 PM	3:06 PM	2:06 PM	1:06 PM
Lake Worth	8:54 PM	7:54 PM	6:54 PM	6:14 PM	5:44 PM	5:14 PM	4:44 PM	4:14 PM	3:44 PM	3:14 PM	2:14 PM	1:14 PM
Boynton Beach	8:59 PM	7:59 PM	6:59 PM	6:19 PM	5:49 PM	5:19 PM	4:49 PM	4:19 PM	3:49 PM	3:19 PM	2:19 PM	1:19 PM
Delray Beach	9:07 PM	8:07 PM	7:07 PM	6:27 PM	5:57 PM	5:27 PM	4:57 PM	4:27 PM	3:57 PM	3:27 PM	2:27 PM	1:27 PM
Boca Raton	9:12 PM	8:12 PM	7:12 PM	6:32 PM	6:02 PM	5:32 PM	5:02 PM	4:32 PM	4:02 PM	3:32 PM	2:32 PM	1:32 PM
Deerfield Beach	9:19 PM	8:19 PM	7:19 PM	6:39 PM	6:09 PM	5:39 PM	5:09 PM	4:39 PM	4:09 PM	3:39 PM	2:39 PM	1:39 PM
Pompano Beach	9:23 PM	8:23 PM	7:23 PM	6:43 PM	6:13 PM	5:43 PM	5:13 PM	4:43 PM	4:13 PM	3:43 PM	2:43 PM	1:43 PM
Cypress Creek	9:29 PM	8:29 PM	7:29 PM	6:49 PM	6:19 PM	5:49 PM	5:19 PM	4:49 PM	4:19 PM	3:49 PM	2:49 PM	1:49 PM
Fort Lauderdale	9:36 PM	8:36 PM	7:36 PM	6:56 PM	6:26 PM	5:56 PM	5:26 PM	4:56 PM	4:26 PM	3:56 PM	2:56 PM	1:56 PM
Fort Lauderdale Airport	9:43 PM	8:43 PM	7:43 PM	7:03 PM	6:33 PM	6:03 PM	5:33 PM	5:03 PM	4:33 PM	4:03 PM	3:03 PM	2:03 PM
Sheridan Street	9:47 PM	8:47 PM	7:47 PM	7:07 PM	6:37 PM	6:07 PM	5:37 PM	5:07 PM	4:37 PM	4:07 PM	3:07 PM	2:07 PM
Hollywood	9:51 PM	8:51 PM	7:51 PM	7:11 PM	6:41 PM	6:11 PM	5:41 PM	5:11 PM	4:41 PM	4:11 PM	3:11 PM	2:11 PM
Golden Glades	10:00 PM	9:00 PM	8:00 PM	7:20 PM	6:50 PM	6:20 PM	5:50 PM	5:20 PM	4:50 PM	4:20 PM	3:20 PM	2:20 PM
Opa-locka	10:06 PM	9:06 PM	8:06 PM	7:26 PM	6:56 PM	6:26 PM	5:56 PM	5:26 PM	4:56 PM	4:26 PM	3:26 PM	2:26 PM
Metrorail	10:13 PM	9:13 PM	8:13 PM	7:33 PM	7:03 PM	6:33 PM	6:03 PM	5:33 PM	5:03 PM	4:33 PM	3:33 PM	2:33 PM
Hialeah Market	10:19 PM	9:19 PM	8:19 PM	7:39 PM	7:09 PM	6:39 PM	6:09 PM	5:39 PM	5:09 PM	4:39 PM	3:39 PM	2:39 PM
Miami Airport	10:25 PM	9:25 PM	8:25 PM	7:45 PM	7:15 PM	6:45 PM	6:15 PM	5:45 PM	5:15 PM	4:45 PM	3:45 PM	2:45 PM

After assigning the train number to a virtual sample record, the fields related to trip origin and trip destination were filled by using the reverse of the corresponding fields in the original record. For instance, the original trip origin became the new trip destination; the original access mode became the new egress mode, and so on. To distinguish between the original record and the virtual record, a very large number, 800000, was added to the original survey ID, so the survey ID for the newly created virtual record based on survey record 1156 became 801156.

As mentioned earlier, there are 3,649 usable records in the final dataset. A total of 2,915 respondents indicated they would come back to Tri-Rail and 614 said they would not. Among those who would come back to Tri-Rail, 2,658 provided a valid return time and 120 did not. Therefore, the total number of virtual records created through the imputation process was 2,658. With 3,649 original records, the final number of usable records in the database used for survey analysis was 6,307.

Final Database for Analysis

The dataset created from the data editing and sample imputation process discussed above is origin-destination (OD) based. However, many of the travel characteristics in travel demand models are presented in terms of productions and attractions (PA). So, an additional dataset in the PA format was created. The final database therefore consists of two separate, but closely related datasets; one is OD based and another is PA based.

Sample Weighting and Expansion

Three different weighting schemes at different disaggregate levels were developed for data expansion. The following sections describe each of the weighting schemes.

Weighting by Train

The first weighting scheme was to weight the samples by train. The total number of sample boardings for each train was calculated first. The number of boarding door counts at all stations for each train was summed next. Using door counts as the control total, expansion factors were calculated as the ratio between door counts and sample boardings. **Table 3** shows the calculated expansion factors by train.

Expansion by train seems to be the simplest and most aggregate method compared to other expansion schemes. But, even this method implicitly includes two additional dimensions: direction and time, which makes it effectively a three-dimension expansion.

Table 3 – Expansion by Train

Train	Sample	Door Counts	Expansion Factor
P600	64	119	1.859375
P601	78	157	2.012821
P602	64	175	2.734375
P603	155	352	2.270968
P604	127	173	1.362205
P605	254	519	2.043307
P606	140	375	2.678571
P607	214	508	2.373832
P608	183	599	3.273224
P609	195	389	1.994872
P610	255	557	2.184314
P611	183	370	2.021858
P612	155	373	2.406452
P613	67	373	5.567164
P614	153	320	2.091503
P615	231	333	1.441558
P616	125	269	2.152000
P617	151	342	2.264901
P618	70	165	2.357143
P619	127	224	1.763780
P620	74	155	2.094595
P621	85	241	2.835294
P622	57	159	2.789474
P623	68	167	2.455882
P624	66	131	1.984848
P625	65	178	2.738462
P626	87	208	2.390805
P627	92	200	2.173913
P628	148	263	1.777027
P629	94	203	2.159574
P630	103	429	4.165049
P631	84	508	6.047619
P632	234	716	3.059829
P633	145	557	3.841379

Train	Sample	Door Counts	Expansion Factor
P634	209	383	1.832536
P635	172	568	3.302326
P636	245	540	2.204082
P637	184	438	2.380435
P638	129	426	3.302326
P639	177	433	2.446328
P640	133	331	2.488722
P641	133	383	2.879699
P642	139	310	2.230216
P643	86	175	2.034884
P644	61	205	3.360656
P645	49	122	2.489796
P646	61	203	3.327869
P647	39	129	3.307692
P648	54	108	2.000000
P649	43	101	2.348837
Grand Total	6307	15662	2.483273

Weighting by Direction, by Boarding Station, and by Time Period

The second weighting scheme adds one more dimension and seeks to expand the data by boarding station as well. Time of day was divided into three time periods: AM peak, PM Peak, and Off Peak. To be consistent with the current SERPM 6.5, the three time periods were defined as follows:

- AM Peak: 6:30 am – 9:30 am
- PM Peak: 3:30 pm – 6:30 pm
- Off Peak: 4:00 am – 9:30 am, 9:30 am – 3:30 pm, and 6:30 pm – 11:05 pm.

Sample boardings and door counts were summarized by direction, boarding station, and time period. Using door counts as control total, the expansion factors were calculated as the ratio between door counts and sample boardings.

Table 4 **Table 4** illustrates the process used to calculate the initial expansion factors. Because of the level of disaggregation, some groups may have a very small sample size, and other groups may not have any sample at all. These groups are highlighted in the table for further analysis. A good example is the West Palm Beach Station for northbound trains. There is no sample record for the AM peak period and only one for the Off Peak and PM Peak periods. The initial expansion factors are either non-existent (AM Peak) or are very large (25 for Off Peak and 17 for PM Peak). To reduce the potential bias caused by over-representing a sample record, the boardings for northbound trains were grouped with boardings for southbound trains at the same station, and expansion factors were recalculated. Similar revisions were made for other stations with similar sample size problems. The revised expansion factors are shown in **Table 5**.

Weighting by Station, by Boardings and by Alightings (Doubly Constrained)

The third weighting scheme used both the boarding and alighting counts to expand the survey sample. To be able to use the alighting door counts for expansion, however, they needed to be adjusted to match the total boarding counts first, as there were some discrepancies between the two totals in the raw counts. The adjusted door counts are presented in **Table 6**. After the alighting counts were adjusted, the station-to-station OD trip table was tabulated from the survey responses so it could serve as the seed matrix (**Table 7**). Using the boarding and alighting counts at each station as the row and column control totals, a Fratar (growth factor) process was employed to scale the station-to-station matrix. The resulting expanded trip matrix was then divided by the seed matrix to obtain the station-to-station expansion factors. The station-to-station expansion factors are shown in **Table 8**.

Table 4 – Expansion by Direction, by Station, and by Time Periods

NB Sample Boardings

STATION	AM	OP	PM	TOTAL
Miami Airport	63	139	125	327
Hialeah Market	50	33	38	121
MetroRail	78	248	385	711
Opa Locka	29	42	23	94
Golden Glades	67	79	16	162
Hollywood	56	68	29	153
Sheridan Street	97	51	26	174
Ft. Lauderdale Airport	40	70	61	171
Ft. Lauderdale	60	80	92	232
Cypress Creek	62	55	89	206
Pompano Beach	47	33	45	125
Deerfield Beach	52	49	42	143
Boca Raton	77	65	106	248
Delray Beach	44	37	18	99
Boynton Beach	90	13	6	109
Lake Worth	27	30	2	59
West Palm Beach	0	1	1	2
Mangonia Park				
TOTAL	939	1093	1104	3136

SB Sample Boardings

STATION	AM	OP	PM	TOTAL
Mangonia Park	150	153	152	455
West Palm Beach	87	190	218	495
Lake Worth	107	112	42	261
Boynton Beach	111	92	14	217
Delray Beach	66	48	25	139
Boca Raton	47	127	165	339
Deerfield Beach	53	81	61	195
Pompano Beach	59	69	58	186
Cypress Creek	73	97	93	263
Fort Lauderdale	55	78	26	159
Fort Lauderdale Airport	58	57	18	133
Sheridan Street	82	35	15	132
Hollywood	52	59	14	125
Golden Glades	26	19	2	47
Opa-locka	8	9	2	19
Metrorail	3	1	2	6
Hialeah Market				
Miami Airport				
TOTAL	1037	1227	907	3171

NB Door Counts

STATION	AM	OP	PM	TOTAL
Miami Airport	128	346	423	897
Hialeah Market	82	73	100	255
MetroRail	200	618	881	1699
Opa Locka	70	110	44	224
Golden Glades	164	248	80	492
Hollywood	111	161	95	367
Sheridan Street	187	115	67	369
Ft. Lauderdale Airport	106	167	181	454
Ft. Lauderdale	157	150	210	517
Cypress Creek	124	155	198	477
Pompano Beach	115	106	113	334
Deerfield Beach	107	83	101	291
Boca Raton	181	95	161	437
Delray Beach	126	67	47	240
Boynton Beach	269	44	24	337
Lake Worth	93	45	38	176
West Palm Beach	84	25	17	126
Mangonia Park				
TOTAL	2304	2608	2780	7692

SB Door Counts

STATION	AM	OP	PM	TOTAL
Mangonia Park	264	280	645	1189
West Palm Beach	170	327	571	1068
Lake Worth	247	265	185	697
Boynton Beach	215	181	86	482
Delray Beach	143	148	122	413
Boca Raton	108	232	419	759
Deerfield Beach	154	184	180	518
Pompano Beach	131	173	139	443
Cypress Creek	131	235	258	624
Fort Lauderdale	156	203	106	465
Fort Lauderdale Airport	135	173	66	374
Sheridan Street	181	70	46	297
Hollywood	135	138	55	328
Golden Glades	100	49	37	186
Opa-locka	25	20	7	52
Metrorail Transfer	9	49	10	68
Hialeah Market	2	1	4	7
Miami Airport				
TOTAL	2306	2728	2936	7970

NB - Expansion Factors

STATION	AM	OP	PM	TOTAL
Miami Airport	2.03175	2.48921	3.38400	2.74312
Hialeah Market	1.64000	2.21212	2.63158	2.10744
MetroRail	2.56410	2.49194	2.28831	2.38959
Opa Locka	2.41379	2.61905	1.91304	2.38298
Golden Glades	2.44776	3.13924	5.00000	3.03704
Hollywood	1.98214	2.36765	3.27586	2.39869
Sheridan Street	1.92784	2.25490	2.57692	2.12069
Ft. Lauderdale Airport	2.65000	2.38571	2.96721	2.65497
Ft. Lauderdale	2.61667	1.87500	2.28261	2.22845
Cypress Creek	2.00000	2.81818	2.22472	2.31553
Pompano Beach	2.44681	3.21212	2.51111	2.67200
Deerfield Beach	2.05769	1.69388	2.40476	2.03497
Boca Raton	2.35065	1.46154	1.51887	1.76210
Delray Beach	2.86364	1.81081	2.61111	2.42424
Boynton Beach	2.98889	3.38462	4.00000	3.09174
Lake Worth	3.44444	1.50000	19.00000	2.98305
West Palm Beach		25.00000	17.00000	63.00000
Mangonia Park				
TOTAL	2.45367	2.38609	2.51812	2.45281

SB - Expansion Factors

STATION	AM	OP	PM	TOTAL
Mangonia Park	1.760000	1.830065	4.243421	2.613187
West Palm Beach	1.954023	1.721053	2.619266	2.157576
Lake Worth	2.308411	2.366071	4.404762	2.670498
Boynton Beach	1.936937	1.967391	6.142857	2.221198
Delray Beach	2.166667	3.083333	4.880000	2.971223
Boca Raton	2.297872	1.826772	2.539394	2.238938
Deerfield Beach	2.905660	2.271605	2.950820	2.656410
Pompano Beach	2.220339	2.507246	2.396552	2.381720
Cypress Creek	1.794521	2.422680	2.774194	2.372624
Fort Lauderdale	2.836364	2.602564	4.076923	2.924528
Fort Lauderdale Airport	2.327586	3.035088	3.666667	2.812030
Sheridan Street	2.207317	2.000000	3.066667	2.250000
Hollywood	2.596154	2.338983	3.928571	2.624000
Golden Glades	3.846154	2.578947	18.500000	3.957447
Opa-locka	3.125000	2.222222	3.500000	2.736842
Metrorail Transfer	3.000000	49.000000	5.000000	11.333333
Hialeah Market				
Miami Airport				
TOTAL	2.223722	2.223309	3.237045	2.513403

Table 5 – Revised Expansion Factors

NB - Revised Expansion Factors

STATION	AM	OP	PM	TOTAL
Miami Airport	2.031746	2.489209	3.384000	2.743119
Hialeah Market	1.680000	2.242424	2.736842	2.165289
MetroRail	2.580247	2.678715	2.302326	2.464435
Opa Locka	2.413793	2.619048	1.913043	2.382979
Golden Glades	2.447761	3.139241	6.500000	3.037037
Hollywood	1.982143	2.367647	3.275862	2.398693
Sheridan Street	1.927835	2.254902	2.576923	2.120690
Ft. Lauderdale Airport	2.650000	2.385714	2.967213	2.654971
Ft. Lauderdale	2.616667	1.875000	2.282609	2.228448
Cypress Creek	2.000000	2.818182	2.224719	2.315534
Pompano Beach	2.446809	3.212121	2.511111	2.672000
Deerfield Beach	2.057692	1.693878	2.404762	2.034965
Boca Raton	2.350649	1.461538	1.518868	1.762097
Delray Beach	2.863636	1.810811	2.611111	2.424242
Boynton Beach	2.988889	3.384615	4.000000	3.091743
Lake Worth	3.444444	1.500000	5.068182	2.983051
West Palm Beach	2.919540	1.842932	2.684932	2.402414
Mangonia Park				
TOTAL	2.453674	2.386093	2.518116	2.452806

SB - Revised Expansion Factors

STATION	AM	OP	PM	TOTAL
Mangonia Park	1.760000	1.830065	4.243421	2.613187
West Palm Beach	2.919540	1.842932	2.684932	2.402414
Lake Worth	2.308411	2.366071	5.068182	2.670498
Boynton Beach	1.936937	1.967391	6.142857	2.221198
Delray Beach	2.166667	3.083333	4.880000	2.971223
Boca Raton	2.297872	1.826772	2.539394	2.238938
Deerfield Beach	2.905660	2.271605	2.950820	2.656410
Pompano Beach	2.220339	2.507246	2.396552	2.381720
Cypress Creek	1.794521	2.422680	2.774194	2.372624
Fort Lauderdale	2.836364	2.602564	4.076923	2.924528
Fort Lauderdale Airport	2.327586	3.035088	3.666667	2.812030
Sheridan Street	2.207317	2.000000	3.066667	2.250000
Hollywood	2.596154	2.338983	3.928571	2.624000
Golden Glades	3.846154	2.578947	6.500000	3.957447
Opa-locka	3.125000	2.222222	3.500000	2.736842
Metrorail Transfer	2.580247	2.678715	2.302326	2.464435
Hialeah Market	1.680000	2.242424	2.736842	2.165289
Miami Airport				
TOTAL	2.223722	2.223309	3.237045	2.513403

Table 6 – Control totals for Fratar Process

	Row Total	Column Total
STATION	Boardings	Alightings
Mangonia Park	1189	1028
West Palm Beach	1194	1052
Lake Worth	873	893
Boynton Beach	819	890
Delray Beach	653	669
Boca Raton	1196	1225
Deerfield Beach	809	846
Pompano Beach	777	817
Cypress Creek	1101	1198
Fort Lauderdale	982	1046
Fort Lauderdale Airport	828	798
Sheridan Street	666	633
Hollywood	695	661
Golden Glades	678	615
Opa-locka	276	299
Metrorail Transfer	1767	1810
Hialeah Market	262	253
Miami Airport	897	930
TOTAL	15662	15662

Table 7 – Seed Matrix (OD Table from Survey Responses)

	MP	WPB	LW	BB	DB	BOCA	DB	PB	CC	FL	FLL	SS	HLWD	GG	OPA	METRO	HIAL	MIA	R. TOTAL
Mangonia Park	0	2	23	45	33	82	40	21	40	53	20	12	11	7	10	31	4	21	455
West Palm Beach	1	0	21	41	38	96	42	29	33	30	23	17	15	17	4	45	9	36	497
Lake Worth	21	25	0	3	11	40	21	20	31	21	10	15	11	11	6	37	9	28	320
Boynton Beach	54	46	3	0	1	20	18	19	34	27	30	12	9	6	5	27	5	10	326
Delray Beach	35	41	13	1	0	2	5	13	23	18	12	7	9	10	6	25	3	15	238
Boca Raton	79	99	37	22	1	0	4	22	41	68	33	45	25	23	9	34	12	33	587
Deerfield Beach	41	46	23	16	3	7	0	3	10	21	18	20	27	14	5	47	7	30	338
Pompano Beach	21	28	17	17	13	24	3	0	0	9	14	21	11	24	5	65	9	30	311
Cypress Creek	36	37	26	28	24	46	11	0	0	1	20	19	20	27	13	96	28	37	469
Fort Lauderdale	45	25	22	29	18	65	22	8	1	0	3	3	6	11	6	85	5	37	391
Fort Lauderdale Airport	17	23	8	25	13	28	20	11	21	2	0	0	3	5	3	82	6	37	304
Sheridan Street	11	18	13	13	8	50	22	21	20	2	0	0	1	4	4	82	10	27	306
Hollywood	11	14	12	9	8	31	26	15	22	8	3	1	0	0	6	71	10	31	278
Golden Glades	7	15	13	6	11	26	16	22	26	10	11	4	2	0	0	18	2	20	209
Opa-locka	11	6	6	5	6	11	7	8	15	8	5	5	4	0	0	3	1	12	113
Metrorail	27	41	38	22	21	30	45	63	96	89	72	80	65	20	2	0	1	5	717
Hialeah Market	4	8	9	4	3	14	6	10	30	5	7	9	11	1	0	0	0	0	121
Miami Airport	18	22	18	7	11	25	21	25	32	29	38	22	29	16	10	4	0	0	327
COLUMN TOTAL	439	496	302	293	223	597	329	310	475	401	319	292	259	196	94	752	121	409	6307

Table 8 – Station-to-Station Expansion Factors

	MP	WPB	LW	BB	DB	BOCA	DB	PB	CC	FL	FLL	SS	HLWD	GG	OPA	METRO	HIAL	MIA	R. TOTAL
Mangonia Park		2.205012	3.075383	3.147116	3.028456	2.074099	2.578506	2.658140	2.565530	2.711416	2.574596	2.286623	2.665172	3.269788	3.256514	2.454326	2.180535	2.306568	2.613215
West Palm Beach	2.265899		2.865579	2.932418	2.821853	1.932603	2.402599	2.476800	2.390508	2.526441	2.398956	2.130628	2.483352	3.046721	3.034352	2.286890	2.031778	2.149213	2.402405
Lake Worth	2.668432	2.419579		3.453356	3.323150	2.275927	2.829416	2.916799	2.815177	2.975259	2.825126	2.509130	2.924515	3.587966	3.573400	2.693152	2.392719	2.531017	2.728120
Boynton Beach	2.463015	2.233318	3.114861		3.067332	2.100724	2.611606	2.692262	2.598463	2.746222	2.607646	2.315976	2.699384	3.311762	3.298317	2.485832	2.208526	2.336177	2.512328
Delray Beach	2.630507	2.385190	3.326681	3.404276		2.243580	2.789203	2.875344	2.775167	2.932973	2.784974	2.473469	2.882950	3.536972	3.522613	2.654876	2.358713	2.495045	2.743724
Boca Raton	1.939584	1.758701	2.452902	2.510116	2.415473		2.056597	2.120112	2.046247	2.162605	2.053478	1.823793	2.125721	2.607958	2.597371	1.957552	1.739178	1.839701	2.037531
Deerfield Beach	2.281461	2.068695	2.885258	2.952556	2.841232	1.945875		2.493810	2.406925	2.543792	2.415431	2.145260	2.500407	3.067645	3.055191	2.302596	2.045731	2.163973	2.393476
Pompano Beach	2.372565	2.151304	3.000474	3.070460	2.954690	2.023579	2.515700			2.645372	2.511885	2.230926	2.600255	3.190144	3.177193	2.394544	2.127423	2.250386	2.498297
Cypress Creek	2.236193	2.027649	2.828011	2.893973	2.784858	1.907266	2.371101			2.493319	2.367505	2.102695	2.450795	3.006778	2.994572	2.256909	2.005141	2.121036	2.347435
Fort Lauderdale	2.425935	2.199696	3.067969	3.139528	3.021154	2.069099	2.572290	2.651731	2.559345		2.568389	2.281110	2.658746	3.261905	3.248662	2.448409	2.175278	2.301007	2.511353
Fort Lauderdale Airport	2.626113	2.381206	3.321125	3.398589	3.270448	2.239832	2.784544	2.870541	2.770531	2.928074			2.878135	3.531064	3.516729	2.650441	2.354773	2.490877	2.723513
Sheridan Street	2.134677	1.935600	2.699628	2.762596	2.658434	1.820683	2.263460	2.333364	2.252069	2.380130			2.339537	2.870280	2.858628	2.154452	1.914114	2.024748	2.176342
Hollywood	2.436810	2.209557	3.081721	3.153601	3.034697	2.078374	2.583820	2.663618	2.570817	2.717003	2.579902	2.291335			3.263225	2.459384	2.185029	2.311322	2.499872
Golden Glades	3.127286	2.835641	3.954935	4.047183	3.894587	2.667287	3.315952	3.418361	3.299265	3.486874	3.310924	2.940591	3.427404			3.156257	2.804163	2.966241	3.244042
Opa-locka	2.340016	2.121790	2.959310	3.028336	2.914154	1.995818	2.481187	2.557815	2.468700	2.609080	2.477424	2.200320	2.564581			2.361693	2.098236	2.219513	2.442530
Metrorail	2.302650	2.087908	2.912055	2.979978	2.867620	1.963948	2.441566	2.516971	2.429279	2.567417	2.437864	2.165184	2.523629	3.096135	3.083566		2.064731	2.184071	2.464622
Hialeah Market	2.058575	1.866596	2.603386	2.664109	2.563660	1.755775	2.182767	2.250179	2.171783	2.295278	2.179457	1.935681	2.256132	2.767954					2.165428
Miami Airport	2.547544	2.309964	3.221761	3.296908	3.172600	2.172820	2.701235	2.784659	2.687641	2.840470	2.697139	2.395459	2.792025	3.425419	3.411513	2.571144			2.743276
COLUMN TOTAL	2.342728	2.121194	2.955455	3.038677	2.998004	2.051691	2.570367	2.634642	2.523033	2.608834	2.501107	2.169227	2.552557	3.135622	3.176342	2.407090	2.090166	2.272819	2.483273

Survey Results – Travel Characteristics

Comparison of Different Weighting Schemes

The survey samples were expanded by all three different weighting schemes. The expanded data were then compared with observed data such as passenger boarding and alighting door counts. The results obtained from the different weighting schemes were also compared with each other. **Figures 7 through 10** show comparisons between expanded boardings and observed boardings for northbound trains for the entire day, AM Peak, Off Peak, and PM Peak period, respectively. **Figures 11 through 14** show the same comparisons for southbound trains. Even though there are more differences at more disaggregate levels, the expanded boardings in general match the observed door counts fairly well. It is also interesting to note that the three different weighting schemes produce very similar results. The same observations can be made when comparing the expanded alightings with the observed alightings as illustrated in **Figures 15 through 17**.

One may argue that since the expansion factors were developed using observed boardings and alightings as control totals, the expanded data should match the observed data. To further compare the results from the different weighting schemes, a number of expanded travel characteristics were examined. **Figure 18** shows the distribution of trip purposes in relation to auto ownership for all three weighting schemes. When expanded by train, the results indicate that 66.78 percent of the trips were Home-Based Work (HBW) trips and 29.65 percent were Home-Based Other (HBO) trips. Non-home based (NHB) trips accounted for only 3.57 percent of total trips. The percentages of HBW, HBO, and NHB trips obtained from the other two weighting schemes are so similar that the differences are all less than one (1) percent. Since the three weighting schemes produce very similar results, and the second weighting scheme (expansion by direction, by station, and by time period) is the most disaggregate, only the results based on the second weighing scheme will be presented in the report from this point on.

Figure 7 – Comparison of Expanded Boardings with Door Counts - NB Total

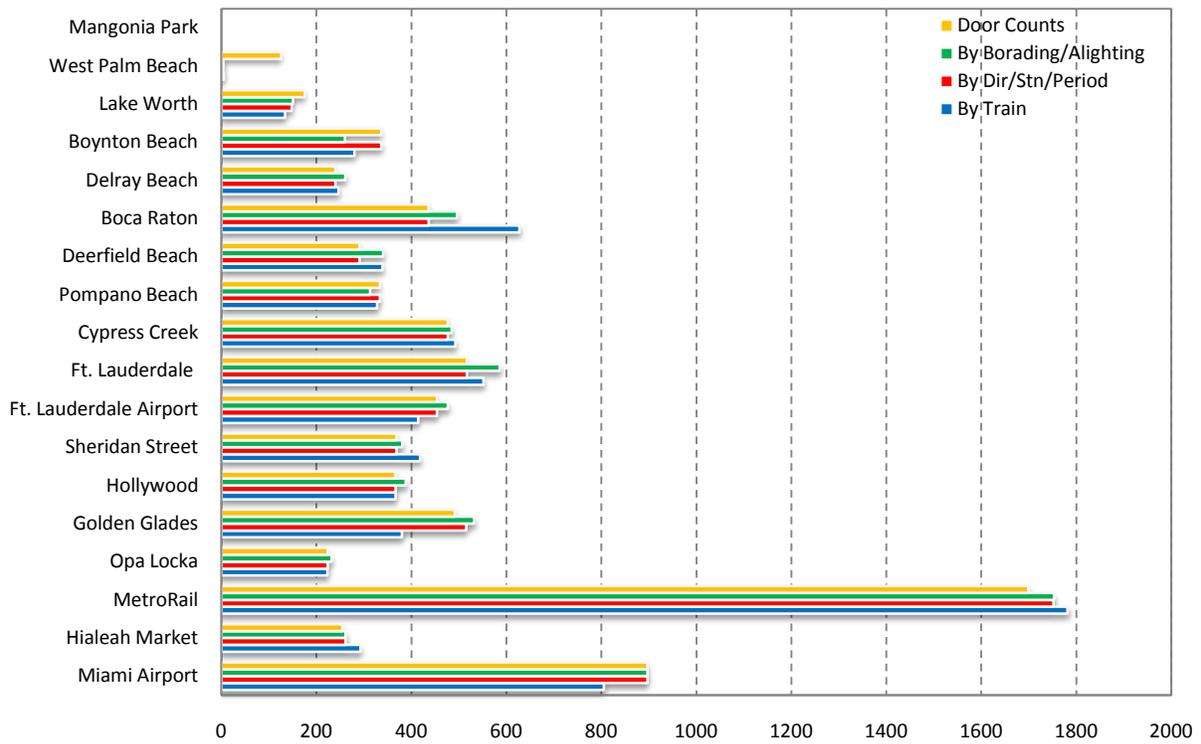


Figure 8 – Comparison of Expanded Boardings with Door Counts - NB AM

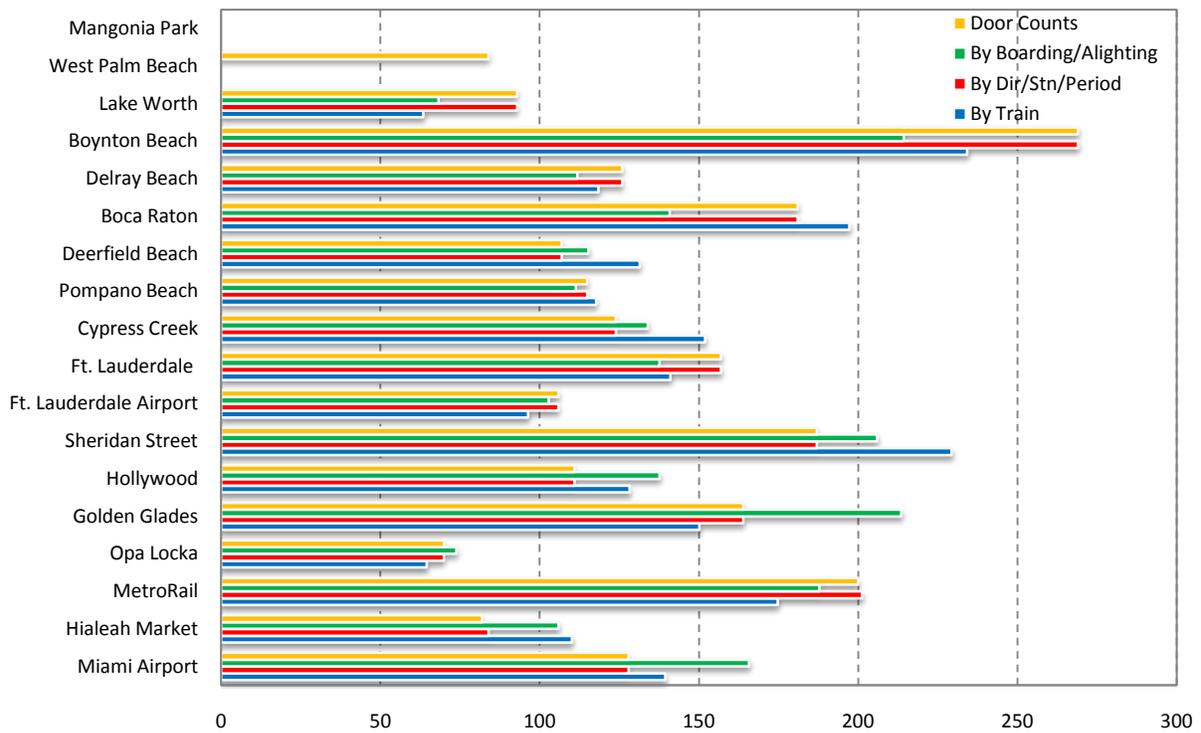


Figure 9 – Comparison of Expanded Boardings with Door Counts – NB OP

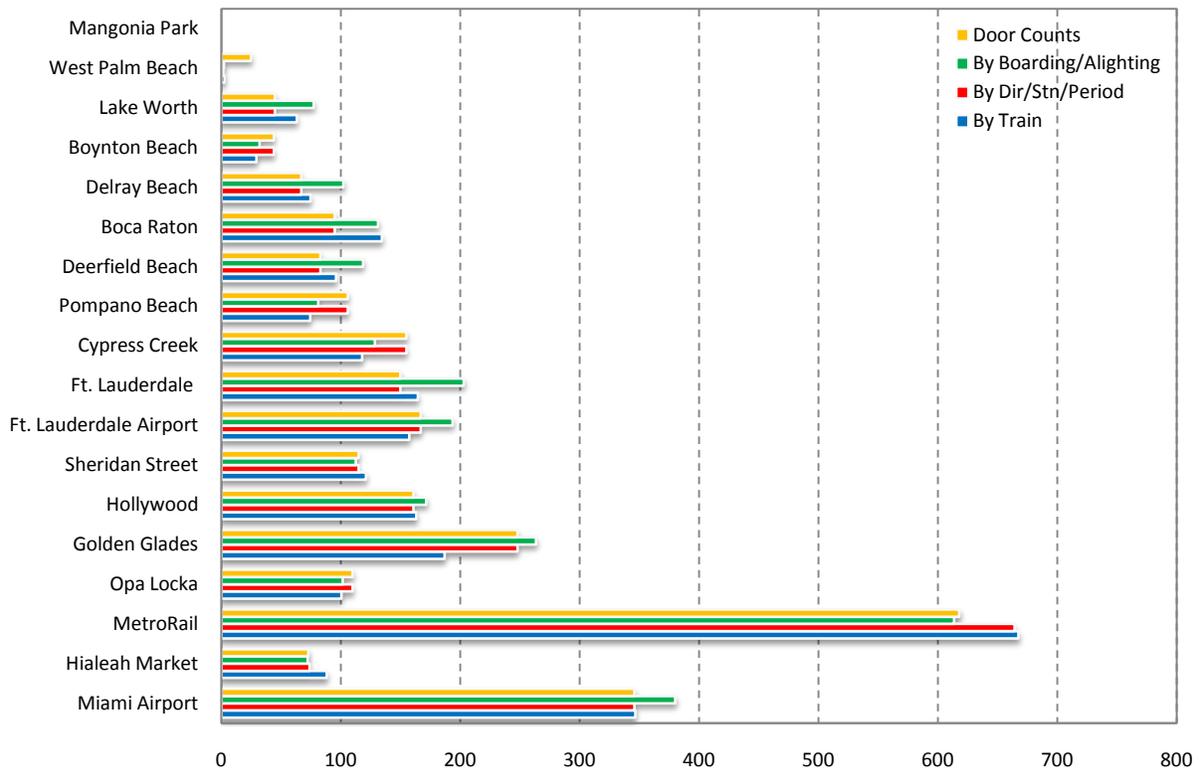


Figure 10 – Comparison of Expanded Boardings with Door Counts – NB PM

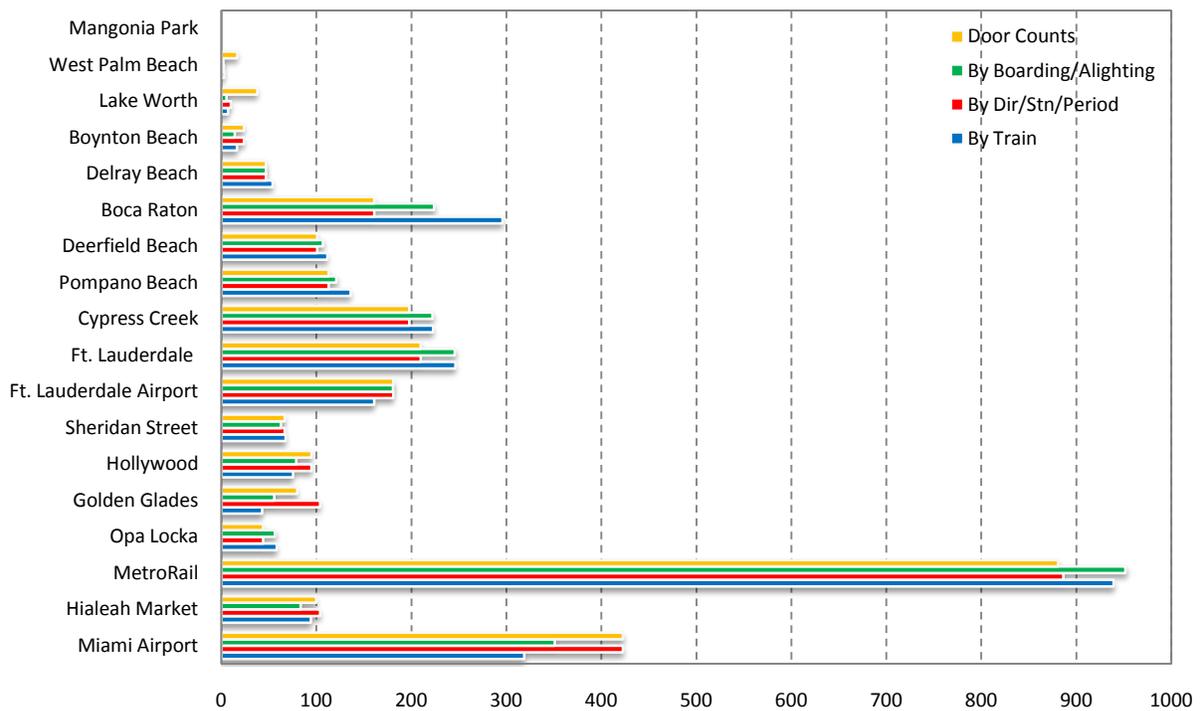


Figure 11 – Comparison of Expanded Boardings with Door Counts – SB Total

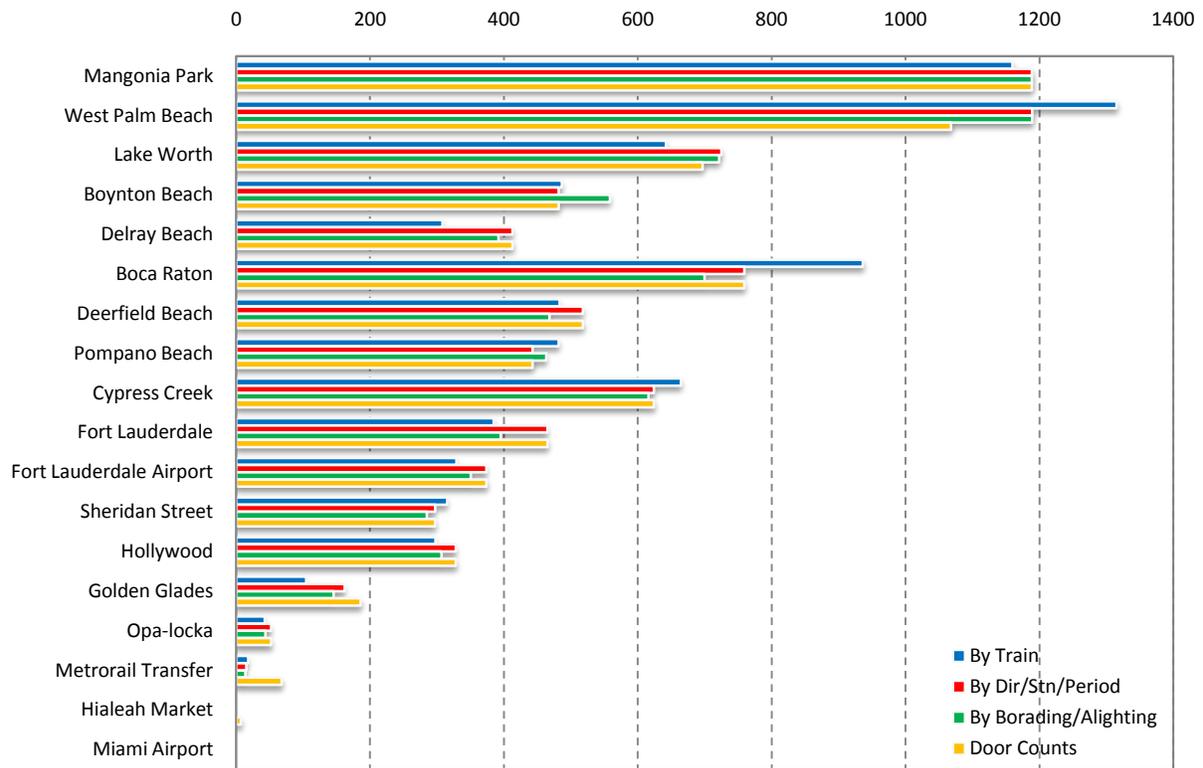


Figure 12 – Comparison of Expanded Boardings with Door Counts – SB AM

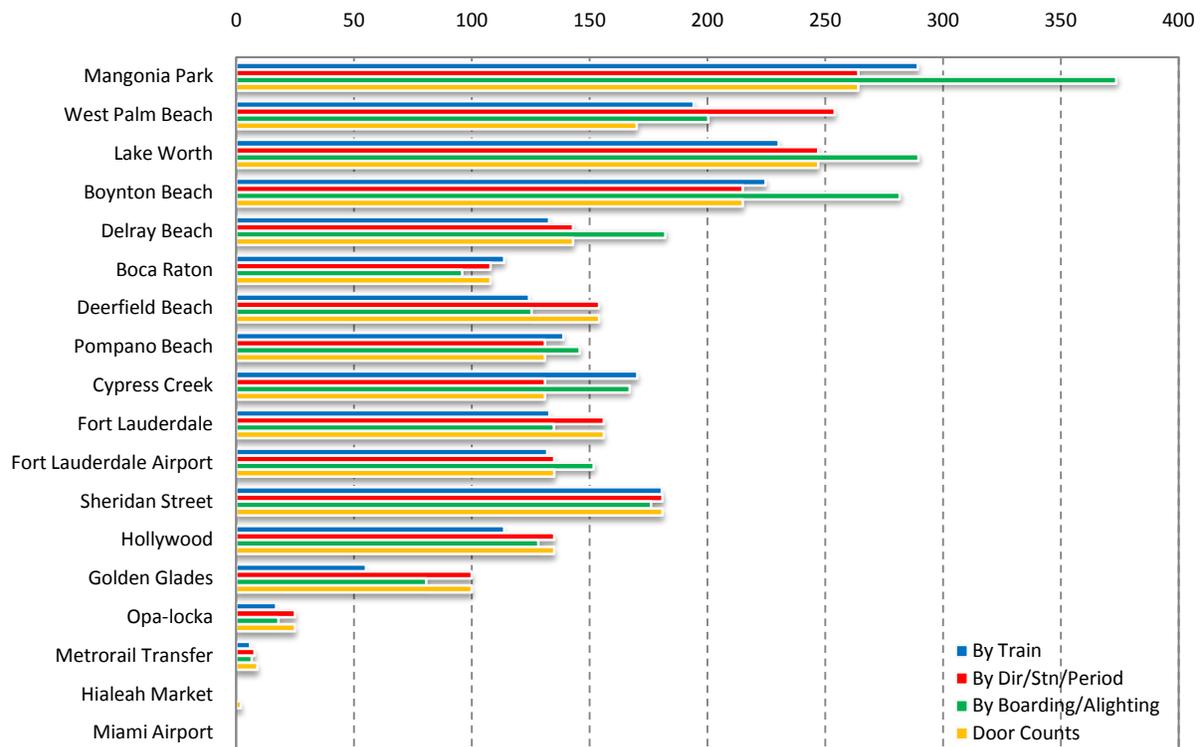


Figure 13 – Comparison of Expanded Boardings with Door Counts – SB OP

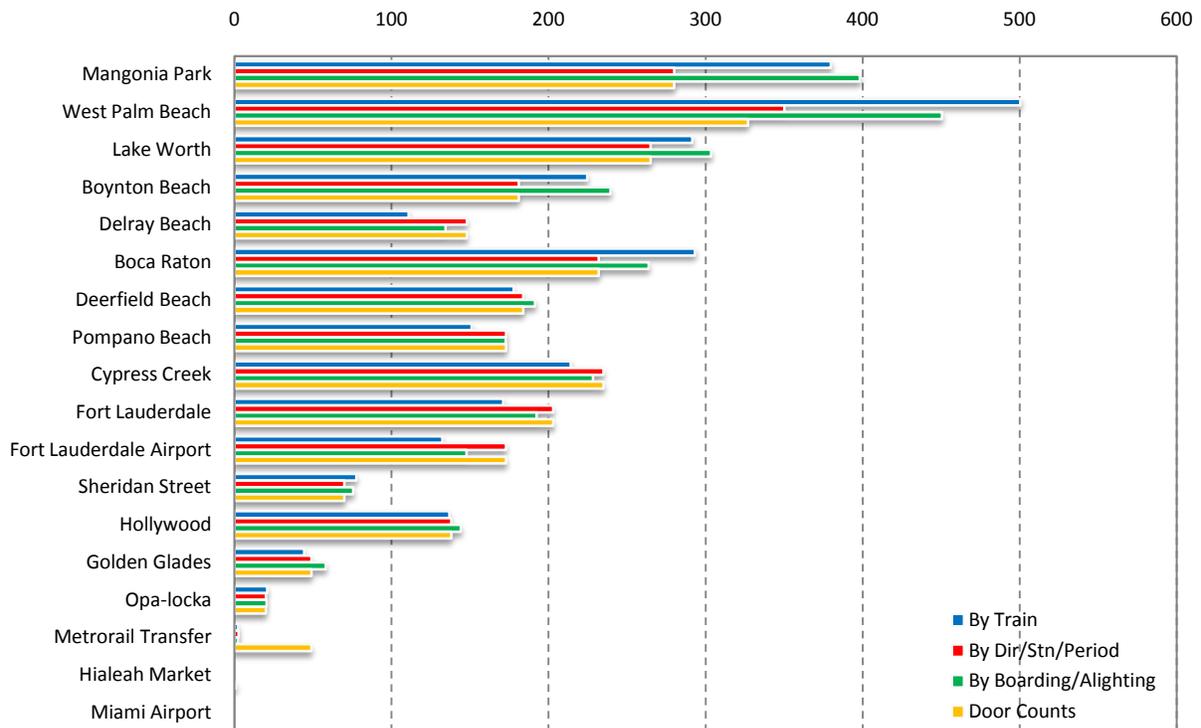


Figure 14 – Comparison of Expanded Boardings with Door Counts – SB PM

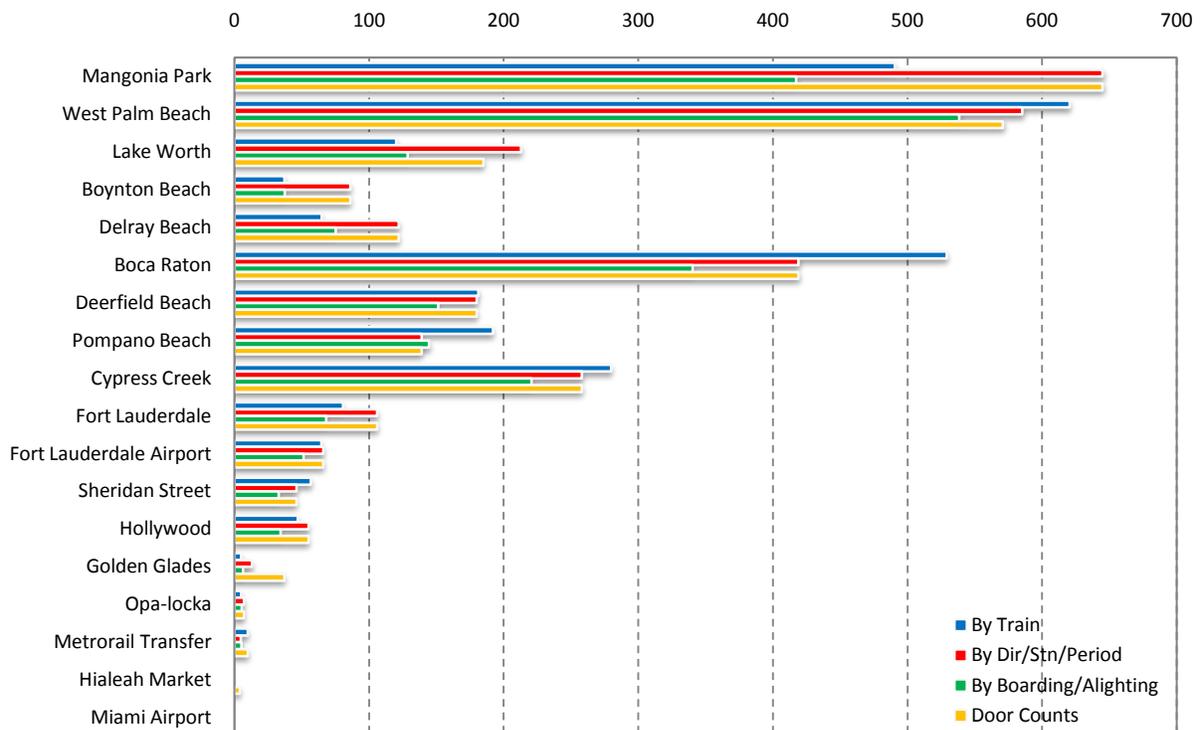


Figure 15 – Comparison of Expanded Alightings with Door Counts – Both Directions

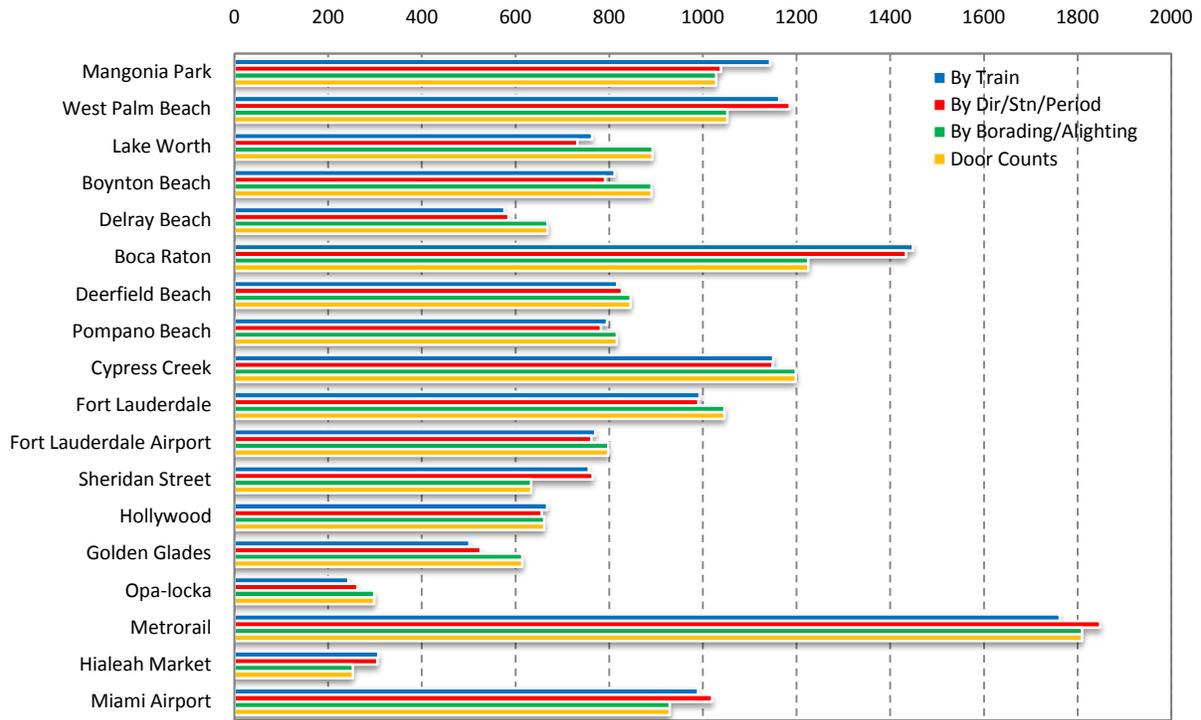


Figure 16 – Comparison of Expanded Alightings with Door Counts – NB

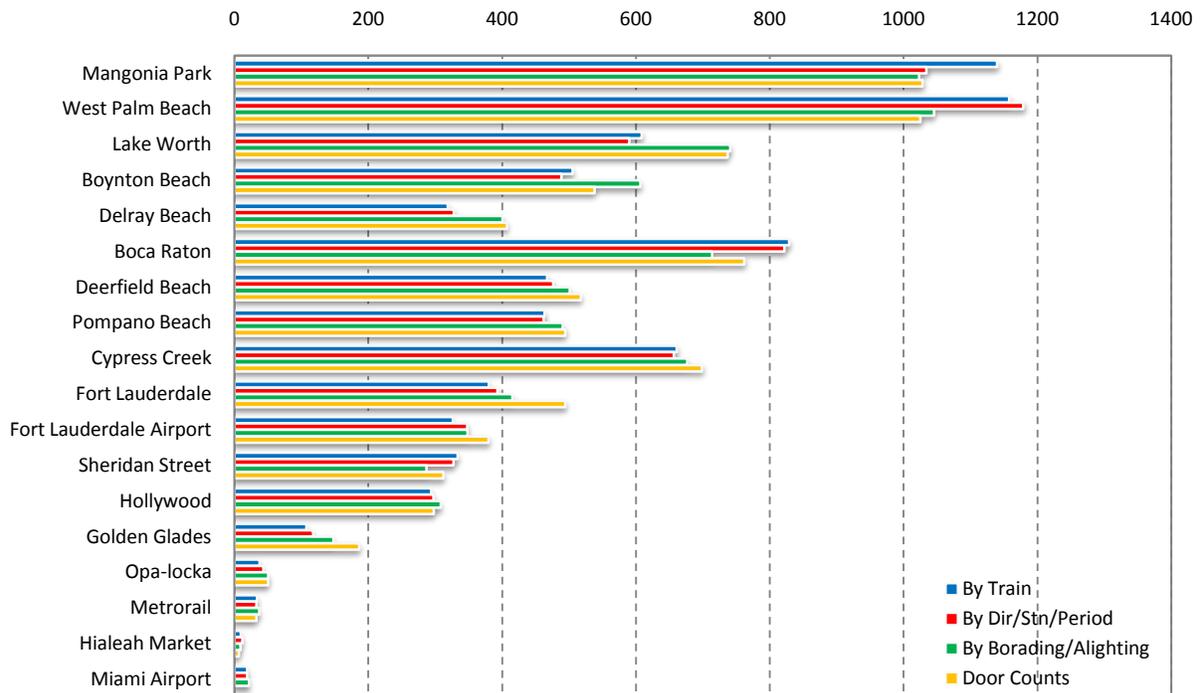


Figure 17 – Comparison of Expanded Alightings with Door Counts – SB

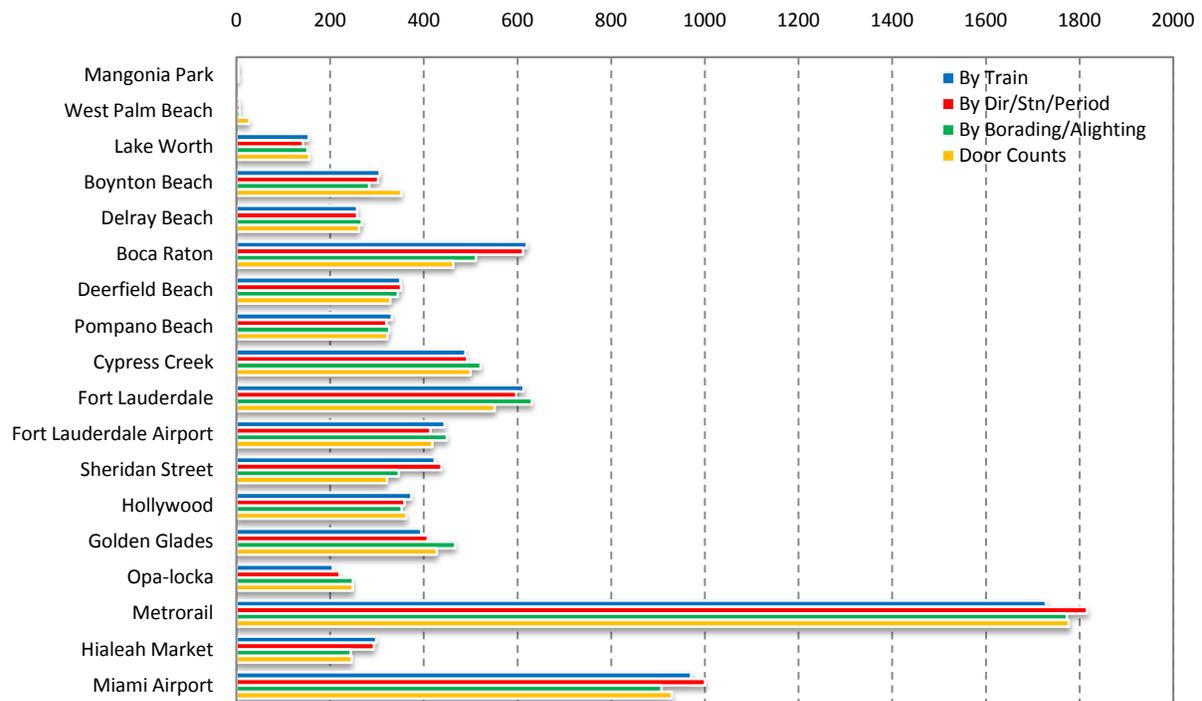


Figure 18 – Comparison of Expanded Trip Purpose vs. Car Ownership

Expanded by Train									
	0	1	2+	TOTAL		0	1	2+	TOTAL
HBO	172	1110	3362	4644	HBO	1.10%	7.08%	21.47%	29.65%
HBW	552	2977	6931	10460	HBW	3.52%	19.01%	44.25%	66.78%
NHB	44	196	318	558	NHB	0.28%	1.25%	2.03%	3.57%
Grand Total	768	4284	10611	15662	Grand Total	4.90%	27.35%	67.75%	100.00%

Expanded by Dir/Stn/Period									
	0	1	2+	TOTAL		0	1	2+	TOTAL
HBO	174	1102	3265	4540	HBO	1.1%	7.0%	20.8%	29.0%
HBW	553	2983	7014	10550	HBW	3.5%	19.0%	44.8%	67.4%
NHB	42	202	327	572	NHB	0.3%	1.3%	2.1%	3.6%
Grand Total	769	4288	10606	15662	Grand Total	5%	27%	68%	100%

Expanded by Boarding/Alighting									
	0	1	2+	TOTAL		0	1	2+	TOTAL
HBO	187	1118	3176	4480	HBO	1.19%	7.14%	20.28%	28.60%
HBW	546	2967	7079	10593	HBW	3.49%	18.95%	45.20%	67.64%
NHB	43	217	329	589	NHB	0.28%	1.38%	2.10%	3.76%
Grand Total	776	4303	10584	15662	Grand Total	4.96%	27.47%	67.58%	100.00%

Total Daily Ridership – On-board Door Counts vs. Auxiliary Counts

As mentioned earlier, the 2008 Tri-Rail Survey consisted of an on-board survey and a station-based auxiliary counting program designed to verify the on-board survey results. Both the on-board survey and the station based survey collected passenger door counts as part of the larger data collection efforts. The on-board survey collected door counts at all stations for all 50 trains, whereas the station based survey collected the door counts at only 12 selected stations for 25 or 26 trains depending on the station. The on-board survey reported a total of 15,662 boardings on the day of the survey indicating a daily ridership of 15,662 passengers for Tri-Rail. To measure the variability of the ridership estimate, the on-board survey door counts were compared with the auxiliary door counts. Of course, only those on-board counts collected at the same stations for the same trains as the auxiliary counts were used for the comparison. **Table 9** presents the passenger door counts from both the on-board survey and the auxiliary survey at selected stations.

To provide a visual comparison between the two sets of data, the same information is also graphically displayed in **Figure 19** and **Figure 20**. Both the bar chart and the scatter plot with a 45 degree line were used to show the differences (or similarities) between the two sets of data. The bar chart allows for easy comparison at stations and between stations. The scatter plot shows if the two sets of data are equal to each other and helps detect any systematic differences. R-squared values, or coefficients of determination, were also calculated to quantitatively measure the closeness between the two sets of the data.

As can be seen from **Figure 19**, the passenger boardings for northbound trains match very well between the on-board survey and station-based survey. The dots shown in the upper right chart are distributed evenly on both sides of the 45 degree line, and R-squared value is greater than 0.90. On the other hand, the passenger boardings for southbound trains demonstrate a systematic discrepancy between the two sets of counts. The passenger boardings collected from the on-board survey are higher than those from station-based survey at all 12 stations. All 12 dots in the bottom right chart fall above the 45 degree line towards the on-board survey counts. The R-squared value is 0.97 indicating a strong correlation between the two sets of data. A closer examination of the station-by-station counts revealed that the largest discrepancies occurred at the two northern most stations, Mangonia Park and West Palm Beach; and when combined, they accounted for almost 50% of the differences for all stations. A further investigation is needed to determine the causes for the systematic differences between the two surveys.

Figure 20 shows the comparison for passenger alightings from the two surveys. Overall, the two sets of counts match fairly well for both the northbound trains and the southbound trains. The scatter plots for both directions show a more or less even distribution across the 45 degree line with high R-Squared values. There are a few cases where the differences seem to be large, almost all of which occur at stations with high alightings. For example, the largest alighting differences occurred at the southbound Metrorail station where the on-board survey reported 1,319 alightings, while the station-based survey counted 1,107 alightings—resulting in a difference of 212 passengers. However, the total difference for both directions is less than 5 percent.

Table 9 – Comparison of Door Counts for Selected Stations

Station	Station-Based Counts (Cambridge Systematics)				On-Board Survey Door Counts (Gannett Fleming)				Differences (On-Board – Station Based)			
	Boardings		Alightings		Boardings		Alightings		Boardings		Alightings	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Mangonia Park	0	379	663	0	0	483	506	0	0	104	-157	0
West Palm Beach	9	332	651	12	99	415	572	12	90	83	-79	0
Boynton Beach	300	336	86	27	290	372	117	43	-10	36	31	16
Boca Raton	222	179	425	222	215	203	526	222	-7	24	101	0
Deerfield Beach	165	253	195	130	149	276	226	137	-16	23	31	7
Cypress Creek	218	268	320	330	188	286	326	298	-30	18	6	-32
Fort Lauderdale	290	254	197	166	242	321	137	279	-48	67	-60	113
Fort Lauderdale Airport	176	215	137	237	185	221	119	226	9	6	-18	-11
Hollywood	202	177	97	104	205	234	84	137	3	57	-13	33
Golden Glades	308	119	23	168	341	129	24	141	33	10	1	-27
Metrorail	452	16	11	1,107	502	53	14	1,319	50	37	3	212
Miami Airport	318	0	0	613	270	0	0	660	-48	0	0	47
Total	2,660	2,528	2,805	3,116	2,686	2,993	2,651	3,474	26	465	-154	358

Figure 19 – On-board Counts vs. Auxiliary Counts - Boardings

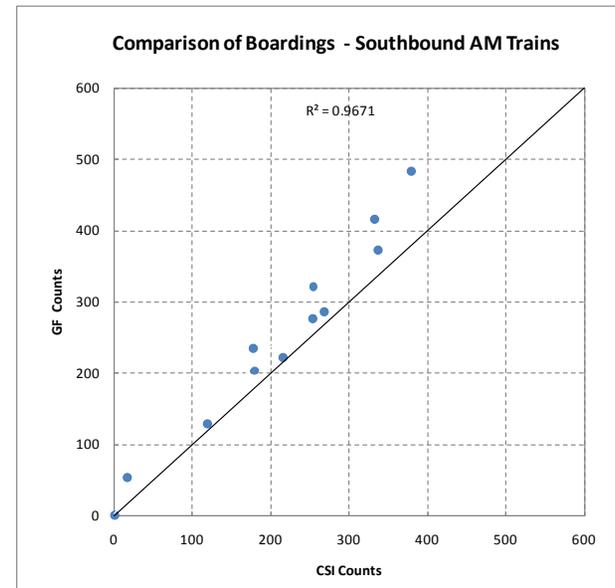
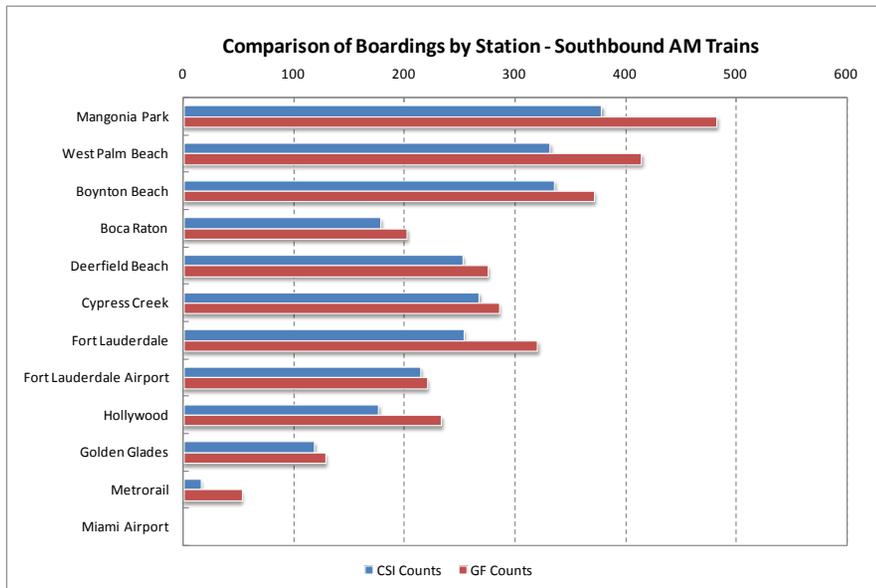
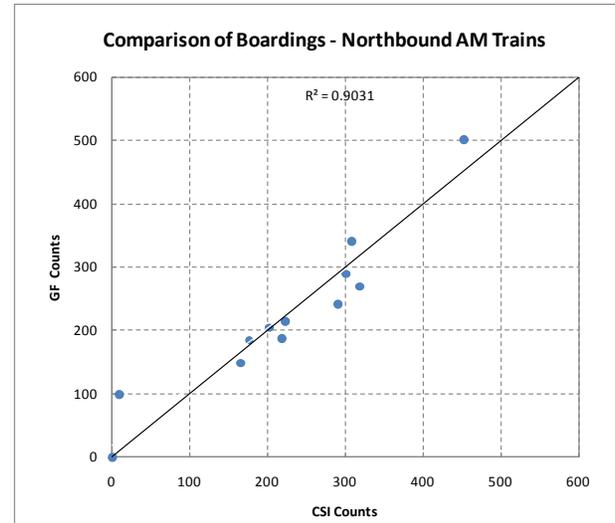
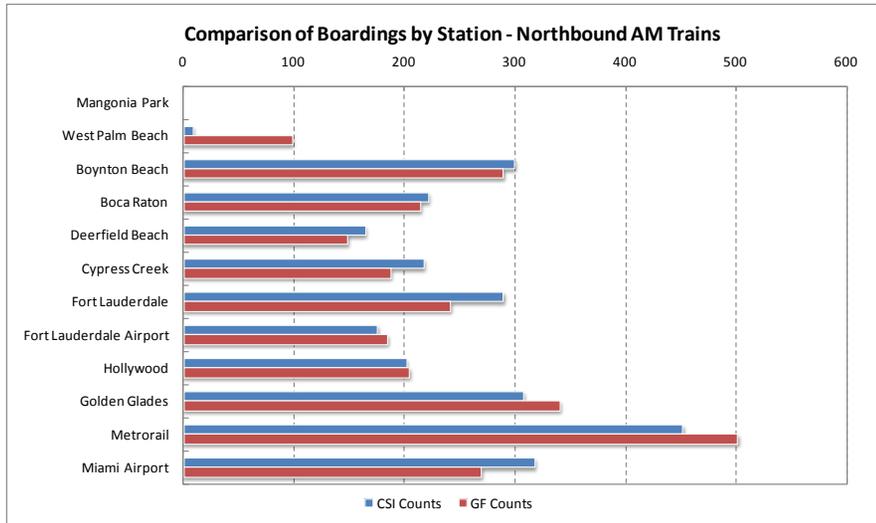
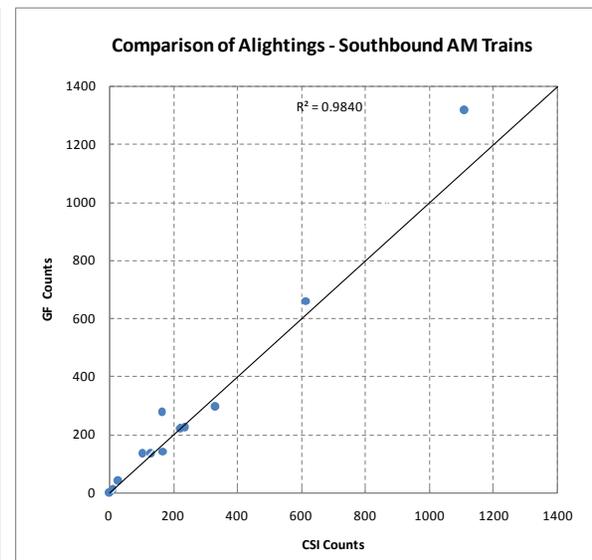
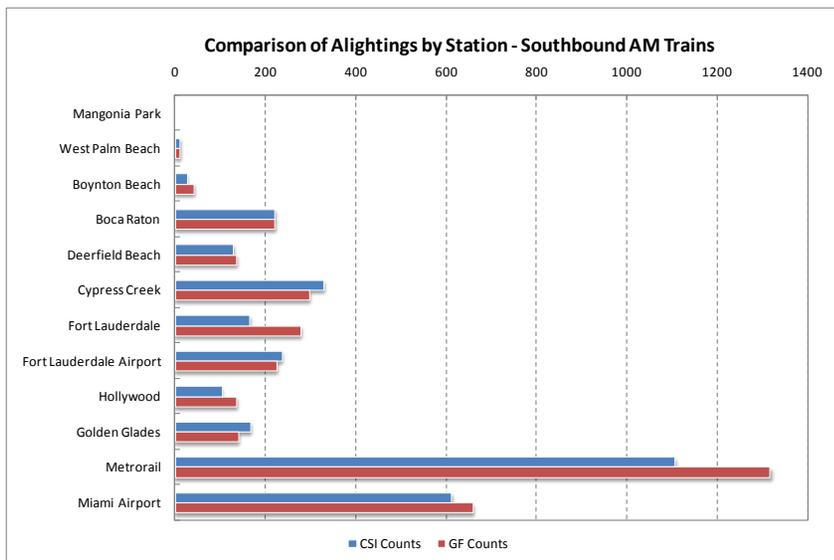
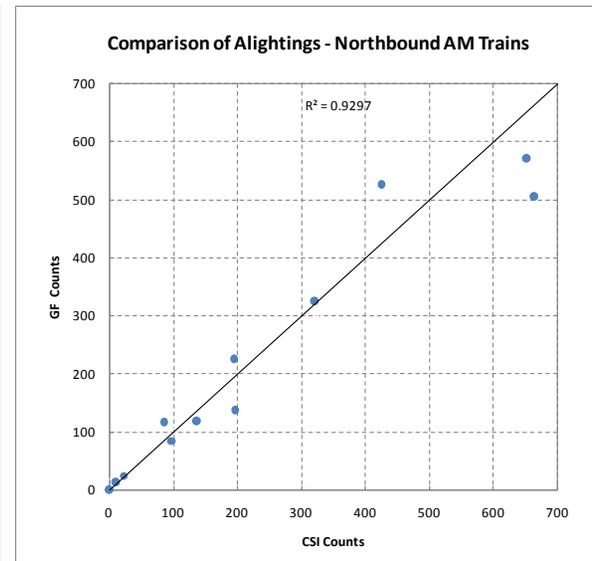
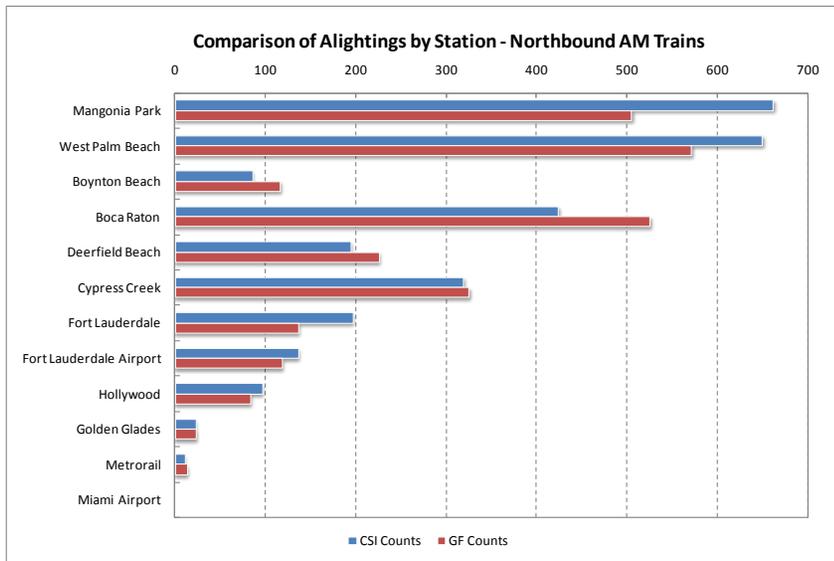


Figure 20 - On-board Counts vs. Auxiliary Counts - Alightings



Trip Purpose vs. Car Ownership

Table 10 presents the distribution of trip purposes by car ownership. More than two thirds (67.4 percent) of Tri-Rail trips are Home-Based Work (HBW) trips, while 29 percent are Home-Based Other (HBO) trips. Non-Home Based (NHB) trips account for only 3.6 percent of the total number of trips. In terms of trips made by different market segments or car ownership categories, over 67 percent of trips are made by riders with two or more vehicles, and 27 percent by riders with one vehicle. Only 5 percent of trips are made by riders without vehicles.

Table 10 – Trip Purpose vs. Car Ownership

PURPOSE	Car Ownership (absolute numbers)				Car Ownership (Percentages)			
	0	1	2+	TOTAL	0	1	2+	TOTAL
HBO	174	1,102	3,265	4,540	1.1%	7.0%	20.8%	29.0%
HBW	553	2,983	7,014	10,550	3.5%	19.0%	44.8%	67.4%
NHB	42	202	327	572	0.3%	1.3%	2.1%	3.6%
TOTAL	769	4,288	10,606	15,662	4.9%	27.4%	67.7%	100.0%

The 2008 survey results were compared with the 2007 survey results to see if there have been any changes in Tri-Rail riders' travel behavior since the last survey was conducted. The 2007 results were provided by AECOM Consult, Inc. as part of their study to evaluate the various transit surveys conducted in South Florida in the last few years¹. **Figure 21** compares trip purposes by car ownership levels between the 2007 and 2008 on-board surveys. In 2007, only 53 percent of trips were HBW trips. About one-third of the trips were HBO trips, and the remaining 14 percent were NHB trips. With regard to car ownership categories, about 63 percent of trips were produced by households with two or more cars, 29 percent by one-car households, and the remaining 8 percent by zero-car households.

It is clear that even though there is little change in trips produced by different car ownership categories, or different market segments, there is a clear shift in how people use Tri-Rail. There has been a 15 percent increase in HBW trips, a 4 percent decrease in HBO trips, and an 8 percent decrease in NHB trips. The 2008 survey data show that more people are using Tri-Rail for work related trips. Question 10 in the 2008 on-board survey asked respondents how long they had been using Tri-Rail. Four closed-ended options were provided: First Time/Occasional, Less than 6 months, Less than 2 years but more than 6 months, or more than 2 years. Riders were divided into four groups based on the answers they selected. To further examine if the shift in trip purpose occurred for all user groups, trip purposes were cross tabulated by user groups and the results are graphically displayed in **Figure 22**.

¹ Southeast Florida Transit Survey Assessment by AECOM Consult, Inc., August 19, 2008.

Figure 21 - Trip Purpose vs. Car Ownership: Comparison between 2008 and 2007 Surveys

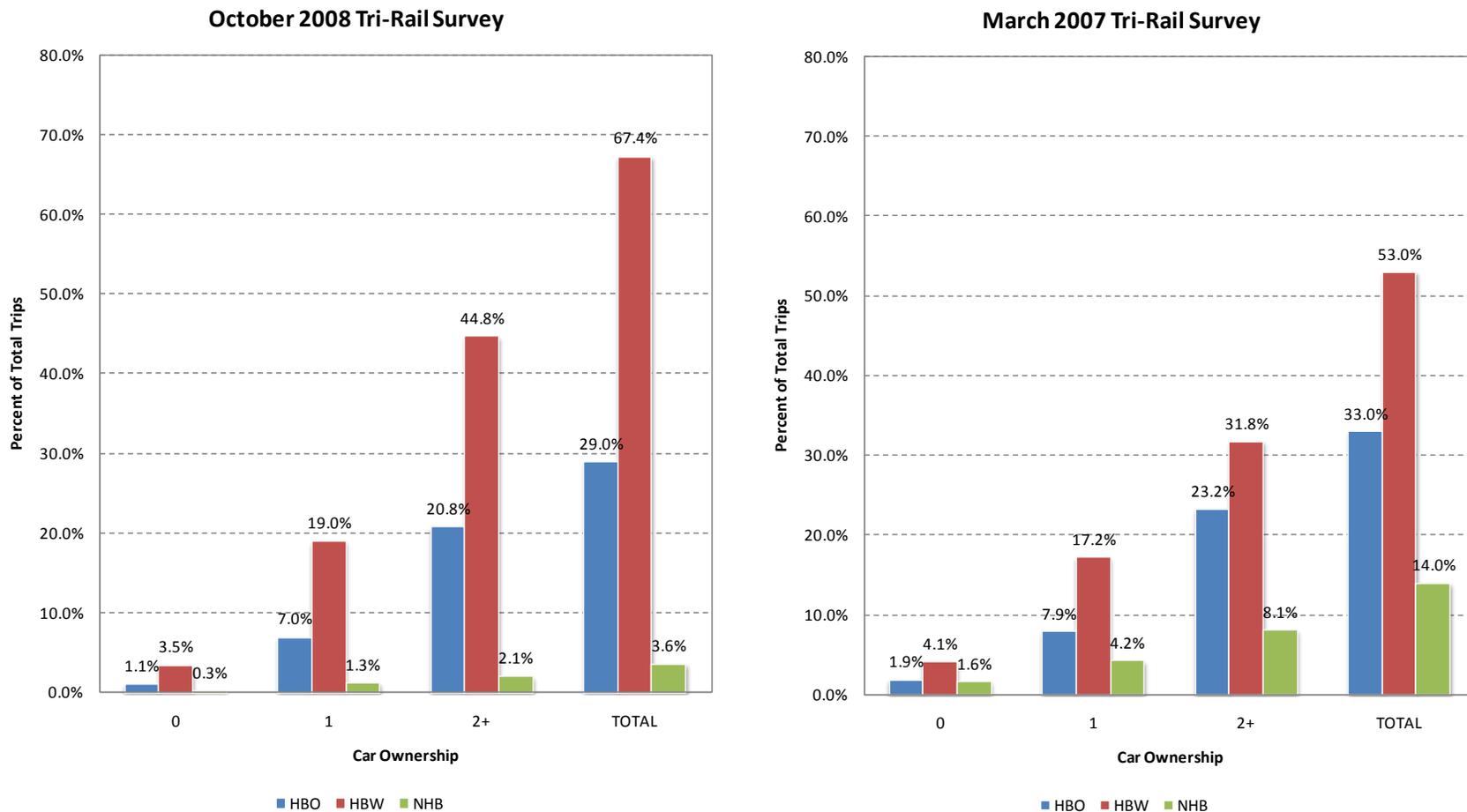
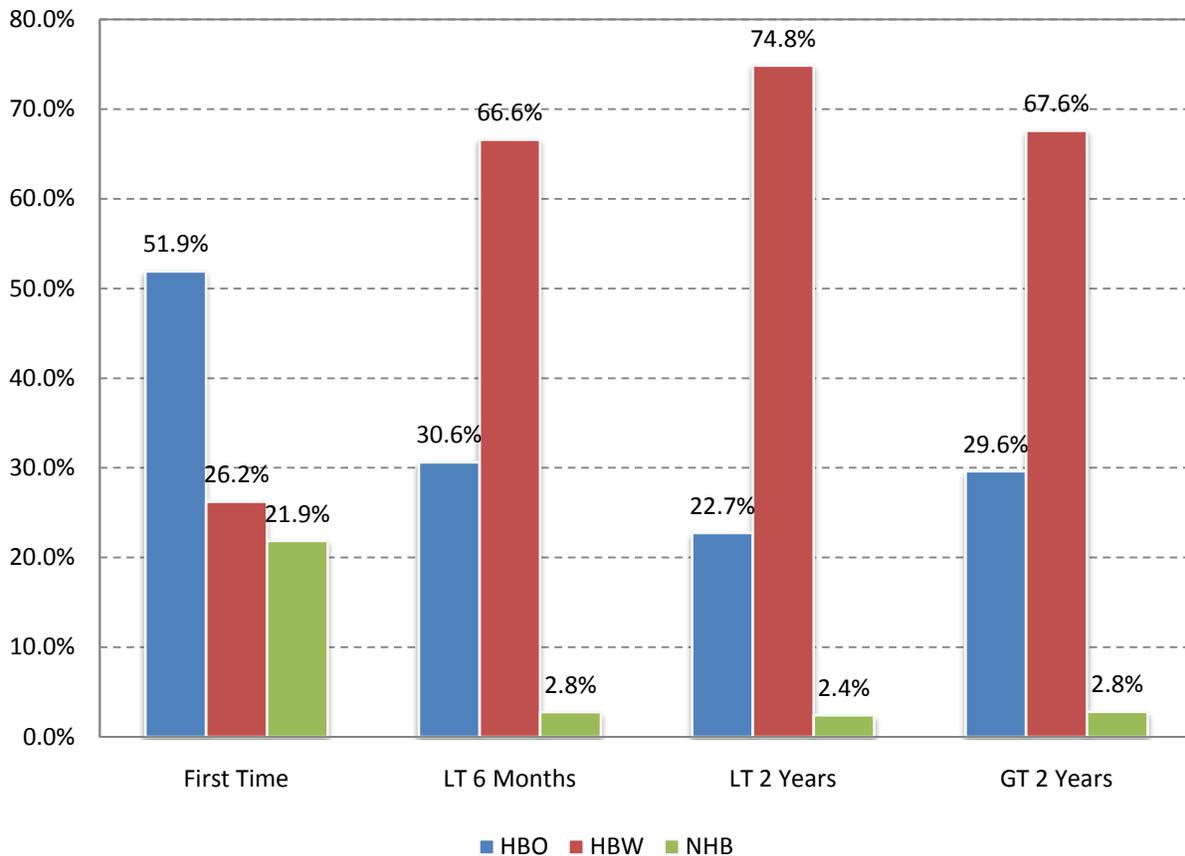


Figure 22 - Trip Purpose vs. Tri-Rail User Groups



It can be seen from **Figure 22** that most first time riders use Tri-Rail for non-work related activities. Only 26 percent use Tri-Rail for work. Riders that have used the Tri-Rail for less than six months or more than two years use show almost identical trip purpose distributions. About 67 percent of trips for both groups are HBW trips. However, for riders that have used Tri-Rail for more than 6 months but less than 2 years, an overwhelming majority of riders use Tri-Rail for work. Overall, HBW trips account for almost 75 percent of total trips.

Trip Purpose vs. Time Period

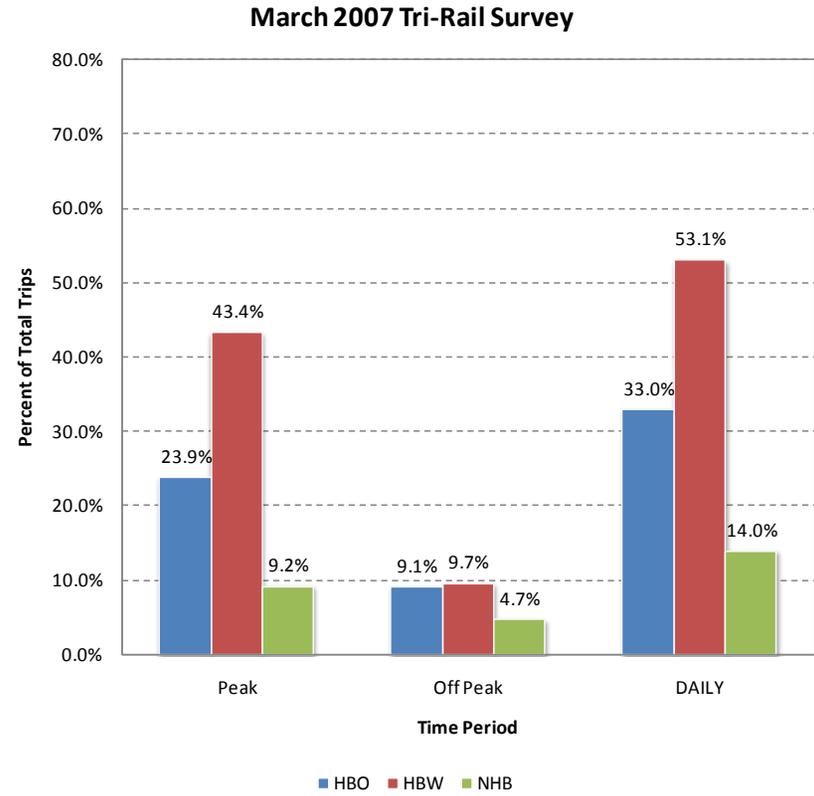
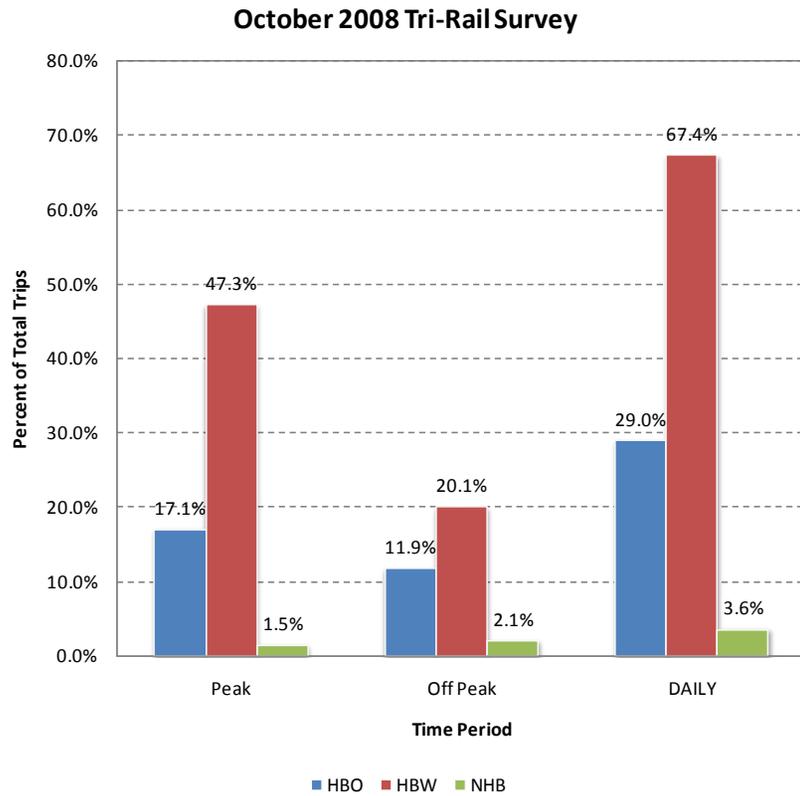
Table 11 presents the distribution of trip purposes by time period. The percentages of HBW trips, HBO trips, and NHB trips are the same as those listed in **Table 10**. Nearly 30 percent of the trips occur during AM peak period and 36 percent of trips occur during PM Peak Period. The remaining 34 percent of the trips occur during the Off-Peak period. For individual trip purposes, there seems to be a perfect symmetry between AM peak and PM peak periods for HBO trips and NHB trips; the percentage of trips for the two peak periods are almost identical for these two purposes. However, there are more trips occurring during the PM peak than there are for the AM Peak for HBW trips.

Table 11 – Trip Purpose vs. Time Period

PURPOSE	Time Period (absolute numbers)				Time Period (Percentages)			
	AM	OP	PM	TOTAL	AM	OP	PM	TOTAL
HBO	1,354	1,858	1,328	4,540	8.6%	11.9%	8.5%	29.0%
HBW	3,142	3,148	4,260	10,550	20.1%	20.1%	27.2%	67.4%
NHB	113	330	128	572	0.7%	2.1%	0.8%	3.6%
TOTAL	4,610	5,336	5,716	15,662	29.4%	34.1%	36.5%	100.0%

Figure 23 compares trip purposes by peak/off peak period between the 2007 and 2008 on-board surveys. Since the 2007 survey only had peak and off peak period data, trips for AM peak period and PM peak period for the 2008 survey were combined so that the same time periods were used for comparison. In 2007, more than three quarters (77 percent) of the trips were made during the peak period, while 23 percent of trips were made during the off-peak period. In comparison, only 66 percent of the trips occurred during peak period, while 34 percent of trips were made during the off-peak period in 2008. During both peak and off peak periods, there were more HBW trips in 2008 than there were in 2007.

Figure 23 - Trip Purpose vs. Time Period: Comparison between 2008 and 2007 Surveys



Access Mode

Table 12 shows the access mode by trip purpose based on the dataset in a PA format. Close to half (49.1 percent) of the trips are Park-and-Ride access, followed by 22 percent Kiss-and-Ride access. About 10 percent of riders get to Tri-Rail using a transit bus, while 3 percent transfer to Tri-Rail from Metrorail. Only one percent of trips use school buses. Park-and-Ride is the most popular access mode for HBW trips accounting for more than 57 percent of trips, while Kiss-and-Ride is used most often for HBO trips representing 36 percent of total trips. For NHB trips, most riders (22 percents) use a transit bus to access Tri-Rail.

Table 12 – Trip Purpose vs. Access Mode (PA Format)

MODE	MODE SHARE BY PURPOSE (absolute numbers)				MODE SHARE BY PURPOSE (Percentages)			
	HBO	HBW	NHB	TOTAL	HBO	HBW	NHB	TOTAL
WALK	278	560	35	874	6.1%	5.3%	6.1%	5.6%
BIKE	125	531		656	2.8%	5.0%	0.0%	4.2%
TAXI	99	80	46	225	2.2%	0.8%	8.1%	1.4%
SCHOOL BUS	104	29	8	142	2.3%	0.3%	1.4%	0.9%
METRORAIL	100	360	47	506	2.2%	3.4%	8.1%	3.2%
TRANSIT BUS	426	968	127	1,521	9.4%	9.2%	22.3%	9.7%
TRI-RAIL	96	264	121	481	2.1%	2.5%	21.2%	3.1%
PARK & RIDE	1,585	6,023	76	7,684	34.9%	57.1%	13.3%	49.1%
KISS & RIDE	1,647	1,647	94	3,388	36.3%	15.6%	16.4%	21.6%
SHARED RIDE	59	26	6	91	1.3%	0.2%	1.1%	0.6%
OTHER	22	62	11	95	0.5%	0.6%	1.9%	0.6%
TOTAL	4,540	10,550	572	15,662	100%	100%	100%	100%

The survey results for access mode for the 2008 on-board survey were compared with the 2007 on-board survey. Since the 2007 survey did not have as many access modes as the 2008 survey, some of the access modes had to be combined for the 2008 survey. For example, Transit Bus and Metrorail in 2008 were combined to become the “Transfer” mode in 2007; Taxi, Bike, and Shared-Ride are grouped with “Other” in 2008 to become the “Other” mode in 2007. **Figure 24** shows the comparison for the three different trip purposes between 2008 and 2007, and **Figure 25** shows the comparison for all trip purposes combined. Overall, there is a 15 percent increase in Park-and-Ride access in 2008, and interestingly enough, a decrease by almost the same amount for Kiss-and-Ride access. The shares of other access modes are comparable between the two surveys, and this is especially true for School Bus and Tri-Rail shuttle where the mode shares are identical.

Figure 24 - Trip Purpose vs. Access Mode: Comparison between 2008 and 2007 Surveys

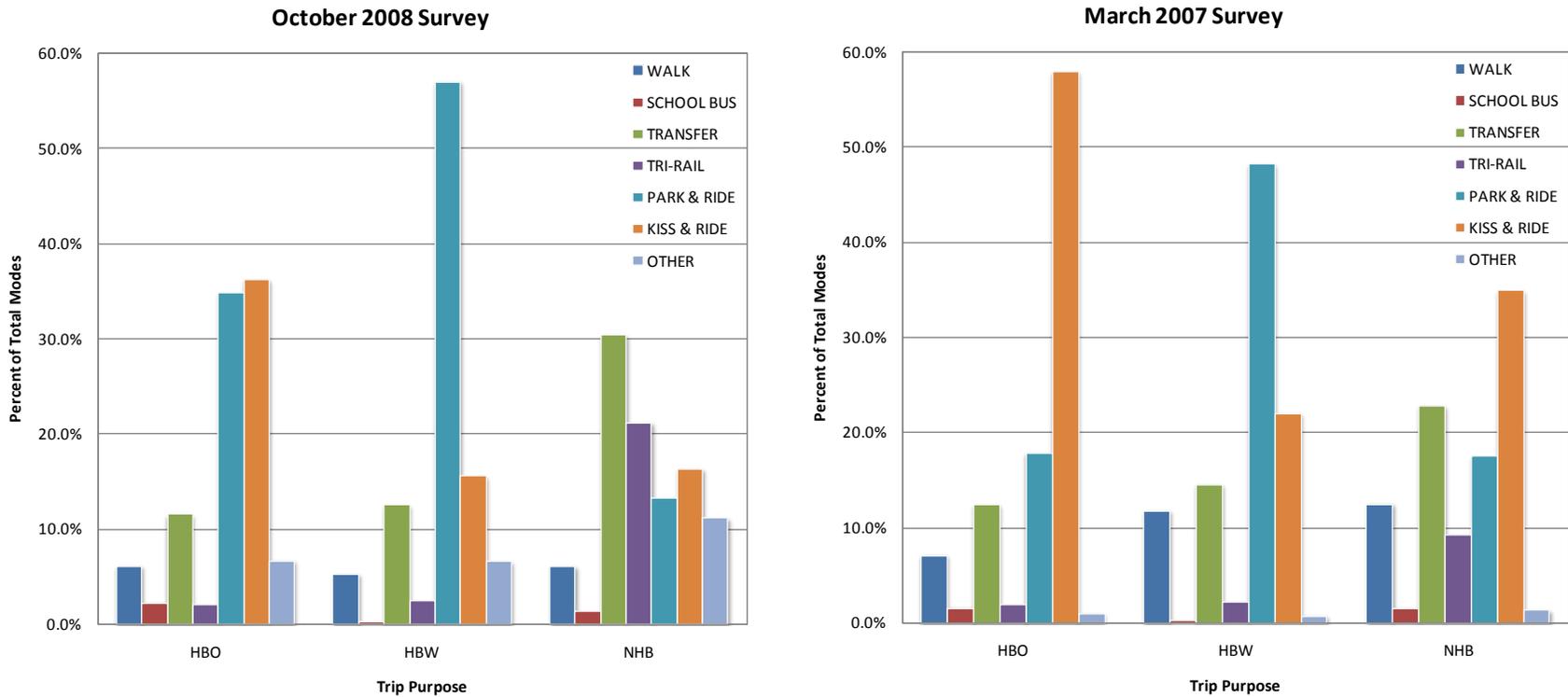
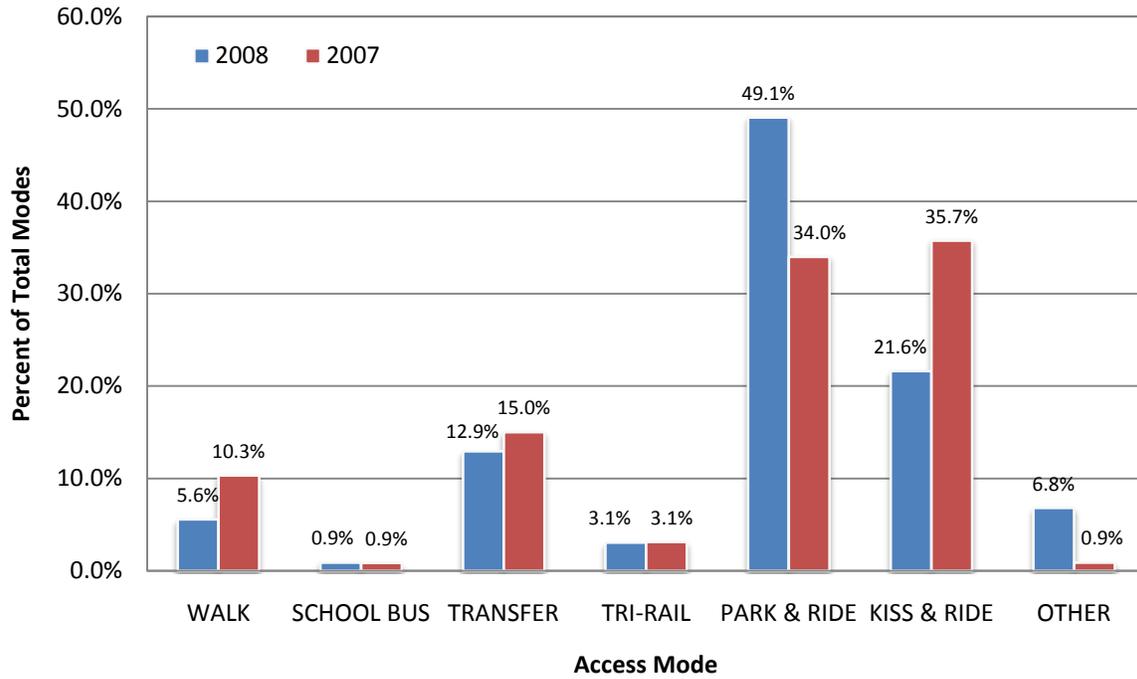


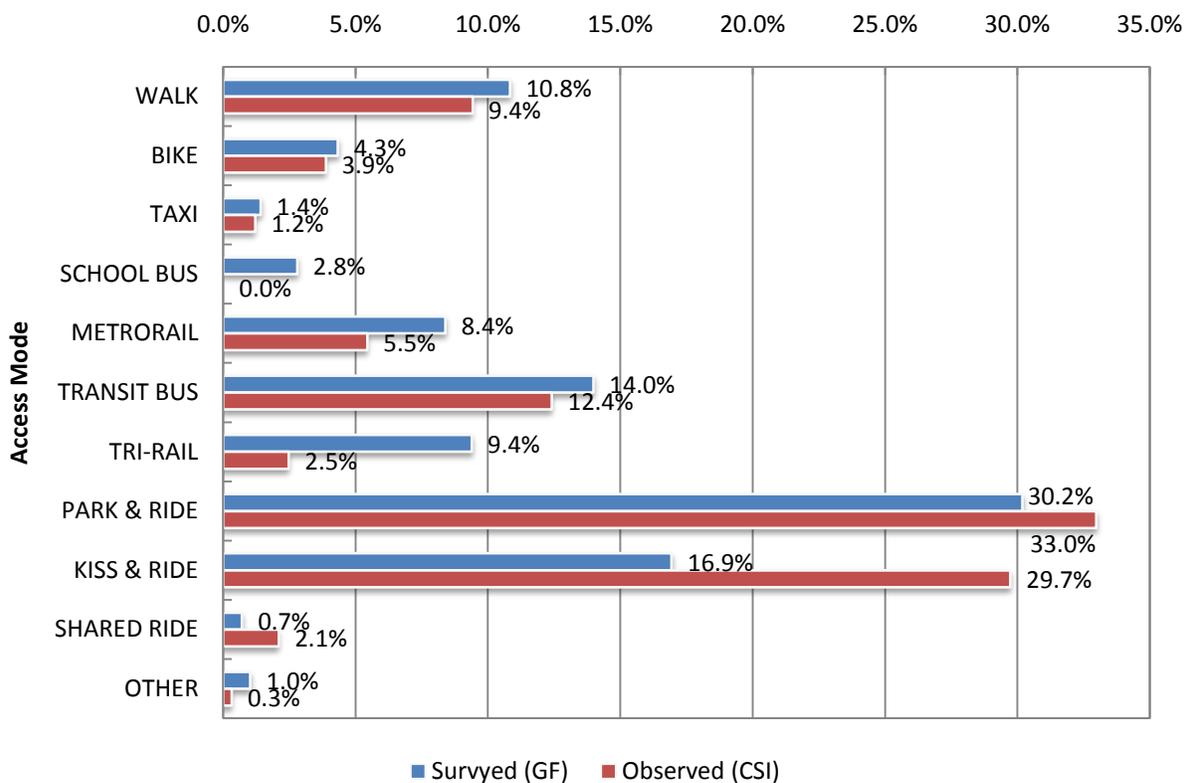
Figure 25 – Comparison of Access Mode between 2007 and 2008: All Purposes



The on-board survey results for access mode were also compared with the station-based survey results as shown in **Figure 26**. Since the station-based results were summarized in an OD format, the access mode distribution from the OD based dataset was used for comparison. It can be seen from **Figure 26** that most of the access modes compare very well between the two sets of data except for Kiss-and-Ride and Tri-Rail Shuttle. The largest discrepancy occurs in the Kiss-and-Ride mode with almost a 13 percent difference, followed by Tri-Rail Shuttle with a 7 percent difference.

A potential explanation for this discrepancy is that the station-based observers may not have been able to confirm whether a rider got off a Tri-Rail Shuttle—only that the rider was walking towards the platform from the drop-off area. The observers may have assumed the rider was dropped-off resulting in over-counting the number of Kiss-and-Ride trips, while under-counting the number of riders accessing the station by a Tri-Rail Shuttle. When the two modes are combined together the percentage of trips using either mode is 26 percent for the on-board survey, compared to 32 percent for the station-based survey—a difference of only 6 percent.

Figure 26 – Observed vs. Surveyed Access Mode



Trip Purpose – Access Mode – Market Segment

Figure 27 shows the cross tabulation of trip purpose, access mode, and market segment based on the PA based dataset of the 2008 on-board survey database. The purpose is to demonstrate the type of information that can be readily obtained with the expanded data.

Figure 27 - Cross Tabulation of Trip Purpose, Access Mode, and Market Segment

TRIP PURPOSE ACCESS MODE	AUTO OWNERSHIP			Total
	0	1	2+	
HBO	174	1102	3265	4540
WALK	34	82	162	278
BIKE	5	67	53	125
TAXI	13	45	41	99
SCHOOL BUS	9	19	76	104
METRORAIL	7	44	48	100
TRANSIT BUS	74	160	192	426
TRI-RAIL		28	68	96
PARK & RIDE		289	1296	1585
KISS & RIDE	27	335	1285	1647
SHARED RIDE		20	39	59
OTHER	5	10	6	22
HBW	553	2983	7014	10550
WALK	71	243	247	560
BIKE	100	160	271	531
TAXI	28	16	36	80
SCHOOL BUS	10	6	14	29
METRORAIL	25	154	181	360
TRANSIT BUS	222	360	386	968
TRI-RAIL	32	61	172	264
PARK & RIDE	20	1321	4681	6023
KISS & RIDE	41	627	979	1647
SHARED RIDE	5	9	12	26
OTHER		26	36	62
NHB	42	202	327	572
WALK	7	9	19	35
TAXI	6	20	20	46
SCHOOL BUS		8		8
METRORAIL	5	18	23	47
TRANSIT BUS	16	38	74	127
TRI-RAIL	3	44	74	121
PARK & RIDE		14	62	76
KISS & RIDE	6	51	37	94
SHARED RIDE			6	6
OTHER			11	11
Total	769	4287	10606	15662

Egress Mode

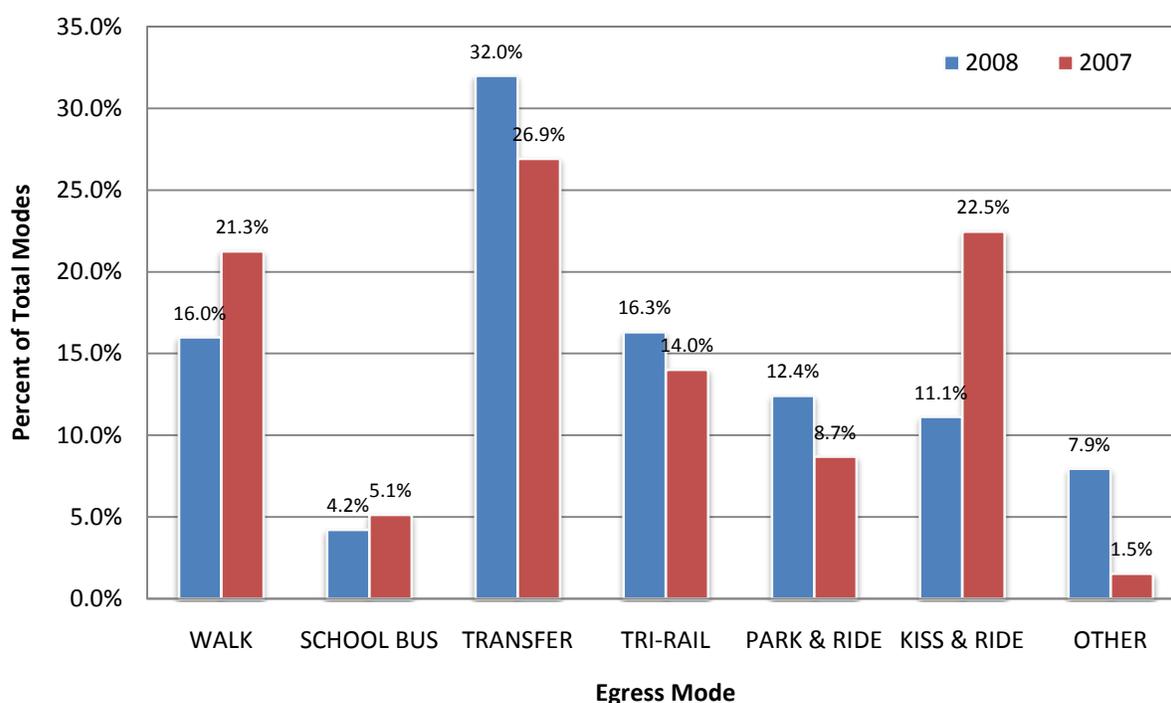
Table 13 shows the egress mode by trip purpose based on the dataset in a PA format. Unlike the access mode where Park-and-Ride alone accounts for almost 50 percent of trips, there is no single dominant egress mode. Transit Bus has the largest share with 18 percent. It is followed closely by Tri-Rail Shuttle and Walk with 16 percent each. Metrorail is not far behind with 14 percent. One of the new phenomena discovered during the 2007 survey was the existence of a significant automobile egress mode where riders would leave a second car on the destination station. This type of egress mode is referred to as “Ride-and-Drive” in this survey to differentiate it from the “Park-and-Ride” access mode, and reflects the nature of the egress mode. The 2008 on-board survey found that more than 12 percent of trips used “Ride-and-Drive” as their egress mode.

Table 13 – Trip Purpose vs. Egress Mode (PA Format)

MODE	MODE SHARE BY PURPOSE (absolute numbers)				MODE SHARE BY PURPOSE (Percentages)			
	HBO	HBW	NHB	TOTAL	HBO	HBW	NHB	TOTAL
WALK	711	1,728	66	2,505	15.7%	16.4%	11.5%	16.0%
BIKE	102	574	2	678	2.3%	5.4%	0.3%	4.3%
TAXI	50	101	26	177	1.1%	1.0%	4.6%	1.1%
SCHOOL BUS	623	34	4	661	13.7%	0.3%	0.8%	4.2%
METRORAIL	490	1,679	68	2,236	10.8%	15.9%	11.8%	14.3%
TRANSIT BUS	884	1,792	98	2,774	19.5%	17.0%	17.1%	17.7%
TRI-RAIL	725	1,721	109	2,555	16.0%	16.3%	19.1%	16.3%
RIDE & DRIVE	305	1,559	80	1,944	6.7%	14.8%	14.0%	12.4%
KISS & RIDE	535	1,119	89	1,742	11.8%	10.6%	15.5%	11.1%
SHARED RIDE	51	68	11	129	1.1%	0.6%	1.9%	0.8%
OTHER	65	176	19	260	1.4%	1.7%	3.4%	1.7%
TOTAL	4,540	10,550	572	15,662	100%	100%	100%	100%

Figure 28 shows a comparison of egress modes between the 2007 and 2008 on-board survey. Similar to access mode, the egress modes for the 2008 survey were first re-organized to match the 2007 mode categories. Transit Bus and Metrorail in the 2008 survey were combined to become the “Transfer” mode in 2007; and Taxi, Bike, and Shared-Ride were grouped with “Other” in 2008 to become the “Other” mode in 2007. Kiss-and-Ride egress mode shows the largest discrepancy between the two years with a difference of 11 percent. The 2008 survey also seems to have confirmed the existence of the Ride-and-Drive egress mode, which now accounts for more than 12 percent of all trips.

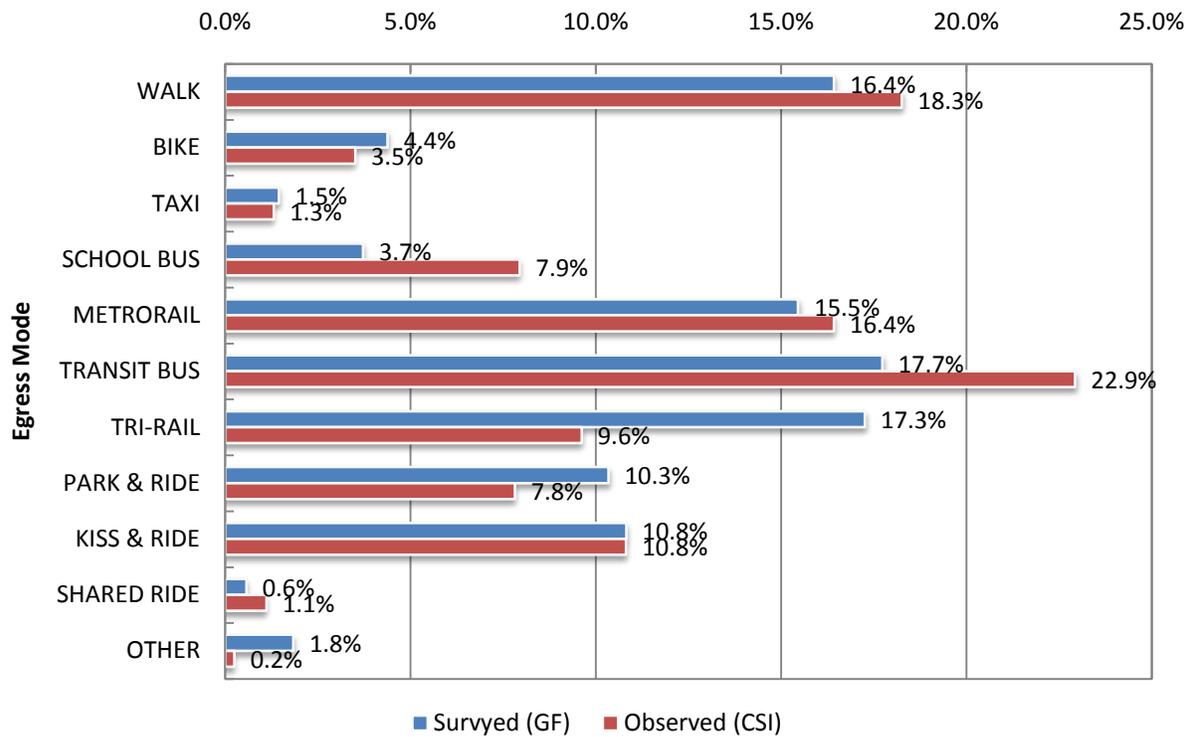
Figure 28 – Comparison of Egress Mode between 2007 and 2008: All Purposes



The on-board survey results for the egress mode were also compared with the station-based survey results as shown in **Figure 29**. Since the station-based results were provided in an OD format, the egress modes from the on-board survey were also summarized in an OD format. It can be seen from **Figure 29** that most of the egress modes compare very well between the two surveys except for Transit Bus and Tri-Rail Shuttle. To determine the reasons for the differences, the original data sets for both surveys were further examined. It was found that the differences in Transit Bus and Tri-Rail Shuttle were mostly caused by people unable to differentiate between the two types of bus services. The Miami Airport Station is a case in point. The on-board survey reported that 15 percent of trips used Transit Bus and 48 percent used Tri-Rail Shuttle as an egress mode. In comparison, the station-based survey reported that 64 percent of respondents used Transit Bus, but none for Tri-Rail Shuttle. With Tri-Rail Shuttle Bus 133 connecting the Tri-Rail Station and the Airport Terminal, there must be some trips using Tri-Rail Shuttle as an egress mode, but 48 percent seems to be high. However, when the two modes are combined together the percentage of trips using either mode comes to 63 percent for the on-board survey, which

is almost the same as the 64 percent observed by the station-based survey. In fact, the combined total for both Transit Bus and Tri-Rail shuttle in **Figure 29** is 35 percent for the on-onboard survey, compared to 33 percent for the station-based survey.

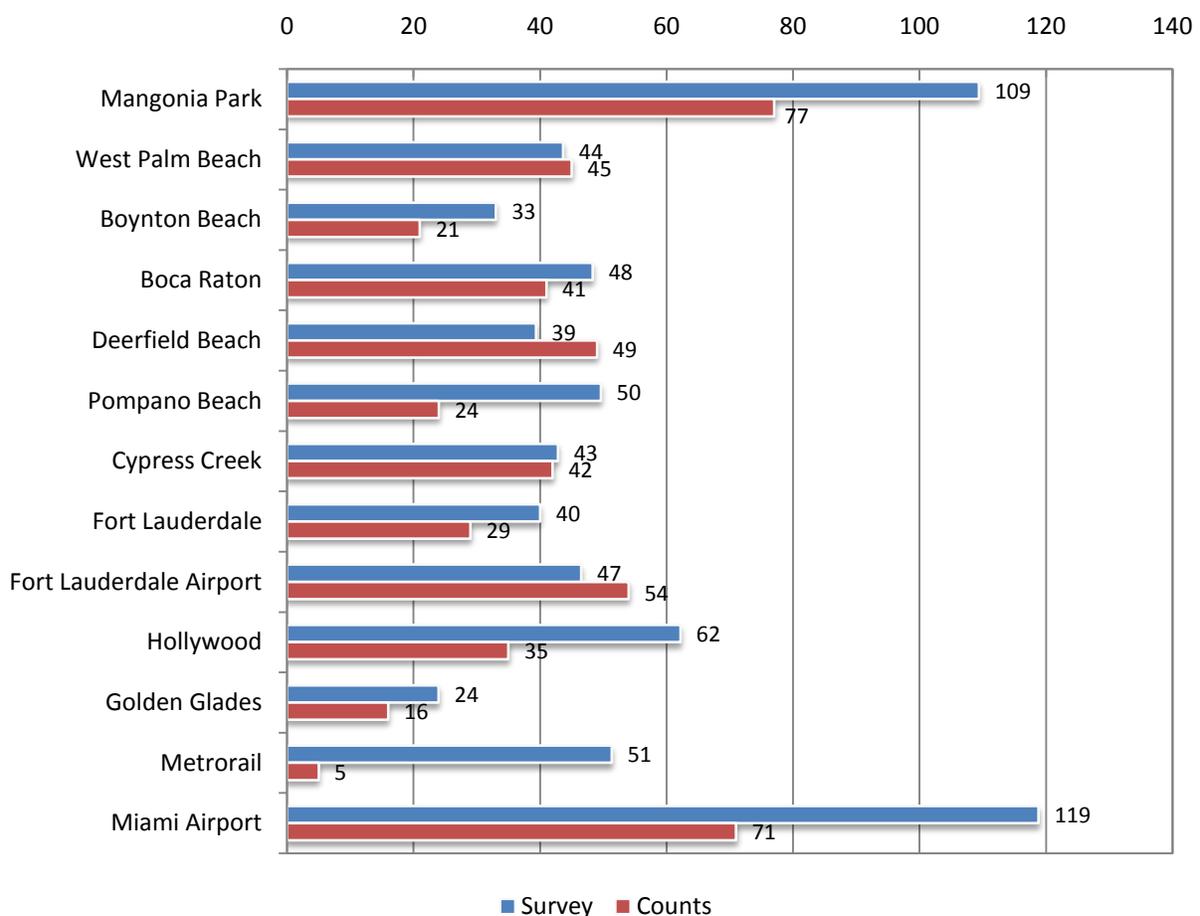
Figure 29 – Observed vs. Surveyed Egress Mode



Overnight Parked Vehicles

To verify the existence of the Ride-and-Drive egress mode, the number of overnight parked vehicles was counted at 13 selected stations as part of the station-based auxiliary counting program. The number of vehicles parked overnight from the on-board survey was estimated from the PA based dataset. It is calculated as one half of the number of trips using Ride-and-Drive as an egress mode. **Figure 30** presents the comparison of surveyed and observed vehicles parked overnight at the surveyed stations. The surveyed vehicles and the observed vehicles match very well at more than half of the surveyed stations, e.g., West Palm Beach and Boynton Beach. However, large differences exist at other stations, particularly the two end stations, Mangonia Park and Miami Airport. The largest difference occurs at the Metrorail station where only five (5) overnight parking vehicles were counted. Potential reasons as to why there is a difference between the estimated and counted vehicles could be one or more of the following: data variations between the survey collection and observed counts, limited parking supply, and or safety concerns about continually leaving a vehicle in an open parking lot each night.

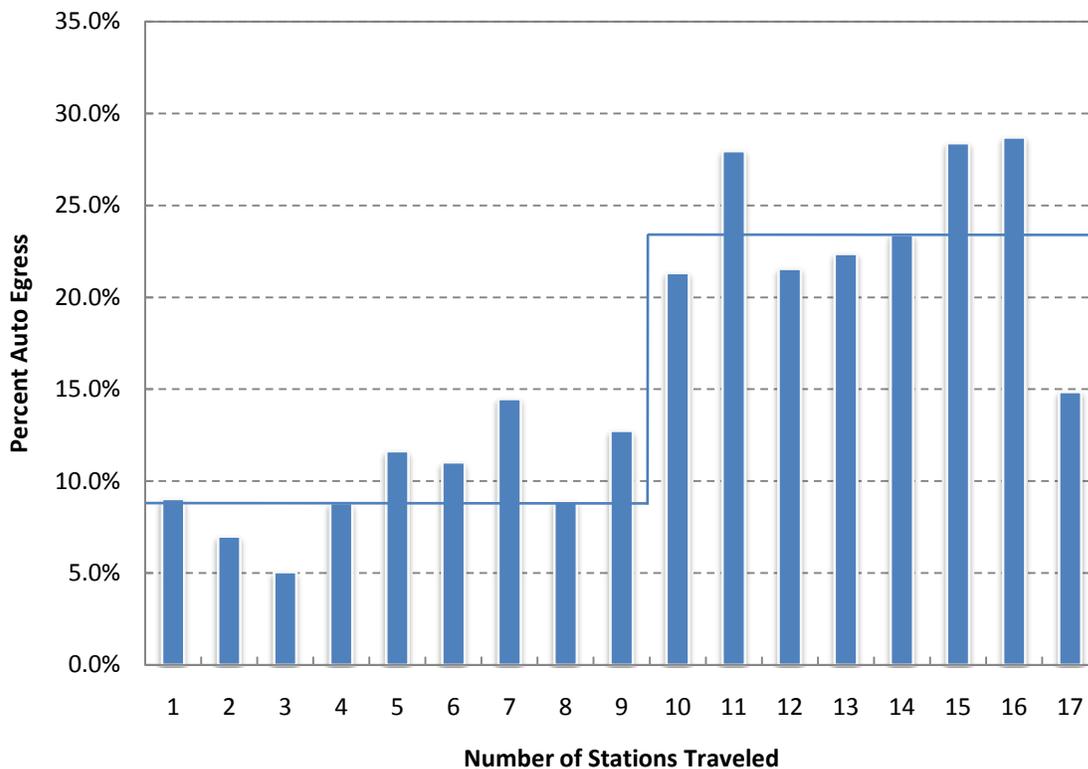
Figure 30 – Comparison of Overnight Parked Vehicles



Number of Stations vs. Egress Mode

To further examine the nature of the automobile egress mode, the percentage of Ride-and-Drive egress trips was plotted against the number of stations traveled as shown below in **Figure 31**. Borrowing a term used often in statistical analysis—the hypothesis is that a trip has to be long enough to make it worth having a second vehicle. And there exists a threshold in terms of either distance or number of stations to help determine when a trip is considered “long enough.” As demonstrated in **Figure 31**, when the number of stations traveled is less than 9, about 8 percent of riders would use Ride-and-Drive as an egress mode. However, when the number of stations traveled is 10 or more, the percentage of Ride-and-Drive egress trips jumps to 24 percent. This observation seems to be consistent with the hypothesis and the number “10” seem to be the threshold.

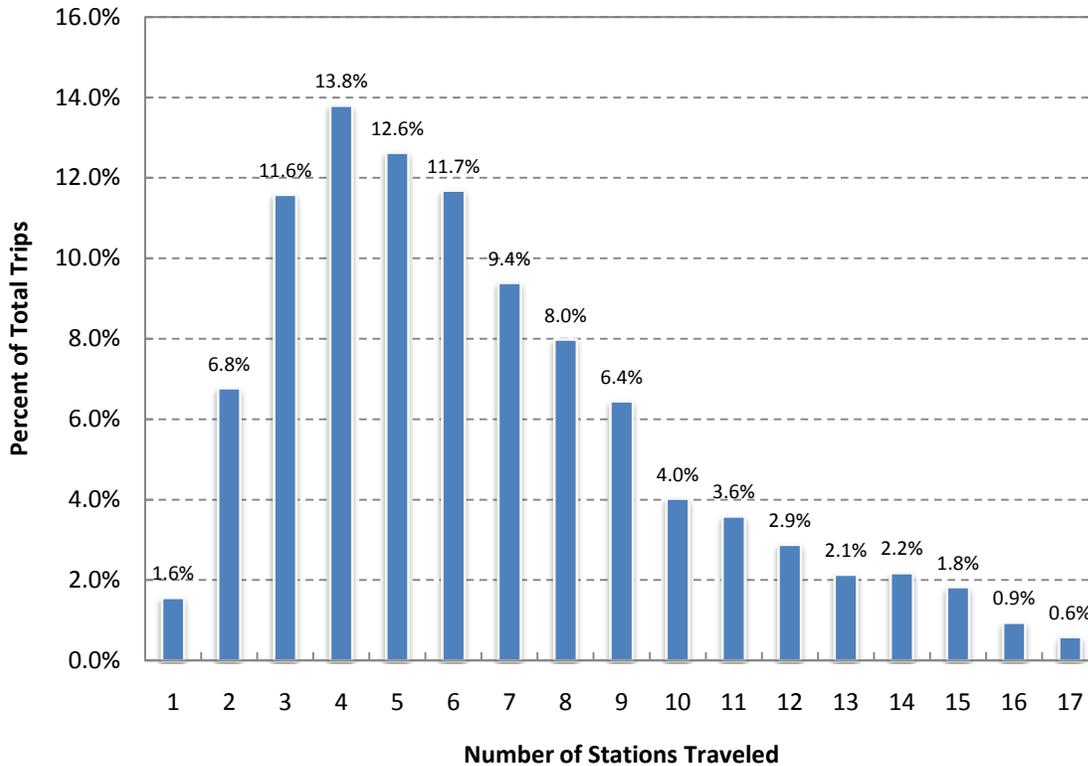
Figure 31 – Number of Stations Traveled vs. Ride & Park Egress Mode



Trip Length Distribution

Figure 32 presents the trip length distribution in terms of the number of stations traveled. The average number of stations traveled is 6.5. The largest rider group travels four stations, and they account for 14 percent of Tri-Rails total trips. The trip length distribution pattern is very similar to those observed in many of the travel characteristics surveys.

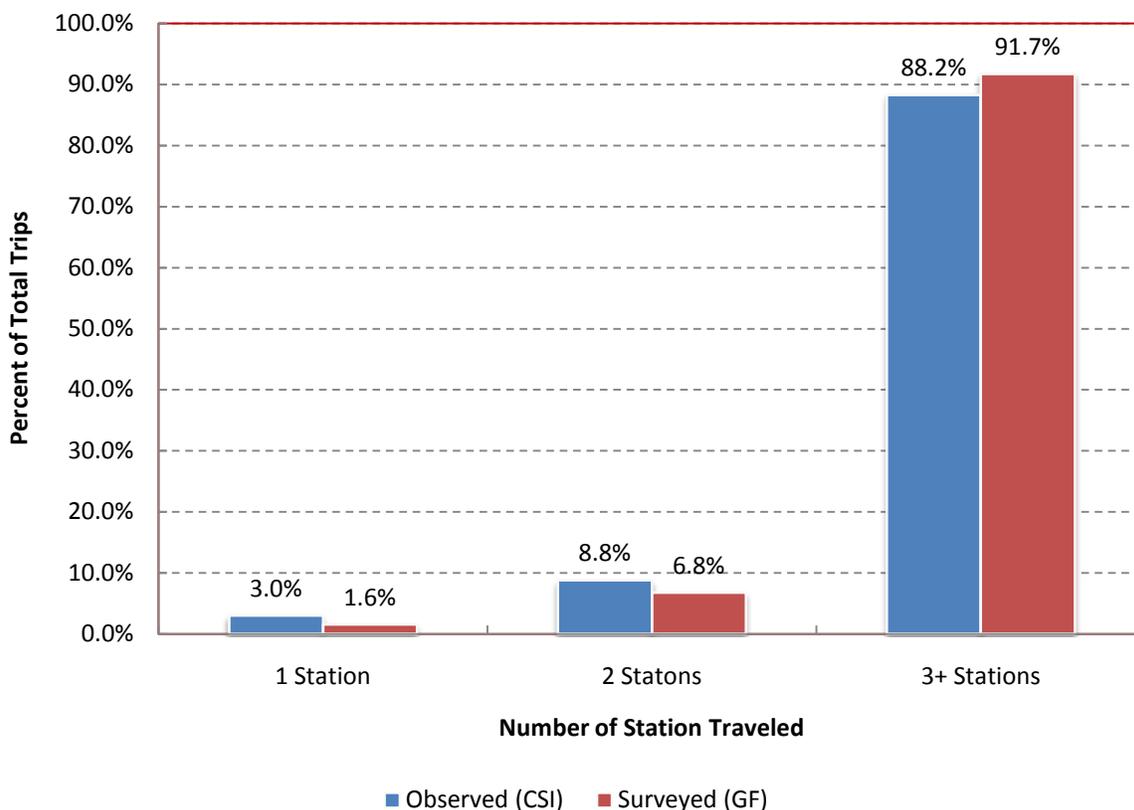
Figure 32 – Trip Length Distribution



Short Trip Market

One of the concerns with the on-board survey was that there might be a response bias towards longer trips because riders making short trips for one or two stations would not have enough time to complete the survey. To determine if there was a significant short-trip market, and collect relevant information if there was one, the station-based surveyors interviewed Tri-Rail riders about their travel distances in terms of the number of stations traveled. Three groups were used to describe the number of stations traveled: 1, 2, or 3+ stations. The results are presented in **Figure 33**. To compare with the observed travel distance, the trip length distribution from the on-board survey was summarized in the same fashion and was included in **Figure 33** as well. The on-board survey reported 1.6 percent of riders traveled one station and 6.8 percent traveled two stations. The corresponding data from the station-based survey were 3.0 percent and 8.8 percent, respectively. In total, short trips represented 8.4 percent of surveyed trips, but 11.8 percent of observed trips. Therefore, there may be some under-representation of short trips in the on-board survey, but the numbers are so small that the impacts are minimal.

Figure 33 – Comparison of Surveyed & Observed Trip Distances



Other Cross Tabulations

A myriad of cross-tabulations were performed in the process of analyzing the survey data for compilation of this report. Many of the cross-tabulations provide interesting insight of the inter-relationships in rider characteristics and travel characteristics. They were carefully reviewed and determined not be worthwhile enough to include in the report. With the expanded data, they can be provided very easily upon request. Nevertheless, two important tables are included in the report. One is the cross-tabulation between access mode and egress mode and another is the station-to-station origin-destination matrix. They are shown in **Table 14** and **Table 15**, respectively.

Expanded Trip Matrix by TAZ and by District

The geo-coding process provided the latitude and longitude coordinates for origins and destination of the sample trips. With the TAZ shape file for SERPM 6.5, each origin and each destination was assigned to a TAZ in the model. A sample origin-destination matrix was developed at the zonal level. The sample OD matrix was then expanded to a daily OD matrix. The current SERPM model uses 51 traffic analysis districts to represent trip interchanges at a more aggregate level. Districts 1 through 20 (District 12 and 13 are dummy district) are in Palm Beach County, Districts 21 through 37 are in Broward County, and Districts 51 through 66 are in Miami-Dade County. The expanded OD matrix was aggregated to the district level. The district-to-district OD matrix is graphically illustrated in **Figure 34**.

Table 14 – Access Mode vs. Egress Mode

ACCESS MODE	EGRESS MODE										TOTAL	
	WALK	BIKE	TAXI	SCHOOL BUS	METRORAIL	TRANSIT BUS	TRI-RAIL	PARK & RIDE	KISS & RIDE	SHARED RIDE		OTHER
WALK	186	11	11	27	88	191	69	177	110		5	874
BIKE	25	429	2		26	63	28	36	36	5	5	656
TAXI	34	6	30	5	13	44	51	4	38			225
SCHOOL BUS	12		6	49	10	9	11	14	26		5	142
METRORAIL	82		14		5	85	81	101	120	6	12	506
TRANSIT BUS	217	30	12	9	177	572	227	113	150	7	8	1521
TRI-RAIL	26	3	5	20	85	56	71	128	65	19	3	481
PARK & RIDE	1316	147	47	129	1456	1109	1519	1090	646	61	165	7684
KISS & RIDE	585	48	49	407	358	627	484	257	520	14	38	3388
SHARED RIDE	16	5		15	4	9	9	5	7	18	2	91
OTHER	7				15	10	4	18	24		17	95
TOTAL	2505	678	177	661	2236	2774	2555	1944	1742	129	260	15662

Table 15 – Station to Station Origin-Destination Matrix

Station	Mangonia Park	West Palm Beach	Lake Worth	Boynton Beach	Delray Beach	Boca Raton	Deerfield Beach	Pompano Beach	Cypress Creek	Fort Lauderdale	Fort Lauderdale Airport	Sheridan Street	Hollywood	Golden Glades	Opa-locka	Metrorail	Hialeah Market	Miami Airport	Grand Total
Mangonia Park		4	71	174	103	205	116	55	86	115	41	39	30	18	23	61	7	43	1,189
West Palm Beach	3		54	105	92	245	104	69	80	73	50	40	35	41	8	99	19	76	1,194
Lake Worth	51	67		13	42	92	60	51	79	54	26	49	34	39	30	87	28	70	873
Boynton Beach	165	142	9		2	40	37	50	74	65	59	40	18	16	15	57	11	20	819
Delray Beach	84	106	27	2		5	14	41	61	64	30	20	28	38	19	66	10	39	653
Boca Raton	139	191	56	34	2		9	49	94	149	71	104	57	50	20	72	28	71	1,196
Deerfield Beach	87	91	45	36	6	13		9	27	57	46	53	72	39	13	122	18	76	809
Pompano Beach	57	77	44	46	32	63	8			21	33	50	27	60	12	156	22	72	777
Cypress Creek	84	85	63	65	56	105	24			3	46	51	48	70	32	211	70	88	1,101
Fort Lauderdale	97	56	47	63	40	154	50	17	2		9	11	17	36	20	239	18	105	982
Fort Lauderdale Airport	44	60	22	69	35	73	53	30	55	6			9	16	10	224	16	107	828
Sheridan Street	25	40	30	30	19	100	47	45	41	4			2	9	9	181	24	61	666
Hollywood	31	33	31	26	19	68	60	32	54	20	7	4			16	185	24	84	695
Golden Glades	21	47	50	29	36	78	47	68	79	29	34	15	5			69	5	65	678
Metrorail	68	102	96	53	52	76	109	154	237	219	177	194	160	49	5		3	13	1,767
Opa-locka	25	13	15	14	13	28	18	19	36	21	12	12	9			8	3	31	276
Hialeah Market	9	17	22	10	6	27	13	21	61	11	17	20	27	2					262
Miami Airport	48	55	51	23	31	62	61	72	82	80	103	64	78	44	31	12			897
Grand Total	1,039	1,186	732	791	585	1,434	827	782	1,149	991	762	765	656	526	263	1,848	305	1,020	15,662

Figure 34 - Expanded District-to-District Trip Matrix



Survey Results – Rider Characteristics

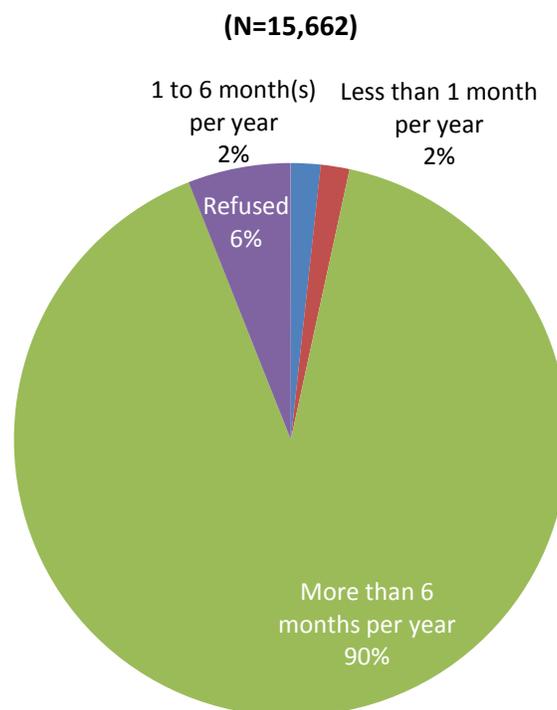
This section presents detailed information on rider characteristics. The results are based on a frequency analysis performed on the weighted and expanded dataset. This is different from the analysis described in the Technical Memorandum in **Appendix E** where un-weighted raw data were used.

As a check on the consistency of data collected, the 2008 rider characteristics data was compared the 2007 data. The data from the 2007 survey effort are quite consistent with the 2008 survey data. Since the 2008 data in this section has been weighted, comparisons between the two data sets are not presented here. However, **Appendix F** includes a side by comparison of the 2007 and 2008 Tri-Rail rider characteristics.

Residency Status

Figure 35 shows the residency status of Tri-Rail riders. About 90 percent of riders live or stay in South Florida for more than 6 months a year. Temporary residents split evenly between those staying for less than one month and those staying for more than one month but less than 6 months. Six percent of riders refused to answer the question.

Figure 35 - Rider Residency Status

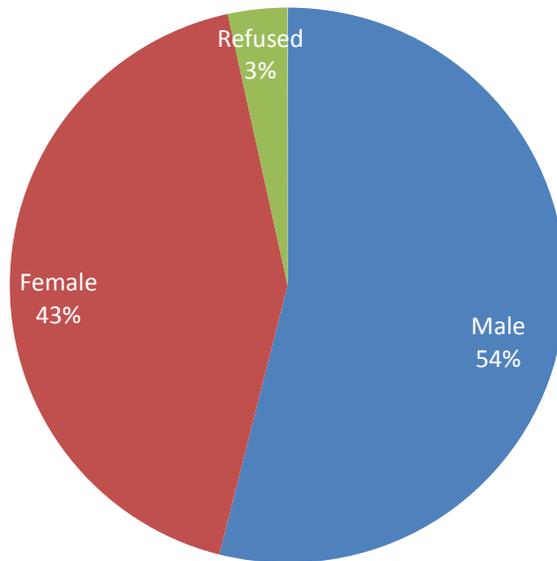


Gender

Close to 54 percent of Tri-Rail riders are male and 43 percent of riders are female. Three percent of survey respondents refused to answer the question.

Figure 36 - Gender

(N=15,662)

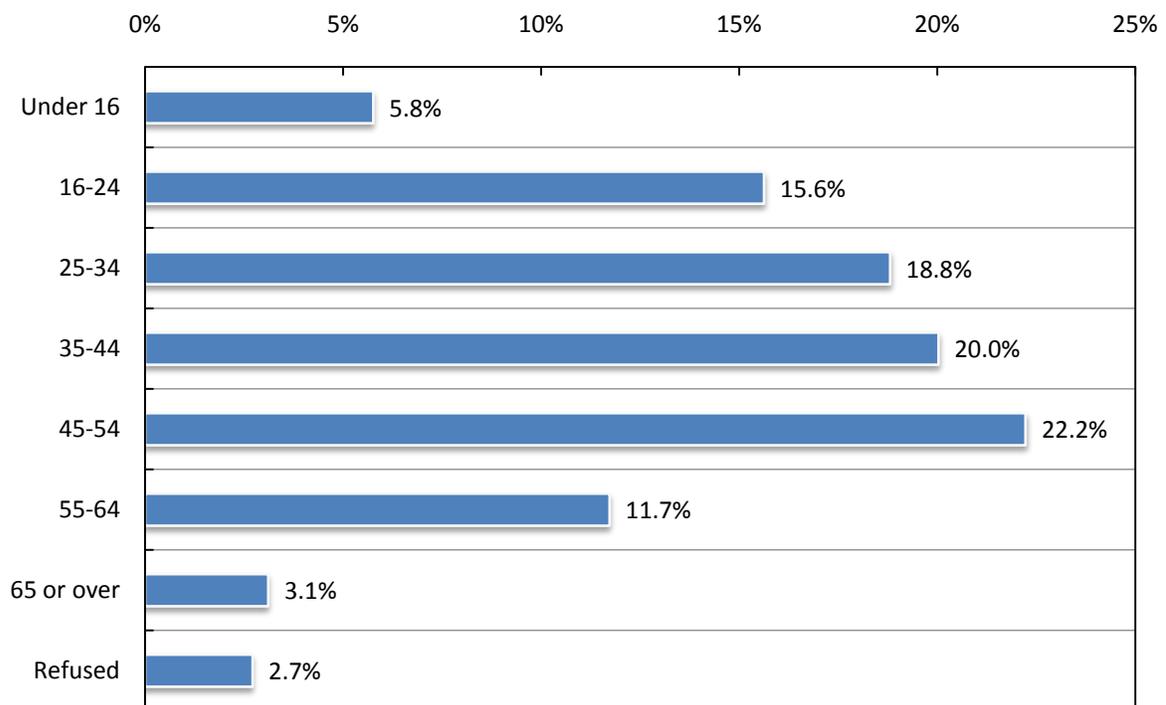


Age Group

Riders aged between 45 and 54 years old account for more than 22 percent of total ridership and is the largest Tri-Rail user group. The age group between 35 and 44 follows closely with 20 percent. The age group between 25 and 34 is not far behind with nearly 19 percent. The next largest group consists of riders between 16 and 24. About 6 percent of riders are under 16, while 12 percent are 65 years or older. Close to 3 percent of riders refused to tell their age.

Figure 37 - Rider Age Group

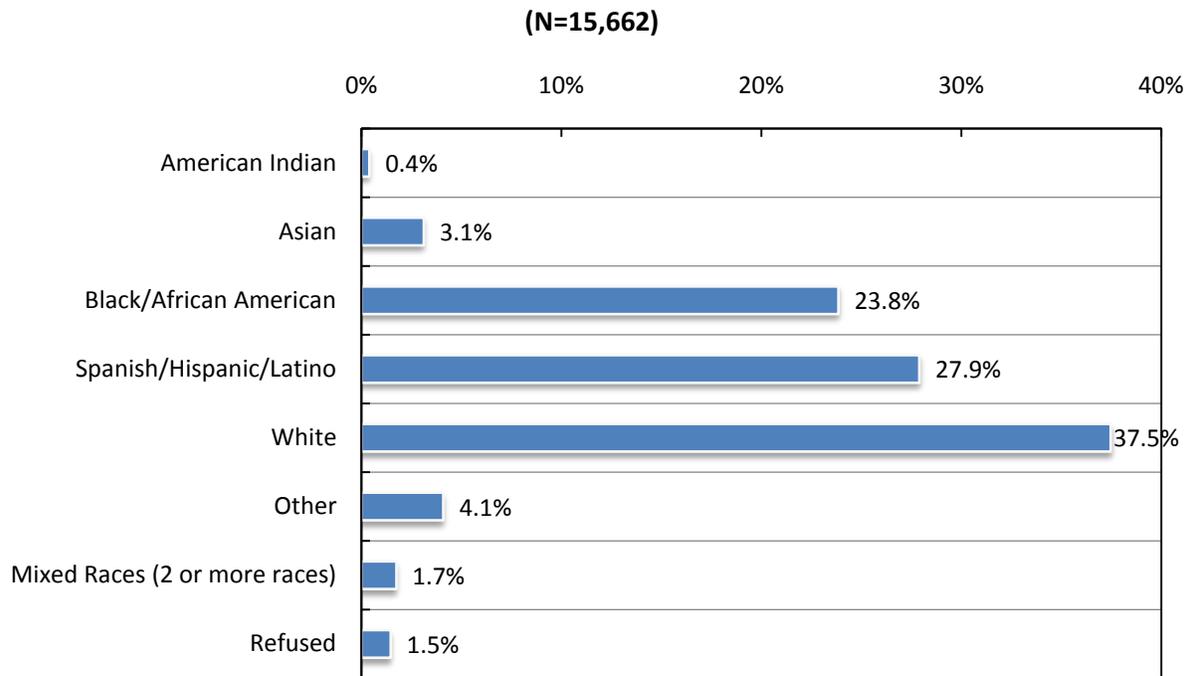
(N=15,662)



Race

The largest Tri-Rail rider group (38 percent) is “White,” followed by 28 percent of “Spanish/Hispanic/Latino.” About 24 percent of riders identify themselves as “Black/African American.” A little over 3 percent of riders indicate they are “Asian.” The smallest race group is “American Indian,” accounting for only 0.4 percent of total ridership. More than 4 percent of riders identify themselves with multiple races. About 2 percent riders refuse to answer the question.

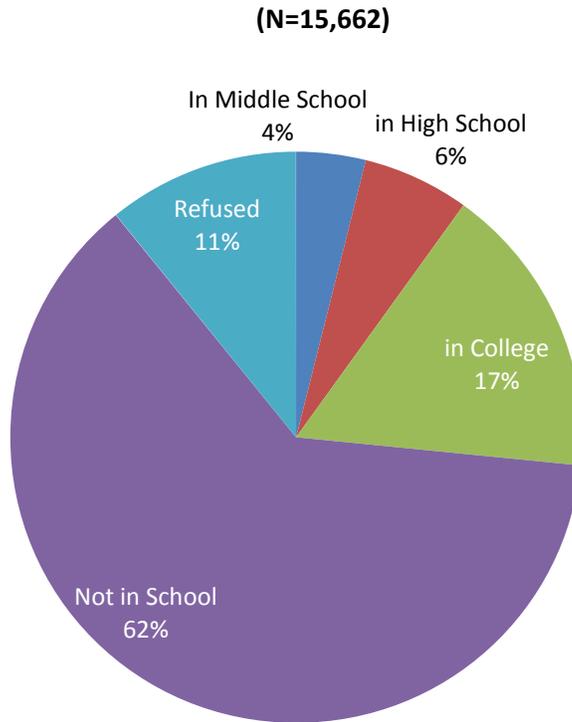
Figure 38 - Tri-Rail Rider Racial Composition



Student Status

The majority of Tri-Rail riders (62 percent) are not in school. About 4 percent are students in middle school and 6 percent in high school. College students account for 17 percent of ridership. Nearly 11 percent of riders refuse to answer the question.

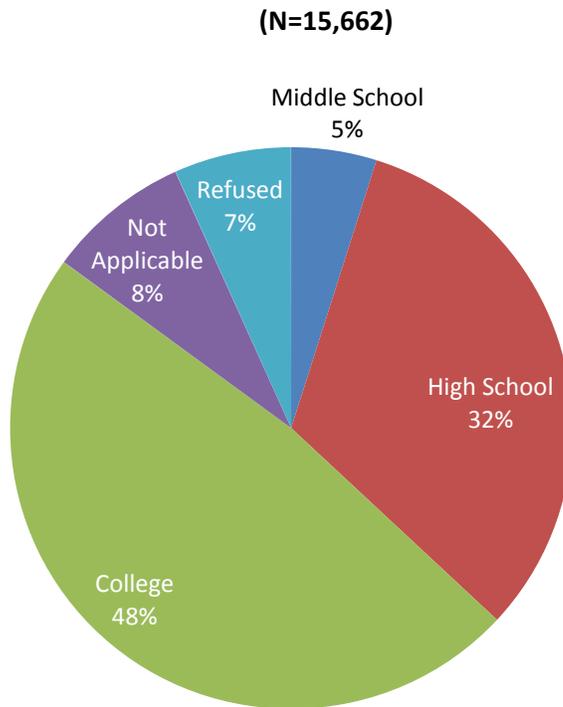
Figure 39 - Tri-Rail Rider Student Status



Education Level

Tri-Rail riders seem to be well educated. More than 48 percent graduated from college and 32 percent from high school. About 5 percent of riders received middle school education. Almost 15 percent of riders indicate that the situation does not apply to them or they simply refused to answer the question.

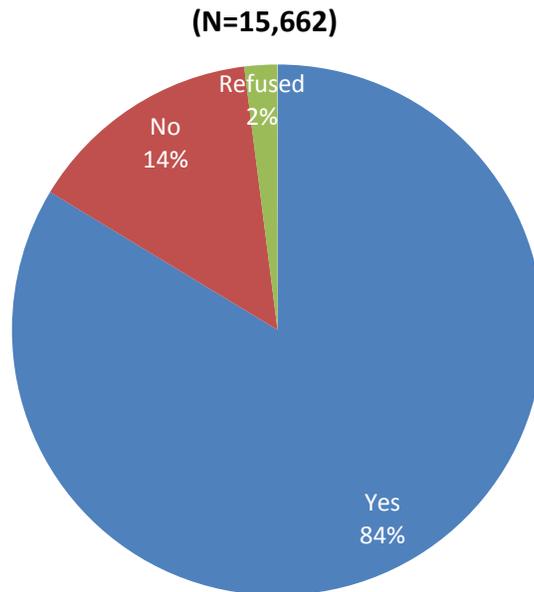
Figure 40 - Tri-Rail Rider Education Level



Drivers' License

The majority of Tri-Rail riders (84 percent) have a drivers' license, while a small minority of them (14 percent) do not have a driver's license. About 2 percent of riders refused to answer the question.

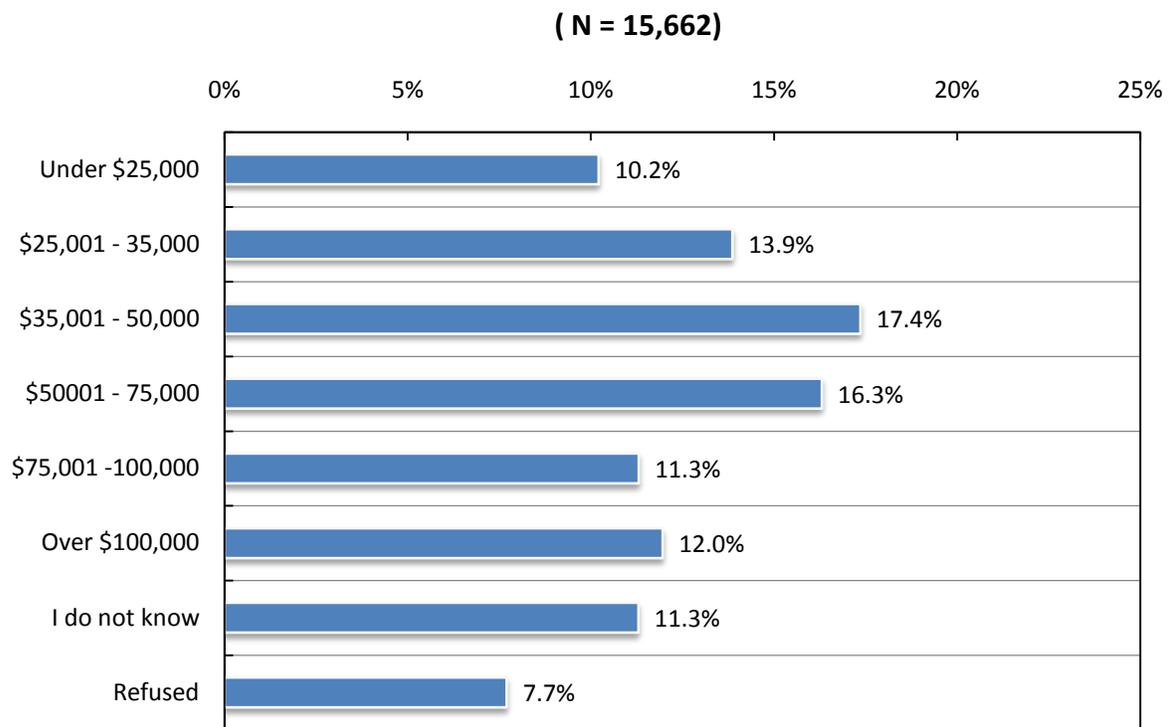
Figure 41 - Tri -Rail Rider Driver's License Status



Income

Household income is an important, and yet is sensitive. Nearly 19 percent of riders either refused to answer the question or did not know the answer. For the remaining 81 percent who were both able and willing to give their gross annual household income, the answers are summarized below in **Figure 42**. Riders come from both affluent households (income over \$75,000 per year) and low-income households (income below \$35,000 per year), with each group accounting for about 24 percent. Income is evenly distributed across the two middle income groups between \$35,000 and \$75,000 per year, with each group making up 17 percent of the total.

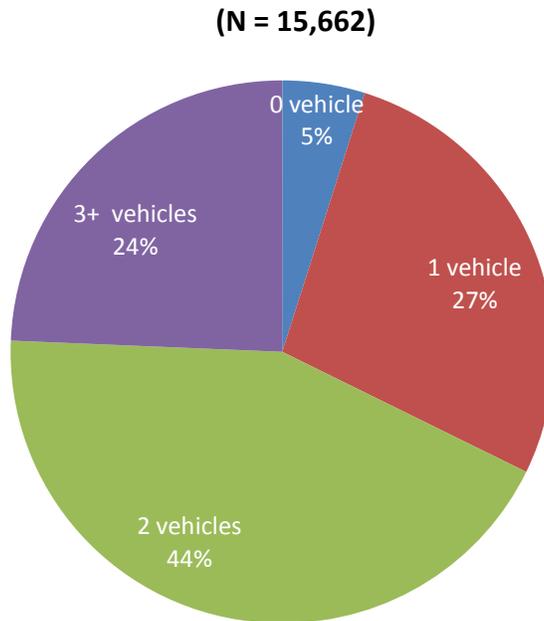
Figure 42 - Tri-Rail Rider Income Groups



Vehicle Ownership

More than 44 percent of riders have two vehicles in their households. About 27 percent have one vehicle, and 27 percent have three or more vehicles in their households. Five (5) percent of riders do not own a vehicle.

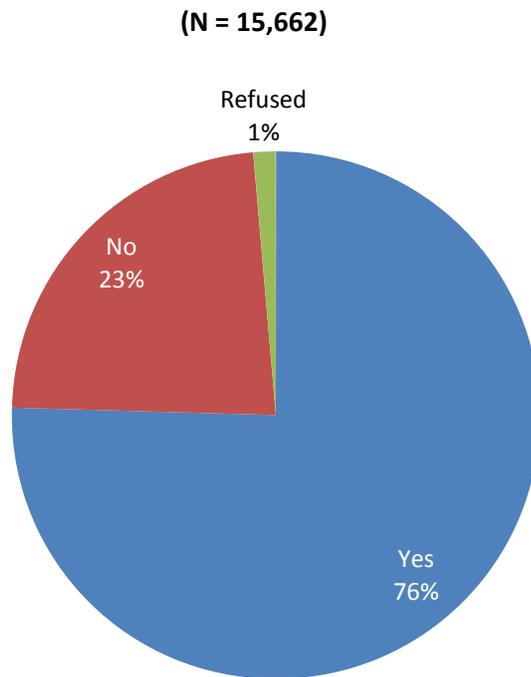
Figure 43 - Tri-Rail Rider Vehicle Ownership



Choice to Use Tri-Rail

More than three quarters (76 percent) of Tri-Rail riders are choice riders—they do not have to use Tri-Rail for their trip but they choose to. About 23 percent of riders do not have a choice—they are captive riders. One (1) percent of riders refuse to answer this question.

Figure 44 - Riders' Choice to use Tri-Rail



Lessons Learned

Below is a summary of the feedback obtained from staff that participated in the 2008 Tri-Rail On-Board Survey.

POSITIVE COMMENTS / ASPECTS

- P 1. Generally, with a few exceptions, the caliber of the temporary employees provided by Express Professionals, Inc. was acceptable, presentable, and willing to work. Generally, the temps were responsive to their assigned roles and listened to the train captain.
- P 2. Having a person located in the Control Center providing early observations to the Station Masters was extremely helpful throughout the day. Fortunately, on the day of the survey, Tri-Rail operations went fairly smoothly with no major changes to operations. Had things not went as smoothly the early insight from the Control Center would have been invaluable.
- P 3. Generally the staffing plan was adequate and well planned. The shift schedule was easy to follow and understand.
- P 4. The dedication of all staff involved, including Gannett Fleming, FDOT, SFRTA, and Express Professionals, was tremendous.
- P 5. Having box lunches available for staff was well received. Providing hot lunches to the Train Captains was extremely appreciated. There were adequate supplies of water, snacks, envelopes, pens, counters, and aprons available for all.
- P 6. The training was more than adequate for the tasks assigned. The PowerPoint slide handouts were very helpful for reviewing what needed to get done.

OPPORTUNITIES FOR IMPROVEMENT/NEGATIVE ASPECTS

Training

- T 1. During the training emphasis should be made regarding the need to have a survey completed for those individuals that had already filled out the survey earlier that same day for a different trip.
- T 2. During training professional staff should rehearse / role-play how the temporary employees are expected to interact with prospective passengers. Then some of the surveyors should be asked to role play in front of the class, then have questions and answers.
- T 3. Additional training should be provided on the four points: origin - station- station - destination. Illustrate these points and show many examples of what is acceptable and what is not and the reason not acceptable. This additional training may eliminate some of the home to home trip responses.
- T 4. Prepare a role playing video (perhaps even on a train, stopped for quieter conditions) to give the surveyors the anticipated setting. This video would better illustrate the technique, problems, etc.

- T 5. Emphasize in the training that surveyors should allow the passenger to get seated before the surveyors ask the riders to fill the surveys, some of the surveyors were eager to hand out the survey before the rider was seated.

The Survey Form / Questionnaire

- F 1. Adding a small box resembling a basic map/diagram with an illustration of an intersection may have aided some riders to the importance of writing down a nearby intersection (e.g., Atlantic Blvd/US-441). For instance, a lot of riders just put the city name (e.g., Ft. Lauderdale) under the origin and/or destination question on the survey form. Consider including a diagram showing two cross streets and ask respondents to fill out street names. The term intersection is very familiar to engineers and planners but it was not so clear to many respondents. Many thought that just writing one street is sufficient and others just left that question blank.
- F 2. Some of the questions were not clear. Question 13 wasn't clear to many respondents. The rationale for including this question was to ensure that riders too young or old to fill-out the survey would be counted. Since door counts were collected at the same time the survey was implemented, each completed survey was weighted to account for people that did not fill-out a survey. Therefore, the necessity of this question was redundant and therefore could be eliminated in future survey efforts.
- F 3. Even though the sequential order of a trip in the questionnaire was clear to us, it wasn't so clear to many respondents. Next time provide a diagram showing four points of a trip and include blanks that respondents can fill out. Develop a simple "4-points or 4-legs of a one-way trip drawing" to quickly and visually illustrate the typical one-way trip on Tri-Rail. This diagram would be a good aid when training the Surveyors as well as showing riders during the survey on the train.
- F 4. For those riders that use a bus for access and egress, there were quite a few that rode two or three buses prior or after. The questionnaire should allow this information to be captured on the form. Emphasis should be made during training on this concept.

Staffing

- S 1. Provide at least three train captains for a three car train. Provide 1 captain per car.
- S 2. Better identify the Spanish and Creole speakers/surveyors to ensure one Spanish speaker per car and one Creole speaker per train. With many of the riders being Creole-only or Spanish-only speaking, having only one "translator" per train was not enough.
- S 3. Staff the busy trains more and some of the off peak (2:00 PM) trains less. Double up on surveyors on peak hour trains. Additional staff is needed for the busier trains and less staff during trains that are not busy.
- S 4. Next time, have more temps available for the morning trains and expect that nearly 20-30% of the temps either won't show up or will be late for the first few trains. By having more temps show up for the early morning shifts this will allow for the "no shows".

Operations

- O 1. Have envelopes made with each of the train numbers so that the returned surveys can be put directly in them when returned to the Terminal Stations at each end.
- O 2. The process of keeping track of the serial numbers complicates the work of the Surveyors and Captains and may not be effective. Many surveyors made mistakes in properly keeping track (forgot or got confused). For those conducting interviews it is very difficult in practice to keep track of all stops and the time. Also, many passengers ask for the survey or are interviewed after the station where they boarded. There is really not a need for this since the vast majority of riders properly identified their origin station.
- O 3. Each train captain was logging the time the train left each station. In most instances where there were two or more train captains per train this information was recorded more than once. This is a duplication of effort.
- O 4. Having a person in the control center was helpful. It provided a “heads-up” as to what train changes were coming and when.

Temporary Staffing

- E 1. By late afternoon, many of the temps assumed their shifts were over, although the train captains still needed them. There seemed to be miscommunication between the staffing agency and the temps concerning the hours they needed to work. In the afternoon, temps that were supposed to be on 15-19 hour shifts started leaving and suddenly a staff shortage occurred. Next time provide an “afternoon surge” of temporary workers instead of having all temps report in the morning. This would also be useful if the trains are running late.
- E 2. Many temps were not identifying themselves with aprons. Wearing of the aprons should be mandatory for easy identification.
- E 3. Correlate the temps to what trains and shifts the temps are expected to work. If each temp had a card that they could put in with their pass identifying the assigned shift and hours they can work - it may be easier to move around due to no shows. It may be easier for the temp agency to sign that card and have the surveyors turn in the card when finished as opposed to trying to find the surveyor on a list for a particular temp agency office.
- E 4. Potentially overstaff the early trips, perhaps by 50%.
- E 5. Devise strategies to react to having too few or too many surveyors for the first trips.
- E 6. Potentially provide a pay shift differential for the early trips.
- E 7. Try to assign each surveyor to only two round trips, if possible (about 8 hours).
- E 8. Better coordination among the Express Professionals offices is needed. Perhaps have a representative from each participating Express office at the terminating stations (Miami Airport and Mangonia Park) at all times OR, better yet, have an Express project manager at each terminating station at all times who has all of the surveyor and contact information for each office.

Summary

This report details the implementation and data analysis from an on-board survey that was conducted in October 2008 on Tri-Rail for FDOT and SFRTA. The purpose of the survey was to gather information to supplement a 2007 Tri-Rail on-board survey, which collected ridership characteristics, origin-destination patterns, and mode of access/egress data. The 2008 survey was conducted in part to collect data reflective of a significant increase in service on Tri-Rail that was implemented in the summer of 2007. The information from this survey will ultimately be used as input data for a mode choice model for the South Florida East Coast Corridor Study, as well as for other transit studies within the tri-county region.

A total of 8,403 questionnaires were distributed to eligible respondents, of which 6,103 were completed, for a response rate of 73 percent. However, 1,264 data records were removed from the dataset due to missing values or non-responses to key questions related to respondents' trip making characteristics. In addition, 1,190 data records were also removed from the dataset due to logical errors (wrong train direction and/or multiple access/egress modes). Ultimately only 3,649 data records out of the original 6,103 were useable—60 percent of collected surveys.

Once a useable dataset was prepared, the data was weighted and expanded to create a full-day dataset for analysis. Boardings and alightings were used as a key data source in the expansion process. In addition, auxiliary counts of key travel markets were obtained to mitigate non-response bias, as well as to cross-check the final dataset. This dataset was origin-destination (OD) based. However, since many of the travel characteristics in travel demand models are presented in terms of productions and attractions (PA), an additional dataset in the PA format was created. Therefore, the final database consists of two separate, but closely related datasets; one in an OD format and another in a PA format.

The Federal Transit Administration (FTA) requires, as policy, that travel demand models used for New Starts analysis represent transit rider travel patterns identified by a recent travel survey so as to provide plausible predictions of project benefits for selected alternatives. The data from the 2008 survey, along with the 2007 survey, will be used in the calibration process as part of the update to the Southeast Regional Planning Model (SERPM), version 6.5. In addition, the 2008 survey data will be used to develop an automobile mode of egress capability, as well as to develop a method to evaluate the effects of rising fuel costs on Tri-Rail usage. The enhancements/modifications that will be made to the SERPM will provide FDOT and SFRTA a better set of analytical tools to answer a broader set of policy related questions—policy questions necessary for “New Starts” transit studies.

In service of this effort the 2008 Tri-Rail On-Board Survey confirmed the existence of a large auto-egress market that is not represented by the current travel demand model. The survey also discovered that the average trip length of Tri-Rail riders is almost twice as long as what the current model estimates. In addition, the survey found that contrary to what the current model indicates, the predominant home-to-work flow is in the southbound direction rather than the northbound direction. By implementing the new egress mode and modifying the trip distribution process, the updated SERPM model will be able to more realistically represent observed travel patterns to provide a good foundation for New Starts user-benefits analysis.

Appendix A – Tri-Rail Train Schedule

Southbound to Miami Airport Station												
STATION	WEEKDAY A.M.											
Train Number	P601	P603	P605	P607	P609	P611	P613	P615	P617	P619	P621	P623
Mangonia Park	4:00	4:40	5:30	6:00	6:20	6:40	7:00	7:30	8:00	9:00	10:00	11:00
West Palm Beach	4:06	4:46	5:36	6:06	6:26	6:46	7:06	7:36	8:06	9:06	10:06	11:06
Lake Worth	4:14	4:54	5:44	6:14	6:34	6:54	7:14	7:44	8:14	9:14	10:14	11:14
Boynton Beach	4:19	4:59	5:49	6:19	6:39	6:59	7:19	7:49	8:19	9:19	10:19	11:19
Delray Beach	4:27	5:07	5:57	6:27	6:47	7:07	7:27	7:57	8:27	9:27	10:27	11:27
Boca Raton	4:32	5:12	6:02	6:32	6:52	7:12	7:32	8:02	8:32	9:32	10:32	11:32
Deerfield Beach	4:39	5:19	6:09	6:39	6:59	7:19	7:39	8:09	8:39	9:39	10:39	11:39
Pompano Beach	4:43	5:23	6:13	6:43	7:03	7:23	7:43	8:13	8:43	9:43	10:43	11:43
Cypress Creek	4:49	5:29	6:19	6:49	7:09	7:29	7:49	8:19	8:49	9:49	10:49	11:49
Fort Lauderdale	4:56	5:36	6:26	6:56	7:16	7:36	7:56	8:26	8:56	9:56	10:56	11:56
Fort Lauderdale/Hollywood International Airport at Dania Beach	5:03	5:43	6:33	7:03	7:23	7:43	8:03	8:33	9:03	10:03	11:03	12:03
Sheridan Street	5:07	5:47	6:37	7:07	7:27	7:47	8:07	8:37	9:07	10:07	11:07	12:07
Hollywood	5:11	5:51	6:41	7:11	7:31	7:51	8:11	8:41	9:11	10:11	11:11	12:11
Golden Glades	5:20	6:00	6:50	7:20	7:40	8:00	8:20	8:50	9:20	10:20	11:20	12:20
Opa-locka	5:26	6:06	6:56	7:26	7:46	8:06	8:26	8:56	9:26	10:26	11:26	12:26
Metrorail Transfer	5:33	6:13	7:03	7:33	7:53	8:13	8:33	9:03	9:33	10:33	11:33	12:33
Hialeah Market	5:39	6:19	7:09	7:39	7:59	8:19	8:39	9:09	9:39	10:39	11:39	12:39
Miami Airport	5:45	6:25	7:15	7:45	8:05	8:25	8:45	9:15	9:45	10:45	11:45	12:45

Southbound to Miami Airport Station												
STATION	WEEKDAY P.M.											
Train Number	P625	P627	P629	P631	P633	P635	P637	P639	P641	P643	P645	P647
Mangonia Park	12:00	1:00	2:00	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:40	7:40
West Palm Beach	12:06	1:06	2:06	3:06	3:36	4:06	4:36	5:06	5:36	6:06	6:46	7:46
Lake Worth	12:14	1:14	2:14	3:14	3:44	4:14	4:44	5:14	5:44	6:14	6:54	7:54
Boynton Beach	12:19	1:19	2:19	3:19	3:49	4:19	4:49	5:19	5:49	6:19	6:59	7:59
Delray Beach	12:27	1:27	2:27	3:27	3:57	4:27	4:57	5:27	5:57	6:27	7:07	8:07
Boca Raton	12:32	1:32	2:32	3:32	4:02	4:32	5:02	5:32	6:02	6:32	7:12	8:12
Deerfield Beach	12:39	1:39	2:39	3:39	4:09	4:39	5:09	5:39	6:09	6:39	7:19	8:19
Pompano Beach	12:43	1:43	2:43	3:43	4:13	4:43	5:13	5:43	6:13	6:43	7:23	8:23
Cypress Creek	12:49	1:49	2:49	3:49	4:19	4:49	5:19	5:49	6:19	6:49	7:29	8:29
Fort Lauderdale	12:56	1:56	2:56	3:56	4:26	4:56	5:26	5:56	6:26	6:56	7:36	8:36
Fort Lauderdale/Hollywood International Airport at Dania Beach	1:03	2:03	3:03	4:03	4:33	5:03	5:33	6:03	6:33	7:03	7:43	8:43
Sheridan Street	1:07	2:07	3:07	4:07	4:37	5:07	5:37	6:07	6:37	7:07	7:47	8:47
Hollywood	1:11	2:11	3:11	4:11	4:41	5:11	5:41	6:11	6:41	7:11	7:51	8:51
Golden Glades	1:20	2:20	3:20	4:20	4:50	5:20	5:50	6:20	6:50	7:20	8:00	9:00
Opa-locka	1:26	2:26	3:26	4:26	4:56	5:26	5:56	6:26	6:56	7:26	8:06	9:06
Metrorail Transfer	1:33	2:33	3:33	4:33	5:03	5:33	6:03	6:33	7:03	7:33	8:13	9:13
Hialeah Market	1:39	2:39	3:39	4:39	5:09	5:39	6:09	6:39	7:09	7:39	8:19	9:19
Miami Airport	1:45	2:45	3:45	4:45	5:15	5:45	6:15	6:45	7:15	7:45	8:25	9:25

Southbound to Miami Airport Station								
STATION	WEEKEND/HOLIDAYS A.M.			WEEKEND/HOLIDAYS P.M.				
Train Number	P661	P663	P665	P667	P669	P671	P673	P675
Mangonia Park	6:00	8:00	10:00	12:00	2:00	4:00	6:00	8:30
West Palm Beach	6:06	8:06	10:06	12:06	2:06	4:06	6:06	8:36
Lake Worth	6:14	8:14	10:14	12:14	2:14	4:14	6:14	8:44
Boynton Beach	6:19	8:19	10:19	12:19	2:19	4:19	6:19	8:49
Delray Beach	6:27	8:27	10:27	12:27	2:27	4:27	6:27	8:57
Boca Raton	6:32	8:32	10:32	12:32	2:32	4:32	6:32	9:02
Deerfield Beach	6:39	8:39	10:39	12:39	2:39	4:39	6:39	9:09
Pompano Beach	6:43	8:43	10:43	12:43	2:43	4:43	6:43	9:13
Cypress Creek	6:49	8:49	10:49	12:49	2:49	4:49	6:49	9:19
Fort Lauderdale	6:56	8:56	10:56	12:56	2:56	4:56	6:56	9:26
Fort Lauderdale/Hollywood International Airport at Dania Beach	7:03	9:03	11:03	1:03	3:03	5:03	7:03	9:33
Sheridan Street	7:07	9:07	11:07	1:07	3:07	5:07	7:07	9:37
Hollywood	7:11	9:11	11:11	1:11	3:11	5:11	7:11	9:41
Golden Glades	7:20	9:20	11:20	1:20	3:20	5:20	7:20	9:50
Opa-locka	7:26	9:26	11:26	1:26	3:26	5:26	7:26	9:56
Metrorail Transfer	7:33	9:33	11:33	1:33	3:33	5:33	7:33	10:03
Hialeah Market	7:39	9:39	11:39	1:39	3:39	5:39	7:39	10:09
Miami Airport	7:45	9:45	11:45	1:45	3:45	5:45	7:45	10:15

Northbound to Mangonia Park Station												
STATION	WEEKDAY A.M.											
Train Number	P600	P602	P604	P606	P608	P610	P612	P614	P616	P618	P620	P622
Miami Airport	4:20	4:50	5:20	5:50	6:10	6:30	7:00	7:30	8:10	9:00	10:00	11:00
Hialeah Market	4:23	4:53	5:23	5:53	6:13	6:33	7:03	7:33	8:13	9:03	10:03	11:03
Metrorail Transfer	4:27	4:57	5:27	5:57	6:17	6:37	7:07	7:37	8:17	9:07	10:07	11:07
Opa-locka	4:33	5:03	5:33	6:03	6:23	6:43	7:13	7:43	8:23	9:13	10:13	11:13
Golden Glades	4:38	5:08	5:38	6:08	6:28	6:48	7:18	7:48	8:28	9:18	10:18	11:18
Hollywood	4:46	5:16	5:46	6:16	6:36	6:56	7:26	7:56	8:36	9:26	10:26	11:26
Sheridan Street	4:49	5:19	5:49	6:19	6:39	6:59	7:29	7:59	8:39	9:29	10:29	11:29
Fort Lauderdale/Hollywood International Airport at Dania Beach	4:52	5:22	5:52	6:22	6:42	7:02	7:32	8:02	8:42	9:32	10:32	11:32
Fort Lauderdale	5:00	5:30	6:00	6:30	6:50	7:10	7:40	8:10	8:50	9:40	10:40	11:40
Cypress Creek	5:06	5:36	6:06	6:36	6:56	7:16	7:46	8:16	8:56	9:46	10:46	11:46
Pompano Beach	5:12	5:42	6:12	6:42	7:02	7:22	7:52	8:22	9:02	9:52	10:52	11:52
Deerfield Beach	5:17	5:47	6:17	6:47	7:07	7:27	7:57	8:27	9:07	9:57	10:57	11:57
Boca Raton	5:24	5:54	6:24	6:54	7:14	7:34	8:04	8:34	9:14	10:04	11:04	12:04
Delray Beach	5:29	5:59	6:29	6:59	7:19	7:39	8:09	8:39	9:19	10:09	11:09	12:09
Boynton Beach	5:37	6:07	6:37	7:07	7:27	7:47	8:17	8:47	9:27	10:17	11:17	12:17
Lake Worth	5:43	6:13	6:43	7:13	7:33	7:53	8:23	8:53	9:33	10:23	11:23	12:23
West Palm Beach	5:54	6:24	6:54	7:24	7:44	8:04	8:34	9:04	9:44	10:34	11:34	12:34
Mangonia Park	6:05	6:35	7:05	7:35	7:55	8:15	8:45	9:15	9:55	10:45	11:45	12:45

Northbound to Mangonia Park Station												
STATION	WEEKDAY P.M.											
Train Number	P624	P626	P628	P630	P632	P634	P636	P638	P640	P642	P644	P646
Miami Airport	12:00	1:00	2:00	3:00	4:00	4:30	5:00	5:20	5:50	6:20	6:50	7:50
Hialeah Market	12:03	1:03	2:03	3:03	4:03	4:33	5:03	5:23	5:53	6:23	6:53	7:53
Metrorail Transfer	12:07	1:07	2:07	3:07	4:07	4:37	5:07	5:27	5:57	6:27	6:57	7:57
Opa-locka	12:13	1:13	2:13	3:13	4:13	4:43	5:13	5:33	6:03	6:33	7:03	8:03
Golden Glades	12:18	1:18	2:18	3:18	4:18	4:48	5:18	5:36	6:08	6:38	7:08	8:08
Hollywood	12:26	1:26	2:26	3:26	4:26	4:56	5:26	5:46	6:16	6:46	7:16	8:16
Sheridan Street	12:29	1:29	2:29	3:29	4:29	4:59	5:29	5:49	6:19	6:49	7:19	8:19
Fort Lauderdale/Hollywood International Airport at Dania Beach	12:32	1:32	2:32	3:32	4:32	5:02	5:32	5:52	6:22	6:52	7:22	8:22
Fort Lauderdale	12:40	1:40	2:40	3:40	4:40	5:10	5:40	6:00	6:30	7:00	7:30	8:30
Cypress Creek	12:46	1:46	2:46	3:46	4:46	5:16	5:46	6:06	6:36	7:06	7:36	8:36
Pompano Beach	12:52	1:52	2:52	3:52	4:52	5:22	5:52	6:12	6:42	7:12	7:42	8:42
Deerfield Beach	12:57	1:57	2:57	3:57	4:57	5:27	5:57	6:17	6:47	7:17	7:47	8:47
Boca Raton	1:04	2:04	3:04	4:04	5:04	5:34	6:04	6:24	6:54	7:24	7:54	8:54
Delray Beach	1:09	2:09	3:09	4:09	5:09	5:39	6:09	6:29	6:59	7:29	7:59	8:59
Boynton Beach	1:17	2:17	3:17	4:17	5:17	5:47	6:17	6:37	7:07	7:37	8:07	9:07
Lake Worth	1:23	2:23	3:23	4:23	5:23	5:53	6:23	6:43	7:13	7:43	8:13	9:13
West Palm Beach	1:34	2:34	3:34	4:34	5:34	6:04	6:34	6:54	7:24	7:54	8:24	9:24
Mangonia Park	1:45	2:45	3:45	4:45	5:45	6:15	6:45	7:05	7:35	8:05	8:35	9:35

Northbound to Mangonia Park Station								
STATION	WEEKEND/HOLIDAYS A.M.			WEEKEND/HOLIDAYS P.M.				
Train Number	P660	P662	P664	P666	P668	P670	P672	P674
Miami Airport	6:00	8:00	10:00	12:00	2:00	4:00	6:00	8:30
Hialeah Market	6:03	8:03	10:03	12:03	2:03	4:03	6:03	8:33
Metrorail Transfer	6:07	8:07	10:07	12:07	2:07	4:07	6:07	8:37
Opa-locka	6:13	8:13	10:13	12:13	2:13	4:13	6:13	8:43
Golden Glades	6:18	8:18	10:18	12:18	2:18	4:18	6:18	8:48
Hollywood	6:26	8:26	10:26	12:26	2:26	4:26	6:26	8:56
Sheridan Street	6:29	8:29	10:29	12:29	2:29	4:29	6:29	8:59
Fort Lauderdale/Hollywood International Airport at Dania Beach	6:32	8:32	10:32	12:32	2:32	4:32	6:32	9:02
Fort Lauderdale	6:40	8:40	10:40	12:40	2:40	4:40	6:40	9:10
Cypress Creek	6:46	8:46	10:46	12:46	2:46	4:46	6:46	9:16
Pompano Beach	6:52	8:52	10:52	12:52	2:52	4:52	6:52	9:22
Deerfield Beach	6:57	8:57	10:57	12:57	2:57	4:57	6:57	9:27
Boca Raton	7:04	9:04	11:04	1:04	3:04	5:04	7:04	9:34
Delray Beach	7:09	9:09	11:09	1:09	3:09	5:09	7:09	9:39
Boynton Beach	7:17	9:17	11:17	1:17	3:17	5:17	7:17	9:47
Lake Worth	7:23	9:23	11:23	1:23	3:23	5:23	7:23	9:53
West Palm Beach	7:34	9:34	11:34	1:34	3:34	5:34	7:34	10:04
Mangonia Park	7:45	9:45	11:45	1:45	3:45	5:45	7:45	10:15

Appendix B – Survey Instrument (English, Spanish, and Creole)

PLEASE HELP US IMPROVE YOUR TRI-RAIL SERVICE !

Por favor ver al reverso para español • Souple mande pouyon fòm an Kreyòl

Tri-Rail is conducting a survey to help determine future service and station improvements. You can help by filling out this survey while you ride today. Please print clearly. **Return your completed Survey to a surveyor before leaving the train.** If you make another trip today on Tri-Rail, you may be given a survey each time you ride Tri-Rail. It is important that you **complete a survey each time** that you ride Tri-Rail today. **THANKYOU!**

PLEASE TELL US ABOUT THE ONE-WAY TRIP YOU ARE MAKING NOW ON TRI-RAIL

PLEASE CHECK ONLY ONE RESPONSE PER QUESTION

1. BEFORE COMING TO TRI-RAIL, I ORIGINALLY **STARTED** TODAY'S

ONE-WAY TRIP AT: Home Airport _____
Name
 Work College School(K-12) Other _____
Specify (for example: "Beach")

2. WHICH IS LOCATED AT (IMPORTANT!):

Nearby Landmark (for example: Name of Building, Mall, Hospital or School)

Nearby Intersection or Address City or Town Zip Code

3. TO GET TO TRI-RAIL I: Walked Biked

Took a Taxi Rode a School Bus Rode a Metrorail Train
 Rode a Transit Bus (Route #/Name) _____
 Rode a Tri-Rail Shuttle Bus (Route #/Name) _____
 Drove and parked at the station. Number of people in vehicle including me. (# of people) _____
 Rode with someone that dropped me off at the station. Number of people dropped off including me. (# of people) _____
 Rode with someone that parked his/her vehicle at the station. Number of people in vehicle including me. (# of people) _____
 Other (Please specify) _____

4. I GOT **ON** THIS TRAIN AT: _____ Station

Station Name

5. I WILL GET **OFF** THIS TRAIN AT: _____ Station

Station Name

6. WHEN I LEAVE TRI-RAIL I WILL: Walk Bike

Take a Taxi Ride a School Bus Ride a Metrorail Train
 Ride a Transit Bus (Route #/Name) _____
 Ride a Tri-Rail Shuttle Bus (Route #/Name) _____
 Drive a vehicle I parked at the station. Number of people that will get in the vehicle including me. (# of people) _____
 Ride with someone that is picking me up at the station. Number of people that will be picked up including me. (# of people) _____
 Ride with someone that parked his/her vehicle at the station. Number of people that will get in vehicle including me. (# of people) _____
 Other (Please specify) _____

7. AFTER LEAVING TRI-RAIL, I WILL ULTIMATELY **FINISH** TODAY'S

ONE-WAY TRIP AT: Home Airport _____
Name
 Work College School(K-12) Other _____
Specify (for example: "Beach")

8. WHICH IS LOCATED AT (IMPORTANT!):

Nearby Landmark (for example: Name of Building, Mall, Hospital or School)

Nearby Intersection or Address City or Town Zip Code

9. TODAY I WILL MAKE ANOTHER TRI-RAIL TRIP TO GET BACK TO WHERE I STARTED.

Yes. What time will you board Tri-Rail again today? _____:_____ (am/pm)
Time
 No

10. I HAVE BEEN USING TRI-RAIL TO MAKE THIS TRIP FOR:

First Time/Occasional Trip (Skip to question 13)
 Less than 6 months (Go to question 11)
 6 months or more but less than 2 years (Skip to question 12)
 Over 2 years (Skip to Question 12)

11. I BEGAN RIDING TRI-RAIL LESS THAN 6 MONTHS AGO BECAUSE:

Gas prices have increased Tri-Rail trains come more often
 New School/Job Other (Please specify) _____

12. HOW OFTEN DO YOU RIDE TRI-RAIL:

On a typical day 1 2 3 4 or more times per day.
In a typical week 1 2 3 4 5 6 7 days per week
or less than one day per week.

13. IN MY GROUP THERE ARE (# of children) _____ CHILDREN AND/OR (# of adults) _____ ADULTS (ELDERLY OR OTHER) WHO CANNOT FILL OUT THIS SURVEY.

PLEASE TELL US ABOUT YOURSELF THIS INFORMATION WILL BE KEPT STRICTLY CONFIDENTIAL

14. I LIVE IN ZIP CODE:
Zip Code

15. I LIVE/STAY IN SOUTH FLORIDA: Less than 1 month per year

1 to 6 month(s) per year More than 6 months per year

16. I AM: MALE FEMALE

17. MY AGE IS: Under 16 16-24 25-34
 35-44 45-54 55-64 65 or Over

18. MY RACE IS BEST DESCRIBED AS: (You can check more than one box.)

American Indian Asian Black/African American
 Spanish/Hispanic/Latino White
 Other (Please specify) _____

19. I AM: in Middle School in High School
 in College Not in School

20. I GRADUATED: Middle School High School/GED
 College Not Applicable

21. I HAVE A DRIVER'S LICENSE: Yes No

22. MY HOME'S TOTAL ANNUAL INCOME IS: Under \$25,000
 \$25,001-35,000 \$35,001-50,000 \$50,001-75,000
 \$75,001-100,000 Over \$100,000 I do not know.

23. INCLUDING ME, (# of people) _____ PEOPLE LIVE IN MY HOME AND OF THOSE (# of people) _____ HAVE A DRIVER'S LICENSE.

24. _____ VEHICLES ARE OWNED BY PEOPLE IN MY HOME.
of vehicles (Including Vans, SUV's, Motorcycles, Scooters and Pick-Up Trucks)

25. I COULD HAVE TRAVELED TODAY BY CAR BUT CHOSE TO RIDE TRI-RAIL INSTEAD: Yes No

26. I FILLED OUT ANOTHER SURVEY CARD EARLIER TODAY: Yes No

Comments: _____

Thank you for your participation!



¡POR FAVOR AYÚDENOS A MEJORAR SU SERVICIO DE TRI-RAIL!

Please turn page over for English • Souple mande pouyon fòm an Kreyòl

Tri-Rail está realizando una encuesta para guiarnos en la planificación de servicios y mejoras a las estaciones. Usted puede ayudar completando esta encuesta mientras viaja. Por favor escriba claro. Use el espacio proveído a la derecha para comentarios adicionales. **Por favor devuelva su tarjeta al encuestador antes de bajarse del tren.** Si usted vuelve a usar el servicio de Tri-Rail hoy, se le entregará otra tarjeta de encuesta. Es importante que **complete cada tarjeta** cada vez que usted use el servicio de Tri-Rail hoy. **¡GRACIAS!**

DÍGANOS SOBRE EL VIAJE QUE ESTA REALIZANDO EN EL SERVICIO DE TRI-RAIL EN ESTE MOMENTO (EN UNA SOLA VÍA)

POR FAVOR SELECCIONE SOLO UNA CASILLA

1. ANTES DE ABORDAR EL TREN ¿DÓNDE **COMENZÓ** ESTE VIAJE

(UNA SOLA VÍA): Casa Aeropuerto _____
Nombre
 Trabajo Universidad Escuela(K-12) Otro _____
(Especifique por ejemplo: playa)

2. LOCALIZADO EN (¡IMPORTANTE!):

Punto de referencia más cercano (por ejemplo: Edificio, Centro Comercial, Hospital o Escuela)

Dirección o intersección más cercana Ciudad o reparto Código Postal

3. LLEGUÉ A LA ESTACIÓN DE TRI-RAIL: Caminando solamente

Bicicleta Taxi Autobús de escuela Usando el tren de Metrorail
 Usando un autobús de tránsito (# de Ruta/Nombre) _____
 Usando el servicio de autobús de Tri-Rail (# de Ruta/Nombre) _____
 En un carro que yo dejé en la estación. Número de personas en el vehículo incluyéndome a mí. (# de personas) _____
 En un carro que me dejó en la estación. Número de personas dejadas, incluyéndome a mí. (# de personas) _____
 En un carro con alguien que dejo su carro en la estación. Número de personas en el vehículo incluyéndome a mí. (# de personas) _____
 Otro (Por favor, especifique) _____

4. YO ABORDÉ ESTE TREN EN: ESTACIÓN _____

Nombre de la estación

5. ME BAJARÉ DEL TREN EN: ESTACIÓN _____

Nombre de la estación

6. DEJARÉ LA ESTACIÓN DE TRI-RAIL: Caminando solamente

Bicicleta Taxi Autobús de escuela Usando el tren de Metrorail
 Usando un autobús de tránsito (# de Ruta/Nombre) _____
 Usando el servicio de autobús de Tri-Rail (# de Ruta/Nombre) _____
 En un carro que yo dejé en la estación. Número de personas que viajarán en el vehículo incluyéndome a mí. (# de personas) _____
 En un carro con alguien que me recogerá en la estación. Número de personas que serán recogidas en el vehículo incluyéndome a mí. (# de personas) _____
 En un carro que alguien parqueó en la estación. Número de personas que viajarán en el vehículo incluyéndome a mí. _____
(# de personas)
 Otro (Por favor, especifique) _____

7. DESPUÉS DE DEJAR LA ESTACIÓN DEL TREN, **CONCLUIRÉ** MI

VIAJE EN (UNA SOLA VÍA): Casa Aeropuerto _____
Nombre
 Trabajo Universidad Escuela(K-12) Otro _____
(Especifique por ejemplo: playa)

8. LOCALIZADO EN (¡IMPORTANTE!):

Punto de referencia más cercano (por ejemplo: Edificio, Centro Comercial, Hospital o Escuela)

Dirección o intersección más cercana Ciudad o reparto Código Postal

9. USARÉ TRI-RAIL OTRA VEZ PARA VOLVER AL LUGAR DE PARTIDA:

Sí. ¿A qué hora abordará Tri-Rail hoy nuevamente? _____: _____ (am/pm)
Hora
 No

10. HE ESTADO USANDO EL SERVICIO DE TRI-RAIL PARA HACER ESTE VIAJE POR:

Primera Vez/Viaje Ocasional (Salte a la pregunta 13)
 Menos de 6 meses (Salte a la pregunta 11)
 6 meses o más, pero menos de 2 años (Salte a la pregunta 12)
 Más de 2 años (Salte a la pregunta 12)

11. EMPECÉA USAR EL SERVICIO DE TRI-RAIL HACE MENOS DE 6 MESES:

Porque los precios de la gasolina han subido
 Tri-Rail tiene trenes que pasan más seguido
 Nueva escuela/trabajo Otro (Por favor, especifique) _____

12. NORMALMENTE USO TRI-RAIL:

En un día normalmente lo uso 1 2 3 4 o más veces por día.
En una semana normalmente lo uso 1 2 3 4 5 6 7 días por semana o menos de un día por semana.

13. CONMIGO VIAJAN (# de niños) _____ NIÑOS Y/O

(# de adultos) _____ ADULTOS (ANCIANOS U OTROS) QUE NO PUEDEN LLENAR ESTA ENCUESTA.

POR FAVOR INFÓRMENOS SOBRE USTED TODAS LAS RESPUESTAS SE MANTENDRÁN ESTRICTAMENTE CONFIDENCIALES

14. MI CÓDIGO POSTAL ES:
Código Postal

15. VIVO/RESIDO EN EL SUR DE LA FLORIDA: Menos de un mes al año
 1-6 meses al año Más de 6 meses al año

16. SEXO: MASCULINO FEMENINO

17. EDAD: MENOR DE 16 16-24 25-34
 35-44 45-54 55-64 65 o más

18. LA RAZA QUE ME CARACTERIZA ES: (Puede marcar más de una casilla.)

Indio Americano Asiático Negro/Afro-Americano
 Español/Hispano/Latino Raza Blanca
 Otro (Por favor, especifique) _____

19. YO SOY UN ESTUDIANTE DE: Middle School

High School Universidad Ninguno

20. YO TENGO UN DIPLOMA DE: Middle School

High School/GED Universidad Ninguno

21. TENGO LICENCIA DE CONDUCIR: Sí No

22. INGRESO ANUAL EN MI HOGAR : Menos de \$25,000

\$25,001-35,000 \$35,001-50,000 \$50,001-75,000
 \$75,001-100,000 Más de \$100,000 No se.

23. INCLUYÉNDOME A MI, _____ (# de Personas) PERSONA(S)
VIVE(N) EN MI HOGAR, Y DE ELLOS _____ (# de Personas)
PERSONA(S) TIENE(N) LICENCIA DE CONDUCIR.

24. TENEMOS _____ VEHÍCULOS PROPIOS EN USO EN MI HOGAR.
of vehicles (Incluyendo Vanes, Motocicletas y Camionetas Pick-Up)

25. PODRÍA HABER VIAJADO EN CARRO HOY, PERO PREFERÍ
MONTAR TRI-RAIL: Sí No

26. HOY LLENÉ OTRA TARJETA DE ENCUESTA ANTERIORMENTE:
 Sí No

Comentarios: _____

¡Gracias por su participación!



TANPRI EDE NOU AMELYORE SEVIS TRI-RAIL OU A!

Tri-Rail ap pasé yon kéksyonè ki pral sèvi kòm gid pou amelyorasyon sèvis ak estasyon yo. Ou kap édé éfò sa si ou rampli kéksyonè sa pandan ou nan tren-yan. Tanpri ekri byen Kle. **Avan ou désann tren yan, tanpri pa bliyé rémèt kéksyonè ké ou fini rampli bay moun ki té ba ou! la.** Si ou itilize sèvis Tri-Rail ankò jodya, li posib pou yo ba wou yon lot kéksyonè chak fwa ou monté yon lòt tren. Li impòtan pou **rampli kéksyonè ya chak fwa** ou pran yon tren jodya. **MESI!**

TANPRI PALE NOU DE TRAJE SENP SA KE WAP FE KOUNYE YA NAN TRI-RAIL LA.

TANPRI T CHEKE SELMAN YON REPONS POU CHAK KEKSYON

1. AVAN OU TEVINI NAN TRI-RAIL LA, MWEN KOMANSE TRAJE SENP SA JODYA: Lakay mwen Nan Ayéwopò _____
 Nan Travay mwen Nan Inivèsitém Nan Lékòl mwen
 Yon lòt koté _____

Maké ki koté (pa eksanp: "Bò yon Plaj")

2. KI SITYE NAN (IMPOTAN!):

_____ Pwend Répè (pa eksanp: Bildin Sant Dacha, Lopital oswa Lékòl)

_____ Adrès oswa Entèsèksyon ki pi prè ya Vil oswa Katyé Kod Postal

3. MWEN TEVINI PRAN NAN ESTASYON TRI-RAIL LA:

- Apyé Sou Békan Nan Taksi Nan Bis Lékòl
 Nan yon Tren Metrorail Nan yon Bis Tranzit (Wout #/Niméwo) _____
 Nan yon ti Bis ki Mennen moun nan éstasyon (Wout #/Niméwo) _____
 Nan machin mwen ki paké nan éstasyon an. Kantité moun ki té nan machin nan avèm. (kantité moun) _____
 Pran woulib nan men yon moun ki dépozém nan éstasyon an. Kantité moun ki té pran woulib avèm. (kantité moun) _____
 Pran woulib nan men yon moun ki paké machin li nan éstasyon an. Kantité moun ki té nan machin nan avèm. (kantité moun) _____
 Pa lòt Mwayen (Tanpri di ki mwayen) _____

4. MWEN MONTE NAN TREN SA NAN ESTASYON: _____

Non Estasyon an

5. MAP DESANN TREN SA NA ESTASYON: _____

Non Estasyon an

6. LE MWEN KITE TRI-RAIL, MAP ALE: Apyé Sou Békan

- Nan Taksi Nan Bis Lékòl Nan yon Tren Metrorail
 Nan yon Bis Tranzit (Wout #/Niméwo) _____
 Nan yon ti Bis ki Mennen moun nan éstasyon (Wout #/Niméwo) _____
 Nan machin mwen ki paké nan éstasyon an. Kantité moun ki té nan machin nan avèm. (kantité moun) _____
 Pran woulib nan men yon moun kap vini chachém nan éstasyon an. Kantité moun kap pran woulib avèm. (kantité moun) _____
 Pran woulib nan men yon moun ki paké machin li nan éstasyon an. Kantité moun kap monté nan machin nan avèm. (kantité moun) _____
 Pa lòt Mwayen (Tanpri di ki mwayen) _____

7. LE MWEN KITE TRI-RAIL, MAP BOUKLE TRAJE SENP SA JODYA:

- Lakay mwen Nan Ayéwopò _____
 Nan Travay mwen Nan Inivèsitém Nan Lékòl mwen
 Yon lòt koté _____

Maké ki koté (pa eksanp: "Bò yon Plaj")

8. KI SITYE NAN (IMPOTAN!):

_____ Pwend Répè (pa eksanp: Bildin Sant Dacha, Lopital oswa Lékòl)

_____ Adrès oswa Entèsèksyon ki pi prè ya Vil oswa Katyé Kod Postal

9. JODYA, MAP PRANYON LOT TREN TRI-RAIL POU MWEN KAP TOUNEN KOTEM TE SOTI YA..

- Wi. A ki lè wap pran yon lòt tren Tri-Rail jodya? ____: ____ (am/pm)
 No

10. MWEN PRAN TRI-RAIL POU TRAJE SENP SA POU: Prémýé

- Fwa/Pa Okazyon (Janbé nan Kéksyon 13)
 Mwens ké 6 mwa (Janbé nan Kéksyon 11)
 6 mwa oswa plis men mwens ké 2 ané (Janbé nan Kéksyon 12)
 Plis ké 2 ané (Janbé nan Kéksyon 12)

11. I MWEN KOMANSE PRAN TRI-RAIL MWENS KE 6 MWA DE SA PASKE:

- Pri gaz monté tèt nèg Tren Tri-Rail pasé pi souvan
 Lòt Lékòl/Travay Lòt Rézon (Tanpri éspliké) _____

12. KONBYEN FWA OU PRAN TRI-RAIL:

- Nan yon jou 1 2 3 4 oswa plis fwa pa jou.
 Nan yon sémèn 1 2 3 4 5 6 7 jou pa sémèn
 pa menm yon jou pa sémèn.

13. Nan gwoup mwen yan, genyen (kantité timoun) _____ timoun ak/oswa (kantité granmoun) _____ granmoun ki pa kapab rampli kéksyonè ya.

TANPRI PALE NOU DE OU

ENFOMASYON KE OU BAN NOU AP RETE SAN POU SAN KONFIDANSYEL

14. MWEN ABITE NAN KOD POSTAL:

Kod Postal

15. MWEN VIV NAN SID FLORIDA POU:

- Mwens ké yon mwa pa ané
 youn a 6 mwa pa ané Plis ké 6 mwa pa ané

16. SEKS MWEN SE: MAL FEMEL

17. LAJ MWEN SE: Mwens ké 16 16-24 25-34
 35-44 45-54 55-64 65 oswa Plis

18. PI BON FASON POU DEKRI RAS MWEN SE: (Ou kap tchéké plis ké yon ti bwat.)

- Mériken Endyen Aziatik Nwa/Afriken Mériken
 Panyòl/Ispanik/Laten Blan
 Lòt (Tanpri Dékri Ras ou) _____

19. MWEN NAN: Lékòl Primè Lékòl Ségondè
 Nan Inivèsité Pa Lékòl

20. MWEN GRADYE: Lékòl Primè Lékòl Ségondè /GED
 Inivèsité Pa Apliké

21. MWEN GEN LISANS POU MACHIN KONDI MACHIN: Wi Non

22. REVENI ANYEL LAKAY MWEN SE: Mwens ké \$25,000
 \$25,001-35,000 \$35,001-50,000 \$50,001-75,000
 \$75,001-100,000 Plis ké \$100,000 Mwen pa konnen.

23. KONTE TET PAM, (kantité moun) _____ Moun ki abité lakay mwen é nan yo (kantité moun) _____ ki genyen yon lisans.

24. _____ MACHIN KE MOUN NAN KAY LA POSEDE.
 Kantité machin (Konté Van, Djip, Moto, Vélo ak Kamyonèt)

25. MWEN TE KAB KONDI JODYA MEN MWEN DESIDE POU MACHIN PRAN TRI-RAIL PITO: Wi Non

26. MWEN TE GEN TAN RANPLI YON LOT KEKSYONE JODYA: Wi Non

Kòmantè: _____

Mèsi pou Patisipasyon ou!



Appendix C – Training Manual/Presentation

Tri-Rail On-Board Transit Survey



Surveyor Training Session
October 21, 2008



Gannett Fleming



About the Survey

2

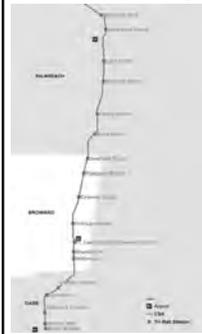
Survey Purpose

- Obtain origin / destination* information from all transit patrons on surveyed trains.
- Obtain relevant demographic information such as age, race, & gender.
- Obtain on/off counts for all trains at each station all day.

* Origin=begin trip, Destination=end trip

3

All Trains will be either Surveyed and/or Counted



- 50 Total Trains
- 30 Trains will have complete Surveys and Door Counts
- 20 Trains will have Door Counts only
- 8 Shifts start at Mangonia Park Tri-Rail Station
- 6 Shifts start at Miami Airport Tri-Rail Station

4

Survey Limits

- The entire 70-mile length of the Tri-Rail service
- Northern Limit – Mangonia Park Station
- Southern Limit- Miami Airport Station
- A total of 18 Stations



5

All Passengers to be Surveyed

- Survey is intended to be self-administered, with interviews as necessary.
- All able passengers over 12 years old are to get a survey form or are to be interviewed.
- Children/minors accompanied by adults will be counted differently. (Refer to Question 13)
- Assisted adults will be counted differently. (Refer to Question 13)
- For Question 13, only one adult is to complete the form for the children and assisted adults.
- Goal is 100% participation with a properly filled out form.

6

Survey Date

Wednesday October 22, 2008

- We only have one chance.
- We will start when service starts at 4:00 AM.
- We will end when service ends at 11:05 PM.
- We will be on EVERY train either surveying and counting or just counting.

Please Note: Today's training will be paid for 4 hours worked **ONLY** if you actually work on Wednesday. Surveyors who attend training but do not work their assigned shift on Wednesday will NOT be paid.

7

Questions?

8

On the Day of the Survey

9

Getting to Tri-Rail

- You must arrive early (approximately half-hour) to allow time for check-in and assembling of your survey materials prior to departure of your assigned train, those who are late may be re-assigned or not allowed to work!
- Due to constrained parking conditions surveyors need to arrange to be dropped off at the station or park at designated places:
- Miami Airport Station – Wyndham Hotel
- Mangonia Park Station – Follow signage
- We prefer surveyors to use "Kiss & Ride".

10

Directions - Miami Airport Station

- **Miami Airport Station**
3797 Northwest 21st Street, Miami 33142
- **Directions from I-95**
Go west on SR-836 to Northwest 37th Avenue. Turn right onto Northwest 37th Avenue (also Douglas Road). Travel 1/2 mile to Northwest 21st Street and turn left on Northwest 21st Street. Travel 1/8 mile. Station is on right.
- **Directions from LeJeune Road**
Take LeJeune Road to Northwest 25th Street. Go east on Northwest 25th Street to Northwest 37th Avenue (also Douglas Road) and turn right. Follow 1/8 mile to Northwest 21st Street and turn right. Station entrance will be on right.
- **Directions from SR-112 (Airport Expressway)**
Take SR-112 to LeJeune Road. Follow LeJeune Road to Northwest 25th Street. East on Northwest 25th Street to Northwest 37th Avenue (also Douglas Road) and turn right. Follow 1/8 mile to Northwest 21st Street and turn right. Station entrance will be on right.

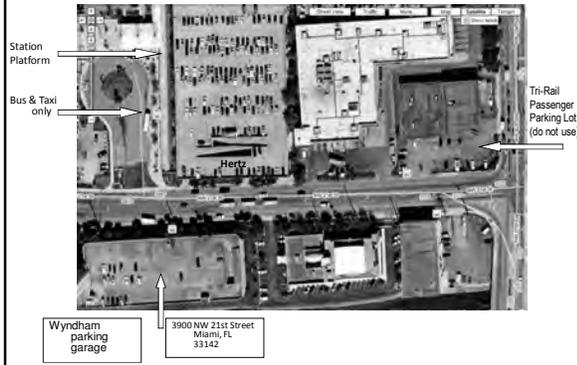
11

Directions - Miami Airport Station



12

Miami Airport Station Parking



Miami Airport Tri-Rail Parking Procedure

- Wyndham Hotel parking garage is open 24-hours and users take a ticket to raise the gate and enter.
- Tuesday and Wednesday only: When associates approach the parking garage gate, they should take a ticket to enter. Have the attendant validate your ticket immediately. Tell the attendant that you are with the GANNETT FLEMING SURVEY PROJECT and your ticket will be validated.
- If there is no attendant present when you enter the garage, take a ticket and park. Upon exiting, you must see an attendant to validate your ticket prior to leaving the garage.
- During the Training Sessions on Tuesday, SFRTA/Tri-Rail will be distributing signs for associates to display on their dashboards to facilitate this process again on Wednesday.

Directions - Mangonia Park Station

- **Mangonia Park Station**
1415 45th Street, West Palm Beach, FL 33407
- **Directions**
I-95 to 45th Street, exit #74. East on 45th Street. After fifth stoplight, turn north onto North Shore Drive. Watch for signs.

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Directions - Mangonia Park Station



Mangonia Park Station Parking

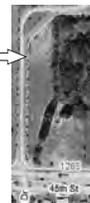


- Lot near platform will be full and is desirable for passengers.
- Parallel parking along chain-link fence and driveway not recommended due to traffic.
- Remote lot is designated for surveyor and supervisor parking.

Mangonia Park Station Surveyor Parking



- Surveyors to park in designated lot off 45th Street
- Use dashboard parking passes

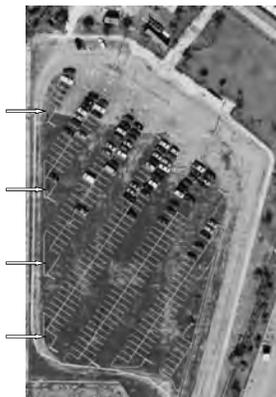


Mangonia Park Station parking

Primary – use lot near 45th Street entrance

Last resort – use “non-regulation” spaces and display parking pass

Parking should remain as available as possible for the faithful Tri-Rail passengers



**Please try to “Kiss & Ride”
if at all possible!!**

20

Questions about parking?

21

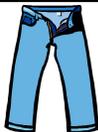
Punctuality

- All surveyors MUST report on time.
 - Recommend you arrive early for your shift.
- The train will leave without you.
- Report to your Station Master upon arrival.
- Please note parking limitations.

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Appearance

- Solid color pants or skirt.
- Clean and non-tattered jeans are acceptable.
- Solid color shirt (no logos or jerseys).
- Comfortable close-toed shoes.
- Limit the amount of jewelry.
- Apron will be provided.
- Digital watches are recommended.



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Hygiene

- Clean and neat clothes.
- Showered and washed hair.
- Clean hands/nails and face.
- Combed/groomed hair.
- Men shaved or groomed facial hair.
- Brushed teeth.
- No gum chewing will be allowed.
- No smoking on train or during station stops.
- Smoking may be allowed at Terminal Stations between trips with permission from Train Captain.

24

Breaks



- Always follow directions from your Train Captain .
- Bring money for vending machines or bring a bagged lunch/snacks. (Do not bring a cooler.)
- Restrooms on trains to be used during breaks or emergencies.
- **Do not get off the train** for breaks unless approved by your Train Captain.

25

Cell Phones

- Only emergency calls to your Train Captain will be allowed.
- Do not answer your phone while on the train.
- Do not call anyone while on the train.
- Please have your phone on silence or vibrate.
- **All violations** of the cell phone policy will result in dismissal by the Train Captain. Dismissed staff will not be paid!



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Reporting

- Report ***on-time*** to the **Station Master**
 - Look for a Table.
 - Sign in at station.
 - Collect your own tote bag and survey kit
 - Survey Cards
 - Envelope
 - Pens
 - Apron
 - Tally Counters
 - Bottles of Water
- Your **Train Captain** will be assigned at check-in.

Michael Moore
Mangonia Park
Station Master
(561) 723-1403

Mary Ross
Miami Airport
Station Master
(813) 230-3914

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Supplies

- Surveys
- Survey Log Sheet / Completed Survey Envelope (1 envelope per person per trip)
- Pens (Can be kept by the riders completing survey)
- Counters
- Official Surveyor Badge (Tri-Rail Pass)
- Apron

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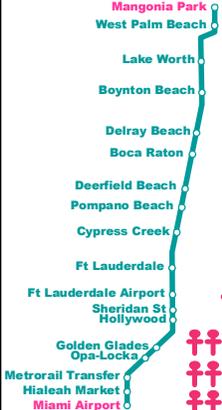
Questions about Reporting?

29

How to Successfully Conduct The Survey

30

Surveying



- Each Team will work together to survey a series of trains
 - Survey 2 to 6 trips, depending on your Run/Shift Assignment
- A series of one-way train trips (north and south) is a "run"
 - You must start a new envelope and record sheet for every trip
 - Your job may vary every trip, depending on your assignment

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Surveyor Assignments

- Check in first with your Train Captain.
- Go to your assigned car and job.
- Your duties will depend on your Assignment.
- Train Captains may make re-assignments throughout the day.

	Coach 1	Coach 2	Cab Car
Counts & Surveys →			
Surveys →			

32

Survey Process

- Surveyors are organized into 14 "runs"
- Each "run" is a team of 10 to 20 people working together on a series of train cars
- Certain trains only have two cars, most have three cars.



Locomotive	Coach	Coach	Cab Car
Surveyors (10 or 15)			
Train Captain (1)			Staff from FDOT & SFRTA may also assist as Train Captains

33

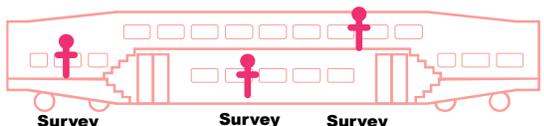
Survey Process



- On each train car 2 counters stand near the doorways and count passengers getting on and off the train.
- Counters are not to interfere with access and egress to and from the car door.

34

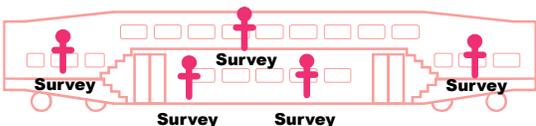
Survey Process



- On each train car 3 surveyors pass out surveys and pens to all riders.
- Make sure all adults are either surveyed or interviewed.
- Collect completed surveys as soon as the rider is finished. Do not allow the finished surveys to be placed on tables or seats. Make sure completed surveys are not lost!

35

Survey Process



- Between stops, everyone (counters & surveyors) help riders with surveys and collect completed surveys from riders.
- Door counters must return to their assigned door and be ready to count prior to the doors opening.
- Pass collected surveys to train captain as often as possible and at least once mid-shift.

36

Handing Out Surveys

- Allow passengers to get seated .
- Always request politely for each passenger to fill out a survey (all able passengers).
- Do not accept an initial refusal. Emphasize importance of survey.
- Be courteous no matter what happens.
- If necessary, offer assistance to anyone who seems to need it.
- Ask the passenger to return the survey to you or another surveyor as soon as the survey is completed.

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Handing Out Surveys

- Keep survey serial numbers of survey questionnaire in order.
- Record starting serial number at each station.
- Do not “share” a survey pad with another surveyor.
- Find the right surveyor if language is an issue.
 - Remember – Survey forms are in three languages.
- Let your Train Captain know immediately of all refusals if possible.
- Pay special attention to young students, elderly and disabled.
- Follow any instructions from your Train Captain.

44

Surveyor Script

Sample Script:

Hello. We are conducting an important survey today and need you to fill out this simple questionnaire. It only takes a few minutes of your time and it will help us improve Tri-Rail service. If you have any questions or need any assistance we are here to help you. Thank You!

45

Surveyor Script

Refusal Script:

It is really important that we get everyone's response to this survey. Your information will help us improve Tri-Rail service. All information will be kept confidential.

If you would like, I can fill in the form for you via an interview. It only takes a minute. Thank You!

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Surveyor Script

Tourist / First Time User Script:

It is really important that we get everyone's response to this survey. You represent an important travel market that we are especially interested in understanding. While you may not be here next week, another tourist will be.

If you would like, I can fill in the form for you via an interview. It only takes a minute. Thank You!

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Surveyor Script

Script for Incorrect Form:

Thanks so much for filling out the form. I am sorry but we need some additional information on question “X” (especially the shaded boxes).

Simply ask them the question and fill it in for them.

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Collecting Surveys

- Be pro-active in collecting surveys so that time allows for corrections / interviews.
- When collecting surveys immediately check responses to questions 1, 2, 4, 5, 7 and 8 (the shaded boxes).
- Politely return to correct these questions.
- Fill out form by interview if necessary.
- Place all completed surveys for that trip in the corresponding envelope and periodically place in box.

49

Review the Survey Before Accepting

- **Questions in shaded boxes are a must for every passenger (Questions #1, 2, 4, 5, 7, & 8)**
- Look for legibility. If you can not read it, ask for clarification and update as appropriate.
- Home address is not required!
- Need the nearest major intersection of two streets (not a town or just one street).
- Fill in their responses if verbal.
- 100% participation is our goal!

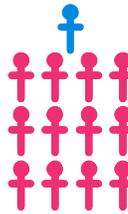
50

Important Definitions

- One-Way Trip
 - Does not start/end at Tri-Rail station
 - Sample: start at home and end at school
 - Sample: start at work and ends at home
- Nearby Intersection
 - North-south street and
 - East-west street
- Tri-Rail Station
 - See posted map on train listing the 18 stations

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Problems or Questions while Surveying



SEE YOUR TRAIN CAPTAIN

- Train Captains will circulate through the train
 - To check your work
 - To answer questions
 - To resolve problems
- Never leave your assigned car without permission from your Train Captain. Never leave the train.
- Stick close to your Train Captain between trips

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Passing Out Surveys



53

Interviewing a Rider



54

Questions about Surveying?

55

"Bad" Examples

56

"Good" Example

57

Record Keeping

- You will be given one of two forms:
 - Surveyor Log
 - Counter / Surveyor Log
- You must record information at each station.

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Surveyor Log

Surveyor
SFPEC Tri-Rail On-Board Survey

Surveyor: T. A. Smith Date: 07/11
 Train: 2008 Station: WILMINGTON
 Onboard: Wilmington

Station	Boarding Time	Alighting Time	Count	Comments
1. Boarding	8:00 AM	8:05:00	80	
2. Boarding	8:05 AM	8:05:15	85	
3. Boarding	8:07 AM	8:07:30	90	
4. Boarding	8:08 AM	8:08:15	95	
5. Boarding	8:09 AM	8:09:30	100	
6. Boarding	8:10 AM	8:10:15	105	
7. Boarding	8:11 AM	8:11:15	110	
8. Boarding	8:12 AM	8:12:15	115	
9. Boarding	8:13 AM	8:13:15	120	
10. Boarding	8:14 AM	8:14:15	125	
11. Boarding	8:15 AM	8:15:15	130	
12. Boarding	8:16 AM	8:16:15	135	
13. Boarding	8:17 AM	8:17:15	140	
14. Boarding	8:18 AM	8:18:15	145	
15. Boarding	8:19 AM	8:19:15	150	
16. Boarding	8:20 AM	8:20:15	155	
17. Boarding	8:21 AM	8:21:15	160	
18. Boarding	8:22 AM	8:22:15	165	
19. Boarding	8:23 AM	8:23:15	170	
20. Boarding	8:24 AM	8:24:15	175	
21. Boarding	8:25 AM	8:25:15	180	
22. Boarding	8:26 AM	8:26:15	185	
23. Boarding	8:27 AM	8:27:15	190	
24. Boarding	8:28 AM	8:28:15	195	
25. Boarding	8:29 AM	8:29:15	200	
26. Boarding	8:30 AM	8:30:15	205	
27. Boarding	8:31 AM	8:31:15	210	
28. Boarding	8:32 AM	8:32:15	215	
29. Boarding	8:33 AM	8:33:15	220	
30. Boarding	8:34 AM	8:34:15	225	
31. Boarding	8:35 AM	8:35:15	230	
32. Boarding	8:36 AM	8:36:15	235	
33. Boarding	8:37 AM	8:37:15	240	
34. Boarding	8:38 AM	8:38:15	245	
35. Boarding	8:39 AM	8:39:15	250	
36. Boarding	8:40 AM	8:40:15	255	
37. Boarding	8:41 AM	8:41:15	260	
38. Boarding	8:42 AM	8:42:15	265	
39. Boarding	8:43 AM	8:43:15	270	
40. Boarding	8:44 AM	8:44:15	275	
41. Boarding	8:45 AM	8:45:15	280	
42. Boarding	8:46 AM	8:46:15	285	
43. Boarding	8:47 AM	8:47:15	290	
44. Boarding	8:48 AM	8:48:15	295	
45. Boarding	8:49 AM	8:49:15	300	
46. Boarding	8:50 AM	8:50:15	305	
47. Boarding	8:51 AM	8:51:15	310	
48. Boarding	8:52 AM	8:52:15	315	
49. Boarding	8:53 AM	8:53:15	320	
50. Boarding	8:54 AM	8:54:15	325	
51. Boarding	8:55 AM	8:55:15	330	
52. Boarding	8:56 AM	8:56:15	335	
53. Boarding	8:57 AM	8:57:15	340	
54. Boarding	8:58 AM	8:58:15	345	
55. Boarding	8:59 AM	8:59:15	350	
56. Boarding	9:00 AM	9:00:15	355	
57. Boarding	9:01 AM	9:01:15	360	
58. Boarding	9:02 AM	9:02:15	365	
59. Boarding	9:03 AM	9:03:15	370	
60. Boarding	9:04 AM	9:04:15	375	
61. Boarding	9:05 AM	9:05:15	380	
62. Boarding	9:06 AM	9:06:15	385	
63. Boarding	9:07 AM	9:07:15	390	
64. Boarding	9:08 AM	9:08:15	395	
65. Boarding	9:09 AM	9:09:15	400	
66. Boarding	9:10 AM	9:10:15	405	
67. Boarding	9:11 AM	9:11:15	410	
68. Boarding	9:12 AM	9:12:15	415	
69. Boarding	9:13 AM	9:13:15	420	
70. Boarding	9:14 AM	9:14:15	425	
71. Boarding	9:15 AM	9:15:15	430	
72. Boarding	9:16 AM	9:16:15	435	
73. Boarding	9:17 AM	9:17:15	440	
74. Boarding	9:18 AM	9:18:15	445	
75. Boarding	9:19 AM	9:19:15	450	
76. Boarding	9:20 AM	9:20:15	455	
77. Boarding	9:21 AM	9:21:15	460	
78. Boarding	9:22 AM	9:22:15	465	
79. Boarding	9:23 AM	9:23:15	470	
80. Boarding	9:24 AM	9:24:15	475	
81. Boarding	9:25 AM	9:25:15	480	
82. Boarding	9:26 AM	9:26:15	485	
83. Boarding	9:27 AM	9:27:15	490	
84. Boarding	9:28 AM	9:28:15	495	
85. Boarding	9:29 AM	9:29:15	500	
86. Boarding	9:30 AM	9:30:15	505	
87. Boarding	9:31 AM	9:31:15	510	
88. Boarding	9:32 AM	9:32:15	515	
89. Boarding	9:33 AM	9:33:15	520	
90. Boarding	9:34 AM	9:34:15	525	
91. Boarding	9:35 AM	9:35:15	530	
92. Boarding	9:36 AM	9:36:15	535	
93. Boarding	9:37 AM	9:37:15	540	
94. Boarding	9:38 AM	9:38:15	545	
95. Boarding	9:39 AM	9:39:15	550	
96. Boarding	9:40 AM	9:40:15	555	
97. Boarding	9:41 AM	9:41:15	560	
98. Boarding	9:42 AM	9:42:15	565	
99. Boarding	9:43 AM	9:43:15	570	
100. Boarding	9:44 AM	9:44:15	575	
101. Boarding	9:45 AM	9:45:15	580	
102. Boarding	9:46 AM	9:46:15	585	
103. Boarding	9:47 AM	9:47:15	590	
104. Boarding	9:48 AM	9:48:15	595	
105. Boarding	9:49 AM	9:49:15	600	
106. Boarding	9:50 AM	9:50:15	605	
107. Boarding	9:51 AM	9:51:15	610	
108. Boarding	9:52 AM	9:52:15	615	
109. Boarding	9:53 AM	9:53:15	620	
110. Boarding	9:54 AM	9:54:15	625	
111. Boarding	9:55 AM	9:55:15	630	
112. Boarding	9:56 AM	9:56:15	635	
113. Boarding	9:57 AM	9:57:15	640	
114. Boarding	9:58 AM	9:58:15	645	
115. Boarding	9:59 AM	9:59:15	650	
116. Boarding	10:00 AM	10:00:15	655	
117. Boarding	10:01 AM	10:01:15	660	
118. Boarding	10:02 AM	10:02:15	665	
119. Boarding	10:03 AM	10:03:15	670	
120. Boarding	10:04 AM	10:04:15	675	
121. Boarding	10:05 AM	10:05:15	680	
122. Boarding	10:06 AM	10:06:15	685	
123. Boarding	10:07 AM	10:07:15	690	
124. Boarding	10:08 AM	10:08:15	695	
125. Boarding	10:09 AM	10:09:15	700	
126. Boarding	10:10 AM	10:10:15	705	
127. Boarding	10:11 AM	10:11:15	710	
128. Boarding	10:12 AM	10:12:15	715	
129. Boarding	10:13 AM	10:13:15	720	
130. Boarding	10:14 AM	10:14:15	725	
131. Boarding	10:15 AM	10:15:15	730	
132. Boarding	10:16 AM	10:16:15	735	
133. Boarding	10:17 AM	10:17:15	740	
134. Boarding	10:18 AM	10:18:15	745	
135. Boarding	10:19 AM	10:19:15	750	
136. Boarding	10:20 AM	10:20:15	755	
137. Boarding	10:21 AM	10:21:15	760	
138. Boarding	10:22 AM	10:22:15	765	
139. Boarding	10:23 AM	10:23:15	770	
140. Boarding	10:24 AM	10:24:15	775	
141. Boarding	10:25 AM	10:25:15	780	
142. Boarding	10:26 AM	10:26:15	785	
143. Boarding	10:27 AM	10:27:15	790	
144. Boarding	10:28 AM	10:28:15	795	
145. Boarding	10:29 AM	10:29:15	800	
146. Boarding	10:30 AM	10:30:15	805	
147. Boarding	10:31 AM	10:31:15	810	
148. Boarding	10:32 AM	10:32:15	815	
149. Boarding	10:33 AM	10:33:15	820	
150. Boarding	10:34 AM	10:34:15	825	
151. Boarding	10:35 AM	10:35:15	830	
152. Boarding	10:36 AM	10:36:15	835	
153. Boarding	10:37 AM	10:37:15	840	
154. Boarding	10:38 AM	10:38:15	845	
155. Boarding	10:39 AM	10:39:15	850	
156. Boarding	10:40 AM	10:40:15	855	
157. Boarding	10:41 AM	10:41:15	860	
158. Boarding	10:42 AM	10:42:15	865	
159. Boarding	10:43 AM	10:43:15	870	
160. Boarding	10:44 AM	10:44:15	875	
161. Boarding	10:45 AM	10:45:15	880	
162. Boarding	10:46 AM	10:46:15	885	
163. Boarding	10:47 AM	10:47:15	890	
164. Boarding	10:48 AM	10:48:15	895	
165. Boarding	10:49 AM	10:49:15	900	
166. Boarding	10:50 AM	10:50:15	905	
167. Boarding	10:51 AM	10:51:15	910	
168. Boarding	10:52 AM	10:52:15	915	
169. Boarding	10:53 AM	10:53:15	920	
170. Boarding	10:54 AM	10:54:15	925	
171. Boarding	10:55 AM	10:55:15	930	
172. Boarding	10:56 AM	10:56:15	935	
173. Boarding	10:57 AM	10:57:15	940	
174. Boarding	10:58 AM	10:58:15	945	
175. Boarding	10:59 AM	10:59:15	950	
176. Boarding	11:00 AM	11:00:15	955	
177. Boarding	11:01 AM	11:01:15	960	
178. Boarding	11:02 AM	11:02:15	965	
179. Boarding	11:03 AM	11:03:15	970	
180. Boarding	11:04 AM	11:04:15	975	
181. Boarding	11:05 AM	11:05:15	980	
182. Boarding	11:06 AM	11:06:15	985	
183. Boarding	11:07 AM	11:07:15	990	
184. Boarding	11:08 AM	11:08:15	995	
185. Boarding	11:09 AM	11:09:15	1000	
186. Boarding	11:10 AM	11:10:15	1005	
187. Boarding	11:11 AM	11:11:15	1010	
188. Boarding	11:12 AM	11:12:15	1015	
189. Boarding	11:13 AM	11:13:15	1020	
190. Boarding	11:14 AM	11:14:15	1025	
191. Boarding	11:15 AM	11:15:15	1030	
192. Boarding	11:16 AM	11:16:15	1035	
193. Boarding	11:17 AM	11:17:15	1040	
194. Boarding	11:18 AM	11:18:15	1045	
195. Boarding	11:19 AM	11:19:15	1050	
196. Boarding	11:20 AM	11:20:15	1055	
197. Boarding	11:21 AM	11:21:15	1060	
198. Boarding	11:22 AM	11:22:15	1065	
199. Boarding	11:23 AM	11:23:15	1070	
200. Boarding	11:24 AM	11:24:15	1075	
201. Boarding	11:25 AM	11:25:15	1080	
202. Boarding	11:26 AM	11:26:15	1085	
203. Boarding	11:27 AM	11:27:15	1090	
204. Boarding	11:28 AM	11:28:15	1095	
205. Boarding	11:29 AM	11:29:15	1100	
206. Boarding	11:30 AM	11:30:15	1105	
207. Boarding	11:31 AM	11:31:15	1110	
208. Boarding	11:32 AM	11:32:15	1115	
209. Boarding	11:33 AM	11:33:15	1120	
210. Boarding	11:34 AM	11:34:15	1125	
211. Boarding	11:35 AM	11:35:15	1130	
212. Boarding	11:36 AM	11:36:15	1135	
213. Boarding	11:37 AM	11:37:15	1140	
214. Boarding	11:38 AM	11:38:15	1145	
215. Boarding	11:39 AM	11:39:15	1150	
216. Boarding	11:40 AM	11:40:15	1155	
217. Boarding	11:41 AM	11:41:15	1160	
218. Boarding	11:42 AM	11:42:15	1165	
219. Boarding	11:43 AM	11:43:15	1170	
220. Boarding	11:44 AM	11:44:15	1175	
221. Boarding	11:45 AM	11:45:15	1180	
222. Boarding	11:46 AM	11:46:15	1185	
223. Boarding	11:47 AM	11:47:15	1190	
224. Boarding	11:48 AM	11:48:15	1195	
225. Boarding	11:49 AM	11:49:15	1200	
226. Boarding	11:50 AM	11:50:15	1205	
227. Boarding	11:51 AM	11:51:15	1210	
228. Boarding	11:52 AM	11:52:15	12	

Duties of Surveyors

- Record serial number of starting questionnaire.
- Pass out survey and pens to all riders in a car.
- Help riders fill out survey cards.
- Collect completed survey cards from riders as soon as complete.

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Duties of Surveyors

- Review all completed survey cards for legibility and completeness before accepting.
- Do not allow completed surveys to be placed on tables or seats.
- Do not switch assignments with other surveyors or counters.
- Be prepared for next station.
- Repeat process at each station.

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Counter / Surveyor Log

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Counter / Surveyor
SFPEC Tri-Rail On-Board SURVEY

Counter / Surveyor: Car:
Date: 09/24/2008 Start Location: SPOTTSPRING
Time: 08:00 End Location: CHRYSTAL PARK

Station	Ons	Offs	Departure Time	Arrival Time	Comments
1. Miami Airport	10		8:02 AM	8:02 AM	
2. Miami Airport		10	8:02 AM	8:02 AM	
3. Miramar	17	10	8:07 AM	8:07 AM	
4. Suncoast	4	17	8:12 AM	8:12 AM	
5. Golden Glades	11	4	8:18 AM	8:18 AM	
6. Westwood		11	8:23 AM	8:23 AM	
7. Doral		11	8:28 AM	8:28 AM	
8. Ft. Lauderdale Airport		11	8:33 AM	8:33 AM	
9. Ft. Lauderdale		11	8:38 AM	8:38 AM	
10. Oakland Park		11	8:43 AM	8:43 AM	
11. Pompano Beach		11	8:48 AM	8:48 AM	
12. Deerfield Beach		11	8:53 AM	8:53 AM	
13. Boca Raton		11	8:58 AM	8:58 AM	
14. Delray Beach		11	9:03 AM	9:03 AM	
15. Pompano Beach		11	9:08 AM	9:08 AM	
16. Lakeridge		11	9:13 AM	9:13 AM	
17. West Palm Beach		11	9:18 AM	9:18 AM	
18. Wellington		11	9:23 AM	9:23 AM	
19. Fort Pierce		11	9:28 AM	9:28 AM	

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Duties of Counters

- Counters will be assigned to one door only.
- Counters will be given two mechanical counters.
- Count all "ons" with one counter.
- Count all "offs" with the other counter.
- Immediately write down the counts on the Counter/Surveyor form upon door closure.
- Reset the counters.

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Additional Duties of Counters

- Begin to assist surveyors/passengers with distribution, filling out and collection of the survey.
- Be prepared for next station.
- Repeat process at each station.
- Follow all instructions from Train Captain.
- **Important!** To start a trip, Counters must count the riders in their car as it leaves the first station and record them as "ONs". There will be no "Offs" at the first station.

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Counters



- Be in the doorway before every stop
- Stand opposite the open door
- Count the riders getting on and off through your door only
 - Use 2 tally counters
 - One for ONs
 - One for OFFs

Train Captain is your Supervisor

- Once you are assigned to a train, the Train Captain is your supervisor and to whom you report.
- Surveyors are to adhere to all pre-established rules and follow any additional instructions from Train Captain.
- Surveyors must work the entire shift until the train has reached the terminal station.
- Insubordination of any kind will not be tolerated and will result in termination of employment.

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Starting a Trip

➤ **EVERYONE !!!**

- Start a new record sheet for every trip
 - Attached to Envelope
- Fill out Surveyor & Car Information:
 - Your Name
 - Your Car Number (the car number is on the inside wall of all cars)

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Survey Envelopes

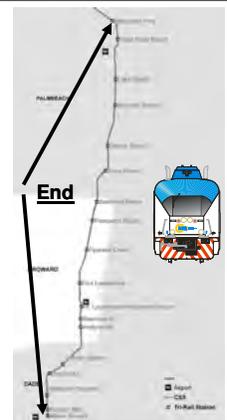
- One envelope per surveyor per trip.
- Be certain that the surveys are handed out in numerical order.
- Do not “share” a pad of surveys with other surveyors.
- Record the beginning serial number on the outside of the envelope at each station.

Important! Make sure you and the other surveyor in your car do not survey the same rider twice!

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Survey Collection

- Gather all the surveys as they are completed and insert them into your envelope labeled for this trip. Periodically hand off your completed surveys to your Train Captain.



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Mangonia Park
West Palm Beach

Lake Worth

Boynton Beach

DeLray Beach

Boca Raton

Deerfield Beach

Pompano Beach

Cypress Creek

Ft Lauderdale

Ft Lauderdale Airport

Sheridan St

Hollywood

Golden Glades

Opa-Locka

MetroRail Transfer

Hialeah Market

Miami Airport

Michael Moore
Mangonia Park
Station Master
(561) 723-1403

Mary Ross
Miami Airport
Station Master
(813) 230-3914

Checking Out

- Wait to be released by your Train Captain
- Report back to the Station Master at the same station you started
 - Sign out at station
 - Return:
 - Leftover Pens
 - Apron
 - Tally Counters
 - Tote Bags

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Scheduling

- Your schedule will be provided to you by Express Professionals.
- Please notify Express Professionals of any scheduling problems as soon as possible!
- Please do not be late for your arrival time.

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Security & Safety

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Questions?

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End of surveyor training

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2
Train Captain
SFPEC Tri-Rail On-Board SURVEY

Train Captain: Date: Line: Train #
 Run: Start Location:
 Train: Rail Location:

STATION	Actual Departure Time	Scheduled Departure Time	Surveys / Passes Completed	Counters Present	Comments
1 Miami Airport	11:21 AM	11:21 AM	0/0	0/0	
2 Doral	11:23 AM	11:23 AM	0/0	0/0	
3 Metairie	11:25 AM	11:25 AM	0/0	0/0	
4 Spaulding	11:27 AM	11:27 AM	0/0	0/0	
5 Doral Station	11:29 AM	11:29 AM	0/0	0/0	
6 Jacksonville	11:31 AM	11:31 AM	0/0	0/0	
7 Orlando Airport	11:33 AM	11:33 AM	0/0	0/0	
8 Ft. Lauderdale	11:35 AM	11:35 AM	0/0	0/0	
9 Ocala	11:37 AM	11:37 AM	0/0	0/0	
10 Gainesville	11:39 AM	11:39 AM	0/0	0/0	
11 Palmdale	11:41 AM	11:41 AM	0/0	0/0	
12 Orlando	11:43 AM	11:43 AM	0/0	0/0	
13 Kissimmee	11:45 AM	11:45 AM	0/0	0/0	
14 Winter Springs	11:47 AM	11:47 AM	0/0	0/0	
15 Sanford	11:49 AM	11:49 AM	0/0	0/0	
16 Leesville	11:51 AM	11:51 AM	0/0	0/0	
17 West Palm Beach	11:53 AM	11:53 AM	0/0	0/0	
18 Ft. Pierce	11:55 AM	11:55 AM	0/0	0/0	
19 Sebring	11:57 AM	11:57 AM	0/0	0/0	
20 Lakeland	11:59 AM	11:59 AM	0/0	0/0	
21 Tampa	12:01 PM	12:01 PM	0/0	0/0	
22 St. Petersburg	12:03 PM	12:03 PM	0/0	0/0	
23 Clearwater	12:05 PM	12:05 PM	0/0	0/0	
24 Dunedin	12:07 PM	12:07 PM	0/0	0/0	
25 Palm Bay	12:09 PM	12:09 PM	0/0	0/0	
26 Titusville	12:11 PM	12:11 PM	0/0	0/0	
27 Melbourne	12:13 PM	12:13 PM	0/0	0/0	
28 Ft. Pierce	12:15 PM	12:15 PM	0/0	0/0	
29 Lakeland	12:17 PM	12:17 PM	0/0	0/0	
30 Winter Springs	12:19 PM	12:19 PM	0/0	0/0	
31 Sanford	12:21 PM	12:21 PM	0/0	0/0	
32 Orlando	12:23 PM	12:23 PM	0/0	0/0	
33 Kissimmee	12:25 PM	12:25 PM	0/0	0/0	
34 Winter Springs	12:27 PM	12:27 PM	0/0	0/0	
35 Sanford	12:29 PM	12:29 PM	0/0	0/0	
36 Orlando	12:31 PM	12:31 PM	0/0	0/0	
37 Kissimmee	12:33 PM	12:33 PM	0/0	0/0	
38 Winter Springs	12:35 PM	12:35 PM	0/0	0/0	
39 Sanford	12:37 PM	12:37 PM	0/0	0/0	
40 Orlando	12:39 PM	12:39 PM	0/0	0/0	
41 Kissimmee	12:41 PM	12:41 PM	0/0	0/0	
42 Winter Springs	12:43 PM	12:43 PM	0/0	0/0	
43 Sanford	12:45 PM	12:45 PM	0/0	0/0	
44 Orlando	12:47 PM	12:47 PM	0/0	0/0	
45 Kissimmee	12:49 PM	12:49 PM	0/0	0/0	
46 Winter Springs	12:51 PM	12:51 PM	0/0	0/0	
47 Sanford	12:53 PM	12:53 PM	0/0	0/0	
48 Orlando	12:55 PM	12:55 PM	0/0	0/0	
49 Kissimmee	12:57 PM	12:57 PM	0/0	0/0	
50 Winter Springs	12:59 PM	12:59 PM	0/0	0/0	
51 Sanford	1:01 PM	1:01 PM	0/0	0/0	
52 Orlando	1:03 PM	1:03 PM	0/0	0/0	
53 Kissimmee	1:05 PM	1:05 PM	0/0	0/0	
54 Winter Springs	1:07 PM	1:07 PM	0/0	0/0	
55 Sanford	1:09 PM	1:09 PM	0/0	0/0	
56 Orlando	1:11 PM	1:11 PM	0/0	0/0	
57 Kissimmee	1:13 PM	1:13 PM	0/0	0/0	
58 Winter Springs	1:15 PM	1:15 PM	0/0	0/0	
59 Sanford	1:17 PM	1:17 PM	0/0	0/0	
60 Orlando	1:19 PM	1:19 PM	0/0	0/0	
61 Kissimmee	1:21 PM	1:21 PM	0/0	0/0	
62 Winter Springs	1:23 PM	1:23 PM	0/0	0/0	
63 Sanford	1:25 PM	1:25 PM	0/0	0/0	
64 Orlando	1:27 PM	1:27 PM	0/0	0/0	
65 Kissimmee	1:29 PM	1:29 PM	0/0	0/0	
66 Winter Springs	1:31 PM	1:31 PM	0/0	0/0	
67 Sanford	1:33 PM	1:33 PM	0/0	0/0	
68 Orlando	1:35 PM	1:35 PM	0/0	0/0	
69 Kissimmee	1:37 PM	1:37 PM	0/0	0/0	
70 Winter Springs	1:39 PM	1:39 PM	0/0	0/0	
71 Sanford	1:41 PM	1:41 PM	0/0	0/0	
72 Orlando	1:43 PM	1:43 PM	0/0	0/0	
73 Kissimmee	1:45 PM	1:45 PM	0/0	0/0	
74 Winter Springs	1:47 PM	1:47 PM	0/0	0/0	
75 Sanford	1:49 PM	1:49 PM	0/0	0/0	
76 Orlando	1:51 PM	1:51 PM	0/0	0/0	
77 Kissimmee	1:53 PM	1:53 PM	0/0	0/0	
78 Winter Springs	1:55 PM	1:55 PM	0/0	0/0	
79 Sanford	1:57 PM	1:57 PM	0/0	0/0	
80 Orlando	1:59 PM	1:59 PM	0/0	0/0	
81 Kissimmee	2:01 PM	2:01 PM	0/0	0/0	
82 Winter Springs	2:03 PM	2:03 PM	0/0	0/0	
83 Sanford	2:05 PM	2:05 PM	0/0	0/0	
84 Orlando	2:07 PM	2:07 PM	0/0	0/0	
85 Kissimmee	2:09 PM	2:09 PM	0/0	0/0	
86 Winter Springs	2:11 PM	2:11 PM	0/0	0/0	
87 Sanford	2:13 PM	2:13 PM	0/0	0/0	
88 Orlando	2:15 PM	2:15 PM	0/0	0/0	
89 Kissimmee	2:17 PM	2:17 PM	0/0	0/0	
90 Winter Springs	2:19 PM	2:19 PM	0/0	0/0	
91 Sanford	2:21 PM	2:21 PM	0/0	0/0	
92 Orlando	2:23 PM	2:23 PM	0/0	0/0	
93 Kissimmee	2:25 PM	2:25 PM	0/0	0/0	
94 Winter Springs	2:27 PM	2:27 PM	0/0	0/0	
95 Sanford	2:29 PM	2:29 PM	0/0	0/0	
96 Orlando	2:31 PM	2:31 PM	0/0	0/0	
97 Kissimmee	2:33 PM	2:33 PM	0/0	0/0	
98 Winter Springs	2:35 PM	2:35 PM	0/0	0/0	
99 Sanford	2:37 PM	2:37 PM	0/0	0/0	
100 Orlando	2:39 PM	2:39 PM	0/0	0/0	
101 Kissimmee	2:41 PM	2:41 PM	0/0	0/0	
102 Winter Springs	2:43 PM	2:43 PM	0/0	0/0	
103 Sanford	2:45 PM	2:45 PM	0/0	0/0	
104 Orlando	2:47 PM	2:47 PM	0/0	0/0	
105 Kissimmee	2:49 PM	2:49 PM	0/0	0/0	
106 Winter Springs	2:51 PM	2:51 PM	0/0	0/0	
107 Sanford	2:53 PM	2:53 PM	0/0	0/0	
108 Orlando	2:55 PM	2:55 PM	0/0	0/0	
109 Kissimmee	2:57 PM	2:57 PM	0/0	0/0	
110 Winter Springs	2:59 PM	2:59 PM	0/0	0/0	
111 Sanford	3:01 PM	3:01 PM	0/0	0/0	
112 Orlando	3:03 PM	3:03 PM	0/0	0/0	
113 Kissimmee	3:05 PM	3:05 PM	0/0	0/0	
114 Winter Springs	3:07 PM	3:07 PM	0/0	0/0	
115 Sanford	3:09 PM	3:09 PM	0/0	0/0	
116 Orlando	3:11 PM	3:11 PM	0/0	0/0	
117 Kissimmee	3:13 PM	3:13 PM	0/0	0/0	
118 Winter Springs	3:15 PM	3:15 PM	0/0	0/0	
119 Sanford	3:17 PM	3:17 PM	0/0	0/0	
120 Orlando	3:19 PM	3:19 PM	0/0	0/0	
121 Kissimmee	3:21 PM	3:21 PM	0/0	0/0	
122 Winter Springs	3:23 PM	3:23 PM	0/0	0/0	
123 Sanford	3:25 PM	3:25 PM	0/0	0/0	
124 Orlando	3:27 PM	3:27 PM	0/0	0/0	
125 Kissimmee	3:29 PM	3:29 PM	0/0	0/0	
126 Winter Springs	3:31 PM	3:31 PM	0/0	0/0	
127 Sanford	3:33 PM	3:33 PM	0/0	0/0	
128 Orlando	3:35 PM	3:35 PM	0/0	0/0	
129 Kissimmee	3:37 PM	3:37 PM	0/0	0/0	
130 Winter Springs	3:39 PM	3:39 PM	0/0	0/0	
131 Sanford	3:41 PM	3:41 PM	0/0	0/0	
132 Orlando	3:43 PM	3:43 PM	0/0	0/0	
133 Kissimmee	3:45 PM	3:45 PM	0/0	0/0	
134 Winter Springs	3:47 PM	3:47 PM	0/0	0/0	
135 Sanford	3:49 PM	3:49 PM	0/0	0/0	
136 Orlando	3:51 PM	3:51 PM	0/0	0/0	
137 Kissimmee	3:53 PM	3:53 PM	0/0	0/0	
138 Winter Springs	3:55 PM	3:55 PM	0/0	0/0	
139 Sanford	3:57 PM	3:57 PM	0/0	0/0	
140 Orlando	3:59 PM	3:59 PM	0/0	0/0	
141 Kissimmee	4:01 PM	4:01 PM	0/0	0/0	
142 Winter Springs	4:03 PM	4:03 PM	0/0	0/0	
143 Sanford	4:05 PM	4:05 PM	0/0	0/0	
144 Orlando	4:07 PM	4:07 PM	0/0	0/0	
145 Kissimmee	4:09 PM	4:09 PM	0/0	0/0	
146 Winter Springs	4:11 PM	4:11 PM	0/0	0/0	
147 Sanford	4:13 PM	4:13 PM	0/0	0/0	
148 Orlando	4:15 PM	4:15 PM	0/0	0/0	
149 Kissimmee	4:17 PM	4:17 PM	0/0	0/0	
150 Winter Springs	4:19 PM	4:19 PM	0/0	0/0	
151 Sanford	4:21 PM	4:21 PM	0/0	0/0	
152 Orlando	4:23 PM	4:23 PM	0/0	0/0	
153 Kissimmee	4:25 PM	4:25 PM	0/0	0/0	
154 Winter Springs	4:27 PM	4:27 PM	0/0	0/0	
155 Sanford	4:29 PM	4:29 PM	0/0	0/0	
156 Orlando	4:31 PM	4:31 PM	0/0	0/0	
157 Kissimmee	4:33 PM	4:33 PM	0/0	0/0	
158 Winter Springs	4:35 PM	4:35 PM	0/0	0/0	
159 Sanford	4:37 PM	4:37 PM	0/0	0/0	
160 Orlando	4:39 PM	4:39 PM	0/0	0/0	
161 Kissimmee	4:41 PM	4:41 PM	0/0	0/0	
162 Winter Springs	4:43 PM	4:43 PM	0/0	0/0	
163 Sanford	4:45 PM	4:45 PM	0/0	0/0	
164 Orlando	4:47 PM	4:47 PM	0/0	0/0	
165 Kissimmee	4:49 PM	4:49 PM	0/0	0/0	
166 Winter Springs	4:51 PM	4:51 PM	0/0	0/0	
167 Sanford	4:53 PM	4:53 PM	0/0	0/0	
168 Orlando	4:55 PM	4:55 PM	0/0	0/0	
169 Kissimmee	4:57 PM	4:57 PM	0/0	0/0	
170 Winter Springs	4:59 PM	4:59 PM	0/0	0/0	
171 Sanford	5:01 PM	5:01 PM	0/0	0/0	
172 Orlando	5:03 PM	5:03 PM	0/0	0/0	
173 Kissimmee	5:05 PM	5:05 PM	0/0	0/0	
174 Winter Springs	5:07 PM	5:07 PM	0/0	0/0	
175 Sanford	5:09 PM	5:09 PM	0/0	0/0	
176 Orlando	5:11 PM	5:11 PM	0/0	0/0	
177 Kissimmee	5:13 PM	5:13 PM	0/0	0/0	
178 Winter Springs	5:15 PM	5:15 PM	0/0	0/0	
179 Sanford	5:17 PM	5:17 PM	0/0	0/0	
180 Orlando	5:19 PM	5:19 PM	0/0	0/0	
181 Kissimmee	5:21 PM	5:21 PM	0/0	0/0	
182 Winter Springs	5:23 PM	5:23 PM	0/0	0/0	
183 Sanford	5:25 PM	5:25 PM	0/0	0/0	
184 Orlando	5:27 PM	5:27 PM	0/0	0/0	
185 Kissimmee	5:29 PM	5:29 PM	0/0	0/0	
186 Winter Springs	5:31 PM	5:31 PM	0/0	0/0	
187 Sanford	5:33 PM	5:33 PM	0/0	0/0	
188 Orlando	5:35 PM	5:35 PM	0/0	0/0	
189 Kissimmee	5:37 PM	5:37 PM	0/0	0/0	
190 Winter Springs	5:39 PM	5:39 PM	0/0	0/0	
191 Sanford	5:41 PM	5:41 PM	0/0	0/0	
192 Orlando	5:43 PM	5:43 PM	0/0	0/0	
193 Kissimmee	5:45 PM	5:45 PM	0/0	0/0	
194 Winter Springs	5:47 PM	5:47 PM	0/0	0/0	
195 Sanford	5:49 PM	5:49 PM	0/0	0/0	
196 Orlando	5:51 PM	5:51 PM	0/0	0/0	
197 Kissimmee	5:53 PM	5:53 PM	0/0	0/0	
198 Winter Springs	5:55 PM	5:55 PM	0/0	0/0	
199 Sanford	5:57 PM	5:57 PM	0/0	0/0	
200 Orlando	5:59 PM	5:59 PM	0/0	0/0	
201 Kissimmee	6:01 PM	6:01 PM	0/0	0/0	
202 Winter Springs	6:03 PM	6:03 PM	0/0	0/0	
203 Sanford	6:05 PM	6:05 PM	0/0	0/0	
204 Orlando	6:07 PM	6:07 PM	0/0	0/0	
205 Kissimmee	6:09 PM	6:09 PM	0/0	0/0	
206 Winter Springs	6:11 PM	6:11 PM	0/0	0/0	
207 Sanford	6:13 PM	6:13 PM	0/0	0/0	
208 Orlando	6:15 PM	6:15 PM	0/0	0/0	
209 Kissimmee	6:17 PM	6:17 PM	0/0	0/0	
210 Winter Springs	6:19 PM	6:19 PM	0/0	0/0	
211 Sanford	6:21 PM	6:21 PM	0/0	0/0	
212 Orlando	6:23 PM	6:23 PM	0/0	0/0	
213 Kissimmee	6:25 PM	6:25 PM	0/0	0/0	
214 Winter Springs	6:27 PM	6:27 PM	0/0	0/0	
215 Sanford	6:29 PM	6:29 PM	0/0	0/0	
216 Orlando	6:31 PM	6:31 PM	0/0	0/0	
217 Kissimmee	6:33 PM	6:33 PM	0/0	0/0	
218 Winter Springs	6:35 PM	6:35 PM	0/0	0/0	

Even More Train Captain Duties

- Make sure that all surveyors are actively giving out surveys and reviewing for acceptance.
- Assist with the survey distribution and collection.
- Assist those having difficulty with the survey.
- Convince those unwilling to take the survey to participate in a very nice manner.
- Walk through the train and answer questions from riders and your group.
- Assist where needed.
- Synchronize watches to cell phone time.
- Lunches will be provided for train captains.

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Even More Train Captain Duties

- Complete at least one walk-through on the entire train per station.
- Keep your assigned surveyors and counters motivated and focused at all times.
- An important duty is safeguarding the completed surveys. Try to gather often from the surveyors.
- Return all completed surveys to the Station Masters at the end of each trip.
- Collect all envelopes from your assigned surveyors. Count to make sure you have all envelopes.

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Contingency Plans

- Train cancellation – Call Central Control immediately, Terry to reroute
- Train delays – Document and wait
- Staff shortage – Reduce Surveyors. Door Counts must be maintained.
- Poor weather – Report and do your best
- Other - Call central control

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Appendix D – Tri-Rail Station Auxiliary Rider Survey

Memorandum

TO: Scott Seeburger
FROM: Peter Haliburton, Jessica Vargas, Peng Zhu
DATE: January 26, 2009
RE: 2008 Tri-Rail station-based survey – Summary of Results

As requested by FDOT D4, Cambridge Systematics completed a station-based Tri-Rail rider survey to complement the on-board survey conducted by Gannett Fleming for the purpose of capturing travel patterns of passengers. The results of the Tri-Rail station rider survey will be used to calibrate the regional travel demand model, responding to FTA requests.

The following memo briefly summarizes the survey methodology, the data collection plan, and the survey results of the 2008 Tri-Rail station rider survey.

Survey Methodology

The supplemental Tri-Rail station rider surveys included five survey elements:

1. Overnight parked vehicles counts
2. Mode-of-access counts
3. Rider's journey length interview
4. Alighting passenger counts
5. Mode-of-egress counts

Surveys were conducted over a four-week period between October 21, 2008 and November 14, 2008 at 14 of Tri-Rail's 18 stations as shown in Table 1.

These stations were selected from the list of all stations for exhibiting characteristics (in the 2007 on-board survey) of having one or more of the following conditions:

- high auto egress mode
- large number of short (one or two station) trips

Table 1 - Tri-Rail Stations Surveyed

Station	Parked Vehicles	Access Mode	Trip Length	Alighting Counts	Egress Mode
1. Mangonia Park	✓	✓	✓	✓	✓
2. West Palm Beach	✓	✓	✓	✓	✓
3. Lake Worth			✓		✓
4. Boynton Beach	✓	✓	✓	✓	✓
5. Delray Beach					
6. Boca Raton	✓	✓	✓	✓	✓
7. Deerfield Beach	✓	✓	✓	✓	✓
8. Pompano Beach			✓		✓
9. Cypress Creek	✓	✓	✓	✓	✓
10. Ft Lauderdale	✓	✓	✓	✓	✓
11. Ft Lauderdale Int'l Airport	✓	✓	✓	✓	✓
12. Sheridan					
13. Hollywood	✓	✓	✓	✓	✓
14. Golden Glades	✓	✓	✓	✓	✓
15. Opa-Locka					
16. MetroRail	✓	✓	✓	✓	✓
17. Hialeah Market					
18. Miami International Airport	✓	✓	✓	✓	✓

The five survey elements mentioned earlier were conducted at 12 of these stations. At two stations, Lake Worth and Pompano Beach, only Trip Length and Auto Egress Mode were surveyed.

Survey data was collected in five steps.

1. Overnight parking at 14 Tri-Rail stations was counted about 30 minutes prior to the arrival of the first train at that station. The first train southbound departed Mangonia Park station at 4:00 am and the first train northbound departed Miami International Airport station at 4:20 am.
2. Passengers' mode-of-access for each train in each direction (northbound and southbound), at 12 stations were observed and collected using mode choices consistent with those used for the on-board survey:
 - a. Walk
 - b. Bike
 - c. Taxi
 - d. School bus
 - e. MetroRail
 - f. Transit Bus
 - g. Tri-Rail Shuttle
 - h. Drove and parked
 - i. Rideshare and parked
 - j. Drop-off at station
 - k. Other
3. Interviews to passengers waiting to board each train at each of the 14 stations were conducted to collect their travel distance information. The travel distance was defined

as the number of stations a passenger was traveling and described as 1, 2, or 3+ stations.

4. Total numbers of alighting passengers for each train at 12 stations were counted.
5. Exiting passengers' mode-of-egress for each train at 14 stations were observed and collected:
 - a. Walk
 - b. Bike
 - c. Taxi
 - d. School bus
 - e. MetroRail
 - f. Transit Bus
 - g. Tri-Rail Shuttle
 - h. Drive a vehicle parked at station
 - i. Rideshare in vehicle parked at station
 - j. Pickup at station
 - k. Other

Data Collection Plan

A data collection plan was developed to direct the survey effort at each station based on field visits and aerial photo reviews of each of the 14 stations. According to the station configuration (i.e., number of entrances, number of parking lots, overhead bridge or at-grade crossings, etc.), the number, and positions of survey staff at the station were established.

Prior to the arrival of the first train at each of the stations, the survey crew assembled and reviewed the data collection plan and materials to clarify any modifications needed to make sure all survey elements were collected effectively and efficiently. For example, some minor adjustments or reassignments of surveyors were necessary at some stations with multiple entrances and multiple parking lots. During data collection, the survey crew regrouped several times to make sure data collection was going smoothly and to make additional adjustments to the data collection plan if necessary.

At least four counters were necessary at each of the stations, except at Lake Worth and Pompano Beach where only trip length and egress mode was collected by two counters. One of the surveyors was responsible of arriving at the station at least 30 minutes prior to the first train to count the number of overnight parked cars at the station parking lot(s). Two counters, one at each platform, collected trip length and alighting counts at each platform. As riders accessed the platform and waited for the train, they were interviewed about their trip length (1, 2, or 3 or more stations). Just before the train arrived, surveyors performed a boarding count. Alighting counts were made from one end of the platform when train doors opened and those carrying their bikes out the train were noted.

The other two to four counters surveyed station access and egress mode at different positions around the station entrances and other access points where they could efficiently observe how Tri-Rail passengers accessed and left each station. To facilitate the data collection of access and egress mode, non-auto modes were assigned to at least one counter who was observing access and egress mode by walking, transit bus, MetroRail, school bus, Tri-Rail shuttle, and bike. The

other counter(s) was observing access and egress mode by auto: park-n-ride, rideshare-n-park, pick-up or drop-off, and taxi.

Table 2 summarizes the data collection plan, and shows the start and end times at each station, the location or position of each counter and the survey element collected.

Table 2 – Data Collection Plan

Station	Survey Starting Time **	First Train Surveyed	Last Train Surveyed	Total Number of Counters	Surveyor Positions			
					Platforms (NB & SB)	Station Entrances	Other	Other - Note
		SB/NB			Trip Length and Alighting Counts	Access/Egress Mode	Access/Egress Mode	
Mangonia Park	3:30	4:00	13:45	4	2	2		
West Palm Beach	3:35	4:06	13:34	5	2	3		
Lake Worth *	3:45	4:14	12:23	2	2			
Boynton Beach	3:50	4:19	13:19	4	2	2		
Boca Raton	4:00	4:32	13:04	5	2	3		
Deerfield Beach	4:20	4:39	12:57	5	2	3		
Pompano Beach *	4:30	4:43	12:52	2	2			
Cypress Creek	4:20	4:49	12:46	5	2	2	1	1 outside the station observing access/egress mode from the parking lot across the street.
Ft Lauderdale	4:30	4:56	12:40	4	2	2		
Ft Lauderdale Int'l Airport	4:30	4:52	13:03	4	2	2		
Hollywood	4:20	4:46	13:11	5	2	3		
Golden Glades	4:10	4:38	13:20	6	2	3	1	1 observing people crossing to/from Metrobus station
MetroRail	4:00	4:27	13:33	5	2	2	1	1 observing access/egress mode from/to MetroRail trains/station.
Miami Intl. Airport	3:50	4:20	13:45	4	2	2		

* Only trip length and egress mode data was collected at these stations.

** Data collection started with overnight parking counts conducted by one of the survey crew.

Survey Results

Error! Reference source not found. through Error! Reference source not found.8 present a series of survey results including overnight parking counts, access modes, travel distance queries, boarding and alighting counts, and egress modes. More detailed by-station level of information is provided in Appendix A.

Overnight Parking

Table 3 lists overnight parking counts performed for 13 stations. Note that only travel distance was surveyed for Lake Worth station.

Table 3 - Overnight Parking

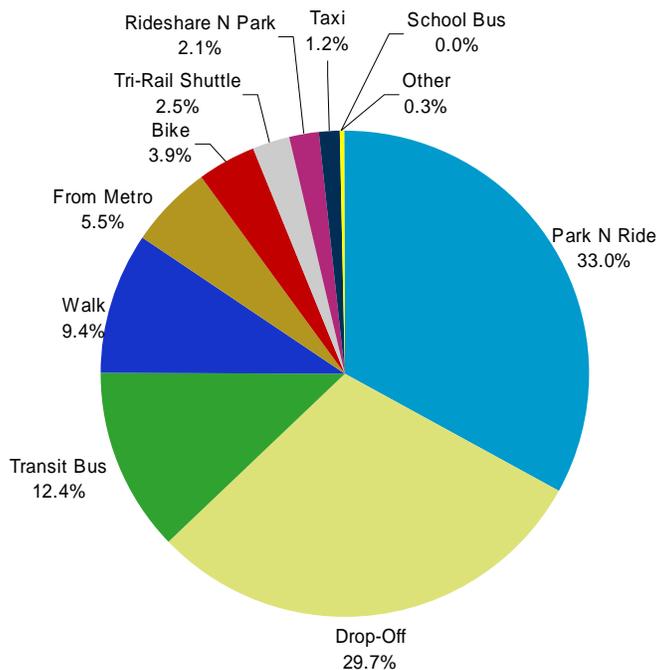
Station	Overnight Parking	Amtrak	Bikes
Mangonia Park	77		
West Palm Beach	45		
Lake Worth	NA		
Boynton Beach	21		
Delray Beach	NA		
Boca Raton	41		
Deerfield Beach	49		11
Pompano Beach	24		5
Cypress Creek	42		
Ft Lauderdale	29	4	
Ft Lauderdale Int. Airport	54		5
Sheridan	NA		
Hollywood	35	13	
Golden Glades	16		
Opa-Locka	NA		
MetroRail	5		
Hialeah	NA		
Miami Int. Airport	71		

Mode of Access

Table 4 summarizes access mode counts observed during the survey. 35 percent of all observed riders reached Tri-Rail stations by single occupancy vehicles. About 31% of all riders were dropped. Carpool and Taxi accounted for about four percent of total boarding passengers. In total, out of 5,300 total riders observed, about 3,500 accessed stations by auto mode, which accounted for 70%.

Table 4 - Access Modes (All Stations)

Access Mode	Counts	Percent
Park N Ride	1,743	33.0%
Drop-Off	1,571	29.7%
Transit Bus	656	12.4%
Walk	498	9.4%
Bike	205	3.9%
Tri-Rail Shuttle	131	2.5%
Rideshare N Park	111	2.1%
Taxi	64	1.2%
School Bus	0	0.0%
From Metro	288	5.5%
Other	17	0.3%
Total	5,284	100.0%



Travel Distance

Table 5 shows travel distance counts observed during the survey. More than 80 percent of all observed riders traveled three or more stations. About nine percent traveled two stations. Only three percent traveled one station. Table 6 further exams those pair destinations where short trips are more likely to occur. Such pair stations include: West Palm Beach - Lake Worth, West Palm Beach - Boynton Beach, Boynton Beach - Boca Raton, Boca Raton - Deerfield Beach, Boca Raton - Pompano Beach, Pompano Beach - Fort Lauderdale, Cypress Creek - Fort Lauderdale Airport, Golden Glades - MetroRail.

Table 5 - Travel Distance I

Direction	Total	Percent
1 Station	181	3.0%
2 Stations	530	8.8%
3+ Stations	4,854	80.3%
Unknown	478	7.9%
Total	6,043	100.0%

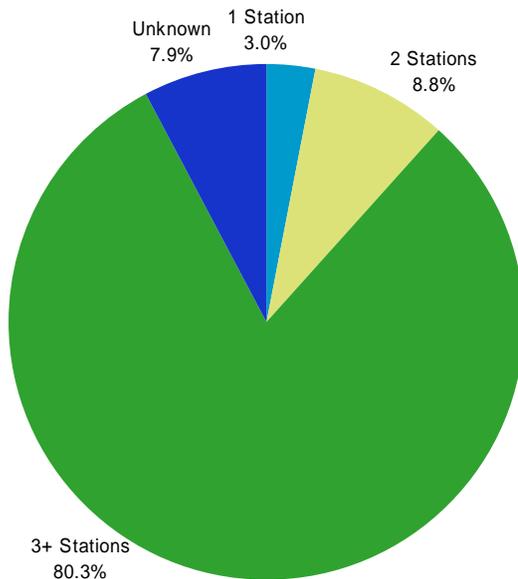


Table 6 - Travel Distance II

Station	Travel Distance	Northbound		Southbound		Total	
		#	%	#	%	#	%
Mangonia Park	1 Station	0	-	6	2%	6	2%
	2 Stations	0	-	2	1%	2	1%
	3+ Stations	0	-	324	85%	324	85%
	Unknown	0	-	47	12%	47	12%
	Total	0	-	379	100%	379	100%
West Palm Beach	1 Station	9	100%	4	1%	13	4%
	2 Stations	0	0%	7	2%	7	2%
	3+ Stations	0	0%	254	77%	254	75%
	Unknown	0	0%	63	19%	63	19%
	Total	9	100%	328	100%	337	100%
Lake Worth	1 Station	35	31%	8	2%	43	8%
	2 Stations	79	69%	19	5%	98	19%
	3+ Stations	0	0%	383	93%	383	73%
	Unknown	0	0%	0	0%	0	0%
	Total	114	100%	410	100%	524	100%
Boynton Beach	1 Station	8	3%	3	1%	11	2%
	2 Stations	119	41%	37	11%	156	25%
	3+ Stations	163	56%	296	88%	459	73%
	Unknown	0	0%	0	0%	0	0%
	Total	290	100%	336	100%	626	100%
Delray Beach							
Boca Raton	1 Station	2	1%	2	1%	4	1%
	2 Stations	4	2%	6	3%	10	2%
	3+ Stations	216	97%	171	96%	387	97%
	Unknown	0	0%	0	0%	0	0%
	Total	222	100%	179	100%	401	100%
Deerfield Beach	1 Station	18	11%	9	4%	27	6%
	2 Stations	11	7%	14	6%	25	6%
	3+ Stations	114	69%	212	84%	326	78%
	Unknown	22	13%	18	7%	40	10%
	Total	165	100%	253	100%	418	100%
Pompano Beach	1 Station	12	7%	5	3%	17	5%
	2 Stations	53	32%	18	10%	71	21%
	3+ Stations	85	51%	144	83%	229	67%
	Unknown	17	10%	7	4%	24	7%
	Total	167	100%	174	100%	341	100%

Station	Travel Distance	Northbound		Southbound		Total	
		#	%	#	%	#	%
Cypress Creek	1 Station	8	4%	6	2%	14	3%
	2 Stations	15	7%	12	4%	27	6%
	3+ Stations	181	83%	220	82%	401	83%
	Unknown	14	6%	30	11%	44	9%
	Total	218	100%	268	100%	486	100%
Ft. Lauderdale	1 Station	3	1%	3	1%	6	1%
	2 Stations	4	1%	6	2%	10	2%
	3+ Stations	231	79%	203	80%	434	79%
	Unknown	56	19%	42	17%	98	18%
	Total	294	100%	254	100%	548	100%
Ft. Lauderdale Int. Airport	1 Station	4	2%	0	0%	4	1%
	2 Stations	19	11%	5	2%	24	6%
	3+ Stations	128	73%	204	95%	332	85%
	Unknown	25	14%	6	3%	31	8%
	Total	176	100%	215	100%	391	100%
Sheridan							
Hollywood	1 Station	1	0%	3	2%	4	1%
	2 Stations	1	0%	7	4%	8	2%
	3+ Stations	181	90%	137	77%	318	84%
	Unknown	19	9%	30	17%	49	13%
	Total	202	100%	177	100%	379	100%
Golden Glades	1 Station	7	2%	2	2%	9	2%
	2 Stations	6	2%	42	35%	48	11%
	3+ Stations	248	81%	75	63%	323	76%
	Unknown	47	15%	0	0%	47	11%
	Total	308	100%	119	100%	427	100%
Opa-Locka							
MetroRail	1 Station	21	5%	0	0%	21	4%
	2 Stations	19	4%	16	100%	35	7%
	3+ Stations	410	91%	0	0%	410	88%
	Unknown	2	0%	0	0%	2	0%
	Total	452	100%	16	100%	468	100%
Hialeah Market							
Miami Int. Airport	1 Station	2	1%	0	-	2	1%
	2 Stations	9	3%	0	-	9	3%
	3+ Stations	274	86%	0	-	274	86%
	Unknown	33	10%	0	-	33	10%
	Total	318	100%	0	-	318	100%

Boarding and Alighting Counts

Table 7 summarizes boarding and alighting counts taken at the 12 stations. The station with the highest total activities is the MetroRail station which connects Tri-Rail with MetroRail route.

Table 7 - Boarding and Alighting Counts

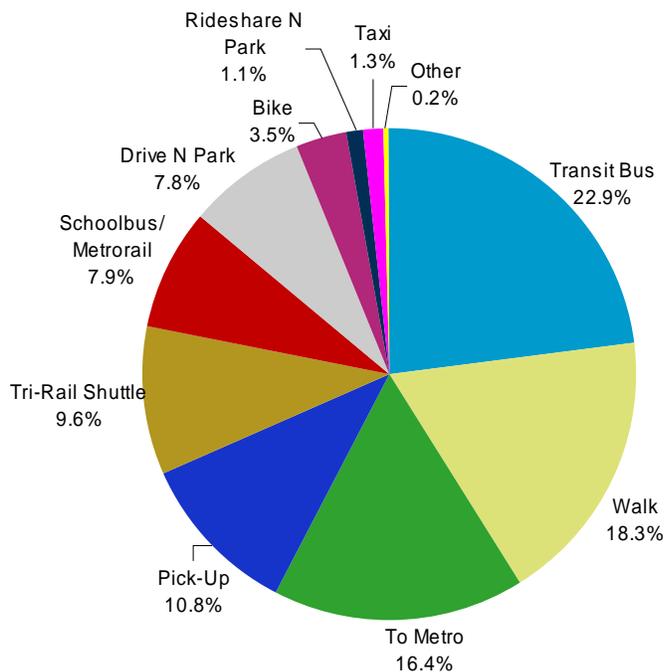
Station	Boarding Counts			Alighting Counts			Sum
	NB	SB	Total	NB	SB	Total	
Mangonia Park	0	379	379	663	0	663	1,042
West Palm Beach	9	332	341	651	12	663	1,004
Lake Worth							
Boynton Beach	300	336	636	86	27	113	749
Delray Beach							
Boca Raton	222	179	401	425	222	647	1,048
Deerfield Beach	165	253	418	195	130	325	743
Pompano Beach							
Cypress Creek	218	268	486	320	330	650	1,136
Ft. Lauderdale	290	254	544	197	166	363	907
Ft. Lauderdale Airport	176	215	391	137	237	374	765
Sheridan							
Hollywood	202	177	379	97	104	201	580
Golden Glades	308	119	427	23	168	191	618
Opa-Locka							
MetroRail	452	16	468	11	1,107	1,118	1,586
Hialeah Market							
Miami Intl. Airport	318	0	318	0	613	613	931
Total	2,660	2,528	5,188	2,805	3,116	5,921	11,109

Modes of Egress

Table 8 summarizes egress mode counts observed during the survey. Comparing with high auto access percent, auto egress (pick-up, drive-and-park, rideshare-and-park, and taxi) percent is not as high. Auto egress accounted for about 21 percent of total riders, where pick-up is about 11 percent, drive-and-park eight percent, rideshare-and-park one percent, and taxi one percent.

Table 8 - Egress Modes

Egress Mode	Counts	Percent
Transit Bus	1,399	22.9%
Walk	1,114	18.3%
To Metro	1,002	16.4%
Pick-Up	660	10.8%
Tri-Rail Shuttle	587	9.6%
School bus/ MetroRail	485	7.9%
Drive N Park	477	7.8%
Bike	214	3.5%
Rideshare N Park	68	1.1%
Taxi	80	1.3%
Other	15	0.2%
Total	6,101	100.0%



Observations

During the data collection process, surveyors encountered operating issues, observed passenger behaviors, and received comments from passengers. They were summarized given their potential implications for survey accuracy and data collection efforts. Comments from Tri-Rail passengers and some other observations were also summarized. A brief summary is presented below. A complete summary of the data collection observations are presented in Appendix B.

- **Passenger Comments:** Several Tri-Rail passengers expressed their opinion about Tri-Rail service and operations. One of the most frequent comments was the request for more frequent train service especially during non-peak hours. Several passengers indicated shuttle connections were CRITICAL to their journey, and they would be happy to pay for this service. Additional parking spaces were also requested.
- **Amtrak/CSX Conflicts and Related Issues:** The most disruptive issue observed was the switching of platforms for northbound or southbound Tri-Rail trains resulting from conflicts with Amtrak or CSX. This caused several passengers – especially the elderly, those with luggage or unfamiliar travelers – to miss their train. At some stations, ambassadors worked hard to inform passengers of the changes, but inevitably missed a few passengers. A much more effective system of information – with coordinated announcements and message boards – is needed to address this issue.

In many instances, it was difficult for surveyors to distinguish Amtrak passengers from Tri-Rail passengers for the purposes of counting and interviewing.

- **Tri-Rail Operation Issues:** There were several instances of inaccurate PA system announcements of train arrival or delay. For example, announcements were made of the late arrival of a train when the previous train bound in the same direction had not yet arrived at the station. Ticket machine operation was another problem. This included several instances when the machine reported being full (of dollar notes) and therefore was unable to accept payment by cash.
- **Tri-Rail User Behaviors:** Observed passenger behaviors like bike riding around the station and waiting until the train horns to board the train challenged survey accuracy.
- **Overnight parking:** Many vehicles were observed parked overnight at stations, with no apparent relationship to Tri-Rail. At several stations, business vans are apparently parked overnight, with the drivers arriving early in the morning to leave a private vehicle and drive off in the van. Drivers were also observed to make exchanges between two vans or two private automobiles. Carpoolers were also observed to arrive in several vehicles and consolidate in one, leaving the remaining vehicles parked at the station.
- **Station-Specific Behaviors:** Some behaviors and conditions observed were only at specific stations due to the unique geometry, layout, and/or access condition of those stations, notably those with Amtrak service. For example, it was challenging to see

where all passengers were coming from or going to at those stations that are accessed and exited from both sides and both ends of each platform.

Appendix A. Summary of Survey Results

Station	Direction	TRAVEL DISTANCE					Boarding Counts	ACCESS MODE												
		1 station	2 stations	3+ stations	Unknown	Total		Walk	Bike	School Bus	Transit Bus	Tri-Rail Shuttle	Park N Ride	Rideshare N Park	Taxi	Drop-Off	From Metro	Other	SUM	
Mangonia Park	NB	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	NA	-	-
	SB	2%	1%	87%	13%	100%	379	3%	3%	0%	8%	0%	52%	0%	2%	33%	NA	0%	100%	
West Palm Beach	NB	100%	0%	0%	0%	100%	9	27%	0%	0%	9%	0%	55%	0%	0%	9%	NA	0%	100%	
	SB	1%	2%	77%	19%	100%	332	39%	4%	0%	0%	0%	25%	0%	1%	30%	NA	1%	100%	
Lake Worth	NB	31%	69%	0%	0%	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	SB	2%	5%	93%	0%	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Boynton Beach	NB	3%	41%	56%	0%	100%	300	0%	1%	0%	4%	0%	11%	0%	0%	83%	NA	0%	100%	
	SB	1%	11%	88%	0%	100%	336	1%	6%	0%	6%	0%	67%	0%	0%	19%	NA	0%	100%	
Boca Raton	NB	1%	2%	97%	0%	100%	222	10%	0%	0%	7%	0%	12%	0%	1%	65%	NA	4%	100%	
	SB	1%	3%	96%	0%	100%	179	9%	5%	0%	16%	0%	47%	0%	0%	23%	NA	0%	100%	
Deerfield Beach	NB	11%	7%	69%	13%	100%	165	19%	7%	0%	1%	2%	23%	3%	1%	43%	NA	0%	100%	
	SB	4%	6%	84%	7%	100%	253	10%	6%	0%	0%	3%	49%	7%	0%	25%	NA	1%	100%	
Pompano Beach	NB	7%	32%	51%	10%	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	SB	3%	10%	83%	4%	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Cypress Creek	NB	4%	7%	83%	6%	100%	218	11%	6%	0%	16%	3%	30%	1%	1%	31%	NA	0%	100%	
	SB	2%	4%	82%	11%	100%	268	12%	4%	0%	15%	3%	33%	5%	1%	27%	NA	0%	100%	
Ft Lauderdale	NB	1%	1%	79%	19%	100%	290	2%	4%	0%	11%	3%	46%	8%	1%	25%	NA	0%	100%	
	SB	1%	2%	80%	17%	100%	254	6%	4%	0%	9%	3%	39%	10%	2%	27%	NA	0%	100%	
Ft Lauderdale Int. Airport	NB	2%	11%	73%	14%	100%	176	10%	3%	0%	23%	23%	26%	1%	1%	12%	NA	0%	100%	
	SB	0%	2%	95%	3%	100%	215	10%	2%	0%	16%	22%	28%	5%	0%	16%	NA	0%	100%	
Hollywood	NB	0%	0%	90%	9%	100%	202	16%	9%	0%	13%	0%	19%	0%	1%	40%	NA	0%	100%	
	SB	2%	4%	77%	17%	100%	177	17%	10%	0%	16%	0%	17%	4%	3%	33%	NA	1%	100%	
Golden Glades	NB	2%	2%	81%	15%	100%	308	0%	1%	0%	35%	0%	43%	0%	0%	21%	NA	0%	100%	
	SB	2%	35%	63%	0%	100%	119	0%	3%	0%	34%	0%	43%	0%	0%	21%	NA	0%	100%	
MetroRail	NB	5%	4%	91%	0%	100%	452	13%	3%	0%	7%	0%	7%	0%	0%	10%	60%	0%	100%	
	SB	0%	100%	0%	0%	100%	16	18%	5%	0%	27%	0%	0%	0%	0%	5%	45%	0%	100%	
Miami Int. Airport	NB	1%	3%	86%	10%	100%	318	2%	2%	0%	30%	0%	36%	0%	8%	22%	NA	0%	100%	
	SB	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	NA	0%	0%	
NB All Station		2%	6%	85%	8%	100%		11%	5%	0%	10%	3%	41%	3%	1%	26%	0%	0%	100%	
SB All Station		4%	12%	76%	8%	100%		8%	3%	0%	15%	2%	25%	1%	1%	34%	10%	0%	100%	

Appendix A. Summary of Survey Results (Continued)

Station	Direction	Alighting Counts	EGRESS MODE											Overnight Parking	
			Walk	Bike	Schoolbus/ Metrorail	Transit Bus	Tri-Rail Shuttle	Drive N Park	Rideshare N Park	Taxi	Pick-Up	To Metro	Other		SUM
Mangonia Park	NB	663	2%	1%	55%	12%	0%	15%	1%	1%	13%	NA	0%	100%	77
	SB	0	-	-	-	-	-	-	-	-	-	NA	-	-	
West Palm Beach	NB	651	75%	1%	2%	8%	0%	7%	0%	1%	5%	NA	0%	100%	45
	SB	12	27%	8%	0%	8%	0%	58%	0%	0%	0%	NA	0%	100%	
Lake Worth	NB	NA	NA	NA	NA	NA	NA	61%	0%	0%	39%	NA	NA	100%	NA
	SB	NA	NA	NA	NA	NA	NA	100%	0%	0%	0%	NA	NA	100%	
Boynton Beach	NB	86	8%	4%	0%	25%	0%	39%	0%	0%	24%	NA	0%	100%	21
	SB	27	13%	6%	0%	41%	0%	25%	0%	0%	16%	NA	0%	100%	
Boca Raton	NB	425	12%	7%	0%	69%	0%	4%	0%	2%	5%	NA	2%	100%	41
	SB	222	13%	4%	0%	63%	0%	2%	0%	0%	18%	NA	0%	100%	
Deerfield Beach	NB	195	34%	7%	0%	1%	29%	10%	2%	3%	13%	NA	0%	100%	49 (+11Bike)
	SB	130	32%	8%	0%	0%	17%	18%	10%	1%	15%	NA	0%	100%	
Pompano Beach	NB	162	NA	33%	NA	NA	NA	16%	16%	0%	35%	NA	0%	100%	24 (+5 Bike)
	SB	151	NA	26%	NA	NA	NA	23%	5%	5%	41%	NA	0%	100%	
Cypress Creek	NB	320	33%	5%	0%	4%	33%	3%	1%	0%	21%	NA	0%	100%	42
	SB	330	32%	5%	0%	8%	28%	4%	1%	2%	20%	NA	0%	100%	
Ft Lauderdale	NB	197	5%	5%	0%	13%	45%	11%	5%	3%	14%	NA	0%	100%	29 (+4Amtrak)
	SB	166	4%	4%	0%	22%	41%	8%	0%	4%	17%	NA	0%	100%	
Ft Lauderdale Int. Airport	NB	137	15%	3%	0%	20%	42%	6%	2%	1%	11%	NA	0%	100%	54 (+5 Bike)
	SB	237	10%	3%	0%	28%	42%	6%	3%	0%	7%	NA	0%	100%	
Hollywood	NB	97	25%	4%	0%	20%	2%	10%	4%	7%	28%	NA	0%	100%	35 (+13Amtrak)
	SB	104	19%	16%	0%	14%	0%	18%	2%	4%	24%	NA	3%	100%	
Golden Glades	NB	23	0%	0%	0%	71%	0%	25%	0%	0%	4%	NA	0%	100%	16
	SB	168	0%	1%	0%	76%	0%	8%	0%	0%	15%	NA	0%	100%	
MetroRail	NB	11	18%	0%	0%	0%	0%	0%	0%	0%	0%	82%	0%	100%	5
	SB	1,107	6%	1%	0%	1%	0%	0%	0%	0%	2%	90%	0%	100%	
Miami Int. Airport	NB	0	-	-	-	-	-	-	-	-	-	NA	-	-	71
	SB	613	3%	1%	16%	64%	0%	8%	0%	2%	6%	NA	0%	100%	
NB All Station			10%	3%	3%	26%	9%	6%	1%	1%	10%	31%	0%	100%	4
SB All Station			27%	4%	13%	20%	11%	10%	1%	2%	12%	0%	0%	100%	

Appendix B. Tri-Rail Station Survey Observations and Comments

The results of the survey have been summarized in a memorandum and a series of spreadsheets and charts. This memorandum summarizes operating issues and passenger behaviors encountered during the survey. Comments from Tri-Rail passengers and some other observations have also been summarized.

The memorandum has been divided into six sections:

- **Passenger Comments:** This section records comments made to the surveyors by Tri-Rail passengers during the surveys.
- **Amtrak/CSX Related Issues:** This section summarizes those issues related to Amtrak and CSX train operation conflicts. In many instances, it was difficult for surveyors to distinguish Amtrak passengers from Tri-Rail passengers.
- **Tri-Rail Operation Issues:** This section summarizes those issues related to Tri-Rail operations. One of the most frequent encountered issues is the inaccurate or false announcements over the PA system. Ticket machine operation is another problem.
- **Tri-Rail User Behaviors:** This section lists observed passenger behaviors that impeded survey accuracy.
- **Station-Specific Behaviors:** This section addresses behaviors and conditions observed only at specific stations. This is due to the uniqueness of geometry, layout, and/or access conditions of certain stations.
- **Other Observations:** This last section collects some other behaviors and conditions observed that might affect survey accuracy.

Customer Comments:

- *"I love this system. Only thing needs to be resolved is the delay."*
- *"Delayed trains negatively affect employment opportunities and with how the economy is right now that is not a good thing. If trains are 10-15 minutes late, people may lose their jobs if they arrive late continuously."*
- *"More early trains. Get out of work around 3:30am and have to wait until 5am for first train."*
- *"More frequent service on Saturdays and Sunday, at least every hour."*
- *"Bridges are too high, elevators are too slow. When train switched platform, people will easily miss their train."*
- *"More parking spaces are needed at West Palm Beach station"*

- *"We need more sheltered space at Pompano Beach Station."*
- *"We need better connection service at Pompano Beach Station."*
- *"Why they don't build a parking lot west of the Cypress Creek station? Land is available and is currently not developed."*
- *"Fort Lauderdale Airport station's name is frequently confused with Fort Lauderdale station. The Airport station should be renamed so customers do not get confused between the two stations."*

Amtrak/CSX Conflicts and Related Issues

- When Amtrak train or CSX train passed a station, the next Tri-Rail train is often switched to another platform. There was announcement, but the announcement was not alarming enough, which was easily ignored by Tri-Rail riders and therefore causing frustration and dissatisfaction. More urgent or alarming announcement is needed for platform switching.
- When it was close to Amtrak train's arrival time, it was very hard to distinguish Amtrak passengers and their companies from Tri-Rail passengers.
- Amtrak passengers tended of arrive at station long before the train did. During waiting, some of them went back to their cars and got some stuff, or they drove out and came back in a while.
- Amtrak passengers often came with family or friends who waited until the train left.
- Some people parked, obtained Amtrak information and left.
- A freight train derailed 30 yards north of the MetroRail station at 4AM. Passengers were bussed around the incident to the Opa-Locka station. As a result, some trains were 20-30 minutes behind schedule.

Tri-Rail Operations Issues

- Announcements were frequently inaccurate. For instance, at Deerfield Beach station, announcement said train was delayed for 20 minutes, but it turned out that the train was only delayed for 5. Station attendant explained that this was a GIS problem caused by the weather condition (very light rain). Also, at Fort Lauderdale station, boarding announcement was made even after the corresponding train left. Again, at Fort Lauderdale station, announcement was made for a second train before the first had arrived in the same direction.
- Announcement always mentions train number: this may cause confusion for riders.
- Sometimes, trains were delayed for more than 10, 15 minutes, but no announcement was made.
- For some stations, ticket machines are only available on one platform not the other.

- At several station, the ticket machines would not accept bills, sometimes providing a message that the cash tray was full. Customers had to go to the other platform to get tickets and come back. They lost time doing this if they were running late for the train.

Tri-Rail User Behaviors

- Passengers stayed in their cars until train horns and then ran to board the train. In one instance, one rider waited too long (after train horned) and did not have time to cross to the other side of the station.
- Many customers arrived on bikes and waited for the train riding around the station (back and forth). Some with skate-boards were doing the same thing.
- Wanderers walked around the station for hours with no obvious reason.
- It was hard to keep track of both access mode and associate a customer with train number/direction when two trains were coming within a short time period.
- Several people were observed to park their car/bike on the side they would alight from their return trip, rather than closest to their boarding platform.
- When people waited for someone to get on or off the train, there might have been some double counting when entering and exiting the station. Therefore, the boarding and alighting counts were deemed more accurate than the access and egress mode counts.

Station-Specific Behaviors

- At Mangonia Park station:
 - There were instances of passengers dropped off by car with a bicycle which they took on the train.
 - Train P608 arrived in the morning and had approximately 350 school children. The children alighted the train and boarded busses that were waiting in the parking lot.
- At West Palm Beach station:
 - There are many access points which made it hard to observe people arriving and departing the station.
 - The platforms are long which made it harder to observe access/egress modes.
 - Train P610 arrived in the morning and had approximately 300 school children that departed the station walking.
 - There was an event held at the station that day between 9AM and 11AM for the unveiling of a new locomotive which runs on biodiesel. There were approximately 60 attendees. Most arrived to the station by automobile.

- At Lake Worth station:
 - Many school children boarded the train at this station to travel northbound to either the West Palm Beach station or the Mangonia Park station.
- At Boynton Beach station:
 - Many school children boarded the train at this station to travel northbound to either the West Palm Beach station or the Mangonia Park station.
- At Boca Raton station:
 - Many school children boarded the train at this station to travel northbound to either the West Palm Beach station or the Mangonia Park station.
- At Deerfield Beach station:
 - There was a station attendant at the station who was walking on both platforms informing passengers about arriving trains, answering any questions, and assisting passengers buying a ticket.
 - The station can be accessed and exited from both sides, making it challenging to see where all passengers were coming from or going to.
 - People switched cars at Tri-Rail parking without using train services. Also, many people parked in Tri-Rail lots did not ride as if the lot was free public parking.
- At Pompano Beach station:
 - The platform is narrow which makes it hard to observe.
- At Cypress Creek station:
 - It was raining a lot when data collection started. Data might be biased to more pick-up/drop-off and less walking/biking due to the rain.
 - An employee shuttle for a food service business met several morning trains at the east access drive to shuttle people to work.
 - A catering truck came to the east station entrance to sell food in the early morning. Tri-Rail passengers going southbound went to the other side just to get breakfast/lunch. This confuses the data collection effort since these passengers may be double counted for accessing the station again.
 - Passengers were not supposed to park on the parking lot west of the station which is for University of Phoenix and some other business parking. But many riders still parked, and some parked far away from the station, to perhaps, not being obvious that they were park-n-riding.
- At Fort Lauderdale station:
 - A technician fixed ticket machines by 8am but had to come back to fix it when it stopped working again. It seems that the machines get full of bills too quickly.

- Early in the morning, two tickets machines were not accepting bills and one was not working. Customers lost time trying to get a ticket and asking what they should do if they can't get a ticket.
- No announcement was made for the 7:40am train going northbound which was 20 minutes behind schedule.
- There are 10 taxi spaces, but only 4 were occupied. These could perhaps be made available to other parkers. The short term parking (10 min) is also underutilized.
- A catering truck was parked at the west station entrance in the early morning to sell food. Tri-Rail passengers would cross from their platform just to get breakfast/lunch. This confuses the data collection effort since these passengers may be double counted for accessing the station again.
- At Fort Lauderdale Airport station:
 - It was observed that people parked at the station to use the shuttle/bus services but not use Tri-Rail. People got off a bus waited in the station for another bus, which cause confusion to the survey.
 - Many passengers parked southeast of east parking lot (close to hotel) when lots got full. It looked as if they were walking from the hotel parking lot.
 - Riders from shuttles were predominantly airport and cruise passengers or employees.
- At Hollywood station:
 - It was observed that many overnight vehicles were from riders wearing scrubs, presumably nurses, whose shift end in the middle of the day and start late at night.
 - Two taxi drivers switched cars in the parking lot.
 - One rider parked his car and then covered it with a car-cover- seems the car was going to be left at the station for days.
- At MetroRail Transfer station:
 - There are many obstructions and access/egress points.
 - There were instances of people accessing the station then exiting to patronize a nearby store then re-entering the station.
 - There were instances of people loitering at the station.
 - During the morning, most transfers occurred from Tri-Rail to MetroRail from SB trains.
- At Miami International Airport station:
 - There were many construction workers alighting trains and walking to the adjacent Miami Intermodal Center construction site. They were counted as "other."

Other Observations

- Several customers asked about Tri-Rail funding issues and possible train/shuttle service cuts.
- Several customers stated that they need both Tri-Rail and shuttle services.
- Some days, there were no delay announcements like others.
- Some passengers were dropped off in the morning by partners but after alighting from train they left with their cars. This is can be an instance of overnight parking, but this is not a typical behavior.

Appendix E – 2008 Tri-Rail On-Board Survey-Summary of Raw Data

GANNETT FLEMING, INC
ENGINEERS AND PLANNERS

To: Scott Seeburger, Florida Department of Transportation, District 4
From: Terry Winebrenner, P.E.
Yongqiang Wu, P.E.
Date: February 2, 2009
Subject: South Florida East Coast Corridor Transit Analysis Study (SFECCTA):
2008 Tri-Rail On-board Survey – Summary of Raw Data

Gannett Fleming, Inc., under contract to FDOT, District 4, conducted an on-board survey of Tri-Rail riders. The purpose of this survey is to supplement similar ridership characteristics, origin - destination patterns, and mode of access and egress information collected in a similar survey conducted in March 2007. The 2007 survey was administered for an entire day, reflecting a 100% daily distribution of questionnaires. At that time, Tri-Rail was operating a 40-train per day (half-hour peak period) service plan. Tri-Rail is now operating a 50-train per day service plan with the completion of double tracking the corridor and institution of a new operating agreement with CSX. The results from both surveys will be used to calibrate and validate the Southeast Florida Regional Planning Model, Version 6.5, SERPM 6.5, which will be used for alternative analysis for this project.

THE SURVEY

The survey was administered on Wednesday, October 22, 2008. It encompassed a half-day on-board survey of all adult passengers (age 12 or older) with full-day door counts of passengers using the Tri-Rail service on a typical weekday. The survey included all morning Tri-Rail trains, both northbound and southbound, for a total of 30 trains (out of a total of 50 trains). Passenger door counts were conducted on all Tri-Rail trains on this day.

Data collection activities began at 4:00 am and concluded at 11:05 pm. A total of 8,403 questionnaires were distributed to all eligible respondents meeting the criteria described above.

PASSENGER DOOR COUNTS

The number of passengers boarding and disembarking each car was recorded at each station for all 50 trains in both directions on the survey day. The passenger door counts were then summarized by station, by train, and by direction. The raw final passenger door counts are presented in Appendix A with top table representing door counts for southbound trains and bottom table for northbound trains. A total of 7,966 passengers were counted to board southbound trains while 7,696 passengers were counted to board northbound trains resulting a total daily boarding of 15,662 passengers.

THE SURVEY INSTRUMENT

The survey instrument was designed as a self-completion questionnaire with mainly self-coded questions. The questionnaire was provided in English, Spanish and Creole. Each questionnaire was pre-printed with a unique serial number, which links each questionnaire to distribution on a specific trip.

The survey consisted of 26 questions to inquire about rider's one-way trip, recent travel behavior, and socio-demographic information. Ten (10) questions asked about the rider's one-way trip information (Q1 to Q9, and Q13). Three (3) questions were about the rider's recent travel behavior (Q10 to Q12), and the remaining 13 questions asked about rider's socio-demographic characteristics. Additional space was provided for comments and suggestions.

A copy of the survey instrument is provided as Appendix B.

SURVEY RESPONSE

Overall Response

On the survey day, a total of 15,662 passengers boarded the SFRTA Tri-Rail trains. The surveyors distributed 8,403 questionnaires and collected 6,103. The survey response rate was 73% based on the total number of surveys collected. The response rate is calculated as follows:

$$\text{Response Rate (\%)} = \frac{\text{Completed Questionnaires}}{\text{Distributed Questionnaires}} = \frac{6103}{8403} = 73\%$$

The actual sample size based on the total number of passengers was 39%. The sample size is calculated as follows:

$$\text{Sample Size (\%)} = \frac{\text{Completed Questionnaires}}{\text{Total Passenger Counts}} = \frac{6103}{15,662} = 39\%$$

The 6,103 collected questionnaires make up the final dataset that will be used for the survey analysis.

Response Rate by Question

The following table lists the response rate for each question. The response rate was calculated by dividing the number of provided answers by the total number of returned surveys (6,103). Please note that the term “provided answers” rather than “valid answers” is used because at this time an in-depth analysis has yet to be conducted to determine if an answer provided by the respondent is actually valid.

About Rider’s One-way Trip (Question 1 – 9, and Question 13)												
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q13			
98%	97%*	96%	93%	92%	84%	95%	97%*	90%	26%**			
About Rider’s Recent Travel Behavior (Questions 10 – 12)												
Q10	Q11	Q12										
92%	63%	78%										
Socio-demographic Characteristics (Questions 14 – 26)												
Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26
91%	85%	90%	91%	92%	81%	84%	91%	84%	83%	86%	90%	87%

* Q2 and Q8 ask about the ORIGIN and DESTINATION of the rider’s one-way trip. In many cases, the information provided by the respondents is incomplete or insufficient. Extra efforts were made to locate the landmarks and/or addresses on the map based on careful analyses of other relevant information of the trip, resulting in a greater number of geo-codable addresses (5,930) than was provided.

** Q13 asks about the number of adults and children in the traveling group who cannot fill out survey form. Even though 26% is low compared to other response rates, it is significant given that 26% means 1,570 Tri-Rail riders.

SUMMARY OF SURVEY RESULTS

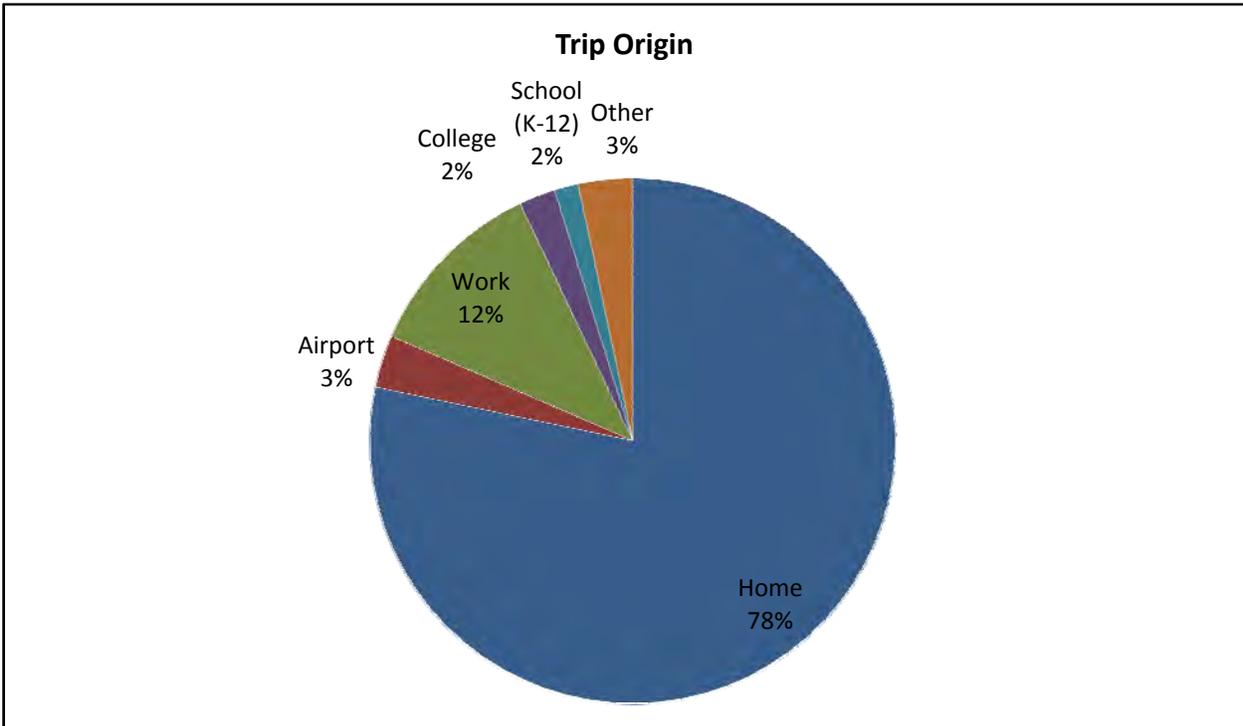
This section presents a summary of the responses to each question asked on the survey form based on the preliminary analysis of the survey data. Only a cursory examination of the dataset was performed to correct or eliminate the obvious nonsensical answers. The responses are presented in both tabular and graphical format. Key facts/findings are noted for each question.

It is worth noting that since the survey was collected on-board the morning trains for both northbound and southbound directions instead of all trains in a day, various survey questions might be potentially biased towards the typical morning peak travel behavior – more riders traveling in the peak direction (starting their trip at the northern stations and ending their trip at the southern stations) and more riders starting their trip at home and ending it at work (typical commuter trip). This might affect the results of Q1 (trip origin), Q4 (boarding station), Q5 (alighting station), and Q7 (trip destination). Caution should be exercised when making assumptions about rider's travel behavior from the data results based on the raw data.

Q1: BEFORE COMING TO TRI-RAIL, I ORIGINALLY STARTED TODAY'S ONE-WAY TRIP AT:

Frequency Analysis			
	Answer	Count	Percent
1	Home	4,685	78.3%
2	Airport	193	3.2%
3	Work	685	11.4%
4	College	134	2.2%
5	School (K-12)	88	1.5%
6	Other	200	3.3%
	Total	5,985	100.0%

Key Facts:
- An Overwhelming majority of the riders start their trips from home at 78%
- About 12% of the riders start their trips from work in the morning.

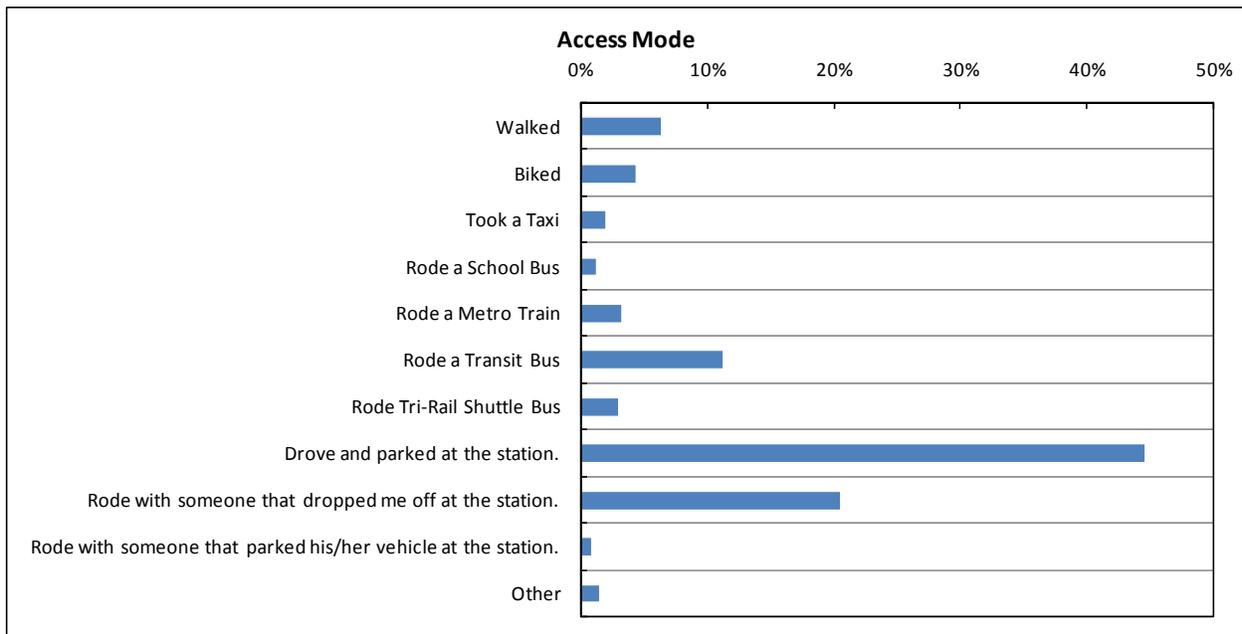


Q2. WHICH IS LOCATED AT (IMPORTANT)

Question 2 asked about the ORIGIN of the one-way trip. The landmarks and/or addresses provided by respondents were used to find the coordinates of these locations which in turn were used for geo-coding purposes. A map showing aggregated origins (by zip code) for geocodable records is included as Appendix C. The map displays the ten zip codes with the highest numbers of geocodable origins, which include 26% of total geocodable records.

Q3: TO GET TO TRI-RAIL I:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Walked	379	6.5%	<p>- Most used access mode: # 8: Park and Ride: 44.7%</p> <p>- Least used access mode: #10: Rode with someone that parked his/her vehicle at the station: 0.9%</p>
2	Biked	258	4.4%	
3	Took a Taxi	124	2.1%	
4	Rode a School Bus	74	1.3%	
5	Rode a Metro Train	194	3.3%	
6	Rode a Transit Bus	661	11.3%	
7	Rode Tri-Rail Shuttle Bus	182	3.1%	
8	Drove and parked at the station.	2,608	44.7%	
9	Rode with someone that dropped me off at the station.	1,205	20.7%	
10	Rode with someone that parked his/her vehicle at the station.	55	0.9%	
11	Other	90	1.5%	
	Total	5,830	100.0%	

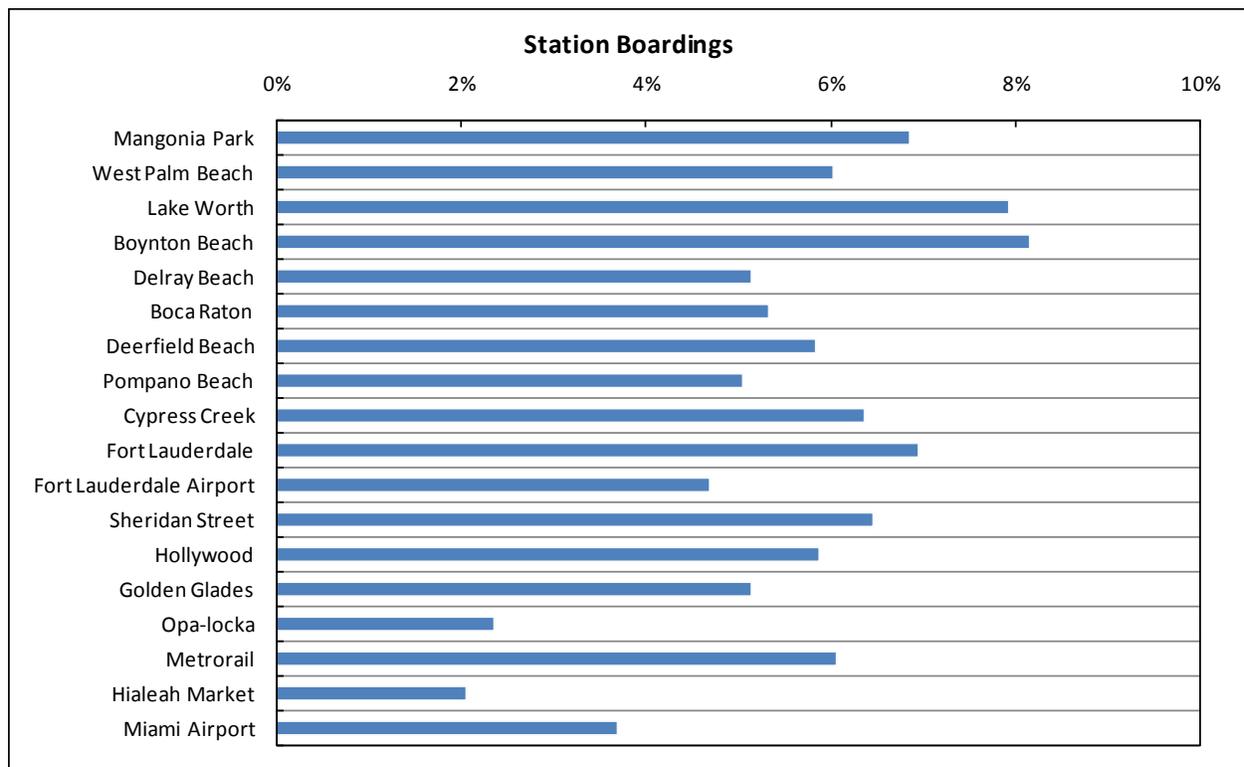


Q4: I GOT ON THIS TRAIN AT:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Mangonia Park	388	6.9%	
2	West Palm Beach	341	6.0%	
3	Lake Worth	448	7.9%	
4	Boynton Beach	461	8.2%	
5	Delray Beach	291	5.1%	
6	Boca Raton	302	5.3%	
7	Deerfield Beach	330	5.8%	
8	Pompano Beach	286	5.1%	
9	Cypress Creek	360	6.4%	
10	Fort Lauderdale	393	6.9%	
11	Fort Lauderdale Airport	265	4.7%	
12	Sheridan Street	365	6.5%	
13	Hollywood	333	5.9%	
14	Golden Glades	291	5.1%	
15	Opa-locka	134	2.4%	
16	Metrorail	343	6.1%	
17	Hialeah Market	116	2.1%	
18	Miami Airport	209	3.7%	
	Total	5,656	100.0%	

- Highest boardings:
Boynton Beach Station: 8.2%,
Large # of students going to school in the morning

- Lowest Boardings
Hialeah Market Station: 2.1%

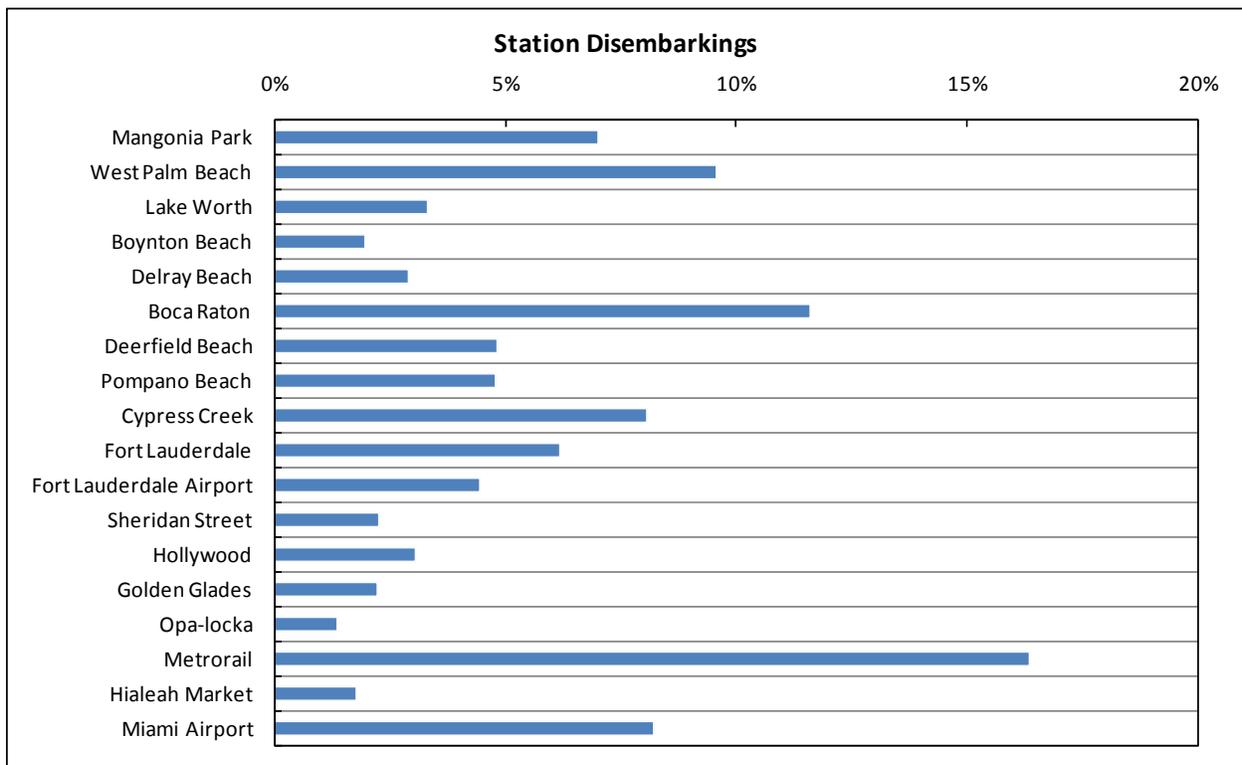


Q5: I WILL GET OFF THIS TRAIN AT:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Mangonia Park	394	7.0%	
2	West Palm Beach	536	9.6%	
3	Lake Worth	186	3.3%	
4	Boynton Beach	110	2.0%	
5	Delray Beach	163	2.9%	
6	Boca Raton	651	11.6%	
7	Deerfield Beach	271	4.8%	
8	Pompano Beach	268	4.8%	
9	Cypress Creek	452	8.1%	
10	Fort Lauderdale	348	6.2%	
11	Fort Lauderdale Airport	250	4.5%	
12	Sheridan Street	127	2.3%	
13	Hollywood	172	3.1%	
14	Golden Glades	125	2.2%	
15	Opa-locka	76	1.4%	
16	Metrorail	917	16.4%	
17	Hialeah Market	100	1.8%	
18	Miami Airport	460	8.2%	
	Total	5,606	100.0%	

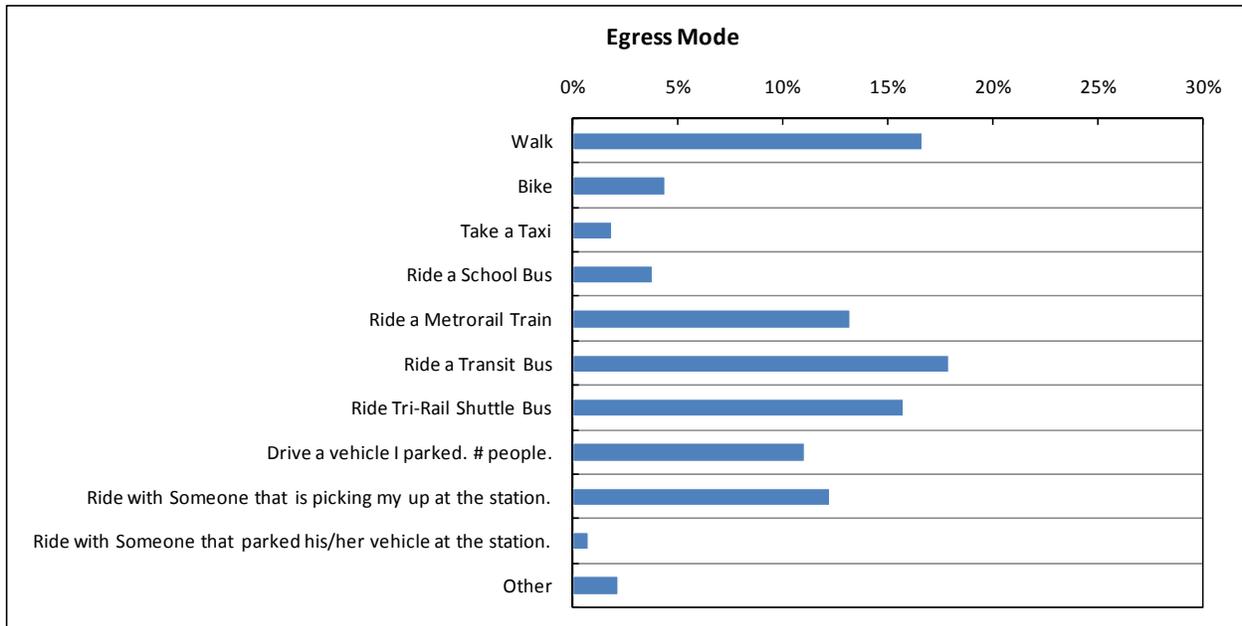
Key Facts:

- **Highest Disembarkings:**
Metrorail Station: 16.4%,
- **Lowest Disembarkings:**
Opa-Locka Station: 2.1%



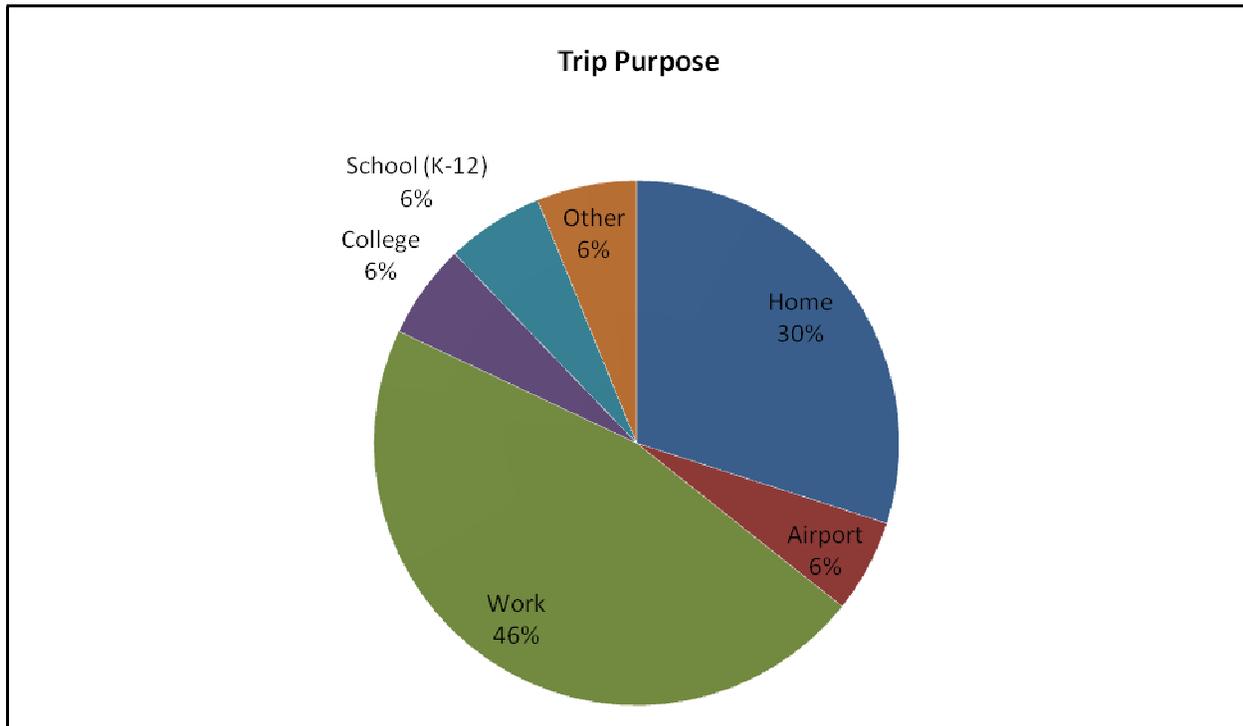
Q6. WHEN I LEAVE TRI-RAIL, I WILL:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Walk	962	16.6%	- Most used egress mode: # 6: Ride a Transit Bus 18% - Least used access mode: #10: Ride with someone else: 0.8%
2	Bike	258	4.5%	
3	Take a Taxi	111	1.9%	
4	Ride a School Bus	223	3.9%	
5	Ride a Metrorail Train	765	13.2%	
6	Ride a Transit Bus	1,035	17.9%	
7	Ride Tri-Rail Shuttle Bus	910	15.7%	
8	Drive a vehicle I parked. # people.	639	11.0%	
9	Ride with Someone that is picking my up at the station.	708	12.2%	
10	Ride with Someone that parked his/her vehicle at the station.	44	0.8%	
11	Other	128	2.2%	
	Total	5,783	100.0%	



Q7: AFTER LEAVING TRI-RAIL, I WILL ULTIMATELY FINISH TODAY'S ONE-WAY TRIP AT:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Home	1,745	29.9%	- Most of the trips were going to work at 46%. - This is followed by Home at 30%.
2	Airport	335	5.7%	
3	Work	2,698	46.3%	
4	College	340	5.8%	
5	School (K-12)	350	6.0%	
6	Other	359	6.2%	
	Total	5,827	100.0%	



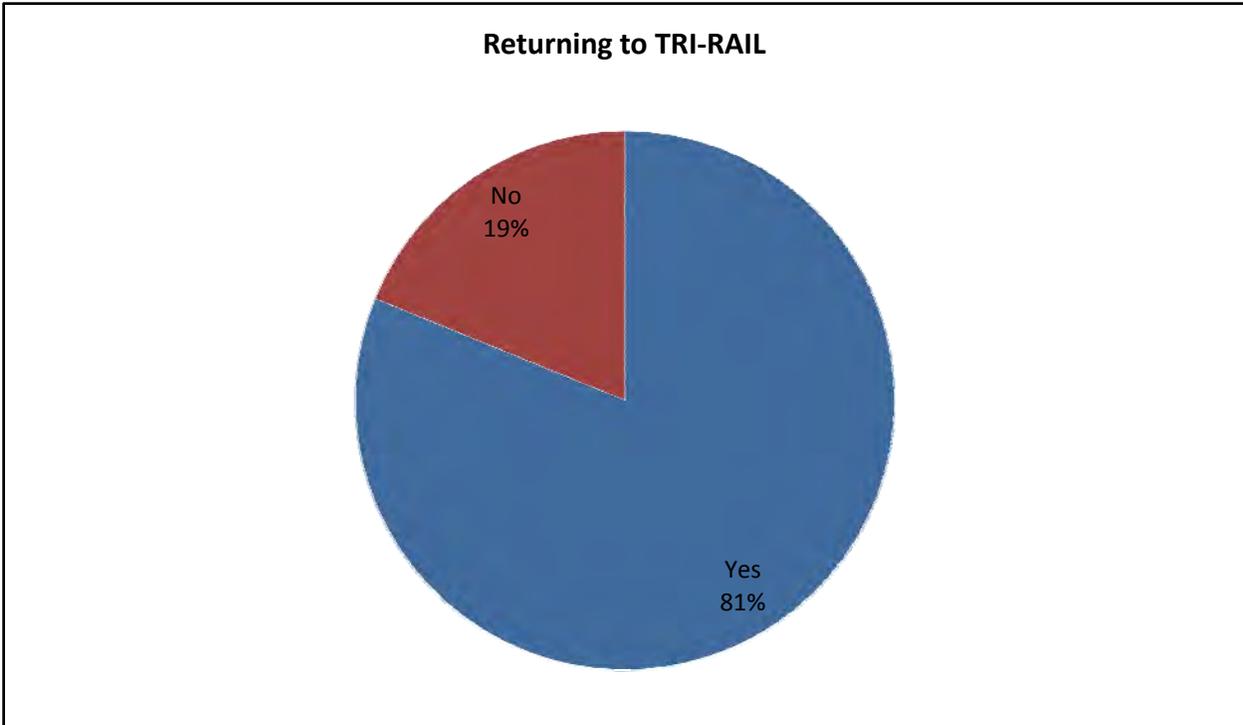
Q8. WHICH IS LOCATED AT (IMPORTANT)

Question 8 asked about the DESTINATION of the one-way trip. The landmarks and/or addresses provided by respondents were used to find the coordinates of these locations which in turn were used for geo-coding purposes. A map showing aggregated destinations (by zip code) for geocodable records is included as Appendix D. The map displays the ten zip codes with the highest numbers of geocodable destinations, which include 47% of total geocodable records.

Q9: TODAY I WILL MAKE ANOTHER TRI-RAIL TRIP TO GET BACK TO WHERE I STARTED:

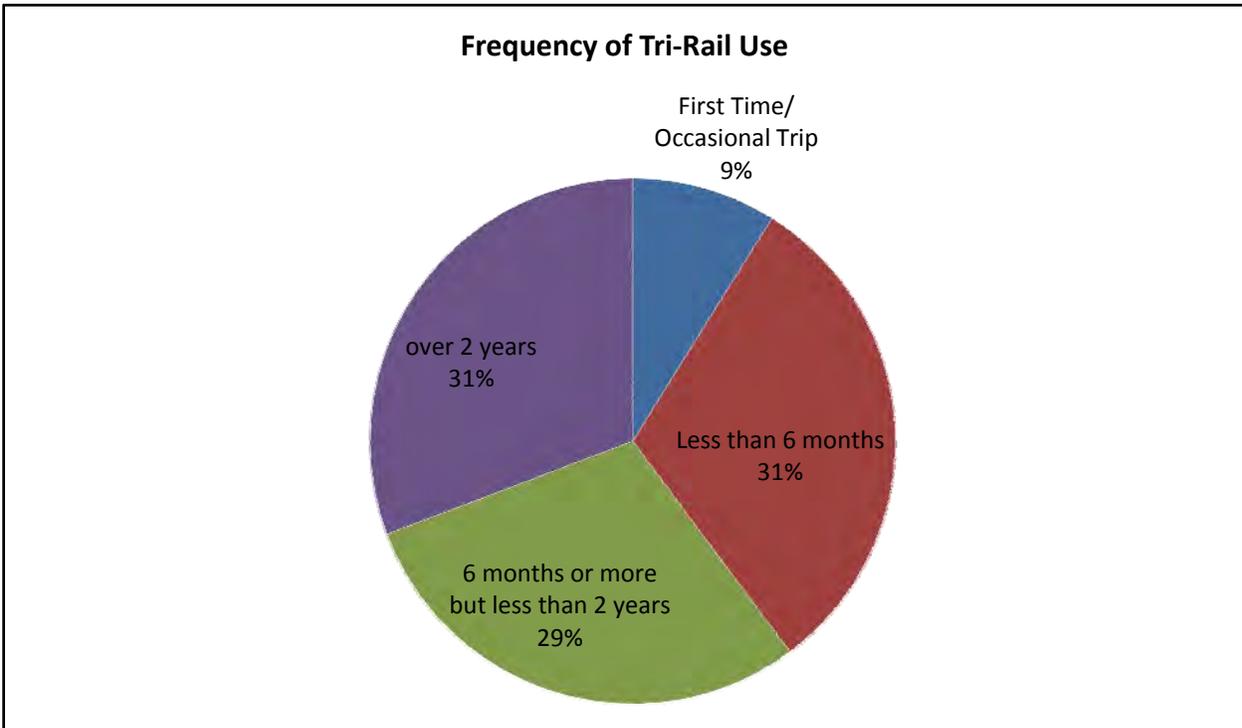
Frequency Analysis			
	Answer	Count	Percent
1	Yes	4,476	81.2%
2	No	1,039	18.8%
	Total	5,515	100.0%

Key Facts:
- 81% of the respondents will be returning to TRI-RAIL to complete a round trip.



Q10: I HAVE BEEN USING TRI-RAIL TO MAKE THIS TRIP FOR:

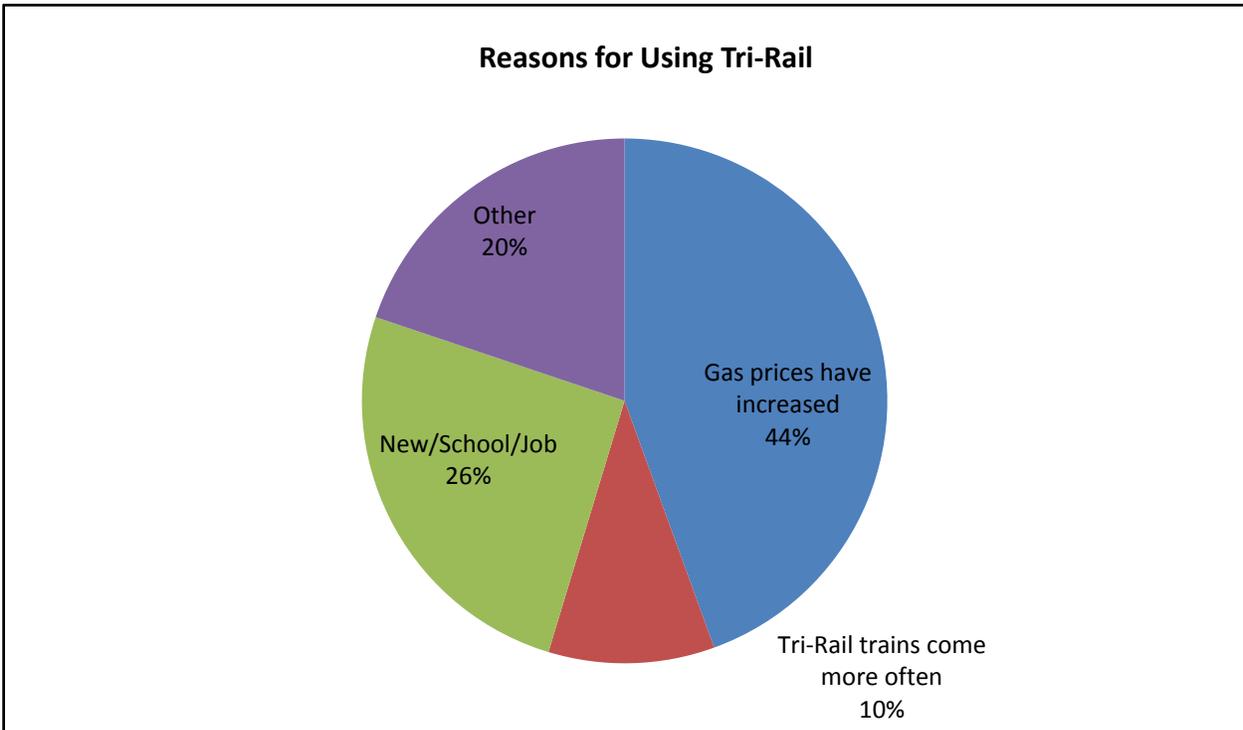
Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	First Time/Occasional Trip	498	8.9%	- Less than 10 % of the respondents are first time/occasional riders. - 60% of riders have been riding Tri-Rail for less than two years.
2	Less than 6 months	1,732	30.9%	
3	6 months or more but less than 2 years	1,650	29.4%	
4	over 2 years	1,724	30.8%	
	Total	5,604	100.0%	



Q11. I BEGAN RIDING TRI-RAIL LESS THAN 6 MONTHS AGO BECAUSE:

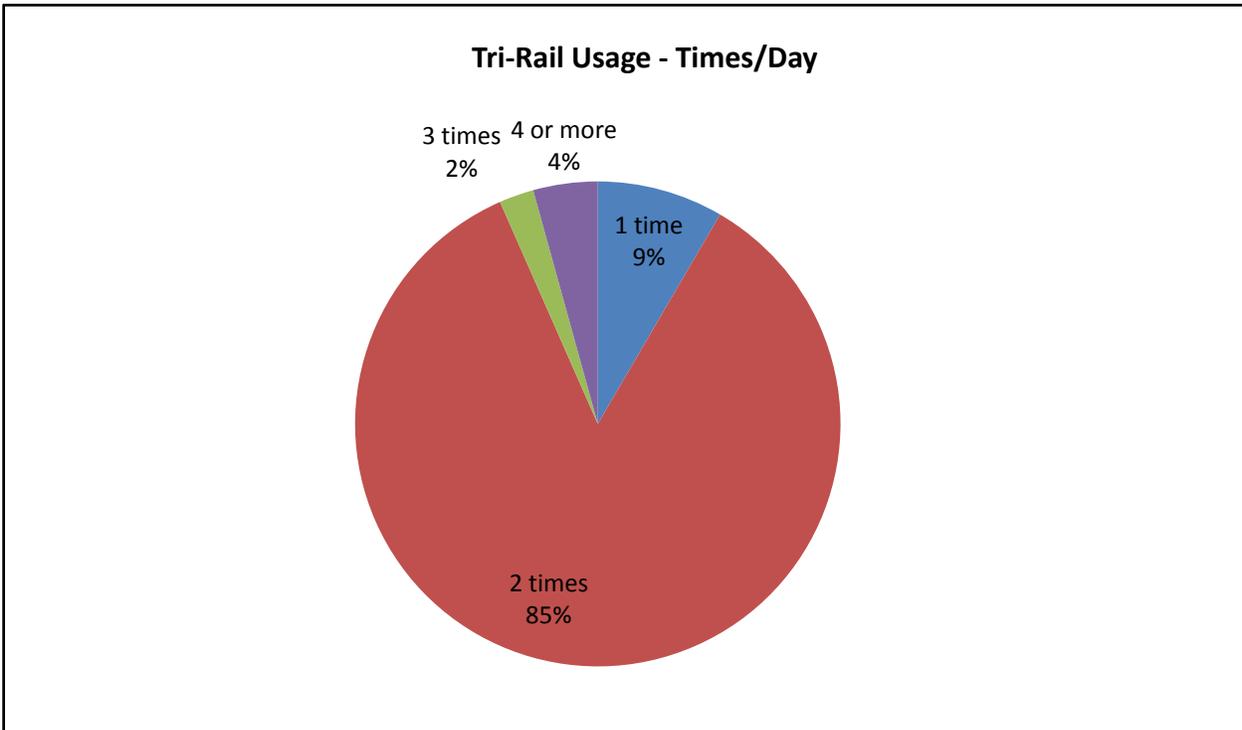
Frequency Analysis			
	Answer	Count	Percent
1	Gas prices have increased	1,722	44.5%
2	Tri-Rail trains come more often	396	10.2%
3	New/School/Job	987	25.5%
4	Other	768	19.8%
	Total	3,873	100.0%

Key Facts:
- 3,873 people answered this question. this is more than the people who said they have used Tri-Rail for Less Than 6 months as indicated in Q10 (2,320 people)
- About 45% people say gas price is the main reason for using Tri-Rail



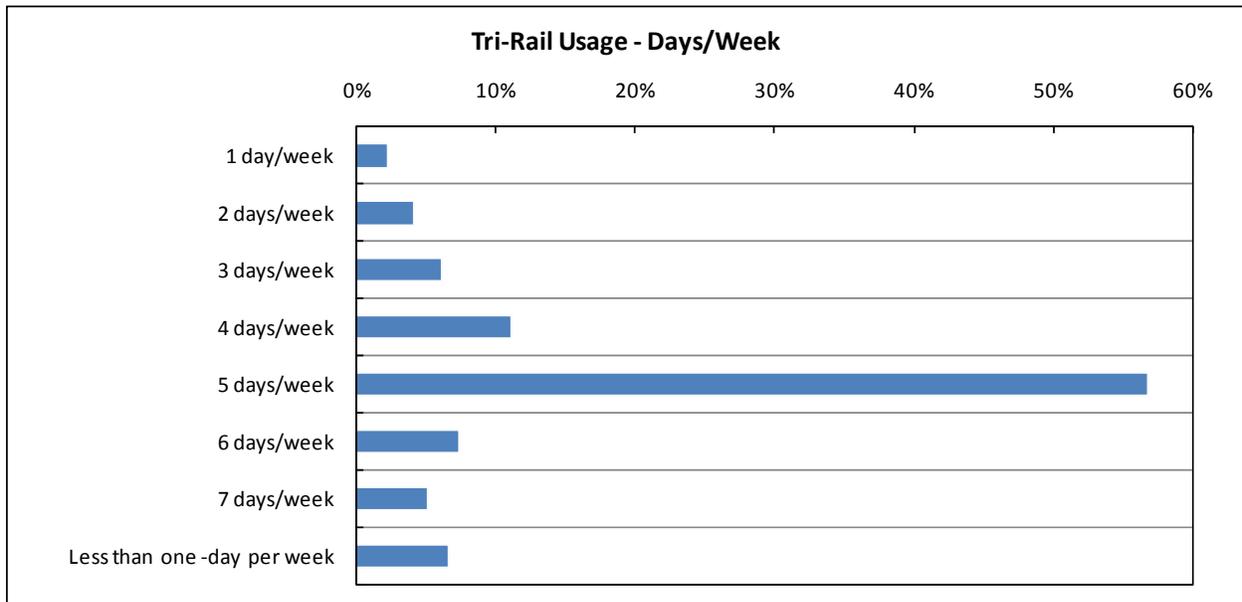
Q12-PART 1. HOW OFTEN TO YOU RIDE TRI-RAIL ON A TYPICAL DAY:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	1 time	329	8.4%	-85% respondents use the Tri-Rail twice a day.
2	2 times	3,324	85.0%	
3	3 times	90	2.3%	
4	4 or more	168	4.3%	
	Total	3,911	100.0%	



Q12-PART2. HOW OFTEN DO YOU RIDE TRI-RAIL IN A TYPICAL WEEK:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	1 day/week	109	2.3%	- More than half of the respondents (57%) use Tri-Rail 5 days a week.
2	2 days/week	201	4.2%	
3	3 days/week	296	6.2%	
4	4 days/week	534	11.2%	
5	5 days/week	2,705	56.8%	
6	6 days/week	355	7.5%	
7	7 days/week	248	5.2%	
8	Less than one -day per week	316	6.6%	
	Total	4,764	100.0%	



Q13. IN MY GROUP, THERE ARE ____ CHILDREN AND/OR ____ ADULTS (ELDERLY OR OTHER) WHO CAN NOT FILL OUT THIS FORM.

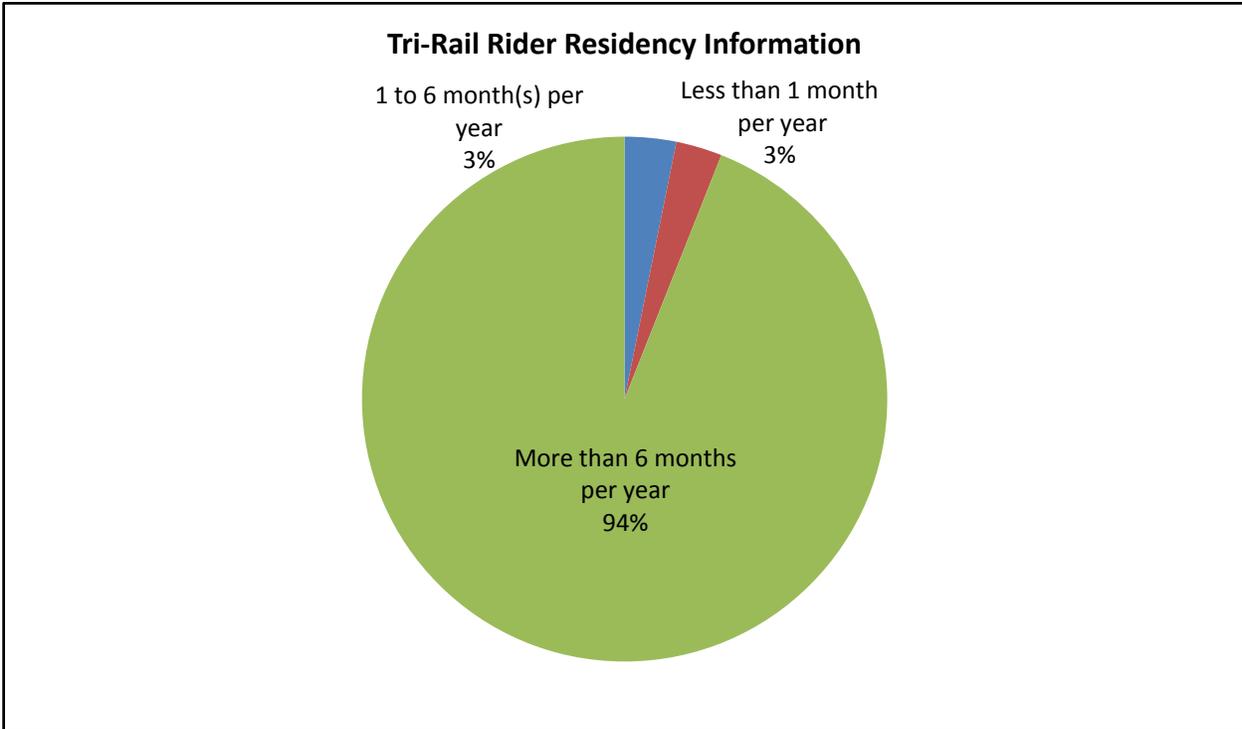
Frequency Analysis				Key Facts:
	Answer	Count	Percent	
Children				- There are only small number of young children riding the train, 267 in total - Number of adults who cannot fill out the forms seems to be very high.
1	1 child	108	40.4%	
2	2 children	77	28.8%	
3	3 children	37	13.9%	
4	4 children	27	10.1%	
5	5 or more children	18	6.7%	
	Total	267	100.0%	
Adults				
1	1 adult	955	73.3%	
2	2 adults	235	18.0%	
3	3 adults	56	4.3%	
4	4 adults	35	2.7%	
5	5 or more adults	22	1.7%	
	Total	1,303	100.0%	

Q14. I LIVE IN ZIP CODE

Question 14 asked about the home zip code of the traveler. This question does not relate specifically to the geographic orientation of the trip being made; rather, it compiles demographic data about Tri-Rail patrons. A map showing place of residence (by zip code) for geocodable records is included as Appendix E. The map displays the ten zip codes with the highest numbers of geocodable place of residence, which include 16% of total geocodable records. It is interesting to note that these top ten concentrations of place of residence are all in Palm Beach County.

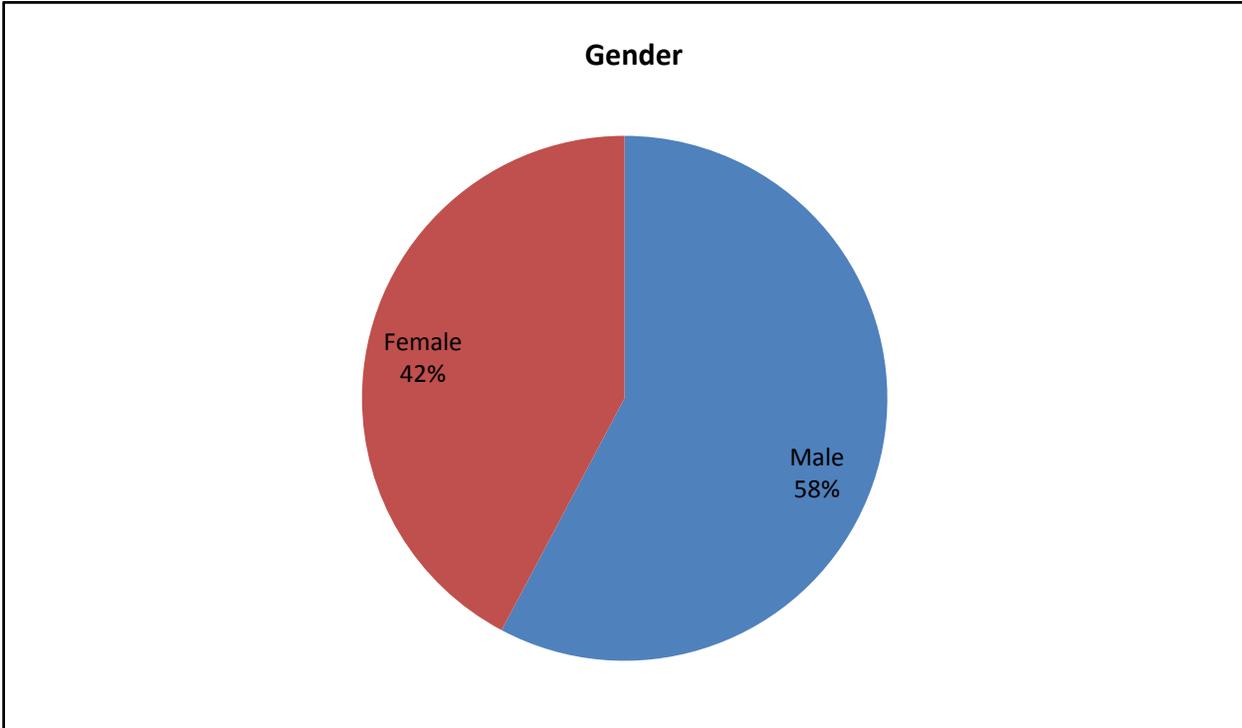
Q15. I LIVE/STAY IN SOUTH FLORIDA

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Less than 1 month per year	164	3.2%	- 94% of Tri-Rail riders live in South Florida for more than 6 months a year.
2	1 to 6 month(s) per year	147	2.8%	
3	More than 6 months per year	4,869	94.0%	
	Total	5,180	100.0%	



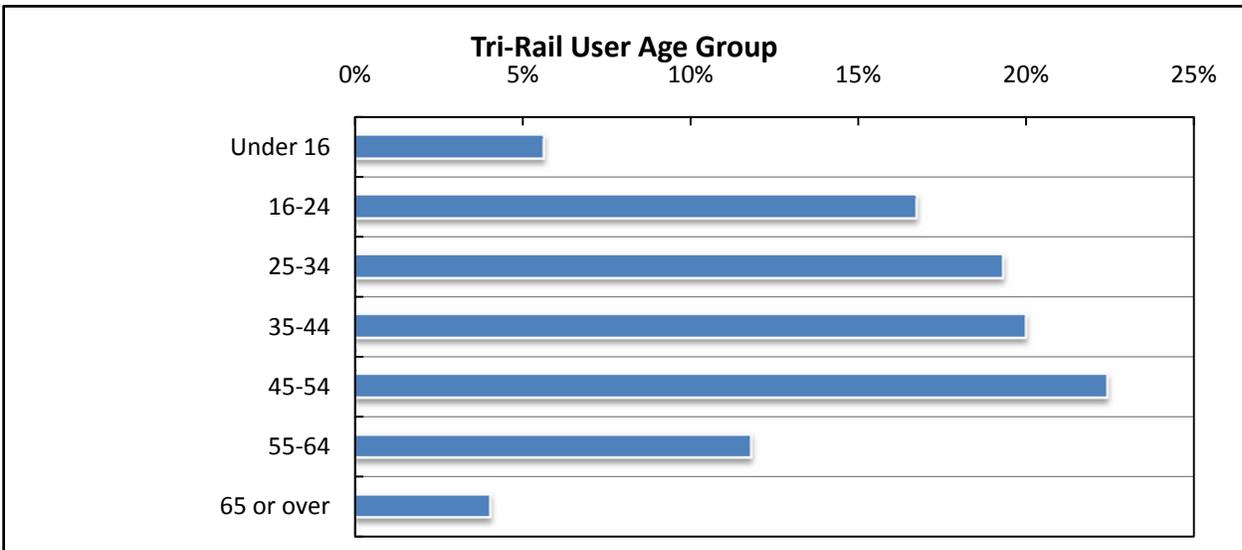
Q16. I AM:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Male	3,187	57.8%	- 58% of riders are male and 42% of riders are female.
2	Female	2,331	42.2%	
	Total	5,518	100.0%	



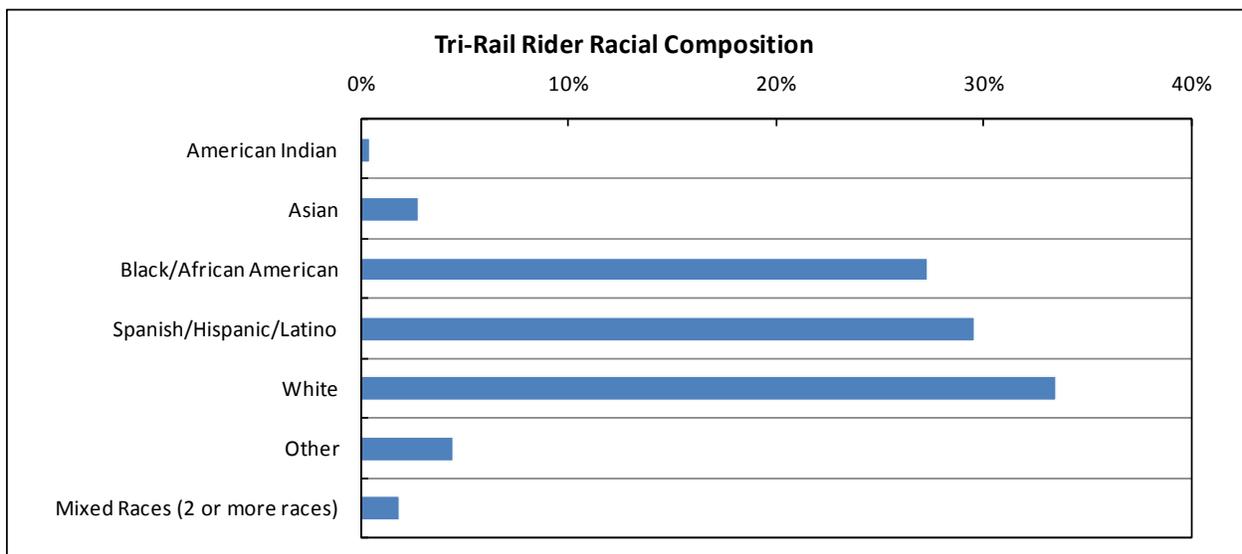
Q17. MY AGES IS:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Under 16	314	5.6%	- The 45-54 age group has the most riders The old and young groups have the least number of riders
2	16-24	934	16.7%	
3	25-34	1,077	19.3%	
4	35-44	1,116	20.0%	
5	45-54	1,252	22.4%	
6	55-64	659	11.8%	
7	65 or over	225	4.0%	
	Total	5,577	100.0%	



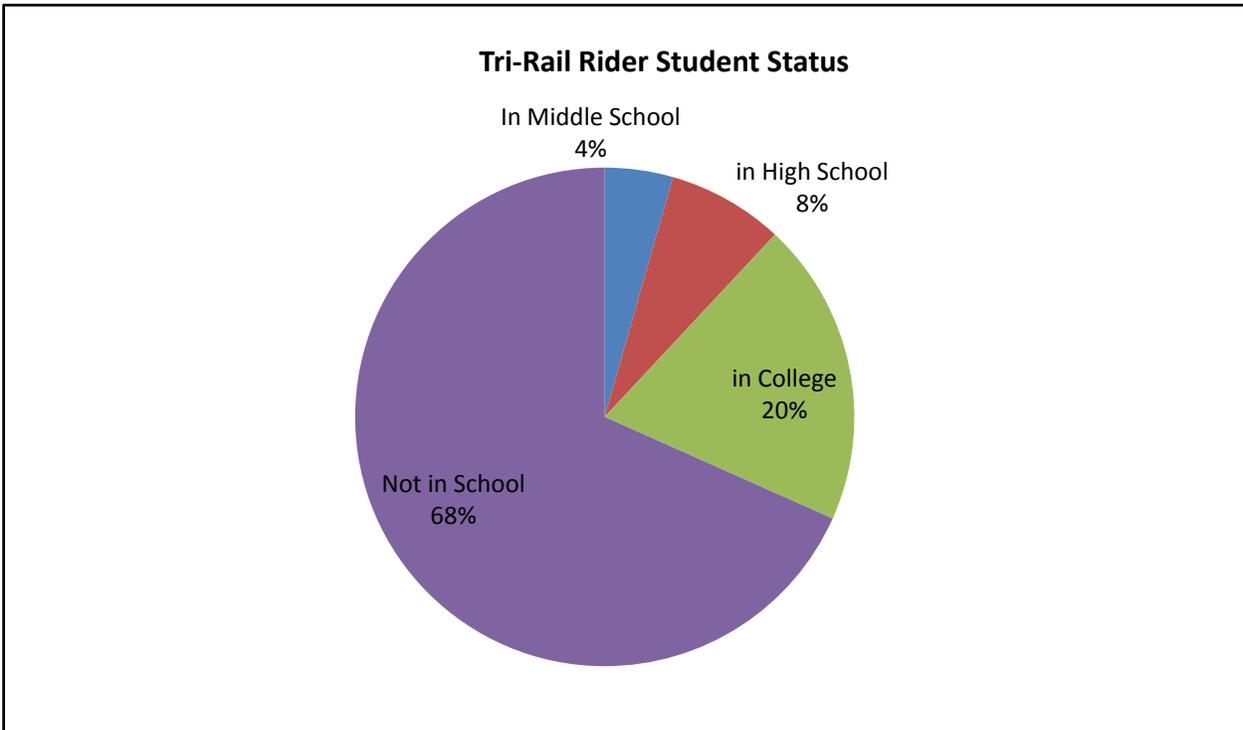
Q18. MY RACE IS BEST DESCRIBED AS:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	American Indian	26	0.5%	- Whites consist of the largest rider group This is closely followed by Spanish/Latino and Black/African American groups - About 2% of riders identify themselves with mixed races
2	Asian	156	2.8%	
3	Black/African American	1,539	27.3%	
4	Spanish/Hispanic/Latino	1,665	29.6%	
5	White	1,886	33.5%	
6	Other	253	4.5%	
7	Mixed Races (2 or more races)	108	1.9%	
	Total	5,633	100.0%	



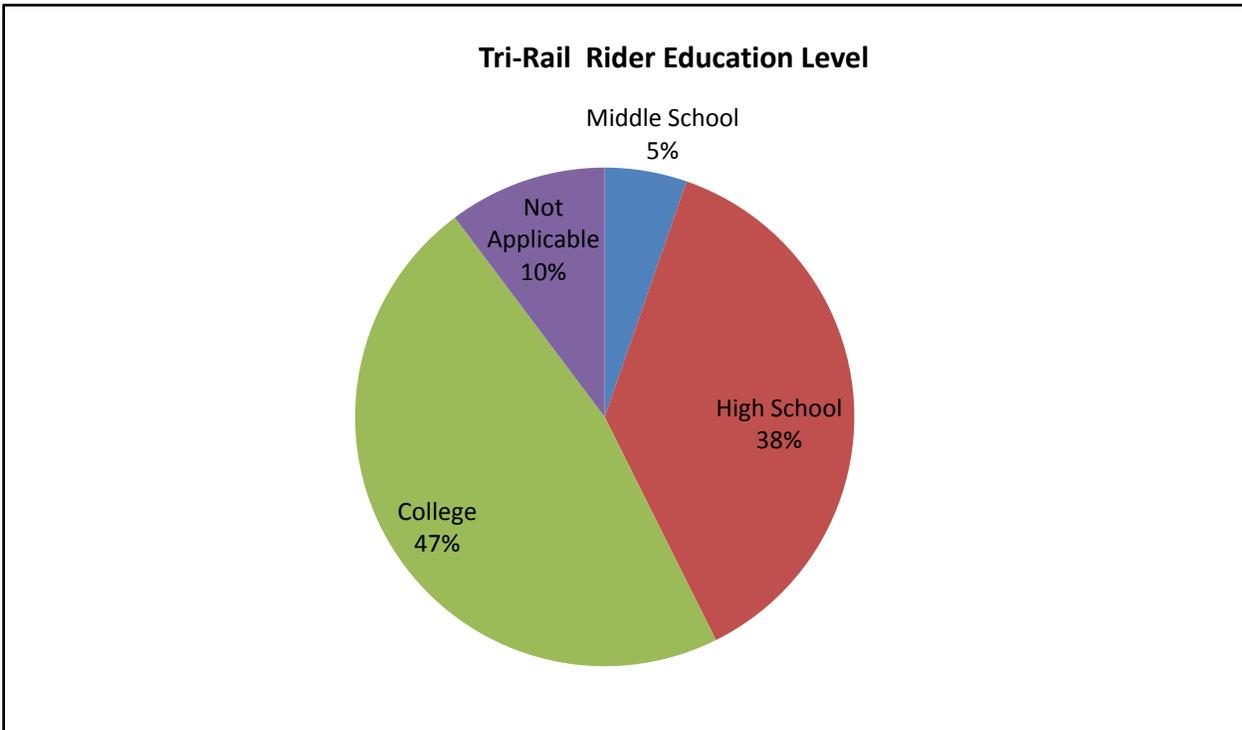
Q19. I AM:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	In Middle School	218	4.4%	- Majority of the riders are not in school - Among riders going to school, college students are the largest group.
2	in High School	372	7.5%	
3	in College	974	19.7%	
4	Not in School	3,372	68.3%	
	Total	4,936	100.0%	



Q20. I GRADUATED

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Middle School	274	5.3%	- Majority of Tri-Rail riders graduated from high school or above - Close to half of the riders have college level education.
2	High School	1,922	37.3%	
3	College	2,425	47.1%	
4	Not Applicable	528	10.3%	
	Total	5,149	100.0%	

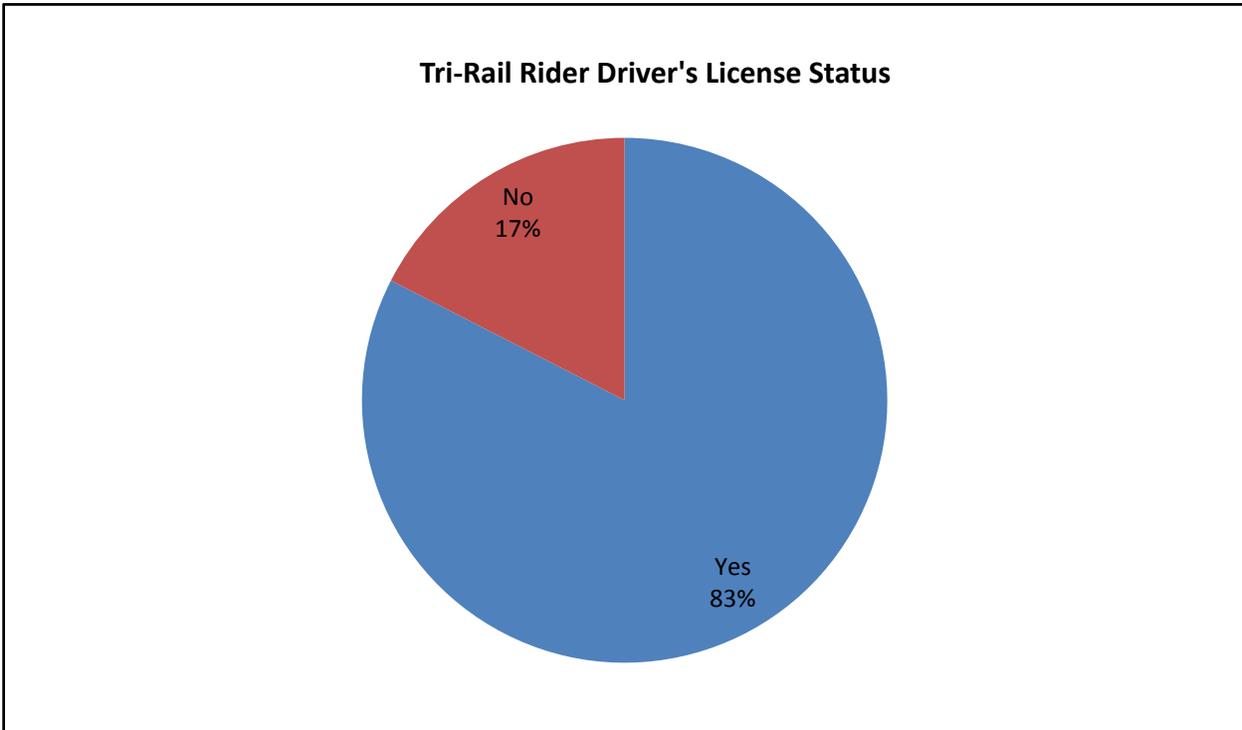


Q21. I HAVE A DRIVER'S LICENSE.

Frequency Analysis			
	Answer	Count	Percent
1	Yes	4,577	82.5%
2	No	968	17.5%
	Total	5,545	100.0%

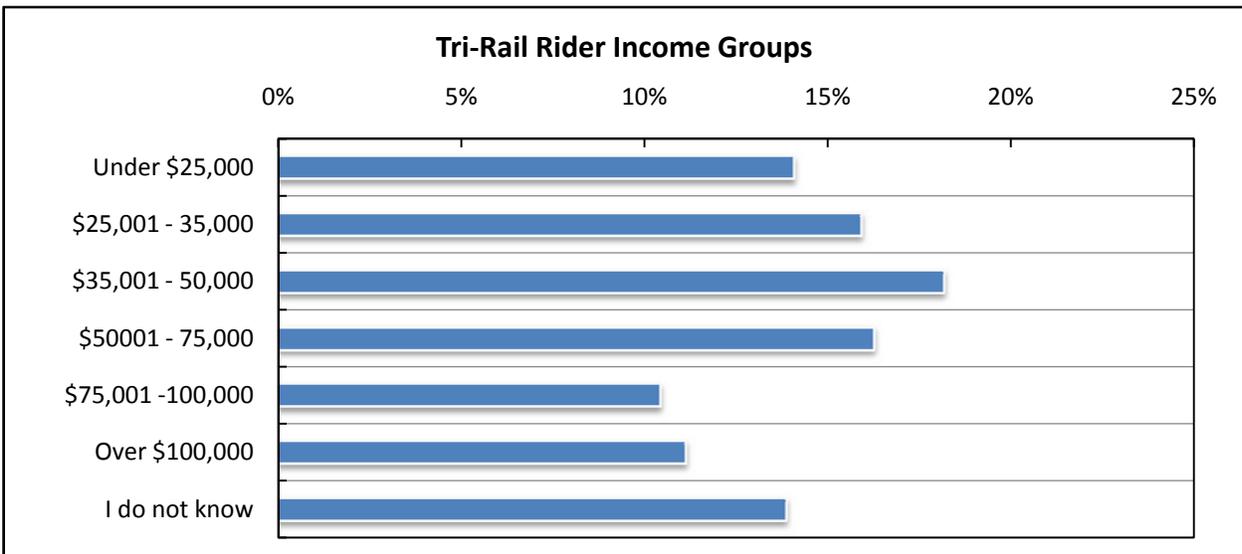
Key Facts:

- Most Tri-Rail riders (83%) possess a driver's license



Q22. MY HOME'S TOTAL ANNUAL INCOME IS:

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	Under \$25,000	727	14.1%	- Income groups seem evenly distributed - The data suggests that high income groups (\$75K or higher) have a larger portion (22%) than any other income groups. Need further examination of the income data.
2	\$25,001 - 35,000	821	15.9%	
3	\$35,001 - 50,000	938	18.2%	
4	\$50001 - 75,000	839	16.3%	
5	\$75,001 -100,000	538	10.4%	
6	Over \$100,000	574	11.1%	
7	I do not know	716	13.9%	
	Total	5,153	100.0%	

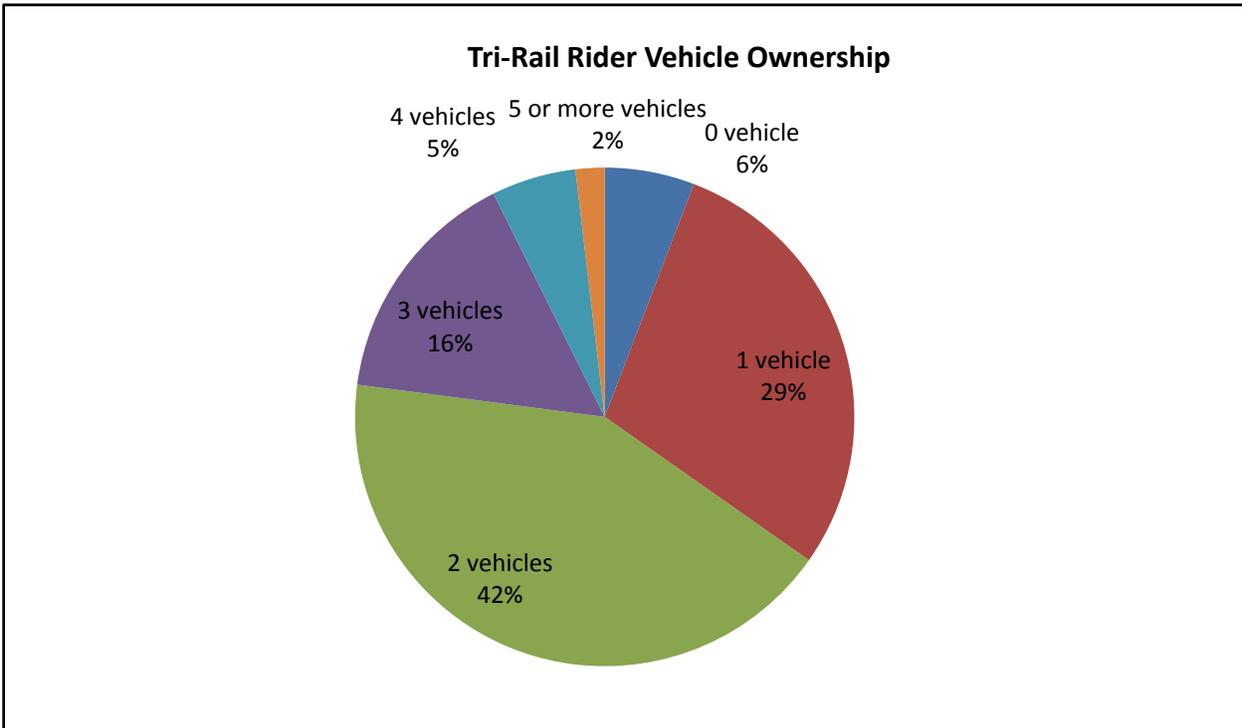


Q23. INCLUDING ME, _____ PEOPLE LIVE IN MY HOME AND OF THOSE _____ HAVE A DRIVER'S LICENSE

Frequency Analysis				Key Facts:
	Answer	Count	Percent	
Household Size				
1	0 person	101	2.0%	- 29% of households have three (3) people. - The average household size is 2.89.
2	1 people	711	14.0%	
3	2 people	1,443	28.4%	
4	3 people	1,033	20.4%	
5	4 people	1,004	19.8%	
6	5 or more people	783	15.4%	
	Total	5,075	100.0%	
Driver's License				
1	0 driver	173	3.8%	- Close to half of the households (48%) have two (2) licensed drivers.
2	1 driver	908	19.8%	
3	2 drivers	2,203	48.1%	
4	3 drivers	871	19.0%	
5	4 drivers	324	7.1%	
6	5 or more drivers	104	2.3%	
	Total	4,583	100.0%	

Q24. ___ VEHICLES ARE OWNED BY PEOPLE IN MY HOME.

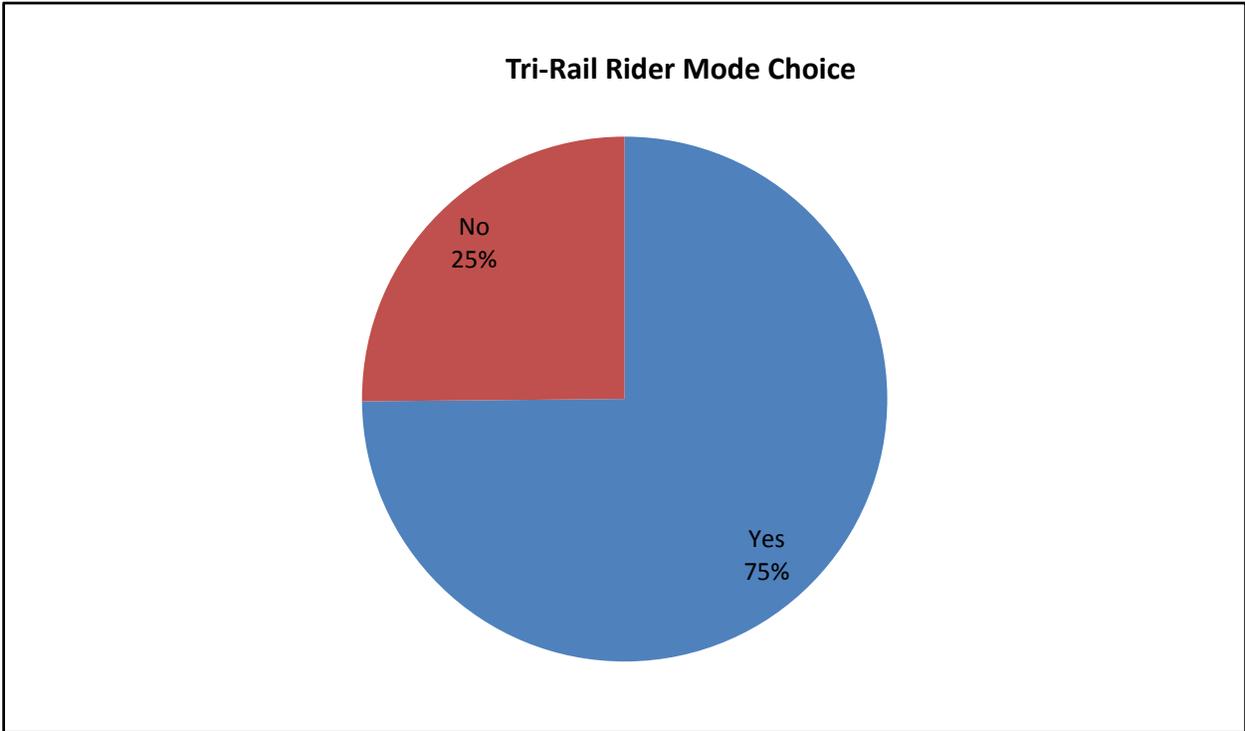
Frequency Analysis				Key Facts:
	Answer	Count	Percent	
1	0 vehicle	304	5.8%	- 65% of the riders have two or more vehicles in their households - 6% of the riders do not own a vehicle - Average car ownership is 1.92 vehicle per household.
2	1 vehicle	1,511	28.9%	
3	2 vehicles	2,210	42.3%	
4	3 vehicles	814	15.6%	
5	4 vehicles	286	5.5%	
6	5 or more vehicles	98	1.9%	
	Total	5,223	100.0%	



Q25. I COULD HAVE TRAVELED TODAY BY CAR BUT CHOSE TO RIDE TRI-RAIL INSTEAD.

Frequency Analysis			
	Answer	Count	Percent
1	Yes	4,134	74.9%
2	No	1,388	25.1%
	Total	5,522	100.0%

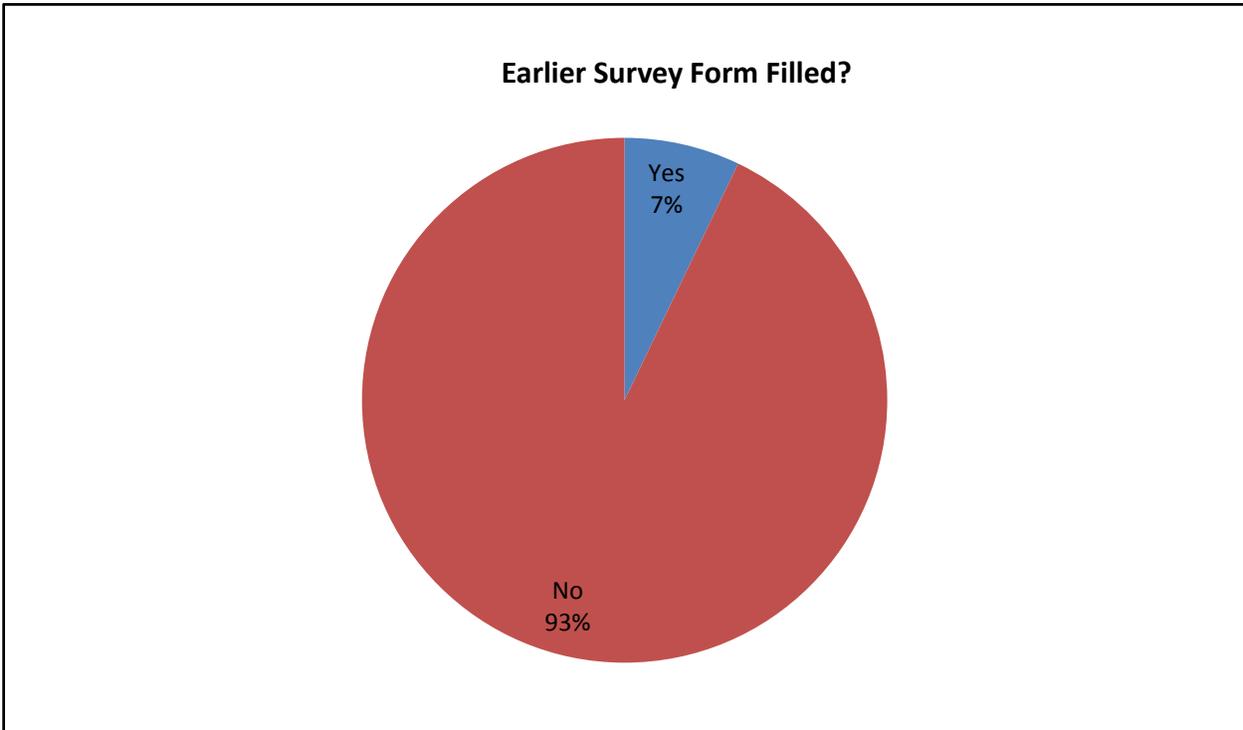
Key Facts:
- 75% Tri-Rail riders are choice riders.



Q26. I FILLED OUT ANOTHER SURVEY CARD EARLIER TODAY.

Frequency Analysis			
	Answer	Count	Percent
1	Yes	379	7.1%
2	No	4,943	92.9%
	Total	5,322	100.0%

Key Facts:
- 7% of respondents filled out the survey form more than once.



APPENDIX A – ALL DAY PASSENGER DOOR COUNTS

All Day Passenger Door Counts

Southbound Trains

Station	P601		P603		P605		P607		P609		P611		P613		P615		P617		P619		P621		P623		P625		P627		P629		P631		P633		P635		P637		P639		P641		P643		P645		P647		P649		TOTAL	
	Ons	Offs																																																		
Mangonia Park	8	0	11	0	25	0	33	0	39	1	39	0	28	0	83	0	65	0	19	0	31	0	21	0	18	0	21	0	12	0	45	2	360	1	41	0	64	0	35	0	75	1	16	0	24	2	17	0	8	0	1138	7
West Palm Beach	10	0	21	0	28	0	43	0	24	2	39	2	37	0	33	3	42	1	19	0	22	0	40	2	29	0	28	2	26	0	34	2	36	10	250	0	49	0	79	0	82	0	41	0	24	3	15	0	17	0	1068	27
Lake Worth	18	0	35	1	52	0	56	1	44	4	50	9	39	2	33	1	49	3	32	1	25	1	12	3	8	2	15	0	13	0	84	5	5	50	26	20	19	11	22	12	17	14	12	10	5	5	13	0	13	1	697	156
Boynton Beach	10	1	27	1	44	3	44	6	34	8	34	2	47	0	39	1	30	7	31	3	20	4	3	1	5	4	4	2	10	1	14	15	7	148	13	81	21	12	15	10	8	23	8	7	4	10	4	1	6	2	482	353
Delray Beach	5	0	16	3	26	3	27	10	23	10	27	11	35	5	29	23	16	19	13	2	11	7	10	0	6	3	14	3	12	4	21	21	8	47	12	36	24	16	27	9	23	17	7	1	4	7	13	2	4	3	413	262
Boca Raton	4	2	8	2	16	3	16	22	10	17	24	15	17	37	20	47	21	39	17	15	14	11	12	7	24	5	22	4	19	6	78	32	35	70	71	74	75	10	110	12	50	22	39	7	18	4	26	1	13	0	759	464
Deerfield Beach	10	1	22	5	32	11	31	14	41	17	30	21	32	23	8	17	12	17	16	3	21	2	8	1	13	5	13	8	17	8	32	15	24	35	28	25	32	21	21	26	43	29	9	10	11	5	5	4	7	6	518	329
Pompano Beach	13	6	23	8	39	14	29	14	32	26	20	18	16	19	19	15	15	26	10	9	12	5	10	7	7	9	7	5	20	7	37	21	13	4	24	17	33	26	24	29	8	17	12	10	6	7	4	4	10	0	443	323
Cypress Creek	22	6	38	10	47	25	40	36	32	21	17	37	21	46	11	37	10	38	12	17	17	14	14	3	5	8	16	2	24	11	73	15	21	14	45	32	55	39	42	30	22	18	16	16	10	12	11	9	3	5	624	501
Fort Lauderdale	15	1	36	7	58	34	44	34	34	45	24	44	24	23	20	35	10	13	18	12	11	13	11	11	16	7	8	16	9	11	20	30	16	16	15	53	18	31	20	39	17	32	4	14	6	8	5	20	6	4	465	553
Fort Lauderdale Airport	10	4	22	28	41	23	37	27	16	16	9	14	20	14	5	21	7	16	11	25	26	15	4	15	13	8	28	20	20	9	27	30	7	21	9	19	12	26	11	23	17	17	4	10	3	3	8	8	7	7	374	419
Sheridan Street	10	0	18	8	45	19	48	14	19	14	19	6	32	8	14	7	4	6	12	3	3	5	7	10	3	6	3	6	0	3	13	23	12	16	5	25	6	51	10	34	11	26	1	11	0	6	2	5	0	10	297	322
Hollywood	15	6	48	7	36	16	26	11	22	17	17	13	10	15	7	16	17	6	7	10	12	1	9	10	8	9	5	5	12	12	16	28	9	19	10	23	11	32	9	30	8	23	5	18	2	12	4	9	3	16	328	364
Golden Glades	1	7	11	11	24	20	24	14	14	12	12	6	11	6	11	12	4	6	6	8	7	17	1	6	3	16	10	12	1	9	3	54	1	31	9	40	19	27	5	43	0	34	1	12	4	6	2	11	2	9	186	429
Opa-locka	4	2	4	7	4	13	7	9	4	6	7	15	2	0	0	7	1	18	1	9	0	22	1	3	1	4	3	6	4	8	1	22	2	20	2	11	0	13	2	16	0	16	0	7	1	5	0	6	1	4	52	249
MetroRail Transfer	2	66	12	131	2	250	3	211	0	151	1	118	2	116	1	67	9	34	0	60	1	45	1	37	19	33	2	48	2	36	7	71	1	28	0	62	0	50	1	44	1	41	0	22	0	17	0	26	1	18	68	1782
Hialeah Market	0	1	0	20	0	14	0	33	1	7	1	20	0	4	0	2	0	4	0	10	0	3	0	1	0	5	0	11	2	4	1	17	0	9	1	13	0	14	0	23	1	18	0	7	0	1	0	3	0	3	7	247
Miami Airport	0	47	11	90	0	62	0	168	2	48	0	21	0	12	0	28	0	20	0	34	0	53	0	38	0	29	0	12	9	36	15	46	1	21	0	31	0	33	8	21	0	19	0	19	1	4	0	17	0	13	47	922
TOTAL	157	150	363	339	519	510	508	624	391	422	370	372	373	330	333	339	312	273	224	221	233	218	164	155	178	153	199	162	212	165	521	449	558	560	561	562	438	412	441	401	383	367	175	181	123	117	129	126	101	101	7966	7709

Northbound Trains

Station	P600		P602		P604		P606		P608		P610		P612		P614		P616		P618		P620		P622		P624		P626		P628		P630		P632		P634		P636		P638		P640		P642		P644		P646		P648		TOTAL	
	Ons	Offs																																																		
Miami Airport	6	4	9	0	14	0	29	0	12	0	10	0	29	0	25	0	34	0	17	10	24	0	18	0	17	0	13	0	16	0	55	0	120	0	48	0	78	0	49	0	34	0	69	0	33	0	69	0	22	0	850	14
Hialeah Market	6	0	6	0	0	0	12	0	8	0	14	6	21	0	27	0	13	0	7	0	4	0	5	0	1	0	3	0	13	0	5	0	14	0	15	0	15	0	20	0	13	0	23	0	4	0	2	0	4	0	255	6
MetroRail	10	0	12	0	17	1	46	0	37	0	35	1	49	0	42	2	43	4	31	1	31	3	49	2	35	0	65	0	46	1	104	4	125	0	93	0	172	4	225	2	154	2	112	2	75	0	61	0	30	1	1699	30
Opa Locka	9	0	10	0	7	0	10	0	17	3	24	1	17	0	12	3	12	2	5	2	6	0	4	0	11	0	6	6	8	2	7	4	15	3	8	2	9	8	5	2	7	1	5	2	6	0	4	3	0	2	224	46
Golden Glades	17	0	29	0	25	1	39	3	17	3	40	1	45	1	33	1	27	1	19	0	10	2	15	0	8	8	17	3	13	5	17	24	28	24	10	18	19	16	10	12	13	7	13	15	9	6	9	12	10	8	492	171
Hollywood	14	0	13	2	13	0	30	7	11	6	19	9	20	8	23	15	27	13	11	11	5	2	9	7	10	4	10	10	11	6	14	13	20	27	19	21	20	23	12	34	24	15	8	16	6	7	8	8	10	9	367	273
Sheridan Street	0	0	8	0	5	0	33	6	33	6	29	9	46	19	44	7	20	4	15	2	7	3	9	2	0	2	7	9	12	8	10	10	25	26	16	26	10	26	6	43	10	26	5	21	9	18	10	10	0	3	369	286
Ft. Lauderdale Airport	6	7	6	1	5	4	18	11	20	9	22	10	20	5	24	16	20	12	9	8	17	20	13	10	5	6	20	10	17	7	35	26	54	34	25	20	32	28	15	34	20	26	19	14	9	15	11	6	12	9	454	348
Ft. Lauderdale	11	1	12	2	20	7	22	7	26	14	22	9	33	24	38	13	16	12	11	7	11	15	10	17	10	9	21	18	18	9	24	28	68	32	35	39	49	37	18	46	16	38	6	30	11	15	5	19	4	5	517	453
Cypress Creek	12	13	7	24	15	10	21	29	13	27	26	47	30	42	19	48	15	30	6	15	10	5	4	31	10	5	14	12	12	16	26	34	59	47	40	39	50	35	23	32	16	32	22	24	14	13	8	26	5	4	477	640
Pompano Beach	5	9	15	13	10	8	26	36	17	20	17	42	23																																							

APPENDIX B – SURVEY QUESTIONNAIRE

PLEASE HELP US IMPROVE YOUR TRI-RAIL SERVICE!

Por favor ver al reverse para español • Souple mande puyoun fom an kreyol

Tri-Rail is conducting a survey to help determine future service and stat on improvements. You can help by filling out this survey while you ride today. Please print clearly. Return your completed survey to a surveyor before leaving the train. If you make another trip today on Tri-Rail, you may be given a survey each time you ride Tri-Rail. It is important that you complete a survey each time that you ride Tri-Rail today. THANK YOU!

PLEASE TELL US ABOUT THE ONE-WAY TRIP YOU ARE MAKING NOW ON TRI-RAIL
PLEASE CHECK ONLY ONE RESPONSE PER QUESTION

1. BEFORE COMING TO TRI-RAIL, I ORIGINALLY STARTED TODAY'S ONE-WAY TRIP AT: Home Airport Work College School (K-12) Other _____
Name _____ Specify (for example "School") _____

2. WHICH IS LOCATED AT (IMPORTANT!): _____
Nearby Landmark (for example: Name of Building, Mall, Hospital or School) _____
Address _____ City or Town _____ Zip Code _____

3. TO GET TO TRI-RAIL I: Walked Biked Took a Taxi Rode a School Bus Rode a Metrorail Train Rode a Transit Bus (Route #/Name) _____ Drove and parked at the station. Number of people in vehicle including me. (# of people) _____
 Rode with someone that dropped me off at the station. Number of people dropped off including me. (# of people) _____
 Rode with someone that parked his/her vehicle at the station. Number of people in vehicle including me. (# of people) _____
 Other (Please specify) _____

4. I GOT ON THIS TRAIN AT: _____ Station Name _____ Station _____
Station Name _____ Station _____

5. I WILL GET OFF THIS TRAIN AT: _____ Station Name _____ Station _____
Station Name _____ Station _____

6. WHEN I LEAVE TRI-RAIL I WILL: Walk Bike Take a Taxi Ride a School Bus Ride a Metrorail Train Ride a Transit Bus (Route #/Name) _____ Ride a Tri-Rail Shuttle Bus (Route #/Name) _____
 Drive a vehicle I parked at the station. Number of people that will get in the vehicle including me. (# of people) _____
 Ride with someone that is picking me up at the station. Number of people that will be picked up including me. (# of people) _____
 Ride with someone that parked his/her vehicle at the station. Number of people that will get in vehicle including me. (# of people) _____
 Other (Please specify) _____

PLEASE TELL US ABOUT YOURSELF

THIS INFORMATION WILL BE KEPT STRICTLY CONFIDENTIAL

14. I LIVE IN ZIP CODE: _____ Zip Code _____

15. I LIVE/STAY IN SOUTH FLORIDA: Less than 1 month per year 1 to 6 month(s) per year More than 6 months per year

16. I AM: MALE FEMALE

17. MY AGE IS: Under 16 16-24 25-34 35-44 45-54 55-64 65 or Over

18. MY RACE IS BEST DESCRIBED AS: (You can check more than one box.)
 American Indian Asian Black/African American Spanish/Hispanic/Latino White Other (Please specify) _____

19. I AM: In Middle School In High School In College Not in School

20. I GRADUATED: Middle School High School/GED College Not Applicable

21. I HAVE A DRIVER'S LICENSE: Yes No

22. MY HOME'S TOTAL ANNUAL INCOME IS: Under \$25,000 \$25,001 - \$50,000 \$50,001 - \$75,000 \$75,001 - \$100,000 Over \$100,000 I do not know.

23. INCLUDING ME, (# of people) _____ PEOPLE LIVE IN MY HOME AND OF THOSE (# of people) _____ HAVE A DRIVER'S LICENSE.

24. _____ VEHICLES ARE OWNED BY PEOPLE IN MY HOME.
(Including Van, SUV's, Motorcycles, Scooters and Pick-Up Trucks)

25. I COULD HAVE TRAVELED TODAY BY CAR BUT CHOSE TO RIDE TRI-RAIL INSTEAD: Yes No

26. I FILLED OUT ANOTHER SURVEY CARD EARLIER TODAY: Yes No

Comments: _____

Thank you for your participation!



Appendix C – Top Ten (10) Trip Origin Zip Codes

Top Ten Origin Zipcodes

SFRTA - Tri-Rail On Board Survey Results



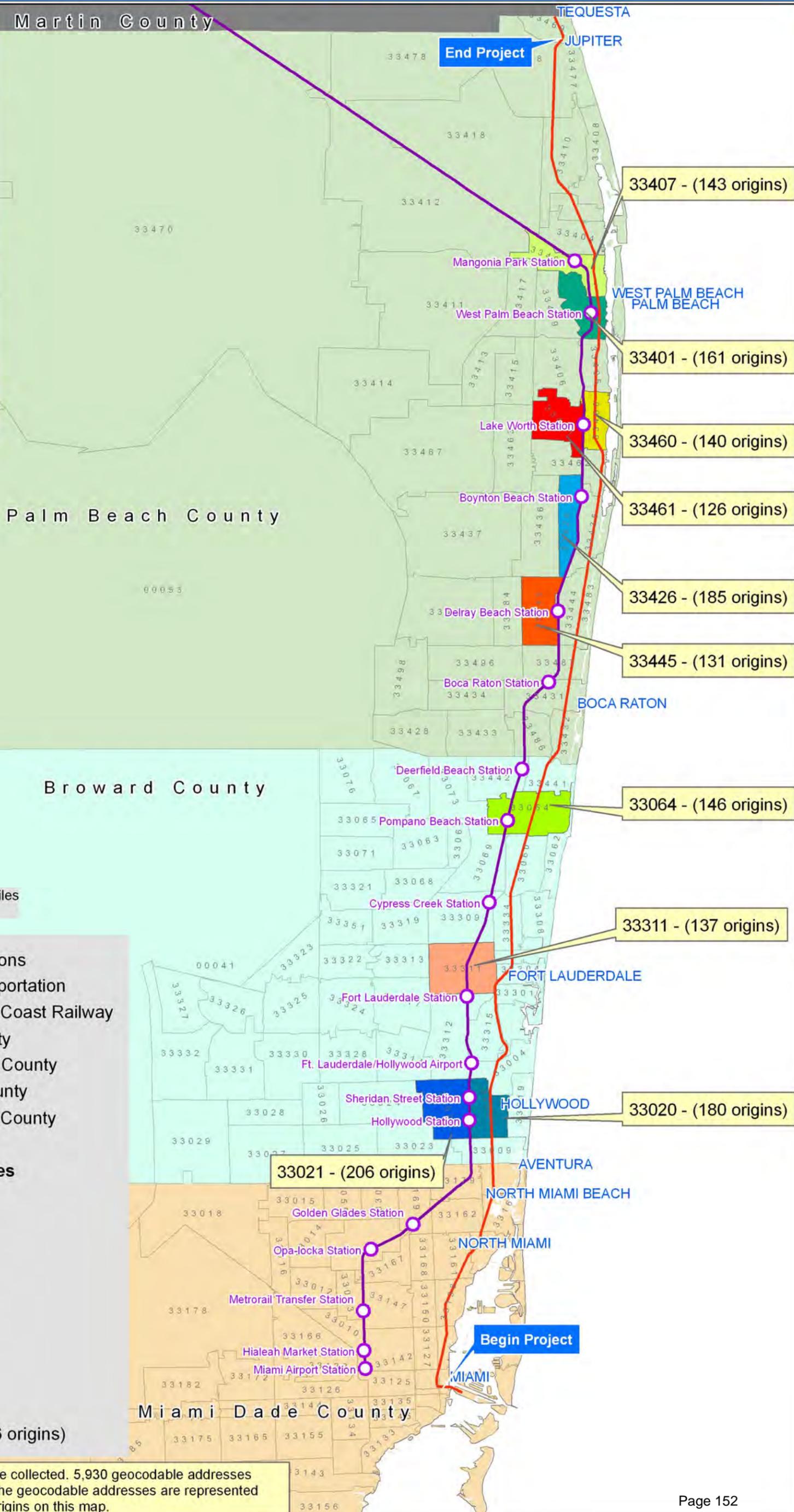
0 2 4 8 Miles

- Tri-Rail Stations
- CSXT Transportation
- Florida East Coast Railway
- Martin County
- Palm Beach County
- Broward County
- Miami Dade County
- Zip Codes

Top Ten Zip Codes

- 33021
- 33426
- 33020
- 33401
- 33064
- 33407
- 33460
- 33311
- 33445
- 33461 - (126 origins)

Note: 6,103 surveys were collected. 5,930 geocodable addresses were identified. 26% of the geocodable addresses are represented by the top 10 zip code origins on this map.



APPENDIX D – Top Ten (10) Trip Destination Zip Codes

Top Ten Destination Zipcodes

SFRTA - Tri-Rail On Board Survey Results



Martin County

Palm Beach County

Broward County

Miami Dade County

End Project

33401 - (612 destinations)

PALM BEACH

33431 - (357 destinations)

33486 - (179 destinations)

33442 - (200 destinations)

33064 - (183 destinations)

33309 - (327 destinations)

33021 - (181 destinations)

33013 - (302 destinations)

33142 - (221 destinations)

Begin Project

33122 - (204 destinations)



0 2 4 8 Miles

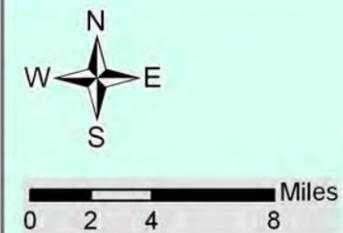
- Tri-Rail Stations
- CSXT Transportation
- Florida East Coast Railway
- Top Ten Destination Zip Codes**
- 33401
- 33431
- 33309
- 33013
- 33142
- 33122
- 33442
- 33064
- 33021
- 33486
- Martin County
- Palm Beach County
- Broward County
- Miami Dade County
- Zip Codes

Note: 6,103 surveys were collected. 5,930 geocodable addresses were identified. 47% of the geocodable addresses are represented by the top 10 zip code destinations on this map.

APPENDIX E – Top Ten (10) Place of Residence Zip Codes

Top Ten Home Zipcodes

SFRTA - Tri-Rail On Board Survey Results



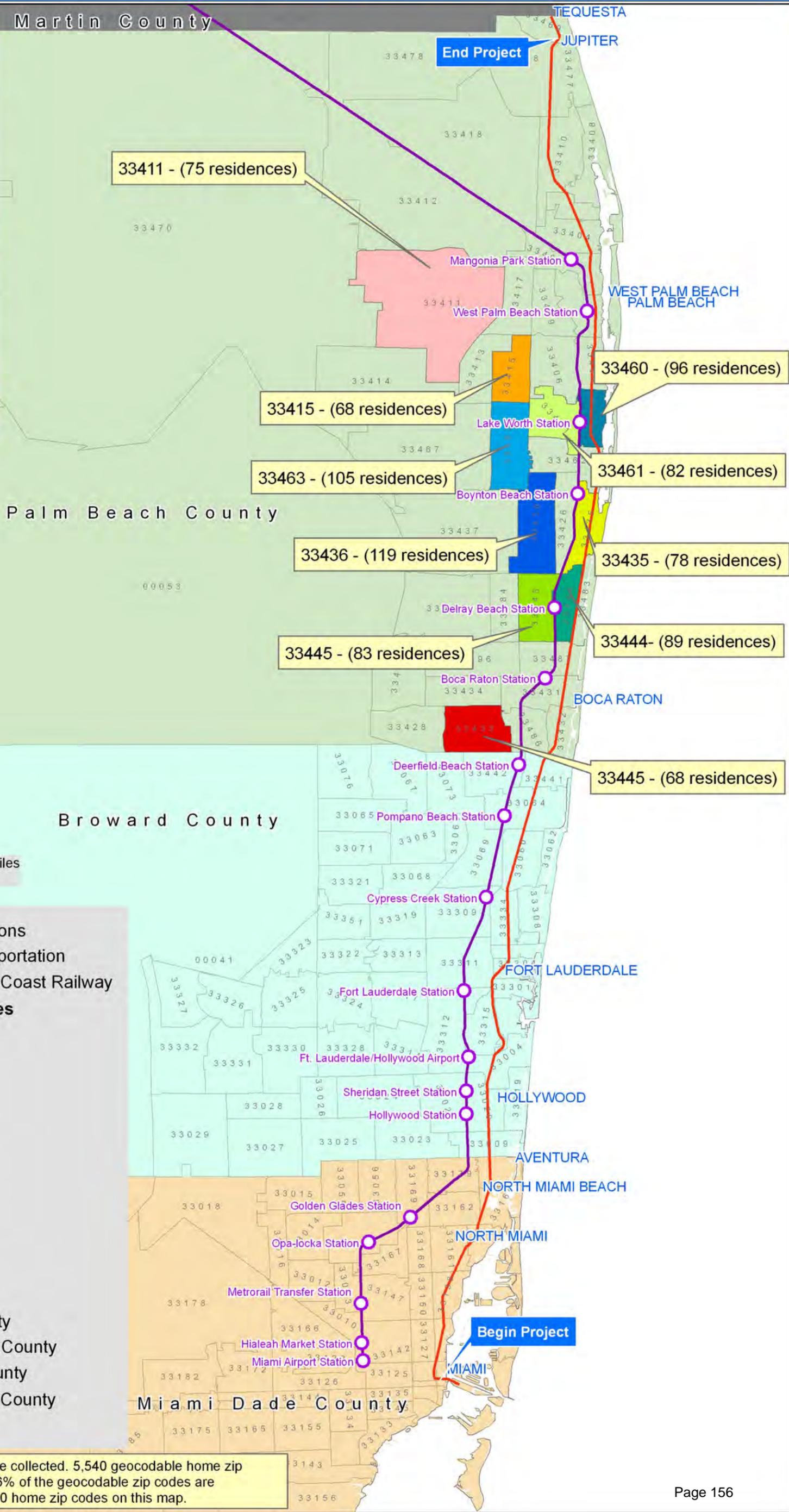
- Tri-Rail Stations
- CSXT Transportation
- Florida East Coast Railway

Top Ten Zip Codes

ZIP

- 33436
- 33463
- 33460
- 33444
- 33445
- 33461
- 33435
- 33411
- 33415
- 33433
- Martin County
- Palm Beach County
- Broward County
- Miami Dade County
- Zip Codes

Note: 6,103 surveys were collected. 5,540 geocodable home zip codes were identified. 16% of the geocodable zip codes are represented by the top 10 home zip codes on this map.



Appendix F – Comparison of 2007 and 2008 Tri-Rail On-Board Survey Rider Characteristics

Below are comparisons between the un-weighted 2007 and un-weighted 2008 Tri-Rail On-Board Survey Rider Characteristics data for questions that were common to both surveys. Although there are slight differences between the 2007 and 2008 data; overall the trends in the 2007 data are mirrored in the 2008 data. The only question that is significantly different (i.e., double digit difference) between the two years is the question related to using Tri-Rail as a choice trip. The 2008 data shows that more people used Tri-Rail as a choice versus using the system due to being captive riders.

Gender			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
Male	55%	58%	3%
Female	45%	42%	-3%

Age			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
Under 16	9%	6%	-3%
16 to 24	20%	17%	-3%
25 to 34	17%	19%	2%
35 to 44	18%	20%	2%
45 to 54	18%	22%	4%
55 to 64	13%	12%	-1%
65 and over	5%	4%	-1%

Student Status			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
In Middle School	6%	4%	-2%
In High School	12%	8%	-4%
In College	16%	20%	4%
Not in School	66%	68%	2%

Education Level			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
Middle School	9%	5%	-4%
High School	32%	38%	6%
College	44%	47%	3%
Not Applicable	15%	10%	-5%

Driver's License Status			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
Yes	74%	83%	9%
No	26%	17%	-9%

Income			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
Under \$25,000	22%	14%	-8%
\$25,000 to \$35,000	18%	16%	-2%
\$35,001 to \$50,000	18%	18%	0%
\$50,001 to \$75,000	16%	16%	0%
\$75,001 to \$100,000	10%	10%	0%
Over \$100,000	16%	11%	-5%
I Don't Know	n/a	14%	n/a

Vehicle Ownership			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
0 Vehicle	8%	6%	-2%
1 Vehicle	30%	29%	-1%
2 Vehicles	40%	42%	2%
3 or More Vehicles	22%	23%	1%

Choice Riders			
Categories	2007 Survey Data Un-weighted %	2008 Survey Data Un-weighted %	Difference
Yes	63%	75%	12%
No	37%	25%	-12%