2017 HOUSTON-GALVESTON AREA COUNCIL (H-GAC)

REGIONAL TRANSIT ONBOARD ORIGIN DESTINATION SURVEY

MAY 2018-V5

PREPARED BY ETC INSTITUTE
IN ASSOCIATION WITH CTG AND RSG

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Acronyms and Abbreviations

Acronym	Definition
ADR	Average Daily Ridership
APC	Automatic Passenger Counter
BTD	Brazos Transit District
CBD	Houston's Central Business District
CI	Confidence interval
CTG	Connetics Transportation Group, Inc.
ETC	ETC Institute
FTA	Federal Transit Administration
GCC	Gulf Coast Center
GIS	Geographic Information System
HBO	Home Based Other
HBW	Home Based Work
H-GAC	Houston-Galveston Area Council
HLSR	Houston Livestock Show and Rodeo
IPF	Iterative Proportional Fitting
KNR	Kiss and Ride
METRO	Metropolitan Transit Authority of Harris County
NHB	Non-Home Based
OD	Origin-Destination
O2O	On-to-Off
PC	Personal Computer
PNR	Park and Ride
QA/QC	Quality Assurance/Quality Control
TMC	Texas Medical Center
TTI	Texas A&M Transportation Institute
TRT	Transit Review Team

EXECUTIVE SUMMARY

The Houston-Galveston Area Council (H-GAC) conducted the 2017 Regional Transit Onboard Origin-Destination (OD) Survey in partnership with the Metropolitan Transit Authority of Harris County (METRO). H-GAC contracted with ETC Institute to conduct the onboard survey of local bus, commuter bus, and light rail passengers for each of the transit systems that operate within the H-GAC eight-county regional transportation planning area:

- METRO.
- Brazos Transit District (BTD).
- Gulf Coast Center (GCC) Connect Transit.
- Conroe Connection.
- Fort Bend County Public Transportation.
- Harris County Transit.
- Galveston Island Transit.
- The Woodlands Express.

Objectives

The primary objectives for the survey were as follows:

- Compile statistically accurate information about transit passengers and how they use transit in the region.
- Generate reliable linked OD data needed by H-GAC and METRO to support computerized travel demand modeling and transportation network simulation activities for purposes of regional long-range transportation planning.
- Assess changes in trip characteristics and ridership profiles of transit riders by comparing the 2017 survey results with data from previous surveys by METRO and H-GAC.
- Assist in fulfilling METRO's commitment to the Federal Transit Administration (FTA) to conduct a before-and-after study of the effects on transit ridership resulting from new light rail projects.
- Meet the Title VI Civil Right Requirements per the latest FTA guidance.

Surveys Collected

The target sample size for the survey was 20,079 completed surveys across all transit services and modes. The actual number of completed surveys was 22,446. The following table documents the ridership, target sample size, and actual number of services collected by transit agency.

Transit Agency	Average Daily Ridership Spring 2016	Target Sample Size	Actual Surveys Collected	Surveys as Percent of Average Daily Ridership
METROBus Local	178,821	12,364	13,236	7.4%
METROBus PNR	33,417	2,303	3,049	9.1%
METRORail	58,576	4,397	5,136	8.8%
METRO Total	**270,814**	**19,064**	**21,421**	**7.9%**
BTD –The District*	78	30	17	21.8%
Conroe Connection	102	30	40	39.2%
Fort Bend County Public Transportation	1,143	136	131	11.5%
GCC–Connect Transit	1,121	261	283	25.2%
Harris County Transit	377	132	126	33.4%
Galveston Island Transit	1,189	184	178	15.0%
The Woodlands Express	2,699	242	250	9.3%
Regional Transit Agencies Total	**6,709**	**1,015**	**1,025**	**15.3%**
Totals	**277,523**	**20,079**	**22,446**	**8.1%**

**BTD service within the H-GAC region*

Survey Methodology

ETC interviewers conducted the survey on local bus and rail by intercept interviews of passengers. Interviewers requested randomly selected passengers to participate in the survey by interview while making the trip on transit. If the passenger agreed, the interviewer conducted the survey using a tablet personal computer (PC), recording responses in real-time. The tablet computers had on-screen mapping features that allowed for geocoding of addresses based on feedback from the passenger. The interviewer was available to answer any passenger question to ensure the accuracy of the data collected. The passenger could also press the answers to the demographic questions directly on the tablet computer, allowing for more privacy.

For non-English speaking riders ETC employed multilingual interviewers. While interviewers spoke Chinese, Vietnamese, French, Arabic, and Urdu, the majority of non-English interviews were conducted in Spanish. A total of 1,405 Spanish interviews was conducted, 6.2 percent of interviews collected.

The survey on commuter bus routes (park and ride [PNR]) was conducted by self-administered paper surveys. Interviewers distributed the paper survey as passengers boarded the bus for the morning in-bound trip. The interviewer then rode the bus trip to be available to answer questions and collect completed surveys.

The final survey database of 22,446 completed surveys provides a 95 percent confidence interval (CI) with a 0.6 percent margin of error for the total regional transit services.

Regional Transit Rider Profile

The following bullets describe the transit rider.

- Seventy-eight percent of transit riders in the region are employed either full time (63 percent) or part time (15 percent).
- Twenty percent of transit riders in the region are students of a college or university (15 percent), a technical school (1 percent), or a school kindergarten through 12th grade (4 percent).
- Seventy-two percent of transit riders in the region are between 20 and 50 years of age.
- The race/ethnicity of transit riders in the region are: 43 percent African American, 25 percent Hispanic or Latino, 22 percent white, 6 percent Asian, less than 1 percent American Indian, and 3 percent mixed race.
- Nineteen percent of transit riders in the region report an annual household income of less than $16,000, 14 percent report an annual household income of $81,000 or more. The median annual household income is $33,765 ($32,000–$39,999).
- Twenty-five percent of transit riders in the region have been riding transit for 10 years or more. Nineteen percent (19 percent) have been riding transit for less than one year.
- Eighty-eight percent of transit riders use transit at least three days a week: 22 percent use transit 6 or 7 days per week, 46 percent use transit 5 days per week, and 21 percent use transit 3 or 4 days per week.

Regional Transit Trip Characteristics

The following bullets describe transit trips.

- Fifty-two percent of all passenger trips surveyed were home-based work trips, 38 percent of all passenger trips surveyed were home-based trips for a purpose other than work. Ten percent of all passengers' trips were non-home based trips, 4 percent were work trips and 6 percent were for a purpose other than work.
- Seventy-nine percent of passengers responding to the survey reported walking to access the bus stop or rail station. Nineteen percent reported driving or being dropped off by someone else. Fewer than 2 percent of riders reported bicycling to the bus stop or rail station.
- Seventy-two percent of all passenger trips surveyed did not require a transfer, 23 percent required one transfer, and 5 percent required two or more transfers.

Findings

- The region's transit systems have a positive impact on traffic and air quality by reducing the number of trips that would otherwise have been completed by driving. If transit were not available, 31 percent of transit riders in the region would drive to make the same trip.

- Public transit is important to the region's economy. Of the passengers surveyed, 56 percent were making the trip on transit for work, 10 percent were students traveling to college or school, and 8 percent were making the trip for shopping.

CHAPTER 1: SURVEY METHODOLOGY

Sampling Plan

To ensure that the distribution of competed surveys mirrored the actual distribution of riders who use the regions transit systems, in coordination with the FTA; ETC, H-GAC, METRO, and the Texas A&M Transportation Institute (TTI) established proportional sampling goals for each bus route and light rail station. On-to-off (O2O) counts with at least 11,715 of METRORail riders and an OD Survey with at least 20,079 of METRO and other regional system's riders during the weekdays based on Tuesday–Thursday average ridership. Table 1 shows the time periods for the weekday collection of this survey.

TABLE 1: PROJECT TIME PERIODS

Time Period	Time Range
Early AM	3:30 to 6:00 a.m.
AM Peak	6:00 to 9:00 a.m.
Midday	9:00 to 3:00 p.m.
PM Peak	3:00 to 6:00 p.m.
Late Night	6:00 to 12:00 a.m.

Sources of Ridership Data

The source of the original ridership used to plan for and expand the survey came from H-GAC, METRO, and other regional providers and was based on the spring 2016 average weekday ridership. This data source was summarized by ETC. Using the route level sample sizes from the request for proposal, ETC created cell level (route/direction/time-of-day) ridership data by normalizing the daily ridership totals. These cell level sample sizes created by ETC was used to fine tune the collection and conduct the expansion. Ridership used for data expansion was from the average weekday ridership from April 2017 where available. For some non-METRO systems, the spring 2016 was used for expansion too.

Sampling Plan for O2O Counts

The sampling plan for the O2O counts was designed to obtain completed surveys from a minimum of 20 percent of the daily ridership on each rail line operated by METRO. ETC collected 7,078 more responses than the sampling goal of 11,715 producing a total number of 18,793 total records collected. Overall 960 O2O pairs were collected on the METRO Green Line, 1,076 on the METRO Purple Line, and 16,757 on the METRO Red Line. See Appendix D for O2O Sample Plans and O2O Survey Competitions.

Sampling Goals for OD Survey

ETC coordinated with the FTA, H-GAC, METRO, and TTI in the development of a sampling plan that would ensure the completion of the OD Survey with approximately 20,079 completed surveys. This included established route and rail line sample sizes for METRO Bus, METRO Rail, and other regional providers. The original overall sampling strata required an overall sample size of 20,000 surveys. After communications with all the regional transit providers during pre-field communications, ETC suggested adding METRO route 413, Harris County Transit route 5, and BTD Cleveland fixed route as these routes were left out of the original sampling plan. With the addition of these three routes and FTA input, the overall sample size increased to 20,079, and ETC collected 22,446 surveys with 21,421 surveys collected for Houston METRO and 1,025 collected for other regional providers. Table 2 shows the sample sizes by system/mode, including individual rail lines. See Appendix D for OD Sample Plans and OD Survey Competitions.

TABLE 2: SAMPLE SIZES BY SYSTEM/MODE

Provider/Mode/Line-Route	# Routes/ Stations	Average Daily Ridership (ADR) Spring 2016	Target Sample Size	Percent of ADR Sample Plan	Surveys Collected	Percent ADR Captured
METRORail Green Line	9	3,209	500	15.6%	549	17.1%
METRORail Purple Line	10	3,315	516	15.6%	705	21.3%
METRORail Red Line	25	52,052	3,381	6.5%	3,882	7.5%
METROBus Local	82	178,821	12,364	6.9%	13,236	7.4%
METROBus PNR	31	33,417	2,303	6.9%	3,049	9.1%
METRO Total	**157**	**270,814**	**19,064**	**7.0%**	**21,421**	**7.9%**
BTD - The District	2	78	30	38.5%	17	21.8%
Conroe Connection	2	102	30	29.4%	40	39.2%
Fort Bend Transit	6	1,143	136	11.9%	131	11.5%
Gulf Coast Center (GCC) Connect Transit	13	1,121	261	23.3%	283	25.2%
Harris County Transit (Including RT 237)	7	377	132	35.0%	126	33.4%
Island Transit	7	1,189	184	15.5%	178	15.0%
The Woodlands Express	4	2,699	242	9.0%	250	9.3%
Regional Transit Agencies Total	**41**	**6,709**	**1,015**	**15.1%**	**1,025**	**15.3%**
Totals	**198**	**277,523**	**20,079**	**7.2%**	**22,446**	**8.1%**

Pilot Test

ETC conducted a pilot test for the project on February 9 and 13, 2017. The purpose of the pilot test was to assess all aspects of the survey including survey design, sampling methodology, implementation, and data processing tasks. The overall goal was to complete 100 OD Surveys. The actual number of OD Surveys that were completed in the field was 122, of these 116 surveys were classified as useable (95 percent recovery rate). Useable records were defined as a trip that made logistical sense and all other variables answered.

Routes Involved

The pilot test was administered to transit riders on three METRORail Lines and one Metro bus route between the hours of 5 a.m. and 11 p.m. The routes that were included in the pilot test are listed below:

- METRO Bus Route 82 – Westheimer.
- METRORail Green Line.
- METRORail Red Line.
- METRORail Purple Line.

The main goal of surveying the Metro Rail lines was to ensure that the survey program was significantly tested for the rail since the rail lines were the first routes sampled for the OD Survey that started February 20. In addition, ETC tested the survey on METRO Bus Route 82 to evaluate how the survey program performed on bus routes. METRO Bus Route 82 was selected due to: (1) out of all METRO routes, route 82 has the highest amount of ridership; and (2) it is a crosstown route that has a variety of different rider demographics.

Pilot Test Results

Assessment of Survey Length

The time taken survey participants to complete the survey on a tablet PC ranged from minimum of 5.75 minutes to a maximum of 27 minutes. The average time was 9.75 minutes. The high average of time taken for each pilot survey was due to the pilot being conducted by inexperienced interviewers only trained that week. Due to the pilot test being only two days of collection, the first day of the pilot was considered a training day, which including classroom training and live in-field training.

Assessment of Survey Design

Overall, the survey design worked well and was understood by both the interviewers and passengers. Only minor changes were needed to the survey design after the pilot test concluded. One of these changes included adding an additional response to the question “How long have you been riding transit?” ETC noticed that there was no response option listed for any passenger that has been using transit over 10 years.

Assessment of Survey Participation and Usability of Surveys

The goal was to complete 100 OD interviews. Overall, 158 passengers were asked to participate in the pilot test while 122 riders participated and completed the in-person interview on the bus/rail while seven provided call back information. This provided an 81 percent participation rate. Out of the 122 records collected during the pilot, 116 records passed secondary post processing. Test results are provided in the Table 3.

TABLE 3: H-GAC PILOT TEST RESULTS

Mode	Surveys Collected	Usable Surveys	Recovery Percent
METROBus	47	46	98%
METRORail	75	70	93%
Totals	**122**	**116**	**95%**

**Note: For the pre-test, call backs to complete the survey via phone were not conducted due to adding the call back feature once the survey was finalized. The call backs were not considered in the recovery rate because they were not traditionally attempted on rolling pilot test surveys.

Assessment of Refusals

Thirty riders refused to complete the survey.

Top Reasons for Refusals

Of these:

- Forty-three percent indicated that they were not interested in participating.
- Twenty-seven percent did not want to provide a reason.
- Seventeen percent indicated they were interested but did not have enough time and did not provide phone number.
- Thirteen percent did not speak the interviewer's language and did not provide phone number.

Conclusions

Based on the results of the pilot test, ETC recommended that the OD Survey proceed as scheduled. ETC made changes to the response options for "How long have you been riding transit?" by adding the response option of 10 years plus.

Survey Instrument

The tablet PCs were the preferred survey method as the tablet PCs have on-screen mapping features that allows for real-time geocoding of addresses and places based off either address, intersection or place

searches based on feedback from respondents. The respondents can then confirm the geocoded location based on the on-screen map that shows the searched address/location via a Google Map indicator icon. In addition to using the mapping feature to collect the global positioning system coordinates of major survey locations (home address, origin address, destination address, boarding location, and alighting location), the tablet PC also allows the surveyor to walk through each question with the respondent. This allows the surveyor to answer any questions as well as to ensure the quality of the data collected. The respondent can also press the answers to the questions directly on the tablet PC during the demographic section to allow for more privacy.

Respondents who did not have time to complete the survey during their bus or rail trip were also given the option of providing their phone numbers for call back. Those who provided their phone numbers were then contacted by ETC's call center to complete the survey. Figure 1 to Figure 4 show examples from the tablet PC survey.

FIGURE 1: TABLET PC SCREENSHOT FOR QUESTION: "WHAT TYPE OF PLACE ARE YOU COMING FROM NOW?"

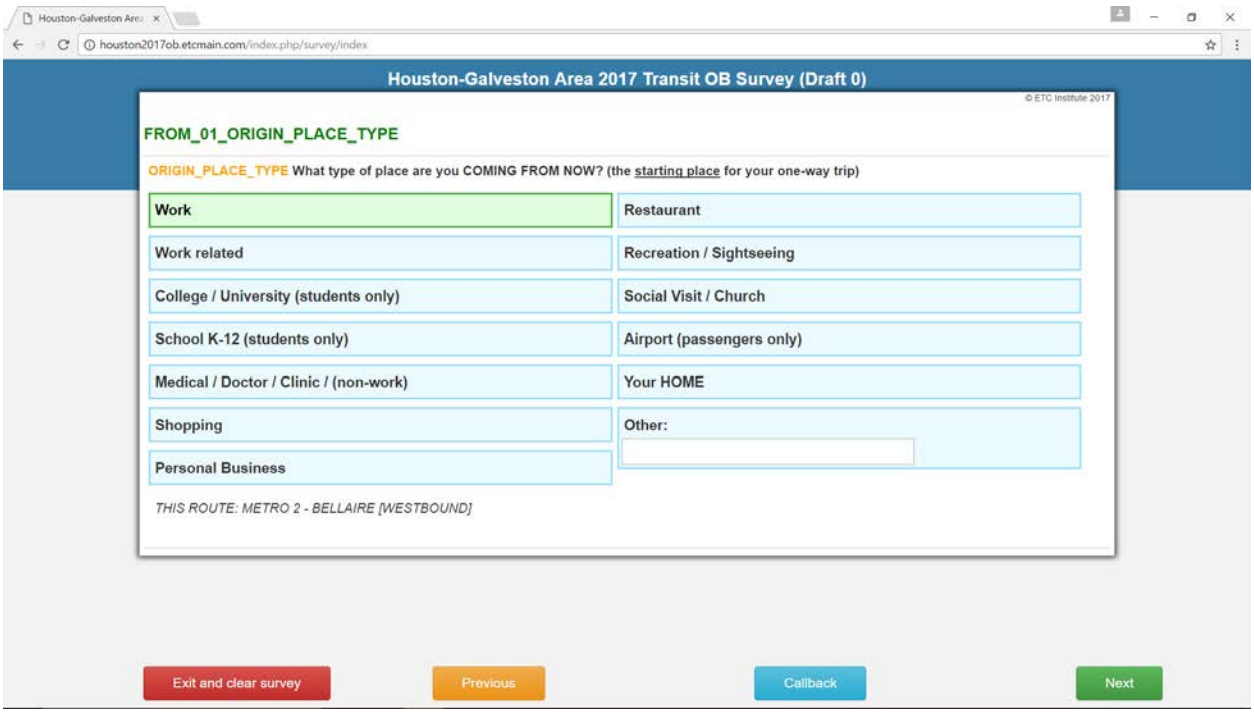


FIGURE 2: TABLET PC SCREENSHOT FOR QUESTION: "HOW DID YOU GET FROM YOUR ORIGIN TO YOUR VERY FIRST BUS/TRAIN ON THIS ONE-WAY TRIP?"

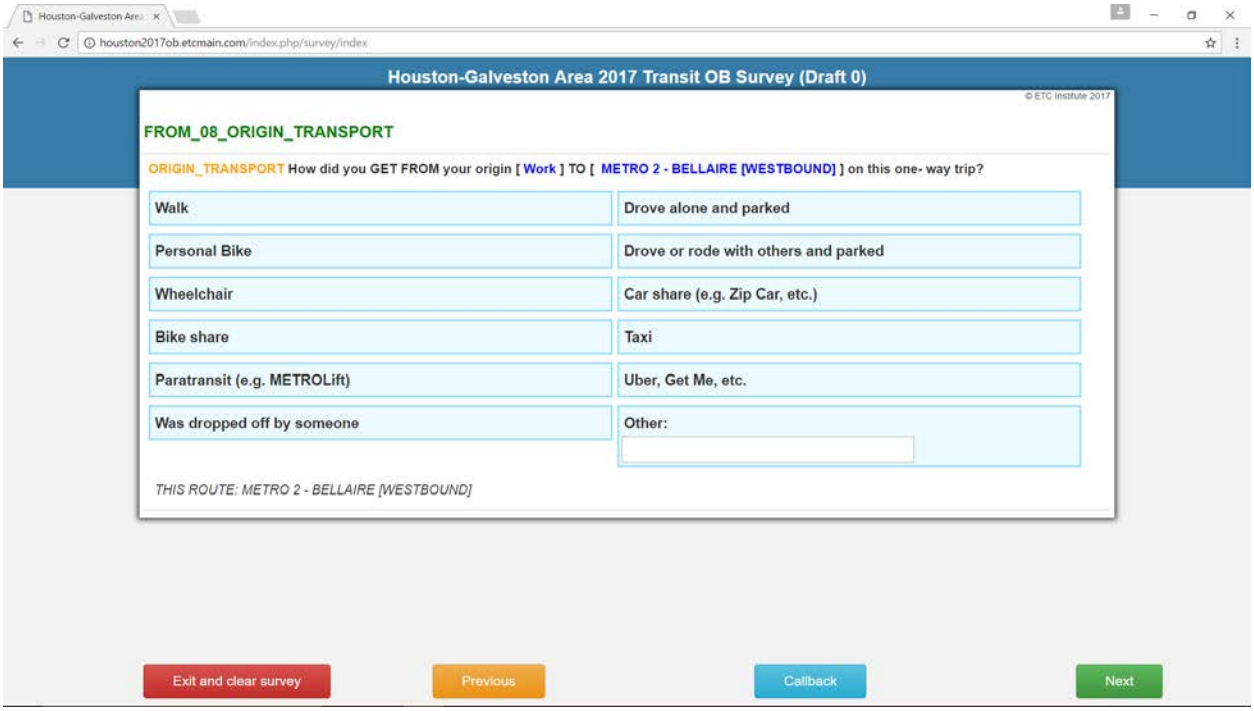


FIGURE 3: TABLET PC SCREENSHOT FOR QUESTION: "WHERE DID YOU GET ON THIS BUS?"

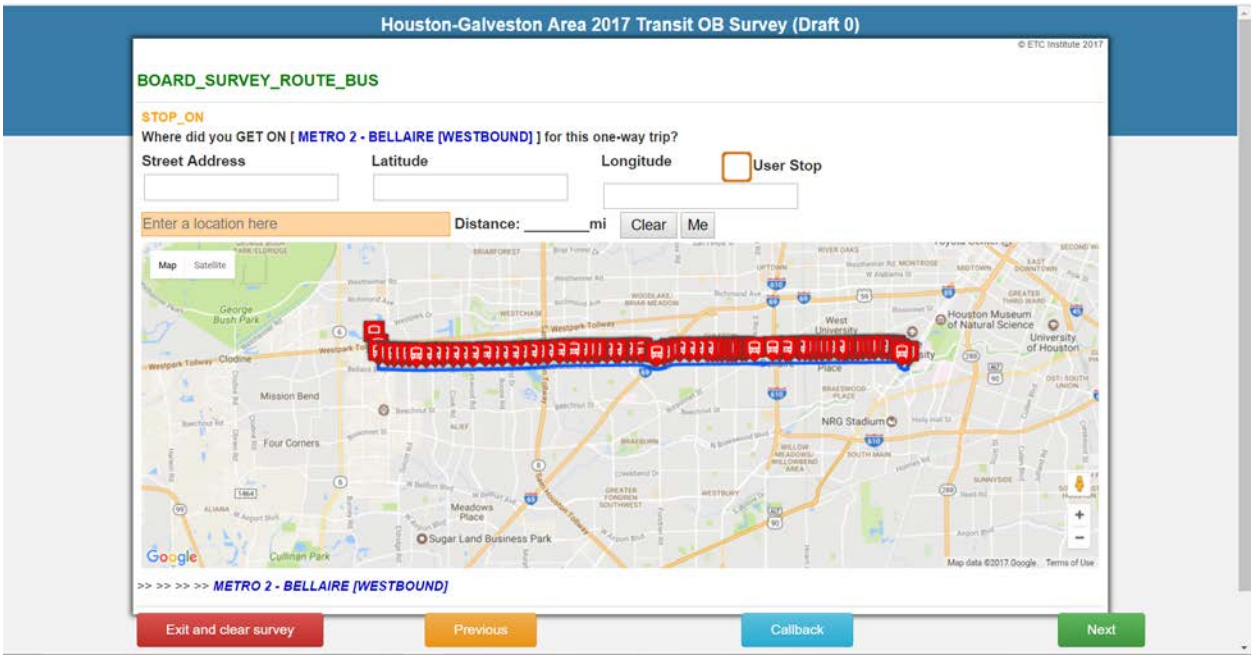
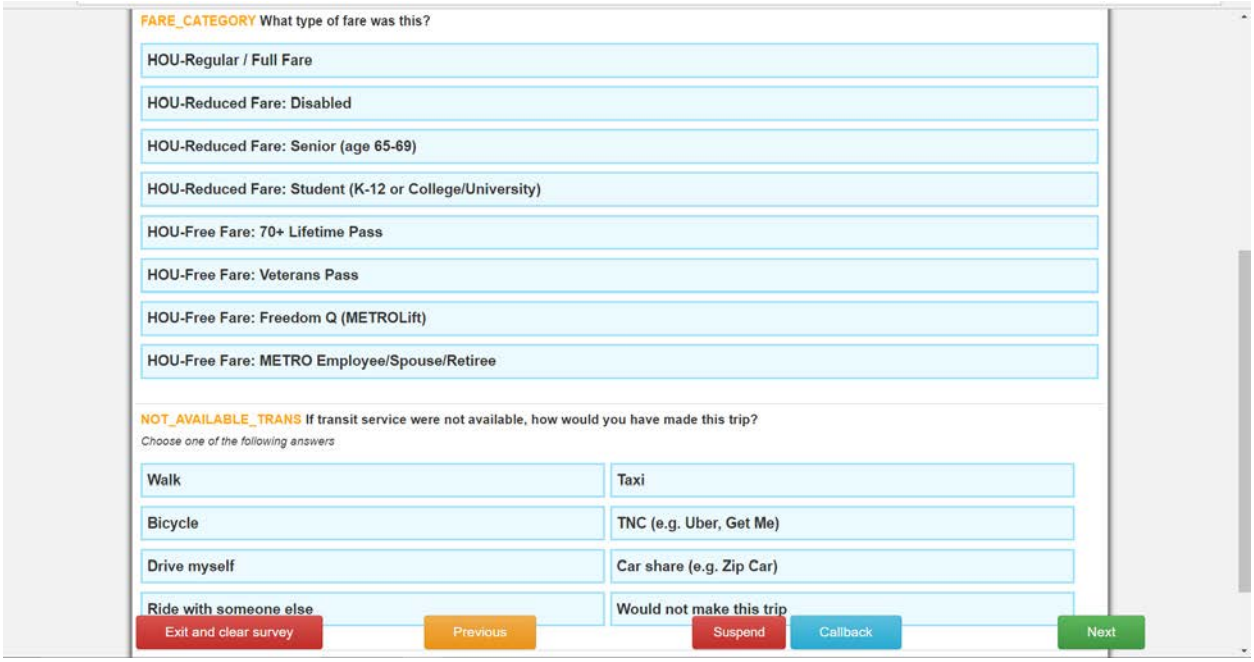


FIGURE 4: TABLET PC SCREENSHOT FOR QUESTIONS ABOUT FARE/SERVICE



For PNR services, the respondent generally has a longer ride time and the ease of distributing paper surveys to a higher number of passengers often leads to a much higher percentage of surveys being captured than would have been possible by using just a tablet PC. For all PNR routes, surveyors distributed and collected a paper questionnaire with 31 coded responses for respondent entry. Each paper questionnaire that was used by ETC tracked the route and trip time (the paper questionnaire is provided in Appendix A). The paper surveys that were collected on these routes were then entered into the online database with the tablet PC survey collection.

Areas for Improvement for Future Surveys

While the project went overwhelmingly well, the one exception to this was an issue that arose with the skip logic after the pilot test was completed and the new instrument finalized. Ideally, all programming would be able to occur prior to the beginning of the pilot collection. Because there was not sufficient time to program all the non-METRO systems prior to the beginning the METRO collection, this programming occurred after the pilot was conducted. Unfortunately, when the additional programming occurred it altered the skip logic for the METRORail and this was not detected. The two questions that were skipped for the remainder of the rail collection were:

Did you start using transit because of Houston METRORail? O Yes O No

Do you only use Houston METRORail (not METROBus)? O Yes O No

Table 4 shows the number of records captured prior to this issue for these questions with CIs and margins of error using the finite population correction factor (FPCF). The population ridership was adjusted by removing the visitors from the overall ridership using the percent of visitors from the raw number of questionnaires collected.

TABLE 4: VARIABLES OF INTEREST BREAKDOWN

METRORail Line	Total Daily Ridership	Total Interviews Collected	Non-Visitors Interviews Collected	Non-Visitor Ridership (based on sample rate of non-vis)	Interviews Collected w/ Variables of Interest	95% CI using FPCF	90% CI using FPCF
Red	56,537	3,882	3,713	54,076	626	± 3.9%	± 2.0%
Green	4,463	549	535	4,349	87	± 10.5%	± 5.4%
Purple	5,565	705	685	5,407	82	± 10.8%	± 5.5%

To avoid this situation in the future, ETC will more rigorously review the entire program when changes are made to even only a small portion of the program. In-field checks will also be conducted to review frequency totals to minimize the impact if a programming issue is not caught through the program review process. From a procurement perspective, it would be desired to have more time from the initiation of the contract until the field collection begins (especially given the project being a regional study with many different transit systems). This would allow all programming to be completed prior to the pilot. Once the pilot is completed and the updates are made, the full program would be able to be locked in for the entire collection.

CHAPTER 2: SURVEY ADMINISTRATION

Data Collection Activities

Labor Recruitment and Training

Assembling a team of high-quality survey staff was one of the most important steps in both the O2O and OD administration process. ETC collaborated with the staffing firm A Plus Staffing to provide surveyors and interviewers for the both the OD and O2O Survey.

ETC conducted two major sessions throughout the data collection phases. The first major training was for the O2O counts, and the second major training session was for the OD Survey collection. There were additional training sessions conducted throughout the data collection process on an as needed basis but with smaller groups.

Training sessions focused on the study purpose and objectives, the survey instruments, scripts on how to respond to passengers' questions, how to use data collection tools, instructions on how to conduct themselves when working with the public and safety training. The survey staff were instructed to understand that while they were not H-GAC, METRO, or any of the outlying transit systems employees, they were representing all agencies while on transit vehicles or property and they needed to act in a manner that reflected positively.

Maximizing participation and legitimizing the survey among passengers depended on the public response to the survey staff. To support a good public image, ETC imposed strict dress code standards that required survey staff to wear clean appropriate clothing to present a casual, yet neat, appearance that ensured professionalism and comfort. Survey staff were provided with surveyor badges and vests, identifying surveyors to the METRO and other transit agencies staff and passengers to further legitimize their appearance. The badge and dress code standards promoted a professional appearance and reinforced survey legitimacy, which increased passengers' trust in the interviewers and the process.

As survey staff are the key ingredient to the success of a project, ETC provided an in-depth project specific training to ensure a successful data collection. The surveyor training reviewed project specifics and field procedures and provided training on how to actively engage customers (passengers). Key highlights in our training focused on courtesy, professionalism, and person-to-person interactions.

Training O2O Surveyors

The ETC field manager created the necessary training materials and conducted the O2O training. The primary tool that was used for the training session was a PowerPoint presentation. The training went over the following details:

- Equipment use and set up.
- Methodologies for collecting rail boarding and alighting pairs.

- How to approach passengers.
- How to handle refusals.
- How to react in various situations that may be encountered.
- Safety training.

Once surveyors had demonstrated that they could perform the O2O counts, the surveyors were invited to field training. The field training provided hands on training that involved the actual conducting of the O2O counts with train passengers. During the field training, surveyors were tested on their proficiency and were provided with additional coaching if needed. If the surveyor was deemed unable to perform the O2O count, they were replaced.

Training OD Interviewers

The ETC field manager created the necessary training materials and conducted the OD training. The classroom training session included a PowerPoint presentation to explain the purpose and objectives of the survey, questionnaire content, interviewer procedures and requirements, survey logistics, how to maximize response rates (including hard-to-survey passengers), and the data collection process in a step-by-step format. Other goals of the training included building interview staff confidence, helping interview staff feel that they are an important part of the survey's success, and helping them understand the importance of the survey and the long-term benefits to their community.

ETC ensures that the training addressed the following details:

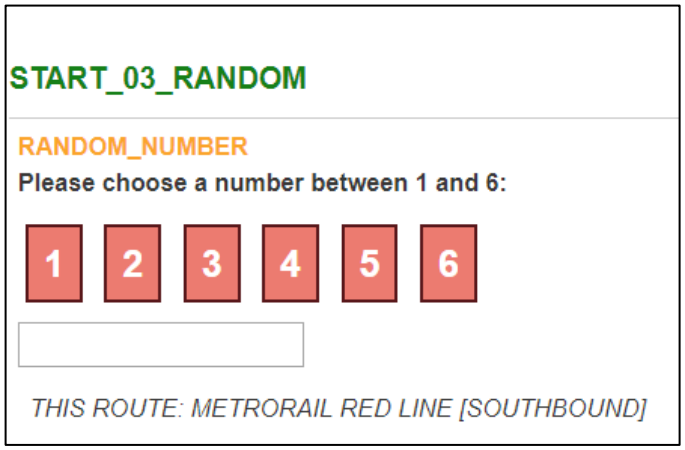
- Tips on intercepting/interacting with passengers with disabilities.
- Tips on intercepting/interacting with limited English proficient passengers.
- Cultural sensitivity.
- Importance of understanding the intent of the questions.
- Importance of random selection and properly recording all refusals.
- Importance of data confidentiality.
- Overview of the METRO system covering all topics covered in tablet questionnaire.
- How to handle passenger comments and complaints.
- Instructions on conveying the purpose of the survey to passengers.
- Safety training.

Toward the end of training, interviewers conducted mock interviews using the survey tablets. This allowed ETC staff to gauge each interviewer's comprehension of the survey and instrument and provide feedback as needed. After the training, interviewers were tested on items discussed in training.

Following classroom training, applicants got a chance to conduct interviews under the supervision of an experienced ETC supervisor. Supervisors oversaw interviewers and provided feedback on performance throughout the day.

Interviewers who were conducting the survey properly could go to the next phase of field training. Interviewers who needed more help, but showed promise were asked to spend a second day in the field under direct supervision. Once an interviewer had demonstrated proficiency under direct supervision, he/she was given a field test during which the prospective interviewer conducted surveys on his/her own. During this period, the interviewer's productivity and data quality were remotely assessed by ETC's staff.

FIGURE 5: OD SURVEY RANDOM NUMBER GENERATOR



Organization of Survey Team

O2O Count Administrators Roles

The O2O count administrators (surveyors) were responsible for the collection of the O2O counts using the tablet PC program. Surveyors asked the riders at which stop they entered (if not observed) and then what stop they exited the train. The rationale is two-fold. Typical bus O2O counts utilize barcoded cards that are scanned when passengers enter and exit the bus, but for purposes of rail collection, utilizing the two-question survey program proves to be more efficient for rail. First, with relatively few stops with names overwhelmingly known by riders the ability to collect accurate on and off stops verbally is significantly more efficient than on buses. Second, the logistics of having staff at each door handling both the boarding and alighting activity is overwhelming for the survey staff. ETC utilized a staff of at least 20 surveyors for the O2O count.

OD Passenger Survey Administrators Roles

For the OD Survey, interviewers boarded their assigned bus/train and selected riders at random to participate in the survey. While conducting the interview, interviewers asked the respondent each question from the survey tablet and recorded each response provided to them by the passenger. Interviewers needed to have conversations with bus passengers and inputting passenger responses. For the passenger survey, ETC utilized a staff of at least 25 interviewers for the OD Survey.

Survey Administration

Selection of Participants

Each rail rider was provided the opportunity to participate in the O2O collection. For every sampled rail trip that was surveyed for the O2O counts, every passenger that boarded the vehicle was offered the chance to participate.

For the OD tablet surveys, a random number generator was used to determine which passengers were asked to participate in the survey after boarding the surveying bus shown in Figure 6.

If four people boarded a bus, the tablet PC randomly generated a number from 1 to 6. If the answer was 2, the second person who boarded the bus was asked to participate in the survey. If the answer was 1, the first person was asked to participate in the survey, and so forth. The selection was limited to the first six people who boarded a bus or train at any given stop to ensure the interviewer could keep track of the passengers as they boarded.

For example, if 20 people boarded a bus or train, the tablet PC program would randomly pick one of the first six people for the survey. If the interview is refused by the randomly selected rider, then the rider who boarded before the rider selected would be attempted. For OD survey on PNR and Express Type Routes, a hard copy questionnaire was administered to all boarding passengers to maximize the route's unique rider flow.

Respondents who did not have time to complete the survey during their bus trip or spoke a language other than the interviewers were given the option of providing their phone numbers to conduct the survey at another time. Those who provided their phone numbers for call back ability were then contacted by ETC's call center to complete the survey. Less than 0.1 percent of records were completed by phone. Those interviewers that did speak the foreign language of the rider translated the English tablet PC version and indicated which language the interview was conducted in.

ETC ensured to maintain bilingual (English/Spanish) interviewer staff throughout the entire project. At least 40 percent of the interview staff were bilingual. In addition to the English/Spanish interviewer staff, there were interviewers that spoke other languages such as French, Korean, Vietnamese, Chinese, Arabic, and other languages. The majority of interviews were conducted in English (94 percent) with 6 percent of the surveys being conducted in Spanish. Other languages the survey was conducted in made up less than 1 percent combined, these were Arabic, Chinese, French, Vietnamese, and Urdu.

Other languages spoken at home will be found in CHAPTER 4: Survey Findings. The routes with the highest number of surveys conducted in Spanish were METRO Bus route 2 (92 Spanish surveys), METRO Bus route 46 (104 Spanish surveys), and the METRORail Red Line (149 Spanish surveys). Table 5 shows the percentage of surveys conducted by language.

TABLE 5: SURVEYS CONDUCTED BY LANGUAGE

Provider/Mode	Language							
	Arabic	Chinese	English	French	Spanish	Urdu	Viet-namese	Grand Total
BTD			17					**17**
CONNECT TRANSIT			276		7			**283**
CONROE CONNECTION			39		1			**40**
FORT BEND			129		1	1		**131**
HARRIS COUNTY			125		1			**126**
ISLAND TRANSIT			169		7	1	1	**178**
METRO BUS	1	1	12,079	4	1,150	1		**13,236**
METRO PNR			3,046		1	1	1	**3,049**
METRORAIL			4,902		234			**5,136**
THE WOODLANDS			247		3			**250**
Grand Total	**1**	**1**	**21,029**	**4**	**1,405**	**4**	**2**	**22,446**

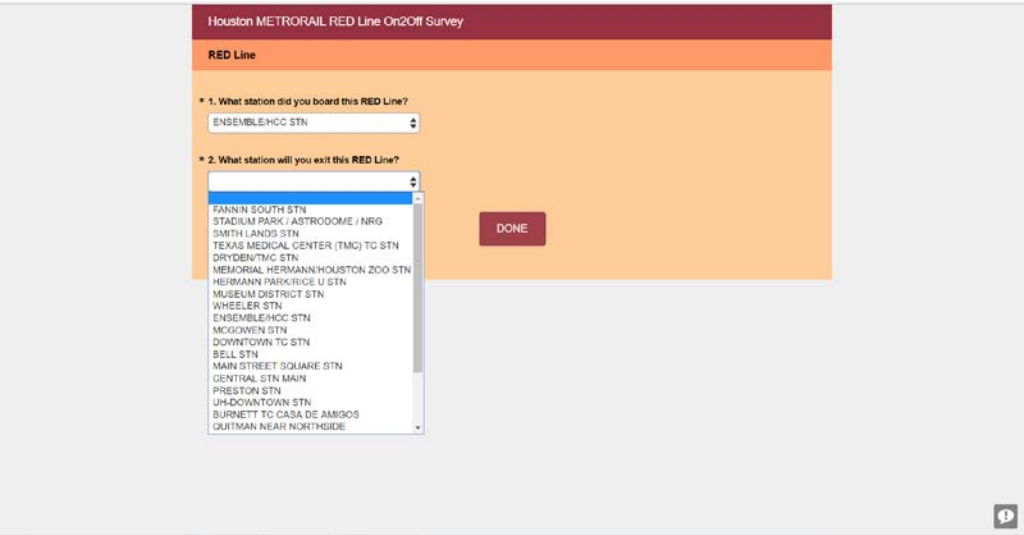
O2O Program Procedure

The O2O counts were collected using PC tablets equipped with a survey program consisting of two questions "Where did you get on this rail line" and "Where will you get off this rail line"? The riders' route, direction, boarding and alighting information, and time were captured with high degree of accuracy via the following process:

- Transit riders were asked to participate as they entered the rail vehicle.
- Each rider entering the rail line was asked where they got on that line (if not observed from the surveyor) and where they will get off the same rail line by a surveyor.
- The surveyor would select the boarding and alighting stops from a programmed drop-down menu, which was associated to the rail line they were collecting O2Os.

The O2O software sent the entered data to the O2O server where a server-side processing system stored the data for review. Before any collection took place, surveyor staff were trained on every aspect of the onboard process. An example screenshot of the O2O software is shown in Figure 6.

FIGURE 6: O2O SOFTWARE INTERFACE SCREENSHOT



OD Survey Procedure

Local Bus and Light Rail (Fixed Route Procedure)

All routes were classified as *fixed* routes and were surveyed using the tablet PCs. Fixed routes are routes that provide regular/continuous service throughout the day. Interviewers selected people for the survey in accordance with the sampling procedures described earlier in this subsection. Once an interviewer had selected a person for the survey, the interviewer:

- Approached the person who was selected and asked him or her to participate in the survey.
- If the person refused, the interviewer ended the survey.
- If the person agreed to participate, the interviewer asked the respondent if he/she had at least 5 minutes to complete the survey.
- If the person did not have at least 5 minutes on the bus, the interviewer asked the person to provide his/her name, and phone number for call back. A phone interviewer from ETC's call center contacted the respondent and asked him/her to provide the information by phone. This methodology ensured that people who completed short-trips on public transit were well represented. The vast majority of records were able to be completed onboard with only a nominal of records was completed by phone.
- If the person had at least 5 minutes on the bus, the interviewer began administering the survey to the respondent as a face-to-face interview using a tablet PC.
- If the survey was being conducted on the rail, survey staff conducted interviews from the platform/station.

Short Trip Route Procedure

"Short trips" were defined as trips when the distance between the boarding and alighting locations were less than five minutes. If a route was identified as a possible short trip route and/or segment additional, interviewers were staffed on the route and interviewers were told to conduct the full interview even if the rider said that he/she did not have enough time to complete the survey. The interviewer would then get off the rail line with the rider and complete the survey after getting off the rail. This did not occur for the bus service due to larger headways and less boardings per stop and were instead facilitated by the callback option described in other portions of text.

PNR and Express Type Routes Procedure

Described earlier in this report, for higher volume PNR and Express Type routes the respondent generally has a longer ride time and the routes often serve employed travelers with higher education levels. The combination of higher education levels, longer ride time, and the ease of distributing the paper surveys to a higher number of passengers often leads to a much higher percentage of surveys being captured than would have been possible by using tablet PCs alone while still maintaining a high level of accuracy. Each paper survey contained 31 hard coded questions and a serial information that was used by ETC to track the route and sequence in which surveys were completed. Surveys were than inserted into the database by an ETC data entry team member. (The paper version of the survey is provided in APPENDIX A: SURVEY INSTRUMENT).

Timing of the Survey Administration

The data collection for the project was administered during weekdays only from February 2017 through May 2017, and researchers conducted limited surveying during all school breaks and holidays. Only certain METRO routes were surveyed during the Houston Livestock Show and Rodeo (HLSR) (March 3 through 26, 2017) along with most other regional transit provider routes minus PNR services. The routes selected to survey during the HLSR were selected by METRO in cooperation with H-GAC and TTI. The full project schedule is listed in Appendix C.

O2O Timing

The METRORail O2O counts was administered during weekdays from February 7 through 16, 2017. Administration of the O2O counts began as early as 4:30 a.m. and continued as late as 12 a.m. This was to ensure that the O2O data would provide an actual representation for the OD Survey data expansion.

OD Survey Timing

The OD Survey was conducted during weekdays (Monday through Thursday) as early as 4:30 a.m. and continued as late as 12 a.m. The bulk of OD Survey data collection was administered February through the end of May 2017. Only certain METRO routes were surveyed during the HLSR, March 3 through 26, 2017, along with most other regional transit provider routes minus PNR services. The routes selected to survey during the HLSR were selected by METRO in cooperation with H-GAC and TTI. Other routes were not surveyed during HLSR festivities because of route disruptions and abnormal traffic patterns from the event. Table 6 shows the bulk data collection date ranges by service type and provider.

TABLE 6: DATA COLLECTED DATE RANGES BY SERVICE/PROVIDER TYPE

Service Type	Date Range
Light Rail	February 14 through May 10, 2017 (No collection/ HLSR March 3 through 26)
METRO Local Bus	February 27 through May 31, 2017 (Only 31 Metro routes surveyed March 3 through 26)
Park-n-Ride	March 28 through May 25, 2017
Outlying Providers	March 6 through March 23, 2017 (All PNR routes surveyed after March 27)

In-Field Quality Assurance/Quality Control

Each day, ETC's field supervisor reviewed each employee's data regarding the following issues to assess whether the employee was conducting the survey properly:

- Distribution of surveys by demographics.
- Distribution of surveys by trip characteristics.
- Length of each survey in minutes.
- Percentage of refusals.
- Percentage of short trips.

ETC's field supervisors also conducted checks on the locations of where the interviews took place. These checks ensured data integrity and identified if an interviewer was being negligent. ETC field supervisors could verify if an interviewer was on their assigned route by viewing the displayed geographic locations of where the interviews were taking place.

Status Reporting

ETC provided H-GAC with weekly updates throughout the data collection effort via a sample completion report. This included the O2O counts and OD interviews. The sample collected for each was monitored at both the overall route level as well direction and time of day. An example of a completion report summary page is shown in Figure 7.

FIGURE 7: EXAMPLE OF A COMPLETION REPORT SUMMARY PAGE

METRO			
	Rail	Bus	Total
Goal	4,397	14,667	19,064
Collected	5,054	16,261	21,315
Remaining	0	0	0
% Remaining	0%	0%	0%
% Completed	100%	100%	100%

OTHER AGENCIES SAMPLE GOALS AT ROUTE LEVEL								TOTALS
OTHER AGENCIES	BTD	CONROE	FT BEND	GCC CONNECT	HARRIS COUNTY	ISLAND TRANSIT	WOODLANDS	
Goal	30	30	136	261	132	156	270	1,015
Collected	17	42	136	295	149	184	254	1,077
Remaining	0	0	0	0	0	0	0	0
% Remaining	0%	0%	0%	0%	0%	0%	0%	0%
% Completed	100%	100%	100%	100%	100%	100%	100%	100%
WEEKDAY ADR	N/A	102	1143	1121	377	1189	2699	6631
% OF RIDERSHIP COLLECTED	RIDERSHIP DATA UNAVAILABLE	41%	12%	26%	40%	15%	9%	16%

TOTALS	
Goal	20,079
Collected	22,392
Remaining	0
% Remaining	0%
% Completed	100%

Data Quality Assurance and Processing

Many of the processes described in previous sections of this report were essential elements of the overall quality assurance/quality control (QA/QC) process that was implemented throughout the survey administration process. The establishment of specific sampling goals and procedures for managing the goals ensured that a representative sample was obtained from each bus/rail route. Training of interviewers and the high levels of oversight provided by the field manager and the field supervisors ensured that the survey was administered properly. Also, the use of the latest geocoding tools such as ETC's tablet PC survey with an embedded google map search, ETC Elvis program, and Caliper® Maptitude geographic information system (GIS) software, which all contributed to the high quality of geocoding accuracy that was achieved.

The following subsections describe the QA/QC processes that were implemented after the data were collected.

Process for Identifying Complete Records

To classify a survey as being completed, the record must have contained all elements of the one-way trip. ETC has classified required trip data as containing the complete answers to the following:

- Route/direction.
- Time of trip.
- Transfers made.
- Home address.
- Origin address.
- Destination address.
- Origin type place.
- Destination type place.
- Access mode.
- Egress mode.
- Boarding location.
- Alighting location.

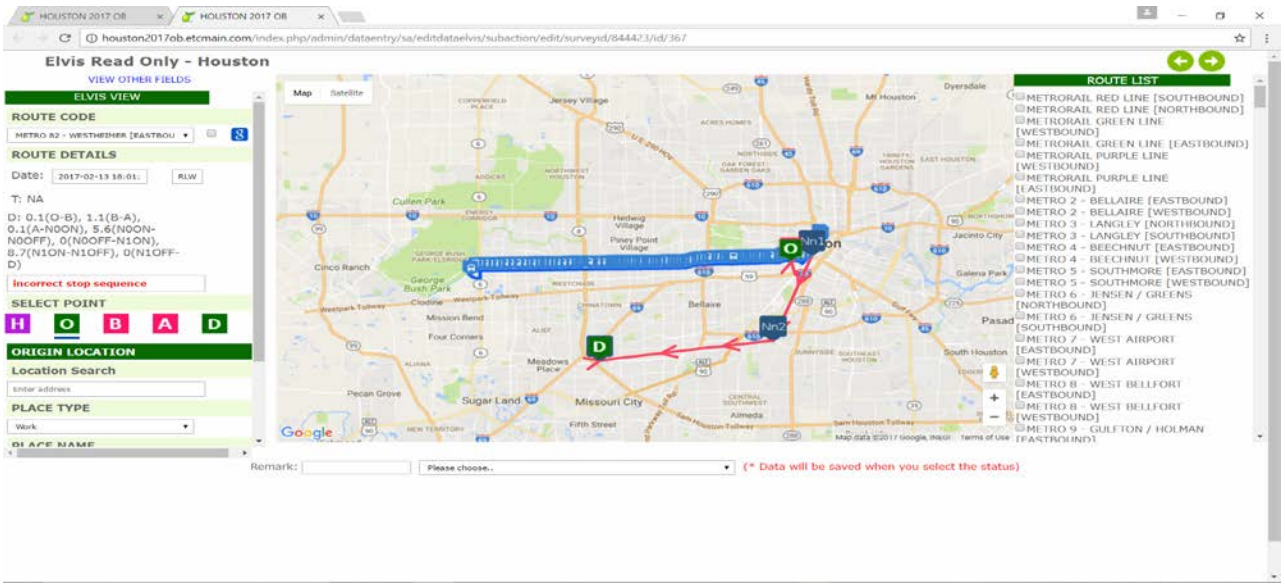
In addition to the required trip data questions, a survey must be marked as complete by the online Survey program, which occurs only if the interviewer has navigated through every required question on the online Survey instrument including demographic questions.

Online Visual Review Tool

ETC created an online visual review tool that allows for the review of all completed records within the database. This tool shows all components of each individual trip as well as a series of preprogrammed distance and ratio checks as described on subsequent pages. After directions were finalized, the next step was to run each record through the Speed/Distance/Time checks.

Figure 8 shows an example of the online visual review tool.

FIGURE 8: ONLINE VISUAL REVIEW TOOL (EDITABLE VERSION)



Pre-Distance Checks

A series of distance and ratio checks are preprogrammed into the online visual review tool to allow for ETC's Transit Review Team (TRT) to take a more systematic approach in reviewing complete records. The TRT process for editing surveys is described later in this section. **Note: The distance and ratio checks described were meant to alert the reviewer that closer evaluation was needed. It did not necessarily indicate that the record was inaccurate or unusable.**

The distances used for the checks were created using the great-circle distance formula that is based on a straight line from point A to point B that considers the curvature of the earth. Some of the distance checks ran are listed below:

- Access/Egress Mode Distance Check (distances from origin to boarding and alighting to destination).
- Origin to Destination Check (distance from origin to destination).
- Boarding and Alighting Distance Check (distance checks from boarding to alighting location).

Pre-Ratio Checks

After all transfer checks were completed, the next step in this process involved the application of a series of QA/QC Ratio Checks.

Three ratio checks were conducted for each record. First, the distance between boarding and alighting was divided by the distance between origin and destination. If the rider had a high ratio, then the rider was on the bus for an extensive time compared to the origin to destination distance. If the check created an extremely low ratio, the use of transit seemed unnecessary.

Second, the distance between origin and boarding was divided by the distance between origin and destination. If the rider had a high ratio, the origin to boarding distance was excessive compared to the origin to destination.

Third, the distance between alighting and destination was divided by the distance between origin and destination. If the rider had a high ratio, the alighting to destination distance was excessive compared to the origin to destination.

Transit Review Team

ETC has a dedicated team whose priority is reviewing and editing completed records using an online visual review tool. The TRT reviewed all completed records collected for the survey, paying special attention to records that were automatically flagged automated distance checks. Typically, around 10 percent of all records receive an automatic flag. Prior to making edits to any survey, they first attempted to contact the respondent to clarify any questionable answer choices regarding the trip. If no contact was made, or if contact was not possible, which occurs for most cases, the Table 7 general issues generally result in actions

that allow about 30 percent of those records that are automatically flagged to be retained, or approximately 3 percent of all completed surveys.

TABLE 7: GENERAL ISSUES

Issue	Description of Issue	Action
Origin/Destination Condition 1	Origin/Destination appears incorrect because the wrong location of a multiple-location organization was selected	If for example, an Origin/Destination appears illogical based on the college campus that was selected, but an appropriate campus of the same college does appear logical given the other points and answer choices of the trip, then the appropriate campus will be selected.
Origin/Destination Condition 2	Origin/Destination appears to have been geocoded to the incorrect city/state	If for example, an Origin/Destination appears illogical based on the city/state that was geocoded, but the address/intersection is logical within the trip if the city/state are changed. This occurs occasionally because the surveyor selects the wrong choice from the list of possible address choices that appear in the online survey instrument, then the appropriate address information will be inserted.
Access/Egress Mode	Access/Egress Mode seems illogical based on trip	If the access/egress mode involves the use of a vehicle and the distance from either origin to boarding or alighting to destination is less than 0.2 miles, then the access/egress mode is recoded to walk/walked and that change will be reflected in the database.
Directionality of Record	Boarding and alighting locations indicate that the trip is going in the opposite direction of what was selected by the surveyor	Change Direction of Route Selected and if necessary update boarding and alighting locations based on appropriate direction.

Post-Processing Additional Checks

After all records were reviewed by the TRT, the next step in this process involved the application of a series of QA/QC non-trip checks. Non-trip checks are described as anything not pertaining to the respondent's actual trip (i.e., demographic information).

Non-trip related checks included:

- Ensuring the respondents who indicated that they were employed also reported that at least one member of their household was employed.
- Ensuring the time of day, a survey was completed was reasonable given the published operating schedule for the route.
- Ensuring that the appropriate fare type was used in response to the age of respondent.
- Checking that there is a representative demographic distribution based on age, gender, and income status.
- Removing any personal contact information used for quality control purposes during the data collection portion of the project to protect the anonymity of the respondents.

Once all records had gone through the pre-processing and post-processing QA/QC checks, those that were deemed complete and usable were then used to update the completion report used by the field staff to ensure that all contractual goals had been met. After the final high-level review was completed, metadata (a codebook or data dictionary) was created to suitably explain the data in the database.

O2O QA/QC Plan

Pre-Processing QA/QC

A thorough analysis of the rail station stop list within the study area is conducted by ETC's GIS analysis before the study. Effective stop geocoding depends on the initial quality of the stop data. Some of the specific checks that are conducted during the pre-processing phase include:

Sort and delete low confidence records that were created. Confidence levels are created based on the O2O software's QA/QC algorithm (described below).
Check completeness of all fields for each record.

Post-Processing QA/QC

After boardings/alightings were successfully geocoded, the next step in this process involved the application of a QA/QC check for direction.

CHAPTER 3: Survey Weighting and Expansion

H-GAC transit interviews were expanded by route, direction, time-of-day, and by segments containing the boarding and corresponding alighting location of the rider. The following sections describe the methodology that was used to develop the unlinked expansion factors.

Data Expansion Overview

When survey quantity goals are created, they are typically based upon a percentage of the average weekday ridership for the routes in the system and desired confidence levels. These are further broken down by time periods and directions. The time periods that are created (e.g., 6 a.m. to 9 a.m.) are based off the specific needs of H-GAC. Once a sample percentage is agreed upon, the goals for the survey collection are based off the ridership for each route by time period and direction, and then multiplied by the sampling percentage. For circular or loop routes, the ridership broken down into time period as there are many riders that will board going in one direction but alight going the other direction due to the functionality of the route. This typically is also the case if there are directional routes where many riders travel through the terminus and alight going the opposite direction of initial boarding.

The purpose of developing survey quantity goals is to collect an appropriate number of survey records that will be expanded to represent the total average weekday ridership of each route by time period and direction. To further increase the specificity of the expansion process, segments were created for each route. Stops were grouped into segments along that route so that boarding segments could be paired with alighting segments when creating the expansion factor. Segmentation occurs on bus routes because it is unrealistic to expand bus survey data at the stop level. Stop/station-level expansion is generally reserved for rail lines.

Routes with stop-level ridership data were separated based on direction, then divided into ***two*** segments based on the total boardings. After approximately ***half*** of the route's total ridership was accounted for, a new segment was created. Table 8 is a simplified example of segmentation with stop-level ridership.

(Note: Iterative Proportional Fitting [IPF] is used in multiple types of expansion discussed later in this document. For IPF to work properly, the boarding totals must match the alighting totals. For this reason, ridership alightings are adjusted using a multiplying factor to make sure their totals match the boarding totals. These are typically nominal alterations; however, if there are significant differences in boarding and alighting totals by direction of a route, it may require additional review of the functionality of the route to ensure that the surveys are both collected and expanded appropriately.)

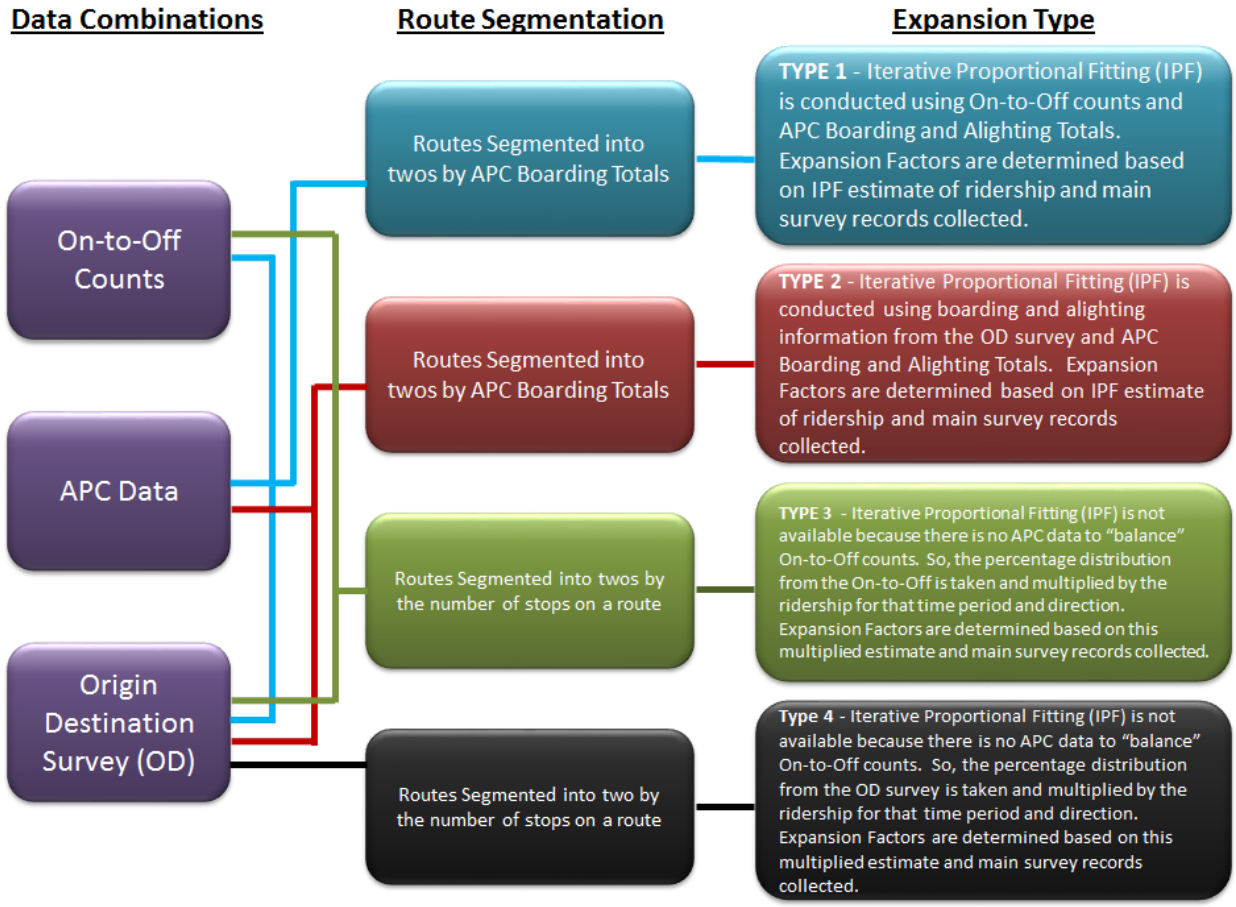
TABLE 8: SEGMENTATION WITH STOP-LEVEL RIDERSHIP EXAMPLE

Segmentation with APC Example					
Direction: Eastbound	APC DATA		Segmentation		
Stops	Boardings	Alightings	Running Total of Boardings	Running Percentage of Total Boardings	Segment
Stop 1	35	0	35	23.0%	1
Stop 2	5	10	40	26.3%	1
Stop 3	4	5	44	28.9%	1
Stop 4	19	10	63	41.4%	1
Stop 5	12	12	75	49.3%	1
Stop 6	20	4	95	62.5%	2
Stop 7	20	4	115	75.7%	2
Stop 8	15	3	130	85.5%	2
Stop 9	15	5	145	95.4%	2
Stop 10	3	10	148	97.4%	2
Stop 11	2	15	150	98.7%	2
Stop 12	2	11	152	100.0%	2
Stop 13	0	10	152	100.0%	2
Stop 14	0	15	152	100.0%	2
Stop 15	0	38	152	100.0%	2
	152	152			

Types of Data Expansion

The type of bus data expansion conducted depended on the data available for the specific bus route. The three types of data that created the combinations that guided the type of expansion used were: Stop-Level Ridership/Automatic Passenger Counter (APC) Data (from H-GAC), O2O counts data (collected by ETC), and OD Survey Data (collected by ETC). Figure 9 shows the data combinations, the corresponding route segmentation, and type of expansion used.

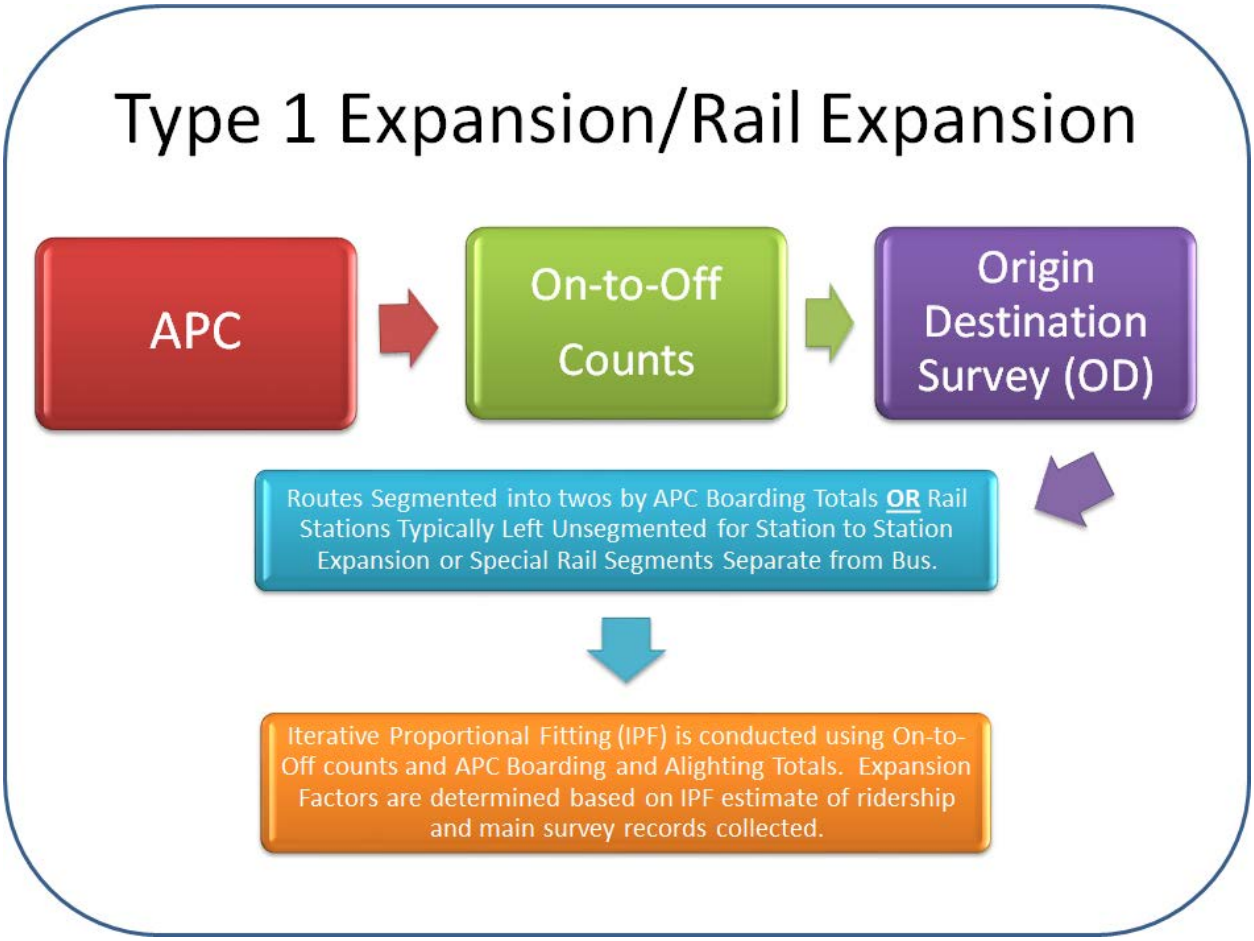
FIGURE 9: TYPES OF DATA EXPANSION



Type 1 Expansion: Rail Routes with APC Data, O2O Counts, and OD Survey Data

Of the four types of bus expansion discussed, Type 1 Expansion is the preferred method as it incorporates all three types of data that were available. Type 1 expansion was used for METRO rail. The rail segments were then appended to both the O2O and OD data based on the boarding and alighting locations. Figure 10 explains the methodology for Type 1 expansion.

FIGURE 10: TYPE 1 EXPANSION/RAIL EXPANSION



The process for how the data was expanded in Type 1 Expansion is explained below.

Table 9 shows the segmented results for the O2O counts that was administered for a rail route, station, direction, and time period. Each row in the table identifies the segment where passengers boarded the rail. The columns in the table identify the segments where people alighted the rail. For example, 15 of the O2O counts had riders board in segment 1 and alight in segment 2.

TABLE 9: RAIL DATA EXPANSION TABLE RESULTS OF O2O COUNTS

TABLE 1: RESULTS OF THE ON-TO-OFF SURVEY			
Route: Example Eastbound (6am-9am)		ACTUAL RIDERSHIP FROM ON/OFF SURVEY	
Segment	*Total*	1	2
1	*20*	5	15
2	*25*		25
Total	*45*	*5*	*40*

Table 10 shows the distribution of the data in Table 9 expressed as a percentage of all boardings for the specific time period and direction. Table 10 was created by dividing each O2O cell in Table 9 by the sum of all O2O counts in Table 9, which is 45. For example, 15/45 (33.3 percent) of all trips boarded in segment 1 and alighted in segment 2 as shown in Table 10.

TABLE 10: RAIL DATA EXPANSION TABLE DISTRIBUTION OF O2O COUNTS

TABLE 2: DISTRIBUTION OF THE ON-TO-OFF SURVEY			
Route: Example Eastbound (6am-9am)		PERCENTAGE OF THE DISTRIBUTION OF RIDERSHIP COUNTS FROM ON/OFF SURVEY	
Segment	*Total*	1	2
1	*44.4%*	11.1%	33.3%
2	*55.6%*		55.6%
Total	*100.0%*	*11.1%*	*88.9%*

The total ridership for the route, time period, and direction was applied to the O2O distribution percentages shown in Table 10.

This produces an estimate of the ridership flow for the boarding segment to the alighting segment as shown in Table 11. Applying the actual ridership of 320 creates an initial estimate of 107 trips (33.3 percent × 320) boarding in segment 1 and alighting in segment 2.

TABLE 11: RAIL DATA EXPANSION TABLE INITIAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN SEGMENTS

TABLE 3: INITIAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN STATION			
(PERCENTAGES IN TABLE 2 WERE APPLIED TO THE TOTAL BOARDINGS FOR THIS TIME PERIOD FOR THIS DIRECTION)			
Route: Example Eastbound (6am-9am)		PROJECTED RIDERSHIP BASE ON THE ON/OFF SURVEY	
Segment	*Total*	1	2
1	*142*	36	107
2	*178*		178
Total	*320*	*36*	*284*

In order to develop a more accurate estimate of the ridership flows between segments on each route, ETC developed an IPF algorithm to balance the differences between the ridership projected from the O2O counts (shown in Table 11) and the APC ridership for each segment (shown in Table 12). The IPF process is described below.

TABLE 12: STOP-LEVEL RIDERSHIP/APC DATA

TABLE 4: BOARDINGS AND ALIGHTINGS BY STATION			
Route: Example Eastbound (6am-9am)			
Average Weekday Ridership	Total	1	2
BOARDINGS	320	100	220
ALIGHTINGS	320	20	300
DIFFERENCE FROM PROJECTED			
BOARDINGS	0	-42	42
ALIGHTINGS	0	-16	16

Step 1: Correction for the Boardings. The estimated ridership from the O2O counts for each route (as shown in Table 11) was multiplied by the ratio of the actual boardings from Stop-Level Ridership/APC Data for each segment by the estimated boardings for each segment. For example, if the actual boardings for Segment 1 were 120 and the estimated boardings were 100, each cell associated with Segment 1 would have been multiplied by 1.2 (120/100) to adjust the estimated boardings to actual boardings.

Step 2: Correction for the Alightings. Once the correction in Step 1 was applied, the estimated boardings would be equal to the actual boardings. However, the adjustment to the boardings total may have changed the alighting estimates. To correct the alighting estimates, the new values calculated in Step 1 were adjusted by multiplying the ratio of the actual alightings from the Stop-Level Ridership/APC Data for each stop by the estimated alightings for each segment from Step 1. For example, if the actual alightings for Segment 2 were 220 and the estimated alightings from Step 1 were 200, each cell associated with

Segment 2 would have been multiplied by 1.1 (220/200) to adjust the estimated alightings from Step 1 to actual alightings.

The processes described in Steps 1 and Steps 2 were repeated sequentially until the difference between the actual and estimated boardings and alightings was zero. Table 13 shows that after seven balancing iterations in this algorithm, there were no differences between the projected distribution and the actual boardings and alightings.

TABLE 13: ITERATIVE BALANCE PROCESS

TABLE 5: ITERATIVE BALANCING PROCESS

4th STEP of ITERATIVE BALANCING TO CORRECT DISTRIBUTION OF RIDERSHIP BY ALIGHTING LOCATION

Stop Name	Total	DIFFERENCE FROM ACTUAL BOARDINGS	1	2
1	***100***	0	20	80
2	***220***	0	0	220
Total	***320***	***0***	***20***	***300***
DIFFERENCE FROM ACTUAL ALIGHTINGS	0		0	0

4th STEP of ITERATIVE BALANCING TO CORRECT DISTRIBUTION OF RIDERSHIP BY BOARDING LOCATION

Stop Name	Total	DIFFERENCE FROM ACTUAL BOARDINGS	1	2
1	***100***	0	20	80
2	***220***	0	0	220
Total	***320***	***0***	***20***	***300***
DIFFERENCE FROM ACTUAL ALIGHTINGS	0		0	0

The final estimate for ridership flows is shown in Table 14.

TABLE 14: FINAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN STATIONS

TABLE 6: FINAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN STATIONS

Route: Example Eastbound (6am-9am)

Segment	***Total***	1	2
1	***100***	20	80
2	***220***		220
Total	***320***	***20***	***300***

The actual number of OD records completed for each boarding to alighting segment pair is shown in Table 15. To calculate the expansion factors, the final estimate of ridership between segments shown in Table

14 was divided by the actual number of OD records collected, as shown in Table 15. This calculation produces the expansion factors shown in Table 16. For example, the 80 estimated riders projected to board in segment 1 and alight in segment 2 were divided by the 9 OD records to produce an expansion factor of 8.89 to be applied to records who board in segment 1 and alighting in segment 2 during the example Eastbound (6–9 a.m.) Time Period as shown in Table 16.

TABLE 15: NUMBER OF COMPLETED SURVEYS (RAIL)

TABLE 7: NUMBER OF COMPLETED SURVEYS			
Route: Example Eastbound (6am-9am)			
Segment	*Total*	1	2
1	*11*	2	9
2	*23*		23
Total	*34*	*2*	*32*

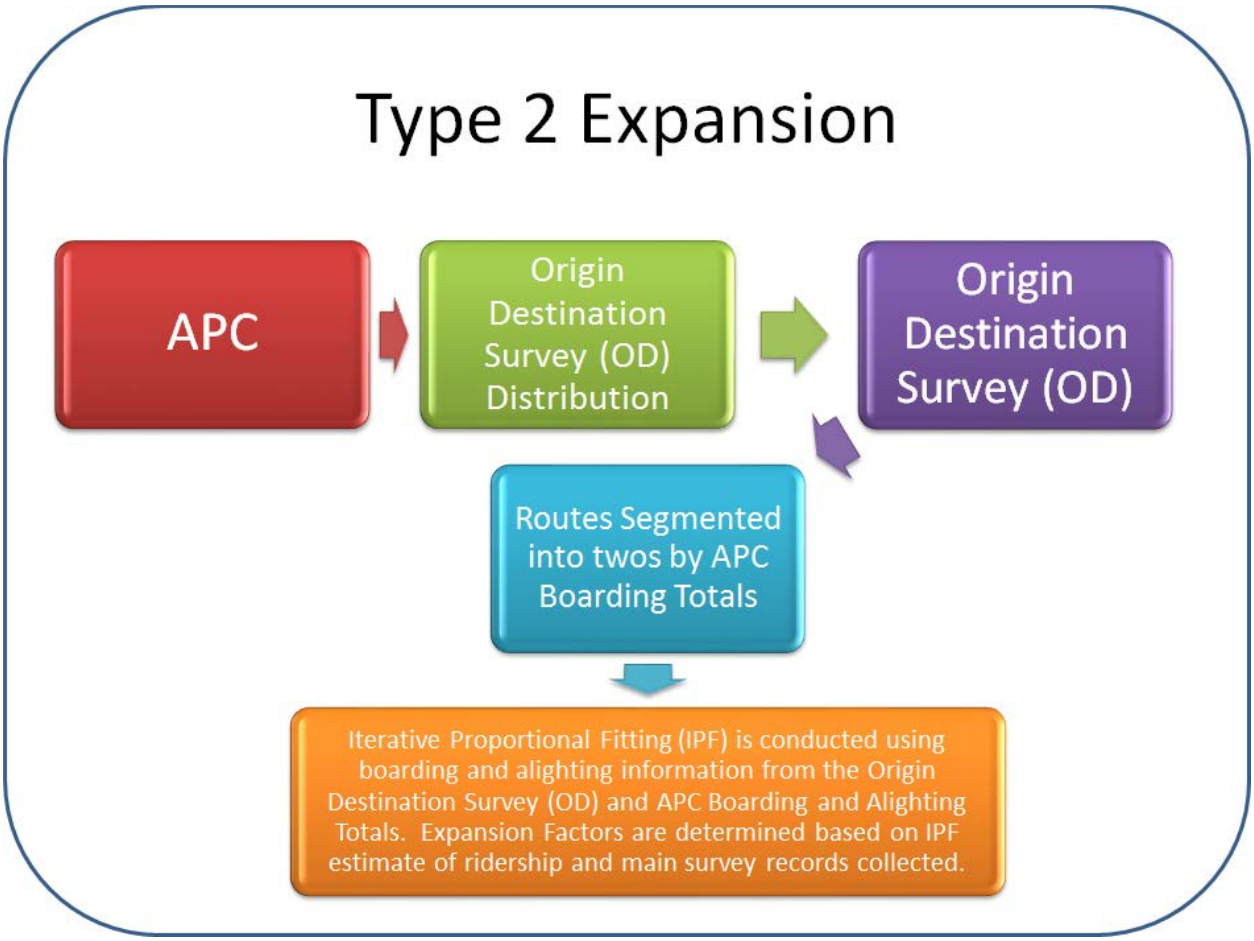
TABLE 16: WEIGHTING FACTORS (RAIL)

TABLE 8: WEIGHTING FACTORS			
Route: Example Eastbound (6am-9am)			
Segment	*Total*	1	2
1	*19*	10.00	8.89
2	*10*		9.57
Total	*28*	*10*	*18*

Type 2 Expansion: Bus Routes with APC Data, OD Survey Data, but No O2O Counts Data

For Type 2 expansion, O2O counts are not collected; however, these routes will have APC data available. This type of expansion also divided stops into two segments based on total boarding distribution by direction. These segments were then appended to the OD records based on the boarding and alighting locations. The expansion method is exactly like Type 1 expansion, the only difference being that the distribution of OD records was substituted for the O2O counts data. The METRO Bus expansion was conducted this way. Figure 10 explains the methodology for Type 2 expansion.

FIGURE 11: TYPE 2 EXPANSION/RAIL EXPANSION



Type 3 Expansion: Bus Routes with O2O Counts and OD Survey Data, but without Stop-Level Ridership/APC Data

Expansion Type 3 is utilized for routes where O2O counts are collected but Stop-Level Ridership/APC Data is not available. Routes without Stop-Level Ridership/APC Data are segmented into three segments based

on number of stops along a route. These segments were then appended to the O2O and OD Survey databases. The expansion method is less complex than the two previously discussed types of expansion. ***Type 3 expansion was not used for this project.***

Type 4 Expansion: Bus Routes with OD Survey Data, without O2O Counts Data or Stop-Level Ridership/APC Data

For routes that only have OD Survey data (all other agencies), Type 4 expansion is utilized. Routes are divided into two segments based on number of stops along a route. These segments were then appended to the OD Survey database. Figure 12 explains the methodology for Type 2 expansion.

FIGURE 12: TYPE 4 EXPANSION/RAIL EXPANSION

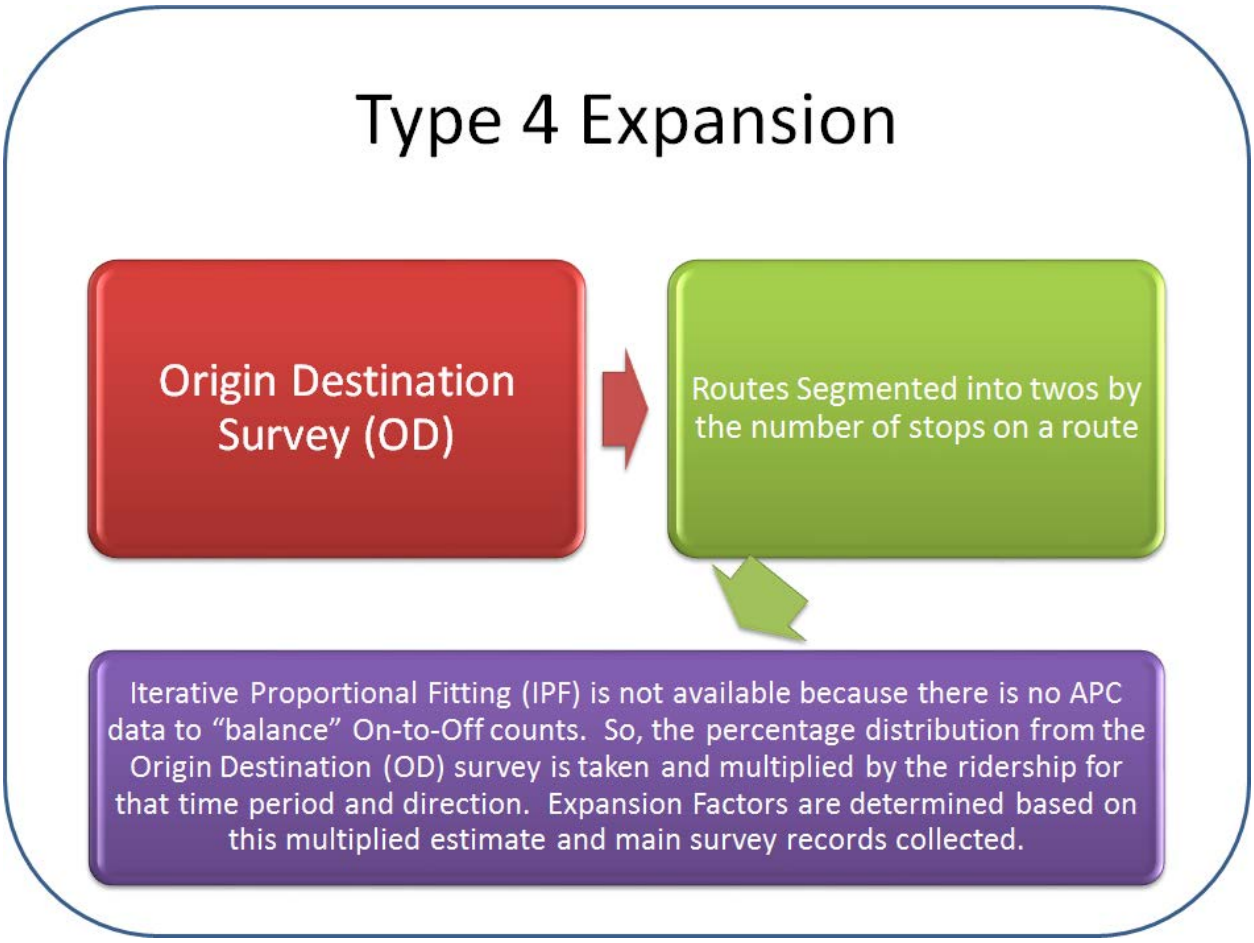


Table 17 shows the segmented results from the OD Survey that replaced the O2O counts. Each row in the table identifies the segment where passengers boarded the bus. The columns in the table identify the segments where people alighted. For example, 9 of the OD surveys had riders board in segment 1 and alight in segment 2.

TABLE 17: BUS DATA EXPANSION TABLE RESULTS OF O2O COUNTS

TABLE 1: ON-TO-OFF SURVEYS COMPLETED		Total Boardings this Direction During this Time Period =	320
Route: Example Eastbound (6am-9am)	DISTRIBUTION OF COMPLETED ON2OFF SURVEYS		
Segment	*Total*	1	2
1	*11*	2	9
2	*23*		23
Total	***34***	***2***	***32***

Table 18 shows the distribution of the data in Table 17 as a percentage of all boardings for the route. Table 18 was created by dividing each O2O cell in Table 17 by the sum of all OD records replacement data in Table 17, which is 34. For example, 9/34 (26.47 percent) of all trips boarded in segment 1 and alighted in segment 2 as shown in Table 18.

TABLE 18: BUS DATA EXPANSION TABLE DISTRIBUTION OF O2O COUNTS

TABLE 2: DISTRIBUTION OF THE ON-TO-OFF SURVEY			
Route: Example Eastbound (6am-9am)	DISTRIBUTION OF ON2OFF SURVEYS AS % OF ALL COMPLETED ON2OFF SURVEYS		
Segment	*Total*	1	2
1	32.35%	5.88%	26.47%
2	67.65%	0.00%	67.65%
Total	100%	5.88%	94.12%

The total ridership for the route, time period, and direction was applied to the O2O distribution shown in Table 18. This produces an estimate of the ridership flow on the route based on the boarding segment to the alighting segment as shown in Table 19. Applying the actual ridership of 320 to the distribution creates an estimate that 85 trips (26.47 percent × 320) board in Segment 1 and alight in Segment 2.

TABLE 19: BUS DATA EXPANSION TABLE INITIAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN SEGMENTS

TABLE 3: ESTIMATE OF RIDERSHIP FLOWS BETWEEN SEGMENTS			
(percentages in table 2 were applied to the total boardings for this time period in this direction)			
Route: Example Eastbound (6am-9am)	ESTIMATED RIDERSHIP BASED ON THE ON-TO-OFF SURVEY		
Segment	*Total*	1	2
1	104	19	85
2	216	0	216
Total	320	19	301

The actual number of OD records that were completed for each boarding to alighting segment pair is shown in Table 20. To calculate the expansion factors, the estimate of ridership between segments, shown in Table 19, was divided by the actual number of OD records that were completed between segments shown in Table 20. This calculation produces the expansion factors shown in Table 21. So, the 85 estimated riders were divided by the 9 completed OD records to produce a factor of 9.41 to be applied to riders who board in segment 1 and alighting in segment 2 during the example Eastbound (6–9 a.m.) Time Period as shown in Table 21.

TABLE 20: NUMBER OF COMPLETED SURVEYS

TABLE 4: NUMBER OF COMPLETED INTERCEPT SURVEYS	Total Number of Surveys =	34
Route: Example Eastbound (6am-9am)	NUMBER OF COMPLETED SURVEYS	
Segment	*Total*	1	2
1	***11***	2	9
2	***23***	0	23
Total	***34***	***2***	***32***

TABLE 21: WEIGHTING FACTORS

TABLE 5: Weighting Factors			
Route: Example Eastbound (6am-9am)			
Segment		1	2
1	9.411765	9.411765	9.411765
2	9.411765		9.411765
Total	-	9.411765	9.411765

Once all the expansion factors are calculated, each factor is applied to all surveys with the same route, direction, time of day, boarding segment, and alighting segment.

Types of Data Expansion Breakdown

Table 22 shows the type of expansion used project routes. Appendix C contains a list containing each route and the type of expansion used.

TABLE 22: TYPES OF DATA EXPANSION

Expansion Type	Routes	(%) Routes
EXPANSION #1	3	1.9%
EXPANSION #2	112	71.8%
EXPANSION #3	0	0.0%
EXPANSION #4	41	26.3%
Grand Total	**156**	**100.0%**

General Rule for Expansion Factors

While there are no specific guidelines for the expansion factor values, ETC uses a guideline of keeping expansion factors below three times the average expansion factor based on the sampling percentage. This is done to keep any one record from representing a markedly high number of riders in the system. The formula for determining this guideline is:

1 / (Sampling percent) × 3 = Guideline Weight Factor

If the expansion factor for a boarding segment to alighting segment pair is greater than three times the average expansion factor, then it is aggregated into the adjacent boarding-to-alighting segment where it will have the least impact on the previously existing expansion factors. This guideline is standard for all the various expansion types.

Linked Trip Expansion Factors for All Records

The linked-trip expansion factor helps to account for the number of transfers that were made by each passenger, so the linked expansion factors should better represent the overall system. Linked expansion factors are generated after the unlinked expansion factors are created. The equation that is used to calculate the linked trip multiplying factor is shown below:

Linked Trip Multiplying Factor = [1 / (1 + # of transfers)]

If a passenger did not make a transfer, the linked trip multiplying factor would be 1.0 because the person would have only boarded one vehicle. If a person made two transfers, the linked trip expansion factor would be 0.33 because the person would have boarded three transit vehicles during his/her one-way trip. An example of how the linked trip expansion factors were calculated is provided in Figure 13.

FIGURE 13: SAMPLE CALCULATIONS OF LINKED TRIP MULTIPLYING FACTORS

Number of Transfers	Calculation [1/(1+Number of Transfers)]	Linked Trip Multiplying Factor
0	[1/(1+0)]	1
1	[1/(1+1)]	0.5
2	[1/(1+2)]	0.33
3	[1/(1+3)]	0.25

Once the linked trip multiplier is created, it is multiplied by the unlinked expansion factor to create the linked expansion factor.

Decomposition Analysis

This section summarizes RSG's decomposition analysis conducted on the H-GAC OD data, collected and weighted by ETC. This analysis reviews all transit routes used by survey respondents and looks to see how many riders transferred and from each route. This allows one to determine how close the match is between the total estimated ridership (considering all transfers) and the total observed boardings on each route. Conducting this analysis serves as an important quality assurance measure to ensure the sampling and weighting/expansion processes were done properly.

Summing all of the linked trip weights, for both the surveyed route and any transfer routes, should provide a total equal to the sum of *unlinked* trips on all of the surveyed routes (which are themselves derived from boarding counts). Summed across all routes, there should be no difference between observed and derived boardings. In the case of the H-GAC data, a very small difference across all routes of 23 riders (0.01 percent of the expanded total) is likely the result of a few out-of-system transfers being counted as in-system. The difference is trivial and should not affect the results in any significant way.

At the route level, we expect a certain amount of difference between the known boarding counts and the number of boardings estimated through the decomposition analysis. As a general rule, this difference should be smallest on high-ridership routes and largest on low ridership routes, due to natural statistical variation in the number transfers observed in the survey. The H-GAC data follow this pattern. Table 23 shows the difference between derived and observed boardings by transit provider. As an example of the appropriate interpretation, METRORail routes have a difference of 2.8 percent. This means that the survey observed fewer people on METRORail routes who said they transferred to or from other routes than people on non-METRORail routes who said they transferred to or from a METRORail route. BTD, Conroe Connection, and Island Transit routes had a perfect balance between transfers reported by respondents on the system and transfers reported by respondents on other systems.

TABLE 23: DECOMPOSITION BY TRANSIT PROVIDER

Provider	Derived Boardings (from Linked Weight)	Total Boardings (from Unlinked Weight)	Difference	Percent Difference
BTD	51	51	0	0.0%
Connect Transit	1,131	1,121	10	0.9%
Conroe Connection	415	415	0	0.0%
Fort Bend	1,011	1,021	-10	-1.0%
Harris County	371	386	-15	-3.9%
Island Transit	1,190	1,190	0	0.0%
METROBus	187,320	189,440	-2,120	-1.1%
Metro PNR	33,270	32,988	282	0.9%
METRORail	68,295	66,466	1,829	2.8%
The Woodlands	2,679	2,678	1	0.0%
TOTAL	**295,733**	**295,756**	**-23**	**0.0%**

A more detailed route-level analysis, delivered separately in an Excel workbook, shows for every surveyed route the number of boardings derived from the decomposition analysis, the observed number of boardings, and the difference between the two numbers. The average absolute difference is 8.4 percent for the full system and 6.1 percent for routes with over 1,000 average weekday riders, figures that are in line with other similar studies.

The maximum absolute difference for a route with over 1,000 riders is 27 percent, on the Bellaire Quickline route. This means that there were far more respondents riding the Bellaire Quickline who said

they made transfers than respondents on other routes who said they transferred to or from Bellaire Quickline. This is statistically improbable, suggesting that the route was surveyed over an unusual period.

Secondary Data Expansion

Connetics Transportation Group, Inc. (CTG) was tasked with performing a secondary expansion and review of the survey data sets. Samples (surveys) are collected in a manner that reduces the likelihood of response bias. Response bias occurs when samples are collected at different participation rates. While great strides have been made by ETC in reducing response bias, it cannot be eliminated completely due to logistical constraints, rider response (e.g., some riders systematically prefer not to answer surveys), random chance (e.g., some riders who would respond to the survey are sick during the survey fieldwork), and other reasons.

ETC performed an initial expansion of the sample across four dimensions: route, time of day, direction, and passenger flow (segment to segment). This means that weights were calculated for each route, each of the four-time periods (AM peak, midday, PM peak, and evening), each direction, and the six-flow combination.

A secondary expansion builds upon the initial expansion by re-expanding the sample across additional dimensions. This allows the survey data set to closely represent known travel patterns. The secondary expansion corrects for differences in response rates across markets that are not as easily addressed. For the project, the secondary expansion included the following two dimensions:

- PNR/Non-PNR trips at selected PNR lots.
- Bike users/Non-bike users' trips.

A detailed methodological explanation for the Secondary Expansion process and results was provided separately.

PNR Adjustment

The input information includes the initial expansion of the H-GAC OD Survey, boarding and alighting counts by METRO bus, and vehicle counts, collected at PNR lots. The preliminary PNR adjustment was performed on records that began their trip at 27 METRO bus PNR lots. This preliminary adjustment is a first step before a final PNR trip adjustment. The final adjustment took the APC data into account to reweight the preliminarily adjusted trips. The preliminary adjustment examined survey trip records on and off at those selected PNR lots and parked vehicle counts at the lots. The number of PNR lots was determined by the number of PNR lots that supplementary vehicle count data provide. PNR lot vehicle counts were collected in spring 2017. In general, the number of PNR trips are assumed to be twice the number of observed vehicles, because travelers return to their vehicle at the end of each day. To account for multiple bus riders from a single vehicle, it needs to be re-adjusted by the average auto occupancy factor, which is estimated from the OD Survey.

To make a lot and route level adjustment, the lot-level vehicle count needs to be assigned to a route level count by each PNR lot. CTG assumed that the proportion of APC route data by a lot could reflect a distribution of PNR trip users of each route. The output of this preliminary estimation was further adjusted with APC AM boarding and PM alighting data from/to each PNR lot. Using APC data can minimize local planners' concerns on misinterpretation and/or misusage of vehicle count data for PNR and non-PNR trips expansion because a portion of vehicles parked in certain PNR lots belong to carpooled riders who drive and park their own vehicle in the lots and rideshare to another vehicle for a high-occupancy vehicle lane trip. Another concern raised locally was the quality of vehicle count data for certain PNR lots since a single-day data collection could result in misrepresentation of average PNR lot usage.

In some instances, the master APC data indicated boarding/alighting activity that was not recorded in the OD Survey records. This was not unexpected. The secondary expansion included matching the APC totals at 27 METRO PNR locations. There were 72 possible METRO bus lot and route combinations in the APC data. The OD Survey did not have any records for the eight of these combinations, which constitutes just 11.1 percent of all possible combinations. Also, in a few instances, APC data showed lower-than-preliminarily-expanded trips. The secondary expansion includes readjusting these trips for both PNR and non-PNR trips from/to the selected PNR lots.

Bike Trip Adjustment

This portion describes the additional secondary expansion methodology used for bike users in the H-GAC OD Survey. The input information included the PNR trip-adjusted expansion of the project records, bicycle usage data by METRO bus route for FY 2017, and annualization factor for METRO (282.2), estimated from the latest National Transit Database profile. The bike user expansion process adjusts the OD Survey expansion factors with a weight that corresponds with the number of trips traveling with bike by bus route. This adjustment was applied to routes identified in the OD Survey that has bike riders. Sixty-five routes in the survey were identified to have bike riders, but seven routes were not included in this secondary expansion as the supplementary bike count data did not have any information for those routes. Hence, adjustment was applied to 58 routes.

Compared to the PNR trip adjustment previously described, bike trip adjustment was relatively simple. The adjusted daily bike users were estimated by:

$$\frac{Total\ FY2017\ Bike\ user_{route}}{Annualization\ Factor\ for\ Metro\ (from\ NTD)}$$

The daily non-bike users are the difference between the total (initially expanded by ETC) route users (passengers) from the H-GAC OD Survey and the adjusted daily bike users estimated above. Additional adjustment was also applied to equal to the previously adjusted PNR and non-PNR trips.

CHAPTER 4: Survey Findings

This section highlights demographic and trip-related findings from the project. The results for all questions on the survey were compared using two variable types, the agencies (Metro, The Woodlands, Fort Bend, Island Transit, Connect Transit, Conroe Connection, Harris County, and BTD) and the route type (METRORail, METROBus, METRO PNR, Regional Agency Bus, and Regional Agency PNR). Two major categories are presented regarding the survey findings: (1) rider profile and (2) trip profile. The findings in this section were expanded using the Linked Secondary Expansion Weight Factors in the database.

Agency and Route Type Overview

FIGURE 14: PERCENT OF AGENCY RIDERSHIP

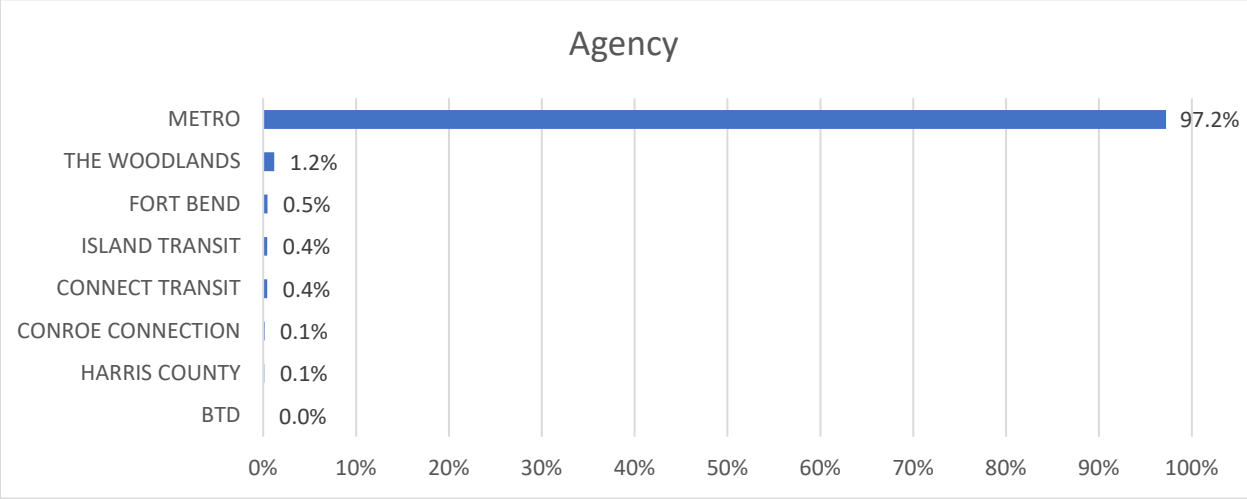


FIGURE 15: PERCENTAGE OF ROUTE TYPE RIDERSHIP

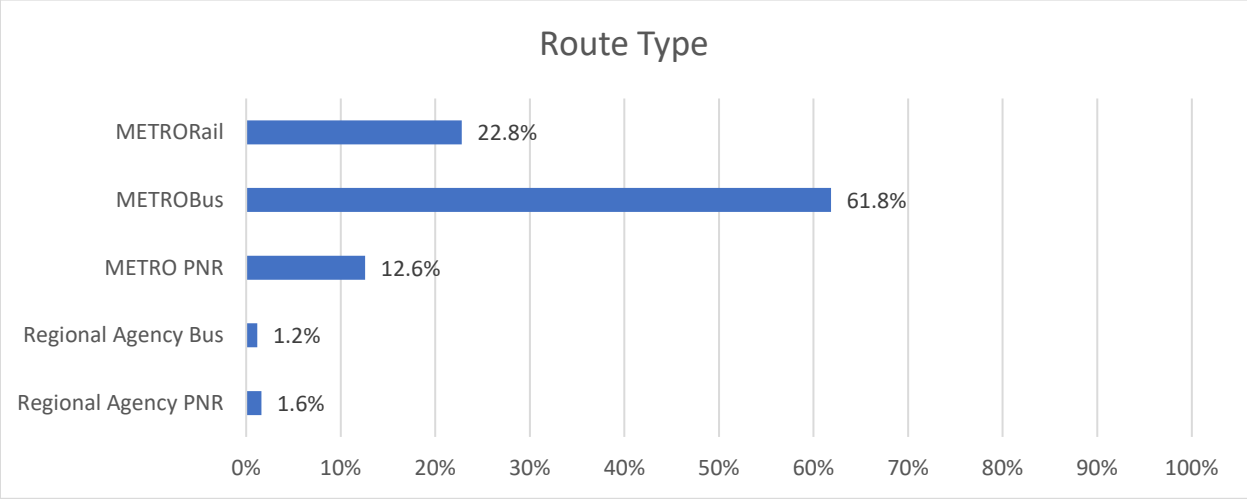
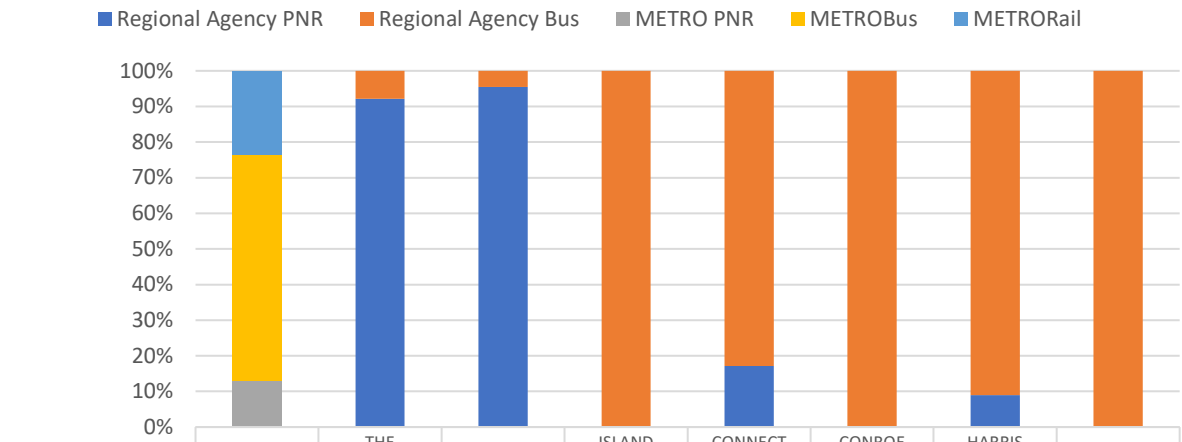


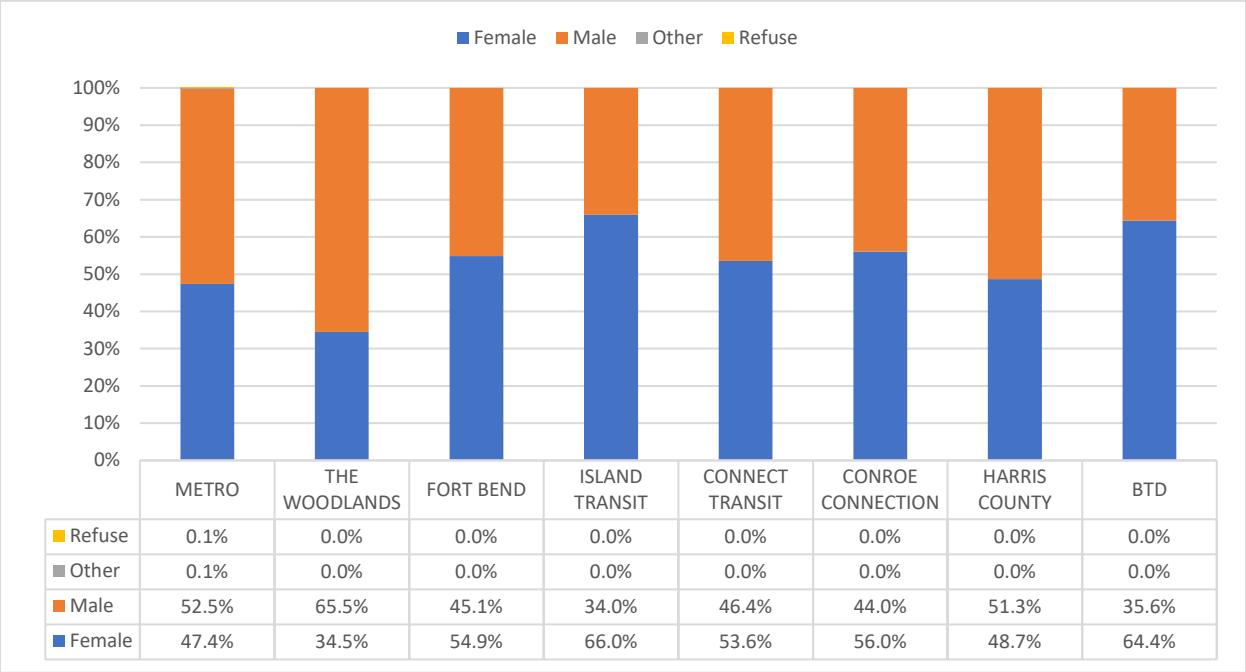
FIGURE 16: ROUTE TYPE RIDERSHIP BY AGENCY



	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
METRORail	23.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
METROBus	63.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
METRO PNR	12.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Regional Agency Bus	0.0%	7.9%	4.6%	100.0%	82.9%	100.0%	91.0%	100.0%
Regional Agency PNR	0.0%	92.1%	95.4%	0.0%	17.1%	0.0%	9.0%	0.0%

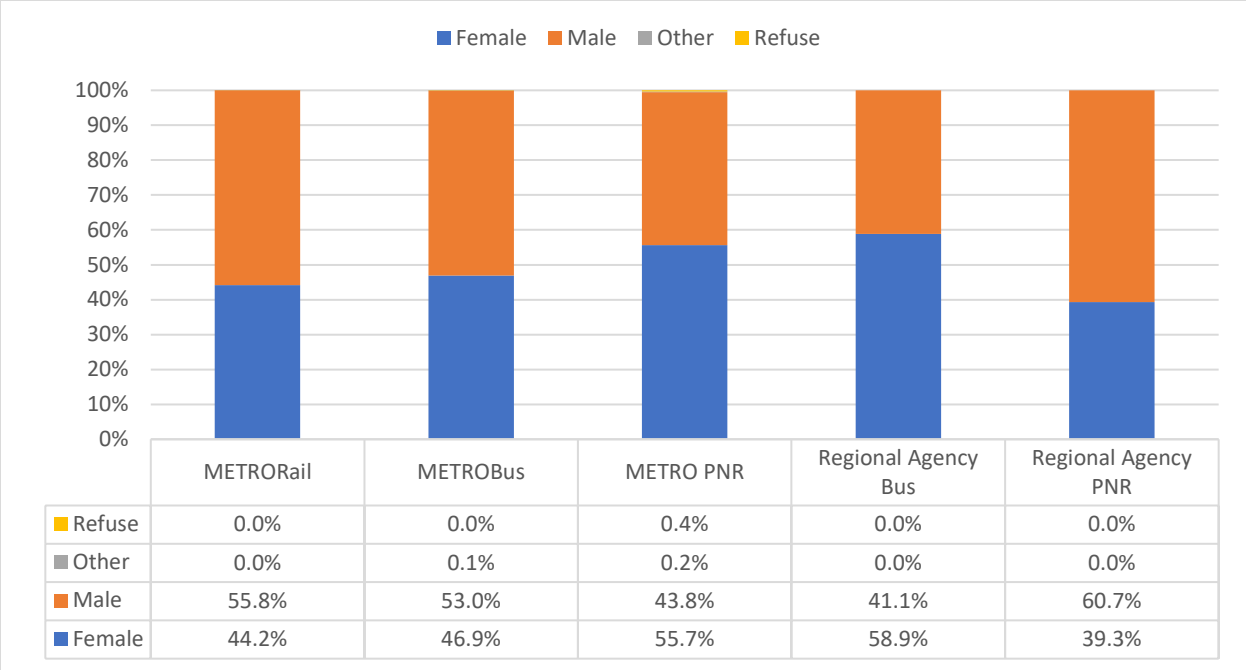
Rider Profile

FIGURE 17: GENDER BY AGENCY



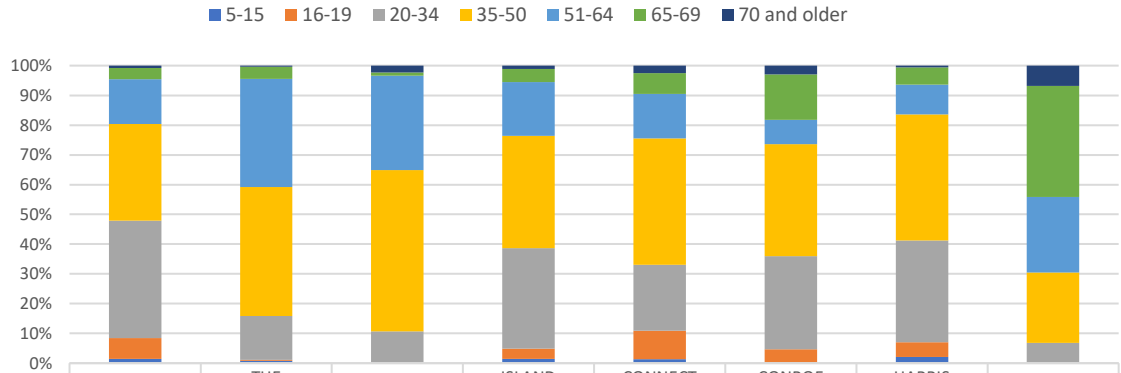
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Refuse	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Male	52.5%	65.5%	45.1%	34.0%	46.4%	44.0%	51.3%	35.6%
Female	47.4%	34.5%	54.9%	66.0%	53.6%	56.0%	48.7%	64.4%

FIGURE 18: GENDER BY ROUTE TYPE



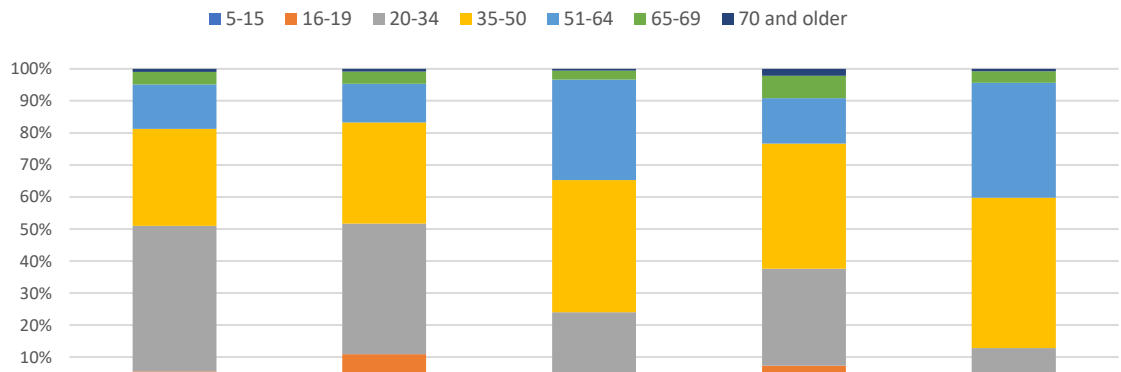
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Refuse	0.0%	0.0%	0.4%	0.0%	0.0%
Other	0.0%	0.1%	0.2%	0.0%	0.0%
Male	55.8%	53.0%	43.8%	41.1%	60.7%
Female	44.2%	46.9%	55.7%	58.9%	39.3%

FIGURE 19: AGE BY AGENCY



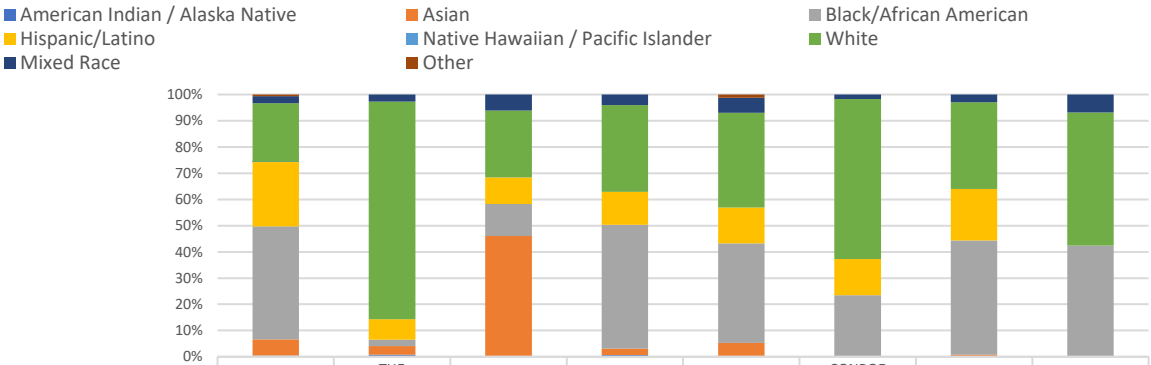
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
70 and older	0.8%	0.4%	2.3%	1.2%	2.5%	3.0%	0.6%	6.8%
65-69	3.7%	4.1%	1.1%	4.4%	7.0%	15.2%	5.8%	37.3%
51-64	15.0%	36.3%	31.8%	18.1%	15.0%	8.2%	10.0%	25.4%
35-50	32.5%	43.3%	54.2%	37.7%	42.4%	37.6%	42.3%	23.7%
20-34	39.5%	14.8%	10.7%	33.8%	22.2%	31.3%	34.2%	6.8%
16-19	7.0%	0.4%	0.0%	3.4%	9.5%	4.7%	4.9%	0.0%
5-15	1.4%	0.7%	0.0%	1.4%	1.4%	0.0%	2.1%	0.0%

FIGURE 20: AGE BY ROUTE TYPE



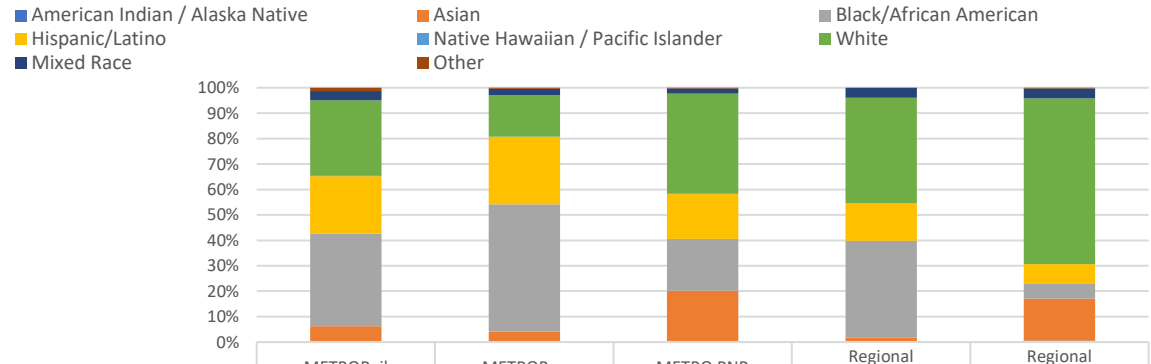
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
70 and older	1.0%	0.8%	0.6%	2.2%	0.7%
65-69	3.9%	3.8%	2.8%	7.0%	3.6%
51-64	13.9%	12.2%	31.3%	14.3%	35.9%
35-50	30.3%	31.5%	41.3%	39.0%	46.9%
20-34	45.4%	40.8%	22.6%	30.2%	12.2%
16-19	5.2%	8.8%	1.2%	5.8%	0.3%
5-15	0.4%	2.1%	0.2%	1.6%	0.3%

FIGURE 21: RACE/ETHNICITY BY AGENCY



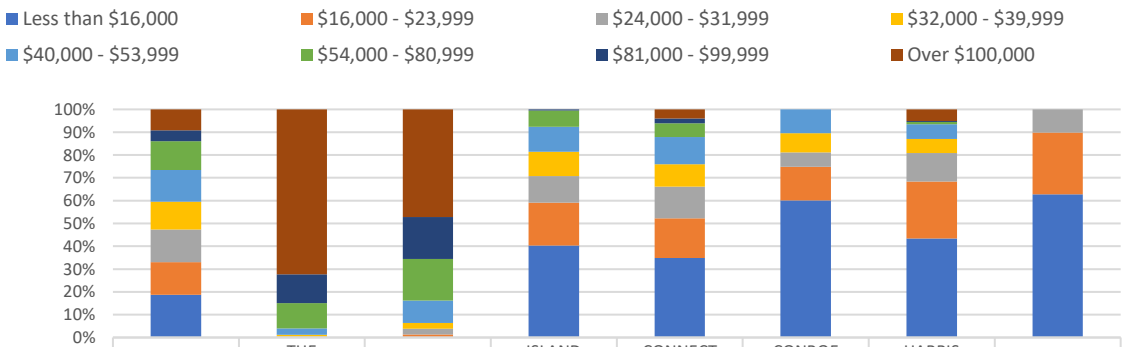
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Other	0.6%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%
Mixed Race	2.7%	2.8%	6.2%	4.0%	5.7%	1.7%	2.9%	6.8%
White	22.4%	83.0%	25.4%	33.1%	36.1%	61.1%	33.0%	50.8%
Native Hawaiian / Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hispanic/Latino	24.5%	7.8%	10.1%	12.5%	13.6%	13.7%	19.7%	0.0%
Black/African American	43.1%	2.4%	12.2%	47.3%	38.0%	23.5%	43.6%	42.4%
Asian	6.3%	3.4%	46.0%	2.4%	5.3%	0.0%	0.8%	0.0%
American Indian / Alaska Native	0.4%	0.8%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%

FIGURE 22: RACE/ETHNICITY BY ROUTE TYPE



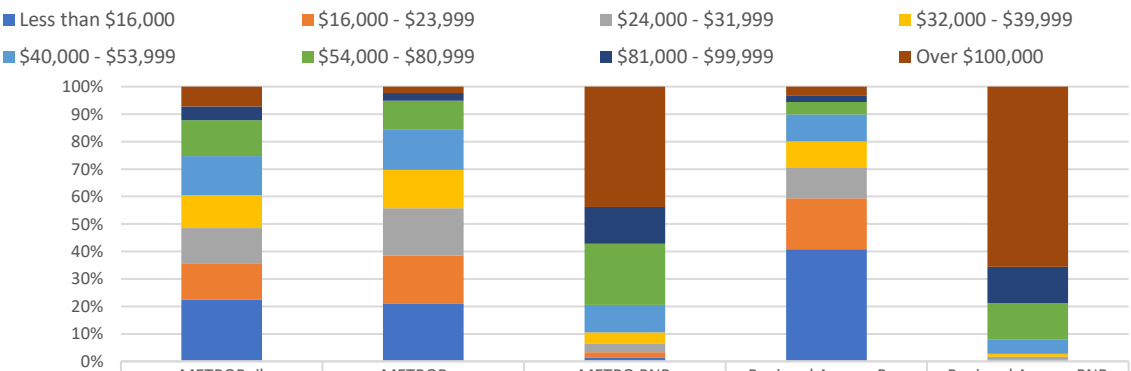
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Other	1.3%	0.4%	0.3%	0.0%	0.3%
Mixed Race	3.6%	2.5%	2.0%	3.9%	3.9%
White	29.8%	16.2%	39.4%	41.6%	65.1%
Native Hawaiian / Pacific Islander	0.1%	0.0%	0.1%	0.0%	0.0%
Hispanic/Latino	22.5%	26.7%	17.6%	14.7%	7.6%
Black/African American	36.5%	50.1%	20.3%	38.0%	6.1%
Asian	5.9%	3.7%	19.8%	1.6%	16.4%
American Indian / Alaska Native	0.4%	0.4%	0.5%	0.3%	0.6%

FIGURE 23: ANNUAL HOUSEHOLD INCOME BY AGENCY



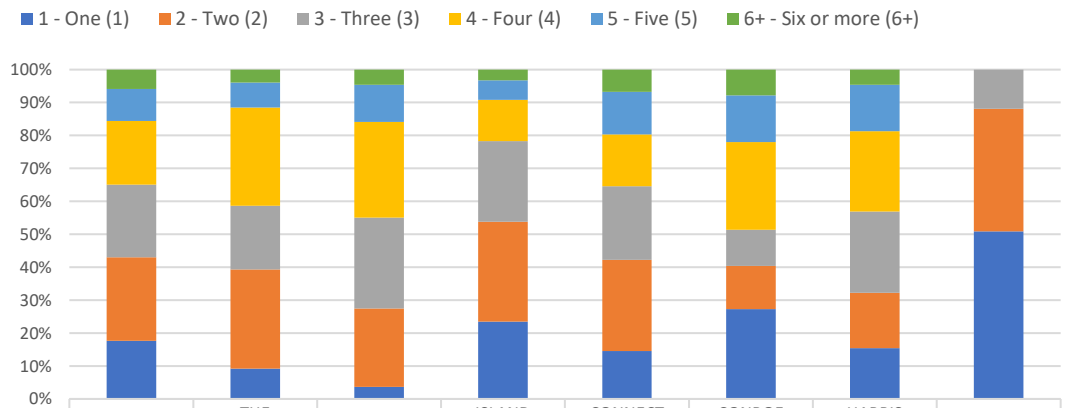
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Over $100,000	9.2%	72.3%	47.2%	0.0%	4.0%	0.0%	5.2%	0.0%
$81,000 - $99,999	4.7%	12.6%	18.4%	0.4%	2.0%	0.0%	0.4%	0.0%
$54,000 - $80,999	12.6%	11.1%	18.2%	7.3%	6.1%	0.0%	1.0%	0.0%
$40,000 - $53,999	14.0%	2.7%	9.8%	10.9%	12.0%	10.4%	6.4%	0.0%
$32,000 - $39,999	12.2%	0.8%	2.6%	10.6%	9.8%	8.4%	6.2%	0.0%
$24,000 - $31,999	14.3%	0.0%	2.5%	11.7%	13.9%	6.3%	12.4%	10.2%
$16,000 - $23,999	14.3%	0.0%	1.3%	18.9%	17.4%	14.7%	25.1%	27.1%
Less than $16,000	18.7%	0.4%	0.0%	40.3%	34.8%	60.1%	43.3%	62.8%

FIGURE 24: ANNUAL HOUSEHOLD INCOME BY ROUTE TYPE



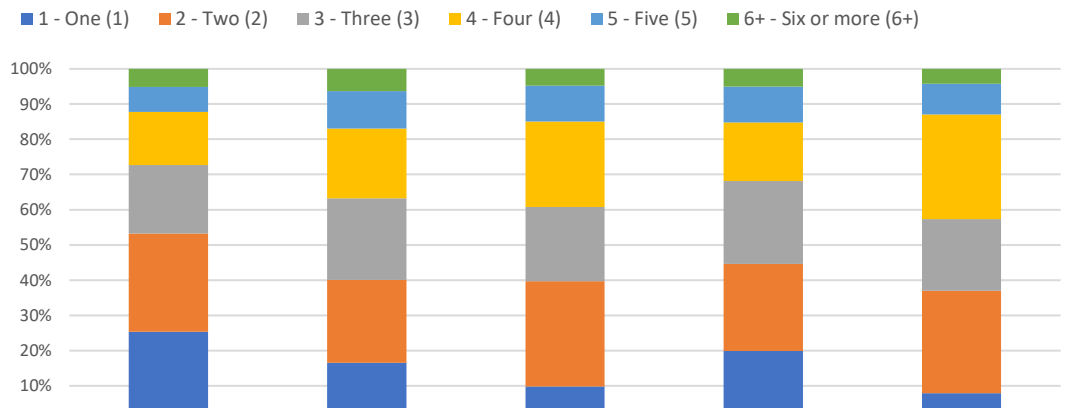
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Over $100,000	7.3%	2.4%	43.8%	3.1%	65.6%
$81,000 - $99,999	5.0%	2.8%	13.4%	2.5%	13.2%
$54,000 - $80,999	13.1%	10.4%	22.2%	4.5%	13.4%
$40,000 - $53,999	14.1%	14.7%	10.0%	9.7%	5.1%
$32,000 - $39,999	12.1%	14.0%	4.1%	9.4%	1.1%
$24,000 - $31,999	12.8%	17.3%	3.0%	11.4%	0.9%
$16,000 - $23,999	13.1%	17.5%	1.9%	18.5%	0.3%
Less than $16,000	22.6%	21.0%	1.5%	40.8%	0.5%

FIGURE 25: HOUSEHOLD SIZE BY AGENCY



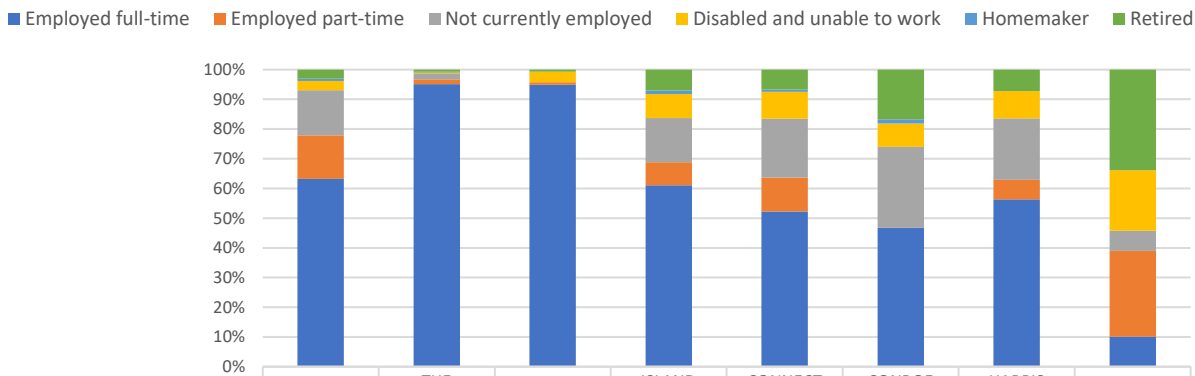
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
6+ - Six or more (6+)	5.8%	4.0%	4.6%	3.3%	6.7%	7.8%	4.6%	0.0%
5 - Five (5)	9.7%	7.6%	11.2%	6.0%	12.9%	14.2%	14.1%	0.0%
4 - Four (4)	19.4%	29.8%	29.1%	12.5%	15.8%	26.6%	24.4%	0.0%
3 - Three (3)	22.0%	19.4%	27.5%	24.4%	22.3%	11.0%	24.6%	11.9%
2 - Two (2)	25.4%	30.1%	23.9%	30.4%	27.7%	13.1%	16.9%	37.2%
1 - One (1)	17.7%	9.2%	3.6%	23.5%	14.6%	27.3%	15.4%	50.9%

FIGURE 26: HOUSEHOLD SIZE BY ROUTE TYPE



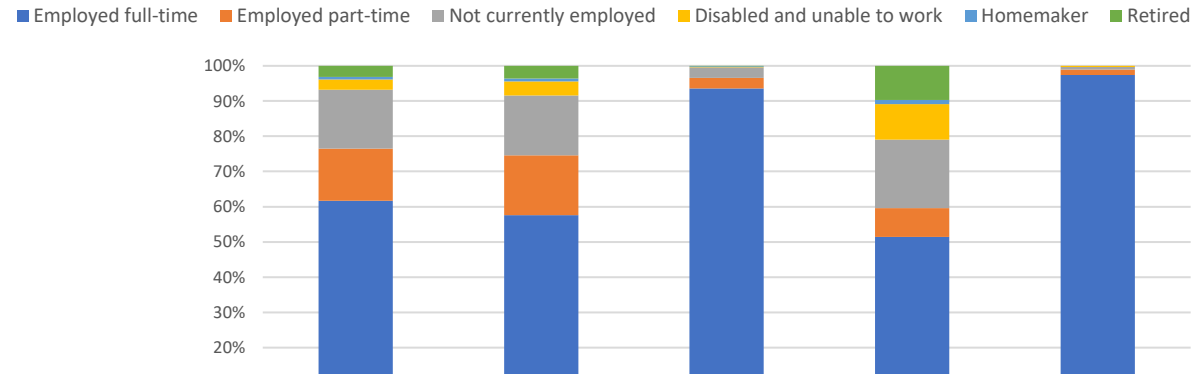
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
6+ - Six or more (6+)	5.1%	6.3%	4.8%	5.1%	4.3%
5 - Five (5)	7.1%	10.6%	10.2%	10.2%	8.7%
4 - Four (4)	15.1%	19.9%	24.3%	16.6%	29.7%
3 - Three (3)	19.5%	23.1%	21.2%	23.5%	20.4%
2 - Two (2)	27.9%	23.5%	29.8%	24.8%	29.1%
1 - One (1)	25.3%	16.5%	9.8%	19.9%	7.9%

FIGURE 27: EMPLOYMENT STATUS BY AGENCY



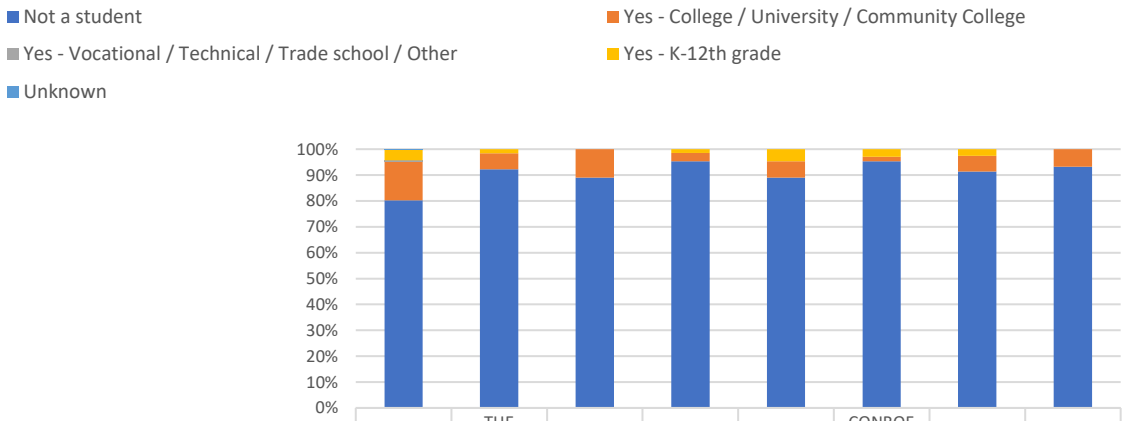
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Retired	3.0%	0.7%	0.7%	7.1%	6.7%	16.7%	7.3%	33.9%
Homemaker	0.7%	0.3%	0.0%	1.2%	0.7%	1.5%	0.0%	0.0%
Disabled and unable to work	3.2%	0.4%	3.5%	8.0%	9.1%	7.8%	9.1%	20.4%
Not currently employed	15.1%	1.8%	0.0%	14.8%	19.7%	27.3%	20.7%	6.8%
Employed part-time	14.6%	1.7%	0.9%	7.8%	11.4%	0.0%	6.5%	28.8%
Employed full-time	63.2%	95.1%	94.9%	61.0%	52.3%	46.7%	56.4%	10.2%

FIGURE 28: EMPLOYMENT STATUS BY ROUTE TYPE



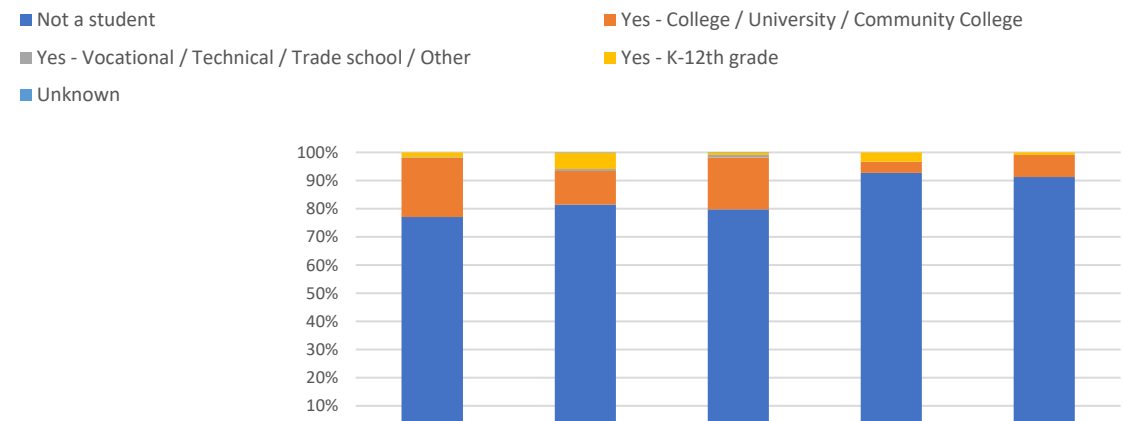
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Retired	3.1%	3.6%	0.1%	9.7%	0.0%
Homemaker	0.7%	0.9%	0.2%	1.3%	0.0%
Disabled and unable to work	2.9%	3.9%	0.1%	10.1%	0.3%
Not currently employed	16.7%	17.0%	3.0%	19.4%	0.7%
Employed part-time	14.8%	17.0%	3.0%	8.2%	1.6%
Employed full-time	61.7%	57.6%	93.6%	51.4%	97.4%

FIGURE 29: STUDENT STATUS BY AGENCY



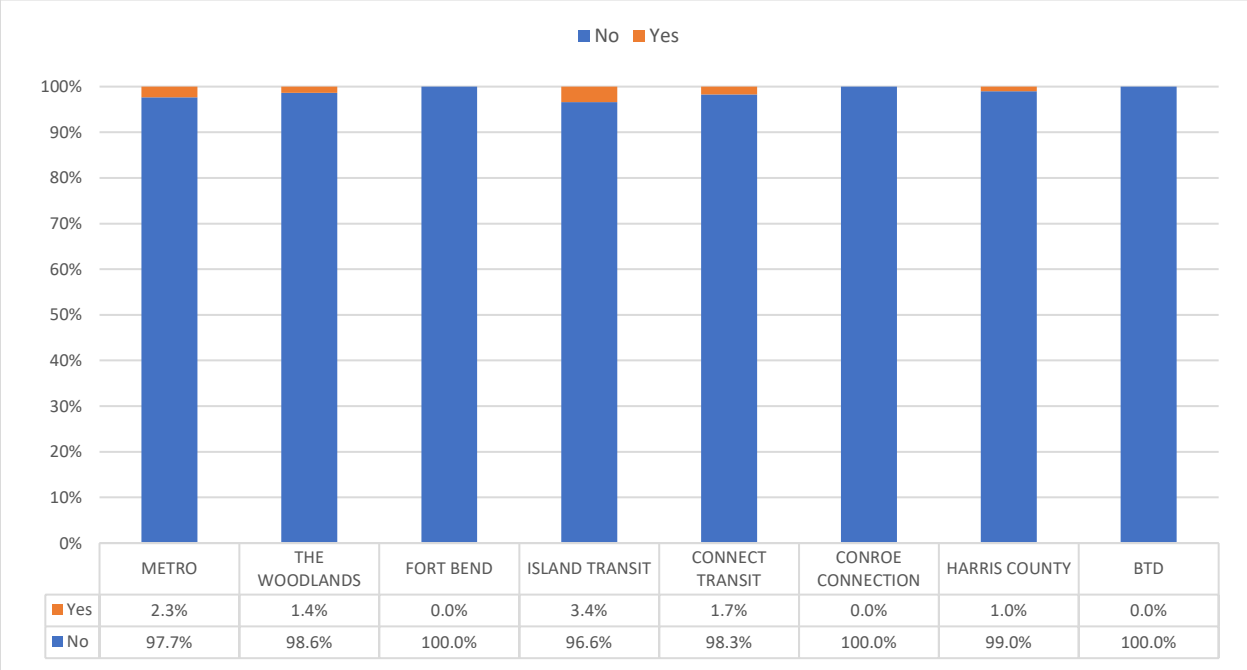
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Unknown	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Yes - K-12th grade	4.2%	1.6%	0.0%	1.5%	4.6%	3.0%	2.6%	0.0%
Yes - Vocational / Technical / Trade school / Other	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Yes - College / University / Community College	14.9%	6.2%	10.9%	3.2%	6.3%	1.7%	6.0%	6.8%
Not a student	80.2%	92.3%	89.1%	95.4%	89.0%	95.3%	91.4%	93.2%

FIGURE 30: STUDENT STATUS BY ROUTE TYPE



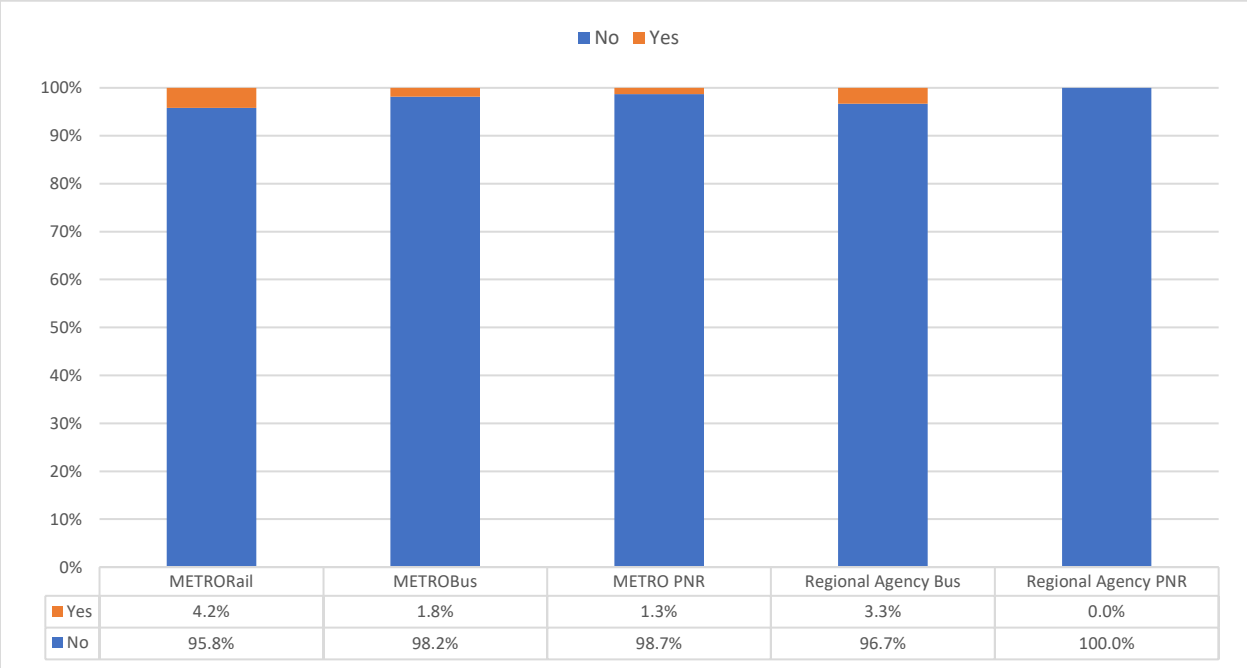
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Unknown	0.0%	0.1%	0.0%	0.0%	0.0%
Yes - K-12th grade	1.8%	5.8%	0.9%	3.2%	0.9%
Yes - Vocational / Technical / Trade school / Other	0.2%	0.7%	0.9%	0.0%	0.0%
Yes - College / University / Community College	21.0%	11.9%	18.4%	4.0%	7.9%
Not a student	77.0%	81.5%	79.8%	92.7%	91.2%

FIGURE 31: VISITOR STATUS BY AGENCY



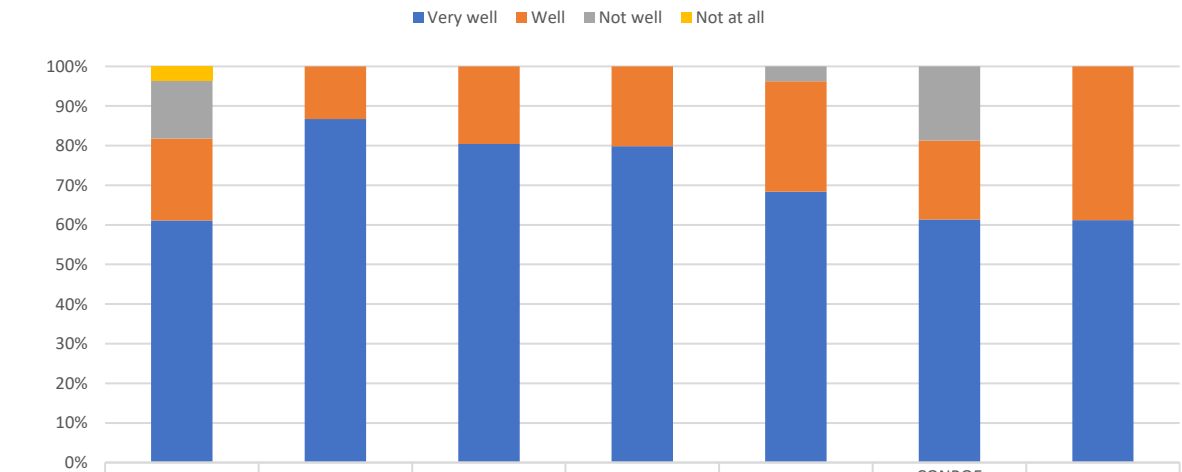
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Yes	2.3%	1.4%	0.0%	3.4%	1.7%	0.0%	1.0%	0.0%
No	97.7%	98.6%	100.0%	96.6%	98.3%	100.0%	99.0%	100.0%

FIGURE 32: VISITOR STATUS BY ROUTE TYPE



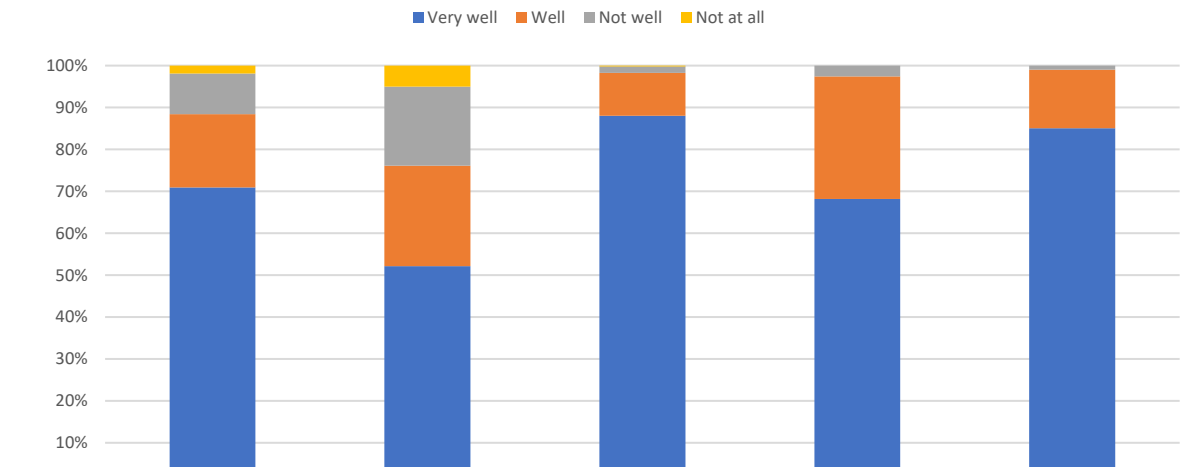
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Yes	4.2%	1.8%	1.3%	3.3%	0.0%
No	95.8%	98.2%	98.7%	96.7%	100.0%

FIGURE 33: HOW WELL RESPONDENT SPEAKS ENGLISH BY AGENCY



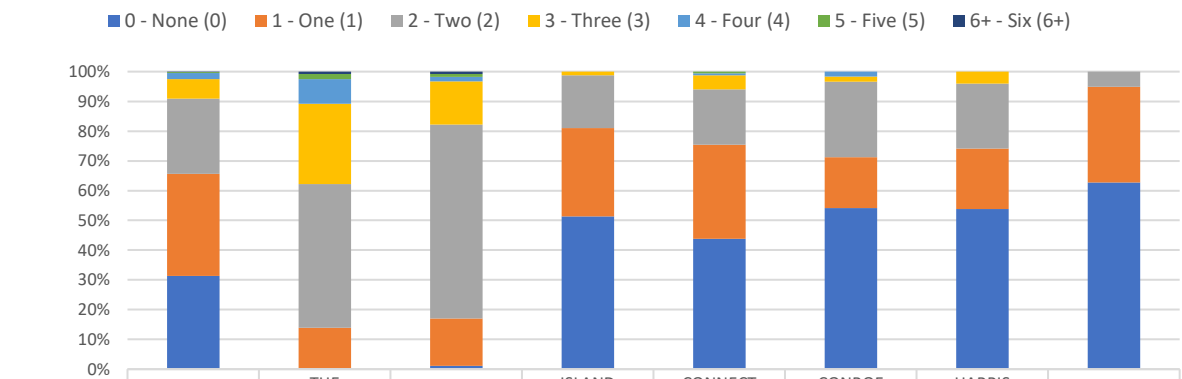
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY
Not at all	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Not well	14.5%	0.0%	0.0%	0.0%	3.7%	18.7%	0.0%
Well	20.7%	13.3%	19.6%	20.1%	27.9%	20.0%	38.8%
Very well	61.1%	86.7%	80.4%	79.9%	68.4%	61.3%	61.2%

FIGURE 34: HOW WELL RESPONDENT SPEAKS ENGLISH BY ROUTE TYPE



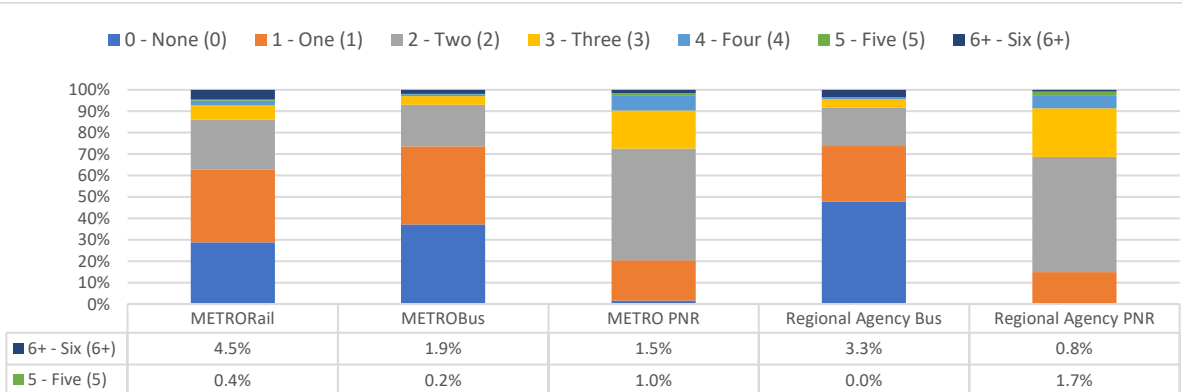
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Not at all	1.9%	5.0%	0.2%	0.0%	0.0%
Not well	9.7%	18.9%	1.5%	2.5%	1.0%
Well	17.5%	24.0%	10.2%	29.3%	13.9%
Very well	70.9%	52.2%	88.1%	68.2%	85.1%

FIGURE 35: NUMBER OF VEHICLES IN HOUSEHOLD BY AGENCY



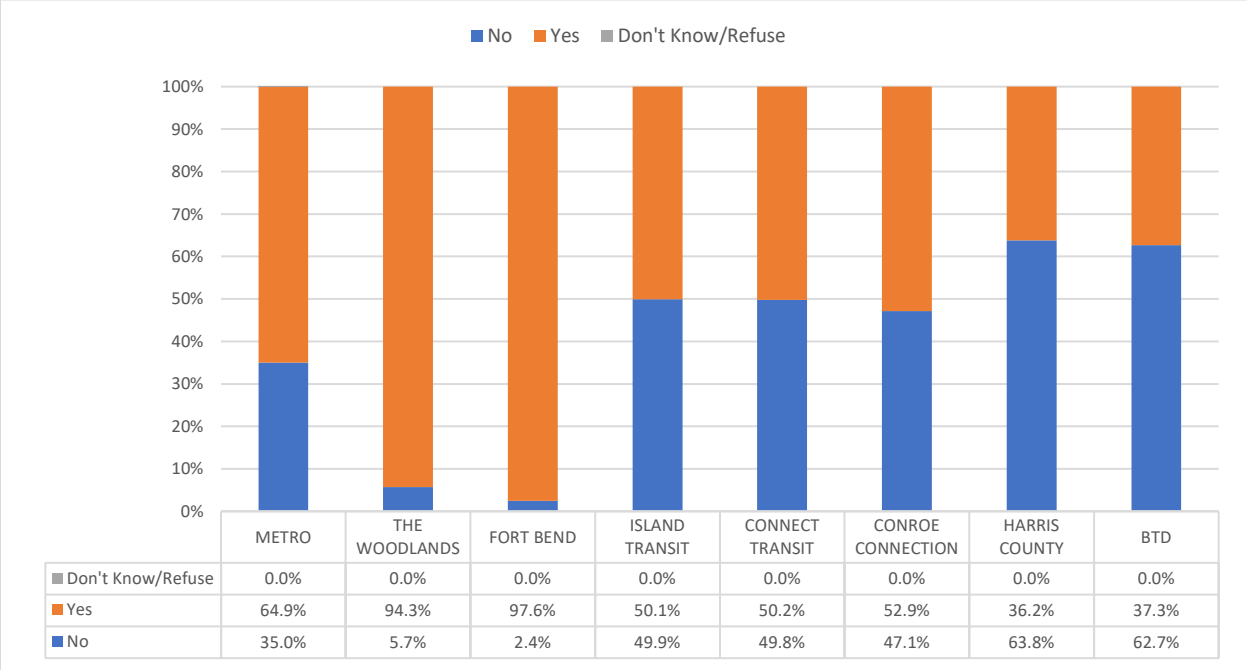
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
6+ - Six (6+)	0.1%	0.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
5 - Five (5)	0.3%	1.7%	0.9%	0.0%	0.6%	0.0%	0.0%	0.0%
4 - Four (4)	2.0%	8.3%	1.5%	0.0%	0.6%	1.7%	0.0%	0.0%
3 - Three (3)	6.6%	27.0%	14.5%	1.2%	4.7%	1.7%	4.0%	0.0%
2 - Two (2)	25.2%	48.3%	65.2%	17.7%	18.6%	25.4%	21.9%	5.1%
1 - One (1)	34.3%	13.6%	15.9%	29.7%	31.6%	17.1%	20.3%	32.2%
0 - None (0)	31.4%	0.3%	1.2%	51.3%	43.9%	54.1%	53.8%	62.8%

FIGURE 36: NUMBER OF VEHICLES IN HOUSEHOLD BY ROUTE TYPE



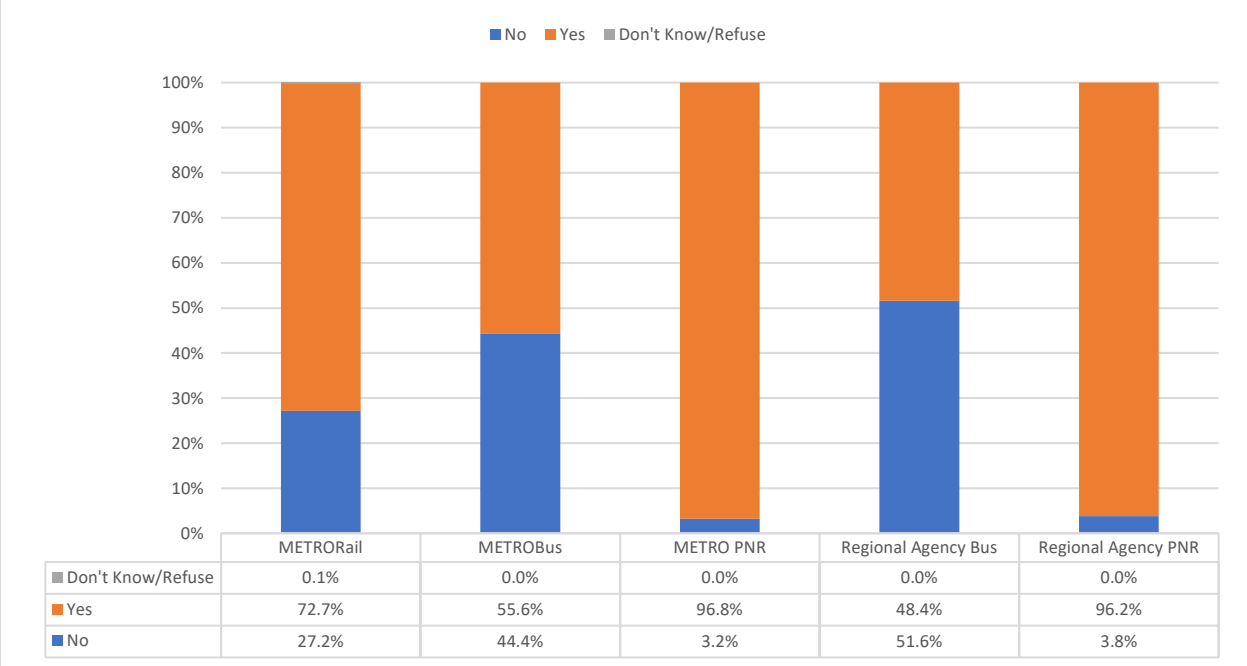
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
6+ - Six (6+)	4.5%	1.9%	1.5%	3.3%	0.8%
5 - Five (5)	0.4%	0.2%	1.0%	0.0%	1.7%
4 - Four (4)	2.2%	0.9%	7.1%	0.9%	6.1%
3 - Three (3)	6.7%	4.0%	17.7%	4.0%	22.7%
2 - Two (2)	23.4%	19.5%	52.1%	18.0%	53.8%
1 - One (1)	33.9%	36.4%	18.8%	25.9%	14.8%
0 - None (0)	28.8%	37.2%	1.7%	47.8%	0.2%

FIGURE 37: WHETHER RESPONDENT HAS A DRIVER'S LICENSE BY AGENCY



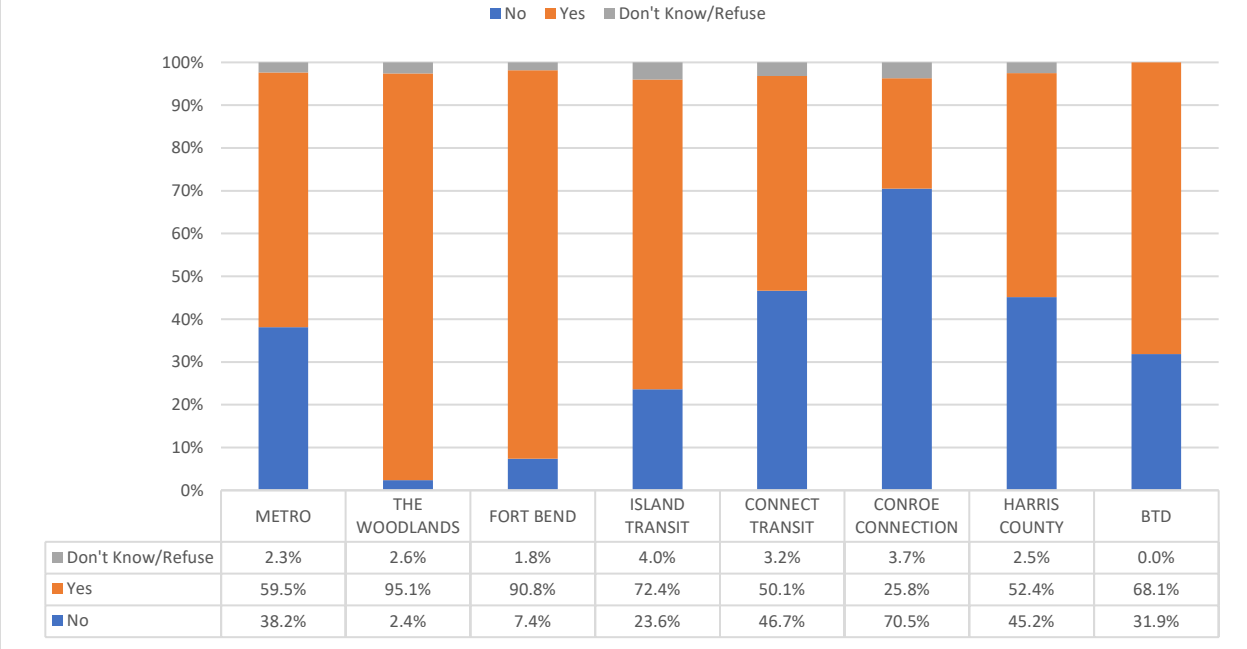
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Don't Know/Refuse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Yes	64.9%	94.3%	97.6%	50.1%	50.2%	52.9%	36.2%	37.3%
No	35.0%	5.7%	2.4%	49.9%	49.8%	47.1%	63.8%	62.7%

FIGURE 38: WHETHER RESPONDENT HAS A DRIVER'S LICENSE BY ROUTE TYPE



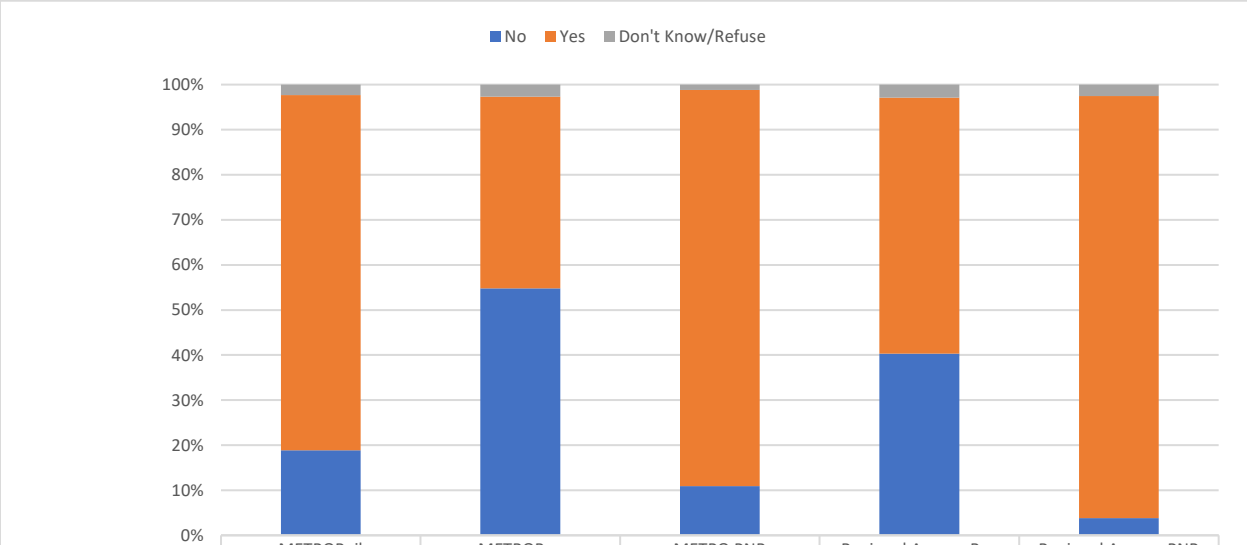
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Don't Know/Refuse	0.1%	0.0%	0.0%	0.0%	0.0%
Yes	72.7%	55.6%	96.8%	48.4%	96.2%
No	27.2%	44.4%	3.2%	51.6%	3.8%

FIGURE 39: WHETHER RESPONDENT COULD USE HOUSEHOLD VEHICLE FOR TRIP BY AGENCY



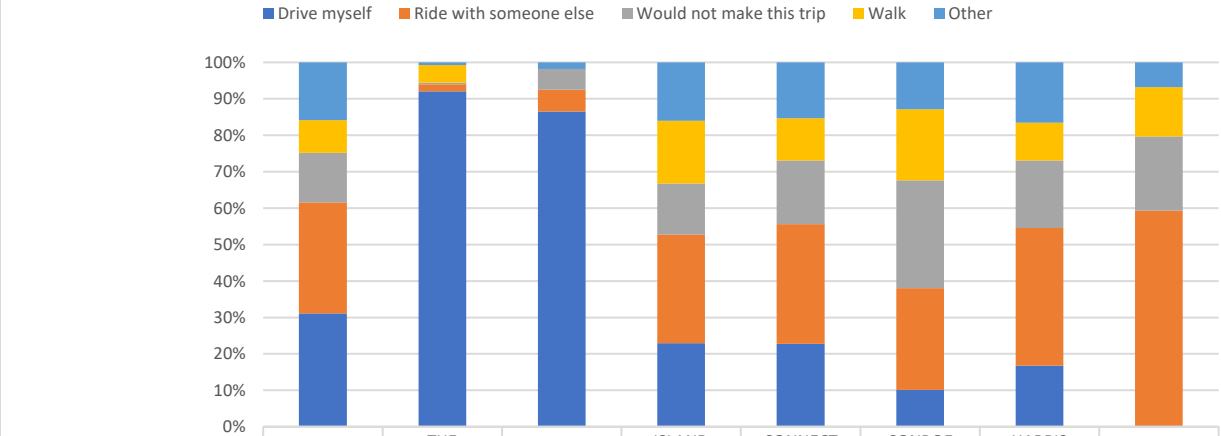
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Don't Know/Refuse	2.3%	2.6%	1.8%	4.0%	3.2%	3.7%	2.5%	0.0%
Yes	59.5%	95.1%	90.8%	72.4%	50.1%	25.8%	52.4%	68.1%
No	38.2%	2.4%	7.4%	23.6%	46.7%	70.5%	45.2%	31.9%

FIGURE 40: WHETHER RESPONDENT COULD USE HOUSEHOLD VEHICLE FOR TRIP BY ROUTE TYPE



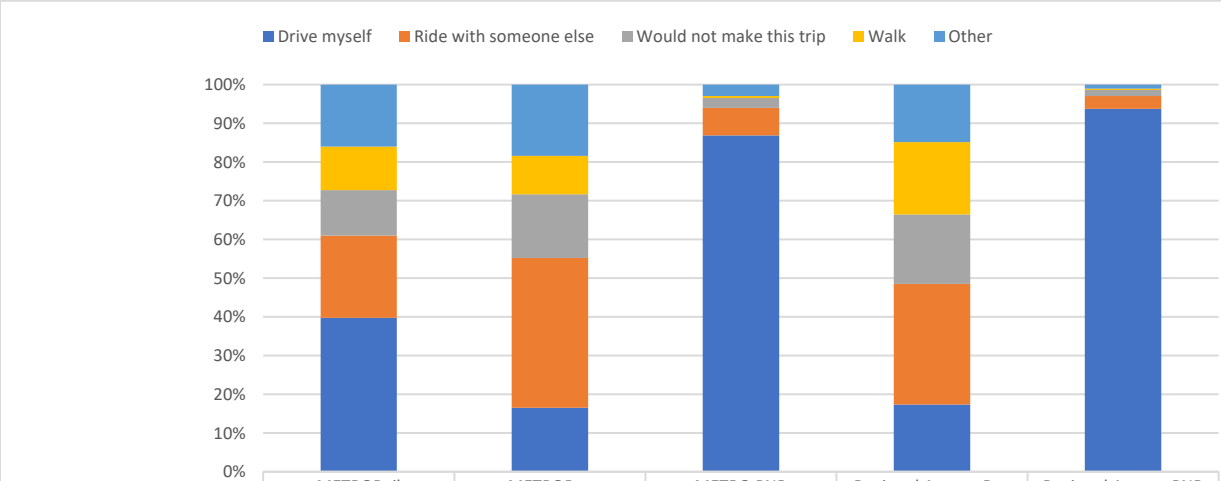
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Don't Know/Refuse	2.3%	2.7%	1.2%	2.9%	2.5%
Yes	78.8%	42.5%	87.9%	56.7%	93.6%
No	18.9%	54.8%	10.9%	40.3%	3.8%

FIGURE 41: IF TRANSIT WAS NOT AVAILABLE BY AGENCY



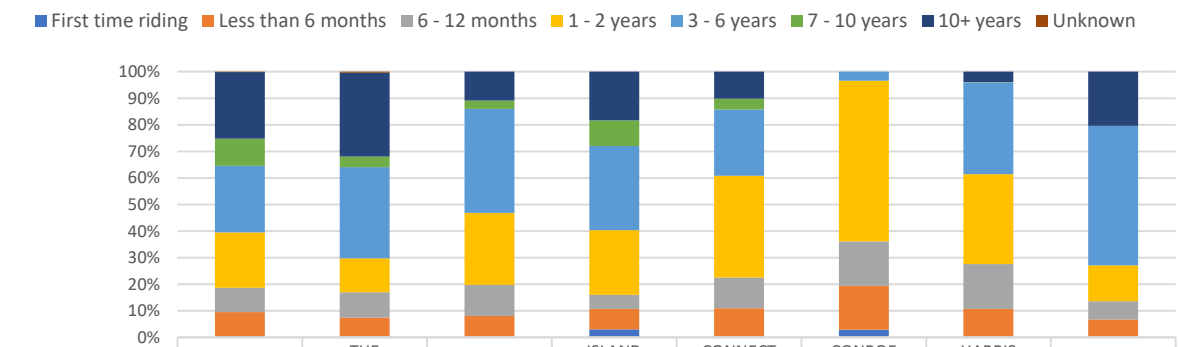
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Other	15.9%	0.8%	1.8%	16.0%	15.3%	12.9%	16.5%	6.8%
Walk	9.0%	4.8%	0.0%	17.2%	11.6%	19.5%	10.4%	13.6%
Would not make this trip	13.6%	0.4%	5.7%	14.0%	17.5%	29.6%	18.5%	20.4%
Ride with someone else	30.5%	1.9%	6.0%	29.8%	32.9%	27.9%	37.7%	59.3%
Drive myself	31.1%	92.0%	86.5%	22.9%	22.7%	10.1%	16.8%	0.0%

FIGURE 42: IF TRANSIT WAS NOT AVAILABLE BY ROUTE TYPE



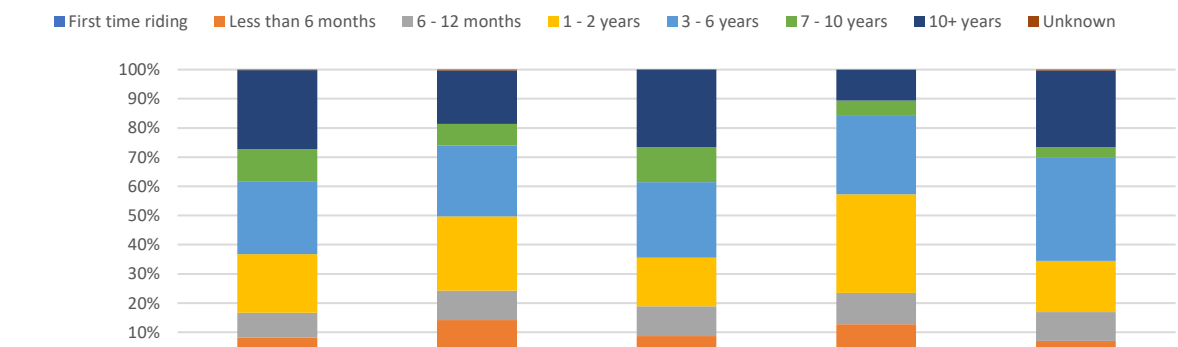
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Other	16.0%	18.4%	3.0%	14.9%	1.1%
Walk	11.2%	9.9%	0.5%	18.7%	0.3%
Would not make this trip	11.7%	16.5%	2.5%	17.9%	1.6%
Ride with someone else	21.2%	38.7%	7.1%	31.2%	3.3%
Drive myself	39.8%	16.6%	86.9%	17.4%	93.7%

FIGURE 43: RESPONDENT USE OF TRANSIT LENGTH BY AGENCY



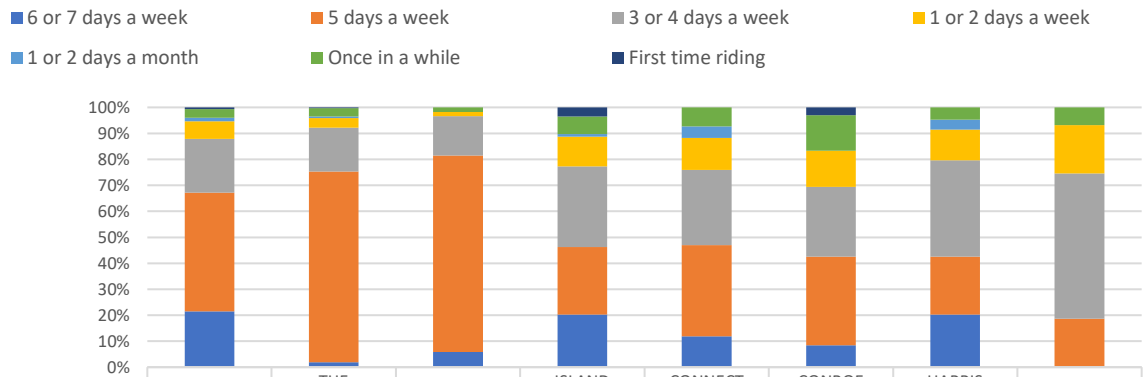
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Unknown	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10+ years	25.0%	31.5%	10.8%	18.4%	10.2%	0.0%	3.9%	20.4%
7 - 10 years	10.2%	4.0%	3.1%	9.6%	4.0%	0.0%	0.2%	0.0%
3 - 6 years	25.0%	34.3%	39.2%	31.7%	25.0%	3.4%	34.6%	52.5%
1 - 2 years	20.8%	12.8%	27.1%	24.3%	38.2%	60.5%	33.8%	13.6%
6 - 12 months	9.1%	9.6%	11.6%	5.3%	11.5%	16.7%	16.9%	6.8%
Less than 6 months	9.0%	7.1%	8.1%	7.6%	11.0%	16.5%	10.7%	6.8%
First time riding	0.6%	0.3%	0.0%	3.0%	0.0%	3.0%	0.0%	0.0%

FIGURE 44: RESPONDENT USE OF TRANSIT LENGTH BY ROUTE TYPE



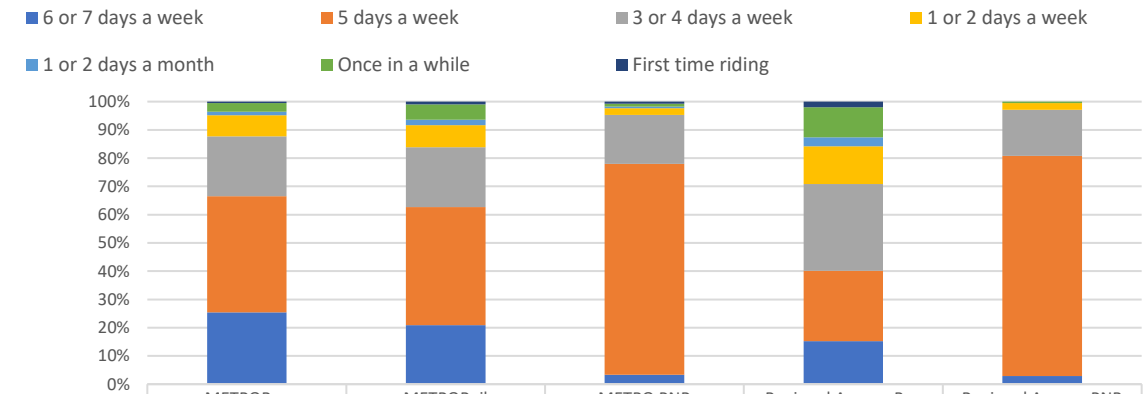
	METROBus	METRORail	METRO PNR	Regional Agency Bus	Regional Agency PNR
Unknown	0.2%	0.3%	0.0%	0.0%	0.3%
10+ years	27.1%	18.4%	26.6%	10.6%	26.4%
7 - 10 years	11.0%	7.3%	11.9%	5.3%	3.6%
3 - 6 years	25.0%	24.4%	26.0%	26.9%	35.3%
1 - 2 years	20.1%	25.4%	16.6%	33.8%	17.5%
6 - 12 months	8.6%	10.1%	10.2%	10.7%	10.0%
Less than 6 months	7.6%	13.4%	8.2%	10.9%	7.0%
First time riding	0.5%	0.8%	0.6%	1.8%	0.0%

FIGURE 45: HOW OFTEN RESPONDENT RIDES BY AGENCY



	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
First time riding	0.7%	0.3%	0.0%	3.5%	0.0%	3.0%	0.0%	0.0%
Once in a while	3.3%	3.1%	1.7%	6.8%	7.3%	13.7%	4.7%	6.8%
1 or 2 days a month	1.4%	0.7%	0.0%	1.0%	4.4%	0.0%	3.9%	0.0%
1 or 2 days a week	6.8%	3.7%	1.7%	11.5%	12.3%	14.0%	11.7%	18.7%
3 or 4 days a week	20.7%	16.8%	15.1%	31.0%	29.0%	26.8%	37.1%	55.9%
5 days a week	45.7%	73.4%	75.7%	25.9%	35.2%	34.0%	22.2%	18.7%
6 or 7 days a week	21.5%	1.9%	5.8%	20.3%	11.8%	8.5%	20.3%	0.0%

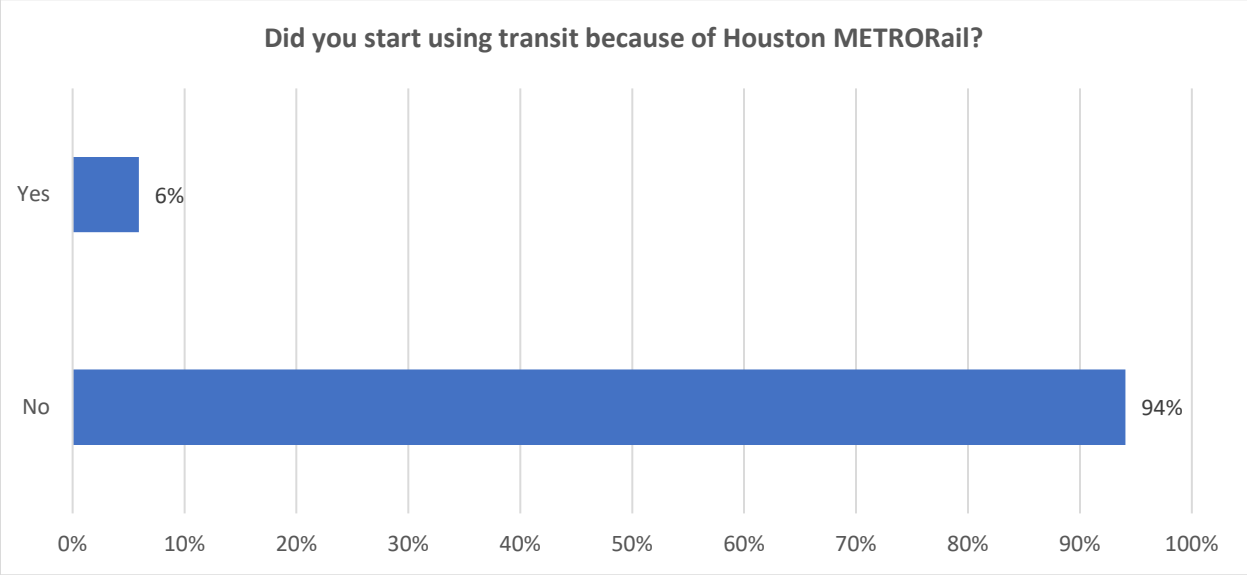
FIGURE 46: HOW OFTEN RESPONDENT RIDES BY ROUTE TYPE



	METROBus	METRORail	METRO PNR	Regional Agency Bus	Regional Agency PNR
First time riding	0.5%	1.0%	0.7%	2.0%	0.0%
Once in a while	3.1%	5.4%	1.1%	10.7%	0.5%
1 or 2 days a month	1.3%	2.0%	0.5%	3.1%	0.0%
1 or 2 days a week	7.4%	7.7%	2.4%	13.3%	2.3%
3 or 4 days a week	21.2%	21.2%	17.3%	30.7%	16.3%
5 days a week	41.1%	41.9%	74.6%	24.9%	78.0%
6 or 7 days a week	25.4%	20.8%	3.4%	15.3%	2.8%

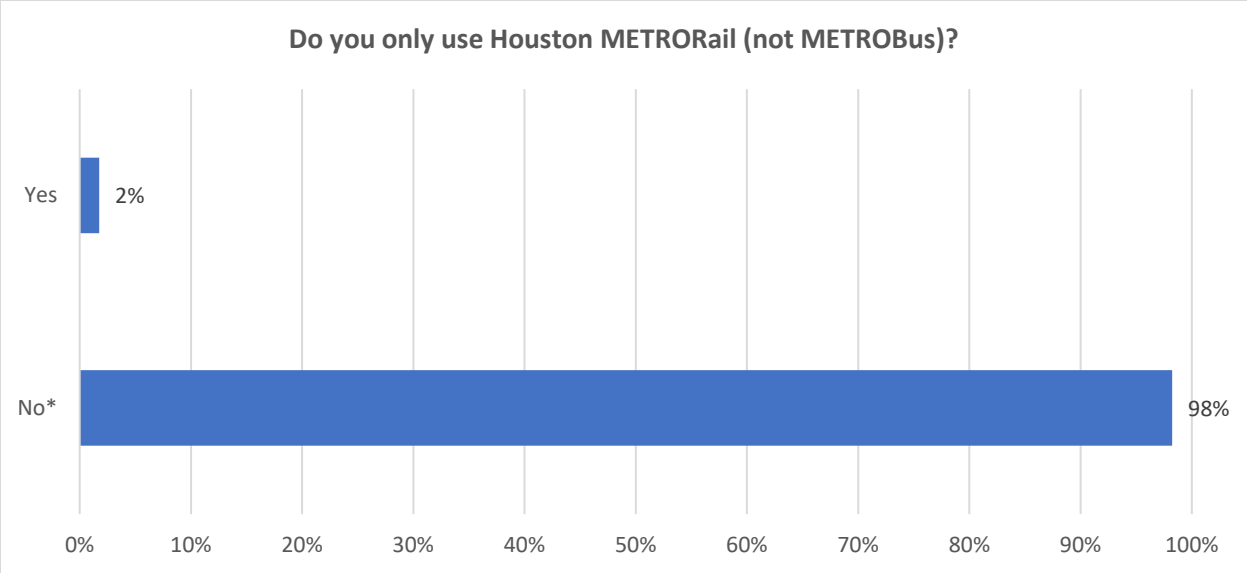
Metro Surveyed Riders Only (Figure 47 and Figure 48)

FIGURE 47: RESPONDENT INDICATES THEY STARTED USING TRANSIT BECAUSE OF HOUSTON METRORAIL?



"No" and "No, but determined based on actual trip" were combined for the figure below.

FIGURE 48: RESPONDENT INDICATES THEY ONLY USE HOUSTON METRORAIL (NOT METROBUS)?



Rider Profile

TABLE 24: ANNUAL HOUSEHOLD INCOME BY NUMBER OF VEHICLES IN HOUSEHOLD (ALL-SYSTEMS)

Number of Vehicles in Household Annual Household Income	None (0)	One (1)	Two (2)	Three (3)	Four (4)	Five (5)	Six+ (6+)	Grand Total
Less than $16,000	39.9%	12.6%	5.2%	5.7%	4.8%	7.4%	13.5%	**18.5%**
$16,000–$23,999	24.0%	14.5%	5.8%	4.1%	2.7%	4.8%	8.2%	**14.2%**
$24,000–$31,999	16.1%	19.4%	7.9%	6.2%	2.4%	2.7%	1.2%	**14.1%**
$32,000–$39,999	9.8%	15.8%	11.7%	8.3%	5.0%	4.0%	0.0%	**12.1%**
$40,000–$53,999	5.9%	17.5%	18.4%	13.2%	11.5%	12.9%	11.1%	**13.7%**
$54,000–$80,999	3.1%	12.9%	20.6%	19.6%	19.8%	10.8%	20.3%	**12.4%**
$81,000–$99,999	0.6%	3.6%	9.3%	9.8%	12.5%	16.7%	2.1%	**4.8%**
Over $100,000	0.4%	3.8%	21.1%	33.1%	41.3%	40.7%	43.6%	**10.1%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

TABLE 25: EMPLOYMENT STATUS BY NUMBER OF VEHICLES IN HOUSEHOLD (ALL-SYSTEMS)

Number of Vehicles in Household Employment Status	None (0)	One (1)	Two (2)	Three (3)	Four (4)	Five (5)	Six (6+)	Grand Total
Employed full-time	51.4%	65.6%	72.5%	73.4%	74.9%	66.0%	55.6%	**63.7%**
Employed part-time	15.4%	15.8%	12.1%	12.8%	7.8%	12.6%	21.4%	**14.4%**
Not currently employed	18.9%	13.9%	12.6%	11.9%	13.0%	14.4%	14.5%	**15.0%**
Disabled and unable to work	7.8%	1.7%	0.7%	0.4%	1.3%	0.5%	1.4%	**3.2%**
Homemaker	0.7%	0.9%	0.7%	0.3%	0.2%	0.3%	0.0%	**0.7%**
Retired	5.7%	2.1%	1.4%	1.2%	2.8%	6.1%	7.1%	**3.0%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Trip Profile

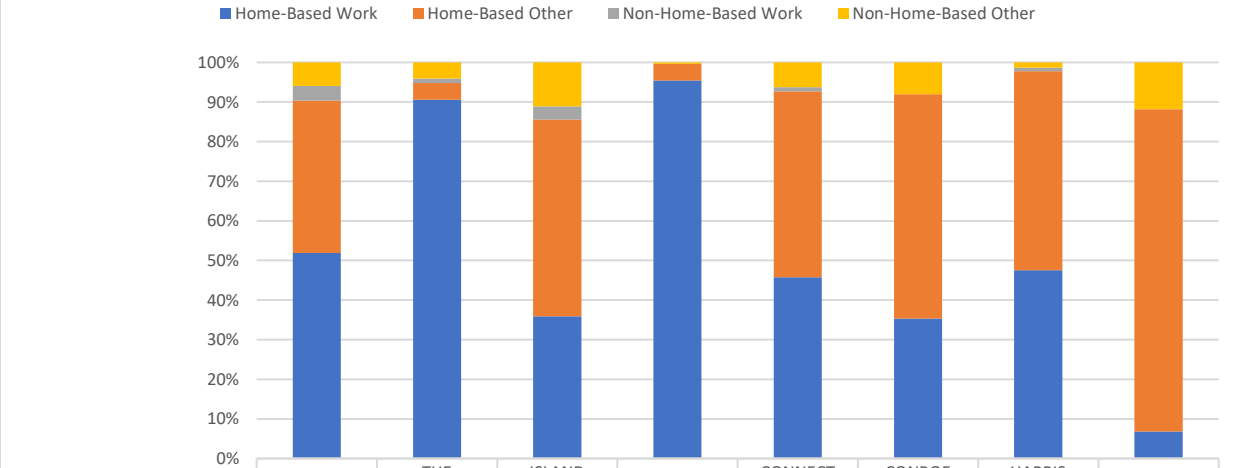
TABLE 26: TRIP PURPOSE (GENERAL USE) BY AGENCY

Transit Agency									
Trip Purpose (General Use)	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD	Grand Total
Work	55.7%	91.6%	95.4%	39.2%	46.7%	35.3%	48.4%	6.8%	**56.1%**
Personal Business	12.0%	0.3%	0.0%	16.2%	9.6%	5.1%	9.6%	10.2%	**11.8%**
Shopping	7.7%	2.7%	0.8%	31.4%	24.9%	41.2%	16.3%	66.1%	**7.8%**
College/University (students only)	6.7%	0.4%	0.0%	1.2%	4.2%	0.0%	1.3%	0.0%	**6.5%**
Medical/Doctor/ Clinic/ (non-work)	4.2%	0.0%	0.9%	3.3%	5.7%	9.1%	14.2%	6.8%	**4.1%**
Social Visit/Church	3.3%	0.0%	0.3%	3.1%	3.5%	6.3%	3.9%	0.0%	**3.3%**
School K–12 (students only)	3.3%	0.4%	0.0%	0.2%	2.3%	0.0%	1.2%	0.0%	**3.2%**
Restaurant	2.7%	1.4%	0.0%	0.6%	1.0%	0.0%	0.0%	0.0%	**2.6%**
Recreation/ Sightseeing	2.3%	2.7%	2.6%	2.3%	1.2%	3.0%	2.7%	10.2%	**2.3%**
Work related	2.1%	0.4%	0.0%	2.5%	0.8%	0.0%	2.5%	0.0%	**2.1%**
Airport (passengers only)	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.2%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

TABLE 27: TRIP PURPOSE (GENERAL USE) BY ROUTE TYPE

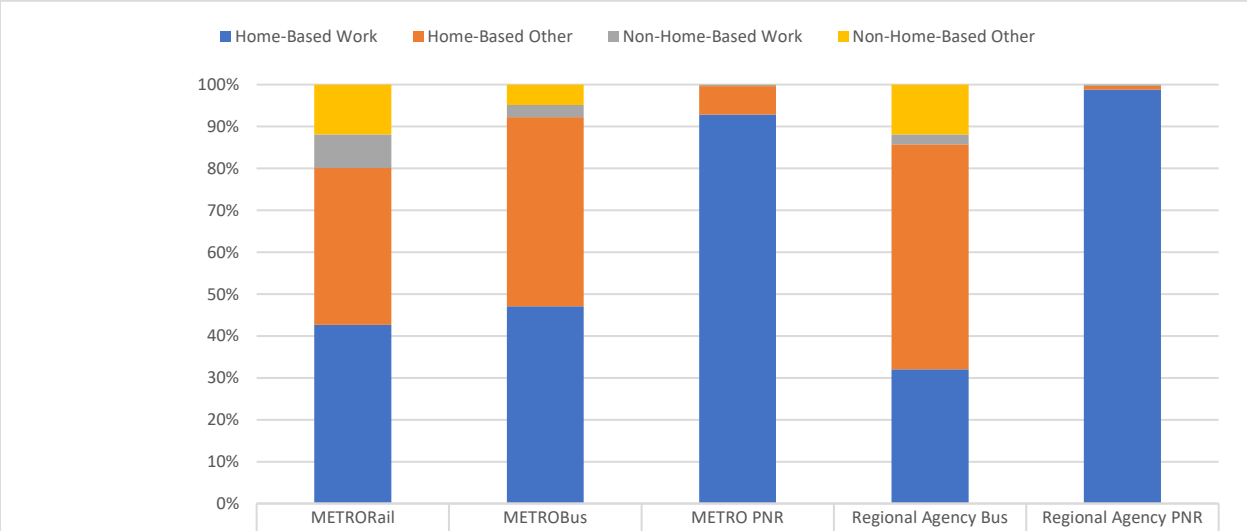
Route Type						
Trip Purpose (General Use)	METRO PNR	METROBus	METRORail	Regional Agency Bus	Regional Agency PNR	Grand Total
Work	93.2%	49.9%	50.6%	34.4%	97.8%	**56.1%**
Personal Business	1.5%	14.1%	12.1%	11.5%	0.0%	**11.8%**
Shopping	0.0%	10.0%	5.4%	31.6%	0.0%	**7.8%**
College/University (students only)	3.9%	5.7%	10.8%	2.0%	1.0%	**6.5%**
Medical/Doctor/Clinic/ (non-work)	0.6%	4.3%	5.8%	6.4%	0.0%	**4.1%**
Social Visit/Church	0.0%	3.9%	3.5%	3.7%	0.0%	**3.3%**
School K–12 (students only)	0.3%	4.8%	0.8%	1.0%	0.3%	**3.2%**
Restaurant	0.1%	2.8%	3.9%	2.0%	0.0%	**2.6%**
Recreation/Sightseeing	0.3%	1.7%	4.9%	5.9%	0.0%	**2.3%**
Work related	0.0%	2.5%	2.0%	1.5%	0.9%	**2.1%**
Airport (passengers only)	0.1%	0.3%	0.0%	0.0%	0.0%	**0.2%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

FIGURE 49: TRIP PURPOSE (MODELING) BY AGENCY



	METRO	THE WOODLANDS	ISLAND TRANSIT	FORT BEND	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Non-Home-Based Other	5.9%	4.1%	11.1%	0.3%	6.3%	8.0%	1.3%	11.9%
Non-Home-Based Work	3.7%	1.1%	3.3%	0.0%	1.0%	0.0%	0.9%	0.0%
Home-Based Other	38.4%	4.3%	49.6%	4.2%	47.0%	56.7%	50.3%	81.3%
Home-Based Work	51.9%	90.6%	35.9%	95.4%	45.7%	35.3%	47.5%	6.8%

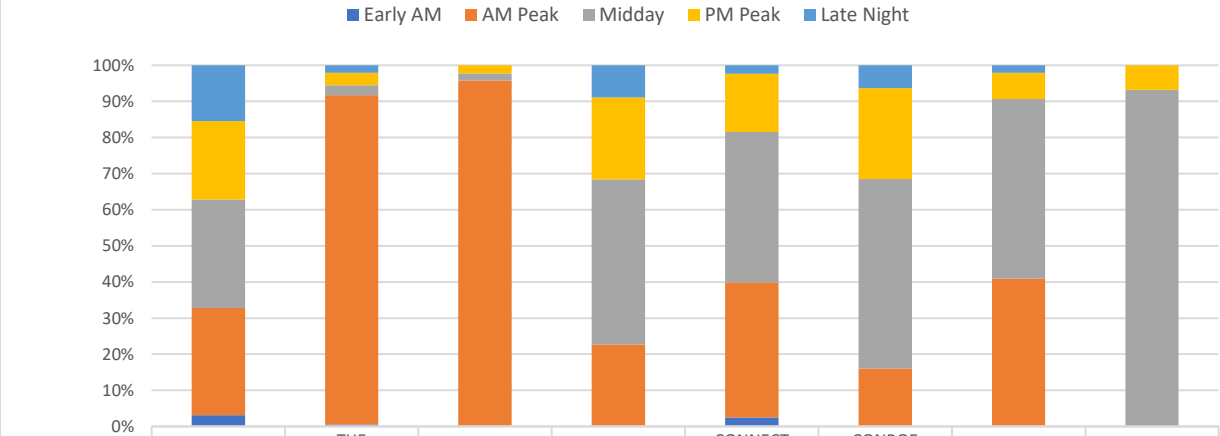
FIGURE 50: TRIP PURPOSE (MODELING) BY ROUTE TYPE



	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Non-Home-Based Other	11.9%	4.9%	0.1%	11.9%	0.0%
Non-Home-Based Work	8.0%	2.9%	0.3%	2.3%	0.3%
Home-Based Other	37.4%	45.2%	6.8%	53.7%	0.9%
Home-Based Work	42.6%	47.0%	92.8%	32.1%	98.8%

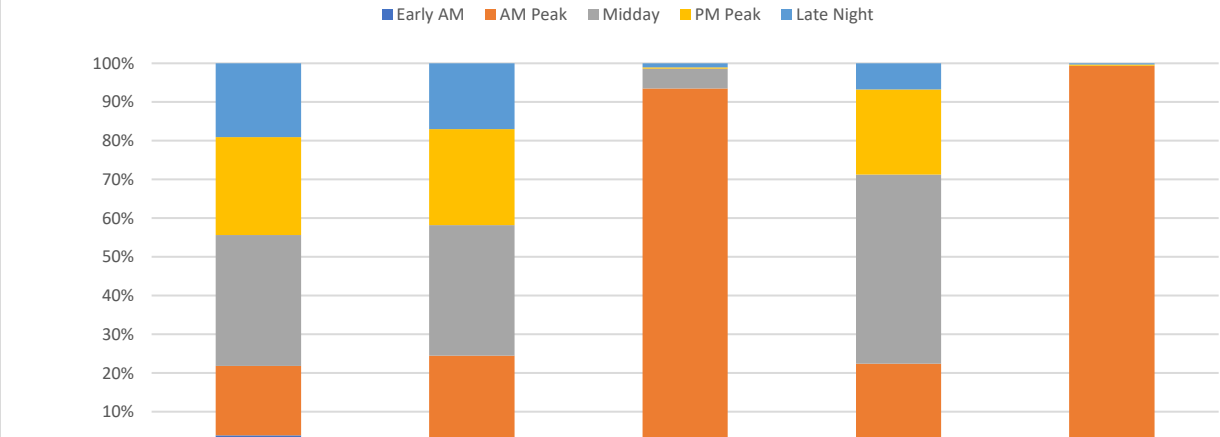
The survey was conducted at AM Peak on most PNR routes, and routes were conducted all-day on non-PNR routes.

FIGURE 51: TIME-OF-DAY BY AGENCY



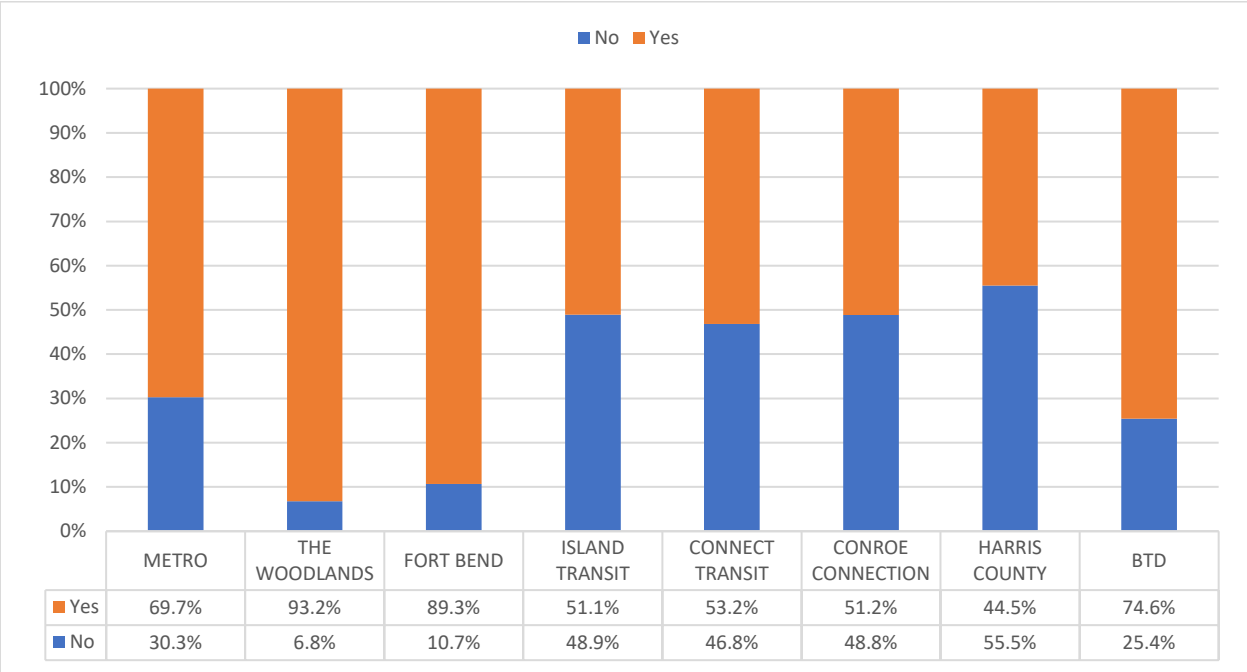
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Late Night	15.4%	2.0%	0.0%	8.9%	2.3%	6.3%	2.1%	0.0%
PM Peak	21.8%	3.5%	2.3%	22.6%	16.1%	25.2%	7.2%	6.8%
Midday	30.0%	2.7%	1.9%	45.8%	41.6%	52.4%	49.7%	93.2%
AM Peak	29.7%	91.2%	95.8%	22.7%	37.4%	16.1%	41.0%	0.0%
Early AM	3.1%	0.5%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%

FIGURE 52: TIME-OF-DAY BY ROUTE TYPE



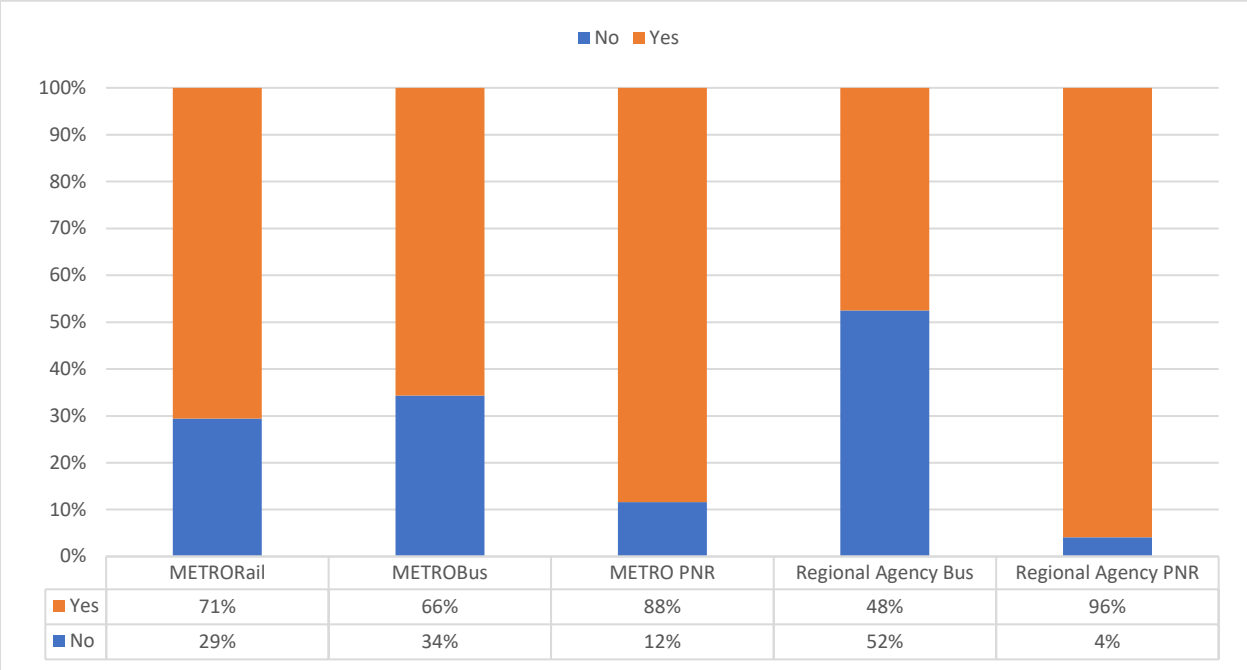
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Late Night	19.1%	17.0%	1.1%	6.7%	0.3%
PM Peak	25.3%	24.8%	0.3%	22.0%	0.3%
Midday	33.7%	33.7%	5.1%	48.8%	0.0%
AM Peak	18.0%	21.1%	93.5%	21.8%	98.8%
Early AM	3.9%	3.4%	0.0%	0.7%	0.5%

FIGURE 53: TAKES SAME TRIP IN OPPOSITE DIRECTION EARLIER/LATER BY AGENCY



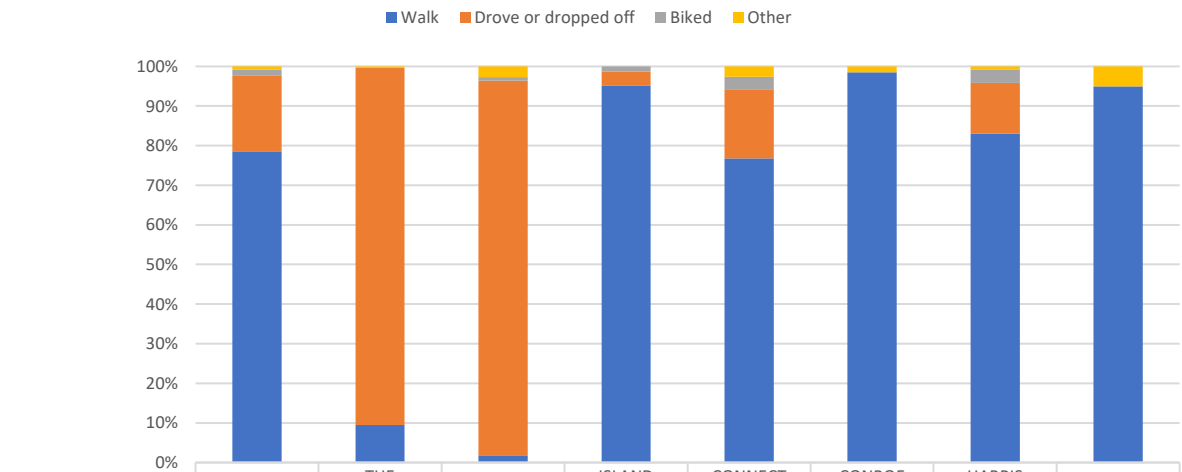
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Yes	69.7%	93.2%	89.3%	51.1%	53.2%	51.2%	44.5%	74.6%
No	30.3%	6.8%	10.7%	48.9%	46.8%	48.8%	55.5%	25.4%

FIGURE 54: TAKES SAME TRIP IN OPPOSITE DIRECTION EARLIER/LATER BY ROUTE TYPE



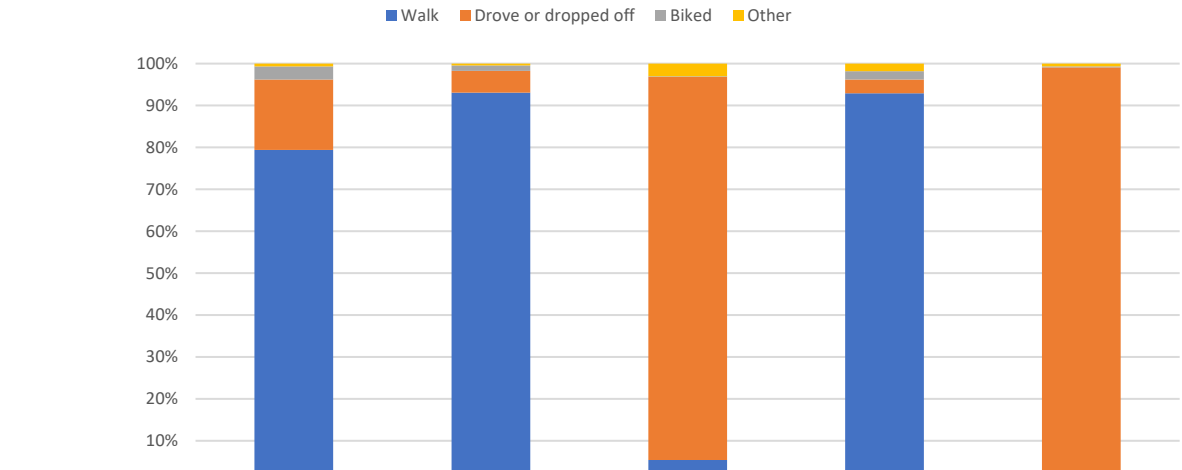
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Yes	71%	66%	88%	48%	96%
No	29%	34%	12%	52%	4%

FIGURE 55: ACCESS MODE BY AGENCY



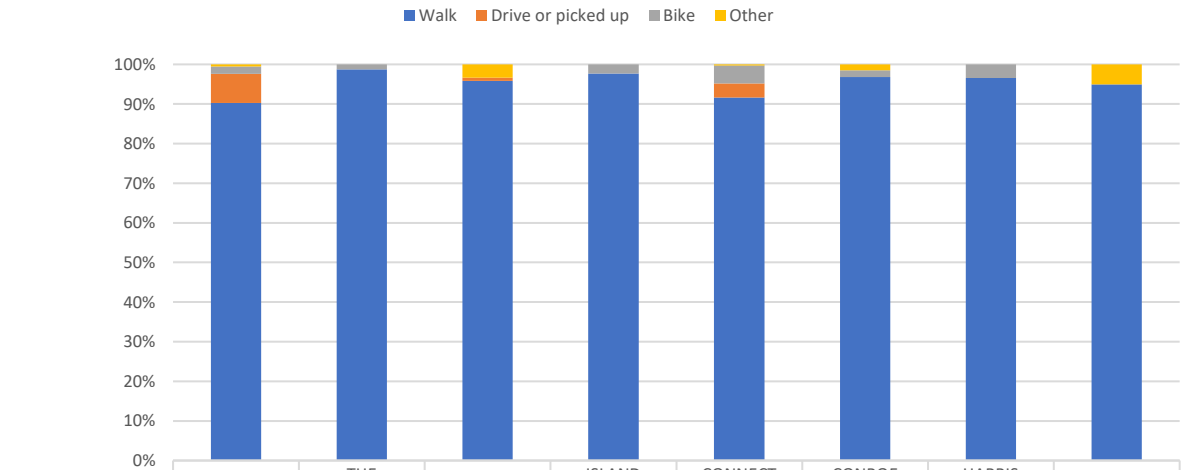
	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Other	0.8%	0.4%	2.7%	0.0%	2.6%	1.5%	0.8%	5.1%
Biked	1.6%	0.0%	0.9%	1.4%	3.1%	0.0%	3.4%	0.0%
Drove or dropped off	19.1%	90.1%	94.5%	3.5%	17.5%	0.0%	12.8%	0.0%
Walk	78.5%	9.5%	1.8%	95.2%	76.7%	98.5%	83.0%	94.9%

FIGURE 56: ACCESS MODE BY ROUTE TYPE



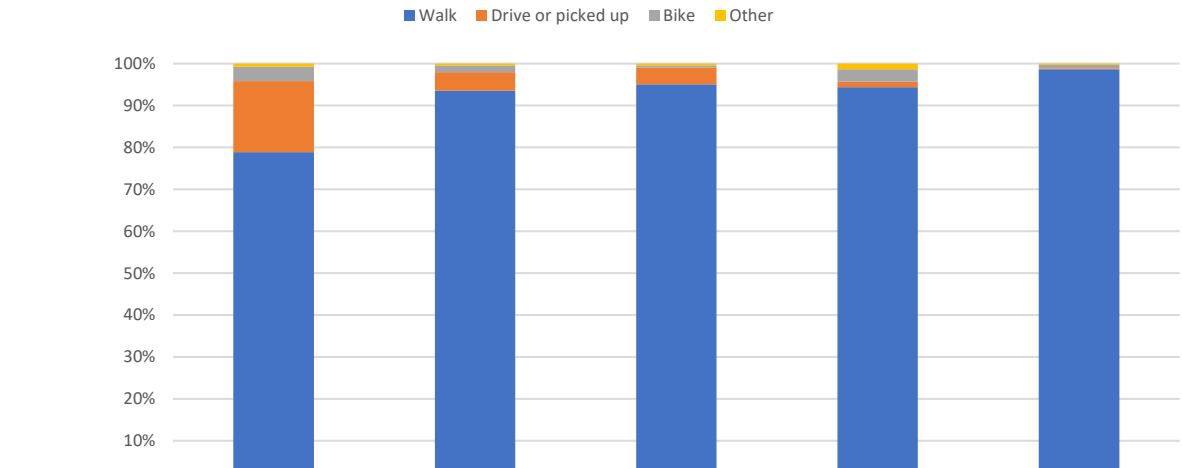
	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Other	0.6%	0.5%	3.0%	1.8%	0.7%
Biked	3.2%	1.2%	0.2%	2.0%	0.3%
Drove or dropped off	16.8%	5.2%	91.4%	3.2%	97.2%
Walk	79.4%	93.1%	5.4%	92.9%	1.9%

FIGURE 57: EGRESS MODE BY AGENCY



	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
Other	0.5%	0.0%	3.4%	0.0%	0.3%	1.5%	0.0%	5.1%
Bike	1.9%	1.2%	0.0%	2.3%	4.5%	1.7%	3.4%	0.0%
Drive or picked up	7.3%	0.0%	0.8%	0.0%	3.6%	0.0%	0.0%	0.0%
Walk	90.3%	98.8%	95.8%	97.7%	91.6%	96.8%	96.6%	94.9%

FIGURE 58: EGRESS MODE BY ROUTE TYPE



	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
Other	0.7%	0.5%	0.5%	1.3%	0.3%
Bike	3.4%	1.6%	0.5%	3.0%	0.9%
Drive or picked up	17.0%	4.4%	3.9%	1.3%	0.2%
Walk	78.9%	93.6%	95.0%	94.3%	98.6%

FIGURE 59: PAYMENT METHOD (ALL-SYSTEMS)

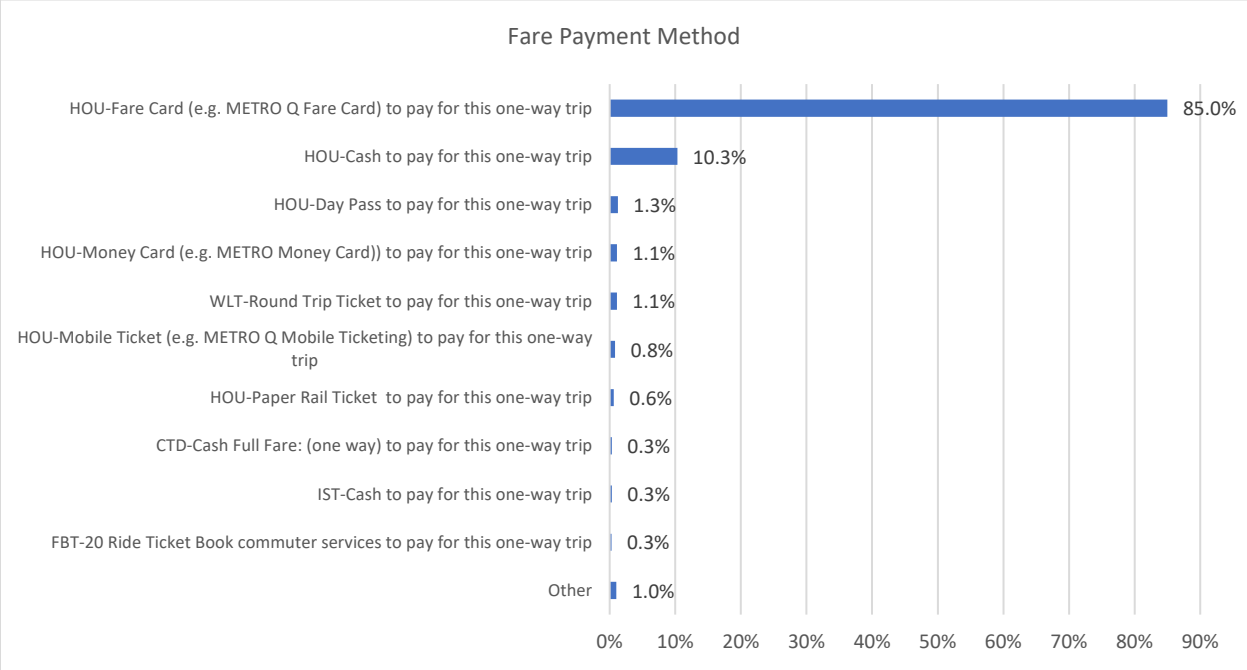


FIGURE 60: FARE TYPE (ALL-SYSTEMS)

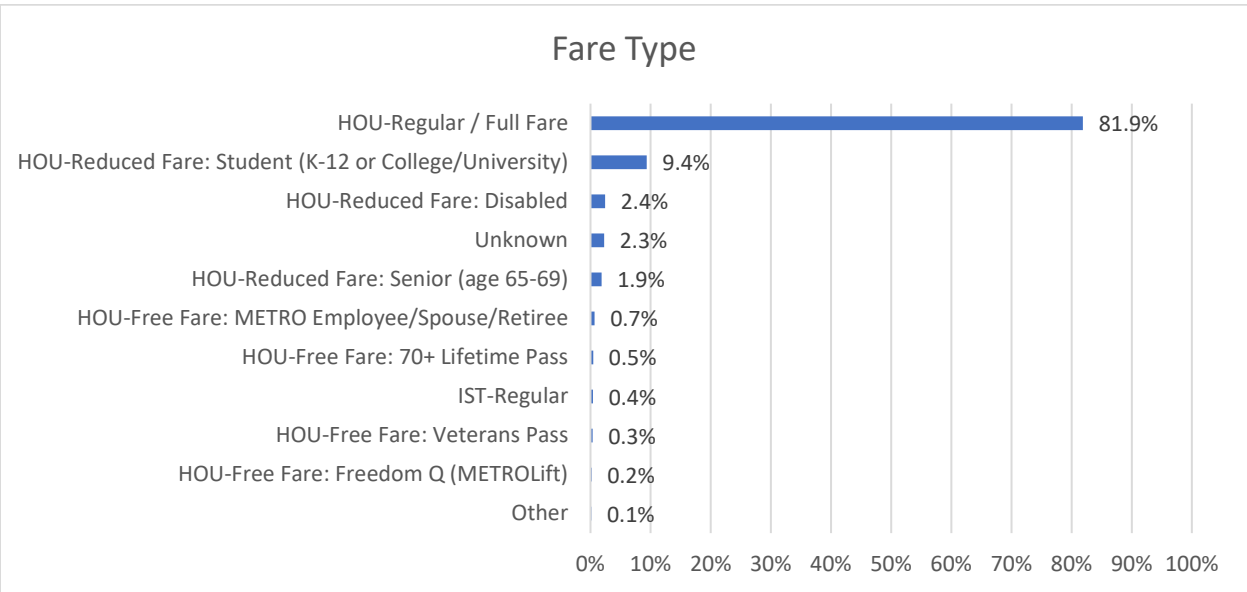
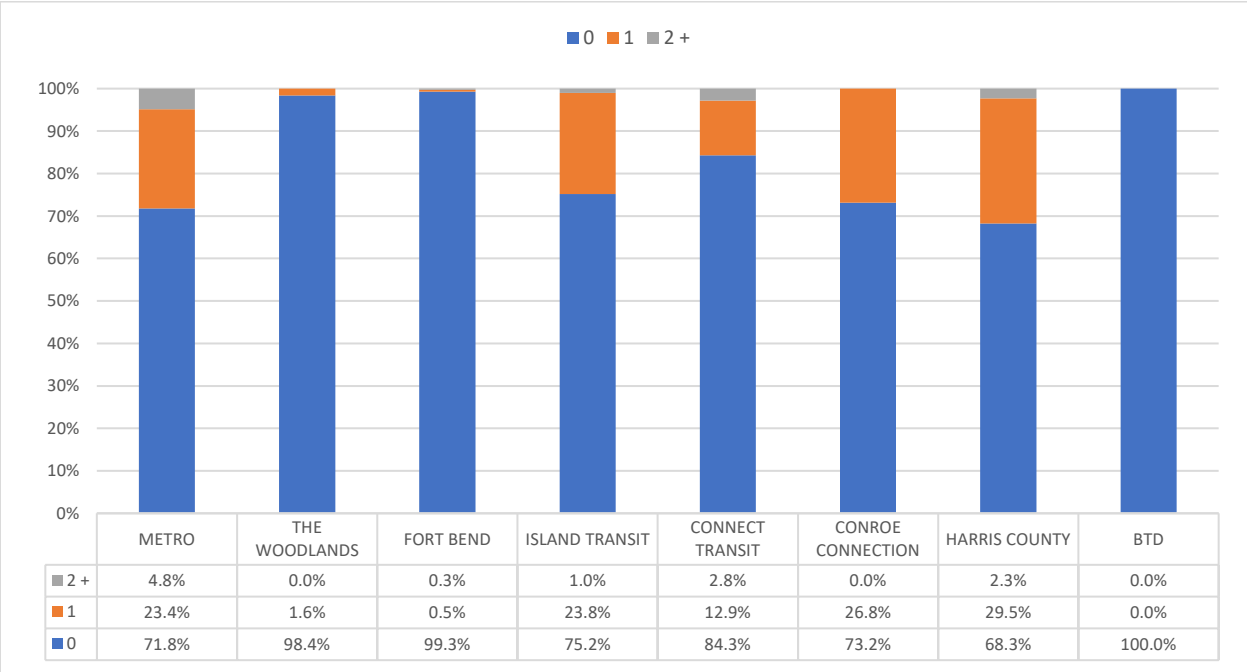
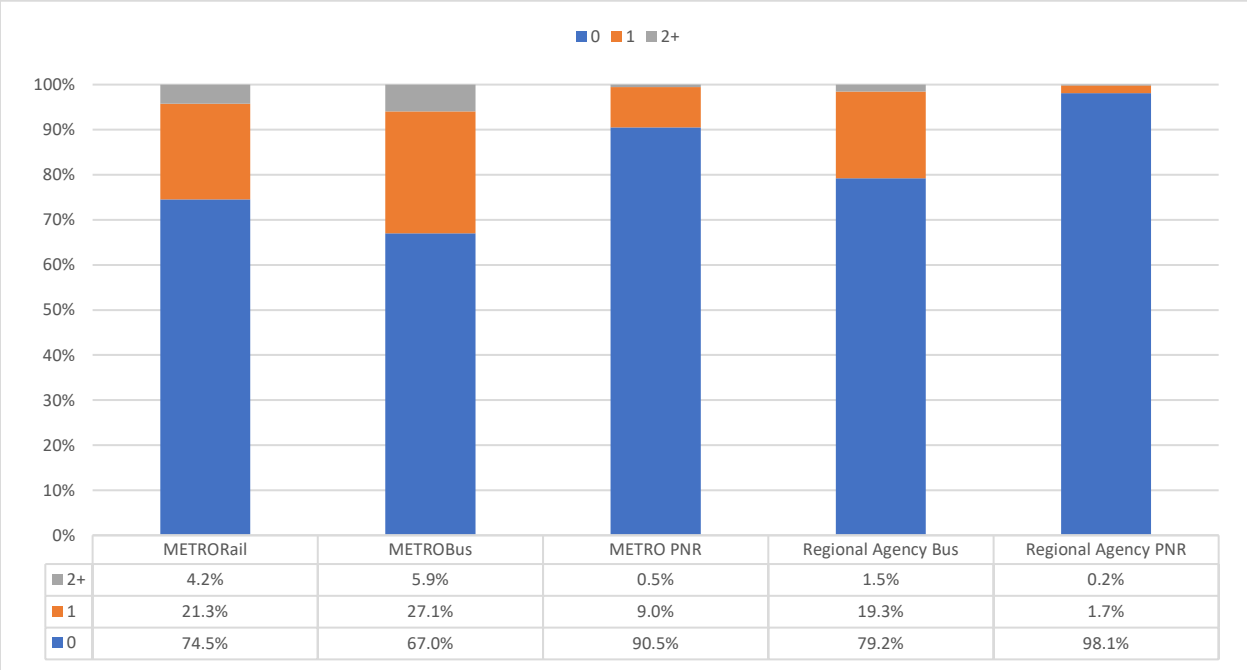


FIGURE 61: NUMBER OF TRANSFERS BY AGENCY



	METRO	THE WOODLANDS	FORT BEND	ISLAND TRANSIT	CONNECT TRANSIT	CONROE CONNECTION	HARRIS COUNTY	BTD
2 +	4.8%	0.0%	0.3%	1.0%	2.8%	0.0%	2.3%	0.0%
1	23.4%	1.6%	0.5%	23.8%	12.9%	26.8%	29.5%	0.0%
0	71.8%	98.4%	99.3%	75.2%	84.3%	73.2%	68.3%	100.0%

FIGURE 62: NUMBER OF TRANSFERS BY ROUTE TYPE



	METRORail	METROBus	METRO PNR	Regional Agency Bus	Regional Agency PNR
2+	4.2%	5.9%	0.5%	1.5%	0.2%
1	21.3%	27.1%	9.0%	19.3%	1.7%
0	74.5%	67.0%	90.5%	79.2%	98.1%

TABLE 28: TRIP PURPOSE BY NUMBER OF VEHICLE IN HOUSEHOLD (ALL-SYSTEMS)

Number of Vehicles in Household								
Trip Purpose (General Use)	0	1	2	3	4	5	6+	**Grand Total**
Work	42.5%	59.5%	66.9%	68.0%	69.8%	64.1%	23.5%	**56.1%**
Personal Business	18.2%	10.9%	7.0%	5.7%	5.8%	1.5%	17.9%	**11.8%**
Shopping	13.1%	6.6%	4.1%	4.5%	4.3%	1.3%	11.1%	**7.8%**
College/University (students only)	4.5%	6.4%	8.0%	9.4%	10.5%	12.9%	5.5%	**6.5%**
Medical/Doctor/Clinic/ (non-work)	6.1%	3.9%	2.7%	1.9%	1.1%	2.8%	6.6%	**4.1%**
Social Visit/Church	5.2%	2.9%	1.7%	1.6%	1.7%	5.0%	5.3%	**3.3%**
School K–12 (students only)	2.0%	3.8%	3.9%	3.7%	2.7%	11.4%	0.7%	**3.2%**
Restaurant	3.4%	2.4%	1.9%	1.2%	1.4%	1.0%	8.3%	**2.6%**
Recreation/Sightseeing	2.2%	1.8%	2.0%	2.3%	2.1%	0.0%	12.9%	**2.3%**
Work related	2.8%	1.8%	1.6%	1.5%	0.5%	0.0%	4.1%	**2.1%**
Airport (passengers only)	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	4.2%	**0.2%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

TABLE 29: TRIP PURPOSE BY TIME-OF-DAY (ALL-SYSTEMS)

Time-of-Day						
Trip Purpose (General Use)	Early AM	AM Peak	Midday	PM Peak	Late Night	**Grand Total**
Work	87.0%	77.6%	36.3%	52.4%	50.4%	**56.1%**
Personal Business	4.8%	5.6%	18.4%	12.3%	12.3%	**11.8%**
Shopping	0.9%	1.5%	12.6%	10.1%	9.3%	**7.8%**
College/University (students only)	0.8%	4.5%	8.9%	6.5%	7.0%	**6.5%**
Medical/Doctor/Clinic/ (non-work)	2.5%	2.7%	8.6%	2.2%	1.3%	**4.1%**
Social Visit/Church	1.3%	1.0%	4.0%	3.3%	6.6%	**3.3%**
School K–12 (students only)	1.1%	4.9%	1.4%	4.8%	1.3%	**3.2%**
Restaurant	0.4%	0.2%	3.2%	3.2%	6.0%	**2.6%**
Recreation/Sightseeing	0.3%	0.3%	2.5%	3.3%	4.8%	**2.3%**
Work related	0.9%	1.5%	3.8%	1.5%	0.8%	**2.1%**
Airport (passengers only)	0.0%	0.0%	0.3%	0.3%	0.2%	**0.2%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

TABLE 30: TRIP PURPOSE BY ANNUAL HOUSEHOLD INCOME (ALL-SYSTEMS)

Annual Household Income									
Trip Purpose (General Use)	Less than $16,000	$16,000–$23,999	$24,000–$31,999	$32,000–$39,999	$40,000–$53,999	$54,000–$80,999	$81,000–$99,999	Over $100,000	**Grand Total**
Work	33.1%	52.0%	54.8%	57.3%	66.8%	69.6%	74.4%	88.4%	**58.5%**
Personal Business	22.2%	12.9%	11.9%	11.4%	6.7%	6.9%	5.1%	1.8%	**11.2%**
Shopping	11.6%	10.2%	8.5%	8.5%	6.6%	4.0%	3.0%	1.4%	**7.5%**
College/University (students only)	8.0%	6.8%	6.8%	5.9%	7.3%	5.8%	3.2%	2.1%	**6.2%**
Medical/Doctor/Clinic/ (non-work)	7.1%	5.4%	4.8%	3.8%	2.9%	2.2%	1.5%	1.3%	**4.1%**
Social Visit/Church	5.5%	3.2%	4.2%	3.3%	1.5%	2.2%	0.9%	0.5%	**3.0%**
School K–12 (students only)	3.0%	2.9%	2.9%	3.4%	3.1%	2.7%	2.1%	0.5%	**2.7%**
Restaurant	3.2%	2.1%	2.4%	2.6%	2.0%	2.0%	5.4%	1.7%	**2.5%**
Recreation/ Sightseeing	2.7%	2.1%	1.7%	1.7%	1.3%	2.7%	3.0%	1.0%	**2.0%**
Work related	3.4%	2.2%	1.9%	2.0%	1.6%	1.4%	1.2%	0.9%	**2.0%**
Airport (passengers only)	0.1%	0.2%	0.1%	0.1%	0.3%	0.4%	0.1%	0.3%	**0.2%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

TABLE 31: TRIP PURPOSE BY AGE (ALL-SYSTEMS)

Age of respondent (years)								
Trip Purpose (General Use)	5–15	16–19	20–34	35–50	51–64	65–69	70 and older	Grand Total
Work	1.2%	20.8%	56.5%	67.1%	61.0%	28.9%	21.9%	**56.1%**
Personal Business	10.0%	12.7%	11.4%	11.3%	11.9%	17.5%	21.5%	**11.8%**
Shopping	1.3%	6.4%	6.5%	7.0%	9.3%	24.4%	22.5%	**7.8%**
College/University (students only)	0.2%	19.6%	11.9%	1.3%	0.6%	0.3%	0.1%	**6.5%**
Medical/Doctor/Clinic/ (non-work)	1.2%	1.2%	2.3%	3.7%	7.7%	16.7%	14.0%	**4.1%**
Social Visit/Church	3.5%	4.8%	3.0%	2.8%	3.4%	5.3%	8.0%	**3.3%**
School K–12 (students only)	79.3%	28.3%	0.1%	0.2%	0.1%	0.0%	0.0%	**3.2%**
Restaurant	2.0%	2.5%	3.0%	2.3%	2.4%	3.0%	4.5%	**2.6%**
Recreation/Sightseeing	1.1%	3.0%	2.7%	1.8%	1.8%	2.2%	6.4%	**2.3%**
Work related	0.2%	0.6%	2.3%	2.4%	1.7%	1.9%	1.1%	**2.1%**
Airport (passengers only)	0.0%	0.1%	0.1%	0.3%	0.2%	0.1%	0.2%	**0.2%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

METRO System-Level Trend Comparisons

This section contains graphical representations of the survey results for METRO routes only. All Don't Know/Refusals/Unknowns have been removed for comparison. Percentages in the charts reflect the unlinked weighted data from the 2014/15 On-Board Study in comparison with the Linked Secondary Expansion Weight Factors for the 2017 Project. The 2014/2015 Origin Destination Passenger Survey was conducted on METRO fixed-route services only. The survey was required as part of METRO's ongoing Title VI/Environmental Justice Program commitment to have a survey roughly every three years. [NOTE: The previous surveys were conducted in 2011 by METRO and 2007 jointly by H-GAC and METRO.] The survey included local bus, PNR, and METRORail. The survey was conducted using paper surveys. HDR and Lane Staffing conducted the survey sampling on local bus and METRORail, while METRO staff conducted the survey on PNR routes by distributing surveys AM and midday at PNR lots and the Northwest Transit Center. Because PNR routes were not surveyed in the PM period, variable distributions displayed, like trip purpose, can be misleading when compared to the true population distribution.

Travel Comparisons

FIGURE 63: TRIP PURPOSE (ORIGIN)

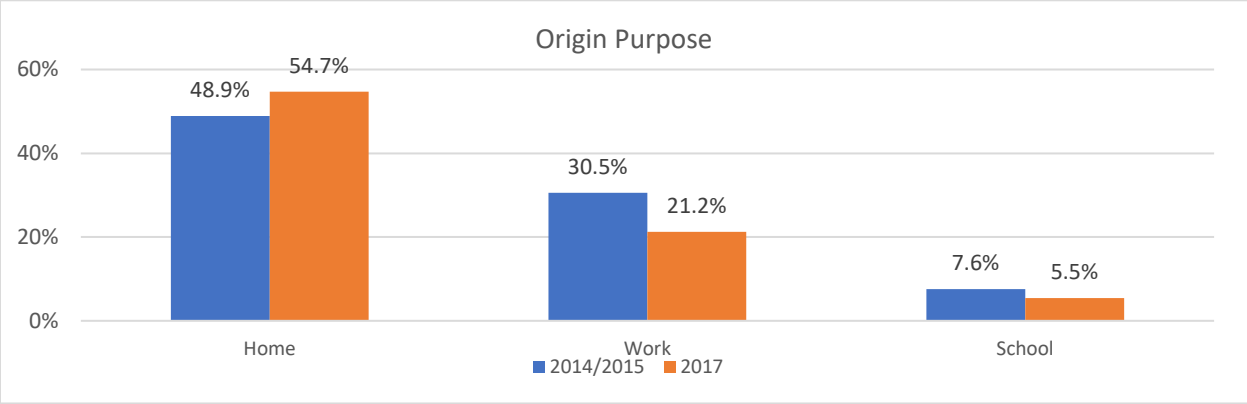


FIGURE 64: TRIP PURPOSE (DESTINATION)

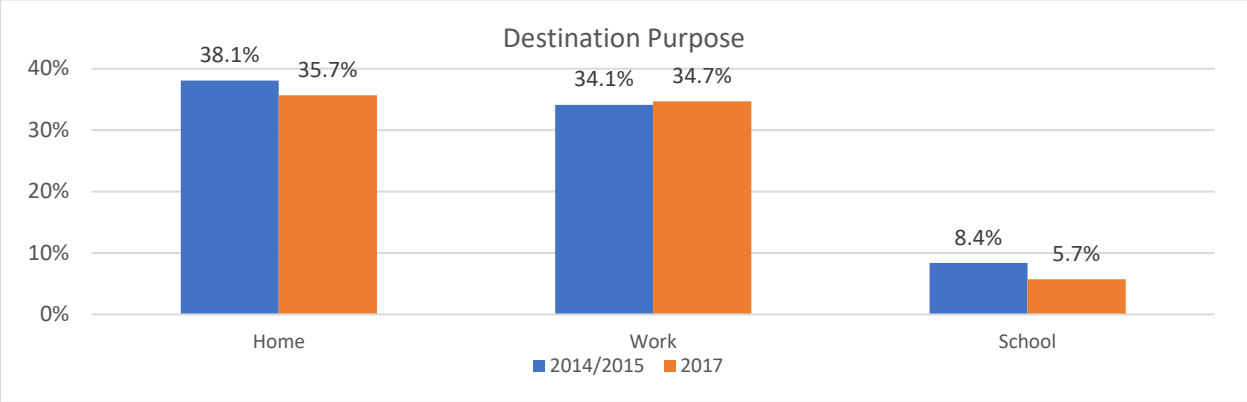


FIGURE 65: ACCESS MODE (ORIGIN)

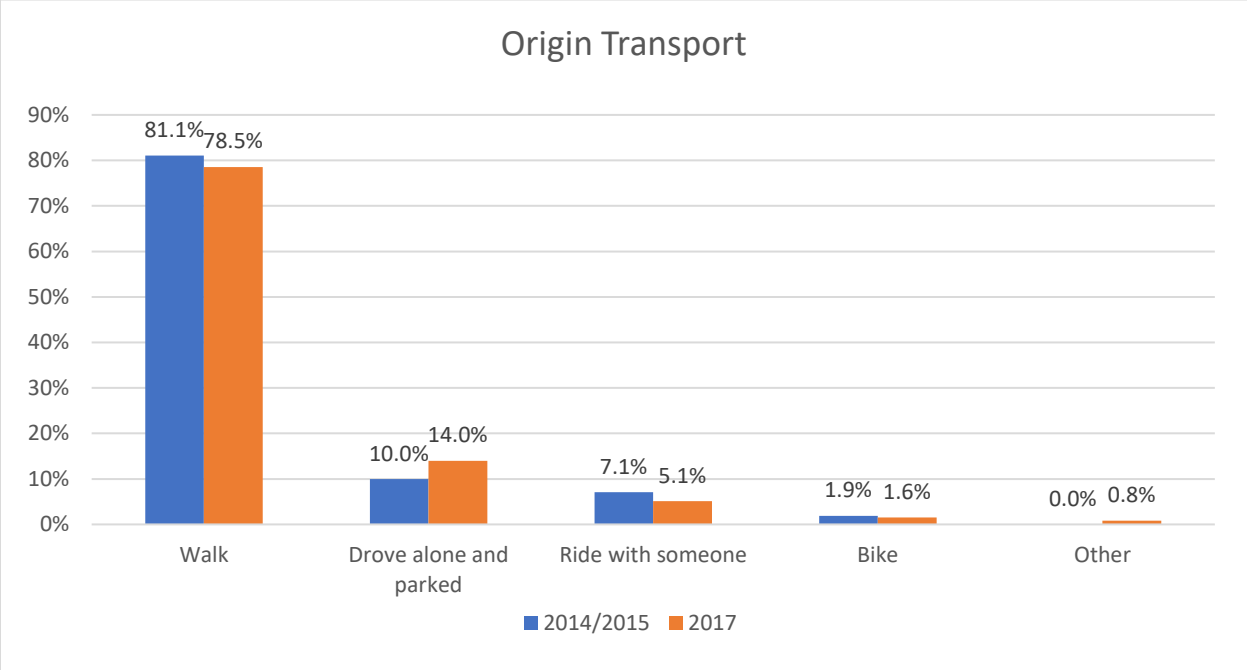


FIGURE 66: EGRESS MODE (DESTINATION)

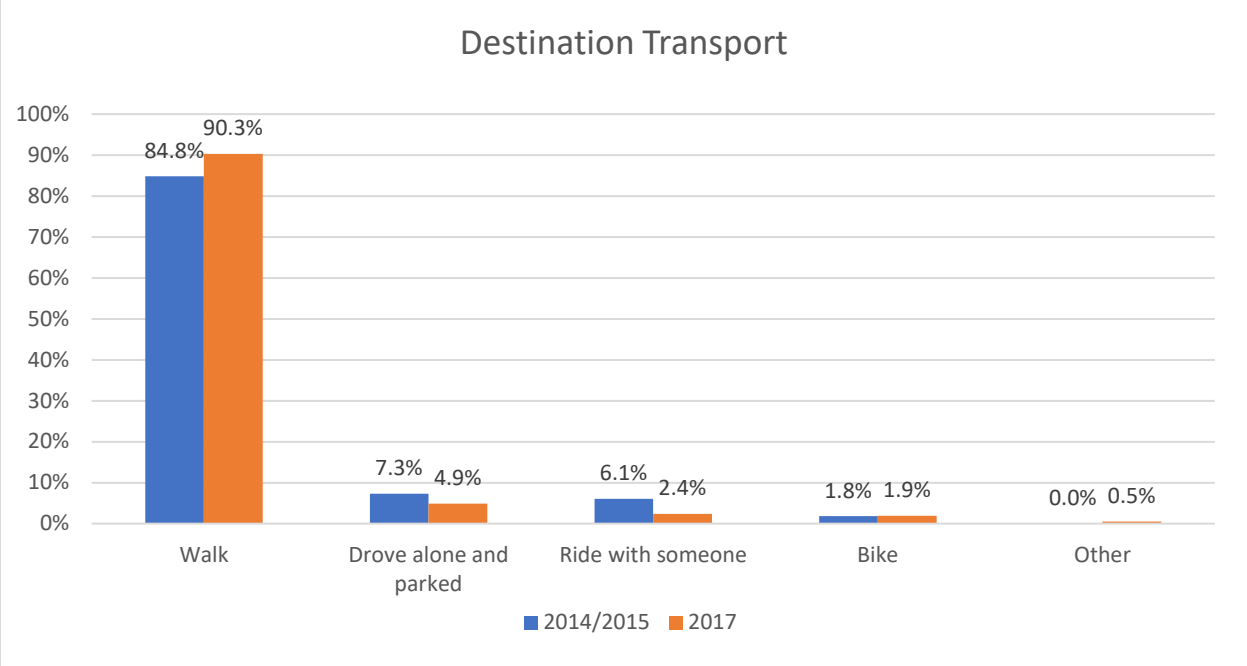


FIGURE 67: HOW LONG RESPONDENT HAS BEEN RIDING TRANSIT

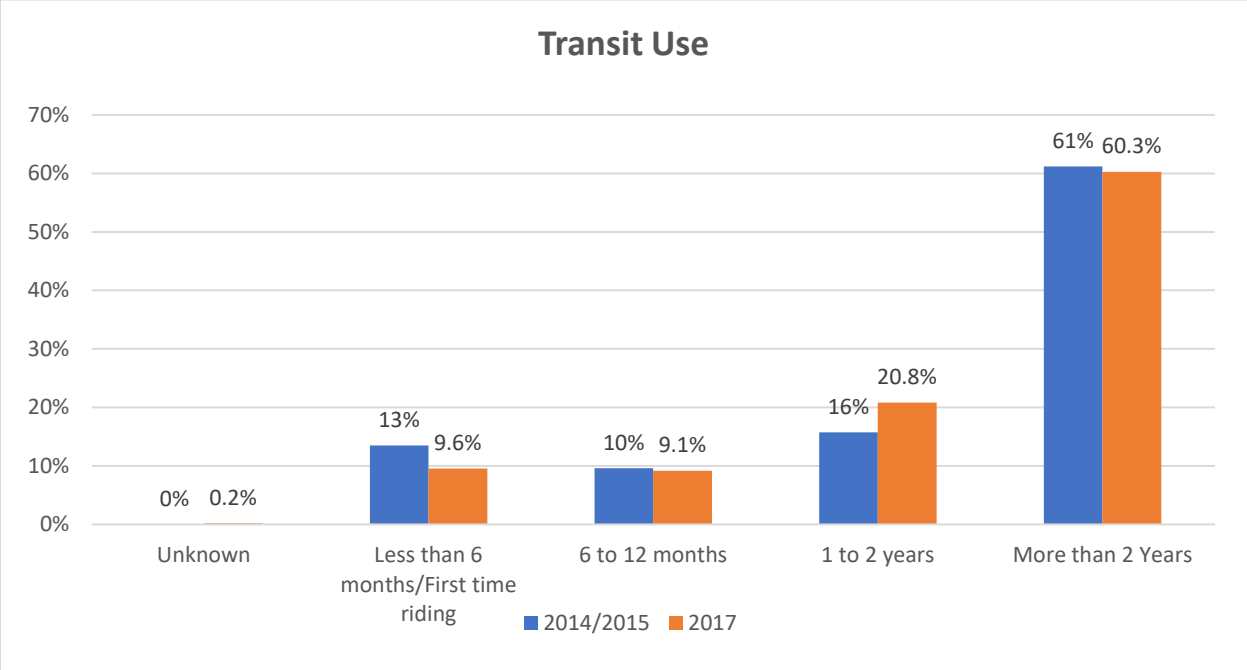


FIGURE 68: HOW OFTEN RESPONDENT RIDES TRANSIT

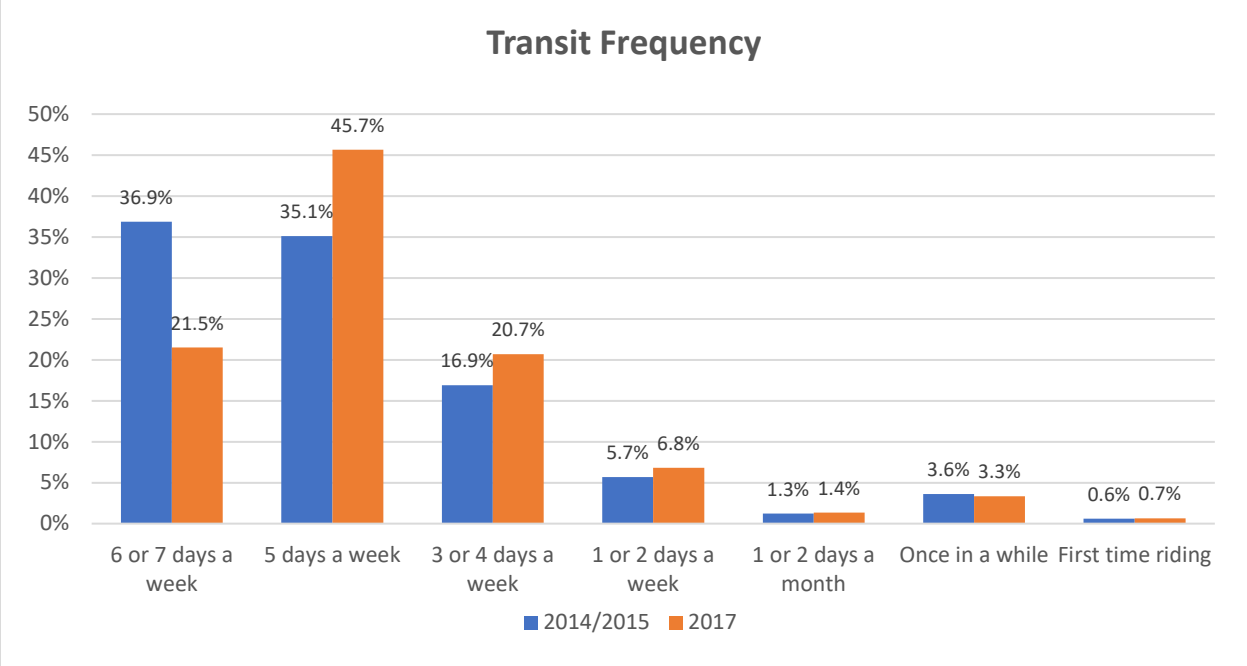
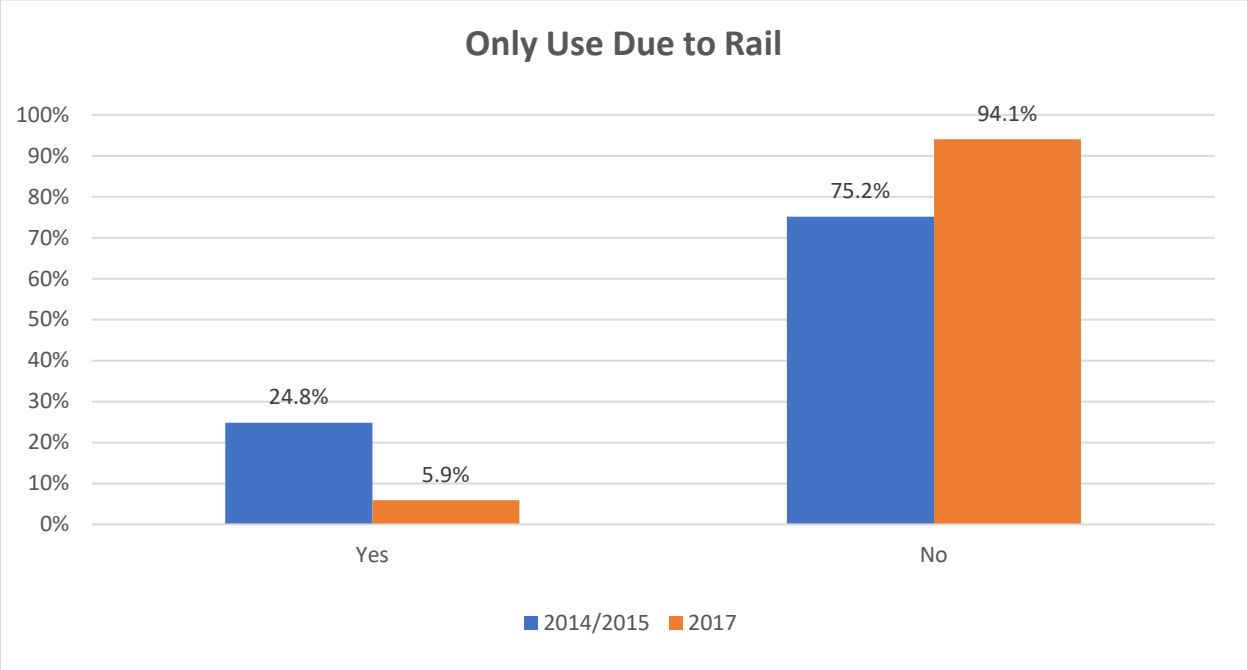


FIGURE 69: USE TRANSIT DUE TO METRORAIL (METRORAIL RIDERS ONLY)



Rider Comparisons

FIGURE 70: GENDER OF RESPONDENT

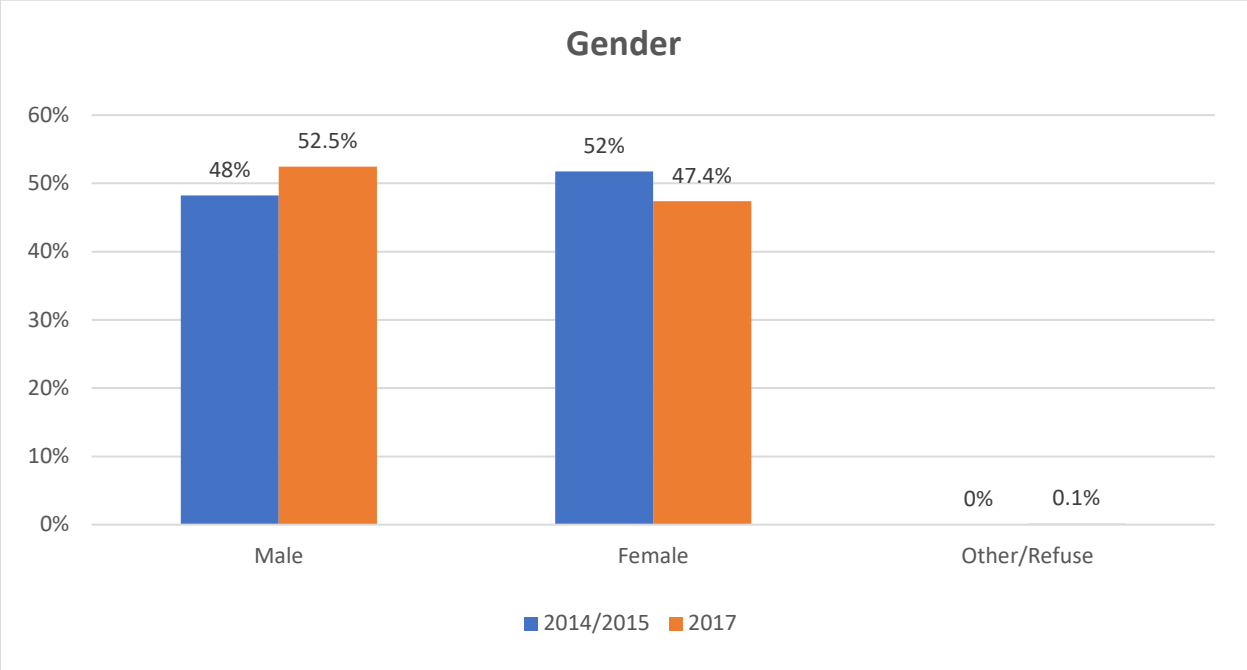


FIGURE 71: RACE/ETHNICITY OF RESPONDENT

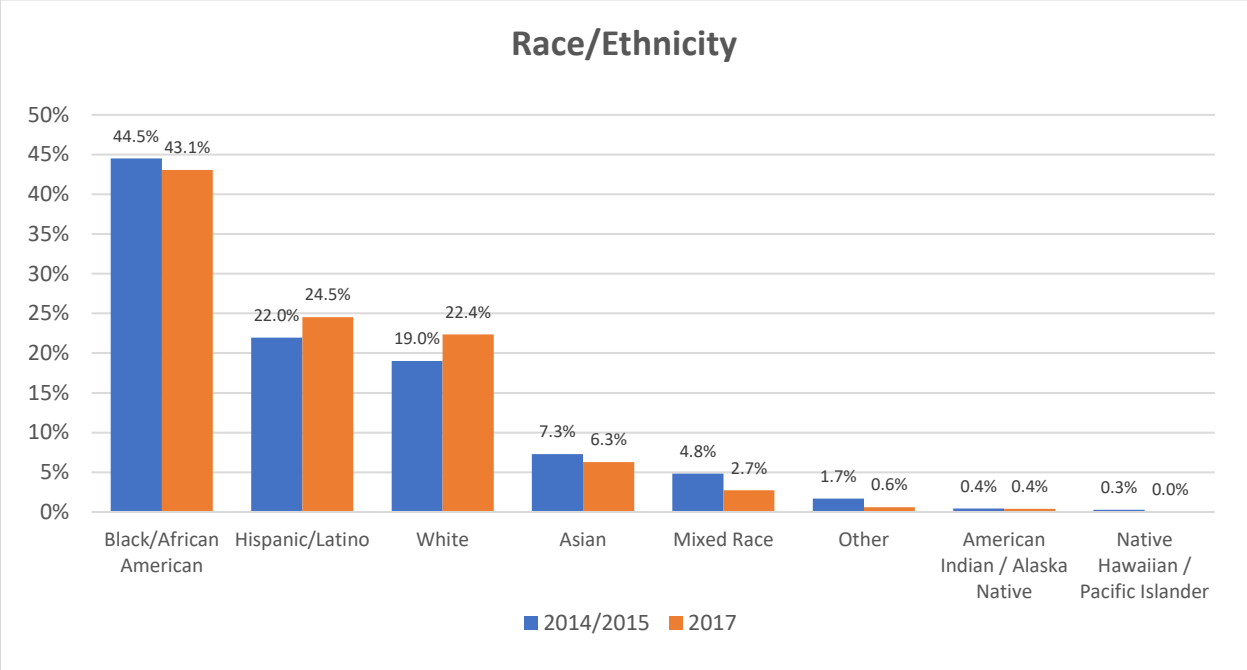
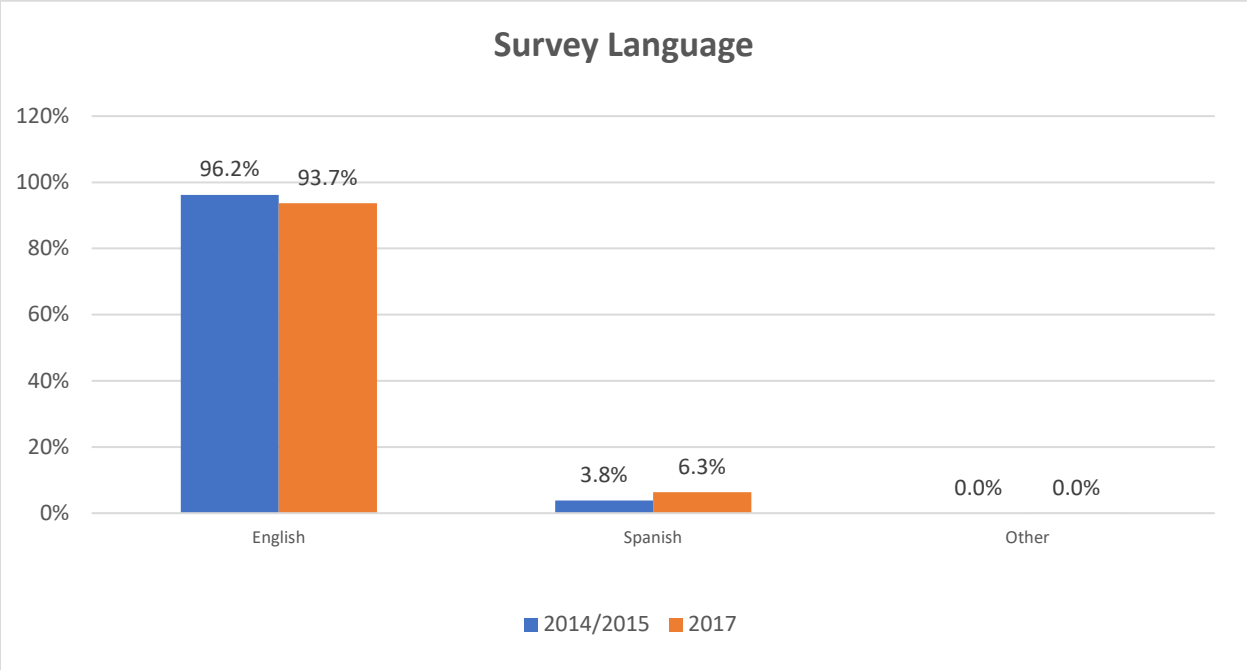


FIGURE 72: WHAT LANGUAGE THE SURVEY WAS CONDUCTED IN (NOT WEIGHTED)



Household Comparisons

FIGURE 73: NUMBER OF VEHICLES IN HOUSEHOLD

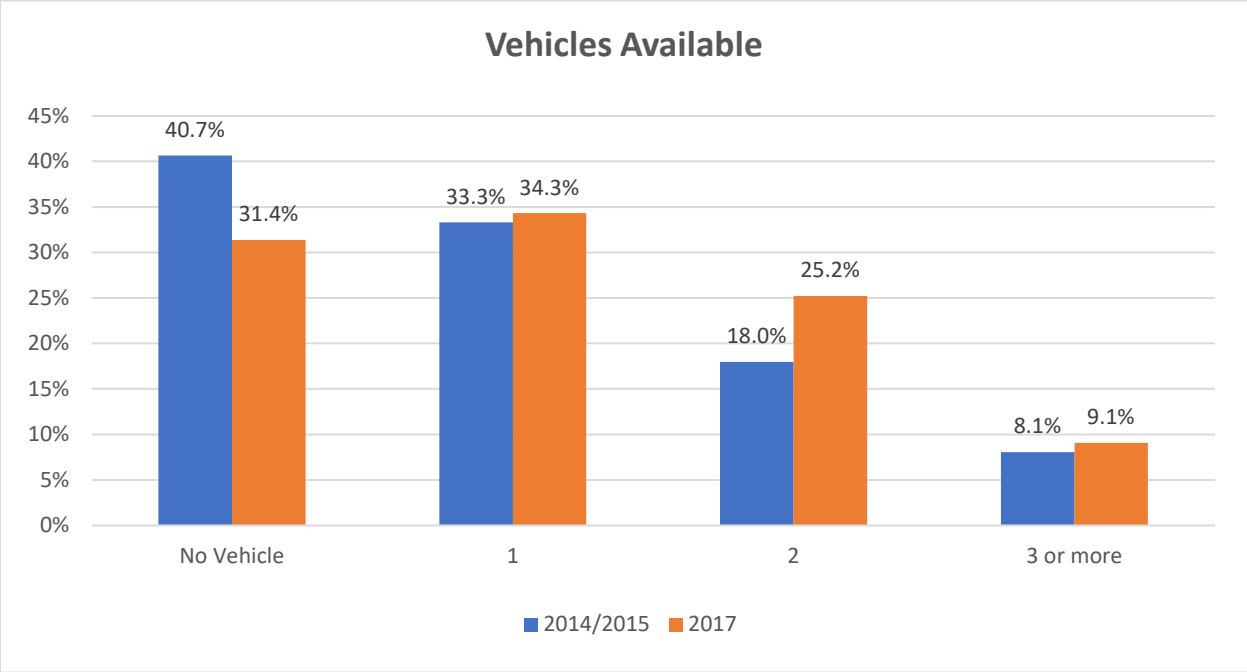


FIGURE 74: VEHICLE AVAILABLE FOR TRIP (IF ONE OR MORE VEHICLES IN HOUSEHOLD)

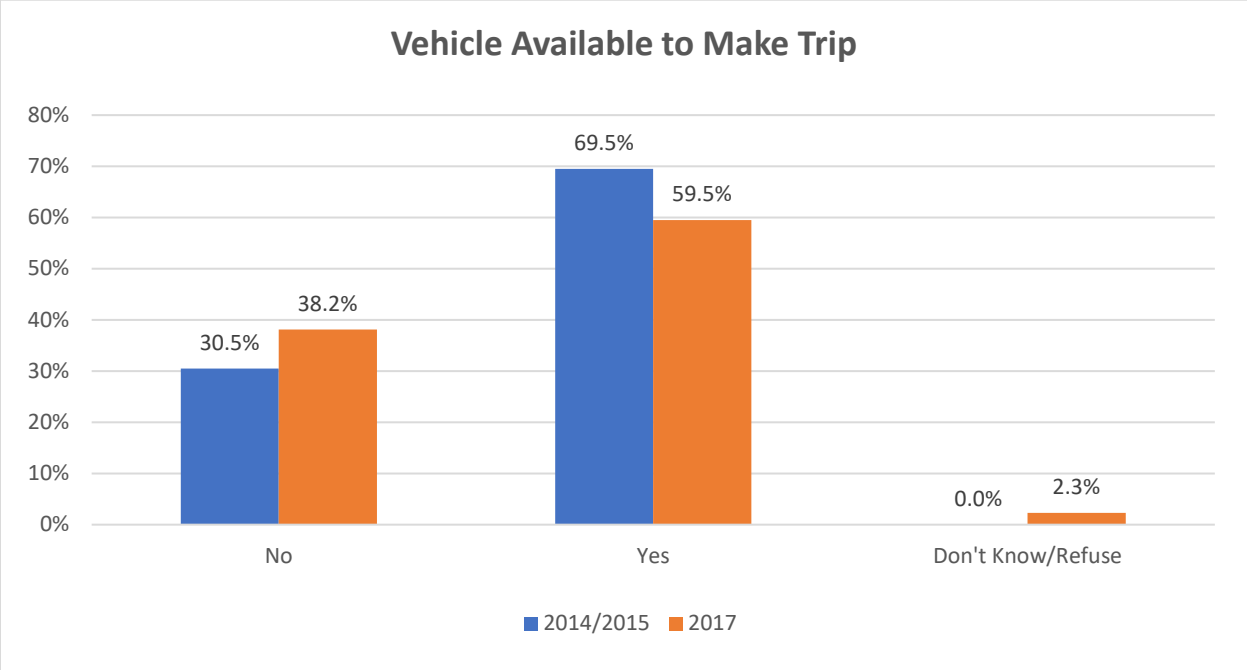
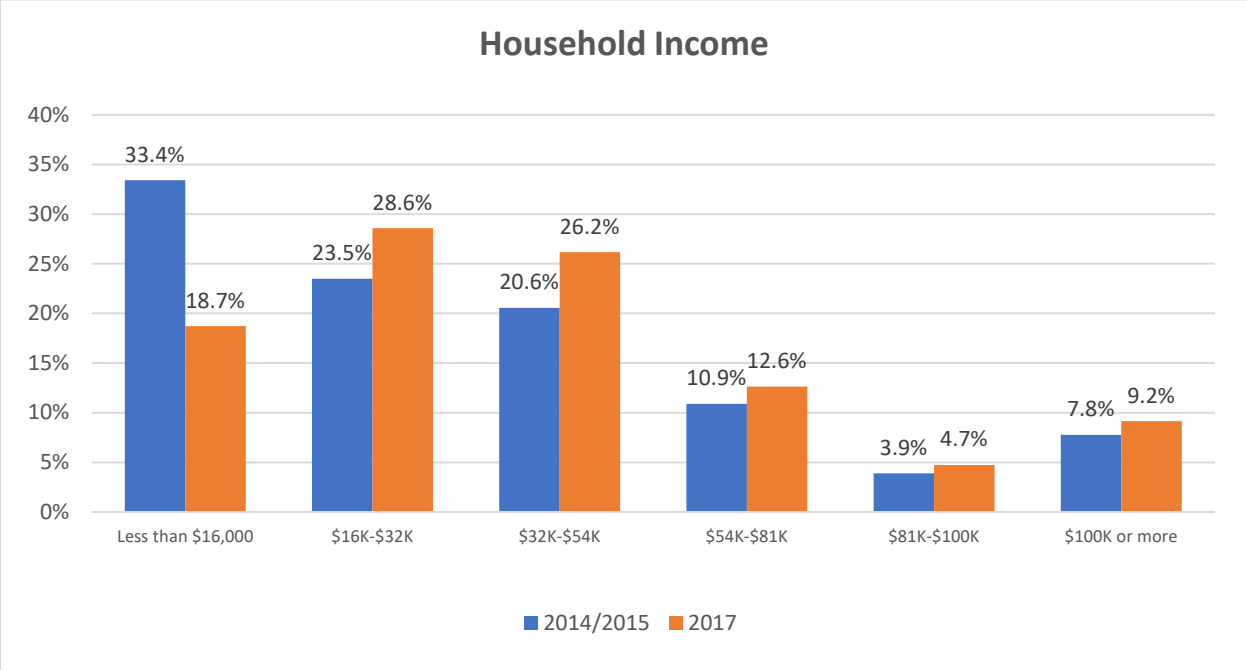


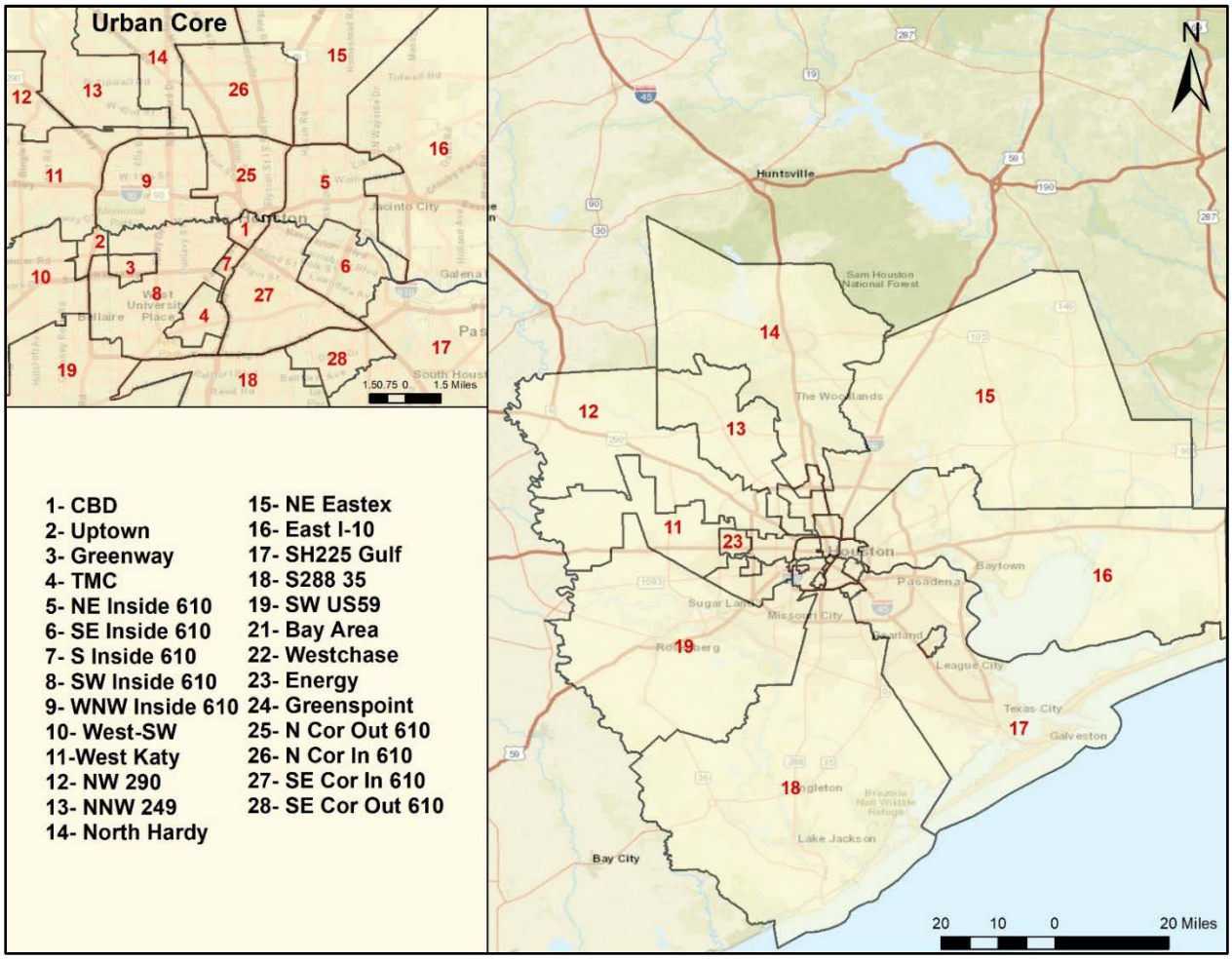
FIGURE 75: ANNUAL HOUSEHOLD INCOME



Analysis Zones

For the following section, geographical data are assigned to analysis zones within the study area. Figure 76 maps these zones.

FIGURE 76: ANALYSIS ZONES



Production and Attraction by Zone

The following charts examine trip production and attraction by analysis zone. The location of a trip production is the home end of a trip or, if the trip did not involve one's home, the origin end of the trip. The trip attraction is the non-home end of a trip or, if the trip did not involve one's home, the destination end of the trip.

Seventeen percent of trips were produced in the West SW zone (Figure 77). In general, trip production was observed to be fairly disperse across the many zones.

Figure 78 shows that trip attraction was slightly more concentrated in major employment centers, as over one-third of all trips included an attraction in either Houston's Central Business District (CBD) or the Texas Medical Center (TMC) zone.

FIGURE 77: TRIP PRODUCTION BY ZONE

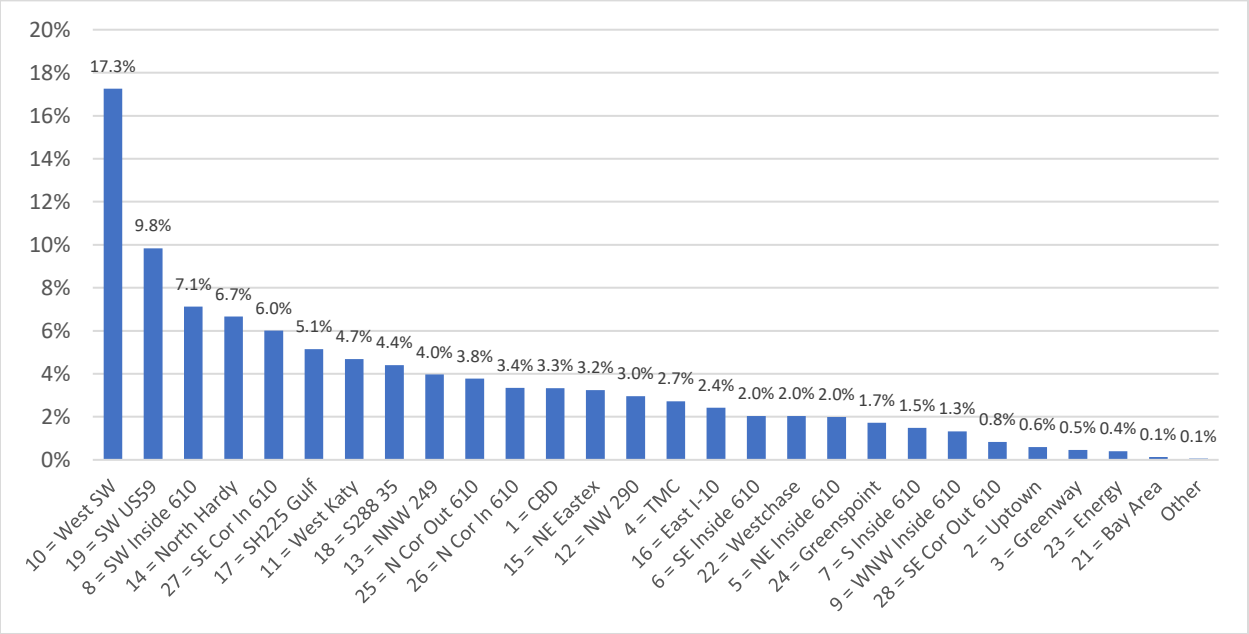
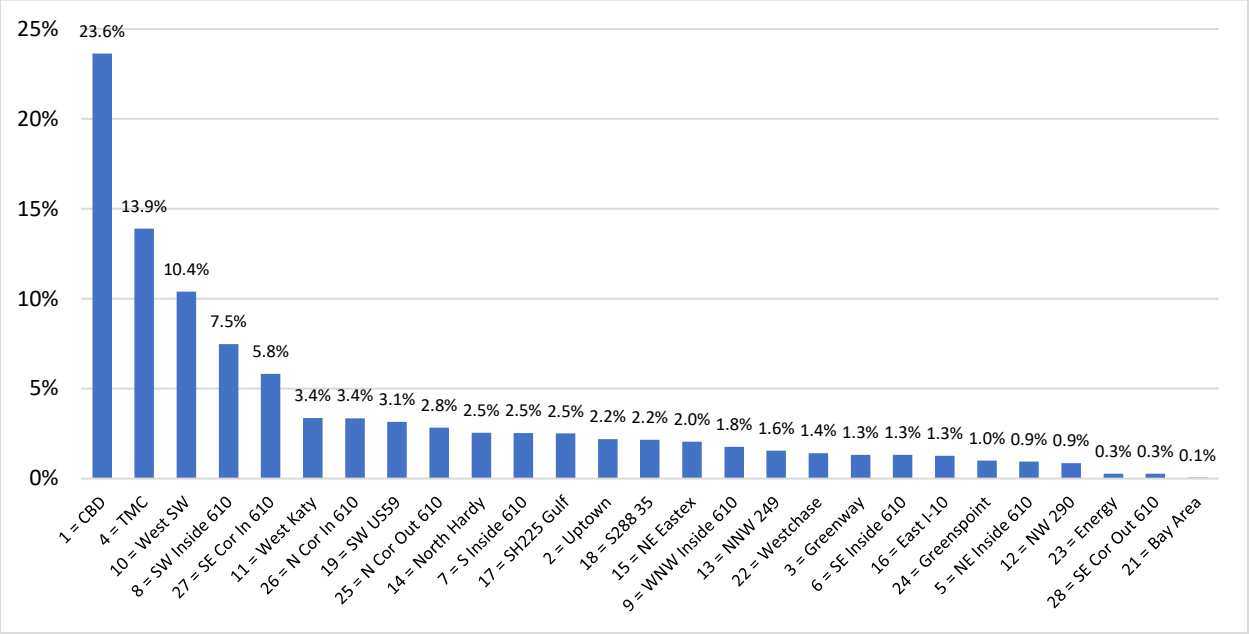


FIGURE 78: TRIP ATTRACTION BY ZONE



OD Mapping

The weighted OD data can be visualized using RSG's TransitMapper software. A special version of TransitMapper was developed and published online for use by H-GAC or others. It is available at https://transitmapper-rsg.shinyapps.io/TransitMapper_H-GAC/. TransitMapper works best to visualize data for one or a few routes at a time and is only set up to visualize METRO bus and light rail rides; survey results from other regional transit providers are not included within the tool. Please note that red indicates hot zones with green and then blue showing a cooling of the zones.

The maps below were developed using the H-GAC version of TransitMapper. These heat maps examine production and attraction locations for trips taken on each of METRO's three light rail lines, respectively. Figure 79 shows trip production for all Red Line trips, which is fairly disperse across much of Houston. Conversely, trip attraction from the Red Line is much more concentrated at key nodes along the rail line, including the CBD and TMC areas (Figure 80).

Compared to that of the Red Line, trip production for Green Line trips is much more concentrated around the light rail stations, except for trips produced in residential neighborhoods along Broadway Street corridor between the Magnolia Park Transit Center terminus and Hobby Airport (Figure 81). Figure 82 shows that Green Line trip attractions are largely also along the Green Line, as well as the southern section of the Red Line.

As with the Green Line, Purple Line trip production is largely concentrated around the rail stations, with the exception of trips produced in residential neighborhoods along the Martin Luther King Jr. Boulevard corridor south of the Palm Center Transit Center terminus (Figure 83). Purple Line trip attractions, again like the Green Line, are largely along the Purple Line itself, as well as the southern section of the Red Line (Figure 84).

Figures to follow are graphical representation of production/attraction using colors to indicate the level of activity, the lighter green colors indicate lower activity, and brighter red colors to indicate high activity.

FIGURE 79: RED LINE TRIP PRODUCTION

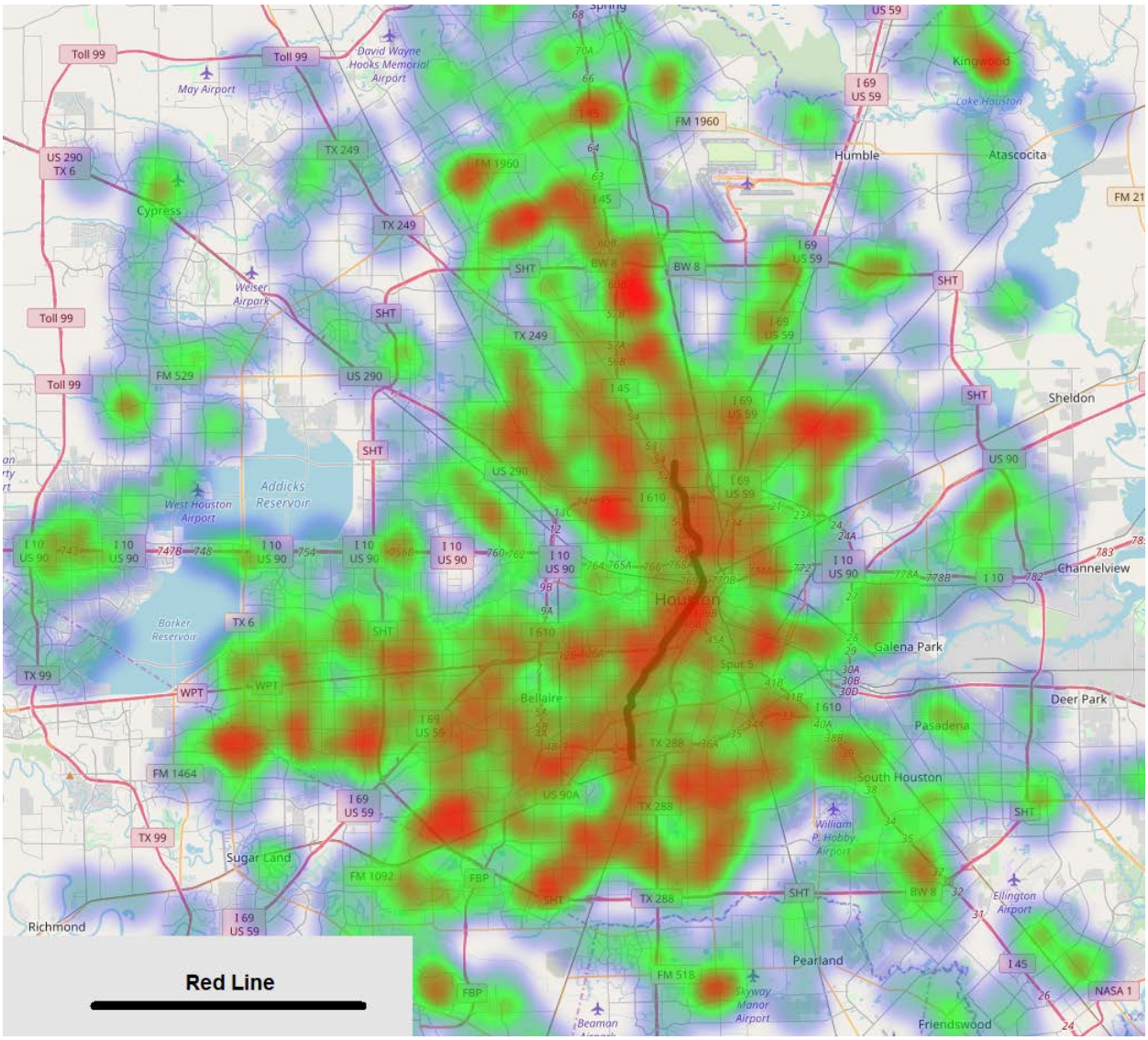


FIGURE 80: RED LINE TRIP ATTRACTION

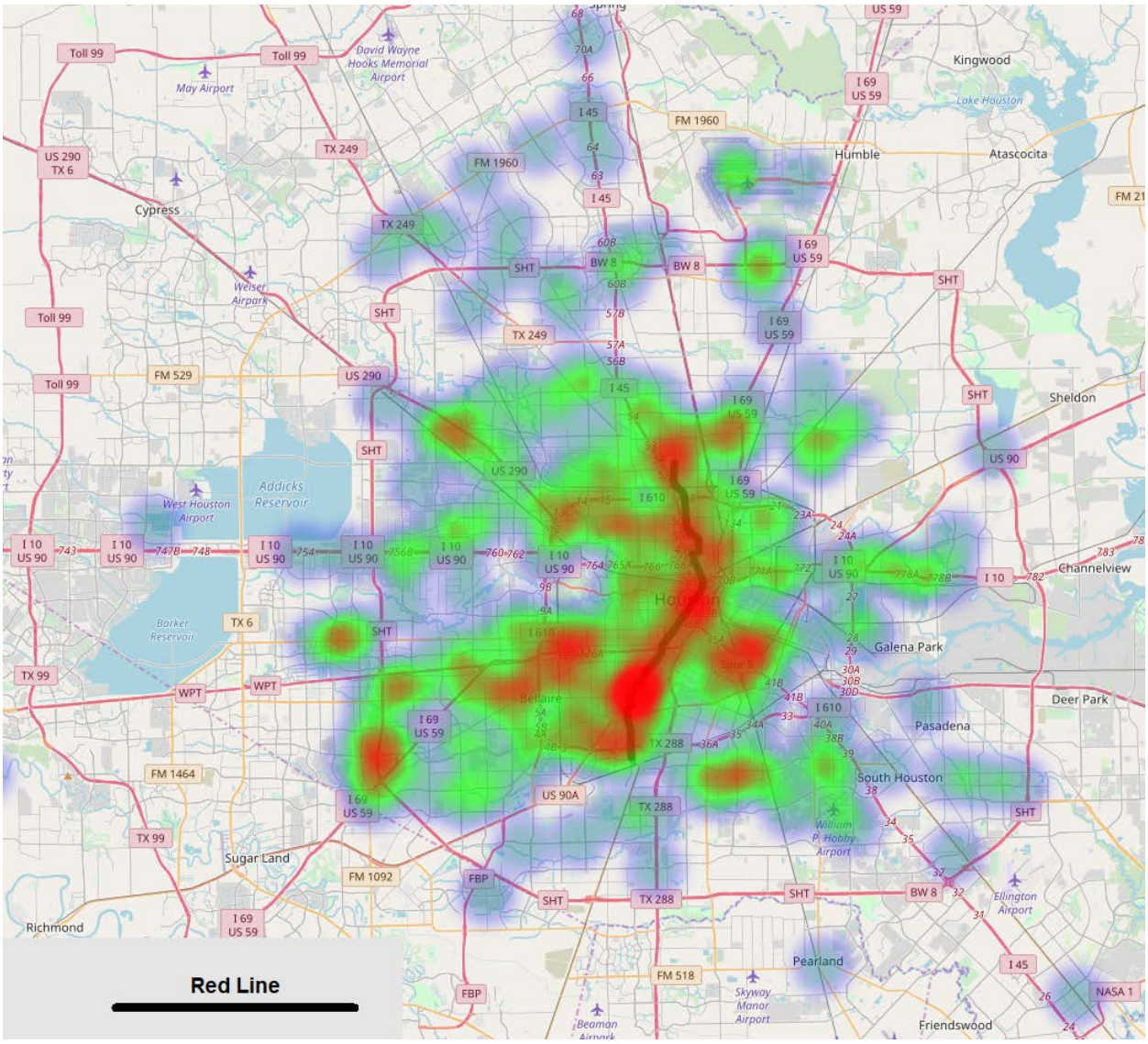


FIGURE 81: GREEN LINE TRIP PRODUCTION

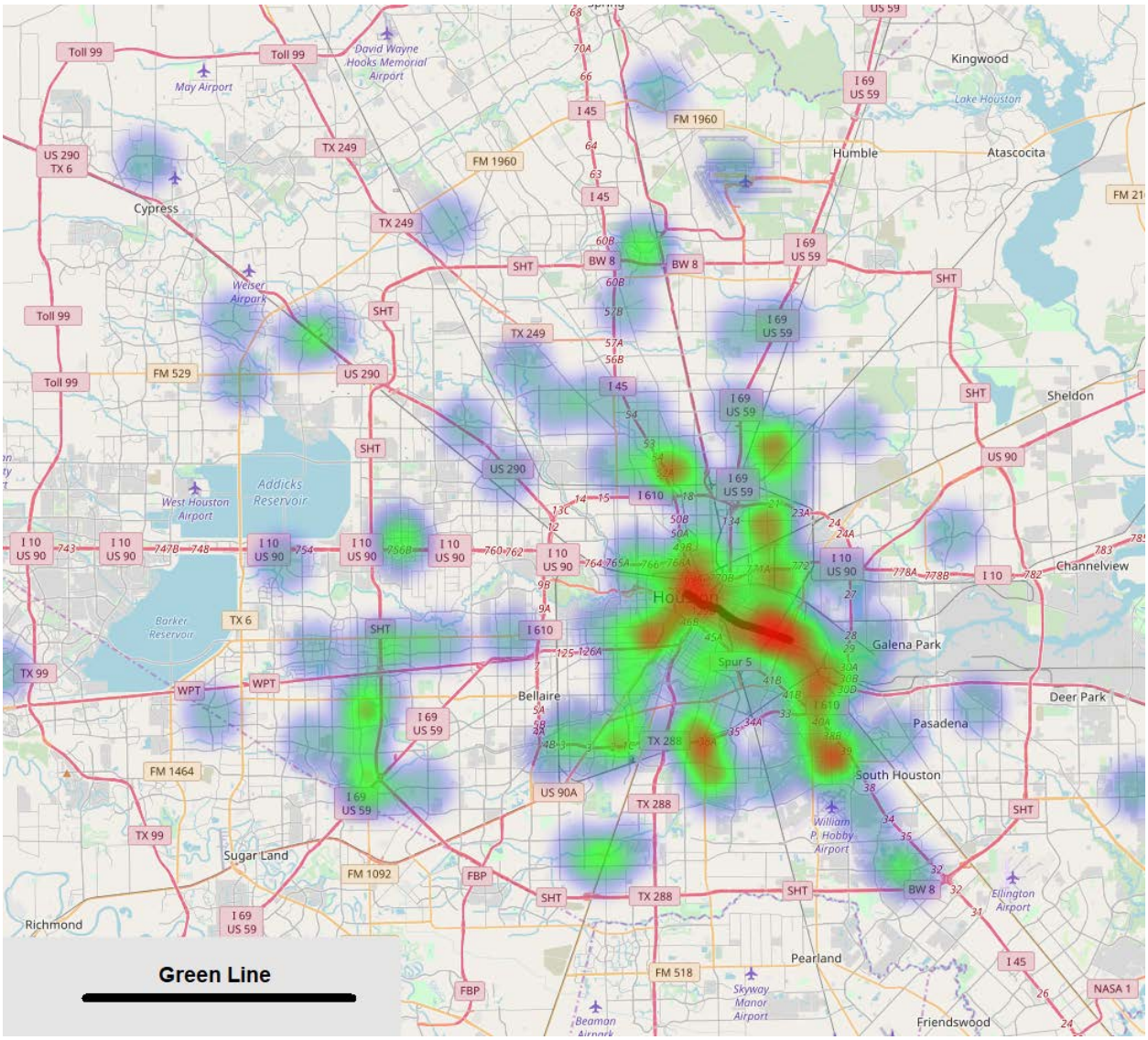


FIGURE 82: GREEN LINE TRIP ATTRACTION

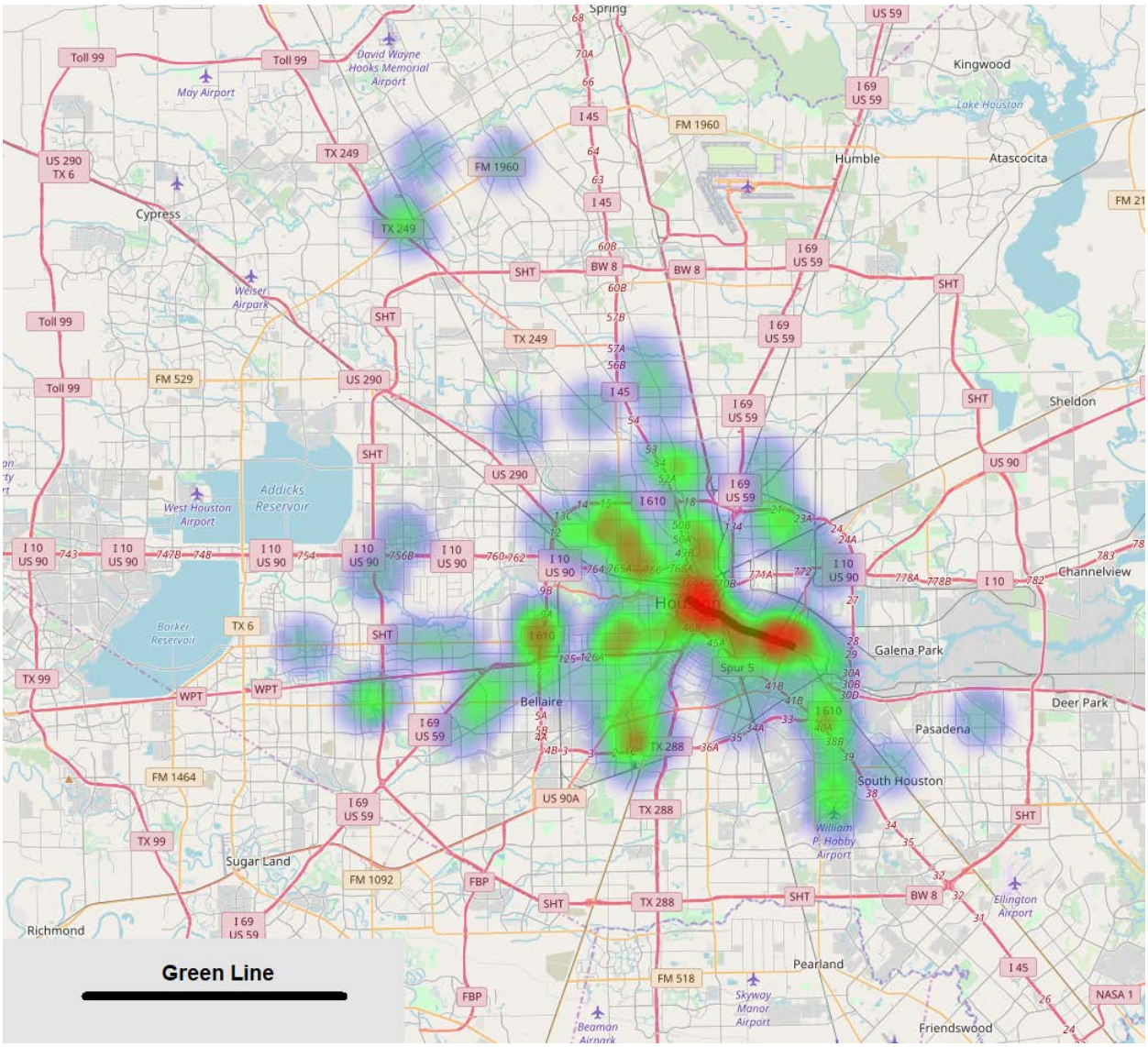


FIGURE 83: PURPLE LINE TRIP PRODUCTION

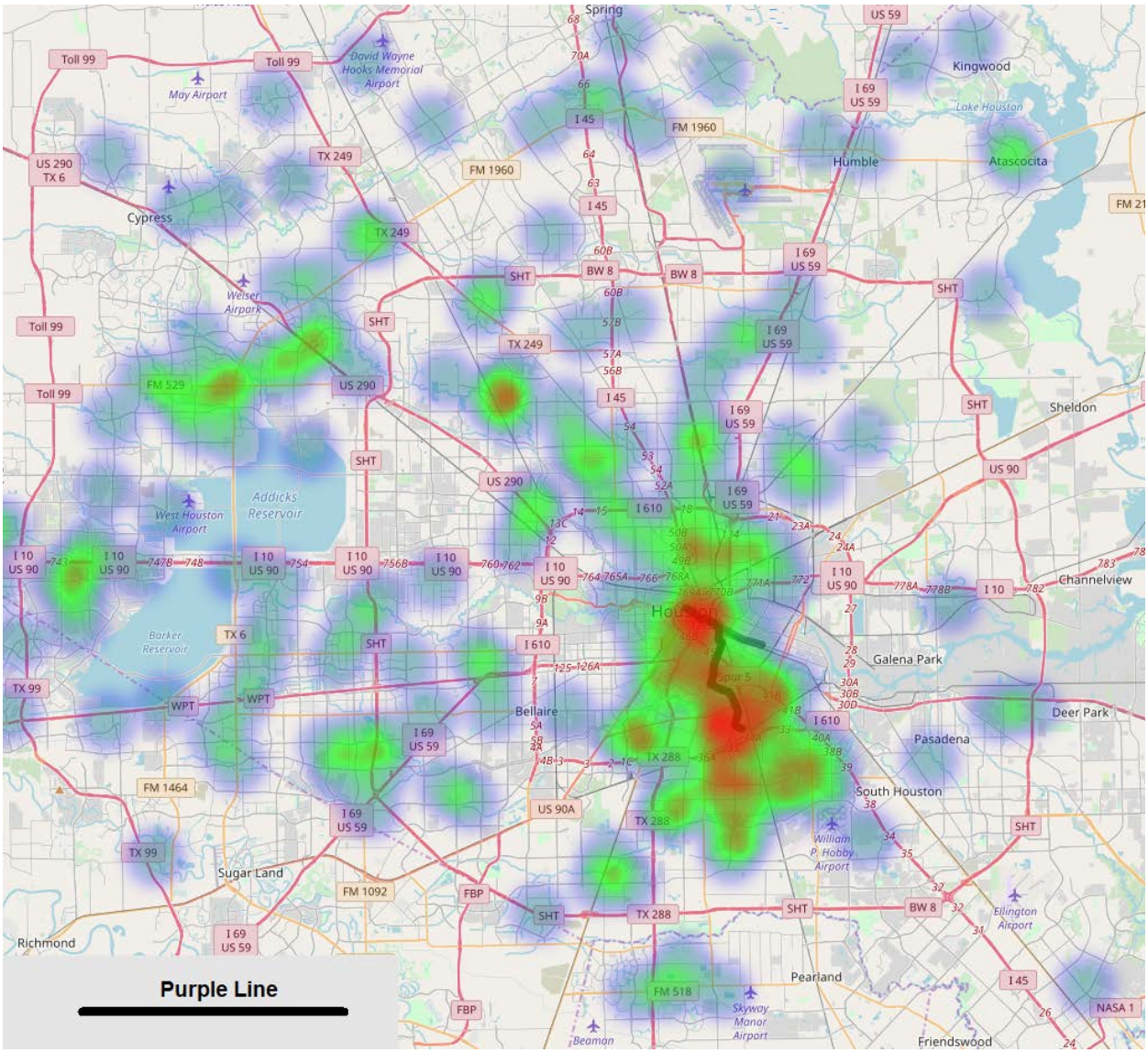
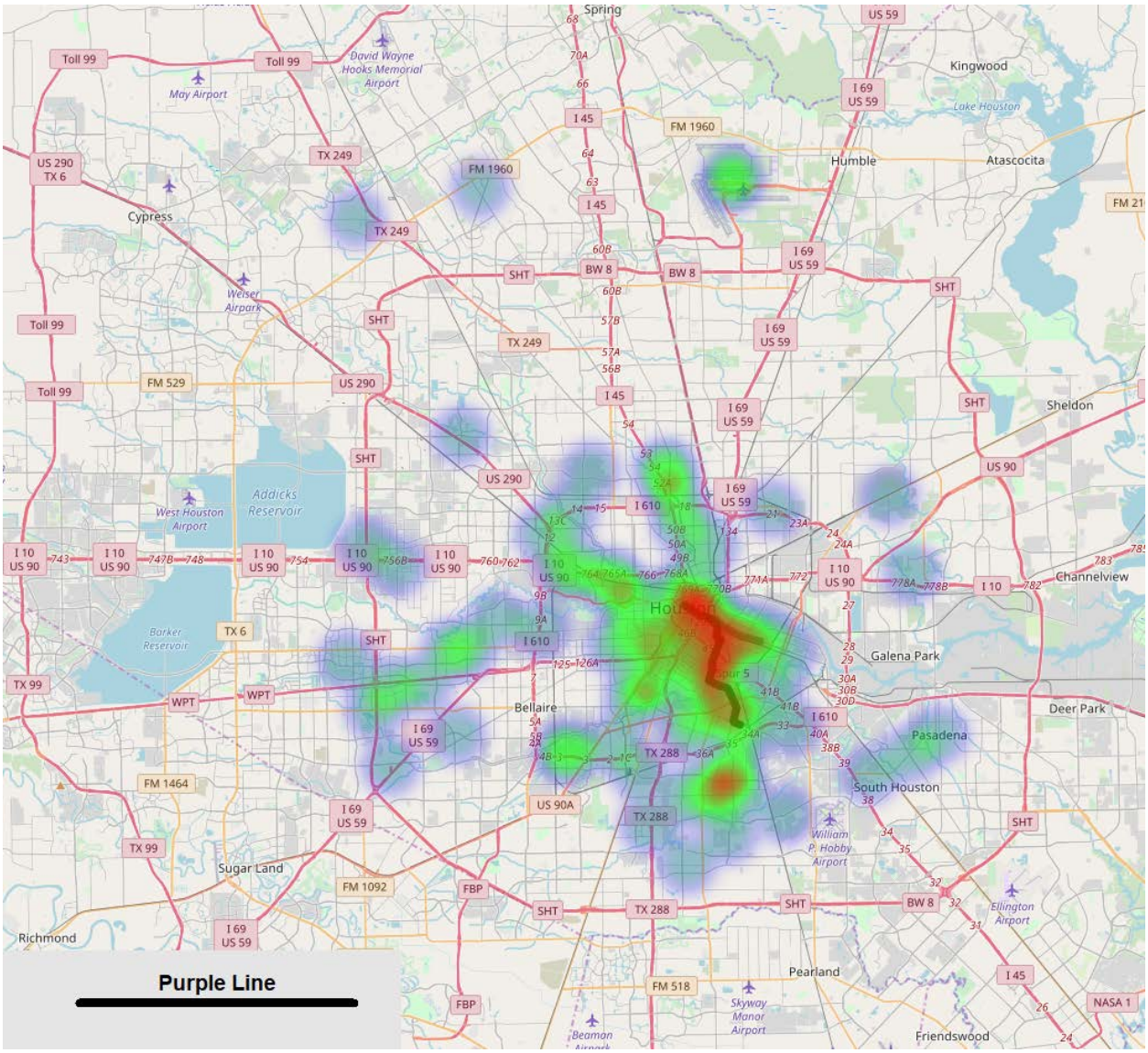


FIGURE 84: PURPLE LINE TRIP ATTRACTION



The following matrices show district to district Linked Ridership by Trip Purpose, Access Mode, and number of Vehicles in Household. The origin district is on the left axis and the destination district is on the upper axis.

FIGURE 85: ANALYSIS ZONES (ALL PURPOSE-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: All Purp (PA format)

Year 2017 Average Weekday Transit Trips, ALL Purpose: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	2153	156	37	819	60	184	517	1299	71	211	57	5	43	110	157	74	119	91	30	28	16	2	54	152	445	530	0	**7433**
2 = Uptown	195	159	45	144	0	0	0	131	25	349	66	0	0	0	5	0	0	0	6	0	177	4	0	0	14	7	0	**1333**
3 = Greenway	86	25	38	266	0	0	36	208	0	171	34	0	0	8	0	0	0	0	8	0	88	0	0	0	0	56	0	**1030**
4 = TMC	908	10	10	2415	0	18	350	1201	28	159	5	0	12	11	22	16	43	146	160	0	27	11	0	26	55	418	1	**6065**
5 = NE Inside 610	755	38	31	373	610	124	114	226	94	109	82	16	21	46	404	362	55	36	71	0	14	11	51	245	371	168	4	**4445**
6 = SE Inside 610	754	43	20	318	96	996	160	204	76	144	39	18	10	45	111	21	468	69	26	0	12	6	6	104	60	667	47	**4534**
7 = S Inside 610	984	16	31	575	3	11	305	331	66	126	61	0	21	31	20	43	45	67	52	0	0	0	16	96	237	175	1	**3323**
8 = SW Inside 610	3071	752	610	4406	54	30	569	2566	276	963	110	24	19	82	80	32	56	152	335	22	190	19	57	318	326	750	0	**15882**
9 = WNW Inside 610	562	36	12	475	9	13	50	307	424	47	240	9	41	190	1	2	53	1	8	0	0	10	6	219	100	121	9	**2956**
10 = West SW	5134	1842	682	3248	52	45	843	3208	363	14409	1643	115	115	47	110	78	107	281	2373	23	1745	310	63	312	166	1119	15	**38463**
11 = West Katy	3355	246	35	1185	24	43	109	305	394	478	2290	238	173	97	39	40	24	13	111	5	187	128	39	337	246	296	0	**10449**
12 = NW 290	3502	60	34	627	0	29	71	215	69	186	451	384	218	55	38	21	4	0	60	0	1	14	0	79	249	216	0	**6592**
13 = NNW 249	3117	149	92	774	34	16	96	203	213	103	499	438	1054	632	228	64	10	26	47	0	35	23	230	137	451	164	0	**8848**
14 = North Hardy	4577	80	424	1421	29	17	206	511	432	158	280	134	982	2922	488	72	34	81	34	0	28	17	584	302	703	288	26	**14842**
15 = NE Eastex	2915	54	36	690	187	50	72	276	164	81	140	86	79	103	713	238	38	38	22	0	16	0	100	360	462	292	0	**7222**
16 = East I-10	1242	35	14	594	281	68	119	303	97	95	92	47	15	69	261	1149	26	25	35	0	6	0	40	251	393	115	19	**5403**
17 = SH225 Gulf	2938	30	70	2317	65	448	108	359	146	152	65	34	27	22	31	36	3051	226	134	16	15	0	10	112	52	763	229	**11470**
18 = S288 35	1095	99	65	2335	75	85	230	605	43	263	42	19	30	23	120	58	570	2038	158	0	13	7	38	90	102	1471	132	**9821**
19 = SW US59	6675	449	351	4333	38	1	229	1647	83	2753	271	97	24	52	49	23	99	481	2790	0	166	18	36	192	70	985	0	**21927**
21 = Bay Area	186	0	0	44	0	0	9	0	0	0	0	0	0	0	5	0	17	0	4	13	0	1	0	3	0	8	0	**296**
22 = Westchase	657	333	133	373	8	2	110	281	44	1354	350	33	0	26	22	36	22	30	93	0	326	1	14	45	2	216	5	**4529**
23 = Energy	362	23	8	109	0	1	4	47	8	75	136	14	7	11	0	0	0	0	3	0	5	16	0	9	0	58	0	**903**
24 = Greenspoint	619	11	13	240	6	0	77	169	19	50	51	18	204	557	798	22	19	4	17	0	7	0	582	40	298	9	0	**3842**
25 = N Cor Out 610	2181	35	8	606	70	89	402	585	374	73	193	36	60	174	263	157	56	36	26	23	11	0	27	1444	1227	244	2	**8415**
26 = N Cor In 610	1495	22	38	540	146	43	288	302	222	138	154	97	200	330	409	162	5	35	43	0	18	2	192	1113	1157	311	0	**7474**
27 = SE Cor In 610	2757	172	93	1510	143	566	521	1072	158	492	139	15	48	24	162	104	333	744	327	0	31	2	78	282	256	3302	60	**13405**
28 = SE Cor Out 610	325	0	12	196	98	38	33	91	43	22	11	15	54	2	6	18	327	192	28	0	2	0	0	45	19	219	44	**1851**
Total	52614	4887	2950	30948	2100	2929	5642	16665	3944	23175	7514	1901	3470	5680	4556	2838	5595	4824	7013	134	3149	614	2232	6325	7473	12979	601	**222767**

FIGURE 86: ANALYSIS ZONES (ALL PURPOSE-SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: All Purp (PA format)

Year 2017 Average Weekday Transit Trips, ALL Purpose: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	171	6	2	74	6	15	25	86	7	21	12	2	5	9	17	5	13	11	7	3	3	1	5	17	39	53	0	**615**
2 = Uptown	16	10	3	14	0	0	0	11	3	19	6	0	0	0	1	0	0	0	2	0	7	1	0	0	1	1	0	**95**
3 = Greenway	7	2	3	22	0	0	3	12	0	10	2	0	0	2	0	0	0	0	2	0	3	0	0	0	0	3	0	**71**
4 = TMC	87	1	2	126	0	3	20	72	3	20	1	0	3	2	4	4	7	10	12	0	2	3	0	4	12	42	1	**441**
5 = NE Inside 610	75	5	4	55	51	23	16	42	10	18	15	4	4	10	39	42	13	5	8	0	2	2	8	31	40	23	2	**547**
6 = SE Inside 610	106	6	2	47	14	80	23	37	13	20	10	2	4	4	8	3	50	11	3	0	2	2	1	19	10	82	6	**565**
7 = S Inside 610	54	2	2	38	1	2	16	27	7	14	10	0	2	4	5	4	6	8	7	0	0	0	2	9	25	16	1	**262**
8 = SW Inside 610	216	45	30	278	6	5	35	176	30	72	18	4	4	12	16	4	10	13	30	2	14	5	8	36	35	79	1	**1184**
9 = WNW Inside 610	48	6	2	46	2	3	6	33	35	11	20	1	8	21	1	1	3	1	2	0	0	1	1	17	11	15	2	**297**
10 = West SW	361	120	50	311	7	10	65	262	40	970	168	19	20	9	21	20	24	37	208	5	120	37	11	46	35	96	4	**3076**
11 = West Katy	286	26	8	141	2	9	11	44	40	61	190	23	19	15	9	10	6	4	17	1	16	13	7	35	16	55	0	**1064**
12 = NW 290	363	8	6	96	0	6	8	32	9	25	51	29	22	6	6	3	1	0	15	0	1	2	0	15	26	44	0	**774**
13 = NNW 249	345	17	15	101	5	4	15	31	23	30	37	37	97	63	26	11	3	7	13	0	5	5	16	21	42	39	0	**1008**
14 = North Hardy	477	15	37	174	7	4	24	83	40	33	51	19	89	246	65	14	8	16	10	0	6	4	43	46	57	53	3	**1624**
15 = NE Eastex	311	7	6	97	14	7	13	51	25	13	27	12	12	21	95	20	10	10	5	0	2	0	13	42	34	50	0	**897**
16 = East I-10	144	5	3	80	35	7	15	48	19	21	19	8	4	10	30	185	7	6	9	0	2	0	8	26	42	22	4	**759**
17 = SH225 Gulf	346	5	8	219	15	50	19	53	18	34	14	4	6	4	7	9	505	22	22	1	4	0	3	21	12	91	22	**1514**
18 = S288 35	150	13	7	175	10	10	25	71	12	46	12	6	9	8	18	9	55	222	25	0	3	2	6	20	16	131	10	**1071**
19 = SW US59	587	71	45	423	6	1	26	157	12	271	45	15	9	9	12	3	16	64	265	1	26	4	10	33	22	105	0	**2238**
21 = Bay Area	16	0	0	6	0	0	1	0	0	0	0	0	0	0	1	0	3	0	1	1	0	1	0	1	0	2	0	**33**
22 = Westchase	42	19	9	29	1	1	7	34	6	94	29	4	1	4	4	5	3	4	13	0	19	1	3	5	1	24	1	**363**
23 = Energy	29	2	1	14	0	1	2	5	1	14	19	3	2	2	0	0	0	0	1	0	2	2	0	1	0	9	0	**110**
24 = Greenspoint	59	2	1	31	1	0	8	26	5	9	7	4	15	39	66	4	4	2	3	0	2	0	32	7	22	2	0	**351**
25 = N Cor Out 610	197	7	2	91	4	11	38	65	39	19	25	8	13	23	26	16	10	8	6	2	2	0	4	119	110	41	1	**887**
26 = N Cor In 610	157	3	4	84	11	6	36	47	26	25	20	12	16	38	36	14	2	11	8	0	3	2	18	100	90	44	0	**813**
27 = SE Cor In 610	304	21	11	171	21	77	52	112	20	73	24	4	13	9	23	16	41	83	32	0	3	1	8	42	37	365	5	**1568**
28 = SE Cor Out 610	43	0	1	18	2	7	4	10	5	6	5	2	2	1	1	3	31	16	4	0	1	0	0	8	3	30	4	**207**
Total	4997	424	264	2961	221	342	513	1627	448	1949	837	222	379	571	537	405	831	571	730	16	250	89	207	721	738	1517	67	**22434**

FIGURE 87: ANALYSIS ZONES (HBW-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: HBW (PA format)

Year 2017 Average Weekday Transit Trips, Home-Based Work Purpose: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	223	21	0	225	0	5	18	130	13	27	2	2	0	18	11	0	18	7	9	0	2	0	7	12	26	62	0	847
2 = Uptown	159	101	7	92	0	0	0	76	16	138	52	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	652
3 = Greenway	46	0	0	235	0	0	9	73	0	120	0	0	0	4	0	0	0	0	0	0	88	0	0	0	0	27	0	605
4 = TMC	364	0	0	1455	0	0	11	280	0	67	5	0	0	0	0	0	0	0	42	0	23	6	0	3	0	52	1	2316
5 = NE Inside 610	450	15	31	248	260	93	21	137	34	63	36	16	10	3	144	180	45	17	18	0	14	3	10	117	104	36	4	2121
6 = SE Inside 610	564	38	20	174	52	227	52	109	58	82	13	18	8	4	99	7	268	51	6	0	2	2	0	27	20	328	16	2254
7 = S Inside 610	316	16	26	190	0	0	89	76	34	61	20	0	12	17	0	29	0	21	7	0	0	0	0	0	17	28	1	968
8 = SW Inside 610	1610	403	236	2815	18	8	19	990	94	503	66	15	7	3	55	0	26	33	21	5	92	19	17	87	90	170	0	7417
9 = WNW Inside 610	432	31	0	349	3	0	24	137	180	10	128	9	20	46	0	0	24	0	6	0	0	10	6	13	22	23	9	1490
10 = West SW	4364	1337	375	2425	3	16	255	2034	290	6282	1029	108	73	39	77	52	56	152	1158	9	944	167	24	101	44	278	4	21710
11 = West Katy	3073	130	28	989	24	22	16	201	189	294	982	157	127	55	9	23	13	10	66	5	124	78	23	88	79	69	0	6887
12 = NW 290	3256	60	34	584	0	14	33	135	51	100	221	174	122	40	10	6	4	0	16	0	1	14	0	18	95	37	0	5035
13 = NNW 249	2886	143	92	589	6	5	9	94	191	56	218	214	439	235	148	39	0	14	31	0	35	23	67	28	106	24	0	5705
14 = North Hardy	4124	73	403	1101	12	17	118	359	253	101	191	106	494	775	320	35	16	44	8	0	16	17	384	118	188	105	20	9412
15 = NE Eastex	2488	31	8	503	89	13	13	139	119	63	105	66	55	52	268	117	34	21	12	0	16	0	33	74	190	104	0	4625
16 = East I-10	848	31	14	472	127	37	23	182	54	52	46	30	3	64	51	388	13	12	10	0	4	0	15	35	126	80	15	2744
17 = SH225 Gulf	2549	30	46	1998	56	258	30	291	71	96	62	34	14	22	6	25	1338	57	103	16	8	0	10	50	22	215	116	7535
18 = S288 35	870	82	11	1729	23	21	43	354	39	151	23	15	11	7	103	36	275	631	92	0	8	7	18	38	24	300	90	5014
19 = SW US59	6192	352	331	3691	24	1	104	1104	49	1507	180	49	12	35	40	23	51	228	1204	0	85	14	21	40	28	198	0	15577
21 = Bay Area	174	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	13	0	1	0	0	0	0	0	252
22 = Westchase	529	209	49	221	8	2	67	71	23	648	213	10	0	8	4	19	22	21	36	0	190	1	10	29	0	25	0	2425
23 = Energy	283	23	8	84	0	0	1	43	0	37	97	14	0	7	0	0	0	0	0	0	1	9	0	0	0	8	0	619
24 = Greenspoint	466	5	13	179	0	0	33	85	16	29	43	8	106	146	637	6	2	0	4	0	4	0	295	15	145	0	0	2247
25 = N Cor Out 610	1063	24	2	296	8	35	160	213	205	35	85	36	44	74	90	68	12	11	16	0	0	0	6	163	275	31	0	2961
26 = N Cor In 610	677	15	2	265	51	3	15	158	96	34	90	88	71	168	161	79	3	10	26	0	0	2	50	256	199	120	0	2649
27 = SE Cor In 610	1472	122	62	814	70	187	88	453	100	264	110	11	22	10	113	47	206	184	63	0	3	2	51	96	91	737	53	5441
28 = SE Cor Out 610	145	0	12	137	94	38	29	61	17	19	6	15	0	0	6	9	184	78	24	0	2	0	0	7	16	113	29	1050
Total	39640	3303	1820	21918	935	1013	1291	7997	2203	10852	4034	1206	1658	1842	2361	1198	2637	1610	2993	51	1672	384	1055	1426	1913	3182	365	120572

FIGURE 88: ANALYSIS ZONES (HBW-SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: HBW (PA format)

Year 2017 Average Weekday Transit Trips, Home-Based Work Purpose: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	18	1	0	20	0	1	2	11	2	4	1	1	0	1	1	0	3	1	2	0	1	0	1	1	3	7	0	82
2 = Uptown	12	7	1	9	0	0	0	6	2	8	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	51
3 = Greenway	4	0	0	18	0	0	1	4	0	6	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	2	0	39
4 = TMC	31	0	0	78	0	0	1	21	0	7	1	0	0	0	0	0	1	0	6	0	1	2	0	1	0	6	1	157
5 = NE Inside 610	44	3	4	37	23	16	3	25	3	9	7	4	1	1	20	22	10	3	3	0	2	1	3	13	9	6	2	274
6 = SE Inside 610	75	4	2	21	9	22	8	19	11	14	4	2	3	1	5	1	29	6	1	0	1	1	0	7	5	38	3	292
7 = S Inside 610	18	2	1	10	0	0	5	8	2	6	3	0	1	2	0	2	0	1	2	0	0	0	0	0	2	2	1	68
8 = SW Inside 610	104	25	11	180	2	2	3	73	12	38	9	3	2	1	12	0	6	3	4	1	10	5	4	8	8	15	1	542
9 = WNW Inside 610	32	5	0	33	1	0	2	15	15	3	11	1	4	9	0	0	2	0	1	0	0	1	1	2	2	3	2	145
10 = West SW	272	88	27	222	1	3	18	166	31	447	116	16	11	7	15	13	11	18	110	2	71	26	4	15	10	28	2	1750
11 = West Katy	255	16	6	114	2	4	3	28	23	35	79	14	12	8	2	6	4	2	7	1	7	8	4	8	5	10	0	663
12 = NW 290	336	8	6	86	0	4	3	23	8	12	28	12	11	4	3	1	1	0	4	0	1	2	0	3	11	6	0	573
13 = NNW 249	318	15	15	73	2	2	2	14	19	18	18	18	44	22	19	7	0	5	8	0	5	5	7	4	12	5	0	657
14 = North Hardy	424	14	34	130	3	4	12	55	23	20	37	16	44	61	46	8	4	7	3	0	4	4	25	18	18	16	2	1032
15 = NE Eastex	265	4	2	62	7	1	5	25	18	11	20	8	7	10	39	10	8	6	3	0	2	0	6	13	12	14	0	558
16 = East I-10	94	4	3	55	18	5	3	27	12	13	10	6	1	8	8	72	6	2	3	0	1	0	3	6	11	12	3	386
17 = SH225 Gulf	297	5	6	181	12	26	6	41	15	20	13	4	4	4	3	5	211	9	17	1	2	0	3	8	8	38	10	949
18 = S288 35	112	11	4	117	5	3	5	44	10	27	8	5	4	2	14	5	29	81	14	0	2	2	2	7	5	32	6	556
19 = SW US59	516	59	41	363	4	1	9	107	8	145	29	11	4	6	9	3	10	22	106	0	16	3	5	9	8	26	0	1520
21 = Bay Area	15	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	1	0	0	0	0	0	26
22 = Westchase	30	12	5	18	1	1	5	12	4	42	19	3	1	1	1	2	3	2	4	0	13	1	2	3	0	5	0	190
23 = Energy	22	2	1	11	0	0	1	4	0	8	10	3	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0	66
24 = Greenspoint	39	1	1	21	0	0	3	14	4	5	5	2	11	10	52	1	1	0	1	0	1	0	18	2	13	0	0	205
25 = N Cor Out 610	92	4	1	38	1	5	12	25	24	10	11	8	10	12	7	10	3	2	3	0	0	0	1	17	25	7	0	328
26 = N Cor In 610	66	2	1	42	2	1	4	25	13	7	11	10	7	19	17	7	1	3	5	0	0	2	5	24	17	13	0	304
27 = SE Cor In 610	165	16	7	89	10	30	9	62	13	37	18	3	6	3	15	10	24	20	12	0	1	1	6	10	11	87	4	669
28 = SE Cor Out 610	24	0	1	13	1	7	2	8	3	5	3	2	0	0	1	2	19	5	3	0	1	0	0	2	2	15	3	122
Total	3680	308	180	2047	104	138	127	862	275	957	475	152	188	194	289	187	389	198	324	6	146	66	100	181	197	394	40	12204

FIGURE 89: ANALYSIS ZONES (HBO-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: HBO (PA format)

Year 2017 Average Weekday Transit Trips, Home-Based Other Purpose: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	450	61	0	160	5	54	177	399	0	61	8	0	29	16	29	0	39	41	8	28	0	2	19	65	133	169	0	1963
2 = Uptown	6	42	16	26	0	0	0	40	0	173	14	0	0	0	0	0	0	0	0	0	143	4	0	0	14	7	0	488
3 = Greenway	39	25	27	24	0	0	27	112	0	33	34	0	0	0	0	0	0	0	8	0	0	0	0	0	0	28	0	361
4 = TMC	176	10	5	468	0	15	140	224	0	31	0	0	5	0	4	2	1	54	36	0	4	0	0	0	7	216	0	1406
5 = NE Inside 610	296	22	0	116	350	23	93	81	46	46	46	0	11	36	243	178	7	19	39	0	0	7	40	128	238	124	0	2199
6 = SE Inside 610	181	0	0	139	24	604	82	67	17	62	20	0	2	18	12	14	187	13	19	0	9	4	6	77	36	303	13	1922
7 = S Inside 610	236	0	4	233	0	0	152	116	23	17	24	0	0	0	10	0	21	30	10	0	0	0	5	39	133	98	0	1159
8 = SW Inside 610	1060	289	373	998	8	0	282	1159	137	350	28	0	11	36	25	4	27	72	260	16	98	0	29	151	155	479	0	6060
9 = WNW Inside 610	102	0	12	119	6	9	25	153	184	13	74	0	16	79	0	2	0	1	0	0	0	0	0	139	53	85	0	1080
10 = West SW	727	464	289	775	42	26	569	1072	60	7431	503	3	41	7	32	13	51	116	1075	14	720	136	32	204	112	805	9	15340
11 = West Katy	207	102	1	158	0	20	78	90	205	156	1146	66	35	21	26	14	10	2	22	0	44	50	14	248	107	217	0	3051
12 = NW 290	222	0	0	40	0	5	29	74	17	78	223	171	78	14	27	14	0	0	34	0	0	0	0	51	137	173	0	1395
13 = NNW 249	165	3	0	164	27	9	86	108	18	42	253	199	487	318	76	24	10	12	12	0	0	0	118	108	265	132	0	2647
14 = North Hardy	420	0	4	306	15	0	85	124	153	50	78	2	401	1701	150	36	10	24	24	0	12	0	183	155	452	171	0	4567
15 = NE Eastex	333	22	21	168	89	14	47	102	15	17	35	19	18	34	396	101	4	16	10	0	0	0	55	275	230	165	0	2197
16 = East I-10	334	3	0	119	154	30	89	84	35	42	43	17	12	5	169	719	13	13	20	0	2	0	24	206	258	32	4	2438
17 = SH225 Gulf	308	0	24	284	8	171	70	66	75	51	2	0	12	0	25	10	1490	124	31	0	6	0	0	56	17	520	108	3467
18 = S288 35	198	17	54	560	51	49	152	211	3	105	14	3	19	9	14	9	260	1290	65	0	5	0	19	37	68	1008	41	4275
19 = SW US59	455	97	20	529	13	0	124	485	24	1079	84	27	7	14	9	0	48	240	1368	0	77	3	14	120	36	772	0	5655
21 = Bay Area	11	0	0	0	0	0	9	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	3	0	5	0	35
22 = Westchase	128	123	83	133	0	0	43	170	21	603	137	22	0	17	18	17	0	9	57	0	136	0	4	15	2	171	5	1923
23 = Energy	78	0	0	25	0	1	0	4	0	7	35	0	7	3	0	0	0	0	3	0	3	7	0	9	0	49	0	237
24 = Greenspoint	146	6	0	57	0	0	34	71	2	12	7	5	94	362	80	11	16	4	2	0	2	0	209	24	116	9	0	1281
25 = N Cor Out 610	894	6	5	251	41	48	181	284	157	25	94	0	11	81	163	81	20	15	7	0	0	0	14	949	804	154	0	4295
26 = N Cor In 610	633	7	23	208	45	14	107	116	117	101	57	8	119	157	234	82	0	10	17	0	10	0	142	715	864	149	0	3946
27 = SE Cor In 610	1044	17	30	643	69	326	387	487	57	175	23	3	26	8	49	57	81	514	178	0	27	0	11	130	131	2291	6	6786
28 = SE Cor Out 610	171	0	0	58	4	0	4	29	0	3	5	0	46	2	0	8	128	114	4	0	0	0	0	38	3	105	14	743
Total	9034	1324	1000	6773	959	1425	3086	5941	1376	10778	2998	552	1498	2948	1805	1406	2431	2743	3320	59	1306	217	947	3954	4380	8450	204	80929

FIGURE 90: ANALYSIS ZONES (HBO-SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: HBO (PA format)

Year 2017 Average Weekday Transit Trips, Home-Based Other Purpose: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	34	3	0	20	1	6	7	23	0	4	2	0	3	2	4	0	6	7	3	3	0	1	2	8	11	17	0	167
2 = Uptown	1	1	1	3	0	0	0	4	0	8	2	0	0	0	0	0	0	0	0	0	5	1	0	0	1	1	0	28
3 = Greenway	3	2	2	3	0	0	2	7	0	2	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	26
4 = TMC	20	1	1	26	0	2	10	17	0	4	0	0	1	1	1	1	1	3	2	0	1	0	0	0	4	24	0	120
5 = NE Inside 610	30	2	0	16	28	6	13	15	6	9	8	0	3	8	17	19	2	2	4	0	0	1	5	18	26	15	0	253
6 = SE Inside 610	29	0	0	24	3	47	12	13	2	6	4	0	1	2	3	2	19	4	2	0	1	1	1	12	4	39	2	233
7 = S Inside 610	13	0	1	18	0	0	9	9	4	2	5	0	0	0	3	0	2	4	1	0	0	0	1	5	16	10	0	103
8 = SW Inside 610	81	17	19	72	1	0	17	79	12	26	6	0	2	4	4	1	3	7	22	1	4	0	3	19	20	55	0	475
9 = WNW Inside 610	12	0	2	12	1	2	4	16	15	4	7	0	3	8	0	1	0	1	0	0	0	0	0	12	6	10	0	116
10 = West SW	83	28	22	84	4	6	46	87	8	481	43	2	9	2	6	4	13	16	88	3	43	10	5	30	23	63	1	1210
11 = West Katy	24	8	1	23	0	5	6	14	17	20	93	7	6	4	6	3	2	2	6	0	7	5	1	27	7	43	0	337
12 = NW 290	25	0	0	9	0	1	4	8	1	12	22	15	8	2	3	2	0	0	9	0	0	0	0	11	14	37	0	183
13 = NNW 249	20	1	0	25	3	1	13	17	3	10	15	17	42	33	6	4	3	2	3	0	0	0	7	17	24	32	0	298
14 = North Hardy	49	0	1	41	3	0	11	22	15	11	12	1	34	147	17	6	2	6	6	0	2	0	15	23	33	34	0	491
15 = NE Eastex	37	3	3	31	6	3	7	22	3	2	7	4	4	9	49	8	2	4	2	0	0	0	6	28	18	31	0	289
16 = East I-10	43	1	0	24	17	2	11	17	6	8	8	2	3	2	16	103	1	4	5	0	1	0	5	19	30	9	1	338
17 = SH225 Gulf	40	0	2	33	3	22	12	11	3	12	1	0	2	0	4	4	250	10	5	0	2	0	0	11	2	49	11	489
18 = S288 35	33	2	3	54	5	5	17	25	2	17	3	1	5	4	2	3	25	128	11	0	1	0	4	10	10	85	4	459
19 = SW US59	67	12	4	56	2	0	17	45	2	110	14	3	3	2	3	0	6	38	141	1	9	1	5	21	12	77	0	651
21 = Bay Area	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	5
22 = Westchase	12	7	4	8	0	0	2	18	2	42	10	1	0	3	3	3	0	2	9	0	6	0	1	2	1	18	1	155
23 = Energy	7	0	0	3	0	1	0	1	0	2	7	0	2	1	0	0	0	0	1	0	1	1	0	1	0	8	0	36
24 = Greenspoint	19	1	0	9	0	0	4	11	1	2	2	1	3	22	9	2	3	2	1	0	1	0	11	5	6	2	0	117
25 = N Cor Out 610	83	2	1	43	2	5	18	28	14	6	12	0	2	8	17	5	5	4	2	0	0	0	2	83	71	24	0	437
26 = N Cor In 610	68	1	2	31	4	3	16	19	11	17	8	2	7	17	18	7	0	3	3	0	1	0	13	64	67	24	0	406
27 = SE Cor In 610	111	2	4	74	10	40	38	37	7	31	5	1	7	4	8	6	11	54	16	0	2	0	1	24	21	249	1	764
28 = SE Cor Out 610	17	0	0	5	1	0	2	2	0	1	2	0	1	1	0	1	11	11	1	0	0	0	0	6	1	15	1	79
Total	962	94	73	747	94	157	299	567	134	849	300	57	151	286	200	185	367	314	345	8	87	21	88	457	428	973	22	8265

FIGURE 91: ANALYSIS ZONES (NHB-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: NHB (PA format)

Year 2017 Average Weekday Transit Trips, Non-Home-Based Purpose: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	1479	73	37	433	55	124	321	768	57	122	47	3	13	75	116	74	61	42	12	0	13	0	27	74	285	298	0	4623
2 = Uptown	29	15	21	25	0	0	0	15	9	37	0	0	0	0	5	0	0	0	0	0	33	0	0	0	0	0	0	191
3 = Greenway	0	0	10	6	0	0	0	22	0	18	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	62
4 = TMC	367	0	5	491	0	3	198	697	28	60	0	0	7	11	17	13	41	91	82	0	0	5	0	22	47	148	0	2343
5 = NE Inside 610	8	0	0	8	0	7	0	6	12	0	0	0	0	6	15	3	3	0	14	0	0	0	0	0	28	7	0	123
6 = SE Inside 610	8	5	0	4	19	165	25	26	0	0	6	0	0	22	0	0	12	4	0	0	0	0	0	0	3	36	17	357
7 = S Inside 610	430	0	0	151	3	11	63	137	8	47	15	0	9	14	10	13	23	16	34	0	0	0	11	57	85	47	0	1195
8 = SW Inside 610	399	59	0	592	28	21	267	416	44	108	15	8	0	43	0	28	1	46	53	0	0	0	10	79	80	99	0	2405
9 = WNW Inside 610	27	5	0	6	0	4	0	17	59	22	37	0	3	64	1	0	29	0	2	0	0	0	0	66	25	12	0	385
10 = West SW	41	40	16	48	7	2	18	101	12	695	109	3	0	0	0	12	0	11	139	0	80	7	6	6	10	36	1	1412
11 = West Katy	74	14	4	37	0	0	14	13	0	26	161	13	11	21	3	1	0	0	22	0	18	0	1	0	59	9	0	510
12 = NW 290	22	0	0	2	0	9	8	5	0	8	6	38	17	0	0	0	0	0	8	0	0	0	0	8	17	6	0	160
13 = NNW 249	65	3	0	20	0	1	0	0	3	4	27	24	127	78	4	0	0	0	3	0	0	0	44	0	79	7	0	495
14 = North Hardy	31	6	15	13	1	0	1	27	25	6	9	26	87	444	17	0	7	12	0	0	0	0	16	28	62	11	5	861
15 = NE Eastex	93	0	5	18	8	22	11	34	29	0	0	0	4	17	48	19	0	0	0	0	0	0	11	10	41	22	0	399
16 = East I-10	59	0	0	2	0	0	7	36	6	0	2	0	0	0	39	42	0	0	3	0	0	0	0	8	8	2	0	220
17 = SH225 Gulf	80	0	0	34	0	18	7	2	0	4	0	0	0	0	0	0	223	44	0	0	0	0	0	5	12	28	4	467
18 = S288 35	26	0	0	45	0	14	34	39	0	6	3	0	0	6	3	12	35	117	0	0	0	0	0	14	9	162	0	532
19 = SW US59	28	0	0	111	0	0	0	58	9	166	7	20	4	3	0	0	0	13	217	0	3	0	0	32	5	13	0	695
21 = Bay Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	3	0	7
22 = Westchase	0	0	0	18	0	0	0	38	0	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	180
23 = Energy	0	0	0	0	0	0	3	0	8	30	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
24 = Greenspoint	6	0	0	3	6	0	9	13	0	7	0	4	4	47	80	4	0	0	11	0	0	0	77	0	37	0	0	313
25 = N Cor Out 610	223	4	0	58	21	5	59	86	12	12	14	0	4	18	9	7	23	8	3	23	11	0	6	330	148	58	2	1157
26 = N Cor In 610	184	0	11	67	49	25	165	27	9	2	5	0	9	5	14	0	1	14	0	0	8	0	0	141	94	41	0	879
27 = SE Cor In 610	240	32	0	53	3	52	45	131	0	52	5	0	0	5	0	0	45	46	85	0	0	0	15	55	33	273	0	1177
28 = SE Cor Out 610	8	0	0	0	0	0	0	0	26	0	0	0	8	0	0	0	14	0	0	0	0	0	0	0	0	0	0	57
Total	3939	260	129	2255	205	490	1265	2726	364	1544	481	142	312	890	389	233	526	470	699	23	170	13	229	943	1179	1346	31	21266

FIGURE 92: ANALYSIS ZONES (NHB-SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: NHB (PA format)

Year 2017 Average Weekday Transit Trips, Non-Home-Based Purpose: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	119	2	2	34	5	8	16	52	5	13	9	1	2	6	12	5	4	3	2	0	2	0	2	8	25	29	0	366
2 = Uptown	3	2	1	2	0	0	0	1	1	3	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	16
3 = Greenway	0	0	1	1	0	0	0	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
4 = TMC	36	0	1	22	0	1	9	34	3	9	0	0	2	1	3	3	5	7	4	0	0	1	0	3	8	12	0	164
5 = NE Inside 610	1	0	0	2	0	1	0	2	1	0	0	0	0	1	2	1	1	0	1	0	0	0	0	0	5	2	0	20
6 = SE Inside 610	2	2	0	2	2	11	3	5	0	0	2	0	0	1	0	0	2	1	0	0	0	0	0	0	1	5	1	40
7 = S Inside 610	23	0	0	10	1	2	2	10	1	6	2	0	1	2	2	2	4	3	4	0	0	0	1	4	7	4	0	91
8 = SW Inside 610	31	3	0	26	3	3	15	24	6	8	3	1	0	7	0	3	1	3	4	0	0	0	1	9	7	9	0	167
9 = WNW Inside 610	4	1	0	1	0	1	0	2	5	4	2	0	1	4	1	0	1	0	1	0	0	0	0	3	3	2	0	36
10 = West SW	6	4	1	5	2	1	1	9	1	42	9	1	0	0	0	3	0	3	10	0	6	1	2	1	2	5	1	116
11 = West Katy	7	2	1	4	0	0	2	2	0	6	18	2	1	3	1	1	0	0	4	0	2	0	2	0	4	2	0	64
12 = NW 290	2	0	0	1	0	1	1	1	0	1	1	2	3	0	0	0	0	0	2	0	0	0	0	1	1	1	0	18
13 = NNW 249	7	1	0	3	0	1	0	0	1	2	4	2	11	8	1	0	0	0	2	0	0	0	2	0	6	2	0	53
14 = North Hardy	4	1	2	3	1	0	1	6	2	2	2	2	11	38	2	0	2	3	1	0	0	0	3	5	6	3	1	101
15 = NE Eastex	9	0	1	4	1	3	1	4	4	0	0	0	1	2	7	2	0	0	0	0	0	0	1	1	4	5	0	50
16 = East I-10	7	0	0	1	0	0	1	4	1	0	1	0	0	0	6	10	0	0	1	0	0	0	0	1	1	1	0	35
17 = SH225 Gulf	9	0	0	5	0	2	1	1	0	2	0	0	0	0	0	0	44	3	0	0	0	0	0	2	2	4	1	76
18 = S288 35	5	0	0	4	0	2	3	2	0	2	1	0	0	2	2	1	1	13	0	0	0	0	0	3	1	14	0	56
19 = SW US59	4	0	0	4	0	0	0	5	2	16	2	1	2	1	0	0	0	4	18	0	1	0	0	3	2	2	0	67
21 = Bay Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2
22 = Westchase	0	0	0	3	0	0	0	4	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	18
23 = Energy	0	0	0	0	0	0	1	0	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
24 = Greenspoint	1	0	0	1	1	0	1	1	0	2	0	1	1	7	5	1	0	0	1	0	0	0	3	0	3	0	0	29
25 = N Cor Out 610	22	1	0	10	1	1	8	12	1	3	2	0	1	3	2	1	2	2	1	2	2	0	1	19	14	10	1	122
26 = N Cor In 610	23	0	1	11	5	2	16	3	2	1	1	0	2	2	1	0	1	5	0	0	2	0	0	12	6	7	0	103
27 = SE Cor In 610	28	3	0	8	1	7	5	13	0	5	1	0	0	2	0	0	6	9	4	0	0	0	1	8	5	29	0	135
28 = SE Cor Out 610	2	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6
Total	355	22	11	167	23	47	87	198	39	143	62	13	40	91	48	33	75	59	61	2	17	2	19	83	113	150	5	1965

FIGURE 93: ANALYSIS ZONES (ALL ACCESS-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: All Access (PA format)

Year 2017 Average Weekday Transit Trips, All Access: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	2153	156	37	819	60	184	517	1299	71	211	57	5	43	110	157	74	119	91	30	28	16	2	54	152	445	530	0	7433
2 = Uptown	195	159	45	144	0	0	0	131	25	349	66	0	0	0	5	0	0	0	6	0	177	4	0	0	14	7	0	1333
3 = Greenway	86	25	38	266	0	0	36	208	0	171	34	0	0	8	0	0	0	0	8	0	88	0	0	0	0	56	0	1030
4 = TMC	908	10	10	2415	0	18	350	1201	28	159	5	0	12	11	22	16	43	146	160	0	27	11	0	26	55	418	1	6065
5 = NE Inside 610	755	38	31	373	610	124	114	226	94	109	82	16	21	46	404	362	55	36	71	0	14	11	51	245	371	168	4	4445
6 = SE Inside 610	754	43	20	318	96	996	160	204	76	144	39	18	10	45	111	21	468	69	26	0	12	6	6	104	60	667	47	4534
7 = S Inside 610	984	16	31	575	3	11	305	331	66	126	61	0	21	31	20	43	45	67	52	0	0	0	16	96	237	175	1	3323
8 = SW Inside 610	3071	752	610	4406	54	30	569	2566	276	963	110	24	19	82	80	32	56	152	335	22	190	19	57	318	326	750	0	15882
9 = WNW Inside 610	562	36	12	475	9	13	50	307	424	47	240	9	41	190	1	2	53	1	8	0	0	10	6	219	100	121	9	2956
10 = West SW	5134	1842	682	3248	52	45	843	3208	363	14409	1643	115	115	47	110	78	107	281	2373	23	1745	310	63	312	166	1119	15	38463
11 = West Katy	3355	246	35	1185	24	43	109	305	394	478	2290	238	173	97	39	40	24	13	111	5	187	128	39	337	246	296	0	10449
12 = NW 290	3502	60	34	627	0	29	71	215	69	186	451	384	218	55	38	21	4	0	60	0	1	14	0	79	249	216	0	6592
13 = NNW 249	3117	149	92	774	34	16	96	203	213	103	499	438	1054	632	228	64	10	26	47	0	35	23	230	137	451	164	0	8848
14 = North Hardy	4577	80	424	1421	29	17	206	511	432	158	280	134	982	2922	488	72	34	81	34	0	28	17	584	302	703	288	26	14842
15 = NE Eastex	2915	54	36	690	187	50	72	276	164	81	140	86	79	103	713	238	38	38	22	0	16	0	100	360	462	292	0	7222
16 = East I-10	1242	35	14	594	281	68	119	303	97	95	92	47	15	69	261	1149	26	25	35	0	6	0	40	251	393	115	19	5403
17 = SH225 Gulf	2938	30	70	2317	65	448	108	359	146	152	65	34	27	22	31	36	3051	226	134	16	15	0	10	112	52	763	229	11470
18 = S288 35	1095	99	65	2335	75	85	230	605	43	263	42	19	30	23	120	58	570	2038	158	0	13	7	38	90	102	1471	132	9821
19 = SW US59	6675	449	351	4333	38	1	229	1647	83	2753	271	97	24	52	49	23	99	481	2790	0	166	18	36	192	70	985	0	21927
21 = Bay Area	186	0	0	44	0	0	9	0	0	0	0	0	0	0	5	0	17	0	4	13	0	1	0	3	0	8	0	296
22 = Westchase	657	333	133	373	8	2	110	281	44	1354	350	33	0	26	22	36	22	30	93	0	326	1	14	45	2	216	5	4529
23 = Energy	362	23	8	109	0	1	4	47	8	75	136	14	7	11	0	0	0	0	3	0	5	16	0	9	0	58	0	903
24 = Greenspoint	619	11	13	240	6	0	77	169	19	50	51	18	204	557	798	22	19	4	17	0	7	0	582	40	298	9	0	3842
25 = N Cor Out 610	2181	35	8	606	70	89	402	585	374	73	193	36	60	174	263	157	56	36	26	23	11	0	27	1444	1227	244	2	8415
26 = N Cor In 610	1495	22	38	540	146	43	288	302	222	138	154	97	200	330	409	162	5	35	43	0	18	2	192	1113	1157	311	0	7474
27 = SE Cor In 610	2757	172	93	1510	143	566	521	1072	158	492	139	15	48	24	162	104	333	744	327	0	31	2	78	282	256	3302	60	13405
28 = SE Cor Out 610	325	0	12	196	98	38	33	91	43	22	11	15	54	2	6	18	327	192	28	0	2	0	0	45	19	219	44	1851
Total	52614	4887	2950	30948	2100	2929	5642	16665	3944	23175	7514	1901	3470	5680	4556	2838	5595	4824	7013	134	3149	614	2232	6325	7473	12979	601	222767

FIGURE 94: ANALYSIS ZONES (ALL ACCESS -SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: All Access (PA format)

Year 2017 Average Weekday Transit Trips, All Access: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	171	6	2	74	6	15	25	86	7	21	12	2	5	9	17	5	13	11	7	3	3	1	5	17	39	53	0	615
2 = Uptown	16	10	3	14	0	0	0	11	3	19	6	0	0	0	1	0	0	0	2	0	7	1	0	0	1	1	0	95
3 = Greenway	7	2	3	22	0	0	3	12	0	10	2	0	0	2	0	0	0	0	2	0	3	0	0	0	0	3	0	71
4 = TMC	87	1	2	126	0	3	20	72	3	20	1	0	3	2	4	4	7	10	12	0	2	3	0	4	12	42	1	441
5 = NE Inside 610	75	5	4	55	51	23	16	42	10	18	15	4	4	10	39	42	13	5	8	0	2	2	8	31	40	23	2	547
6 = SE Inside 610	106	6	2	47	14	80	23	37	13	20	10	2	4	4	8	3	50	11	3	0	2	2	1	19	10	82	6	565
7 = S Inside 610	54	2	2	38	1	2	16	27	7	14	10	0	2	4	5	4	6	8	7	0	0	0	2	9	25	16	1	262
8 = SW Inside 610	216	45	30	278	6	5	35	176	30	72	18	4	4	12	16	4	10	13	30	2	14	5	8	36	35	79	1	1184
9 = WNW Inside 610	48	6	2	46	2	3	6	33	35	11	20	1	8	21	1	1	3	1	2	0	0	1	1	17	11	15	2	297
10 = West SW	361	120	50	311	7	10	65	262	40	970	168	19	20	9	21	20	24	37	208	5	120	37	11	46	35	96	4	3076
11 = West Katy	286	26	8	141	2	9	11	44	40	61	190	23	19	15	9	10	6	4	17	1	16	13	7	35	16	55	0	1064
12 = NW 290	363	8	6	96	0	6	8	32	9	25	51	29	22	6	6	3	1	0	15	0	1	2	0	15	26	44	0	774
13 = NNW 249	345	17	15	101	5	4	15	31	23	30	37	37	97	63	26	11	3	7	13	0	5	5	16	21	42	39	0	1008
14 = North Hardy	477	15	37	174	7	4	24	83	40	33	51	19	89	246	65	14	8	16	10	0	6	4	43	46	57	53	3	1624
15 = NE Eastex	311	7	6	97	14	7	13	51	25	13	27	12	12	21	95	20	10	10	5	0	2	0	13	42	34	50	0	897
16 = East I-10	144	5	3	80	35	7	15	48	19	21	19	8	4	10	30	185	7	6	9	0	2	0	8	26	42	22	4	759
17 = SH225 Gulf	346	5	8	219	15	50	19	53	18	34	14	4	6	4	7	9	505	22	22	1	4	0	3	21	12	91	22	1514
18 = S288 35	150	13	7	175	10	10	25	71	12	46	12	6	9	8	18	9	55	222	25	0	3	2	6	20	16	131	10	1071
19 = SW US59	587	71	45	423	6	1	26	157	12	271	45	15	9	9	12	3	16	64	265	1	26	4	10	33	22	105	0	2238
21 = Bay Area	16	0	0	6	0	0	1	0	0	0	0	0	0	0	1	0	3	0	1	1	0	1	0	1	0	2	0	33
22 = Westchase	42	19	9	29	1	1	7	34	6	94	29	4	1	4	4	5	3	4	13	0	19	1	3	5	1	24	1	363
23 = Energy	29	2	1	14	0	1	2	5	1	14	19	3	2	2	0	0	0	0	1	0	2	2	0	1	0	9	0	110
24 = Greenspoint	59	2	1	31	1	0	8	26	5	9	7	4	15	39	66	4	4	2	3	0	2	0	32	7	22	2	0	351
25 = N Cor Out 610	197	7	2	91	4	11	38	65	39	19	25	8	13	23	26	16	10	8	6	2	2	0	4	119	110	41	1	887
26 = N Cor In 610	157	3	4	84	11	6	36	47	26	25	20	12	16	38	36	14	2	11	8	0	3	2	18	100	90	44	0	813
27 = SE Cor In 610	304	21	11	171	21	77	52	112	20	73	24	4	13	9	23	16	41	83	32	0	3	1	8	42	37	365	5	1568
28 = SE Cor Out 610	43	0	1	18	2	7	4	10	5	6	5	2	2	1	1	3	31	16	4	0	1	0	0	8	3	30	4	207
Total	4997	424	264	2961	221	342	513	1627	448	1949	837	222	379	571	537	405	831	571	730	16	250	89	207	721	738	1517	67	22434

FIGURE 95: ANALYSIS ZONES (WALK-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: Walk (PA format)

Year 2017 Average Weekday Transit Trips, Walk Access: Linked Trips (Weighted Trips)*

** Walk Access includes Walk, Wheelchair and Skateboard*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	2089	156	37	811	60	184	498	1241	71	208	57	5	43	110	132	74	119	84	30	28	16	2	54	152	432	487	0	7192
2 = Uptown	178	159	45	122	0	0	0	131	25	349	66	0	0	0	5	0	0	0	6	0	177	4	0	0	14	0	0	1286
3 = Greenway	86	25	38	176	0	0	16	197	0	163	34	0	0	8	0	0	0	0	8	0	88	0	0	0	0	56	0	900
4 = TMC	814	10	10	2178	0	18	338	1063	18	130	0	0	12	11	22	16	43	120	141	0	4	11	0	22	55	380	1	5430
5 = NE Inside 610	661	31	31	280	545	97	106	206	89	105	79	16	21	46	402	310	55	36	57	0	14	11	46	245	371	164	4	4041
6 = SE Inside 610	552	43	20	208	86	929	145	186	50	139	30	18	10	41	111	21	444	59	11	0	12	6	6	84	59	572	38	3890
7 = S Inside 610	893	16	4	553	0	11	305	331	39	126	44	0	21	31	20	43	35	67	37	0	0	0	16	96	237	156	1	3092
8 = SW Inside 610	2665	728	565	3423	54	23	488	2339	276	919	96	24	19	82	80	32	51	125	312	22	181	18	57	295	310	708	0	13907
9 = WNW Inside 610	461	18	12	336	9	13	40	268	400	43	231	9	41	181	1	2	53	1	8	0	0	0	6	219	91	100	9	2562
10 = West SW	1888	1750	615	1851	46	38	757	2678	337	14037	1628	112	99	47	88	78	96	273	2258	21	1643	310	63	283	160	945	15	32128
11 = West Katy	475	220	28	105	0	32	62	176	324	449	2152	238	155	68	32	31	13	2	106	0	174	104	33	196	235	70	0	5494
12 = NW 290	126	12	2	52	0	11	38	51	53	163	410	371	139	40	35	12	4	0	50	0	0	14	0	17	248	37	0	1894
13 = NNW 249	442	104	0	215	34	16	73	109	200	93	489	419	978	614	204	53	10	26	40	0	20	23	224	94	365	74	0	4931
14 = North Hardy	553	21	27	242	22	15	91	345	369	134	239	124	878	2810	461	72	28	63	26	0	22	15	574	258	691	91	3	8186
15 = NE Eastex	482	29	33	148	187	50	72	132	146	50	105	86	46	95	690	204	29	30	22	0	9	0	90	272	423	136	0	3575
16 = East I-10	700	14	11	190	272	55	85	178	84	80	67	47	12	61	249	1097	25	14	32	0	4	0	32	188	384	93	19	4005
17 = SH225 Gulf	492	8	48	310	65	434	81	195	119	119	27	0	14	18	28	22	2811	224	129	16	15	0	0	66	52	596	229	6129
18 = S288 35	514	87	65	776	67	85	145	377	39	207	36	16	30	23	120	45	539	1979	154	0	13	7	31	78	94	1380	108	7030
19 = SW US59	591	261	126	1092	26	1	167	1096	78	2515	208	67	16	45	43	23	57	417	2590	0	134	14	28	135	59	706	0	10507
21 = Bay Area	18	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	4	13	0	0	0	0	0	3	0	49
22 = Westchase	356	333	133	140	8	2	110	221	20	1303	336	33	0	26	22	36	22	30	61	0	326	1	14	45	2	216	5	3812
23 = Energy	118	23	0	39	0	1	4	3	8	69	117	14	7	11	0	0	0	0	3	0	5	16	0	0	0	24	0	471
24 = Greenspoint	449	11	13	118	6	0	65	133	19	43	51	18	198	507	765	22	19	0	17	0	7	0	571	40	259	9	0	3351
25 = N Cor Out 610	1726	35	8	479	70	82	368	551	374	56	185	36	53	160	257	157	56	36	26	23	11	0	27	1331	1107	224	2	7454
26 = N Cor In 610	825	11	19	347	141	32	260	223	204	113	141	94	200	318	409	154	5	35	43	0	8	2	176	947	1132	261	0	6109
27 = SE Cor In 610	2317	172	87	1236	140	539	494	1018	137	487	80	7	39	24	151	84	333	726	312	0	10	2	52	264	220	3171	60	12174
28 = SE Cor Out 610	160	0	12	86	4	38	33	61	30	22	9	15	8	2	6	9	327	192	28	0	2	0	0	45	19	193	44	1354
Total	20646	4289	1999	15525	1850	2717	4864	13522	3522	22133	6929	1777	3050	5391	4344	2606	5185	4551	6525	126	2906	570	2107	5383	7029	10863	544	160966

FIGURE 96: ANALYSIS ZONES (WALK -SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: Walk (PA format)

Year 2017 Average Weekday Transit Trips, Walk Access: Linked Trips (Survey Records)*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	166	6	2	73	6	15	24	82	7	20	12	2	5	9	15	5	13	10	7	3	3	1	5	17	38	50	0	596
2 = Uptown	14	10	3	13	0	0	0	11	3	19	6	0	0	0	1	0	0	0	2	0	7	1	0	0	1	0	0	91
3 = Greenway	7	2	3	17	0	0	2	11	0	9	2	0	0	2	0	0	0	0	2	0	3	0	0	0	0	3	0	63
4 = TMC	78	1	2	113	0	3	19	66	2	16	0	0	3	2	4	4	7	9	10	0	1	3	0	3	12	40	1	399
5 = NE Inside 610	68	4	4	46	48	20	15	38	9	17	14	4	4	10	38	35	13	5	7	0	2	2	7	31	40	22	2	505
6 = SE Inside 610	79	6	2	37	13	76	22	34	11	19	8	2	4	3	8	3	47	9	2	0	2	2	1	16	9	74	5	494
7 = S Inside 610	48	2	1	37	0	2	16	27	6	14	8	0	2	4	5	4	5	8	6	0	0	0	2	9	25	15	1	247
8 = SW Inside 610	189	43	29	226	6	4	29	160	30	69	16	4	4	12	16	4	9	12	28	2	13	4	8	34	34	73	1	1059
9 = WNW Inside 610	41	5	2	34	2	3	5	30	32	10	19	1	8	19	1	1	3	1	2	0	0	0	1	17	10	12	2	261
10 = West SW	201	113	45	206	6	8	58	235	38	948	166	17	18	9	19	20	20	36	195	4	115	36	11	39	34	79	4	2680
11 = West Katy	61	23	6	24	0	8	8	30	36	58	175	23	17	13	7	8	4	2	15	0	15	11	6	21	15	15	0	601
12 = NW 290	23	2	1	11	0	3	5	9	7	19	44	27	18	4	5	2	1	0	13	0	0	2	0	4	25	7	0	232
13 = NNW 249	50	9	0	37	5	4	13	17	21	28	35	35	90	60	23	9	3	7	11	0	4	5	15	16	34	17	0	548
14 = North Hardy	77	3	4	48	6	3	16	59	35	27	46	17	82	233	61	13	7	11	8	0	5	3	41	36	55	22	1	919
15 = NE Eastex	55	4	5	33	14	7	13	28	23	8	20	12	9	20	92	17	8	8	5	0	1	0	12	31	32	22	0	479
16 = East I-10	76	2	2	39	33	5	12	32	16	18	14	8	3	9	28	173	5	4	7	0	1	0	6	20	41	15	4	573
17 = SH225 Gulf	63	2	4	49	15	47	15	32	12	26	8	0	4	3	6	7	458	21	21	1	4	0	0	15	12	69	22	916
18 = S288 35	79	12	7	89	9	10	18	51	11	36	10	5	9	8	18	7	50	208	24	0	3	2	5	16	14	121	8	830
19 = SW US59	96	39	17	134	4	1	18	115	11	245	33	10	7	7	10	3	13	58	241	0	23	3	8	24	18	69	0	1207
21 = Bay Area	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	6
22 = Westchase	30	19	9	18	1	1	7	31	3	91	26	4	1	4	4	5	3	4	10	0	19	1	3	5	1	24	1	325
23 = Energy	12	2	0	6	0	1	2	1	1	12	17	3	2	2	0	0	0	0	1	0	2	2	0	0	0	4	0	70
24 = Greenspoint	44	2	1	18	1	0	7	22	5	8	7	4	14	37	61	4	4	0	3	0	2	0	31	7	19	2	0	303
25 = N Cor Out 610	156	7	2	78	4	10	34	61	39	15	24	8	12	22	25	16	10	8	6	2	2	0	4	110	101	39	1	796
26 = N Cor In 610	102	2	3	52	10	5	31	37	25	22	19	11	16	36	36	13	2	11	8	0	2	2	16	87	87	35	0	670
27 = SE Cor In 610	258	21	10	152	20	73	49	105	18	71	19	3	11	9	22	14	41	81	31	0	2	1	4	40	33	340	5	1433
28 = SE Cor Out 610	24	0	1	12	1	7	4	8	4	6	4	2	1	1	1	2	31	16	4	0	1	0	0	8	3	25	4	170
Total	2099	341	165	1602	204	316	443	1332	405	1831	752	202	344	538	506	369	757	529	670	13	232	81	186	606	693	1195	62	16473

FIGURE 97: ANALYSIS ZONES (BIKE-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: Bike (PA format)

Year 2017 Average Weekday Transit Trips, Bike Access: Linked Trips (Weighted Trips)*

** Bike Access include Personal Bike and Bike share*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	5	0	0	0	0	0	19	5	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	13	12	0	63
2 = Uptown	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
3 = Greenway	40	0	0	68	0	0	11	90	9	3	0	0	0	0	0	0	0	25	0	0	23	0	0	0	0	0	0	272
4 = TMC	0	0	0	5	11	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
5 = NE Inside 610	32	0	0	8	0	3	15	4	15	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	11	0	97
6 = SE Inside 610	43	0	0	21	3	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	114
7 = S Inside 610	89	24	0	73	0	0	2	84	0	0	3	0	0	0	0	0	5	26	4	0	0	0	0	0	15	18	0	349
8 = SW Inside 610	40	0	0	5	0	0	9	24	12	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	97
9 = WNW Inside 610	7	38	57	44	6	2	0	16	0	154	0	1	0	0	0	0	0	7	41	0	0	0	0	0	0	2	0	381
10 = West SW	0	0	0	0	16	0	0	0	40	0	25	0	0	0	0	0	0	0	2	0	0	8	0	0	0	7	0	101
11 = West Katy	10	0	0	0	0	0	0	0	0	5	0	13	0	0	0	8	0	0	0	0	0	0	0	8	1	0	0	47
12 = NW 290	7	0	0	2	0	0	0	15	10	6	0	0	18	15	0	6	0	0	0	0	0	0	0	4	13	0	0	101
13 = NNW 249	12	0	0	0	7	1	0	0	8	0	0	6	37	5	0	0	0	1	0	0	0	0	9	0	8	0	0	99
14 = North Hardy	35	0	0	0	0	0	0	0	0	0	6	0	0	0	7	0	0	0	0	0	0	0	0	0	0	2	0	51
15 = NE Eastex	0	0	0	1	5	8	16	28	0	0	2	0	0	0	0	11	0	0	1	0	0	0	0	4	0	0	0	81
16 = East I-10	13	0	0	0	0	3	0	19	2	7	0	0	0	0	0	0	26	1	0	0	0	0	0	0	0	7	0	82
17 = SH225 Gulf	27	0	0	28	0	0	16	0	3	3	0	0	0	0	0	0	5	19	0	0	0	0	0	0	0	47	0	153
18 = S288 35	9	3	0	9	0	0	0	17	0	21	4	15	6	0	0	0	0	8	28	0	0	3	0	0	2	10	0	142
19 = SW US59	0	0	0	49	0	0	0	26	17	0	1	0	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	122
21 = Bay Area	17	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
22 = Westchase	21	0	0	0	0	0	0	0	0	0	0	0	6	17	0	0	0	1	0	0	0	0	0	0	36	0	0	83
23 = Energy	179	0	0	22	0	7	28	23	0	17	8	0	6	13	5	0	0	0	0	0	0	0	0	71	82	5	0	472
24 = Greenspoint	66	0	0	0	5	0	14	0	0	0	13	0	0	11	0	8	0	0	0	0	10	0	6	81	23	0	0	240
25 = N Cor Out 610	114	0	0	52	0	15	13	20	11	1	31	0	0	0	0	3	0	0	0	0	20	0	2	9	36	77	0	410
26 = N Cor In 610	7	0	0	0	94	0	0	4	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
27 = SE Cor In 610	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 = SE Cor Out 610	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	782	66	57	392	150	42	147	383	173	236	96	36	75	75	13	39	38	99	106	0	53	13	18	180	234	224	0	3739

FIGURE 98: ANALYSIS ZONES (BIKE -SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: Bike (PA format)

Year 2017 Average Weekday Transit Trips, Bike Access: Linked Trips (Survey Records)*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	6
2 = Uptown	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3 = Greenway	3	0	0	4	0	0	1	3	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	15
4 = TMC	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5 = NE Inside 610	6	0	0	2	0	1	1	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	3	0	18
6 = SE Inside 610	2	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
7 = S Inside 610	6	2	0	5	0	0	1	7	0	0	1	0	0	0	0	0	1	1	1	0	0	1	0	0	1	1	0	28
8 = SW Inside 610	3	0	0	2	0	0	1	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	11
9 = WNW Inside 610	1	2	4	3	1	1	0	3	0	10	0	1	0	0	0	0	0	1	4	0	0	1	0	0	0	1	0	33
10 = West SW	1	0	0	0	1	0	0	0	1	0	4	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	10
11 = West Katy	1	0	0	0	0	0	0	0	0	1	1	2	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	8
12 = NW 290	1	0	0	1	0	0	0	2	1	1	0	0	1	2	0	1	0	0	0	0	0	0	0	1	1	0	0	12
13 = NNW 249	2	0	0	0	1	1	0	0	1	0	0	1	2	3	0	1	0	1	0	0	0	0	2	0	1	0	0	16
14 = North Hardy	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	4
15 = NE Eastex	0	0	0	1	1	1	1	2	0	0	1	0	0	0	0	4	1	0	1	0	0	0	0	1	0	0	0	14
16 = East I-10	2	0	0	0	0	1	0	2	1	1	0	0	0	0	0	0	9	1	0	0	0	0	0	0	0	1	0	18
17 = SH225 Gulf	1	0	0	2	0	0	2	0	1	1	0	0	0	0	0	1	1	7	0	0	0	0	0	0	0	3	0	19
18 = S288 35	2	2	0	1	0	0	0	2	0	3	2	1	1	0	0	0	0	2	6	0	0	1	0	0	1	1	0	25
19 = SW US59	0	0	0	1	0	0	0	1	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6
21 = Bay Area	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
22 = Westchase	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	2	0	0	7
23 = Energy	16	0	0	2	0	1	3	2	0	4	1	0	1	1	1	0	0	0	0	0	0	0	0	6	6	1	0	45
24 = Greenspoint	6	0	0	0	1	0	3	0	0	0	1	0	0	2	0	1	0	0	0	0	1	0	1	5	2	0	0	23
25 = N Cor Out 610	13	0	0	3	0	2	1	3	1	1	3	0	0	0	0	1	0	0	0	0	1	0	1	1	4	12	0	47
26 = N Cor In 610	2	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
27 = SE Cor In 610	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 = SE Cor Out 610	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	73	6	4	29	8	8	15	32	14	26	16	5	6	11	2	10	13	16	14	0	3	4	4	15	21	27	0	382

FIGURE 99: ANALYSIS ZONES (KNR-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: KNR (PA format)

Year 2017 Average Weekday Transit Trips, Kiss-Ride Access: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	34	0	0	8	0	0	0	52	0	3	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	30	0	155
2 = Uptown	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	24
3 = Greenway	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
4 = TMC	17	0	0	17	0	0	0	41	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	8	0	104
5 = NE Inside 610	28	6	0	32	53	26	0	19	4	0	3	0	0	0	2	44	0	0	14	0	0	0	4	0	0	4	0	245
6 = SE Inside 610	96	0	0	9	10	35	0	13	10	4	8	0	0	0	0	0	24	7	15	0	0	0	0	2	0	64	8	312
7 = S Inside 610	20	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	10	0	15	0	0	0	0	0	0	0	0	51
8 = SW Inside 610	38	0	45	129	0	7	78	31	0	43	9	0	0	0	0	0	0	0	18	0	8	0	0	3	0	10	0	425
9 = WNW Inside 610	0	0	0	4	0	0	0	0	11	3	9	0	0	2	0	0	0	0	0	0	0	0	0	0	9	21	0	62
10 = West SW	564	53	9	275	0	4	63	181	26	202	14	1	16	0	21	0	7	0	48	2	89	0	0	7	5	109	0	1704
11 = West Katy	293	26	0	166	0	0	17	48	8	28	103	0	18	29	3	7	7	0	1	0	13	15	0	27	10	47	0	873
12 = NW 290	262	11	26	69	0	17	5	40	0	13	10	0	28	14	0	0	0	0	9	0	1	0	0	13	0	25	0	550
13 = NNW 249	254	3	0	74	0	0	22	17	2	4	10	19	56	2	24	4	0	0	7	0	15	0	6	9	73	26	0	634
14 = North Hardy	462	17	154	174	0	0	16	44	54	24	40	4	66	87	21	0	6	5	7	0	6	2	0	9	3	78	23	1312
15 = NE Eastex	219	18	0	105	0	0	0	59	13	22	21	0	32	8	15	34	9	7	0	0	0	0	10	38	38	58	0	714
16 = East I-10	108	20	0	50	0	4	15	66	13	2	13	0	3	8	11	34	1	5	1	0	2	0	8	49	8	14	0	444
17 = SH225 Gulf	246	4	8	132	0	10	10	62	17	20	14	12	13	3	0	14	97	0	4	0	0	0	8	20	0	63	0	765
18 = S288 35	73	0	0	85	8	0	58	122	0	50	2	2	0	0	0	12	19	37	3	0	0	0	7	4	8	12	0	509
19 = SW US59	705	4	6	265	7	0	16	199	0	182	57	11	2	7	3	0	36	36	102	0	32	0	1	12	9	135	0	1836
21 = Bay Area	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	1	0	3	0	0	0	30
22 = Westchase	18	0	0	5	0	0	0	8	6	51	13	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	109
23 = Energy	8	0	0	7	0	0	0	37	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	29	0	96
24 = Greenspoint	51	0	0	17	0	0	11	14	0	6	0	0	0	31	32	0	0	3	0	0	0	0	11	0	2	0	0	183
25 = N Cor Out 610	85	0	0	25	0	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	26	14	0	202
26 = N Cor In 610	267	11	18	71	0	11	7	20	18	17	0	3	0	0	0	0	0	0	0	0	0	0	10	73	1	39	0	573
27 = SE Cor In 610	134	0	5	82	3	11	7	33	9	2	28	7	6	0	11	17	0	18	14	0	0	0	24	8	0	30	0	458
28 = SE Cor Out 610	60	0	0	0	0	0	0	0	0	0	2	0	46	0	0	8	0	0	0	0	0	0	0	0	0	7	0	126
Total	4089	177	275	1812	82	130	355	1122	196	704	369	62	290	196	173	177	224	122	269	2	170	19	93	339	197	840	32	12529

FIGURE 100: ANALYSIS ZONES (KNR-SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: KNR (PA format)

Year 2017 Average Weekday Transit Trips, Kiss-Ride Access: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	2	0	0	1	0	0	0	3	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	11
2 = Uptown	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
3 = Greenway	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4 = TMC	2	0	0	1	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	9
5 = NE Inside 610	2	1	0	4	2	3	0	4	1	0	1	0	0	0	1	6	0	0	1	0	0	0	1	0	0	1	0	28
6 = SE Inside 610	9	0	0	1	1	2	0	2	1	1	2	0	0	0	0	0	2	1	1	0	0	0	0	1	0	4	1	29
7 = S Inside 610	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	5
8 = SW Inside 610	4	0	1	8	0	1	5	3	0	3	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	4	0	33
9 = WNW Inside 610	0	0	0	2	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3	0	10
10 = West SW	30	5	1	20	0	1	5	14	2	11	2	1	2	0	2	0	3	0	6	1	4	0	0	2	1	7	0	120
11 = West Katy	22	3	0	16	0	0	2	5	1	3	8	0	2	2	1	1	1	0	1	0	1	1	0	3	1	11	0	85
12 = NW 290	23	2	4	10	0	3	1	7	0	3	2	0	2	2	0	0	0	0	2	0	1	0	0	3	0	5	0	70
13 = NNW 249	21	1	0	11	0	0	2	3	1	1	2	2	6	1	3	1	0	0	2	0	1	0	1	1	7	6	0	73
14 = North Hardy	42	3	2	23	0	0	3	7	4	6	5	1	5	8	2	0	1	2	2	0	1	1	0	3	1	14	2	138
15 = NE Eastex	35	2	0	17	0	0	0	12	1	2	4	0	3	1	2	3	2	2	0	0	0	0	1	4	2	11	0	104
16 = East I-10	14	3	0	8	0	1	1	8	3	1	2	0	1	1	2	7	1	1	1	0	1	0	2	4	1	5	0	68
17 = SH225 Gulf	22	1	1	15	0	2	2	8	4	6	3	2	2	1	0	2	18	0	1	0	0	0	2	3	0	8	0	103
18 = S288 35	9	0	0	5	1	0	4	13	0	8	1	1	0	0	0	1	3	6	1	0	0	0	1	1	2	3	0	60
19 = SW US59	42	2	1	28	1	0	3	16	0	18	9	3	1	2	1	0	2	2	14	0	3	0	1	3	3	12	0	167
21 = Bay Area	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	4
22 = Westchase	2	0	0	1	0	0	0	1	1	3	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	12
23 = Energy	1	0	0	1	0	0	0	3	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	12
24 = Greenspoint	5	0	0	3	0	0	1	2	0	1	0	0	0	1	5	0	0	1	0	0	0	0	1	0	1	0	0	21
25 = N Cor Out 610	8	0	0	4	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	0	20
26 = N Cor In 610	22	1	1	12	0	1	1	4	1	2	0	1	0	0	0	0	0	0	0	0	0	0	1	7	1	8	0	63
27 = SE Cor In 610	15	0	1	6	1	2	1	4	1	1	2	1	1	0	1	1	0	2	1	0	0	0	3	1	0	8	0	53
28 = SE Cor Out 610	7	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	12
Total	344	24	12	197	6	16	33	122	22	75	50	12	26	20	22	23	35	17	37	1	13	3	14	43	23	121	3	1314

FIGURE 101: ANALYSIS ZONES (PNR-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: PNR (PA format)

Year 2017 Average Weekday Transit Trips, Park-Ride Access: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
2 = Uptown	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
3 = Greenway	0	0	0	90	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	101
4 = TMC	35	0	0	150	0	0	0	6	0	10	5	0	0	0	0	0	0	0	19	0	0	0	0	0	0	28	0	257
5 = NE Inside 610	65	0	0	55	0	0	8	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	136
6 = SE Inside 610	73	0	0	92	0	27	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	17	0	19	0	233
7 = S Inside 610	26	0	26	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65
8 = SW Inside 610	277	0	0	780	0	0	0	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	12	0	1200
9 = WNW Inside 610	60	18	0	129	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	234
10 = West SW	2674	0	0	1077	0	0	22	331	0	15	0	0	0	0	0	0	4	0	25	0	12	0	0	22	0	62	0	4247
11 = West Katy	2585	0	6	912	8	11	29	80	20	0	10	0	0	0	3	1	3	10	0	5	0	0	5	113	0	170	0	3979
12 = NW 290	3103	36	5	505	0	0	28	124	15	4	29	0	50	0	3	0	0	0	0	0	0	0	0	39	0	154	0	4099
13 = NNW 249	2413	42	92	481	0	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0	62	0	3181
14 = North Hardy	3548	41	241	1003	0	0	97	120	0	0	0	0	0	18	6	0	0	11	0	0	0	0	0	35	0	118	0	5243
15 = NE Eastex	2177	6	2	437	0	0	0	84	4	8	7	0	0	0	0	0	0	0	0	0	6	0	0	49	0	94	0	2881
16 = East I-10	434	0	3	351	3	0	2	29	0	11	8	0	0	0	0	5	0	4	0	0	0	0	0	7	0	8	0	872
17 = SH225 Gulf	2186	17	13	1874	0	0	16	83	7	6	23	21	0	0	3	0	116	0	0	0	0	0	2	25	0	96	0	4493
18 = S288 35	479	12	0	1445	0	0	10	105	0	1	2	0	0	0	0	0	5	2	0	0	0	0	0	8	0	30	23	2127
19 = SW US59	5370	179	219	2965	5	0	45	334	4	34	1	3	0	0	2	0	5	18	68	0	0	0	5	44	0	132	0	9441
21 = Bay Area	148	0	0	44	0	0	0	0	0	0	0	0	0	0	5	0	11	0	0	0	0	0	0	0	0	5	0	216
22 = Westchase	282	0	0	178	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	484
23 = Energy	217	0	8	62	0	0	0	6	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	316
24 = Greenspoint	98	0	0	104	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	224
25 = N Cor Out 610	190	0	0	79	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	285
26 = N Cor In 610	336	0	0	121	0	0	6	58	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	9	0	550
27 = SE Cor In 610	191	0	0	139	0	0	5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	23	0	361
28 = SE Cor Out 610	96	0	0	110	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	249
Total	27095	354	619	13217	16	39	275	1636	52	100	118	25	52	18	25	13	146	51	112	6	18	10	13	421	12	1051	23	45531

FIGURE 102: ANALYSIS ZONES (PNR-SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: PNR (PA format)

Year 2017 Average Weekday Transit Trips, Park-Ride Access: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2 = Uptown	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3 = Greenway	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
4 = TMC	4	0	0	8	0	0	0	1	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	18
5 = NE Inside 610	5	0	0	4	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	11
6 = SE Inside 610	12	0	0	7	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	1	0	24
7 = S Inside 610	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8 = SW Inside 610	17	0	0	39	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	64
9 = WNW Inside 610	4	1	0	8	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	15
10 = West SW	129	0	0	82	0	0	2	10	0	1	0	0	0	0	0	0	1	0	3	0	1	0	0	5	0	9	0	243
11 = West Katy	202	0	2	101	1	1	1	9	2	0	3	0	0	0	1	1	1	2	0	1	0	0	1	11	0	28	0	368
12 = NW 290	316	4	1	75	0	0	2	16	2	2	4	0	2	0	1	0	0	0	0	0	0	0	0	7	0	32	0	464
13 = NNW 249	273	7	15	52	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	16	0	375
14 = North Hardy	356	9	31	103	0	0	5	17	0	0	0	0	0	2	2	0	0	2	0	0	0	0	0	7	0	17	0	551
15 = NE Eastex	220	1	1	47	0	0	0	11	1	3	2	0	0	0	0	0	0	0	0	0	1	0	0	7	0	16	0	310
16 = East I-10	54	0	1	32	1	0	1	6	0	2	2	0	0	0	0	1	0	1	0	0	0	0	0	1	0	2	0	104
17 = SH225 Gulf	259	2	3	155	0	0	2	11	1	1	3	2	0	0	1	0	20	0	0	0	0	0	1	3	0	13	0	477
18 = S288 35	61	1	0	79	0	0	1	7	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	3	0	4	2	162
19 = SW US59	447	28	27	260	1	0	5	24	1	5	1	1	0	0	1	0	1	2	4	1	0	0	1	6	0	23	0	839
21 = Bay Area	13	0	0	6	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	1	0	23
22 = Westchase	10	0	0	9	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
23 = Energy	15	0	1	7	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	26
24 = Greenspoint	8	0	0	10	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
25 = N Cor Out 610	17	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	26
26 = N Cor In 610	27	0	0	20	0	0	1	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	57
27 = SE Cor In 610	18	0	0	10	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	35
28 = SE Cor Out 610	10	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	20
Total	2481	53	83	1133	3	2	22	141	7	17	19	3	3	2	7	3	26	9	9	2	2	1	3	57	1	174	2	4265

FIGURE 103: ANALYSIS ZONES (0 VEHICLES-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: O Veh (PA format)

Year 2017 Average Weekday Transit Trips, Trips from 0 car Householdss: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	504	0	0	241	46	98	226	391	27	90	27	0	20	84	58	0	25	67	30	0	10	2	21	98	245	155	0	2476
2 = Uptown	16	2	7	35	0	0	0	79	4	112	39	0	0	0	0	0	0	0	5	0	3	4	0	0	0	0	0	311
3 = Greenway	10	0	17	6	0	0	9	7	0	109	0	0	0	4	0	0	0	0	6	0	68	0	0	0	0	5	0	247
4 = TMC	239	0	10	446	0	15	86	379	0	64	0	0	0	0	5	13	16	75	102	0	23	11	0	4	34	142	0	1672
5 = NE Inside 610	259	38	13	138	309	37	48	94	36	55	62	12	11	32	233	130	36	27	13	0	7	0	20	165	217	81	4	2090
6 = SE Inside 610	231	5	12	71	63	369	90	102	17	60	4	0	8	27	47	12	179	20	0	0	9	6	0	37	24	245	35	1686
7 = S Inside 610	354	0	4	141	3	7	186	168	59	63	17	0	12	17	7	19	19	31	28	0	0	0	5	46	161	118	1	1478
8 = SW Inside 610	721	388	98	772	36	11	226	598	143	283	54	24	0	40	43	30	35	29	56	0	21	14	23	127	119	271	0	4173
9 = WNW Inside 610	51	7	0	44	9	0	25	98	107	8	124	0	30	62	1	0	29	1	6	0	0	0	0	80	31	46	9	776
10 = West SW	665	749	317	501	41	10	378	1159	90	5464	710	41	37	41	38	15	42	99	709	11	716	88	26	108	93	161	0	12318
11 = West Katy	150	67	9	57	16	15	33	58	197	148	1110	168	38	57	23	20	2	1	37	0	31	69	17	104	154	47	0	2637
12 = NW 290	84	6	0	9	0	10	19	31	29	72	124	201	118	44	26	6	4	0	42	0	0	0	0	2	124	29	0	988
13 = NNW 249	122	44	0	143	23	12	41	43	62	48	178	155	401	220	171	37	3	11	40	0	8	10	87	45	192	48	0	2155
14 = North Hardy	251	23	17	147	15	9	107	168	202	61	125	81	428	1177	187	33	23	42	8	0	6	15	264	128	208	37	20	3793
15 = NE Eastex	259	10	0	113	124	33	54	47	95	42	76	53	14	31	261	21	6	24	5	0	0	0	38	80	257	66	0	1721
16 = East I-10	234	8	0	92	111	24	76	131	53	39	39	25	8	30	155	728	23	9	4	0	0	0	17	104	191	62	15	2192
17 = SH225 Gulf	332	4	13	102	5	123	30	100	101	78	7	9	17	5	14	5	1409	65	47	0	0	0	4	19	5	204	117	2827
18 = S288 35	233	43	49	310	63	28	61	181	24	72	21	2	12	13	72	57	290	987	55	0	7	0	30	18	51	608	73	3373
19 = SW US59	368	95	43	320	2	1	89	501	49	1013	58	40	9	18	32	2	60	201	923	0	70	4	21	40	31	277	0	4279
21 = Bay Area	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	8	0	24
22 = Westchase	115	156	59	87	8	0	59	114	6	673	138	30	0	7	18	13	19	26	26	0	114	1	14	0	2	78	5	1778
23 = Energy	12	0	0	9	0	0	3	0	0	21	12	11	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	81
24 = Greenspoint	223	5	13	28	6	0	66	89	7	32	36	13	32	244	277	3	16	4	4	0	2	0	280	24	182	9	0	1606
25 = N Cor Out 610	631	31	0	205	38	41	171	257	190	35	82	21	29	58	76	51	25	15	15	0	0	0	6	770	738	134	2	3633
26 = N Cor In 610	321	3	4	195	56	25	196	120	117	67	78	41	86	176	219	97	5	19	22	0	1	1	109	555	559	111	0	3196
27 = SE Cor In 610	1066	88	22	446	54	272	304	352	107	242	55	5	19	18	50	40	105	276	106	0	20	2	68	145	118	1408	10	5409
28 = SE Cor Out 610	80	0	0	6	98	10	31	10	15	18	11	15	0	2	6	4	142	86	10	0	0	0	0	18	4	119	35	730
Total	7545	1781	716	4678	1136	1161	2635	5290	1745	8983	3197	956	1345	2420	2031	1346	2524	2128	2309	11	1124	236	1058	2732	3750	4481	331	67661

FIGURE 104: ANALYSIS ZONES (0 VEHICLES -SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: O Veh (PA format)

Year 2017 Average Weekday Transit Trips, Trips from 0 car Householdss: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	40	0	0	20	4	11	11	30	2	8	7	0	2	6	9	0	4	8	7	0	1	1	2	11	21	18	0	223
2 = Uptown	1	1	1	3	0	0	0	7	1	4	3	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	24
3 = Greenway	1	0	2	1	0	0	1	1	0	6	0	0	0	1	0	0	0	0	1	0	2	0	0	0	0	1	0	17
4 = TMC	23	0	2	23	0	2	5	26	0	10	0	0	0	1	2	3	3	6	4	0	1	3	0	1	6	16	0	137
5 = NE Inside 610	25	5	2	19	24	6	7	21	6	10	12	3	3	7	21	18	10	3	2	0	1	0	4	22	22	10	2	265
6 = SE Inside 610	32	2	1	15	10	30	12	17	4	9	3	0	3	2	3	2	17	4	0	0	1	2	0	8	4	30	4	215
7 = S Inside 610	18	0	1	14	1	1	9	15	6	6	4	0	1	2	2	2	3	4	3	0	0	0	1	4	17	12	1	127
8 = SW Inside 610	47	22	4	55	4	2	16	44	16	25	7	4	0	6	6	3	5	2	8	0	3	3	4	18	17	35	1	357
9 = WNW Inside 610	10	2	0	8	2	0	3	8	12	3	8	0	5	9	1	0	1	1	1	0	0	0	0	8	3	5	2	92
10 = West SW	78	47	23	56	4	2	26	108	14	368	68	6	8	7	9	5	12	16	75	2	53	14	5	18	22	20	0	1066
11 = West Katy	24	9	2	12	1	4	4	10	16	17	89	15	5	7	5	4	1	1	7	0	6	6	3	9	10	9	0	276
12 = NW 290	13	1	0	2	0	3	2	7	3	10	17	17	14	4	3	1	1	0	10	0	0	0	0	1	15	5	0	129
13 = NNW 249	14	3	0	19	3	3	8	5	8	17	13	13	36	24	19	6	2	4	9	0	2	2	7	7	21	9	0	254
14 = North Hardy	36	3	3	27	4	3	15	29	22	12	22	8	39	99	25	7	5	6	2	0	1	3	22	18	24	9	2	446
15 = NE Eastex	32	2	0	20	9	5	11	13	16	5	15	7	4	9	44	4	2	6	2	0	0	0	5	13	22	11	0	257
16 = East I-10	27	1	0	20	17	3	9	21	10	10	7	5	2	4	19	109	4	2	2	0	0	0	4	11	23	12	3	325
17 = SH225 Gulf	36	1	2	17	2	17	6	14	8	18	4	1	4	2	3	2	247	9	11	0	0	0	1	5	2	31	9	452
18 = S288 35	32	6	3	40	7	5	8	25	7	14	6	1	3	5	11	8	25	112	8	0	2	0	5	5	8	52	4	402
19 = SW US59	49	17	6	41	1	1	8	52	6	100	9	5	4	3	7	1	7	25	90	0	10	1	6	9	10	25	0	493
21 = Bay Area	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	5
22 = Westchase	11	8	4	6	1	0	4	15	1	44	12	3	1	2	3	2	2	3	5	0	8	1	3	0	1	7	1	148
23 = Energy	1	0	0	2	0	0	1	0	0	5	4	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	18
24 = Greenspoint	19	1	1	6	1	0	7	14	2	6	5	3	4	17	24	1	3	2	1	0	1	0	18	5	12	2	0	155
25 = N Cor Out 610	57	6	0	35	2	5	18	31	18	9	12	5	5	10	9	6	5	4	3	0	0	0	1	62	68	23	1	395
26 = N Cor In 610	37	1	1	26	5	2	22	16	16	15	11	6	9	19	16	7	2	7	4	0	1	1	9	49	40	16	0	338
27 = SE Cor In 610	105	13	4	54	10	39	31	42	13	37	9	2	5	6	8	6	14	35	18	0	1	1	6	19	20	154	1	653
28 = SE Cor Out 610	15	0	0	2	2	2	3	2	2	4	5	2	0	1	1	1	12	6	2	0	0	0	0	5	1	17	3	88
Total	783	151	62	543	114	146	248	573	209	772	352	108	159	254	250	198	387	266	276	2	95	40	106	309	389	531	34	7357

FIGURE 105: ANALYSIS ZONES (1 VEHICLES-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: 1 Veh (PA format)

Year 2017 Average Weekday Transit Trips, Trips from 1 car Householdss: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	683	0	0	273	6	62	164	487	14	68	16	3	9	17	15	58	39	8	0	0	6	0	24	31	100	240	0	2331
2 = Uptown	119	40	21	51	0	0	0	16	12	227	27	0	0	0	0	0	0	0	0	0	23	0	0	0	0	7	0	548
3 = Greenway	47	8	0	151	0	0	27	33	0	55	10	0	0	4	0	0	0	0	0	0	20	0	0	0	0	50	0	410
4 = TMC	195	10	0	1165	0	3	185	363	18	57	5	0	12	0	16	2	17	54	33	0	0	0	0	3	14	188	1	2352
5 = NE Inside 610	247	0	17	145	211	64	33	55	23	40	20	3	10	12	155	112	19	0	40	0	6	0	4	56	59	33	0	1374
6 = SE Inside 610	244	16	7	77	22	252	35	37	20	48	1	18	0	2	5	8	166	0	22	0	0	0	6	37	16	166	8	1223
7 = S Inside 610	371	4	0	91	0	0	31	59	7	21	22	0	0	10	7	0	10	5	14	0	0	0	11	7	51	41	0	768
8 = SW Inside 610	1353	217	343	1663	3	11	231	1004	74	392	36	0	8	34	18	0	17	41	127	0	94	0	21	86	112	208	0	6101
9 = WNW Inside 610	274	8	0	165	0	11	9	125	226	17	69	0	0	80	0	2	16	0	2	0	0	0	0	54	9	35	0	1109
10 = West SW	2401	706	273	1423	5	14	202	1358	177	5920	611	51	72	0	42	47	39	131	1193	0	561	118	24	139	43	389	13	15964
11 = West Katy	820	90	19	344	0	14	28	88	109	235	645	36	115	35	2	18	13	5	69	0	70	7	9	70	45	40	0	2938
12 = NW 290	485	9	9	176	0	13	29	33	21	62	203	144	38	5	3	8	0	0	9	0	1	0	0	29	107	24	0	1416
13 = NNW 249	633	53	0	155	3	4	32	58	91	37	217	193	356	265	36	7	0	2	3	0	4	9	109	58	171	30	0	2538
14 = North Hardy	1020	18	181	477	8	7	32	171	127	56	111	32	382	816	164	35	0	26	5	0	12	2	187	75	250	106	0	4312
15 = NE Eastex	511	31	19	248	37	16	6	116	45	21	28	26	46	67	258	134	19	4	16	0	9	0	32	124	147	128	0	2102
16 = East I-10	436	8	11	224	153	34	28	104	34	28	48	4	6	39	56	250	0	15	20	0	6	0	13	83	96	33	0	1738
17 = SH225 Gulf	646	16	24	724	34	158	32	130	26	35	38	3	1	0	13	18	981	110	35	0	15	0	0	19	19	217	87	3391
18 = S288 35	362	22	7	868	6	13	68	268	13	101	15	2	7	5	38	0	203	602	66	0	6	2	7	50	21	397	52	3215
19 = SW US59	1063	85	75	1533	15	0	47	546	22	1139	106	25	8	30	12	21	18	156	1154	0	75	5	14	84	25	247	0	6513
21 = Bay Area	99	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	11	0	4	0	0	0	0	0	0	0	0	123
22 = Westchase	188	122	74	170	0	2	43	91	38	505	123	2	0	8	4	8	0	4	30	0	190	0	0	21	0	78	0	1710
23 = Energy	95	14	0	49	0	0	1	19	0	43	91	0	0	0	0	0	0	0	0	0	1	7	0	0	0	38	0	363
24 = Greenspoint	259	6	0	81	0	0	0	35	11	16	15	4	122	275	402	18	2	0	13	0	4	0	188	8	56	0	0	1523
25 = N Cor Out 610	651	3	5	197	32	10	155	123	80	31	77	12	20	44	91	44	26	0	4	23	11	0	9	378	228	25	0	2292
26 = N Cor In 610	543	18	18	166	65	9	49	111	63	36	31	49	44	111	124	23	0	4	20	0	10	0	47	284	368	62	0	2267
27 = SE Cor In 610	882	68	37	596	62	155	81	431	33	185	58	7	26	6	73	28	136	296	155	0	10	0	10	103	55	1068	23	4596
28 = SE Cor Out 610	77	0	12	51	0	16	2	51	0	2	0	0	54	0	0	13	126	89	17	0	2	0	0	2	3	76	0	602
Total	14716	1585	1159	11283	670	878	1560	5924	1293	9392	2634	620	1345	1875	1546	866	1865	1562	3062	23	1147	154	722	1810	2004	3936	187	73830

FIGURE 106: ANALYSIS ZONES (1 VEHICLES -SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: 1 Veh (PA format)

Year 2017 Average Weekday Transit Trips, Trips from 1 car Householdss: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	44	0	0	24	1	1	8	30	3	9	2	1	1	1	1	3	4	2	0	0	2	0	2	3	9	19	0	170
2 = Uptown	9	3	1	5	0	0	0	2	1	13	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	39
3 = Greenway	3	1	0	11	0	0	2	3	0	3	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	0	28
4 = TMC	25	1	0	60	0	1	10	20	2	6	1	0	3	0	2	1	2	3	4	0	0	0	0	1	3	15	1	161
5 = NE Inside 610	25	0	2	23	18	14	5	8	2	6	3	1	1	2	15	14	3	0	4	0	1	0	1	6	8	6	0	168
6 = SE Inside 610	39	3	1	13	2	24	5	8	3	8	1	2	0	1	1	1	19	1	2	0	0	0	1	5	4	23	1	168
7 = S Inside 610	22	1	0	7	0	0	2	4	1	3	3	0	0	1	2	0	1	1	3	0	0	0	1	1	6	3	0	62
8 = SW Inside 610	95	14	17	105	1	2	12	69	9	27	8	0	2	5	7	0	3	5	13	0	7	0	3	8	9	20	0	441
9 = WNW Inside 610	18	2	0	13	0	2	1	14	16	3	7	0	1	8	0	1	1	0	1	0	0	0	0	3	2	6	0	99
10 = West SW	141	48	19	132	2	3	16	94	14	405	73	8	11	0	8	11	7	15	93	0	41	14	3	16	8	35	3	1220
11 = West Katy	74	8	4	43	0	2	3	16	14	29	54	4	11	7	1	5	3	2	9	0	6	1	1	8	2	11	0	318
12 = NW 290	56	2	2	27	0	2	3	4	3	8	22	10	5	1	1	1	0	0	2	0	1	0	0	7	8	7	0	172
13 = NNW 249	72	6	0	28	1	1	5	13	8	9	14	17	35	23	5	1	0	1	2	0	1	2	7	10	14	9	0	284
14 = North Hardy	105	4	5	57	2	1	3	28	10	12	19	8	32	65	23	6	0	6	3	0	3	1	14	14	19	23	0	463
15 = NE Eastex	59	4	3	35	3	2	1	17	5	6	5	4	6	10	29	10	5	2	3	0	1	0	5	13	9	21	0	258
16 = East I-10	50	1	2	31	15	3	4	14	7	6	11	1	2	6	8	45	0	4	4	0	2	0	3	9	10	6	0	244
17 = SH225 Gulf	81	3	2	64	7	20	5	23	7	8	6	1	1	0	3	4	159	11	8	0	4	0	0	6	6	26	9	464
18 = S288 35	47	3	3	59	2	2	7	28	3	19	4	2	3	2	5	0	21	62	11	0	1	1	1	9	5	38	5	343
19 = SW US59	109	16	11	135	2	0	4	50	4	107	18	5	3	5	4	2	4	23	102	0	12	1	3	11	8	32	0	671
21 = Bay Area	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	12
22 = Westchase	16	8	5	17	0	1	2	11	5	38	10	1	0	1	1	2	0	1	5	0	9	0	0	3	0	10	0	146
23 = Energy	9	1	0	5	0	0	1	2	0	7	9	0	0	0	0	0	0	0	0	0	1	1	0	0	0	5	0	41
24 = Greenspoint	27	1	0	12	0	0	0	6	2	2	2	1	7	19	31	3	1	0	2	0	1	0	9	1	4	0	0	131
25 = N Cor Out 610	67	1	1	30	2	2	13	15	9	8	10	2	5	7	11	4	4	0	2	2	2	0	2	33	20	5	0	257
26 = N Cor In 610	55	2	1	27	3	2	7	21	6	6	4	4	4	14	13	4	0	1	4	0	1	1	5	27	29	7	0	248
27 = SE Cor In 610	104	6	3	62	8	24	9	48	3	25	8	1	7	3	10	5	15	28	8	0	2	0	2	17	8	131	2	539
28 = SE Cor Out 610	10	0	1	5	0	3	1	7	0	1	0	0	2	0	0	2	15	9	2	0	1	0	0	1	1	10	0	71
Total	1370	139	83	1031	69	112	129	555	137	774	298	73	142	182	181	125	269	177	288	2	101	22	63	212	192	471	21	7218

FIGURE 107: ANALYSIS ZONES (2+ VEHICLES-WEIGHTED)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: 2+ Veh (PA format)

Year 2017 Average Weekday Transit Trips, Trips from 2+ car Householdss: Linked Trips (Weighted Trips)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	699	36	37	221	7	23	53	323	30	44	13	2	13	8	13	15	15	14	0	0	0	0	0	7	40	118	0	1741
2 = Uptown	46	40	16	40	0	0	0	34	0	3	0	0	0	0	0	0	0	0	1	0	87	0	0	0	14	0	0	283
3 = Greenway	23	16	20	108	0	0	0	161	0	7	23	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	363
4 = TMC	352	0	0	677	0	0	57	326	10	18	0	0	0	11	0	0	3	16	24	0	4	0	0	0	4	66	0	1575
5 = NE Inside 610	219	0	0	89	89	22	32	72	34	14	0	0	0	0	15	118	0	9	17	0	0	11	26	23	88	53	0	939
6 = SE Inside 610	278	21	0	169	11	301	30	58	38	35	33	0	1	15	57	0	122	47	4	0	2	0	0	29	14	252	2	1530
7 = S Inside 610	205	11	26	244	0	0	53	61	0	41	9	0	0	4	0	23	15	30	0	0	0	0	0	18	0	0	0	745
8 = SW Inside 610	936	107	168	1890	14	7	90	843	58	266	19	0	10	7	11	1	4	82	152	5	74	4	12	104	41	240	0	5159
9 = WNW Inside 610	231	21	12	250	0	2	14	83	60	20	47	9	10	46	0	0	8	0	0	0	0	10	6	74	59	40	0	1010
10 = West SW	1995	338	91	1305	6	21	258	607	96	2901	320	22	5	5	29	12	20	46	421	12	431	103	12	56	11	533	1	9671
11 = West Katy	2346	88	7	765	8	11	42	142	76	71	496	33	19	5	3	1	8	6	4	5	86	49	11	162	23	186	0	4665
12 = NW 290	2863	43	25	437	0	5	22	146	17	51	123	38	50	0	8	6	0	0	7	0	0	14	0	47	18	157	0	4086
13 = NNW 249	2333	52	92	470	7	0	22	95	59	17	103	90	296	129	20	19	7	12	2	0	23	3	33	33	78	84	0	4090
14 = North Hardy	3254	38	225	788	5	0	55	164	102	33	37	20	156	862	132	4	9	6	18	0	9	0	132	99	244	144	5	6553
15 = NE Eastex	2073	12	10	317	25	0	0	101	11	16	36	6	10	5	185	82	12	9	0	0	6	0	29	155	35	96	0	3240
16 = East I-10	522	18	3	277	16	9	14	63	9	26	4	17	0	0	38	158	1	0	9	0	0	0	9	64	81	19	4	1371
17 = SH225 Gulf	1881	9	33	1447	25	166	44	125	19	38	18	21	8	16	0	12	575	35	51	16	0	0	5	53	27	313	25	4974
18 = S288 35	487	21	0	1089	4	44	92	139	5	82	5	14	11	3	9	0	76	424	35	0	0	0	0	16	30	462	6	3064
19 = SW US59	5214	268	230	2456	19	0	84	600	11	579	107	31	7	3	5	0	21	103	681	0	19	8	1	62	8	449	0	10976
21 = Bay Area	86	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	13	0	0	0	0	0	0	0	142
22 = Westchase	353	53	0	115	0	0	7	75	0	142	89	0	0	10	0	14	2	0	10	0	21	0	0	24	0	54	0	975
23 = Energy	254	9	8	43	0	0	0	27	8	9	31	3	0	7	0	0	0	0	3	0	3	9	0	9	0	19	0	449
24 = Greenspoint	137	0	0	130	0	0	0	43	1	1	0	0	49	37	100	0	0	0	0	0	0	0	113	7	59	0	0	683
25 = N Cor Out 610	825	0	2	194	0	36	70	195	95	6	33	2	10	71	95	52	5	18	6	0	0	0	0	273	201	78	0	2276
26 = N Cor In 610	601	0	2	145	24	4	42	71	39	27	44	6	69	42	65	40	0	5	0	0	7	0	36	274	230	136	0	1917
27 = SE Cor In 610	754	15	33	431	21	130	117	270	17	47	25	0	2	0	38	36	55	172	65	0	0	0	0	28	79	816	26	3186
28 = SE Cor Out 610	136	0	0	128	0	10	0	29	28	1	0	0	0	0	0	0	58	16	0	0	0	0	0	7	12	23	9	460
Total	29117	1225	1047	14272	288	797	1208	4866	833	4507	1626	322	735	1296	830	601	1030	1057	1521	54	777	214	431	1633	1405	4350	82	76138

FIGURE 108: ANALYSIS ZONES (2+ VEHICLES -SURVEYS)

H-GAC 2017 Regional Transit OnBoard Origin Destination Survey: 2+ Veh (PA format)

Year 2017 Average Weekday Transit Trips, Trips from 2+ car Householdss: Linked Trips (Survey Records)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	Total
1 = CBD	59	1	2	22	1	3	3	19	2	1	3	1	2	2	1	2	2	1	0	0	0	0	0	1	4	13	0	145
2 = Uptown	4	4	1	5	0	0	0	2	0	1	0	0	0	0	0	0	0	0	1	0	3	0	0	0	1	0	0	22
3 = Greenway	2	1	1	10	0	0	0	7	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	24
4 = TMC	32	0	0	37	0	0	3	19	1	2	0	0	0	1	0	0	1	1	4	0	1	0	0	0	1	7	0	110
5 = NE Inside 610	22	0	0	13	9	3	4	12	2	2	0	0	0	0	3	10	0	2	2	0	0	2	3	3	9	7	0	108
6 = SE Inside 610	35	1	0	19	2	22	5	11	6	3	6	0	1	1	4	0	14	6	1	0	1	0	0	6	1	28	1	174
7 = S Inside 610	11	1	1	14	0	0	3	5	0	5	2	0	0	1	0	2	2	3	0	0	0	0	0	2	0	0	0	52
8 = SW Inside 610	69	6	9	111	1	1	6	55	5	19	3	0	2	1	2	1	2	6	9	1	4	2	1	10	4	18	0	348
9 = WNW Inside 610	19	2	2	23	0	1	2	11	6	5	5	1	2	4	0	0	1	0	0	0	0	1	1	5	6	4	0	101
10 = West SW	135	23	8	119	1	5	22	54	12	190	27	5	1	2	4	3	4	5	37	3	25	8	3	10	3	38	1	748
11 = West Katy	184	9	2	85	1	2	3	16	9	14	44	4	3	1	1	1	2	1	1	1	4	5	2	18	2	32	0	447
12 = NW 290	287	5	4	66	0	1	3	20	3	7	12	2	2	0	2	1	0	0	3	0	0	2	0	7	3	31	0	461
13 = NNW 249	256	8	15	53	1	0	2	12	7	4	10	7	26	14	2	4	1	2	1	0	2	1	2	4	6	21	0	461
14 = North Hardy	329	8	29	89	1	0	5	24	8	8	9	3	17	76	16	1	2	3	4	0	2	0	7	14	14	21	1	691
15 = NE Eastex	213	1	2	41	2	0	0	19	3	2	7	1	1	2	21	6	3	2	0	0	1	0	3	16	2	18	0	366
16 = East I-10	62	3	1	29	3	1	2	12	2	5	1	2	0	0	2	29	2	0	3	0	0	0	1	6	6	4	1	177
17 = SH225 Gulf	222	1	4	134	6	13	8	15	3	8	4	2	1	2	0	3	84	1	3	1	0	0	2	8	4	31	4	564
18 = S288 35	69	3	0	71	1	3	9	16	2	12	2	3	3	1	2	0	9	46	6	0	0	0	0	5	3	40	1	307
19 = SW US59	426	38	27	244	3	0	13	55	2	62	18	5	2	1	1	0	5	14	72	1	4	2	1	12	2	47	0	1057
21 = Bay Area	8	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	15
22 = Westchase	15	3	0	6	0	0	1	8	0	11	7	0	0	1	0	1	1	0	2	0	2	0	0	2	0	6	0	66
23 = Energy	19	1	1	6	0	0	0	3	1	2	5	1	0	1	0	0	0	0	1	0	1	1	0	1	0	4	0	48
24 = Greenspoint	13	0	0	13	0	0	0	5	1	1	0	0	4	3	10	0	0	0	0	0	0	0	5	1	6	0	0	62
25 = N Cor Out 610	68	0	1	24	0	4	6	17	11	2	3	1	3	6	6	4	1	3	1	0	0	0	0	23	17	12	0	213
26 = N Cor In 610	61	0	1	26	3	1	7	10	3	3	5	2	3	5	7	3	0	1	0	0	1	0	4	24	21	21	0	212
27 = SE Cor In 610	88	2	4	51	2	13	10	19	4	10	7	0	1	0	5	5	9	20	6	0	0	0	0	5	8	78	2	349
28 = SE Cor Out 610	16	0	0	10	0	2	0	1	3	1	0	0	0	0	0	0	4	1	0	0	0	0	0	1	1	3	1	44
Total	2724	121	115	1326	37	75	117	447	96	381	181	40	74	125	89	76	150	118	158	8	51	24	35	184	124	484	12	7372

APPENDICES

APPENDIX A: SURVEY INSTRUMENT

Houston-Galveston Area 2017 Transit On Board Survey

Please take a few minutes to answer a few questions to help us plan for your transit needs.

All personal information will be kept strictly confidential and WILL NOT be shared or sold.

What is your HOME ADDRESS (please be specific, ex: 123 W. Main St):
(If you are visiting the Houston – Galveston area, please list the hotel name or address where you are staying)

Street Address _____ City _____ State _____ Zip Code _____

COMING FROM?

1. What type of place are you **COMING FROM NOW?**
(the starting place for your one-way trip)

- O Work
- O Work related
- O College / University (students only)
- O School K-12 (students only)
- O Medical / Doctor / Clinic / (non-work)
- O Shopping
- O Personal Business
- O Restaurant
- O Recreation / Sightseeing
- O Social Visit / Church
- O Airport (passengers only)
- O Your HOME → *Go to Question #4*
- O Other: _____

2. What is the **NAME** of the place you are coming from now?

_____

3. What is the **EXACT ADDRESS** of this place? **(OR** Intersection if you do not know the exact address: **)**

_____

City: _____ State: _____ Zip: _____

4. How did you **GET FROM** your origin (the place in Question #1) TO THE VERY **FIRST** bus / train you used for this one-way trip?

- O Walk
- O Wheelchair
- O Personal Bike
- O Bike share
- O Paratransit (e.g. METROLift)
- O Was dropped off by someone (answer 4a)
- O Drove alone and parked (answer 4a)
- O Drove or rode with others and parked (answer 4a)
- O Car share (e.g. Zip Car, etc.) (answer 4a)
- O Taxi (answer 4a)
- O Uber, Get Me, etc. (answer 4a)
- O Other_____

4a. Where did you board the first bus / train you used for this one-way trip
(Nearest intersection / Park & Ride lot / Transit Center / Station Name):

_____

5. Where did you get ON this bus / train?
Please provide the nearest intersection / transit center / Station Name / Park & Ride lot:

_____

GOING TO?

6. What type of place are you **GOING TO NOW?**
(the ending place for your one-way trip)

- O Work
- O Work related
- O College / University (students only)
- O School K-12 (students only)
- O Medical / Doctor / Clinic / (non-work)
- O Shopping
- O Personal Business
- O Restaurant
- O Recreation / Sightseeing
- O Social Visit / Church
- O Airport (passengers only)
- O Your HOME → *Go to Question #9*
- O Other: _____

7. What is the **NAME** of the place you are going to now?

_____

8. What is the **EXACT ADDRESS** of this place? **(OR** Intersection if you do not know the exact address: **)**

_____

City: _____ State: _____ Zip: _____

9. How will you **GET TO** your destination (listed in Question #6) after you get off the **LAST** bus / train you will use for this one-way trip?

- O Walk
- O Wheelchair
- O Personal Bike
- O Bike share
- O Paratransit (e.g. METROLift)
- O Be picked up by someone (answer 9a)
- O Get in a parked vehicle & drive alone (answer 9a)
- O Get in a parked vehicle & drive/ride w/others (answer 9a)
- O Car share (e.g. Zip Car, etc.) (answer 9a)
- O Taxi (answer 9a)
- O Uber, Get Me, etc. (answer 9a)
- O Other_____

9a. Where will you get off the last bus / train you are using for this one-way trip
(Nearest intersection / Park & Ride lot / Transit Center / Station Name):

_____

10. Where will you get OFF this bus / train?
Please provide the nearest intersection / Transit Center / Station Name / Park & Ride lot:

_____

11a. Did you transfer FROM another bus/train BEFORE getting on this bus/train? O Yes O No

11b. Will you transfer TO another bus/train AFTER getting off this bus/train? O Yes O No

11c. Please list the BUS / TRAIN ROUTES in the exact order you use them for this one-way trip

START → [ ] → [ ] → [ ] → [ ] → END

1st Route 2nd Route 3rd Route 4th Route

Continue

OTHER INFORMATION ABOUT THIS TRIP

12. What time did you BOARD this bus / train? _____ : _____ **am / pm (circle one)**

13. Will you (or did you) make this same trip in exactly the opposite direction today?
O No O Yes - At what time did / will you leave for this trip in the opposite direction? _____:_____ am/pm (circle one)

14. What fare payment methods did you use for this one-way trip? ***(select all that apply)***
O Cash O Fare Card (e.g. METRO Q Fare Card) O Money Card (e.g. METRO Money Card)
O Day Pass O Paper Rail Ticket Or O Mobile Ticket (e.g. METRO Q Mobile Ticketing)
O Other_____

15. What type of fare was this? O Regular / Full Fare
Reduced Fare: O Disabled O Senior (age 65-69) O Student (K-12 or College/University)
Free Fare: O 70+ Lifetime Pass O Veterans Pass O Freedom Q (METROLift)
O METRO Employee/Spouse/Retiree
O Other_____

16. If transit service were not available, how would you have made this trip?
O Walk O Bicycle O Drove myself O Ride with someone else
O Taxi O TNC (e.g. Uber, Get Me) O Car share (e.g. Zip Car) O Would not make this trip

ABOUT YOU AND YOUR HOUSEHOLD

17. Are you a visitor to the Houston-Galveston region? ONo O Yes (if YES, please skip to Q26)

18. How long have you been riding transit?
O Less than 6 months O 6 – 12 months O 1 – 2 years O More than 10 years
O 3 – 6 years O 7 – 10 years O First time riding

19. How often do you ride transit?
O 6 or 7 days a week O 5 days a week O 3 or 4 days a week O 1 or 2 days a week
O 1 or 2 days a month O Once in a while O First time riding

20a. Did you start using transit because of Houston METRORail? O Yes O No

20b. Do you only use Houston METRORail (not METROBus)? O Yes O No

21. How many vehicles (cars, trucks, or motorcycles) are available to your household? _____ vehicles
21a. [If #21 is more than NONE] Could you have used one of these vehicles for this trip? OYes ONo

22. Including YOU, how many people live in your household? _____ people

23. Including YOU, how many members of your household are age 16 and older? _____ people

24. What is your employment status? (check the one response that BEST describes you)
O Employed full-time O Not currently employed O Retired
O Employed part-time O Disabled and unable to work O Homemaker

25. What is your student status? (check the one response that BEST describes you)
O Not a student O Yes – College / University / Community College
O Yes – K - 12th grade O Yes – Vocational / Technical / Trade School O Other _____

26. Do you have a valid driver's license? OYes ONo

27. What is your AGE?
O 5-15 O 16-19 O 20-34 O 35-50 O 51-64 O 65-69 O 70 and older

28. What is your race / ethnicity? (check all that apply)
O American Indian/Alaska Native O Asian O Black/African/African American O Hispanic/Latino
O Native Hawaiian/Pacific Islander O White/Caucasian O Other: _____

29. What is your gender? O Male O Female O Other _____

30. Which of the following BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME in 2016 before taxes?
O Less than $16,000 O $24,000 - $31,999 O $40,000 - $53,999 O $81,000 - $99,999
O $16,000 - $23,999 O $32,000 - $39,999 O $54,000 - $80,999 O Over $100,000

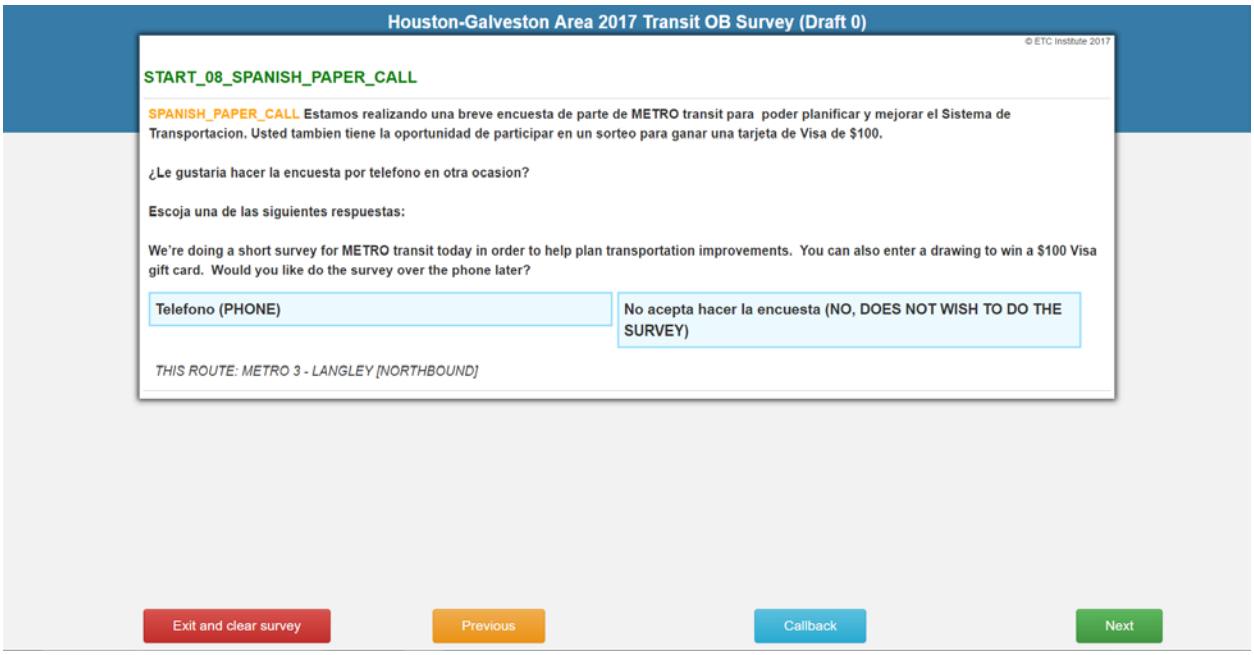
31. Do you speak a language other than English at home? O No OYes - **Which language?** _____
31a. [If #31 is Yes] How well do you speak English? O Very Well O Well O Less than well O Not at all

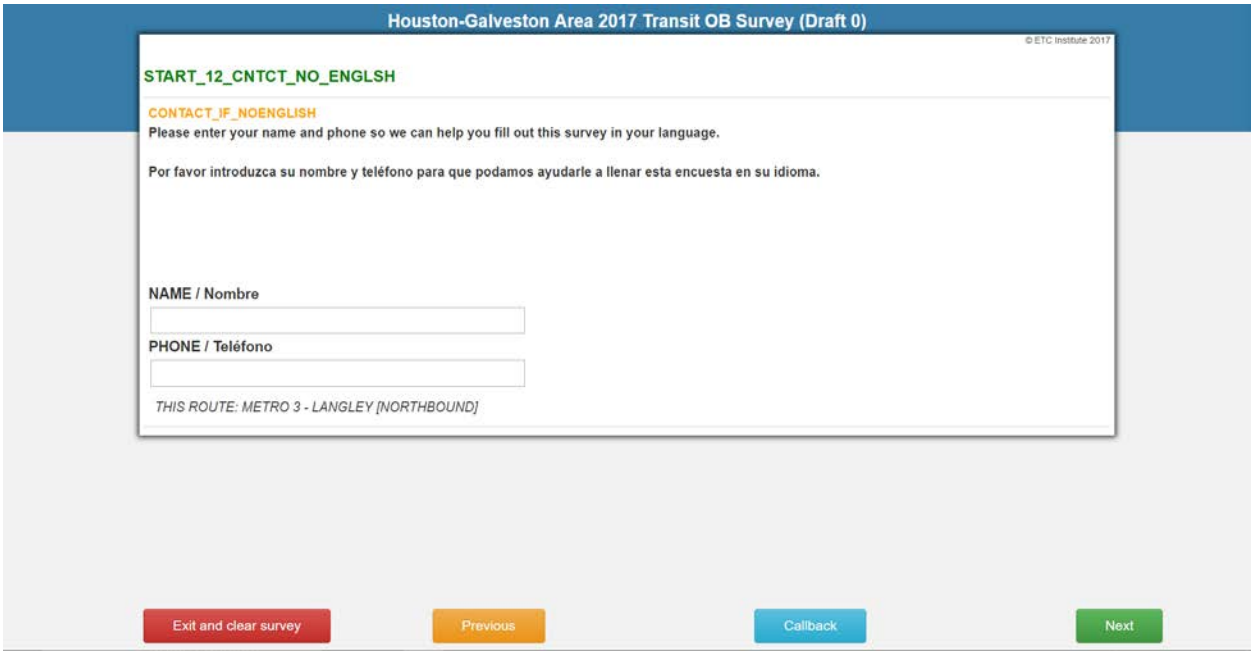
REGISTER TO WIN $100
People who submit an accurately completed survey will be entered in a random drawing for one of five $100 gift cards. You must provide your home address at the beginning of the survey and answer all questions to be eligible.

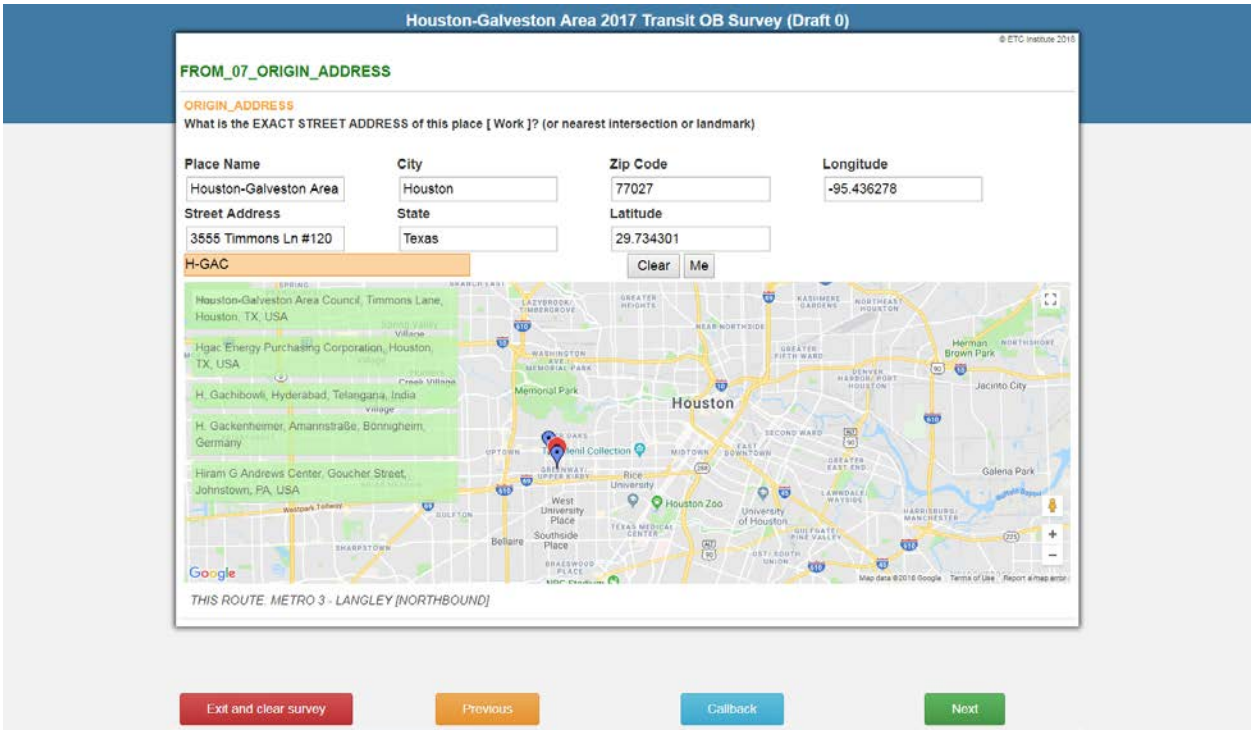
Your Name: _____

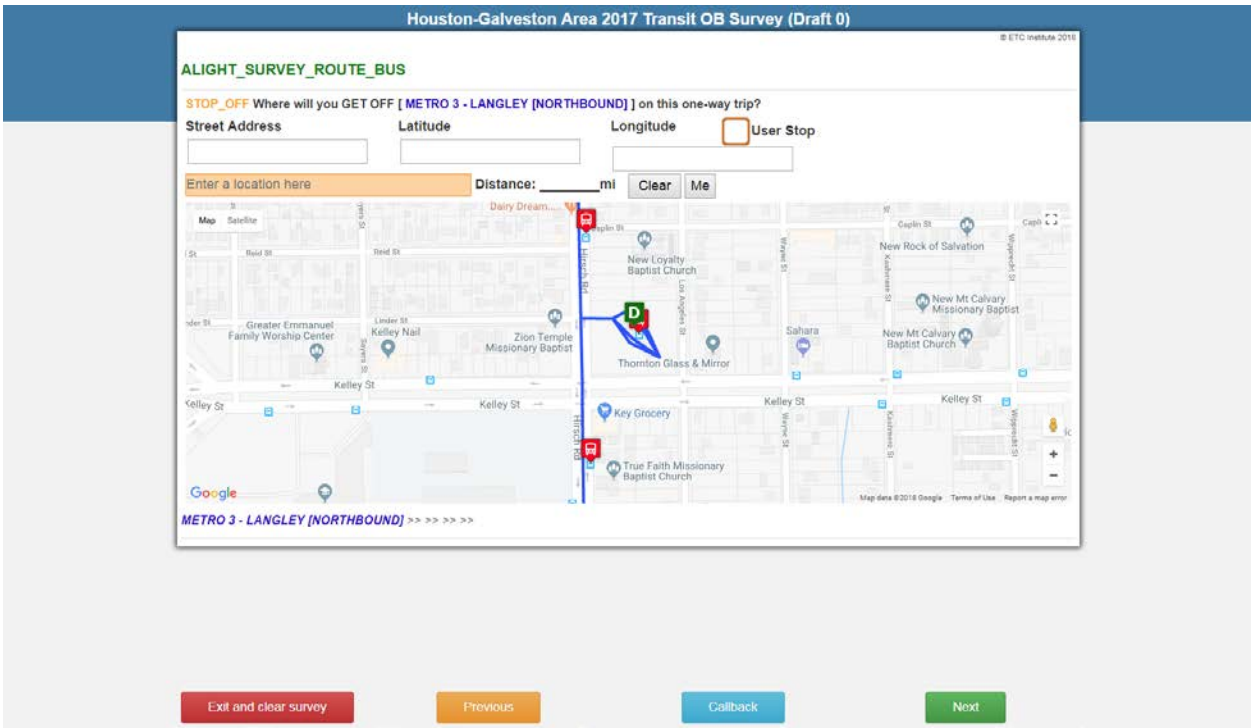
Phone Number: (_____) _____

Thank you for your help!


Houston-Galveston Area 2017 Transit OB Survey (Draft 0)
© ETC Institute 2017
START_08_SPANISH_PAPER_CALL
SPANISH_PAPER_CALL Estamos realizando una breve encuesta de parte de METRO transit para poder planificar y mejorar el Sistema de Transportacion. Usted tambien tiene la oportunidad de participar en un sorteo para ganar una tarjeta de Visa de $100.
¿Le gustaria hacer la encuesta por telefono en otra ocasion?
Escoja una de las siguientes respuestas:
We're doing a short survey for METRO transit today in order to help plan transportation improvements. You can also enter a drawing to win a $100 Visa gift card. Would you like do the survey over the phone later?
Telefono (PHONE)
No acepta hacer la encuesta (NO, DOES NOT WISH TO DO THE SURVEY)
THIS ROUTE: METRO 3 - LANGLEY [NORTHBOUND]
Exit and clear survey
Previous
Callback
Next


Houston-Galveston Area 2017 Transit OB Survey (Draft 0)
© ETC Institute 2017
START_12_CNTCT_NO_ENGLSH
CONTACT_IF_NOENGLISH
Please enter your name and phone so we can help you fill out this survey in your language.
Por favor introduzca su nombre y teléfono para que podamos ayudarle a llenar esta encuesta en su idioma.
NAME / Nombre
PHONE / Teléfono
THIS ROUTE: METRO 3 - LANGLEY [NORTHBOUND]
Exit and clear survey
Previous
Callback
Next


Houston-Galveston Area 2017 Transit OB Survey (Draft 0)
FROM_07_ORIGIN_ADDRESS
ORIGIN_ADDRESS
What is the EXACT STREET ADDRESS of this place [Work]? (or nearest intersection or landmark)
Place Name
Houston-Galveston Area
City
Houston
Zip Code
77027
Longitude
-95.436278
Street Address
3555 Timmons Ln #120
State
Texas
Latitude
29.734301
H-GAC
Clear
Me
Houston-Galveston Area Council, Timmons Lane, Houston, TX, USA
Hgac Energy Purchasing Corporation, Houston, TX, USA
H. Gachibowli, Hyderabad, Telangana, India
H. Gackenheimer, Amannstraße, Bönnigheim, Germany
Hiram G Andrews Center, Goucher Street, Johnstown, PA, USA
Houston
THIS ROUTE: METRO 3 - LANGLEY [NORTHBOUND]
Exit and clear survey
Previous
Callback
Next


Houston-Galveston Area 2017 Transit OB Survey (Draft 0)
ALIGHT_SURVEY_ROUTE_BUS
STOP_OFF Where will you GET OFF [METRO 3 - LANGLEY [NORTHBOUND]] on this one-way trip?
Street Address
Latitude
Longitude
User Stop
Enter a location here
Distance: _____mi
Clear
Me
New Loyalty Baptist Church
New Rock of Salvation
New Mt Calvary Missionary Baptist
Greater Emmanuel Family Worship Center
Kelley Nail
Zion Temple Missionary Baptist
Thornton Glass & Mirror
Sahara
Key Grocery
True Faith Missionary Baptist Church
METRO 3 - LANGLEY [NORTHBOUND] >> >> >> >>
Exit and clear survey
Previous
Callback
Next

APPENDIX B: DATA DICTIONARY

FIELD NAME	DESCRIPTION	CODE VALUES
id	Unique Identifier for each record	Actual Value
Final_Usage	Final suggested usage of the record	Actual Value
Date	Date Survey was conducted	Actual Value
Provider Type	Transit System the Survey was conducted on	Actual Value
ROUTE_SURVEYED(Code)	Route Survey was conducted on (code)	Codes provided upon request
ROUTE_SURVEYED	Route Survey was conducted on	Actual Value
HOME_ADDRESS (ADDR)	Respondent's home address	Actual Value
HOME_ADDRESS (CITY)	Respondent's home city	Actual Value
HOME_ADDRESS (STATE)	Respondent's home state	Actual Value
HOME_ADDRESS (ZIP)	Respondent's home zip code	Actual Value
HOME_ADDRESS (LAT)	Respondent's home latitude	Actual Value
HOME_ADDRESS (LONG)	Respondent's home longitude	Actual Value
ORIGIN_PLACE_TYPE(Code)	Type of place respondent is coming from now (code)	1=Work 2=College / University (students only) 3=School K-12 (students only) 4=Medical / Doctor / Clinic / (non-work) 5=Shopping 6=Personal Business 7=Restaurant 8=Airport (passengers only) 9=Social Visit / Church 10=Your HOME 11=Recreation / Sightseeing 12=Work related 99=Other
ORIGIN_PLACE_TYPE	Type of place respondent is coming from now	Actual Value
ORIGIN_ADDRESS (ADDR)	Respondent's origin address	Actual Value
ORIGIN_ADDRESS (CITY)	Respondent's origin city	Actual Value
ORIGIN_ADDRESS (STATE)	Respondent's origin state	Actual Value
ORIGIN_ADDRESS (ZIP)	Respondent's origin zip code	Actual Value
ORIGIN_ADDRESS (LAT)	Respondent's origin latitude	Actual Value
ORIGIN_ADDRESS (LONG)	Respondent's origin longitude	Actual Value
PREV_TRANSFERS(Code)	How many transfers respondent took from their origin (code)	0=(0) None 1=(1) One 2=(2) Two 3=(3) Three 4=(4+) Four or more
PREV_TRANSFERS	How many transfers respondent took from their origin	Actual Value
TRIP_FIRST_ROUTE(Code)	First transfer respondent took from origin (code)	Codes provided upon request
TRIP_FIRST_ROUTE	First transfer respondent took from origin	Actual Value
TRIP_SECOND_ROUTE(Code)	Second transfer respondent took from origin (code)	Codes provided upon request
TRIP_SECOND_ROUTE	Second transfer respondent took from origin	Actual Value
TRIP_THIRD_ROUTE(Code)	Third transfer respondent took from origin (code)	Codes provided upon request
TRIP_THIRD_ROUTE	Third transfer respondent took from origin	Actual Value
TRIP_FOURTH_ROUTE(Code)	Fourth transfer respondent took from origin (code)	Codes provided upon request
TRIP_FOURTH_ROUTE	Fourth transfer respondent took from origin	Actual Value
ORIGIN_TRANSPORT(Code)	Access mode respondent used from their origin (code)	1=Walk 2=Personal Bike 3=Bike share 4=Was dropped off by someone 5=Drove alone and parked 6=Drove or rode with others and parked 7=Car share (e.g. Zip Car, etc.) 8=Taxi 9=Uber, Get Me, etc. 10=Wheelchair

		11=Paratransit (e.g. METROLift) 12=School Bus 13=Skateboard 14=Shuttle 15=Scooter 99=Other
ORIGIN_TRANSPORT	Access mode respondent used from their origin	Actual Value
DESTIN_PLACE_TYPE(Code)	Type of place respondent is going to now (code)	1=Work 2=College / University (students only) 3=School K-12 (students only) 4=Medical / Doctor / Clinic / (non-work) 5=Shopping 6=Personal Business 7=Restaurant 8=Airport (passengers only) 9=Social Visit / Church 10=Your HOME 11=Recreation / Sightseeing 12=Work related 99=Other
DESTIN_PLACE_TYPE	Type of place respondent is going to now	Actual Value
DESTIN_ADDRESS (ADDR)	Respondent's destination address	Actual Value
DESTIN_ADDRESS (CITY)	Respondent's destination city	Actual Value
DESTIN_ADDRESS (STATE)	Respondent's destination state	Actual Value
DESTIN_ADDRESS (ZIP)	Respondent's destination zip code	Actual Value
DESTIN_ADDRESS (LAT)	Respondent's destination latitude	Actual Value
DESTIN_ADDRESS (LONG)	Respondent's destination longitude	Actual Value
NEXT_TRANSFERS(Code)	How many transfers respondent took to their destination (code)	0=(0) None 1=(1) One 2=(2) Two 3=(3) Three 4=(4+) Four or more
NEXT_TRANSFERS	How many transfers respondent took to their destination	Actual Value
TRIP_NEXT_ROUTE(Code)	First transfer respondent took to destination (code)	Codes provided upon request
TRIP_NEXT_ROUTE	First transfer respondent took to destination	Actual Value
TRIP_AFTER_ROUTE(Code)	Second transfer respondent took to destination (code)	Codes provided upon request
TRIP_AFTER_ROUTE	Second transfer respondent took to destination	Actual Value
TRIP_3RD_ROUTE(Code)	Third transfer respondent took to destination (code)	Codes provided upon request
TRIP_3RD_ROUTE	Third transfer respondent took to destination	Actual Value
TRIP_LAST4TH_RTE(Code)	Fourth transfer respondent took to destination (code)	Codes provided upon request
TRIP_LAST4TH_RTE	Fourth transfer respondent took to destination	Actual Value
DESTIN_TRANSPORT(Code)	Egress mode respondent used to their destination (code)	1=Walk 2=Personal Bike 3=Bike share 4=Be picked up by someone 5=Get in a parked vehicle & drive alone 6=Get in a parked vehicle & drive/ride w/others 7=Car share (e.g. Zip Car, etc.) 8=Taxi 9=Uber, Get Me, etc. 10=Wheelchair 11=Paratransit (e.g. METROLift) 13=Skateboard 14=Shuttle 15=Scooter 99=Other
DESTIN_TRANSPORT	Egress mode respondent used to their destination	Actual Value
STOP_ON (ADDR)	Respondent's boarding address	Actual Value
STOP_ON (STPID)	Respondent's boarding Stop ID	Actual Value

STOP_ON (LAT)	Latitude for respondent's boarding address	Actual Value
STOP_ON (LONG)	Longitude for respondent's boarding address	Actual Value
STOP_OFF (ADDR)	Respondent's alighting address	Actual Value
STOP_OFF (STPID)	Respondent's alighting Stop ID	Actual Value
STOP_OFF (LAT)	Latitude for respondent's alighting address	Actual Value
STOP_OFF (LONG)	Longitude for respondent's alighting address	Actual Value
PREV_TRAN_1_ON_BUS (LAT)	Latitude of respondent's boarding location for their first transfer from origin	Actual Value
PREV_TRAN_1_ON_BUS (LONG)	Longitude of respondent's boarding location for their first transfer from origin	Actual Value
PREV_TRAN_1_OFF_BUS (LAT)	Latitude of respondent's alighting location for their first transfer from origin	Actual Value
PREV_TRAN_1_OFF_BUS (LONG)	Longitude of respondent's alighting location for their first transfer from origin	Actual Value
PREV_TRAN_2_ON_BUS (LAT)	Latitude of respondent's boarding location for their second transfer from origin	Actual Value
PREV_TRAN_2_ON_BUS (LONG)	Longitude of respondent's boarding location for their second transfer from origin	Actual Value
PREV_TRAN_2_OFF_BUS (LAT)	Latitude of respondent's alighting location for their second transfer from origin	Actual Value
PREV_TRAN_2_OFF_BUS (LONG)	Longitude of respondent's alighting location for their second transfer from origin	Actual Value
PREV_TRAN_3_ON_BUS (LAT)	Latitude of respondent's boarding location for their third transfer from origin	Actual Value
PREV_TRAN_3_ON_BUS (LONG)	Longitude of respondent's boarding location for their third transfer from origin	Actual Value
PREV_TRAN_3_OFF_BUS (LAT)	Latitude of respondent's alighting location for their third transfer from origin	Actual Value
PREV_TRAN_3_OFF_BUS (LONG)	Longitude of respondent's alighting location for their third transfer from origin	Actual Value
PREV_TRAN_4_ON_BUS (LAT)	Latitude of respondent's boarding location for their fourth transfer from origin	Actual Value
PREV_TRAN_4_ON_BUS (LONG)	Longitude of respondent's boarding location for their fourth transfer from origin	Actual Value
PREV_TRAN_4_OFF_BUS (LAT)	Latitude of respondent's alighting location for their fourth transfer from origin	Actual Value
PREV_TRAN_4_OFF_BUS (LONG)	Longitude of respondent's alighting location for their fourth transfer from origin	Actual Value
NEXT_TRAN_1_ON_BUS (LAT)	Latitude of respondent's boarding location for their first transfer to destination	Actual Value
NEXT_TRAN_1_ON_BUS (LONG)	Longitude of respondent's boarding location for their first transfer to destination	Actual Value
NEXT_TRAN_1_OFF_BUS (LAT)	Latitude of respondent's alighting location for their first transfer to destination	Actual Value
NEXT_TRAN_1_OFF_BUS (LONG)	Longitude of respondent's alighting location for their first transfer to destination	Actual Value
NEXT_TRAN_2_ON_BUS (LAT)	Latitude of respondent's boarding location for their second transfer to destination	Actual Value
NEXT_TRAN_2_ON_BUS (LONG)	Longitude of respondent's boarding location for their second transfer to destination	Actual Value
NEXT_TRAN_2_OFF_BUS (LAT)	Latitude of respondent's alighting location for their second transfer to destination	Actual Value
NEXT_TRAN_2_OFF_BUS (LONG)	Longitude of respondent's alighting location for their second transfer to destination	Actual Value
NEXT_TRAN_3_ON_BUS (LAT)	Latitude of respondent's boarding location for their third transfer to destination	Actual Value
NEXT_TRAN_3_ON_BUS (LONG)	Longitude of respondent's boarding location for their third transfer to destination	Actual Value

NEXT_TRAN_3_OFF_BUS (LAT)	Latitude of respondent's alighting location for their third transfer to destination	Actual Value
NEXT_TRAN_3_OFF_BUS (LONG)	Longitude of respondent's alighting location for their third transfer to destination	Actual Value
NEXT_TRAN_4_ON_BUS (LAT)	Latitude of respondent's boarding location for their fourth transfer to destination	Actual Value
NEXT_TRAN_4_ON_BUS (LONG)	Longitude of respondent's boarding location for their fourth transfer to destination	Actual Value
NEXT_TRAN_4_OFF_BUS (LAT)	Latitude of respondent's alighting location for their fourth transfer to destination	Actual Value
NEXT_TRAN_4_OFF_BUS (LONG)	Longitude of respondent's alighting location for their fourth transfer to destination	Actual Value
TIME_ON(Code)	At what time did respondent board this bus/rail (code)	A=3 - 5 am B=5 - 6 am C=6 - 7 am D=7 - 8 am E=8 - 9 am F=9 - 10 am G=10 - 11 am H=11 am - 12 pm I=12 - 1 pm J=1 - 2 pm K=2 - 3 pm L=3 - 4 pm M=4 - 5 pm N=5 - 6 pm O=6 - 7 pm P=7 - 8 pm Q=8 - 9 pm R=9 - 10 pm S=10 - 11 pm T=11 pm - 12 am U=12 - 3 am
TIME_ON	At what time did respondent board this bus/rail	Actual Value
TIME_PERIOD	Time period respondent boarded this bus/rail	Actual Value
TRIP_IN_OPPO_DIR(Code)	If respondent took the same trip in the opposite direction (code)	1=Yes 2=No
TRIP_IN_OPPO_DIR	If respondent took the same trip in the opposite direction	Actual Value
OPPO_DIR_TRIP_TIME(Code)	At what time did respondent board their return trip bus/rail (code)	A=3 - 5 am B=5 - 6 am C=6 - 7 am D=7 - 8 am E=8 - 9 am F=9 - 10 am G=10 - 11 am H=11 am - 12 pm I=12 - 1 pm J=1 - 2 pm K=2 - 3 pm L=3 - 4 pm M=4 - 5 pm N=5 - 6 pm O=6 - 7 pm P=7 - 8 pm Q=8 - 9 pm R=9 - 10 pm S=10 - 11 pm T=11 pm - 12 am U=12 - 3 am

OPPO_DIR_TRIP_TIME	At what time did respondent board their return trip bus/rail	Actual Value
HOW_PAID_FOR_TRIP (HOU1)	If respondent used HOU-Cash to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HOU2)	If respondent used HOU-Fare Card (e.g. METRO Q Fare Card) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HOU3)	If respondent used HOU-Day Pass to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HOU4)	If respondent used HOU-Money Card (e.g. METRO Money Card) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HOU5)	If respondent used HOU-Paper Rail Ticket to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HOU6)	If respondent used HOU-Mobile Ticket (e.g. METRO Q Mobile Ticketing) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CTD1)	If respondent used CTD-Cash Full Fare: (one way) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CTD2)	If respondent used CTD-Elderly to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CTD3)	If respondent used CTD-Disabled to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CTD4)	If respondent used CTD-Medicare Card to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (WLT1)	If respondent used WLT-Round Trip Ticket to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (WLT2)	If respondent used WLT-Free (Trolley) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST1)	If respondent used IST-Cash to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST2)	If respondent used IST-Monthly Pass to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST3)	If respondent used IST-Student Pass to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST4)	If respondent used IST-Tokens to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST5)	If respondent used IST-Island Transit ID to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST6)	If respondent used IST-Dial-A-Ride to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST7)	If respondent used IST-Dial-A-Ride Monthly Pass to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (IST8)	If respondent used IST-Dial-A-Ride Ticket Book to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN1)	If respondent used CCN-Adult to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN2)	If respondent used CCN-Senior (Age 65 and older with ID) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN3)	If respondent used CCN-Veterans to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN4)	If respondent used CCN-Medicare Cardholders to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN5)	If respondent used CCN-Persons with Disabilities to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN6)	If respondent used CCN-Students (13-18) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN7)	If respondent used CCN-Children (6-12) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (CCN8)	If respondent used CCN-Children under 6 with Adult to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (BTD1)	If respondent used BTD-Cash to pay for this one-way trip	Actual Value

HOW_PAID_FOR_TRIP (BTD2)	If respondent used BTD-Multi Ride Pass (42 one-way trips) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (BTD3)	If respondent used BTD-Ticket Book (40 one-way trips) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (BTD4)	If respondent used BTD-S&D Punch Pass (40 one-way trips) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (BTD5)	If respondent used BTD-Semester Pass (College Students) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (FBT1)	If respondent used FBT-Cash Fare: (one way) commuter services to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (FBT2)	If respondent used FBT-20 Ride Ticket Book commuter services to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (FBT3)	If respondent used FBT-40 Ride ticket book commuter services to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (FBT4)	If respondent used FBT-Cash Fare: (one way) demand response to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (FBT5)	If respondent used FBT-20 Ride Ticket Book Demand Response to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HCT1)	If respondent used HCT-Cash Full Fare to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HCT2)	If respondent used HCT-Cash Half fare (Under 12, Medicaid, Medicare, primary school with current ID) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HCT3)	If respondent used HCT-Elderly Half fare to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (HCT4)	If respondent used HCT-ADA Paratransit $2.00 (2x adult fare) to pay for this one-way trip	Actual Value
HOW_PAID_FOR_TRIP (Other)	If respondent used Other method to pay for this one-way trip	Actual Value
FARE_CATEGORY(Code)	Type of fare respondent paid (code)	BTDFT1=BTD-Regular BTDFT2=BTD-Children 6-12 BTDFT3=BTD-Children under 6 with paying customer BTDFT4=BTD-Senior 65 and over BTDFT5=BTD-Disabled with D Pass BTDFT6=BTD-Medicare with Medicare card HOUFT1=HOU-Regular / Full Fare HOUFT2=HOU-Reduced Fare: Disabled HOUFT3=HOU-Reduced Fare: Senior (age 65-69) HOUFT4=HOU-Reduced Fare: Student (K-12 or College/University) HOUFT5=HOU-Free Fare: 70+ Lifetime Pass HOUFT6=HOU-Free Fare: Veterans Pass HOUFT7=HOU-Free Fare: Freedom Q (METROLift) HOUFT8=HOU-Free Fare: METRO Employee/Spouse/Retiree ISTFT1=IST-Regular ISTFT2=IST-Senior or Disabled ISTFT3=IST-Children under 6 with Adult ISTFT4=IST-Student (6-18 years of age) ISTFT5=IST-Reduced Monthly Pass 8888=Unknown 9999=Other
FARE_CATEGORY	Type of fare respondent paid	Actual Value
NOT_AVAILABLE_TRANS(Code)	How respondent would have made the trip if transit were not available (code)	A1=Walk A2=Bicycle A3=Drive myself A4=Ride with someone else

		A5=Taxi A6=TNC (e.g. Uber, Get Me) A7=Car share (e.g. Zip Car) A8=Would not make this trip A88=Unknown
NOT_AVAILABLE_TRANS	How respondent would have made the trip if transit were not available	Actual Value
VISITOR_OR_NOT(Code)	If respondent is a visitor to the area (code)	No=No Yes=Yes
VISITOR_OR_NOT	If respondent is a visitor to the area	Actual Value
LONG_RIDING_TRANSIT(Code)	How long respondent has been riding transit (code)	A1=Less than 6 months A2=6 - 12 months A3=1 - 2 years A4=3 - 6 years A5=7 - 10 years A6=10+ years A7=First time riding A88=Unknown
LONG_RIDING_TRANSIT	How long respondent has been riding transit	Actual Value
VISIT_RIDE_TRANSIT(Code)	How often respondent rides transit (code)	1=6 or 7 days a week 2=5 days a week 3=3 or 4 days a week 4=1 or 2 days a week 5=1 or 2 days a month 6=Once in a while 7=First time riding
VISIT_RIDE_TRANSIT	How often respondent rides transit	Actual Value
METRO_TRASIT(Code)	If respondent started using transit because of Houston METRORail (code)	A1=Yes A2=No
METRO_TRASIT	If respondent started using transit because of Houston METRORail	Actual Value
METRO_RAIL_USE(Code)	If respondent only use Houston METRORail, not METROBus (code)	A1=Yes A2=No A3=No, but determined based on actual trip
METRO_RAIL_USE	If respondent only use Houston METRORail, not METROBus	Actual Value
COUNT_VH_HH(Code)	Number of vehicles in respondent's household (code)	0=None (0) 1=One (1) 2=Two (2) 3=Three (3) 4=Four (4) 5=Five (5) 6=Six (6) 7=Seven (7) 8=Eight (8) 9=Nine (9) 10P=Ten or more (10+)
COUNT_VH_HH	Number of vehicles in respondent's household	Actual Value
VEHICLE_USE(Code)	If respondent could have used a household vehicle to make the trip (code)	No=No Yes=Yes DK/RF=Don't Know/Refuse
VEHICLE_USE	If respondent could have used a household vehicle to make the trip	Actual Value
HH_SIZE(Code)	Number of members in respondent's household (code)	1=One (1) 2=Two (2) 3=Three (3) 4=Four (4) 5=Five (5) 6=Six (6) 7=Seven (7)

		8=Eight (8) 9=Nine (9) 10=Ten or More (10+)
HH_SIZE	Number of members in respondent's household	Actual Value
COUNT_16_ABOVE_HH(Code)	Number of members in respondent's household who are age 16 and older (code)	0=None (0) 1=One (1) 2=Two (2) 3=Three (3) 4=Four (4) 5=Five (5) 6=Six (6) 7=Seven (7) 8=Eight (8) 9=Nine (9) 10=Ten or more (10+)
COUNT_16_ABOVE_HH	Number of members in respondent's household who are age 16 and older	Actual Value
STATUS_EMPLOYMENT(Code)	Employment status of respondent (code)	1=Employed full-time 2=Employed part-time 3=Not currently employed 4=Disabled and unable to work 5=Retired 6=Homemaker
STATUS_EMPLOYMENT	Employment status of respondent	Actual Value
STUDENT_STATUS(Code)	Respondent's student status (code)	1=Not a student 2=Yes - College / University / Community College 3=Yes - K-12th grade 5=Yes - Vocational / Technical / Trade school / Other 88=Unknown 99=Other
STUDENT_STATUS	Respondent's student status	Actual Value
STUDENT_STATUS (Other)	Respondent's student status (other)	
DRIVING_LICENSE(Code)	If respondent has a valid driver's license (code)	No=No Yes=Yes DK/RF=Don't Know/Refuse
DRIVING_LICENSE	If respondent has a valid driver's license	Actual Value
AGE(Code)	Age of respondent (code)	1=5-15 2=16-19 3=20-34 4=35-50 5=51-64 6=65-69 7=70 and older
AGE	Age of respondent	Actual Value
ETHNIC_BACKGROUND [American Indian / Alaska Native]	If respondent indicated they are American Indian / Alaska Native	Actual Value
ETHNIC_BACKGROUND [Asian]	If respondent indicated they are Asian	Actual Value
ETHNIC_BACKGROUND [Black/African American]	If respondent indicated they are Black / African / African American	Actual Value
ETHNIC_BACKGROUND [Hispanic/Latino]	If respondent indicated they are Hispanic / Latino	Actual Value
ETHNIC_BACKGROUND [Native Hawaiian / Pacific Islander]	If respondent indicated they are Native Hawaiian / Pacific Islander	Actual Value
ETHNIC_BACKGROUND [White]	If respondent indicated they are White / Caucasian	Actual Value

ETHNIC_BACKGROUND [Other]	If respondent indicated they are Other	Actual Value
HOME_LANG_OTHER(Code)	Does respondent speak a language other than English spoken in home (code)	1=Yes 2=No
HOME_LANG_OTHER	Does respondent speak a language other than English spoken in home	Actual Value
HOME_OTHER_LANG(Code)	Language respondent speaks at home other than English (code)	Code provided upon request
HOME_OTHER_LANG	Language respondent speaks at home other than English	Actual Value
HOME_OTHER_LANG (Other)	Language respondent speaks at home other than English (other)	Actual Value
ENGLISH_ABILITY(Code)	How well did respondent speaks English (code)	A1=Very well A2=Well A3=Not at all A4=Not well A88=Unknown
ENGLISH_ABILITY	How well did respondent speaks English	Actual Value
INCOME(Code)	Total annual household income (code)	1=Less than $16,000 2=$16,000 - $23,999 3=$24,000 - $31,999 4=$32,000 - $39,999 5=$40,000 - $53,999 6=$54,000 - $80,999 7=$81,000 - $99,999 8=Over $100,000 99=Refuse
INCOME	Total annual household income	Actual Value
REGISTER_TO_WIN_Y_N(Code)	If respondent registered for the change to win (code)	1=Yes 2=No 88=Unknown
REGISTER_TO_WIN_Y_N	If respondent registered for the chance to win	Actual Value
SURVEY_LANGUAGE(Code)	What language the Survey was conducted in (code)	1=Spanish 4=English 5=Vietnamese 6=Tagalog 7=Urdu 8=Arabic 9=Chinese 10=Korean 99=Other
SURVEY_LANGUAGE	What language the Survey was conducted in	Actual Value
SURVEY_LANGUAGE (Other)	What language the Survey was conducted in (other)	Actual Value
ROUTE_NAME	Final route Survey was conducted on	Actual Value
ROUTE_DIRECTION	Final route direction Survey was conducted on	Actual Value
TIME_PERIOD	Time period respondent boarded this bus/rail	Actual Value
BOARD_SEG	Boarding segment used for expansion	Actual Value
ALIGHT_SEG	Alighting segment used for expansion	Actual Value
UNLINKED_WEIGHT_FACTOR	Weight factor given to each record meant to represent number of boardings per day	Actual Value
TRIP_TRANSFERS	Total number of previous and next transfers during the trip	Actual Value
SYSTEM_TRANSFERS	Total number of previous and next transfers within the study system	Actual Value
LINKED_MULTIPLIER_FACTOR	The multiplier to get the Linked Weight Factor	1/(Total Number of System Transfers + 1)
LINKED_WEIGHT_FACTOR	Adjusted unlinked weight factor meant to represent the number of trips per day instead of number of boardings per day	Actual Value
PA_PURP	Trip purpose by PA (Production-Attraction) format.	1=HBW 2=HBO 3=NHB

PnR.flag	flag, indicating Park-ride trips at 26 PNR lots	0=Non-Park-ride lot trips 1=Park-ride lot trips
New.UNLINKED_WEIGHT_FACTOR.PnR	(PnR trips) adjusted-Weight factor given to each record meant to represent number of boardings per day	Actual Value
New.LINKED_WEIGHT_FACTOR.PnR	(PnR trips) adjusted-Weight factor given to each record meant to represent number of boardings per day	Actual Value
Bike.flag	flag, indicating bike user trips	0=Non-Park-ride lot trips 1=Park-ride lot trips
New.UNLINKED_WEIGHT_FACTOR.PnR_BikeADJ	(Bike users & PnR trips) adjusted-Weight factor given to each record meant to represent number of boardings per day	Actual Value
New.LINKED_WEIGHT_FACTOR.PnR_BikeADJ	(Bike users & PnR trips) adjusted-Weight factor given to each record meant to represent number of boardings per day	Actual Value
O.Zone	District corresponding to Origin location (Full Name)	Calculated field
O.Dist_Name	District corresponding to Origin location (ID)	Calculated field
D.Zone	District corresponding to Destination location (Full Name)	Calculated field
D.Dist_Name	District corresponding to Destination location (Full Name)	Calculated field
O.TAZ	TAZ corresponding to Origin location	Calculated field
D.TAZ	TAZ corresponding to Destination location	Calculated field

APPENDIX C: TYPES OF DATA EXPANSION

ROUTE_SURVEYED	ROUTE_SURVEYED	ROUTE_SURVEYED	ROUTE_SURVEYED	ROUTE_SURVEYED	ROUTE_SURVEYED
BTD-Liberty County Circulator	Expansion #4	METRO 28 - OST - WAYSIDE	Expansion #2	METRO 102 - BUSH IAH EXPRESS	Expansion #2
BTD-Cleveland Fixed Route	Expansion #4	METRO 29 - CULLEN / HIRSCH	Expansion #2	METRO 108 - VETERANS MEMORIAL EXPRESS	Expansion #2
Connect Transit Freeport Red	Expansion #4	METRO 30 - CLINTON / ELLA	Expansion #2	METRO 137 - NORTHSHORE EXPRESS	Expansion #2
Connect Transit Texas City Orange Rte 2	Expansion #4	METRO 32 - RENWICK / SAN FELIPE	Expansion #2	METRO 151 - WESTPARK EXPRESS	Expansion #2
Connect Transit Texas City/Dickinson	Expansion #4	METRO 33 - POST OAK	Expansion #2	METRO 152 - HARWIN EXPRESS	Expansion #2
Connect Transit Regional Gold	Expansion #4	METRO 36 - KEMPWOOD	Expansion #2	METRO 153 - HARWIN EXPRESS	Expansion #2
Connect Transit Lake Jackson Clute Blue	Expansion #4	METRO 38 - MANCHESTER-LAWNDALE	Expansion #2	METRO 160 - MEMORIAL CITY EXPRESS	Expansion #2
Connect Transit Regional Green	Expansion #4	METRO 39 - KATY FREEWAY	Expansion #2	METRO 161 - WILCREST EXPRESS	Expansion #2
Connect Transit Angleton Purple	Expansion #4	METRO 40 - TELEPHONE / HEIGHTS	Expansion #2	METRO 162 - MEMORIAL EXPRESS	Expansion #2
Connect Transit Dickinson	Expansion #4	METRO 41 - KIRBY / POLK	Expansion #2	METRO 170 - MISSOURI CITY EXPRESS	Expansion #2
Connect Transit San Leon/Bacliff	Expansion #4	METRO 44 - ACRES HOMES	Expansion #2	METRO 171 - FORTBEND TOWN CENTER	Expansion #2
Connect Transit Texas City Green Route	Expansion #4	METRO 45 - TIDWELL	Expansion #2	METRO 202 - KUYKENDAHL P&R	Expansion #2
Connect Transit La Marque	Expansion #4	METRO 46 - GESSNER	Expansion #2	METRO 204 - SPRING P&R	Expansion #2
Island Transit League City Park & Ride	Expansion #4	METRO 47 - HILLCROFT	Expansion #2	METRO 209 - KUYKENDAHL/SPRING P&R	Expansion #2
Conroe Connection Route 1 North	Expansion #4	METRO 48 - MARKET	Expansion #2	METRO 212 - SETON LAKE P&R	Expansion #2
Conroe Connection Route 2 South	Expansion #4	METRO 49 - CHIMNEY ROCK / S POST OAK	Expansion #2	METRO 214 - NORTHWEST STATION P&R	Expansion #2
Fort Bend Transit Route 1 Blue	Expansion #4	METRO 50 - BROADWAY	Expansion #2	METRO 216 - WEST LITTLE YORK P&R	Expansion #2
Fort Bend Transit Route 2 Green	Expansion #4	METRO 51 - HARDY- KELLEY	Expansion #2	METRO 217 - CYPRESS P&R	Expansion #2
Fort Bend Transit Route 3 Purple	Expansion #4	METRO 52 - HARDY- LEY	Expansion #2	METRO 219 - NW STAT/W.L. YORK MIDDAY P&R	Expansion #2
Fort Bend Transit Texas Medical Center	Expansion #4	METRO 54 - SCOTT	Expansion #2	METRO 221 - KINGSLAND P&R	Expansion #2
Fort Bend Transit Greenway Plaza	Expansion #4	METRO 56 - AIRLINE / MONTROSE	Expansion #2	METRO 222 - GRAND PARKWAY P&R	Expansion #2
Fort Bend Transit Galleria	Expansion #4	METRO 58 - HAMMERLY	Expansion #2	METRO 228 - ADDICKS P&R	Expansion #2
Harris County Transit Route 1 Garth Road	Expansion #4	METRO 59 - ALDINE MAIL	Expansion #2	METRO 229 - ADDICKS / KINGSLAND P&R	Expansion #2
Harris County Transit Route 2 Baytown Central	Expansion #4	METRO 60 - CAMBRIDGE	Expansion #2	METRO 236 - MAXEY P&R	Expansion #2
Harris County Transit Route 3 N Alexander / Cedar Bayou	Expansion #4	METRO 63 - FONDREN	Expansion #2	METRO 244 - MONROE P&R	Expansion #2
Harris County Transit Route 4 Baytown / Decker Loop	Expansion #4	METRO 64 - LINCOLN CITY	Expansion #2	METRO 246 - BAY AREA P&R	Expansion #2
Harris County Transit Route 5 La Porte City	Expansion #4	METRO 65 - BISSONNET	Expansion #2	METRO 247 - FUQUA P&R	Expansion #2
Harris County Transit Route 6 Baytown / Highlands / Crosby	Expansion #4	METRO 66 - QUITMAN	Expansion #2	METRO 249 - BAY AREA/FUQUA/MONROE P & R	Expansion #2
METRO 237 - BAYTOWN P&R	Expansion #2	METRO 67 - DAIRY ASHFORD	Expansion #2	METRO 255 - KINGWOOD P&R	Expansion #2
Island Transit Route 1 61st Via Market & Broadway	Expansion #4	METRO 68 - BRAESWOOD	Expansion #2	METRO 256 - EASTEX P&R	Expansion #2
Island Transit Route 2 UTMB-Ferry Road	Expansion #4	METRO 70 - MEMORIAL	Expansion #2	METRO 257 - TOWNSEN P&R	Expansion #2
Island Transit Route 3 71st - W Broadway Via Ave M	Expansion #4	METRO 71 - COTTAGE GROVE	Expansion #2	METRO 259 - KINGWOOD/TOWNSEN/EASTEX P&R	Expansion #2
Island Transit Route 4 Broadway - 8th St	Expansion #4	METRO 72 - WESTVIEW	Expansion #2	METRO 261 - WEST LOOP P&R	Expansion #2
Island Transit Route 5 Ave S - Stewart Road	Expansion #4	METRO 73 - BELLFORT	Expansion #2	METRO 262 - WESTWOOD P&R	Expansion #2
Island Transit Route 6 Ave S 61st Via Ave O	Expansion #4	METRO 75 - ELDRIDGE	Expansion #2	METRO 265 - WEST BELLFORT P&R	Expansion #2
Island Transit Route 7 Bayou - Seawall Loop	Expansion #4	METRO 76 - EVERGREEN	Expansion #2	METRO 269 - W. BELLFORT/ W. WOOD/HILLCROFT P&R	Expansion #2
METRO 2 - BELLAIRE	Expansion #2	METRO 77 - HOMESTEAD	Expansion #2	METRO 283 - KUYKENDAHL/GREENWAY-UPTOWN P&R	Expansion #2
METRO 3 - LANGLEY	Expansion #2	METRO 78 - WAYSIDE	Expansion #2	METRO 292 - WBELLFORT/WESTWOOD/TMC P&R	Expansion #2
METRO 4 - BEECHNUT	Expansion #2	METRO 79 - W LITTLE YORK	Expansion #2	METRO 297 - SOUTH POINT-MONROE/TMC P&R	Expansion #2
METRO 5 - SOUTHMORE	Expansion #2	METRO 80 - MLK / LOCKWOOD	Expansion #2	METRO 298 - ADDICKS-NWTC/TMC P&R	Expansion #2
METRO 6 - JENSEN / GREENS	Expansion #2	METRO 82 - WESTHEIMER	Expansion #2	METRO 360 - PEERLESS SHUTTLE	Expansion #2
METRO 7 - WEST AIRPORT	Expansion #2	METRO 83 - LEE ROAD - JFK	Expansion #2	METRO 399 - KUYKENDAHL SHUTTLE	Expansion #2
METRO 8 - WEST BELLFORT	Expansion #2	METRO 84 - BUFFALO SPEEDWAY	Expansion #2	METRO 402 - BELLAIRE QUICKLINE	Expansion #2
METRO 9 - GULFTON / HOLMAN	Expansion #2	METRO 85 - ANTOINE / WASHINGTON	Expansion #2	METRO 412 - GREENLINK CIRCULATOR	Expansion #4
METRO 10 - WILLOWBEND	Expansion #2	METRO 86 - FM 1960 / IMPERIAL VALLEY	Expansion #2	METRO 413 - GREENLINK ORANGE	Expansion #4
METRO 11 - ALMEDA / LYONS	Expansion #2	METRO 87 - SUNNYSIDE	Expansion #2	METRORAIL RED LINE	Expansion #1
METRO 14 - HIRAM CLARKE	Expansion #2	METRO 88 - SAGEMONT	Expansion #2	METRORAIL GREEN LINE	Expansion #1
METRO 20 - CANAL / MEMORIAL	Expansion #2	METRO 89 - DACOMA	Expansion #2	METRORAIL PURPLE LINE	Expansion #1
METRO 23 - CLAY - W 43RD	Expansion #2	METRO 96 - VETERANS MEMORIAL	Expansion #2	The Woodlands Route 299 Sawdust	Expansion #4
METRO 25 - RICHMOND	Expansion #2	METRO 97 - SETTEGAST	Expansion #2	The Woodlands Route 299 Research Forest	Expansion #4
METRO 26 - LONG POINT / CAVALCADE	Expansion #2	METRO 98 - BRIARGATE	Expansion #2	The Woodlands Route 299 Sterling Ridge	Expansion #4
METRO 27 - SHEPHERD	Expansion #2	METRO 99 - ELLA - FM 1960	Expansion #2	The Woodlands Trolley	Expansion #4

APPENDIX D: SAMPLE PLANS

OD Sample Plans and OD Survey Completed by Time of Day and Direction

TABLE 32: METROBUS/PNR OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION

Route #	Route Name	Direction	Ridership Data Spring 2016							Sampling Goals							COMPLETED						
			Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
2	BELLAIRE	Eastbound	270	872	1294	644	444	3524	7267	11	36	54	27	18	146	401	13	47	72	42	23	197	421
		Westbound	114	643	1252	995	739	3743		5	27	52	41	31	155		7	37	87	39	54	224	
3	LANGLEY	Northbound	10	45	119	91	50	315	672	0	2	6	4	2	15	44	0	5	17	6	3	31	48
		Southbound	49	91	131	76	10	357		2	4	6	4	0	18		3	4	7	3	0	17	
4	BEECHNUT	Eastbound	338	1116	1494	666	395	4009	7922	13	42	57	25	15	152	401	13	41	78	26	39	197	420
		Westbound	171	577	1332	1106	727	3913		6	22	51	42	28	149		10	41	83	43	46	223	
5	SOUTHMORE	Eastbound	10	115	190	120	48	483	952	1	8	13	8	3	32	85	2	10	11	9	17	49	100
		Westbound	27	147	188	74	33	469		2	10	13	5	2	31		4	17	16	8	6	51	
6	JENSEN / GREENS	Northbound	41	284	621	316	298	1560	3044	3	18	39	20	19	99	257	3	29	43	20	29	124	257
		Southbound	130	306	675	149	224	1484		8	19	43	9	14	94		10	32	58	9	24	133	
7	WEST AIRPORT	Eastbound	23	148	108	75	43	397	846	2	11	8	6	3	30	85	3	16	10	9	10	48	107
		Westbound	5	64	164	153	63	449		0	5	12	12	5	34		0	7	20	20	12	59	
8	WEST BELLFORT	Eastbound	119	310	484	288	171	1372	2711	8	22	34	20	12	98	257	9	26	42	20	35	132	265
		Westbound	50	196	446	388	259	1339		4	14	32	28	18	95		5	15	37	37	39	133	
9	GULFTON / HOLMAN	Eastbound	37	273	393	204	110	1017	2043	1	10	14	7	4	37	100	3	12	17	10	13	55	106
		Westbound	40	245	422	197	122	1026		1	9	15	7	4	38		2	10	16	12	11	51	
10	WILLOWBEND	Northbound	13	121	101	56	15	306	619	1	6	5	3	1	16	44	2	7	6	5	3	23	54
		Southbound	7	63	100	101	42	313		0	3	5	5	2	17		0	6	3	14	8	31	
11	ALMEDA / LYONS	Northbound	106	318	567	345	228	1564	3072	7	20	36	22	14	98	257	9	32	41	22	34	138	261
		Southbound	139	374	517	322	156	1508		9	23	32	20	10	95		10	25	35	21	32	123	
14	HIRAM CLARKE	Northbound	76	237	284	167	105	869	1834	3	10	12	7	4	36	100	4	14	12	10	11	51	111
		Southbound	15	111	274	306	259	965		1	5	11	13	11	39		2	8	14	24	12	60	
20	CANAL / MEMORIAL	Eastbound	33	220	402	263	139	1057	2170	1	8	14	9	5	37	100	1	13	20	11	21	66	132
		Westbound	82	283	371	289	88	1113		3	10	13	10	3	38		5	14	22	10	15	66	
23	CLAY - W 43RD	Eastbound	11	96	128	87	29	351	703	1	5	6	4	1	16	44	1	5	15	4	8	33	74
		Westbound	28	73	127	91	33	352		1	3	6	4	2	17		4	6	9	11	11	41	
25	RICHMOND	Eastbound	248	920	1293	740	381	3582	6985	11	40	56	32	16	154	401	11	52	84	32	26	205	430
		Westbound	177	593	1260	859	514	3403		8	26	54	37	22	147		8	48	77	54	38	225	
26	LONG POINT / CAVALCADE	Eastbound	141	360	773	475	259	2008	4020	7	17	37	23	12	96	257	8	26	62	24	12	132	260
		Westbound	136	446	796	410	224	2012		7	21	38	20	11	96		14	32	51	19	12	128	
27	SHEPHERD	Northbound	34	275	514	323	163	1309	2620	3	20	38	24	12	96	257	4	40	40	26	17	127	253
		Southbound	77	333	507	267	127	1311		6	24	37	20	9	96		13	30	50	20	13	126	
28	OST - WAYSIDE	Eastbound	40	299	514	281	77	1211	2498	3	23	40	22	6	93	257	9	34	62	25	9	139	259
		Westbound	100	282	616	253	36	1287		8	22	48	20	3	99		10	25	56	25	4	120	
29	CULLEN / HIRSCH	Northbound	117	389	658	295	165	1624	3275	7	23	39	17	10	96	257	8	24	39	21	32	124	263
		Southbound	76	271	620	394	290	1651		4	16	36	23	17	97		7	21	38	31	42	139	
30	CLINTON / ELLA	Eastbound	67	122	222	121	68	600	1159	4	8	14	8	4	39	100	4	11	18	13	5	51	102
		Westbound	23	149	159	148	80	559		1	10	10	10	5	36		2	8	16	10	15	51	
32	RENWICK / SAN FELIPE	Eastbound	50	210	298	180	92	830	1676	2	9	13	8	4	37	100	2	13	20	8	24	67	139
		Westbound	50	141	307	226	122	846		2	6	14	10	5	38		4	10	19	23	16	72	
33	POST OAK	Northbound	48	305	328	308	91	1080	2108	2	12	12	12	3	41	106	4	14	13	15	13	59	111
		Southbound	51	246	280	317	134	1028		2	9	11	12	5	39		4	11	11	13	13	52	
36	KEMPWOOD	Eastbound	79	275	376	251	112	1093	2158	3	10	13	9	4	38	100	5	11	19	12	12	59	109
		Westbound	53	256	328	297	131	1065		2	9	11	10	5	37		2	12	14	8	14	50	
38	MANCHESTER-LAWNDALE	Eastbound	1	6	23	14	5	50	87	0	1	3	2	1	6	15	0	3	6	3	2	14	26
		Westbound	2	9	19	7	1	38		0	1	2	1	0	5		0	2	6	2	2	12	
39	KATY FREEWAY	Eastbound	7	32	39	33	5	116	167	1	4	5	4	1	15	28	1	4	6	4	1	16	35
		Westbound	0	16	15	17	3	51		0	2	2	2	0	6		0	6	9	3	1	19	
40	TELEPHONE / HEIGHTS	Northbound	264	497	808	473	243	2285	4593	11	21	34	20	10	96	257	11	43	52	28	19	153	312
		Southbound	172	447	859	498	332	2308		7	19	36	21	14	97		11	39	62	24	23	159	
41	KIRBY / POLK	Eastbound	37	173	195	178	93	676	1315	2	10	11	10	5	39	100	3	22	11	12	5	53	106
		Westbound	23	167	198	168	83	639		1	10	11	10	5	36		3	14	19	9	8	53	
44	ACRES HOMES	Northbound	100	245	502	321	284	1452	2847	7	17	34	22	19	98	257	9	18	53	29	30	139	261
		Southbound	143	307	445	270	230	1395		10	21	30	18	16	94		12	22	39	25	24	122	
45	TIDWELL	Eastbound	65	370	741	445	299	1920	3898	3	18	37	22	15	95	257	4	23	36	22	34	119	267
		Westbound	129	473	744	388	244	1978		6	23	37	19	12	98		5	31	52	21	39	148	

TABLE 32B: METROBUS/PNR OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (CONTINUE)

Route #	Route Name	Direction	Ridership Data Spring 2016							Sampling Goals							COMPLETED						
			Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
46	GESSNER	Northbound	273	714	1230	731	391	3339	6481	13	33	57	34	18	155	401	15	43	66	36	31	191	403
		Southbound	141	601	1169	805	426	3142		7	28	54	37	20	146		8	29	106	37	32	212	
47	HILLCROFT	Northbound	49	421	512	323	103	1408	2755	3	29	36	23	7	99	257	6	29	57	28	15	135	264
		Southbound	30	259	502	353	203	1347		2	18	35	25	14	94		8	27	56	21	17	129	
48	MARKET	Eastbound	6	68	111	94	65	344	704	0	3	5	4	3	16	44	0	10	8	5	5	28	60
		Westbound	50	97	115	64	34	360		2	5	5	3	2	17		3	9	13	3	4	32	
49	CHIMNEY ROCK / S POST OAK	Northbound	131	300	495	327	152	1405	2780	9	21	34	23	11	97	257	11	20	44	29	49	153	317
		Southbound	35	343	490	311	196	1375		2	24	34	22	14	95		5	26	37	49	47	164	
50	BROADWAY	Northbound	156	269	488	253	142	1308	2654	11	20	35	18	10	95	257	13	41	41	15	17	127	268
		Southbound	56	183	504	351	252	1346		4	13	37	25	18	98		6	34	47	28	26	141	
51	HARDY- KELLEY	Eastbound	31	94	218	135	67	545	1004	2	7	16	10	5	41	100	4	8	23	12	8	55	106
		Westbound	28	93	197	96	45	459		2	7	15	7	3	34		3	10	17	13	8	51	
52	HARDY- LEY	Northbound	17	168	458	317	303	1263	2467	1	6	17	12	11	48	124	3	17	20	16	9	65	132
		Southbound	152	305	422	186	139	1204		6	11	16	7	5	45		8	9	24	11	15	67	
54	SCOTT	Northbound	241	598	1135	519	330	2823	5947	12	30	57	26	17	143	401	14	50	59	27	36	186	399
		Southbound	62	501	1128	803	630	3124		3	25	57	41	32	158		9	41	75	42	46	213	
56	AIRLINE / MONTROSE	Northbound	102	463	1106	702	381	2754	5588	5	25	60	38	21	148	401	6	41	82	42	40	211	416
		Southbound	249	604	1080	569	332	2834		13	33	58	31	18	153		15	46	88	32	24	205	
58	HAMMERLY	Eastbound	23	80	89	83	22	297	604	1	4	5	5	1	16	44	1	6	8	7	3	25	54
		Westbound	9	74	98	93	33	307		0	4	5	5	2	17		0	6	11	10	2	29	
59	ALDINE MAIL	Eastbound	4	60	108	46	9	227	405	0	3	6	2	0	12	28	4	6	10	5	0	25	48
		Westbound	5	48	84	35	6	178		0	2	4	2	0	9		2	10	7	4	0	23	
60	CAMBRIDGE	Northbound	37	425	383	206	85	1136	2213	1	14	13	7	3	38	100	6	16	16	10	11	59	134
		Southbound	28	139	256	386	268	1077		1	5	9	13	9	37		1	13	11	22	28	75	
63	FONDREN	Northbound	165	538	762	402	231	2098	4125	8	25	36	19	11	98	257	10	31	51	24	25	141	287
		Southbound	54	301	680	619	373	2027		3	14	32	29	17	95		3	37	50	32	24	146	
64	LINCOLN CITY	Northbound	0	9	17	9	1	36	77	0	1	2	1	0	5	15	0	1	4	2	0	7	18
		Southbound	0	11	23	6	1	41		0	2	3	1	0	6		0	3	7	1	0	11	
65	BISSONNET	Eastbound	272	961	1220	583	312	3348	6656	12	43	55	26	14	151	401	17	48	77	32	19	193	406
		Westbound	90	520	1165	962	571	3308		4	23	53	43	26	149		6	50	88	42	27	213	
66	QUITMAN	Eastbound	15	48	102	76	7	248	522	1	3	6	5	0	16	44	3	7	7	9	0	26	55
		Westbound	15	94	101	56	8	274		1	6	6	4	1	17		3	12	9	4	1	29	
67	DAIRY ASHFORD	Northbound	6	113	106	63	21	309	592	0	6	6	4	1	17	44	0	7	10	7	2	26	52
		Southbound	2	62	89	104	26	283		0	3	5	6	1	16		0	7	10	7	2	26	
68	BRAESWOOD	Eastbound	67	326	357	196	112	1058	2041	2	12	13	7	4	39	100	4	11	17	9	12	53	105
		Westbound	26	172	295	311	179	983		1	6	11	11	7	36		1	10	13	12	16	52	
70	MEMORIAL	Eastbound	5	48	61	50	13	177	384	0	3	3	3	1	10	28	0	7	5	4	2	18	38
		Westbound	10	79	69	35	14	207		1	4	4	2	1	11		1	6	8	3	2	20	
71	COTTAGE GROVE	Eastbound	0	4	5	2	1	12	23	0	1	1	1	0	3	8	0	1	1	1	0	3	8
		Westbound	0	2	6	2	1	11		0	1	2	1	0	3		0	2	2	1	0	5	
72	WESTVIEW	Eastbound	9	60	96	57	30	252	463	0	3	4	3	1	11	28	0	5	11	5	6	27	56
		Westbound	6	61	77	51	16	211		0	3	3	2	1	10		1	5	5	12	6	29	
73	BELLFORT	Eastbound	63	385	913	642	561	2564	4973	2	15	35	25	22	99	257	6	45	47	19	25	142	275
		Westbound	171	528	940	459	311	2409		7	20	36	18	12	93		12	34	49	24	14	133	
75	ELDRIDGE	Eastbound	25	97	99	75	23	319	663	1	5	5	4	1	16	44	2	6	3	3	4	18	47
		Westbound	7	62	107	120	48	344		0	3	5	6	2	17		1	7	8	7	6	29	
76	EVERGREEN	Northbound	67	176	383	140	70	836	1674	3	8	17	6	3	37	100	3	15	22	6	3	49	103
		Southbound	32	141	362	192	111	838		1	6	16	9	5	38		2	14	23	9	6	54	
77	HOMESTEAD	Northbound	11	37	80	70	71	269	514	2	4	8	4	4	22	44	5	7	12	8	5	37	66
		Southbound	34	65	75	34	37	245		3	7	7	3	2	22		4	6	11	2	6	29	
78	WAYSIDE	Northbound	10	32	86	68	58	254	488	1	2	4	4	2	13	28	0	3	7	7	1	18	37
		Southbound	20	53	98	30	33	234		2	4	5	3	1	15		3	3	9	2	2	19	
79	W LITTLE YORK	Eastbound	28	178	224	123	33	586	1262	2	11	13	7	2	35	100	7	17	25	9	3	61	119
		Westbound	18	151	266	197	44	676		1	9	16	12	3	40		6	16	23	10	3	58	
80	MLK / LOCKWOOD	Northbound	162	436	846	426	297	2167	4606	7	18	35	18	12	91	257	8	29	60	20	17	134	259
		Southbound	138	469	870	526	436	2439		6	20	36	22	18	102		6	24	54	22	19	125	

TABLE 32C: METROBUS/PNR OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (CONTINUE)

Route #	Route Name	Direction	Ridership Data Spring 2016							Sampling Goals							COMPLETED						
			Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
82	WESTHEIMER	Eastbound	376	1360	2139	1118	771	5764	11339	14	49	78	41	28	209	548	13	60	88	52	49	262	548
		Westbound	225	918	1996	1428	1008	5575		8	33	72	52	37	202		12	43	83	51	97	286	
83	LEE ROAD - JFK	Northbound	7	47	86	50	13	203	447	0	2	4	2	1	10	28	1	3	13	2	2	21	42
		Southbound	9	69	106	52	8	244		0	3	5	2	0	11		1	6	8	4	2	21	
84	BUFFALO SPEEDWAY	Northbound	27	204	265	206	67	769	1499	1	10	13	10	3	38	100	2	12	19	16	6	55	109
		Southbound	13	179	256	189	93	730		1	9	13	9	5	37		1	12	25	10	6	54	
85	ANTOINE / WASHINGTON	Northbound	106	355	624	495	103	1683	3391	9	31	55	44	9	149	401	12	44	84	43	10	193	404
		Southbound	175	441	584	395	113	1708		16	39	52	35	10	151		18	59	84	37	13	211	
86	FM 1960 / IMPERIAL VALLEY	Eastbound	37	234	437	276	221	1205	2458	1	7	13	8	7	37	100	2	13	17	14	10	56	119
		Westbound	58	247	453	280	215	1253		2	8	14	9	7	38		4	10	19	14	16	63	
87	SUNNYSIDE	Northbound	40	102	167	103	49	461	920	3	7	12	7	3	32	85	2	12	18	9	7	48	93
		Southbound	18	101	150	125	65	459		1	7	10	9	5	32		3	10	17	10	5	45	
88	SAGEMONT	Northbound	48	87	183	128	75	521	971	3	6	12	8	5	34	85	5	8	15	10	6	44	88
		Southbound	8	83	157	108	94	450		1	5	10	7	6	30		4	5	15	8	12	44	
89	DACOMA	Northbound	5	62	128	53	10	258	320	0	4	8	3	1	17	28	0	9	9	4	3	25	36
		Southbound	2	18	24	15	3	62		0	1	2	1	0	4		0	2	8	1	0	11	
96	VETERANS MEMORIAL	Northbound	18	42	183	69	65	377	773	1	3	15	6	5	31	85	3	7	21	8	6	45	92
		Southbound	18	83	201	40	54	396		1	7	17	3	4	33		3	7	29	4	4	47	
97	SETTEGAST	Eastbound	23	99	109	42	11	284	578	1	6	6	2	1	16	44	3	8	7	6	1	25	47
		Westbound	23	76	121	59	15	294		1	4	7	3	1	17		1	5	9	6	1	22	
98	BRIARGATE	Eastbound	18	58	93	59	28	256	476	1	3	4	3	1	11	28	1	4	10	9	1	25	47
		Westbound	7	51	83	50	29	220		0	2	4	2	1	10		1	4	6	8	3	22	
99	ELLA - FM 1960	Northbound	17	237	283	152	160	849	1699	1	10	12	7	7	37	100	1	12	18	11	10	52	107
		Southbound	78	154	324	181	113	850		3	7	14	8	5	38		8	10	14	7	16	55	
102	BUSH IAH EXPRESS	Inbound	189	413	514	232	353	1701	3379	11	24	29	13	20	97	257	9	24	40	23	30	126	262
		Outbound	111	268	551	369	379	1678		6	15	31	21	22	96		6	28	44	25	33	136	
108	VETERANS MEMORIAL EXPRES	Inbound	69	321	19	109	0	518	1035	5	23	1	8	0	38	100	10	37	2	10	5	64	104
		Outbound	17	81	45	351	23	517		1	6	3	25	2	37		0	8	3	26	3	40	
137	NORTHSHORE EXPRESS	Eastbound	8	16	344	0	139	507	1081	1	3	61	0	25	90	257	0	24	59	13	27	123	268
		Westbound	33	34	378	90	39	574		6	6	67	16	7	102		14	26	77	17	11	145	
151	WESTPARK EXPRESS	Eastbound	122	778	0	114	25	1039	1981	5	29	0	4	1	39	100	6	37	0	16	7	66	110
		Westbound	22	95	0	749	76	942		1	4	0	28	3	36		2	5	0	30	7	44	
152	HARWIN EXPRESS	Eastbound	45	275	320	131	32	803	1502	2	14	16	7	2	40	100	3	14	19	9	2	47	103
		Westbound	15	126	309	211	38	699		1	6	15	11	2	35		4	15	22	12	3	56	
153	HARWIN EXPRESS	Eastbound	118	239	342	246	107	1052	2208	4	9	13	9	4	40	111	5	9	38	17	11	80	164
		Westbound	39	279	348	287	203	1156		1	11	13	11	8	44		3	22	30	15	14	84	
160	MEMORIAL CITY EXPRESS	Eastbound	0	0	46	0	0	46	81	0	0	6	0	0	6	15	0	0	7	0	0	7	17
		Westbound	0	0	35	0	0	35		0	0	5	0	0	5		0	0	10	0	0	10	
161	WILCREST EXPRESS	Eastbound	122	282	490	269	134	1297	2557	9	21	37	20	10	98	257	14	32	41	21	32	140	269
		Westbound	97	221	480	320	142	1260		7	17	36	24	11	95		6	32	37	33	21	129	
162	MEMORIAL EXPRESS	Eastbound	82	186	146	150	67	631	1310	5	11	8	9	4	36	100	6	14	12	9	11	52	109
		Westbound	33	166	156	229	95	679		2	10	9	13	5	39		3	12	12	19	11	57	
170	MISSOURI CITY EXPRESS	Inbound	44	126	0	10	2	182	544	0	63	0	0	0	63	63	1	72	1	0	0	74	74
		Outbound	2	15	0	276	69	362		0	0	0	0	0	0		0	0	0	0	0	0	
171	FORTBEND TOWN CENTER	Inbound	48	213	0	17	4	282	283	0	29	0	0	0	29	29	0	43	0	0	0	43	43
		Outbound	0	0	0	1	0	1		0	0	0	0	0	0		0	0	0	0	0	0	
202	KUYKENDAHL P&R	Inbound	242	924	0	8	0	1173	1973	0	122	0	0	0	122	122	0	144	0	0	0	144	144
		Outbound	2	5	0	792	0	800		0	0	0	0	0	0		0	0	0	0	0	0	
204	SPRING P&R	Inbound	97	632	0	10	0	739	1364	0	122	0	0	0	122	122	0	139	0	0	0	139	139
		Outbound	0	6	0	570	49	624		0	0	0	0	0	0		0	0	0	0	0	0	
209	KUYKENDAHL/SPRING P&R	Inbound	0	58	91	9	9	167	529	0	0	10	2	2	14	44	0	4	9	3	5	21	71
		Outbound	0	10	168	30	153	362		0	0	14	4	12	30		0	0	16	14	20	50	
212	SETON LAKE P&R	Inbound	128	468	0	7	1	605	1139	0	122	0	0	0	122	122	0	126	0	0	0	126	126
		Outbound	0	1	0	468	64	534		0	0	0	0	0	0		0	0	0	0	0	0	
214	NORTHWEST STATION P&R	Inbound	208	1047	0	16	2	1274	2374	0	122	0	0	0	122	122	0	191	0	0	0	191	191
		Outbound	2	11	39	942	105	1100		0	0	0	0	0	0		0	0	0	0	0	0	
216	WEST LITTLE YORK P&R	Inbound	46	221	0	9	0	276	559	0	63	0	0	0	63	63	0	76	0	0	0	76	76
		Outbound	2	4	0	266	12	283		0	0	0	0	0	0		0	0	0	0	0	0	

TABLE 32D: METROBUS/PNR OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (CONTINUE)

Route #	Route Name	Direction	Ridership Data Spring 2016							Sampling Goals							COMPLETED						
			Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
217	CYPRESS P&R	Inbound	305	823		9	0	1137	2150	0	122	0	0	0	122	122	0	193	0	0	0	193	193
		Outbound	2	3	37	899	72	1013		0	0	0	0	0	0		0	0	0	0	0	0	
219	NW STAT/W.L. YORK MIDDAY	Inbound	0	31	63	0	4	98	306	0	0	9	0	0	9	28	0	1	11	3	0	15	50
		Outbound	0	6	140	0	62	207		0	0	14	0	6	20		0	0	27	0	8	35	
221	KINGSLAND P&R	Inbound	217	1425		14	0	1656	3205	0	122	0	0	0	122	122	0	143	0	1	1	145	145
		Outbound	2	12	46	1337	152	1549		0	0	0	0	0	0		0	0	0	0	0	0	
222	GRAND PARKWAY P&R	Inbound	68	529	0	4	0	601	1136	0	122	0	0	0	122	122	0	154	0	0	0	154	154
		Outbound	0	6	0	492	36	535		0	0	0	0	0	0		0	0	0	0	0	0	
228	ADDICKS P&R	Inbound	178	954	0	16	2	1150	2071	0	122	0	0	0	122	122	0	150	0	0	0	150	150
		Outbound	1	12	0	847	61	921		0	0	0	0	0	0		0	0	0	0	0	0	
229	ADDICKS / KINGSLAND P&R	Inbound	0	52	106	0	3	161	610	0	0	12	0	0	12	44	0	0	30	0	0	30	74
		Outbound	0		272	0	177	449		0	0	20	0	13	32		0	0	29	0	15	44	
236	MAXEY P&R	Inbound	44	180	0	3	0	227	471	0	29	0	0	0	29	29	0	38	0	0	0	38	38
		Outbound	0	0	0	217	27	245		0	0	0	0	0	0		0	0	0	0	0	0	
244	MONROE P&R	Inbound	22	276	0	7	0	305	523	0	63	0	0	0	63	63	0	73	1	0	0	74	74
		Outbound	0	2	0	197	19	218		0	0	0	0	0	0		0	0	0	0	0	0	
246	BAY AREA P&R	Inbound	137	781	0	49	8	974	1764	0	122	0	0	0	122	122	0	126	1	0	0	127	127
		Outbound	0	12	0	725	54	790		0	0	0	0	0	0		0	0	0	0	0	0	
247	FUQUA P&R	Inbound	59	503	0	3	3	567	1050	0	122	0	0	0	122	122	0	138	2	0	0	140	140
		Outbound	0	2	0	480	0	483		0	0	0	0	0	0		0	0	0	0	0	0	
249	BAY AREA/FUQUA/MONROE P	Inbound	0	33	88	0	5	126	402	0	0	9	0	0	9	28	0	0	19	0	1	20	48
		Outbound	0	25	176	0	74	276		0	0	14	0	5	19		0	4	17	0	7	28	
255	KINGWOOD P&R	Inbound	97	423	0	9	2	530	992	0	63	0	0	0	63	63	0	64	0	0	0	64	64
		Outbound	1	5	0	405	51	462		0	0	0	0	0	0		0	0	0	0	0	0	
256	EASTEX P&R	Inbound	128	415	0	7	1	550	977	0	63	0	0	0	63	63	0	93	7	0	0	100	100
		Outbound	0	2	0	401	25	428		0	0	0	0	0	0		0	0	0	0	0	0	
257	TOWNSEN P&R	Inbound	32	533	0	5	0	570	1102	0	122	0	0	0	122	122	0	128	0	0	0	128	128
		Outbound	0	3	0	482	47	532		0	0	0	0	0	0		0	0	0	0	0	0	
259	KINGWOOD/TOWNSEN/EASTE	Inbound	0	0	57	6	3	66	259	0	0	6	2	0	8	28	0	0	12	2	0	14	39
		Outbound	0	5	156	0	32	193		0	0	17	0	3	20		0	0	21	0	4	25	
261	WEST LOOP P&R	Inbound	29	133	0	3	0	165	317	0	29	0	0	0	29	29	0	32	0	0	0	32	32
		Outbound	0	4	0	140	8	152		0	0	0	0	0	0		0	0	0	0	0	0	
262	WESTWOOD P&R	Inbound	22	212	0	4	1	239	709	0	63	0	0	0	63	63	0	76	0	0	0	76	76
		Outbound	0	2	0	425	44	470		0	0	0	0	0	0		0	0	0	0	0	0	
265	WEST BELLFORT P&R	Inbound	154	1530	0	11	2	1697	2992	0	122	0	0	0	122	122	0	156	0	0	0	156	156
		Outbound	4	5	83	1129	73	1295		0	0	0	0	0	0		0	0	0	0	0	0	
269	W. BELLFORT/ W. WOOD/HILL	Inbound	0	12	80	0	0	92	208	0	0	6	0	0	6	15	0	2	7	0	0	9	20
		Outbound	0	5	85	0	26	116		0	0	6	0	3	9		0	0	7	0	4	11	
283	KUYKENDAHL/GREENWAY-UPT	Inbound	31	160	0	3	0	193	378	0	29	0	0	0	29	29	0	37	0	0	0	37	37
		Outbound	0	0	0	156	29	185		0	0	0	0	0	0		0	0	0	0	0	0	
292	WBELLFORT/WESTWOOD/TMC	Inbound	51	226	0	5	3	284	612	0	63	0	0	0	63	63	0	83	0	0	0	83	83
		Outbound	0	2	28	226	71	328		0	0	0	0	0	0		0	0	0	0	0	0	
297	SOUTH POINT-MONROE/TMC	Inbound	98	398	0	8	0	504	982	0	63	0	0	0	63	63	0	105	0	0	0	105	105
		Outbound	0	1	36	432	9	478		0	0	0	0	0	0		0	0	0	0	0	0	
298	ADDICKS-NWTC/TMC P&R	Inbound	286	507	0	6	0	799	1437	0	122	0	0	0	122	122	0	151	0	1	0	152	152
		Outbound	0	3	47	549	39	637		0	0	0	0	0	0		0	0	0	0	0	0	
360	PEERLESS SHUTTLE	Northbound	2	13	14	11	8	48	166	0	2	2	1	1	6	28	0	2	5	2	5	14	39
		Southbound	1	30	36	30	21	118		0	4	5	4	3	15		0	3	7	5	10	25	
399	KUYKENDAHL SHUTTLE	Northbound	6	23	54	27	9	119	237	1	2	5	2	1	11	28	1	2	9	4	1	17	33
		Southbound	11	32	52	16	7	118		1	3	5	1	1	10		1	3	9	2	1	16	
402	BELLAIRE QUICKLINE	Eastbound	53	240	335	176	0	804	1609	2	11	16	8	0	37	100	2	21	15	8	0	46	107
		Westbound	13	126	370	296	0	805		1	6	17	14	0	38		3	10	32	16	0	61	
412	GREENLINK CIRCULATOR	Eastbound	0	60	111	23	1	195	795	0	5	9	2	0	16	85	0	5	26	3	1	35	86
		Westbound	0	80	346	157	17	600		0	6	28	13	1	48		0	6	30	15	0	51	
413	GREENLINK ORANGE ROUTE	Eastbound	0	0	0	0	29	29	83	0	0	0	0	3	3	9	0	0	0	0	3	3	12
		Westbound	0	0	0	0	54	54		0	0	0	0	6	6		0	0	0	0	9	9	
			13250	52749	66373	54407	25458	212237	212237	535	4,192	3,420	2,059	1,225	11,431	14,667	768	5,649	4,924	2,583	2,361	16,285	16,285

TABLE 33: METRORAIL OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (GREEN LINE)

		Ridership Data Spring 2016							Sampling Goals							COMPLETED						
Station	Dir	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Theater District	EASTBOUND	19	30	95	99	109	352	352	2	4	12	13	14	60	60	3	8	18	16	18	63	63
Central Station	EASTBOUND	18	64	197	181	190	650	673	1	4	13	12	13	43	60	3	6	32	26	17	84	85
	WESTBOUND	0	5	9	4	5	23		0	0	1	0	0	2		0	0	0	1	0	1	
Convention District	EASTBOUND	0	1	23	28	20	72	142	0	0	5	6	4	15	40	0	1	5	7	7	20	43
	WESTBOUND	8	11	17	24	10	70		2	2	4	5	2	15		2	1	5	8	7	23	
EaDo / Stadium	EASTBOUND	2	21	45	28	26	122	261	0	4	8	5	4	21	60	0	5	13	7	4	29	59
	WESTBOUND	5	30	61	24	19	139		1	5	11	4	3	24		1	10	10	6	3	30	
Coffee Plant / Second Ward	EASTBOUND	0	10	24	12	6	52	204	0	2	5	3	1	11	60	0	6	8	2	1	17	67
	WESTBOUND	9	30	47	44	22	152		2	7	10	10	5	34		2	12	11	14	11	50	
Lockwood / Eastwood	EASTBOUND	0	7	11	23	11	52	553	0	1	1	2	1	4	60	0	3	3	2	3	11	62
	WESTBOUND	59	158	138	93	53	501		5	13	11	8	4	41		5	17	17	8	4	51	
Altic / Howard Hughes	EASTBOUND	0	0	0	0	1	1	392	0	0	0	0	0	0	60	0	0	3	3	2	8	60
	WESTBOUND	19	101	143	69	59	391		2	12	16	8	7	45		3	15	17	8	9	52	
Cesar Chavez / 67th St.	EASTBOUND	0	0	10	2	0	12	130	0	0	2	0	0	3	40	0	0	3	1	1	5	43
	WESTBOUND	1	17	40	35	25	118		0	4	9	8	6	27		2	6	15	8	7	38	
Magnolia Park Transit Center	WESTBOUND	30	79	216	104	73	502	502	3	7	19	9	7	60	60	3	11	36	9	8	67	67
	TOTAL	170	564	1,076	770	629	3,209	3,209	18	65	128	93	72	405	500	24	101	196	126	102	549	549

TABLE 34: METRORAIL OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (PURPLE LINE)

		Ridership Data Spring 2016							Sampling Goals							COMPLETED						
Station	Dir	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Theater District	EASTBOUND	6	125	141	59	80	411	411	1	14	15	6	9	60	60	1	22	29	13	8	73	73
Central Station	EASTBOUND	14	111	252	149	128	654	732	1	7	15	9	8	40	60	5	18	35	17	12	87	92
	WESTBOUND	4	10	37	13	14	78		0	1	2	1	1	5		0	0	2	1	2	5	
Convention District	EASTBOUND	3	13	7	15	16	54	110	1	3	2	4	4	13	36	0	5	7	12	14	38	53
	WESTBOUND	10	10	14	16	6	56		2	2	3	4	1	14		1	4	2	4	4	15	
EaDo / Stadium	EASTBOUND	11	28	59	51	26	175	296	2	4	9	8	4	27	60	2	7	17	10	7	43	63
	WESTBOUND	8	37	48	19	9	121		1	6	7	3	1	18		1	5	8	3	3	20	
Leeland / Third Ward	SOUTHBOUND	1	5	9	6	6	27	153	0	1	2	1	1	5	40	2	6	6	4	8	26	52
	NORTHBOUND	11	55	31	20	9	126		2	11	6	4	2	25		1	10	9	4	2	26	
Elgin / Third Ward	SOUTHBOUND	2	8	44	27	17	98	236	0	1	6	3	2	12	40	1	5	4	5	4	19	41
	NORTHBOUND	8	27	43	42	18	138		1	3	5	5	2	18		2	3	6	5	6	22	
Robertson Stadium / UH / TSU	SOUTHBOUND	0	17	42	71	22	152	475	0	2	4	7	2	14	60	0	2	11	10	12	35	79
	NORTHBOUND	5	28	125	112	53	323		0	3	12	11	5	31		1	8	18	12	5	44	
UH South / University Oaks	SOUTHBOUND	0	7	15	9	16	47	280	0	1	2	1	3	8	60	0	2	4	13	10	29	91
	NORTHBOUND	3	19	82	97	32	233		0	3	13	16	5	37		0	7	28	24	3	62	
MacGregor Park / MLK Jr.	SOUTHBOUND	0	1	10	1	6	18	187	0	0	2	0	1	3	40	3	7	4	1	1	16	54
	NORTHBOUND	19	46	68	24	12	169		3	7	11	4	2	27		5	9	17	4	3	38	
Palm Center Transit Center	NORTHBOUND	31	138	142	67	57	435	435	3	14	15	7	6	60	60	6	37	51	10	3	107	107
	TOTAL	136	685	1,169	798	527	3,315	3,315	19	83	132	94	59	417	516	31	157	258	152	107	705	705

TABLE 35: METRORAIL OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (RED LINE)

		Ridership Data Spring 2016							Sampling Goals							COMPLETED						
Station	Dir	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Fannin South Transit Center	NORTHBOUND	212	1327	1195	441	296	3471	3471	8	50	45	17	11	175	175	13	62	107	30	27	239	239
Stadium Park / Astrodome / NRG	NORTHBOUND	79	341	387	184	136	1127	1245	6	26	30	14	11	88	129	11	44	42	17	16	130	138
	SOUTHBOUND	6	11	33	36	32	118		0	1	3	3	2	9		0	1	3	3	1	8	
Smith Lands	NORTHBOUND	486	1567	989	171	58	3271	3424	19	60	38	7	2	125	175	27	82	57	11	2	179	186
	SOUTHBOUND	0	27	38	49	39	153		0	1	1	2	1	6		0	0	5	0	2	7	
TMC Transit Center	NORTHBOUND	117	696	1019	672	355	2859	3749	4	26	38	25	13	108	188	10	40	80	27	24	181	274
	SOUTHBOUND	20	57	217	368	228	890		1	2	8	14	9	33		5	6	14	35	33	93	
Dryden / TMC	NORTHBOUND	29	184	488	867	305	1873	4519	1	7	18	33	11	70	226	1	15	39	37	26	118	251
	SOUTHBOUND	5	63	487	1151	940	2646		0	2	18	43	35	99		3	5	29	52	44	133	
Memorial Hermann Hospital / Zoo	NORTHBOUND	29	116	432	587	318	1482	3416	1	4	17	23	12	57	175	1	10	31	47	24	113	203
	SOUTHBOUND	3	134	489	701	607	1934		0	5	19	27	23	74		2	5	22	34	27	90	
Hermann Park / Rice U	NORTHBOUND	2	23	123	302	74	524	746	0	1	7	18	4	32	60	0	3	14	19	8	44	63
	SOUTHBOUND	1	45	85	57	34	222		0	3	5	3	2	13		1	4	5	6	3	19	
Museum District	NORTHBOUND	11	99	367	142	68	687	1198	1	8	30	11	5	55	129	1	9	37	14	17	78	134
	SOUTHBOUND	13	157	198	103	40	511		1	13	16	8	3	41		2	16	24	8	6	56	
Wheeler Transit Center	NORTHBOUND	174	507	1048	520	427	2676	3944	7	19	39	20	16	101	198	8	34	61	20	20	143	209
	SOUTHBOUND	85	409	401	224	149	1268		3	15	15	8	6	48		5	23	24	9	5	66	
Ensemble / HCC	NORTHBOUND	45	222	567	314	177	1325	2384	2	9	23	13	7	54	129	3	21	27	13	13	77	134
	SOUTHBOUND	15	161	454	249	180	1059		1	7	18	10	7	43		3	14	25	10	5	57	
McGowen	NORTHBOUND	24	180	262	147	117	730	1534	2	11	17	9	7	46	129	2	14	24	10	8	58	129
	SOUTHBOUND	14	157	337	150	146	804		1	10	21	9	9	51		2	14	22	11	22	71	
Downtown Transit Center	NORTHBOUND	43	193	640	356	207	1439	3653	2	7	24	13	8	54	184	4	20	42	12	14	92	198
	SOUTHBOUND	68	612	827	369	338	2214		3	23	31	14	13	84		4	32	43	14	13	106	
Bell	NORTHBOUND	17	80	152	105	70	424	1092	2	7	13	9	6	38	129	5	10	15	16	12	58	127
	SOUTHBOUND	14	102	217	196	139	668		1	9	19	17	12	59		3	10	24	20	12	69	
Main Street Square	NORTHBOUND	20	115	379	331	212	1057	3226	1	5	15	13	9	43	175	2	12	28	16	11	69	189
	SOUTHBOUND	44	294	756	666	409	2169		2	12	31	27	17	88		8	18	47	28	19	120	
Central Station	NORTHBOUND	19	62	215	197	132	625	2127	1	3	10	9	6	28	129	2	6	17	11	7	43	132
	SOUTHBOUND	47	251	473	446	285	1502		2	11	22	20	13	68		3	14	30	28	14	89	
Preston	NORTHBOUND	31	130	319	208	105	793	2967	1	6	14	9	5	35	175	4	11	17	17	9	58	183
	SOUTHBOUND	128	733	714	394	205	2174		6	32	32	17	9	96		8	35	56	16	10	125	
UH-Downtown	NORTHBOUND	7	26	166	80	62	341	1118	1	2	14	7	5	30	129	0	4	21	8	11	44	136
	SOUTHBOUND	12	69	384	183	129	777		1	6	33	16	11	67		1	17	44	16	14	92	
Burnett Transit Center / Casa De Amigos	NORTHBOUND	14	15	147	46	30	252	901	1	1	9	3	2	16	77	1	1	8	4	1	15	80
	SOUTHBOUND	39	158	284	109	59	649		2	10	18	7	4	42		4	14	32	8	7	65	
Quitman / Near Northside	NORTHBOUND	26	82	106	76	101	391	1167	2	7	9	6	8	32	129	2	13	15	9	12	51	134
	SOUTHBOUND	89	212	229	155	91	776		7	18	19	13	8	64		11	23	27	12	10	83	
Fulton / North Central	NORTHBOUND	10	55	172	220	91	548	1243	1	4	13	17	7	43	129	1	4	17	20	11	53	130
	SOUTHBOUND	28	151	241	126	149	695		2	12	19	10	12	54		3	15	28	15	16	77	
Moody Park	NORTHBOUND	11	21	66	45	27	170	510	1	2	6	4	2	15	60	1	2	6	5	5	19	62
	SOUTHBOUND	18	76	99	69	78	340		2	7	9	6	7	30		3	6	15	7	12	43	
Cavalcade	NORTHBOUND	4	19	67	37	36	163	826	0	1	5	3	3	11	77	1	2	5	2	5	15	92
	SOUTHBOUND	42	184	249	116	72	663		3	13	17	8	5	46		6	23	33	8	7	77	
Lindale Park	NORTHBOUND	3	7	37	11	9	67	194	0	1	6	2	1	10	40	0	2	6	3	1	12	41
	SOUTHBOUND	10	52	45	13	7	127		2	8	7	2	1	20		2	11	12	3	1	29	
Melbourne / North Lindale	NORTHBOUND	3	9	48	7	9	76	333	0	1	6	1	1	10	60	0	0	3	1	3	7	61
	SOUTHBOUND	15	78	118	25	21	257		2	11	16	3	3	35		2	24	20	5	3	54	
Northline Transit Center / HCC	SOUTHBOUND	255	702	1131	485	492	3065	3065	11	30	48	21	21	175	175	14	89	162	45	47	357	357
	TOTAL	2,387	10,971	17,897	12,506	8,291	52,052	52,052	116	531	894	596	398	2,623	3,381	195	840	1,465	762	620	3,882	3,882

TABLE 36: OTHER REGIONAL BUS PROVIDERS OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (THE WOODLANDS)

		Ridership Data Winter 2017							Sampling Goals							COMPLETED						
Provider / Agency / Route	Direction	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
The Woodlands Route 299 Research Forest	Northbound	-	-	-	-	-	0	1338	0	0	0	0	0	0	122	0	0	0	0	0	0	127
The Woodlands Route 299 Research Forest	Southbound	-	-	-	-	-	0		0	122	0	0	0	122		0	127	0	0	0	127	
The Woodlands Route 299 Sawdust	Northbound	-	-	-	-	-	0	696	0	0	0	0	0	0	63	0	0	0	0	0	0	65
The Woodlands Route 299 Sawdust	Southbound	-	-	-	-	-	0		0	63	0	0	0	63		0	64	0	1	0	65	
The Woodlands Route 299 Sterling Ridge	Northbound	-	-	-	-	-	0	458	0	0	0	0	0	0	29	0	0	0	0	0	0	35
The Woodlands Route 299 Sterling Ridge	Southbound	-	-	-	-	-	0		0	29	0	0	0	29		1	34	0	0	0	35	
The Woodlands Trolley	Circulator	-	-	-	-	-	0	207	0	0	0	0	0	0	28	0	0	8	9	6	23	23
	Totals						0	2,699	0	214	0	0	0	214	242	1	225	8	10	6	250	250

TABLE 37: OTHER REGIONAL BUS PROVIDERS OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (FORT BEND TRANSIT)

		Ridership Data Winter 2017							Sampling Goals							COMPLETED						
Provider / Agency / Route	Direction	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Fort Bend Transit Route 1 Blue	Inbound	-	3	3	3	-	9	18	0	0	0	0	0	0	15	0	0	1	1	0	2	13
Fort Bend Transit Route 1 Blue	Outbound	-	2	3	4	-	9		0	0	0	0	0	0		0	0	2	0	0	2	
Fort Bend Transit Route 2 Green	Inbound	-	5	3	-	-	8	17	0	0	0	0	0	0		0	1	1	3	0	5	
Fort Bend Transit Route 2 Green	Outbound	-	2	4	3	-	9		0	0	0	0	0	0		0	0	0	0	0	0	
Fort Bend Transit Route 3 Purple	Inbound	-	2	4	2	-	8	11	0	0	0	0	0	0		0	0	1	3	0	4	
Fort Bend Transit Route 3 Purple	Outbound	-	3	-	-	-	3		0	0	0	0	0	0		0	0	0	0	0	0	
Fort Bend Transit Texas Medical Center	Inbound	17	266	8	-	-	291	573	0	63	0	0	0	63	63	0	60	0	0	0	60	60
Fort Bend Transit Texas Medical Center	Outbound	-	-	8	226	48	282		0	0	0	0	0	0		0	0	0	0	0	0	
Fort Bend Transit Greenway Plaza	Inbound	20	138	0	-	-	158	305	0	29	0	0	0	29	29	0	29	0	0	0	29	29
Fort Bend Transit Greenway Plaza	Outbound	-	-	-	128	19	147		0	0	0	0	0	0		0	0	0	0	0	0	
Fort Bend Transit Galleria	Inbound	5	108	4	-	-	117	219	0	29	0	0	0	29	29	0	29	0	0	0	29	29
Fort Bend Transit Galleria	Outbound	-	-	-	99	3	102		0	0	0	0	0	0		0	0	0	0	0	0	
	Totals	42	529	37	465	70	1,143	1,143	0	121	0	0	0	121	136	0	119	5	7	0	131	131

TABLE 38: OTHER REGIONAL BUS PROVIDERS OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (ISLAND TRANSIT)

		Ridership Data Winter 2017							Sampling Goals							COMPLETED						
Provider / Agency / Route	Direction	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Island Transit Route 1 61st Via Market & Broadway	Circulator	-	-	-	-	-	152	152	0	0	0	0	0	0	28	0	12	13	6	3	34	34
Island Transit Route 2 UTMB-Ferry Road	Circulator	-	-	-	-	-	207	207	0	0	0	0	0	0	28	0	5	18	6	2	31	31
Island Transit Route 3 71st - W Broadway Via Ave M	Circulator	-	-	-	-	-	0	120	0	0	0	0	0	0	28	0	9	9	7	2	27	31
Island Transit Route 4 Broadway - 8th St	Circulator	-	-	-	-	-	0		0	0	0	0	0	0		0	2	1	1	0	4	
Island Transit Route 5 Ave S - Stewart Road	Circulator	-	-	-	-	-	0	577	0	0	0	0	0	0	44	0	3	11	5	4	23	52
Island Transit Route 6 Ave S 61st Via Ave O	Circulator	-	-	-	-	-	0		0	0	0	0	0	0		0	7	15	7	0	29	
Island Transit Route 7 Bayou - Seawall Loop	Circulator	-	-	-	-	-	133	133	0	0	0	0	0	0	28	0	9	13	5	3	30	30
	Totals	0	0	0	0	0	492	1,189	0	0	0	0	0	0	156	0	47	80	37	14	178	178

TABLE 39: OTHER REGIONAL BUS PROVIDERS OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (CONNECT TRANSIT)

		Ridership Data Winter 2017							Sampling Goals							COMPLETED						
Provider / Agency / Route	Direction	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Connect Transit Texas City Orange Rte 1 & 2	Circulator	-	-	-	-	-	239	239	0	0	0	0	0	0	43	1	15	27	7	0	50	50
Connect Transit Texas City Green Route	Circulator	-	-	-	-	-	68	68	0	0	0	0	0	0	15	0	5	9	9	0	23	23
Connect Transit La Marque	Circulator	-	-	-	-	-	71	71	0	0	0	0	0	0	15	0	4	12	1	0	17	17
Connect Transit Texas City/Dickinson	Circulator	-	-	-	-	-	51	51	0	0	0	0	0	0	15	0	5	10	3	0	18	18
Connect Transit San Leon/Bacliff	Circulator	-	-	-	-	-	28	28	0	0	0	0	0	0	15	0	3	11	4	0	18	18
Connect Transit Regional Gold	Circulator	-	-	-	-	-	136	136	0	0	0	0	0	0	28	1	6	20	5	0	32	32
Connect Transit Angleton Purple	Circulator	-	-	-	-	-	67	67	0	0	0	0	0	0	28	0	7	10	5	0	22	22
Connect Transit Freeport Red	Circulator	-	-	-	-	-	111	111	0	0	0	0	0	0	28	1	6	12	5	0	24	24
Connect Transit Dickinson	Circulator	-	-	-	-	-	48	48	0	0	0	0	0	0	15	0	3	12	3	0	18	18
Connect Transit Lake Jackson Clute Blue	Circulator	-	-	-	-	-	82	82	0	0	0	0	0	0	15	1	6	7	8	0	22	22
Connect Transit Regional Green	Circulator	-	-	-	-	-	58	58	0	0	0	0	0	0	15	2	5	0	2	2	11	11
Connect /Island Transit League City Park & Ride	Circulator	13	149	-	-	-	162	162	0	29	0	0	0	29	29	1	25	0	0	2	28	28
	Totals	13	149	0	0	0	1,121	1,121	0	29	0	0	0	29	261	7	90	130	52	4	283	283

TABLE 40: OTHER REGIONAL BUS PROVIDERS OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (CONROE CONNECTION)

		Ridership Data Winter 2017							Sampling Goals							COMPLETED						
Provider / Agency / Route	Direction	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Conroe Connection Route 1 North	Circulator	0	6	32	11	0	49	49	0	0	0	0	0	15	15	0	3	11	5	1	20	20
Conroe Connection Route 2 South	Circulator	0	8	31	11	3	53	53	0	0	0	0	0	15	15	0	2	11	6	1	20	20
	Totals	0	14	63	22	3	102	102	0	0	0	0	0	30	30	0	5	22	11	2	40	40

TABLE 41: OTHER REGIONAL BUS PROVIDERS OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (HARRIS COUNTY)

		Ridership Data Winter 2017							Sampling Goals							COMPLETED						
Provider / Agency / Route	Direction	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
Harris County Transit Route 1 Garth Road	Circulator	0	28	68	16	0	112	112	0	7	14	4	0	25	28	0	15	13	1	0	29	29
Harris County Transit Route 2 Baytown Central	Circulator	0	24	37	5	0	66	66	0	5	7	3	0	15	15	0	7	7	4	0	18	18
Harris County Transit Route 3 N Alexander / Cedar Bayou	Circulator	0	24	40	6	0	70	70	0	4	9	2	0	15	15	0	7	8	1	0	16	16
Harris County Transit Route 4 Baytown / Decker Loop	Circulator	0	14	29	6	0	49	49	0	4	8	2	0	14	15	0	4	9	0	1	14	14
Harris County Transit Route 5 La Porte City	Circulator	0	5	8	1	0	14	14	0	2	4	1	0	7	15	0	5	6	5	0	16	16
Harris County Transit Route 6 Baytown / Highlands / Crosby	Circulator	0	9	13	3	0	25	25	0	5	6	2	0	13	15	0	3	11	4	0	18	18
Harris County Transit Baytown Park & Ride (Route 237 METRO)	Circulator	0	41	0	0	0	41	41	0	29	0	0	0	29	29	0	15	0	0	0	15	15
	Totals	0	41	0	0	0	377	377	0	56	48	14	0	118	132	0	50	54	15	1	126	126

TABLE 42: OTHER REGIONAL BUS PROVIDERS OD SAMPLING PLAN AND OD SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (BTD)

		Ridership Data Winter 2017							Sampling Goals							COMPLETED						
Provider / Agency / Route	Direction	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Surveys
BTD-Liberty County Circulator	Circulator	-	-	-	-	-	0	0	0	0	0	0	0	0	15	0	0	7	1	0	8	8
BTD-Cleveland Fixed Route	Circulator	-	-	-	-	-	0	0	0	0	0	0	0	0	15	0	0	9	0	0	9	9
	Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	16	1	0	17	17

O2O Sample Plans and O2O Survey Completed by Time of Day and Direction

TABLE 43: METRORAIL O2O SAMPLING PLAN AND O2O SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (GREEN LINE)

			Ridership Data Spring 2016							Sampling Goals							COMPLETED						
ROUTE	STATION NAME	DIRECTION	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Evening (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Evening (6:01pm-12:00am)	Total	Total Surveys
GREEN LINE	*THEATRE DISTRICT RUSK EB*	EASTBOUND	19	30	95	99	109	352	352	4	6	19	20	22	70	70	5	22	35	20	22	104	104
GREEN LINE	*CENTRAL STATION RUSK EB*	EASTBOUND	18	64	197	181	190	650	673	4	13	39	36	38	130	135	9	36	54	49	38	186	192
GREEN LINE	*CENTRAL STATION CAPITOL WB*	WESTBOUND	0	5	9	4	5	23		0	1	2	1	1	5		0	2	2	1	1	6	
GREEN LINE	*CONVENTION DISTRICT RUSK EB*	EASTBOUND	0	1	23	28	20	72	142	0	0	5	6	4	14	28	4	8	16	7	4	39	67
GREEN LINE	*CONVENTION DISTRICT CAPITOL WB*	WESTBOUND	8	11	17	24	10	70		2	2	3	5	2	14		2	6	8	5	7	28	
GREEN LINE	*EADO / STADIUM STN EB*	EASTBOUND	2	21	45	28	26	122	261	0	4	9	6	5	24	52	5	10	10	6	6	37	76
GREEN LINE	*EADO STADIUM STN WB*	WESTBOUND	5	30	61	24	19	139		1	6	12	5	4	28		0	14	12	9	4	39	
GREEN LINE	*COFFEE PLANT / 2ND WARD EB*	EASTBOUND	0	10	24	12	6	52	204	0	2	5	2	1	10	41	2	7	8	3	1	21	67
GREEN LINE	*COFFEE PLANT / 2ND WARD WB*	WESTBOUND	9	30	47	44	22	152		2	6	9	9	4	30		0	15	14	9	8	46	
GREEN LINE	*LOCKWOOD / EASTWOOD EB*	EASTBOUND	0	7	11	23	11	52	553	0	1	2	5	2	10	111	0	6	10	8	6	30	145
GREEN LINE	*LOCKWOOD / EASTWOOD WB*	WESTBOUND	59	158	138	93	53	501		12	32	28	19	11	100		13	44	28	19	11	115	
GREEN LINE	*ALTIC / HOWARD HUGHES EB*	EASTBOUND	0	0	0	0	1	1	392	0	0	0	0	0	0	78	0	7	10	2	0	19	115
GREEN LINE	*ALTIC / HOWARD HUGHES WB*	WESTBOUND	19	101	143	69	59	391		4	20	29	14	12	78		5	30	34	15	12	96	
GREEN LINE	*CESAR CHAVEZ / 67TH ST EB*	EASTBOUND	0	0	10	2	0	12	130	0	0	2	0	0	2	26	0	1	5	2	0	8	52
GREEN LINE	*CESAR CHAVEZ / 67TH ST WB*	WESTBOUND	1	17	40	35	25	118		0	3	8	7	5	24		0	19	11	7	7	44	
GREEN LINE	*MAGNOLIA PARK TC WB*	WESTBOUND	30	79	216	104	73	502	502	6	16	43	21	15	100	100	7	41	53	22	19	142	142
		TOTAL	170	564	1,076	770	629	3,209	3,209	34	113	215	154	126	642	642	52	268	310	184	146	960	960

TABLE 44: METRORAIL O2O SAMPLING PLAN AND O2O SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (PURPLE LINE)

			Ridership Data Spring 2016							Sampling Goals							COMPLETED						
ROUTE	STATION NAME	DIRECTION	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Evening (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Evening (6:01pm-12:00am)	Total	Total Surveys
PURPLE LINE	*THEATRE DISTRICT CAPITOL WB*	EASTBOUND	6	125	141	59	80	411	411	1	25	28	12	16	82	82	4	60	29	22	19	134	134
PURPLE LINE	*CENTRAL STATION RUSK EB*	EASTBOUND	14	111	252	149	128	654	732	3	22	50	30	26	131	146	6	36	115	33	28	218	242
PURPLE LINE	*CENTRAL STATION CAPITOL WB*	WESTBOUND	4	10	37	13	14	78		1	2	7	3	3	16		2	4	11	4	3	24	
PURPLE LINE	*CONVENTION DISTRICT RUSK EB*	EASTBOUND	3	13	7	15	16	54	110	1	3	1	3	3	11	22	1	9	11	5	5	31	52
PURPLE LINE	*CONVENTION DISTRICT CAPITOL WB*	WESTBOUND	10	10	14	16	6	56		2	2	3	3	1	11		2	7	6	4	2	21	
PURPLE LINE	*EADO / STADIUM STN EB*	EASTBOUND	11	28	59	51	26	175	296	2	6	12	10	5	35	59	2	10	30	9	5	56	95
PURPLE LINE	*EADO STADIUM STN WB*	WESTBOUND	8	37	48	19	9	121		2	7	10	4	2	24		2	10	17	7	3	39	
PURPLE LINE	*LEELAND THIRD WARD SB*	EASTBOUND	1	5	9	6	6	27	153	0	1	2	1	1	5	31	1	1	6	2	1	11	39
PURPLE LINE	*LEELAND THIRD WARD NB*	WESTBOUND	11	55	31	20	9	126		2	11	6	4	2	25		2	13	7	4	2	28	
PURPLE LINE	*ELGIN THIRD WARD SB*	EASTBOUND	2	8	44	27	17	98	236	0	2	9	5	3	20	47	2	7	9	7	3	28	69
PURPLE LINE	*ELGIN THIRD WARD NB*	WESTBOUND	8	27	43	42	18	138		2	5	9	8	4	28		3	9	12	11	6	41	
PURPLE LINE	*ROBERTSON STADIUM UH TSU SB*	EASTBOUND	0	17	42	71	22	152	475	0	3	8	14	4	30	95	0	4	12	17	6	39	121
PURPLE LINE	*ROBERTSON STADIUM UH TSU NB*	WESTBOUND	5	28	125	112	53	323		1	6	25	22	11	65		1	9	25	29	18	82	
PURPLE LINE	*UH SOUTH UNIVERSITY OAKS SB*	EASTBOUND	0	7	15	9	16	47	280	0	1	3	2	3	9	56	0	4	16	2	3	25	107
PURPLE LINE	*UH SOUTH UNIVERSITY OAKS NB*	WESTBOUND	3	19	82	97	32	233		1	4	16	19	6	47		2	11	35	25	9	82	
PURPLE LINE	*MACGREGOR PARK MLK SB*	EASTBOUND	0	1	10	1	6	18	187	0	0	2	0	1	4	37	2	1	2	2	1	8	79
PURPLE LINE	*MACGREGOR PARK MLK NB*	WESTBOUND	19	46	68	24	12	169		4	9	14	5	2	34		6	21	18	18	8	71	
PURPLE LINE	*PALM CENTER TRANSIT CTR NB*	WESTBOUND	31	138	142	67	57	435	435	6	28	28	13	11	87	87	16	42	47	18	15	138	138
		TOTAL	136	685	1,169	798	527	3,315	3,315	27	137	234	160	105	663	663	54	258	408	219	137	1,076	1,076

TABLE 45: METRORAIL O2O SAMPLING PLAN AND O2O SURVEYS COMPLETED BY TIME OF DAY AND DIRECTION (RED LINE)

			Ridership Data Spring 2016							Sampling Goals							COMPLETED						
ROUTE	STATION NAME	DIRECTION	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Late Night (6:01pm-12:00am)	Total	Total Ridership	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Evening (6:01pm-12:00am)	Total	Total Surveys	Early AM (3:30-5:59am)	AM Peak (6:00-9:00am)	Midday (9:01am-3:00pm)	PM Peak (3:01-6:00pm)	Evening (6:01pm-12:00am)	Total	Total Surveys
RED LINE	*FANNIN SOUTH STN NB*	NORTHBOUND	212	1327	1195	441	296	**3471**	**3471**	42	265	239	88	59	694	**694**	55	290	307	159	120	**931**	**931**
RED LINE	*STADIUM PARK / ASTRODOME NB*	NORTHBOUND	79	341	387	184	136	**1127**	**1245**	16	68	77	37	27	225	**249**	14	85	90	84	56	**329**	**398**
RED LINE	*STADIUM PARK / ASTRODOME SB*	SOUTHBOUND	6	11	33	36	32	**118**		1	2	7	7	6	24		2	4	32	16	15	**69**	
RED LINE	*SMITH LANDS STN NB*	NORTHBOUND	486	1567	989	171	58	**3271**	**3424**	97	313	198	34	12	654	**685**	108	587	247	75	34	**1051**	**1098**
RED LINE	*SMITH LANDS STN SB*	SOUTHBOUND	0	27	38	49	39	**153**		0	5	8	10	8	31		0	6	13	20	8	**47**	
RED LINE	*TEXAS MEDICAL CENTER TC STN NB*	NORTHBOUND	117	696	1019	672	355	**2859**	**3749**	23	139	204	134	71	572	**750**	36	199	300	210	141	**886**	**1172**
RED LINE	*TEXAS MEDICAL CENTER TC STN SB*	SOUTHBOUND	20	57	217	368	228	**890**		4	11	43	74	46	178		5	15	97	99	70	**286**	
RED LINE	*DRYDEN/TMC STN NB*	NORTHBOUND	29	184	488	867	305	**1873**	**4519**	6	37	98	173	61	375	**904**	9	46	150	257	119	**581**	**1272**
RED LINE	*DRYDEN/TMC STN SB*	SOUTHBOUND	5	63	487	1151	940	**2646**		1	13	97	230	188	529		1	17	103	352	218	**691**	
RED LINE	*MEMORIAL HERMANN/HOUSTON ZOO STN NB*	NORTHBOUND	29	116	432	587	318	**1482**	**3416**	6	23	86	117	64	296	**683**	7	23	148	165	87	**430**	**1122**
RED LINE	*MEMORIAL HERMANN/HOUSTON ZOO STN SB*	SOUTHBOUND	3	134	489	701	607	**1934**		1	27	98	140	121	387		1	27	170	314	180	**692**	
RED LINE	*HERMANN PARK/RICE U STN NB*	NORTHBOUND	2	23	123	302	74	**524**	**746**	0	5	25	60	15	105	**149**	2	13	39	60	23	**137**	**233**
RED LINE	*HERMANN PARK/RICE U STN SB*	SOUTHBOUND	1	45	85	57	34	**222**		0	9	17	11	7	44		0	17	32	26	21	**96**	
RED LINE	*MUSEUM DISTRICT STN NB*	NORTHBOUND	11	99	367	142	68	**687**	**1198**	2	20	73	28	14	137	**240**	2	28	90	43	29	**192**	**348**
RED LINE	*MUSEUM DISTRICT STN SB*	SOUTHBOUND	13	157	198	103	40	**511**		3	31	40	21	8	102		6	54	44	26	26	**156**	
RED LINE	*WHEELER STN NB*	NORTHBOUND	174	507	1048	520	427	**2676**	**3944**	35	101	210	104	85	535	**789**	39	150	263	275	244	**971**	**1443**
RED LINE	*WHEELER STN SB*	SOUTHBOUND	85	409	401	224	149	**1268**		17	82	80	45	30	254		35	143	117	72	105	**472**	
RED LINE	*ENSEMBLE/HCC STN NB*	NORTHBOUND	45	222	567	314	177	**1325**	**2384**	9	44	113	63	35	265	**477**	10	65	154	61	42	**332**	**577**
RED LINE	*ENSEMBLE/HCC STN SB*	SOUTHBOUND	15	161	454	249	180	**1059**		3	32	91	50	36	212		4	34	110	50	47	**245**	
RED LINE	*MCGOWEN STN NB*	NORTHBOUND	24	180	262	147	117	**730**	**1534**	5	36	52	29	23	146	**307**	9	50	56	62	41	**218**	**432**
RED LINE	*MCGOWEN STN SB*	SOUTHBOUND	14	157	337	150	146	**804**		3	31	67	30	29	161		4	39	67	36	68	**214**	
RED LINE	*DOWNTOWN TC STN NB*	NORTHBOUND	43	193	640	356	207	**1439**	**3653**	9	39	128	71	41	288	**731**	11	52	237	118	82	**500**	**1157**
RED LINE	*DOWNTOWN TC STN SB*	SOUTHBOUND	68	612	827	369	338	**2214**		14	122	165	74	68	443		20	155	282	123	77	**657**	
RED LINE	*BELL STN NB*	NORTHBOUND	17	80	152	105	70	**424**	**1092**	3	16	30	21	14	85	**218**	3	28	29	38	37	**135**	**376**
RED LINE	*BELL STN SB*	SOUTHBOUND	14	102	217	196	139	**668**		3	20	43	39	28	134		12	29	58	104	38	**241**	
RED LINE	*MAIN STREET SQUARE STN NB*	NORTHBOUND	20	115	379	331	212	**1057**	**3226**	4	23	76	66	42	211	**645**	4	29	132	66	55	**286**	**975**
RED LINE	*MAIN STREET SQUARE STN SB*	SOUTHBOUND	44	294	756	666	409	**2169**		9	59	151	133	82	434		15	79	238	194	163	**689**	
RED LINE	*CENTRAL STN MAIN NB*	NORTHBOUND	19	62	215	197	132	**625**	**2127**	4	12	43	39	26	125	**425**	6	17	98	105	63	**289**	**834**
RED LINE	*CENTRAL STN MAIN SB*	SOUTHBOUND	47	251	473	446	285	**1502**		9	50	95	89	57	300		27	47	147	184	140	**545**	
RED LINE	*PRESTON STN NB*	NORTHBOUND	31	130	319	208	105	**793**	**2967**	6	26	64	42	21	159	**593**	7	30	64	77	63	**241**	**942**
RED LINE	*PRESTON STN SB*	SOUTHBOUND	128	733	714	394	205	**2174**		26	147	143	79	41	435		33	226	152	174	116	**701**	
RED LINE	*UH-DOWNTOWN STN NB*	NORTHBOUND	7	26	166	80	62	**341**	**1118**	1	5	33	16	12	68	**224**	1	7	57	139	83	**287**	**682**
RED LINE	*UH-DOWNTOWN STN SB*	SOUTHBOUND	12	69	384	183	129	**777**		2	14	77	37	26	155		2	24	105	162	102	**395**	
RED LINE	*BURNETT TC CASA DE AMIGOS NB*	NORTHBOUND	14	15	147	46	30	**252**	**901**	3	3	29	9	6	50	**180**	3	11	36	30	10	**90**	**306**
RED LINE	*BURNETT TC CASA DE AMIGOS SB*	SOUTHBOUND	39	158	284	109	59	**649**		8	32	57	22	12	130		26	33	71	48	38	**216**	
RED LINE	*QUITMAN NEAR NORTHSIDE NB*	NORTHBOUND	26	82	106	76	101	**391**	**1167**	5	16	21	15	20	78	**233**	5	17	34	17	22	**95**	**286**
RED LINE	*QUITMAN NEAR NORTHSIDE SB*	SOUTHBOUND	89	212	229	155	91	**776**		18	42	46	31	18	155		20	51	55	41	24	**191**	
RED LINE	*FULTON NORTH CENTRAL NB*	NORTHBOUND	10	55	172	220	91	**548**	**1243**	2	11	34	44	18	110	**249**	2	11	49	73	34	**169**	**442**
RED LINE	*FULTON NORTH CENTRAL SB*	SOUTHBOUND	28	151	241	126	149	**695**		6	30	48	25	30	139		10	32	91	94	46	**273**	
RED LINE	*MOODY PARK NB*	NORTHBOUND	11	21	66	45	27	**170**	**510**	2	4	13	9	5	34	**102**	2	10	13	19	13	**57**	**181**
RED LINE	*MOODY PARK SB*	SOUTHBOUND	18	76	99	69	78	**340**		4	15	20	14	16	68		8	27	31	43	15	**124**	
RED LINE	*CAVALCADE NB*	NORTHBOUND	4	19	67	37	36	**163**	**826**	1	4	13	7	7	33	**165**	1	7	29	15	15	**67**	**266**
RED LINE	*CAVALCADE SB*	SOUTHBOUND	42	184	249	116	72	**663**		8	37	50	23	14	133		13	47	52	47	40	**199**	
RED LINE	*LINDALE PARK NB*	NORTHBOUND	3	7	37	11	9	**67**	**194**	1	1	7	2	2	13	**39**	1	3	10	4	2	**20**	**107**
RED LINE	*LINDALE PARK SB*	SOUTHBOUND	10	52	45	13	7	**127**		2	10	9	3	1	25		5	22	13	32	15	**87**	
RED LINE	*MELBOURNE NORTH LINDALE NB*	NORTHBOUND	3	9	48	7	9	**76**	**333**	1	2	10	1	2	15	**67**	1	2	10	7	6	**26**	**106**
RED LINE	*MELBOURNE NORTH LINDALE SB*	SOUTHBOUND	15	78	118	25	21	**257**		3	16	24	5	4	51		5	21	26	18	10	**80**	
RED LINE	*NORTHLINE TRANSIT CENTER HCC SB*	SOUTHBOUND	255	702	1131	485	492	**3065**	**3065**	51	140	226	97	98	613	**613**	57	224	377	240	173	**1071**	**1071**
		TOTAL	2,387	10,971	17,897	12,506	8,291	**52,052**	**52,052**	477	2,194	3,579	2,501	1,658	**10,410**	**10,410**	649	3,133	5,125	4,674	3,176	**16,757**	**16,757**