



# Atlanta Regional Commission

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## Regional Travel Survey *Final Report*

November 2011



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**Project conducted by PTV NuStats in association with GeoStats**

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# Executive Summary

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The Atlanta Regional Commission (ARC) contracted with the team of PTV NuStats, GeoStats and PB Americas, Inc to conduct a comprehensive study of the demographic and travel behavior characteristics of residents within the 20-county study area. The purpose of the 2011 Regional Travel Survey was to improve the ARC travel demand forecasts, in both its aggregate four-step trip-based model and its disaggregate activity-based model. The goal was to obtain demographic and trip data from a minimum of 10,000 households, including a subsample of 1,000 households that would also provide global positioning system (GPS) data. The final data set contains information for 10,278 households, of which 1,061 households also provided GPS data.

**Table 1: Overall Completed Survey Summary**

County	Number of Completed Surveys	Percent Completed Surveys
Barrow	128	1%
Bartow	176	2%
Carroll	216	2%
Cherokee	396	4%
Clayton	469	5%
Cobb	1,359	14%
Coweta	229	2%
DeKalb	1,458	15%
Douglas	229	2%
Fayette	196	2%
Forsyth	305	3%
Fulton	1,946	19%
Gwinnett	1,373	14%
Hall	311	3%
Henry	348	3%
Newton	175	2%
Paulding	254	3%
Rockdale	149	1%
Spalding	125	1%
Walton	158	2%
<b>Total</b>	10,000	100%

**Table 2: Participation Statistics by GPS Sample Type**

Sample Type	Goal	Retrievals
Vehicle GPS	667	727
Wearable GPS	333	334
<b>Total</b>	1000	1061

The **survey design** employed a nationally accepted research method for household travel surveys. Additionally a subsample of households equipped with global positioning system (GPS) equipment, both vehicle and wearable, to provide an independent measure of travel. All household members were asked to keep track of all trips for a specified 24-hour period using a specially designed diary.

A stratified **sampling approach** was used where the survey universe was divided into smaller groups and a random sample was chosen within each group. The approach allowed PTV NuStats to oversample at the certain geographic and demographic level to capture the diversity of the population according to specific factors affecting travel behavior in the study area, while meeting the county distribution goals.

The **pre-test**, designed to test the materials, processes, and procedures for the full study, was conducted from November 2010 through January 2011 and included sample from each county in the study area. In total, demographic and travel data were collected and completed for 291 households. The results of the pre-test provided information used to refine the survey procedures, programs, and materials.

**Data collection** activities for the **full study** began in February 2011 and continued through October 2011, with a break during the summer, and included seven main stages: (1) advance notification, (2) reminder postcard, (3) recruitment, (4) placement of materials, (5) reminder call, (6) travel data retrieval, and (7) data processing. The majority of sampled households<sup>1</sup> were initially contact by an advance letter that introduced the household to the survey purpose and invited them to participate in the recruitment survey either by phone or online. Households that were not mailed an advance letter were initially contacted by telephone. Once the household agreed to participate, key household and person level information was collected. Eighty-five percent of households completed the recruitment survey via telephone. The remaining 15 percent completed recruitment online. Once a **GPS household** was recruited, **GeoStats** managed the deployment and recovery of the GPS devices, as well as the GPS data processing. All recruited households, including those participating in the GPS portion of the survey, were then mailed personalized diaries to report their travel for an assigned 24-hour period. PTV NuStats retrieved the travel information by telephone (42 percent), online (29 percent), or by mail (29 percent).

Once retrieved, household travel details were processed and then subjected to quality control checks. Data Processing took place on a daily basis throughout the study, beginning with the release of sample for recruitment, to processing recruitment data for the respondent mail-out, to appending the retrieval data to the master tables, and to performing initial quality control measures on the data. All trip-ends and habitual addresses were geocoded during the retrieval through the Trip Builder software.

## Results

### General

- 10,278 of the 16,374 households that were recruited completed the survey, achieving a 103 percent of the project goal, with an overall retrieval rate<sup>2</sup> of 62.8 percent. These households yielded information for 25,810 Persons, 21,270 Vehicles, and 93,713 Trips.
- The average interview length (23.2 minutes) was the same for recruitment and retrieval.

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<sup>1</sup> 380,290 household were sampled for full-study data collection and 151,324 households received an advance letter

<sup>2</sup> Total number of retrieved household divided by the total number of recruited households

- Travel days were evenly distributed among each weekday: Monday (21 percent), Tuesday (22 percent), Wednesday (19 percent), Thursday (18 percent), and Friday (20 percent).

### **Person Data**

- Twenty-eight percent of respondents were age 18 or younger; eight percent were between 18-24 years of age; 44% were between 25–54 years of age, 11% were between 55-64 years of age, and 9% were aged 65+.
- Six percent of respondents reported having a disability.
- Nearly 89 percent of respondents reported having a driver’s license.
- The average number of days worked per week by respondents who reported they were employed is 4.45.
- Eighty-eight percent of workers have parking provided to them by their employer, and 16 percent reported that their employers subsidize transit passes.

### **Household Data**

- The average household size is 2.63 household members. In Census 2010 average household size is 2.78 household members
- On average, households reported 1.99 vehicles, with 6 percent reporting zero-vehicle, 27 percent of households reporting one vehicle, 40 percent of household reporting two vehicles, 17 percent of households reporting three vehicles, and 9 percent reporting four or more vehicles.
- Households reported having an average of 1.3 workers. 0-workers household (17 percent), 1-workers household (43 percent), 2-workers household (33 percent) were also reported.
- The average number of children per household was 0.7, with two-thirds (64 percent) of households reporting they have zero children living in the household. As per ACS 2010 3 year estimates average number of children per household (0.66 percent).

### **Trip Data**

- Households reported an average of 9.12 daily household trips and 3.63 daily person trips.
- Eighty-three percent of all trips were made by automobile either as the driver or passenger.
- Non-motorized transportation mode for all trips included walk (7.3 percent) and bike (0.3 percent). For work trips transportation mode as walk is (1.3 percent) and bike (0.4 percent). Overall, Non-motorized transportation mode for work trips is (1.7 percent).
- Transit transportation mode for all trips included MARTA train (1.4 percent), local bus (1.4 percent), and express bus (0.2 percent). Overall Transit as transportation to work trip is (5.3 percent)
- The average number of household members traveling in a group was 1.35. Overall, average vehicle occupancy is 1.85.

# Survey Methods

## Objectives and Approach

The ARC Regional Travel Survey was a comprehensive study of the demographic and travel behavior characteristics of residents within the region comprising Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, and Rockdale Counties. Sponsored by the Atlanta Regional Commission, the data collected in the 2011 survey will be used to improve the ARC travel demand forecasts, in both its aggregate four-step trip-based model and its disaggregate activity-based model. The project was conducted by PTV NuStats, in association with GeoStats.

The Regional Travel Survey was conducted in three phases: design, pre-test, and full study data collection. The design phase took place September to November 2010 and included the development of a work plan, the identification of data elements, materials design, and database programming. The pre-test effort took place between November 2010 and January 2011; this effort included a dress rehearsal of all processes planned for the full study. The full study was conducted in two phases during the spring and fall of 2011, which included a data collection break during the summer. Spring data collection for the full study was conducted between February 2011 and June 2011. Fall data collection was conducted between July 2011 and October 2011. The purpose of this report is to document the methodology, study materials, and results of the full study.

The project was designed as a traditional household travel survey with a subsample of households equipped with global positioning system (GPS) equipment to provide an independent measure of travel. As such, sampled households were contacted by telephone to secure their participation in the study and were then mailed personalized diaries to report their travel for an assigned 24-hour period. Their travel details were retrieved by telephone, online, or by mail. Once retrieved, their travel details were processed and then subjected to standard quality control checks. For the GPS subsample, respondents were also contacted by telephone to secure their participation. They received their diaries and GPS units via mail, and then reported their travel details by telephone, online, or by mail. Respondents then mailed the GPS units to GeoStats. A subsequent check on the GPS household data included a comparison of what was reported by telephone versus trips detected in the GPS data streams.

**Figure 1: Household Travel Survey Study Area**



## Survey Design

The goal of the survey was to collect data from a minimum of 10,000 regional households that included a sub-sample of 1,000 GPS completes. Demographic information (obtained during the recruitment interview) and detailed travel information (obtained during the retrieval interview) were collected for all household members. The final data set contains demographic and trip information for 10,278 households with 1,061 households providing wearable and vehicle GPS data.

The survey employed a generally accepted research method for household travel behavior research, in which household members age 14 and older recorded all trips for a specified 24-hour period (from 3:00 a.m. to 2:59 a.m.) using a specially designed travel diary. In the survey materials and interview scripts, respondents were assured that their responses would be kept confidential and that their responses would be analyzed in the aggregate only. As a result, the data files were structured such that a 7-digit unique identifier (“sample number”) would be used to link each household’s data together and documentation prepared to ensure the public use data files would be stripped of all identifying information prior to its release. Households were randomly assigned to non-Holiday weekdays for recording their travel (Monday–Friday). The final distribution of households by day of week is shown in Table 3, which shows a fairly equal distribution of completed households among the days of the week.

**Table 3: Distribution of Households by Day of Week**

Day of Week	Frequency	Percent
Monday	2,174	21.2%
Tuesday	2,138	20.8%
Wednesday	1,988	19.3%
Thursday	1,876	18.3%
Friday	2,102	20.5%
<b>Total</b>	10,278	100.0%

The study began with an in-depth review of data needs that would satisfy the modeling requirements and analysis plans that would be relying on the survey data. This resulted in the identification of the following variables:

- 1) **Household Data** – Core household characteristics included the following:
  - Geocoded household address
  - Home Travel Analysis Zone (TAZ)
  - Household size
  - Household vehicle ownership
  - Household income
  - Household race and Hispanic ethnicity
  - Residence type
  - Owner/Renter status
  - Presence of a land-based telephone service in the household
  - Day and date of travel
  - Summary variables that indicated the number of trips made by household members, the number of workers and students, the number of license holders, and the number of household children.
  - Household life cycle

- 2) **Person Data** – Demographic information was collected for all household members to help explain the impact of household dynamics on personal travel in the region. The person-level variables are:
- Age and sex of all household members
  - Relationship among household members
  - Disability status
  - Cellular telephone ownership
  - Licensed driver status (age 16+)
  - Employment status (age 16+) or categorization of primary activity if not employed
  - If employed: industry and occupation, geocoded work address, typical mode to work, # days and hours worked per week, both at a work location and through telecommuting, whether the employer of the respondent provided transit pass and/or parking
  - Level of education attainment
  - Student status
  - If student: geocoded school address, typical mode to school, type of school attended
  - Frequency of transit use
  - Type of transit pass use
  - Bicycle usage
  - A summary of the number of trips recorded or an explanation for non-travel, if applicable
- 3) **Vehicle data** – The recruitment instrument included questions about the vehicles available to the household:
- Year
  - Make
  - Model
  - Body
  - Fuel type
  - Ownership status
  - Whether vehicle was used on travel day and an explanation for non-use, if applicable
- 4) **Trip data** – Trip data were collected for each household member during the retrieval interview with travel information being collected by proxy for all respondents under the age of 14. These data are the primary source of information to support the data needs of the travel demand model and analysis in mode choice, land use, origin-destination patterns, and transportation facility use. Trip data collected included the following:
- An anchor point for the start of the day and to provide the origin information for the first trip of the 24-hour period (pinpointing the location of each household member at 3:00 a.m.)
  - Geocoded address information for each location visited throughout the 24-hour period
  - Trip start and end times
  - Travel mode:
    - ✓ If personal auto was used, an indication of which household vehicle was used, how many were in the vehicle, and whether they were household members or not
    - ✓ If personal auto was used, parking information including location and cost to park

- ✓ If transit was used, the number of transfers made, the bus fare, and whether a vehicle was available when transit was chosen as mode
- Activity at place (trip purpose)
- Summary variables to provide trip and activity duration

## Sample Design

### Survey Universe

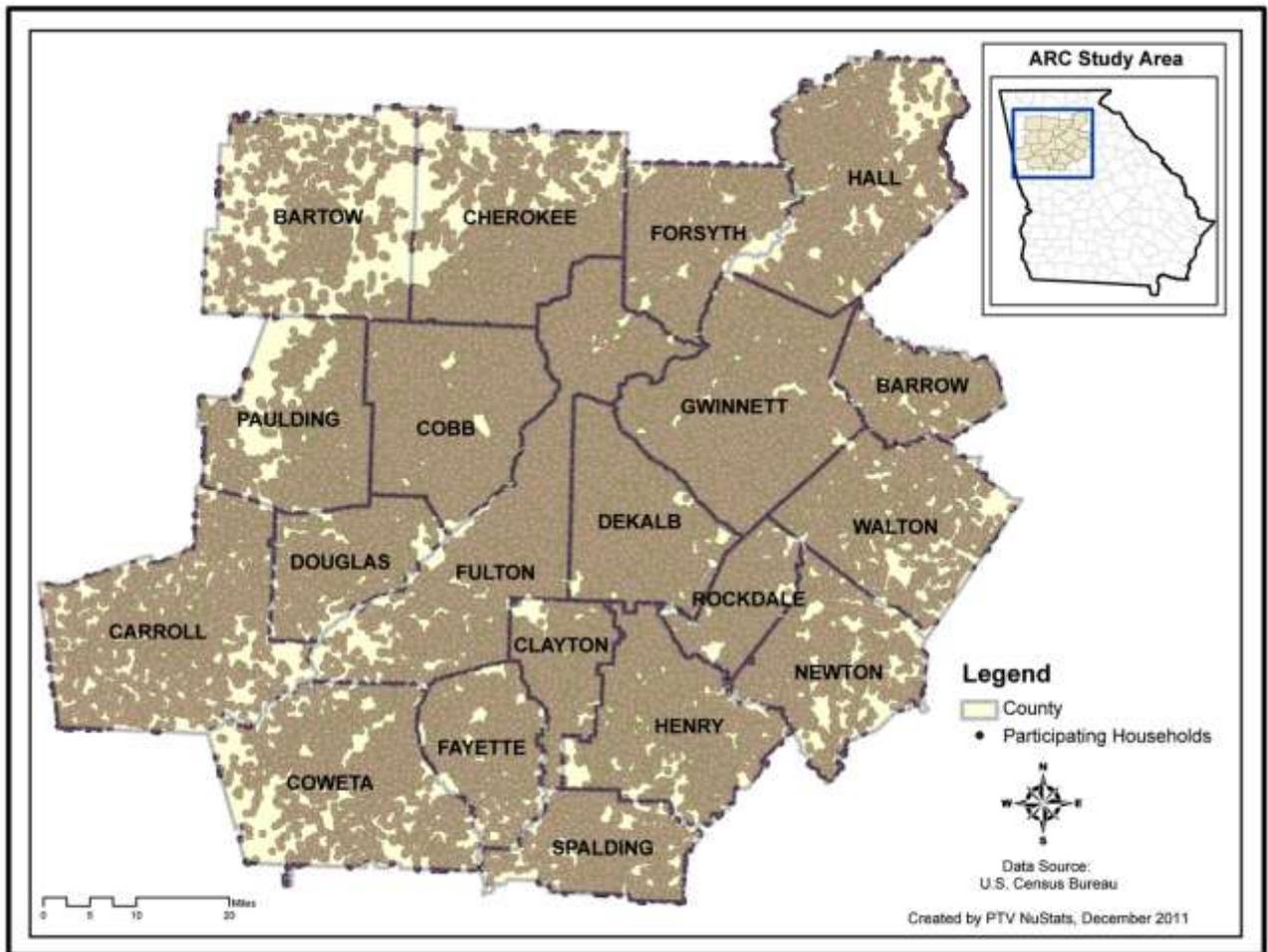
The survey population represents all households residing in the 20-county region of Atlanta Regional Commission. The population, or the study universe, comprises 1,867,492 households. Table 4 provides the distribution of households by county. The sample size for the full study is 10,000 completed surveys.

**Table 4: Distribution of Households in Study Area**

County	Number of Households	Percent Households
Barrow	23,846	1%
Bartow	32,968	2%
Carroll	40,290	2%
Cherokee	73,914	4%
Clayton	87,541	5%
Cobb	253,787	14%
Coweta	42,742	2%
DeKalb	272,223	15%
Douglas	42,762	2%
Fayette	36,659	2%
Forsyth	56,888	3%
Fulton	363,426	19%
Gwinnett	256,481	14%
Hall	58,159	3%
Henry	65,049	3%
Newton	32,646	2%
Paulding	47,434	3%
Rockdale	27,791	1%
Spalding	23,365	1%
Walton	29,521	2%
<b>Total</b>	1,867,492	100%

*Source: American Community Survey, 2007–2009*

Figure 2: Sampled Household Locations (Map of ARC Region)



## Sampling Frame

A dual sampling frame approach was used that combined the strengths of two sampling frames—Address-based frame and Listed Residential frame.

An address-based frame includes all residential addresses that receive U.S. Mail delivery. Its main advantage is its reach into population groups that typically participate at lower-than-average levels, largely due to coverage bias (such as households with no phones or cell phone-only households). For efficiency of data collection, the addresses were matched to telephone numbers and had a listed name of the household appended to it. Addresses were generated and matched by MSG, a third-party vendor. This sampling frame ensured coverage of all types of households irrespective of their telephone ownership status, including households with no telephones (estimated at less than 3 percent of households in the U.S.).

The Listed Residential frame, on the other hand, included listed telephone numbers from working blocks of numbers in the U.S. for which the name and address associated with the telephone number are known. The Listed Residential frame was used to strengthen the coverage of households with listed landlines. The advantage of drawing sample from this frame is its efficiency in conducting the survey effort—being able to directly reach households and secure their participation in the survey in a direct and active approach. The samples were procured from the sample provider, Marketing Systems Group (MSG), based in Fort Washington, PA.

## Sample Method

The selection of an appropriate sampling method is critical for an effective sample design that guards against unplanned selectiveness and produces a robust data set that is representative of the population. To ensure adequate representation, a sample needs to be drawn scientifically so that each person in the population has a measurable chance of selection. This way, the results can be reliably projected from the sample to the larger population with known levels of certainty and precision.

In this study, we employed a stratified probability sample of households. Stratified sampling is a type of random or probability sampling, the methods of which are well grounded in statistical theory and the theory of probability. Specifically, stratified sampling is a probability sampling method where the survey universe is divided into smaller groups and a random sample is chosen within each group (i.e., every sampling unit has some non-zero probability of being selected into the sample). This method results in oversampling for some strata to ensure that we capture the diversity of the population according to specific factors affecting travel behavior in the study area. Thus, within strata, households were selected randomly (i.e., with equal probabilities), but the combined sample (across strata) comprised an unequal probability sample of households. The stratification scheme is discussed in the following section.

## Stratification Scheme

To support the modeling needs, TAZ-level stratification was conducted to reflect the environment in which travel took place, defined by population and job densities, with higher densities reflecting the more urbanized portions of the region.

Stratification that considers the environment in which travel takes place is highly relevant to the development of a valid model. Studies show that levels of non-motorized travel are higher in higher density areas, as there are more destinations within walking or biking distance, while travel in the lower density areas tends to be predominantly by auto and include higher proportions of trip chaining. In addition, the types of households found in the different settings are related to differences in travel patterns as well. Households with children tend to settle in the lower density areas (suburbs), while those household comprising workers only might be found closer to the areas with high employment densities.

To capture the environment of travel, we utilized the stratification scheme employed in the Atlanta model. This scheme stratifies the study area into seven area types based on the floating population and employment densities (see Table 5). Figure 3 displays the stratification by area type in the study area.

**Table 5: Stratification Scheme**

Population Density (per acre)	Employment Density (per acre)						
	<0.05	0.05–0.31	0.32–6.65	6.65–12.43	12.44–25.09	25.10–57.96	>57.96
< 0.43	7	7	6	4	4	3	2
0.43–0.77	7	6	6	4	3	3	2
0.78–2.37	7	6	5	4	3	2	2
2.38–3.47	6	5	5	4	3	2	2
3.48–5.39	6	5	5	4	3	2	1
5.40–8.06	5	5	5	3	3	2	1
>8.06	5	5	5	3	2	2	1

*Source: Atlanta Regional Commission*

*1 – CBD; 2- Urban Commercial; 3 – Urban Residential; 4 - Suburban Commercial; 5 – Suburban Residential; 6 – Exurban; 7 – Rural*

**Figure 3: Area Type Stratification**

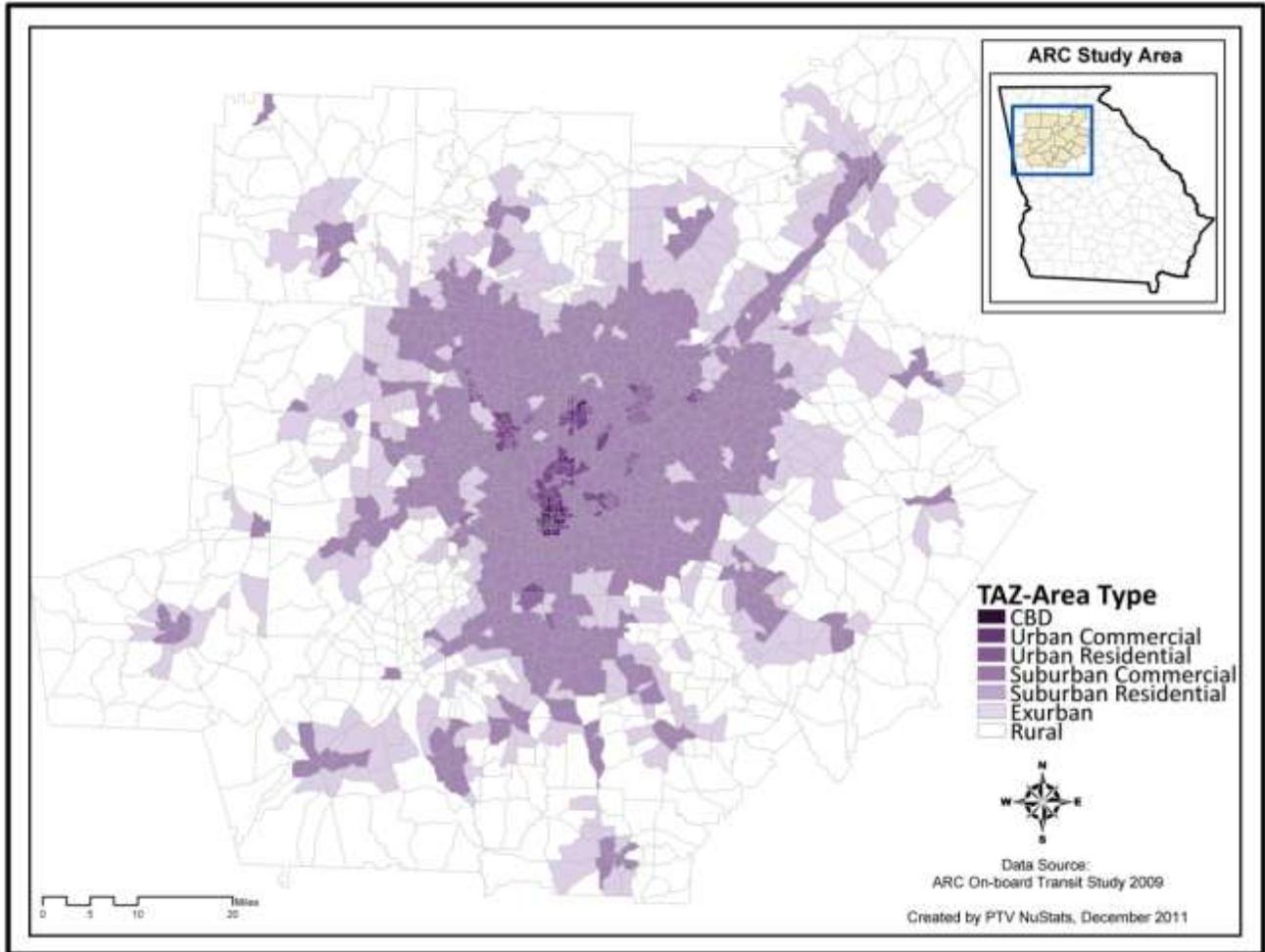


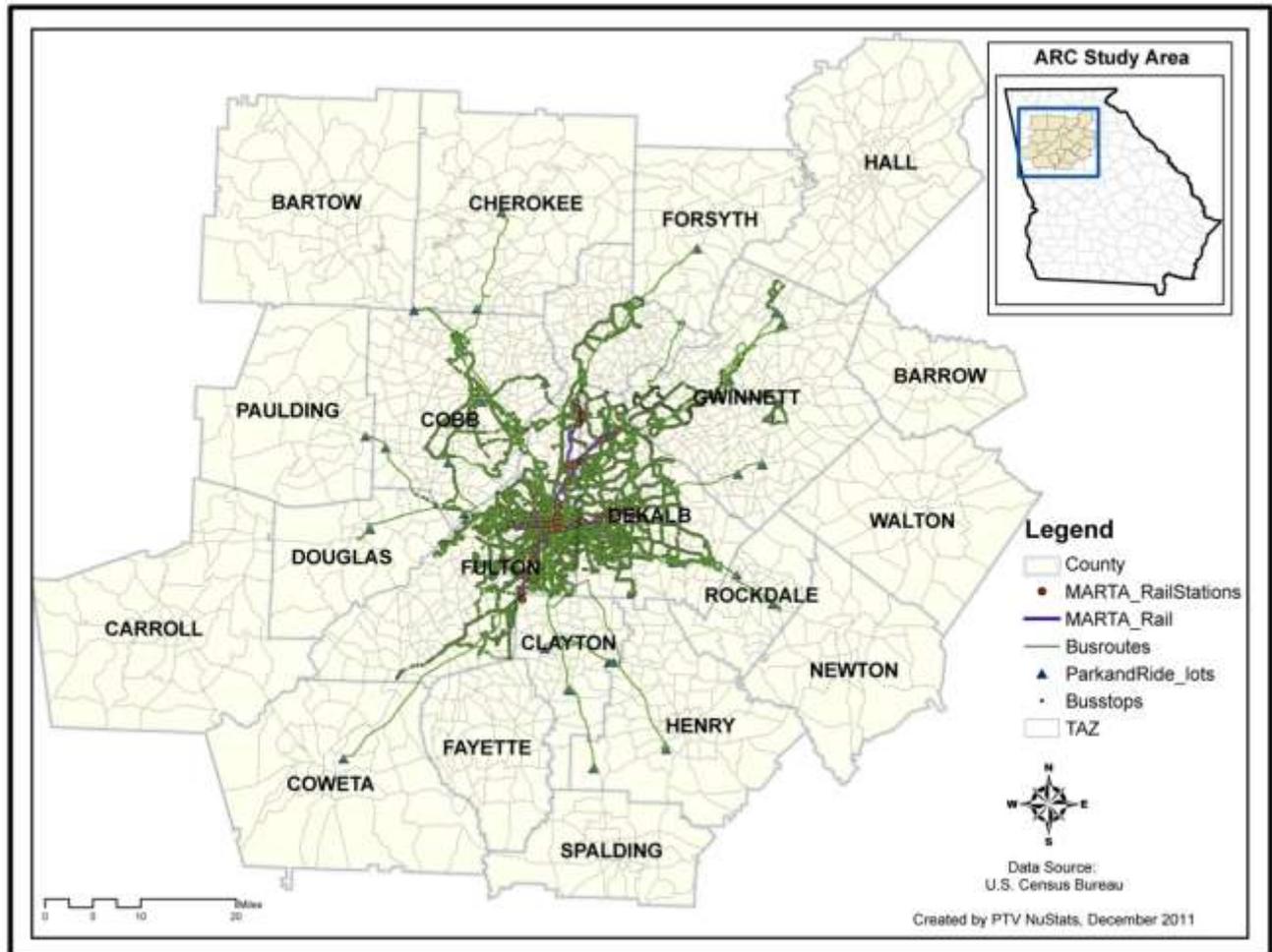
Table 6 shows the distribution of the households by area types in the study area. Because of the unavailability of household level information at the TAZ level, we aligned census blocks with TAZs. Following this, household level information at the census block level from Census 2000 was aggregated at the TAZ level and projected using 2007–2009 ACS data. As shown in the table, CBD and urban area residents represent about 6 percent of the households. We over-sampled residents from CBD and urban areas, and under-samples residents from suburban and rural areas to ensure adequate representation by area type.

**Table 6: Distribution of Area Types**

Area Type	Percent of Total Households (2000 Census)	Percent of Total Households (Projected to 2007- 09 ACS)
CBD	0.2%	0.2%
Urban Commercial	1.3%	1.5%
Urban Residential	3.2%	3.9%
Suburban Commercial	1.7%	1.5%
Suburban Residential	65.1%	64.8%
Exurban	14.9%	14.8%
Rural	13.7%	13.3%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

In addition, we oversampled TAZs with a high concentration of transit-using households. We used data from the 2009 ARC on-board survey to inform the definition of the oversampling area for bus riders. In Addition, we oversampled transit riders that reside within a 0.5-mile buffer of the MARTA rail stations. Figure 4 shows the area for oversampling bus and rail riders.

**Figure 4: Transit Oversampling Area**



We also employed a socioeconomic stratification among the target areas to set demographic controls. In particular, the study area was stratified by household size and employment status of the members in the household into the following:

- 1-person worker households
- 1-person non-worker households
- 2-person households with at least one worker
- 2-person non-worker households
- 3-or-more-person households

Table 7 presents the distribution of households by household size and employment status based on 2007–2009 American Community Survey (ACS) data. The observed socioeconomic distribution of the completed surveys was monitored and reviewed to ensure that they fall within the expected ranges.

**Table 7: Socioeconomic Stratification**

Household Size and Employment Status	Number of Total Households	Percent of Total Households
1-person/worker	331,348	17.7%
1-person/non-worker	166,776	8.9%
2-person/worker	454,660	24.3%
2-person/non-worker	123,040	6.6%
3+ person	791,668	42.4%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

*Source: American Community Survey 2007–2009*

Note that the geographic and socioeconomic stratifications were monitored separately. The sample performance was monitored to ensure that we have adequate representation of difficult-to-reach demographic groups including low-income households, zero-vehicle households, renters, large households, one-person worker households, and Hispanic households. In cases of under-representation, the specifications of the subsequent sample orders were adjusted to oversample these demographic groups.

## Sample Size

The sample size for the full study was 10,000 completed surveys. Table 8 shows the distribution of the completed surveys by county of residence.

**Table 8: Target County Distribution of Completed Surveys**

County	Number of Completed Surveys	Percent Completed Surveys
Barrow	128	1%
Bartow	176	2%
Carroll	216	2%
Cherokee	396	4%
Clayton	469	5%
Cobb	1,359	14%
Coweta	229	2%
DeKalb	1,458	15%
Douglas	229	2%
Fayette	196	2%
Forsyth	305	3%
Fulton	1,946	19%
Gwinnett	1,373	14%
Hall	311	3%
Henry	348	3%
Newton	175	2%

County	Number of Completed Surveys	Percent Completed Surveys
Paulding	254	3%
Rockdale	149	1%
Spalding	125	1%
Walton	158	2%
<b>Total</b>	10,000	100%

## Effect of Multi-Modal Data Collection on Sampling

Multi-modal data collection does not have significant consideration in sampling. For recruitment, Computer-Assisted Telephone Interview (CATI) and Web instruments were available for data collection. For retrieval, CATI, Web, and mail-back options were available. Multi-modal data collection helps reach a diversified, and representative, sample not possible through one survey mode. For example, we know young respondents are more likely to use the Internet; therefore, an online survey option is an effective means of communicating with this group. Additionally, as previously described, unmatched sample do not have a phone number. We mailed advance letters to 100 percent of the unmatched sample inviting them to participate in the study and encouraged them to go online or call the hotline survey to complete survey. Table 9 shows that 5 percent of recruits and retrievals were generated through unmatched sample. The retrieval rate for unmatched sample is about 62 percent.

**Table 9: Participant Household Locations (Map of ARC Region)**

Sample Type	Recruitment		Retrieval	
	Count	Percent of Recruitments	Count	Percent of Retrieved
Address Based Unmatched	818	5.0%	509	5.0%

## Sample Generation and Processing

The planned sampling approach for the ARC Regional Travel Study combined the strengths of address-based sampling frame and listed residential frame. The address-based frame permitted differential sampling rates by land-use type, and the listed residential frame strengthened the coverage and enhanced the efficiency of data collection from hard-to-reach population groups. With the address-based sampling frame, the randomly sampled addresses were divided into two categories: (a) those with telephone numbers ('matched') and (b) those without telephone numbers (unmatched). The address-based sampling frame consists of a current listing of city- and rural-route residential postal addresses for the study area from the delivery sequence file (DSF) of the United States Postal Service. Its main advantage is its reach into population groups that typically participate at lower-than-average levels, largely due to coverage bias (such as households with no phones or cell-phone-only households). The listed residential frame, on the other hand, includes listed telephone numbers from working blocks of numbers for which the name and address associated with the telephone number are known. The advantage of drawing sample from this frame is its efficiency in conducting the survey effort—being able to directly reach households and secure their participation in the survey in a direct and active approach.

The sample from both frames was ordered from a private supplier, Marketing Systems Group (MSG). The address-based sample was systematically drawn from the ADVO frame. ADVO is a direct mail media company that has a proprietary database of up-to-date and deliverable resident/occupant mailing address lists based on the DSF. MSG matched the sampled residential addresses to obtain landline telephone numbers; then, the sample file was forwarded to Direct List for name matching.

A total of 385,673 sample pieces were ordered for the study area. Sample orders were placed in different waves (phases) and specification based on sample analysis and performance. The following table shows the distribution of the overall sample order by sample type for the full study.

**Table 10: Sample Detail**

Sample Type	Count	Percent
Address Based Matched	156,565	40.6%
Address Based Unmatched	80,378	20.8%
Listed General	52,726	13.7%
Listed Large HH	29,713	7.7%
Spanish Surname	24,834	6.4%
Listed Low-Income	23,837	6.2%
Transit Over Sample Tracts	8,117	2.1%
CBF Over Sample Tracts	9,503	2.5%
<b>Total</b>	<b>385,673</b>	<b>100.0%</b>

## Data Collection

### Pre-Test

The pre-test was conducted from November 2010 through January 2011. The pre-test households were sampled from each county in the study area. Household recruitment took place from November 6 through December 11, with assigned travel dates on the weekdays from Wednesday, November 10 through Friday, December 17 (excluding Thanksgiving weekend). Retrieval calls began Friday November 11 and continued through January 9 (the entry of mail-back surveys continued until January 14). A total of 11 interviewers worked on the recruitment portion of the pre-test, and 10 interviewers worked on retrieval.

The purpose of the pre-test phase of the study was to test survey instruments and materials planned for the full study in order to assess respondent reaction, data collection processes, and budget assumptions. The main objectives of the pre-test phase were:

- 1) To test the respondent materials to ensure they were applicable and understood by all respondent groups, despite differences in geography and demographics.
- 2) To program and test the core programs and processes.
- 3) To program and test the GPS processes and to ensure that the GPS component was properly designed to yield the desired data.
- 4) To evaluate project team performance and respondent participation rates in light of original cost assumptions.

### Methods and Design

The pre-test survey was designed to test the materials, processes, and procedures for the full study. To do so, the data collection goal was to recruit a sufficient number of households in order to obtain complete and usable data from 300 households. The ARC Regional Travel Survey pre-test consisted of all necessary data collection activities required to produce a data set. These activities included sample generation, advance notification, recruitment, placement of respondent materials, reminder calls, retrieval, quality assurance, and data delivery. The pre-test focused on all counties within the full study area. In total, 461 households were recruited into the pre-test study; complete and usable data were obtained from 291 households.

Throughout all pre-test activities, the focus was to target areas for improvement prior to the start of the full study. The role of the pre-test was critical in the study—it was not designed to make everyone “comfortable,” as that approach would have resulted in inadequate and insufficient evaluation of the process. The pre-test was referred to as a “dress rehearsal” specifically for this reason it was a road test of all systems and respondent materials to ensure everything was in place and ready for full implementation. As such, the pre-test households were not included as part of the final data set.

The modes of data collection are shown in Table 11 with CATI used for 87 percent of recruitment and 55 percent of retrieval.

**Table 11: Recruitment Summary (Pre-Test)**

Phase	% CATI	% WEB	% MAIL	TOTAL
Recruitment	87%	13%	N/A	461
Retrieval	55%	2%	43%	291

### **Impact of Pre-Test on Final Survey Design**

**Processes and Procedures:** Overall, the pre-test was successful in terms of the procedures and collection of necessary data.

- 1) The targeted sample was fairly successful in finding under-performing demographic groups; however, it was closely monitored during the full study because some cells in the pre-test were too small to draw conclusions from.
- 2) The initial shifts of retrieval in the pre-test were more difficult than usually experienced because of internal technology enhancements. These enhancements were completed in the full study.
- 3) The pre-test experienced low retrieval rates for both GPS and non-GPS sample types overall. The pre-test was conducted during the busy holiday season, and this may have been a major factor in the low retrieval rates. Although additional sample was fielded near the end of pre-test recruitment in order to boost the number of households recruited, the overall number of households retrieved and deliverable fell short of the goal (291 compared to a goal of 300).
- 4) The pre-test data set was skewed to older respondents. This was monitored carefully, and households with all members 75 years of age and older were randomly terminated from participation.
- 5) The long-distance question caused some confusion for respondents because of its length and its complex sentence structure.

**Materials:** Changes to the materials were made following qualitative research (focus groups) conducted in December 2010. These changes included:

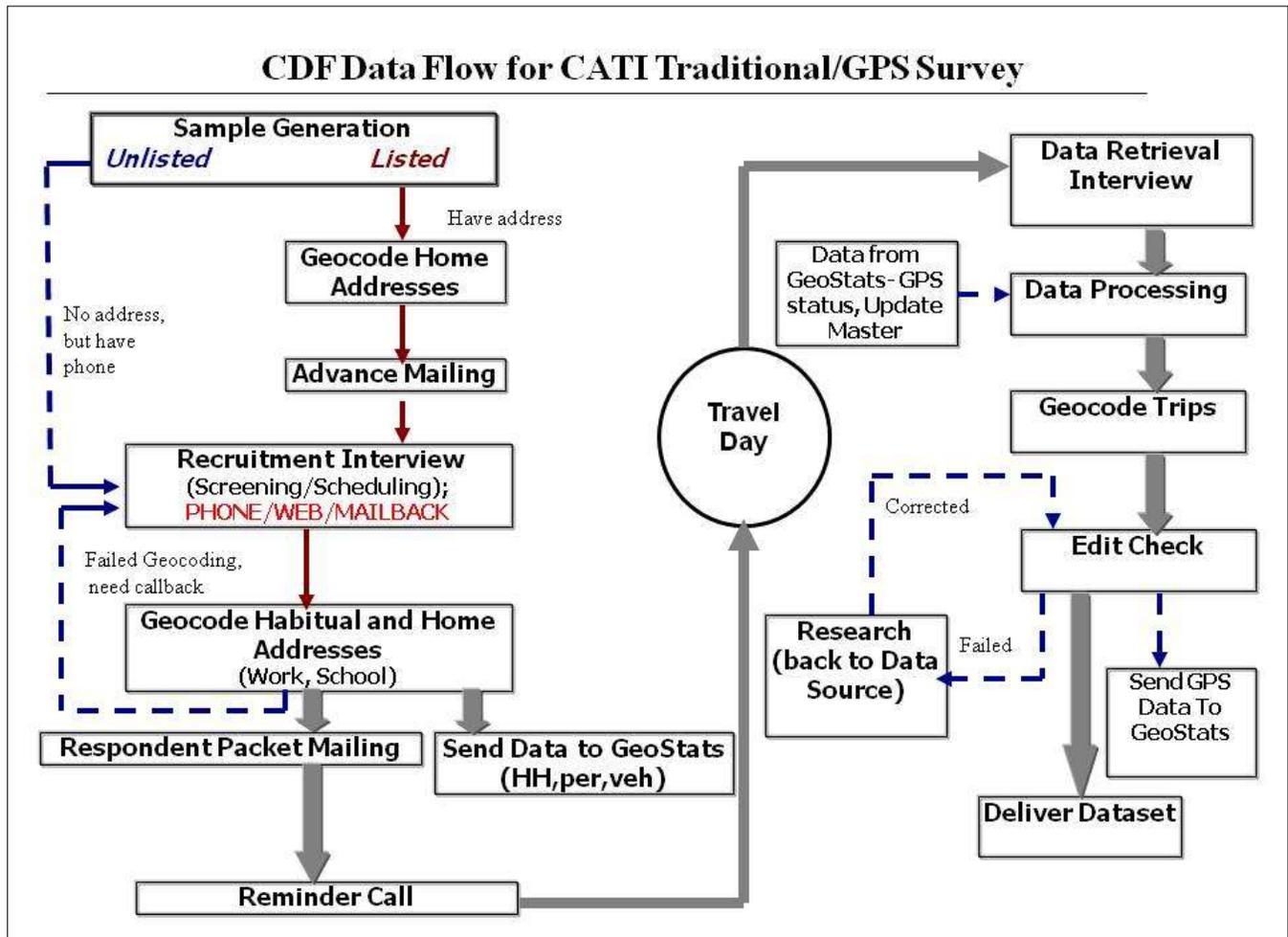
- 1) To make the logos more noticeable, they were enlarged and printed in a darker blue.
- 2) The text on the advance envelope was revised in an attempt to appeal to more respondents.
- 3) The diary cover for the pre-test was printed on gray paper; for the full study, the paper stock was changed to yellow to make it stand out. The activity list was revised to delete “from car” after “drop off passenger” and “pick-up passenger”.

**Incentives:** The pre-test employed a complicated incentive strategy aimed at recruiting households via Web, incentivizing GPS households, and offering targeted incentives to traditionally difficult-to-reach demographic groups. To streamline and simplify the full study, households were offered \$25 for each category, i.e., \$25 for completing recruitment via Web, or \$25 per device for using GPS, or \$25 per household for targeted demographic groups. The incentives were not cumulative, so a household was only offered \$25 per household or \$25 per GPS device.

## Full Study

Data collection activities began in February 2011 and continued through October 2011 with a break during the summer. These activities centered around seven main stages: advance notification, reminder postcard, recruitment, placement of materials, reminder call, travel data retrieval, and processing and geocoding. The details regarding each stage are provided in this section and illustrated in the following figure.

Figure 5: Continuous Data Flow (CDF) Process



### Advance Notification

A study letter, brochure, and postcard were mailed to a portion of households for which a name and address were known prior to the recruitment call, as well as to households with no phone number. This mailing served as advance notification to the household that it had been randomly selected and would be receiving a call regarding the study, or were given the option of calling PTV NuStats or going online to participate in the survey. The mailing also provided information about the study sponsor, introduced PTV NuStats as the company that would be contacting them, and provided the Website address and a telephone number where additional information could be obtained.

## Reminder Postcard

In addition to the advance mailing, reminder postcards were mailed to all unmatched sample records, or those without a telephone number. Reminder postcards were mailed three days after the advance mailing. See Appendix I for an image of the reminder postcard.

## Recruitment

The recruitment interview was administered using a Computer-Assisted Telephone Interviewing (CATI) program. At that time, each household was telephoned by an interviewer to determine if they would participate in the study. If the household did agree to participate, demographic information was collected including income, household size, vehicle ownership, and other household characteristics. In addition, demographic characteristics were obtained for each member of the household, including age, gender, employment, and school status (see Appendix A for the recruitment questionnaire).

**Table 12: Recruitment Mode**

Phase	% CATI	% Web	% Mail	Total
Recruitment	85%	15%	N/A	16375

The recruitment calls for the full study began on February 24, 2011 and continued through May 16, 2011, before taking a break for the summer. Recruitment resumed July 18, 2011 and concluded on September 12, 2011. Overall, 16,375 households were recruited. The average length of the recruitment call was 23.2 minutes. It took an average of 3.6 call attempts to reach a household for recruitment. Table 13 shows the average interview length and the average number of call attempts required to reach each household based on household size. As indicated, the larger the household, the longer the interview length. The table also shows that it took fewer call attempts to reach households with fewer members.

**Table 13: Recruitment Interview Length and Average Call Attempts/Household, by Household Size**

Household Size	N	Average Call Duration (in min.)	Average Call Attempts
1	3,246	16.8	3.5
2	5,585	21.7	3.5
3	3,041	25.3	3.6
4+	4,503	28.3	3.8
<b>Overall</b>	16,375	23.2	3.6

## Respondent Packet Mailing

The day following recruitment, the demographic information was processed into the master data set, and packets were assembled for each recruited households. These packets included a cover letter, travel diary with instructions and an example, and a postage-paid envelope to return the completed diaries after the retrieval interview (see Appendix D). Travel days were scheduled 7–10 days after recruitment to allow for sufficient time for packets to reach the households using First-Class mail.

## Reminder Call

The night prior to the assigned travel day, reminder calls were made to the households. This reminder call served three key purposes:

- 1) Confirm that the household received the packet and answer any questions respondents might have about using the travel diary and recording their travel,
- 2) Schedule an appointment to conduct the retrieval interview, and
- 3) Increase the likelihood that the household will follow through with recording their travel by reiterating the importance of the study and the household's commitment to participate.

For those instances where an answering machine was reached, the interviewers left brief messages that referenced a toll-free number for respondents to call if they had questions.

## Retrieval

The day after an assigned travel day or at an agreed-upon time, telephone calls were made to retrieve the travel data recorded by each eligible household member in his/her travel diary. The interviews were guided using CATI programs of the retrieval instrument (see Appendix C). The average interview length was 23.2 minutes, and it took 3.6 call attempts to complete retrieval, on average.

**Table 14: Retrieval Mode**

Phase	% CATI	% WEB	% MAIL	TOTAL
Retrieval	42%	29%	29%	10278

Travel days for the full study were assigned between March 9, 2011 and May 27, 2011, with a break during the summer, and resumed between August 1, 2011 and September 16, 2011. Retrieval interviews began on March 8, 2011 and continued through June 26, 2011. Retrieval interviews resumed August 2, 2011 and concluded on October 6, 2011. Data were collected from all household members for the 10,278 households that completed the full study. The retrieval instrument had minimal item non-response, as indicated in the unweighted frequencies contained in Appendix H of this report.

**Table 15: Retrieval Interview Length and Average Call Attempts/Household, by Household Size**

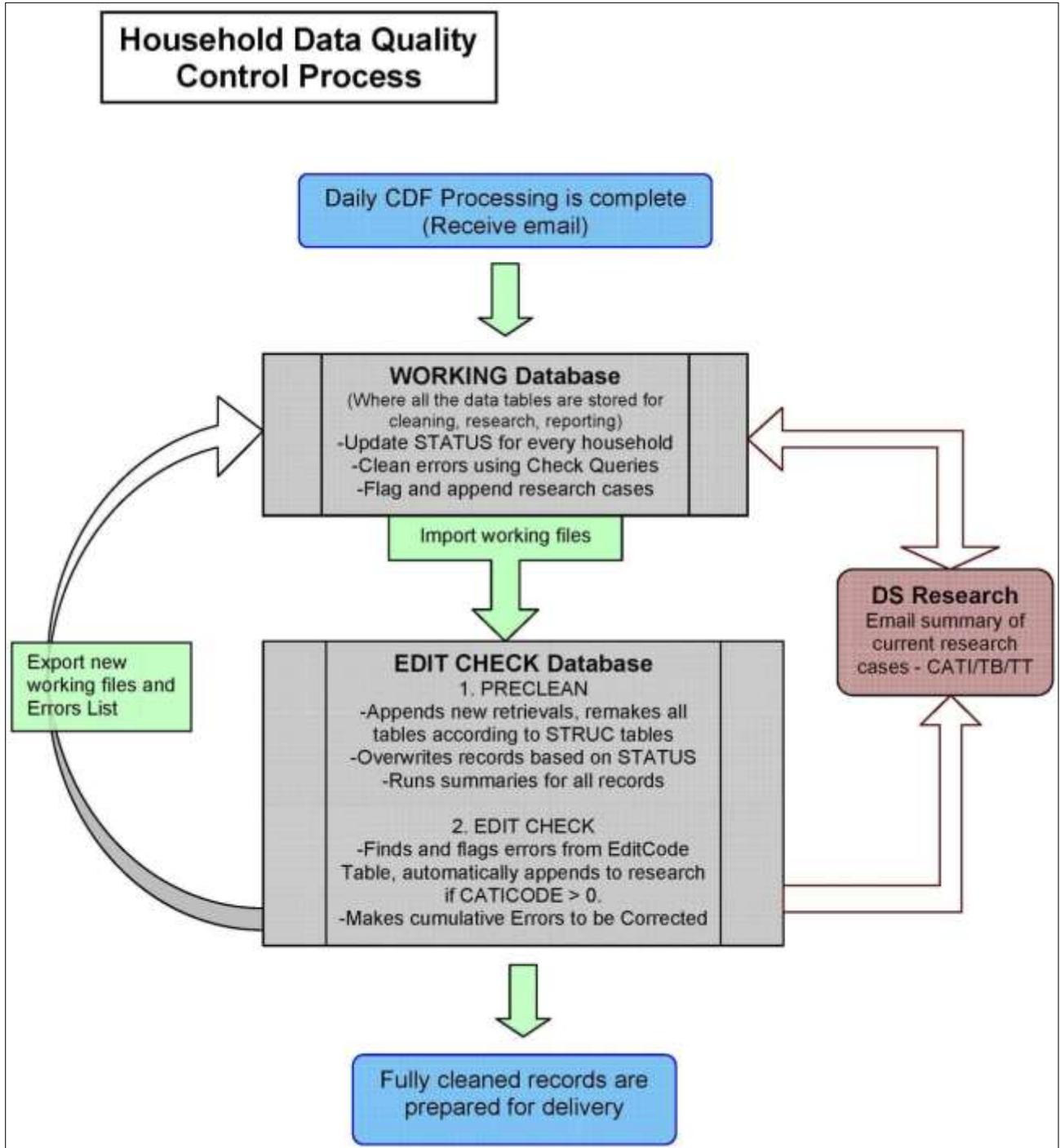
Household Size	N	Average Call Duration (in min.)	Average Call Attempts
1	2,336	17.8	3.5
2	3,712	22.7	3.4
3	1,830	26.7	3.6
4+	2,400	29.6	3.7
<b>Overall</b>	10,278	23.2	3.6

## Data Processing, Coding, and Correction

Data processing took place on a daily basis throughout the study, beginning with the release of sample for recruitment, to processing recruitment data for the respondent mail-out, to appending the retrieval data to the master tables, and to performing initial quality control measures on the data. A master control file tracked the progress of each household through the various survey stages, with codes to allow immediate identification of problem cases that were not progressing according to schedule, as well as confirmation that cleared cases moved along as appropriate. Routine data checks included the following:

- Data range checks to ensure data were inside the expected ranges for each variable and that there was agreement across data files (for example, if the household had four persons and two vehicles, there should be four records in the person file and two records in the vehicle file).
- If a person reported no travel, the household was flagged for manual review to confirm the reason for non-travel was appropriate based on the demographic characteristics of the household member. Those cases for which the reason for non-travel was suspect or did not make sense within the context of the available demographic information were flagged and returned to the Research Team for confirmation or replacement.
- Within the travel data itself, several items were checked. The following are examples of conditions researched within the trip data:
  - ✓ Did each trip begin and end at a different location? Loop trips (those that have the same origin and destination) might be neighborhood walks, which were treated as at-home non-work activities rather than a trip.
  - ✓ Did each person return home at the end of the travel day? If not, did the final recorded destination make sense within the context of the household and person characteristics?
  - ✓ For all instances where a respondent reported traveling with other household members, was the shared trip reported for all other household members?
  - ✓ For all trips with “auto-driver” as the reported mode, was the respondent a licensed driver?
  - ✓ For all trips reported as “auto-passenger”, did another household member report the same trip as an auto-driver? If not, did the passenger report riding in a non-household vehicle with at least one other person making the trip?

Figure 6: Data Processing Flow Chart



## Real-Time Geocoding with Trip Builder

All trip-ends and habitual addresses were geocoded during the retrieval telephone and Web interviews with the Trip Builder software. The Trip Builder software was designed to provide interviewers or respondents using the Web program with study area details (road names, landmark references, etc. using Google interface). Interviewers used this additional detail to confirm respondent-reported locations in real time. An additional benefit of the use of the Trip Builder software was that once the interview was completed, full address information, with matching X/Y coordinates, for 100 percent of the locations, was immediately available.

## Assessment of Survey Quality

For the full study, the survey quality was improved when compared to the pre-test. Non-response items in Household, Person, Vehicles, and Retrieval items had a decreased non-response rate for the key variable compared to pretest.

## Non-Response Analysis

The following is a summary of item non-response for the recruitment effort. The percentages indicated are the proportion of responses that were “don’t know” and/or “refused.” At the household level, income refusals were the highest with 8.3 percent of all recruited households refusing to answer this question. Other data items such as race/ethnicity, landline telephone in household, and home ownership resulted in minimal non-response. In reference to the pre-test data set, the full study saw a significant decrease in the percentage of non-response. See Table 16 for more information on Household Variables Item Non-Response.

**Table 16: Final: Household Variables Item Non-Response**

Household File	% Non-Response
Race/Ethnicity	1.6%
Home ownership	0.3%
Landline telephone	0.2%
Household income	8.3%

At the person level, the 8.5 percent non-response rate for the question asking whether the employer provided a transit pass largely reflects uncertainty or inability to answer, rather than refuse, the question. All other items are within reasonable bounds and are comparable to other studies of this type. Table 17 shows all variables at the person level that experienced item non-response.

**Table 17: Final: Person Variables Item Non-Response**

Person File	% Non-Response
Age	2.5%
Disability	0.4%
Employment	0.2%
Volunteer	1.7%
Status of unemployment	2.1%
Days worked per week	5.0%
Mode of travel to work	0.7%
Flexible work schedule	3.0%
Employer provided parking	2.3%
Employer provided transit pass	8.5%
Level of education	0.2%
Student status	0.5%
Frequency of travel to work/school by bike/walk in last week	2.4%

In the vehicle file, none of the items presented a significant degree of refusal. See Table 18 for more information on vehicle variable item non-response.

**Table 18: Final: Vehicle Variables Item Non-Response**

Vehicle File	% Non-Response
Vehicle year	1.9%
Vehicle make	0.6%
Vehicle ownership	0.9%

Finally, the following is a summary of item non-response for the retrieval effort. The percentages indicated are the level of responses that were “don’t know” and/or “refused.” All items are within reasonable bounds and are comparable to other studies of this type.

**Table 19: Final: Retrieval Variables Item Non-Response**

Place File	% Non-Response
Reason for making no trips	1.1%
Parking location	0.4%
Paid to park	1.8%

## Edit Checks

The Edit Check module is used by analysts to check data for consistency and accuracy, as well as to transform data to the final delivery format and perform summaries on this data. For the Edit Check section, there are a number of queries that are run to check the quality of the data and update the status flags for any existing data and other queries. The following table details the automated edit checks performed on the full-study data set.

**Table 20: Edit Checks**

Error Code	Message	Treatment	FILE
1	Arrival before departure (TRIP)	Check to see if TRPDU is >0, If not there is a time error between this row and the previous row	TRIP
2	Departure before arrival (TRIP)	Check to see if ACTDU is >0, If not there is a time error between ARRIVAL and DEPARTURE	TRIP
3	TOP PRIORITY--First place does not start at 3am (TRIP)	Check the ARRIVAL time of PLANO=1, it should be 300, if not maybe the first trip is missing or there is a reporting error	TRIP
4	TOP PRIORITY--Last place does not end at 2:59am (TRIP)	Check the DEPART time of the last trip, it should be 259, if not maybe there is a numbering error between trips or the last trip has a reporting error	TRIP
5	Last place not home- confirm (TRIP)	Confirm with last place description	TRIP
6	TOP PRIORITY--Need location information (LOCNO=0 or is NULL) (TRIP)	Look for shared trips, look in RET data	TRIP
7	Day Time Totals <> 1439 (TRIP)	One of the TRPDUR/ACTDUR's is false	TRIP
8	Need reason for no travel/filled in and should not be (PER)	Check NOGO/O_NOGO	PER
10	HHSIZ (HH) not equal to person count (PER)	Check PER data to see if everyone is a valid person , then modify HHSIZ	HH/PER
11	HHVEH (HH) not equal to vehicle count (VEH)	Check VEH data to see if vehicle is a valid vehicle , then modify HHVEH	HH
12	UPDATE WORKS	Check Per data to see if Empl =1 or Volun =1 and Works <>1	PER
12	HHWRK (HH) not equal to workers count (PER)	Check PER data to see if everyone >15 has a valid EEMPLY code, then modify HHWRK	HH/PER
12	HHWRK (HH) not equal to workers count (PER)	Check PER data to see if everyone >15 has a valid EEMPLY code, then modify HHWRK	HH/PER
14	HTRIPS (HH) does not match number of household trips (TRIP)	Make sure only valid HH members >15 have trip data	HH/TRIP
15	INCOM is missing or is out of range (HH)	Check INCOM, look in REC data	HH
16	ASSN or DAY is missing or invalid (HH)	Check ASSN, make sure it is a valid number, look in REC data	HH
18	RESTY missing or is out of range (Including RESTO)	Check RESTY and RESTO, look in REC data	HH
20	HHSTU does not match number of HHSTU	RERUN PRECLEAN	HH
21	TRIP - Person without Drivers License Driving	Check Person Roster	PER
22	TRIP - Person Making Trips not in PER file (PER/TRIP)	Check Trip file or Person Roster for inconsistency	TRIP
26	Person is missing from trip file (PER/TRIP)	This person is missing from the trip file, look in RET data and if unresolved send to research (this person may have been deleted RET)	PER/TRIP
28	TRIP-person traveling together (TRIP)		TRIP
29	AGE and/or GENDER is missing or out of range (PER)	Check AGE and GENDER, one could be missing, RET (addper) and REC data	PER
36	PROXY or INTRV missing	Check PROXY and PER (addper) can also check RET look for interviewed variable	PER
37	PERSON not in HH file	There is no HH in the HH table for this PERSON, check REC and RET or send to RESEARCH	HH/PER

Error Code	Message	Treatment	FILE
40	Work marked as "home" (WLOC) but WADD<>HHADDR (PER/HH), IF NOT CHECK, if WADDR is Missing from PER file.	Check if WLOC is not home	PER
41	Work trip address does not match WADDR (PER/TRIP)	Check WLOC, maybe 2 works	PER/TRIP
43	Unemployed person working or work related on travel day (PER/TRIP)	Check to see if work is valid activity, if no work is in PER, update PER with WORK information (add per)	PER/TRIP
45	School info missing (PER) - SCHOL is Null	Check PER school data, update from RET (add per)	PER
45	School info missing (PER) - SCHOL is not Null	Check PER school data, update from RET (add per)	PER
45	SNAME, SXCOR is missing when SLOC is not home or vice versa	Check PER school data, update from RET (add per)	PER
47	School trip address does not match SADDR (PER/TRIP)	Maybe the school is in there twice as 2 different locnos or there are 2 schools.	PER/TRIP
50	Trip duration (TRPDU) is out of range or does not agree with PLANO (TRIP)	Check Arrival time of current place and departure time of previous place, PLANO=1 should have a null TRPDU	TRIP
53	Travel in (TRIP) file does not correspond to a person (PER)	Extra TRIP data, this person is not in per. Check to see if PERNO's changed in RET (add per and del per)	PER/TRIP
54	PTrips (PER) does not match number of person trips (TRIP)	RERUN PRECLEAN	PER/TRIP
55	Home trip does not match HHADDR (HH/TRIP)	Repull LOC , check TRIP and LOCNO of PTYPE 1	HH/TRIP
58	MODE does not agree with PLANO or is a refusal (TRIP)	PLANO 1 should not have a mode, there should be a MODE for all other PLANO's	TRIP
60	Non-student doing school activities on travel day (PER/TRIP)	Check ACT1/ACT2 in TRIP, Check AGE, if a student add student variables to PER, if not, change activity to match place	PER/TRIP
62	Number of household members traveling together is larger than household size	Check HHMEM in TRIP it is too large	TRIP
65	ACTIVITY DURATION =0	Check If TRIP if it is loop trip	TRIP
68	LOOPTRIP-Weird trip purpose or extra trips	Review TRIP data	TRIP
69	LOOPTRIP2-Confirm either TPURP or TPUR2 are 96	Review TRIP data	TRIP
78	VEH YEAR is missing or is out of range (VEH)	Check Rec data	VEH
94	PER - Employment Verification (EMPLY,VOLUN,WORKS) - Part 1	Check REC and RET PER tables	PER
96	PER - WORKER (WLOC, OCCUP, INDUS) - Part 3	Check REC and RET PER tables	PER
98	PER - WORKER (WNAME,WMODE,O_WMODE, WADDR) - Part 5	Check REC and RET PER tables	PER
104	PER - STUDENT (\$MODE,O_SMODE,SLOC, SNAME, SADDR, SXCOR)	Check REC and RET PER tables	PER
108	EMPLY=1 but VOLUN is not null	Update VOLUN to NULL	PER
116	PER -AGE is Null OR AGE is NOT NULL	Update AGE to NULL	PER
117	PER - DISAB is null or DTYPE,DSLIC,TWEXT is null	Check REC and RET PER tables	PER
120	PER - WKSTAT is null	Check Work Status	PER
121	PER - WKSTAT is not null	Check Work Status	PER
122	PER - WDAY is null	Check Work Status	PER
126	VEH - MODEL or MAKE is DK/RF and BODY is null	Check REC and RET VEH tables	VEH
128	TRIP - PARTY is >0 and HHMEM is null	Review TRIP	Trip

Error Code	Message	Treatment	FILE
129	TRIP - PERTP is null and HHMEM > 0	Review TRIP	Trip
136	PER-OCCUP Contains Will Provide	Check RET PER	PER
137	HH - Zero-trip household - Confirm	Obtain travel info from day where trips were made	TRIP
138	PER - School-aged person not a student	Obtain school information, or reason not in school	PER
139	TRIP - Auto passenger riding alone	Include driver in PARTY or change to driver	TRIP
140	PER - Person under 14 years old is PROXY=1. PROXY should be 2.	Change PROXY to 2 and get the proxy person # from tb_personextended table	PER
152	Update PTYPE to 1	Check If PNAME = Home and PTYPE<>1.	TRIP
153	Look for home xycoordinates in trip table or geocode haddr		HH/TRIP
154	Transit Trip - Missing Access and/or Egress Trip.	Flagged for Research	TB
155	Out of area hosuehold - Need Out of Area Addr and needs to be geocoded		TB
156	Speed is too fast(Place is wrongly geocoded or mode is wrong or travel time is wrong)		TB
157	O_NOGO is missing or O_NOGO not required	Check O_NOGO	TB
158	CHECK TPURP, O_TPURP		TB
159	CMPLG missing	Flag for Research	TB
160	ROUTE SERVC missing	Flag for Research	TB
161	Under 15 Driving	Check If LIC=1 in PER.	Per/TRIP

## Geographic Coverage

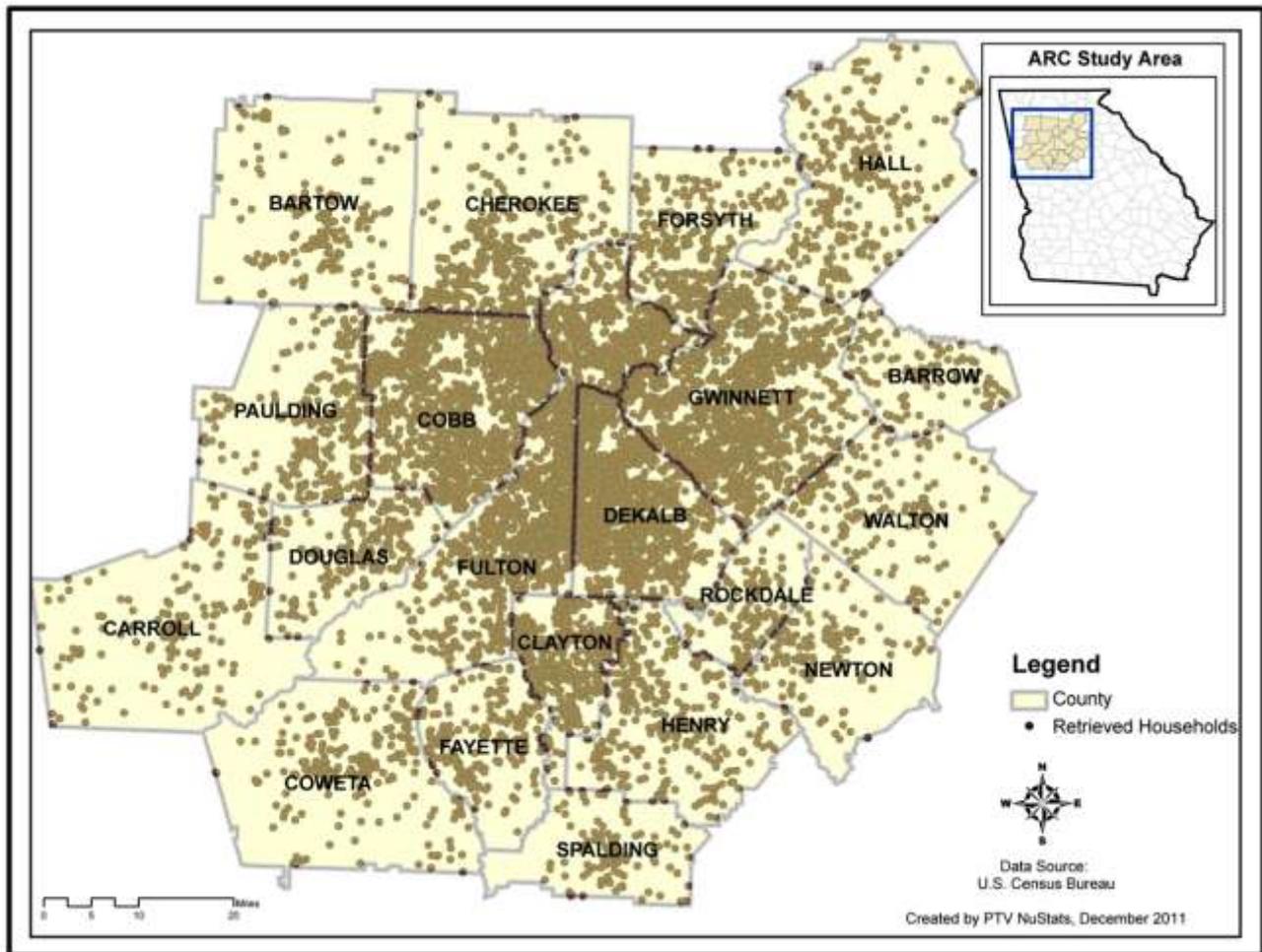
The Table 21 describes the geographic distribution of recruitment completes, retrieval completes, progress to goal, and percentage of retrieval refusal. Overall, the survey achieved 103 percent progress to goal with a 63 percent retrieval rate and 60 percent retrieval refusal rate.

**Table 21: County Distribution**

County	Retrieval Goal	Recruits	Retrievals	% of Goal	Retrieval Rate	Retrieval Refusal Rate
Barrow	128	198	111	86.70%	56.10%	78.62%
Bartow	176	292	187	106.30%	64.00%	60.89%
Carroll	216	373	203	94.00%	54.40%	74.01%
Cherokee	396	604	391	98.70%	64.70%	56.04%
Clayton	469	874	503	107.20%	57.60%	45.92%
Cobb	1359	2,226	1417	104.30%	63.70%	62.20%
Coweta	229	379	240	104.80%	63.30%	46.30%
DeKalb	1458	2,337	1481	101.60%	63.40%	54.32%
Douglas	229	356	210	91.70%	59.00%	65.67%
Fayette	196	299	210	107.10%	70.20%	47.44%
Forsyth	305	498	328	107.50%	65.90%	44.09%
Fulton	1946	3,110	1986	102.10%	63.90%	60.32%
Gwinnett	1373	2,267	1439	104.80%	63.50%	65.48%
Hall	311	527	323	103.90%	61.30%	57.83%
Henry	348	552	319	91.70%	57.80%	67.71%
Newton	175	246	151	86.30%	61.40%	60.99%
Paulding	254	477	326	128.30%	68.30%	43.96%
Rockdale	149	215	124	83.20%	57.70%	79.04%
Spalding	125	224	132	105.60%	58.90%	75.18%
Walton	158	320	197	124.70%	61.60%	55.27%
<b>Total</b>	10000	16,374	10278	102.80%	62.80%	59.62%

Figure 7 shows all the retrieved or completed households by county in the ARC region.

**Figure 7: Participating Household Locations (Map of ARC Region)**



## Demographic Coverage

The full-study effort continually tracked the demographic representation to inform sampling procedures in an effort to reach a representative sample. Table 22 shows the distribution of demographic characteristics of participating households as compared to 2000 Census data. The sampling approach resulted in a household distribution that varied from the Census in some areas, while matching in others. Low-income households were somewhat under-represented, but overall household income tracks with census data.

**Table 22: Demographic Results Compared to Census**

Demographic		Retrieval	General population Data
<b>Total Households</b>		10,278	1,867,492
<b>Household size</b>	1	23.4%	26.7%
	2	35.9%	30.9%
	3	17.9%	17.1%
	4+	22.9%	25.3%
<b>Household vehicles</b>	0	4.1%	6.0%
	1	25.3%	33.6%
	2	42.9%	40.1%
	3+	27.8%	20.3%
<b>Household Income</b>	Less than \$10,000	4.1%	5.9%
	\$10,000 - \$19,999	6.6%	4.2%
	\$20,000 - \$29,999	6.9%	8.7%
	\$30,000 - \$39,999	7.5%	9.8%
	\$40,000 to \$49,999	7.0%	14.2%
	\$50,000 to \$59,999	6.6%	19.7%
	\$60,000 to \$74,999	8.1%	13.2%
	\$75,000 to \$99,999	17.3%	13.8%
	\$100,000 to \$149,999	16.4%	5.2%
	\$150,000 or more	11.1%	5.3%
Income Refusals	8.3%	--	
<b>Residence Type</b>	Rent	16.2%	31.8%
	Own	83.8%	68.2%
<b>Type of Phone for Household<sup>3</sup></b>	Cell Only	7.4%	15.5%
	Other	92.6%	84.5%
<b>Ethnicity</b>	White	54.4%	51.7%
	African American	31.2%	31.1%
	Other	14.4%	17.1%
<b>Hispanic</b>	Yes	13.2%	10.8%
	No	86.8%	89.2%
<b>Respondent Gender<sup>4</sup></b>	Male	47.0%	49.4%
	Female	53.0%	50.6%
<b>Respondent Age<sup>5</sup></b>	<18 years old	23.3%	27.3%
	18- 24	5.1%	8.9%
	25 - 54	43.8%	45.9%
	55 - 64	16.8%	9.7%
	65+	11.0%	8.3%
	Age Refusals	2.5%	-

<sup>3</sup> Reference data: CDC/NCHS, National Health Interview Survey, 2007. Only state-wide data are available.

<sup>4</sup> Reference table: ACS 2007-09, B01001. Sex by age - Universe: Total population

<sup>5</sup> Reference table: ACS 2007-09, B01001. Sex by age - Universe: Total population

## Response Rates

The response rate calculation entails the calculation of two rates, which are then multiplied together to form a third rate. The first rate is the recruitment rate, which reflects the proportion of the sample that was recruited into the study. There are two approaches to calculating recruitment rates: 1) that which is prescribed by the Council of American Survey Research Organizations (referred to herein as the recruitment rate), which tends to underestimate the real response rate, and 2) the simpler estimation of participation rate, which is the ratio of all recruited households to all sample eligible for recruitment, which tends to over-estimate the recruitment rate. The true recruitment rate lies somewhere in between. The second rate is the retrieval rate, calculated as the proportion of all retrieved households to all recruited households. The final response rate is derived by multiplying the recruitment rate (or participation rate) by the retrieval rate.

Geographically, there were widely varying response, participation, and retrieval rates across the counties. Table 23 shows the recruitment rate, participation rate, retrieval rate, and final response and participation rates for the survey based on county. Overall, the survey had a final response rate of 6 percent and final participation rate of 34 percent; thus, the true response rate lies somewhere in between.

**Table 23: Response Rates by County**

County	Recruitment Rate	Retrieval Rate	Final Response Rate	Recruitment Rate (Participation)	Final Participation Rate
Barrow	9.20%	62.01%	5.71%	51.14%	31.71%
Bartow	12.30%	68.50%	8.43%	55.49%	38.01%
Carroll	10.10%	57.34%	5.79%	51.01%	29.25%
Cherokee	9.70%	70.63%	6.85%	49.91%	35.25%
Clayton	9.80%	61.44%	6.02%	52.95%	32.53%
Cobb	7.30%	72.08%	5.26%	43.79%	31.56%
Coweta	8.20%	67.99%	5.58%	47.38%	32.21%
DeKalb	9.00%	71.92%	6.47%	51.84%	37.28%
Douglas	8.20%	65.31%	5.36%	49.16%	32.10%
Fayette	8.20%	78.87%	6.47%	45.61%	35.97%
Forsyth	9.40%	71.93%	6.76%	49.46%	35.57%
Fulton	8.80%	71.14%	6.26%	49.10%	34.93%
Gwinnett	8.00%	72.31%	5.78%	46.50%	33.62%
Hall	8.50%	65.72%	5.59%	49.25%	32.37%
Henry	8.10%	64.91%	5.26%	46.25%	30.02%
Newton	8.70%	67.41%	5.86%	49.23%	33.19%
Paulding	7.60%	74.43%	5.66%	43.54%	32.41%
Rockdale	8.50%	65.61%	5.58%	47.85%	31.39%
Spalding	9.80%	63.29%	6.20%	54.33%	34.38%
Walton	7.10%	64.80%	4.60%	47.13%	30.54%
<b>Overall</b>	8.50%	69.78%	5.93%	48.33%	33.73%

The response rates for the ARC Regional Travel Study full-study effort are shown in Table 24, along with those from other recent studies. The ARC Regional Travel Study full study response and participating rates are similar to other studies.

**Table 24: Response Rate Comparison to Other Surveys**

Study	Year	Final Response and Participation Rate
ARC Regional Travel Survey	2011	5.9% - 34%
CALTRANS HH Travel Survey	2011	5.5%
ARC Regional Travel Survey Pre-Test	2010	11% - 31%
Central Indiana Full Study	2010	41%
Oregon Full Study – Region 4	2009	39%
Oregon Full Study – Region 2	2009	44%
Central Indiana Pre-Test	2008	10%-36%
Oregon 1-day Pre-Test	2008	15%-46%
Chicago Full Study	2007–2008	10%-31%
Chicago Pre-Test	2006	9%-29%

## GPS Subsample

In 2010, the Atlanta Regional Commission (ARC) contracted PTV NuStats, LLC to conduct the Regional Travel Survey to support the planning data needs of the Atlanta region. GeoStats, a subcontractor to PTV NuStats, was responsible for implementing the GPS component of this survey.

The objective of the GPS component of the full-study effort was to deploy GPS data loggers to at least 1500 households, with a target goal of obtaining 1,000 GPS/Diary complete households. The purpose of the GPS component was to collect detailed information about all trips made by the GPS subsample and to estimate levels of trip underreporting in this subsample that could be applied to the larger, non-GPS sample. A split design was recommended, with the objective to obtain 667 complete households with in-vehicle GPS data and the remaining 333 complete households with wearable GPS data. The GPS devices were to be used for seven days by the vehicle sample and three days by the wearable sample, with the first day coinciding with the assigned diary/travel day.

This split technology design allowed for the collection of seven days of highly accurate vehicle-based data with minimal respondent burden while focusing the use of the wearable GPS device to those households that report some incidence of transit use for the work or school commute. Households selected for the wearable GPS component were deployed for three days with all household members between the ages of 16 and 75 (inclusive) receiving GPS equipment. As an Atlanta-based firm, GeoStats handled all equipment deployments (both shipping and returns) from their west-midtown office. A \$25 incentive per instrumented vehicle or person was offered to all recruited GPS households for successful reporting of travel data, for use of all GPS devices provided, and for return of all devices.

To test the methods and systems to be used in the full-study effort, PTV NuStats and GeoStats conducted a pre-test in the fall of 2010. Based on the results of the pre-test, materials and protocols were updated, and the full study began in 2011. The spring phase of the main study was fielded between March and May 2011. The fall phase of the main study was fielded in August and September 2011. This report documents the GPS data collection and processing methods used in the main study.

## **Deployment Methods and Results**

This section of the report will describe the GPS equipment used, will review the methods employed to distribute and collect the GPS devices, and will present the results of the deployment effort.

### **In-Vehicle GPS Equipment**

The QStarz BT-Q1000x Travel Recorder (Figure 8) was used for the in-vehicle GPS component of this study. This device captures date, time, latitude, longitude, speed, and other standard GPS variables, and can be configured to collect additional variables including heading, horizontal dilution of precision (HDOP), and number of satellites. This recent entry in the market was tested thoroughly by GeoStats staff in late 2009 and was successfully deployed in the recent large-scale Front Range Travel Counts survey (conducted in Pikes Peak and Denver, Colorado) to collect one week of GPS in-vehicle data. In the Atlanta Regional Travel Survey main study, this device was provided to participants with a vehicle power cable and power splitter so that participants could also charge other personal devices if needed. The power cable also has a small suction cup attached so that the participant could secure the cable and device on the dashboard near the windshield to prevent slippage. GeoStats provided 460 QStarz BT-Q1000x devices to support the deployment of 1,000 households to meet the in-vehicle GPS deployment goals. Over the course of the full study, 800 GlobalSat devices were provided to support deployment of 1,277 households to meet the in-vehicle GPS completion goals.

**Figure 8: QStarz BT-Q1000X Travel Recorder**



### **Wearable GPS Equipment**

The GlobalSat GPS Data Logger is a rugged yet simple GPS data logging device (see Figure 9) that has been deployed by GeoStats in eight household travel studies and physical activity studies conducted since 2007. The GlobalSat device is lightweight (6 oz.) and small (2.75"x3.15"x.7"). It can be worn on the waist, clipped to a purse or backpack, or dropped in a suit jacket pocket.

This device can log at various frequencies, can log all valid GPS points or only those valid points for which the speed is greater than one MPH (to screen out non-movement events), and has a 60,000 GPS point storage capacity. For the purpose of this study, the logging frequency was 4-second intervals with the speed screen activated. The standard GPS data stream elements recorded by the GlobalSat include date, time, latitude, longitude, and speed. These elements are stored in the logger in standard NMEA units and are converted into user-specified units and formats upon download. At the start of the study, 230 GlobalSat devices were provided to support deployment of 500 households to meet the in-vehicle GPS deployment goals. Over the course of the full study, 400 GlobalSat devices were provided to support deployment of 661 households to meet the wearable GPS completion goals.

**Figure 9: GlobalSat DG-100 GPS Data Logger**



## **Deployment Procedures**

The deployment team conducted the deployment process out of the GeoStats office because of its location within the study area. Households were recruited into the travel survey at least 10 days prior to their assigned travel date. As GPS households were recruited, GeoStats pulled recruitment details (such as names, addresses, phone numbers, and person rosters) daily and imported this information into its database. This recruitment information was then available on the GPS Study Management Website for use by the in-house deployment team.

The deployment team members signed on to the password-protected Website on a daily basis to review upcoming deployments. The lead time between the posting of recruited households to the Website and the assigned travel date is typically seven days, allowing sufficient time to prepare the necessary documents, diaries, and equipment, and to ship them to arrive prior to the assigned travel date.

Simple printed instructions were shipped with the devices; these instructions also listed the assignment of each logger to each household vehicle or household member (for either the vehicle or wearable GPS sample, respectively) based on the logger identification number. A sticker was affixed to each GPS device with the vehicle year and model for households recruited into the vehicle study or the first name of the household member printed on the sticker for households recruited into the wearable study. The instructions also emphasized the need to use the diaries to record travel on the assigned travel date. A return device sheet was also provided on which the household members were asked to record if they used the devices, and if not, to list the reason(s) why. Examples of the GPS device instructions and return sheets can be seen in Appendix J following the cover letter (these three pages were sent as a set with the equipment and diaries).

GPS devices and were shipped via FedEx. Participant instructions, equipment, diaries, and a pre-paid return FedEx Pak were placed in a cardboard box and secured with packing material. The equipment was delivered to the household two business days prior to the assigned travel day. After the assigned GPS data collection period, households were instructed to place all of the equipment and the return device sheet in the original box, to insert that box in the FedEx Pak, and to either put the package into a FedEx drop box or call 1-800-GoFedEx to schedule a pick-up at their home. Outbound and return equipment packages were tracked on the FedEx Website, with tracking information loaded on the GPS Study Management website. GeoStats requested that the participants hold on to their diaries, either reporting travel over the phone, reporting travel online, or returning the diaries in the pre-paid return envelope provided with the diaries.

The deployment team was instructed to prepare and ship equipment packages for each household listed on the deployment website and to update the household deployment status when appropriate. The default status for deployment when recruit information was first loaded was 'Recruit'. They could then change this status to reflect the current state of the deployment process; the following is a list of all household deployment status codes:

- Recruited

- Shipped
- Deployed
- Complete (deployed and retrieved)
- Invalid Address
- Returned Refused (elected not to participate)
- Not Returned/Lost
- Over-recruit

The first four statuses reflect the natural progression of a successful deployment, whereas the final four statuses reflect GPS recruits that did not result in a useful deployment. The last status, Over-recruit, was assigned when a household was recruited without enough lead time for the equipment to be shipped (and they were not able to be rescheduled) or when there were no qualifying vehicles or persons in a given household due to a recruitment error.

After receiving the returned equipment, the deployment staff downloaded the GPS data from the loggers and then cleared the device memory for redeployment. The downloaded GPS files were then imported into the project database at the GeoStats office, where all further GPS data processing occurred. Deployment personnel were also responsible for updating the person-level equipment usage status fields as reported by each household and for recording any household or person-level comments on the Website.

### **Deployment Results**

Equipment was deployed (i.e., successfully delivered) to 1,839 households. GeoStats developed an equipment retrieval management system in Microsoft Access to coordinate follow up with all GPS households that did not immediately return their GPS equipment as instructed. First, a phone call was placed to the home telephone number for all households that did not return their GPS devices within one week after the last GPS travel date. When a person answered or an answering machine picked up, a message was delivered thanking the household for their participation and requesting that the GPS equipment be returned in the pre-paid FedEx envelope. A toll-free number was left if the household had any questions. If no person or answering machine was reached, additional calls were attempted.

If equipment still had not been returned by three weeks after the last GPS travel day, a letter was sent to the home. A second equipment retrieval letter was mailed to the household if equipment was still outstanding after five weeks. During the final week of the study, phone calls were made and letters were mailed simultaneously in an attempt to retrieve as much equipment as possible. See Appendix J for an example of the letter sent as a reminder to households that did not return equipment.

At the time of this report, there were 93 households across both vehicle and wearable GPS recruits that had not returned the GPS devices sent to them. Table 25 shows the final totals for each deployment disposition category by sample type. The counts for Returned Refused are included in the Total Returned numbers. Households that were not deployed (19 vehicle and 8 wearable) because of recruitment issues are not included in these tables.

**Table 25: Recruitment and Deployment Statistics by GPS Sample Type**

Sample Type	Total Deployed	Deployed, Returned	Still Deployed / Not Returned	% Not Returned
Vehicle GPS	1277	1222	55	4%
Wearable GPS	661	623	38	6%
<b>Total</b>	1938	1845	93	5%

## Participation Results

Table 26 shows the results of the GPS component with respect to collecting both Diary and GPS data on the assigned travel date based on sample type.

**Table 26: Participation Statistics by GPS Sample Type**

Sample Type	GPS Statistics			Diary Statistics			GPS and Diary Combined		
	Deploy	Return	% Return	Deploy	Return	% Return	Deploy	Return	% Return
Vehicle GPS	1277	1222	96%	963	75%	916	72%	727	57%
Wearable GPS	661	623	94%	483	73%	419	63%	334	51%
<b>Total</b>	<b>1938</b>	<b>1845</b>	<b>95%</b>	<b>1446</b>	<b>75%</b>	<b>1335</b>	<b>69%</b>	<b>1061</b>	<b>55%</b>

As seen in Table 27, complete GPS and diary data were collected from 1,061 households out of the 1,938 households deployed in this study, which is a 55 percent completion rate. A complete (GPS and diary) household is defined as one in which diary data were retrieved for the household and GPS data were either collected from each instrumented vehicle or person on the assigned travel date, or, if not collected from a given vehicle or person on the assigned travel date, then the diary data confirmed no travel for that vehicle or person.

Table 27 shows the overall data collection disposition of all households participating in the GPS component by study type (vehicle or wearable). There are categories (or levels) of participation other than full GPS and diary completion that are also useful for analysis. In fact, beyond the combined 1,061 GPS/Diary complete households, an additional 392 households collected complete GPS data without reporting diary data.

**Table 27: Disposition of GPS and Diary Retrieval Outcomes**

Participation Outcome	Frequency Vehicle	% Vehicle	Frequency Wearable	% Wearable
Complete (GPS + Diary)	727	57%	334	51%
Full GPS data but no Diary data	233	18%	146	22%
Partial GPS data but no Diary data	0	0%	0	0%
Partial GPS data and full Diary data	106	8%	48	7%
No GPS data but full Diary data	80	7%	34	5%
No GPS data and no Diary data	128	10%	96	15%
GPS + Diary data on different dates	3	0%	3	0%
<b>Total</b>	<b>1277</b>	<b>100%</b>	<b>661</b>	<b>100%</b>

## GPS and Diary Trip Matching Results

There were a total of 1,422 GPS vehicles in the 727 complete vehicle GPS households and 649 GPS persons in the 334 wearable GPS households. The 1,422 GPS vehicles captured 6,366 GPS trips on the assigned travel days, compared to 5,430 reported trips for these same vehicles. The 649 GPS persons captured 3,601 GPS trips on their assigned travel day compared to 3,281 reported trips for these same participants. Therefore, across both the vehicle and wearable GPS samples, a total of 9,967 GPS trips were collected compared to 8,711 reported trips for the same vehicles or persons.

## **Reporting Exceptions**

In some household travel surveys, work-related trips (i.e., commercial use of personal auto) and external-to-external trips (i.e., those that have origins and destinations outside of the planning region) are not reported in the travel diary and not collected during the retrieval interview. Other unreported trip types include loop trips (i.e., those that start and end at the same location) and on-site travel (i.e., trips that are conducted on the premises of one property, like a hospital or apartment complex). It should be noted that in the Atlanta Regional Travel Survey full study, participants were instructed to report all trips, with no reporting exceptions.

Given that participants in this study were instructed to report all trips, the remainder of the missed trip analyses will present results that include the reporting exceptions. At the end of the analyses, a summary table showing the difference in missed trip rates if these reporting exceptions are excluded is provided. First, a breakdown of matching results by vehicle GPS and wearable GPS are presented.

## **Matching Results – Vehicle GPS Households**

The results of the trip matching process for the vehicle GPS sample fell into the following three categories:

- 1) **100 Percent Matched Trips.** Any vehicle instrumented with GPS that captured the same GPS trips as reported in diary were considered to be a perfect match. This category also includes no travel vehicles, which had no GPS data collected on the travel date and no trips reported for that vehicle on the assigned travel date. Of the 1,422 vehicles instrumented with GPS devices in the 722 vehicle GPS/Diary complete households, 290 vehicles recorded no GPS trips and were confirmed as not driven on the assigned travel day (20.4 percent of all instrumented vehicles).

Of the 1,422 instrumented vehicles, 861 had perfect matches between the diary and GPS trip data. The breakdown of this number includes the 290 vehicles that did not travel and 571 vehicles that made at least one trip. This represents a perfect match (or reporting rate) for 60.5 percent of all instrumented vehicles and for 2,452 of the 5,430 diary-reported trips (45.2 percent).

Table 28 contains the trip frequency statistics for the vehicles included in this category.

**Table 28: Trip Frequencies for Perfect Matches at Vehicle Level**

# Trips	Frequency	Percent	Cumulative Percent
0	290	33.7%	33.7%
1	13	1.5%	35.2%
2	161	18.7%	53.9%
3	70	8.1%	62.0%
4	100	11.6%	73.6%
5	76	8.8%	82.5%
6	58	6.7%	89.2%
7	37	4.3%	93.5%
8	23	2.7%	96.2%
9	15	1.7%	97.9%
10	9	1.0%	99.0%
11	2	0.2%	99.2%
12	4	0.5%	99.7%
13	2	0.2%	99.9%
14	0	0.0%	99.9%
15	1	0.1%	100.0%
<b>Total</b>	861	100.0%	100.0%

- 2) **Trips reported by diary but not captured by GPS.** The second comparison identifies diary trips that had no corresponding GPS vehicle trips. During the matching process, 357 diary trips were identified that had no corresponding GPS trip (which represents 5.3 percent of all GPS trips). This typically happens when respondents install the vehicle GPS device after travel has started on the assigned travel day or when the power supply is removed from the device and there is insufficient internal charge to continue powering the device. It is also possible that the device was not switched on throughout the travel day.
  
- 3) **Trips captured by GPS but not reported by diary.** The last category in the matching process contains those cases where vehicle trips were identified within the GPS data stream but not reported within the diary data. These 1,293 “missed” diary trips were either single links within a trip chain, multiple links within a trip chain, or complete round-trips missing all links in a tour, based on characteristics of adjacent trips. Based on the total of 5,430 diary trips reported, the missing 49 diary trips reflect a 19.2 percent missing trip rate across the vehicle GPS sample. There were 245 typical reporting exceptions found in the missing diary trips. If these 245 trips are excluded from the missed trip analysis, the missed trip rate falls to 16.2 percent. Further regression analyses are needed to generate specific correction factors at the vehicle, person, household, and trip type levels for the overall pre-test sample.

Table 29 shows the frequency of missing GPS and diary trip counts detected for the 561 vehicles that did not have perfect matches between the diary and GPS data.

**Table 29: Trip Frequencies for Missing GPS and Missing Diary Trips (Vehicle GPS)**

# Trips Missing	Missing GPS Frequency	Missing Diary Frequency
1	86	210
2	44	104
3	25	57
4	10	33
5	4	16
6	2	9
7	2	9
8	1	4
9	0	6
10	0	5
11	0	6
12	0	2
13	0	2
14	1	1
15	0	1
16	0	0
17	0	0
18	0	3
19	0	1
20	0	0
21	0	1
<b>Total</b>	<b>175</b>	<b>470</b>

### **Matching Results – Wearable GPS Households**

The results of the trip matching process for the wearable GPS sample fell into similar categories:

- 1) **100 Percent Matched Trips.** Any person instrumented with GPS that captured the same GPS trips as reported by diary were considered to be a perfect match. This category also includes no travel persons, or those for whom no GPS data were collected on the travel date and no trips reported on the assigned travel date. Of the 649 persons instrumented with GPS devices in the 334 wearable GPS/diary complete households, 61 persons had no GPS data and were confirmed as no travel in the diary data (9.4 percent of all instrumented persons).

Of all trips made by the 649 instrumented persons, 277 persons had perfect matches between the diary and GPS trip data. The breakdown of this number includes the 61 persons who did not travel and 216 persons who made at least one trip. This represents a perfect match (or

reporting rate) for 42.7 percent of all instrumented persons and 1,054 of the 3,281 diary-reported trips (32.1 percent).

Table 30 contains the trip frequency statistics for the persons included in this category.

**Table 30: Trip Frequencies for Perfect Matches at Person Level**

# Trips	Frequency	Percent	Cumulative Percent
0	61	22.0%	22.0%
1	0	0.0%	22.0%
2	45	16.2%	38.3%
3	35	12.6%	50.9%
4	34	12.3%	63.2%
5	34	12.3%	75.5%
6	18	6.5%	81.9%
7	13	4.7%	86.6%
8	12	4.3%	91.0%
9	7	2.5%	93.5%
10	9	3.2%	96.8%
11	6	2.2%	98.9%
12	1	0.4%	99.3%
13	1	0.4%	99.6%
14	1	0.4%	100.0%
<b>Total</b>	<b>277</b>	<b>100.0%</b>	<b>100.0%</b>

- 2) **Trips reported by diary but not captured by GPS.** The second comparison identifies diary trips that had no corresponding GPS trips. During the matching process, 478 diary trips were identified that had no corresponding GPS trip (which represents 11.7% of all GPS trips). This typically happens when respondents place the GlobalSat device in a position in which it cannot receive GPS satellite signals (such as in a purse or backpack) or forget to confirm that it is powered on.
- 3) **Trips captured by GPS but not reported by diary.** The last category in the matching process contains those cases where trips were identified within the GPS data stream but not within the diary data. These 798 “missed” diary trips were either single links within a trip chain, multiple links within a trip chain, or complete round-trips missing all links in a tour, based on characteristics of adjacent trips. Based on the total of 3,281 diary trips reported, the missing 798 Diary trips reflect a 19.6 percent missing trip rate across the entire sample. However, when the typical reporting exceptions are excluded from this analysis, the missed trip rate falls to 14.6 percent for the person GPS sample. As mentioned previously, further regression analyses are needed to generate specific correction factors at the person, household, and trip type levels for the overall sample.

Table 31 shows the frequency of missing GPS and diary trip counts detected for the 372 persons who were not perfect matches.

**Table 31: Trip Frequencies for Missing GPS and Missing Diary Trips (Wearable GPS)**

# Trips Missing	Missing GPS Frequency	Missing Diary Frequency
1	77	107
2	53	56
3	26	33
4	8	17
5	18	16
6	4	12
7	4	3
8	0	7
9	1	3
10	0	2
11	2	0
12	1	1
13	0	0
14	0	2
15	0	1
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	2
27	0	0
28	0	0
29	0	1
<b>Total</b>	194	263

## Overall Matching Results

Table 32 shows the GPS-detected and diary reported trip counts for each GPS sample. The raw difference between the two has also been calculated; however, these raw counts do not reflect missing trip counts given that there may be missing GPS and diary trips for a given vehicle or person.

**Table 32: GPS and Diary Trip Counts for Vehicle and Wearable GPS Samples**

	# GPS trips	# DIARY trips	raw difference
Vehicle GPS	6,366	5,430	936
Wearable GPS	3,601	3,281	320
<b>Total</b>	<b>9,967</b>	<b>8,711</b>	<b>1256</b>

Table 33 shows the missing GPS and missing diary trip rates by GPS sample type. The first set of columns lists the missing GPS rates, the second set lists the missing diary trip rates (including any of the 484 trips that are sometimes excluded in reporting, although not in this study), and the third set lists the missing trips rates if the exceptions are not counted

**Table 33: Missing Trip Rates**

	GPS Missing Trips		Diary Missing Trips (including exceptions)		Diary Missing Trips (excluding exceptions)	
	# missed GPS	% missed	# missed DIARY	% missed	# missed DIARY	% missed
Wearable GPS	478	11.7%	798	19.6%	559	14.6%
Vehicle GPS	357	5.3%	1,293	19.2%	1048	16.2%
<b>Total</b>	<b>835</b>	<b>7.7%</b>	<b>2,091</b>	<b>19.4%</b>	<b>98</b>	<b>15.6%</b>

## Link Matching

Another task included in the GPS component of this study was link matching the GPS points confirmed as valid trips to GIS spatial layers. Consequently, upon completion of the GPS trip review process, the files were run through a link matching routine. This routine compared GPS point sequences with linear spatial databases representing different elements from the study area's transportation infrastructure.

## Process Description

The algorithm used to perform the matching was based on the one proposed by Marshal, Hackney and Axhausen<sup>6</sup>, with the added feature of performing shortest network paths on gaps found in the final routes. The spatial layer used in this process was obtained from ARC<sup>7</sup> in ESRI Shapefile format; prior to processing, they were imported into PostGIS for more efficient access by the matching routine. Each record in the Shapefile received a unique id in PostGIS, which matched its position in the original file; this field (uid) was used to associate the GPS points with the link features.

<sup>6</sup> F. Marchal, J. Hackney, K. W. Axhausen, Efficient Map Matching of Large Global Positioning System Data Sets: Tests on Speed-Monitoring Experiment in Zürich, Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Academies, 2006.

<sup>7</sup> Obtained from the Atlanta Regional Commission's Atlanta Regional Information System (ARIS)

The link layer was stored using the NAD 1983 Georgia West State Plane projection in Feet. The GPS points were matched based on the travel modes they were associated with in TIAS, only modes bound to the street network were matched (Table 34).

**Table 34: List of Travel Modes Included in the Matching Process**

Mode Id	Description
3	Auto / Van / Truck Driver
4	Auto / Van / Truck Passenger
5	Local Bus
6	Express Bus
8	Dial-a-Ride / Paratransit
9	Taxi / Limo
10	School Bus
11	Motorcycle / Moped

Spatial operations were performed in the layer’s original local projection with GPS coordinates projected on the fly. The match tolerance was set at 150 feet (approximately 50 meters). This value was selected based on the spatial resolution and detail of the street networks and also by iteratively running the matching routines and reviewing results.

The GPS points were associated with links by intersecting lines perpendicular to the points’ trajectories with the route’s links. Linear referencing measurements were computed by calculating the distance along the routes’ individually matched segments to the point snaps. Distances were saved in meters.

The output of this process was saved to the **gpslinks** table, which shows the link sequence used to complete a given trip. The time stamps in this table can be used to select individual GPS points associated with the links. The data dictionary that appears in Appendix D contains detailed field descriptions for this table.

## Data Weighting and Expansion

From a finite population sampling theory perspective, analytic weights are needed to develop estimates of population parameters and, more generally, to draw inferences about the population that was sampled. Without the use of analytic weights, population estimates are subject to biases of unknown (possibly large) magnitude. Consequently, analytic weights are crucial to obtain survey estimates with minimal bias.

The weighting approach used in this study accounts for the biases associated with sampling and robustness of the data collected. Specifically, the components of the analytic weights generated using this method are as follows:

- Sampling weights
- Raking adjustments

The analytic weights are computed at the household and person level. These weights adjust the relative importance of responses to reflect the different probabilities of selection of respondents and align the sample distributions to population distributions. This section discusses the components of the household weight and person weight in detail.

# Household Weight

## Sampling Weight

The sampling weight reflects the probability of selection of an address from the sampling frame. Considering the dual-frame sampling framework employed in this study, separate sampling weights were calculated for the address-based and listed residential samples. Specifically, the sampling weight for a sampling unit  $j$  in the sampling frame, denoted as  $W_{j,SampFr}$ , is simply the reciprocal of the selection probability of the sampling unit.

$$W_{j,SampFr} = \frac{1}{\text{Prob}_{j,SampFr}}$$

where,

Sampling unit  $j$  is an address in the Address-based sampling frame and the Listed Residential frame.

Sampling frame  $SampFr$  is Address-based or Listed Residential sampling frame.

Given that each sampling unit has an address associated with it, all sampling weight computations were made by geography. Specifically, county-level sampling weights were computed for the address-based sample and listed residential sample. To illustrate, sampling weight for each county in the address-based sample was computed as the number of addresses in the county in the address-based frame divided by the number of sample pieces ordered from the frame for that county. The sampling weights adjust for oversampling of specific geographies or demographic groups of interest (that can be identified by geography) for which we had implemented controls to make sure that we have adequate observations in these groups.

## Raking Adjustment

Raking improves the reliability of the survey estimates; hence, raking adjustments were used to align the weighted sample to population statistics from 2008–10 American Community Survey (ACS) data and 2010 Census. These adjustments were made using raking variables. In particular, the aforementioned weights were adjusted so that the sums of the adjusted weights are equal to known population totals for certain subgroups of the population defined by demographic characteristics and geographic variables. The variables and variable categories used for raking at the household level are as follows:

- Household size (1, 2, 3, 4, 5, or more)
- Household income (<20,000; 20,000–40,000; 40,000–60,000; 60,000–75,000; 75,000–100,000; 100,000–150,000, >150,000)
- Total number of workers<sup>8</sup> in the household (0, 1, 2, 3, or more)
- Number of vehicles owned by the household (0, 1, or more)
- County of residence
- Area type of residence (CBD, Urban Commercial, Urban Residential, Suburban Commercial, Suburban Residential, Exurban, Rural)

Note that the census distributions of household size, county, and area type of residence were obtained from Census 2010. For the remaining variables, census distributions were obtained from 2008–10 ACS data. These variables were chosen as the raking variables due to significant differences in the coverage by categories of these variables. Therefore, it is reasonable to expect that maximum bias reduction would be achieved using these variables. It is important to note that the missing values in the raking variables

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<sup>8</sup> Note that workers were defined as people who are employed full-time or part-time.

were imputed to calculate the raking adjustments. The raking procedure is based on an iterative proportional fitting procedure and involves simultaneous ratio adjustments to two or more marginal distributions of the population counts. The raking procedure is undertaken in a sequence of adjustments. First, the base weights are adjusted to one marginal distribution and then to the second marginal distribution, and so on. One sequence of adjustments to the marginal distributions is known as a cycle or iteration. The procedure is repeated until convergence is achieved. Following the raking procedure, the inordinately large weights, a by-product of raking, were capped. In particular, the “very large” weights were capped to equal a maximum of five times the mean weight.

Table 35 shows the survey and population distributions by demographic and geographic raking variables for the study area. A comparison of the unweighted difference before raking and weighted difference after raking between the survey data and the census indicates that the raking procedure has aligned the sample statistics to the population statistics.

**Table 35: Raking Adjustment at Household Level**

Raking Variable	Census	Survey Data		Difference (% points)	
		Before Raking	After Raking	Before Raking	After Raking
<b>Household Size</b>					
1	25.3%	23.5%	25.4%	1.8%	-0.1%
2	30.0%	35.9%	30.3%	-5.9%	-0.3%
3	17.3%	17.8%	17.4%	-0.5%	-0.1%
4	15.1%	15.2%	15.2%	-0.1%	-0.1%
5 or more	12.3%	7.6%	11.8%	4.7%	0.5%
<b>Household Income<sup>9</sup></b>					
\$0–\$19,999	15.4%	11.7%	16.1%	3.7%	-0.7%
\$20,000–\$39,999	19.3%	15.7%	19.9%	3.6%	-0.6%
\$40,000–\$59,999	17.5%	14.8%	16.5%	2.7%	1.0%
\$60,000–\$74,999	10.9%	8.8%	9.2%	2.1%	1.7%
\$75,000–\$99,999	12.9%	18.9%	12.2%	-6.0%	0.7%
\$100,000–\$149,999	13.6%	17.9%	14.8%	-4.3%	-1.2%
\$150,000 or more	10.3%	12.1%	11.2%	-1.8%	-0.9%
<b>Workers in the Household</b>					
0	19.4%	21.8%	19.6%	-2.4%	-0.2%
1	44.4%	40.8%	44.4%	3.6%	0.0%
2	30.4%	32.7%	30.4%	-2.3%	0.0%
3 or more	5.7%	4.6%	5.6%	1.1%	0.1%
<b>Number of Vehicles Owned by Household</b>					
0	6.2%	4.1%	6.0%	2.1%	0.2%
1 or more	93.8%	95.9%	94.0%	-2.1%	-0.2%

<sup>9</sup> The weighted survey data distribution for household income excludes the refusals.

Raking Variable	Census	Survey Data		Difference (% points)	
		Before Raking	After Raking	Before Raking	After Raking
<b>County of Residence</b>					
Barrow County	1.2%	1.1%	1.2%	0.1%	0.0%
Bartow County	1.9%	1.8%	1.9%	0.1%	0.0%
Carroll County	2.0%	2.0%	2.0%	0.0%	0.0%
Cherokee County	3.9%	3.8%	3.9%	0.1%	0.0%
Clayton County	4.7%	4.9%	4.7%	-0.2%	0.0%
Cobb County	13.5%	13.8%	13.5%	-0.3%	0.0%
Coweta County	2.4%	2.3%	2.4%	0.1%	0.0%
DeKalb County	14.1%	14.4%	14.1%	-0.3%	0.0%
Douglas County	2.4%	2.0%	2.4%	0.4%	0.0%
Fayette County	2.0%	2.0%	2.0%	0.0%	0.0%
Forsyth County	3.1%	3.2%	3.1%	-0.1%	0.0%
Fulton County	19.5%	19.3%	19.4%	0.2%	0.1%
Gwinnett County	13.9%	14.0%	13.9%	-0.1%	0.0%
Hall County	3.1%	3.1%	3.1%	0.0%	0.0%
Henry County	3.6%	3.1%	3.6%	0.5%	0.0%
Newton County	1.8%	1.5%	1.8%	0.3%	0.0%
Paulding County	2.5%	3.2%	2.5%	-0.7%	0.0%
Rockdale County	1.6%	1.2%	1.5%	0.4%	0.1%
Spalding County	1.2%	1.3%	1.2%	-0.1%	0.0%
Walton County	1.5%	1.9%	1.5%	-0.4%	0.0%
<b>Area Type of Residence</b>					
CBD	0.2%	0.3%	0.2%	-0.1%	0.0%
Urban Commercial	1.7%	2.2%	1.7%	-0.5%	0.0%
Urban Residential	3.7%	3.5%	3.7%	0.2%	0.0%
Suburban Commercial	1.4%	1.4%	1.4%	0.0%	0.0%
Suburban Residential	57.3%	55.3%	57.2%	2.0%	0.1%
Exurban	18.2%	19.0%	18.3%	-0.8%	-0.1%
Rural	17.5%	18.2%	17.6%	-0.7%	-0.1%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>0.0%</b>

## Final Household Weight

The final analytic weight is simply the product of sampling weight and raking adjustment. Following the computation of this weight, an expansion procedure was undertaken to get the final ‘expanded’ analytic weight. The expansion process simply takes the weighted total households and multiplies each household by a factor, when applied, expands the data to represent the universe of households in the study area as defined by Census 2010. To derive the expansion factor, a simple division was used: Expansion Factor = N(Universe)/ N(Surveyed). This translates to a survey universe of 1,928,783 households.

## Person Weight

The person weight is a product of the final household weight and the person-level raking weight. Specifically, the person data weighted by the ‘final household weight’ was raked to align it to the population statistics from 2010 Census data. The raking procedure is based on an iterative proportional fitting procedure. The variables used for raking at the person level are as follows:

- Hispanic Status/Race (Hispanic, Non-Hispanic White, Non-Hispanic African-American, and Non-Hispanic Other)
- Age (Younger than 20 years, 20–24 years, 25–34 years, 35–54 years, 55–64 years, 65+ years)

Following the raking procedure, the very large weights were capped. The weights were then expanded to reflect the total number of persons residing in the study area as defined by Census 2010. This translates to a survey universe of 5,260,436 residents. Table 36 shows the survey and population distribution by the aforementioned raking variables. A comparison of the unweighted difference before raking and weighted difference after raking between the survey data and the census indicates that the raking procedure has aligned the sample statistics to the population statistics.

**Table 36: Raking Adjustment at Person Level**

Raking Variable <sup>10</sup>	Census	Survey Data		Difference (% points)	
		Before Raking	After Raking	Before Raking	After Raking
<b>Hispanic Status/Race</b>					
Hispanic	11.2%	5.8%	10.9%	5.4%	0.3%
Non-Hispanic White	50.1%	70.7%	51.0%	-20.6%	-0.9%
Non-Hispanic African-American	31.6%	19.3%	31.1%	12.3%	0.5%
Non-Hispanic Other	7.1%	4.1%	7.0%	3.0%	0.1%
<b>Age</b>					
Under 20 years	29.4%	25.5%	29.6%	3.9%	-0.2%
20–24 years	6.5%	3.3%	6.3%	3.2%	0.2%
25–34 years	14.5%	7.7%	14.0%	6.8%	0.5%
35–54 years	30.4%	35.8%	30.2%	-5.4%	0.2%
55–64 years	10.4%	16.7%	10.7%	-6.3%	-0.3%
65 years and over	8.8%	11.0%	9.2%	-2.2%	-0.4%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>0.0%</b>

<sup>10</sup> The weighted survey data distribution for Hispanic status/Race and Age excludes the refusals.

## Limitations of the Survey

- 1) **Response Rate and Survey Non-Response.** Some level of non-response occurs in every voluntary survey. Low response rates are attributable to a variety of factors, including growing resistance among U.S. householders to surveys in general and telephone surveys in particular; the changing patterns of telephone access in American households; and the growing number of households in which English is not a first language—making telephone communication for survey respondents who are not native English speakers difficult.<sup>11</sup> Household travel surveys are particularly susceptible to non-response. These surveys are complex, requiring a two-stage interview process plus the completion of a travel diary by all household members. Since each interview stage has an accompanying level of non-response, the overall response rate is the product of a recruitment rate and a retrieval rate.
- 2) **Under-Reporting of Trips.** An important determinant of data quality is the accuracy of the reported trips. To enhance reporting accuracy, most household travel surveys rely on travel diaries in which respondents are asked to record each trip for a specific time period (e.g., 24 hours). Yet even with the use of diaries, under-reporting of trips by survey respondents is a well-documented occurrence. Memory decay, failure to understand or to follow survey instructions, unwillingness to report full details of travel, and simple carelessness all contribute to the incomplete collection of travel data. After the data have been weighted and expanded, the trip rates will need to be assessed relative to prior surveys and other metropolitan areas.
- 3) **Response Bias.** Surveys are prone to non-response errors because certain types of households selected in a sample do not participate in surveys or individual household members fail to answer an item in an interview.

## Recommendations for Study Improvement

Travel behavior study innovations are in continuous development by various research organizations. Sponsors typically focus concerns on multiple elements relevant to their existing or planned models. Future studies should consider each element and weigh the importance by priority and financial investment. The indexing of priority, innovation, value, and cost is a difficult task, even for experienced model coordinators.

**Hispanic Outreach:** Despite targeted sampling, response from Hispanic households was low. Based on recent household travel survey experience in large metropolitan areas, it is believed that robust public outreach efforts involving the sponsoring agency and the research firm are necessary in order to effectively communicate and generate interest with Hispanic communities. Public outreach efforts should include press releases through community new media and messaging efforts through community leaders, with the sponsoring agency providing the local presence and expertise.

**Non-Response Follow-Up.** Conducting in-person non-response efforts can increase the quality of the study and decrease coverage bias. In-person interviews tend to be more expensive in cost. However, conducting a limited non-response effort can allow for bias correction, through weighting the difference in travel behavior from those that originally participate.

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<sup>11</sup> The survey was designed to include English and Spanish speakers only.

# Survey Results

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The 10,278 regional households that participated in the Atlanta Regional Commission Regional Travel Survey had many characteristics in common. In addition to living in the central portion of the state, they were willing to take the time to record their travel and provide demographic information about their households. These households provided data about their household composition, housing type and ownership, and income. They provided details about their 25,810 household members, including age, gender, disability status, and employment and student status. They divulged the year, make, and model for each of their 21,270 vehicles. In addition, they willingly provided trip destinations, travel times, travel modes, and the reasons for visiting 119,480 places during their respective 24-hour period. In all, the households reported an average of 11.43 daily household trips and 4.22 daily person trips.

The purpose of this section is to summarize the characteristics of participating households and understand the ways in which they are similar and how they vary, at both the person and the household level. These differences are important in understanding their travel behavior, which is presented in the second section of this chapter. Details about their trip characteristics comprise the third section, followed by a more detailed look at mode choice and travel times reported by respondents, including travel destinations during specific time periods.

## Household Characteristics

Thirty percent of households reported having two household members, and just over 27 percent live in a large household of four or more persons.

**Table 37: Household Size (Weighted)**

Household Size	Frequency	Percent
1	2,612	25.4%
2	3,110	30.3%
3	1,785	17.4%
4+	2,771	27.1%
<b>Total</b>	10,278	100

Over 40 percent of household have two vehicles, 27 percent had at-least one vehicle, and 6 percent households have no vehicles.

**Table 38: Household Number of Vehicles (Weighted)**

Number of Vehicles	Frequency	Percent
0	620	6.0%
1	2,819	27.4%
2	4,141	40.3%
3	1,792	17.4%
4+	906	8.9%
<b>Total</b>	10,278	100.0%

Thirty-four percent of the vehicles are 6–10 years old, while 3.2 percent had vehicles less than 1 year old. Overall, 64 percent of the vehicles are at most 10 years old.

**Table 39: Vehicle Age (Weighted)**

Vehicle Age	Frequency	Percent
Less than 1 year	647	3.2%
1–5 years	5,760	28.7%
6–10 years	6,763	33.8%
11–20 years	5,716	28.5%
> 20 years	1,152	5.5%
<b>Total</b>	20,038	100.0%

Regarding ethnicity of the participating households, 68 percent were White, 25 percent were African American, 2 percent Hispanic, while another 5 percent belong to other ethnicities.

**Table 40: Household Ethnicity (Weighted)**

Ethnicity	Frequency	Percent
White	6,924	68.4%
African American	2,503	24.7%
Asian	216	2.1%
Native American, Alaskan Native	55	.5%
Pacific Islander, Native Hawaiian	10	.1%
Multi-Racial	182	1.8%
Hispanic, Mexican	211	2.1%
Other (Specify)	22	.2%
<b>Total</b>	10,122	100.0%

Overall participation by Hispanic or Latino household in the study was 5 percent.

**Table 41: Hispanic or Latino Households (Weighted)**

Hispanic Status	Frequency	Percent
Yes	477	4.7%
No	9,730	95.3%
<b>Total</b>	10,207	100.0%

Overall, 77 percent of households reported living in Single-family Detached homes, 16 percent reside in a Building with two or more Apartments or Condos, while and 5 percent live in a Single-family Attached house.

**Table 42: Household Residence Type (Weighted)**

Ethnicity	Frequency	Percent
Single-family Detached House	7,927	77.2%
Single-family Attached House	508	4.9%
Building with 2 or more Apartments or Condos	1,679	16.3%
Mobile Home or Trailer	147	1.4%
Other(Specify)	8	0.1%
<b>Total</b>	10,269	100.0%

Seventy-nine percent of household reported owning their homes, while 21 percent are renters.

**Table 43: Ownership of Household Residence (Weighted)**

Ownership of Household Residence	Frequency	Percent
Rent	2,171	21.2%
Own/Buying (Paying Off Mortgage)	8,066	78.7%
Other (Specify)	11	0.1%
<b>Total</b>	10,248	100.0%

As shown in the Table 44, 92 percent of the participating households have landline telephone connection.

**Table 44: Landlines in Household (Weighted)**

Landlines in Household	Frequency	Percent
Yes	9,384	91.5%
No	871	8.5%
<b>Total</b>	10,255	100.0%

Over all household income distribution, 20 percent of the households have income in the range of \$20,000 to \$40,000; 17 percent of the households have income in the range of \$40,000 to \$ 60,000; 16 percent of households have income less than \$20,000; while another 15 percent of the households have income in the range of \$100,000 to \$150,000. See Table 45 for more information about household income distribution.

**Table 45: Household Income (Weighted)**

Household Income	Frequency	Percent
Less than \$10,000	589	6.2%
\$10,000 to \$19,999	944	9.9%
\$20,000 to \$29,999	892	9.4%
\$30,000 to \$39,999	995	10.5%
\$40,000 to \$49,999	791	8.3%
\$50,000 to \$59,999	775	8.2%
\$60,000 to \$74,999	876	9.2%
\$75,000 to \$99,999	1,162	12.2%
\$100,000 to \$149,999	1,409	14.8%
\$150,000 or more	1,061	11.2%
<b>Total</b>	9,494	100.0%

In the Table 46, 57 percent of the households had no students, 19 percent have one student in the household, 15 percent have two students in the household, and 9 percent had more than three students in the household.

**Table 46: Household Number of Students (Weighted)**

Number of Students	Frequency	Percent
0	5,893	57.3%
1	1,932	18.8%
2	1,536	14.9%
3	668	6.5%
4	198	1.9%
5	35	0.3%
6	9	0.1%
7	7	0.1%
8	1	0.0%
<b>Total</b>	10,278	100.0%

Overall, 43 percent of household reported having one worker, 33 percent reported having two workers, 17 percent reported having no workers in the household, while 7 percent had more than three workers.

**Table 47: Household Number of Workers (Weighted)**

Number of Workers	Frequency	Percent
0	1,731	16.8%
1	4,417	43.0%
2	3,434	33.4%
3	611	5.9%
4	79	0.8%
5	7	0.1%
<b>Total</b>	10,278	100.0%

Forty-nine percent of household reported having two licensed drivers in the household, 31 percent reported having only one licensed driver, 16 percent reported having three or more licensed drivers, and 4 percent reported having not licensed drivers at all.

**Table 48: Number of Licensed Drivers in Household (Weighted)**

Number of Household License Holders	Frequency	Percent
0	371	3.6%
1	3,168	30.8%
2	5,072	49.3%
3	1,267	12.3%
4	333	3.2%
5	53	0.5%
6	13	0.1%
7	1	0.0%
<b>Total</b>	10,278	100.0%

Overall, the average number of children reported per household is one. Sixty-four percent of the participating households reported that there were no children in the household, while 14 percent reported having one or two children, respectively.

**Table 49: Average Number of Children in Household (Weighted)**

Number of Children	Frequency	Percent
0	6,532	63.6%
1	1,425	13.9%
2	1,450	14.1%
3	628	6.1%
4	181	1.8%
5	50	0.5%
6	7	0.1%
7	3	0.0%
8	1	0.0%
10	1	0.0%
<b>Total</b>	10,278	100.0%
<b>Average</b>	0.71	

Fifty-four percent of survey respondents are female; the remaining 46 percent are male.

**Table 50: Respondent Gender (Weighted)**

Gender	Frequency	Percent
Male	11,741	45.7%
Female	13,970	54.3%
<b>Total</b>	25,711	100.0%

The overall age distribution is presented in Table 51. Forty-four percent of respondents are between the ages of 25 and 54 (working age group), 28 percent are younger than 18 years of age, 9 percent are 65 years of age or older, while 8 percent of respondents are between the ages of 18 and 24.

**Table 51: Respondent Age Distribution (Weighted)**

Age Distribution	Frequency	Percent
<18 years	6,944	27.5%
18–24 years	2,116	8.4%
25–54 years	11,148	44.2%
55–64 years	2,686	10.7%
65+ years	2,317	9.2%
<b>Total</b>	25,212	100.0%

Overall survey, 6 percent of respondents reported having a disability.

**Table 52: Respondent Disability Status (Weighted)**

Disability Status	Frequency	Percent
Yes	1,456	5.7%
No	24,267	94.3%
<b>Total</b>	25,723	100.0%

Overall survey, 89 percent of respondents reported having a valid driver's license.

**Table 53: Respondents with Valid Driver's License (Weighted)**

Valid Driver's License	Frequency	Percent
Yes	17321	88.6%
No	2223	11.4%
<b>Total</b>	19544	100.0%

Sixty percent of respondents reported being employed, while another 10 percent reported being volunteers. See Tables 54 and 55.

**Table 54: Respondent Employment Status (Weighted)**

Employment Status	Frequency	Percent
Yes	11,639	59.8%
No	7,834	40.2%
<b>Total</b>	19,474	100.0%

**Table 55: Respondent Volunteer Status (Weighted)**

Volunteer Status	Frequency	Percent
Yes	747	9.6%
No	6,999	90.4%
<b>Total</b>	7,746	100.0%

**Table 56: Respondent Works (Weighted)**

Works	Frequency	Percent
Treated as Worker	12,386	63.4%
Non-Worker	7,138	36.6%
<b>Total</b>	19,524	100.0%

Most the unemployed respondents are retired (32 percent); 23 percent are students, while 17 percent are unemployed but looking for work.

**Table 57: Respondent Unemployment Status, if Does Not Work (Weighted)**

Unemployment Status	Frequency	Percent
Retired	2,222	31.8%
Homemaker	1,124	16.1%
Unemployed but Looking for Work	1,209	17.3%
Unemployed, Not Seeking Employment	341	4.9%
Student (Part-time or Full-time)	1,591	22.8%
Other (Specify)	493	7.1%
<b>Total</b>	6,980	100.0%

The average number of jobs per employed respondent is one. The majority of respondents (92 percent) have one job, while 7 percent have two jobs and 1 percent has three or more jobs.

**Table 58: Respondent Number of Jobs (Weighted)**

Number of Jobs	Frequency	Percent
1	11371	92.4%
2	794	6.5%
3	106	0.9%
4	21	0.2%
5	5	0.0%
6	1	0.0%
8	2	0.0%
<b>Total</b>	12301	100.0%
<b>Average</b>	1.1	

Overall, 78 percent of the employed respondents have a fixed work location. For 13 percent of the respondents, the work location varies; finally, 9 percent of the employed respondents work from home.

**Table 59: Respondent Work Locations (Weighted)**

Work Locations	Frequency	Percent
Fixed	9618	77.6%
Home	1101	8.9%
Varies	1668	13.5%
<b>Total</b>	12386	100.0%

On average, survey respondent work is 4.5 days per week. Sixty-one percent of respondents reported working five days per week, 12 percent reported working four days per week, while another 7 percent reported working six to seven days per week.

**Table 60: Respondent Number of Days Worked per Week (Weighted)**

Number of Days Worked	Frequency	Percent
One	479	4.0%
Two	637	5.4%
Three	1,172	9.9%
Four	1,427	12.1%
Five	7,259	61.4%
Six	634	5.4%
Seven	214	1.8%
<b>Total</b>	11,822	100.0%
<b>Average</b>	4.4	

Overall, 88 percent of respondents reported that their employers provided parking, while another 8 percent reported that their employer provides subsidized transit passes. See Tables 61 and 62 for more information.

**Table 61: Percent Employer Provided Parking (Weighted)**

Employer Provided Parking	Frequency	Percent
Yes	10,558	87.6%
No	1,493	12.4%
<b>Total</b>	12,051	100.0%

**Table 62: Percent Employer Subsidizes Transit Pass (Weighted)**

Employer Subsidizes Transit Pass	Frequency	Percent
Yes	125	8.4%
No	1,363	91.6%
<b>Total</b>	1,488	100.0%

Just over half of all respondents reported having some level of college education or some type of college degree, but 32 percent of respondents (including very young children) reported not having attained a high school degree.

**Table 63: Educational Attainment (Weighted)**

Educational Attainment	Frequency	Percent
Not a high school graduate, 12 grade or less (this includes very young children)	8,166	32.0%
High school graduate (High school diploma or GED)	3,927	15.4%
Some College Credit but no Degree	3,401	13.3%
Associate or Technical School Degree	1,791	7.0%
Bachelor's or Undergraduate Degree	4,877	19.1%
Graduate Degree (Professional Degree like MD, DD, JD)	3,315	13.0%
Other (Specify)	23	0.1%
<b>Total</b>	25,501	100.0%

Only 7 percent of the respondents reported that they walked or biked to work/school at least once in the previous week.

**Table 64: Household Member Frequency of Walk or Bike to Work/School in Last Week (Weighted)**

Walk or Bike to Work/School	Frequency	Percent
0 Times (Never)	17,547	93.2%
Once or Twice	355	1.9%
3 or 4 Times	291	1.5%
5 or More Times	627	3.3%
<b>Total</b>	18,820	100.0%

Most respondents (46 percent) reported owning a sedan; 21 percent reported owning a sports utility vehicle (SUV), while 15 percent reported owning pick-up trucks.

**Table 65: Vehicle Body Type (Weighted)**

Vehicle Body Type	Frequency	Percent
Auto Sedan	9,384	46.0%
Auto 2-Seat	766	3.8%
Van	1,945	9.5%
Recreational Vehicle	117	0.6%
Sport Utility Vehicle	4,278	21.0%
Station Wagon	381	1.9%
Pick-up Truck	3,060	15.0%
Motorcycle	380	1.9%
Moped/Scooter (e.g. Vespa)	56	0.3%
Other (Specify)	26	0.1%
<b>Total</b>	20,393	100.0%

Overall, 97 percent of respondents' vehicles' fuel type is gas; only 1 percent of respondents' vehicles use diesel, are a hybrid, or use other type of fuel, respectively.

**Table 66: Vehicle Fuel Type (Weighted)**

Vehicle Fuel Type	Frequency	Percent
Gas	19,883	97.3%
Diesel	247	1.2%
Hybrid	185	0.9%
Flex Fuel	92	0.4%
Other (Specify)	22	0.1%
<b>Total</b>	20,429	100.0%

Most respondents (98 percent) reported that they own or lease their vehicle, and only 1 percent reported that their employer provides their vehicle.

**Table 67: Vehicle Ownership Type (Weighted)**

Vehicle Ownership Type	Frequency	Percent
Household Owned/Leased	19,891	98.2%
Employer Provided	285	1.4%
Rental Car	15	0.1%
Borrowed From Friend or Relative	58	0.3%
<b>Total</b>	20,248	100.0%

## Travel Behavior

The previous section provided a summary of the demographic characteristics for the participating households. The variations among participating households based on the county of residence suggest that travel behavior also varies throughout the region. The purpose of this section is to review the travel behavior reported by the 10,278 participating households in order to document the extent to which the travel behavior does vary. This section includes summaries of trip rates by the different household and person characteristics in the total study area.

**Table 68: Household and Person Trip Rates (Weighted)**

	Trip Rate
Household Trip rate	11.43
Person Trip Rate <sup>12</sup>	4.23

The overall trip rate by household is 11.43 trips. Large household indicated higher trip rates. One-person households reported 4.63 trips; two-person households reported 8.14 trips; three-person households reported 12.93 trips; four-person households reported 17.9 trips; and finally, five-or-more-person households reported 23.99 trips.

**Table 69: Trip Rates by Household Size (Weighted)**

Number of Household Workers	Weighted HH Count	Weighted TRIP Count	Weighted HH Trip Rate
1	2,612	12,090	4.63
2	3,110	25,308	8.14
3	1,785	23,077	12.93
4	1,561	27,934	17.90
5+	1,210	29,027	23.99
<b>Total</b>	10,278	117,436	11.43

For household with three or more workers, the average trip rate is 19 trips; two-worker households reported a trip rate of 14.05; one-worker households reported a trip rate of 10.57; and households with no workers reported the fewest trips, at 7.13 trips.

**Table 70: Trip Rates by Number of Household Workers (Weighted)**

Number of Household Workers	Weighted HH Count	Weighted TRIP Count	Weighted HH Trip Rate
0	2,012	14,335	7.13
1	4,569	48,297	10.57
2	3,122	43,862	14.05
3+	576	10,942	19.00
<b>Total</b>	10,278	117,436	11.43

<sup>12</sup> Person Trip rates doesn't include Out of Area cases in the trip rate calculation

Table 71 shows trip rates by household income. Overall, households with an annual income of \$100,000–\$149,999 have the highest trip rate of 13.06 trips; households making less than \$10,000 reported the fewest trips, 9.31.

**Table 71: Trip Rates by Household Income (Weighted)**

Income	Weighted HH Count	Weighted TRIP Count	Weighted HH Trip Rate
Less than \$10,000	589	5,484	9.31
\$10,000 to \$19,999	944	9,487	10.05
\$20,000 to \$29,999	892	10,990	12.32
\$30,000 to \$39,999	995	10,070	10.12
\$40,000 to \$49,999	791	9,184	11.61
\$50,000 to \$59,999	775	8,637	11.14
\$60,000 to \$74,999	876	9,919	11.32
\$75,000 to \$99,999	1,162	14,562	12.53
\$100,000 to \$149,999	1,409	18,396	13.06
\$150,000 or more	1,061	13,514	12.74
<b>Total</b>	9,496	110,243	11.61

**Table 72: Primary Trip Purpose (Weighted)**

Primary Trip Purpose	Frequency	Percent
Working at Home (For Pay or Volunteer)	928	1.0%
Shopping (Online, Catalog or by Phone)	45	0.1%
Any Other Activities at Home	28,828	31.4%
Change Travel Mode/Transfer	5,685	6.2%
Dropped off Passenger from Car	4,576	5.0%
Picked up Passenger from Car	3,982	4.3%
Drive Through (ATM, Bank, Fast Food, etc.)	1,629	1.8%
Work/Doing my Job	9,161	10.0%
Other Work-Related Activities at Work	150	0.2%
Volunteer Work/Activities	161	0.2%
Attending Class/Studying	5,909	6.4%
All Other Activities at School (Eat Lunch, Recreational, etc.)	235	0.3%
Work-Related (Meeting, Sales Call, Delivery)	2,752	3.0%
Service Private Vehicle (Getting Gas, Oil, Lube, Repairs)	1,531	1.7%
Grocery/Food Shopping	4,300	4.7%
Other Routine Shopping (Clothing, Convenience Store, Household Maintenance)	3,997	4.4%
Shopping for Major Purchases or Specialty Items	486	0.5%

Primary Trip Purpose	Frequency	Percent
Household Errands (Bank, Dry Cleaning, etc.)	1,689	1.8%
Health Care (Doctor, Dentist, etc.)	1,914	2.1%
Personal Business (Visit Government Office, Attorney, Accountant)	2,210	2.4%
Eat Meal Out at Restaurant/Diner	3,543	3.9%
Civic or Religious Activities	967	1.0%
Indoor Recreation (Yoga, GYM, etc.) or Outdoor Recreation (Jogging, Biking, Walking)	2,840	3.1%
Attend Major Sporting Event	152	0.2%
Social/Visit Friends/Relatives	8,814	3.1%
Loop Trip	225	0.2%
Other (Specify)	960	1.0%
<b>Total</b>	91,669	100.0%

Of all trips, 59 percent of the trips were reported as being made by auto/van/truck driver; 23 percent were reported as being made by auto/van/truck passenger, while 7 percent were reported as walk trips and 3 percent as transit trips.

**Table 73: All Trip Modes (Weighted)**

Trip Mode	Frequency	Percent
Walk	6,698	7.3%
Bike	273	0.3%
Auto/Van/Truck Driver	54,381	59.3%
Auto/Van/Truck Passenger	21,439	23.4%
Local Bus (Regular, Standard, City)	1,308	1.4%
Express Bus (Suburban, Commuter, Inter-city)	185	0.2%
MARTA Train	1,241	1.4%
Dial-a-ride/Paratransit Service	124	0.1%
Taxi/Limo	137	0.1%
School Bus	5,453	6.0%
Motorcycle/Moped	87	0.1%
Other(Specify)	318	0.3%
<b>Total</b>	91,642	100.0%

For all trips to work, 86 percent were reported as being made by auto/van/truck driver; 6 percent were reported as being made as an auto/van/truck passenger; 5 percent were made via transit, and 1 percent were made by walking.

**Table 74: Mode to Work (Weighted)**

Work Trip Mode	Frequency	Percent
Walk	150	1.3%
Bike	44	0.4%
Auto/Van/Truck Driver	9608	85.8%
Auto/Van/Truck Passenger	714	6.4%
Local Bus (Regular, Standard, City)	150	1.3%
Express Bus (Suburban, Commuter, Inter-city)	101	0.9%
MARTA Train	330	2.9%
Dial-a-ride/Paratransit Service	15	0.1%
Taxi/Limo	27	0.2%
School Bus	12	0.1%
Motorcycle/Moped	27	0.2%
Other(Specify)	18	0.2%
<b>Total</b>	11195	100.0%

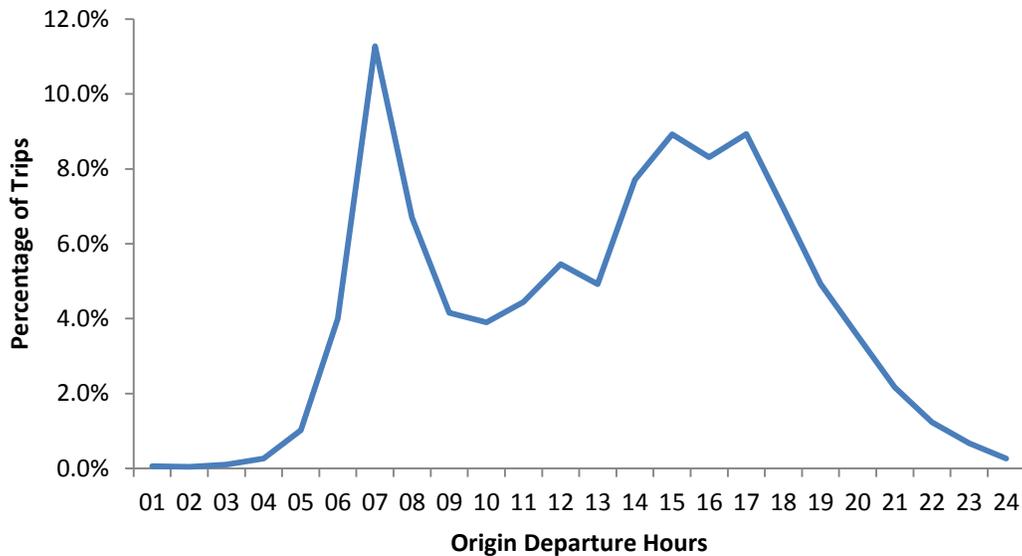
For all trips to school, 38 percent were made by school bus, 35 percent were made as an auto/van/truck passenger, 5 percent were made via transit, and 4 percent were made by walking.

**Table 75: Mode to School (Weighted)**

School Trip Mode	Frequency	Percent
Walk	292	3.8%
Bike	38	0.5%
Auto/Van/Truck Driver	1457	19.0%
Auto/Van/Truck Passenger	2648	34.5%
Local Bus (Regular, Standard, City)	246	3.2%
Express Bus (Suburban, Commuter, Inter-city)	16	0.2%
MARTA Train	136	1.8%
Dial-a-ride/Paratransit Service	4	0.0%
Taxi/Limo	0	0.0%
School Bus	2810	36.7%
Motorcycle/Moped	3	0.0%
Other(Specify)	17	0.2%
<b>Total</b>	7667	100.0%

As part of the ARC Regional Travel Survey, respondents were asked to record the arrival and departure times for all locations visited during their designated 24-hour travel period. All travel days began at 3:00 a.m. and ended at 2:59 a.m. the following day. As shown in Figure 10, travel in the region has two major peaks, occurring between 6:00 a.m. and 9:00 a.m., and between 3:00 p.m. and 6:00 p.m. There is also a smaller peak that occurs during the lunch hours, between 11:00 a.m. and 1:00 p.m. Seventeen percent of all trips took place during the morning peak hours, and 26 percent of all trips took place during the afternoon peak hours.

**Figure 10: Trip Departure Times**



**Table 76: Travel by Day of Week (Weighted)**

Day of Week	Frequency	Percent
Monday	2,119	20.6%
Tuesday	2,227	21.7%
Wednesday	2,011	19.6%
Thursday	1,814	17.7%
Friday	2,107	20.5%
<b>Total</b>	10,278	100.0%

# Appendix A: Recruitment CATI Survey

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## Acronym Dictionary

**DK = Don't Know**

**RF = Refusal**

**NA = Not applicable**

**GTYPE=1 GPS**

**GTYPE=2 Non-GPS**

**GTYPE=3 Refused or  
disqualified GPS**

**GFLAG=1 Wearable Random**

**GFLAG=2 Wearable Target**

**GFLAG=3 Vehicle**

**Wearable GPS (both random and target) in the four core counties: Fulton, Gwinnett, DeKalb and Cobb (NOT in Clayton) to household members age 16-65 (inclusive)**

**Vehicle GPS will be distributed proportionally over the 20 county study area. Maximum of three vehicles equipped with GPS devices per household.**

**Note: THE CONVENTION FOR THIS SCRIPT IS THAT ANY TEXT IN ALL CAPS WILL NOT BE READ BY THE INTERVIEWER; Text in upper and lower case will be read by the interviewer.**

## Introduction / Screening

INT01 (S1A) Hi, this is \_\_\_\_\_. I'm calling on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission about improving transportation in your area.

May I please speak with an adult age 18 or older in the household?

INTERVIEWER NOTE: IF NEW PERSON IS PUT ON THE LINE, REPEAT INTRO1 (S1A) BUT SKIP THE PART ABOUT ASKING FOR AN ADULT.

S\_RES

CALL OUTCOMES

CP PARTIAL COMPLETE  
RP PARTIAL COMPLETE REFUSAL  
PC PARTIAL COMPLETE  
R1 1<sup>ST</sup> REFUSAL  
RF FINAL REFUSAL  
QO OVER QUOTA  
WC WILL COMPLETE ONLINE  
KH CALLBACK, GENERAL  
KB CALLBACK, SPECIFIC  
KL CALLBACK ON LANDLINE  
KN NEW NUMBER  
NA NO ANSWER  
AM ANSWERING MACHINE  
BZ BUSY  
PM CALLER ID  
SH SPANISH CALLBACK, GENERAL  
SB SPANISH CALLBACK, SPECIFIC  
SN SPANISH NO ANSWER  
SA SPANISH ANSWERING MACHINE  
SZ SPANISH BUSY  
IG BUSINESS/GOVERNMENT  
IL LANGUAGE BARRIER, DEAF/TTY  
ID DISCONNECT  
IM FAX/MODEM  
RH HANGUP  
RC REFUSES TO CONTINUE ON CELL-PHONE  
QP REFUSED NUMBER OF HH PERSONS  
QV REFUSED NUMBER OF HH VEHICLES  
QA INVALID COUNTY  
QW REFUSED WORK ADDRESS  
QS REFUSED SCHOOL ADDRESS  
CM COMPLETE  
CW WEB COMPLETE

ADVLT

[IF ADLTS=1] We recently sent a letter to your home to tell you about this important project. The Georgia Department of Transportation and ARC are the survey sponsors and are responsible for planning and improving transportation in the region. Did you receive the letter?

- 1 YES [SKIP TO HHSIZ]
- 2 NO [SKIP TO PRVEW]
- 8 DON'T KNOW [SKIP TO PRVEW]
- 9 REFUSED [SKIP TO PRVEW]

PRVEW (S3)

We are doing a very important study about people's travel patterns and transportation needs. Planning agencies in your region will use data collected to make decisions about how to improve the region's transportation system. As a participating study household, everyone who lives in your home will record their travel for 24-hours in a special diary. All data is strictly confidential and will be used only for research purposes.

CKFIP In what county do you live?  
IF NO: Which county do you live in?  
[List of 20 in-area counties]  
99997-Other, Specify → CKFIP\_TERM  
99998-Don't Know → CKFIP\_TERM  
99999-Prefer not to respond → CKFIP\_TERM

CADDR (S2) Before we get started, please verify your address is still [ADDRESS].  
[PROGRAMMER NOTE: DISPLAY ADDRESS]  
01 Yes, this is my address → SKIP TO HHSIZ  
02 No, this is not my current address → [COLLECT CURRENT PHYSICAL ADDRESS]

HADDR What is your physical address? NO P.O. BOXES ALLOWED  
  
<HSUIT>: \_\_\_\_\_  
<HCITY> City: \_\_\_\_\_  
<HZIP> Zip Code: \_\_\_\_\_  
<HSTAT> State: \_\_\_\_\_

### Household Roster

CKFIP\_TERM(INT02) Not in Study Area  
We're sorry but we only need to interview households in selected counties. Thank you for your time.  
Please press next to exit the survey  
CODE S\_RES= QA

HHSIZ Before we begin the survey, we would like to ask you for some general information about your household. This information will help us make sure we include all types of households in your area.

How many people, including yourself, live in your home?

IF NEEDED: Without this information, your household will not be eligible to participate in this study.

We understand your concerns regarding this question, however research planners would be interested in seeing if there is a correlation between the size of households and the trips they make.

INTERVIEWER NOTE: PLEASE CLARIFY WITH RESPONDENT. DOES THIS NUMBER INCLUDE ALL PERSONS WHO LIVE AT THIS HOME? HH MEMBERS LIVE AND EAT SEPARATELY FROM ANY OTHER PERSONS IN THE BUILDING AND HAVE DIRECT ACCESS TO THEIR HOME FROM THE OUTSIDE OF THE BUILDING OR THROUGH A COMMON HALL. HH MEMBERS SHARE MEALS AND LIVING EXPENSES. HH MEMBERS MAY BE A SINGLE FAMILY, TWO OR MORE FAMILIES LIVING TOGETHER, OR ANY OTHER GROUP OF RELATED OR UNRELATED PERSONS WHO SHARE LIVING ARRANGEMENTS. HH MEMBERS MUST SPEND THE NIGHT AT LEAST 3 TIMES A WEEK IN THE HOUSE.

ENTER NUMBER [RANGE 1-15]

98 DON'T KNOW → THANK AND TERMINATE [DISPO=QP REFUSED 3 OF HH PERSONS]

99 REFUSED → THANK AND TERMINATE

LTELE Does your home have standard land-based telephone service?

1 YES

2 NO

9 REFUSED

RETTY Do you live in a...

1 Single-family detached house

2 Single-family attached house

3 Building with 2 or more apartments or condos

4 Mobile home or trailer

5 BOAT, RV, VAN, ETC.

6 DORM ROOM, FRATERNITY, OR SORORITY

7 Other, SPECIFY

8 DON'T KNOW

9 REFUSED

OWN Do you own or rent your home?

1 Rent

2 Own/Buying (Paying off Mortgage)

7 Other, SPECIFY

8 DON'T KNOW

9 REFUSED

**[AAGE2 maximum age changed from 75 to 65 on 5/12/11]**

**[AAGE2 maximum age changed from 75 to 65 on 3/31/11]**

AAGE2 Is there at least one person in your household who is between 16 and 55 years of age?

1 Yes → [GO TO HHVEH]

2 No → [TERMINATE HOUSEHOLD FROM BOTH GPS SAMPLE AND SURVEY (GO TO DEMDQ)]

8 DON'T KNOW → [TERMINATE HOUSEHOLD FROM GPS SAMPLE AND SURVEY (GO TO DEMDQ)]

9 REFUSED → [TERMINATE HOUSEHOLD FROM GPS SAMPLE AND SURVEY (GO TO DEMDQ)]

HHVEH Including all cars, trucks, vans, motorcycles and recreational vehicles, whether owned or leased or provided by an employer, how many vehicles are presently available to the members of your household?

ENTER NUMBER [RANGE 0-15]

0 NONE

98 DON'T KNOW → THANK AND TERMINATE

99 REFUSED → THANK AND TERMINATE

VEHOP [IF HHVEH>0] How many of these vehicles are operational and used regularly during the week? PROGRAMMER CHECK: [HHVEH] < [VEHOP], HAVE ERROR POP UP  
ENTER NUMBER [RANGE 0-15]  
0 NONE  
98 DON'T KNOW → THANK AND TERMINATE  
99 REFUSED → THANK AND TERMINATE

[IF VEHOP >0 and GTYPE =1] → GO TO VEHOP variable

[IF VEHOP >0 and GTYPE =2] → GO TO WLANG variable  
**ERROR TEXT**

"I'm showing that there are <HHVEH> vehicles in the household and that <VEHOP> vehicles are used and operated daily. What should be corrected?

- a. Go back to number of household vehicles question to fix
- b. Go back to number of operational vehicles question to fix

ENTER NUMBER [RANGE 0-15]

IF 0 – SKIP TO WRGPS IF GPS SAMPLE OR SKIP TO YEAR IF  
NON GPS SAMPLE

98 Don't know → THANK AND TERMINATE

99 Prefer not to respond → THANK AND TERMINATE

**TERMINATION TEXT:**

We're sorry - without this information, your household will not be eligible to participate in this study.

Transportation planners are interested in seeing if there is a relationship between the number of vehicles available for a household and the trips people make.

Can you tell me how many vehicles are operational and used regularly during the week?

**REFUSAL TURN-AROUND: The number of trips made by a household is often directly related to the number of vehicles.**

**ANSWER CHOICES:**

1- Back to vehicles question- Skips back to VEHOP

2- Exit the survey- Skips out and ends.

[Dispo=QV – Refused # of household vehicles]

VEHPR [IF GTYPE=1 AND GFLAG=3 AND VEHOP>0] Of the vehicles that are operational and used regularly during the week, how many have a working power outlet or cigarette lighter socket? [PROGRAMMER CHECK: [VEHOP] < [VEHPR], HAVE ERROR POP UP.]

**ERROR TEXT**

I'm showing that there are <VEHOP> vehicles in the household that are used and operated daily and that there are <VEHPR> vehicles that have cigarette lighters. What should I correct?

- 1-Go back to number of operational vehicles question to fix
- 2-Go back to number of vehicles with cigarette lighter question to fix

ENTER NUMBER [RANGE 0 -15]  
 0 UPDATE GTYPE → 3  
 98 DON'T KNOW → THANK AND TERMINATE  
 99 REFUSED → THANK AND TERMINATE

INT06 [TERMINATION SCREEN] Thank you, those are all the questions we have for you today. Have a good afternoon/evening! [CODED AS QE]

WRGPS [IF GTYPE=1 AND GFLAG=1 AND IF AAGE2=1 AND CKFIP=(13067 OR 13089 OR 13121 OR 13135)]: Your household has been qualified to participate in the GPS portion of this study. We are asking you and all household members between 16 and 65 years old to wear a GPS device for 3 consecutive days, starting on your diary day. The GPS device allows us to not only collect information about where people are traveling, but also the actual path taken, which is very useful in transportation planning. To show our appreciation for your time and effort, we are offering each GPS user \$25. To receive this payment, we just ask that everyone in your household use and return their GPS device, and then provide their travel diary information in a separate interview. IF NEEDED: We will ask you to wear or carry your GPS units with you when you travel. The devices are small and easy to carry (you can clip them onto your belt, backpack, or purse) and they collect details of your travel routes during your travel day. It is very important to the survey that households like yours participate.

- 1 Yes → [CONTINUE]
- 2 No → [Go to <WRGP1>]

WRGP1 [IF WRGPS=2] SET GTYPE = 3 AND CONTINUE AS NON-GPS

VHGPS [IF GTYPE=1 AND GFLAG=3]: Your household has been qualified to participate in the GPS portion of this study. We will send you a GPS device for each working vehicle (up to a maximum of three vehicles) and ask you to use the devices in each vehicle for seven consecutive days, starting on your diary day. The GPS device allows us to not only collect information about where people are traveling, but also the actual path taken. This is very useful in transportation planning. We are offering \$25 for each GPS device used, in appreciation of your time and effort, if everyone in your household reports their travel diary information in the separate interview portion of the study and each working vehicle (maximum of three vehicles) in your household is equipped with a GPS device for seven days. IF NEEDED: The devices are small and easy to place in your vehicle, and they collect details of your travel routes during your travel day. It is very important to the survey that households like yours participate.

- 1 Yes → Continue
- 2 No → Continue

VHG1 [IF VHGPS=2] SET GTYPE = 3 AND CONTINUE AS NON-GPS

**Vehicle Roster-**

YEAR [IF HHVEH>0] Ok, now I'd like to get some information about your vehicle(s).

What is the year of <VEHNO>?  
 ENTER YEAR OF VEHICLE \_ \_ \_ \_ [RANGE=1930-2011]  
 9998 DON'T KNOW

9999 REFUSED

MAKE [IF HHVEH>0] What is the make of <VEHNO>?  
USE CODE LIST FROM PROGRAM

MODEL [IF HHVEH>0] What is the model of that vehicle?  
[PROGRAMMER NOTE: ADD MODEL TYPE LIST]

BODY [IF HHVEH>0] What type of vehicle is that?

- 1 AUTO SEDAN
- 2 AUTO 2-SEAT
- 3 VAN
- 4 RECREATIONAL VEHICLE
- 5 SPORT UTILITY VEHICLE
- 6 STATION WAGON
- 7 PICK-UP TRUCK
- 8 MOTORCYCLE
- 9 MOPED/SCOOTER (e.g., VESPA)
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

VOPERATE Is this vehicle operational and used regularly during the week?

- 1 Yes (VEHICLE IS FLAGGED FOR GPS)
- 2 No (VEHICLE IS NOT FLAGGED FOR GPS)

FUEL [IF HHVEH>0] What type of fuel does this vehicle use?

- 1 Gas
- 2 Diesel
- 3 Hybrid
- 4 Flex Fuel
- 7 Other, SPECIFY
- 8 DON'T KNOW
- 9 REFUSED

CIGLT Does this vehicle have a working power outlet or cigarette lighter?

- 1 Yes
- 2 No
- 8 DON'T KNOW
- 9 REFUSED

VEOWN [IF HHVEH>0] Is it owned or leased by a household member, an employer, or is it a rental car?

- 1 HOUSEHOLD OWNED/LEASED
- 2 EMPLOYER PROVIDED
- 3 RENTAL CAR
- 4 BORROWED FROM FRIEND OR RELATIVE

- 7 OTHER, SPECIFY
- 8 DON'T KNOW
- 9 REFUSED

EZPAS [IF HHVEH>0] Does <VEHNO> have a working Cruise Card tag in it?

- 1 Yes, Vehicle has Cruise Card Tag
- 2 No, Vehicle does not have Cruise Card Tag
- 8 DON'T KNOW
- 9 REFUSED

COMPUTE VGTYP=1 IF VEHICLE IS FLAGGED FOR GPS (GTYPE=1 AND GFLAG=3) AND CIGLT=1; ELSE COMPUTE VGTYP=2

**VEHICLE ROSTER TO BE REPEATED FOR EACH VEHICLE, UP TO EIGHT VEHICLES**

**Person Roster**

FNAME Great! Now I will ask a few questions to get information about each person in your household so that we can prepare individual travel diaries. Again, I want to assure you that this information is for research purposes only and will be kept strictly confidential. Earlier, you indicated there were <HHSIZ> persons in your household. What is your first name? /

[IF ONLY 2 PERSONS IN THE HOUSEHOLD ASK: What is your first name? THEN ASK: What is the other person's first name?]  
ENTER NAME

What is the name of the next oldest person in the household? [IF RELUCTANT: Initials are okay at this point.]

What is the name of the next oldest person? [IF RELUCTANT: Initials are okay at this point.] [PROGRAMMER NOTE: GET NAMES FOR ALL HOUSEHOLD MEMBERS]

LNAME What last name should we use for your household when mailing the materials?  
ENTER THE LAST NAME: \_\_\_\_\_

**THE FOLLOWING QUESTIONS ARE ASKED FOR EACH HOUSEHOLD MEMBER**

GEND And what is [NAME]'s gender? [INTERVIEWER NOTE: DO NOT ASK RESPONDENT ABOUT HIS/HER GENDER]

- 1 MALE
- 2 FEMALE
- 9 REFUSED

RELAT [NOTE: NOT ASKED OF RESPONDENT] What is this person's relationship to you?

- 1 SELF
- 2 Spouse
- 3 Son/Daughter

- 4 Father/Mother
- 5 Brother/Sister
- 6 Grandparent
- 7 Grandchild
- 8 Live-in-help
- 9 Roommate/Other Non-Related
- 10 Other Related
- 98 DK
- 99 RF

AGE What is [his/her/your] age in years?  
 ENTER AGE [RANGE: 0-98] [PERSON 1 - ANSWERING INTERVIEW MUST BE 18 OR OLDER]  
 99 99 years or older  
 998 DK  
 999 RF

AGEB [IF AGE=998 or 999] Can you tell me, is/are [you/he/she] between the ages of 16 and 65?  
 1 LESS THAN 16 OR OVER 65  
 2 BETWEEN 16 AND 65 [TREAT AS ADULT]  
 9 RF

GCONF [IF AGEB=9 and GTYPE=1] In order for your household to qualify for the GPS portion of the study, we really need to know whether <YOU> is over the age of 16 and under the age of 65. PAUSE AND GIVE OPPORTUNITY FOR RESPONDENT TO GIVE AGE  
 1 YES – OVER 16 AND UNDER 65  
 2 NO – UNDER 16 OR OVER 65 [PERSON DOES NOT RECEIVE WEARABLE GPS]  
 9 IF STILL REFUSED UPDATE GTYPE→3 (CANCEL THE HOUSEHOLD FROM GPS)

HISP [IF PERNO=1] Are you of Hispanic, Latino, or Spanish origin?  
 1 YES  
 2 NO  
 8 DON'T KNOW  
 9 REFUSED

HISP2 [IF PERNO=1 and HISP>1 and HHSIZ>1] Are any other members of your household of Hispanic, Latino, or Spanish origin?  
 1 YES  
 2 NO  
 8 DON'T KNOW  
 9 REFUSED

COMPUTE HPFLG=1 IF HISP=1 OR HISP2=1

RACE [IF PERNO=1] I'm going to read a list of races. [IF NECESSARY: In addition to being Hispanic] Please tell me which describes your race.

- 1 White
- 2 African-American
- 3 Asian
- 4 Native American, Alaskan Native
- 5 Pacific Islander, Native Hawaiian
- 6 MULTI-RACIAL
- 7 HISPANIC, MEXICAN
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

LIC [IF AGE>15 and AGEB<>1][Does/Do] [he/she/you] have a valid driver's license?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

CTELE [IF AGE>15 and AGEB<>1] [Does/Do] [he/she/you] personally have a cell phone?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

DISAB [Does/Do] [he/she/you] have a disability that limits the type of transportation [he/she/you] can use?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

DTYPE [IF DISAB=1] What type of disability? [MULTIPLE RESPONSE]

- 1 Visually impaired or blind
- 2 Hearing impaired or deaf
- 3 Cane or walker
- 4 Wheelchair non-transferable
- 5 Wheelchair transferable
- 6 Mentally or emotionally disabled
- 7 Other, SPECIFY
- 8 DK
- 9 RF

EMPLY [IF AGE>15] [Is/Are] [he/she/you] employed either full-time or part-time?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

VOLUN [IF EMPLY>1] [Does/Do] [he/she/you] do any type of volunteer work on a regular basis?

- 1 YES → [TREAT AS EMPLOYED]
- 2 NO

- 8 DON'T KNOW
- 9 REFUSED

WORKS [CALCULATED]  
 1 [IF EMPLY=1 OR VOLUN=1] TREATED AS WORKER  
 2 NON-WORKER

WKSTAT [IF WORKS<>1] Which of the following best describes [his/her/your] status?  
 1 Retired  
 2 Homemaker  
 3 Unemployed but looking for work  
 4 Unemployed, not seeking employment  
 5 Student (Part-time or full-time)  
 7 Other, SPECIFY  
 8 DON'T KNOW  
 9 REFUSED

JOBS [IF WORKS=1] How many jobs [does/do] [he/she/you] have?  
 ENTER NUMBER: [RANGE 1-10]

HOURS [IF WORKS=1] How many hours [does/do] [he/she/you] work per week at the job where [he/she/you] spend the most time?  
 ENTER NUMBER: [RANGE 1-150]

HOUR2 [IF JOBS>1] How many hours [does/do] [he/she/you] work per week at [his/her/your] second job?  
 ENTER NUMBER: [RANGE 1-150]

HOUR3 [IF JOBS>2] How many hours [does/do] [he/she/you] work per week at [his/her/your] third job?  
 ENTER NUMBER: [RANGE 1-150]

TELWK [IF WORKS=1] Regardless of whether [he/she/you] [does/do] telecommute, is telecommuting offered at [his/her/your] main workplace?  
 1 Yes  
 2 No  
 9 DK/RF

PRMJ Now, I'm going to ask you some questions about [his/her/your] primary job, where [he/she/you] [works/work] <HOURS> per week.

TCHRS [IF TELWK=1] Of the total job hours, how many does [he/she/you] telecommute, meaning that [he/she/you] work(s) from home in lieu of traveling to [his/her/your] workplace, on a regular basis?  
 ENTER NUMBER: [RANGE 0-150]  
 998 DON'T KNOW  
 999 REFUSED

WSTRT [IF WORKS=1] What time [does/do] [he/she/you] typically start work at [his/her/your] primary job? [PROGRAMMING NOTE: ADD MILITARY TIME EXAMPLES]  
 ENTER MILITARY TIME: \_\_ : \_\_  
 9998 DON'T KNOW

9999 REFUSED

WEND [IF WORKS=1] What time [does/do] [he/she/you] typically end work at [his/her/your] primary job? [PROGRAMMING NOTE: ADD MILITARY TIME EXAMPLES]  
ENTER MILITARY TIME: \_\_ : \_\_  
9998 DON'T KNOW  
9999 REFUSED

SCHED [IF WORKS=1] Are [his/her/your] start and end times at this job about the same every day?  
1 YES  
2 NO  
8 DON'T KNOW  
9 REFUSED

WDAYS [IF WORKS=1] On average, how many days per week does [he/she/you] travel to [his/her/your] work location to work?  
1 One  
2 Two  
3 Three  
4 Four  
5 Five  
6 Six  
7 Seven  
8 DK  
9 RF

COMPR [IF WORKS=1] [Does/Do] [he/she/you] work a compressed work week, such as 40 hours in 4 days or 80 hours in 9 days?  
1 4/40  
2 9/80  
3 No  
7 Other, SPECIFY  
8 DON'T KNOW  
9 REFUSED

INDUS

[IF WORKS=1] What type of business or company [does he/she / do you] work for in [his/her/your] primary job?

- 11 AGRICULTURE, FORESTRY, FISHING AND HUNTING
- 21 MINING, QUARRYING, AND OIL AND GAS EXTRACTION
- 22 UTILITIES
- 23 CONSTRUCTION
- 31 MANUFACTURING
- 44 RETAIL TRADE
- 48 TRANSPORTATION AND WAREHOUSING
- 42 WHOLESALE TRADE
- 51 INFORMATION
- 52 FINANCE AND INSURANCE
- 53 REAL ESTATE AND RENTAL AND LEASING
- 54 PROFESSIONAL, SCIENTIFIC, AND TECHNICAL SERVICES
- 55 MANAGEMENT OF COMPANIES AND ENTERPRISES
- 56 ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEMENT AND REMEDIATION SERVICES
- 61 EDUCATIONAL SERVICES
- 62 HEALTH CARE AND SOCIAL ASSISTANCE
- 71 ARTS, ENTERTAINMENT, AND RECREATION
- 72 ACCOMMODATION AND FOOD SERVICES
- 81 OTHER SERVICES (EXCEPT PUBLIC ADMINISTRATION)
- 92 PUBLIC ADMINISTRATION
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

OCCUP

[IF WORKS=1] What kind of work [does he/she / do you] do at that employer?

- 11 MANAGEMENT OCCUPATIONS
- 13 BUSINESS AND FINANCIAL OPERATIONS OCCUPATIONS
- 15 COMPUTER AND MATHEMATICAL OCCUPATIONS
- 17 ARCHITECTURE AND ENGINEERING OCCUPATIONS
- 19 LIFE, PHYSICAL, AND SOCIAL SCIENCE OCCUPATIONS
- 21 COMMUNITY AND SOCIAL SERVICES OCCUPATIONS
- 23 LEGAL OCCUPATIONS
- 25 EDUCATION, TRAINING, AND LIBRARY OCCUPATIONS
- 27 ARTS, DESIGN, ENTERTAINMENT, SPORTS, AND MEDIA OCCUPATIONS
- 29 HEALTHCARE PRACTITIONERS AND TECHNICAL OCCUPATIONS
- 31 HEALTHCARE SUPPORT OCCUPATIONS
- 33 PROTECTIVE SERVICE OCCUPATIONS
- 35 FOOD PREPARATION AND SERVING RELATED OCCUPATIONS
- 37 BUILDING AND GROUNDS CLEANING AND MAINTENANCE OCCUPATIONS
- 39 PERSONAL CARE AND SERVICE OCCUPATIONS
- 41 SALES AND RELATED OCCUPATIONS
- 43 OFFICE AND ADMINISTRATIVE SUPPORT OCCUPATIONS
- 45 FARMING, FISHING, AND FORESTRY OCCUPATIONS

- 47 CONSTRUCTION AND EXTRACTION OCCUPATIONS
- 49 INSTALLATION, MAINTENANCE, AND REPAIR OCCUPATIONS
- 51 PRODUCTION OCCUPATIONS
- 53 TRANSPORTATION AND MATERIAL MOVING OCCUPATIONS
- 55 MILITARY SPECIFIC OCCUPATIONS
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

EMPLR [IF WORKS=1] Is [his/her/your] employer...

- 1 A private company
- 2 Government
- 3 Non-profit
- 4 Self-employed
- 7 Other, SPECIFY
- 8 DK
- 9 RF

EPARK [IF WORKS=1] Does [his/her/your] employer provide parking at no charge?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

EPPK2 [IF EPARK>1] Does [his/her/your] employer offer reimbursement for parking?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

UPARK [IF EPPK2=1] Does [he/she/you] use this benefit for travel to/from work?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

ETRANS [IF WORKS=1] Does [his/her/your] employer offer reimbursement for, or subsidize, transit use?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

WLOC [IF WORKS=1] And is [his/her/your] work address fixed, is it your home, or does it vary from day to day or week to week? (IF NEEDED: This is the work location where the respondent spends the most time.)

- 1 Fixed
- 2 Home
- 3 Varies

- WNAME [IF WORKS=1 AND WLOC=1 OR 3] What is the name of [his/her/your] [employer/volunteer] location?  
ENTER RESPONSE: \_\_\_\_\_
- CWADD [IF WORKS=1 AND WLOC=1 OR 3] What is the address of [his/her/your] current or most recent workplace?  
1 COMPLETE STREET ADDRESS KNOWN → GO TO WADDR  
2 CROSS STREETS KNOWN  
8 DK  
9 RF
- WSXTR [IF WORKS=1 AND WLOC=1 OR 3 AND CWADD=2] Can you tell me the nearest cross streets of this work location?  
ENTER RESPONSE: \_\_\_\_\_ [COLLECTED IN TWO FIELDS]
- WADDR [IF WORKS=1 AND (WLOC=1 OR 3) AND CWADD=1] (IF NEEDED: What is the address of [his/her/your] current or most recent workplace?)  
Address: \_\_\_\_\_  
<WSUIT>: \_\_\_\_\_  
<WCITY> City: \_\_\_\_\_  
<WSTAT> State: \_\_\_\_\_  
<WZIP> Zip Code: \_\_\_\_\_
- WMODE [IF WLOC=1 OR 3] What mode of transportation [does/do] [he/she/you] most often use to get to work?  
1 WALK  
2 BIKE  
3 AUTO/VAN/TRUCK DRIVER  
4 AUTO/VAN/TRUCK PASSENGER  
5 LOCAL BUS (REGULAR, STANDARD, CITY)  
6 EXPRESS BUS (SUBURBAN, COMMUTER, INNER-CITY)  
7 MARTA TRAIN  
8 DIAL-A-RIDE/PARATRANSIT  
9 TAXI/LIMO  
10 SCHOOL BUS  
11 MOTORCYCLE/MOPED  
97 Other, SPECIFY  
98 DON'T KNOW  
99 REFUSED
- Z What level of education [has/have] [he/she/you] completed?  
1 Not a high school graduate, 12<sup>th</sup> grade or less (THIS INCLUDES VERY YOUNG CHILDREN TOO)  
2 High school graduate (high school diploma or GED)  
3 Some college credit but no degree  
4 Associate or technical school degree  
5 Bachelor's or undergraduate degree  
6 Graduate degree (includes professional degree like MD, DD, or JD)

- 7 Other, SPECIFY
- 8 DON'T KNOW
- 9 REFUSED

STUDE Is (he, she, you) currently enrolled in any type of school, including daycare, technical school, or university? [IF AGE 18+, FOLLOW UP WITH: IS THAT FULL-TIME OR PART-TIME?]

- 1 Yes – FULL TIME
- 2 YES – PART TIME
- 3 No
- 8 DON'T KNOW
- 9 REFUSED

SCHOL [IF STUDE<3] What school grade or level does this person attend? [PROGRAMMING NOTE: CHECK AGE OF PERSON BEFORE ASKING CHOICES 1-4]

- 1 DAYCARE
- 2 NURSERY SCHOOL/PRE-SCHOOL
- 3 KINDERGARTEN TO GRADE 8
- 4 GRADE 9 TO 12
- 5 TECHNICAL/VOCATION SCHOOL
- 6 2-YEAR COLLEGE (COMMUNITY COLLEGE)
- 7 4-YEAR COLLEGE OR UNIVERSITY
- 8 GRADUATE SCHOOL/PROFESSIONAL
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

SLOC [IF SCHOL<5] And [is/are] [he/she/you] home schooled?

- 1 Yes
- 2 No
- 8 DK
- 9 RF

SONLN [IF SCHOL=4-8] Is your school an online-only school?

- 1 Yes
- 2 No
- 8 DK
- 9 RF

SNAME [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)] What is the name of [his/her/your] school?

ENTER NAME: \_\_\_\_\_

CSADD [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)] What is the address of [his/her/your] school?

- 1 COMPLETE STREET ADDRESS KNOWN → GO TO SADDR
- 2 CROSS STREETS KNOWN
- 8 DK
- 9 RF

SXST1 [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)AND CSADD=2] What are the nearest cross streets of this school?  
ENTER RESPONSE: \_\_\_\_\_ [COLLECTED IN TWO FIELDS]

SADDR [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1) AND CSADD=1]

(IF NEEDED: What is the address of this school?)

<SADDR> Address: \_\_\_\_\_

<SSUIT>:Suite: \_\_\_\_\_

<SCITY> City: \_\_\_\_\_

<SSTAT> State: \_\_\_\_\_

<SZIP> Zip Code: \_\_\_\_\_

SMODE [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)] On a typical day, how do you get to school?

- 1 Walk
- 2 Bike
- 3 Auto/Van/Truck Driver
- 4 Auto/Van/Truck Passenger
- 5 Local Bus (Regular, Standard, City)
- 6 Express Bus (Suburban, Commuter, Inner-City)
- 7 MARTA Train
- 8 Dial-a-ride/Paratransit
- 9 Taxi/Limo
- 10 School Bus
- 11 Motorcycle/Moped
- 97 Other, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

RIBUS [(IF AGE>15 and AGEB<>1] How often [does/do] [he/she/you] use public transit?

- 1 Nearly every day → [GO TO <BREZ>]
- 2 Once or twice a week → [GO TO <BREZ>]
- 3 Once or twice a month
- 4 Almost never
- 5 Never
- 8 DK
- 9 RF

BREZ [(IF RIBUS=1 OR 2] [Does/Do] [he/she/you] own a Breeze card?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

BREZF [(IF BREZ=1] The last time [he/she/you] added value to the card or purchased a card, did [he/she/you]:

- 1 Purchase a 30-day pass
- 2 Purchase a 7-day pass
- 3 Purchase 20 trips
- 4 Purchase 10 trips
- 5 Purchase less than \$20 in fares
- 6 The card is purchased through a special fare program
- 7 Other, Specify
- 8 DON'T KNOW
- 9 REFUSED

GRTA [IF RIBUS=1 OR 2] [Does/Do] [he/she/you] own a GRTA Xpress bus pass?

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

GRTAF [IF GRTA=1] The last time [he/she/you] purchased [he/his/your] GRTA Xpress bus pass, did [he/she/you]:

- 1 Purchase a 31-day pass
- 2 Purchase a 40-ride pass
- 3 Purchase 20-ride pass
- 4 Purchase a round-trip fare
- 5 Purchase a 1-way fare
- 6 The Xpress bus pass purchased through a special fare program
- 8 DON'T KNOW
- 9 REFUSED

CGTP [IF RIBUS=1 OR 2 AND IF RESIDENT OF COBB COUNTY OR GWINNETT COUNTY] Do you own a [Cobb/Gwinnett] County Transit pass? [IF YES: Is that for local, express or paratransit service?]

- 1 Yes, for local service
- 2 Yes, for express service
- 3 Yes, for paratransit service
- 4 No
- 8 DON'T KNOW
- 9 REFUSED

CGTPF [IF CGTP<4] The last time [he/she/you] purchased [his/her/your] [Cobb/Gwinnett] County Transit pass, did [he/she/you]:

- 1 Purchase a 31-day or monthly pass
- 2 Purchase a 20-ride pass
- 3 Purchase a 10-ride pass
- 4 The County Transit pass is purchased through a special fare program
- 8 DON'T KNOW
- 9 REFUSED

DISFR [IF BREZ=1 or GRTA=1 or CGTP<4] [Does/Do] [he/she/you] participate in a discounted fare program? [IF YES: What kind of discounted fare is it?]

- 1 NO DISCOUNTED FARE
- 2 YES, THROUGH AN EMPLOYER
- 3 YES, THROUGH A UNIVERSITY PASS (U-PASS) PROGRAM
- 4 YES, THROUGH A K-12 STUDENT PASS PROGRAM
- 5 YES, DISCOUNTED FARE FOR SENIOR CITIZENS, DISABLED RIDERS, OR MEDICARE RECIPIENTS
- 7 OTHER DISCOUNTED FARE, SPECIFY
- 8 DON'T KNOW
- 9 REFUSED

FBKTW [IF STUDE<3 OR WORKS=1] How frequently did [he/she/you] travel to work/school last week by walking or biking?

- 1 Zero times (Never)
- 2 Once or twice
- 3 Three or four times
- 4 Five or more times
- 8 DK
- 9 RF

COMPUTE PGTYP=1 IF PERSON IS FLAGGED FOR GPS (GTYPE=1 AND GFLAG=1 OR 2) AND AGE IS 16 TO 65 INCLUSIVE; ELSE COMPUTE PGTYP=2

TRNM CALCULATED: SUM OF HH MEMBERS THAT USE TRANSIT OR NON-MOTOR TO WORK OR SCHOOL [RIBUS<3 OR FBKTW=2,3,4]

### Finalizing Recruitment

WTGPS [IF GTYPE=1 AND GFLAG=2 AND TRNM>=1]: Your household has been qualified to participate in the GPS portion of this study. We are asking you and all household members between 16 and 65 years old to wear a GPS device for 3 consecutive days, starting on your diary day. The GPS device allows us to not only collect information about where people are traveling, but also the actual path taken, which is very useful in transportation planning. To show our appreciation for your time and effort, we are offering each GPS user \$25. To receive this payment, we just ask that everyone in your household use and return their GPS device, and then provide their travel diary information in a separate interview. IF NEEDED: We will ask you to wear or carry your GPS units with you when you travel. The devices are small and easy to carry (you can clip them onto your belt, backpack, or purse) and they collect details of your travel routes during your travel day. It is very important to the survey that households like yours participate.

- 1 Yes → [CONTINUE]
- 2 No → [Go to <WTGP1>]

WTGP1 [IF WTGPS=2 OR IF GFLAG=2 AND TRNM=0] SET GTYPE = 3 AND CONTINUE AS NON-GPS

INCA To ensure our study is representative of all income groups in the area, could you tell me if your household's total income for last year was above or below \$30,000?

[INTERVIEWER NOTE: HOUSEHOLD INCOME NOT ONLY ALLOWS US TO VERIFY THAT WE ARE INCLUDING ALL TYPES OF HOUSEHOLDS FROM THE REGION, BUT IT ALSO HAS BEEN FOUND TO BE RELATED TO THE TYPES OF TRIPS HOUSEHOLDS TYPICALLY MAKE.]

- 11 BELOW \$30,000
- 22 AT OR ABOVE \$30,000
- 99 DK/RF → [SKIP TO INCRF]

INCB [IF INCA=11] Is it...

[INTERVIEWER NOTE: HOUSEHOLD INCOME NOT ONLY ALLOWS US TO VERIFY THAT WE ARE INCLUDING ALL TYPES OF HOUSEHOLDS FROM THE REGION, BUT IT ALSO HAS BEEN FOUND TO BE RELATED TO THE TYPES OF TRIPS HOUSEHOLDS TYPICALLY MAKE.]

- 01 Less Than \$10,000
- 02 \$10,000-\$19,999
- 03 \$20,000-\$29,999
- 99 DK/RF → [SKIP TO INCRF]

INCC [IF INCA=22] Is it above or below \$75,000?

[INTERVIEWER NOTE: HOUSEHOLD INCOME NOT ONLY ALLOWS US TO VERIFY THAT WE ARE INCLUDING ALL TYPES OF HOUSEHOLDS FROM THE REGION, BUT IT ALSO HAS BEEN FOUND TO BE RELATED TO THE TYPES OF TRIPS HOUSEHOLDS TYPICALLY MAKE.]

- 44 BELOW \$75,000
- 55 AT OR ABOVE \$75,000
- 99 DK/RF → [SKIP TO INCRF]

INCD [IF INCD=44] Was it....

[INTERVIEWER NOTE: HOUSEHOLD INCOME NOT ONLY ALLOWS US TO VERIFY THAT WE ARE INCLUDING ALL TYPES OF HOUSEHOLDS FROM THE REGION, BUT IT ALSO HAS BEEN FOUND TO BE RELATED TO THE TYPES OF TRIPS HOUSEHOLDS TYPICALLY MAKE.]

- 04 \$30,000 to \$39,999 → [SKIP TO INCOM]
- 05 \$40,000 to \$49,999 → [SKIP TO INCOM]
- 06 \$50,000 to \$59,999 → [SKIP TO INCOM]
- 07 \$60,000- \$74,999 → [SKIP TO INCOM]
- 99 REFUSED → [SKIP TO INCRF]

INCE [IF INCD=55] Was it...

[INTERVIEWER NOTE: HOUSEHOLD INCOME NOT ONLY ALLOWS US TO VERIFY THAT WE ARE INCLUDING ALL TYPES OF HOUSEHOLDS FROM THE REGION, BUT IT ALSO HAS BEEN FOUND TO BE RELATED TO THE TYPES OF TRIPS HOUSEHOLDS TYPICALLY MAKE.]

- 08 \$75,000-\$99,999
- 09 \$100,000 to \$149,999
- 10 \$150,000 or more
- 99 REFUSED → [SKIP TO INCRF]

INCRF

I appreciate your concerns about providing this information, but I only need to properly identify your household as belonging to one of the following categories: [READ APPROPRIATE RANGES]

- 01 Less than \$10,000
- 02 \$10,000-\$19,999
- 03 \$20,000-\$29,999
- 04 \$30,000-\$39,999
- 05 \$40,000-\$49,999
- 06 \$50,000-\$59,999
- 07 \$60,000-\$74,999
- 08 \$75,000-\$99,999
- 09 \$100,000 to \$149,999
- 10 \$150,000 or more
- 99 REFUSED

INCOM

COMPUTED INCOME

- 01 Less than \$10,000
- 02 \$10,000-\$19,999
- 03 \$20,000-\$29,999
- 04 \$30,000-\$39,999
- 05 \$40,000-\$49,999
- 06 \$50,000-\$59,999
- 07 \$60,000-\$74,999
- 08 \$75,000-\$99,999
- 09 \$100,000 to \$149,999
- 10 \$150,000 or more
- 99 REFUSED

ASSN1

[IF GTYPE=1 AND GFLAG=1 OR 2] Thank you for agreeing to participate in this study. As I mentioned earlier, understanding your household's travel and activities is very important for improving transportation in your area. We will send a GPS device for each member of your household between the ages of 16 and 65 and ask that they wear the device for three consecutive days. We will also send a diary for each member of your household to keep track of their travel and activities on <DAY AND DATE>.

- 1 YES
- 2 NO – Well let's try a different time. How about <ALT DAY AND DATE>?  
ENTER ASSIGNMENT NUMBER <ASSN>

ASSN2

[IF GTYPE=1 AND GFLAG=3] Thank you for agreeing to participate in this study. As I mentioned earlier, understanding your household's travel and activities is very important for improving transportation in your area. We will send you a GPS device for up to 3 working vehicles in your household to use for seven consecutive days. We will also send a diary for each member of your household so that they can record their travel and activities on <DAY AND DATE>.

- 1 YES
- 2 NO – Well let's try a different time. How about <ALT DAY AND DATE>?  
ENTER ASSIGNMENT NUMBER <ASSN>

ASSN

[GTYPE>1] Thank you for agreeing to participate in this study. As I mentioned at the beginning of the interview, understanding your household's travel and activities is very important for improving transportation in your area. We will send you a diary for each

member of your household to keep track of your travel and activities on <DAY AND DATE>.

- 1 YES
- 2 NO – Well let’s try a different time. How about <ALT DAY AND DATE>?  
ENTER ASSIGNMENT NUMBER <ASSN>  
Ryan-All three of these ASSN screens will be on one screen called ASSN with different, variant text.

For all counties except Barrow and Spaulding, BLOCK OUT April 4 – 8 (these are not valid travel dates).

For Barrow and Spaulding, BLOCK OUT April 18 – 22.

Last travel day of May 20 for the following counties: Barrow, Bartow, Carroll, Clayton, DeKalb, Hall and Walton

**SHOW 6 ASSN DAYS FOR SCHEDULING PURPOSES**

INCT1 [IF NON-GPS INCEN HOUSEHOLD (GTYPE>1 AND INCEN=1)] We are offering \$<INAMT> in appreciation of your efforts, but only if EVERYONE in your household completes a travel diary and reports your travel information by <ASN10>. Once all travel information is complete and confirmed for EVERYONE in your household, we will mail you a check.

INCT2 [IF GPS INCEN HOUSEHOLD(GTYPE=1)] We are offering \$<INAMT> in appreciation of your efforts, but only if EVERYONE in your household who is assigned a GPS device, uses it as instructed, and completes a travel diary so that we have good travel information by <ASN10>. Once all travel information is complete and confirmed for EVERYONE in your household, we will mail you a check.

HHNME To whom should we address the envelope?

**PROGRAMMING NOTE: IMPORT FNAME AND LNAME COLLECTED EARLIER AND CONFIRM LISTED NAME. IF NULL OR INCORRECT COLLECT NEW.**

FIRST NAME: \_\_\_\_\_ LAST NAME: \_\_\_\_\_

- 9 → INDICATE THAT INFORMATION IS NECESSARY, IF STILL REFUSE, TERMINATE.

INTERVIEWER NOTE: CONFIRM SPELLING AND READ BACK

MADDR In order to mail the survey materials to you, I need to confirm your mailing address. GTYPE=1 The travel diaries and the GPS devices will be shipped to you within the next week. After your travel date, you can return the GPS devices by Fedex using the return envelope provided with the equipment.

Is your home address the best place for us to have these items delivered to you?  
NOTE:PO BOXES ARE NOT VALID SHIPPING ADDRESSES FOR FEDEX.

GTYPE=2 Is this also your mailing address?

SLANG [FULL STUDY ONLY] In which language should I send your diary materials?

- 1 ENGLISH

2 SPANISH

- CATSI After your travel day, we will ask you to report details about the places you visited. Would you prefer to report them by telephone interview, or via website?
- 1 Telephone Interview
  - 2 Web Interview
- REMNI Please note that we will contact you to remind you about your travel date on the day before <ASSN> and to provide you with additional instructions during your participation. Would you like to be reminded by phone, text, or email? [INTERVIEWER NOTE: IF RESPONDENT REFUSES, SELECT 1=PHONE]
- 1 PHONE
  - 2 TEXT
  - 3 EMAIL
- RMPHN [IF REMNI=1] Can we confirm this telephone number as the number to call? [PROGRAMMER NOTE: DISPLAY PHONE]
- 1 Correct
  - 2 Not Correct → [PROGRAMMER NOTE: ALLOW NEW PHONE TO BE ENTERED]
- RMTXT [IF REMNI=2] Can we confirm the best telephone number for us to send a reminder text?
- 1 ENTER CELL NUMBER: \_\_\_ - \_\_\_ - \_\_\_\_\_
- RMEML [IF REMNI=3] Can you tell me the email address where you would like to receive a reminder email?
- 1 ENTER EMAIL ADDRESS: \_\_\_\_\_
- CBACK When we call back to collect your travel and activities, we will not ask to speak with anyone under 16 years old, but we would like to ask about their travel. Who would be the best person to give that information?
- ENTER PERSON NUMBER
- CONCLUSION**
- THANK Thank you for participating in the Regional Travel Survey. Please tell the other members of your household how important their participation is for the success of the study. We look forward to talking with you again. If you have any questions or comments, I have a toll free number where you can reach us. Would you like that number? IF THEY WANT THE NUMBER: 888-222-7734. Thank you and have a good afternoon/evening.
- ILANG CODE LANGUAGE OF INTERVIEW
- 1 ENGLISH
  - 2 SPANISH

# Appendix B: Recruitment WEB Survey

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## Acronym Dictionary

DK = Don't know

RF = Prefer not to respond

NA = Not applicable

Wearable GPS (both random and target) in the **four** core counties: Fulton, Gwinnett, DeKalb and Cobb (NOT in Clayton) to household members age 16-65 (inclusive)

Vehicle GPS will be distributed proportionally over the 20 county study area. Maximum of three vehicles equipped with GPS devices per household.

## Introduction/Screening

### WELCOME

Welcome to the Regional Travel Survey conducted on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission. Thank you for your participation.

The purpose of this study is to understand why, when, and where people travel in the region. To do this, we're asking households to record their travel for a 24 hour period.

The following survey will collect important data on your household and household members to make sure that we're talking to all types of households in the region and to prepare personalized travel diaries, which will be mailed to your household.

After your household records travel and activities for the agreed upon travel day, you can enter your travel data online or simply mail back your travel diaries. Everything asked is for research purposes only and will be held in strict confidence.

To start the survey, please click the "Begin" button below.

## Introduction for Returning to Survey

"Welcome back. Our records indicate that you have completed a portion of your survey. Would you like to continue where you left off, or restart from the beginning?"

- 1 Continue from the last saved question
- 2 Restart from the beginning of the survey

### AGEV (S1)

First, please verify your age.

- 01 18 years old or older → GO TO CKFIP
- 02 Younger than 18 years old

### AGEV2 (S1A)

It's important that an adult age 18 or older answer this survey. Is there a member of the household who is 18 years or older available to proceed?

- 01 Yes

02	No	THANK and TERMINATE
98	Don't know	THANK and TERMINATE
99	Prefer not to respond	THANK and TERMINATE

**TERMINATION TEXT:**

We're sorry but the survey must be completed by an adult.

We appreciate your time!

**CKFIP** In what county do you live?  
 IF NO: Which county do you live in?  
 [List of 20 in-area counties]  
 99997-Other, Specify → CKFIP\_TERM  
 99998-Don't Know → CKFIP\_TERM  
 99999-Prefer not to respond → CKFIP\_TERM

**CADDR** Please verify your current address is [ADDRESS].  
  
 If only your apartment number has changed, please select the first choice below.  
  
 [PROGRAMMER NOTE: DISPLAY ADDRESS]  
 01 Yes, this is my address → [SKIP TO HHSIZ]  
 02 No, this is not my current address → [COLLECT CURRENT PHYSICAL ADDRESS]

**HADDR** What is your physical address?  
  
 Please do not enter a P.O. Box. Please enter your current *physical* address.  
  
 <HSUIT>: \_\_\_\_\_  
 <HCITY> City: \_\_\_\_\_  
 <HZIP> Zip Code: \_\_\_\_\_  
 <HSTAT> State: \_\_\_\_\_

If you prefer not provide your zip code, enter 99999

**DEACTIVATE: HH\_TERM (S3) Not a Sampled Address**  
 Since we selected an individual at this address for inclusion in the survey and we are not following people when they move, no interview is needed of you at this time. Thank you for your time.  
 Please press next to exit the survey

**Household Questions**

**CKFIP\_TERM Not in Study Area**  
 We're sorry but we only need to interview households in selected counties. Thank you for your time.  
 Please press next to exit the survey  
 CODE S\_RES= QA

**HHSIZ**

How many people, including yourself, live in your home?

*This number includes all persons who live at this home. Household members live and eat separately from any other persons in the building and have direct access to their home from the outside of the building or through a common hall. Household members share meals and living expenses. Household members may be a single family, two or more families living together, or any other group of related or unrelated persons who share living arrangements. Household members must spend at least three nights per week in the house.*

ENTER NUMBER [RANGE 1-15]

98 Don't know → THANK AND TERMINATE [DISPO=QP REFUSED 3 OF HH PERSONS]

99 Prefer not to respond → THANK AND TERMINATE

**TERMINATION TEXT:**

We're sorry - without this information, your household will not be eligible to participate in this study.

Transportation planners are interested in seeing if there is a relationship between household size and the trips people make.

Please select 'Back to household size question' and enter the size of your household or select "Exit Survey" if you wish not want to continue.

We appreciate your time!

**ANSWER CHOICES:**

- |                                     |                     |
|-------------------------------------|---------------------|
| 1- Back to household size question- | Skips back to HHSIZ |
| 2- Exit the survey-                 | Skips out and ends. |

**LTELE**

Does your home have standard land-based telephone service?

- 3 Yes
- 4 No
- 10 Don't know
- 11 Prefer not to respond

**RESTY**

Do you live in a...

- 10 Single-family detached house
- 11 Single-family attached house
- 12 Building with 2 or more apartments or condos
- 13 Mobile home or trailer
- 14 Boat, RV, Van, etc.
- 15 Dorm room, Fraternity, or sorority
- 16 Other, specify in box below:

- 17 Don't know
- 18 Prefer not to respond

**OWN** Do you own or rent your home?

- 3 Rent
- 4 Own/Buying (Paying off Mortgage)
- 10 Other, specify in box below:
- 11 Don't know
- 12 Prefer not to respond

**[AAGE2 maximum age changed from 75 to 65 on 3/31/11]**

**AAGE2** [IF GTYPE=1] Is there at least one person in your household who is between 16 and 65 years of age?

- 3 Yes → [GO TO <HHVEH>]
- 4 No → [TERMINATE HOUSEHOLD FROM BOTH GPS SAMPLE AND SURVEY (GO TO DEMDQ)]
- 8 Don't know → [TERMINATE HOUSEHOLD FROM GPS SAMPLE AND SURVEY (GO TO DEMDQ)]
- 9 Prefer not to respond → [TERMINATE HOUSEHOLD FROM GPS SAMPLE AND SURVEY (GO TO DEMDQ)]

**HHVEH** Including all cars, trucks, vans, motorcycles and recreational vehicles, whether owned or leased or provided by an employer, how many vehicles are presently available to the members of your household?

- ENTER NUMBER [RANGE 0 -15]
- 0 NONE
  - 98 Don't know → THANK AND TERMINATE
  - 99 Prefer not to respond → THANK AND TERMINATE

**VEHOP** [IF HHVEH>0] How many of these vehicles are operational and used regularly during the week? PROGRAMMER CHECK: [HHVEH] < [VEHOP], HAVE ERROR POP UP.

**ERROR TEXT**

“We found a small problem. You entered that there are <HHVEH> vehicles in the household and that there are <VEHOP> vehicles that are used and operated daily.

Please fix this information before you continue with the survey.”

- a. Go back to number of household vehicles question to fix
- b. Go back to number of operational vehicles question to fix

ENTER NUMBER [RANGE 0-15]

- 0 NONE
- IF 0 – SKIP TO WRGPS IF GPS SAMPLE OR SKIP TO YEAR IF NON GPS SAMPLE
- 100 Don't know → THANK AND TERMINATE
- 101 Prefer not to respond → THANK AND TERMINATE
- 102

**[PROGRAMMING NOTE: [IF VEHOP >0 and GTYPE =2] → GO TO WLANG]**

**TERMINATION TEXT:**

We're sorry - without this information, your household will not be eligible to participate in this study.

Transportation planners are interested in seeing if there is a relationship between the number of vehicles available for a household and the trips people make.

Please select 'Back to Vehicles Used question' and enter the number of vehicles that are operational and used regularly or select "Exit Survey" if you wish not want to continue.

We appreciate your time!

**ANSWER CHOICES:**

1- Back to vehicles question- Skips back to VEHOP

2- Exit the survey- Skips out and ends [Dispo=QV – Refused # of household vehicles]

**VEHPR**

[IF GTYPE=1 AND GFLAG=3 AND VEHOP>0] Of the <RECALL NUMBER OF VEHICLES FROM VEHOP> vehicles that are operational and used regularly during the week, how many have a working power outlet or cigarette lighter socket?  
[PROGRAMMER CHECK: [VEHOP] < [VEHPR], HAVE ERROR POP UP.]

**ERROR TEXT**

We found a small problem. You entered that there are <VEHOP> vehicles in the household that are used and operated daily and that there are <VEHPR> vehicles that have cigarette lighters.

Please fix this information before you continue.

1-Go back to number of operational vehicles question to fix

2-Go back to number of vehicles with cigarette lighter question to fix

ENTER NUMBER [RANGE 0-15]

0 → [PROGRAMMER NOTE: UPDATE GTYPE → 3]

98 Don't know → THANK AND TERMINATE

99 Prefer not to respond → THANK AND TERMINATE

**INT06**

[TERMINATION SCREEN] Thank you, those are all the questions we have for you today. Have a good day!

"Please press 'NEXT' to exit the survey."

**WRGPS**

[IF GTYPE=1 AND GFLAG=1 AND IF AAGE2=1 AND CKFIP=(13067 OR 13089 OR 13121 OR 13135)]: In addition to completing your travel diary, we are asking you and all

household members between 16 and 65 years old to wear a GPS device for 3 consecutive days, starting on your diary day. The GPS device allows us to not only collect information about where people are traveling, but also the actual path taken, which is very useful in transportation planning. To show our appreciation for your time and effort, we are offering each GPS user \$<INAMT>. To receive this payment, we just ask that everyone in your household use and return their GPS device, and then provide their travel diary information in a separate interview. We will ask you to wear or carry your GPS units with you when you travel. The devices are small and easy to carry (you can clip them onto your belt, backpack, or purse) and they collect details of your travel routes during your travel day. It is very important to the survey that households like yours participate

- 3 Yes, I agree to participate in the additional GPS portion of the study →  
CONTINUE
- 4 No, I'd prefer not to participate in the additional GPS portion of the study →  
[Go to <WRGP1>]

**WRGP1** [IF WRGPS=2] SET GTYPE = 3 AND CONTINUE AS NON-GPS

**VHGPS** [IF AAGE2=1 AND GTYPE=1 AND VEHPR>0 AND GFLAG=3?] Your household has been qualified to participate in the GPS portion of this study. We will send you a GPS device for each working vehicle (up to a maximum of three vehicles) and ask you to use the devices in each vehicle for seven consecutive days, starting on your diary day. The GPS device allows us to not only collect information about where people are traveling, but also the actual path taken. This is very useful in transportation planning. We are offering \$25 for each GPS device used, in appreciation of your time and effort, if everyone in your household reports their travel diary information in the separate interview portion of the study and each working vehicle (maximum of three vehicles) in your household is equipped with a GPS device for seven days. The devices are small and easy to place in your vehicle, and they collect details of your travel routes during your travel day. It is very important to the survey that households like yours participate.

- 1 Yes, I agree to participate in the additional GPS portion of the study →  
CONTINUE
- 3 No, I'd prefer not to participate in the additional GPS portion of the study

**VHGPI** [IF VHGPS=2] SET GTYPE = 3 AND CONTINUE AS NON-GPS

## Vehicle Roster

**YEAR** [IF HHVEH>0] Next, we need to collect some information about your vehicle(s).

Please enter the year of your vehicle in the space below. (The valid range of years is 1930 to 2011)

- 9998 Don't know
- 9999 Prefer not to respond

**MAKE** [IF HHVEH>0] What is the make of vehicle number <VEHNO>?

USE CODE LIST FROM PROGRAM97 Other, please specify in box below:

98 Don't know

99 Prefer not to respond

**MODEL** [IF HHVEH>0] What is the model of that vehicle?  
[PROGRAMMER NOTE: ADD MODEL TYPE LIST]

**BODY** [IF HHVEH>0] What type of vehicle is that?

01 Auto Sedan

02 Auto 2-seat

03 Van

04 Recreational Vehicle

05 Sport Utility Vehicle (SUV)

06 Station Wagon

07 Pick-up Truck

08 Motorcycle

09 Moped/Scooter (e.g., Vespa)

97 Other, please specify in box below:

98 Don't know

99 Prefer not to respond

**VOPERATE** Is this vehicle operational and used regularly during the week?

1 Yes (VEHICLE IS FLAGGED FOR GPS)

2 No (VEHICLE IS NOT FLAGGED FOR GPS)

**FUEL** [IF HHVEH>0] What type of fuel does this vehicle use?

1 Gas

2 Diesel

3 Hybrid

4 Flex Fuel

7 Other, specify in box below:

8 Don't know

9 Refused

**CIGLT** Does this vehicle have a working power outlet or cigarette lighter?

1 Yes

2 No

8 DON'T KNOW

9 REFUSED

**VEOWN** [IF HHVEH>0] Is it owned or leased by a household member, an employer, or is it a rental car?

1 Household Owned/Leased

2 Employer Provided

3 Rental Car

- 4 Borrowed from a friend or relative
- 7 Other, specify in box below:
- 8 Don't know
- 9 Prefer not to respond

**EZPAS** [IF HHVEH>0] Does this vehicle have a working Cruise Card tag in it?

- 1 Yes, this Vehicle has an Cruise Card Tag
- 2 No, this vehicle does not have an Cruise Card Tag
- 8 Don't know
- 9 Prefer not to respond

COMPUTE VGTY=1 IF VEHICLE IS FLAGGED FOR GPS (GTYPE=1 AND GFLAG=3) AND CIGLT=1; ELSE  
COMPUTE VGTY=2

**VEHICLE ROSTER TO BE REPEATED FOR EACH VEHICLE, UP TO EIGHT VEHICLES**

**Person Roster**

**FNAME** Next are questions about each person in your household so that we can prepare individual travel diaries. Again, we want to assure you that this information is for research purposes only and will be kept strictly confidential. Earlier, you indicated there were <HHSIZ> persons in your household. What is your first name?

Enter name: \_\_\_\_\_

What is the name of the next oldest person in the household? (Initials are okay at this point.)

What is the name of the next oldest person?

Enter name: \_\_\_\_\_

[PROGRAMMER NOTE: GET NAMES FOR ALL HOUSEHOLD MEMBERS]

**LNAME** What last name should we use for your household when mailing the materials?

Enter the last name for your household in the space below: \_\_\_\_\_

**THE FOLLOWING QUESTIONS ARE ASKED FOR EACH HOUSEHOLD MEMBER**

**GEND** And what is [YOUR/NAME]'s gender?

- 1 Male
- 2 Female
- 9 Prefer not to respond

**RELAT** [NOTE: NOT ASKED OF PERNO1] What is this person's relationship to you?

- 1 SELF [PROGRAMMER NOTE: DO NOT DISPLAY FOR PERNO>1]
- 2 Spouse
- 3 Son/Daughter
- 4 Father/Mother
- 5 Brother/Sister

- 6 Grandparent
- 7 Grandchild
- 8 Live-in-help
- 9 Roommate/Other Non-Related
- 10 Other Related
- 98 Don't know
- 99 Prefer not to respond

**AGE** What is [his/her/your] age in years?

Enter Age [RANGE: 0-98]: \_\_\_\_\_

- 99 99 years or older
- 998 Don't know
- 999 Prefer not to respond

**AGEB** [IF AGE=998 or 999] Is/Are [he/she/you] between the ages of 16 and 65?

- 1 less than 16 or over 65
- 2 between 16 and 65 [TREAT AS ADULT]
- 9 Prefer not to respond

**GCONF** [IF AGEB=9 and GTYPE=1] In order for your household to qualify for the GPS portion of the study, we really need to know whether <YOU/NAME> is over the age of 16 and under the age of 65.

- 1 Yes – Over 16 and under 65
- 2 No – Under 16 or over 65 [PERSON DOES NOT RECEIVE WEARABLE GPS]
- 9 Prefer not to respond → [IF STILL REFUSED UPDATE GTYPE→3 (CANCEL THE HOUSEHOLD FROM GPS)]

**HISP** [IF PERNO=1] Are you of Hispanic, Latino, or Spanish origin?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**HISP2** [IF PERNO=1 and HISP>1 and HHSIZ>1] Are any other members of your household of Hispanic, Latino, or Spanish origin?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

COMPUTE HPFLG=1 IF HISP=1 OR HISP2=1

**RACE** [IF PERNO=1] Which best describes your race/ethnicity:

- 1 White
- 2 African-American
- 3 Asian

- 4 Native American, Alaskan Native
- 5 Pacific Islander, Native Hawaiian
- 6 Multi-Racial
- 7 Hispanic, Mexican, Latino
- 97 Other, specify in box below:
- 98 Don't know
- 99 Prefer not to respond

**LIC** [IF AGE>15 and AGEB<>1][Does/Do] [he/she/you] have a valid driver's license?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**CTELE** [IF AGE>15 and AGEB<>1] [Does/Do] [he/she/you] personally have a cell phone?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**DISAB** [Does/Do] [he/she/you] have a disability that limits the type of transportation [he/she/you] can use?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**DTYPE** [IF DISAB=1] What type of disability? Select all that apply. [MULTIPLE RESPONSE]

- 1 Visually impaired or blind
- 2 Hearing impaired or deaf
- 3 Cane or walker
- 4 Wheelchair non-transferable
- 5 Wheelchair transferable
- 6 Mentally or emotionally disabled
- 7 Other, specify in box below:
- 8 Don't know
- 9 Prefer not to respond

**EMPLY** [IF AGE>15] [Is/Are] [he/she/you] employed either full-time or part-time?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**VOLUN** [IF EMPLY>1] [Does/Do] [he/she/you] do any type of volunteer work on a regular basis?

- 1 Yes → [TREAT AS EMPLOYED]
- 2 No
- 8 Don't know
- 9 Prefer not to respond

- WORKS** [CALCULATED]  
 3 TREATED AS WORKER  
 4 NON-WORKER
- WKSTAT** [IF WORKS<>1] Which of the following best describes [his/her/your] status?  
 1 Retired  
 2 Homemaker  
 3 Unemployed but looking for work  
 4 Unemployed, not seeking employment  
 5 Student (Part-time or full-time)  
 7 Other, specify in box below  
 8 Don't know  
 9 Prefer not to respond
- JOBS** [IF WORKS=1] How many jobs [does/do] [he/she/you] have?  
 Enter Number: [RANGE 1-10] \_\_\_\_\_  
 99 Prefer not to respond
- HOURS** [IF WORKS=1] How many hours [does/do] [he/she/you] work per week at the job where [he/she/you] spend the most time?  
 Enter Number: [RANGE 1-150] \_\_\_\_\_  
 999 Prefer not to respond
- HOUR2** [IF JOBS>1] How many hours [does/do] [he/she/you] work per week at [his/her/your] second job?  
 Enter Number: [RANGE 1-150] \_\_\_\_\_  
 999 Prefer not to respond
- HOUR3** [IF JOBS>2] How many hours [does/do] [he/she/you] work per week at [his/her/your] third job?  
 Enter Number: [RANGE 1-150] \_\_\_\_\_  
 999 Prefer not to respond
- TELWK** [IF WORKS=1] Regardless of whether [he/she/you] [does/do] telecommute, is telecommuting offered at [his/her/your] main workplace?  
 1 Yes  
 2 No  
 9 Prefer not to respond
- PRIMJ** Next are some questions about [his/her/your] primary job, where [he/she/you] [works/work] <HOURS> per week.
- TCHRS** [IF TELWK=1] Of the total job hours, how many does [he/she/you] telecommute, meaning that [he/she/you] work(s) from home in lieu of traveling to [his/her/your] workplace, on a regular basis?  
 Enter Number: [RANGE 0-150] \_\_\_\_\_  
 998 Don't know  
 999 Prefer not to respond

**WSTRT** [IF WORKS=1] What time [does/do] [he/she/you] typically start work at [his/her/your] primary job? Note: Please enter your time in military time. [PROGRAMMER NOTE: PROVIDE EXAMPLES OF MILITARY TIME]

Military time is in the format of HHMM. Here are some examples:

0030 = 12:30am

1200 = Noon

1530 = 3:30pm

2359 = 11:59pm

ENTER MILITARY TIME: \_\_ : \_\_

9998 Don't know

9999 Prefer not to respond

**WEND** [IF WORKS=1] What time [does/do] [he/she/you] typically end work at [his/her/your] primary job? [PROGRAMMER NOTE: PROVIDE EXAMPLES OF MILITARY TIME]

Military time is in the format of HHMM. Here are some examples:

0030 = 12:30am

1200 = Noon

1530 = 3:30pm

2359 = 11:59pm

ENTER MILITARY TIME: \_\_ : \_\_

9998 Don't know

9999 Prefer not to respond

**SCHED** [IF WORKS=1] Are [his/her/your] start and end times at this job about the same every day?

1 Yes

2 No

8 Don't know

9 Prefer not to respond

**WDAYS** [IF WORKS=1] On average, how many days per week does [he/she/you] travel to [his/her/your] work location to work?

1 One

2 Two

3 Three

4 Four

5 Five

6 Six

7 Seven

8 Don't know

9 Prefer not to respond

**COMPR** [IF WORKS=1] [Does/Do] [he/she/you] work a compressed work week, such as 40 hours in 4 days or 80 hours in 9 days?

1 4/40

2 9/80

3 No

7 Other, specify in box below:

- 8 Don't know
- 9 Prefer not to respond

**INDUS**

[IF WORKS=1] What type of business or company [does he/she / do you] work for in [his/her/your] primary job?

- 72 Accommodation and Food Services
- 56 Administrative and Support and Waste Management and Remediation Services
- 11 Agriculture, Forestry, Fishing and Hunting
- 71 Arts, Entertainment, and Recreation
- 23 Construction
- 61 Educational Services
- 52 Finance and Insurance
- 62 Health Care and Social Assistance
- 51 Information
- 55 Management of Companies and Enterprises
- 31 Manufacturing
- 21 Mining, Quarrying, and Oil and Gas Extraction
- 81 Other Services (except Public Administration)
- 54 Professional, Scientific, and Technical Services
- 92 Public Administration
- 53 Real Estate and Rental and Leasing
- 44 Retail Trade
- 48 Transportation and Warehousing
- 22 Utilities
- 42 Wholesale Trade
- 97 Other, specify in box below:
- 98 Don't know
- 99 Prefer not to respond

**OCCUP**

[IF WORKS=1] What kind of work [does he/she / do you] do at that employer?

- 17 Architecture and Engineering Occupations
- 27 Arts, Design, Entertainment, Sports, and Media Occupations
- 37 Building and Grounds Cleaning and Maintenance Occupations
- 13 Business and Financial Operations Occupations
- 21 Community and Social Services Occupations
- 15 Computer and Mathematical Occupations
- 47 Construction and Extraction Occupations
- 45 Farming, Fishing, and Forestry Occupations
- 35 Food Preparation and Serving Related Occupations
- 25 Education, Training, and Library Occupations
- 29 Healthcare Practitioners and Technical Occupations
- 31 Healthcare Support Occupations
- 49 Installation, Maintenance, and Repair Occupations
- 23 Legal Occupations
- 19 Life, Physical, and Social Science Occupations
- 11 Management Occupations
- 55 Military Specific Occupations
- 43 Office and Administrative Support Occupations

- 39 Personal Care and Service Occupations
- 51 Production Occupations
- 33 Protective Service Occupations
- 41 Sales and Related Occupations
- 53 Transportation and Material Moving Occupations
- 97 Other, specify in box below:
- 98 Don't know
- 99 Prefer not to respond

**EMPLR** [IF WORKS=1] Is [his/her/your] employer...

- 1 A private company
- 2 Government
- 3 Non-profit
- 4 Self-employed
- 7 Other, specify in box below:
- 8 Don't know
- 9 Prefer not to respond

**EPARK** [IF WORKS=1] Does [his/her/your] employer provide parking at no charge?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**EPPK2** [IF EPARK>1] Does [his/her/your] employer offer reimbursement for parking?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**UPARK** [IF EPPK2=1] Does [he/she/you] use this benefit for travel to/from work?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**ETRANS** [IF WORKS=1] Does [his/her/your] employer offer reimbursement for, or subsidize, transit use?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**WLOC** [IF WORKS=1] Is [his/her/your] work address fixed, is it your home, or does it vary from day to day or week to week??

- 1 Fixed
- 2 Home
- 3 Varies

**WNAME** [IF WORKS=1 AND WLOC=1 OR 3] What is the name of [his/her/your] [employer/volunteer] location?  
Enter Response: \_\_\_\_\_

**CWADD** [IF WORKS=1 AND WLOC=1 OR 3] Do you know the full address or nearby cross streets of <your/his/her> current or most recent workplace?  
1 I know the complete address → WADDR  
2 I know the cross streets but not the full address  
8 Don't Know  
9 Prefer not to respond

**WSXTR** [IF WORKS=1 AND WLOC=1 OR 3 AND CWADD=2] What are the nearest cross streets of this work location?  
Enter Response: \_\_\_\_\_ [COLLECT IN TWO FIELDS]

**WADDR** [IF WORKS=1 AND (WLOC=1 OR 3) AND CWADD=1] What is the address of [his/her/your] current or most recent workplace?  
Street Address: \_\_\_\_\_  
Is there a suite number? Leave this answer blank if there is no suite number.  
<WSUIT> Suite: \_\_\_\_\_  
  
[PROGRAMMER NOTE: ALWAYS ASK CITY, STATE, ZIP AFTER WSXTR OR WADDR]  
<WCITY> City: \_\_\_\_\_  
<WSTAT> State: \_\_\_\_\_  
<WZIP> Zip Code: \_\_\_\_\_  
If you prefer not to provide your zip code, please enter 99999 for this response.

**WMODE** [IF WLOC=1 OR 3] What mode of transportation [does/do] [he/she/you] most often use to get to work?  
1 Walk  
2 Bike  
3 Auto/Van/Truck Driver  
4 Auto/Van/Truck Passenger  
5 Local Bus (Regular, Standard, City)  
6 Express Buss (Suburban, Commuter, Inner-City)  
7 MARTA Train  
8 Dial-a-ride/Paratransit  
9 Taxi/Limo  
10 School Bus  
11 Motorcycle/Moped  
97 Other, specify in box below:  
98 Don't know  
99 Prefer not to respond

**EDUCA** What level of education [has/have] [he/she/you] completed?

- 1 Not a high school graduate, 12<sup>th</sup> grade or less (this includes young children too)
- 2 High school graduate (high school diploma or GED)
- 3 Some college credit but no degree
- 4 Associate or technical school degree
- 5 Bachelor's or undergraduate degree
- 6 Graduate degree (includes professional degree like MD, DD, or JD)
- 7 Other, specify in box below:
- 8 Don't know
- 9 Prefer not to respond

**STUDE** [Is/Are] [he, she, you] currently enrolled in any type of school, including daycare, technical school, or university? If so, is that full-time or part-time?

- 1 Yes – Full Time
- 2 Yes – Part Time
- 3 No
- 8 Don't know
- 9 Prefer not to respond

**SCHOL** [IF STUDE<3] What school grade or level [do/does] [you/this person] attend?  
[PROGRAMMING NOTE: CHECK AGE OF PERSON BEFORE SHOWING CHOICES 1-4]

- 1 Daycare
- 2 Nursery school/pre-school
- 3 Kindergarten to grade 8
- 4 Grade 9 To12
- 5 Technical/Vocation school
- 6 2-year college (community college)
- 7 4-year college or university
- 8 Graduate school/professional
- 97 Other, specify in box below:
- 98 Don't know
- 99 Prefer not to respond

**SLOC** [IF SCHOL<5] And [is/are] [he/she/you] home schooled?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**SONLN** [IF SCHOL=4-8] Is the school an online-only school?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**SNAME** [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)] What is the name of the school?  
Enter Name: \_\_\_\_\_

**CSADD** [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)] Do you know the complete address or nearby cross streets of the school?

- 1 I know the complete address → GO TO SADDR
- 2 I know the cross streets but not the full address
- 8 Don't know
- 9 Prefer not to answer

**SXST1** [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)] What are the nearest cross streets of this school?

ENTER RESPONSE: \_\_\_\_\_ [COLLECTED IN TWO FIELDS]

**SADDR** [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1) AND CSADD=1] What is the address of this school?

<SADDR> Street Address: \_\_\_\_\_

<SSUIT>: Is there a suite number? Leave this answer blank if there is no suite number. : \_\_\_\_\_

[PROGRAMMER NOTE: ALWAYS ASK CITY, STATE, ZIP AFTER SSXTR OR SADDR]

<SCITY> City: \_\_\_\_\_

<SSTAT> State: \_\_\_\_\_

<SZIP> Zip Code: \_\_\_\_\_

If you prefer not to provide your zip code, please enter 99999 for this response.

**SMODE** [(IF STUDE =1 OR 2) AND (SLOC<>1 OR SONLN<>1)] On a typical day, how [does/do] [he/she/you] get to school?

- 1 Walk
- 2 Bike
- 3 Auto/Van/Truck Driver
- 4 Auto/Van/Truck Passenger
- 5 Local Bus (Regular, Standard, City)
- 6 Express Bus (Suburban, Commuter, Inner-City)
- 7 MARTA Train
- 8 Dial-a-ride/Paratransit
- 9 Taxi/Limo
- 10 School Bus
- 11 Motorcycle/Moped
- 97 Other, specify in box below:
- 98 Don't know
- 99 Prefer not to respond

**RIBUS** [IF AGE>15 and AGEB<>1] How often [does/do] [he/she/you] use public transit?

- 6 Nearly every day → [GO TO <BREZ>]
- 7 Once or twice a week → [GO TO <BREZ>]
- 8 Once or twice a month
- 9 Almost never
- 10 Never

- 8 Don't know
- 9 Prefer not to respond

**BREZ** [IF RIBUS=1 OR 2] [Does/Do] [he/she/you] own a Breeze card?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**BREZF** [IF BREZ=1] The last time [he/she/you] added value to the card or purchased a card, did [he/she/you]:

- 1 Purchase a 30-day pass
- 2 Purchase a 7-day pass
- 3 Purchase 20 trips
- 4 Purchase 10 trips
- 5 Purchase less than \$20 in fares
- 6 The card is purchased through a special fare program
- 7 Other, specify in box below
- 8 Don't know
- 9 Prefer not to respond

**GRTA** [IF RIBUS=1 OR 2] [Does/Do] [he/she/you] own a GRTA Xpress bus pass?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Prefer not to respond

**GRTAF** [IF GRTA=1] The last time [he/she/you] purchased [he/his/your] GRTA Xpress bus pass, did [he/she/you]:

- 1 Purchase a 31-day pass
- 2 Purchase a 40-ride pass
- 3 Purchase 20-ride pass
- 4 The Xpress bus pass purchased through a special fare program
- 7 Other, specify
- 8 Don't know
- 9 Prefer not to respond

**CGTP** [IF RIBUS=1 OR 2] [IF RESIDENT OF COBB COUNTY OR GWINNETT COUNTY] Do you own a [TOGGLE: Cobb/Gwinnett] County Transit pass? If so, is that for local, express, or paratransit service?

- 1 Yes, for local service
- 2 Yes, for express service
- 3 Yes, for paratransit service
- 4 No
- 8 Don't know
- 9 Prefer not to respond

**CGTPF** [IF RIBUS=1 OR 2] [IF CGTP<4] The last time [he/she/you] purchased [his/her/your] [TOGGLE: Cobb/Gwinnett] County Transit pass, did [he/she/you]:

- 1 Purchase a 31-day or monthly pass

- 2 Purchase a 20-ride pass
- 3 Purchase a 10-ride pass
- 4 The County Transit pass is purchased through a special fare program
- 8 Don't know
- 9 Prefer not to respond

**DISFR**

[IF BREZ=1 or GRТА=1 or CGTP<4] [Does/Do] [he/she/you] participate in a discounted fare program? [IF YES: What kind of discounted fare is it?]

- 1 No, Discounted Fare
- 2 Yes, through an employer
- 3 Yes, through a university pass (U-pass) program
- 4 Yes, through a K-12 student pass program
- 5 Yes, discounted fare for senior citizens, disabled riders, or Medicare recipients
- 7 Other, specify in box below:
- 8 Don't know
- 9 Prefer not to respond

**FBKTW**

[IF STUDE<3 OR WORKS=1] How frequently did [he/she/you] travel to work/school last week by walking or biking?

- 5 Zero times (Never)
- 6 Once or twice
- 7 Three or four times
- 8 Five or more times
- 8 Don't know
- 9 Prefer not to respond

COMPUTE PGТYP=1 IF PERSON IS FLAGGED FOR GPS (GTYPE=1 AND GFLAG=1 OR 2) AND AGE IS 16 TO 65 INCLUSIVE; ELSE COMPUTE PGТYP=2

**TRNM**

CALCULATED: SUM OF HH MEMBERS THAT USE TRANSIT OR NON-MOTOR TO WORK OR SCHOOL [RIBUS<3 OR FBKTW=2,3,4]

**Finalizing Recruitment**

**WTGPS**

[IF GTYPE=1 AND GFLAG=2 AND IF AAGE2=1 AND IF TRNM>=1 AND CTFIP=CORE COUNTY]: In addition to completing your travel diary, we are also asking you and all adult members of your household to use a GPS device on the same travel day we assign to you as well as 2 additional consecutive days. The GPS device allows us to not only collect where people are traveling to, but the actual path taken, which is very useful in transportation planning. If everyone in your household provides valid travel information for the GPS and telephone interview portions of the study, we are offering \$<INAMT> for each device used, in appreciation of your time and effort. We will ask you to wear or carry your GPS units with you when you travel. The devices are small and easy to carry (you can clip them onto your belt, backpack, or purse) and they collect details of your travel routes during your travel day. It is very important to the survey that households like yours participate.

- 5 Yes, I agree to participate in the additional GPS portion of the study → CONTINUE

- 6 No, I'd prefer not to participate in the additional GPS portion of the study →  
[Go to <WTGP1>]

**WTGP1** [IF WTGPS=2] SET GTYPE = 3 AND CONTINUE AS NON-GPS

**INCOM** To ensure our study is representative of all income groups in the area, could you estimate your household's total income for last year as one of the following?

- 01 Less than \$10,000
- 02 \$10,000-\$19,999
- 03 \$20,000-\$29,999
- 04 \$30,000-\$39,999
- 05 \$40,000-\$49,000
- 06 \$50,000-\$59,999
- 07 \$60,000-\$74,999
- 08 \$75,000-\$99,999
- 09 \$100,000 to \$149,999
- 10 \$150,000 or more
- 99 Prefer not to respond

**ASSN1** [IF GTYPE=1 AND IF GFLAG=1 or 2] Thank you for agreeing to participate in this study. Understanding your household's travel and activities is very important for improving transportation in your area. In addition to sending you a GPS device for each member of your household age 16+ to keep track of your travel and activities for three consecutive days, we will also send a diary for each member of your household to keep track of your travel and activities on <DAY AND DATE>.

- 3 Yes
- 4 No – Well let's try a different time. How about <ALT DAY AND DATE>?  
Select a day and date that works for you: <ASSN>

**ASSN2** [IF GTYPE=1 AND IF GFLAG=3] Thank you for agreeing to participate in this study. Understanding your household's travel and activities is very important for improving transportation in your area. We will send you a GPS device for up to 3 working vehicles in your household to use for seven consecutive days. We will also send a diary for each member of your household to keep track of your travel and activities on <DAY AND DATE>.

- 1 Yes
- 2 No – Well let's try a different time. How about <ALT DAY AND DATE>?  
Select a day and date that works for you: <ASSN>

**ASSN** [IF non-GPS Sample] Thank you for agreeing to participate in this study. Understanding your household's travel and activities is very important for improving transportation in your area.

We will be sending a diary for each member of your household so that they can record details about their travel and activities for one full day. Please select a date from the list below that would be best for your household to do this.

- 3 YES
- 4 NO – Well let's try a different time. How about <ALT DAY AND DATE>?  
Select a day and date that works for you: <ASSN>

**[PROGRAMMING NOTE:** For all counties except Barrow and Spaulding, BLOCK OUT April 4 – 8 (these are not valid travel dates).

For Barrow and Spaulding, BLOCK OUT April 18 – 22.

Last travel day of May 20 for the following counties: Barrow, Bartow, Carroll, Clayton, DeKalb, Hall and Walton]

**SHOW 6 ASSN DAYS FOR SCHEDULING PURPOSES**

**INCT1** [IF NON-GPS INCEN HOUSEHOLD] We are offering \$<INAMT> in appreciation of your efforts, but only if EVERYONE in your household completes a travel diary and reports your travel information by <ASN10>. Once all travel information is complete and confirmed for EVERYONE in your household, we will mail you a check.

**INCT2** [IF GPS INCEN HOUSEHOLD] We are offering \$<INAMT> in appreciation of your efforts, but only if EVERYONE in your household who is assigned a GPS device, uses it as instructed, and completes a travel diary so that we have good travel information by <ASN10>. Once all travel information is complete and confirmed for EVERYONE in your household, we will mail you a check.

**HHNME** To whom should we address the envelope?

**PROGRAMMING NOTE: IMPORT FNAME AND LNAME COLLECTED EARLIER AND CONFIRM LISTED NAME. IF NULL OR INCORRECT COLLECT NEW.**

**RESPF** FIRST NAME: \_\_\_\_\_

**RESPL** LAST NAME: \_\_\_\_\_

9 → INDICATE THAT INFORMATION IS NECESSARY, IF STILL REFUSE, TERMINATE.

**TERMINATION TEXT:**

We're sorry - without this information, your household will not be eligible to participate in this study.

Please select "Back to add name information" or "Exit Survey" if you wish not want to continue.

We appreciate your time!

**ANSWER CHOICES:**

1- Back to name information

Skips back to HHNME

2- Exit the survey

Skips out and ends

**CHMAD**

In order to mail the survey materials to you, we need to confirm your mailing address. GTYPE=1 The travel diaries and the GPS devices will be shipped to you within the next week. After your travel date, you can return the GPS devices by Fedex using the return envelope provided with the

Note: We cannot ship survey materials to PO Boxes because FedEx can not deliver to them.

**WE MUST HAVE A TELEPHONE NUMBER FOR FEDEX DELIVERIES**

[PROGRAMMER NOTE: ASK OF BOTH GTYPE=1 and 2]:

Is this correct?

- 1 YES → GO TO CHECK ADDRESS TO MAKE SURE FULLY COMPLETE
- 2 NO [IF NO ASK MTYPE, MNAME, MADDR, MSUIT, MCITY, MSTAT, MZIP]

**SLANG** [FULL STUDY ONLY] In which language should we send your diary materials?

- 3 English
- 4 Spanish

**CATSI** After your travel day, we will ask you to report details about the places you visited. Would you prefer to report them by telephone interview, or via website?

- 3 Telephone Interview
- 4 Web Interview

**REMN1** Please note that we will contact you to remind you on the day before your travel date (your travel date is <ASSN>) and to provide you with additional instructions for your participation. Would you like to be reminded by phone, text, and/or email? You can select more than one option.

**MULTIPLE RESPONSE**

- 1 PHONE
- 2 TEXT
- 3 EMAIL

**RMPHN** [IF RMNEW=1] Is this telephone number the best number to call? [PROGRAMMER NOTE: DISPLAY PHONE]

- 1 Yes
- 2 No, please enter correct phone number in box below: → [PROGRAMMER NOTE: ALLOW NEW PHONE TO BE ENTERED]

**RMTXT** [IF RMNEW=2] Please provide the best telephone number for us to send a reminder text?

- 1 Enter Cell Number: \_\_\_ - \_\_\_ - \_\_\_\_

**RMEML** [IF RMNEW=3] Please enter the email address where you would like to receive a reminder email?

- 1 Enter Email Address: \_\_\_\_\_

**CBACK** [IF ANY PERSON IS UNDER AGE 16] When we recontact you to collect your travel and activities, we will not ask to speak with anyone under 16 years old, but we would like to ask about their travel. Who would be the best person to give that information?

Enter Person Number: \_\_\_\_\_

**CONCLUSION**

**THANK** Thank you for participating in the Regional Travel Survey to improve your transportation future. Please tell the other members of your household how important their participation is for the success of the study. If you have any questions or comments, the toll free number where you can reach us is 888-222-7734. Thank you again.

**[PROGRAMMING NOTE: PLEASE BE SURE THE WEB SURVEY CAN NOT BE REACCESSED ONCE COMPLETED.]**

# Appendix C: Retrieval CATI Survey

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## Acronym Dictionary

DK = Don't Know

RF = Refusal

NA = Not applicable

ADD HPFLG

Reminder Call

**Sample Number:** «SAMPN» **Telephone #:** «PHONE» **Preferred time:** «PTIME»

**COUNTY:** «COUNT» **FIPSCODE:** «FIPS»

**PIN Number:** <<PINNO>> **[Project Website]**

[INT01]: Hi, this is \_\_\_\_\_ with the Regional Travel Survey conducted on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission. May I speak to <RESPF> <RESPL>?

[IF RESPONDENT ON PHONE] I was just calling to remind you that your household will be participating in the Regional Travel Survey and also to see if you had any questions about the study. Please keep in mind that each member of your household must record all their trips on <ASSN>. This will help improve transportation in your area.

**Programming Note Add: Recruited on [Recruit CM Day] at [Recruit Time]\_\_\_\_\_**

**ASSN:**\_\_\_\_\_

RC CONTINUE → Skip to PACKT  
RN NO ANSWER  
RZ BUSY  
RA ANSWERING MACHINE  
LM LEFT MESSAGE  
IM COMPUTER/FAX MACHINE  
IG BUSINESS/GOVERNMENT  
ID DISCONNECT  
PM CALLER ID  
RR REMINDER REFUSAL  
RH HUNG UP (W/O A WORD)  
WN WRONG NUMBER (NEED TO RESEARCH)  
WV RESPONDENT HAS MOVED  
RC RESP WILL CM ONLINE  
RT RESCHEDULE, CALLBACK  
RM RESCHEDULE, REMAIL

PRNGP – Variations:

1. Non-GPS – GTYPE>1
2. Wearable and targeted wearable - GTYPE=1 and GFLAG=1 or 2
3. Vehicle GPS - GTYPE =1 and GFLAG=3

PACKT      [IF PRNGP=1] Did your household receive the travel diaries packet that we sent to you?

[IF PRNGP=2] Did your household receive the packet containing travel diaries and GPS devices that we sent to you?

[IF PRNGP=3] Did your household receive the packet containing travel diaries and GPS devices that we sent to you?

- 1      YES → Skip to ANYQU
- 2      NO

INT04      [IF PACKT=2] Your participation is very important, could you download your diaries from the project website?

The site address is: [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com).

IF NEEDED, RESCHEDULE. [PROGRAMMER NOTE: USE RM DISPOSITION AND ALLOW 7 DAYS FOR MATERIALS TO BE PROCESSED AND MAILED OUT]

IF RF: Let me assure you that your information is confidential and used only for research purposes. IF NEEDED: We would really like to include your household in this important project. Let me set up a new travel day for your home. SELECT "RM".

- RC    CONTINUE → Skip to ANYQU
- RT    RESCHEDULE
- RM    CANNOT DOWNLOAD, REMAIL → VERIFY MADDR
- RF    FINAL REFUSAL

PRN16 – Variations

1. Non-GPS – GTYPE>1
2. Wearable and targeted wearable - GTYPE=1 and GFLAG=1 or 2
3. Vehicle GPS - GTYPE =1 and GFLAG=3

ANYQU

**[IF PRN16=1]** Do you have any questions about the diaries or what we're asking you to do?

Just to reiterate, we would like everyone in the household to record where they go on <ASSN>. Each person should have received a diary to enter what places they visit or stops they make, including complete addresses, and accurate arrival and departure times, as well as how they got there and the purpose of the trip.

IF NEEDED: This information will be kept confidential and will be used to improve transportation planning in the area.

**IF PRN16=2** Do you have any questions about the travel diaries or GPS devices or what we're asking you to do?

Just to reiterate, we would like everyone who received a GPS device to carry or wear it throughout the day for three consecutive days starting on <ASSN>. Each member of your household should also use the diaries provided to enter what places they visit or stops they make during the course of the day on <ASSN>. Please include complete addresses, and accurate arrival and departure times, as well as how they got to each place and the purpose of the trip.

IF NEEDED: This information will be kept confidential and will be used to improve transportation planning in the area.

IF NEEDED: The GPS study allows us to not only collect where people are traveling to, but the actual path taken, which is very useful in transportation planning.

**IF PRN16=3** Do you have any questions about the GPS devices or the travel diaries and what we're asking you to do?

Just to reiterate, you will place one GPS device in each assigned vehicle for seven consecutive days beginning on <ASSN>. Each member of your household should also use the diaries provided to enter what places they visit or stops they make during the course of the day on <ASSN>. Please include complete addresses, and accurate arrival and departure times, as well as how they got to each place and the purpose of the trip.

IF NEEDED: This information will be kept confidential and will be used to improve transportation planning in the area.

IF NEEDED: The GPS study allows us to not only collect where people are traveling to, but the actual path taken, which is very useful in transportation planning.

CATSI

Once you have completed recording your travel details, you previously indicated you would prefer to do the final interview by <telephone interview/ via the website>. Is that still your preference?

- 1 Telephone interview

2 WEB interview

RINCE [IF INCEN=1] – REMINDER INCENTIVE. Just a reminder, your household is being offered \$<INAMT> if EVERYONE in the household completes the study with valid travel information by <ASN10>, we will send your household a check for \$<INAMT> in the next 8-10 weeks.

1 CONTINUE

PRNCB – Variations

1. CATSI=1 and GTYPE=1

2. CATSI=1 and GTYPE>1

3. CATSI=2 and GTYPE=1[CALBC]

4. CATSI=2 and GTYPE>1

[IF PRNCB=1] After your household records travel information, we'll call you back. Ideally, we would like to speak with you, but if not, we'd like to speak to someone age 18 or older. What is the best time of day to reach you? [INTERVIEWER NOTE: SET UP CALLBACK THE DAY AFTER TRAVEL IF POSSIBLE]

Thank you very much for your participation in this important study. Please hang on to your survey materials INCLUDING THE TRAVEL DIARY until we call you to retrieve your travel information. Once we've collected your travel details, you may recycle or retain them for your records. You should continue to use your GPS devices for <X based on GLFAG> days after that. Have a great day/evening!

[PROGRAMMER NOTE: ADD PROJECT WEBSITE AND PINNO AT THIS SCREEN]

[IF PRNCB=2] After your household records travel information, we'll call you back. Ideally, we would like to speak with you, but if not, we'd like to speak to someone age 18 or older. What is the best time of day to reach you? [INTERVIEWER NOTE: SET UP CALLBACK THE DAY AFTER TRAVEL IF POSSIBLE]

Thank you very much for your participation in this important study. Please hang on to your survey materials INCLUDING THE TRAVEL DIARY until we call you to retrieve your travel information. Once we've collected your travel details, you may recycle or retain them for your records.

Have a great day/evening!

[PROGRAMMER NOTE: ADD PROJECT WEBSITE AND PINNO AT THIS SCREEN]

[IF PRNCB=3] After your travel date is complete, please log into the survey website to report your household travel information. If possible, you should schedule a time on <BGDAT> to do this.

Thank you very much for your participation in this important study. Please hang on to your survey materials INCLUDING THE TRAVEL DIARY until the time when you log in to report your travel information. Once you have reported your data you may recycle or retain the materials for your records. You should continue to use your GPS devices for <X based on GFLAG> days after that.

Have a great day/evening!

[PROGRAMMER NOTE: ADD PROJECT WEBSITE AND PINNO AT THIS SCREEN]

[IF PRNCB=4] After your travel date is complete, please log into the survey website to report your household travel information. If possible, you should schedule a time on <BGDAT> to do this.

Thank you very much for your participation in this important study. Please hang on to your survey materials INCLUDING THE TRAVEL DIARY until the time when you log in to report your travel information. Once you have reported your data you may recycle or retain the materials for your records.

Have a great day/evening!

[PROGRAMMER NOTE: ADD PROJECT WEBSITE AND PINNO AT THIS SCREEN]

# Retrieval Script

INT02 Hi, this is \_\_\_\_\_ from the Regional Travel Survey conducted on behalf of the Georgia Department of Transportation and ARC. We recently spoke with <FNAME> <LNAME> and are calling back to conduct the interview he/she agreed to complete a few days ago. May I please speak with <FNAME>?

- 1 HAVE RESPONDENT → CONTINUE
- 2 RESPONDENT NOT AVAILABLE → GO TO CALBK
- 3 RESCHEDULE CALLBACK (RT)
- 4 RESCHEDULE REMAIL (RM)

CALBK Earlier we spoke with you about the travel survey and asked you to record your travel day on <ASSN>. Can we collect the details about your travel day now?

- OK** CONTINUE
- CE** ENTERING A MAIL-IN
- ML** RESPONDENT WILL MAIL IN LOGS
- HM** RESPONDENT HAS MAILED IN LOGS
- WC** RESPONDENT WILL COMPLETE  
ONLINE(ONLY CHOOSE IF THEY PROMISE TO  
GO ONLINE) [PROGRAMMER NOTE: IF  
SELECTED, GO TO POP-UP SCREEN WHERE  
INTERVIEWER CAN READ WEBSITE AND  
PINNO]
- LR** LOGS RECEIVED
- NA** NO ANSWER
- BZ** BUSY
- AM** ANSWERING MACHINE
- LM** LEFT MESSAGE
- ID** DISCONNECT
- IM** COMPUTER/FAX MACHINE
- IG** BUSINESS/GOVERNMENT
- PM** CALLER ID
- IW** WRONG NUMBER, NEED TO RESEARCH
- KB** SPECIFIC CALLBACK
- KH** GENERAL CALLBACK
- K5** CALL BACK IN 5 MINUTES
- KN** NEW NUMBER (HAVE NEW NUMBER)
- R1** 1ST REFUSAL
- R2** 2ND REFUSAL
- RH** HUNG UP (W/O A WORD)
- H2** 2ND HANG UP

**PROGRAMMER NOTE: SHOW TEXT IF HOUSEHOLD QUALIFIES FOR INCENTIVE. <INCEN>/<INAMT>**

Just a reminder, your household is being offered <INAMT> to thank you for your participation in this study. If EVERYONE in the household completes the study with valid travel information by <ASN10>, we will send your household <INAMT> in the next 8-10 weeks.

SCPT1 Last week, we spoke with you about the travel survey and asked you to record your travel on <ASSN>. We would like to collect your trip information now.

VADD: Let's start by verifying the address where you live. Our records show that your address is:

RECALL INFORMATION FROM RECRUITMENT FOR INTERVIEWER TO REFERENCE:

<FNAME> <LNAME>  
<ADDRESS>  
<CITY> <STATE> <ZIP>  
Travel Day: <TDAY>  
ASSN: <ASSN>

VERIFY INFO BELOW COLLECTED IN RECRUITMENT

HHSIZ Our records show that there is/are <OHSIZ> person/people living in your household. Is that correct? ENTER A NEW NUMBER BELOW IF NEEDED

- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 8 Eight or more
- 98 DK
- 99 RF

**SIZ08 Household Size Follow-up [IF HHSIZE = 8]**

Please enter the total number of people in your household: [Range: 8 to 20]

ENTER NUMBER

- 1 I prefer not to answer

### Household Member Characteristics Verification

***HOUSEHOLD MEMBER CHARACTERISTICS (AGE, WORKER STATUS, WORK LOCATION, STUDENT STATUS, SCHOOL LOCATION)***

LKPER Okay, now I need to confirm the name, age, gender, employment status, and student status we have for each household member. VERIFY PERSON INFORMATION BY CLICKING ON PERSON SUMMARY BUTTON. SELECT THE PERSON(S) YOU NEED TO MAKE CHANGES TO.

- 1 NO CHANGES NEEDED THIS PERSON
- 2 EDIT THIS PERSON
- 3 ADD THIS PERSON
- 4 DELETE THIS PERSON

WHATC What are you changing?

- 1 PERSONAL INFORMATION (NAME, AGE, LICENSE)

- 2 EMPLOYMENT INFORMATION STATUS
- 3 EMPLOYMENT ADDRESS
- 4 STUDENT INFORMATION (STATUS, SCHOOL ADDRESS, EDUCATION, ETC)
- 5 GO TO LOG QUESTIONS (skip to CMPLG)

CMPLG Did <NAME> complete their travel diary? (PROGRAMMING NOTE ASK OF ALL)

- 1 YES (COMPLETED)
- 2 NO (NOT COMPLETED)
- 3 DID NOT RECEIVE MATERIALS
- 8 DK
- 9 RF

HVLOG Do you have the completed diary to refer to? (PROGRAMMING NOTE ASK OF ALL)

- 1 Yes
- 2 No
- 9 REFUSED

HHVEH In terms of vehicles available to your household, we show that you have <HHVEH> available. Is that right? (MAKE CHANGES BELOW BY SELECTING TH NEW NUMBER AS NEEDED)

- 0 Zero
- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 8 Eight or more
- 98 DK
- 99 RF

VEH08 **Vehicle number: [IF HHVEH = 8]**

Please enter the number of vehicles in the household. (Range: 8-20)

- 99 I prefer not to answer

***CONFIRM HOUSEHOLD VEHICLE INFORMATION (YEAR, MAKE, MODEL, BODY, FUEL)***

LKVEH Okay, now I need to confirm the year and body type we have for each household vehicle. VERIFY VEHICLE INFORMATION BY CLICKING ON VEHICLE SUMMARY BUTTON.

- 1 NO CHANGES NEEDED FOR VEHICLES
- 2 EDIT THIS VEHICLE
- 3 ADD THIS VEHICLE
- 4 DELETE THIS VEHICLE

**NOTE: IF VEHICLES ARE ADDED, COLLECT ALL VEHICLE DATA ASKED IN RECRUITMENT**

INCOM

[IF RECRUITMENT INCOM=99] And to make sure your household properly represents other in the region, can you pick the option from the following categories which best represents your total household income last year? We understand if you feel uncomfortable answering this question. However, we only ask about income to ensure all households are equally represented in our survey. Income has been found to be related to the types of trips households make, and we need to make sure we get information for all types of trips and income levels.

- 01 Less than \$10,000
- 02 \$10,000-\$19,999
- 03 \$20,000-\$29,999
- 04 \$30,000-\$39,999
- 05 \$40,000-\$49,000
- 06 \$50,000-\$59,999
- 07 \$60,000-\$74,999
- 08 \$75,000-\$99,999
- 09 \$100,000 to \$149,999
- 10 \$150,000 or more
- 99 REFUSED

*Verify Habituals (home, work, school).*

## Person Roster

### TTBUT (INTERVIEWER NOTE CLICK ON LINK TO LAUNCH TRIPBUILDER)

TRAVEL INFORMATION HAS TO BE COLLECTED FOR ALL HH MEMBERS, EXCEPT FOR HOUSEHOLDS WITH 4+ HOUSEHOLD MEMBERS, N-1 WILL BE ALLOWED FOR UP TO 5 PERCENT OF OVERALL CASES,

A PROXY IS REQUIRED FOR PERSONS AGE 15 AND UNDER. WE MUST ATTEMPT TO SPEAK DIRECTLY TO PERSONS AGE 16 AND OLDER AT LEAST THREE TIMES BEFORE WE OBTAIN PROXY INFORMATION.

IF ALL MEMBERS OF THE HOUSEHOLD ARE UNRELATED COLLEGE STUDENTS, A VALID COMPLETE IS ALL TRAVEL FOR THE MAIN RESPONDENT WHO ACTUALLY GOES TO COLLEGE/UNIV CLASS ON THE TRAVEL DAY AND AS MANY OF THE OTHER HH MEMBERS AS POSSIBLE. NON-RELATED HH WILL BE FLAGGED AND INTERVIEWER WILL KNOW PRIOR TO CALLING THE HOUSEHOLD IF THIS IS A NON-RELATED

OBTAIN DETAILS FOR ALL TRIPS, EVEN THOSE THAT ARE WORK-RELATED OR FOR WORK PURPOSES EXCEPT WHEN THE JOB IS DELIVERY (I.E. UPS DRIVER, THEN COLLECT TRIPS TO AND FROM MAIN WORK LOCATION)

## TRIP ROSTER (TRIP BUILDER)

Ok, thank you for verifying the information you provided to us during the previous interview. Next, we will ask you to provide details about the trip/activity information that your household recorded for your travel day.

PROXY SELECT THE PERSON YOU ARE SPEAKING WITH. (INDICATE IF TRIP INFORMATION IS BEING PROVIDED BY THE INFORMANT OR BY PROXY) [COMPUTED]  
1 INFORMANT  
2 PROXY

NTRVI [IF PROXY=2] Select who you are speaking with: \_\_\_\_\_

HABITUAL COLLECTION: We will now use an interactive mapping tool to map your home, work and school locations.

Please search for your household's locations to place them on the map OR click the "Set Location" button to mark them on the map directly. Follow STEP 1 and STEP 2 for each location.

PTYPE We will now use a similar tool to collect information about the places you visited on your assigned travel day. IF PLACE 1: Okay, where were you at 3 am on [ASSN]? OTHERWISE: Where did you go next?  
1 Home  
2 Primary Job  
3 Second Job  
4 School  
5 Transit Stop  
7 Other Place (Specify)

#### ADDRESS INFORMATION CAPTURED IN TRIPBUILDER

[INTERVIEWER NOTE: PLACE NAME SHOULD INCLUDE INFORMATION DESCRIBING THE PLACE IF IT IS UNCERTAIN. EXAMPLE: "NOVEL IDEAS" SHOULD BE "NOVEL IDEAS BOOKSTORE". ASK "WHAT TYPE OF PLACE IS THIS?" IF YOU DO NOT KNOW THE TYPE OF THE PLACE]

PNAME [PTYPE=03, 04, 05, 07] LOCATION NAME: What was that place?

ADDR [PTYPE=03, 04, 05, 07] What is the street address of that place?

CITY And the city?

STATE Is that in STATE OF RESIDENCE?

ZIP Do you know the zip code?

DEPTM What time did you leave this place? MILITARY TIME

**DO NOT ASK STOPS AS SEPARATE QUESTION: DISPLAY NOTE IN TB:** "If you made any stops before your next destination (such as to stop for fuel, pick up food, or to pick up drop off someone), please ADD these as separate places."

ARRTM What time did you arrive there? MILITARY TIME

TRPDUR TRIP DURATION CALCULATED

MODE How did you get there?

1 Walk

- 2 Bike
- 3 Auto / Van / Truck driver
- 4 Auto / Van / Truck Passenger
- 5 Local bus (Regular, Standard, City)
- 6 Express bus (Suburban, Commuter, Inter-City)
- 7 MARTA Train
- 8 Dial-a-ride/Paratransit
- 9 Taxi / Limo
- 10 School bus
- 11 Motorcycle/Moped
- 97 Other, SPECIFY
- 98 Don't Know
- 99 Refused

PARTY How many others traveled with <YOU>? [NOT INCLUDING THIS RESPONDENT]

HHMEM [IF PARTY>0] Of these, how many were household members?

PERTP [IF HHMEM>0] Who were the household members? [ENTER ALL PERNOS]

**COMPUTE ALL NON-HH MEMBERS [NONHH]**

**COMPUTER [TOTTR]=PARTY+1**

VEHNO [IF MODE=3 OR 4] Which vehicle did <YOU> use?  
 ENTER VEHNO: \_\_\_\_\_  
 97 Non-household vehicle

HOVL [IF MODE=3 OR 4] Did you use a HOV lane on this trip? [INTERVIEWER NOTE: An HOV lane is a “High Occupancy Vehicle Lane” or “Carpooling” lane, reserved for vehicles with a driver and 1 or more passengers]

- 1 YES
- 2 NO
- 9 DON'T REMEMBER/REFUSED

TOLL [IF MODE=3 OR 4] Did you use a toll lane on this trip? [FOR FULL STUDY, TRIPBUILDER WILL ASK BASED ON TOLL HIGHWAY USAGE]

- 1 YES
- 2 NO
- 9 DON'T REMEMBER/REFUSED

DYGOV [IF MODE=3 OR 4 AND PTYPE<>1] Did you get out of your vehicle at this place?

- 1 YES
- 2 NO [INTERVIEWER NOTE: Would be appropriate for dropping off passengers, drive through, etc.]
- 9 DK/RF

PLOC [IF MODE=3 AND DYGOV=1] Did you park at this destination or off-site?

- 1 At this destination
- 2 Off-site
- 9 DK/RF

PXSTR [IF PLOC=2] What are the nearest cross streets to this location?  
ENTER CROSS STREETS:

PRKTY [IF DYGOV=1 AND MODE=3] Which of the following best describes the place you parked?

- 1 Parking Lot
- 2 Parking Garage
- 3 Street
- 4 Driveway
- 5 Residential Garage
- 7 Other, SPECIFY
- 8 DON'T KNOW
- 9 REFUSED

PAYPK [IF PRKTY<>4 AND <>5] Did you pay to park?

- 1 YES
- 2 NO
- 9 DK/RF

PKAMT [IF PAYPK=1] How much did you pay to park?

ENTER AMOUNT: \_\_\_\_\_

PKUNT [IF PAYPK=1] PER UNIT:

- 1 Per Hour
- 2 Per Day
- 3 Per Week
- 4 Per Month
- 5 Per Semester
- 6 Per Year
- 8 DON'T KNOW
- 9 REFUSED

ROUTE [IF MODE=5-7] For the first transit you took, what was the route/line?  
ENTER VERBATIM: \_\_\_\_\_

SERV [IF MODE=5-7] And on what transit service was this route or line?

- 1 MARTA train
- 2 MARTA bus
- 3 CAT (Cherokee Area Transit)
- 4 CCT (Cobb Community Transit)
- 5 GCT (Gwinnett County Transit)
- 6 Xpress / GRTA (Georgia Regional Transportation Authority)
- 7 HAT (Hall Area Transit)
- 97 Other, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

FARE [IF MODE=5-8] Did you pay with cash or did you use a pass?

- 1 Cash
- 2 Used Pass
- 8 DON'T KNOW
- 9 REFUSED

FAREC [IF FARE=1] How much did you pay?  
 ENTER AMOUNT VERBATIM:\_\_\_\_\_

TPURP [ALL MODES] What was <YOUR> main activity there?

TPUR2 What else did you do there?

**LIST FOR TPURP AND TPUR2:**

**0 NO OTHER ACTIVITIES [ONLY OPTION FOR TPUP2]**

**ACTIVITIES AT HOME:**

- 1 WORKING AT HOME (FOR PAY OR VOLUNTEER)
- 2 SHOPPING (ON-LINE, CATALOG, OR BY PHONE)
- 3 ANY OTHER ACTIVITIES AT HOME

**ACTIVITIES WHILE TRAVELING:**

- 4 CHANGE TRAVEL MODE/TRANSFER (FROM CAR TO BUS/TRAIN, WALK TO BUS/TRAIN, ETC)
- 5 DROPPED OFF PASSENGER
- 6 PICKED UP PASSENGER
- 7 DRIVE THROUGH (ATM, BANK, FAST FOOD, ETC).

**ACTIVITES AT WORK:**

- 8 WORK/DOING MY JOB
- 9 OTHER WORK-RELATED ACTIVITIES AT WORK
- 10 VOLUNTEER WORK/ACTIVITIES

**ACTIVITES AT SCHOOL:**

- 11 ATTENDING CLASS/STUDYING
- 12 ALL OTHER ACTIVITIES AT SCHOOL (EAT LUNCH, RECREATIONAL, ETC)

**ACTIVITES AT ALL OTHER PLACES:**

- 13 WORK RELATED (MEETING, SALES CALL, DELIVERY)
- 14 SERVICE PRIVATE VEHICLE (GETTING GAS, OIL, LUBE, REPAIRS)
- 15 GROCERY/FOOD SHOPPING
- 16 OTHER ROUTINE SHOPPING (CLOTHING, CONVENIENCE STORE, HOUSEHOLD MAINTENANCE)
- 17 SHOPPING FOR MAJOR PURCHASES OR SPECIALTY ITEMS (APPLIANCES, ELECTRONICS, NEW VEHICLE, MAJOR HH REPAIRS, ETC)
- 18 HOUSEHOLD ERRANDS (BANK, DRY CLEANING, ETC.)
- 19 HEALTH CARE (DOCTOR, DENTIST, ETC)
- 20 PERSONAL BUSINESS (VISIT GOVERNMENT OFFICE, ATTORNEY, ACCOUNTANT)
- 21 EAT MEAL OUT AT RESTAURANT/DINER
- 22 CIVIC OR RELIGIOUS ACTIVITIES
- 23 INDOOR RECREATION (YOGA, GYM, ETC) OR OUTDOOR RECREATION (JOGGING, BIKING, WALKING)
- 24 ATTEND MAJOR SPORTING EVENT
- 25 SOCIAL/VISIT FRIENDS/RELATIVES
- 97 OTHER, SPECIFY

DEPTM IF LAST PLACE OF THE DAY, ENTER 0259. OTHERWISE: What time did <YOU> leave for the next place? ENTER IN MILITARY TIME  
ENTER TIME: \_\_\_\_\_

### End of Trip Roster

NOGOWHY **Reason for No Travel** [IF MAX PLANO=1] So, [you, he, she] made no trips, including for work or school. Is this correct? [INTERVIEWER NOTE: REFER PARTICIPANT TO FRONT OF DIARY IF NEEDED]

[IF TRUE]: Why not?

[IF NEEDED: We just need to make a note about days when people don't travel. It would help if you would let me know the reason you didn't make any trips on your assigned travel day.]

- 01 PERSONALLY SICK
- 02 VACATION OR PERSONAL DAY
- 03 CARETAKING SICK KIDS
- 04 CARETAKING SICK OTHER
- 05 HOME-BOUND ELDERLY OR DISABLED
- 06 WORKED AT HOME FOR PAY
- 07 NOT SCHEDULED TO WORK
- 08 WORKED AROUND HOME (NOT FOR PAY)
- 09 OUT OF AREA
- 10 NO TRANSPORTATION AVAILABLE
- 11 WEATHER
- 97 OTHER, SPECIFY
- 99 REFUSED [We just need to make a note about days when people don't travel. It would help if you would let me know the reason you didn't make any trips on your assigned travel day.]

[IF FALSE: OBTAIN TRAVEL]

IF HHSIZ>1 – GO BACK TO <PNAME> FOR NEXT HH MEMBER UNTIL ALL HH MEMBER TRAVEL COLLECTED

IF HHSIZ=1 OR LAST PERSON IN HOUSEHOLD, GO TO CNTV

### End of Person Roster

[AT THE END OF SURVEY, CHECK TO SEE IF ALL HH VEHICLES WERE USED. IF NOT:]

CNTV Did anyone drive the [VEHICLE YEAR, MAKE, MODEL] on TRAVEL DAY?  
1 YES  
2 NO – Why not? (Please Specify) [O\_CNTV]  
9 REFUSED

Thank you for participating in the Regional Travel Survey. At this point, I wish to reiterate how important your participation was for the success of the study.

## Follow-Up

FUTUR      Are you willing to participate in future surveys?  
1      YES  
2      NO  
9      REFUSED

## Closing

[IF GTYPE=1 AND GFLAG<3 AND CURRENT DATE IS LESS THAN <ASSN + 3 DAYS>]:

L1 Please remember to keep wearing your GPS devices each day and mail them back on <ASSN + 3 days> in the FedEx packaging.

[IF GTYPE=1 AND GFLAG<3 AND CURRENT DATE IS GREATER THAN OR EQUAL TO <ASSN + 3 DAYS>]:

L2 Have you returned your GPS equipment yet? (IF NOT: You can drop the package in any Fedex drop box or call 1-800-GOFEDEX for a pickup).

1      YES  
2      NO  
9      DON'T KNOW / REFUSE

[IF GTYPE=1 AND GFLAG=3 AND CURRENT DATE IS LESS THAN <ASSN + 7 DAYS>]:

L3 Please remember to keep using the GPS devices in your vehicle each day and mail them back on <ASSN + 7 days>.

[IF GTYPE=1 AND GFLAG=3 AND CURRENT DATE IS GREATER THAN OR EQUAL TO <ASSN + 7 DAYS>]:

L4 Have you returned your GPS equipment yet? (IF NOT: You can drop the package in any Fedex drop box or call 1-800-GOFEDEX for a pickup).

1      YES  
2      NO  
9      DON'T KNOW / REFUSE

[IF INCEN=1]: Once all of your travel information is reviewed and confirmed for consistency, you should receive your check for \$<INAMT> in the mail in about 8-10 weeks.

RESPF/RESPLVERIFY NAME THAT WILL APPEAR ON CHECK: The name that will appear on the check is: \_\_\_\_\_ - is this correct?

THANK

If you have any questions or comments, I have a phone number where you can reach us. Would you like that number? WAIT FOR THEM TO WRITE: You can reach us at 888-222-7734. Thank you and have a good afternoon/evening.

ILANG

LANGUAGE OF INTERVIEW: CODE LANGUAGE OF TYPE INTERVIEWER  
INSTRUCTIONS HERE IN ALL CAPS.

1 ENGLISH

2 SPANISH

# Appendix D: Retrieval WEB Survey

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**INT02**

## **Introduction**

Welcome back to the Regional Travel Survey.  
Please click “Next” to continue.

**SCPT0**

## **Verify Respondent**

If you are not <RESPF> <RESPL>, then select your name from the list.

- 1 Person Name #1
- 2 Person Name #N

**SCPT1**

## **Report Travel**

Previously you provided data about your household and agreed to record your travel on <ASSN>. Press ‘NEXT’ to report your trip information.

**PRON1**

## **Incentive Reminder**

Just a reminder, your household is being offered \$<INAMT> to thank you for your participation in this study. If EVERYONE in the household completes the study with valid travel information, we will send your household \$<INAMT> in the next 8-10 weeks.

**VADD**

## **Verify Address**

Start by verifying the address where you live. Our records show that your address is:

Address: <HADDR>

Apt #: <HSUIT>

City: <HCITY>

State: <HSTAT>

Zip: <HZIP>

- 1 Yes, address is correct
- 2 No, address needs to be updated → Will be collected in next screen

**MADDR**

## **Verify Address 2**

Please verify your mailing address information:

Address: <MADDR>

Apt #: <MSUIT>

City: <MCITY>

State: <MSTAT>

Zip: <MZIP>

- 1 Yes, address is correct
- 2 No, address needs to be updated → Will be collected in next screen

**HHSIZ**

## **Household Size**

Our records show that there is/are <HHSIZ> person/people living in your household. Is this correct? If this is not correct, please indicate a new number of people living in your household:

*We want to ensure that everyone in your household has the opportunity to record their travel. If your household size or any of your household members worker or student status has changed since the previous interview, please call our survey hotline to have one of our experienced representatives assist you 888-222-7734.*

- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 8 Eight or more
- 98 Don't know
- 99 I prefer not to answer

**SIZ08 Household Size Follow-up [IF HHSIZE = 8]**

Please enter the total number of people in your household: [Range: 8 to 20]

ENTER NUMBER

- 1 I prefer not to answer

**Household Member Characteristics Verification**

***HOUSEHOLD MEMBER CHARACTERISTICS (AGE, WORKER STATUS, STUDENT STATUS)***

LKPER Please confirm the name, age, gender, employment status, and student status for each household member.

**PROVIDE SUMMARY TABLE FOR EACH PERSON WITH OPTION TO EDIT EACH FIELD. WE CAN HAVE A DROP-DOWN MENU WITH EACH PERSON. WHEN SELECTED, THE PERSON TABLE WILL BE UPDATED TO SHOW INFO FOR THAT PERSON**

**CMPLG Completed Travel Diary**

Did <FNAME> complete a travel diary?

- 1 Yes - completed
- 2 No - not completed
- 3 Did not receive materials
- 4 Don't know
- 5 I prefer not to answer

**HVLOG Completed Travel Diary 2 [IF CMPLG=1]**

Do you have the completed diary with you now to refer to?

- 1 Yes Skip to 1.7 to verify each person
- 2 No
- 9 I prefer not to answer

**NOLOG Continue with Survey [IF CMPLG=2 OR HVLOG=2]**

We will continue with the survey. Please try to recall the information as best you can. Press Next to Continue.

**VERIFY EACH PERSON**

**HHVEH**

**Verify Number of Household Vehicle**

In terms of vehicles available to your household, we show that you have <HHVEH> available. Is that right? Make changes below by selecting the new number as needed.

- 0 No household vehicles
- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 8 Eight or more
- 98 Don't know
- 99 I prefer not to answer

**VEH08**

**Vehicle number: [IF HHVEH = 8]**

Please enter the number of vehicles in the household. (Range: 8-20)

- 99 I prefer not to answer

**LKVEH**

**Verify Vehicle**

Confirm the YEAR, MAKE, MODEL, EZPAS, BODY, FUEL, CIGLT for each vehicle

**PROVIDE SUMMARY TABLE FOR EACH VEHICLE WITH OPTION TO EDIT EACH FIELD. WE CAN HAVE A DROP-DOWN MENU WITH EACH VEHICLE. WHEN SELECTED, THE VEHICLE TABLE WILL BE UPDATED TO SHOW INFO FOR THAT VEHICLE**

**NOTE: IF VEHICLES ARE ADDED, COLLECT ALL VEHICLE DATA ASKED IN RECRUITMENT**

**INCOM**

[IF RECRUITMENT INCOM=99] **Household Income**

And to make sure your household properly represents others in the region, can you pick the option from the following categories which best represents your total household income last year?

- 01 Less than \$10,000
- 02 \$10,000-\$19,999
- 03 \$20,000-\$29,999
- 04 \$30,000-\$39,999
- 05 \$40,000-\$49,999
- 06 \$50,000-\$59,999
- 07 \$60,000-\$74,999
- 08 \$75,000-\$99,999
- 09 \$100,000 to \$149,999
- 10 \$150,000 or more
- 98 Don't know
- 99 I prefer not to answer

## Person Roster

**NOTE: TTBT – LAUNCH TRIPBUILDER**

TRAVEL INFORMATION HAS TO BE COLLECTED FOR ALL HH MEMBERS, EXCEPT FOR HOUSEHOLDS WITH 4+ HOUSEHOLD MEMBERS, N-1 WILL BE ALLOWED FOR UP TO 5 PERCENT OF OVERALL CASES,

A PROXY IS REQUIRED FOR PERSONS AGE 15 AND UNDER. WE MUST ATTEMPT TO SPEAK DIRECTLY TO PERSONS AGE 16 AND OLDER AT LEAST THREE TIMES BEFORE WE OBTAIN PROXY INFORMATION.

IF ALL MEMBERS OF THE HOUSEHOLD ARE UNRELATED COLLEGE STUDENTS, A VALID COMPLETE IS ALL TRAVEL FOR THE MAIN RESPONDENT WHO ACTUALLY GOES TO COLLEGE/UNIV CLASS ON THE TRAVEL DAY AND AS MANY OF THE OTHER HH MEMBERS AS POSSIBLE. NON-RELATED HH WILL BE FLAGGED AND INTERVIEWER WILL KNOW PRIOR TO CALLING THE HOUSEHOLD IF THIS IS A NON-RELATED

OBTAIN DETAILS FOR ALL TRIPS, EVEN THOSE THAT ARE WORK-RELATED OR FOR WORK PURPOSES EXCEPT WHEN THE JOB IS DELIVERY (I.E. UPS DRIVER, THEN COLLECT TRIPS TO AND FROM MAIN WORK LOCATION)

**BEGIN TRIP BUILDER**

Ok, thank you for verifying the information you provided to us during the previous interview. Next, you will be asked to provide details about the trip and activity information that your household recorded on your travel day.

### Trip Roster

**PTYPE**

**Place Type**

IF PLACE 1: Ok, where were you at 3:00 am on [ASSN]?

OTHERWISE: Where did you go next?

- 01 Home
- 02 Primary Job
- 03 Secondary Job
- 04 School
- 05 Transit Stop
- 07 Other Place (specify)

**IF PLACE 1, SKIP TO TPURP**

**ADDRESS INFORMATION CAPTURED IN TRIPBUILDER**

Please include information describing each place visited. For example, if you visited “Novel Ideas”, please enter “Novel Ideas Book Store.”

**PNAME**

**Place Name, Universe: PTYPE = 03, 04, 05, 07**

What was the name of that place?

ENTER PLACE NAME: \_\_\_\_\_

**ADDR** **Place Address, Universe: PTYPE = 03, 04, 05, 07**  
What is the street address of that place?  
STREET: \_\_\_\_\_  
APT #: \_\_\_\_\_  
CITY: \_\_\_\_\_  
STATE: \_\_\_\_\_  
ZIP: \_\_\_\_\_

**DEPTM** **Departure Time**  
What time did you leave this place? MILITARY TIME  
ENTER TIME

**DO NOT ASK STOPS AS SEPARATE QUESTION: DISPLAY NOTE IN TB:** "If you made any stops before your next destination (such as to stop for fuel, pick up food, or to pick up drop off someone), please ADD these as separate places."

**ARRTM** **Arrive at Place**  
What time did you arrive at this place?  
ENTER MILITARY TIME: \_\_\_\_\_  
98 Don't know  
99 I prefer not to answer

**TRPDUR** **TRIP DURATION CALCULATED**

**MODE** **Mode**  
How did you get there?  
1 Walk  
2 Bike  
3 Auto / Van / Truck driver  
4 Auto / Van / Truck Passenger  
5 Local bus (Regular, Standard, City)  
6 Express bus (Suburban, Commuter, Inter-City)  
7 MARTA Train  
8 Dial-a-ride/Paratransit  
9 Taxi / Limo  
10 School bus  
11 Motorcycle/Moped  
97 Other, Specify  
98 Don't Know  
99 I prefer not to answer

**PARTY** **Travel Party**  
Not including yourself, how many others traveled with you?  
ENTER NUMBER: \_\_\_\_\_

**HHMEM** **Household Members in Travel Party**  
[IF PARTY > 0] Of those, how many were household members?  
ENTER NUMBER: \_\_\_\_\_

**PERTP** **Identify Household Members**  
Who were the household members?  
SELECT PERSON NUMBERS/NAME

COMPUTE ALL NON-HH MEMBERS [NONHH]

COMPUTER [TOTTR]=PARTY+1

- VEHNO**      **Vehicle Used for Trip: [IF MODE=3 OR 4]**  
Which vehicle did <YOU> use?  
ENTER VEHNO: \_\_\_\_\_  
97   Non-household vehicle
- HOVL**      **High Occupancy Vehicle Use: [IF MODE=3 OR 4]**  
Did you use a HOV lane on this trip? An HOV lane is a “High Occupancy Vehicle Lane” or “Carpooling” lane, reserved for vehicles with a driver and 1 or more passengers.  
1   Yes  
2   No  
9   Don't remember / I prefer not to answer
- TOLL**      **Toll Usage [IF MODE=3 OR 4]**  
Did you use a toll lane on this trip?  
1   Yes  
2   No  
9   Don't remember / I prefer not to answer
- DYGOV**      **Exit Vehicle [IF MODE=3 OR 4 AND PTYPE<>1]**  
Did you get out of your vehicle at this place?  
1   Yes  
2   No  
9   Don't remember / I prefer not to answer
- PLOC**      **Parking [IF MODE=3 AND IF DYGOV=1]**  
Did you park at this destination or off-site?  
1   At this destination  
2   Off-site  
9   Don't know / I prefer not to answer
- PXSTR**      **Cross-Streets [IF PLOC=2]**  
What are the nearest cross streets to this location?  
ENTER CROSS STREETS:
- PRKTY**      **Parking Description [IF DYGOV=1 AND MODE=3]**  
Which of the following best describes the place you parked?  
1   Parking Lot  
2   Parking Garage  
3   Street  
4   Driveway  
5   Residential Garage  
7   Other, SPECIFY  
8   Don't know  
9   I prefer not to answer
- PAYPK**      **Parking Fee [IF PRKTY<>4]**  
Did you pay to park?

- 1 Yes
- 2 No
- 9 Don't know / I prefer not to answer

**PKAMT**                    **Parking Fee 2 [IF PAYPK=1]**  
 How much did you pay to park?

ENTER AMOUNT: \_\_\_\_\_

**PKUNT**                    **Parking Fee Unit [IF PAYPK=1] [PROGRAMMER NOTE: PKUNT AND PKAMT SHOULD BE ON SAME SCREEN]**

What was the unit of payment for the amount indicated in the previous question?

- 1 Per Hour
- 2 Per Day
- 3 Per Week
- 4 Per Month
- 5 Per Semester
- 6 Per Year
- 8 Don't know
- 9 I prefer not to answer

**ROUTE**                    **Transit Route/Line [IF MODE=5-8]**

For the first transit you took, what was the route/line?

ENTER VERBATIM: \_\_\_\_\_

**SERVC**                    **Transit Service [IF MODE=5-8]**

And on what transit service was this route or line?

- 1 MARTA train
- 2 MARTA bus
- 3 CAT (Cherokee Area Transit)
- 4 CCT (Cobb Community Transit)
- 5 GCT (Gwinnett County Transit)
- 6 Xpress / GRTA (Georgia Regional Transportation Authority)
- 7 HAT (Hall Area Transit)
- 97 Other, Specify
- 98 Don't know
- 99 I prefer not to answer

**FARE**                    **Transit Fare Payment [IF MODE=5-8]**

Did you pay with cash or did you use a pass?

- 1 Cash
- 2 Used pass
- 8 Don't know
- 9 I prefer not to answer

**FAREC**                    **Transit Fare Amount [IF FARE=1]**

How much did you pay?

ENTER AMOUNT VERBATIM: \_\_\_\_\_

**TPURP**

**Trip Purpose/Activity**

What was [you, his, her] main activity there?

**TPURP2**

**Trip Purpose/Activity 2**

What else did you do there?

**LIST FOR BOTH TPURP AND TPURP2**

**00 No other activity**

**AT MY HOME**

- 01 Working at home (for pay or volunteer)
- 02 Shopping (online, catalog, or by phone)
- 03 Any other activities at home

**CHANGE MEANS OF TRAVEL/TRANSFER**

- 04 Change travel mode/transfer (from car to bus/train, walk to bus/train, etc)
- 05 Drop off passenger
- 06 Pick up passenger
- 07 Drive through (ATM, bank, fast food, etc.)

**AT MY WORK/VOLUNTEER LOCATION**

- 08 Work/doing my job
- 09 Other work-related activities at work
- 10 Volunteer work/activities

**AT MY SCHOOL, DAYCARE, OR COLLEGE**

- 11 Attending class/studying
- 12 All other activities at school (eat lunch, recreational, etc)

**AT OTHER PLACES**

- 13 Work related (meeting, sales call, delivery)
- 14 Service private vehicle (getting gas, oil, lube, repairs)
- 15 Grocery/food shopping
- 16 Other routine shopping (clothing, convenience store, household maintenance)
- 17 Shopping for major purchases or specialty items (appliances, electronics, new vehicle, major household repairs, etc)
- 18 Household errands (bank, dry cleaning, etc)
- 19 Health care (doctor, dentist, etc)
- 20 Personal business (visit government office, attorney, accountant, etc)
- 21 Eat meal out at restaurant/diner
- 22 Civic or religious activities
- 23 Indoor recreation (gym, yoga, etc) or outdoor recreation (jogging, biking, walking)
- 24 Attend major sporting event
- 25 Social/visit friends/relatives
- 97 Other, specify

**DEPTM**

**Departure Time**

[IF LAST PLACE OF THE DAY, ENTER 0259, OTHERWISE:] What time did [you, he, her] leave for the next place?

ENTER MILITARY TIME: \_\_\_\_\_

**NOGOWHY**

**Reason for No Travel** [IF MAX PLANO=1] So, [you, he, she] made no trips, including for work or school. Please tell us why not. (If [you/he/she] did make trips, please go back and enter the trips).

- 01 Personally sick
- 02 Vacation or personal day
- 03 Caretaking sick kids
- 04 Caretaking sick other
- 05 Home-bound elderly or disabled
- 06 Worked at home for pay
- 07 Not scheduled to work
- 08 Worked around the home (not for pay)
- 09 Out of area
- 10 No transportation available
- 11 Weather
- 97 Other, specify
- 99 I prefer not to answer [It's helpful to transportation planners to know why people do not travel. Please enter the reason you did not travel on the assigned travel day. Thank you.]

IF HHSIZ>1 – GO BACK TO PNAME FOR NEXT HH MEMBER UNTIL ALL HH MEMBER TRAVEL COLLECTED

IF HHSIZ=1, CNTV

END TRIP BUILDER

**CNTV**

**Drive Household Vehicle**

Did anyone drive the [VEHICLE YEAR, MAKE, MODEL] on TRAVEL DAY?

- 1 Yes
- 2 No
- 8 Don't know
- 9 I prefer not to answer

**CNTV2**

**Drive Household Vehicle 2 [IF CNTV = 2]**

Why did anyone not drive the [VEHICLE YEAR, MAKE, MODEL] on TRAVEL DAY?  
SPECIFY

Thank you for participating in the Regional Travel Survey. At this point, I wish to reiterate how important your participation was for the success of the study.

**FUTUR**

**Future Surveys**

Would you be interested in participating in future surveys?

- 1 Yes

- 2 No
- 9 I prefer not to answer

**Closing**

**GTYPEL1 [IF GTYPE=1 AND GFLAG<3 AND CURRENT DATE IS LESS THAN <ASSN + 3 DAYS>]:**

Please remember to keep wearing your GPS devices each day and mail them back on <ASSN + 3 days> in the FedEx packaging.

**GTYPEL2 [IF GTYPE=1 AND GFLAG<3 AND CURRENT DATE IS GREATER THAN OR EQUAL TO <ASSN + 3 DAYS>]:**

Have you returned your GPS equipment yet? If not, you can drop the package in any Fedex drop box or call 1-800-GOFEDEX for a pickup.

- 1 Yes
- 2 No
- 8 Don't know
- 9 I prefer not to answer

**GTYPEL3 [IF GTYPE=1 AND GFLAG=3 AND CURRENT DATE IS LESS THAN <ASSN + 7 DAYS>]:**

Please remember to keep using the GPS devices in your vehicle each day and mail them back on <ASSN + 7 days>.

**GTYPEL4 [IF GTYPE=1 AND GFLAG=3 AND CURRENT DATE IS GREATER THAN OR EQUAL TO <ASSN + 7 DAYS>]:**

Have you returned your GPS equipment yet? If not, you can drop the package in any Fedex drop box or call 1-800-GOFEDEX for a pickup.

- 1 Yes
- 2 No
- 8 Don't know
- 9 I prefer not to answer

**VNAME Incentive [IF INCEN=1]**

Once all of your travel information is reviewed and confirmed for consistency, you should receive your check for \$<INAMT> in the mail in about 8-10 weeks. The name that will appear on the check is:

<FNAME> <LNAME>

Is this correct?

- 1 Yes
- 2 No

**LEAVE Conclusion**

If you have any questions or comments you can reach us at 888-222-7734. Thank you. Please press NEXT to exit the survey.

# **Appendix E: Interviewer Training Manual**

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## **Interviewer Training Manual**

### **ARC Household Travel Survey**

**Prepared by:  
Daniel Montemayor  
NuStats**

**Prepared for:**



July 2011

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## Acronyms

This list of acronyms will help clarify the meanings of abbreviated words:

CATI	Computer-Assisted Telephone Interviewing
GPS	Global Positioning System
HH	Household
ARC	Atlanta Regional Commission

## Recruitment Training Outline

- I. Project Information Sheet
  - a. Purpose and Qualifications
  - b. Study Area
  - c. Project Goals
  - d. Survey Website
- II. Client Information
  - a. Informational website
  - b. Confidentiality
- III. Travel Study Process
  - a. Sample Generation and Geocoding
  - b. Advance Letter
  - c. Recruitment call
  - d. Mail packet (Travel diary)
  - e. Reminder strategies
  - f. Retrieval call stage (Travel Diary)
  - g. Prompted Recall for GPS
- IV. Review Letter Content
  - a. Explanation and Process
  - b. Steps to Participating
- V. Frequently Asked Questions
- VI. One 24 Hour Travel Diary
- VII. CATI Program
  - a. Standard Dispositions
  - b. Program Review
  - c. Household Scenarios
  - d. Role Play, Mock Interviews
- VIII. Introduction
  - a. Intro Review
  - b. Explanation of Study (purpose)
  - c. Overturning Refusals
  - d. How to handle difficult respondents
  - e. Supplemental Documentation
- IX. Questions and Follow-up
- X. Recruitment Training Quiz

## Regional Household Travel Survey- Project Information

**Purpose:** The ARC Regional Travel Survey is a household travel behavior study that captures travel data from households in 20 counties in Georgia. The data collected from participating households will be statistically summarized to describe typical daily activities and the resulting travel patterns. For example, what people do, how they travel, where these trips come from and go to, what methods of transport are used on these trips, at what time of day are the trips made, and so on. This information is vital and will be used to assess the future transportation needs of the region.

**Qualifications:** Households will be selected for the survey by a random selection process that considers all residential addresses in the study area. All participants in the study will receive an invitation to participate over the telephone or by mail. Households are not required to take part, however each household represents many other households, so input is extremely important to the integrity of the study.

**Study Area:** 20-county area:



DeKalb, Fulton, Douglas, Cobb, Gwinnett, Rockdale, Clayton, Henry, Fayette, Coweta, Carroll, Paulding, Bartow, Cherokee, Forsyth, Hall, Barrow, Walton, Newton, Spalding.

<b>Project Dial Code:</b>	<b>ED 3055 SM 2055</b>
<b>Training Program Name:</b>	<a href="http://voxcoweb1/survey/intweb.dll/vcc">http://voxcoweb1/survey/intweb.dll/vcc</a>
<b>Live Program:</b>	<a href="http://voxcoweb1/survey/intweb.dll/vcc">http://voxcoweb1/survey/intweb.dll/vcc</a>
<b>Time Zones:</b>	<b>Eastern</b>
<b>Primary Dialing Hours:</b>	<b>5-9 pm Eastern</b>
<b>Avg Survey Length:</b>	<b>15 min recruitment, 32 min retrieval</b>
<b>Project Goal</b>	<b>Main Survey 11,657 Completes</b>
<b>Language:</b>	<b>English &amp; Spanish</b>

<b>Survey Methods:</b>	<b>Cati, Web, Mailback</b>
<b>Production Coordinator:</b>	<b>George Uribe</b>
<b>QC Coordinator:</b>	<b>Daniel Montemayor</b>
<b>Toll Free Project Hotline:</b>	<b>1-888-222-7734</b>

#### Client Information- Background

##### ARC

The Atlanta Regional Commission (ARC) has contracted with the NuStats team to conduct the ***Regional Travel Survey***. The ARC is an association of governments, transportation providers and environmental agencies that is the Metropolitan Planning Organization for the greater Atlanta region. The role and objective of ARC is to form the basis for a robust and rigorously developed set of activity/travel behavior models, which will be used to conduct policy analysis and forecast future travel behavior under a variety of scenarios.

##### GDOT

The [Georgia Department of Transportation](#) (GDOT) plans, constructs, maintains and improves the state's road and bridges; provides planning and financial support for other modes of transportation such as mass transit and airports; provides airport and air safety planning; and provides air travel to state departments.

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## **Client Contact:**

**Official Client Contact: Jeff Livingston, Email: GeorgiaTravel@nustats.com, Phone: 1-800-447-8287, ext 2256**

Respondents may contact NuStats Field Supervisors at **(1-888-222-7734)** for any questions, concerns, or issues with the study. If respondents wish to be directed to our main client contact, supervisors on shift will provide client contact information.

**Project / Public Website: [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com)**

The project website is a valuable and efficient resource for respondent questions and/or concerns regarding travel survey participation. Some key information typically available would be:

- a. What participation involves
- b. Benefits of participation
- c. FAQ's
- d. Contact information (NuStats and ARC)
- e. Survey Privacy
- f. Results/Use of Data

## **Confidentiality:**

Confidentiality is of the utmost importance for all respondents and clients. NuStats strictly adheres to industry best practices in protecting the privacy of all respondents and clients through various protocols and procedures beginning with confidentiality agreements signed by all interviewers. In terms of alleviating concerns voiced by respondents, interviewers are instructed to respond, "We respect your privacy and promise to protect it. The information your household provides will be kept strictly confidential. Your name and personal information will be separated from your responses for analysis."

## **ARC HHTS - The Travel Study Process**

**The Travel Survey consists of 7 main stages:**

- **Sample Generation and Geocoding**-Sample will be generated and analyzed to determine the amount of sample needed to meet project goals. Ten percent of all sample records will be flagged as GPS-selected. Prior to data collection, all sampled addresses will be geocoded and mapped.
- **Advance Letter** – Beginning November 2010, will be mailed a letter explaining the travel survey before we call them. The purpose of this letter is to give them some information about the survey and to inform them we'll be calling their area soon. Two different advance letters will be sent to sample records that have been (1) matched to a landline telephone number and (2) not matched to a landline telephone number. Letters in this secondary category will make reference to a "thank you" incentive. For GPS-selected addresses, the letter text will describe the unique terms of the GPS survey along with the monetary incentive. Advance mailings shall be done in batches approximately 5 to 8 days prior to start of recruitment so that the materials arrive within a day or so of the recruitment call.
- **Recruitment Call** – The recruitment survey will be available in CATI, web, and mail. CATI surveys will be administered by interviewers with respondents via phone, while self-administered options via web and mailback will also be available. Respondents for whom we have a matched telephone number will be called and invited to participate in the household travel survey. Interviewers will provide details regarding the study, and collect basic household demographic information for the household. In addition, the CATI program is designed to guide

the interviewer and respondent to identify a “reference” person in each household. The person is given the responsibility of ensuring that all members of the household complete travel logs and/or wear the GPS devices on the assigned travel day (or days if GPS). At the conclusion of the recruitment interview, the interviewer asks the respondent to record their household’s travel for 24-hour period on a specific day of the week or to wear GPS devices for a specific 72-hour period. Note: GPS households with a Friday travel assignment will keep and be asked to wear the devices for 4 consecutive days, Friday through Monday.

Each member of the household will then be mailed a personalized travel diary or will have GPS devices delivered to their home. All household members will then use the diaries or wear the devices to record any travel that occurs for the assigned day(s). GPS instructions will be delivered to the household with the devices. GPS will be deployed for a 3-day period. The first day to carry the unit will be the assigned travel day. For households with a Friday travel day, the units will be deployed for 4-days (Friday-Monday). Recruitment shall begin about 8 to 10 days prior to the assigned travel day.

- **Mailing Travel Diaries** – Approximately 7-10 days prior to each designated travel day, travel diaries will be mailed to all recruited households. It’s very important that we verify the respondent’s name and address to ensure the packet arrives on time. All GPS households will receive a packet containing a GPS unit for every household member 16+ years and a diary for those under 16.
- **Reminder Call** - On the night before the respondent’s travel day, interviewers from Nustats will contact the respondent to remind them about their travel day and also to confirm that their household travel diaries / GPS units were received. Interviewers will clarify and assist respondent’s questions during the call. Interviewers will be able to direct the respondent to the project website if additional information is needed. Messages will be left on answering machines if contact cannot be made with a household member.
- **Retrieval Call**- Retrieval begins the day after the assigned travel day. Nustats interviewers will contact the respondent and collect the household’s travel info for that day. Travel data is collected using a combination of CATI software and a map-based software program that will enable real time geocoding of locations visited on the travel day. All household members age 16 and older will complete their own diaries; proxy reporting will be accepted for persons under the age of 16. The reference person shall be able to give travel data for other adult household members only when the travel diaries are present. The CATI program will be able to prevent inaccurate reporting.

### **Example of Advance Letter (matched)**

The pre-notification letter describes the survey objectives, identifies what they survey entails, provides a project website address, provides a 1-800 toll free number, and specifies a password-protective link to an Internet version of the recruitment questionnaire. See example below:



*Si desea participar en español en la Encuesta Regional de Viajes, llame al 1-888-222-7734.  
[www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com)*

ARC-1234567-1001

John Smith  
123 Main Street  
Atlanta, GA 99999

July 18, 2011

**Are you concerned about traffic? Do you need more or better options for getting around?**

You can help shape the future of transportation by participating in the *Regional Travel Survey*. The results will help determine how to spend transportation funds wisely. Your participation will contribute to improvements in traffic congestion, transit systems, air quality, and roadway safety.

The survey is sponsored by the region's transportation planning organizations and is being administered by PTV NuStats, a professional survey firm. When you participate, your household represents thousands of other households in the region.

The way it works is simple:

- Step 1 Complete a household questionnaire by: Thursday, July 28**  
Go to [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com). Click "Start Here" and enter PIN#: 1234567AB  
You may also participate by calling us at 1-888-222-7734, or an interviewer will call you in a few days.
- Step 2 Record your daily travel and activities on an assigned day.**  
After you complete the household questionnaire, we will mail travel diaries for each person in your household. Carry your travel diaries for an assigned 24-hour period and record daily travel details. We ask that parents or guardians complete the diaries for anyone under age 16.
- Step 3 Report your travel information.**  
You can do this online, by mail, or by phone.

**Earn up to 50!**

If you complete Step 1 ONLINE before Thursday, July 28 AND your entire household reports complete travel information in Step 3, you earn \$25. To earn an additional \$25, simply complete Step 3 ONLINE!

We take your privacy very seriously. Under no circumstances will your name or information be sold to anyone.

Please visit our project website, [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com), for more information. If you have other questions, please call the toll-free survey hotline at 1-888-222-7734.

Thank you in advance for joining us as we plan our region's transportation future.

Sincerely,

Charles Krautler  
Director  
Atlanta Regional Commission

ME-NG

Survey conducted by PTV NuStats on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission

## Frequently Asked Questions (FAQ)

### Who is sponsoring this survey?

The Georgia Department of Transportation (GDOT) plans, constructs, maintains and improves the state's road and bridges; provides planning and financial support for other modes of transportation such as mass transit and airports; provides airport and air safety planning; and provides air travel to state departments.

The Atlanta Regional Commission (ARC) is dedicated to unifying the region's collective resources to prepare the metropolitan area for a prosperous future. It does so through professional planning initiatives, the provision of objective information and the involvement of the community in collaborative partnerships.

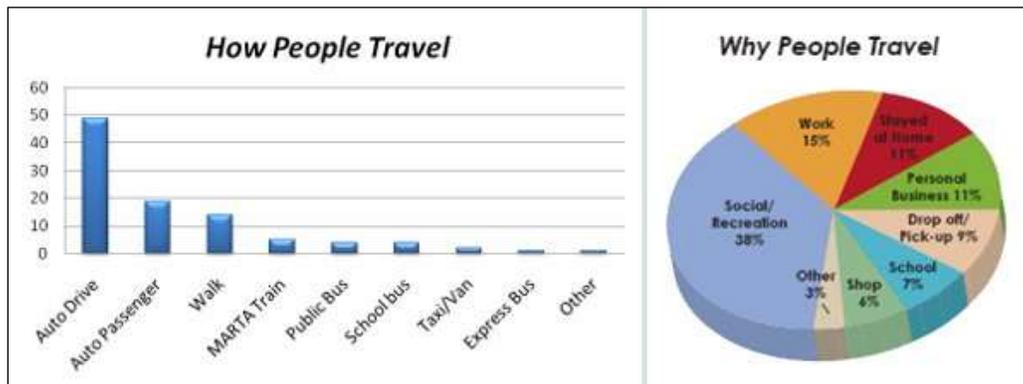
NuStats is a nationally recognized survey expert in travel behavior studies. Since 1984, NuStats has conducted more than 400 surveys across the United States and abroad. The firm was brought on to administer the Regional Travel Survey.

### What will be done with the data collected from the survey?

The data collected from participating households will be summarized to describe typical daily activities and the resulting travel patterns. For example, what people do, how they travel, where these trips come from and go to, what modes of transportation are used on these trips, at what time of day are the trips made and so on. This information is vital in assessing our future transportation needs.

### Will the information from the survey be available to the public?

Your specific activities and travel patterns will remain strictly confidential, as will any contact information (your name, phone number, email address, etc.). The travel information collected from the thousands of participating households in the region will be summarized to describe how, why, where and when people travel. Some sample charts include:



### Who will be surveyed?

Households will be selected for the survey by a random process that considers all residential addresses in the study area, which is the 20-county region. Refer to the map on the [home page](#) to see all of the counties included in the survey area.

### Is the survey mandatory?

Residents of the 20-county region included in the survey area are invited and encouraged to voluntarily participate in the study. Households are not required to take part, however, each household represents many other households so your input is extremely important to the study.

### What if I don't feel comfortable answering some of the questions?

Answer only questions you feel comfortable answering. Please understand that we take many steps to protect your identity. The data we collect will only be used for purposes of the research. We will never sell, rent or lend any information to a third party. Please read our [Privacy Statement](#) here.

### What if I don't drive a car?

Many people in the region do not routinely drive a vehicle. Yet even those without a car still travel and make trips in and around the area for things like work, grocery shopping, doctor appointments, and recreational activities. This travel study is for all types of trips made by a variety of people using many different modes such as walking, bicycling, bus, MARTA train, motorcycle, etc. Your data is important even if you do not drive a car.

### What if I want to speak to a real person about this survey?

We invite you to call the Regional Travel Survey Hotline at 1-888-222-7734. This hotline will be staffed with live interviewers during the survey. You may also contact Jeff Livingston, at NuStats, by calling 1-800-447-8287, ext. 2256, between the hours of 10 a.m. and 6 p.m. (EST) weekdays. He will return your call as soon as possible if he is not available at the time of your call. To speak with someone in person immediately, the hotline is your best option. Please also review all of the questions on this page as we may have already answered your question.

### How are households selected for the survey?

Households are selected for the survey using a random sample design approach. We have purchased a listing of household addresses in the 20-county study area, then attempted to match addresses to a phone number. Households will receive a letter describing the study, so even households with no phone number are eligible to take part in this important research effort.

### What is expected of me and my household?

Following a brief telephone call or web survey to gather some basic household information, participants will be invited to take part in the diary portion of the study. A few days later, you will receive personalized travel diaries by mail for all household members. Each person keeps track of his or her travel for a 24-hour period. Parents/guardians should complete diaries for children.

### What is the travel period?

All households in the survey record travel and activities for a 24-hour period on an assigned travel day. (Though remember about 8 of those hours are generally spent sleeping!)

### What is meant by "travel" and "activity"?

We define travel as the places people go during a 24-hour period, where each change of address—including transit stops—is considered a new place. Activities are the types of things people do at each of those places, such as eat, shop, work, exercise, etc.

### Why do you want to know about my activities?

From a travel behavior viewpoint, it is helpful for transportation planners to learn as much as they can about how and where people travel, including what modes of travel they chose—car, transit, walking, biking, etc.—for which purposes, and the travel time between each place.

### Why is the travel and activity diary so important?

Recording your travel helps with several issues: You can use the diary as a way to write down key information about each trip so you can more easily recall it later during the retrieval interview. Or if you prefer to enter your travel data on the web, the diary is a great reference for remembering all your trips in the 24-hour period of your assigned travel day. The diary also asks key questions about how you traveled, times, more.

### Why do I need to record a stop for coffee or to get gas on the way to work in my diary?

Each place you go during your 24-hour assigned travel day is considered a new place. Those quick stops for coffee or going to a drive-thru restaurant are important for transportation modelers and planners. It helps them better understand the choices people make.

### How much detail is needed on each place I visit?

The travel diary asks about what you were doing at each place (activity), as well as the length of time (duration). If you see the diary, it asks what you were doing at 3 a.m., then asks information about each place you went to after that point in time. Think of it this way: Where did you go, what time did you arrive, what travel mode did you use to get there, what did you do there, what time did you leave? We also ask about things like parking and other information.

## **Information for GPS Participants**

### What do you do with the GPS data captured?

The data will be used to update traffic models which can assist transportation planners in your region with congestion management and will help them make better informed decisions about transportation improvements.

### Is information about where I live and where I go linked to my name?

No, there is no connection between your name and your data. Your household is assigned an ID number that is supplied with the data, but this ID is not attached to your name.

### Can you tell where I am all the time?

No, the GPS device you have is a passive data logger, not a tracking device. It cannot transfer data wirelessly, so no one can know where you are in real time.

### How heavy / bulky is the GPS device?

The GPS weighs less than 6 ounces and is smaller than a Blackberry.

### How will I use the device?

Some households are asked to use wearable devices that have a belt clip, which you can wear on your belt, pants, bag or purse. Participants from prior studies have reported that the device is convenient to carry because of its small size and weight. Other households will be asked to place GPS devices in their vehicles and use them for one week.

### What do I have to do to get the GPS devices so that I can participate?

If your household is selected for this part of the survey, you will take part in a brief interview where we will verify your physical mailing address and gather some basic information about your household. Next, we will send you the devices and materials by FedEx to arrive prior to your assigned travel date. After you are finished with your assignment, you will place the devices back in the box, put the box in the return envelope which you can then place in a FedEx drop box, take to any FedEx/Kinkos, or call FedEx for a free pick up at your home. There is no cost to you to carry or to return the GPS device.

**Incentives Breakdown for  
GPS & NON-GPS Households**

<b>GTYPE</b>	<b>STYPE</b>	<b>Advance Letter Type</b>	<b>Incentive</b>	<b>FULL STUDY TEXT in Advance Letter as of 7/6/11</b>
GPS	MATCHED	MEG	\$25 per device (vehicle or wearable)	<b>IMPORTANT! We are offering households that are selected to use GPS devices \$25 per device once we confirm travel information for all household members.</b>
GPS	UNMATCHED	UMEG	\$25 per device (vehicle or wearable)	<b>IMPORTANT! We are offering households that are selected to use GPS devices \$25 per device once we confirm travel information for all household members.</b>
NON-GPS	MATCHED	ME-NG	\$25 per HH for WEB REC and \$25 per HH for WEB RET, cumulative	<b>Earn up to \$50!</b> If you complete Step 1 ONLINE before <RESONDBY> AND your entire household reports complete travel information in Step 3, you earn \$25. To earn an additional \$25, simply complete Step 3 ONLINE!
NON-GPS	UNMATCHED	UME-NG	\$25 per household for REC (CATI or WEB) and \$25 per household for WEB RET, cumulative	<b>Earn up to \$50!</b> If you complete Step 1 online or by phone before <RESPONDBY> AND your entire household reports complete travel information in Step 3, you earn \$25. To earn an additional \$25, simply complete Step 3 ONLINE!

## **One 24 hr day Travel Diary**

(Diary example will be provided to the team)

Personalized travel diary logs are mailed to each household member. Diaries are to be received prior to the assigned travel date. A reminder call is conducted prior to the assigned travel date to ensure the diary was received, remind the respondent of the assigned travel date, and to answer any questions the respondent may have.

- Respondents are requested to use the travel diary to record their trips.
- Interviewers will confirm the spelling of first and last name in the recruitment interview to ensure materials are addressed to the referenced person within the household.
- The diary packet will be addressed to the head of the household, but personalized diaries are provided for each household member for their assigned travel date. First and last names are preferred, but initials can be used if preferred so that we can ensure the diaries are labeled for each household member.
- Interviewers will confirm the mailing address to ensure the travel diary arrives at the correct location and is received before the assigned travel day.
- Diary instructions will explain in depth how the diaries are to be used to record information about all the places you visited on respondents' assigned travel day. They will specify the need to record all places visited, the type of place, time of arrivals, and departures, mode of travel to each place, other travel information, and activities at each place.
- The assignment date for travel, also known as the "ASSN" or cohort will be documented on the diary as a reminder of the assigned travel date.
- Diary examples are also provided in the logs.
- Diaries can be printed through the project website.

## CATI Program Review

The CATI program review involves hands-on training with the program and practice to ensure that interviews are conducted within the strict design structure intended. Interviewers will run through the program to get practice and familiarize themselves with the introduction, each question, and how the interview design flows. Role- playing will involve different household scenarios and different demographics to simulate a “live” dialing experience to the extent possible.

Log on procedures – Each interviewer will be assigned an interviewer identity number to access the program. Each call record can be tracked to the interviewer for review or past call attempts.

Introduction script – Each interviewer will spend time reviewing the intro and working on a professional delivery to gain cooperation.

Explanation of current dispositions or call outcomes:

CP PARTIAL COMPLETE  
RP PARTIAL COMPLETE REFUSAL  
PC SPANISH PARTIAL COMPLETE  
R1 1<sup>ST</sup> REFUSAL  
RF FINAL REFUSAL  
QO OVER QUOTA  
WC WILL COMPLETE ONLINE  
KH CALLBACK, GENERAL  
KB CALLBACK, SPECIFIC  
KL CALLBACK ON LANDLINE  
KN NEW NUMBER  
NA NO ANSWER  
AM ANSWERING MACHINE  
BZ BUSY  
PM CALLER ID  
SH SPANISH CALLBACK, GENERAL  
SB SPANISH CALLBACK, SPECIFIC  
SN SPANISH NO ANSWER  
SA SPANISH ANSWERING MACHINE  
SZ SPANISH BUSY  
IG BUSINESS/GOVERNMENT  
IL LANGUAGE BARRIER, DEAF/TTY  
ID DISCONNECT  
IM FAX/MODEM  
RH HANGUP  
RC REFUSES TO CONTINUE ON CELL-PHONE  
QP REFUSED NUMBER OF HH PERSONS  
QV REFUSED NUMBER OF HH VEHICLES  
QA INVALID COUNTY  
QW REFUSED WORK ADDRESS  
QS REFUSED SCHOOL ADDRESS  
CM COMPLETE  
CW WEB COMPLETE

Explanation of each question and choices follows- Reading verbatim is very important

and it is needed to ensure the respondent hears and understands each question in an unbiased manner.

Choice Clarification- Large, fully capitalized words indicates to interviewers that such text does not get read but is there to guide them through key sections or to provide supportive text that may be needed depending on respondent questions or responses. Small cap words indicate the interviewers read the choices to the respondent.

## **Introduction Training**

Protocols for reading the introduction:

- Interviewers are expected to be professional at all times
- Interviewers should not sound monotone
- Interviewers should read in a conversational way
- Interviewers should project a positive attitude
- Interviewers should read at a steady pace but not too quickly; always be attentive to respondent reaction and adjust talking speed as appropriate

Each interviewer is evaluated on how they read each introduction based on the above criteria. A professional delivery approach for the main introduction and any explanation screen is required. The following introduction screens are examples of where it is vital to follow the protocols for reading the introduction.

### **INTRO**

Hi, this is \_\_\_\_\_. I'm calling on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission about improving transportation in your area.

May I please speak with an adult age 18 or older in the household?

### **EXPLA**

We are doing a very important study about people's travel patterns and transportation needs. Planning agencies in your region will use data collected to make decisions about how to improve the region's transportation system. As a participating study household, everyone who lives in your home will record their travel for 24-hours in a special diary. All data is strictly confidential and will be used for research purposes.

## **Refusal Conversion**

Due to the nature of this recruitment effort and the tendency for potential respondents to often provide initial, typical reasons not to participate, interviewers are expected to make consistent but professional efforts to overcome initial soft refusals. Interviewers will focus on quickly educating respondents on the purpose and benefits of participation in the study as well as overcoming any concerns or fears that potential respondents may have. Remaining professional at all times as well as friendly and courteous are all stressed as part of this crucial training. Interviewers are always taught to be tactful, pleasant, sincere, and well prepared. Interviewers are expected to attempt to find out the reason for the refusal and work with it from that aspect. Some of the most common refusals are listed below with some appropriate responses:

### **NOT INTERESTED:**

Your participation will help make sure that future transportation projects reflect what your community needs and that future tax dollars are spent wisely.

### **I DON'T HAVE TIME:**

I am sorry for the inconvenience, but this study is essential for improving transportation in your community. It doesn't take much of your time.

If no:

When would be a better time and day to call back?

### **I DON'T TRAVEL:**

Although you may not travel extensively (far or often,) your travel habits will be representative of others in your region that do not travel as much as others.

### **WHY ARE YOU CALLING FROM TEXAS?**

Our company is PTV NuStats, we specialize in travel studies and were contracted by our client, based on our expertise in this field.

### **VEHICLE INFORMATION REFUSAL**

We need this information to see the patterns between vehicle type and travel.

### **INCOME REFUSAL**

We need to make sure we're including all types of households in the area.

### **NAME REFUSAL**

We print the name on the diaries that way we know whose travel it is.

### **CHILDREN INFORMATION REFUSAL**

It is known that children's activities can affect other household members' travel.

## Protocols for Handling Difficult Respondents

### **How do we handle a call where the Respondent is insecure and wants more information about the study?**

- 1) Offer the project website for additional information.  
**www.ImproveGeorgiaTravel.com**
- 2) Offer NuStats Supervisor assistance/ Project hotline phone number.  
**1-888-222-7734**
- 3) Offer NuStats project manager contact.  
Julie Paasche, 1-800-447-8287 ext 2241 (M-F 9 am to 6 pm Eastern)

### **How should you handle a respondent that is difficult to speak with, even after you provide additional information as noted above, or who asks to speak with someone else?**

Interviewers can ask for a Supervisor to take over the call and assist the respondent with any further questions. If respondents do not want to speak with field supervisors then the next step is to refer them to NuStats' project manager, Julie Paasche. The final reference would be to the client contact. In addition, the website will be referenced so that the respondent can get some additional information about the study.

### **How should you handle a respondent that only wishes to speak with the client? Suggested Script:**

“You may contact Jeff Livingston through email: [GeorgiaTravel@nustats.com](mailto:GeorgiaTravel@nustats.com). And if you need additional information about the study to make a decision in terms of participating, we have a website that you can go to [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com).

### **Interviewer Notes:**

Detailed interviewer notes will be documented on the call record in situations where the respondent is very difficult and wants to issue out a complaint about the study or receiving a call.

## Supplemental Training/Common Interviewer Questions

### **Does everyone in the household have to participate?**

Yes, everyone in that household **MUST** participate in order for this to be a valid complete. If a respondent tells you that their spouse will not participate, we must rebuttal efficiently and explain the importance of the survey. If they still inform you that they won't do the travel logs then we cannot continue with the survey. We need to collect information for every household member.

### **If I have a respondent on the phone and notice there is a pattern of refusals, should I continue with the survey?**

No, if we notice a pattern in refusals, we want to end the survey immediately. Past experience shows that such respondents have a higher likelihood of non-response at the retrieval stage.

**I have enough info to complete the recruitment survey but the person told me they weren't interested in the diary portion of the survey. Should I complete it?** While completing the survey is very important, data quality should also be taken into account. If you force a survey to go through and we never contact the respondent because they told us they didn't want to record their travel, we have wasted valuable time (ours and theirs). If you feel you can turn the respondent around and they agree to the diary or GPS portion of the study, you can complete the recruitment interview. Otherwise, do not complete it.

**Respondents I call seem wary and suspicious of the call – how do I break the ice?** The key to gaining cooperation is to give respondents a reason to stay on the phone. The first 10 seconds after someone answers the phone are the most critical. Use a friendly tone of voice and be polite. Be sure not to let every sentence you speak go up at the end like a question, e.g., Hi, this is Joe? I'm calling on behalf of the Atlanta Regional Commission? This makes people sound immature. Instead, speak with a confident voice and don't read every sentence like a question.

Also, be prepared. Your ability to answer questions about the study with ease will help you educate your respondent. In the intro, we say our first name which helps maintain a personal yet comfortable level. You need to be able to explain who the client is, why you are calling, and how the data will be used. You must also assure confidentiality and provide contact/project website information when requested. The worst thing you can do is to sound like you are reading a script. Good interviewers engage and guide respondents in a scripted conversation rather than just reading a script.

**Some respondents are asking me how to verify what I'm saying is true, how do I do that?** The best way to do this is to offer them access to additional information by calling a travel study hotline, giving them access to the project website or by referring them to the client or a project manager.

**Do I need to collect children's information?** Absolutely! We are interested in the travel patterns of **all household members**. Travel patterns of a married couple with no children are very different from a couple with children. Also, children have their own travel patterns that affect their parent's travel.

**Do I need to collect school address information if children are out for the summer?** Yes, although many children are not in school during the summer or between breaks, we are looking for habitual travel locations. While children may not go to school for 3 months out of the year, they are going to these locations the other 9 months and we need to have their information in order to have the most accurate picture of habitual travel for the areas we are currently collecting travel information.

**If a respondent does not want to provide work/school address information, what do I do next?**

You must collect cross-street information, if that information is not provided then you must verify with the respondent that this information will be collected in the travel diary and at the retrieval call. This information must then be recorded in notes and should only be accepted from strong recruits.

**What do we mean by “Travel”?** By travel we mean daily commuting by car as a driver or as a passenger or by other means such as public transportation. We do not mean going on vacation trips, on a cruise or out of town at all.

**If a respondent says that they do not travel what do I say?**

Let the respondent know that it does not mean taking extensive trips, their travel habits will be representative of others in their region, and daily travel is what we are looking for.

**Do I need to be accurate when collecting work and school locations?** Yes, as explained before this is a location based travel behavior survey. We are interested in locations. We want to locate these places in a map and the starting point is a good name. So you need to be exact when collecting the name of the places they work and go to school.

**If a respondent says that their work/school location varies, what do I do next?**

Then we must collect the main office/location in which the respondent works at most of the time.

**Do I need to collect full address information?**

Yes, you must collect FULL address information at all times, if that is not possible then you must probe to collect cross-street information. Make sure to leave the address box blank when collecting cross streets and put the cross-street information in its appropriate screen. No PO BOXES are allowed for home, work, and school addresses.

**Why do we ask about Telephones?** Most recent household travel studies have employed random telephone samples, which means that non-telephone and cellular-only households are excluded from the sample. Since our research aims to represent all types of households, it is very important to determine if the phone number associated with each piece of sample is a landline or a cell phone. In addition to this, we want to know what areas may have more land-based coverage than cellular coverage so that we know the best way of securing participation in that area (passive vs. active recruitment). There are also differences in travel patterns that have been documented that are associated to households having or not having a landline. It has been found that households without cell phones will not travel as much as those with cell phones.

## Q and A

### Regional Household Travel Survey Quiz

1. Who is the agency sponsoring the study?
2. What is the purpose of the study?
3. Who is the client contact?
4. Do we have a website that a respondent can look at?  
Yes No
5. Where is the client contact and website located in your materials?
6. Why do we ask for children's information in the household?
7. Why do we ask for the income of the household?
8. Why do you need to know respondents' names?
9. What if a respondent does not wish to provide a name?
10. What are we asking the respondents to do for us?
11. How do we handle a call where the Respondent is undecided and wants more information about the study?  
  
What would we offer first? \_\_\_\_\_  
  
What would we offer second? \_\_\_\_\_  
  
What would we offer third? \_\_\_\_\_
12. How should you handle a respondent that is difficult to speak with, even after you -  
provide additional information as noted above, or who asks to speak with someone else?
13. What incentive is being offered and to whom?
14. Does everyone in the household get an incentive?

## **Retrieval Training Outline**

- I. Retrieval Protocols
- II. Reminder Call Process
- III. Proxy Protocols
- IV. Difference between RD- reconstructing a travel day, RT -rescheduling
- V. Introduction and Dispositions
- VI. CATI Review
  - a. Review functionality
  - b. Review interview flow
- VII. Retrieval Demonstration
  - a. Lead or Rep II complete mock scenario for group
- VIII. Retrieval Practice and Role Play
  - a. Practice/Role Play
  - b. Travel Scenarios
- IX Valid Travel
- X. QA

## Retrieval Protocols

Retrieval of travel information will be interviewer-mediated (CATI) or respondent self-administered (internet and mail). CATI retrieval shall begin the day after the travel and shall continue no more than 7-10 days past the travel day period. Possible exceptions include large households or those with a lagging household member. GPS-prompted recall will also be conducted via CATI or internet.

The result of each telephone contact attempt will be one of seven outcomes:

- Complete: The household is completed when 100% of all adults age 16 and older have provided their travel information (non-proxy), and information has been collected on all non-adults (via proxy or not).
- Proxy: Travel data has been collected from some but not all adults and / or from all non-adults (via proxy or not). After three contacts without getting adult's information, a proxy report will be accepted for the adults in the household. *"May we call back to speak directly to Bob to get the answers to questions you weren't able to give us"*.
- Partial: There is household, person, vehicle, and trip/activity information for all (n) household members who are employed, in school or day care, and there is complete activity for (n-1) members. The purpose of this definition is to provide a mechanism for retaining data from larger households in which a single person may not report travel/activity data. Partial trip records will be accepted only for those households with four or more members.
- Some household members will not travel on their assigned travel day. This is acceptable because it is reflective of what happens in reality. At the same time, some respondents will report "no travel" as a way of reducing their personal reporting burden. For this reason, standards are set for percent of households (no more than 10 percent) and percent of people (no more than 18 percent) that may report "no travel." These percentages will be monitored during data collection, and the reason for "no travel" will be captured to assess the plausibility of no travel given the person's age, employment, school, disability status, and other relevant variables.
- Refusal: Initial refusals will be attempted one time during a five-day period for one refusal conversion attempt. On the second refusal, sample will be rested and recycled after a period of three months. When sample is recycled and subsequently re-contacted, if amenable, recruitment data will be verified (to see if anything has changed) and a new travel day will be assigned.
- Appointment Callback: *Consultant shall ensure that all callback appointments are met.* If the initial retrieval effort includes more than five appointment callbacks that do not result in an interview, partial interview, or a final outcome, the sample will be rested and recycled after a period of three months following the protocol noted above after the next missed appointment attempt.
- Non-contact: There will be no more than eight consecutive non-contact outcomes and no more than 12 call attempts to each sampled record. All non-contact samples will be called at least one alternate time during the present shift; and then on different days of the week and different times of the day. Voicemail messages will be left on answering machines informing the respondent that a telephone attempt has been made and directing the respondent to the website to schedule an interview appointment (this will be unique from recruitment) or to a toll free number for the interview. After the eight consecutive non-contact outcomes, sample will be rested and recycled after a period of three months following the protocol noted above.
- Hang-ups: Hang-ups will not be treated as an initial refusal. Hang-ups will be treated like a non-contact.

## Reminder Call Process

Reminder /support calls will be placed to all households within 2 days prior to their assigned travel date. Scripted messages will be left on answering machines and cell phone voicemails when household members cannot be reached. In addition, in an effort to maximize the benefit of the important reminder stage, during the pre-test phase some targeted testing will be done by sending script e-mail and/or text messages.

Example of the reminder call:

*I was just calling to remind you that your household will be participating in the Regional Travel Survey and also to see if you had any questions about the study. Please keep in mind that each member of your household must record all their trips on <ASSN>. This will help improve transportation in your area.*

Explanation of current dispositions or call outcomes:

RC- reached respondent

RN- No Answer

RZ- Busy

RA- Answer Machine

LM- Left Message (used on the second non-contact attempt for voice mail)

RT- Reschedule assignment day without mailing diaries

RM- Reschedule assignment day with mailing diaries

(IMPORTANT TO ALLOW 7-10 days for re-mailing)

During the reminder call if the respondent did not receive the diary packet, interviewers will provide the respondent the project website to download logs. The home address and mailing address is also verified before ending the call.

## Proxy Protocols

Interviewers are required to speak to each person 16 years of age or older for a household to be accepted as a complete. There are only two instances when a household can be completed with Proxy data: 1) information for the missing adult exists in a completed travel log and another person is willing to read off the recorded information, 2) the travel data can be obtained through the GPS unit. In both situations we are required to make a minimum of three call attempts within a seven-day period before a household can be finalized as a complete with proxy data.

Therefore, by definition, a Proxy Complete (CY) contains travel data collected directly from most adults in the household but contains some proxy reporting for some of the adults and / or from all non-adults (via proxy for persons under 16). If the record remains as a partial after all attempts are made, the record will be finalized as a Partial Proxy or KX. If informant refuses to provide proxy information the record will be finalized as Proxy Refusal or RX.

The data collection team is trained to attempt to obtain travel information directly from the household member but when an adult household member is unavailable the representative will attempt to set up a day and time to speak directly with the missing person. This pending complete will be coded as a KX (Partial Proxy). Representatives will make up to three call attempts within a seven-day window to attempt to complete the missing information with the person on the phone.

The retrieval program is designed to not allow the rep to complete the household when they select that they are not speaking directly with the household member; in this situation they can only code the record as a KX.

Representatives will continue to attempt to contact this person for a minimum of three call attempts and a length of seven days. If, after at least three call attempts and seven days after the KX disposition has been set, representatives are still unable to reach the missing household member, the data may be collected via proxy and the record coded as a proxy complete (CY).

When the household has received enough call attempts to be considered a valid Proxy Complete the program will “release” the record for completion on the next call attempt. At that time the representative knows to accept travel information.

### **Reconstruction, Reschedule**

Reconstruction: can be conducted if the respondent did not fill out the travel diary. Effort to reach every adult in the household is required.

Reschedule: if the respondent forgot to fill out the diary for the assigned travel day and cannot reconstruct but is willing to record travel for a future day.

- If it’s been more than one week then reconstructs cannot be done, reschedules may be offered
- Reconstructs will not be done for large households (3+), reschedules may be offered
- Depending on zero trip rates per person and at a household level, reconstructs/reschedules may be offered. Zero trip rates will be tracked throughout the study to determine rescheduling/reconstruction protocols.

### **Introduction / Dispositions**

The introduction for the retrieval CATI program asks for the reference person or the person we spoke with during the recruitment interview. Incentive text reminder is mentioned if the respondent was offered an incentive. Below is an example of the introduction:

*Hi, this is \_\_\_\_\_ from the Regional Travel Survey conducted on behalf of the Georgia Department of Transportation and ARC. We recently spoke with <FNAME> <LNAME> and are calling back to conduct the interview he/she agreed to complete a few days ago. May I please speak with <FNAME>?*

Explanation of current dispositions or call outcomes

CP PARTIAL COMPLETE  
RP PARTIAL COMPLETE REFUSAL  
PC SPANISH PARTIAL COMPLETE  
R1 1<sup>ST</sup> REFUSAL  
RF FINAL REFUSAL  
QO OVER QUOTA  
WC WILL COMPLETE ONLINE  
KH CALLBACK, GENERAL  
KB CALLBACK, SPECIFIC  
KL CALLBACK ON LANDLINE  
KN NEW NUMBER  
NA NO ANSWER  
AM ANSWERING MACHINE  
BZ BUSY  
PM CALLER ID  
SH SPANISH CALLBACK, GENERAL  
SB SPANISH CALLBACK, SPECIFIC

SN SPANISH NO ANSWER  
SA SPANISH ANSWERING MACHINE  
SZ SPANISH BUSY  
IG BUSINESS/GOVERNMENT  
IL LANGUAGE BARRIER, DEAF/TTY  
ID DISCONNECT  
IM FAX/MODEM  
RH HANGUP  
RC REFUSES TO CONTINUE ON CELL-PHONE  
QP REFUSED NUMBER OF HH PERSONS  
QV REFUSED NUMBER OF HH VEHICLES  
QA INVALID COUNTY  
QW REFUSED WORK ADDRESS  
QS REFUSED SCHOOL ADDRESS  
CM COMPLETE  
CW WEB COMPLETE

### **CATI Review**

Interviewers undergo hands on training to understand the functionality of the retrieval program. Each question and choices are thoroughly reviewed with an understanding of how to edit data if needed. The retrieval program will include the following:

- Household variables
- Person variables
- Vehicle variables
- Trip / Activity variables

Interviewers will verify person information, vehicle information, and habitual locations before collecting travel data. Interviewers will have a complete understanding of how the interview flows with some additional role-playing and mock interviews.

### **Retrieval Demonstration**

NuStats supervisors demonstrate for interviewers how to perform a retrieval call using the CATI program. Interviewers are expected to conduct the interview with a steady pace to minimize respondent burden.

### **TripBuilder - Retrieval**

TripBuilder is our web-based retrieval software designed to map all locations visited and capture details about each location. The components and basic structure includes:

#### Trip Summary: (all places)

Location name is entered  
Mode- how they traveled there  
Arrival time  
Departure time  
Duration in minutes- how long the trip took

#### When we enter into Tripbuilder we must understand the basic functions of each button:

Insert Before- allows to insert a trip before a place in the case the respondent forgot to report

Insert After- allows to insert a trip after a place in the case the respondent forgot to report

Add New Place- allows to start the next location the respondent visited

Remove Place- allows you to delete a place that is wrong

Search- Allows you to see results of the address or cross streets of a place visited

Edit location- Allows you to reenter the place: name, address, or cross streets

Previous Place- allows you to view the previous place details

Next Place- allows you to view the next place that was entered

Submit- TBD

Add New Location- TBD

Undo- allows you to erase the last change made

Redo- allows you to redo the last change made

Done- allows you to submit all recorded places

#### Map Functions:

Zoom All- allows you to view all recorded places

Zoom to Place- allows you to view a recorded place

Set Location- allows you to select a place on the map

Pan- allows you to maneuver the map left, right, up or down

+, - allows you to zoom in or zoom out

Help Tool- Click Zoom All to view all of the places you've visited. Click Zoom to Place to zoom into the map to see the selected place. Click on Set Location then click on the map to set the current place's coordinates on the map. You can also drag and drop the currently selected place on the map to adjust its location.

#### Fields:

Is it a common location- records and saves places that are common for the respondent includes work, volunteer, and school locations.

Previously visited locations- records and save places previously visited in the case it is needed for a future place or for another respondent.

Location Name- allows entry for the name of the location

Address- allows entry of an address

Intersection- allows entry of cross streets

Search- provides results for addresses or cross streets entered

## Diary Example

Respondents have the option of mailing in their travel information, i.e., their diaries. In addition to informing the respondent how to provide their travel information and diary instructions, the diaries collect the following information for each place:

**Regional Travel Survey**  
IMPROVE YOUR TRANSPORTATION FUTURE

**Travel Diary for:**

**John of the Doe Household**  
**Your Travel Day is:** Thursday, June 16  
**Your PIN# is:** 1234567AB

**Household Members:**

P1: John	P5: Child 1
P2: Mary Jane	P6: Child 2
P3: Jack	P7: A. J.
P4: Joe	P8: Fred

ARC-024887-12-11237

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**Begin Here:**

Carry this diary with you during your travel day to record information about **ALL** the **PLACES** you visit.

Begin at 3 a.m. (or when you wake up) on your assigned travel day and end at 2:59 a.m. the next day (or when you go to sleep on your travel day).

1. What is the name and address of your regular workplace?

Work Name: \_\_\_\_\_  Not employed  
Address: \_\_\_\_\_  Work at home (for Jay)  
City/State/Zip: \_\_\_\_\_  Self-employed

1a. Did you go to work today?  Yes  No Why not? \_\_\_\_\_

2. What is the name and address of your school?

School Name: \_\_\_\_\_  Not a student  
Address: \_\_\_\_\_  Home school  
City/State/Zip: \_\_\_\_\_

2a. Did you go to school today?  Yes  No Why not? \_\_\_\_\_

3. Would you be willing to participate in future research activities?  Yes  No

**See the Instructions & Example Inside!**

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**How Do I Provide My Travel Information?**

**Online** – Enter your information online at: [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com) using the PIN# printed on the label on the front of this diary.

**OR**

**Mail** – Return your completed diaries in the postage-paid envelope provided in your packet. We may need to call you to clarify or to collect any missing information.

**OR**

**Phone** – Keep your completed diaries by the phone and we will call to collect the information. Or you can call our toll-free survey hotline (1-888-222-7734) to provide your information.

For more information about the study, visit the survey website:

**[www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com)**  
or  
Contact Jeff Livingston, PTV NuStats  
1-800-447-8267, ext. 2256  
Email: [GeorgiaTravel@nustats.com](mailto:GeorgiaTravel@nustats.com)

If you have questions or need help filling out your travel diary, please call the toll-free survey hotline:

**1-888-222-7734**

**Thank you for your participation!**

Survey conducted by PTV NuStats on behalf of:

**GDOT** Georgia Department of Transportation      **A&C** ATLANTA REGIONAL COMMISSION

## Diary Instructions

Use this diary to record information about **ALL** the **PLACES** you visit on your assigned travel day. For anyone who is unable to complete a diary, we ask that a parent or guardian complete the diary for them.

Record one **PLACE** per page. Tell us the:

- ✓ **PLACES** you visit.  
The place name, exact address and/or cross-streets, city, state, and zip are critical for analyzing areas with traffic congestion.

### What is a PLACE?

A **PLACE** is any location you travel to, no matter how long you are there.

**Example:** stopping for gas, drive-thru window, dropping off or picking up someone, going to work, walking to lunch or driving to a meeting during your workday, biking to the park, attending a sporting event, etc.

**If you ride the bus/train or carpool/vanpool:** please record each bus stop, train station, or carpool/vanpool meeting place where you get on or off as a separate place.

- ✓ **EXACT TIMES** you arrive and leave each place.
- ✓ **ACTIVITIES** or what you do at each place.  
Write the code from **LIST 1 - Activities** (codes are on the flap of the back cover).
- ✓ **How you TRAVEL TO** each place.  
Write the code from **LIST 2 - Means of Travel** (codes are on the flap of the back cover). We are interested in all means of travel: auto, walking, biking, transit, etc.

Once you have completed your travel diaries, follow the instructions for providing your travel information on the back cover of this diary. **Thank you!**

### Confidentiality:

We respect your privacy and promise to protect it. The information your household provides will be kept strictly confidential.

**Questions? Call the toll-free survey hotline: 1-888-222-7734**

## EXAMPLE PLACE

- A WHAT is this PLACE?**
- My Home  
 My Primary Job  
 My School  
 My Second Job  
 Transit Stop  
 Other Place

Please tell us the **NAME** and **ADDRESS** of this **PLACE**

Happy Kids Daycare  
 Name of Other Place OR Transit Stop  
 901 Main Street  
 Street address OR nearest cross-streets  
 Anytown GA 99999  
 City State Zip

**B What TIME** did you **ARRIVE!** (Record exact time) 7:32  am  pm

**C HOW** did you **TRAVEL** there? (Write code from **LIST 2** on flap) Code: 3

**D How many people** traveled with you? (DON'T include yourself) 1  
 Of these, how many were household members? 1

Which household members traveled with you? (Use person #s from label)  
 P1  P3  P5  P7  
 P2  P4  P6  P8

**E If traveled by PRIVATE VEHICLE:** **OR** **If traveled by PUBLIC TRANSIT:**

Which household vehicle did you use?  
 Year/Make/Model: 2008 Honda Accord  
 Did not use a household vehicle

Did you get out of your vehicle?  
 Yes  No (drive-thru, stop & pick up)

If you parked at this destination, where did you park?  
 Did not park  Parking lot  
 Parking garage  Street  
 Residential garage  Driveway  
 Other

What are the nearest cross-streets to this parking location?  
 Main Street & 1st Street

How much did you pay to park?  
 \$ \_\_\_\_\_ per  Did not pay

On this trip, did you use a  
 HOV lane?  Yes  No  
 Toll lane?  Yes  No

What was the Route/Line?

What transit service was it?  
 MARTA Train  
 MARTA Bus  
 CATS (Cherokee Area Transit System)  
 CCT (Cobb Community Transit)  
 GCT (Gwinnett County Transit)  
 Xpress/GRTA (Georgia Regional Transportation Authority)  
 HAT (Hall Area Transit)  
 Other

How did you pay for this trip?

Cash \$ \_\_\_\_\_  
 Pass

**F What ACTIVITIES** did you do there? (Write code(s) from **LIST 1** on flap) Main activity (code): 5  
 Other activity (code):

**G What TIME** did you **LEAVE?** 7:36  am  pm → Next PLACE  
 (Please record exact time)  Did not leave → **DONE**

## Retrieval Practice/ Role Play

Mock interviews are also conducted to ensure interviewers have the practice time and experience with the CATI program. The following travel scenarios are used to capture typical travel patterns.

- Person stayed home on travel day, person was out of area
- Loop trip
- 1 person traveled, 2 people traveled
- Person traveled by walking
- Person traveled by auto
- Person traveled by transit (highly focused and emphasized)

In addition, interviewers will run through the different modes of travel to get a clear understanding of questions tied into mode of travel. To assist with transit trips, interviewers will be provided with detailed, up to date information on the regions' transit providers/systems which consist of subways, rail lines, buses, ferries, bridges, tunnel crossings and major connections.

## Valid Travel

Whether diary or GPS, all out-of-home activities for all household members will be collected during retrieval. The definition of an out-of-home activity is a "change of address or building." So travel from one address to another is captured, such as home to work. However, travel from the parking garage of one's employment (same address) is not captured. Movement from floor 12 to floor 1 of the same office building is not captured. If at a shopping mall, movement among stores is not captured, whereas travel to and from the shopping mall is captured. Travel from an alighting bus stop to one's employment (different address) is captured. Trip making will include all motorized and non-motorized modes, including walking and biking. Loop trips-that is trips that start and end at the same location such as walking for leisure around the neighborhood with no real destination point- will be captured by GPS but not delivered as a trip. Another criterion for the capture of a walk trip is that the walk trip must be longer than 5 minutes. A walk to visit a next-door neighbor might also be captured if it occurs outdoors especially if they appear in the GPS data.

# Appendix F: Final Data Matrix

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## Household Data

Variable	Label	Values	
SAMPN	Household Identifier		
RECMODE	Recruit Mode	1	CATI
		2	WEB
RETMODE	Retrieval Mode	1	CATI
		2	WEB
		3	Mail Back
CTFIP	County FIPS	13013	Barrow
		13015	Bartow
		13045	Carroll
		13057	Cherokee
		13063	Clayton
		13067	Cobb
		13077	Coweta
		13089	DeKalb
		13097	Douglas
		13113	Fayette
		13117	Forsyth
		13121	Fulton
		13135	Gwinnett
		13139	Hall
		13151	Henry
		13217	Newton
		13223	Paulding
13247	Rockdale		
13255	Spalding		
13297	Walton		
AREAT	Area Type	1	CBD
		2	Urban Commercial
		3	Urban Residential
		4	Suburban Commercial
		5	Suburban Residential
		6	Exurban
		7	Rural
ASSN	Assigned Travel Day	11168	Tuesday, March 8
		11169	Wednesday, March 9
		11170	Thursday, March 10
		11171	Friday, March 11
		11172	Saturday, March 12
		11173	Sunday, March 13
		11174	Monday, March 14
		11175	Tuesday, March 15
		11176	Wednesday, March 16
		11177	Thursday, March 17
		11178	Friday, March 18
11179	Saturday, March 19		

11180 Sunday, March 20  
11181 Monday, March 21  
11182 Tuesday, March 22  
11183 Wednesday, March 23  
11184 Thursday, March 24  
11185 Friday, March 25  
11186 Saturday, March 26  
11187 Sunday, March 27  
11188 Monday, March 28  
11189 Tuesday, March 29  
11190 Wednesday, March 30  
11191 Thursday, March 31  
11192 Friday, April 1  
11193 Saturday, April 2  
11194 Sunday, April 3  
11195 Monday, April 4  
11196 Tuesday, April 5  
11197 Wednesday, April 6  
11198 Thursday, April 7  
11199 Friday, April 8  
11200 Saturday, April 9  
11201 Sunday, April 10  
11202 Monday, April 11  
11203 Tuesday, April 12  
11204 Wednesday, April 13  
11205 Thursday, April 14  
11206 Friday, April 15  
11207 Saturday, April 16  
11208 Sunday, April 17  
11209 Monday, April 18  
11210 Tuesday, April 19  
11211 Wednesday, April 20  
11212 Thursday, April 21  
11213 Friday, April 22  
11214 Saturday, April 23  
11215 Sunday, April 24  
11216 Monday, April 25  
11217 Tuesday, April 26  
11218 Wednesday, April 27  
11219 Thursday, April 28  
11220 Friday, April 29  
11221 Saturday, April 30  
11222 Sunday, May 1  
11223 Monday, May 2  
11224 Tuesday, May 3  
11225 Wednesday, May 4  
11226 Thursday, May 5  
11227 Friday, May 6  
11228 Saturday, May 7  
11229 Sunday, May 8  
11230 Monday, May 9  
11231 Tuesday, May 10  
11232 Wednesday, May 11  
11233 Thursday, May 12  
11234 Friday, May 13  
11235 Saturday, May 14  
11236 Sunday, May 15  
11237 Monday, May 16  
11238 Tuesday, May 17

11239 Wednesday, May 18  
 11240 Thursday, May 19  
 11241 Friday, May 20  
 11242 Saturday, May 21  
 11243 Sunday, May 22  
 11244 Monday, May 23  
 11245 Tuesday, May 24  
 11246 Wednesday, May 25  
 11247 Thursday, May 26  
 11248 Friday, May 27

DOW	Day of Week	1	Monday
		2	Tuesday
		3	Wednesday
		4	Thursday
		5	Friday
ILANG	Code Language of Interview	1	English
		2	Spanish
GTYPE	GPS Households	1	Yes
		2	No
GFLAG	[GTYPE=1] GPS Type	1	Wearable Random
		2	Wearable Target
		3	Vehicle
RESTY	Residence Type	1	Single-family Detached House
		2	Single-family Attached House
		3	Building with 2 or more Apartments/Condos
		4	Mobile Home or Trailer
		5	Boat, RV, Van, etc.
		6	Dorm Room, Frat or Sorority House
		7	Other (Specify)
		8	DK
		9	RF
O_RESTY	[RESTY=7] Other, Residence Type		
OWN	Own or rent?	1	Rent
		2	Own/Buying(Paying off Mortgage)
		7	Other (Specify)
		8	DK
		9	RF
O_OWN	[OWN=7] Other, Own		
HHSIZ	Household Size		
NONRELAT	[RELAT = 8 OR 9 AND HHSIZ>1] Presence of Non-household members	1	YES
		2	NO
HHVEH	Number of Household Vehicles		

VEHOP	[HHVEH>0] Number of Household Vehicles Used Regularly During the Week		
VEHPR	[IF GTYPE=1 AND GFLAG=3 AND VEHOP>0] Number of Operation Vehicles with Working Power Outlet or Cigarette Lighter Socket		
LTELE	Land-Based Telephone Service		
		1	Yes
		2	No
		9	RF
INCOME	Household Income		
		1	Less than \$10,000
		2	\$10,000 to \$19,999
		3	\$20,000 to \$29,999
		4	\$30,000 to \$39,999
		5	\$40,000 to \$49,999
		6	\$50,000 to \$59,999
		7	\$60,000 to \$74,999
		8	\$75,000 to \$99,999
		9	\$100,000 to \$149,999
		10	\$150,000 or more
		99	RF
HISP	Hispanic Origin		
		1	Yes
		2	No
		8	DK
		9	RF
HISP2	[IF HISP>1 and HHSIZ>1] Hispanic Origin, Household		
		1	Yes
		2	No
		8	DK
		9	RF
RACE	Race/Ethnicity		
		1	White
		2	African-American
		3	Asian
		4	Native American, Alaskan Native
		5	Pacific Islander, Native Hawaiian
		6	Multiracial
		7	Hispanic, Mexican
		97	Other (Specify)
		98	DK
		99	RF
O_RACE	[RACE=97] Other, Race/Ethnicity		
INCEN	Incentive Offered, Households		
		1	Household was Offered Incentive
		2	Household Not Offered Incentive
HHSTU	Number of Household Students [COMPUTED]		
HHWRK	Number of Household Workers [COMPUTED]		
HHLIC	Number of Household License Holders [COMPUTED]		
HHCHD	Number of Household Children [COMPUTED - Number of Household Members that RELAT=3 and (AGE<22 or AGE=1)]		

HHLIFE Household Life Cycle [COMPUTED]

1. One Adult, No Children, Not Retired
2. 2+ Adults, No Children, Not Retired
3. One Adult, Youngest Child 0-5
4. 2+ Adults, Youngest Child 0-5
5. One Adult, Youngest Child 6-15
6. 2+ Adults, Youngest Child 6-15
7. One Adult, Youngest Child 16-21
8. 2+ Adults, Youngest Child 16-21
9. One Adult, At least one Retired, No Children
10. 2+ Adults, At least one Retired, No Children

\*\*Households with the age of children as unknown, but AGEB=1 (under 16), were flagged as 5 or 6\*\*

HTRIPS Total Number of Trips [COMPUTED]

FUTUR Willingness to participate in future surveys

1	Yes
2	No
9	Refused

HTAZ Home Travel Analysis Zone

7777	Out of Area
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HXCORD Home X Coordinate

HYCORD Home Y Coordinate

HHPARTIAL Partial Completed Households. 4 or more size Household (n-1) completed the survey

0	No
1	Yes

HHWGT Household Weight

EXPHHWGT Expanded Household Weight

**Person Data**

Variable	Label	Values
SAMPN	Household Identifier	
PERNO	Unique Person Identifier	
GENDER	Gender	1 Male
		2 Female
		9 RF
AGE	Age	99 99 Years or Older
		998 DK
		999 RF
AGEB	[AGE=998 or 999] Between Age 16 and 65	1 Less than 16 or Over 65
		2 Between 16 and 65
		9 RF
LIC	[IF AGE>16 and AGEB<>1] License	1 Yes
		2 No
		8 DK
		9 RF
CTELE	[IF AGE>16 and AGEB<>1] Cellular Telephone	1 Yes
		2 No
		8 DK
		9 RF
RELAT	Relationship	1 Self
		2 Spouse
		3 Son/Daughter
		4 Father/Mother
		5 Brother/Sister
		6 Grandparent
		7 Grandchild
		8 Live-in Help
		9 Roommate/Other Non-related
		10 Other Related
DISAB	Disability	1 Yes
		2 No
		8 DK
		9 RF
DTYPE1	[DISAB=1] Disability Type 1	
DTYPE2	[DISAB=1] Disability Type 2	
DTYPE3	[DISAB=1] Disability Type 3	1 Visually Impaired or Blind
DTYPE4	[DISAB=1] Disability Type 4	2 Hearing Impaired or Deaf
DTYPE5	[DISAB=1] Disability Type 5	3 Cane or Walker
		4 Wheelchair Non-Transferable
		5 Wheelchair Transferable
		6 Mentally or Emotionally Disabled
		7 Other (Specify)
		8 DK
		9 RF

O_DTYPE	[DTYPE=7] Other, Disability Type		
EMPLY	[If AGE > 16 or If AGEB = 2] Employed	1	Yes
		2	No
		8	DK
		9	RF
VOLUN	[If AGE > 16 or If AGEB = 2 AND EMPLY<>1] Volunteer	1	Yes
		2	No
		8	DK
		9	RF
WORKS	[If EMPLY =1 or VOLUN =1] Work Status [COMPUTED]	1	Treated as Worker
		2	Non-Worker
WKSTAT	[If WORKS <>1] Unemployment Status	1	Retired
		2	Homemaker
		3	Unemployed but Looking for Work
		4	Unemployed, Not Seeking Employment
		5	Student (Part-time or Full-time)
		7	Other (Specify)
		8	DK
9	RF		
O_WKSTAT	[WKSTAT=7] Other, Unemployment Status		
JOBS	[WORKS=1] Number of Jobs	99	RF
HOURS	[WORKS=1] Number of Hours Worked at Primary Job	999	RF
HOURS2	[WORKS=1] Number of Hours Worked at Second Job	999	RF
HOURS3	[WORKS=1] Number of Hours Worked at Third Job	999	RF
TELWK	[WORKS=1] Telecommuting Offered at Workplace	1	Yes
		2	No
		9	DK/RF
TCHRS	[TELWRK=1] Telecommute Hours	998	DK
		999	RF
WSTRT	[WORKS =1] Work Start Time	9998	DK
		9999	RF
WEND	[WORKS =1] Work End Time	9998	DK
		9999	RF
SCHED	[WORKS =1] Work Schedule	1	Yes
		2	No
		8	DK
		9	RF

WDAYS [WORKS=1] Work Days

1	One
2	Two
3	Three
4	Four
5	Five
6	Six
7	Seven
8	DK
9	RF

COMPR [WORKS=1] Compressed Work Week

1	4/40
2	9/80
3	No
7	Other (Specify)
8	DK
9	RF

O\_COMPR [COMPR=7] Other, Compressed Work Week

INDUS [WORKS=1] Industry

11	AGRICULTURE, FORESTRY, FISHING AND HUNTING
21	MINING, QUARRYING, AND OIL AND GAS EXTRACTION
22	UTILITIES
23	CONSTRUCTION
31	MANUFACTURING
42	WHOLESALE TRADE
44	RETAIL TRADE
48	TRANSPORTATION AND WAREHOUSING
51	INFORMATION
52	FINANCE AND INSURANCE
53	REAL ESTATE, RENTAL AND LEASING
54	PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES
55	MANAGEMENT OF COMPANIES AND ENTERPRISES
56	ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEMENT AND REMEDIATION SERVICES
61	EDUCATIONAL SERVICES
62	HEALTH CARE AND SOCIAL ASSISTANCE
71	ARTS, ENTERTAINMENT, AND RECREATION
72	ACCOMODATION AND FOOD SERVICES
81	OTHER SERVICES (EXCEPT PUBLIC ADMINISTRATION)
92	PUBLIC ADMINISTRATION
97	OTHER (SPECIFY)
98	DK
99	RF

O\_INDUS [INDUS=97] Other, Industry

OCCUP [WORKS=1] Occupation

11	MANAGEMENT OCCUPATIONS
13	BUSINESS AND FINANCIAL OPERATIONS OCCUPATIONS
15	COMPUTER AND MATHEMATICAL OCCUPATIONS
17	ARCHITECTURE AND ENGINEERING OCCUPATIONS
19	LIFE, PHYSICAL, AND SOCIAL SCIENCE OCCUPATIONS
21	COMMUNITY AND SOCIAL SERVICES OCCUPATIONS
23	LEGAL OCCUPATIONS
25	EDUCATION, TRAINING, AND LIBRARY OCCUPATIONS

27	ARTS, DESIGN, ENTERTAINMENT, SPORTS, AND MEDIA OCCUPATIONS
29	HEALTHCARE PRACTITIONERS AND TECHNICAL OCCUPATIONS
31	HEALTHCARE SUPPORT OCCUPATIONS
33	PROTECTIVE SERVICE OCCUPATIONS
35	FOOD PREPARATION AND SERVING RELATED OCCUPATIONS
37	BUILDING AND GROUNDS CLEANING AND MAINTENANCE OCCUPATIONS
39	PERSONAL CARE AND SERVICE OCCUPATIONS
41	SALES AND RELATED OCCUPATIONS
43	OFFICE AND ADMINISTRATIVE SUPPORT OCCUPATIONS
45	FARMING, FISHING, AND FORESTRY OCCUPATIONS
47	CONSTRUCTION AND EXTRACTION OCCUPATIONS
49	INSTALLATION, MAINTENANCE, AND REPAIR OCCUPATIONS
51	PRODUCTION OCCUPATIONS
53	TRANSPORTATION AND MATERIAL MOVING OCCUPATIONS
55	MILITARY SPECIFIC OCCUPATIONS
97	OTHER (SPECIFY)
98	DK
99	RF

O\_OCCUP [OCCUP=97] Other, Occupation

EMPLR	[WORKS=1] Employer	1	A Private Company
		2	Government
		3	Non-Profit
		4	Self-Employed
		7	Other (Specify)
		8	DK
		9	RF

O\_EMPLR [EMPLR=7] Other, Employer

EPARK	[WORKS=1] Employer Provided Parking	1	Yes
		2	No
		8	DK
		9	RF

EPPK2	[EPARK>1] Employer Subsidized Parking	1	Yes
		2	No
		8	DK
		9	RF

UPARK	[EPPK2=1] Employer Subsidized Parking Use	1	Yes
		2	No
		8	DK
		9	RF

ETRANS	[WORKS=1] Employer Subsidized Transit	1	Yes
		2	No
		8	DK
		9	RF

WLOC	[WORKS=1] Work Location	1	Fixed
		2	Home
		3	Varies

WNAME [WLOC=1 or 3] Name of Employer

WTAZ [WLOC=1 or 3] Work Travel Analysis Zone  
7777 Out of Area

WXCORD [WLOC=1 or 3] Work X Coordinate

WYCORD [WLOC=1 or 3] Work Y Coordinate

WMODE [WLOC=1 or 3] Mode of Transport to Work

1	Walk
2	Bike
3	Auto/Van/Truck Driver
4	Auto/Van/Truck Passenger
5	Local Bus (Regular, Standard, City)
6	Express Bus (Suburban, Commuter, Inter-City)
7	MARTA Train
8	Dial-a-Ride/Paratransit
9	Taxi/Limo
10	School Bus
11	Motorcycle/Moped
97	Other (Specify)
98	DK
99	RF

O\_WMODE [WMODE=97] Other, Mode of Transport to Work

EDUCA Educational Attainment

1	Not a high school graduate, 12 grade or less (this includes very young children)
2	High School Graduate (High School Diploma or GED)
3	Some College Credit but no Degree
4	Associate or Technical School Degree
5	Bachelor's or Undergraduate Degree
6	Graduate Degree (Includes Professional Degree like MD, DD, JD)
7	Other, SPECIFY
8	DK
9	RF

O\_EDUCA [EDUCA=7] Other, Educational Attainment

STUDE Student Status

1	Yes - Full Time
2	Yes - Part Time
3	No
8	DK
9	RF

SCHOL [STUDE=1 or 2] Level of School

1	Daycare
2	Nursery/Pre-school
3	Kindergarten to Grade 8
4	Grade 9 to 12
5	Vocational/Technical School
6	2-Year College (Community College)
7	4-Year College or University
8	Graduate School/Professional

		97	Other (Specify)
		98	DK
		99	RF
O_SCHOL	[SCHOL=97] Other, Level of School		
SLOC	[SCHOL=1-4] Home Schooled	1	Yes
		2	No
		8	DK
		9	RF
SONLN	[IF SCHOL=5-8] School Online	1	Yes
		2	No
		8	DK
		9	RF
SNAME	[STUDE=1 or 2 and SLOC<>1 or SONLN<>1] School Name		
STAZ	[STUDE=1 or 2 and SLOC<>1 or SONLN<>1] School Travel Analysis Zone		
	7777 Out of Area		
SXCORD	[STUDE=1 or 2 and SLOC<>1 or SONLN<>1] School X Coordinate		
SYCORD	[STUDE=1 or 2 and SLOC<>1 or SONLN<>1] School Y Coordinate		
SMODE	[IF SLOC>1 OR SONLN>1] Mode of Transport to School		
		1	Walk
		2	Bike
		3	Auto/Van/Truck Driver
		4	Auto/Van/Truck Passenger
		5	Local Bus (Regular, Standard, City)
		6	Express Bus (Suburban, Commuter, Inter-City)
		7	MARTA Train
		8	Dial-a-Ride/Paratransit
		9	Taxi/Limo
		10	School Bus
		11	Motorcycle/Moped
		97	Other (Specify)
		98	DK
		99	RF
O_SMODE	[SMODE=97] Other, Mode of Transport to School		
RIBUS	[AGE>15 and AGEB<>1] Public Transit Use		
		1	Nearly every day
		2	Once or twice a week
		3	Once or twice a month
		4	Almost never
		5	Never
		8	DK
		9	RF
BREZ	[RIBUS=1 or 2] Breeze Card	1	Yes
		2	No
		8	DK
		9	RF
BREZF	[BREZ=1] Value Added to Breeze Card	1	Purchase a 30-day pass

- 2 Purchase a 7-day pass
- 3 Purchase 20 trips
- 4 Purchase 10 trips
- 5 Purchase less than \$20 in fares
- 6 The card was purchased through a special fare program
- 7 Other (Specify)
- 8 DK
- 9 RF

O\_BREZF [BREZF=7] Other, Value Added to Breeze Card

- GRTA [RIBUS=1 or 2] GRTA Xpress Bus Pass
- 1 Yes
  - 2 No
  - 8 DK
  - 9 RF

- GRTAF [GTRA=1] Type of GRTA Xpress Bus Pass
- 1 Purchase a 31-day pass
  - 2 Purchase a 40-ride pass
  - 3 Purchase 20-ride pass
  - 4 Purchase a round-trip fare
  - 5 Purchase a one-way fare
  - 6 The Xpress bus pass purchased through a special fare program
  - 8 DK
  - 9 RF

- CGTP [IF RIBUS=1 OR 2 AND IF RESIDENT OF COBB COUNTY OR GWINNETT COUNTY] Cobb or Gwinnett County Transit Pass
- 1 Yes, for local service
  - 2 Yes, for express service
  - 3 Yes, for paratransit service
  - 4 No
  - 8 DK
  - 9 RF

- CGTPF [IF CGTP<4] Type of Cobb or Gwinnett County Transit Pass
- 1 Purchase a 31-day or Monthly Pass
  - 2 Purchase a 20-day Pass
  - 3 Purchase a 10-day Pass
  - 4 The county transit pass is purchased through a special fare program
  - 8 DK
  - 9 RF

- DISFR [IF BREZ=1 or GRTA=1 or CGTP<4] Discounted Fare Program Participation
- 1 NO DISCOUNTED FARE
  - 2 YES, THROUGH AN EMPLOYER
  - 3 YES, THROUGH A UNIVERSITY PASS (U-PASS) PROGRAM
  - 4 YES, THROUGH A K-12 PROGRAM
  - 5 YES, DISCOUNTED FARE FOR SENIOR CITIZENS, DISABLED RIDERS, OR MEDICARE RECIPIENTS
  - 7 OTHER DISCOUNTED FARE, SPECIFY
  - 8 DK
  - 9 RF

O\_DISFR [DISFR=7] Other, Discounted Fare Program Participation

FBKTW	[IF STUDE<3 OR WORKS=1] Frequency of Bike Travel	1	0 Times (Never)
		2	Once or Twice
		3	3 or 4 Times
		4	5 or More Times
		8	DK
		9	RF
INTRV	Person Being Interviewed [RET]	1	Yes
		2	No
PROXY	[IF INTRV<>1] Proxy Flag [RET]	[PERNO]	Person serving as Proxy
CMPLG	Completed Log [RET]	1	Yes
		2	No
		3	Did not travel on that day
		4	Valid Partial
		8	DK
		9	RF
HVLOG	Completed Diary [RET]	1	Yes
		2	No
		3	Did not travel on that day
		4	Valid Partial
		9	RF
PTRIPS	Number of Trips [COMPUTED]		
NOGO	[PTRIPS=0] Reason for No Trips [RET]	1	Personally Sick
		2	Vacation or Personal Day
		3	Caretaking Sick Children
		4	Caretaking Sick Other
		5	Home-bound Elderly or Disabled
		6	Worked at Home for Pay
		7	Not Scheduled to Work
		8	Worked Around Home (Not for Pay)
		9	Out of Area
		10	No Transportation Available
		11	Weather
		97	Other (Specify)
		99	RF
O_NOGO	[NOGO=97] Other, Reason for No Trips [RET]		
INCOMPLETE_FLAG	Person Belongs To Partial Complete		
	0 COMPLETE		
	1 INCOMPLETE VALID PARTIAL		
CTFIP	County FIPS	13013	Barrow
		13015	Bartow
		13045	Carroll
		13057	Cherokee
		13063	Clayton
		13067	Cobb
		13077	Coweta
		13089	DeKalb

13097 Douglas  
 13113 Fayette  
 13117 Forsyth  
 13121 Fulton  
 13135 Gwinnett  
 13139 Hall  
 13151 Henry  
 13217 Newton  
 13223 Paulding  
 13247 Rockdale  
 13255 Spalding  
 13297 Walton

PWGT Person Weight

EXPPWGT Expanded Person Weight

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**Vehicle Data**

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Variable	Label	Values	
SAMPN	Household Identifier		
VEHNO	Vehicle Number		
YEAR	Year of Vehicle	9998 9999	DK RF
MAKE	Make of Vehicle		
	11 ACURA	30	JEEP
	12 AUDI	31	KAWASAKI
	13 BMW	32	KIA
	14 BUICK	33	LEXUS
	15 CADILLAC	34	LINCOLN
	16 CHEVROLET	35	MAZDA
	17 CHRYSLER	36	MERCEDES
	18 DAEWOO	37	MERCURY
	19 DODGE	38	MINI
	20 FORD	39	NISSAN
	21 GEO	40	OLDSMOBILE
	22 GMC	41	PLYMOUTH
	23 HARLEY DAVIDSON	42	PONTIAC
	24 HONDA	43	PORSCHE
	25 HUMMER	44	RANGE ROVER
	26 HYUNDAI	45	SAAB
	27 INFINITI	46	SATURN
	28 ISUZU	47	SCION
	29 JAGUAR	48	SUBARU

49 SUZUKI  
 50 TOYOTA  
 51 VOLKSWAGEN  
 52 VOLVO

53 YAMAHA  
 97 OTHER, SPECIFY  
 98 DK  
 99 RF

O\_MAKE [MAKE=97] Other, Make of Vehicle

MODEL Model of Vehicle

BODY Body of Vehicle

1	AUTO SEDAN
2	AUTO 2-SEAT
3	VAN
4	RECREATIONAL VEHICLE
5	SPORT UTILITY VEHICLE
6	STATION WAGON
7	PICK-UP TRUCK
8	MOTORCYCLE
9	MOPED/SCOOTER (e.g., VESPA)
97	OTHER (SPECIFY)
98	DK
99	RF

O\_BODY [BODY=97] Other, Body of Vehicle

FUEL Type of Fuel

1	Gas
2	Diesel
3	Hybrid
4	Flex Fuel
7	Other (Specify)
8	DK
9	RF

O\_FUEL [FUEL=7] Other, Type of Fuel

CIGLIT Working Power Outlet or Cigarette Lighter

1	Yes
2	No
8	DK
9	RF

VEHOWN Ownership Status of Vehicle

1	Household Owned/Leased
2	Employer Provided
3	Rental Car
4	Borrowed from Friend or Relative
7	Other (Specify)
8	DK
9	RF

O\_VEHOWN [VEHOWN=7] Other, Ownership Status of Vehicle

EZPAS EZPass Tag

1	Yes, Vehicle has Cruise Card Tag
2	No, Vehicle does not have Cruise Card Tag
8	DK
9	RF

CNTV Vehicle Used on Travel Day 1 [RET]  
 1 Yes  
 2 No  
 9 RF

O\_CNTV [CNTV=2] Reason Not Used [RET]

HHWGT Household Weight

EXPHHWGT Expanded Person Weight

**Place Data**

Variable	Label	Values
SAMPN	Household Identifier	
PERNO	Person Number	
PLANO	Place Number [RET]	
PNAME	Place Name [RET]	
TPURP	Primary Trip Purpose [RET]	
	1	WORKING AT HOME (FOR PAY OR VOLUNTEER)
	2	SHOPPING (ON-LINE, CATALOG, OR BY PHONE)
	3	ANY OTHER ACTIVITIES AT HOME
	4	CHANGE TRAVEL MODE/TRANSFER (FROM CAR TO BUS/TRAIN, WALK TO BUS/TRAIN, ETC)
	5	DROPPED OFF PASSENGER FROM CAR
	6	PICKED UP PASSENGER FROM CAR
	7	DRIVE THROUGH (ATM, BANK, FAST FOOD, ETC).
	8	WORK/DOING MY JOB
	9	OTHER WORK-RELATED ACTIVITIES AT WORK
	10	VOLUNTEER WORK/ACTIVITIES
	11	ATTENDING CLASS/STUDYING
	12	ALL OTHER ACTIVITIES AT SCHOOL (EAT LUNCH, RECREATIONAL, ETC)
	13	WORK RELATED (MEETING, SALES CALL, DELIVERY)
	14	SERVICE PRIVATE VEHICLE (GETTING GAS, OIL, LUBE, REPAIRS)
	15	GROCERY/FOOD SHOPPING
	16	OTHER ROUTINE SHOPPING (CLOTHING, CONVENIENCE STORE, HOUSEHOLD MAINTENANCE)
	17	SHOPPING FOR MAJOR PURCHASES OR SPECIALTY ITEMS (APPLIANCES, ELECTRONICS, NEW VEHICLE, MAJOR HH REPAIRS, ETC)
	18	HOUSEHOLD ERRANDS (BANK, DRY CLEANING, ETC.)

- 19 HEALTH CARE (DOCTOR, DENTIST, ETC)
- 20 PERSONAL BUSINESS (VISIT GOVERNMENT OFFICE, ATTORNEY, ACCOUNTANT)
- 21 EAT MEAL OUT AT RESTAURANT/DINER
- 22 CIVIC OR RELIGIOUS ACTIVITIES
- 23 INDOOR RECREATION (YOGA, GYM, ETC) OR OUTDOOR RECREATION (JOGGING, BIKING, WALKING)
- 24 ATTEND MAJOR SPORTING EVENT
- 25 SOCIAL/VISIT FRIENDS/RELATIVES
- 96 LOOP TRIP (for interviewer only – not listed in diary)
- 97 OTHER (SPECIFY)

O\_TPURP [TPURP=97] Other, Trip Purpose [RET]

TPUR2 Secondary Trip Purpose [RET]

- 0 NO OTHER ACTIVITIES [TPURP2 ONLY]
- 1 WORKING AT HOME (FOR PAY OR VOLUNTEER)
- 2 SHOPPING (ON-LINE, CATALOG, OR BY PHONE)
- 3 ANY OTHER ACTIVITIES AT HOME
- 4 CHANGE TRAVEL MODE/TRANSFER (FROM CAR TO BUS/TRAIN, WALK TO BUS/TRAIN, ETC)
- 5 DROPPED OFF PASSENGER FROM CAR
- 6 PICKED UP PASSENGER FROM CAR
- 7 DRIVE THROUGH (ATM, BANK, FAST FOOD, ETC).
- 8 WORK/DOING MY JOB
- 9 OTHER WORK-RELATED ACTIVITIES AT WORK
- 10 VOLUNTEER WORK/ACTIVITIES
- 11 ATTENDING CLASS/STUDYING
- 12 ALL OTHER ACTIVITIES AT SCHOOL (EAT LUNCH, RECREATIONAL, ETC)
- 13 WORK RELATED (MEETING, SALES CALL, DELIVERY)
- 14 SERVICE PRIVATE VEHICLE (GETTING GAS, OIL, LUBE, REPAIRS)
- 15 GROCERY/FOOD SHOPPING
- 16 OTHER ROUTINE SHOPPING (CLOTHING, CONVENIENCE STORE, HOUSEHOLD MAINTENANCE)
- 17 SHOPPING FOR MAJOR PURCHASES OR SPECIALTY ITEMS (APPLIANCES, ELECTRONICS, NEW VEHICLE, MAJOR HH REPAIRS, ETC)
- 18 HOUSEHOLD ERRANDS (BANK, DRY CLEANING, ETC.)
- 19 HEALTH CARE (DOCTOR, DENTIST, ETC)
- 20 PERSONAL BUSINESS (VISIT GOVERNMENT OFFICE, ATTORNEY, ACCOUNTANT)
- 21 EAT MEAL OUT AT RESTAURANT/DINER
- 22 CIVIC OR RELIGIOUS ACTIVITIES
- 23 INDOOR RECREATION (YOGA, GYM, ETC) OR OUTDOOR RECREATION (JOGGING, BIKING, WALKING)
- 24 ATTEND MAJOR SPORTING EVENT
- 25 SOCIAL/VISIT FRIENDS/RELATIVES
- 96 LOOP TRIP (for interviewer only – not listed in diary)
- 97 OTHER (SPECIFY)

O\_TPURP2 [TPURP2 =97] Other, Trip Purpose [RET]

MODE [PLANO>1] Mode of Transport

1	Walk
2	Bike
3	Auto/Van/Truck Driver
4	Auto/Van/Truck Passenger
5	Local Bus (Regular, Standard, City)
6	Express Bus (Suburban, Commuter, Inter-City)
7	MARTA Train
8	Dial-a-Ride/Paratransit
9	Taxi/Limo
10	School Bus
11	Motorcycle/Moped
97	Other (Specify)
98	DK
99	RF

O\_MODE [MODE=97] Other, Mode of Transport

TOTTR [PLANO>1] Total number of People [RET]

HHMEM [TOTTR>1] Number of Household Members on Trip [RET]

PER1 [HHMEM>0] Person Number on Trip [RET]

PER2 [HHMEM>1] Person Number on Trip [RET]

PER3 [HHMEM>2] Person Number on Trip [RET]

PER4 [HHMEM>3] Person Number on Trip [RET]

PER5 [HHMEM>4] Person Number on Trip [RET]

NONHH [TOTTR>1] Non-Household Members on Trip [COMPUTED]

VEHNO [MODE=3 or 4] Vehicle Number [RET]

RANGE	
97	Non household vehicle

HOVL [IF MODE=3 OR 4] Used HOV Lane [RET]

1	Yes
2	No
9	DK/RF

TOLL [IF MODE=3 OR 4] Used TOLL Lane [RET]

1	Yes
2	No
9	DK/RF

DYGOV [IF MODE=3 OR 4 AND PNAME<>HOME]  
Exit Vehicle [RET]

1	Yes
2	No

PLOC [MODE=3 AND DYGOV=1] Parking Location [RET]

1	At This Destination
2	Off-Site
9	DK/RF

PRKTY [MODE=3 AND DYGOV=1] Parking Description [RET]

1	Parking Lot
2	Parking Garage
3	Street
4	Driveway
5	Residential Garage
7	Other (Specify)
8	DK
9	RF

O\_PRKTY [PRKTY=7] Other, Parking Description [RET]

PAYPK [MODE=3 AND DYGOV=1 and PRKTY<>4 OR <>5] Pay to Park [RET]

1	Yes
2	No
9	DK/RF

PKAMT [PAYPK =1] Pay to Park Amount [RET]

PKUNT [PAYPK =1] Pay Unit [RET]

1	Per Hour
2	Per Day
3	Per Week
4	Per Month
5	Per Semester
6	Per Year
8	DK
9	RF

ROUTE [MODE>4 and MODE<8] Route/Line Number for Transit Trips [RET]

SERVC [MODE>4 and MODE<8] Transit Service [RET]

1	MARTA train
2	MARTA bus
3	CAT (Cherokee Area Transit)
4	CCT (Cobb Community Transit)
5	GCT (Gwinnett County Transit)
6	Xpress / GRTA (Georgia Regional Transportation Authority)
7	HAT (Hall Area Transit)
97	Other (Specify)
98	DK
99	RF

O\_SERVC [SERVC=97] Other, Transit Service [RET]

FARE [MODE>4 and MODE<9] Transit Fare Type [RET]

1	Cash
2	Used Pass
7	Other (Specify)
8	DK
9	RF

FAREC [FARE =1] Transit Fare Cash [RET]

ARR\_HR Arrival Hour [RET]

ARR\_MIN Arrival Minute [RET]

DEP\_HR Departure Hour [RET]  
 DEP\_MIN Departure Minute [RET]  
 ACTDUR Activity Duration [TB]  
 TRPDUR [PLANO>1] Trip Duration in Minutes [TB]  
 TRIPDIST [PLANO>1] Trip Distance [TB]  
 PTAZ Place Travel Analysis Zone  
 XCORD Place Longitude [TB] 7777 Out of Area  
 YCORD Place Latitude [TB]  
 TRIPNO Trip Number  
 PTRIPS Number of Person Trips [COMPUTED]

ACCESSMODE Transit Access Mode

1	Walk
2	Bike
3	Auto/Van/Truck Driver
4	Auto/Van/Truck Passenger
5	Local Bus (Regular, Standard, City)
6	Express Bus (Suburban, Commuter, Inter-City)
7	MARTA Train
8	Dial-a-Ride/Paratransit
9	Taxi/Limo
10	School Bus
11	Motorcycle/Moped
97	Other (Specify)
98	DK
99	RF

O\_ACCESSMODE [ACCESSMODE =97]  
 Other, Transit Access Mode

EGRESSMODE Transit Egress Mode

1	Walk
2	Bike
3	Auto/Van/Truck Driver
4	Auto/Van/Truck Passenger
5	Local Bus (Regular, Standard, City)
6	Express Bus (Suburban, Commuter, Inter-City)
7	MARTA Train
8	Dial-a-Ride/Paratransit
9	Taxi/Limo
10	School Bus
11	Motorcycle/Moped
97	Other (Specify)
98	DK
99	RF

O\_EGRESSMODE [EGRESSMODE=97]

Other, Transit Egress Mode

OPNAME Origin Place Name  
DPNAME Destination Place Name  
OTAZ Origin Travel Analysis Zone  
7777 Out of Area  
DTAZ Destination Travel Analysis Zone  
7777 Out of Area  
ORIGIN\_LONG Origin Longitude  
ORIGIN\_LAT Origin Latitude  
DEST\_LONG Destination Longitude  
DEST\_LAT Destination Latitude  
ORIGIN\_DEPTIME Departure Time  
DEST\_ARRTIME Destination Arrival Time  
PWGT Person Weight  
EXPPWGT Expanded Person Weight

# Appendix G: Recruitment Item Unweighted Frequencies

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**Table H-1: Household Size (Unweighted)**

Household Size	Frequency	Percent	ACS 2010 3- Year estimate
1	2411	23.5	26.2
2	3689	35.9	30.9
3	1832	17.8	17.1
4+	2346	22.8	25.8
Total	10278	100.0	100.0

**Table H-2: Household Number of Vehicles (Unweighted)**

Household Number of Vehicles	Frequency	Percent	ACS 2008 - 2010
0	426	4.1%	6.2
1	2595	25.2%	33.6
2	4403	42.8%	40.0
3	1933	18.8%	14.6
4+	921	9.0%	5.6
Total	10278	100.0	100.0

**Table H-3: Vehicle Age (Unweighted)**

Vehicle Age	Frequency	Percent
Less than 1 year	702	3.1
1 - 5 years	6216	27.6
6 - 10 years	7052	31.3
11 - 20 years	6906	30.7
> 20 years	1223	5.4
DK/RF	407	1.8
Total	22506	100.0

**Table H-4: Household Ethnicity (Unweighted)**

Ethnicity	Frequency	Percent
White	7270	70.7
African American	2212	21.5
Asian	191	1.9
Native American, Alaskan Native	50	0.5
Pacific Islander, Native Hawaiian	11	0.1
Multi-Racial	164	1.6
Hispanic, Mexican	201	2.0
Other (Specify)	17	0.2
DK	7	0.1
RF	155	1.5
Total	10278	100.0

**Table H-5: Hispanic or Latino Households (Unweighted)**

Hispanic Status	Frequency	Percent
Yes	478	4.7
No	9729	94.7
DK	11	0.1
RF	60	0.6
Total	10278	100.0

**Table H-6: Household Residence Type (Unweighted)**

Ethnicity	Frequency	Percent
Single-family Detached House	8267	80.4
Single-family Attached House	497	4.8
Building with 2 or more Apartments or Condos	1384	13.5
Mobile Home or Trailer	119	1.2
Other(Specify)	4	0.0
DK	2	0.0
RF	5	0.0
Total	10278	100.0%

**Table H-7: Ownership Stats of Household Residence (Unweighted)**

Ownership	Frequency	Percent
Rent	1675	16.3
Own/Buying (Paying Off Mortgage)	8564	83.3
Other (Specify)	9	0.1
DK	4	0.0
RF	26	0.3
Total	10278	100.0

**Table H-8: Landlines in Household (Unweighted)**

Landlines in Household	Frequency	Percent
Yes	9500	92.4%
No	757	7.4%
RF	21	.2%
Total	10278	100.0%

**Table H-9: Household Income (Unweighted)**

Income	Frequency	Percent
Less than \$10,000	419	4.1%
\$10,000 to \$19,999	682	6.6%
\$20,000 to \$29,999	711	6.9%
\$30,000 to \$39,999	771	7.5%
\$40,000 to \$49,999	718	7.0%
\$50,000 to \$59,999	679	6.6%
\$60,000 to \$74,999	832	8.1%
\$75,000 to \$99,999	1783	17.3%
\$100,000 to \$149,999	1688	16.4%
\$150,000 or more	1137	11.1%
RF	858	8.3%
Total	10278	100.0%

**Table H-10: Household Number of Students (Unweighted)**

Number of Students	Frequency	Percent
0	6257	60.9%
1	1895	18.4%
2	1470	14.3%
3	502	4.9%
4	124	1.2%
5	21	.2%
6	4	.0%
7	4	.0%
8	1	.0%
Total	10278	100.0%

**Table H-11: Household Number of Workers (Unweighted)**

Number of Workers	Frequency	Percent
0	1890	18.4
1	4089	39.8
2	3709	36.1
3	526	5.1
4	60	0.6
5	4	0.0
Total	10278	100.0

**Table H-12: Number of Licensed Drivers in Household (Unweighted)**

Number of Licensed Drivers	Frequency	Percent
0	258	2.5%
1	2949	28.7%
2	5561	54.1%
3	1205	11.7%
4	264	2.6%
5	33	.3%
6	7	.1%
7	1	.0%
Total	10278	100.0%

**Table H-13: Average Number of Children in Household (Unweighted)**

Number of Children	Frequency	Percent
0	6832	66.5%
1	1436	14.0%
2	1425	13.9%
3	436	4.2%
4	114	1.1%
5	27	.3%
6	4	.0%
7	2	.0%
8	1	.0%
10	1	.0%
Total	10278	100.0%
Average	0.6	

**Table H-14: Respondent Gender (Unweighted)**

Gender	Frequency	Percent
Male	12039	46.6%
Female	13687	53.0%
RF	84	.3%
Total	25810	100.0%

**Table H-15: Respondent Age Distribution (Unweighted)**

Age Distribution	Frequency	Percent
<18 years	5966	23.1%
18– 24 years	1265	4.9%
25 – 54 years	10962	42.5%
55 – 64 years	4210	16.3%
65+ years	2767	10.7%
Age Refusals	640	2.5%
Total	25810	100.0%

**Table H-16: Respondent Disability Status (Unweighted)**

Disability Status	Frequency	Percent
Yes	1326	5.1%
No	24397	94.5%
DK	22	.1%
RF	65	.3%
Total	25810	100.0%

**Table H-17: Respondents with Valid Driver's License (Unweighted)**

Valid Driver's License	Frequency	Percent
Yes	18956	92.5%
No	1499	7.3%
DK	5	.0%
RF	27	.1%
Total	20487	100.0%

**Table H-18: Respondent Employment Status (Unweighted)**

Employment Status	Frequency	Percent
Yes	12388	60.6%
No	8015	39.2%
DK	9	.0%
RF	37	.2%
Total	20449	100.0%

**Table H-19: Respondent Volunteer Status (Unweighted)**

Volunteer Status	Frequency	Percent
Yes	953	11.8%
No	6968	86.4%
DK	36	.4%
RF	104	1.3%
Total	8061	100.0%

**Table H-20: Respondent Works (Unweighted)**

Works	Frequency	Percent
Treated as Worker	13341	65.2%
Non-Worker	7108	34.8%
Total	20449	100.0%

**Table H-21: Respondent Unemployment Status, if Does Not Work (Unweighted)**

Unemployment Status	Frequency	Percent
Retired	2895	40.7%
Homemaker	1166	16.4%
Unemployed but Looking for Work	963	13.5%
Unemployed, Not Seeking Employment	287	4.0%
Student (Part-time or Full-time)	1213	17.1%
Other (Specify)	434	6.1%
DK	27	.4%
RF	123	1.7%
Total	7108	100.0%

**Table H-22: Respondent Average Number of Jobs (Unweighted)**

Number of Jobs	Frequency	Percent
1	12281	92.1%
2	826	6.2%
3	124	.9%
4	26	.2%
5	8	.1%
6	1	.0%
8	2	.0%
RF	73	.5%
Total	13341	100.0%
Average	1.1	

**Table H-23: Respondent Work Locations (Unweighted)**

Work Locations	Frequency	Percent
Fixed	10168	76.2%
Home	1362	10.2%
Varies	1811	13.6%
Total	13341	100.0%

**Table H-24: Respondent Average Number of Days Worked per Week (Unweighted)**

Days Work per Week	Frequency	Percent
One	620	4.6%
Two	756	5.7%
Three	1278	9.6%
Four	1508	11.3%
Five	7752	58.1%
Six	584	4.4%
Seven	210	1.6%
DK	468	3.5%
RF	165	1.2%
Total	13341	100.0%
Average	4.07	

**Table H-25: Percent Employer Provided Parking (Unweighted)**

Employer Provided Parking	Frequency	Percent
Yes	11444	85.8%
No	1589	11.9%
DK	187	1.4%
RF	121	.9%
Total	13341	100.0%

**Table H-26: Percent Employer Subsidizes Transit Pass (Unweighted)**

Employer Subsidizes Transit Pass	Frequency	Percent
Yes	163	8.6%
No	1436	75.7%
DK	181	9.5%
RF	117	6.2%
Total	1897	100.0%

**Table H-27: Educational Attainment (Unweighted)**

Educational Attainment	Frequency	Percent
Not a high school graduate, 12 grade or less (this includes very young children)	6879	26.7%
High school graduate (High school diploma or GED)	3448	13.4%
Some College Credit but no Degree	3337	12.9%
Associate or Technical School Degree	1819	7.0%
Bachelor's or Undergraduate Degree	5759	22.3%
Graduate Degree (Professional Degree like MD, DD, JD)	4279	16.6%
Other (Specify)	21	.1%
DK	90	.3%
RF	178	.7%
Total	25810	100.0%

**Table H-28: Household Member Frequency of Walk or Bike to Work/School in Last Week (Unweighted)**

Walk or Bike to Work/School	Frequency	Percent
0 Times (Never)	17691	91.7%
Once or Twice	335	1.7%
3 or 4 Times	225	1.2%
5 or More Times	543	2.8%
DK	41	.2%
RF	463	2.4%
Total	19298	100.0%

**Table H-29: Vehicle Body Type (Unweighted)**

Vehicle Body Type	Frequency	Percent
Auto Sedan	9711	45.7%
Auto 2-Seat	845	4.0%
Van	1838	8.6%
Recreational Vehicle	135	.6%
Sport Utility Vehicle	4544	21.4%
Station Wagon	398	1.9%
Pick-up Truck	3220	15.1%
Motorcycle	426	2.0%
Moped/Scooter (e.g. Vespa)	51	.2%
Other (Specify)	26	.1%
DK	51	.2%
RF	25	.1%
Total	21270	100.0%

**Table H-30: Vehicle Fuel Type (Unweighted)**

Vehicle Fuel Type	Frequency	Percent
Gas	20621	96.9%
Diesel	287	1.3%
Hybrid	199	.9%
Flex Fuel	94	.4%
Other (Specify)	23	.1%
DK	25	.1%
RF	21	.1%
Total	21270	100.0%

**Table H-31: Vehicle Ownership Type (Unweighted)**

Vehicle Ownership Type	Frequency	Percent
Household Owned/Leased	20690	97.3
Employer Provided	309	1.5
Rental Car	12	0.1
Borrowed From Friend or Relative	51	0.2
Don't Know	10	0.0
Refused	198	0.9
Total	21270	100.0

# Appendix H: Retrieval Item Unweighted Frequencies

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**Table I-1: Primary Trip Purpose (Unweighted)**

Primary Trip Purpose	Frequency	Percent
Working at Home (For Pay or Volunteer)	1240	1.3%
Shopping (Online, Catalog or by Phone)	.56	.1%
Any Other Activities at Home	29314	31.3%
Change Travel Mode/Transfer	3977	4.2%
Dropped off Passenger from Car	4435	4.7%
Picked up Passenger from Car	3851	4.1%
Drive Through (ATM, Bank, Fast Food, etc.)	1808	1.9%
Work/Doing my Job	9991	10.7%
Other Work-Related Activities at Work	160	.2%
Volunteer Work/Activities	216	.2%
Attending Class/Studying	5054	5.4%
All Other Activities at School (Eat Lunch, Recreational, etc)	221	.2%
Work-Related (Meeting, Sales Call, Delivery)	3191	3.4%
Service Private Vehicle (Getting Gas, Oil, Lube, Repairs)	1621	1.7%
Grocery/Food Shopping	4424	4.8%
Other Routine Shopping (Clothing, Convenience Store, Household Maintenance)	4457	4.8%
Shopping for Major Purchases or Specialty Items	491	.5%
Household Errands (Bank, Dry Cleaning, etc.)	1981	2.1%
Health Care (Doctor, Dentist, etc.)	2010	2.1%
Personal Business (Visit Government Office, Attorney, Accountant)	2290	2.4%
Eat Meal Out at Restaurant/Diner	4351	4.6%
Civic or Religious Activities	1070	1.1%
Indoor Recreation ( Yoga, GYM, etc.) or Outdoor Recreation (Jogging, Biking, Walking)	3213	3.4%
Attend Major Sporting Event	178	.2%
Social/Visit Friends/Relatives	2763	2.9%
Loop Trip	220	.2%
Other (Specify)	1030	1.1%
Total	93713	100.0%

**Table I-2: Trip Mode – All Trips, Work Trips, School Trips (Unweighted)**

Trip Mode	Frequency	Percent
Walk	5014	5.4%
Bike	315	.3%
Auto/Van/Truck Driver	61274	65.4%
Auto/Van/Truck Passenger	20278	21.6%
Local Bus (Regular, Standard, City)	720	.8%
Express Bus (Suburban, Commuter, Inter-city)	184	.2%
MARTA Train	884	.9%
Dial-a-ride/Paratransit Service	91	.1%
Taxi/Limo	91	.1%
School Bus	4344	4.6%
Motorcycle/Moped	128	.1%
Other(Specify)	358	.4%
Total	93681	100.0%

**Table I-3: Total Persons Traveling on Trip (Unweighted)**

Total Persons Traveling on Trip	Frequency	Percent
1	52574	56.1%
2	24275	25.9%
3	9659	10.3%
4	3947	4.2%
5	1320	1.4%
6	420	.4%
7	167	.2%
8	94	.1%
9	24	.0%
10 or more	1201	1.3%
Total	93681	100.0%

**Table I-4: Household Members Traveling on Trip (Unweighted)**

Household Members Traveling on Trip	Frequency	Percent
0	7206	17.5%
1	22039	53.6%
2	8015	19.5%
3	2734	6.7%
4	826	2.0%
5	195	.5%
6	56	.1%
8	36	.1%
9	21	.1%
Total	41107	100.0%

**Table I-5: Non-Household Members Traveling on Trip (Unweighted)**

Non-Household Members Traveling on Trip	Frequency	Percent
0	30547	74.3%
1	6695	16.3%
2	1585	3.9%
3	630	1.5%
4	251	.6%
5	108	.3%
6	55	.1%
7	53	.1%
8	25	.1%
10 or more	1137	2.8%
Total	41107	100.0%

**Table I-6: Reason for No Trips on Travel Day (Unweighted)**

Reason for No Trips	Frequency	Percent
Personally Sick	415	10.8%
Vacation or Personal Day	266	6.9%
Caretaking Sick Children	43	1.1%
Caretaking Sick Other	51	1.3%
Home-bound Elderly or Disabled	661	17.2%
Worked at Home for Pay	358	9.3%
Not Scheduled to Work	292	7.6%
Worked Around Home (Not for Pay)	753	19.6%
Out of Area	190	4.9%
No Transportation Available	103	2.7%
Weather	8	.2%
Other (Specify)	662	17.2%
RF	41	1.1%
Total	3843	100.0%

**Table I-7: Parking Location (Unweighted)**

Parking Location	Frequency	Percent
At This Destination	33996	98.9%
Off-Site	223	.6%
DK/RF	139	.4%
Total	34358	100.0%

**Table I-8: Paid to Park (Unweighted)**

Paid to Park	Frequency	Percent
Yes	1165	3.6%
No	30352	94.5%
DK/RF	585	1.8%
Total	32102	100.0%

# Appendix I: Survey Materials

Figure J1: Advance Letter (Non-GPS)



**Regional  
Travel Survey**  
IMPROVE YOUR TRANSPORTATION FUTURE

Sponsored by:



Georgia Department of Transportation



ATLANTA REGIONAL COMMISSION

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*Si desea participar en español en la Encuesta Regional de Viajes, llame al 1-888-222-7734.  
[www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com)*

John Smith  
123 Main Street  
Anytown, GA 99999

September 2, 2011

**Are you concerned about traffic? Do you need more or better options for getting around?**  
You can help shape the future of transportation by participating in the *Regional Travel Survey*. The results will help determine how to spend transportation funds wisely. Your participation will contribute to improvements in traffic congestion, transit systems, air quality, and roadway safety.

The survey is sponsored by the region's transportation planning organizations and is being administered by PTV NuStats, a professional survey firm. When you participate, your household represents thousands of other households in the region.

The way it works is simple:

- Step 1 Complete a household questionnaire by: Monday, September 12**  
Go to [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com). Click "Start Here" and enter PIN#: 1234567AB.  
You may also participate by calling us at 1-888-222-7734, or an interviewer will call you in a few days.
- Step 2 Record your daily travel and activities on an assigned day.**  
After you complete the household questionnaire, we will mail travel diaries for each person in your household. Carry your travel diaries for an assigned 24-hour period and record daily travel details. We ask that parents or guardians complete the diaries for anyone under age 16.
- Step 3 Report your travel information.**  
You can do this online, by mail, or by phone.

We take your privacy very seriously. Under no circumstances will your name or information be sold to anyone.

Please visit our project website, [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com), for more information. If you have other questions, please call the toll-free survey hotline at 1-888-222-7734.

Thank you in advance for joining us as we plan our region's transportation future.

Sincerely,  
  
I. Emerson Bryan  
Interim Director  
Atlanta Regional Commission

---

Survey conducted by PTV NuStats on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission

Figure J2: Advance Brochure

## How Do I Participate?

Follow these 3 easy steps...

**Step 1**

**Complete a Household Questionnaire**

Go to [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com) to complete this step online.

You may also call us at 1-888-222-7734 to participate by phone, or wait for a professional interviewer from PTV NuStats to call in the next few days.

The demographic information collected in Step 1 helps to ensure that we get input from all types of households.



**Step 2**

**Record Your Daily Travel and Activities on an Assigned Day**

We will mail each household member a travel diary to record all the places they visit and stops they make for 24 hours.

Your household may also be asked to participate in a GPS portion of the study.



**Step 3**

**Report Your Travel Information**

After your travel day, report your household's travel information online, by mail, or by phone.





**To participate now:**

Visit the survey website:  
[www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com)

Or call the toll-free survey hotline:  
**1-888-222-7734**

Want to know more about how to participate?

Contact Jeff Livingston, PTV NuStats  
1-800-447-8287, ext. 2256  
Email: [GeorgiaTravel@nustats.com](mailto:GeorgiaTravel@nustats.com)

**Thank you for your participation!**

Survey conducted by PTV NuStats on behalf of the:




**Making the best public investments in transportation:**

**How you can help!**



### What Is the Regional Travel Survey?

The **Regional Travel Survey** collects information from thousands of households in the region about:

- **WHERE** people go
- **WHEN** they go
- **HOW** they get where they need to go
- **WHAT** they do when they get there

**Why?** The survey information will assist public decision-makers in better understanding how well our roads, highways, and transit systems are functioning. *Most importantly, your responses will be used to help plan for future transportation system improvements!*

**The Study Region**



### How Will the Travel Information Be Used?

In order to plan for the projects of **tomorrow**, we need to know how and why people move around and use the transportation system **today**.

The Regional Travel Survey will collect daily travel information from thousands of participating households in the region. This information will be summarized to provide a snapshot of how people travel.



The results will provide key travel statistics to help manage the region's transportation system efficiently and effectively, and to get the most value out of our transportation investments.

**If you are concerned about traffic congestion, transit systems, and roadway safety, take part in the Regional Travel Survey!**

### Why Should I Participate?

Here are just some of the ways your participation will benefit the region...

- 1 Improving mobility, the environment, and quality of life is important to our region.
- 2 Better and more transportation options will make our daily travel and activities easier.
- 3 Accurate travel information is critical for making the best transportation planning decisions.
- 4 Making the right transportation improvements is important to the health of our economy.
- 5 A well-planned transportation system creates a solid foundation for the region's growth.

**Confidentiality**

We respect your privacy and promise to protect it. The information your household provides will be kept strictly confidential. Your name and personal information will be separated from your responses for analysis.

Figure J3: Diary Letter (Non-GPS)

# Regional Travel Survey

IMPROVE YOUR TRANSPORTATION FUTURE



Sponsored by:


ATLANTA REGIONAL COMMISSION

---

John Smith  
123 Main Street  
Anytown, GA 99999

September 12, 2011

**Thank you for participating in the Regional Travel Survey!** The information you provide will help ensure that future transportation projects reflect what your community needs and that transportation funds are spent wisely. Remember that we value your input, no matter how much or how little you travel.

**Step 1** Thank you for completing the Household Questionnaire in Step 1. Now, it's time for Step 2.

**Step 2** Record your daily travel information on your assigned day.

- ▶ **First, review the Instructions and Example inside your travel diary.**
- ▶ **Next, record your daily travel for 24 hours on Thursday, September 22**  
Enclosed are travel diaries for all household members. Each person should carry the travel diary throughout your travel day to record details for each place they go to and stop they make, whether in town or out of town. We ask that an adult help anyone under age 16 fill out their travel diary.

**Step 3** Report your travel information to us in ONE of the following ways:

- ▶ **Online:** Go to [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com), click "Report Travel" and enter PIN#: 1234567AB  
Each person should enter their own travel details. An adult can enter information for anyone under age 16.
- ▶ **Mail:** Use the enclosed postage-paid envelope to return your completed travel diaries. If you choose this option, we may need to call you to clarify or collect any missing information.
- ▶ **Phone:** PTV NuStats will call after your travel day to collect your household's travel information. Or, call toll-free 1-888-222-7734 to provide the information at your convenience.

The survey is being conducted for the Georgia Department of Transportation and the Atlanta Regional Commission by PTV NuStats, a professional survey company. All information collected will be held strictly confidential and used only in combination with information provided from other participating households.

If you have questions about the survey or how to participate, visit [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com), or call our toll-free survey hotline at 1-888-222-7734 (10am-9pm EST weekdays and 11am-6pm EST weekends).

Thank you again for providing the details that will help improve transportation choices for our region.

Sincerely,  


L. Emerson Bryan  
Interim Director  
Atlanta Regional Commission

---

Survey conducted by PTV NuStats on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission

Figure J5: Diary



**Travel Diary for:**

**John** of the Doe Household  
**Your Travel Day is:** Thursday, June 16  
**Your PIN# is:** 1234567AB

**Household Members:**

P1: John	P5: Child 1
P2: Mary Jane	P6: Child 2
P3: Jack	P7: A. J.
P4: Joe	P8: Fred

ARC-024887-10-11-03F

**How Do I Provide My Travel Information?**

**Online** - Enter your information online at [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com) using the PIN# printed on the label on the front of this diary.

**OR**

**Mail** - Return your completed diaries in the postage-paid envelope provided in your packet. We may need to call you to clarify or to collect any missing information.

**OR**

**Phone** - Keep your completed diaries by the phone and we will call to collect the information. Or, you can call our toll-free survey hotline (1-888-222-7734) to provide your information.

For more information about the study, visit the survey website:

**www.ImproveGeorgiaTravel.com**

or  
 Contact Jeff Livingston, PTV NuStats  
 1-800-447-8287, ext. 2256  
 Email: [GeorgiaTravel@nustats.com](mailto:GeorgiaTravel@nustats.com)

If you have questions or need help filling out your travel diary, please call the toll-free survey hotline:

**1-888-222-7734**

**Thank you for your participation!**

Survey conducted by PTV NuStats on behalf of:




**Begin Here:**

Carry this diary with you during your travel day to record information about ALL the PLACES you visit.

Begin at 3 a.m. (or when you wake up) on your assigned travel day and end at 2:59 a.m. the next day (or when you go to sleep on your travel day).

**1. What is the name and address of your regular workplace?**

Work Name: \_\_\_\_\_  Not employed  
 Address: \_\_\_\_\_  Work at home (for job)  
 City/State/Zip: \_\_\_\_\_  Self-employed

1a. Did you go to work today?  Yes  No Why not? \_\_\_\_\_

**2. What is the name and address of your school?**  Not a student  
 School Name: \_\_\_\_\_  Home school  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_

2a. Did you go to school today?  Yes  No Why not? \_\_\_\_\_

**3. Would you be willing to participate in future research activities?**  Yes  No

See the Instructions & Example Inside!

**Diary Instructions**

Use this diary to record information about ALL the PLACES you visit on your assigned travel day. For anyone who is unable to complete a diary, we ask that a parent or guardian complete the diary for them.

Record one PLACE per page. Tell us the:

- ✓ **PLACES** you visit.  
The place name, exact address and/or cross-streets, city, state, and zip are critical for analyzing areas with traffic congestion.

What is a PLACE?  
 A PLACE is any location you travel to, no matter how long you are there.  
 Examples: stopping for gas, drive-thru window, dropping off or picking up someone, going to work, walking to lunch or driving to a meeting during your workday, biking to the park, attending a sporting event, etc.

*If you ride the bus/train or carpool/vanpool:* please record each bus stop, train station, or carpool/vanpool meeting place where you get on or off as a separate place.

- ✓ **EXACT TIMES** you arrive and leave each place.
- ✓ **ACTIVITIES** or what you do at each place.  
Write the code from LIST 1 - Activities (codes are on the flap of the back cover).
- ✓ **How you TRAVEL TO** each place.  
Write the code from LIST 2 - Means of Travel (codes are on the flap of the back cover). We are interested in all means of travel: auto, walking, biking, transit, etc.

Once you have completed your travel diaries, follow the instructions for providing your travel information on the back cover of this diary. Thank you!

**Confidentiality:**  
 We respect your privacy and promise to protect it. The information your household provides will be kept strictly confidential.

**Questions? Call the toll-free survey hotline: 1-888-222-7734**

**EXAMPLE PLACE**

**A. WHAT is this PLACE?**  My Home  My Second Job  
 My Primary Job  Transit Stop  
 My School  Other Place

Please tell us the NAME and ADDRESS of this PLACE:  
Happy Kids Daycare  
 Name of Other Place OR Transit Stop  
901 Main Street  
 Street address OR nearest cross-street  
Anytown GA 99999  
 City State Zip

**B. What TIME did you ARRIVE!** (Record exact time) 7:32  am  pm

**C. HOW did you TRAVEL there?** (Write code from LIST 2 on flap) Code: 3

**D. How many people traveled with you?** (DON'T include yourself) 1 → Which household members traveled with you? (Use person #'s from label)  
 P1  P5  P6  P7  
 P2  P4  P8  P3

Of those, how many were household members? 1

**E. If traveled by PRIVATE VEHICLE:** ← OR → **If traveled by PUBLIC TRANSIT:**

**Which household vehicle did you use?**  
 Year/Make/Model 2008 Honda Accord  
 Did not use a household vehicle

**What transit service was it?**  
 MARTA Train  
 MARTA Bus  
 CATS (Cherokee Area Transit System)  
 CCT (Cobb Community Transit)  
 GCT (Gwinnett County Transit)  
 Xpress/GRTA (Georgia Regional Transportation Authority)  
 HAT (Hall Area Transit)  
 Other: \_\_\_\_\_

**Did you get out of your vehicle?**  
 Yes  No (drive-thru, drop-off/pick-up)

**If you parked at this destination, where did you park?**  
 Did not park  Parking lot  Street  
 Parking garage  Driveway  
 Residential garage  Other: \_\_\_\_\_

**What are the nearest cross-streets to this parking location?**  
Main Street & 1st Street

**How much did you pay to park?**  
 \$ \_\_\_\_\_ per \_\_\_\_\_  Did not pay

**Now did you pay for this trip?**  
 Cash \$ \_\_\_\_\_  
 Pass \_\_\_\_\_

**On this trip, did you use a:**  
 HOV lane?  Yes  No  
 Toll lane?  Yes  No

**F. What ACTIVITIES did you do there?** (Write code(s) from LIST 1 on flap) Main activity (code): 5  
 Other activity (code): \_\_\_\_\_

**G. What TIME did you LEAVE?** 7:36  am  pm → Next PLACE  
 (Please record exact time)  Did not leave → DONE

## PLACE 1

### Begin recording your travel here

For this diary, the day begins at 3 a.m. when most people are home asleep. If this is the case with you, check "My home," then record all the activities you did before leaving and the exact time you left for the first time.

**REMEMBER!** Each bus stop, train station, or carpool/vanpool meeting place (where you get on or off) is a separate PLACE.

**A WHERE were you at 3 a.m.?**

My Home  
 My Primary Job  
 My School  
 My Second Job  
 Transit Stop  
 Other Place

Please tell us the NAME and ADDRESS of this PLACE:

Name of Other Place OR Transit Stop \_\_\_\_\_

Street address OR nearest cross-streets \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**B What ACTIVITIES did you do there?**  
(Write code(s) from LIST 1 on flap of the back cover)

Main activity (code): \_\_\_\_\_  
Other activity (code): \_\_\_\_\_

**C What TIME did you LEAVE?** \_\_\_\_\_ : \_\_\_\_\_  am  pm → Next PLACE  
(Please record exact time)  Did not leave → CONTINUE BELOW

**D What is the MAIN reason you didn't leave this place today?**

I was sick  
 Vacation or personal day  
 Child was sick  
 Other household member was sick  
 Other

I am home-bound, elderly, or disabled  
 Worked at home (for pay)  
 Not scheduled to work  
 Worked around home (not for pay)  
 No transportation available

**IF YOU DIDN'T LEAVE THIS PLACE TODAY**  
You are done. Thank you.

## PLACE 2

**A WHAT is this PLACE?**

My Home  
 My Primary Job  
 My School  
 My Second Job  
 Transit Stop  
 Other Place

Please tell us the NAME and ADDRESS of this PLACE:

Name of Other Place OR Transit Stop \_\_\_\_\_

Street address OR nearest cross-streets \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**B What TIME did you ARRIVE?** (Record exact time) \_\_\_\_\_ : \_\_\_\_\_  am  pm

**C HOW did you TRAVEL there?** (Write code from LIST 2 on flap) Code: \_\_\_\_\_

**D How many people traveled with you? (DON'T include yourself)** \_\_\_\_\_

Which household members traveled with you? (Use person #s from label)

Of those, how many were household members?

P1  P3  P5  P7  
 P2  P4  P6  P8

**E If traveled by PRIVATE VEHICLE:** **OR** **If traveled by PUBLIC TRANSIT:**

**Which household vehicle did you use?**  
Year/Make/Model: \_\_\_\_\_  
 Did not use a household vehicle

**Did you get out of your vehicle?**  
 Yes  No (drive-thru, stop-off/back-up)

**If you parked at this destination, where did you park?**

Did not park  
 Parking garage  
 Residential garage  
 Other

Parking lot  
 Street  
 Driveway

**What are the nearest cross-streets to this parking location?**

**How much did you pay to park?**  
\$ \_\_\_\_\_ per \_\_\_\_\_  Did not pay

**On this trip, did you use a:**

HOV lane?  Yes  No  
Toll lane?  Yes  No

**What was the Route/Line?**

**What transit service was it?**

MARTA Train  
 MARTA Bus  
 CATS (Cherokee Area Transit System)  
 CCT (Cobb County Transit)  
 GCT (Gwinnett County Transit)  
 Xpress/GRTA (Georgia Regional Transportation Authority)  
 HAT (Hall Area Transit)  
 Other

**How did you pay for this trip?**

Cash \$ \_\_\_\_\_  
 Pass

**F What ACTIVITIES did you do there?**  
(Write code(s) from LIST 1 on flap)

Main activity (code): \_\_\_\_\_  
Other activity (code): \_\_\_\_\_

**G What TIME did you LEAVE?** \_\_\_\_\_ : \_\_\_\_\_  am  pm → Next PLACE  
(Please record exact time)  Did not leave → DONE

### LIST 1 - Activities

#### At My Home:

- Working at home (for pay or volunteer)
- Shopping (online, catalog, or by phone)
- Any other activities at home

#### Change Means of Travel/Transfer:

- Change travel mode/transfer (from car to bus/train, walk to bus/train, etc.)

#### Quick Stops/Trips:

- Drop-off passenger
- Pick-up passenger
- Drive-thru (ATM, bank, fast food, etc.)

#### At My Work/Volunteer Location:

- Work/Doing my job
- Other work-related activities at work
- Volunteer work/activities

#### At My School, Daycare, College:

- Attending class/studying
- All other activities at school (for work, recreation, etc.)

#### At Other Places:

- Work-related (meeting, sales call, delivery)
- Service private vehicle (getting gas, oil, tires, etc.)
- Grocery/food shopping
- Other shopping (clothing, convenience store, household maintenance)
- Shopping for major purchases or specialty items (appliances, electronics, new vehicle, major household repairs, etc.)
- Household errands (bank, dry cleaning, etc.)
- Health care (doctor, dentist, etc.)
- Personal business (not government office, attorney, accountant, etc.)
- Eat meal out at restaurant/diner
- Civic or Religious activities
- Indoor recreation (golf, yoga, etc.) or outdoor recreation (jogging, hiking, walking)
- Attend major sporting event
- Social/Visit friends/relatives
- Other (write code 97 and specify activity)

### LIST 2 - Means of Travel

- Walk
- Bike
- Auto/Van/Truck Driver
- Auto/Van/Truck Passenger
- Local bus (Regular, Standard, City)
- Express bus (Suburban, Commuter, Inter-City)
- MARTA Train
- Did-a-ride/Paratransit
- Taxi/Limo
- School Bus
- Motorcycle/Moped
- Other (write code 97 and specify)

LIST 1 is inside flap

### STORY Did you remember to . . .

- Record each place you went, even short walks, quick stops, and places you went in the evening?
- Record exact place names and complete addresses?
- Record the activities that you did at each place?
- Record accurate arrival and departure times?

### QUESTIONS?

Visit the survey website:  
[www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com)

or

Call the toll-free survey hotline:  
1-888-222-7734

# Appendix J: GPS Materials

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John Doe  
123 Main Street  
Atlanta, GA 30308

March 10<sup>th</sup>, 2011

**Thank you for participating in the Regional Travel Survey!** The information you provide will help ensure that future transportation projects reflect what your community needs and that transportation funds are spent wisely. Remember that we value your input, no matter how much or how little you travel.

**Step 1** Thank you for completing the Household Questionnaire in Step 1. Now, it's time for Step 2.

**Step 2** Record your daily travel information on your assigned day.

- ▶ **First, review the Instructions and Example inside your travel diary.**
- ▶ **Next, record your daily travel for 24 hours on Wednesday, March 16.**
- 6) Enclosed are travel diaries for all household members. Each person should carry the travel diary throughout your travel day to record details for each place they go to and stop they make, whether in town or out of town. We ask that an adult help anyone under age 16 fill out their travel diary.
- ▶ **Also, use the GPS devices from Wednesday, March 16 to Friday, March 18.**
- 7) Read the enclosed "GPS Device Instructions for Use" and use the devices as instructed and for the specified time period. Please return the GPS equipment (in the pre-paid FedEx package) immediately after your travel period. Please hold on to your travel diaries for Step 3.
- 8)

**Step 3** Report your travel information to us in ONE of the following ways:

- ▶ **Online:** Go to [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com), click "Report Travel" and enter PIN# **1234567ZE** Each person should enter their own travel information. An adult can enter travel information for anyone under age 16.
- ▶ **Mail:** Use the enclosed postage-paid envelope to return your completed travel diaries. If you choose this option, we may need to call you to clarify or collect any missing information.
- ▶ **Phone:** PTV NuStats will call after your travel day to collect your household's travel information. Or, call toll-free 1-888-222-7734 to provide the information at your convenience.

**Don't forget! Once we have collected and confirmed travel information for all household members, we will send your \$25 check for participating in the survey within 8-10 weeks.**

The survey is being conducted for the Georgia Department of Transportation and the Atlanta Regional Commission by PTV NuStats, a professional survey company. All information collected will be held strictly confidential and used only in combination with information provided from other participating households.

If you have questions about the survey or how to participate, visit [www.ImproveGeorgiaTravel.com](http://www.ImproveGeorgiaTravel.com), or call our toll-free survey hotline at 1-888-222-7734 (10am-9pm EST weekdays and 11am-6pm EST weekends).

Thank you again for providing the details that will help improve transportation choices for our region.

Sincerely,

Charles Krautler  
Director, Atlanta Regional Commission

Survey conducted by PTV NuStats on behalf of the Georgia Department of Transportation and the Atlanta Regional Commission

### GPS Device Instructions for Use (Vehicle)

**Travel Diary Date:** Wednesday, March 16

**GPS Study Dates:** Wednesday, March 16, through Tuesday, March 22 (one full week)

Welcome to the GPS component of the Regional Travel Survey, conducted by your regional planning agency. As mentioned when we first contacted you, the GPS portion of this survey will collect additional travel-related details needed for this study. We greatly appreciate your willingness to help us with this component.

This package contains one GPS logging device for operating vehicle in your household. The following pictures show the GPS device and a side view showing the power switch in the On position.

**GPS Device**

The GPS devices should be provided to each vehicle as shown in the picture below. The GPS Unit ID appears on the side of each GPS logger. The name of each vehicle and a unique color have also been placed on each GPS device.



be table each



**Assignment**

provided to each vehicle as shown in the picture below. The GPS Unit ID appears on the side of each GPS logger. The name of each vehicle and a unique color have also been placed on each GPS device.

Vehicle	Year	Make	Model	GPS Unit ID	Color Code
1	1998	SUBARU	FORESTER	31680	
2	2003	HONDA	ODYSSEY	31652	

**When and How to Install**

- You should install each GPS device into the vehicle as assigned in the above table. Please do this at the start of your travel diary day.
- To install the GPS device, simply plug the power cord provided into your vehicle's power outlet or cigarette lighter socket (a red light should appear on the base that is inserted into the outlet if the connection is secure) and connect the other end of the power cable to the side of the GPS device.
- Place the GPS device on your dashboard with the QStarz name facing upward.
- The power cable has been provided with a small suction cup mount that you should affix to your windshield. This will keep the GPS device on the dashboard and will prevent it from sliding off.
- Once everything is connected properly, **please turn on the GPS device** if it is not already on. To do this, move the switch on the side of the device to the On position -- when it is powered on, the yellow lines on the switch and base of the device should appear as a continuous line (see image above). At least one of the lights on the top of the unit (near the red button) should be illuminated.
- A power splitter has been provided in case you need to use your power outlet to power other devices (such as your phone or iPod) during your travel week. If you use it, please make sure all connections are secure and that the red power light at the base of the power cord is illuminated.

It is very important that you confirm that the GPS device is powered on and that the power cable is securely connected throughout your assigned travel week.

If you have any questions regarding the GPS equipment, please call **GeoStats** toll-free at **1-866-436-7828** between 8:30 AM and 5:30 PM (ET). *GeoStats is our contractor for the GPS component of the Regional Travel Survey.*

PLEASE RETURN THIS PAGE WITH YOUR EQUIPMENT

**GPS Device Return Instructions**

**Please return the GPS devices, along with this page, immediately after your participation is complete.**

As soon as possible after Tuesday December 7, collect all GPS devices, cables, and AC adapters provided for your household, place them in the packaging material and box in which they arrived, and place the box inside the pre-paid FedEx Pak (and seal the Pak). You may drop the FedEx package at any FedEx store/drop box, or you can call 1-800-GoFedEx for a pick-up at your home.

Please **DO NOT RETURN** your travel diaries with your GPS equipment. You will need the diaries to report your travel by phone, or by mail (using the return envelope provided).

**Please complete this table and return this page with your equipment in the box and FedEx Pak provided.**

Vehicle	Year	Make	Model	Used Equipment (Yes/No)
1	1998	SUBARU	FORESTER	
2	2003	HONDA	ODYSSEY	

Please provide any additional comments here:

**Return Checklist**

- All GPS Devices, power cables, and AC adapters
- Packing materials / Original Box
- This page

**Remember, in order to receive your participation award, you must:**

- Use the enclosed travel diaries
- Report your travel details by phone or mail
- Use the enclosed GPS devices
- Return GPS devices via FedEx.

As explained above, to return the equipment, place the box with the equipment inside the pre-paid FedEx Pak (and seal the Pak). You may drop the FedEx package at any FedEx store/drop box, or you can call 1-800-GoFedEx for a pick-up at your home.

**Thanks for your participation!**  
**GPS Device Instructions for Use (Page 1, Wearable)**

**Travel Diary Date:** Wednesday, March 16

**GPS Study Dates:** Wednesday, March 16, through Friday, March 18 (three complete days)

Welcome to the GPS component of the Front Range Travel Counts Study, conducted by your regional planning agency. As mentioned when we first contacted you, the GPS portion of this survey will collect additional travel-related details needed for this study. We greatly appreciate your willingness to help us with this component.

This package contains one GPS logging device for each person of age 16 or older in your household. The following pictures show the GPS device and how it can be worn.



**GPS device  
clipped to Belt  
on Waist**



**GPS Device Assignment**

The GPS devices should be provided to each person as shown in the table below. The GPS Unit ID appears on the back of each GPS logger. The name of each person and a unique color have also been placed on each GPS device.

Person	Name	Age	GPS Unit ID	Color Code
1	JOHN	35	32981	
2	JANE	34	33011	

**When and How to Wear**

- You should wear the GPS device whenever you travel outside of your home starting on your assigned travel date (this is also the day that you are recording your travel in the travel diary) and continuing through the four days of your GPS study period.
- When walking, biking or riding public transportation, you should wear the GPS device on your waist or clipped to your bag or purse. If you are riding inside a vehicle such as a car or truck, you can continue to wear the GPS device on your waist or place your bag or purse on the seat.

**Charge the GPS Device Battery Daily or Nightly, Including the Day or Night before your Travel Diary Date**

- **Charge the device.** Plug one end of the enclosed cable (the end with the larger connector) into the cable on the side of the GPS device. Connect the opposite end of the cable into the wall plug adaptor and plug the adapter into the wall. If the connection is right, the bottom light on the GPS device will light up in amber/yellow indicating that it is charging.
- **Confirm device is ready for use.** Unplug the GPS device in the morning and make sure the green light (the top light nearest the large silver power button) is illuminated. If it is not, press the power button for four to five seconds until all lights appear. If they do not appear, please try again by first releasing and then pressing and holding the power button for four to five seconds until all lights appear. Once all lights appear, you can release the button. The green

and red lights should remain illuminated, meaning the device is ready to collect data. The green light will flash when data is being collected. The mode switch on the side of the device is not used and can be set to a, b or c.

**\$50**

## Thanks for Participating!

### **DON'T FORGET...**

To thank you for your effort, we are offering \$50 if everyone in your household:

- ✓ Uses the enclosed travel diaries as instructed
- ✓ Reports travel details by phone or mail within one week of the assigned travel date
- ✓ Uses the enclosed GPS devices as instructed
- ✓ Returns GPS devices via FedEx within one week after the last assigned GPS date

*Your check will be mailed once your travel and GPS information are complete and confirmed for everyone in your household.*

**\$50**



GeoStats

March 16, 2011

Jane Smith

123 West Main Street

Atlanta, GA 30308



Dear Jane Smith,

Thank you for your participation in the GPS portion of the Regional Travel Survey conducted on behalf of the Atlanta Regional Commission (ARC).

Our records indicate that we have not received your GPS device(s) and we need your help to get the unit(s) back. Please return the equipment in the box in which it was sent, using the pre-paid FedEx envelope provided in the box. If you need a replacement envelope, please give us a call at 1-866-GeoStats (1-866-436-7828) so we can arrange to have one sent to you. If you have already returned the GPS device(s), we would greatly appreciate your calling us anyway to let us know.

Thanks again for your participation. We hope you will consider being a part of future ARC studies.

Sincerely,

Jean Wolf

President

GeoStats



GeoStats

March 16, 2011

John Doe

123 Main Street

Atlanta, GA 30308

HHID: 1000000



Dear John Doe,

Thank you for your participation in the GPS portion of the Regional Travel Survey conducted on behalf of the Atlanta Regional Commission (ARC) and the Georgia Department of Transportation (GDOT). Enclosed is a \$50 participation gift for your assistance with this important study.

Your participation will help us build a more accurate picture of transportation needs, and enable the Atlanta region to get the most value out of future transportation investments. We hope you will consider being a part of future ARC/GDOT studies.

Sincerely,

Jean Wolf  
President  
GeoStats