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South Jersey Transportation Planning Organization 2014 Household Travel Survey

Final Report

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Executive Summary

The South Jersey Transportation Planning Organization (SJTPO) contracted with Westat to conduct the 2014 South Jersey Household Travel Survey (SJHTS). The last time the SJTPO conducted a household travel survey was in 2001. The objective of the 2014 survey was to obtain current travel behavior data needed to support the update of the South Jersey Travel Demand Model (SJTDM). The SJTPO is responsible for the transportation planning for the four southern-most New Jersey counties of Salem, Atlantic, Cumberland, and Cape May Counties. Along with transportation data from other sources, data collected from this regional household travel survey provides significant input to the SJTDM. These survey data will also support other general planning efforts across the region and help planners better understand how the South Jersey region has changed since the 2001 HTS.

An address based sampling (ABS) frame was used to recruit households to participate in a one-day personal travel survey data collection. Each sampled address was sent up to three invitations to participate. Recipients of the invitations were encouraged to recruit online or to call our toll-free number to speak with an interviewer. Telephone numbers matched to the sampled address were also called. Recruited households were assigned a travel date and provided logs to help them keep track of details associated with all the places they went on that day. The travel survey collected details from all household members about the places visited on an assigned travel day. Travel days for this study included weekdays only (Monday through Friday). Respondents were able to participate by web, telephone or by returning the logs by mail. All participating households were provided a modest incentive.

In addition to the traditional HTS, the SJTPO was interested in understanding more about the types and amount of travel that residents of the area make to the Jersey Shore. A brief Shore Visits questionnaire followed the report of travel day details survey and provides basic information about recreational travel of the participating households.

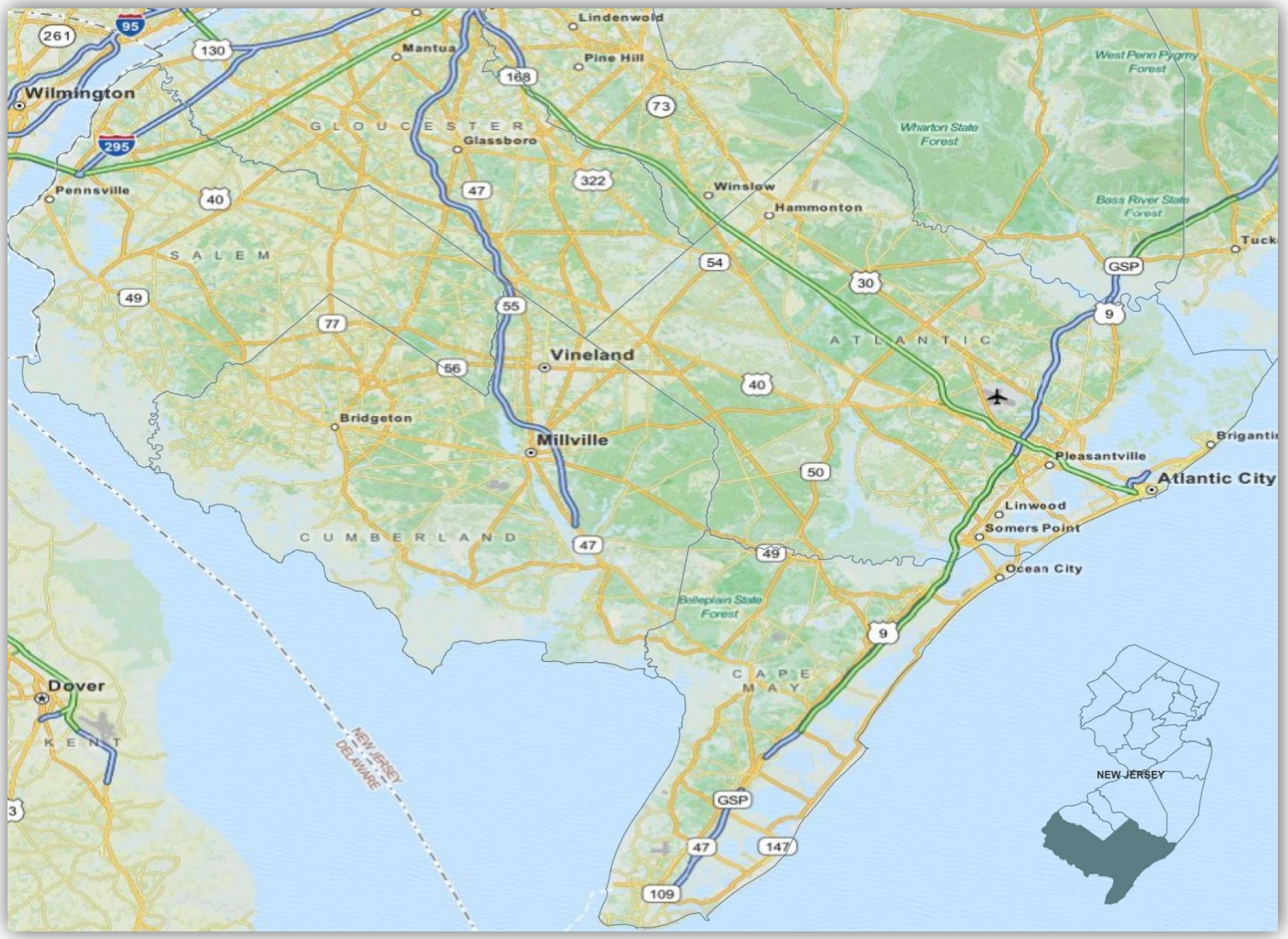
A total of 3,123 households from the four county region that makes up the SJTPO were recruited to participate in the study. In total, 1,850 households across the region reported travel details for their assigned travel day and are included in the final weighted dataset.

1. Introduction

The primary objective of the South Jersey Transportation Planning Organization (SJTPO) when conducting the 2014 South Jersey Household Travel Survey (SJHTS) was to obtain current travel behavior data that, combined with other transportation and land use data sources would be used to update the South Jersey Travel Demand Model (SJTDM). To meet their analytical needs, SJTPO contracted with Westat to conduct their regional household travel survey (HTS). Data collected through this survey would not only support the SJTDM, but would be used for general project planning by the sub-regions and for other regionals analysis (e.g., air quality). The last time SJTPO conducted a household travel survey was in 2001 and the agency plans to use the data from the 2014 SJHTS to understand socio-demographic and travel behavior changes since the last survey.

The 2014 SJHTS included the collection of household and person level socio-demographic data and one-day (24-hours) of household travel behavior The entire SJTPO planning region was covered by this survey and included the four southern-most counties in the state; Salem, Atlantic, Cumberland, and Cape May. Included in the region are the cities of Atlantic City, Cape May, and Vineland. Figure 1 below provides a graphical representation of the study area boundary.

Figure 1. Survey Study Area



The survey data collection effort included two-stage interviews (recruitment and retrieval) with 1,850 households, and was conducted between February 2014 and May 2014. The survey population consisted of households within the South Jersey region noted above.

Tables in this report will present data in two ways, either unweighted only or both unweighted and weighted. The unweighted results show the distribution of raw survey responses. The weighted data show the results weighted to population totals for the region.

2. Branding and Public Outreach

Over the past decade, survey research has experienced declining participation rates across all populations. HTSs have not been immune to these challenges, and the focus that many regional efforts have on ensuring that the data represents the "harder-to-survey" or "harder-to-reach" populations like low-income, larger households creates even more of a challenge. Because household travel surveys rely on data from all types of households, and especially those that are more difficult to reach, a highly focused level of effort is needed to ensure that a representative sample is obtained.

At the onset of the SJHTS, the implementation of best practices in survey branding, public communications, and targeted outreach, especially among the regions' Spanish-speaking only was identified as a critical component to the project's success.

The initial step of the communications plan was to brand the survey. Branding includes developing an official survey name to be used on all printed materials and on the public website. Creating a logo that is recognizable and consistent with the region is another key element of branding. The SJTPO adopted "South Jersey Travel Survey" as the project name to be used on all survey related materials. This name was also used as the SJHTS public website URL (www.SouthJerseyTravelSurvey.com). The public website served two primary functions. The general public and sampled households could obtain information about the survey by visiting the website. The website also served as the survey access point for sampled households. Figure 2 shows the final artwork for the SJHTS logo.

Figure 2. Study Logo

Public communications was another important component of the SJHTS outreach plan. Many of the larger transportation planning organizations have their own public relations office or department that manages and disseminates the message of the organization. The SJTPO project team did not have access to these public relations specialists. Still the project team utilized the connections they

had within the community to get the word out about the study to both the general public and specifically to the Hispanic community. Press releases and print media opportunities were linked on the study home page. The SJTPO team made several contacts with community groups to let them know about the study and the importance of communicating this message with their members.

Additional efforts to recruit members of the Hispanic population in the region included the public website content being made available in English and Spanish. The survey itself was translated into Spanish and available in self-report or interviewer-assisted modes. To encourage Spanish speaking households to participate, all materials included a tagline in Spanish instructing participants on how they could conduct their survey in Spanish. This tagline include the URL where they could access the Spanish version of the web survey and the toll-free number where Spanish speaking interviewers were available to conduct the survey in Spanish for those that required or preferred this option.

3. The Survey Process

The SJHTS was design as a multi-mode survey (web, telephone and mail) that would collect socio-demographic data at the household- and person-level, household travel behavior for all household members age five and older for a one-day (24-hour) period. The target sample completion goal was 1,750 households across the four county South Jersey region. This section of the report describes the survey methodology employed in the completion of the SJHTS.

3.1. Sample Design

3.1.1. Sample Frame and Selection

An address-based sample (ABS) frame was developed to identify all residential addresses in the study area. From this frame a random sample of addresses were selected and invited to participate in the SJHTS. The ABS was selected from the United States Postal Service (USPS) Computerized Delivery Sequence File and included street addresses in Salem, Atlantic, Cumberland and Cape May Counties. An attempt was made to match each sampled address with a telephone number. This process returned a match for 42,541 sampled addresses. In cases where an address was matched to a telephone number, the phone number may have been used to contact a non-responding sampled address during the data collection process. All sampled residential addresses were eligible to participate in the study regardless of whether a telephone match was obtained.

Based on response rate assumptions established prior to the study, a sample of 75,000 residential addresses was selected for inclusion in the SJHTS. This included a main sample of 53,000 and a reserve sample of 22,000 addresses. Because response rates were lower than anticipated during the data collection phase, all of the sampled addresses were required to recruit enough households to reach the targeted 1,750 completed surveys.

3.1.2. Sample Preparation

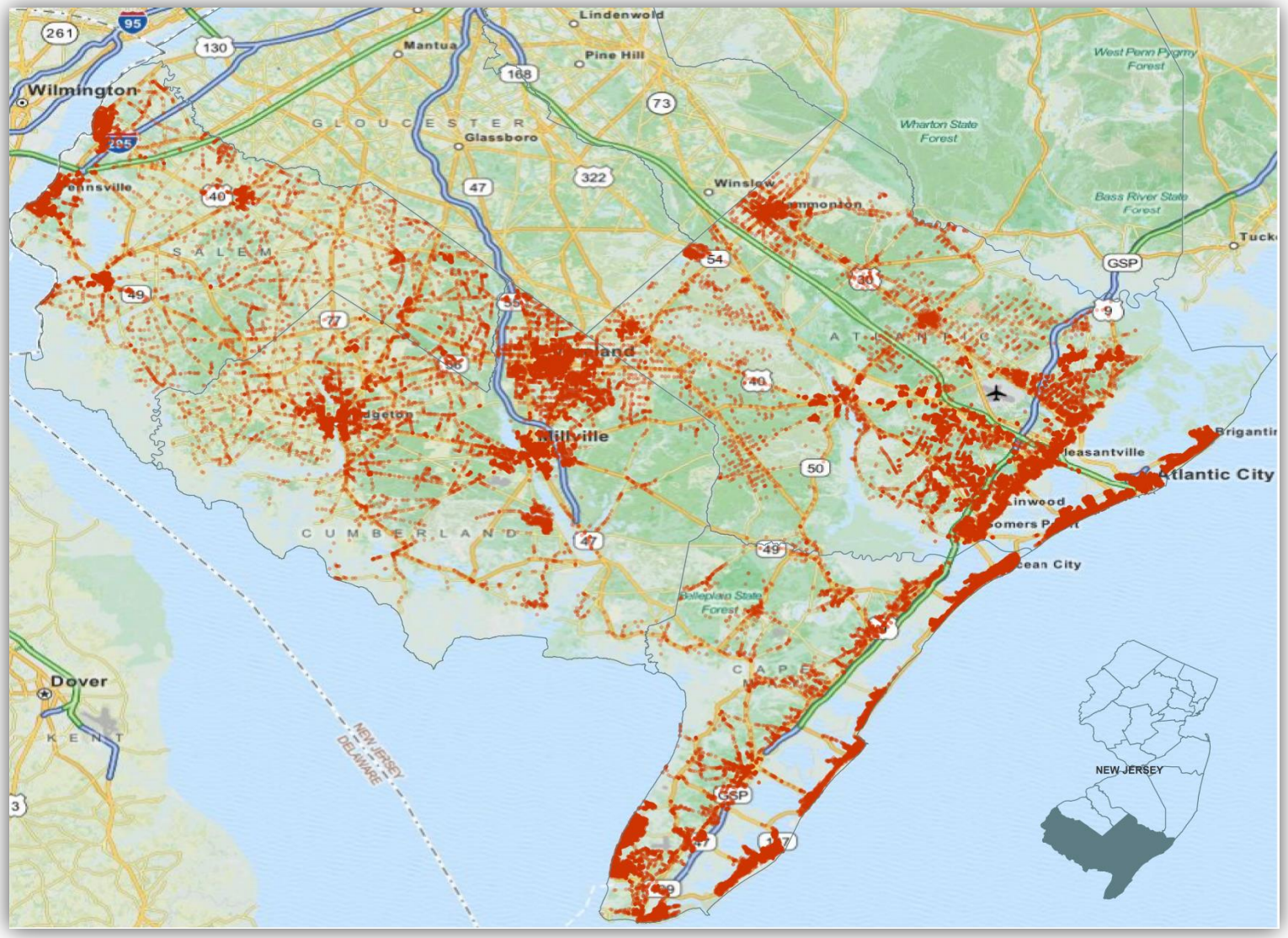
Prior to the beginning of data collection, the sampled addresses were assigned to release groups. Each release group was comprised of addresses that were representative of the entire sample region. Release groups are used to control the timing and amount of sample released. Multiple release

groups were mailed simultaneously. Each release group contained approximately 1,000 addresses, allowing the release of the sample to be managed at a discrete level.

The ABS sampling strategy is considered by the industry as the current best practice and provides the greatest opportunity to effectively and efficiently achieve the sample objectives for geographic and socio-demographic distributions.

Figure 3 shows the locations of all sampled addresses.

Figure 3. Sampled Household Locations



To achieve a balanced day-of-week distribution for both recruitment and retrieval stages of the HTS, the sample was also randomly assigned a specified weekday (Monday to Friday) travel day. Assignment to day of week within each release group was balanced to reflect 20 percent assigned to each of the five days of the week. The actual travel date was assigned during the recruitment survey.

3.2. Survey Instrument Design

The objective of the SJHTS was to collect socio-demographic and travel behavior data from residents of South Jersey. The study was designed as a mixed-response mode survey allowing respondents to participate by web, telephone, and mail. This section of the report describes the two primary survey instruments (recruitment and retrieval) and the optional Shore Visits household questionnaire. The design and high-level discussion of the data elements captured in the survey instruments are included here.

A fundamental concern when designing survey instruments is the respondent experience. To be successful it is critical that surveys are administered in a way that minimizes respondent burden. The recruitment and retrieval surveys for SJHTS were administered using an integrated web survey software system that was used for both computer-assisted self-interviews (CASI) and computer-assisted telephone interviewing (CATI). Regardless of the response mode selected by the participant, the surveys used the same underlying questions, branching, format, and logic checks[1]. The web-based recruitment and retrieval instruments were accessible to participants via the project-specific public website. Each household was assigned a unique PIN, provided in each of the mail contacts. The PIN allowed secure access to the online questionnaires. Mail back was an option at the retrieval level. Survey staff entered data contained on the travel logs received by mail into the same survey database, using the same web system as used with CASI or CATI.

3.2.1. Recruitment Instrument

The recruitment questionnaire collected general demographic information about each household including income, household size, type of housing, and information about vehicle ownership. This questionnaire also captured demographic characteristics about each member of the household,

[1] Primary differences between self- and interviewer-administered versions of the survey were how a question was presented to the participant. Additional verbiage is often required for interviewer administered surveys. .

including the 0 – 4 year olds not required for the travel day reporting component of the survey. At the conclusion of the recruitment survey, households were assigned a travel date. Households were also asked to indicate their preferred mode of contact for future reminders; options included telephone calls, text messages, and emails. This information allowed Westat to tailor the reminder and subsequent re-contact attempts to the participant's preference.

Early in the recruitment process Westat observed a higher than ideal item non-response rate to the household income question. This is typical in survey research. In fact, the ACS observes a 13 percent item non-response to income[2]. Because household income is believed to be correlated with trip making and therefore an important variable for the TDM, Westat recommended an approach to capturing this information that would allow these households to remain in the final sample. Because the model is expected to use broader categories than presented in the recruitment income question, a follow-up question was added to the retrieval instrument that was only presented to households that were considered item non-response[3] to the question in the recruitment instrument. This approach proved effective and item non-response for this question was reduced from 18 percent to 11 percent.

3.2.2. Retrieval Instrument

Travel day details were collected through the TripBuilder™ (TBW) component of the web survey software system. TBW incorporates an integrated online map that enabled real-time geocoding to collect accurate trip location details. Travel day trip details were collected in two steps. The first step was the creation of a sequential list of places visited and basic attributes about each place, including arrival and departure times, mode of travel, place type, location information, and travel companions. The second step of the process captured information about the activities each respondent engaged in at each place, details about any tolls paid on the travel day, and miscellaneous items based on the number of trips and vehicles used (e.g., capturing why no trips were reported for an individual or a vehicle was not used on the travel day).

The following sections list the key information that was verified, collected, or derived about each completed household.

[2] Table B99192, 2008-2012 American Community Survey, American Factfinder online query, URL: www.census.gov, accessed April 29, 2014.

[3] Item non-response includes the responses of "Don't know" and "Refused / Prefer not to answer."

3.2.2.1. Household Data

Household-level details were collected for each household in the final dataset. Among the variables reported in the data are:

- Home address
- Residence type
- Owner/Renter status
- Household size
- Household income
- Number of vehicles
- Number of bicycles in working condition

3.2.2.2. Vehicle Data

For each household that had vehicles owned, leased, or available for regular use by the current household members we asked for the:

- Year
- Make
- Model
- Body type (e.g., SUV)
- Fuel type

3.2.2.3. Person Data

Specific questions were asked about each household member living in the home on the date the recruitment survey was completed. Key person-level variables collected about household members include:

- Age
- Gender
- Relationship of all household members to the respondent completing the recruitment survey
- Disability status[4] and type (if applicable)
- Licensed driver status (age eligible)
- Employment status (age eligible)
    - If employed, additional data items related to work
- Student status
    - If a student, additional data items related to school
- Highest level of education earned
- Hispanic origin
- Race

3.2.2.4. Travel Day Trip Data

The travel day began at 3 a.m. on the assigned date of travel. Data were collected for each place that each household member (age 5 and older) was throughout the day until 2:59 a.m. the following day. This included the place where they started the day and all the places they went during this 24-hour period. Key trip-related details collected include:

- Trip start and end locations
- Trip start and end times
- Mode of travel
    - If household vehicle was used, additional data items related to the vehicle and passengers
- Primary activity at each location (trip purpose)
- Toll and Fare information

[4] Disability status was restricted to a disability that limited the type of transportation that could be used. This is a household level variable and not linked to a particular individual in the household.

3.2.1. Shore Visitors Instrument

An additional questionnaire that asked specific questions about travel to the Jersey Shore was added to the SJHTS. It was presented to the household after all household members had reported their travel day details. The objective of this survey was to capture information about recreational travel behavior, specifically travel of residents of the sample region to the Jersey Shore. Shore and casino travel contribute significantly to the SJTPO planning region transportation concerns. To fully understand the impact of shore travel, a visitor survey would need to be conducted; however, understanding more about SJTPO residents' travel behavior would be helpful to SJTPO planners.

3.2.1.1. Shore Visitors data

The questions asked participants general questions about things like how frequently they traveled to the shore, the purpose of these trips, whether they went to casinos, if they stayed overnight, how they traveled there and how many household members accompanied them on the trip(s). Households that reported visiting the shore during last summer or any casino in the past year were prompted with additional questions about these recreational activities. Survey participants who reported travel details by mailing the logs back were not asked these questions, unless a follow-up call for additional details or log clarification was otherwise required. This questionnaire was not required to be completed for the household to be included in the final sample file or for them to receive the incentive.

3.3. Data Collection Methodology

The data collection began with letters of invitation being mailed in February 2014 and ended with final travel data collection in early May 2014. The official study travel dates included all Mondays through Fridays from February 10, 2014 through May 1, 2014.

The survey data collection process included the recruitment of participants, various reminder contacts distributed across the field period, and the retrieval of the travel day data. The following sections describe this process in more detail.

3.3.1. Recruitment Process

Recruitment began by mailing a letter of invitation to participate in the survey to sampled addresses. The letter informed the recipient about the purpose of the study and encouraged participants to self-recruit online and provided the website URL and a personal identification number (PIN) to gain access to the survey associated with the address. The letter also informed the recipient that each participating household would be eligible for an incentive (See Appendix 6.1.1).

Invitation letters were ultimately mailed to 75,000 addresses in the region. This represents the 53,000 addresses sampled for the main survey and the 22,000 addresses selected for the reserve sample. A letter was sent to each sampled address regardless of whether the sampled address had a phone match. The letter was addressed to "city" resident (e.g., Vineland Resident), printed on project branded letterhead and signed by Timothy G. Chelius, Executive Director SJTPO.

Up to two postcards were mailed to each sampled addresses across the region. All mailed materials included a toll-free number to be used to reach the study team if participants had questions or preferred to participate by phone. Each letter or postcard mailed included a Spanish tag-line about the study and a separate toll-free number that was dedicated to field incoming Spanish inquiries.

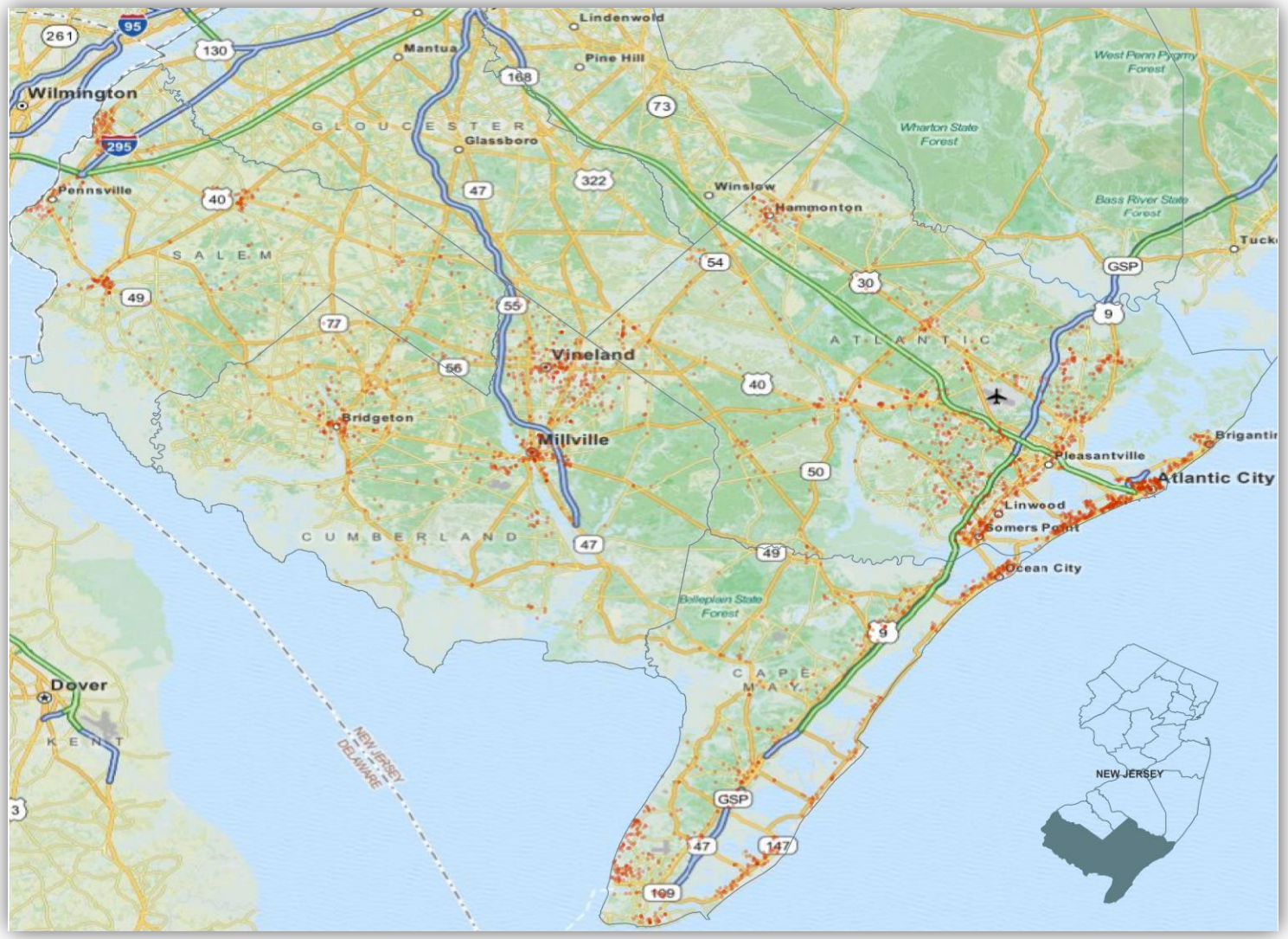
Attempts to recruit sampled households into the study also included telephone contacts. Recipients of the mailed materials were given the option to self-recruit through our secure website or speak with one of Westat's survey team members on the phone. Most households (82 percent) completed the recruitment process online. When a household had not self-recruited and a telephone number was available, telephone interviewers attempted to recruit by telephone. Eighteen percent of recruited households were recruited by phone. Table 1 shows the target and actual number of recruited households. Because the retrieval rates were lower than expected, more households had to be recruited to achieve the target completion goal.

Table 1. Target and Actual Recruited Households

	Recruited Households		
	Target	Actual	Percentage
Atlantic	1,254	1,496	119%
Cape May	498	579	116%
Cumberland	632	689	109%
Salem	308	359	117%
Total	2,692	3,123	116%

The locations of all recruited households are shown in Figure 4.

Figure 4. Participant Household Locations – Recruited Households



3.3.1.1. Recruitment Reminder Contacts (Postcards)

The study protocol included sending each address in the sample a reminder postcard seven days after the advance letter was sent. A second reminder postcard was sent to non-responding addresses seven days after the first (See Appendices 6.1.2.1 – 6.1.2.4)

3.3.1.2. Travel Date Assignment

When the sample was initially selected, each address was randomly assigned a travel **day** of the week (Monday through Friday). Specific travel dates were assigned at the time the household was recruited into the study based on the day of week that was assigned when sampled. The goal was to have an even distribution of 20% of households recruited for each of the five days of the week. During the recruitment survey, households agreeing to participate were assigned the next available **date** that fell on the pre-assigned day of the week. Travel days were generally scheduled seven days after the recruitment interview to allow sufficient time for individualized travel logs to be prepared and mailed to each household. Households were also given the option to print the travel logs themselves. There was no seven day delay in the assignment of the travel date when this option was selected. Table 2 shows the distribution of recruited households by day of week. The balance by travel day of week was fairly consistent with Wednesday being slightly overrepresented and Friday slightly underrepresented in the recruited households.

Table 2. Distribution of Recruited Households by Day of Week

	Unweighted	
Day of Week	Frequency	Percentage
Monday	630	20%
Tuesday	621	20%
Wednesday	641	21%
Thursday	637	20%
Friday	594	19%
Total	3,123	100%

3.3.1.3. Recruitment Confirmation

When a recruited household provided an email address or text message contact number, they received an automated recruitment confirmation message via their preferred contact mode. This

message confirmed that their recruitment survey data were successfully received and provided a phone number to reach a study team member if they had questions.

Between recruitment into the study and the actual travel behavior data collection, other steps were taken to enhance household participation and provide materials to assist in the process. These efforts are presented next.

3.3.2. Travel Log

Once recruited, each household was mailed a travel log packet. The mailing included a letter thanking the household for agreeing to participate, instructions regarding how to participate, individualized travel logs for each household member age 5 and older, and an example log. These materials were available online for those who chose to download the materials, rather than receive them through the mail; however, the materials were not personalized when downloaded by the respondents.

The instructions asked household members to use the travel log (on the assigned travel day) as a tool to help each household member record all trips made beginning at 3 a.m. on that date through 2:59 a.m. the following day. Instructions were provided regarding how to report travel online or over the phone. The letter indicated that all completed households would receive a $10 incentive (Appendices 6.1.3).

3.3.3. Pre-Travel Day Reminder Contacts

The day before the assigned travel day, each household was contacted by their preferred method (phone, email or text message) to be reminded of their travel day. If contacted by phone, Westat verified that all travel day materials had been received and ensured any questions were answered. Email reminders allowed participants to respond to the email with questions. Study team members responded to each participant email in a timely manner.

3.3.4. Retrieval Process

Recruited households were assigned a specific travel day to keep track of all the places they went in a single day. Households were encouraged to self-report their travel data online; however, a traditional

telephone interview option was also available. The SJTPO wanted to include an option that allowed participants to return their completed travel logs by mail. Westat's recent experience implementing a mail back option has introduced data quality issues; therefore, this response option was provided, but not encouraged.

A series of electronic reminders were delivered to recruited households in an attempt to improve survey response. Beginning the day after the travel date, up to five reminder prompts were sent as text messages or emails depending on the contact preference requested by the household. These reminders included the household's PIN and links to the public website.

Because households assigned a Friday travel date were participating at a lower rate thank those randomly assigned some other day of the week, an additional reminder was added for those households. Most households now prefer electronic reminders. It is possible that those reminders to report travel that arrive on a Saturday were less effective. The additional reminders were sent on the Monday following the households' Friday travel date. In the end, we found that this extra reminder did not improve the participation rates of Friday travelers.

Households were able to begin reporting their travel day trip and activity details by web or telephone beginning the day after the travel day. Households preferring to complete by telephone with an interviewer were called the first day after their assigned travel day. Those preferring to complete by web were also called if the household had not reported their travel within three days of their travel day. Some households required rescheduling of their travel date. These requests were accommodated whenever possible. The retrieval survey remained open to respondents until May 12, 2014.

The retrieval questionnaire data was collected using Westat's TBW web-based software. This system enabled the data of all participants, regardless of response mode, be entered into the same database. Respondents first reported all the places they went on their travel day. As they listed a place, the place was geocoded. TBW uses a built-in Google Maps interface that allows participants to see a map of their day as they report trips. After all the locations were listed and geocoded, trip activity information was collected.

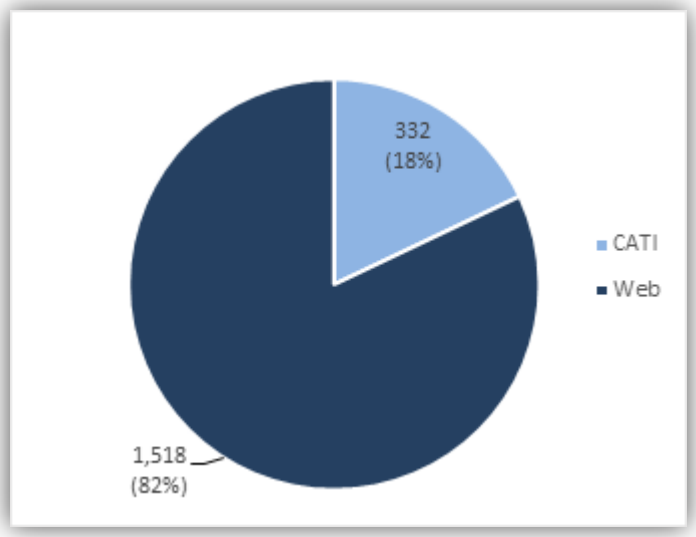
The Shore Visitor questionnaire was presented after all household members reported their travel day details. This questionnaire was not required to be considered a completed household.

3.4. Sample Monitoring

Recruitment and retrieval results were monitored daily. Each sample mail group was monitored to evaluate sample yields. As noted earlier, more addresses were required than originally estimated to reach the targeted completes; therefore, the sample release plan was adjusted accordingly.

Figure 5 shows the percentage of recruited households by recruitment mode. Although participants were encouraged to self-recruit online, providing response choices allowed each participant the option to select the mode of participation that best suited him or her without recruiting more households than necessary. Overall, 82 percent of all recruited households took advantage of the self-recruiting option.

Figure 5. Recruitment Response Mode (CATI & Web)



Of the 1,518 households that recruited by web, the addresses for 447 (29.4 percent) were not matched to a telephone number. Perhaps even more interesting is that 107 (32.2 percent) of the 332 households completing by telephone were also not matched. In the end, 554 households, representing 29.9 percent of all completed households, were included in the study that would not have been if the sample would have been telephone based.

Table 2 presented the distribution of recruited households across day of week and Table 3 presents the completed (retrieved) households by day of week. The retrieved household percentages presented here are similar to the recruited results presented in Table 2 with the exception of Friday

travel dates. Though we attempted to increase the participation of households assigned Friday travel dates through extra reminders, Friday travelers made up 17 percent of the unweighted sample.

Table 3. Distribution of Retrieved Households by Day of Week

	Unweighted	
Day of Week	Frequency	Percentage
Monday	387	21%
Tuesday	379	20%
Wednesday	378	20%
Thursday	387	21%
Friday	319	17%
Total	1,850	100%

Retrieval percentages by response mode are presented in Figure 6. While fewer respondents used the web option to report their travel than to recruit into the study, still 43 percent selected the self-report option. Mailed back travel logs made up 25.5 percent of the completed households. However, 20 percent of all households who completed and returned travel logs had to be discarded. The primary reasons for excluding these households from the final sample were due to incomplete or illegible data. Several attempts to re-contact these households were made prior to considering them incomplete.

Figure 6. Retrieval Response Mode (CATI, Web, & Mail)

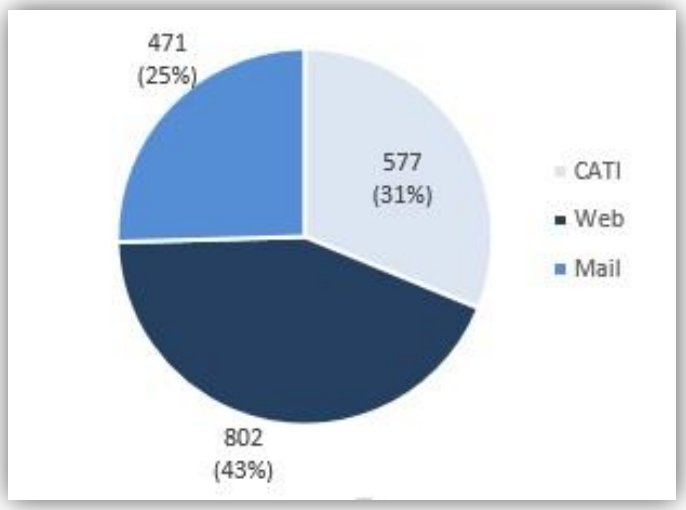


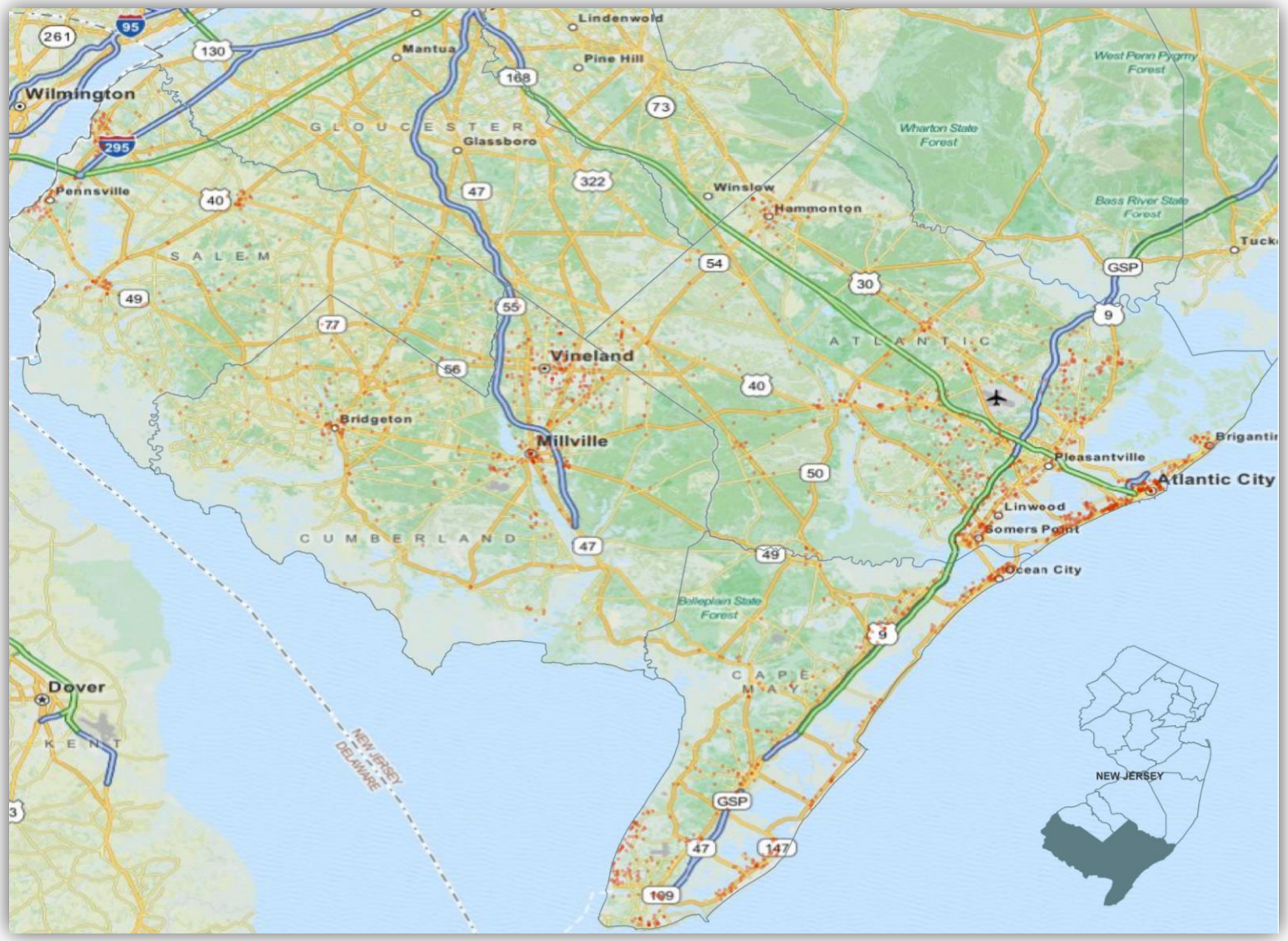
Table 4 shows the county level completion goals for the study. Four of the five counties exceeded their target completion goals.

Table 4. Target and Actual Retrieved Households

	Retrieved Households		
	Target	Actual	Percentage
Atlantic	815	867	106%
Cape May	324	373	115%
Cumberland	411	398	97%
Salem	200	212	106%
Total	1,750	1,850	106%

Figure 7 shows how the participating households are distributed across the region.

Figure 7. Participant Household Locations – Retrieved Households



3.5. Survey Processing and Data Cleaning

3.5.1. Overview

Data processing and data cleaning were conducted on an ongoing basis throughout the study. Updates were made to variables that impacted data collection during the administration of the survey (e.g., the addition of a car that was not originally reported) and at the conclusion of data collection for data that did not impact the flow of the survey (e.g., recoding race based on "Other, specify" responses).

A series of automated edits, range checks, and consistency checks were performed within the survey instrument, and data preparation staff performed frequency reviews and problem resolution to monitor, correct, and update the data. Automated checks were run to evaluate the validity of reported trip data.

The following sections provide more details for each of the data quality checks employed.

3.5.2. Logic Checks

Logic checks were programmed into the recruit and retrieval instruments to ensure that questions were answered as accurately as possible. These included requiring that certain questions be answered, even if the answer was "don't know" or "prefer not to answer," and forcing the data type (e.g., requiring a number for the variable AGE). Data range checks were also employed to ensure that the data fell within the expected range for a given question (e.g., 0-112 for AGE). Consistency checks were conducted to ensure that when a variable is present in more than one data file, each data file contained the same value for the variable (e.g., household size or participant age).

3.5.3. Geocoding

Westat's TBW survey software was used to conduct the retrieval portion of the SJHTS. All trip ends were geocoded during the completion of the trip reporting, in real-time using a Google interface. Respondents could enter the address of the trip location or were able to use the Google search

engine to locate a specific place (e.g., a CVS drugstore at a specific intersection) when they did not know the address of the location. TBW captured full address information and the matching X/Y coordinate of the location in the EPSG 3857 coordinate system.

3.5.4. Frequency Reviews

Frequency reviews were conducted at the beginning, in the middle and at the end of data collection to ensure that all data were being properly captured in the survey database. A report displaying a frequency table for each survey variable was generated and included branching logic, question text and responses. Through the review of these frequency reports, analysts would identify and correct issues with the data as appropriate.

3.5.5. Edit Checks

A series of edit check queries were run on the data to identify potential reporting inconsistencies. If an edit check failed, the data from the household was manually reviewed by an analyst. Edit checks were completed on trip data and non-trip data; each are discussed below.

3.5.5.1. Trip Data Checks

Trip data was processed through Westat's Trip Processing System (TPS). TPS includes a series of consistency checks on reported trip data. Table 5 provides a list of the TPS checks performed on these data. When a TPS edit failed, an analyst reviewed the data to determine whether adjustments to the data could be made based on information provided by another household member or if the household needed to be re-contacted to resolve the inconsistency in the data. Whether the data was updated by an analyst or an interviewer as a result of a re-contact with the household, the entire household record was reprocessed through the TPS checks. Each case was subjected to this process until it cleared TPS without any failures. Only households successfully passing these edits were included in the final dataset.

Table 5. Trip Data Checks

- Location is missing X,Y coordinates
- Location is missing full address
- Location name text contains "Home" but is not location type 1 (Home location).
- Location type 1 (Home location) text is not "HOME"
- Location name text contains "Work" but is not location type 2 (Work location).
- Location name text contains "School" but is not location type 3 (School location).
- Consecutive locations have identical X,Y coordinates
- Consecutive locations have identical location name
- Household locations with same coordinate do not have matching addresses
- Every person in retrieved household reports at least one place
- Travel does not begin at home or does not end at home on assigned travel day
- Travel does not begin and end at same location on assigned travel day
- 0 trip person missing response to "NOGOWHY" variable
- Trip companion(s) expected but missing
- Place's arrival time is earlier than previous place's departure time
- Place's departure time is earlier than its arrival time
- Person did not leave vehicle at place where activity duration greater than 30 minutes
- Place travel speed too fast for travel mode
- Place travel speed too slow for travel mode
- Place has a person number that does not exist
- Place where household members disagree on number of companions
- Persons report travelling together but companion count does not match
- Persons report travelling together but more than one driver reported
- Persons report travelling together but times do not match
- Persons report travelling together but mode does not match
- Persons report travelling together but locations do not match
- Travel mode of "passenger" but members on trip < 2
- Trip has no "driver" travel mode assigned to any member on trip
- Transit travel mode assigned to a place that is not of transit type
- Transit trip has duration < 5 minutes
- Transit place does not precede or follow another transit place

3.5.5.1. Non-Trip Data Checks

Non-trip edit checks were executed as part of the frequency reviews described in Section 3.5.4 and included checks of each survey variable.

3.5.6. Upcoding and Cleaning

At the conclusion of the data collection period, open-ended and 'other specify' responses were reviewed and upcoded or collapsed as appropriate. The upcoding of responses is the activity of recoding an open-ended response into a categorical response option (e.g., recoding Caucasian to white). The process includes removing the 'other specify' (open-ended) text response.

In addition to coding open-end text into categorical responses, Westat also combined or collapsed other responses that were similar to each other. These responses appear in the original dataset as independent responses (one offs) because of things like, misspelling of the response, different letter spacing in the response or capitalization issues. Combining these text responses makes analysis more efficient.

3.5.7. Derived Variables

Several of the variables in the data deliverable were derived using counts from participant responses. In survey research, some data elements are captured in more than one question or format causing discrepancies in the data. For example, asking how many people live in a household, followed by a roster of household members. Limiting the number of people that may be rostered based on the response to another question may affect the accuracy of the reported data in the more specific roster format.

Derived variables also provide the sum of an attribute across a household. For example, HHSTUD is the count of all household members that answered the STUDE question with a 1 or 2 (full-time or part-time student). The result is an actual count of the number of students in a household. STUDE is also available in the data deliverable, so analysis can be conducted at the person level using the reported, rather than the derived household level data.

Another type of derived variable provided in this dataset converts the data collected in multiple units (e.g., hours and minutes) into a single unit of analysis (e.g., minutes). Calculations can also be used to

determine quantitative values such as number of non-household members on a trip. This number was derived by subtracting the number of household members (HHPARTY) reported on a trip from the total number (PARTY) being reported on the trip. A list of all of the derived variables included in the data deliverable can be found in Appendix 6.1.5.

4. Weighting

Survey samples are designed to elicit response from a representative sample of the population of interest. However, survey data collection rarely yields a totally representative sample due to differential response rates by various population subgroups, item non-response, and other factors. To mitigate the difference in the results between survey respondents and the population, weights are constructed and assigned to records in a survey data set so the data can be expanded to represent the population of inference as closely as possible. The weights are usually developed in a series of stages to compensate for unequal selection probabilities, nonresponse, non-coverage, and sampling fluctuations from known population values.[5] The use of raw or unweighted survey data will result in biased analyses, especially if the sample was selected with unequal probabilities, which is often the case when targeting hard-to-reach populations or when the responding sample is very different from the survey population.

Survey weights were developed for four types of analytic units associated with all households in the SJHTS dataset – household, person, vehicle, and trip weights – to permit inference to the corresponding target populations. Household weights were assigned to responding households. Vehicle weights were assigned to each reported vehicle in a household and are the same as the household level weight. Person and trip weights were assigned to responding persons within responding households. Each data table contains the weight for each record in the table. Dependent upon the unit of analysis, the following weight factors should be used:

1. Household-level data use HHRKWT0
2. Person-level data use PFNLWT0
3. Vehicle data use VEHWT0
4. Trip data use TRPWT0

In addition to the survey weights, replicate weights were developed for each type of analytic unit associated to the travel study. The replicate weights were used to calculate the variances of survey estimates using the paired jackknife replication method[6]. Separate tables for each of the three types

[5] Brick, J.M. and Kalton, G. (1996). Handling Missing Data in Survey Research. Statistical Methods in Medical Research, 5, 215-238.

[6] Wolter, K.M. (2007). *Introduction to Variance Estimation* (2nd Edition). New York Springer-Verlag.

of replicate weights were provided in the dataset. The replicate weights are numbered 1 to 100 (e.g., HHRKWT1 – HHRKWT100).

The overall steps in the weighting process for the travel study component were as follows:

1. Construction of base weights (the reciprocal of the probability of selection of each sampled address);
2. Adjustment for non-response at the household-level;
3. Adjustment of the household weights to achieve consistency with characteristics for the full population of households in the study area (achieved by raking the non-response adjusted weights to independent household-level figures for the study area—raking can be thought of as multivariate post-stratification). This is the final household weight;
4. Assignment of the vehicle weights;
5. Assignment of the final household weights to all responding persons within completed households;
6. Person-level raking. This is the final person weight; and
7. Construction of the trip weights.

In this section of the report, tables are displayed by key survey variables summarized for the SJHTS region. Cells highlighted in red in the tables indicate a cell-population of less than 30. Westat recommends the lowest level of geographic analysis be Atlantic county and the other 3 counties combined (Cape May, Cumberland, and Salem). Appendices 6.3 and 6.4 each contain an additional series of tables with variables not discussed in this section, but captured during the survey effort.

4.1. Household Base Weights

The household base weight reflects the probability of selection for a sampled household and is calculated simply as the reciprocal of its probability of selection.

4.1.1. Adjustment for Non-Response at the Household-Level

After the assignment of the household level base weight, an adjustment for non-response was made to reflect those for which a retrieval interview was not obtained. The adjustments for household non-response were made within adjustment cells defined by the population group and by sampling stratum (high density of key sample characteristics[7]/remaining households). A non-response adjustment factor was calculated for each cell as the ratio of the sum of household weights for all eligible households to the sum of the household weights for all recruited households. The non-response adjustment factor was applied to the household base weight of each responding household. In this way, the weights of the responding households were "weighted up" to represent the full set of responding and non-responding households in the adjustment cell.

4.1.2. Raking at the Household-Level

Raking adjustment procedures are used to improve the reliability of survey estimates and, to some extent, correct for the bias due to under-coverage and/or non-response. Raking is a post-stratification adjustment procedure where survey weights are iteratively adjusted to independent control totals for various demographic categories. The process has the effect of differentially adjusting the weights of the sampled households within groups of demographically similar households, so that the total sum of weights for the sampled households equals the corresponding independent control totals for all households.

The raking process used with the SJHTS data had four "dimensions" for two county groupings (Atlantic by itself and Cape May, Cumberland, and Salem combined). The weights were adjusted to equal the totals within the cells for each dimension in an iterative process, until the process converged, and every dimension's cell totals equaled the independent control totals (within a small tolerance specified for convergence). The dimensions at the household weighting level included the following:

- Household Size by Number of Household Workers
- Household Size by Number of Vehicles Available
- Number of Workers by Number of Vehicles Available
- Household income

[7] Within each county, the first stratum consisted of addresses in Census tracts with a high percentage of households in which number of workers was greater than number of vehicles, and Census tracts with high percentages of 0-vehicle or 0-to-1-vehicle households.

Limits were placed on the magnitude of the raking cell sizes to prevent unstable raking adjustments. The cell size threshold for household raking was 15. Raking cells with less than 15 household respondents were considered too small and were collapsed. Collapsing occur across county groupings first. If further collapsing is necessary, adjacent cells within a dimension will be collapsed next.

The independent control total for Household size came from the 2010 Decennial Census. Control totals for Vehicles per household and Workers per household came from the 2008–2012 5-year American Community Survey (ACS). The ACS control totals were adjusted to reflect the 2010 Decennial Census distribution. In Table 6 through Table 14 the weighted and unweighted frequencies for several key household-level demographic variables (e.g., household size, number of workers, etc.) are presented. Of these key demographic variables, only household income (Table 10) was subject to relatively significant item non-response. A total of 330 households in the study did not provide a valid income range when asked to provide a response in the recruitment survey. However, adding an income question at the end of the retrieval survey reduced the number to 194 households (Table 11).

Table 6. Household Size (Unweighted and Weighted)

	Unweighted		Weighted	
Household Size	Frequency	Percentage	Frequency	Percentage
1	593	32%	60,975	28%
2	785	42%	70,971	32%
3	241	13%	35,969	16%
4+	231	12%	52,300	24%
Total	1,850	100%	220,215	100%

Table 7. Household Number of Vehicles (Unweighted and Weighted)

	Unweighted		Weighted	
Household Vehicles	Frequency	Percentage	Frequency	Percentage
0	168	9%	22,877	10%
1	646	35%	79,257	36%
2	671	36%	80,358	36%
3	247	13%	25,910	12%
4+	118	6%	11,813	5%
Total	1,850	100%	220,215	100%

Table 8. Number of Household Workers (Unweighted and Weighted)

	Unweighted		Weighted	
Household Workers	Frequency	Percentage	Frequency	Percentage
0	679	37%	65,606	30%
1	671	36%	81,004	37%
2	421	23%	58,128	26%
3+	79	4%	15,477	7%
Total	1,850	100%	220,215	100%

Table 9. Household Number of Students (Unweighted and Weighted)

	Unweighted		Weighted	
Household Students	Frequency	Percentage	Frequency	Percentage
0	1,453	79%	149,037	68%
1	225	12%	34,780	16%
2	141	8%	29,266	13%
3+	31	2%	7,132	3%
Total	1,850	100%	220,215	100%

Table 10. Household Income – Recruitment (Unweighted and Weighted)

	Unweighted		Weighted	
Household Income	Frequency	Percentage	Frequency	Percentage
Less than $15,000	184	10%	23,273	11%
$15,000 to $24,999	170	9%	19,895	9%
$25,000 to $34,999	137	7%	17,453	8%
$35,000 to $49,999	224	12%	25,978	12%
$50,000 to $74,999	298	16%	33,572	15%
$75,000 to $99,999	209	11%	24,262	11%
$100,000 to $124,999	145	8%	15,268	7%
$125,000 to $149,999	58	3%	9,793	4%
$ 150,000 or more	95	5%	15,855	7%
Don't Know	42	2%	5,488	2%
Refused	288	16%	29,379	13%
Total	1,850	100%	220,215	100%

Table 11. Household Income – Retrieval (Unweighted and Weighted)

Household Income	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Less than $25,000	21	6%	2,195	6%
$25,000 to $49,999	24	7%	3,187	9%
$50,000 to $74,999	18	5%	2,068	6%
$75,000 or more	48	15%	5,574	16%
Don't Know	25	8%	3,216	9%
Refused	102	31%	10,124	29%
Not Ascertained	92	28%	8,502	24%
Total	330	100%	34,867	100%

Table 12. Household Residence Type (Unweighted and Weighted)

Household Residence Type	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Single-family attached house	164	9%	21,823	10%
Single-family detached house	1,290	70%	147,001	67%
An apartment or condo	332	18%	43,101	20%
Mobile Home or Trailer	51	3%	6,644	3%
Boat, RV, Van	1	0%	92	0%
Don't know	3	0%	529	0%
Refused	9	0%	1,025	0%
Total	1,850	100%	220,215	100%

Table 13. Ownership of Household Residence (Unweighted and Weighted)

Household Residence Status	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Own home without a mortgage	622	34%	58,771	27%
Own home with a mortgage	738	40%	93,207	42%
Rent	429	23%	60,307	27%
Occupied without payment of rent	20	1%	3,129	1%
Some other arrangement	1	0%	89	0%
Don't know	1	0%	158	0%
Refused	39	2%	4,554	2%
Total	1,850	100%	220,215	100%

Table 14. Number of Licensed Drivers in Household (Unweighted and Weighted)

	Unweighted		Weighted	
Household Licensed Drivers	Frequency	Percentage	Frequency	Percentage
0	110	6%	14,311	6%
1	662	36%	74,393	34%
2	900	49%	103,174	47%
3	133	7%	20,853	9%
4+	45	2%	7,483	3%
Total	1,850	100%	220,215	100%

4.2. Person-Level Weights

4.2.1. Adjustment of Initial Person-Level Weights

The final household weight was assigned to each person in responding household in the sample. This weight represents the initial person-level weight.

4.2.2. Raking at the Person-Level

For the same reasons raking was used at the household-level (improved reliability, reduction of potential bias, and to achieve consistency with known population counts), a simple raking/post-stratification procedure was also used at the person-level. Survey weights of responding persons were adjusted so that the sum of the weights of the responding persons equaled the corresponding independent control total for the study area population. The dimensions at the person-weighting level included the following:

- Sex
- Age
- Race/Ethnicity

Similar to the household level raking, the person-level raking was done separately by county grouping (Atlantic and Cape May-Cumberland-Salem combined) and used raking cell size constraints. The cell size collapsing threshold was 30 for persons (as opposed to 15 for households).

Table 15 through Table 22 present the weighted and unweighted frequencies for a number of person-level variables (e.g., gender, race, etc.).

Survey respondents included more females than males (Table 15). Typically gender is more evenly distributed (49 – 51 percent), but this result is not problematic. One of the traditionally harder-to-reach population groups, the 18 – 24 year olds, made up 5 percent of the survey population (Table 16) as did Hispanics (Table 19). Ten percent reported having more than one job and 5 percent of the respondents reported working from home.

Table 15. Participant Gender (Unweighted and Weighted)

	Unweighted		Weighted	
Person Gender	Frequency	Percentage	Frequency	Percentage
Male	1,828	47%	292,179	49%
Female	2,061	53%	299,147	50%
Refused	18	0%	2,934	0%
Total	3,907	100%	594,260	100%

Table 16. Participant Age Distribution (Unweighted and Weighted)

	Unweighted		Weighted	
Person Age Distribution	Frequency	Percentage	Frequency	Percentage
0 – 4	157	4%	34,283	6%
5 – 17	371	9%	98,117	17%
18 – 24	193	5%	50,898	9%
25 – 29	154	4%	34,883	6%
30 – 34	175	4%	32,394	5%
35 – 39	160	4%	34,253	6%
40 – 44	186	5%	40,699	7%
45 – 49	222	6%	42,865	7%
50 – 54	318	8%	43,300	7%
55 – 59	414	11%	37,910	6%
60 – 64	384	10%	34,444	6%
65 – 69	369	9%	24,868	4%
70 – 74	262	7%	19,983	3%
75+	294	8%	39,417	7%
Don't know	8	0%	1,062	0%
Refused	240	6%	24,883	4%
Total	3,907	100%	594,260	100%

When participants were unable or unwilling to provide ages for the household members they were asked to provide an age range. Those responses are provided in Table 17.

Table 17. Participant Age Range (Unweighted and Weighted)[8]

	Unweighted		Weighted	
Person Age Distribution	Frequency	Percentage	Frequency	Percentage
0 – 4	7	3%	1,389	5%
5 – 15	9	4%	1,364	5%
16 – 17	3	1%	668	3%
18 – 64	129	52%	13,555	52%
65 -74	56	23%	4,053	16%
75 +	11	4%	908	4%
Don't know	1	0%	147	1%
Refused	32	13%	3,860	15%
Total	248	100%	25,945	100%

Table 18. Participant Race (Unweighted and Weighted)

	Unweighted		Weighted	
Person Race	Frequency	Percentage	Frequency	Percentage
White	3,168	81%	386,077	65%
African American, Black	285	7%	86,274	15%
Asian	101	3%	18,558	3%
American Indian, Alaskan Native	24	1%	3,384	1%
Native Hawaiian or Pacific Islander	5	0%	728	0%
Multiracial	114	3%	33,416	6%
Hispanic or Mexican	121	3%	53,760	9%
Don't Know	3	0%	711	0%
Refused	86	2%	11,353	2%
Total	3,907	100%	594,260	100%

Table 19. Participant Hispanic (Unweighted and Weighted)

	Unweighted		Weighted	
Person Hispanic	Frequency	Percentage	Frequency	Percentage
Yes	213	5%	97,540	16%
No	3,637	93%	488,970	82%
Don't know	4	0%	1,704	0%
Refused	53	1%	6,046	1%
Total	3,907	100%	594,260	100%

[8] This table provides survey responses for those subjects that refused to provide an actual age and does not represent all survey respondents.

Table 20. Participant Number of Jobs (Unweighted and Weighted)

	Unweighted		Weighted	
Person Jobs	Frequency	Percentage	Frequency	Percentage
0	27	1%	3,841	1%
1	1,467	81%	220,388	81%
2	163	9%	23,594	9%
3	25	1%	3,471	1%
4+	9	0%	1,653	1%
Don't Know	21	1%	2,782	1%
Refused	100	6%	15,170	6%
Total	1,812	100%	270,899	100%

Table 21. Participant Work Locations (Unweighted and Weighted)

	Unweighted		Weighted	
Person Work Location	Frequency	Percentage	Frequency	Percentage
Home	85	5%	10,656	4%
Fixed Location	1,148	69%	176,984	71%
Varies	174	10%	24,900	10%
Combination of home and fixed location	76	5%	10,019	4%
Combination of home and varies	53	3%	5,580	2%
Combination of varies and fixed location	115	7%	17,680	7%
Don't know	2	0%	491	0%
Refused	11	1%	2,797	1%
Total	1,664	100%	249,106	100%

Table 22. Educational Attainment (Unweighted and Weighted)

	Unweighted		Weighted	
Person Educational Attainment	Frequency	Percentage	Frequency	Percentage
Not a high school graduate	518	14%	130,181	23%
High School Graduate (High School Diploma or GED)	887	24%	125,994	23%
Some College Credit but no Degree	618	17%	84,850	15%
Associate or Technical School Degree	401	11%	52,816	10%
Bachelor's or Undergraduate Degree	806	22%	99,432	18%
Graduate Degree	409	11%	49,167	9%
Don't know	21	1%	3,767	1%
Refused	50	1%	8,373	2%
Total	3,710	100%	554,581	100%

4.3. Trip Weights

While regional travel demand models do not annualize trips, other data users may desired this type of analysis. Trip weights were generated by simply multiplying the final person weight by 260 to represent the number of trips on any given weekday within a year. These weights should be used to expand the data to the population for annualized analysis, otherwise the household or person weight should be used. The data in the following tables are weighted to unlinked trips. The results reflected in the tables and figures are subject to change during the modeling process.

Trip rates in Table 23 through Table 28[9] were calculated by dividing the sum of trips by the sum of households or persons in the survey. Consistent with findings from other household travel surveys, the SJHTS data show that larger households made more trips per household than smaller households (Table 25). Households with more workers also made more trips than those with fewer workers (Table 27).

Table 23. Household Trip Rates (Unweighted and Weighted)

Household Trip Rates	
Unweighted	Weighted
6.60	7.24

Table 24. Person Trip Rates (Unweighted and Weighted)

Person Trip Rates	
Unweighted	Weighted
3.26	3.04

Table 25. Trip Rates by Household Size (Unweighted and Weighted)

	Trip Rate	
Household Size	Unweighted	Weighted
1	4.09	4.04
2	6.58	6.44
3	8.33	8.33
4+	11.33	11.30

[9] Trip tables in this report use the annualized trip weight.

Table 26. Trip Rates by Age (Unweighted and Weighted)

Age	Trip Rate	
	Unweighted	Weighted
5 – 17	2.49	2.55
18 – 24	2.35	2.43
25 – 29	2.76	2.69
30 – 34	3.38	3.18
35 – 39	3.81	3.66
40 – 44	3.58	3.47
45 – 49	3.64	3.33
50 – 54	3.47	3.36
55 – 59	3.42	3.45
60 – 64	3.53	3.42
65 – 69	3.56	3.40
70 – 74	3.69	3.33
75+	2.86	2.39
Don't know	1.88	2.00
Refused	3.12	3.26

Table 27. Trip Rates by Number of Household Workers (Unweighted and Weighted)

Household Workers	Trip Rate	
	Unweighted	Weighted
0	5.60	5.52
1	6.20	6.85
2	8.21	8.91
3	10.40	10.64
4+	9.14	8.87

Table 28 presents trip rate by household income for those households reporting a valid income response in the recruitment survey. Table 29 presents the categorical responses to income that include the responses provided in the recruitment and retrieval surveys.

Table 28. Trip Rates by Recruitment Household Income (Unweighted and Weighted)

Household Income	Trip Rate	
	Unweighted	Weighted
Less than $15,000	4.78	5.55
$15,000 to $24,999	5.91	6.42
$25,000 to $34,999	6.24	6.78
$35,000 to $49,999	6.69	7.58
$50,000 to $74,999	6.91	7.65
$75,000 to $99,999	7.34	7.75
$100,000 to $124,999	7.77	8.35
$125,000 to $149,999	8.97	9.69
$ 150,000 or more	7.05	7.54
Don't Know	6.95	8.74
Refused	6.18	6.38

Table 29. Trip Rates by Household Income Categorical (Unweighted and Weighted)

Household Income	Trip Rate	
	Unweighted	Weighted
Less than $25,000	5.28	5.91
$25,000 to $49,999	6.50	7.23
$50,000 to $74,999	7.07	7.66
$75,000 or more	7.74	8.24
Don't Know	6.56	8.31
Refused	5.92	6.34
Not Ascertained	6.29	6.63

In Table 30 through Table 33 unweighted and weighted frequencies for trip purpose and mode are shown. The most prevalent trip purposes were related to home, work, and shopping as illustrated in Table 30. It is important to recognize that the travel day for most participants in the study began at home. This contributed to the high percentage of home-based trip purposes reported.

Table 30. Primary Trip Purpose (Unweighted and Weighted)

Trip Purpose (Primary)	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Typical Home Activities	4,009	33%	572,118	34%
Working at Home (Paid)	62	1%	6,936	0%
Work at Work Location	1,303	11%	190,967	11%
Work Related - Non-Fixed Work Location	285	2%	36,812	2%
School at Home	11	0%	2,240	0%
School/School Activities	459	4%	112,583	7%
Volunteering	136	1%	16,946	1%
Everyday Shopping	1,397	11%	154,002	9%
Major Purchase Shopping	81	1%	8,754	1%
Drive-Thru Errands	249	2%	26,556	2%
Household & Personal Errands	913	7%	104,486	6%
Vehicle Service	126	1%	16,594	1%
Health Care Visit	404	3%	45,979	3%
Eat Out	583	5%	71,363	4%
Socialize with Friends/Relatives	517	4%	72,193	4%
Religious or Community Event	137	1%	19,840	1%
Outdoor Exercise or Recreation	178	1%	20,564	1%
Indoor Exercise or Recreation	256	2%	34,098	2%
Attend Major Event	25	0%	2,701	0%
Casino Visit	59	0%	6,715	0%
Drop Off/Pick Up Passenger	650	5%	109,680	6%
Change/Transfer Trip Mode	324	3%	58,034	3%
Other	3	0%	287	0%
DON'T KNOW	15	0%	2,447	0%
REFUSED	37	0%	4,917	0%
Total	12,219	100%	1,697,815	100%

Data presented in Table 31 and Table 32, show that private auto travel (as the driver or a passenger) was the largest mode choice for all trips (87 percent) and for the mode to work trips (94 percent). Table 33 shows that the mode choice for auto travel decreases for school-related trips (47 percent) with the school bus modes increasing for these trips (42 percent).

Table 31. All Trip Modes (Unweighted and Weighted)

Trip Travel Mode	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Walk	841	7%	145,252	9%
Bike	77	1%	21,978	1%
Auto/Van/Truck (as the driver)	8,783	72%	1,077,413	63%
Auto/Van/Truck (as a passenger)	1,862	15%	298,688	18%
Public Bus	224	2%	42,190	2%
Dial-a-ride/Paratransit	24	0%	3,965	0%
Taxi/Limo	25	0%	5,006	0%
School Bus	323	3%	90,318	5%
JITNEY	36	0%	8,977	1%
Something else	24	0%	4,028	0%
Total	12,219	100%	1,697,815	100%

Table 32. Mode to Work (Unweighted and Weighted)[10]

Trip Travel Mode to Work	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Walk	36	3%	8,267	5%
Bike	6	1%	1,057	1%
Auto/Van/Truck (as the driver)	963	91%	138,807	88%
Auto/Van/Truck (as a passenger)	37	3%	5,451	3%
Public Bus	7	1%	2,901	2%
Taxi/Limo	3	0%	613	0%
School Bus	1	0%	70	0%
JITNEY	4	0%	717	0%
Something else	1	0%	66	0%
Total	1,058	100%	157,950	100%

[10] The data in this table reflects the first trip to work for each person not all trips to work, and is not intended to match the trip purpose counts presented in Table 30. This approach attempts to prevent the Mode to Work data from being skewed by respondent making multiple trips to work in a day.

Table 33. Mode to School (Unweighted and Weighted)[11]

Trip Travel Mode to School	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Walk	20	7%	5,041	6%
Auto/Van/Truck (as the driver)	48	16%	10,625	13%
Auto/Van/Truck (as a passenger)	102	33%	23,322	30%
Public Bus	5	2%	1,158	1%
School Bus	130	42%	38,116	48%
Something else	1	0%	507	1%
Total	306	100%	78,769	100%

Table 34 presents the frequency of trips by day of week. The results show travel across the region is well balanced by day of week for both unweighted and weighted data with somewhat more trips reported on Tuesday through Thursday.

Table 34. Number of Trips by Day of Week (Unweighted and Weighted)

Day of Week	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Monday	2,237	18%	299,018	18%
Tuesday	2,482	20%	333,413	20%
Wednesday	2,589	21%	366,304	22%
Thursday	2,640	22%	356,785	21%
Friday	2,271	19%	342,294	20%
Total	12,219	100%	1,697,815	100%

4.4. Vehicle Weights

Vehicle weight is equal to household-level weights. Table 35 and Table 36 provide unweighted and weighted frequencies number of vehicles and fuel type. Zero vehicle households represent nine percent of the households, three percent more than the four plus vehicle households. Only five percent of the vehicles in the study were reported as using some type of alternative fuel, including diesel.

[11] The data in this table reflects the first trip to school for each person not all trips to school, and is not intended to match the trip purpose counts presented in Table 30.

Table 35. Number of Household Vehicles (Unweighted and Weighted)

	Unweighted		Weighted	
Household Vehicles	Frequency	Percentage	Frequency	Percentage
0	168	9%	22,877	10%
1	646	35%	79,257	36%
2	671	36%	80,358	36%
3	247	13%	25,910	12%
4+	118	6%	11,813	5%
Total	1,850	100%	220,215	100%

Table 36. Vehicle Fuel Type (Unweighted and Weighted)

	Unweighted		Weighted	
Vehicle Fuel Type	Frequency	Percentage	Frequency	Percentage
Gas	3,096	94%	353,527	95%
Diesel	77	2%	7,980	2%
Hybrid	61	2%	6,665	2%
Flex Fuel	23	1%	2,335	1%
Plug-in Hybrid	2	0%	159	0%
Don't know	20	1%	2,787	1%
Refused	2	0%	66	0%
Total	3,281	100%	373,518	100%

4.5. Replicate Weights

In addition to the survey weight, a set of 100 replicate weights was calculated for each analytic sample unit (household, person, and trip). The paired jackknife[12] repeated replication method was used to calculate the sampling variance of estimates obtained from the data. The method of deriving these weights was aimed at reflecting the features of the sample design appropriately for each sample, so that when the jackknife variance estimation procedure was implemented, approximate unbiased estimates of sampling variance were obtained. In addition, the various weighting procedures were repeated on each set of replicate weights to appropriately reflect the impact of the weighting adjustments on the sampling variance of a survey estimate.

Many software packages for personal computers exist for replication variance estimation methods. For example, WesVar, later versions of SAS, and STATA all have the capability of producing

[12] Wolter, K.M. (2007). *Introduction to Variance Estimation* (2nd Edition). New York Springer-Verlag.

replication estimates. These software packages produce both the appropriate estimates and corresponding variance estimates for the estimates. WesVar, developed and distributed by Westat, is available for free.

4.6. Imputation

Variables used in the raking process and those key to the travel demand model required valid values for every record. When they did not, imputation procedures were used to replace the missing values with substituted values. Household income, one of the variables for household-level raking, was missing for about 11 percent of the records. Westat imputed household income for these records using a hot-deck imputation procedure.

Hot deck refers to a general class of procedures for which cases with missing items are assigned the corresponding value of a "similar" respondent in the sample. The data record that supplies the value to be imputed is referred to as the "donor." Donor pools, also known as imputation classes, are formed based on characteristics that are believed to be highly correlated with the imputed characteristic with the idea that records in the same donor pool are very similar in regards to the imputed characteristic. For each record with a missing income item, a donor is randomly selected from the appropriate donor pool, and income from the selected donor is used to replace the missing income value.

Westat formed donor pools for household income on the cross-classification of the following characteristics:

- Household ownership (owner or renter)
- Household size (1, 2, 3, 4 or more)
- Number of workers (1 or less, 2, 3 or more),
- Number of vehicles (1 or less, 2, 3, 4 or more), and
- County of residence (or county groupings).

Imputation took place prior to implementation of the weighting steps.

5. Summary

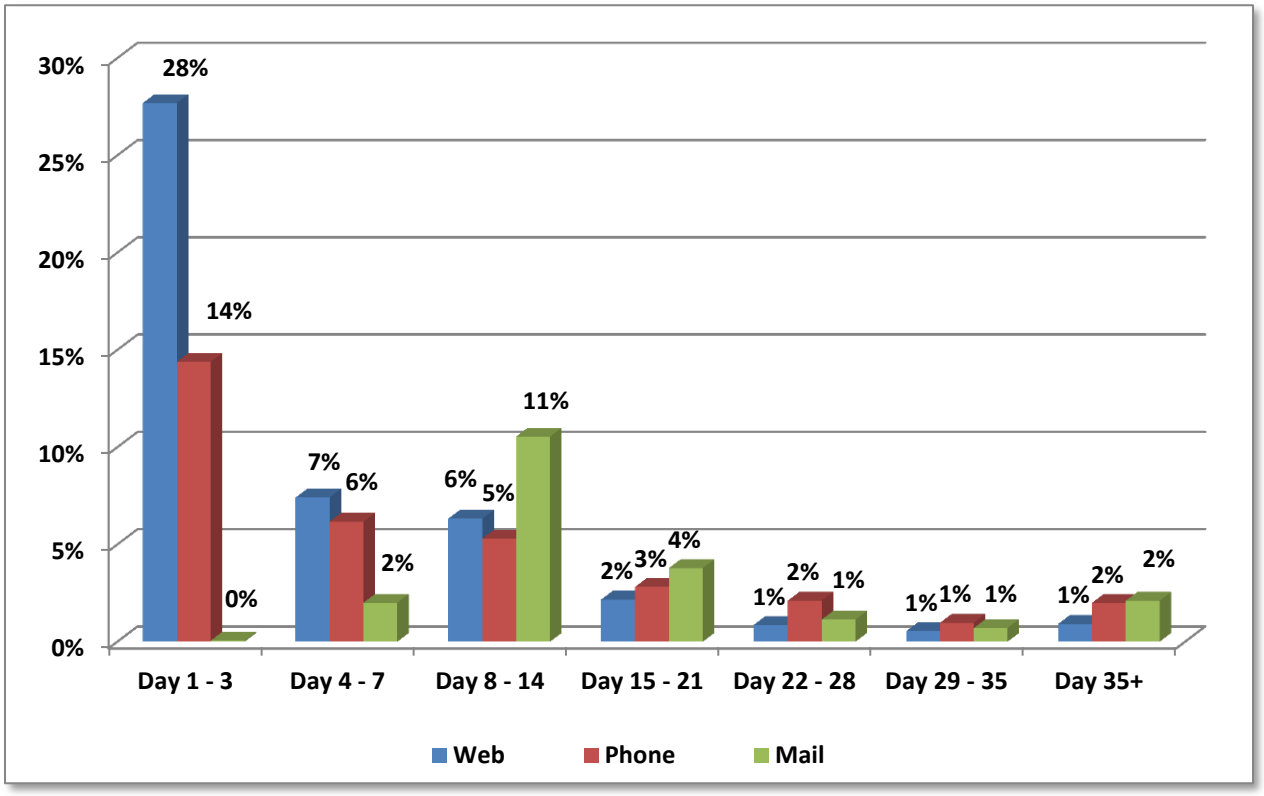
5.1. Household Travel Survey Results

The SJHTS successfully collected travel behavior data from 1,850 households across the SJTPO region. Details for 12,219 trips made by the 3,907 respondents were reported in the study.

The survey methodology used in conducting the SJHTS provided sampled households two options for recruitment (web and phone) and three for participation at the retrieval stage (web, phone, and mail). The invitation letter sent to each sampled address encouraged self-reporting via a secure website. Eighty-two percent of all recruited households took advantage of the opportunity to respond online and 68 percent of all retrieval surveys were completed by the respondent online.

Figure 8 shows the retrieval response time in days for each response mode. Within 14 days of the household travel date, 79.9 percent of all completed households had reported their travel (57.7 percent within seven days). It took between eight and 14 days for the mailed back logs to be received and processed. Mail and telephone responses exceeded the web responses after day 21.

Figure 8. Retrieval Response Time by Response Mode



An examination of primary trip purpose showed that, other than trips that originated from or whose destination was home, the majority of trips were work or shopping related. Work trips accounted for 12 percent and everyday shopping accounted for 11 percent of all trips, while other activities like household and personal errands (7 percent), eating out (5 percent) and drop-off or pick-up a passenger (percent), made up most of the rest of all trips. The trip purpose of "home activities" was reported 33 percent of the time; however, when considering this statistic, it is important to remember that most travel days start at home. When analyzing trip purpose for the home location, Westat recommends that analysts remember that Place 1 in the dataset is not a trip, but the origin for the first trip of the day which ends at Place 2.

5.1.1. Survey Response Rates

Response rates were calculated for both the recruitment and retrieval stages of the survey. The recent decline in survey response rates has been well documented. The shift from random-digit-dial (RDD) to Address Based Sampling (ABS) frames provides many benefits to targeted sampling and coverage bias, but only adds to the diminishing response rate issue. In this study 56.7 percent of all sampled addresses were matched to a telephone number. In general about 15 percent of matched

numbers prove to be bad matches (e.g., not associated with the sampled address). Because about half of the sampled households are only reachable by mail in the ABS sample design, passive refusals happen at a high rate. Response rates achieved from ABS frames are largely dependent on the salience of the study, the presentation of the recruitment materials, and public outreach campaigns.

Unlike most MPOs, the SJTPO region is not centered on a core metropolitan area which can make public outreach more difficult. The region lacks governmental agencies and community groups that are available in larger regions and often leveraged to promote survey participation. Furthermore, residents of New Jersey tend to have a less than favorable opinion of transportation agencies in general. These factors may have impacted survey response rates.

The recruitment rate ($R_{Recruit}$) in surveys using an ABS is calculated by dividing responding households by eligible addresses.

$$R_{Recruit} = \frac{Recruited\ Households}{Sampled\ Addresses\ -\ Postal\ Returns}$$

The retrieval rate ($R_{Retrieve}$) is the percentage of households that completed the study after agreeing to participate.

$$R_{Retrieve} = \frac{Retrieved\ Households}{Recruited\ Households}$$

The final response rate (R_{Final}) is the product of the recruitment and retrieval rates.

$$R_{Final} = R_{Recruit} \times R_{Retrieve} = \frac{Retrieved\ Households}{Sampled\ Addresses - Postal\ Returns}$$

Table 37 shows the recruitment, retrieval and overall response rates for the SJHTS by county. Observed recruitment and retrieval rates were lower than expected. The exact cause for the low response rate is unknown; however, one possibility may have been that the household level incentive amount was not a sufficient motivator. Another factor may have been salience. Because the region is largely rural, it is possible that traditional transportation issues are not seen as problematic to the population.

Table 37. Survey Response Rates

County	Response Rates		
	Recruitment	Retrieval	Overall
Atlantic	4.8%	58.0%	2.8%
Cape May	5.2%	64.4%	3.3%
Cumberland	4.2%	57.8%	2.4%
Salem	4.5%	59.1%	2.7%
Total	4.7%	59.2%	2.8%

Standard in all voluntary survey data is some level of item non-response. The programming for the SJHTS did not allow participants to skip questions; however, participants could provide a "don't know" or "prefer not to answer" response to most survey questions. Table 38 presents the non-response percentage for home ownership, household disability, and household income. The income variable used in this table represents income as collected in the recruitment survey. As noted previously, to help minimize non-response to this variable, Westat added a second income question to the retrieval survey. Responses to that question reduced the non-response to income from 17.8 percent to 11 percent overall. The observed non-response of these variables is consistent with other household travel surveys recently conducted by Westat.

Table 38. Household Variables – Item Non-Response

Non-response items	Unweighted	
	Frequency	Percentage
Home Ownership	40	2.2%
Household Disability	16	0.9%
Household Income	330	17.8%

Table 39 presents several person level non-response items. The person non-response for age was partially offset by a follow-up age range classification question that was asked when age was not initially reported.

Table 39. Person Variables – Item Non-Response

Non-response items	Unweighted	
	Frequency	Percentage
Age	248	6%
Age Range	33	1%
Days traveled to work per week	67	4%
Employment	48	1%
Level of Education	71	2%
Race	89	2%
Student Status	63	2%

5.1.2. Demographic Characteristics of Survey Participants

In Table 40, several unweighted demographic variables captured in the survey are compared with those same variables reported in the 2008 – 2012 American Community Survey (ACS) 5-Year Estimates for the SJTPO region. Consistent with most survey samples, many of the hard-to-survey populations are underrepresented in the SJHTS data (e.g., larger households, Hispanic households, and young adults). When applied to the survey data, computed weights adjust the responses to represent the population. Characteristics or categories of some of the hard-to-reach populations were used to define the expansion cells in SJHTS. Weighting was discussed in section 4.

Table 40. Demographic Survey Results Compared to 2008 – 2012 ACS 5-Year Estimates

Demographic		SJHTS	ACS
Total Households		1,850	220,215
Household Size	1	32.1%	27.7%
	2	42.4%	32.2%
	3	13.0%	16.3%
	4+	12.5%	23.7%
Household Vehicles	0	9.1%	11.4%
	1	34.9%	34.9%
	2	36.3%	36.6%
	3+	19.7%	17.1%
Residence Tenure	Own	75.1%	70.4%
	Rent	23.7%	29.6%
	Other	2.1%	-
Race	White	83.0%	73.2%
	African American	7.5%	16.7%
	Other	9.6%	10.1%
Hispanic	Yes	5.5%	16.7%
	No	94.5%	83.3%
Participant Gender	Male	47.0%	49.4%
	Female	53.0%	50.6%
Participant Age	<18 years old	14.4%	22.7%
	18 - 24	5.3%	9.0%
	25 - 54	33.2%	40.2%
	55 - 64	21.8%	12.8%
	65+	25.3%	15.2%

5.2. Shore Visit Results

Additional questions were included in the South Jersey retrieval instrument with the intent of gathering information about recreational travel to the Jersey shore. One household member was asked questions about how often the people that lived in their household visited the Jersey shore and casinos, how they traveled there and which household members traveled with them.

These questions were placed at the end of the retrieval survey and the completion of the recreational questions had no impact on a household's completion status. Almost all interviews (97 percent) completed through WEB or CATI responded to these questions. However, the recreational questions were only available online; therefore the households that completed via mail did not have the opportunity to respond to these questions.

The first question in this section of the survey asked of households how many times they visited the shore between last May and September. If the response was none or if the respondent reported that they lived at the shore year round the remaining trips to the shore questions were skipped. Residents of the shore communities were, however, asked the questions about casino visits. Some key "getting to the shore" results follow.

- 618 households responded that they live at the shore year round
- 29 percent of households reported that they did not visit the Jersey shore between last May and September
- 10 percent of households reported visiting the shore more than 20 times between last May and September
- 21 percent of households reported that they typically do not travel with their entire household to the shore
- 19 percent of households reported staying overnight when they visited the shore
- 75 percent of the households that stayed overnight reported staying for 1 – 3 nights
- 3 percent of households reported using public transit to travel to the Jersey shore

Which shore communities were visited was also of interest. Participants were provided with a list of towns from which to select the locations they visit when they travel to the shore. These locations were provided by the SJTPO and included all of the major shore towns. Participants were instructed to select all of the locations that applied. Figure 9 shows that survey respondent's report 72 percent of all the travel to the Jersey shore was made to four towns, with Ocean City being the

most reported destination. Table 41 lists the frequency for each of the towns reported by the 572 respondents reporting trips to the shore.

Figure 9. Frequently Visited Shore Communities

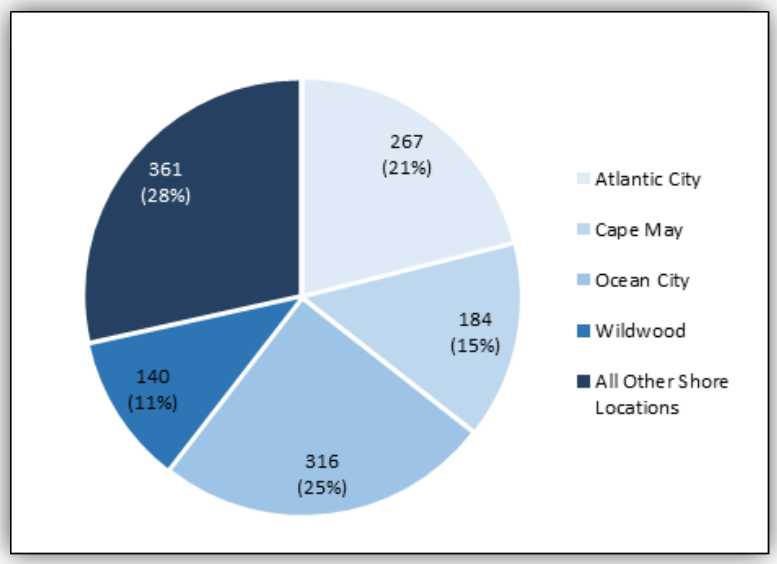
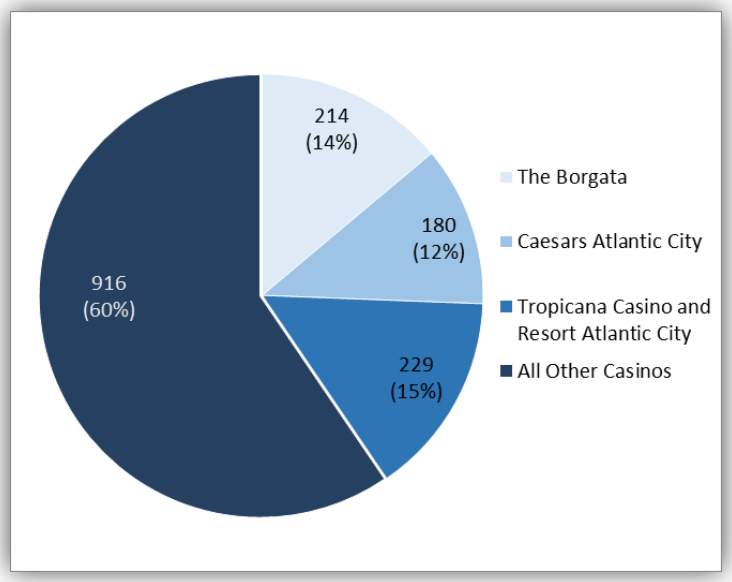


Table 41 Frequency of All Visited Shore Communities

	Unweighted	
Shore Location	Frequency	Percentage
Atlantic City	267	21%
Avalon	22	2%
Brigantine	52	4%
Cape may	184	15%
Longport	23	2%
Margate	51	4%
North Cape May	11	1%
Ocean City	316	25%
Sea Isle City	82	6%
Stone Harbor	32	3%
Strathmere	30	2%
Wildwood	140	11%
Villas	6	0%
Ventnor	39	3%
Varies	13	1%
Total	1,268	100%

Understanding the impact of travel to casinos in the region was an important component of the study. Residents and visitors to the shore were asked about trips to the area casinos in the past year. Almost half of the survey respondents (47 percent) said they did not visit any Jersey shore casino in the past year, but those that did favored The Borgata, Caesars, and the Tropicana Casino and Resort (Figure 10).

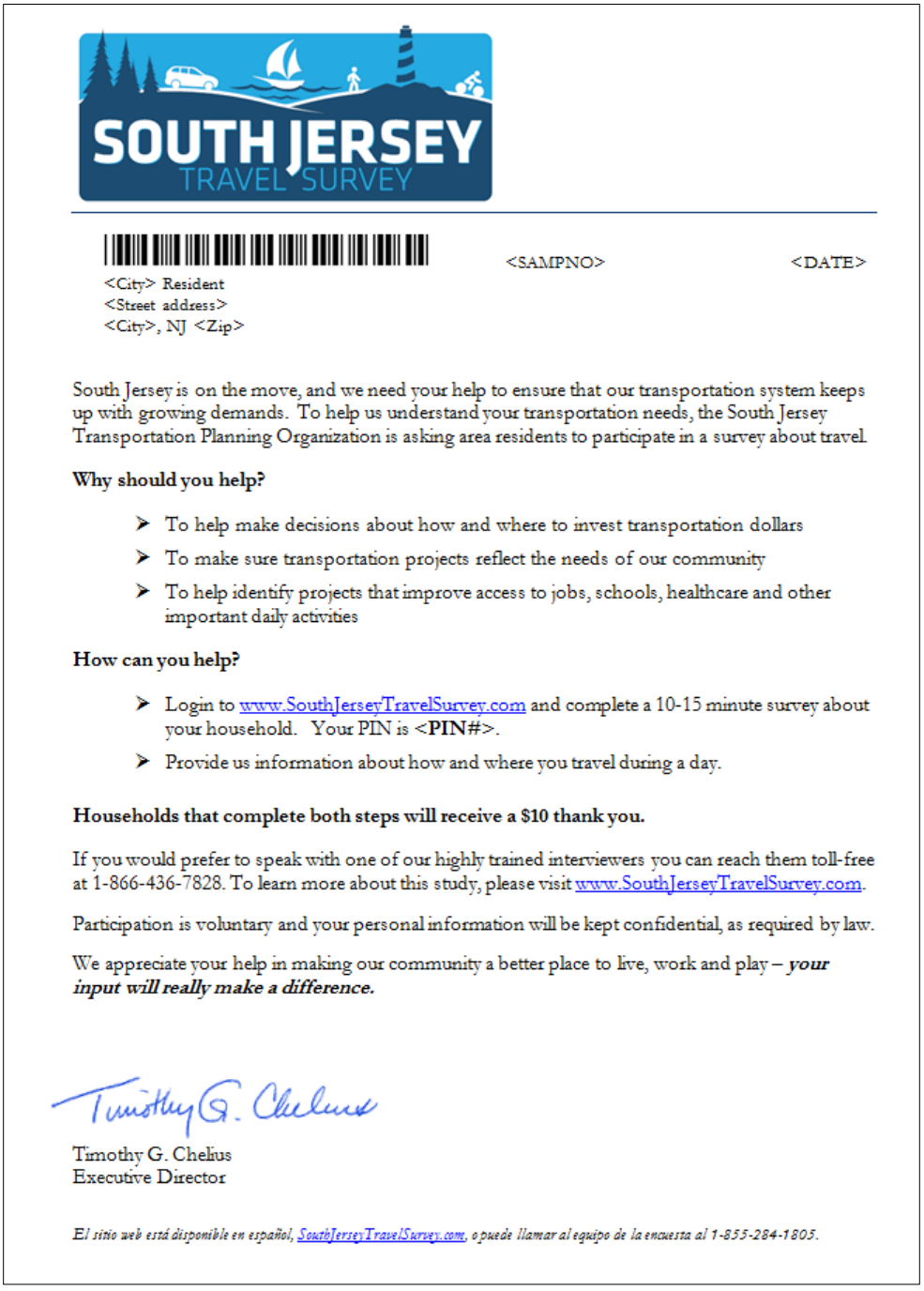
Figure 10. Frequently Visited Casinos



6. Appendices

6.1. Participation Documents

6.1.1. Invitation Letter



SOUTH JERSEY
TRAVEL SURVEY

<SAMPNO> <DATE>

<City> Resident
<Street address>
<City>, NJ <Zip>

South Jersey is on the move, and we need your help to ensure that our transportation system keeps up with growing demands. To help us understand your transportation needs, the South Jersey Transportation Planning Organization is asking area residents to participate in a survey about travel.

Why should you help?

- To help make decisions about how and where to invest transportation dollars
- To make sure transportation projects reflect the needs of our community
- To help identify projects that improve access to jobs, schools, healthcare and other important daily activities

How can you help?

- Login to www.SouthJerseyTravelSurvey.com and complete a 10-15 minute survey about your household. Your PIN is <**PIN#**>.
- Provide us information about how and where you travel during a day.

Households that complete both steps will receive a $10 thank you.

If you would prefer to speak with one of our highly trained interviewers you can reach them toll-free at 1-866-436-7828. To learn more about this study, please visit www.SouthJerseyTravelSurvey.com.

Participation is voluntary and your personal information will be kept confidential, as required by law.

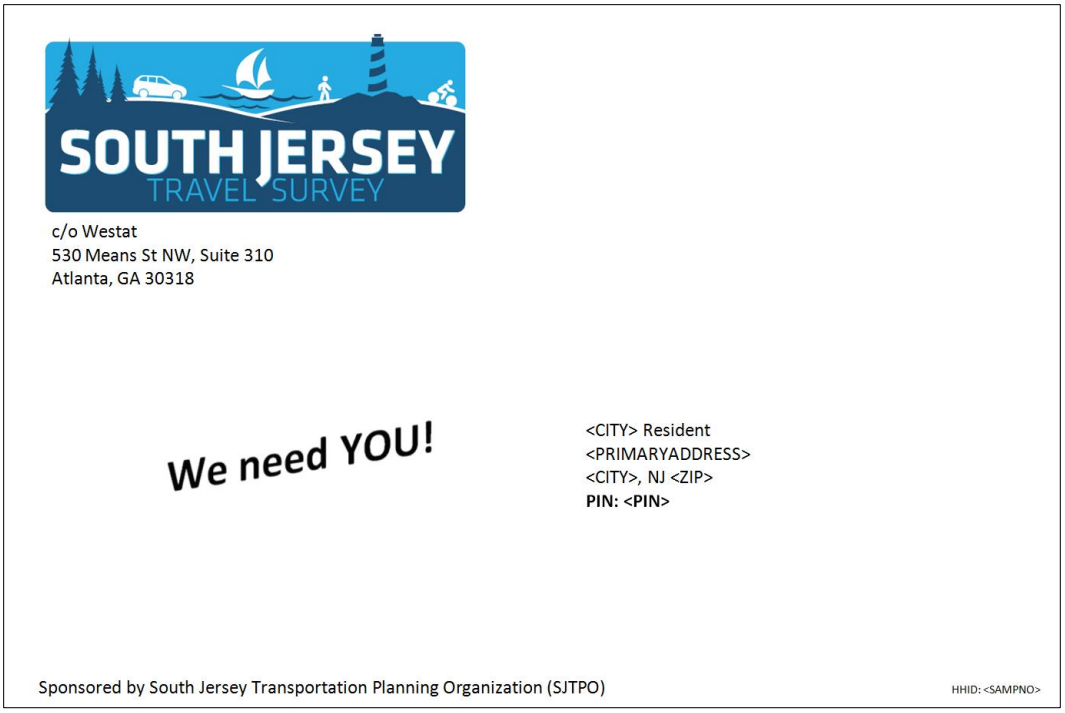
We appreciate your help in making our community a better place to live, work and play – ***your input will really make a difference.***

Timothy G. Chelius
Executive Director

El sitio web está disponible en español, SouthJerseyTravelSurvey.com, o puede llamar al equipo de la encuesta al 1-855-284-1805.

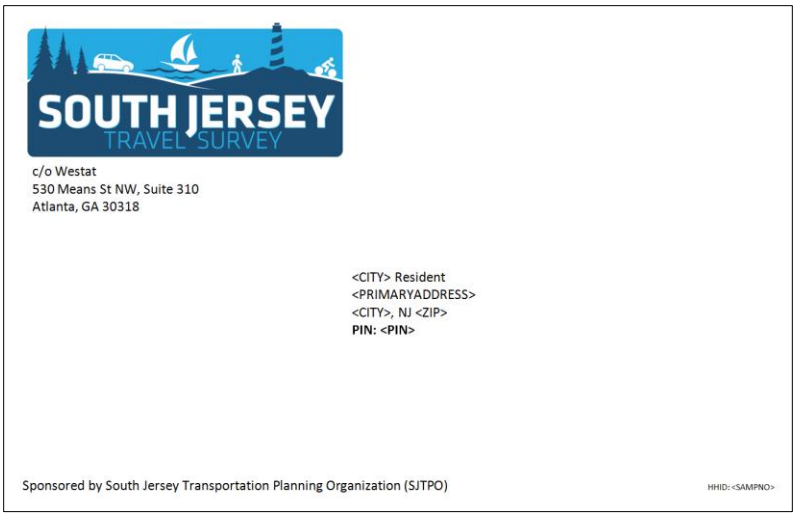
6.1.2. Reminder Postcards

6.1.2.1. Postcard 1 (Front)



6.1.2.2. Postcard 1 (Back)

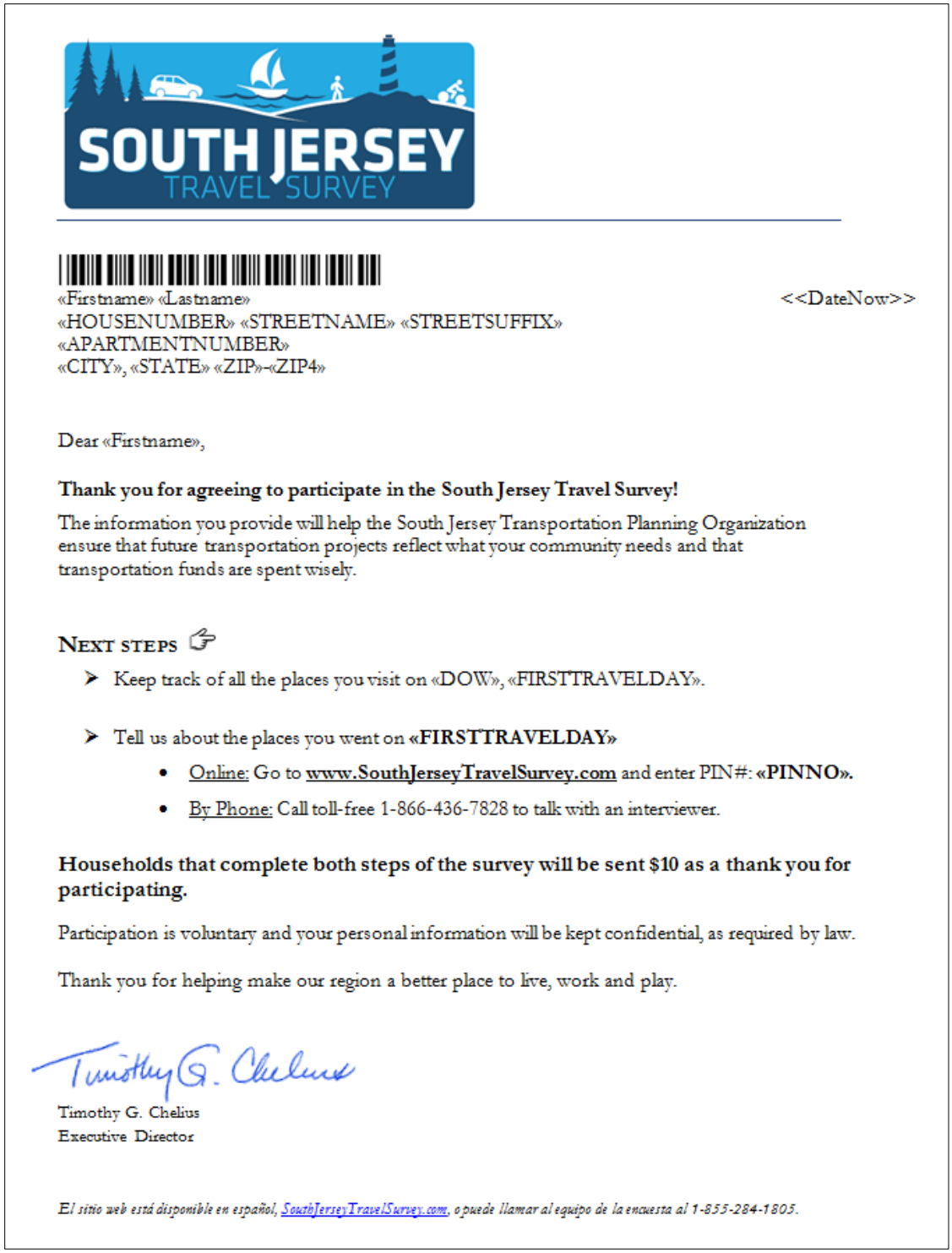
6.1.2.3. Postcard 2 (Front)



6.1.2.4. Postcard 2 (Back)

6.1.3. Travel Day Materials

6.1.3.1. Travel Log Letter



«Firstname» «Lastname»
«HOUSENUMBER» «STREETNAME» «STREETSUFFIX»
«APARTMENTNUMBER»
«CITY», «STATE» «ZIP»-«ZIP4»

<<DateNow>>

Dear «Firstname»,

Thank you for agreeing to participate in the South Jersey Travel Survey!

The information you provide will help the South Jersey Transportation Planning Organization ensure that future transportation projects reflect what your community needs and that transportation funds are spent wisely.

NEXT STEPS

- Keep track of all the places you visit on «DOW», «FIRSTTRAVELDAY».
- Tell us about the places you went on **«FIRSTTRAVELDAY»**
  - Online: Go to **www.SouthJerseyTravelSurvey.com** and enter PIN#: **«PINNO».**
  - By Phone: Call toll-free 1-866-436-7828 to talk with an interviewer.

Households that complete both steps of the survey will be sent $10 as a thank you for participating.

Participation is voluntary and your personal information will be kept confidential, as required by law.

Thank you for helping make our region a better place to live, work and play.

Timothy G. Chelius
Executive Director

El sitio web está disponible en español, SouthJerseyTravelSurvey.com, o puede llamar al equipo de la encuesta al 1-855-284-1805.

6.1.3.2. Example Travel Log

SOUTH JERSEY TRAVEL SURVEY

Study sponsored by: The South Jersey Transportation Planning Organization

EXAMPLE

Questions? www.SouthJerseyTravelSurvey.com Toll-free hotline: 1-866-436-7828

Travel Log For: John

	At 3:00 am, were you at HOME or SOMEPLACE ELSE:	What did you DO at this place?	What TIME did you LEAVE this place?
STARTING PLACE	[X] Home [ ] Work [ ] School [ ] Other Place If you were NOT HOME, please provide the PLACE NAME and ADDRESS below:	Refer to the list of activities below and record the code(s) here (List up to two activities): 01 15	07:15 [X] am [ ] pm [ ] Did not leave. Main reason for not leaving this place:

	A Please list each place you went on your travel day. If the trip starts and ends at the same PLACE (e.g. jogging or walking) record LOOP as the place name and enter 17 in column F.	B What TIME did you ARRIVE at this place?	C HOW did you get to this place?	D Which vehicle did you use to get to this place?	E How many people went to this place with you?	F What did you DO at this place? Refer to the list of activities below and record the code(s) here:	G What TIME did you LEAVE this place?
PLACE 2	[ ] Home [ ] Work [ ] School [X] Other Place - Record name and Address: Fuel House Coffee CO. 636 E. Landis Ave. Vineland	07:35 [X] am [ ] pm	[ ] Walked [ ] Bicycled [X] Car/SUV/Truck [ ] Public Transit [ ] Carpool [ ] Other:	2007 Ford Focus	# with you: 0 Names:	List up to two activities: 14	08:07 [X] am [ ] pm [ ] Did not leave.
PLACE 3	[ ] Home [X] Work [ ] School [ ] Other Place - Record name and Address:	8:42 [X] am [ ] pm	[ ] Walked [ ] Bicycled [X] Car/SUV/Truck [ ] Public Transit [ ] Carpool [ ] Other:	2007 Ford Focus	# with you: 0 Names:	List up to two activities: 03	6:15 [ ] am [X] pm [ ] Did not leave.
PLACE 4	[ ] Home [ ] Work [ ] School [X] Other Place - Record name and Address: Susquehanna Bank 20 W. Chestnut Ave.	06:28 [ ] am [ ] pm	[ ] Walked [ ] Bicycled [X] Car/SUV/Truck [ ] Public Transit [ ] Carpool [ ] Other:	2007 Ford Focus	# with you: 0 Names:	List up to two activities: 21	6:30 [ ] am [X] pm [ ] Did not leave.
PLACE 5	[X] Home [ ] Work [ ] School [ ] Other Place - Record name and Address:	7:05 [ ] am [X] pm	[ ] Walked [ ] Bicycled [X] Car/SUV/Truck [ ] Public Transit [ ] Carpool [ ] Other:	2007 Ford Focus	# with you: 1 Names: Sarah	List up to two activities: 01	[ ] am [ ] pm [X] Did not leave.

F Activity List — Continue with places 6-13 on back

Pick the code from the list below that best describes the activity for each place and write the code in column F. *For transit stops or carpool meeting places: Please record your activity as '21' or '22'

HOME ACTIVITIES
01. Typical home activities
02. Working at home (paid)
05. School at home

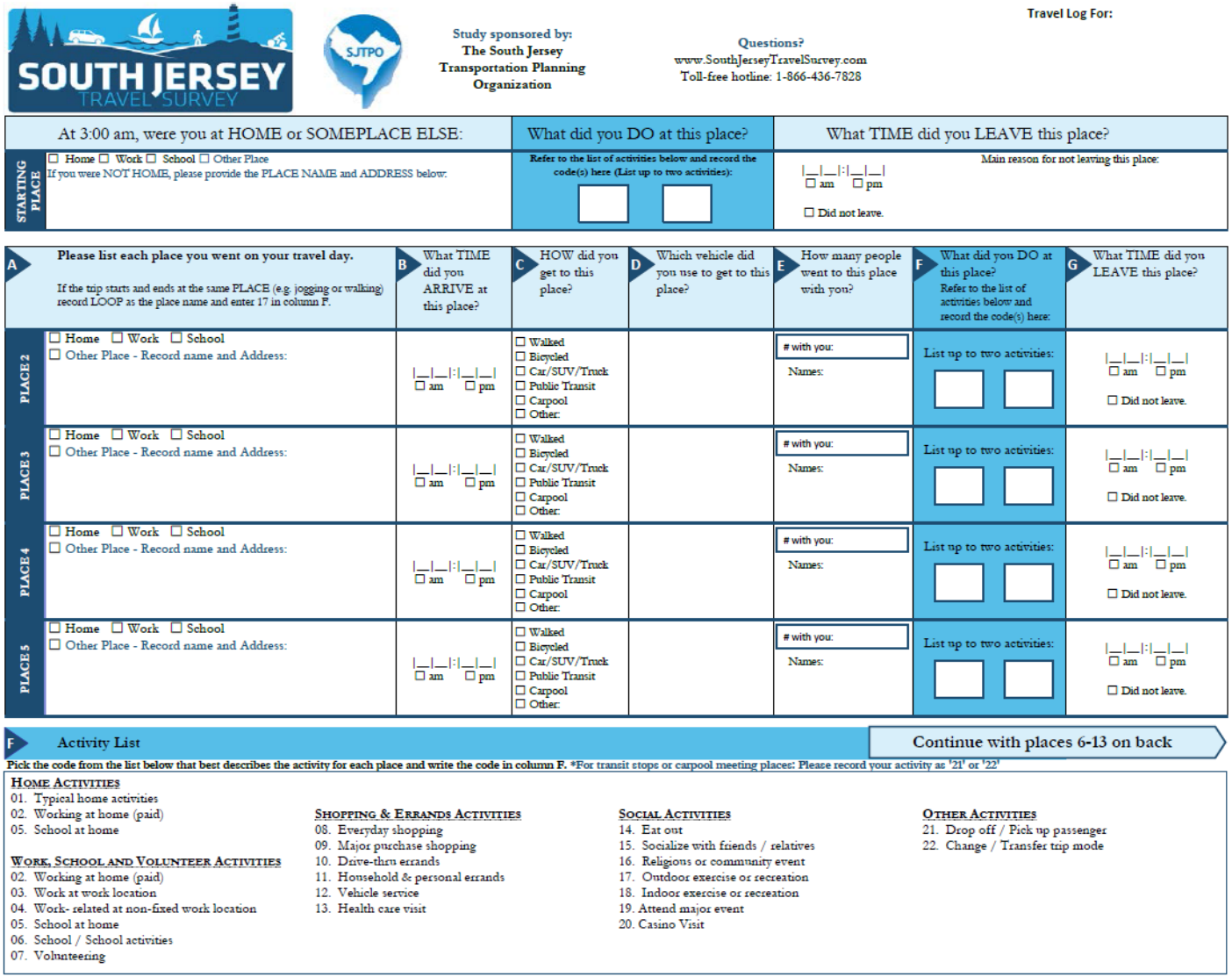
WORK, SCHOOL AND VOLUNTEER ACTIVITIES
02. Working at home (paid)
03. Work at work location
04. Work- related at non-fixed work location
05. School at home
06. School / School activities
07. Volunteering

SHOPPING & ERRANDS ACTIVITIES
08. Everyday shopping
09. Major purchase shopping
10. Drive-thru errands
11. Household & personal errands
12. Vehicle service
13. Health care visit

SOCIAL ACTIVITIES
14. Eat out
15. Socialize with friends / relatives
16. Religious or community event
17. Outdoor exercise or recreation
18. Indoor exercise or recreation
19. Attend major event
20. Casino Visit

OTHER ACTIVITIES
21. Drop off / Pick up passenger
22. Change / Transfer trip mode

6.1.3.3. Travel Log



SOUTH JERSEY TRAVEL SURVEY

Study sponsored by: The South Jersey Transportation Planning Organization

Questions? www.SouthJerseyTravelSurvey.com Toll-free hotline: 1-866-436-7828

Travel Log For:

	At 3:00 am, were you at HOME or SOMEPLACE ELSE:	What did you DO at this place?	What TIME did you LEAVE this place?
STARTING PLACE	☐ Home ☐ Work ☐ School ☐ Other Place If you were NOT HOME, please provide the PLACE NAME and ADDRESS below:	Refer to the list of activities below and record the code(s) here (List up to two activities):	__|__|:|__|__| ☐ am ☐ pm ☐ Did not leave. Main reason for not leaving this place:

	A Please list each place you went on your travel day. If the trip starts and ends at the same PLACE (e.g. jogging or walking) record LOOP as the place name and enter 17 in column F.	B What TIME did you ARRIVE at this place?	C HOW did you get to this place?	D Which vehicle did you use to get to this place?	E How many people went to this place with you?	F What did you DO at this place? Refer to the list of activities below and record the code(s) here:	G What TIME did you LEAVE this place?
PLACE 2	☐ Home ☐ Work ☐ School ☐ Other Place - Record name and Address:	__|__|:|__|__| ☐ am ☐ pm	☐ Walked ☐ Bicycled ☐ Car/SUV/Truck ☐ Public Transit ☐ Carpool ☐ Other:		# with you: Names:	List up to two activities:	__|__|:|__|__| ☐ am ☐ pm ☐ Did not leave.
PLACE 3	☐ Home ☐ Work ☐ School ☐ Other Place - Record name and Address:	__|__|:|__|__| ☐ am ☐ pm	☐ Walked ☐ Bicycled ☐ Car/SUV/Truck ☐ Public Transit ☐ Carpool ☐ Other:		# with you: Names:	List up to two activities:	__|__|:|__|__| ☐ am ☐ pm ☐ Did not leave.
PLACE 4	☐ Home ☐ Work ☐ School ☐ Other Place - Record name and Address:	__|__|:|__|__| ☐ am ☐ pm	☐ Walked ☐ Bicycled ☐ Car/SUV/Truck ☐ Public Transit ☐ Carpool ☐ Other:		# with you: Names:	List up to two activities:	__|__|:|__|__| ☐ am ☐ pm ☐ Did not leave.
PLACE 5	☐ Home ☐ Work ☐ School ☐ Other Place - Record name and Address:	__|__|:|__|__| ☐ am ☐ pm	☐ Walked ☐ Bicycled ☐ Car/SUV/Truck ☐ Public Transit ☐ Carpool ☐ Other:		# with you: Names:	List up to two activities:	__|__|:|__|__| ☐ am ☐ pm ☐ Did not leave.

F Activity List — Continue with places 6-13 on back

Pick the code from the list below that best describes the activity for each place and write the code in column F. *For transit stops or carpool meeting places: Please record your activity as '21' or '22'

HOME ACTIVITIES
01. Typical home activities
02. Working at home (paid)
05. School at home

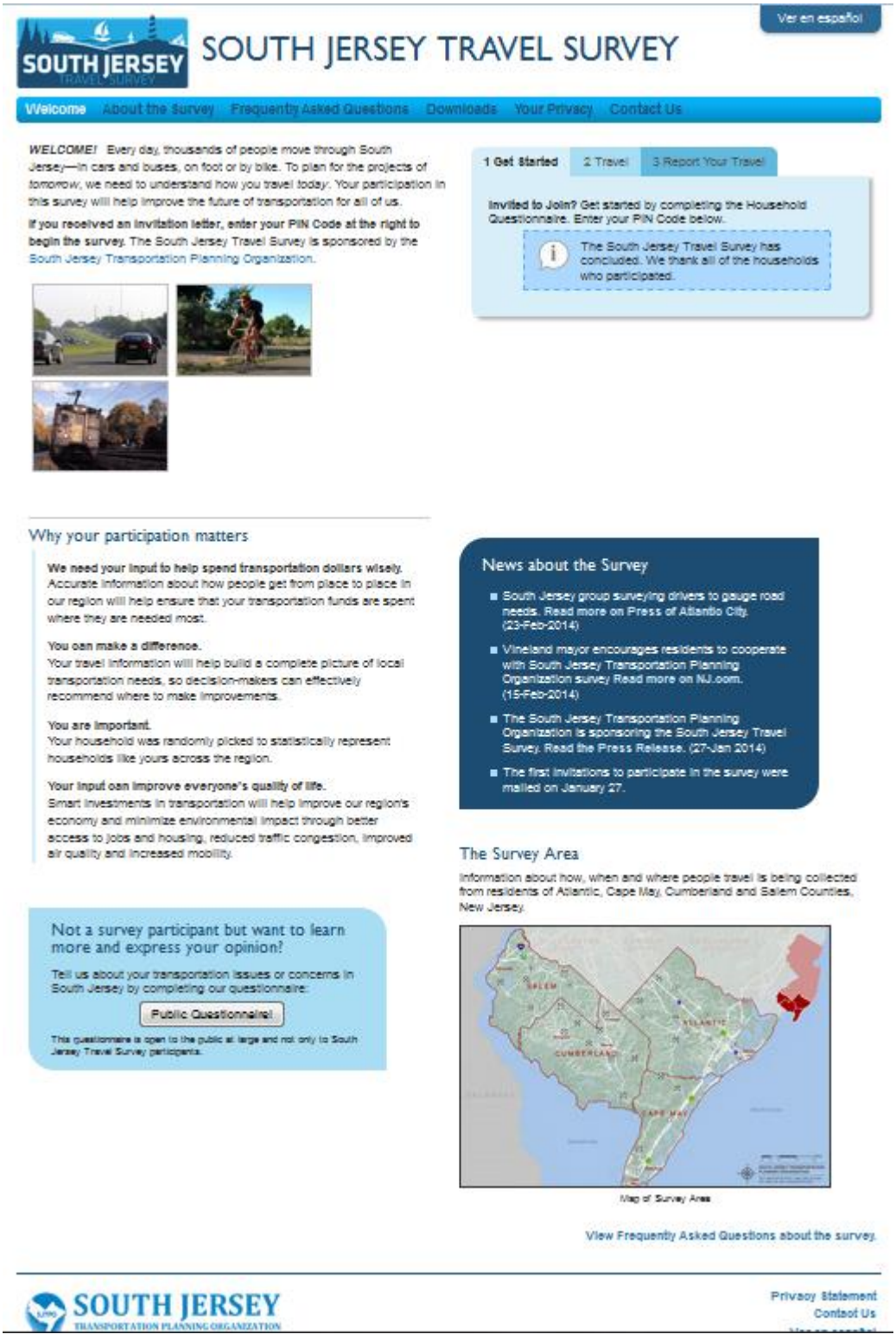
WORK, SCHOOL AND VOLUNTEER ACTIVITIES
02. Working at home (paid)
03. Work at work location
04. Work- related at non-fixed work location
05. School at home
06. School / School activities
07. Volunteering

SHOPPING & ERRANDS ACTIVITIES
08. Everyday shopping
09. Major purchase shopping
10. Drive-thru errands
11. Household & personal errands
12. Vehicle service
13. Health care visit

SOCIAL ACTIVITIES
14. Eat out
15. Socialize with friends / relatives
16. Religious or community event
17. Outdoor exercise or recreation
18. Indoor exercise or recreation
19. Attend major event
20. Casino Visit

OTHER ACTIVITIES
21. Drop off / Pick up passenger
22. Change / Transfer trip mode

6.1.4. Public Website



6.1.5. Press Release

1,750 Households from South Jersey to be part of our regional Household Travel Survey!

(Vineland, NJ – January 27th, 2014) – South Jersey Transportation Planning Organization (SJTPO) is kicking off the three-month long **South Jersey Travel Survey** to gain a better understanding of South Jersey's transportation needs now and in the future. Between February and April of 2014, travel data will be collected from approximately 1,750 randomly selected households in Atlantic, Cape May, Cumberland, and Salem counties in South Jersey.

"This survey is important," says Tim Chelius, SJTPO Executive Director. "It will allow us to gain a clear picture of how people travel within the region and help us improve transportation to respond to travel needs. It's also a wonderful opportunity for South Jersey residents to participate in the transportation planning process."

Data collected from the survey will give transportation planners the information they need to make the best decisions for South Jersey's transportation infrastructure. The survey results will provide a basis for a data-driven approach to spending transportation dollars effectively. Smart investments in transportation can help improve the region's economy and environment through better access to jobs and housing, reduced traffic congestion, improved air quality and increased mobility.

SJTPO has contracted Westat, a nationally known statistical research firm, to conduct the federally-funded survey. Westat is an industry-leading survey research organization with over 50 years of experience designing and conducting research studies.

How does it work?

1. **Receive letter**: Randomly selected households across the region will first receive a letter in the mail notifying them of their selection. The recruitment survey can be completed online or by talking with a member of the survey team. Once a household agrees to participate and completes the initial survey, they will be assigned a travel date, and provided travel log packets, including instructions on how to report their travel.

Press Release (Continued)

2. **Travel date**: On the assigned travel date, each household member (five-years of age or older) is asked to use the travel log to record all the places they go on that one day.

3. **Report travel**: The day after the assigned travel date, households can report their travel online or by telephone. Households that complete the survey will receive $10 as a thank-you for their participation.

"Data collected in this survey will feed into sophisticated computer models used by SJTPO and other agencies," says Andrew Tracy, Transportation Planner at SJTPO. "These computer models are used for traffic congestion management and to help mitigate air pollution. Residents' input will help ensure these models accurately represent travel in South Jersey."

Participation in the survey is voluntary but critical to the survey's success, and the information obtained from the survey is, in turn, crucial to the region's success. It is important to note that all information provided by each household is kept confidential according to the law. The information provided all those taking part in the survey will be combined and used for planning and research purposes only.

A survey-specific website, www.SouthJerseyTravelSurvey.com, has been created to communicate to the public the study's purpose and importance, as well as contact information and answers to frequently asked questions. Survey participants can use the website to report their travel as well.

Contact: David Heller, Team Leader of Regional and Systems Planning, SJTPO
(856) 794-1941, dheller@sjtpo.org

About the South Jersey Transportation Planning Organization

SJTPO is a metropolitan planning organization that serves Atlantic, Cape May, Cumberland, and Salem counties in New Jersey. SJTPO analyzes the performance of the region's transportation system and programs federal funds for transportation project implementation. SJTPO works closely with its member governments to develop long range plans for transportation improvements that serve the region. More information about SJTPO is available at www.sjtpo.org.

6.2. List of Derived Variables

6.2.1. Household Table

HHSIZX: Actual count of number of household members.

HHSTUD: Count of the number of students in each household (STUDE = 1 or 2).

HHWORKER: Count of the number of workers in each household (EMPLY = 1).

HHLICDRV: Count of the license holders in each household (LIC = 1).

HHCHILD: Count of the number of children in each household (AGE = 1 or AAGE = 2).

HHTRIPS: Count of total number of trips taken by household on travel day.

LIFCYCLE: Classification of each household using the number of children, adults, and retired members. Each household is classified into one of the 10 categories below.

- 01 = Household has one adult, no children and no retired persons.
- 02 = Household has 2 or more adults, no children and no retired persons.
- 03 = Household has one adult and the youngest child is 0 to 5 years old.
- 04 = Household has 2 or more adults and the youngest child is 0 to 5 years old.
- 05 = Household has one adult and the youngest child is 6 to 15 years old.
- 06 = Household has 2 or more adults and the youngest child is 6 to 15 years old.
- 07 = Household has one adult and the youngest child is 16 to 21 years old.
- 08 = Household has 2 or more adults and the youngest child is 16 to 21 years old.
- 09 = Household has one retired adult and no children.
- 10 = Household has 2 or more adults; at least one is retired and no children.

6.2.2. Person Table

WSTRT: Conversion of the participant's work start time to military time

WEND: Conversion of the participant's work end time to military time

6.2.3. Vehicle Table

HHVEHX: Count of the number of vehicles rostered in each household.

6.2.4. Trip Table

NONHHMTP: Count of non-household members on trip.

6.3. Additional Recruitment Frequency Tables

Table 42. Number of Children in Household (Unweighted and Weighted)

	Unweighted		Weighted	
Household Children	Frequency	Percentage	Frequency	Percentage
0	1,515	82%	153,340	70%
1	183	10%	31,377	14%
2	110	6%	25,185	11%
3	30	2%	6,709	3%
4+	12	1%	3,605	2%
Total	1,850	100%	220,215	100%

Table 43. Participant Employment Status (Unweighted and Weighted)

	Unweighted		Weighted	
Person Employment Status	Frequency	Percentage	Frequency	Percentage
Worker	1,664	49%	249,106	53%
Retired	990	29%	88,846	19%
Homemaker	134	4%	20,434	4%
Unemployed, but looking for work	159	5%	29,046	6%
Unemployed, not seeking employment	63	2%	12,320	3%
Student	114	3%	26,251	6%
Something else	147	4%	22,871	5%
Don't Know	5	0%	1,596	0%
Refused	16	0%	3,967	1%
Not Ascertained	127	4%	18,800	4%
Total	3,419	100%	473,237	100%

6.4. Additional Retrieval Frequency Tables

Table 44. Total Persons Traveling on Trip (Unweighted and Weighted)

	Unweighted		Weighted	
Trip Party Size	Frequency	Percentage	Frequency	Percentage
1	7,614	62%	996,020	59%
2	3,487	29%	467,146	28%
3	780	6%	159,277	9%
4	181	1%	38,617	2%
5+	157	1%	36,755	2%
Total	12,219	100%	1,697,815	100%

Table 45. Household Members Traveling on Trip (Unweighted and Weighted)

	Unweighted		Weighted	
Trip Household Members	Frequency	Percentage	Frequency	Percentage
1	9,006	74%	1,204,173	71%
2	2,595	21%	344,599	20%
3	511	4%	122,629	7%
4	77	1%	16,292	1%
5+	30	0%	10,122	1%
Total	12,219	100%	1,697,815	100%

Table 46. Non-Household Members Traveling on Trip (Unweighted and Weighted)

	Unweighted		Weighted	
Trip Non-household Members	Frequency	Percentage	Frequency	Percentage
0	10,542	86%	1,441,742	85%
1	1,340	11%	197,755	12%
2	188	2%	27,083	2%
3	54	0%	6,840	0%
4	15	0%	2,567	0%
5+	80	1%	21,827	1%
Total	12,219	100%	1,697,815	100%

Table 47. Reason for No Trips on Travel Day (Unweighted and Weighted)

Reason for No Trips	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Personally Sick	78	11%	12,218	11%
Vacation or Personal Day	89	12%	15,603	14%
Caretaking Sick Kids	8	1%	2,897	3%
Caretaking Sick Other	5	1%	624	1%
Home-bound Elderly or Disabled	58	8%	11,053	10%
Worked at home for pay	18	3%	1,599	1%
Not Schedule to Work	148	21%	25,594	23%
Worked Around Home (Not For Pay)	72	10%	9,819	9%
Out of Area	40	6%	5,835	5%
No Transportation Available	5	1%	621	1%
Other	123	17%	14,588	13%
Don't know	49	7%	7,746	7%
Refused	25	3%	3,681	3%
Total	718	100%	111,878	100%

Table 48. Trip Duration by Mode (Unweighted and Weighted)

Trip Mode	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Walk				
0-5 Minutes	374	44%	59220	41%
6-10 Minutes	151	18%	32235	22%
11-20 Minutes	166	20%	32115	22%
21-30 Minutes	94	11%	16291	11%
31-60 Minutes	46	5%	4524	3%
61-90 Minutes	7	1%	685	0%
91-120 Minutes	1	0%	53	0%
Greater than 120 minutes	2	0%	130	0%
Bike				
0-5 Minutes	14	18%	9197	42%
6-10 Minutes	14	18%	3218	15%
11-20 Minutes	22	29%	5501	25%
21-30 Minutes	13	17%	1915	9%
31-60 Minutes	7	9%	1159	5%
61-90 Minutes	3	4%	281	1%
Greater than 120 minutes	4	5%	708	3%
Auto/Van/Truck (as the driver)				
0-5 Minutes	1,594	18%	191153	18%
6-10 Minutes	1,762	20%	205278	19%
11-20 Minutes	2,688	31%	331459	31%
21-30 Minutes	1,486	17%	189940	18%
31-60 Minutes	925	11%	117924	11%
61-90 Minutes	224	3%	28576	3%
91-120 Minutes	65	1%	7552	1%
Greater than 120 minutes	39	0%	5531	1%
Auto/Van/Truck (as a passenger)				
0-5 Minutes	357	19%	66058	22%
6-10 Minutes	384	21%	63422	21%
11-20 Minutes	586	31%	85801	29%
21-30 Minutes	273	15%	45334	15%
31-60 Minutes	193	10%	29217	10%
61-90 Minutes	49	3%	6440	2%
91-120 Minutes	12	1%	1647	1%
Greater than 120 minutes	8	0%	770	0%

Trip Mode	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Public Bus				
0-5 Minutes	12	5%	2683	6%
6-10 Minutes	24	11%	3542	8%
11-20 Minutes	60	27%	11962	28%
21-30 Minutes	44	20%	8407	20%
31-60 Minutes	49	22%	10205	24%
61-90 Minutes	16	7%	2778	7%
91-120 Minutes	9	4%	1013	2%
Greater than 120 minutes	10	4%	1602	4%
Dial-a-ride/Paratransit				
0-5 Minutes	1	4%	112	3%
6-10 Minutes	2	8%	215	5%
11-20 Minutes	11	46%	2281	58%
21-30 Minutes	5	21%	696	18%
31-60 Minutes	3	13%	341	9%
61-90 Minutes	2	8%	321	8%
Taxi/Limo				
6-10 Minutes	4	16%	968	19%
11-20 Minutes	13	52%	2429	49%
21-30 Minutes	6	24%	1303	26%
31-60 Minutes	1	4%	110	2%
Greater than 120 minutes	1	4%	196	4%
School Bus				
0-5 Minutes	8	2%	2208	2%
6-10 Minutes	25	8%	6254	7%
11-20 Minutes	103	32%	29865	33%
21-30 Minutes	105	33%	31282	35%
31-60 Minutes	69	21%	18248	20%
61-90 Minutes	9	3%	1710	2%
91-120 Minutes	3	1%	427	0%
Greater than 120 minutes	1	0%	324	0%
JITNEY				
0-5 Minutes	2	6%	229	3%
6-10 Minutes	6	17%	2016	22%
11-20 Minutes	15	42%	3393	38%
21-30 Minutes	11	31%	3154	35%
31-60 Minutes	2	6%	185	2%
Something else				
0-5 Minutes	1	4%	97	2%
6-10 Minutes	1	4%	92	2%
11-20 Minutes	4	17%	1032	26%
21-30 Minutes	6	25%	1241	31%
31-60 Minutes	6	25%	876	22%
61-90 Minutes	1	4%	87	2%
91-120 Minutes	3	13%	411	10%
Greater than 120 minutes	2	8%	193	5%
Total	12,219	100%	1697815	100%

Table 49. Trip Duration by Primary Trip Purpose (Unweighted and Weighted)

	Unweighted		Weighted	
Trip Purpose	Frequency	Percentage	Frequency	Percentage
Typical Home Activities				
0-5 Minutes	673	17%	97,273	17%
6-10 Minutes	729	18%	100,595	18%
11-20 Minutes	1,255	31%	176,166	31%
21-30 Minutes	761	19%	115,296	20%
31-60 Minutes	438	11%	62,693	11%
61-90 Minutes	106	3%	14,393	3%
91-120 Minutes	24	1%	2,857	0%
Greater than 120 minutes	23	1%	2,846	0%
Working at Home (Paid)				
0-5 Minutes	19	31%	2,665	38%
6-10 Minutes	16	26%	1,240	18%
11-20 Minutes	14	23%	1,693	24%
21-30 Minutes	7	11%	663	10%
31-60 Minutes	3	5%	480	7%
61-90 Minutes	1	2%	78	1%
Greater than 120 minutes	2	3%	118	2%
Work at Work Location				
0-5 Minutes	152	12%	21,201	11%
6-10 Minutes	203	16%	32,085	17%
11-20 Minutes	386	30%	55,018	29%
21-30 Minutes	288	22%	40,665	21%
31-60 Minutes	200	15%	30,647	16%
61-90 Minutes	53	4%	8,043	4%
91-120 Minutes	16	1%	2,670	1%
Greater than 120 minutes	5	0%	638	0%
Work Related - Non-Fixed Work Location				
0-5 Minutes	34	12%	3,775	10%
6-10 Minutes	38	13%	4,489	12%
11-20 Minutes	77	27%	9,582	26%
21-30 Minutes	63	22%	8,663	24%
31-60 Minutes	51	18%	6,325	17%
61-90 Minutes	10	4%	1,361	4%
91-120 Minutes	8	3%	989	3%
Greater than 120 minutes	4	1%	1,626	4%

Trip Purpose	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
School at Home				
0-5 Minutes	1	9%	235	11%
6-10 Minutes	2	18%	205	9%
11-20 Minutes	4	36%	697	31%
21-30 Minutes	2	18%	813	36%
31-60 Minutes	2	18%	291	13%
School/School Activities				
0-5 Minutes	70	15%	16,277	14%
6-10 Minutes	76	17%	19,676	17%
11-20 Minutes	136	30%	32,592	29%
21-30 Minutes	98	21%	26,996	24%
31-60 Minutes	65	14%	14,875	13%
61-90 Minutes	9	2%	1,600	1%
91-120 Minutes	5	1%	567	1%
Volunteering				
0-5 Minutes	26	19%	2,104	12%
6-10 Minutes	32	24%	3,176	19%
11-20 Minutes	46	34%	7,045	42%
21-30 Minutes	17	13%	2,396	14%
31-60 Minutes	9	7%	1,584	9%
61-90 Minutes	5	4%	597	4%
Greater than 120 minutes	1	1%	45	0%
Everyday Shopping				
0-5 Minutes	349	25%	37,295	24%
6-10 Minutes	340	24%	35,407	23%
11-20 Minutes	434	31%	48,689	32%
21-30 Minutes	173	12%	21,176	14%
31-60 Minutes	78	6%	9,089	6%
61-90 Minutes	17	1%	1,703	1%
91-120 Minutes	4	0%	364	0%
Greater than 120 minutes	2	0%	279	0%
Major Purchase Shopping				
0-5 Minutes	15	19%	1,150	13%
6-10 Minutes	17	21%	1,580	18%
11-20 Minutes	27	33%	3,149	36%
21-30 Minutes	11	14%	1,531	17%
31-60 Minutes	8	10%	1,129	13%
61-90 Minutes	3	4%	216	2%

Trip Purpose	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Drive-Thru Errands				
0-5 Minutes	84	34%	9,035	34%
6-10 Minutes	70	28%	8,279	31%
11-20 Minutes	52	21%	5,032	19%
21-30 Minutes	25	10%	2,072	8%
31-60 Minutes	13	5%	1,427	5%
61-90 Minutes	3	1%	259	1%
91-120 Minutes	2	1%	452	2%
Household & Personal Errands				
0-5 Minutes	230	25%	27,264	26%
6-10 Minutes	240	26%	26,001	25%
11-20 Minutes	250	27%	30,910	30%
21-30 Minutes	104	11%	10,613	10%
31-60 Minutes	66	7%	7,256	7%
61-90 Minutes	20	2%	2,146	2%
91-120 Minutes	3	0%	297	0%
Vehicle Service				
0-5 Minutes	34	27%	5,278	32%
6-10 Minutes	25	20%	4,114	25%
11-20 Minutes	33	26%	3,802	23%
21-30 Minutes	15	12%	1,990	12%
31-60 Minutes	11	9%	706	4%
61-90 Minutes	3	2%	315	2%
91-120 Minutes	4	3%	279	2%
Greater than 120 minutes	1	1%	111	1%
Health Care Visit				
0-5 Minutes	39	10%	5,098	11%
6-10 Minutes	59	15%	6,936	15%
11-20 Minutes	132	33%	13,931	30%
21-30 Minutes	87	22%	9,988	22%
31-60 Minutes	72	18%	8,103	18%
61-90 Minutes	10	2%	968	2%
91-120 Minutes	2	0%	317	1%
Greater than 120 minutes	3	1%	639	1%

Trip Purpose	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Eat Out				
0-5 Minutes	133	23%	17,637	25%
6-10 Minutes	106	18%	11,477	16%
11-20 Minutes	192	33%	24,050	34%
21-30 Minutes	82	14%	10,175	14%
31-60 Minutes	58	10%	6,920	10%
61-90 Minutes	8	1%	731	1%
91-120 Minutes	3	1%	283	0%
Greater than 120 minutes	1	0%	91	0%
Socialize with Friends/Relatives				
0-5 Minutes	108	21%	17,474	24%
6-10 Minutes	91	18%	11,802	16%
11-20 Minutes	148	29%	21,086	29%
21-30 Minutes	82	16%	10,413	14%
31-60 Minutes	64	12%	8,036	11%
61-90 Minutes	12	2%	2,554	4%
91-120 Minutes	4	1%	275	0%
Greater than 120 minutes	8	2%	552	1%
Religious or Community Event				
0-5 Minutes	33	24%	7,219	36%
6-10 Minutes	23	17%	2,470	12%
11-20 Minutes	47	34%	5,654	28%
21-30 Minutes	20	15%	2,935	15%
31-60 Minutes	12	9%	1,308	7%
91-120 Minutes	2	1%	254	1%
Outdoor Exercise or Recreation				
0-5 Minutes	33	19%	3,128	15%
6-10 Minutes	25	14%	2,575	13%
11-20 Minutes	44	25%	5,580	27%
21-30 Minutes	33	19%	4,555	22%
31-60 Minutes	24	13%	2,066	10%
61-90 Minutes	14	8%	1,819	9%
91-120 Minutes	1	1%	163	1%
Greater than 120 minutes	4	2%	678	3%

Trip Purpose	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Indoor Exercise or Recreation				
0-5 Minutes	42	16%	5,419	16%
6-10 Minutes	59	23%	7,815	23%
11-20 Minutes	82	32%	11,983	35%
21-30 Minutes	40	16%	4,728	14%
31-60 Minutes	26	10%	3,581	11%
61-90 Minutes	5	2%	408	1%
91-120 Minutes	1	0%	78	0%
Greater than 120 minutes	1	0%	87	0%
Attend Major Event				
0-5 Minutes	1	4%	40	1%
6-10 Minutes	5	20%	319	12%
11-20 Minutes	5	20%	423	16%
21-30 Minutes	5	20%	1,276	47%
31-60 Minutes	6	24%	427	16%
61-90 Minutes	2	8%	165	6%
91-120 Minutes	1	4%	51	2%
Casino Visit				
0-5 Minutes	9	15%	673	10%
6-10 Minutes	6	10%	1,154	17%
11-20 Minutes	19	32%	2,061	31%
21-30 Minutes	11	19%	1,488	22%
31-60 Minutes	9	15%	1,026	15%
61-90 Minutes	3	5%	122	2%
91-120 Minutes	2	3%	190	3%
Drop Off/Pick Up Passenger				
0-5 Minutes	172	26%	31,501	29%
6-10 Minutes	145	22%	24,157	22%
11-20 Minutes	197	30%	31,428	29%
21-30 Minutes	75	12%	13,287	12%
31-60 Minutes	44	7%	7,717	7%
61-90 Minutes	13	2%	1,058	1%
91-120 Minutes	3	0%	209	0%
Greater than 120 minutes	1	0%	324	0%

Trip Purpose	Unweighted		Weighted	
	Frequency	Percentage	Frequency	Percentage
Change/Transfer Trip Mode				
0-5 Minutes	98	30%	17,824	31%
6-10 Minutes	52	16%	9,393	16%
11-20 Minutes	72	22%	13,133	23%
21-30 Minutes	38	12%	7,296	13%
31-60 Minutes	35	11%	6,197	11%
61-90 Minutes	13	4%	2,156	4%
91-120 Minutes	7	2%	780	1%
Greater than 120 minutes	9	3%	1,254	2%
DON'T KNOW				
0-5 Minutes	3	20%	288	12%
6-10 Minutes	2	13%	177	7%
11-20 Minutes	6	40%	1,238	51%
31-60 Minutes	3	20%	648	26%
Greater than 120 minutes	1	7%	96	4%
REFUSED				
0-5 Minutes	5	14%	1,102	22%
6-10 Minutes	11	30%	2,015	41%
11-20 Minutes	9	24%	793	16%
21-30 Minutes	6	16%	548	11%
31-60 Minutes	3	8%	178	4%
61-90 Minutes	1	3%	183	4%
91-120 Minutes	1	3%	28	1%
Greater than 120 minutes	1	3%	69	1%
Other				
6-10 Minutes	1	33%	104	36%
11-20 Minutes	1	33%	104	36%
31-60 Minutes	1	33%	79	27%
Total	12,219	100%	1,697,815	100%

6.5. Crosstabs for Key Sample Management Variables

Table 50. Workers by Household Size (Unweighted and Weighted)

	Unweighted		Weighted	
Household Size/Workers	Frequency	Percentage	Frequency	Percentage
1				
0	334	56%	34,475	57%
1	259	44%	26,500	43%
2				
0	294	37%	23,424	33%
1	271	35%	25,058	35%
2	220	28%	22,489	32%
3				
0	40	17%	4,299	12%
1	75	31%	12,995	36%
2	93	39%	14,133	39%
3	33	14%	4,543	13%
4+				
0	11	5%	3,409	7%
1	66	29%	16,450	31%
2	108	47%	21,506	41%
3	32	14%	7,789	15%
4+	14	6%	3,146	6%
Total	1,850	100%	220,215	100%

Table 51. Vehicles by Household Size (Unweighted and Weighted)

	Unweighted		Weighted	
Household Size/Vehicles	Frequency	Percentage	Frequency	Percentage
1				
0	118	20%	13,973	23%
1	398	67%	40,241	66%
2	61	10%	5,511	9%
3	11	2%	891	1%
4	3	1%	262	0%
5+	2	0%	98	0%
2				
0	24	3%	4,098	6%
1	171	22%	20,639	29%
2	424	54%	38,264	54%
3	129	16%	6,621	9%
4	20	3%	759	1%
5+	17	2%	591	1%
3				
0	22	9%	3,276	9%
1	45	19%	7,694	21%
2	97	40%	14,402	40%
3	45	19%	7,543	21%
4	18	7%	1,466	4%
5+	14	6%	1,588	4%
4+				
0	4	2%	1,531	3%
1	32	14%	10,683	20%
2	89	39%	22,181	42%
3	62	27%	10,855	21%
4	29	13%	4,346	8%
5+	15	6%	2,703	5%
Total	1,850	100%	220,215	100%

Table 52. Workers by Vehicles (Unweighted and Weighted)

	Unweighted		Weighted	
Household Vehicle/Workers	Frequency	Percentage	Frequency	Percentage
0				
0	127	76%	16,361	72%
1	32	19%	5,274	23%
2	8	5%	1,148	5%
3	1	1%	94	0%
1				
0	309	48%	32,350	41%
1	290	45%	37,447	47%
2	44	7%	7,802	10%
3	3	0%	1,658	2%
2				
0	199	30%	15,042	19%
1	246	37%	29,692	37%
2	216	32%	33,690	42%
3	9	1%	1,531	2%
4+	1	0%	403	1%
3				
0	36	15%	1,526	6%
1	75	30%	6,686	26%
2	106	43%	11,587	45%
3	26	11%	5,066	20%
4+	4	2%	1,045	4%
4+				
0	8	7%	328	3%
1	28	24%	1,904	16%
2	47	40%	3,901	33%
3	26	22%	3,982	34%
4+	9	8%	1,697	14%
Total	1,850	100%	220,215	100%